# GRASSLAND BASIN IRRIGATION AND DRAINAGE STUDY

## VOLUME 2 - TECHNICAL APPENDICES

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CAL POLY

IRRIGATION TRAINING AND RESEARCH CENTER
California Polytechnic State University
San Luis Obispo, CA 93407

Phone: (805) 756-2434 FAX: (805) 756-2433

# TECHNICAL APPENDIX A
# Geographical Information System (GIS) Application

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## UNDERSTANDING GIS

A Geographic Information System (GIS) is an organized collection of computer hardware, software, geographic data, and personnel designed to efficiently capture, store, update, manipulate, analyze, and display all forms of geographically referenced information. Simply put, the GIS is a computer system capable of holding and using data describing places on the earth's surface. Data that a GIS can store and use can be represented as related data layers including, hydrology, topography, land use, utilities, soils, streets, districts, and parcels.

A GIS differs from other computer programs, such as, spreadsheets, statistics packages, or drafting programs in that a GIS allows spatial operations to be done on the data. Other program packages are only capable of answering aspatial queries, or questions not requiring the stored value of latitude and longitude or describing where places are in relation to each other. A GIS readily answers spatial queries.

A GIS is also able to link different sets of data. By accessing a database, a GIS can link data in different files by exact matching or by non-exact matching, including hierarchical matching and fuzzy matching. Exact matching occurs when information about a set of geographic features, stored in multiple files, is joined and stored in another file. To bring the two sets of information together, a key (such as a district name)common to both files is used. The data stored in each separate file with the same district name is extracted and joined for storage in a new file. Information is sometimes gathered at different scales with differing frequency. To relate these

types of data, a hierarchical matching can be used. If a group of smaller areas fit exactly within a larger area, the data gathered about the small areas can be added up and then an exact match can be done with the information about the larger area. On many occasions, however, the smaller areas do not fit exactly within the larger area or their total area does not exactly match that of the larger area. To compare these types of data sets, one can use fuzzy matching. In principle, it is like laying one area map over another and relating and comparing the combined information. A GIS can do this because it uses geography, or space, as the common key between the data sets. In fuzzy matching, information is linked only if it relates to the same geographical area. Data linkage allows one to relate separate sets of information and to add to the database.

A GIS is able to carry out spatial operations, link data, and can also answer questions relating to location, condition, trends, patterns, and modeling. It can find out what exists at a particular location, or find a location where certain conditions are satisfied. It can answer what has changed over time about a location or what patterns can be identified as remaining constant or progressing. A GIS can also be used to determine what happens given a hypothetical situation for a given area. In general, a Geographic Information System can be used for many diverse applications.

# GEOGRAPHIC INFORMATION SYSTEM ACTIVITIES

An ARC/INFO database has been developed for this project to manage all of the map data. Although initial maps were down-loaded from the Bureau of Reclamation's computer in Sacramento at the start of the project, many changes to the existing data were found to be necessary. Therefore, data was re-digitized from existing map sources and field checking using a USGS 7.5 minute quad series as the base. The quads are as follows:

| | | |
|---|---|---|
| Charleston School | Mendota Dam | Laguna Seca |
| Dos Palos | Firebaugh | |
| Oxalis | Broadview Farms | |
| Poso Farm | Hammonds Ranch | |

These maps were supplemented with field information and other map bases received from various agencies.

The database is stored as a nine-quad coverage except for the drainage district boundaries. The maps produced were based on the individual boundaries and/or quad boundaries. The database includes the following list of ARC/INFO coverages:

Table 1: ARC/INFO Coverages

| Coverage Name | Description |
|---|---|
| sect | Coverage of sections of the nine quads (polygon coverage) |
| firebaugh | Firebaugh drainage district boundary (polygon coverage) |
| sect2 | Coverage of label points for each section polygon (point coverage) |
| sjv.tics | Tics for nine quads making up the database |
| broad | Broadview drainage district boundary (polygon coverage) |
| wats | Water supply lines for the nine quads (line coverage) |
| c.c.i.d. | C.C.I.D drainage district boundary (polygon coverage) |
| wells | Coverage of wells in nine quads (point coverage) |
| pacheco | Pacheco drainage district boundary (polygon coverage) |
| panoche | Panoche drainage district boundary (polygon coverage) |
| charleston | Charleston drainage district boundary (polygon coverage) |
| dist | All drainage district boundaries in a single coverage (poly) |
| drains | Coverage of on-farm and main drains (line coverage) |
| ponds | Coverage of ponds (polygon coverage) |
| quads | USGS quad boundaries as single coverage (polygon coverage) |
| rds | Roads for the nine quads (line coverage) |

This data resides on a Sun workstation running ARC/INFO 6.0.1 at Cal Poly. Maps were produced by "cutting" the quads out of the larger base. In this way the relationships between all of the districts can be maintained for future use.

1:24000 scale maps were produced with an eight pen CalComp plotter, while the maps included within the report were generated with ARC/INFO and saved on a Macintosh computer.

The GIS was set up using ARCINFO. The master file currently resides on a SUN Computer Workstation in the Landscape Architecture Department at Cal Poly. Dr. Walt Bremer has aided the effort of creating the mapping and database linkages for the project. The maps were sent to the individual districts and revisions were made to accurately reflect the physical conditions of the study area. The revised maps (a total of 9) are transmitted separately. The maps correlate to the USGS 7-1/2 Minute Quadrangle Maps for Charleston School, Dos Palos, Oxalis, Poso Farm, Laguna Seca, Mendota Dam, Firebaugh, Broadview Farms, and Hammonds Ranch. As additional GIS data is generated and added to the database, the master file will be maintained and updated at Cal Poly.

The file is now capable of being used by other entities for GIS analysis. The database has been transmitted to the USBR (through Internet), USSL in Riverside (tape file), and to the USGS in Sacramento (tape file). Copies of the file can be made for other entities wishing to perform analysis of the study area using GIS.

John Fio, with the USGS in Sacramento, used the GIS to perform an analysis of the base flow for the study area. The sump discharge data for all of the sumps in the study area was being analyzed for the study period. Low flows have been assumed to reflect the most accurate determination of the base flow. John has defined the base flow for this project as the net groundwater inflow to the region from outside of the study area boundaries measured in the surface discharge measurements. There are still questions as to whether or not the low flow assumption is valid.

Groundwater moves into the study area from upslope sources (in general, from the San Luis Canal to the study area). Groundwater may be used in transpiration (an estimate of 0.25 acre-feet/acre was used to estimate the contribution to ETc for those areas with a high water table). Groundwater has some component of deep percolation and seepage from the districts in the study area (which shows up in the drainage sumps.) Groundwater also moves, subsurface, out of the study area boundaries ( going to downslope users or the San Joaquin River). By analyzing the low flow data, an estimate can be made of the quantity of water from sources collected by district drainage systems outside of the district boundaries. This data is being added to the GIS database and the results plotted to determine if the assumption is valid.

The GIS database presently contains basic information. The location data has been used extensively to generate maps and determine the physical interrelationships between districts. Parameters have been assigned to each of the input points and segments (such as the length and direction of flow). However, detailed information has not been incorporated into the database. For example, the monthly solute loadings for each sump for the 12 year study period are available in computer spreadsheet files. These files contain a tremendous amount of data that has not been filtered nor added to the ARCINFO database. As other entities utilize the database to expand the analysis of the study area, that data will be retrieved and used to update (and expand) the master files maintained at Cal Poly.

An example of other entities using the GIS database, that is not a part of this project, is the work being done by the USSL. The USSL has been involved with the detailed analysis of a portion of the BWD. The area has been studied for purposes of modeling the vertical transport of various solutes into the root zone (0 - 1.2 meters depth.) The USSL utilized the GIS database to create input data files for running a salinity model. A computer model, TETrans, developed by the USSL to calculate profiles of soil moisture and salinity in the vadose zone during a sequence of irrigations, has been adapted as a stand-alone program. The new version of TETrans, is called TETransgeo. The GIS database was integrated with TETransgeo in order to compute salinity profiles and solute-loading to the groundwater over selected geographic areas. When the program is run, TETransgeo accesses the database and generates a formatted text file of data required for a complete TETransgeo calculation at a selected set of point locations. Output files are then created and plots generated. This work is on-going and results have not been published at this time.

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## District Drain Pumps Data Summary

| Drainage District | Type of Water | Linkage Line | Water Quality | Other Inf | | Comments |
|---|---|---|---|---|---|---|
| | | | | hp | Flow, cfs | |
| Firebaugh | 100 | 0 | 0 | 95 | 5 | |
| Panoche | 100 | 100 | 0 | 100 | 100 | |
| Broadview | 100 | 100 | 0 | 100 | 100 | |
| Pacheco | | | | | | none |
| Charleston | | | | | | none |
| CCID | | | | | | none |

## District Lift Pumps Data Summary

| Drainage District | Lift, feet | Horsepower | Efficiency | Flow Rate, cfs | Linkage to Line | Comments |
|---|---|---|---|---|---|---|
| Firebaugh | 0 | 100 | 0 | 100 | 100 | |
| Panoche | 100 | 100 | 95 | 95 | 100 | |
| Broadview | 100 | 95 | 0 | 100 | 100 | |
| Pacheco | 0 | 100 | 100 | 100 | 100 | |
| Charleston | | | | | | None |
| CCID | | | | | | None |

## Drainage Channel Data Summary

| Drainage District | Constr Material | Lining | Diam | Type of Water | Maint | Comments |
|---|---|---|---|---|---|---|
| Firebaugh | 100 | 100 | 100 | 100 | 100 | |
| Panoche | 100 | 100 | 100 | 100 | 100 | |
| Broadview | 100 | 100 | 100 | 100 | 100 | |
| Pacheco | 90 | 90 | 90 | 100 | 100 | |
| Charleston | 100 | 100 | 100 | 100 | 100 | |
| CCID | 100 | 100 | 100 | 100 | 100 | |

## Tile Outlet Data Summary

| Drainage District | Exit Type | Owner | Maint | Linkage to line | Water Quality | Other Info | | Comments |
|---|---|---|---|---|---|---|---|---|
| | | | | | | hp | Flow, cfs | |
| Firebaugh | 100 | 99 | 99 | 95 | 50 | 100 | 0 | |
| Panoche | 100 | 25 | 25 | 95 | 100 | 100 | 100 | |
| Broadview | 100 | 100 | 100 | 95 | 100 | 100 | 100 | |
| Pacheco | 100 | 100 | 100 | 100 | 0 | 10 | 0 | |
| Charleston | 100 | 10 | 10 | 100 | 100 | 0 | 0 | |
| CCID | 100 | 100 | 0 | 100 | 100 | 0 | 0 | |

## Wells Data Summary

| Drainage District | Owner | In use? | Owner ship | Dest of water | Linkage to Dist. line | Water Quality | Other Info | | Comments |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | hp | Flow, cfs | |
| Firebaugh | 0 | 100 | 100 | 100 | 100 | 50 | 100 | 0 | |
| Panoche | 95 | 100 | 100 | 95 | 100 | 40 | 0 | 95 | |
| Broadview | 0 | 100 | 100 | 100 | 100 | 0 | 0 | 0 | |
| Pacheco | 10 | 100 | 100 | 100 | 100 | 20 | 100 | 100 | |
| Charleston | | | | | | | | | None |
| CCID | | | | | | | | | Wells on maps are inactive farmer-owned |

Panoche **District Drain Pumps** (recycle point - must be linked to two lines)

| Designation Name or ID # | Type of Water | | | | Linkage to Line | | General Info (By Month or Year) | | | | | | Other Inf | | Ref |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Ti | Ta | W | Source | Destin 1 | Destin 2 | Vol, AF | Selen | EC salin | TDS ppm | Boron | kW-hrs | hp | Flow, cfs | |
| RL1 | X | X | | Russ Lift | Russ Lift | - | | | | | | | 50 | 20 | |
| RL2 | X | X | | Russ Lift | Russ Lift | - | | | | | | | 50 | 20 | |

Panoche **District Lift Pumps** SHT 1 OF 2

| Designation | Pump Unit | Lift feet | Horse power | Effic % | Flow Rate, cfs | Linkage to Line | | Reference |
|---|---|---|---|---|---|---|---|---|
| | | | | | | in | out | |
| STA #1 | M-1 | 7.2 | 75 | 53.7 | 73.1 | DMC | Main | WCP, '86 (p 11) |
| | M-50 | - | 60 | 25.2 | 23.6 | DMC | Main | |
| | M-3 | - | 75 | 49.0 | 73.9 | DMC | Main | |
| STA #2 | M-4 | 17.5 | 125 | 35.3 | 25.4 | Main | Main | |
| | M-5 | - | 125 | 62.0 | 39.6 | Main | Main | |
| | M-6 | - | 100 | 47.5 | 30.3 | Main | Main | |
| | M-7 | - | 125 | 56.7 | 36.6 | Main | Main | |
| | M-8 | - | 250 | | | Main | Main | |
| STA #3 | M-9 | 18.7 | 100 | 54.3 | 35.3 | Main | Main | |
| | M-10 | - | 125 | 33.3 | 30.5 | Main | Main | |
| | M-11 | - | 125 | 58.6 | 42.7 | Main | Main | |
| | M-12 | - | 150 | 60.4 | 54.3 | Main | Main | |
| | M-13 | - | 200 | 53.5 | 76.6 | Main | Main | |
| STA #4 | M-14 | 19.2 | 75 | 52.3 | 22.4 | Main | Main | |
| | M-15 | - | 125 | 56.8 | 41.4 | Main | Main | |
| | M-16 | - | 125 | 66.5 | 43.1 | Main | Main | |
| | M-17 | - | 150 | 55.3 | 61.6 | Main | Main | |
| | M-18 | - | 250 | 59.4 | 79.1 | Main | Main | |
| STA #5 | M-19 | 13.9 | 75 | 70.2 | 38.8 | Main | Cont/Main | |
| | M-20 | - | 75 | 67.0 | 36.5 | Main | Cont/Main | |
| | M-21 | - | 75 | 62.5 | 38.7 | Main | Cont/Main | |
| | M-22 | - | 150 | | | Main | Cont/Main | |

## Panoche District Lift Pumps

SHT 2 OF 2

| Designation | Pump Unit | Lift feet | Horse power | Effic % | Flow Rate, cfs | Linkage to Line | | Reference |
|---|---|---|---|---|---|---|---|---|
| | | | | | | in | out | |
| STA #6W | M-23 | 19.8 | 75 | 59.7 | 19.9 | 10W TO | Main | WCP, '86 (p 11) |
| | M-24 | - | 60 | 50.8 | 13.0 | 10W TO | Main | |
| STA #7 | M-40 | | 60 | 59.5 | 17.1 | 10W TO | 10W TO | |
| STA #T-1 | M-28 | 14.5 | 100 | 61.4 | 44.8 | DMC | T | |
| | M-29 | - | 75 | 55.1 | 26.3 | DMC | T | |
| | | - | 40 | | | | | |
| STA #T-2 | M-30 | 12.4 | 60 | 62.9 | 29.2 | T | T | |
| | M-31 | - | 60 | 63.5 | 34.3 | T | T | |
| STA #T-3 | M-32 | 12.2 | 40 | 54.4 | 15.9 | T | T | |
| | M-33 | - | 60 | 62.7 | 33.0 | T | T | |
| STA #T-4 | M-34 | 12.3 | 50 | 74.2 | 40.4 | T | T | |
| STA #T-5 | M-35 | 12.4 | 60 | 57.9 | 28.3 | T | T | |
| STA #T-6 | M-36 | 12.7 | 40 | 66.5 | 19.3 | T | Contour | |
| STA #10 E3 | M-43 | | 7.5 | | | 10E2S | - | |
| | M-44 | | 7.5 | | | 10E2S | - | |

## Panoche Drainage Channel

SHT 1 OF 1

| Designation | Const Mat | Lining or type | Diam in | Type of Water | | | Maint | Reference |
|---|---|---|---|---|---|---|---|---|
| | | | | Ta | Ti | Other | | |
| Northside Drain | E | | | X | X | | D | |
| Courtney Drain | E | | | X | X | | D | |
| Russell Ave. Drain N. | C | | | X | X | | D | |
| Hammond Drain | E | | | X | X | | D | |
| Shaw Drain | E | | | X | X | | D | |
| Russell Ave. Drain S. | E | | | X | X | | D | |
| Millux Drain | C | | | X | X | | ? | Farmer Owned |
| Davidson Drain | | | | X | X | | D | |
| Russell Lift | E | | | X | X | | D | |
| Althea Drain | | | | X | X | | D | |
| 11-12 Drain | | | | X | X | | D | |
| Oxford Ave. Drain | P | | 12" | X | X | | D | |

## Panoche Tile Outlets (recycle point - must be linked to a line) SHT 1 OF 3

| Name or ID # | Exit Type | Owner | Maint | Linkage to line | General Info (By Month or Year) (REF #41) Vol, AF | Selen | EC salin | | ppm sal | Boron | kW-hrs | Other Inf hp | Flow, afy | Ref Other |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DP1 | Pu | | | N/S | | | | | | | | 5.0 | 91 | USDA/PDM |
| DP2 | Pu | | | N/S | Ref #41 | | | | | | | 7.5 | 188 | |
| DP3 | Pu | | | N/S | Panoche Drainage District Drainage Operation Plan | | | | | | | 7.5 | 254 | |
| DP4 | Pu | | | | Summers Eng. Sept 1991 | | | | | | | 5.0 | 214 | |
| DP5 | Pu | | | | | | | | | | | 7.5 | 59 | |
| DP6 | Pu | | | | | | | | | | | 10.0 | 815 | |
| DP7 | Pu | | | | | | | | | | | 7.5 | 293 | |
| DP8 | Pu | | | | | | | | | | | 5.0 | 72 | |
| DP9 | Pu | | | | | | | | | | | 5.0 | 96 | |
| DP10 | G | | | | | | | | | | | | | |
| DP11 | Pu | | | | | | | | | | | | | |
| DP12 | G | | | | | | | | | | | | | |
| DP13 | G | | | CD | | | | | | | | | | |
| DP14 | Pu | | | CD | | | | | | | | 5.0 | 121 | |
| DP15 | Pu | | | | | | | | | | | 7.5 | 163 | |
| DP16 | Pu | | | | | | | | | | | 5.0 | 225 | |
| DP17 | Pu | | | | | | | | | | | | | |
| DP18M | Pu | | | CD | | | | | | | | 7.5 | 723 | |
| DP18W | G | | | CD | | | | | | | | | | |
| DP19 | G | | | CD | | | | | | | | | | |
| DP20 | G | | | CD | | | | | | | | | | |

**Exit Type**
G=Gravity
Pu=Pumped from Sump

**Ownership**
D = District
F = Farmer

**Maintenance**
D = District
F = Farmer

**Link**
N/SD=Northside Drain
CD=Courtney Drain
RADN=Russell Ave. Drain N.
HD=Hammond Drain
SD=Shaw Drain
MD=Millux Drain
DRD=Davidson Drain
OD=Oxford Drain

## Panoche Tile Outlets (recycle point - must be linked to a line) SHT 2 OF 3

| Name or ID # | Exit Type | Owner | Maint | Linkage to line | General Info (By Month or Year) (REF #41) Vol, AF | Selen | EC salin | | ppm sal | Boron | kW-hrs | Other Info hp | Flow, afy | Ref Other |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DP21 | G | | | CD | | | | | | | | | | |
| DP22 | G | | | CD | | | | | | | | | | |
| DP23 | G | | | | | | | | | | | | | |
| DP24 | G | | | RADN | | | | | | | | | | |
| DP25 | Pu | | | HD | | | | | | | | 15.0 | 512 | |
| DP26 | G | | | RADN | | | | | | | | | | |
| DP27 | Pu | | | MD | | | | | | | | 15.0 | 399 | |
| DP28 | G | | | | | | | | | | | | | |
| DP29 | Pu | | | N/SD | | | | | | | | | | |
| DP30 | Pu | | | RADN | | | | | | | | 7.5 | 627 | |
| DP31 | Pu | | | HD | | | | | | | | 7.5 | 363 | |
| DP32 | Pu | F | F | - | | DOES NOT DISCHARGE INTO DISTRICT | | | | | | 7.5 | 337 | |
| DP33 | Pu | | | MD | | | | | | | | 7.5 | 189 | |
| DP34 | Pu | | | | | | | | | | | | | |
| DP35 | Pu | | | DRD | | | | | | | | 7.5 | 67 | |
| DP36 | G | | | DRD | | | | | | | | | | |
| DP37 | G | | | | | | | | | | | | | |
| DP38 | Pu | | | RADN | | | | | | | | 7.5 | 613 | |
| DP39 | Pu | | | RADN | | | | | | | | 7.5 | 614 | |
| DP40 | Pu | | | HD | | | | | | | | 5.0 | 543 | |
| DP41 | Pu | | | HD | | | | | | | | 5.0 | 149 | |

## Panoche Tile Outlets (recycle point - must be linked to a line) SHT 3 OF 3

| Name or ID # | Exit Type | Owner | Maint | Linkage to line | General Info (By Month or Year) (REF #41) Vol, AF | Selen | EC salin | ppm sal | Boron | kW-hrs | ap | Other Info Flow, afy | Ref Other |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DP42 | Pu | | | MD | | | | | | | 5.0 | 149 | |
| DP43 | Pu | | | | | | | | | | 7.5 | 2 | |
| DP44 | Pu | | D | RADN | | | | | | | 7.5 | 426 | |
| DP45 | Pu | | | DRD | | | | | | | 15.0 | 18 | |
| DP46 | G | | | HD | | | | | | | | | |
| DP47 | G | | | HD | | | | | | | | | |
| DP48 | Pu | D | D | SD | | | | | | | 5.0 | 76 | |
| DP49 | Pu | | | SD | | | | | | | 5.0 | 217 | |
| DP50 | Pu | | | | | | | | | | 7.5 | 129 | |
| DP51 | Pu | | | RADN | | | | | | | 7.5 | 362 | |
| DP52 | Pu | | | MD | | | | | | | 15.0 | 380 | |
| DP53 | G | | | | | | | | | | | | |
| DP54 | G | | | N/SD | | | | | | | | | |
| DP55 | G | | | | | | | | | | | | |
| DP56 | G | | | | | | | | | | | | |
| DP57 | G | | | CD | | | | | | | | | |
| DP58 | Pu | | | HD | | | | | | | | | |
| DP59 | Pu | | | | | | | | | | | | |
| DP60 | Pu | | | RADN | | | | | | | | | |

## Panoche Water Supply SHT 1 OF 1

| Designation | Const Mat | Lining or type | Diam in | Type of Water Ta | Ti | W | DMC | SLC | Other | Max Flow Rate, cfs | Length mi | ft | Reference |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Main Canal | E | - | - | | | X | X | | | 170 | 6 | | WCP, '86 (pg 10) |
| T-Canal | E | - | - | X | X | X | X | | | 100 | 3.75 | | |
| Contour Canal | E | - | - | | | X | X | | | 120 | 4.25 | | |
| Lateral #1 | C | - | - | | | X | X | | | 22 | 1 | | |
| Lateral #2 | C | - | - | | | | X | | | 45 | 3 | | |
| | E | - | - | | | | X | | | 45 | 1.9 | | |
| Lateral #3 | C | - | - | | | X | X | | | 45 | 3 | | |
| | E | - | - | | | | X | | | 45 | 1.1 | | |
| Lateral #5 | P | Stl | 24 | | | X | | X | | 20 | | 2,100 | |
| | C | - | - | | | | | X | | 20 | 2 | | |
| #304 | C | - | - | | | | | X | | 15 | 0.75 | | |
| 10W T.O. Canal | C | - | - | | | X | | X | | 52 | 1.5 | | |
| | P | ACP | 42 | | | | | X | | 52 | | 2,100 | |
| 10E2 T.O. Canal | C | - | - | | | X | | X | | 42 | 2.1 | | |
| 10E2 South | E | - | - | | | | | X | | 42 | 0.4 | | |
| | P | PVC | 24 | | | | | X | | 20 | | 2,600 | |
| Russell Lateral | C | - | - | | | | | X | | 57 | 2 | | |
| Lateral 11-E | | | | | | X | | X | | | | | |
| G-1 | C | | 48 | | | | | X | | | | | |
| G-2 | P | ACP | 12 | | | | -- | X | | | | | |
| G | | | | | | | | X | | | | | |

**Construction Material**

P = Pipeline
C = Conc Lined
E = Earthen

**Type of Water**

Ta = Tail Water
Ti = Tile Water
W = Well
DMC = DMC Supply
SLC = SLC Supply
OC = Outside Canal

## Panoche Wells

SHT 1 OF 2

| Name or ID# | Owner | In use? | Ownership | Dest of water | Linkage to Dist. line | General Info (By Month or Year) (91 WDS) Vol, a/Salen | | EC salin | TDS ppm | Boron | Other Info kW-hrs | hp | Flow, cfs | Ref. Other |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| W1 | | Y | F | D & F | DMC | | | | 1382 | 1.88 | | | 4.5 | 91 WDS |
| W2 | | Y | F | D & F | DMC | | | | 1269 | 1.79 | | | 5.0 | |
| W3 | | Y | F | D & F | Main | | | | 1308 | 2.02 | | | 3.5 | |
| W4 | | Y | F | F | - | | | | 1765 | 3.43 | | | 4.5 | |
| W5 | | Y | F | F | - | | | | | | | | 2.0 | |
| W6 | | Y | F | D & F | Main | | | | 1300 | 2.42 | | | 4.5 | |
| W7 | | Y | F | D & F | Contour | | | | 1124 | 1.98 | | | 3.4 | |
| W8 | | N | F | F | - | | | | | | | | | |
| W9 | | Y | F | D & F | | | | | | | | | 3.5 | |
| W10 | | Y | F | D & F | T | | | | 1292 | 1.83 | | | 4.0 | |
| W11 | | Y | F | D & F | Contour | | | | | | | | 4.5 | |
| W12 | | Y | F | D & F | 10E2 TO | | | | 1125 | 1.69 | | | 3.6 | |
| W13 | | Y | F | D & F | 10E2 TO | | | | 1392 | 2.38 | | | 3.5 | |
| W14 | | Y | F | D & F | L5 | | | | 1399 | 1.80 | | | 2.5 | |
| W15 | | Y | F | F | - | | | | 1332 | 1.68 | | | 3.0 | |
| W16 | | Y | F | D & F | 11-E | | | | 1432 | 2.11 | | | 3.5 | |
| W17 | | Y | F | F | - | | | | | | | | 3.0 | |
| W18 | | Y | F | D & F | | | | | out of district | | | | 3.0 | |
| W19 | | Y | F | F | - | | | | 1774 | 1.92 | | | 4.5 | |
| W20 | | Y | F | F | - | | | | 1427 | 1.82 | | | 3.6 | |
| W21 | | Y | F | F | - | | | | 1468 | 1.81 | | | 3.7 | |

**Ownership**
D = District
F = Farmer

**Destination of Water**
D = District
F = Farmer

## Panoche Wells

SHT 2 OF 2

| Name or ID# | Owner | In use? | Ownership | Dest of water | Linkage to Dist. line | General Info (By Month or Year) (91 WDS) Vol, a/Salen | | EC salin | TDS ppm | Boron | Other Info kW-hrs | hp | Flow, cfs | Ref. Other |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| W22 | | Y | F | D & F | Main | | | | 1276 | 1.77 | | | 5.0 | 91 WDS |
| W23 | | Y | F | F | - | | | | 1671 | 2.10 | | | 3.0 | |
| W24 | | Y | F | F | - | | | | 3240 | 3.59 | | | 4.5 | |
| W25 | | N | F | F | - | | | | | | | | 4.0 | |
| W26 | | Y | F | F | - | | | | | | | | 1.0 | |
| W27 | | Y | F | D & F | Main | | | | 1260 | 1.90 | | | 1.0 | |
| W28 | | Y | F | D & F | TD 10W | | | | 1913 | 2.67 | | | 2.5 | |
| W29 | | Y | F | F | - | | | | 965 | 1.57 | | | 3.0 | |
| W30 | | Y | F | F | - | | | | 1898 | 2.56 | | | 1.5 | |
| W31 | | N | F | D & F | L5 | | | | | | | | | |
| W32 | | Y | F | D & F | L3 | | | | 1608 | 2.73 | | | 2.5 | |
| W33 | | N | F | F | - | | | | | | | | | |
| W34 | | Y | F | F | - | | | | 1529 | 2.81 | | | 6.6 | |
| W35 | | Y | F | F | DMC | | | | 1831 | 1.74 | | | 3.0 | |
| W36 | | Y | F | D & F | | | | | 2150 | 3.23 | | | 4.5 | |
| W37 | | N | F | D & F | L3 | | | | | | | | | |
| W38 | | N | F | F | L3 | | | | NOT IN SERVICE | | | | | |
| W39 | | Y | F | D & F | L3 | | | | 1005 | 2.29 | | | 3.5 | |
| W40 | | Y | F | D & F | L1 | | | | 1102 | 2.48 | | | 0.5 | |
| W41 | | Y | F | F | - | | | | 1918 | 2.03 | | | 4.5 | |

## Broadview District Drain Pumps

(recycle point - must be linked to two lines)

| Designation Name or ID # | Type of Water | | | | Linkage to Line | | General Info (By Month or Year) | | | | | | Other Info | | Ref |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Ti | Ta | W | Source | Destin 1 | Destin 2 | Flow, cfs | Selen | EC sat | TDS ppm | Boron | kW-hrs | hp | Flow, cfs | |
| Ness Station | X | X | | FCWD | Frix Dr | Main | | | | | | | | | |
| 1 | X | X | | No longer pump drain outlet | | | | | | | | | | | |
| 2 | X | X | | FCWD | Frix Dr | Main | | | | | | | 15.0 | 7.0 | |
| 3 | X | X | | FCWD | Frix Dr | Main | | | | | | | 20.0 | 12.0 | |
| 4 | X | X | | FCWD | Frix Dr | Main | | | | | | | 30.0 | 20.0 | |
| 5 | X | X | | FCWD | Frix Dr | Main | | | | | | | 40.0 | 25.0 | |
| | | | | | | | | | | | | | | | |
| Comfort Sta. | X | X | | FCWD | FCWD | - | | | | | | | | | |
| 1 | X | X | | FCWD | FCWD | - | | | | | | | 15.0 | 7.0 | |
| 2 | X | X | | FCWD | FCWD | - | | | | | | | 60.0 | 30.0 | |
| 3 | X | X | | FCWD | FCWD | - | | | | | | | 40.0 | 25.0 | |
| | | | | | | | | | | | | | | | |
| Johnston Sta. | X | X | | FCWD | FCWD | - | | | | | | | | | |
| 1 | X | X | | FCWD | FCWD | - | | | | | | | 20.0 | 12.0 | |
| 2 | X | X | | FCWD | FCWD | - | | | | | | | 20.0 | 12.0 | |

**Water Type**

Ti = Tile Water W = Well

Ta = Tail Water

## Broadview District Lift Pumps

SHT 1 OF2

| Designation | Pump Unit | Lift feet | Horse power | Effic % | Flow Rate, cfs | Linkage to Line | | Reference |
|---|---|---|---|---|---|---|---|---|
| | | | | | | in | out | |
| Sta #1 | | 25.6 | | | | | | |
| | 1 - 1 | - | 150 | | 23.5 | DMC | Main Lift | |
| | 1 - 2 | - | 250 | | 38.6 | DMC | Main Lift | |
| | 1 - 3 | - | 250 | | 42.6 | DMC | Main Lift | |
| | 1 - 4 | - | 250 | | 41.0 | DMC | Main Lift | |
| | | | | | | | | |
| Sta #2 | | 10.7 | | | | | | |
| | 2 - 1 | - | 15 | | 8.1 | Main Lift | Main Lift | |
| | 2 - 2 | - | 50 | | 29.3 | Main Lift | Main Lift | |
| | 2 - 3 | - | 40 | | 23.5 | Main Lift | Main Lift | |
| | 2 - 4 | - | 60 | | 29.2 | Main Lift | Main Lift | |
| | 2 - 5 | - | 60 | | 29.6 | Main Lift | Main Lift | |
| | 2 - 6 | - | 100 | | 44.2 | Main Lift | Main Lift | |
| | | | | | | | | |
| Sta #3 | | 8.6 | | | | | | |
| | 3 - 1 | - | 40 | | 11.3 | Main Lift | Main Lift | |
| | 3 - 2 | - | 40 | | 17.3 | Main Lift | Main Lift | |
| | 3 - 3 | - | 40 | | 23.9 | Main Lift | Main Lift | |
| | 3 - 4 | - | 60 | | 29.1 | Main Lift | Main Lift | |
| | 3 - 5 | - | 30 | | 16.9 | Main Lift | Main Lift | |
| | 3 - 6 | - | 100 | | 46.2 | Main Lift | Main Lift | |
| | | | | | | | | |

## Broadview District Lift Pumps

| Designation | Pump Unit | Lift feet | Horse power | Effic % | Flow Rate, cfs | Linkage to Line | | Reference |
|---|---|---|---|---|---|---|---|---|
| | | | | | | in | out | |
| Sta #4 | | 11.7 | | | | | | |
| | 4-1 | - | 100 | | 24.5 | Main Lift | Main Lift | |
| | 4-2 | - | 100 | | 19.0 | Main Lift | Main Lift | |
| | 4-3 | - | 100 | | 24.5 | Main Lift | Main Lift | |
| | 4-4 | - | 15 | | 9.5 | Main Lift | Main Lift | |
| | 4-5 | - | 100 | | 30.4 | Main Lift | Main Lift | |
| | 4-6 | - | 15 | | 13.7 | Main Lift | Main Lift | |
| | | | | | | | | |
| Sta #5 | | 6.6 | | | | | | |
| | 5-1 | - | 15 | | 7.4 | Main Lift | Main Lift | |
| | 5-2 | - | 30 | | 21.6 | Main Lift | Main Lift | |
| | 5-3 | - | 40 | | 17.8 | Main Lift | Main Lift | |
| | 5-4 | - | 100 | | 52.4 | Main Lift | Main Lift | |
| | | | | | | | | |
| Sta #6 | | 6.0 | | | | | | |
| | 6-1 | - | 75 | | 14.8 | Main Lift | Main Lift | |
| | 6-2 | - | 125 | | 23.5 | Main Lift | Main Lift | |
| | 6-3 | - | 125 | | 25.1 | Main Lift | Main Lift | |
| | 6-4 | - | 30 | | 20.2 | Main Lift | Main Lift | |
| | 6-5 | - | 40 | | 14.7 | Main Lift | Main Lift | |

## Broadview Drainage Channel

| Designation | Const Mat | Lining or type | Diam in | | | | Maint | Reference |
|---|---|---|---|---|---|---|---|---|
| | | | | Ta | Ti | Other | | |
| Fairfax Drain | P | STL | 36.0 | X | X | | D | As-Built Map |
| Hudson Drain | E | - | - | X | X | | D | |
| Jerrold Drain | E | - | - | X | X | | D | |
| Newcomb Drain | E | - | - | X | X | | D | |
| Douglas Drain | E | - | - | X | X | | D | |
| Shaw Drain | E | - | - | X | X | | D | |
| FCWD Main Drain | E | - | - | X | X | | D | |

**Construction Material**
P = Pipeline
C = Concrete Lined
E = Earthen

**Type of Water**
Ta = Tail Water
Ti = Tile Water

**Maintenance**
D = District
F = Farmer

| Designation Name or ID # | Owner | Fields Drained | | Tiles | | Density | Year | Reference |
|---|---|---|---|---|---|---|---|---|
| | | Name | Acreage | Spacing, ft | Tot Length, ft | ft/acre | Installed | |
| S2-1 | | F2-1A | 160 | 200 | 34850 | 218 | 77-78 | BWDTDS, 1991 |
| | | F2-1B | 72 | 75-200 | 23800 | 331 | 77-78 | |
| | | F2-3A | 160 | 425 | 15600 | 98 | 89 | |
| | | F2-3B | 160 | 200 | 34850 | 218 | 77-78 | |
| | | F2-3C | 35 | 75-200 | 11070 | 316 | 77-78 | |
| S3-2 | | F3-2 | 155.5 | 275 | 26370 | 170 | 64-77 | |
| | | F3-4 | 155.5 | 275 | 26370 | 170 | | |
| S4-1 | | F4-1 | 145.4 | Main | 5200 | 36 | 1975? | |
| | | F4-3 | 147.6 | Main | 5200 | 35 | 1975? | |
| S4-2 | | F4-2 | 145.5 | Main | 5200 | 36 | 1975? | |
| | | F4-4 | 147.7 | Main | 5200 | 35 | 1975? | |
| S7-1 | | F7-1,2 | 146.9 | 300 | 26930 | 183 | 1975 | |
| S7-4 | | F7-3,4 | 136.7 | 300 | 25050 | 183 | 1975 | |
| S8-2 | | | 610.2 | 500-518 | 54340 | 89 | | |
| | | F8-1 | 156.3 | 5 tiles | | 0 | | |
| | | F8-2 | 155.4 | | | 0 | | |
| | | F8-3 | 149.7 | 3 tiles | | 0 | | |
| | | F8-4 | 148.8 | 6 tiles | | 0 | | |
| S9-2 | | F9-1 | 153.9 | 750 | 8960 | 58 | 1979 | |
| | | F9-2 | 154 | 260 | 23240 | 151 | 79 | |
| S9-4 | | F9-4 | 152 | 500 | 13242 | 87 | 79-82 | |
| S10-2 | | F10-1 | 153.9 | 750 | 9590 | 62 | 71-74 | |
| | | F10-2 | 154 | 260 | 25630 | 166 | 71-74 | |

| Designation Name or ID # | Owner | Fields Drained | | Tiles | | Density | Year | Reference |
|---|---|---|---|---|---|---|---|---|
| | | Name | Acreage | Spacing, ft | Tot Length, ft | ft/acre | Installed | |
| S10-4 | | F10-3 | 150.1 | 250 | 9590 | 64 | 71-74 | |
| | | F10-4 | 150 | 745 | 25620 | 171 | 71-74 | |
| S11-4 | | F11-4 | 151.4 | 300 | 21980 | 145 | 1976 | |
| S12-1 | | F12-1:4 | 552.8 | 300 | 80270 | 145 | 1976 | |
| S13-2 | | F13-1,2 | 306.2 | 405 | 36710 | 120 | 1977 | |
| | | F13-3,4 | 306.2 | 270 | 54390 | 178 | 1977 | |
| S14-2 | | F14-1 | 154.3 | 660 | 10180 | 66 | 1976 | |
| | | F14-2 | 153.3 | 660 | 10180 | 66 | 1976 | |
| S15-1 | | F15-1 | 152.9 | 300 | 22200 | 145 | 1974 | |
| | | F15-3 | 160 | 300 | 4800 | 30 | 1988 | |
| S15-2 | | F15-2 | 152.9 | 300 | 22500 | 147 | | |
| S16-2 | | F16-1 | 151.7 | main | 2450 | 16 | 1975 | |
| | | F16-2 | 151.8 | 390 | 17570 | 116 | 1975 | |
| S18-1 | | F18-1,3 | 311.3 | 330 | 41090 | 132 | 1976 | |
| S18-2 | | F18-2,4 | 311.3 | 330 | 41090 | 132 | 1976 | |
| | | | | | 7800 | | 1988 | |
| S33-1 | | F33-1,3 | 284.2 | 220 | 59500 | 209 | 1971 | |
| S33-2 | | F33-2,4 | 273.2 | main | 4750 | 17 | 1971? | |
| | | | | 300/600 | 30120 | | 1988 | |
| S34-1 | | F34-3A | 75 | 200 | 22000 | 293 | 1980 | |
| S34-2 | | F34-1B,C | 141 | 300 | 20470 | 145 | 63-65 | |
| S35-1 | | F34-1A | 35 | 150-310 | 7400 | 211 | 63-65 | |

Broadview Tile Outlets (recycle point - must be linked to a line) Sht 1 of 1

| Name or ID # | Exit Type | Sump no. | Owner | Maint | Linkage to line | General Info (By Month or Year) | | | | | | Other Inf | | | Rel Other |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Flow, cfs | Selen | EC salin | TDS ppm | Boronk | W - hrs | Q, cfs | hp | Pipe, in | |
| T2-1 | P | S2-1 | F | D | FCWD | | | | | | | 1.61 | 7.5 | 8 | Pond 7 |
| T3-2 | P | S3-2 | F | D | J | | | | | | | 2.42 | 7.5 | 8 | |
| T4-1 | P | S4-1 | F | D | | | | | | | | 1.09 | 5 | 6 | |
| T4-2 | P | S4-2 | F | D | H | | | | | | | 1.00 | 5 | 6 | |
| T7-1 | P | S7-1 | F | D | FCWD | | | | | | | 0.87 | 5 | 6 | |
| T7-4 | P | S7-4 | F | D | FCWD | | | | | | | 0.87 | 5 | 6 | |
| T8-2 | P | S8-2 | F | D | H | | | | | | | 0.73 | 5 | 6 | |
| T9-2 | P | S9-2 | F | D | H | | | | | | | 3.11 | 15 | 10 | |
| T9-4 | P | S9-4 | F | D | H | | | | | | | 1.68 | 15 | 10 | |
| T10-2 | P | S10-2R | | D | J | | | | | | | 2.08 | 15 | 8 | |
| T10-4 | P | S10-4R | | D | J | | | | | | | 2.56 | 15 | 8 | |
| T11-4 | P | S11-4R | | D | N | | | | | | | 0.87 | 5 | 6 | |
| T12-1 | P | S12-1R | | D | FCWD | | | | | | | 2.56 | 7.5 | 8 | Reset |
| T13-2 | P | S13-2R | | D | D | | | | | | | 2.56 | 7.5 | 8 | |
| T14-2 | P | S14-2R | | D | N | | | | | | | 0.90 | 5 | 6 | |
| T15-1 | P | S15-1R | | D | | | | | | | | 1.74 | 7.5 | 6 | |
| T15-2 | P | S15-2R | | D | J | | | | | | | 0.86 | 5 | 6 | |
| T16-2 | P | S16-2R | | D | H | | | | | | | 0.87 | 5 | 6 | |
| T18-1 | P | S18-1R | | D | S | | | | | | | 0.90 | 5 | 6 | |

**Exit Type**
G = Gravity
P = Pumped From Sump

**Ownership**
D = District
F = Farmer

**Maintenance**
D = District
F = Farmer

**Linkage**
FCWD = FCWD Main Drain
F = Fairfax Drain
H = Hudson Drain
J = Jerrold
N = Newcomb Drain
D = Douglas Drain
S = Shaw Drain

## Broadview — Water Supply

SHT 1 OF 1

| Designation | Const Mat | Lining or type | Diam in | Type of Water Ta | Ti | W | DMC | SLC | Other | Max Flow Rate, cfs | Length mi | Length ft | Reference |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Main Lift - Pond 2 | E | | | X | X | | X | | | 125 | | 5,280 | Fig 1, '87 WCP |
| Main Lift - Pond 3 | E | | | X | X | | X | | | | | 690 | |
| Main Lift - Pond 4 | E | | | X | X | | X | | | | | 2,750 | |
| | E | | | X | X | | X | | | | | 2,640 | |
| Main Lift - Pond 5 | P | Stl | 36/30 | X | X | | X | | | | | 1,320 | |
| | E | | | X | X | | X | | | | | 1,320 | |
| | E | | | X | X | | X | | | | | 2,640 | |
| Main Lift - Pond 6 | E | | | X | X | | X | | | | | 2,640 | |
| | P | Stl | 26 | X | X | | X | | | 28 | | 2,640 | |
| Chuck Lateral | E | | | X | X | | X | | | 10 | | 8,080 | Q: BV Fax 5/12/92 |
| Lateral 4-1 | E | | | X | X | | X | | | 20 | | 10,560 | Q: BV Fax 5/12/92 |
| Lateral 4-3 | E | | | X | X | | X | | | 20 | | 15,840 | Q: BV Fax 5/12/92 |
| Lateral 9-1 | E | | | X | X | | X | | | 25 | | 21,130 | Q: BV Fax 5/12/92 |
| Lateral 9-3 | E | | | X | X | | X | | | 30 | | 23,760 | Q: BV Fax 5/12/92 |
| Lateral 8-1 | E | | | X | X | | X | | | | | 10,560 | |
| Lateral 16-1 | E | | | X | X | | X | | | 30 | | 23,760 | Q: BV Fax 5/12/92 |
| Lateral 16-3 | E | | | X | X | | X | | | 25 | | 23,760 | Q: BV Fax 5/12/92 |
| Lateral 33-3 | | | | | | | | | | 10 | | | Q: BV Fax 5/12/92 |
| Main Lift - Pond 1 | P | RGRCP | 60 | | | | X | | | 125 | 1.8 | 9,504 | DOP Map |

**Construction Material**

P = Pipeline
C = Concrete Lined
E = Earthen

**Type of Water**

Ta = Tail Water
Ti = Tile Water
W = Well
DMC = DMC Supply
SLC = SLC Supply
OC = Outside Canal

## Broadview — Wells

SHT 1 OF 1

| Name or ID# | Owner | In use? | Ownership | Dest of water | Linkage to Dist. line | General Info (By Month or Year) Vol, af | SalenEC salin | TDS ppm | Boron | kW-hrs | Other Info hp | Flow, cfs | Rel. Other |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Well | | Y | F | F | No | | | | | | | | |

Firebaugh

## District Drain Pumps

(recycle point - must be linked to two lines)

| Designation Name or ID # | Type of Water | | | | Linkage to Line | | General Info (By Month or Year) | | | | | | Other Inf | | Ref |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Ti | Ta | W | Source | Destin 1 | Destin 2 | Flow, cfs | Selen | EC salin | TDS ppm | Boron | kW-hrs | hp | Flow, cfs | |
| D-1 | X | X | | | | | | | | | | | 15.0 | | |
| D-2 | X | X | | | | | | | | | | | 7.5 | | |
| D-3 | X | X | | | | | | | | | | | 50.0 | | |
| D-4 | X | X | | | | | | | | | | | 20.0 | | |
| D-5 | X | X | | | | | | | | | | | 10.0 | | |
| D-6 | X | X | | | | | | | | | | | | | |
| D-7 | X | X | | | | | | | | | | | 15.0 | | |
| D-8 | X | X | | | | | | | | | | | 10.0 | | |
| D-9 | X | X | | | | | | | | | | | 5.0 | | |
| D-10 | X | X | | | | | | | | | | | 5.0 | | |
| D-11 | X | X | | | | | | | | | | | 7.5 | | |
| D-13 | X | X | | | | | | | | | | | 50.0 | | |
| DT-1 | X | X | | | | | | | | | | | | 15.0 | |
| DT-2 | X | X | | | | | | | | | | | | 3.0 | |

**Water Type**
Ti = Tile Water
Ta = Tail Water
W = Well

Firebaugh

## District Lift Pumps

SHT 1 OF 1

| Designation | Pump Unit | Lift feet | Horse power | Effic % | Flow Rate, cfs | Linkage to Line | | Reference |
|---|---|---|---|---|---|---|---|---|
| | | | | | | in | out | |
| Pump Station #1 | 1 | | 50 | | 23.0 | Intake | 1st Lift | Fax 5/1/92 |
| | 2 | | 100 | | 48.0 | | | |
| | 3 | | 50 | | 22.0 | | | |
| | 4 | | 100 | | 32.0 | | | |
| | 5 | | 150 | | 77.0 | | | |
| | 6 | | 150 | | 77.0 | | | |
| | | | | | | | | |
| Pump Station #2 | 7 | | 40 | | 20.0 | Intake | 2nd Lift | |
| | 8 | | 150 | | 85.0 | | | |
| | 9 | | 40 | | 22.0 | | | |
| | 10 | | 125 | | 65.0 | | | |
| | 11 | | 40 | | 22.0 | | | |
| | 12 | | 100 | | 35.0 | | | |
| | | | | | | | | |
| Pump Station #3 | 13 | | 40 | | 20.0 | Intake | 3rd Lift | |
| | 14 | | 40 | | 20.0 | | | |
| | 15 | | 40 | | 20.0 | | | |
| | 16 | | 125 | | 75.0 | | | |

## Firebaugh Tile Outlets (recycle point - must be linked to a line) SHT 1 OF 2

| Name or ID # | Exit Type | Sump no. | Owner | Main | Linkage to line | General Info (By Month or Year) Vol, afSeen | | EC salin | ppm TDS | Boron | kW-hrs | Other Inf hp | Flow, cfs | Ref Other |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| T-1 | P | S-1 | F | D | 1L2 | | | | | | | 3.0 | | |
| T-2 | P | S-2 | F | D | 1L1 | | | | | | | 5.0 | | |
| T-3 | P | S-3 | F | D | | | | | | | | 5.0 | | DISCON. |
| T-4 | P | S-4 | F | D | S32 | | | | | | | 5.0 | | |
| T-5 | P | S-5 | F | D | SF3 | | | | | | | 3.0 | | |
| T-6 | P | S-6 | F | D | SF3 | | | | | | | 5.0 | | |
| T-7 | P | S-7 | F | D | 2L6 | | | | | | | 3.0 | | |
| T-8 | P | S-8 | | | | | | | | | | 5.0 | | |
| T-9 | P | S-9 | F | D | CC2 | | | | | | | 7.5 | | |
| T-10 | P | S-10 | F | D | CC1 | | | | | | | 5.0 | | |
| T-11 | P | S-11 | F | D | 2L1 | | | | | | | 5.0 | | |
| T-12 | P | S-12 | F | D | SF1 | | | | | | | 5.0 | | |
| T-13 | P | S-13 | F | D | SX1 | | | | | | | 5.0 | | |
| T-14 | P | S-14 | F | D | 2L2 | | | | | | | 5.0 | | |
| T-15 | P | S-15 | F | D | 2L2 | | | | | | | 5.0 | | |
| T-16 | P | S-16 | F | D | 2L3 | | | | | | | 10.0 | | |
| T-17 | P | S-17 | F | D | 2L3 | | | | | | | 20.0 | | |
| T-18 | P | S-18 | F | D | 2L4 | | | | | | | 5.0 | | |
| T-19 | P | S-19 | F | D | | | | | | | | 15.0 | | |
| T-20 | P | S-20 | F | D | | | | | | | | 5.0 | | DISCON. |
| T-21 | P | S-21 | F | D | 2L5 | | | | | | | 7.5 | | |
| T-22 | P | S-22 | F | D | 2L5 | | | | | | | 7.5 | | |

**Exit Type**
G = Gravity
P = Pumped From Sump

**Ownership**
D = District
F = Farmer

**Maintenance**
D = District
F = Farmer

## Firebaugh Tile Outlets (recycle point - must be linked to a line) SHT 2 OF 2

| Name or ID # | Exit Type | Sump no. | Owner | Main | Linkage to line | General Info (By Month or Year) Vol, afSeen | | EC salin | ppm TDS | Boron | kW-hrs | Other Inf hp | Flow, cfs | Ref Other |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| T-23 | P | S-23 | F | D | 2L5 | | | | | | | 10.0 | | |
| T-24 | P | S-24 | F | D | 2L5 | | | | | | | 5.0 | | |
| T-25 | P | S-25 | F | D | 2L6 | | | | | | | 5.0 | | |
| T-26 | P | S-26 | F | D | DMC2 | | | | | | | 5.0 | | |
| T-27 | P | S-27 | F | D | | | | | | | | 3.0 | | |
| T-28 | P | S-28 | F | D | 2L9 | | | | | | | 5.0 | | |
| T-29 | P | S-29 | F | D | 2L10 | | | | | | | 5.0 | | |
| T-30 | P | S-30 | F | D | DMC3 | | | | | | | 7.0 | | |
| | | | | | | | | | | | | | | |
| TR1 | P | S-TR1 | F | D | 2L10 | | | | | | | | | |
| TR2 | P | S-TR2 | F | D | TR | | | | | | | | | |
| TR3 | P | S-TR3 | F | D | TR | | | | | | | | | |
| TR4 | P | S-TR4 | F | D | TR | | | | | | | | | |
| TR5 | P | S-TR5 | F | D | TR | | | | | | | | | |
| T-2B | P | S-T-2B | F | F | | | | | | | | | | |
| T-1C/D7 | P | S-T-1C/D7 | | | | | | | | | | | | |

## Firebaugh — On-Farm Tile System — SHEET 1 OF 2

| Designation Name or ID # | Owner | Fields Drained | | Tiles | | Density ft/acre | Year Installed | Reference DWR Maps |
|---|---|---|---|---|---|---|---|---|
| | | Name | Acreage | Spacing, ft | Tot Length, ft | | | |
| S-1 | | | | | | | 1969 | Concrete |
| S-2 | | | | | | | 1971 | Plastic |
| S-4 | | | | | | | 1962 | Concrete |
| S-5 | | | | | | | | |
| S-6 | | | | | | | 1961 | |
| S-7 | | | | | | | 1980 | Plastic |
| S-8 | | | | | | | | |
| S-9 | | | | | | | | |
| S-10 | | | | | | | 1963 | Concrete |
| S-11 | | | | | | | | Plastic |
| S-12 | | | | | | | 1959 & '65 | Concrete |
| S-13 | | | | | | | | |
| S-14 | | | | | | | | |
| S-15 | | | | | | | 1965 & '68 | Concrete |
| S-16 | | | | | | | 1956 | Concrete |
| S-17 | | | | | | | 1967 | |
| S-18 | | | | | | | 1950 & '58 | Concrete |
| S-19 | | | | | | | | |
| S-20 | | | | | | | | |
| S-21 | | | | | | | 1962 | Concrete |
| S-22 | | | | | | | 1957 & '74 | Conc/Plastic |
| S-23 | | | | | | | 1958 | Concrete |
| S-24 | | | | | | | | |

## Firebaugh — On-Farm Tile System — SHEET 2 OF 2

| Designation Name or ID # | Owner | Fields Drained | | Tiles | | Density ft/acre | Year Installed | Reference |
|---|---|---|---|---|---|---|---|---|
| | | Name | Acreage | Spacing, ft | Tot Length, ft | | | |
| S-25 | | | | | | | '56, '68, '80 | Plastic |
| S-26 | | | | | | | 1956 | |
| S-27 | | | | | | | '56, '63, '65 | |
| S-28 | | | | | | | 1978 | Plastic |
| S-29 | | | | | | | 1968 | Concrete |
| S-30 | | | | | | | | |
| S-31 | | | | | | | | |
| S-T-1C/D7 | | | | | | | 1958 | Concrete |
| S-T-2B | | | | | | | 1980 | Plastic |
| S-TR1 | | | | | | | 1979 | Plastic |
| S-TR2 | | | | | | | 1980 | Plastic |
| S-TR3 | | | | | | | 1978 | Plastic |
| S-TR4 | | | | | | | | |

## Firebaugh Drainage Channel



| Designation | Const Mat | Lining or type | Diam in | Type of Water | | | Maint | Reference |
|---|---|---|---|---|---|---|---|---|
| | | | | Ta | Ti | Other | | |
| Main Drain | E | - | - | X | X | | D | |
| Crooked Drain | E | - | - | X | X | | D | |
| 1L1 Drain | E | - | - | X | X | | D | |
| 1L2 Drain | E | - | - | X | X | | D | |
| 1L3 Drain | E | - | - | X | X | | D | |
| 1L4 Drain | E | - | - | X | X | | D | |
| 1L5 Drain | E | - | - | X | X | | D | |
| DMC 1 | E | - | - | X | X | | D | |
| DMC 2 | E | - | - | X | X | | D | |
| DMC 3 | E | - | - | X | X | | D | |
| SF1 | E | - | - | X | X | | D | |
| SF2 | E | - | - | X | X | | D | |
| SF3 | E | - | - | X | X | | D | |
| SP1 | E | - | - | X | X | | D | |
| SP2 | E | - | - | X | X | | D | |
| 2X1 | E | - | - | X | X | | D | |
| OC1 | E | - | - | X | X | | D | |
| OC2 | E | - | - | X | X | | D | |
| 2L1 | E | - | - | X | X | | D | |
| 2L2 | E | - | - | X | X | | D | |
| 2L3 | E | - | - | X | X | | D | |

**Construction Material**
P = Pipeline
C = Concrete Lined
E = Earthen

**Type of Water**
Ta = Tail Water
Ti = Tile Water

**Maintenance**
D = District
F = Farmer

## Firebaugh Drainage Channel



| Designation | Const Mat | Lining or type | Diam in | Type of Water | | | Maint | Reference |
|---|---|---|---|---|---|---|---|---|
| | | | | Ta | Ti | Other | | |
| 2L4 | E | - | - | X | X | | D | |
| 2L5 | E | - | - | X | X | | D | |
| 2L6 | E | - | - | X | X | | D | |
| 2L7 | E | - | - | X | X | | D | |
| 2L8 | E | - | - | X | X | | D | |
| 2L9 | E | - | - | X | X | | D | |
| 2L10 | E | - | - | X | X | | D | |

## Firebaugh — Water Supply

SHT 1 OF 1

| Designation | Const Mat | Lining or type | Diam in | Type of Water | | | | | | Max Flow Rate, cfs | Length | | Reference |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Ta | Ti | W | DMC | SLC | Other | | mi | ft | |
| Intake Canal | C | - | - | | | X | X | | | | | | |
| First Lift Canal | E | - | - | X | X | | X | | | | | | |
| Second Lift Canal | E | - | - | X | X | | X | | | | | | |
| Third Lift Canal | E | - | - | X | X | | X | | | | | | |
| Lorenzetti Lateral | E | - | - | X | X | | X | | | | | | |
| Comfort Lateral | E | - | - | X | X | | X | | | | | | |
| Santa Fe Grade Ditch | E | - | - | X | X | | X | | | | | | |

**Construction Material**
P = Pipeline
C = Conc Lined
E = Earthen

**Type of Water**
Ta = Tail Water
Ti = Tile Water
W = Well
DMC = DMC Supply (Mendota Pool)
SLC = SLC Supply
OC = Outside Canal

## Firebaugh — Wells

SHT 1 OF 1

| Name or ID# | Owner | In use? | Owner ship | Dest of water | Linkage to Dist. line | General Info (By Month or Year) | | | | | | Other Inf | | Rel, Other |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Vol, afSeason | | EC salin | TDS ppm | Boron | kW-hrs | hp | Flow, cfs | |
| 3 | | Y | D | D | Intake | | | | 700 | | | 4.0 | | |
| 5 | | Y | D | D | Intake | | | | 1700 | | | 4.0 | | |

## Pacheco District Lift Pumps

| Designation | Pump Unit | Lift feet | Horse power | Effic % | Flow Rate, cfs | Linkage to Line | | Reference |
|---|---|---|---|---|---|---|---|---|
| | | | | | | in | out | |
| LIFT #1 | 1 | | 50 | 50.0 | 12.8 | ⊄ | MAIN LIFT | WCD 1986 |
| | 3 | | 75 | 67.0 | 21.9 | ⊄ | MAIN LIFT | |
| LIFT #2 | 5 | | 125 | 65.0 | 33.4 | MAIN LIFT | #2 LATERAL | |
| | 6 | | 100 | 73.0 | 24.2 | MAIN LIFT | #2 LATERAL | |
| | 7 | | 100 | N/A | 25.6 | MAIN LIFT | #2 LATERAL | |
| LIFT #3 | 8 | | 100 | 58.0 | 26.8 | MAIN LIFT | #3 LATERAL | |
| | 9 | | 50 | 42.0 | 9.7 | MAIN LIFT | #3 LATERAL | |
| | 10 | | 50 | 54.0 | 10.9 | MAIN LIFT | #3 LATERAL | |
| | 11 | | 50 | 42.0 | 8.4 | MAIN LIFT | #3 LATERAL | |
| LIFT #4 | 12 | | 50 | 38.0 | 9.0 | MAIN LIFT | #4 LATERAL | |
| | 13 | | 50 | 28.0 | 7.2 | MAIN LIFT | #4 LATERAL | |
| | 14 | | 50 | 60.0 | 12.5 | MAIN LIFT | #4 LATERAL | |
| | 15 | | 100 | 69.0 | 28.8 | MAIN LIFT | #4 LATERAL | |
| LIFT #5 | 16 | | 50 | N/A | 12.0 | MAIN LIFT | #5 LATERAL | |
| | 17 | | 50 | 60.0 | 14.5 | MAIN LIFT | #5 LATERAL | |
| | 18 | | 50 | N/A | 11.6 | MAIN LIFT | #5 LATERAL | |
| | 19 | | 50 | 60.0 | 13.0 | MAIN LIFT | #5 LATERAL | |
| LIFT #6 | 6-1 | | 30 | N/A | 13.6 | MAIN LIFT | #6 LATERAL | |
| | 6-2 | | 20 | N/A | 10.8 | MAIN LIFT | #6 LATERAL | |

## Pacheco Drainage Channel

| Designation | Const Mat | Lining or type | Diam in | Type of Water | | | Maint | Reference |
|---|---|---|---|---|---|---|---|---|
| | | | | Ta | Ti | Other | | |
| Westside Drain | | | | X | X | | D | |
| SIS-10 Drain | E | - | - | X | | | D | |
| DMC Drain | E | - | - | X | X | | D | |
| S4 Drain | P | - | - | X | X | | D | |
| DMCN Drain | C | - | - | X | X | | D | |
| DMCS Drain | C | - | - | | X | | D | |
| OC Drain | E | - | - | X | X | | D | |
| T8-2 | E | | | | X | | D | |
| 202 Drain | P | - | - | | X | | D | |

**Construction Material**
P = Pipeline
C = Concrete Lined
E = Earthen

**Type of Water**
Ta = Tail Water
Ti = Tile Water

**Maintenance**
D = District
F = Farmer

## Pacheco Tile Outlets

(recycle point - must be linked to a line)



| Name or ID # | Exit Type | Owner | Maint | Linkage to drain | General Info (By Month or Year) Vol, ac-ft | Salen | EC salin | TDS ppm | Boron | kW-hrs | Other Info hp | Flow, cfs | Other |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 101 | P | D | D | OC | | | | | | | | | |
| 104 | P | F | F | OC | | | | | | | | | |
| 110 | P | F | F | W/S | | | | | | | | | |
| 201 | P | D | D | DMCN | | | | | | | 15.0 | | REW |
| 202 | P | D | D | 202.0 | | | | | | | 50.0 | | REW |
| 208 | P | D | D | DMCS | | | | | | | | | |
| 308 | P | D | D | W/S | | | | | | | | | |
| 312 | P | D | D | W/S | | | | | | | | | |
| 314M | P | D | D | W/S | | | | | | | | | |
| 314S | P | D | D | W/S | | | | | | | | | |
| D & M | P | D | D | W/S | | | | | | | | | |
| 310 | P | D | D | W/S | | | | | | | | | |
| 108 | P | D | D | W/S | | | | | | | | | |

**Exit Type**
G = Gravity
P = Pumped From Sump

**Ownership**
D = District
F = Farmer

**Maintenance**
D = District
F = Farmer

## Pacheco Water Supply

SHT 1 OF 1

| Designation | Const Mat | Lining or type | Diam in | Type of Water (Estimated) Ta | Ti | W | DMC | SLC | OC | Max Flow Rate, cfs | Length mi | ft | Reference |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Main Lift | E | - | - | X | X | X | | | X | | - | 16,300 | |
| #2 Lateral | C | - | - | X | X | | X | | X | | - | 15,200 | |
| #3 Lateral | E | - | - | X | X | | X | | X | | - | 16,000 | |
| #4 Lateral | C | - | - | X | X | | X | | X | | - | 5,800 | |
| | E | - | - | X | X | | X | | X | | - | 12,000 | |
| #5 Lateral | C | - | - | X | X | | X | X | X | | - | 3,900 | |
| | E | - | - | X | X | | X | X | X | | - | 15,800 | |
| #6 Lateral | E | - | - | X | X | | | X | | | - | 18,000 | |
| #7 Lateral | C | - | - | | | | | X | | | - | 24,700 | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| Lift #6 Pipe | P | ASB/C | 24.0 | | | | | | | | - | 1,750 | |
| | P | RGRCP | 24.0 | | | | | | | | - | 1,750 | |

**Construction Mat'l**
P = Pipeline
C = Conc Lined
E = Earthen

**Type of Water**
Ta = Tail Water
Ti = Tile Water
W = Well
DMC = DMC Supply
SLC = SLC Supply
OC = Outside Canal

| Name or ID# | Owner | In use? | Owner ship | Dest of water | Linkage to Dist. line | General Info (By Month or Year) | | | | | | Other Inf | | Ref. Other |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Vol, AF | Selen | EC salin | TDS ppm | Boronk | V - hrs | hp | Flow, cfs | |
| 101-1 | | Y | F | F | - | | | 1650 | | | | 125.0 | 2.65 | PWD LET '85 |
| 101-2 | | Y | F | F | - | | | 2200 | | | | 125.0 | 3.21 | |
| 101-3 | | N | D | D | Main Lift | | | - | | | | - | - | Dist. Pulled |
| 101-4 | | Y | F | F | - | | | 1870 | | | | 125.0 | 3.95 | |
| 102-2 | | Y | F | F | - | | | 1900 | | | | 125.0 | 2.71 | |
| 103-1 | | Y | F | F | - | | | 2500 | | | | 100.0 | 2.85 | |
| 104-2 | | Y | F | F | - | | | 1440 | | | | 200.0 | 4.83 | |
| 110-1 | | Y | F | F | - | | | 1170 | | | | 125.0 | 3.18 | |
| 110-2 | | N | F | - | - | | | - | | | | - | - | Not in oper. |
| 202-1 | | Y | F | F | - | | | 2600 | | | | 100.0 | 1.46 | Not in oper. |
| 102-1 | | Y | F | F | - | | | 1670 | | | | 200.0 | 2.31 | |
| 104-1 | | Y | F | F | - | | | 1470 | | | | 200.0 | 3.01 | |

## Charleston Drainage Channel



| Designation | Const Mat | Lining or type | Diam in | Type of Water | | | Maint | Reference |
|---|---|---|---|---|---|---|---|---|
| | | | | Ta | Ti | Other | | |
| DMCS Drain | E | - | - | X | X | | D | |
| OC Drain | E | - | - | X | X | | D | |
| Woo Drain | E | - | - | X | X | | D | |
| DMCN Drain | C | - | - | X | X | | D | |
| S33 Drain | E | - | - | X | X | | D | |
| DMC-OC Drain | C | - | - | X | X | | D | |
| S36 Drain | E | - | - | X | X | | D | |

**Construction Material**
P = Pipeline
C = Concrete Lined
E = Earthen

**Type of Water**
Ta = Tail Water
Ti = Tile Water

**Maintenance**
D = District
F = Farmer

## Charleston Tile Outlets

(recycle point - must be linked to a line)

SHT 1OF 1

| Name or ID # | Exit Type | Sump no. | Owner | Maint | Linkage to drain | General Info (By Month or Year)(DOP '89 (p.2)) | | | | | | Other Inf | | Rel Other |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Vol, AF | Selen | EC satn | TDS ppm | Boron | kW-hrs | hp | Flow, cfs | |
| T-1 | P | | | | DMCN | | | | | | | | | REW |
| SL-1 | P | | | | DMCS | | | | | | | | | Map'91 |
| L1 | P | | | | DMCS | | | | | | | | | |
| L2 | P | | | | DMCS | | | | | | | | | |
| L3 | P | | | | S33 | | | | | | | | | |
| L4 | P | | | | S33 | | | | | | | | | |
| ATL-1 | G | | CCID | | DMCN | | | | | | | | | |
| LG-1 | G | | | | DMCS | | | | | | | | | |

**Exit Type**
G = Gravity
P = Pumped From Sump

**Ownership**
D = District
F = Farmer

**Maintenance**
D = District
F = Farmer

## Charleston Water Supply

SHT 1 OF 1

| Designation | Const Mat | Lining or type | Diam in | Type of Water | | | | | | Max Flow Rate, cfs | Length mi | Length ft | Other, Reference |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Ta | Ti | W | DMC | SLC | OC | | | | |
| TO8 (Farmer) | N/A | N/A | N/A | | | | | X | | 8.0 | | | SLOwn, map, 1991 |
| TO32 (Farmer) | N/A | N/A | N/A | | | | X | | | 10.0 | | | SLOwn, map, 1991 |
| TO33 (Farmer) | N/A | N/A | N/A | | | | X | | | | | | SLOwn, map, 1991 |
| TO34 (Farmer) | N/A | N/A | N/A | | | | X | | | | | | SLOwn, map, 1991 |
| TO35 (Farmer) | N/A | N/A | N/A | | | | X | | | 150.0 | | | SLOwn, map, 1991 |
| TO36 (Farmer) | N/A | N/A | N/A | | | | X | | | | | | SLOwn, map, 1991 |
| TO37 (Farmer) | N/A | N/A | N/A | | | | X | | | 30.0 | | | SLOwn, map, 1991 |
| TO38 (Farmer) | N/A | N/A | N/A | | | | X | | | | | | SLOwn, map, 1991 |
| TO39 (Farmer) | N/A | N/A | N/A | | | | X | | | | | | SLOwn, map, 1991 |
| | | | | | | | | | | | | | |
| Cotton Gin Canal | C | - | - | | | | X | | X | | | | |
| Murray Springs | C | - | - | | | | | | X | | | | |

**Construction Mat'l**
P = Pipeline
C = Concrete Lined
E = Earthen

**Type of Water**
Ta = Tail Water
Ti = Tile Water
W = Well
DMC = DMC Supply
SLC = SLC Supply
OC = Outside Canal Supply

CCID

## Drainage Channel



| Designation | Const Mat | Lining or type | Diam in | Type of Water | | | | | | Maint | Reference |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Ta | Ti | | | | Other | | |
| Main Drain | E | - | - | X | X | | | | | D | |
| Santa Fe Drain | E | - | - | X | X | | | | | D | |
| Sect 8 Drain | E | - | - | X | X | | | | | D | |
| Newcomb Drain | E | - | - | X | X | | | | | D | |

**Construction Material**
P = Pipeline
C = Conc Lined
E = Earthen

**Type of Water**
Ta = Tail Water
Ti = Tile Water

**Maintenance**
D = District
F = Farmer

CCID

## On-Farm Tile System

SHEET 1 OF 1

| Designation Name or ID # | Owner | Fields Drained | | Tiles | | Density ft/acre | Year Installed | Reference |
|---|---|---|---|---|---|---|---|---|
| | | Name | Acreage | Spacing, ft | Tot Length, ft | | | |
| TS-1 | | - | 63.4 | | | | | CCID Map 1987 |
| TS-2 | | - | 97.8 | | | | | |
| TS-3 | | - | 53.4 | | | | | |
| TS-4 | | - | 116.1 | | | | | |
| TS-5 | | - | 195.6 | | | | | |
| TS-6 | | - | 4.11 | | | | | |
| TS-7 | | - | 111.87 | | | | | |
| TS-8 | | - | 111.84 | | | | | |
| TS-9 | | - | 197.3 | | | | | |
| TS-14 | | - | 103.8 | | | | | |
| TS-15 | | - | 57.7 | | | | | |

CCID

## Tile Outlets

(recycle point - must be linked to a line)

SHT 1OF 1

| Name or ID # | Exit Type | Sump no. | Owner | Maint | Linkage to line | General Info (By Month or Year) | | | | | | Other Inf | | Rel Other |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Vol, ac-ft | Selen | EC salin | TDS ppm | Boron | kW-hrs | np | Flow, cfs | |
| CDS-1 | P | TS-1 | F | | Main | | | | | | | | | |
| CDS-2 | P | TS-2 | F | | Main | | | | | | | | | |
| CDS-3 | P | TS-3 | F | | Outside | | | | | | | | | |
| CDS-4 | P | TS-4 | F | | Main | | | | | | | | | |
| CDS-5 | P | TS-5 | F | | Santa Fe | | | | | | | | | |
| CDS-6 | P | TS-6 | F | | Sect 8 | | | | | | | | | |
| CDS-7 | P | TS-7 | F | | Main | | | | | | | | | |
| CDS-8 | P | TS-8 | F | | Main | | | | | | | | | |
| CDS-9 | P | TS-9 | F | | Main | | | | | | | | | |
| CDS-15P | | TS-14F | | | Main | | | | | | | | | |
| CDS-14P | | TS-15F | | | Main | | | | | | | | | |

**Exit Type**
G = Gravity
P = Pumped From Sump

**Ownership**
D = District
F = Farmer

**Maintenance**
D = District
F = Farmer

CCID

## Water Supply

SHT 1 OF 1

| Designation | Const Mat | Lining or type | Diam in | Type of Water | | | | | | Max Flow Rate, cfs | Length | | Reference |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Ta | Ti | W | DMC | SLC | Other | | mi | ft | |
| All Farmer Turnouts on Outside Canal | | | | | | | | | | | | | |

CCID **Wells** (WELLS INACTIVE FOR LAST 24 YRS) SHT 1 OF 1

| Name or ID# | Owner | In use? | Owner ship | Dest of water | Linkage to Dist. line | General Info (By Month or Year) | | | | | | Other Inf | | Ref, Other |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Vol, ac-ft | Selen | EC salin | TDS ppm | Boron | kW-hrs | hp | Flow, cfs | |
| 278 | | N | F | | | | | | | | | | | REW |
| 279 | | N | F | | | | | | | | | | | REW |
| 325 | | N | F | | | | | | | | | | | REW |

# TECHNICAL APPENDIX B
## Crop Coefficients (Kc)

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# TECHNICAL APPENDIX B

Calculation of Kcs Table ..... B3

Graph of the Kcs Used in the Study Area ..... B4

Daily Kcs for all the crops in the study ..... B5

**Crops included:**

| |
|---|
| Alfalfa |
| Barley |
| Beans |
| Corn |
| Cotton |
| Melons |
| Pasture |
| Process Tom. |
| Rice |
| Seed Alf. |
| Sorghum |
| Stonefruit |
| Sugar Beets |
| Vegetable |
| Walnut/Apple |
| Wheat |

# Pivot Kc's and Dates Used to Determine Monthly Crop Kc's

| | |--PIVOT Ks--| | | |----------PIVOT DATES----------| | | | |
|---|---|---|---|---|---|---|---|---|---|
| CROP | Kc 1 | Kc 2 | Kc 3 | A | B | C | D | E | DECLINE |
| ALFALFA | 0.25 | 0.90 | 0.25 | 01/01 | 02/15 | 03/15 | 10/01 | 12/31 | 85 % |
| BARLEY | 0.22 | 1.25 | 0.10 | 12/01 | 12/24 | 03/02 | 04/11 | 05/25 | 75 % |
| DRY BEANS | 0.14 | 1.15 | 0.30 | 04/01 | 04/30 | 05/25 | 06/29 | 07/25 | 4 % |
| COTTON | 0.14 | 1.04 | 0.10 | 04/10 | 05/12 | 07/06 | 08/17 | 10/09 | 69 % |
| CORN | 0.18 | 1.10 | 0.45 | 04/16 | 05/07 | 06/28 | 08/06 | 09/15 | 74 % |
| MELON | 0.18 | 1.10 | 0.10 | 04/01 | 05/06 | 06/14 | 06/18 | 07/15 | 75 % |
| RICE | 0.95 | 1.25 | 0.95 | 04/01 | 04/26 | 05/28 | 06/29 | 08/31 | 59 % |
| SEED ALFALFA | 0.20 | 1.00 | 0.30 | 12/01 | 01/15 | 04/15 | 05/19 | 07/15 | 75 % |
| SORGHUM | 0.16 | 1.05 | 0.45 | 05/01 | 06/04 | 07/04 | 08/04 | 09/30 | 63 % |
| STONEFRUIT/ ALMOND | 0.65 | 0.98 | 0.85 | 03/10 | 03/10 | 06/09 | 09/14 | 11/01 | 80 % |
| SUGARBEETS - NORTH | 0.23 | 1.10 | 0.95 | 05/20 | 06/10 | 07/20 | 01/26 | 03/15 | 84 % |
| SUGARBEETS - SOUTH | 0.24 | 1.13 | 0.70 | 02/01 | 03/27 | 05/13 | 06/28 | 08/31 | 70 % |
| TOMATO | 0.24 | 1.12 | 0.70 | 04/01 | 05/08 | 06/28 | 07/19 | 08/31 | 72 % |
| VEGETABLE | 0.30 | 1.05 | 0.80 | 02/01 | 02/28 | 04/12 | 05/01 | 05/31 | 75 % |
| WALNUT/ APPLE | 0.70 | 1.14 | 0.15 | 03/10 | 03/10 | 07/07 | 08/15 | 11/09 | 65 % |
| WHEAT | 0.22 | 1.17 | 0.38 | 12/01 | 12/24 | 03/02 | 04/11 | 05/25 | 75 % |

# Monthly Crop Kc Values

| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Fallow** | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| **Misc.** | 0.00 | 0.00 | 0.00 | 0.06 | 0.30 | 0.59 | 1.02 | 0.92 | 0.00 | 0.00 | 0.00 | 0.00 |
| **Cotton** | 0.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.10 | 0.23 | 0.70 | 1.03 | 1.02 | 0.56 |
| **Alfalfa** | 0.79 | 0.57 | 0.36 | 0.25 | 0.32 | 0.82 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| **Wheat** | 0.00 | 0.04 | 0.23 | 0.54 | 0.95 | 1.17 | 1.04 | 0.47 | 0.00 | 0.00 | 0.00 | 0.00 |
| **Melons** | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.04 | 0.18 | 0.43 | 0.94 | 0.18 | 0.00 | 0.00 |
| **Process Tom.** | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.05 | 0.24 | 0.40 | 0.90 | 1.10 | 0.85 | 0.00 |
| **Sugar Beets** | 1.10 | 1.10 | 1.10 | 1.10 | 1.04 | 0.44 | 0.00 | 0.13 | 0.38 | 0.96 | 1.10 | 1.10 |
| **Barley** | 0.00 | 0.03 | 0.23 | 0.53 | 0.93 | 1.15 | 0.98 | 0.30 | 0.00 | 0.00 | 0.00 | 0.00 |
| **Beans** | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 | 0.14 | 0.78 | 1.14 | 0.56 | 0.00 | 0.00 |
| **Seed Alf.** | 0.00 | 0.03 | 0.20 | 0.24 | 0.47 | 0.74 | 0.97 | 0.97 | 0.66 | 0.19 | 0.00 | 0.00 |
| **Rice** | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.19 | 0.95 | 1.14 | 1.25 | 1.17 | 1.02 | 0.00 |
| **Corn** | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.12 | 0.36 | 0.88 | 1.10 | 0.93 | 0.27 |
| **Vegetable** | 0.00 | 0.00 | 0.00 | 0.06 | 0.30 | 0.59 | 1.02 | 0.92 | 0.00 | 0.00 | 0.00 | 0.00 |
| **Pasture** | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| **Stonefruit** | 0.89 | 0.00 | 0.00 | 0.00 | 0.00 | 0.50 | 0.78 | 0.89 | 0.98 | 0.98 | 0.98 | 0.97 |
| **Walnut/Apple** | 0.42 | 0.06 | 0.00 | 0.00 | 0.00 | 0.54 | 0.84 | 0.95 | 1.06 | 1.14 | 1.09 | 0.77 |
| **Sorghum** | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 | 0.16 | 0.51 | 1.04 | 0.93 | 0.59 |

Alfalfa

| | |
|---|---|
| % SMD | 70.00 |
| RTZN | 6 |
| AWHC | 2 |
| SMD | 8.4 |
| crop'd Kc | 0.15 |
| Maturity % | 0.75 |

| | Dates | | | Kcs | | | |
|---|---|---|---|---|---|---|---|
| Start | 01/01/92 | 33604 | 33604 | 0 | 0.25 | | |
| Planting | 01/01/92 | 33604 | 33604 | 0.25 | 0.25 | | |
| Date A | 01/01/92 | 33604 | 33649 | 0.25 | 0.25 | | |
| Date B | 02/15/92 | 33649 | 33678 | 0.25 | 0.9 | | |
| Date C | 03/15/92 | 33678 | 33878 | 0.9 | 0.9 | | |
| Date D | 30-Sep | 33878 | 33969 | 0.9 | 0.25 | | |
| Date E | 12/31/92 | 33969 | 33969 | 0.25 | 0 | | |
| End | 12/31/92 | 33969 | | 0 | 0 | | |
| | | Kc1 | Kc2 | date 1 | date 2 | Kc | |
| | 01-jan-9 | 0 | 0.25 | 33604 | 33604 | 0.25 | |
| | 04-Jan | 0.25 | 0.25 | 33604 | 33649 | 0.25 | |
| | 07-Jan | 0.25 | 0.25 | 33604 | 33649 | 0.25 | |
| | 10-Jan | 0.25 | 0.25 | 33604 | 33649 | 0.25 | |
| | 13-Jan | 0.25 | 0.25 | 33604 | 33649 | 0.25 | |
| | 16-Jan | 0.25 | 0.25 | 33604 | 33649 | 0.25 | |
| | 19-Jan | 0.25 | 0.25 | 33604 | 33649 | 0.25 | |
| | 22-Jan | 0.25 | 0.25 | 33604 | 33649 | 0.25 | |
| | 25-Jan | 0.25 | 0.25 | 33604 | 33649 | 0.25 | |
| | 28-Jan | 0.25 | 0.25 | 33604 | 33649 | 0.25 | |
| | 31-Jan | 0.25 | 0.25 | 33604 | 33649 | 0.25 | 0.25 |
| | 03-Feb | 0.25 | 0.25 | 33604 | 33649 | 0.25 | |
| | 06-Feb | 0.25 | 0.25 | 33604 | 33649 | 0.25 | |
| | 09-Feb | 0.25 | 0.25 | 33604 | 33649 | 0.25 | |
| | 12-Feb | 0.25 | 0.25 | 33604 | 33649 | 0.25 | |
| | 15-Feb | 0.25 | 0.9 | 33649 | 33678 | 0.25 | |
| | 18-Feb | 0.25 | 0.9 | 33649 | 33678 | 0.3172414 | |
| | 21-Feb | 0.25 | 0.9 | 33649 | 33678 | 0.3844828 | |
| | 24-Feb | 0.25 | 0.9 | 33649 | 33678 | 0.4517241 | |
| | 27-Feb | 0.25 | 0.9 | 33649 | 33678 | 0.5189655 | 0.3247126 |
| | 01-Mar | 0.25 | 0.9 | 33649 | 33678 | 0.5862069 | |
| | 04-Mar | 0.25 | 0.9 | 33649 | 33678 | 0.6534483 | |
| | 07-Mar | 0.25 | 0.9 | 33649 | 33678 | 0.7206897 | |
| | 10-Mar | 0.25 | 0.9 | 33649 | 33678 | 0.787931 | |
| | 13-Mar | 0.25 | 0.9 | 33649 | 33678 | 0.8551724 | |
| | 16-Mar | 0.9 | 0.9 | 33678 | 33878 | 0.9 | |
| | 19-Mar | 0.9 | 0.9 | 33678 | 33878 | 0.9 | |
| | 22-Mar | 0.9 | 0.9 | 33678 | 33878 | 0.9 | |
| | 25-Mar | 0.9 | 0.9 | 33678 | 33878 | 0.9 | |
| | 28-Mar | 0.9 | 0.9 | 33678 | 33878 | 0.9 | |
| | 31-Mar | 0.9 | 0.9 | 33678 | 33878 | 0.9 | 0.8184953 |
| | 03-Apr | 0.9 | 0.9 | 33678 | 33878 | 0.9 | |
| | 06-Apr | 0.9 | 0.9 | 33678 | 33878 | 0.9 | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 09-Apr | 0.9 | 0.9 | 33678 | 33878 | 0.9 | |
| 12-Apr | 0.9 | 0.9 | 33678 | 33878 | 0.9 | |
| 15-Apr | 0.9 | 0.9 | 33678 | 33878 | 0.9 | |
| 18-Apr | 0.9 | 0.9 | 33678 | 33878 | 0.9 | |
| 21-Apr | 0.9 | 0.9 | 33678 | 33878 | 0.9 | |
| 24-Apr | 0.9 | 0.9 | 33678 | 33878 | 0.9 | |
| 27-Apr | 0.9 | 0.9 | 33678 | 33878 | 0.9 | |
| 30-Apr | 0.9 | 0.9 | 33678 | 33878 | 0.9 | 0.9 |
| 03-May | 0.9 | 0.9 | 33678 | 33878 | 0.9 | |
| 06-May | 0.9 | 0.9 | 33678 | 33878 | 0.9 | |
| 09-May | 0.9 | 0.9 | 33678 | 33878 | 0.9 | |
| 12-May | 0.9 | 0.9 | 33678 | 33878 | 0.9 | |
| 15-May | 0.9 | 0.9 | 33678 | 33878 | 0.9 | |
| 18-May | 0.9 | 0.9 | 33678 | 33878 | 0.9 | |
| 21-May | 0.9 | 0.9 | 33678 | 33878 | 0.9 | |
| 24-May | 0.9 | 0.9 | 33678 | 33878 | 0.9 | |
| 27-May | 0.9 | 0.9 | 33678 | 33878 | 0.9 | |
| 30-May | 0.9 | 0.9 | 33678 | 33878 | 0.9 | 0.9 |
| 02-Jun | 0.9 | 0.9 | 33678 | 33878 | 0.9 | |
| 05-Jun | 0.9 | 0.9 | 33678 | 33878 | 0.9 | |
| 08-Jun | 0.9 | 0.9 | 33678 | 33878 | 0.9 | |
| 11-Jun | 0.9 | 0.9 | 33678 | 33878 | 0.9 | |
| 14-Jun | 0.9 | 0.9 | 33678 | 33878 | 0.9 | |
| 17-Jun | 0.9 | 0.9 | 33678 | 33878 | 0.9 | |
| 20-Jun | 0.9 | 0.9 | 33678 | 33878 | 0.9 | |
| 23-Jun | 0.9 | 0.9 | 33678 | 33878 | 0.9 | |
| 26-Jun | 0.9 | 0.9 | 33678 | 33878 | 0.9 | |
| 29-Jun | 0.9 | 0.9 | 33678 | 33878 | 0.9 | 0.9 |
| 02-Jul | 0.9 | 0.9 | 33678 | 33878 | 0.9 | |
| 05-Jul | 0.9 | 0.9 | 33678 | 33878 | 0.9 | |
| 08-Jul | 0.9 | 0.9 | 33678 | 33878 | 0.9 | |
| 11-Jul | 0.9 | 0.9 | 33678 | 33878 | 0.9 | |
| 14-Jul | 0.9 | 0.9 | 33678 | 33878 | 0.9 | |
| 17-Jul | 0.9 | 0.9 | 33678 | 33878 | 0.9 | |
| 20-Jul | 0.9 | 0.9 | 33678 | 33878 | 0.9 | |
| 23-Jul | 0.9 | 0.9 | 33678 | 33878 | 0.9 | |
| 26-Jul | 0.9 | 0.9 | 33678 | 33878 | 0.9 | |
| 29-Jul | 0.9 | 0.9 | 33678 | 33878 | 0.9 | 0.9 |
| 01-Aug | 0.9 | 0.9 | 33678 | 33878 | 0.9 | |
| 04-Aug | 0.9 | 0.9 | 33678 | 33878 | 0.9 | |
| 07-Aug | 0.9 | 0.9 | 33678 | 33878 | 0.9 | |
| 10-Aug | 0.9 | 0.9 | 33678 | 33878 | 0.9 | |
| 13-Aug | 0.9 | 0.9 | 33678 | 33878 | 0.9 | |
| 16-Aug | 0.9 | 0.9 | 33678 | 33878 | 0.9 | |
| 19-Aug | 0.9 | 0.9 | 33678 | 33878 | 0.9 | |
| 22-Aug | 0.9 | 0.9 | 33678 | 33878 | 0.9 | |
| 25-Aug | 0.9 | 0.9 | 33678 | 33878 | 0.9 | |
| 28-Aug | 0.9 | 0.9 | 33678 | 33878 | 0.9 | |
| 31-Aug | 0.9 | 0.9 | 33678 | 33878 | 0.9 | 0.9 |
| 03-Sep | 0.9 | 0.9 | 33678 | 33878 | 0.9 | |
| 06-Sep | 0.9 | 0.9 | 33678 | 33878 | 0.9 | |
| 09-Sep | 0.9 | 0.9 | 33678 | 33878 | 0.9 | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 12-Sep | 0.9 | 0.9 | 33678 | 33878 | 0.9 | |
| 15-Sep | 0.9 | 0.9 | 33678 | 33878 | 0.9 | |
| 18-Sep | 0.9 | 0.9 | 33678 | 33878 | 0.9 | |
| 21-Sep | 0.9 | 0.9 | 33678 | 33878 | 0.9 | |
| 24-Sep | 0.9 | 0.9 | 33678 | 33878 | 0.9 | |
| 27-Sep | 0.9 | 0.9 | 33678 | 33878 | 0.9 | |
| 30-Sep | 0.9 | 0.9 | 33678 | 33878 | 0.9 | 0.9 |
| 03-Oct | 0.9 | 0.25 | 33878 | 33969 | 0.8839726 | |
| 06-Oct | 0.9 | 0.25 | 33878 | 33969 | 0.8626027 | |
| 09-Oct | 0.9 | 0.25 | 33878 | 33969 | 0.8412329 | |
| 12-Oct | 0.9 | 0.25 | 33878 | 33969 | 0.819863 | |
| 15-Oct | 0.9 | 0.25 | 33878 | 33969 | 0.7984932 | |
| 18-Oct | 0.9 | 0.25 | 33878 | 33969 | 0.7771233 | |
| 21-Oct | 0.9 | 0.25 | 33878 | 33969 | 0.7557534 | |
| 24-Oct | 0.9 | 0.25 | 33878 | 33969 | 0.7343836 | |
| 27-Oct | 0.9 | 0.25 | 33878 | 33969 | 0.7130137 | |
| 30-Oct | 0.9 | 0.25 | 33878 | 33969 | 0.6916438 | 0.7878082 |
| 02-Nov | 0.9 | 0.25 | 33878 | 33969 | 0.670274 | |
| 05-Nov | 0.9 | 0.25 | 33878 | 33969 | 0.6489041 | |
| 08-Nov | 0.9 | 0.25 | 33878 | 33969 | 0.6275342 | |
| 11-Nov | 0.9 | 0.25 | 33878 | 33969 | 0.6061644 | |
| 14-Nov | 0.9 | 0.25 | 33878 | 33969 | 0.5847945 | |
| 17-Nov | 0.9 | 0.25 | 33878 | 33969 | 0.5634247 | |
| 20-Nov | 0.9 | 0.25 | 33878 | 33969 | 0.5420548 | |
| 23-Nov | 0.9 | 0.25 | 33878 | 33969 | 0.5206849 | |
| 26-Nov | 0.9 | 0.25 | 33878 | 33969 | 0.4993151 | |
| 29-Nov | 0.9 | 0.25 | 33878 | 33969 | 0.4779452 | 0.5741096 |
| 02-Dec | 0.9 | 0.25 | 33878 | 33969 | 0.4565753 | |
| 05-Dec | 0.9 | 0.25 | 33878 | 33969 | 0.4352055 | |
| 08-Dec | 0.9 | 0.25 | 33878 | 33969 | 0.4138356 | |
| 11-Dec | 0.9 | 0.25 | 33878 | 33969 | 0.3924658 | |
| 14-Dec | 0.9 | 0.25 | 33878 | 33969 | 0.3710959 | |
| 17-Dec | 0.9 | 0.25 | 33878 | 33969 | 0.349726 | |
| 20-Dec | 0.9 | 0.25 | 33878 | 33969 | 0.3283562 | |
| 23-Dec | 0.9 | 0.25 | 33878 | 33969 | 0.3069863 | |
| 26-Dec | 0.9 | 0.25 | 33878 | 33969 | 0.2856164 | |
| 29-Dec | 0.9 | 0.25 | 33878 | 33969 | 0.2642466 | 0.360411 |

Barley

| | |
|---|---|
| % SMD | 50.00 |
| RTZN | 6 |
| AWHC | 2 |
| SMD | 6 |
| crop'd Kc | 0.15 |
| Maturity % | 0.75 |

| | Dates | | | Kcs | |
|---|---|---|---|---|---|
| Start | 06/01/91 | 33390 | 33563 | 0 | 0 |
| Planting | 11/21/91 | 33563 | 33573 | 0 | 0.22 |
| Date A | 12/01/91 | 33573 | 33596 | 0.22 | 0.22 |
| Date B | 12/24/91 | 33596 | 33665 | 0.22 | 1.15 |
| Date C | 03/02/92 | 33665 | 33705 | 1.15 | 1.15 |
| Date D | 11-Apr | 33705 | 33749 | 1.15 | 0.1 |
| Date E | 05/25/92 | 33749 | 33750 | 0.1 | 0 |
| End | 05/26/92 | 33750 | | 0 | 0 |

| | KcA | KcB | Date A | Date B | Kc = A+(B-A)*(D-Da/Db-Da) | |
|---|---|---|---|---|---|---|
| 01-jan-92 | 0.22 | 1.15 | 33596 | 33665 | 0.3278261 | |
| 04-Jan | 0.22 | 1.15 | 33596 | 33665 | 0.3682609 | |
| 07-Jan | 0.22 | 1.15 | 33596 | 33665 | 0.4086957 | |
| 10-Jan | 0.22 | 1.15 | 33596 | 33665 | 0.4491304 | |
| 13-Jan | 0.22 | 1.15 | 33596 | 33665 | 0.4895652 | |
| 16-Jan | 0.22 | 1.15 | 33596 | 33665 | 0.53 | |
| 19-Jan | 0.22 | 1.15 | 33596 | 33665 | 0.5704348 | |
| 22-Jan | 0.22 | 1.15 | 33596 | 33665 | 0.6108696 | |
| 25-Jan | 0.22 | 1.15 | 33596 | 33665 | 0.6513043 | |
| 28-Jan | 0.22 | 1.15 | 33596 | 33665 | 0.6917391 | |
| 31-Jan | 0.22 | 1.15 | 33596 | 33665 | 0.7321739 | 0.53 |
| 03-Feb | 0.22 | 1.15 | 33596 | 33665 | 0.7726087 | |
| 06-Feb | 0.22 | 1.15 | 33596 | 33665 | 0.8130435 | |
| 09-Feb | 0.22 | 1.15 | 33596 | 33665 | 0.8534783 | |
| 12-Feb | 0.22 | 1.15 | 33596 | 33665 | 0.893913 | |
| 15-Feb | 0.22 | 1.15 | 33596 | 33665 | 0.9343478 | |
| 18-Feb | 0.22 | 1.15 | 33596 | 33665 | 0.9747826 | |
| 21-Feb | 0.22 | 1.15 | 33596 | 33665 | 1.0152174 | |
| 24-Feb | 0.22 | 1.15 | 33596 | 33665 | 1.0556522 | |
| 27-Feb | 0.22 | 1.15 | 33596 | 33665 | 1.096087 | 0.9343478 |
| 01-Mar | 0.22 | 1.15 | 33596 | 33665 | 1.1365217 | |
| 04-Mar | 1.15 | 1.15 | 33665 | 33705 | 1.15 | |
| 07-Mar | 1.15 | 1.15 | 33665 | 33705 | 1.15 | |
| 10-Mar | 1.15 | 1.15 | 33665 | 33705 | 1.15 | |
| 13-Mar | 1.15 | 1.15 | 33665 | 33705 | 1.15 | |
| 16-Mar | 1.15 | 1.15 | 33665 | 33705 | 1.15 | |
| 19-Mar | 1.15 | 1.15 | 33665 | 33705 | 1.15 | |
| 22-Mar | 1.15 | 1.15 | 33665 | 33705 | 1.15 | |
| 25-Mar | 1.15 | 1.15 | 33665 | 33705 | 1.15 | |
| 28-Mar | 1.15 | 1.15 | 33665 | 33705 | 1.15 | |
| 31-Mar | 1.15 | 1.15 | 33665 | 33705 | 1.15 | 1.1487747 |
| 03-Apr | 1.15 | 1.15 | 33665 | 33705 | 1.15 | |
| 06-Apr | 1.15 | 1.15 | 33665 | 33705 | 1.15 | |
| 09-Apr | 1.15 | 1.15 | 33665 | 33705 | 1.15 | |
| 12-Apr | 1.15 | 0.1 | 33705 | 33749 | 1.1261364 | |
| 15-Apr | 1.15 | 0.1 | 33705 | 33749 | 1.0545455 | |
| 18-Apr | 1.15 | 0.1 | 33705 | 33749 | 0.9829545 | |
| 21-Apr | 1.15 | 0.1 | 33705 | 33749 | 0.9113636 | |
| 24-Apr | 1.15 | 0.1 | 33705 | 33749 | 0.8397727 | |
| 27-Apr | 1.15 | 0.1 | 33705 | 33749 | 0.7681818 | |
| 30-Apr | 1.15 | 0.1 | 33705 | 33749 | 0.6965909 | 0.9829545 |
| 03-May | 1.15 | 0.1 | 33705 | 33749 | 0.625 | |
| 06-May | 1.15 | 0.1 | 33705 | 33749 | 0.5534091 | |
| 09-May | 1.15 | 0.1 | 33705 | 33749 | 0.4818182 | |
| 12-May | 1.15 | 0.1 | 33705 | 33749 | 0.4102273 | |
| 15-May | 1.15 | 0.1 | 33705 | 33749 | 0.3386364 | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 18-May | 1.15 | 0.1 | 33705 | 33749 | 0.2670455 | |
| 21-May | 1.15 | 0.1 | 33705 | 33749 | 0.1954545 | |
| 24-May | 1.15 | 0.1 | 33705 | 33749 | 0.1238636 | |
| 27-May | 0 | 0 | 33750 | 0 | 0 | |
| 30-May | 0 | 0 | 33750 | 0 | 0 | 0.2995455 |
| 02-jun-91 | 0 | 0 | 33390 | 33563 | 0 | |
| 05-Jun | 0 | 0 | 33390 | 33563 | 0 | |
| 08-Jun | 0 | 0 | 33390 | 33563 | 0 | |
| 11-Jun | 0 | 0 | 33390 | 33563 | 0 | |
| 14-Jun | 0 | 0 | 33390 | 33563 | 0 | |
| 17-Jun | 0 | 0 | 33390 | 33563 | 0 | |
| 20-Jun | 0 | 0 | 33390 | 33563 | 0 | |
| 23-Jun | 0 | 0 | 33390 | 33563 | 0 | |
| 26-Jun | 0 | 0 | 33390 | 33563 | 0 | |
| 29-Jun | 0 | 0 | 33390 | 33563 | 0 | 0 |
| 02-Jul | 0 | 0 | 33390 | 33563 | 0 | |
| 05-Jul | 0 | 0 | 33390 | 33563 | 0 | |
| 08-Jul | 0 | 0 | 33390 | 33563 | 0 | |
| 11-Jul | 0 | 0 | 33390 | 33563 | 0 | |
| 14-Jul | 0 | 0 | 33390 | 33563 | 0 | |
| 17-Jul | 0 | 0 | 33390 | 33563 | 0 | |
| 20-Jul | 0 | 0 | 33390 | 33563 | 0 | |
| 23-Jul | 0 | 0 | 33390 | 33563 | 0 | |
| 26-Jul | 0 | 0 | 33390 | 33563 | 0 | |
| 29-Jul | 0 | 0 | 33390 | 33563 | 0 | 0 |
| 01-Aug | 0 | 0 | 33390 | 33563 | 0 | |
| 04-Aug | 0 | 0 | 33390 | 33563 | 0 | |
| 07-Aug | 0 | 0 | 33390 | 33563 | 0 | |
| 10-Aug | 0 | 0 | 33390 | 33563 | 0 | |
| 13-Aug | 0 | 0 | 33390 | 33563 | 0 | |
| 16-Aug | 0 | 0 | 33390 | 33563 | 0 | |
| 19-Aug | 0 | 0 | 33390 | 33563 | 0 | |
| 22-Aug | 0 | 0 | 33390 | 33563 | 0 | |
| 25-Aug | 0 | 0 | 33390 | 33563 | 0 | |
| 28-Aug | 0 | 0 | 33390 | 33563 | 0 | |
| 31-Aug | 0 | 0 | 33390 | 33563 | 0 | 0 |
| 03-Sep | 0 | 0 | 33390 | 33563 | 0 | |
| 06-Sep | 0 | 0 | 33390 | 33563 | 0 | |
| 09-Sep | 0 | 0 | 33390 | 33563 | 0 | |
| 12-Sep | 0 | 0 | 33390 | 33563 | 0 | |
| 15-Sep | 0 | 0 | 33390 | 33563 | 0 | |
| 18-Sep | 0 | 0 | 33390 | 33563 | 0 | |
| 21-Sep | 0 | 0 | 33390 | 33563 | 0 | |
| 24-Sep | 0 | 0 | 33390 | 33563 | 0 | |
| 27-Sep | 0 | 0 | 33390 | 33563 | 0 | |
| 30-Sep | 0 | 0 | 33390 | 33563 | 0 | 0 |
| 03-Oct | 0 | 0 | 33390 | 33563 | 0 | |
| 06-Oct | 0 | 0 | 33390 | 33563 | 0 | |
| 09-Oct | 0 | 0 | 33390 | 33563 | 0 | |
| 12-Oct | 0 | 0 | 33390 | 33563 | 0 | |
| 15-Oct | 0 | 0 | 33390 | 33563 | 0 | |
| 18-Oct | 0 | 0 | 33390 | 33563 | 0 | |
| 21-Oct | 0 | 0 | 33390 | 33563 | 0 | |
| 24-Oct | 0 | 0 | 33390 | 33563 | 0 | |
| 27-Oct | 0 | 0 | 33390 | 33563 | 0 | |
| 30-Oct | 0 | 0 | 33390 | 33563 | 0 | 0 |
| 02-Nov | 0 | 0 | 33390 | 33563 | 0 | |
| 05-Nov | 0 | 0 | 33390 | 33563 | 0 | |
| 08-Nov | 0 | 0 | 33390 | 33563 | 0 | |
| 11-Nov | 0 | 0 | 33390 | 33563 | 0 | |
| 14-Nov | 0 | 0 | 33390 | 33563 | 0 | |
| 17-Nov | 0 | 0 | 33390 | 33563 | 0 | |
| 20-Nov | 0 | 0 | 33390 | 33563 | 0 | |
| 23-Nov | 0 | 0.22 | 33563 | 33573 | 0.044 | |
| 26-Nov | 0 | 0.22 | 33563 | 33573 | 0.11 | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 29-Nov | 0 | 0.22 | 33563 | 33573 | 0.176 | 0.033 |
| 02-Dec | 0.22 | 0.22 | 33573 | 33596 | 0.22 | |
| 05-Dec | 0.22 | 0.22 | 33573 | 33596 | 0.22 | |
| 08-Dec | 0.22 | 0.22 | 33573 | 33596 | 0.22 | |
| 11-Dec | 0.22 | 0.22 | 33573 | 33596 | 0.22 | |
| 14-Dec | 0.22 | 0.22 | 33573 | 33596 | 0.22 | |
| 17-Dec | 0.22 | 0.22 | 33573 | 33596 | 0.22 | |
| 20-Dec | 0.22 | 0.22 | 33573 | 33596 | 0.22 | |
| 23-Dec | 0.22 | 0.22 | 33573 | 33596 | 0.22 | |
| 26-Dec | 0.22 | 1.15 | 33596 | 33665 | 0.2469565 | |
| 29-Dec | 0.22 | 1.15 | 33596 | 33665 | 0.2873913 | 0.2294348 |

Bean

| | |
|---|---|
| % SMD | 50.00 |
| RTZN | 4 |
| AWHC | 2 |
| SMD | 4 |
| crop'd Kc | 0.15 |
| Maturity % | 0.74 |

| | Dates | | | Kcs | | | |
|---|---|---|---|---|---|---|---|
| Start | 01/01/92 | 33604 | 33683 | 0 | 0 | | |
| Planting | 03/20/92 | 33683 | 33695 | 0 | 0.14 | | |
| Date A | 04/01/92 | 33695 | 33724 | 0.14 | 0.14 | | |
| Date B | 04/30/92 | 33724 | 33749 | 0.14 | 1.15 | | |
| Date C | 05/25/92 | 33749 | 33780.1 | 1.15 | 1.15 | | |
| Date D | 25-Jun | 33780.1 | 33810 | 1.15 | 0.3 | | |
| Date E | 07/25/92 | 33810 | 33817 | 0.3 | 0 | | |
| End | 08/01/92 | 33817 | | 0 | 0 | | |

| | Kc1 | Kc2 | date 1 | date 2 | Kc | | |
|---|---|---|---|---|---|---|---|
| 01-jan-92 | 0 | 0 | 33604 | 33683 | 0 | | |
| 04-Jan | 0 | 0 | 33604 | 33683 | 0 | | |
| 07-Jan | 0 | 0 | 33604 | 33683 | 0 | | |
| 10-Jan | 0 | 0 | 33604 | 33683 | 0 | | |
| 13-Jan | 0 | 0 | 33604 | 33683 | 0 | | |
| 16-Jan | 0 | 0 | 33604 | 33683 | 0 | | |
| 19-Jan | 0 | 0 | 33604 | 33683 | 0 | | |
| 22-Jan | 0 | 0 | 33604 | 33683 | 0 | | |
| 25-Jan | 0 | 0 | 33604 | 33683 | 0 | | |
| 28-Jan | 0 | 0 | 33604 | 33683 | 0 | | |
| 31-Jan | 0 | 0 | 33604 | 33683 | 0 | | 0 |
| 03-Feb | 0 | 0 | 33604 | 33683 | 0 | | |
| 06-Feb | 0 | 0 | 33604 | 33683 | 0 | | |
| 09-Feb | 0 | 0 | 33604 | 33683 | 0 | | |
| 12-Feb | 0 | 0 | 33604 | 33683 | 0 | | |
| 15-Feb | 0 | 0 | 33604 | 33683 | 0 | | |
| 18-Feb | 0 | 0 | 33604 | 33683 | 0 | | |
| 21-Feb | 0 | 0 | 33604 | 33683 | 0 | | |
| 24-Feb | 0 | 0 | 33604 | 33683 | 0 | | |
| 27-Feb | 0 | 0 | 33604 | 33683 | 0 | | 0 |
| 01-Mar | 0 | 0 | 33604 | 33683 | 0 | | |
| 04-Mar | 0 | 0 | 33604 | 33683 | 0 | | |
| 07-Mar | 0 | 0 | 33604 | 33683 | 0 | | |
| 10-Mar | 0 | 0 | 33604 | 33683 | 0 | | |
| 13-Mar | 0 | 0 | 33604 | 33683 | 0 | | |
| 16-Mar | 0 | 0 | 33604 | 33683 | 0 | | |
| 19-Mar | 0 | 0 | 33604 | 33683 | 0 | | |
| 22-Mar | 0 | 0.14 | 33683 | 33695 | 0.02333333 | | |
| 25-Mar | 0 | 0.14 | 33683 | 33695 | 0.05833333 | | |
| 28-Mar | 0 | 0.14 | 33683 | 33695 | 0.09333333 | | |
| 31-Mar | 0 | 0.14 | 33683 | 33695 | 0.12833333 | | 0.02757576 |
| 03-Apr | 0.14 | 0.14 | 33695 | 33724 | 0.14 | | |
| 06-Apr | 0.14 | 0.14 | 33695 | 33724 | 0.14 | | |

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|---|---|---|---|---|---|---|
| 09-Apr | 0.14 | 0.14 | 33695 | 33724 | 0.14 | |
| 12-Apr | 0.14 | 0.14 | 33695 | 33724 | 0.14 | |
| 15-Apr | 0.14 | 0.14 | 33695 | 33724 | 0.14 | |
| 18-Apr | 0.14 | 0.14 | 33695 | 33724 | 0.14 | |
| 21-Apr | 0.14 | 0.14 | 33695 | 33724 | 0.14 | |
| 24-Apr | 0.14 | 0.14 | 33695 | 33724 | 0.14 | |
| 27-Apr | 0.14 | 0.14 | 33695 | 33724 | 0.14 | |
| 30-Apr | 0.14 | 1.15 | 33724 | 33749 | 0.14 | 0.14 |
| 03-May | 0.14 | 1.15 | 33724 | 33749 | 0.2612 | |
| 06-May | 0.14 | 1.15 | 33724 | 33749 | 0.3824 | |
| 09-May | 0.14 | 1.15 | 33724 | 33749 | 0.5036 | |
| 12-May | 0.14 | 1.15 | 33724 | 33749 | 0.6248 | |
| 15-May | 0.14 | 1.15 | 33724 | 33749 | 0.746 | |
| 18-May | 0.14 | 1.15 | 33724 | 33749 | 0.8672 | |
| 21-May | 0.14 | 1.15 | 33724 | 33749 | 0.9884 | |
| 24-May | 0.14 | 1.15 | 33724 | 33749 | 1.1096 | |
| 27-May | 1.15 | 1.15 | 33749 | 33780.1 | 1.15 | |
| 30-May | 1.15 | 1.15 | 33749 | 33780.1 | 1.15 | 0.77832 |
| 02-Jun | 1.15 | 1.15 | 33749 | 33780.1 | 1.15 | |
| 05-Jun | 1.15 | 1.15 | 33749 | 33780.1 | 1.15 | |
| 08-Jun | 1.15 | 1.15 | 33749 | 33780.1 | 1.15 | |
| 11-Jun | 1.15 | 1.15 | 33749 | 33780.1 | 1.15 | |
| 14-Jun | 1.15 | 1.15 | 33749 | 33780.1 | 1.15 | |
| 17-Jun | 1.15 | 1.15 | 33749 | 33780.1 | 1.15 | |
| 20-Jun | 1.15 | 1.15 | 33749 | 33780.1 | 1.15 | |
| 23-Jun | 1.15 | 1.15 | 33749 | 33780.1 | 1.15 | |
| 26-Jun | 1.15 | 0.3 | 33780.1 | 33810 | 1.12441472 | |
| 29-Jun | 1.15 | 0.3 | 33780.1 | 33810 | 1.03913043 | 1.13635452 |
| 02-Jul | 1.15 | 0.3 | 33780.1 | 33810 | 0.95384615 | |
| 05-Jul | 1.15 | 0.3 | 33780.1 | 33810 | 0.86856187 | |
| 08-Jul | 1.15 | 0.3 | 33780.1 | 33810 | 0.78327759 | |
| 11-Jul | 1.15 | 0.3 | 33780.1 | 33810 | 0.69799331 | |
| 14-Jul | 1.15 | 0.3 | 33780.1 | 33810 | 0.61270903 | |
| 17-Jul | 1.15 | 0.3 | 33780.1 | 33810 | 0.52742475 | |
| 20-Jul | 1.15 | 0.3 | 33780.1 | 33810 | 0.44214047 | |
| 23-Jul | 1.15 | 0.3 | 33780.1 | 33810 | 0.35685619 | |
| 26-Jul | 0.3 | 0 | 33810 | 33817 | 0.25714286 | |
| 29-Jul | 0.3 | 0 | 33810 | 33817 | 0.12857143 | 0.56285237 |
| 01-Aug | 0 | 0 | 33817 | 0 | 0 | |
| 04-Aug | 0 | 0 | 33817 | 0 | 0 | |
| 07-Aug | 0 | 0 | 33817 | 0 | 0 | |
| 10-Aug | 0 | 0 | 33817 | 0 | 0 | |
| 13-Aug | 0 | 0 | 33817 | 0 | 0 | |
| 16-Aug | 0 | 0 | 33817 | 0 | 0 | |
| 19-Aug | 0 | 0 | 33817 | 0 | 0 | |
| 22-Aug | 0 | 0 | 33817 | 0 | 0 | |
| 25-Aug | 0 | 0 | 33817 | 0 | 0 | |
| 28-Aug | 0 | 0 | 33817 | 0 | 0 | |
| 31-Aug | 0 | 0 | 33817 | 0 | 0 | 0 |
| 03-Sep | 0 | 0 | 33817 | 0 | 0 | |
| 06-Sep | 0 | 0 | 33817 | 0 | 0 | |
| 09-Sep | 0 | 0 | 33817 | 0 | 0 | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 12-Sep | 0 | 0 | 33817 | 0 | 0 | |
| 15-Sep | 0 | 0 | 33817 | 0 | 0 | |
| 18-Sep | 0 | 0 | 33817 | 0 | 0 | |
| 21-Sep | 0 | 0 | 33817 | 0 | 0 | |
| 24-Sep | 0 | 0 | 33817 | 0 | 0 | |
| 27-Sep | 0 | 0 | 33817 | 0 | 0 | |
| 30-Sep | 0 | 0 | 33817 | 0 | 0 | 0 |
| 03-Oct | 0 | 0 | 33817 | 0 | 0 | |
| 06-Oct | 0 | 0 | 33817 | 0 | 0 | |
| 09-Oct | 0 | 0 | 33817 | 0 | 0 | |
| 12-Oct | 0 | 0 | 33817 | 0 | 0 | |
| 15-Oct | 0 | 0 | 33817 | 0 | 0 | |
| 18-Oct | 0 | 0 | 33817 | 0 | 0 | |
| 21-Oct | 0 | 0 | 33817 | 0 | 0 | |
| 24-Oct | 0 | 0 | 33817 | 0 | 0 | |
| 27-Oct | 0 | 0 | 33817 | 0 | 0 | |
| 30-Oct | 0 | 0 | 33817 | 0 | 0 | 0 |
| 02-Nov | 0 | 0 | 33817 | 0 | 0 | |
| 05-Nov | 0 | 0 | 33817 | 0 | 0 | |
| 08-Nov | 0 | 0 | 33817 | 0 | 0 | |
| 11-Nov | 0 | 0 | 33817 | 0 | 0 | |
| 14-Nov | 0 | 0 | 33817 | 0 | 0 | |
| 17-Nov | 0 | 0 | 33817 | 0 | 0 | |
| 20-Nov | 0 | 0 | 33817 | 0 | 0 | |
| 23-Nov | 0 | 0 | 33817 | 0 | 0 | |
| 26-Nov | 0 | 0 | 33817 | 0 | 0 | |
| 29-Nov | 0 | 0 | 33817 | 0 | 0 | 0 |
| 02-Dec | 0 | 0 | 33817 | 0 | 0 | |
| 05-Dec | 0 | 0 | 33817 | 0 | 0 | |
| 08-Dec | 0 | 0 | 33817 | 0 | 0 | |
| 11-Dec | 0 | 0 | 33817 | 0 | 0 | |
| 14-Dec | 0 | 0 | 33817 | 0 | 0 | |
| 17-Dec | 0 | 0 | 33817 | 0 | 0 | |
| 20-Dec | 0 | 0 | 33817 | 0 | 0 | |
| 23-Dec | 0 | 0 | 33817 | 0 | 0 | |
| 26-Dec | 0 | 0 | 33817 | 0 | 0 | |
| 29-Dec | 0 | 0 | 33817 | 0 | 0 | 0 |

Cotton

| | |
|---|---|
| % SMD | 60.00 |
| RTZN | 6 |
| AWHC | 2 |
| SMD | 7.2 |
| crop'd Kc | 0.15 |
| Maturity % | 0.75 |

| | Dates | | | Kcs | | | |
|---|---|---|---|---|---|---|---|
| Start | 01/01/92 | 33604 | 33695 | 0 | 0 | | |
| Planting | 04/01/92 | 33695 | 33704 | 0 | 0.12 | | |
| Date A | 04/10/92 | 33704 | 33736 | 0.12 | 0.12 | | |
| Date B | 05/12/92 | 33736 | 33791 | 0.12 | 1.04 | | |
| Date C | 07/06/92 | 33791 | 33840.5 | 1.04 | 1.04 | | |
| Date D | 24-Aug | 33840.5 | 33886 | 1.04 | 0.1 | | |
| Date E | 10/09/92 | 33886 | 33887 | 0.1 | 0 | | |
| End | 10/10/92 | 33887 | | 0 | 0 | | |
| | | Kc1 | Kc2 | date 1 | date 2 | Kc | |
| | 01-jan-92 | 0 | 0 | 33604 | 33695 | 0 | |
| | 04-Jan | 0 | 0 | 33604 | 33695 | 0 | |
| | 07-Jan | 0 | 0 | 33604 | 33695 | 0 | |
| | 10-Jan | 0 | 0 | 33604 | 33695 | 0 | |
| | 13-Jan | 0 | 0 | 33604 | 33695 | 0 | |
| | 16-Jan | 0 | 0 | 33604 | 33695 | 0 | |
| | 19-Jan | 0 | 0 | 33604 | 33695 | 0 | |
| | 22-Jan | 0 | 0 | 33604 | 33695 | 0 | |
| | 25-Jan | 0 | 0 | 33604 | 33695 | 0 | |
| | 28-Jan | 0 | 0 | 33604 | 33695 | 0 | |
| | 31-Jan | 0 | 0 | 33604 | 33695 | 0 | 0 |
| | 03-Feb | 0 | 0 | 33604 | 33695 | 0 | |
| | 06-Feb | 0 | 0 | 33604 | 33695 | 0 | |
| | 09-Feb | 0 | 0 | 33604 | 33695 | 0 | |
| | 12-Feb | 0 | 0 | 33604 | 33695 | 0 | |
| | 15-Feb | 0 | 0 | 33604 | 33695 | 0 | |
| | 18-Feb | 0 | 0 | 33604 | 33695 | 0 | |
| | 21-Feb | 0 | 0 | 33604 | 33695 | 0 | |
| | 24-Feb | 0 | 0 | 33604 | 33695 | 0 | |
| | 27-Feb | 0 | 0 | 33604 | 33695 | 0 | 0 |
| | 01-Mar | 0 | 0 | 33604 | 33695 | 0 | |
| | 04-Mar | 0 | 0 | 33604 | 33695 | 0 | |
| | 07-Mar | 0 | 0 | 33604 | 33695 | 0 | |
| | 10-Mar | 0 | 0 | 33604 | 33695 | 0 | |
| | 13-Mar | 0 | 0 | 33604 | 33695 | 0 | |
| | 16-Mar | 0 | 0 | 33604 | 33695 | 0 | |
| | 19-Mar | 0 | 0 | 33604 | 33695 | 0 | |
| | 22-Mar | 0 | 0 | 33604 | 33695 | 0 | |
| | 25-Mar | 0 | 0 | 33604 | 33695 | 0 | |
| | 28-Mar | 0 | 0 | 33604 | 33695 | 0 | |
| | 31-Mar | 0 | 0 | 33604 | 33695 | 0 | 0 |
| | 03-Apr | 0 | 0.12 | 33695 | 33704 | 0.02666667 | |
| | 06-Apr | 0 | 0.12 | 33695 | 33704 | 0.06666667 | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 09-Apr | 0 | 0.12 | 33695 | 33704 | 0.10666667 | |
| 12-Apr | 0.12 | 0.12 | 33704 | 33736 | 0.12 | |
| 15-Apr | 0.12 | 0.12 | 33704 | 33736 | 0.12 | |
| 18-Apr | 0.12 | 0.12 | 33704 | 33736 | 0.12 | |
| 21-Apr | 0.12 | 0.12 | 33704 | 33736 | 0.12 | |
| 24-Apr | 0.12 | 0.12 | 33704 | 33736 | 0.12 | |
| 27-Apr | 0.12 | 0.12 | 33704 | 33736 | 0.12 | |
| 30-Apr | 0.12 | 0.12 | 33704 | 33736 | 0.12 | 0.104 |
| 03-May | 0.12 | 0.12 | 33704 | 33736 | 0.12 | |
| 06-May | 0.12 | 0.12 | 33704 | 33736 | 0.12 | |
| 09-May | 0.12 | 0.12 | 33704 | 33736 | 0.12 | |
| 12-May | 0.12 | 1.04 | 33736 | 33791 | 0.12 | |
| 15-May | 0.12 | 1.04 | 33736 | 33791 | 0.17018182 | |
| 18-May | 0.12 | 1.04 | 33736 | 33791 | 0.22036364 | |
| 21-May | 0.12 | 1.04 | 33736 | 33791 | 0.27054545 | |
| 24-May | 0.12 | 1.04 | 33736 | 33791 | 0.32072727 | |
| 27-May | 0.12 | 1.04 | 33736 | 33791 | 0.37090909 | |
| 30-May | 0.12 | 1.04 | 33736 | 33791 | 0.42109091 | 0.22538182 |
| 02-Jun | 0.12 | 1.04 | 33736 | 33791 | 0.47127273 | |
| 05-Jun | 0.12 | 1.04 | 33736 | 33791 | 0.52145455 | |
| 08-Jun | 0.12 | 1.04 | 33736 | 33791 | 0.57163636 | |
| 11-Jun | 0.12 | 1.04 | 33736 | 33791 | 0.62181818 | |
| 14-Jun | 0.12 | 1.04 | 33736 | 33791 | 0.672 | |
| 17-Jun | 0.12 | 1.04 | 33736 | 33791 | 0.72218182 | |
| 20-Jun | 0.12 | 1.04 | 33736 | 33791 | 0.77236364 | |
| 23-Jun | 0.12 | 1.04 | 33736 | 33791 | 0.82254545 | |
| 26-Jun | 0.12 | 1.04 | 33736 | 33791 | 0.87272727 | |
| 29-Jun | 0.12 | 1.04 | 33736 | 33791 | 0.92290909 | 0.69709091 |
| 02-Jul | 0.12 | 1.04 | 33736 | 33791 | 0.97309091 | |
| 05-Jul | 0.12 | 1.04 | 33736 | 33791 | 1.02327273 | |
| 08-Jul | 1.04 | 1.04 | 33791 | 33840.5 | 1.04 | |
| 11-Jul | 1.04 | 1.04 | 33791 | 33840.5 | 1.04 | |
| 14-Jul | 1.04 | 1.04 | 33791 | 33840.5 | 1.04 | |
| 17-Jul | 1.04 | 1.04 | 33791 | 33840.5 | 1.04 | |
| 20-Jul | 1.04 | 1.04 | 33791 | 33840.5 | 1.04 | |
| 23-Jul | 1.04 | 1.04 | 33791 | 33840.5 | 1.04 | |
| 26-Jul | 1.04 | 1.04 | 33791 | 33840.5 | 1.04 | |
| 29-Jul | 1.04 | 1.04 | 33791 | 33840.5 | 1.04 | 1.03163636 |
| 01-Aug | 1.04 | 1.04 | 33791 | 33840.5 | 1.04 | |
| 04-Aug | 1.04 | 1.04 | 33791 | 33840.5 | 1.04 | |
| 07-Aug | 1.04 | 1.04 | 33791 | 33840.5 | 1.04 | |
| 10-Aug | 1.04 | 1.04 | 33791 | 33840.5 | 1.04 | |
| 13-Aug | 1.04 | 1.04 | 33791 | 33840.5 | 1.04 | |
| 16-Aug | 1.04 | 1.04 | 33791 | 33840.5 | 1.04 | |
| 19-Aug | 1.04 | 1.04 | 33791 | 33840.5 | 1.04 | |
| 22-Aug | 1.04 | 1.04 | 33791 | 33840.5 | 1.04 | |
| 25-Aug | 1.04 | 0.1 | 33840.5 | 33886 | 1.02967033 | |
| 28-Aug | 1.04 | 0.1 | 33840.5 | 33886 | 0.96769231 | |
| 31-Aug | 1.04 | 0.1 | 33840.5 | 33886 | 0.90571429 | 1.02027972 |
| 03-Sep | 1.04 | 0.1 | 33840.5 | 33886 | 0.84373626 | |
| 06-Sep | 1.04 | 0.1 | 33840.5 | 33886 | 0.78175824 | |
| 09-Sep | 1.04 | 0.1 | 33840.5 | 33886 | 0.71978022 | |

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|---|---|---|---|---|---|---|
| 12-Sep | 1.04 | 0.1 | 33840.5 | 33886 | 0.6578022 | |
| 15-Sep | 1.04 | 0.1 | 33840.5 | 33886 | 0.59582418 | |
| 18-Sep | 1.04 | 0.1 | 33840.5 | 33886 | 0.53384615 | |
| 21-Sep | 1.04 | 0.1 | 33840.5 | 33886 | 0.47186813 | |
| 24-Sep | 1.04 | 0.1 | 33840.5 | 33886 | 0.40989011 | |
| 27-Sep | 1.04 | 0.1 | 33840.5 | 33886 | 0.34791209 | |
| 30-Sep | 1.04 | 0.1 | 33840.5 | 33886 | 0.28593407 | 0.56483516 |
| 03-Oct | 1.04 | 0.1 | 33840.5 | 33886 | 0.22395604 | |
| 06-Oct | 1.04 | 0.1 | 33840.5 | 33886 | 0.16197802 | |
| 09-Oct | 0.1 | 0 | 33886 | 33887 | 0.1 | |
| 12-Oct | 0 | 0 | 33887 | 0 | 0 | |
| 15-Oct | 0 | 0 | 33887 | 0 | 0 | |
| 18-Oct | 0 | 0 | 33887 | 0 | 0 | |
| 21-Oct | 0 | 0 | 33887 | 0 | 0 | |
| 24-Oct | 0 | 0 | 33887 | 0 | 0 | |
| 27-Oct | 0 | 0 | 33887 | 0 | 0 | |
| 30-Oct | 0 | 0 | 33887 | 0 | 0 | 0.04859341 |
| 02-Nov | 0 | 0 | 33887 | 0 | 0 | |
| 05-Nov | 0 | 0 | 33887 | 0 | 0 | |
| 08-Nov | 0 | 0 | 33887 | 0 | 0 | |
| 11-Nov | 0 | 0 | 33887 | 0 | 0 | |
| 14-Nov | 0 | 0 | 33887 | 0 | 0 | |
| 17-Nov | 0 | 0 | 33887 | 0 | 0 | |
| 20-Nov | 0 | 0 | 33887 | 0 | 0 | |
| 23-Nov | 0 | 0 | 33887 | 0 | 0 | |
| 26-Nov | 0 | 0 | 33887 | 0 | 0 | |
| 29-Nov | 0 | 0 | 33887 | 0 | 0 | 0 |
| 02-Dec | 0 | 0 | 33887 | 0 | 0 | |
| 05-Dec | 0 | 0 | 33887 | 0 | 0 | |
| 08-Dec | 0 | 0 | 33887 | 0 | 0 | |
| 11-Dec | 0 | 0 | 33887 | 0 | 0 | |
| 14-Dec | 0 | 0 | 33887 | 0 | 0 | |
| 17-Dec | 0 | 0 | 33887 | 0 | 0 | |
| 20-Dec | 0 | 0 | 33887 | 0 | 0 | |
| 23-Dec | 0 | 0 | 33887 | 0 | 0 | |
| 26-Dec | 0 | 0 | 33887 | 0 | 0 | |
| 29-Dec | 0 | 0 | 33887 | 0 | 0 | 0 |

Corn

| | |
|---|---|
| % SMD | 50.00 |
| RTZN | 6 |
| AWHC | 2 |
| SMD | 6 |
| crop'd Kc | 0.15 |
| Maturity % | 0.74 |

| | Dates | | | Kcs | | | |
|---|---|---|---|---|---|---|---|
| Start | 01/01/92 | 33604 | 33700 | 0 | 0 | | |
| Planting | 04/06/92 | 33700 | 33710 | 0 | 0.18 | | |
| Date A | 04/16/92 | 33710 | 33731 | 0.18 | 0.18 | | |
| Date B | 05/07/92 | 33731 | 33783 | 0.18 | 1.1 | | |
| Date C | 06/28/92 | 33783 | 33822.48 | 1.1 | 1.1 | | |
| Date D | 06-Aug | 33822.48 | 33862 | 1.1 | 0.45 | | |
| Date E | 09/15/92 | 33862 | 33863 | 0.45 | 0 | | |
| End | 09/16/92 | 33863 | | 0 | 0 | | |
| | | Kc1 | Kc2 | date 1 | date 2 | Kc | |
| | 01-jan-92 | 0 | 0 | 33604 | 33700 | 0 | |
| | 04-Jan | 0 | 0 | 33604 | 33700 | 0 | |
| | 07-Jan | 0 | 0 | 33604 | 33700 | 0 | |
| | 10-Jan | 0 | 0 | 33604 | 33700 | 0 | |
| | 13-Jan | 0 | 0 | 33604 | 33700 | 0 | |
| | 16-Jan | 0 | 0 | 33604 | 33700 | 0 | |
| | 19-Jan | 0 | 0 | 33604 | 33700 | 0 | |
| | 22-Jan | 0 | 0 | 33604 | 33700 | 0 | |
| | 25-Jan | 0 | 0 | 33604 | 33700 | 0 | |
| | 28-Jan | 0 | 0 | 33604 | 33700 | 0 | |
| | 31-Jan | 0 | 0 | 33604 | 33700 | 0 | 0 |
| | 03-Feb | 0 | 0 | 33604 | 33700 | 0 | |
| | 06-Feb | 0 | 0 | 33604 | 33700 | 0 | |
| | 09-Feb | 0 | 0 | 33604 | 33700 | 0 | |
| | 12-Feb | 0 | 0 | 33604 | 33700 | 0 | |
| | 15-Feb | 0 | 0 | 33604 | 33700 | 0 | |
| | 18-Feb | 0 | 0 | 33604 | 33700 | 0 | |
| | 21-Feb | 0 | 0 | 33604 | 33700 | 0 | |
| | 24-Feb | 0 | 0 | 33604 | 33700 | 0 | |
| | 27-Feb | 0 | 0 | 33604 | 33700 | 0 | 0 |
| | 01-Mar | 0 | 0 | 33604 | 33700 | 0 | |
| | 04-Mar | 0 | 0 | 33604 | 33700 | 0 | |
| | 07-Mar | 0 | 0 | 33604 | 33700 | 0 | |
| | 10-Mar | 0 | 0 | 33604 | 33700 | 0 | |
| | 13-Mar | 0 | 0 | 33604 | 33700 | 0 | |
| | 16-Mar | 0 | 0 | 33604 | 33700 | 0 | |
| | 19-Mar | 0 | 0 | 33604 | 33700 | 0 | |
| | 22-Mar | 0 | 0 | 33604 | 33700 | 0 | |
| | 25-Mar | 0 | 0 | 33604 | 33700 | 0 | |
| | 28-Mar | 0 | 0 | 33604 | 33700 | 0 | |
| | 31-Mar | 0 | 0 | 33604 | 33700 | 0 | 0 |
| | 03-Apr | 0 | 0 | 33604 | 33700 | 0 | |
| | 06-Apr | 0 | 0.18 | 33700 | 33710 | 0 | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 09-Apr | 0 | 0.18 | 33700 | 33710 | 0.054 | |
| 12-Apr | 0 | 0.18 | 33700 | 33710 | 0.108 | |
| 15-Apr | 0 | 0.18 | 33700 | 33710 | 0.162 | |
| 18-Apr | 0.18 | 0.18 | 33710 | 33731 | 0.18 | |
| 21-Apr | 0.18 | 0.18 | 33710 | 33731 | 0.18 | |
| 24-Apr | 0.18 | 0.18 | 33710 | 33731 | 0.18 | |
| 27-Apr | 0.18 | 0.18 | 33710 | 33731 | 0.18 | |
| 30-Apr | 0.18 | 0.18 | 33710 | 33731 | 0.18 | 0.1224 |
| 03-May | 0.18 | 0.18 | 33710 | 33731 | 0.18 | |
| 06-May | 0.18 | 0.18 | 33710 | 33731 | 0.18 | |
| 09-May | 0.18 | 1.1 | 33731 | 33783 | 0.21538462 | |
| 12-May | 0.18 | 1.1 | 33731 | 33783 | 0.26846154 | |
| 15-May | 0.18 | 1.1 | 33731 | 33783 | 0.32153846 | |
| 18-May | 0.18 | 1.1 | 33731 | 33783 | 0.37461538 | |
| 21-May | 0.18 | 1.1 | 33731 | 33783 | 0.42769231 | |
| 24-May | 0.18 | 1.1 | 33731 | 33783 | 0.48076923 | |
| 27-May | 0.18 | 1.1 | 33731 | 33783 | 0.53384615 | |
| 30-May | 0.18 | 1.1 | 33731 | 33783 | 0.58692308 | 0.35692308 |
| 02-Jun | 0.18 | 1.1 | 33731 | 33783 | 0.64 | |
| 05-Jun | 0.18 | 1.1 | 33731 | 33783 | 0.69307692 | |
| 08-Jun | 0.18 | 1.1 | 33731 | 33783 | 0.74615385 | |
| 11-Jun | 0.18 | 1.1 | 33731 | 33783 | 0.79923077 | |
| 14-Jun | 0.18 | 1.1 | 33731 | 33783 | 0.85230769 | |
| 17-Jun | 0.18 | 1.1 | 33731 | 33783 | 0.90538462 | |
| 20-Jun | 0.18 | 1.1 | 33731 | 33783 | 0.95846154 | |
| 23-Jun | 0.18 | 1.1 | 33731 | 33783 | 1.01153846 | |
| 26-Jun | 0.18 | 1.1 | 33731 | 33783 | 1.06461538 | |
| 29-Jun | 1.1 | 1.1 | 33783 | 33822.48 | 1.1 | 0.87707692 |
| 02-Jul | 1.1 | 1.1 | 33783 | 33822.48 | 1.1 | |
| 05-Jul | 1.1 | 1.1 | 33783 | 33822.48 | 1.1 | |
| 08-Jul | 1.1 | 1.1 | 33783 | 33822.48 | 1.1 | |
| 11-Jul | 1.1 | 1.1 | 33783 | 33822.48 | 1.1 | |
| 14-Jul | 1.1 | 1.1 | 33783 | 33822.48 | 1.1 | |
| 17-Jul | 1.1 | 1.1 | 33783 | 33822.48 | 1.1 | |
| 20-Jul | 1.1 | 1.1 | 33783 | 33822.48 | 1.1 | |
| 23-Jul | 1.1 | 1.1 | 33783 | 33822.48 | 1.1 | |
| 26-Jul | 1.1 | 1.1 | 33783 | 33822.48 | 1.1 | |
| 29-Jul | 1.1 | 1.1 | 33783 | 33822.48 | 1.1 | 1.1 |
| 01-Aug | 1.1 | 1.1 | 33783 | 33822.48 | 1.1 | |
| 04-Aug | 1.1 | 1.1 | 33783 | 33822.48 | 1.1 | |
| 07-Aug | 1.1 | 0.45 | 33822.48 | 33862 | 1.09144737 | |
| 10-Aug | 1.1 | 0.45 | 33822.48 | 33862 | 1.04210526 | |
| 13-Aug | 1.1 | 0.45 | 33822.48 | 33862 | 0.99276316 | |
| 16-Aug | 1.1 | 0.45 | 33822.48 | 33862 | 0.94342105 | |
| 19-Aug | 1.1 | 0.45 | 33822.48 | 33862 | 0.89407895 | |
| 22-Aug | 1.1 | 0.45 | 33822.48 | 33862 | 0.84473684 | |
| 25-Aug | 1.1 | 0.45 | 33822.48 | 33862 | 0.79539474 | |
| 28-Aug | 1.1 | 0.45 | 33822.48 | 33862 | 0.74605263 | |
| 31-Aug | 1.1 | 0.45 | 33822.48 | 33862 | 0.69671053 | 0.93151914 |
| 03-Sep | 1.1 | 0.45 | 33822.48 | 33862 | 0.64736842 | |
| 06-Sep | 1.1 | 0.45 | 33822.48 | 33862 | 0.59802632 | |
| 09-Sep | 1.1 | 0.45 | 33822.48 | 33862 | 0.54868421 | |

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|---|---|---|---|---|---|---|
| 12-Sep | 1.1 | 0.45 | 33822.48 | 33862 | 0.49934211 | |
| 15-Sep | 0.45 | 0 | 33862 | 33863 | 0.45 | |
| 18-Sep | 0 | 0 | 33863 | 0 | 0 | |
| 21-Sep | 0 | 0 | 33863 | 0 | 0 | |
| 24-Sep | 0 | 0 | 33863 | 0 | 0 | |
| 27-Sep | 0 | 0 | 33863 | 0 | 0 | |
| 30-Sep | 0 | 0 | 33863 | 0 | 0 | 0.27434211 |
| 03-Oct | 0 | 0 | 33863 | 0 | 0 | |
| 06-Oct | 0 | 0 | 33863 | 0 | 0 | |
| 09-Oct | 0 | 0 | 33863 | 0 | 0 | |
| 12-Oct | 0 | 0 | 33863 | 0 | 0 | |
| 15-Oct | 0 | 0 | 33863 | 0 | 0 | |
| 18-Oct | 0 | 0 | 33863 | 0 | 0 | |
| 21-Oct | 0 | 0 | 33863 | 0 | 0 | |
| 24-Oct | 0 | 0 | 33863 | 0 | 0 | |
| 27-Oct | 0 | 0 | 33863 | 0 | 0 | |
| 30-Oct | 0 | 0 | 33863 | 0 | 0 | 0 |
| 02-Nov | 0 | 0 | 33863 | 0 | 0 | |
| 05-Nov | 0 | 0 | 33863 | 0 | 0 | |
| 08-Nov | 0 | 0 | 33863 | 0 | 0 | |
| 11-Nov | 0 | 0 | 33863 | 0 | 0 | |
| 14-Nov | 0 | 0 | 33863 | 0 | 0 | |
| 17-Nov | 0 | 0 | 33863 | 0 | 0 | |
| 20-Nov | 0 | 0 | 33863 | 0 | 0 | |
| 23-Nov | 0 | 0 | 33863 | 0 | 0 | |
| 26-Nov | 0 | 0 | 33863 | 0 | 0 | |
| 29-Nov | 0 | 0 | 33863 | 0 | 0 | 0 |
| 02-Dec | 0 | 0 | 33863 | 0 | 0 | |
| 05-Dec | 0 | 0 | 33863 | 0 | 0 | |
| 08-Dec | 0 | 0 | 33863 | 0 | 0 | |
| 11-Dec | 0 | 0 | 33863 | 0 | 0 | |
| 14-Dec | 0 | 0 | 33863 | 0 | 0 | |
| 17-Dec | 0 | 0 | 33863 | 0 | 0 | |
| 20-Dec | 0 | 0 | 33863 | 0 | 0 | |
| 23-Dec | 0 | 0 | 33863 | 0 | 0 | |
| 26-Dec | 0 | 0 | 33863 | 0 | 0 | |
| 29-Dec | 0 | 0 | 33863 | 0 | 0 | 0 |

Fallow

| | |
|---|---|
| % SMD | 50.00 |
| RTZN | 6 |
| AWHC | 2 |
| SMD | 6 |
| crop'd Kc | 0.15 |
| Maturity % | 0.9 |

| | Dates | | | Kcs | | | |
|---|---|---|---|---|---|---|---|
| Start | 01/01/92 | 33604 | 33604 | 0 | 0 | | |
| Planting | 01/01/92 | 33604 | 33605 | 0 | 0.06 | | |
| Date A | 01/02/92 | 33605 | 33606 | 0.06 | 0.06 | | |
| Date B | 01/03/92 | 33606 | 33607 | 0.06 | 0.06 | | |
| Date C | 01/04/92 | 33607 | 33608.6 | 0.06 | 0.06 | | |
| Date D | 05-Jan | 33608.6 | 33609 | 0.06 | 0.06 | | |
| Date E | 01/06/92 | 33609 | 33969 | 0.06 | 0.06 | | |
| End | 12/31/92 | 33969 | | 0.06 | 0 | | |
| | | Kc1 | Kc2 | date 1 | date 2 | Kc | |
| | 01-jan-92 | 0 | 0 | 33604 | 33604 | 0.06 | |
| | 04-Jan | 0.06 | 0.06 | 33607 | 33608.6 | 0.06 | |
| | 07-Jan | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| | 10-Jan | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| | 13-Jan | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| | 16-Jan | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| | 19-Jan | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| | 22-Jan | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| | 25-Jan | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| | 28-Jan | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| | 31-Jan | 0.06 | 0.06 | 33609 | 33969 | 0.06 | 0.06 |
| | 03-Feb | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| | 06-Feb | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| | 09-Feb | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| | 12-Feb | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| | 15-Feb | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| | 18-Feb | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| | 21-Feb | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| | 24-Feb | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| | 27-Feb | 0.06 | 0.06 | 33609 | 33969 | 0.06 | 0.06 |
| | 01-Mar | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| | 04-Mar | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| | 07-Mar | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| | 10-Mar | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| | 13-Mar | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| | 16-Mar | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| | 19-Mar | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| | 22-Mar | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| | 25-Mar | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| | 28-Mar | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| | 31-Mar | 0.06 | 0.06 | 33609 | 33969 | 0.06 | 0.06 |
| | 03-Apr | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| | 06-Apr | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |

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|---|---|---|---|---|---|---|
| 09-Apr | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| 12-Apr | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| 15-Apr | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| 18-Apr | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| 21-Apr | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| 24-Apr | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| 27-Apr | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| 30-Apr | 0.06 | 0.06 | 33609 | 33969 | 0.06 | 0.06 |
| 03-May | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| 06-May | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| 09-May | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| 12-May | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| 15-May | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| 18-May | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| 21-May | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| 24-May | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| 27-May | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| 30-May | 0.06 | 0.06 | 33609 | 33969 | 0.06 | 0.06 |
| 02-Jun | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| 05-Jun | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| 08-Jun | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| 11-Jun | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| 14-Jun | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| 17-Jun | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| 20-Jun | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| 23-Jun | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| 26-Jun | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| 29-Jun | 0.06 | 0.06 | 33609 | 33969 | 0.06 | 0.06 |
| 02-Jul | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| 05-Jul | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| 08-Jul | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| 11-Jul | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| 14-Jul | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| 17-Jul | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| 20-Jul | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| 23-Jul | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| 26-Jul | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| 29-Jul | 0.06 | 0.06 | 33609 | 33969 | 0.06 | 0.06 |
| 01-Aug | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| 04-Aug | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| 07-Aug | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| 10-Aug | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| 13-Aug | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| 16-Aug | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| 19-Aug | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| 22-Aug | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| 25-Aug | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| 28-Aug | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| 31-Aug | 0.06 | 0.06 | 33609 | 33969 | 0.06 | 0.06 |
| 03-Sep | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| 06-Sep | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| 09-Sep | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |

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|---|---|---|---|---|---|---|
| 12-Sep | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| 15-Sep | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| 18-Sep | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| 21-Sep | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| 24-Sep | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| 27-Sep | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| 30-Sep | 0.06 | 0.06 | 33609 | 33969 | 0.06 | 0.06 |
| 03-Oct | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| 06-Oct | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| 09-Oct | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| 12-Oct | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| 15-Oct | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| 18-Oct | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| 21-Oct | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| 24-Oct | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| 27-Oct | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| 30-Oct | 0.06 | 0.06 | 33609 | 33969 | 0.06 | 0.06 |
| 02-Nov | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| 05-Nov | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| 08-Nov | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| 11-Nov | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| 14-Nov | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| 17-Nov | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| 20-Nov | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| 23-Nov | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| 26-Nov | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| 29-Nov | 0.06 | 0.06 | 33609 | 33969 | 0.06 | 0.06 |
| 02-Dec | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| 05-Dec | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| 08-Dec | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| 11-Dec | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| 14-Dec | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| 17-Dec | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| 20-Dec | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| 23-Dec | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| 26-Dec | 0.06 | 0.06 | 33609 | 33969 | 0.06 | |
| 29-Dec | 0.06 | 0.06 | 33609 | 33969 | 0.06 | 0.06 |

Melon

| | |
|---|---|
| % SMD | 50.00 |
| RTZN | 4 |
| AWHC | 2 |
| SMD | 4 |
| crop'd Kc | 0.15 |
| Maturity % | 0.75 |

| | Dates | | | Kcs | | | |
|---|---|---|---|---|---|---|---|
| Start | 01/01/92 | 33604 | 33683 | 0 | 0 | | |
| Planting | 03/20/92 | 33683 | 33695 | 0 | 0.18 | | |
| Date A | 04/01/92 | 33695 | 33730 | 0.18 | 0.18 | | |
| Date B | 05/06/92 | 33730 | 33769 | 0.18 | 1.1 | | |
| Date C | 06/14/92 | 33769 | 33773.75 | 1.1 | 1.1 | | |
| Date D | 18-Jun | 33773.75 | 33800 | 1.1 | 0.1 | | |
| Date E | 07/15/92 | 33800 | 33801 | 0.1 | 0 | | |
| End | 07/16/92 | 33801 | | 0 | 0 | | |

| | Kc1 | Kc2 | date 1 | date 2 | Kc | |
|---|---|---|---|---|---|---|
| 01-jan-92 | 0 | 0 | 33604 | 33683 | 0 | |
| 04-Jan | 0 | 0 | 33604 | 33683 | 0 | |
| 07-Jan | 0 | 0 | 33604 | 33683 | 0 | |
| 10-Jan | 0 | 0 | 33604 | 33683 | 0 | |
| 13-Jan | 0 | 0 | 33604 | 33683 | 0 | |
| 16-Jan | 0 | 0 | 33604 | 33683 | 0 | |
| 19-Jan | 0 | 0 | 33604 | 33683 | 0 | |
| 22-Jan | 0 | 0 | 33604 | 33683 | 0 | |
| 25-Jan | 0 | 0 | 33604 | 33683 | 0 | |
| 28-Jan | 0 | 0 | 33604 | 33683 | 0 | |
| 31-Jan | 0 | 0 | 33604 | 33683 | 0 | 0 |
| 03-Feb | 0 | 0 | 33604 | 33683 | 0 | |
| 06-Feb | 0 | 0 | 33604 | 33683 | 0 | |
| 09-Feb | 0 | 0 | 33604 | 33683 | 0 | |
| 12-Feb | 0 | 0 | 33604 | 33683 | 0 | |
| 15-Feb | 0 | 0 | 33604 | 33683 | 0 | |
| 18-Feb | 0 | 0 | 33604 | 33683 | 0 | |
| 21-Feb | 0 | 0 | 33604 | 33683 | 0 | |
| 24-Feb | 0 | 0 | 33604 | 33683 | 0 | |
| 27-Feb | 0 | 0 | 33604 | 33683 | 0 | 0 |
| 01-Mar | 0 | 0 | 33604 | 33683 | 0 | |
| 04-Mar | 0 | 0 | 33604 | 33683 | 0 | |
| 07-Mar | 0 | 0 | 33604 | 33683 | 0 | |
| 10-Mar | 0 | 0 | 33604 | 33683 | 0 | |
| 13-Mar | 0 | 0 | 33604 | 33683 | 0 | |
| 16-Mar | 0 | 0 | 33604 | 33683 | 0 | |
| 19-Mar | 0 | 0 | 33604 | 33683 | 0 | |
| 22-Mar | 0 | 0.18 | 33683 | 33695 | 0.03 | |
| 25-Mar | 0 | 0.18 | 33683 | 33695 | 0.075 | |
| 28-Mar | 0 | 0.18 | 33683 | 33695 | 0.12 | |
| 31-Mar | 0 | 0.18 | 33683 | 33695 | 0.165 | 0.03545455 |
| 03-Apr | 0.18 | 0.18 | 33695 | 33730 | 0.18 | |
| 06-Apr | 0.18 | 0.18 | 33695 | 33730 | 0.18 | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 09-Apr | 0.18 | 0.18 | 33695 | 33730 | 0.18 | |
| 12-Apr | 0.18 | 0.18 | 33695 | 33730 | 0.18 | |
| 15-Apr | 0.18 | 0.18 | 33695 | 33730 | 0.18 | |
| 18-Apr | 0.18 | 0.18 | 33695 | 33730 | 0.18 | |
| 21-Apr | 0.18 | 0.18 | 33695 | 33730 | 0.18 | |
| 24-Apr | 0.18 | 0.18 | 33695 | 33730 | 0.18 | |
| 27-Apr | 0.18 | 0.18 | 33695 | 33730 | 0.18 | |
| 30-Apr | 0.18 | 0.18 | 33695 | 33730 | 0.18 | 0.18 |
| 03-May | 0.18 | 0.18 | 33695 | 33730 | 0.18 | |
| 06-May | 0.18 | 1.1 | 33730 | 33769 | 0.18 | |
| 09-May | 0.18 | 1.1 | 33730 | 33769 | 0.25076923 | |
| 12-May | 0.18 | 1.1 | 33730 | 33769 | 0.32153846 | |
| 15-May | 0.18 | 1.1 | 33730 | 33769 | 0.39230769 | |
| 18-May | 0.18 | 1.1 | 33730 | 33769 | 0.46307692 | |
| 21-May | 0.18 | 1.1 | 33730 | 33769 | 0.53384615 | |
| 24-May | 0.18 | 1.1 | 33730 | 33769 | 0.60461538 | |
| 27-May | 0.18 | 1.1 | 33730 | 33769 | 0.67538462 | |
| 30-May | 0.18 | 1.1 | 33730 | 33769 | 0.74615385 | 0.43476923 |
| 02-Jun | 0.18 | 1.1 | 33730 | 33769 | 0.81692308 | |
| 05-Jun | 0.18 | 1.1 | 33730 | 33769 | 0.88769231 | |
| 08-Jun | 0.18 | 1.1 | 33730 | 33769 | 0.95846154 | |
| 11-Jun | 0.18 | 1.1 | 33730 | 33769 | 1.02923077 | |
| 14-Jun | 1.1 | 1.1 | 33769 | 33773.75 | 1.1 | |
| 17-Jun | 1.1 | 1.1 | 33769 | 33773.75 | 1.1 | |
| 20-Jun | 1.1 | 0.1 | 33773.75 | 33800 | 1.05238095 | |
| 23-Jun | 1.1 | 0.1 | 33773.75 | 33800 | 0.93809524 | |
| 26-Jun | 1.1 | 0.1 | 33773.75 | 33800 | 0.82380952 | |
| 29-Jun | 1.1 | 0.1 | 33773.75 | 33800 | 0.70952381 | 0.94161172 |
| 02-Jul | 1.1 | 0.1 | 33773.75 | 33800 | 0.5952381 | |
| 05-Jul | 1.1 | 0.1 | 33773.75 | 33800 | 0.48095238 | |
| 08-Jul | 1.1 | 0.1 | 33773.75 | 33800 | 0.36666667 | |
| 11-Jul | 1.1 | 0.1 | 33773.75 | 33800 | 0.25238095 | |
| 14-Jul | 1.1 | 0.1 | 33773.75 | 33800 | 0.13809524 | |
| 17-Jul | 0 | 0 | 33801 | 0 | 0 | |
| 20-Jul | 0 | 0 | 33801 | 0 | 0 | |
| 23-Jul | 0 | 0 | 33801 | 0 | 0 | |
| 26-Jul | 0 | 0 | 33801 | 0 | 0 | |
| 29-Jul | 0 | 0 | 33801 | 0 | 0 | 0.18333333 |
| 01-Aug | 0 | 0 | 33801 | 0 | 0 | |
| 04-Aug | 0 | 0 | 33801 | 0 | 0 | |
| 07-Aug | 0 | 0 | 33801 | 0 | 0 | |
| 10-Aug | 0 | 0 | 33801 | 0 | 0 | |
| 13-Aug | 0 | 0 | 33801 | 0 | 0 | |
| 16-Aug | 0 | 0 | 33801 | 0 | 0 | |
| 19-Aug | 0 | 0 | 33801 | 0 | 0 | |
| 22-Aug | 0 | 0 | 33801 | 0 | 0 | |
| 25-Aug | 0 | 0 | 33801 | 0 | 0 | |
| 28-Aug | 0 | 0 | 33801 | 0 | 0 | |
| 31-Aug | 0 | 0 | 33801 | 0 | 0 | 0 |
| 03-Sep | 0 | 0 | 33801 | 0 | 0 | |
| 06-Sep | 0 | 0 | 33801 | 0 | 0 | |
| 09-Sep | 0 | 0 | 33801 | 0 | 0 | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 12-Sep | 0 | 0 | 33801 | 0 | 0 | |
| 15-Sep | 0 | 0 | 33801 | 0 | 0 | |
| 18-Sep | 0 | 0 | 33801 | 0 | 0 | |
| 21-Sep | 0 | 0 | 33801 | 0 | 0 | |
| 24-Sep | 0 | 0 | 33801 | 0 | 0 | |
| 27-Sep | 0 | 0 | 33801 | 0 | 0 | |
| 30-Sep | 0 | 0 | 33801 | 0 | 0 | 0 |
| 03-Oct | 0 | 0 | 33801 | 0 | 0 | |
| 06-Oct | 0 | 0 | 33801 | 0 | 0 | |
| 09-Oct | 0 | 0 | 33801 | 0 | 0 | |
| 12-Oct | 0 | 0 | 33801 | 0 | 0 | |
| 15-Oct | 0 | 0 | 33801 | 0 | 0 | |
| 18-Oct | 0 | 0 | 33801 | 0 | 0 | |
| 21-Oct | 0 | 0 | 33801 | 0 | 0 | |
| 24-Oct | 0 | 0 | 33801 | 0 | 0 | |
| 27-Oct | 0 | 0 | 33801 | 0 | 0 | |
| 30-Oct | 0 | 0 | 33801 | 0 | 0 | 0 |
| 02-Nov | 0 | 0 | 33801 | 0 | 0 | |
| 05-Nov | 0 | 0 | 33801 | 0 | 0 | |
| 08-Nov | 0 | 0 | 33801 | 0 | 0 | |
| 11-Nov | 0 | 0 | 33801 | 0 | 0 | |
| 14-Nov | 0 | 0 | 33801 | 0 | 0 | |
| 17-Nov | 0 | 0 | 33801 | 0 | 0 | |
| 20-Nov | 0 | 0 | 33801 | 0 | 0 | |
| 23-Nov | 0 | 0 | 33801 | 0 | 0 | |
| 26-Nov | 0 | 0 | 33801 | 0 | 0 | |
| 29-Nov | 0 | 0 | 33801 | 0 | 0 | 0 |
| 02-Dec | 0 | 0 | 33801 | 0 | 0 | |
| 05-Dec | 0 | 0 | 33801 | 0 | 0 | |
| 08-Dec | 0 | 0 | 33801 | 0 | 0 | |
| 11-Dec | 0 | 0 | 33801 | 0 | 0 | |
| 14-Dec | 0 | 0 | 33801 | 0 | 0 | |
| 17-Dec | 0 | 0 | 33801 | 0 | 0 | |
| 20-Dec | 0 | 0 | 33801 | 0 | 0 | |
| 23-Dec | 0 | 0 | 33801 | 0 | 0 | |
| 26-Dec | 0 | 0 | 33801 | 0 | 0 | |
| 29-Dec | 0 | 0 | 33801 | 0 | 0 | 0 |

Pasture

| | |
|---|---|
| % SMD | 50.00 |
| RTZN | 6 |
| AWHC | 2 |
| SMD | 6 |
| crop'd Kc | 0.15 |
| Maturity % | 0.75 |

| | Dates | | | Kcs | | | |
|---|---|---|---|---|---|---|---|
| Start | 01/01/92 | 33604 | 33604 | 0 | 0 | | |
| Planting | 01/01/92 | 33604 | 33604 | 0 | 0.9 | | |
| Date A | 01/01/92 | 33604 | 33605 | 0.9 | 0.9 | | |
| Date B | 01/02/92 | 33605 | 33606 | 0.9 | 0.9 | | |
| Date C | 01/03/92 | 33606 | 33606.25 | 0.9 | 0.9 | | |
| Date D | 03-Jan | 33606.25 | 33607 | 0.9 | 0.9 | | |
| Date E | 01/04/92 | 33607 | 33969 | 0.9 | 0.9 | | |
| End | 12/31/92 | 33969 | | 0.9 | 0 | | |
| | | Kc1 | Kc2 | date 1 | date 2 | Kc | |
| | 01-jan-92 | 0 | 0 | 33604 | 33604 | 0.9 | |
| | 04-Jan | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| | 07-Jan | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| | 10-Jan | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| | 13-Jan | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| | 16-Jan | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| | 19-Jan | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| | 22-Jan | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| | 25-Jan | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| | 28-Jan | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| | 31-Jan | 0.9 | 0.9 | 33607 | 33969 | 0.9 | 0.9 |
| | 03-Feb | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| | 06-Feb | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| | 09-Feb | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| | 12-Feb | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| | 15-Feb | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| | 18-Feb | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| | 21-Feb | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| | 24-Feb | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| | 27-Feb | 0.9 | 0.9 | 33607 | 33969 | 0.9 | 0.9 |
| | 01-Mar | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| | 04-Mar | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| | 07-Mar | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| | 10-Mar | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| | 13-Mar | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| | 16-Mar | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| | 19-Mar | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| | 22-Mar | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| | 25-Mar | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| | 28-Mar | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| | 31-Mar | 0.9 | 0.9 | 33607 | 33969 | 0.9 | 0.9 |
| | 03-Apr | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| | 06-Apr | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 09-Apr | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| 12-Apr | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| 15-Apr | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| 18-Apr | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| 21-Apr | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| 24-Apr | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| 27-Apr | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| 30-Apr | 0.9 | 0.9 | 33607 | 33969 | 0.9 | 0.9 |
| 03-May | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| 06-May | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| 09-May | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| 12-May | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| 15-May | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| 18-May | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| 21-May | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| 24-May | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| 27-May | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| 30-May | 0.9 | 0.9 | 33607 | 33969 | 0.9 | 0.9 |
| 02-Jun | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| 05-Jun | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| 08-Jun | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| 11-Jun | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| 14-Jun | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| 17-Jun | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| 20-Jun | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| 23-Jun | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| 26-Jun | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| 29-Jun | 0.9 | 0.9 | 33607 | 33969 | 0.9 | 0.9 |
| 02-Jul | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| 05-Jul | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| 08-Jul | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| 11-Jul | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| 14-Jul | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| 17-Jul | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| 20-Jul | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| 23-Jul | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| 26-Jul | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| 29-Jul | 0.9 | 0.9 | 33607 | 33969 | 0.9 | 0.9 |
| 01-Aug | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| 04-Aug | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| 07-Aug | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| 10-Aug | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| 13-Aug | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| 16-Aug | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| 19-Aug | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| 22-Aug | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| 25-Aug | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| 28-Aug | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| 31-Aug | 0.9 | 0.9 | 33607 | 33969 | 0.9 | 0.9 |
| 03-Sep | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| 06-Sep | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| 09-Sep | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |

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|---|---|---|---|---|---|---|
| 12-Sep | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| 15-Sep | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| 18-Sep | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| 21-Sep | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| 24-Sep | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| 27-Sep | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| 30-Sep | 0.9 | 0.9 | 33607 | 33969 | 0.9 | 0.9 |
| 03-Oct | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| 06-Oct | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| 09-Oct | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| 12-Oct | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| 15-Oct | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| 18-Oct | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| 21-Oct | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| 24-Oct | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| 27-Oct | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| 30-Oct | 0.9 | 0.9 | 33607 | 33969 | 0.9 | 0.9 |
| 02-Nov | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| 05-Nov | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| 08-Nov | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| 11-Nov | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| 14-Nov | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| 17-Nov | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| 20-Nov | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| 23-Nov | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| 26-Nov | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| 29-Nov | 0.9 | 0.9 | 33607 | 33969 | 0.9 | 0.9 |
| 02-Dec | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| 05-Dec | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| 08-Dec | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| 11-Dec | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| 14-Dec | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| 17-Dec | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| 20-Dec | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| 23-Dec | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| 26-Dec | 0.9 | 0.9 | 33607 | 33969 | 0.9 | |
| 29-Dec | 0.9 | 0.9 | 33607 | 33969 | 0.9 | 0.9 |

Rice

| | |
|---|---|
| % SMD | 50.00 |
| RTZN | 6 |
| AWHC | 2 |
| SMD | 6 |
| crop'd Kc | 0.15 |
| Maturity % | 0.59 |

| | Dates | | | Kcs | | | |
|---|---|---|---|---|---|---|---|
| Start | 01/01/92 | 33604 | 33683 | 0 | 0 | | |
| Planting | 03/20/92 | 33683 | 33695 | 0 | 0.95 | | |
| Date A | 04/01/92 | 33695 | 33720 | 0.95 | 0.95 | | |
| Date B | 04/26/92 | 33720 | 33752 | 0.95 | 1.25 | | |
| Date C | 05/28/92 | 33752 | 33784.68 | 1.25 | 1.25 | | |
| Date D | 29-Jun | 33784.68 | 33847 | 1.25 | 0.95 | | |
| Date E | 08/31/92 | 33847 | 33848 | 0.95 | 0 | | |
| End | 09/01/92 | 33848 | | 0 | 0 | | |

| | Kc1 | Kc2 | date 1 | date 2 | Kc | |
|---|---|---|---|---|---|---|
| 01-jan-92 | 0 | 0 | 33604 | 33683 | 0 | |
| 04-Jan | 0 | 0 | 33604 | 33683 | 0 | |
| 07-Jan | 0 | 0 | 33604 | 33683 | 0 | |
| 10-Jan | 0 | 0 | 33604 | 33683 | 0 | |
| 13-Jan | 0 | 0 | 33604 | 33683 | 0 | |
| 16-Jan | 0 | 0 | 33604 | 33683 | 0 | |
| 19-Jan | 0 | 0 | 33604 | 33683 | 0 | |
| 22-Jan | 0 | 0 | 33604 | 33683 | 0 | |
| 25-Jan | 0 | 0 | 33604 | 33683 | 0 | |
| 28-Jan | 0 | 0 | 33604 | 33683 | 0 | |
| 31-Jan | 0 | 0 | 33604 | 33683 | 0 | 0 |
| 03-Feb | 0 | 0 | 33604 | 33683 | 0 | |
| 06-Feb | 0 | 0 | 33604 | 33683 | 0 | |
| 09-Feb | 0 | 0 | 33604 | 33683 | 0 | |
| 12-Feb | 0 | 0 | 33604 | 33683 | 0 | |
| 15-Feb | 0 | 0 | 33604 | 33683 | 0 | |
| 18-Feb | 0 | 0 | 33604 | 33683 | 0 | |
| 21-Feb | 0 | 0 | 33604 | 33683 | 0 | |
| 24-Feb | 0 | 0 | 33604 | 33683 | 0 | |
| 27-Feb | 0 | 0 | 33604 | 33683 | 0 | 0 |
| 01-Mar | 0 | 0 | 33604 | 33683 | 0 | |
| 04-Mar | 0 | 0 | 33604 | 33683 | 0 | |
| 07-Mar | 0 | 0 | 33604 | 33683 | 0 | |
| 10-Mar | 0 | 0 | 33604 | 33683 | 0 | |
| 13-Mar | 0 | 0 | 33604 | 33683 | 0 | |
| 16-Mar | 0 | 0 | 33604 | 33683 | 0 | |
| 19-Mar | 0 | 0 | 33604 | 33683 | 0 | |
| 22-Mar | 0 | 0.95 | 33683 | 33695 | 0.15833333 | |
| 25-Mar | 0 | 0.95 | 33683 | 33695 | 0.39583333 | |
| 28-Mar | 0 | 0.95 | 33683 | 33695 | 0.63333333 | |
| 31-Mar | 0 | 0.95 | 33683 | 33695 | 0.87083333 | 0.18712121 |
| 03-Apr | 0.95 | 0.95 | 33695 | 33720 | 0.95 | |
| 06-Apr | 0.95 | 0.95 | 33695 | 33720 | 0.95 | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 09-Apr | 0.95 | 0.95 | 33695 | 33720 | 0.95 | |
| 12-Apr | 0.95 | 0.95 | 33695 | 33720 | 0.95 | |
| 15-Apr | 0.95 | 0.95 | 33695 | 33720 | 0.95 | |
| 18-Apr | 0.95 | 0.95 | 33695 | 33720 | 0.95 | |
| 21-Apr | 0.95 | 0.95 | 33695 | 33720 | 0.95 | |
| 24-Apr | 0.95 | 0.95 | 33695 | 33720 | 0.95 | |
| 27-Apr | 0.95 | 1.25 | 33720 | 33752 | 0.959375 | |
| 30-Apr | 0.95 | 1.25 | 33720 | 33752 | 0.9875 | 0.9546875 |
| 03-May | 0.95 | 1.25 | 33720 | 33752 | 1.015625 | |
| 06-May | 0.95 | 1.25 | 33720 | 33752 | 1.04375 | |
| 09-May | 0.95 | 1.25 | 33720 | 33752 | 1.071875 | |
| 12-May | 0.95 | 1.25 | 33720 | 33752 | 1.1 | |
| 15-May | 0.95 | 1.25 | 33720 | 33752 | 1.128125 | |
| 18-May | 0.95 | 1.25 | 33720 | 33752 | 1.15625 | |
| 21-May | 0.95 | 1.25 | 33720 | 33752 | 1.184375 | |
| 24-May | 0.95 | 1.25 | 33720 | 33752 | 1.2125 | |
| 27-May | 0.95 | 1.25 | 33720 | 33752 | 1.240625 | |
| 30-May | 1.25 | 1.25 | 33752 | 33784.68 | 1.25 | 1.1403125 |
| 02-Jun | 1.25 | 1.25 | 33752 | 33784.68 | 1.25 | |
| 05-Jun | 1.25 | 1.25 | 33752 | 33784.68 | 1.25 | |
| 08-Jun | 1.25 | 1.25 | 33752 | 33784.68 | 1.25 | |
| 11-Jun | 1.25 | 1.25 | 33752 | 33784.68 | 1.25 | |
| 14-Jun | 1.25 | 1.25 | 33752 | 33784.68 | 1.25 | |
| 17-Jun | 1.25 | 1.25 | 33752 | 33784.68 | 1.25 | |
| 20-Jun | 1.25 | 1.25 | 33752 | 33784.68 | 1.25 | |
| 23-Jun | 1.25 | 1.25 | 33752 | 33784.68 | 1.25 | |
| 26-Jun | 1.25 | 1.25 | 33752 | 33784.68 | 1.25 | |
| 29-Jun | 1.25 | 1.25 | 33752 | 33784.68 | 1.25 | 1.25 |
| 02-Jul | 1.25 | 0.95 | 33784.68 | 33847 | 1.23883184 | |
| 05-Jul | 1.25 | 0.95 | 33784.68 | 33847 | 1.22439024 | |
| 08-Jul | 1.25 | 0.95 | 33784.68 | 33847 | 1.20994865 | |
| 11-Jul | 1.25 | 0.95 | 33784.68 | 33847 | 1.19550706 | |
| 14-Jul | 1.25 | 0.95 | 33784.68 | 33847 | 1.18106547 | |
| 17-Jul | 1.25 | 0.95 | 33784.68 | 33847 | 1.16662388 | |
| 20-Jul | 1.25 | 0.95 | 33784.68 | 33847 | 1.15218228 | |
| 23-Jul | 1.25 | 0.95 | 33784.68 | 33847 | 1.13774069 | |
| 26-Jul | 1.25 | 0.95 | 33784.68 | 33847 | 1.1232991 | |
| 29-Jul | 1.25 | 0.95 | 33784.68 | 33847 | 1.10885751 | 1.17384467 |
| 01-Aug | 1.25 | 0.95 | 33784.68 | 33847 | 1.09441592 | |
| 04-Aug | 1.25 | 0.95 | 33784.68 | 33847 | 1.07997433 | |
| 07-Aug | 1.25 | 0.95 | 33784.68 | 33847 | 1.06553273 | |
| 10-Aug | 1.25 | 0.95 | 33784.68 | 33847 | 1.05109114 | |
| 13-Aug | 1.25 | 0.95 | 33784.68 | 33847 | 1.03664955 | |
| 16-Aug | 1.25 | 0.95 | 33784.68 | 33847 | 1.02220796 | |
| 19-Aug | 1.25 | 0.95 | 33784.68 | 33847 | 1.00776637 | |
| 22-Aug | 1.25 | 0.95 | 33784.68 | 33847 | 0.99332478 | |
| 25-Aug | 1.25 | 0.95 | 33784.68 | 33847 | 0.97888318 | |
| 28-Aug | 1.25 | 0.95 | 33784.68 | 33847 | 0.96444159 | |
| 31-Aug | 0.95 | 0 | 33847 | 33848 | 0.95 | 1.02220796 |
| 03-Sep | 0 | 0 | 33848 | 0 | 0 | |
| 06-Sep | 0 | 0 | 33848 | 0 | 0 | |
| 09-Sep | 0 | 0 | 33848 | 0 | 0 | |

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|---|---|---|---|---|---|---|
| 12-Sep | 0 | 0 | 33848 | 0 | 0 | |
| 15-Sep | 0 | 0 | 33848 | 0 | 0 | |
| 18-Sep | 0 | 0 | 33848 | 0 | 0 | |
| 21-Sep | 0 | 0 | 33848 | 0 | 0 | |
| 24-Sep | 0 | 0 | 33848 | 0 | 0 | |
| 27-Sep | 0 | 0 | 33848 | 0 | 0 | |
| 30-Sep | 0 | 0 | 33848 | 0 | 0 | 0 |
| 03-Oct | 0 | 0 | 33848 | 0 | 0 | |
| 06-Oct | 0 | 0 | 33848 | 0 | 0 | |
| 09-Oct | 0 | 0 | 33848 | 0 | 0 | |
| 12-Oct | 0 | 0 | 33848 | 0 | 0 | |
| 15-Oct | 0 | 0 | 33848 | 0 | 0 | |
| 18-Oct | 0 | 0 | 33848 | 0 | 0 | |
| 21-Oct | 0 | 0 | 33848 | 0 | 0 | |
| 24-Oct | 0 | 0 | 33848 | 0 | 0 | |
| 27-Oct | 0 | 0 | 33848 | 0 | 0 | |
| 30-Oct | 0 | 0 | 33848 | 0 | 0 | 0 |
| 02-Nov | 0 | 0 | 33848 | 0 | 0 | |
| 05-Nov | 0 | 0 | 33848 | 0 | 0 | |
| 08-Nov | 0 | 0 | 33848 | 0 | 0 | |
| 11-Nov | 0 | 0 | 33848 | 0 | 0 | |
| 14-Nov | 0 | 0 | 33848 | 0 | 0 | |
| 17-Nov | 0 | 0 | 33848 | 0 | 0 | |
| 20-Nov | 0 | 0 | 33848 | 0 | 0 | |
| 23-Nov | 0 | 0 | 33848 | 0 | 0 | |
| 26-Nov | 0 | 0 | 33848 | 0 | 0 | |
| 29-Nov | 0 | 0 | 33848 | 0 | 0 | 0 |
| 02-Dec | 0 | 0 | 33848 | 0 | 0 | |
| 05-Dec | 0 | 0 | 33848 | 0 | 0 | |
| 08-Dec | 0 | 0 | 33848 | 0 | 0 | |
| 11-Dec | 0 | 0 | 33848 | 0 | 0 | |
| 14-Dec | 0 | 0 | 33848 | 0 | 0 | |
| 17-Dec | 0 | 0 | 33848 | 0 | 0 | |
| 20-Dec | 0 | 0 | 33848 | 0 | 0 | |
| 23-Dec | 0 | 0 | 33848 | 0 | 0 | |
| 26-Dec | 0 | 0 | 33848 | 0 | 0 | |
| 29-Dec | 0 | 0 | 33848 | 0 | 0 | 0 |

Seed alfalfa

| | |
|---|---|
| % SMD | 50.00 |
| RTZN | 6 |
| AWHC | 2 |
| SMD | 6 |
| crop'd Kc | 0.15 |
| Maturity % | 0.75 |

| | Dates | | | Kcs | | | |
|---|---|---|---|---|---|---|---|
| Start | 01/01/91 | 33239 | 33562 | 0 | 0 | | |
| Planting | 11/20/91 | 33562 | 33573 | 0 | 0.2 | | |
| Date A | 12/01/91 | 33573 | 33618 | 0.2 | 0.2 | | |
| Date B | 01/15/92 | 33618 | 33709 | 0.2 | 1 | | |
| Date C | 04/15/92 | 33709 | 33743.25 | 1 | 1 | | |
| Date D | 19-May | 33743.25 | 33800 | 1 | 0.3 | | |
| Date E | 07/15/92 | 33800 | 33801 | 0.3 | 0 | | |
| End | 07/16/92 | 33801 | | 0 | 0 | | |
| | | Kc1 | Kc2 | date 1 | date 2 | Kc | |
| | 01-jan-92 | 0.2 | 0.2 | 33573 | 33618 | 0.2 | |
| | 04-Jan | 0.2 | 0.2 | 33573 | 33618 | 0.2 | |
| | 07-Jan | 0.2 | 0.2 | 33573 | 33618 | 0.2 | |
| | 10-Jan | 0.2 | 0.2 | 33573 | 33618 | 0.2 | |
| | 13-Jan | 0.2 | 0.2 | 33573 | 33618 | 0.2 | |
| | 16-Jan | 0.2 | 1 | 33618 | 33709 | 0.20879121 | |
| | 19-Jan | 0.2 | 1 | 33618 | 33709 | 0.23516484 | |
| | 22-Jan | 0.2 | 1 | 33618 | 33709 | 0.26153846 | |
| | 25-Jan | 0.2 | 1 | 33618 | 33709 | 0.28791209 | |
| | 28-Jan | 0.2 | 1 | 33618 | 33709 | 0.31428571 | |
| | 31-Jan | 0.2 | 1 | 33618 | 33709 | 0.34065934 | 0.24075924 |
| | 03-Feb | 0.2 | 1 | 33618 | 33709 | 0.36703297 | |
| | 06-Feb | 0.2 | 1 | 33618 | 33709 | 0.39340659 | |
| | 09-Feb | 0.2 | 1 | 33618 | 33709 | 0.41978022 | |
| | 12-Feb | 0.2 | 1 | 33618 | 33709 | 0.44615385 | |
| | 15-Feb | 0.2 | 1 | 33618 | 33709 | 0.47252747 | |
| | 18-Feb | 0.2 | 1 | 33618 | 33709 | 0.4989011 | |
| | 21-Feb | 0.2 | 1 | 33618 | 33709 | 0.52527473 | |
| | 24-Feb | 0.2 | 1 | 33618 | 33709 | 0.55164835 | |
| | 27-Feb | 0.2 | 1 | 33618 | 33709 | 0.57802198 | 0.47252747 |
| | 01-Mar | 0.2 | 1 | 33618 | 33709 | 0.6043956 | |
| | 04-Mar | 0.2 | 1 | 33618 | 33709 | 0.63076923 | |
| | 07-Mar | 0.2 | 1 | 33618 | 33709 | 0.65714286 | |
| | 10-Mar | 0.2 | 1 | 33618 | 33709 | 0.68351648 | |
| | 13-Mar | 0.2 | 1 | 33618 | 33709 | 0.70989011 | |
| | 16-Mar | 0.2 | 1 | 33618 | 33709 | 0.73626374 | |
| | 19-Mar | 0.2 | 1 | 33618 | 33709 | 0.76263736 | |
| | 22-Mar | 0.2 | 1 | 33618 | 33709 | 0.78901099 | |
| | 25-Mar | 0.2 | 1 | 33618 | 33709 | 0.81538462 | |
| | 28-Mar | 0.2 | 1 | 33618 | 33709 | 0.84175824 | |
| | 31-Mar | 0.2 | 1 | 33618 | 33709 | 0.86813187 | 0.73626374 |
| | 03-Apr | 0.2 | 1 | 33618 | 33709 | 0.89450549 | |
| | 06-Apr | 0.2 | 1 | 33618 | 33709 | 0.92087912 | |

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|---|---|---|---|---|---|---|
| 09-Apr | 0.2 | 1 | 33618 | 33709 | 0.94725275 | |
| 12-Apr | 0.2 | 1 | 33618 | 33709 | 0.97362637 | |
| 15-Apr | 1 | 1 | 33709 | 33743.25 | 1 | |
| 18-Apr | 1 | 1 | 33709 | 33743.25 | 1 | |
| 21-Apr | 1 | 1 | 33709 | 33743.25 | 1 | |
| 24-Apr | 1 | 1 | 33709 | 33743.25 | 1 | |
| 27-Apr | 1 | 1 | 33709 | 33743.25 | 1 | |
| 30-Apr | 1 | 1 | 33709 | 33743.25 | 1 | 0.97362637 |
| 03-May | 1 | 1 | 33709 | 33743.25 | 1 | |
| 06-May | 1 | 1 | 33709 | 33743.25 | 1 | |
| 09-May | 1 | 1 | 33709 | 33743.25 | 1 | |
| 12-May | 1 | 1 | 33709 | 33743.25 | 1 | |
| 15-May | 1 | 1 | 33709 | 33743.25 | 1 | |
| 18-May | 1 | 1 | 33709 | 33743.25 | 1 | |
| 21-May | 1 | 0.3 | 33743.25 | 33800 | 0.9784141 | |
| 24-May | 1 | 0.3 | 33743.25 | 33800 | 0.94140969 | |
| 27-May | 1 | 0.3 | 33743.25 | 33800 | 0.90440529 | |
| 30-May | 1 | 0.3 | 33743.25 | 33800 | 0.86740088 | 0.969163 |
| 02-Jun | 1 | 0.3 | 33743.25 | 33800 | 0.83039648 | |
| 05-Jun | 1 | 0.3 | 33743.25 | 33800 | 0.79339207 | |
| 08-Jun | 1 | 0.3 | 33743.25 | 33800 | 0.75638767 | |
| 11-Jun | 1 | 0.3 | 33743.25 | 33800 | 0.71938326 | |
| 14-Jun | 1 | 0.3 | 33743.25 | 33800 | 0.68237885 | |
| 17-Jun | 1 | 0.3 | 33743.25 | 33800 | 0.64537445 | |
| 20-Jun | 1 | 0.3 | 33743.25 | 33800 | 0.60837004 | |
| 23-Jun | 1 | 0.3 | 33743.25 | 33800 | 0.57136564 | |
| 26-Jun | 1 | 0.3 | 33743.25 | 33800 | 0.53436123 | |
| 29-Jun | 1 | 0.3 | 33743.25 | 33800 | 0.49735683 | 0.66387665 |
| 02-Jul | 1 | 0.3 | 33743.25 | 33800 | 0.46035242 | |
| 05-Jul | 1 | 0.3 | 33743.25 | 33800 | 0.42334802 | |
| 08-Jul | 1 | 0.3 | 33743.25 | 33800 | 0.38634361 | |
| 11-Jul | 1 | 0.3 | 33743.25 | 33800 | 0.34933921 | |
| 14-Jul | 1 | 0.3 | 33743.25 | 33800 | 0.3123348 | |
| 17-jul-91 | 0 | 0 | 33239 | 33562 | 0 | |
| 20-Jul | 0 | 0 | 33239 | 33562 | 0 | |
| 23-Jul | 0 | 0 | 33239 | 33562 | 0 | |
| 26-Jul | 0 | 0 | 33239 | 33562 | 0 | |
| 29-Jul | 0 | 0 | 33239 | 33562 | 0 | 0.19317181 |
| 01-Aug | 0 | 0 | 33239 | 33562 | 0 | |
| 04-Aug | 0 | 0 | 33239 | 33562 | 0 | |
| 07-Aug | 0 | 0 | 33239 | 33562 | 0 | |
| 10-Aug | 0 | 0 | 33239 | 33562 | 0 | |
| 13-Aug | 0 | 0 | 33239 | 33562 | 0 | |
| 16-Aug | 0 | 0 | 33239 | 33562 | 0 | |
| 19-Aug | 0 | 0 | 33239 | 33562 | 0 | |
| 22-Aug | 0 | 0 | 33239 | 33562 | 0 | |
| 25-Aug | 0 | 0 | 33239 | 33562 | 0 | |
| 28-Aug | 0 | 0 | 33239 | 33562 | 0 | |
| 31-Aug | 0 | 0 | 33239 | 33562 | 0 | 0 |
| 03-Sep | 0 | 0 | 33239 | 33562 | 0 | |
| 06-Sep | 0 | 0 | 33239 | 33562 | 0 | |
| 09-Sep | 0 | 0 | 33239 | 33562 | 0 | |

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|---|---|---|---|---|---|---|
| 12-Sep | 0 | 0 | 33239 | 33562 | 0 | |
| 15-Sep | 0 | 0 | 33239 | 33562 | 0 | |
| 18-Sep | 0 | 0 | 33239 | 33562 | 0 | |
| 21-Sep | 0 | 0 | 33239 | 33562 | 0 | |
| 24-Sep | 0 | 0 | 33239 | 33562 | 0 | |
| 27-Sep | 0 | 0 | 33239 | 33562 | 0 | |
| 30-Sep | 0 | 0 | 33239 | 33562 | 0 | 0 |
| 03-Oct | 0 | 0 | 33239 | 33562 | 0 | |
| 06-Oct | 0 | 0 | 33239 | 33562 | 0 | |
| 09-Oct | 0 | 0 | 33239 | 33562 | 0 | |
| 12-Oct | 0 | 0 | 33239 | 33562 | 0 | |
| 15-Oct | 0 | 0 | 33239 | 33562 | 0 | |
| 18-Oct | 0 | 0 | 33239 | 33562 | 0 | |
| 21-Oct | 0 | 0 | 33239 | 33562 | 0 | |
| 24-Oct | 0 | 0 | 33239 | 33562 | 0 | |
| 27-Oct | 0 | 0 | 33239 | 33562 | 0 | |
| 30-Oct | 0 | 0 | 33239 | 33562 | 0 | 0 |
| 02-Nov | 0 | 0 | 33239 | 33562 | 0 | |
| 05-Nov | 0 | 0 | 33239 | 33562 | 0 | |
| 08-Nov | 0 | 0 | 33239 | 33562 | 0 | |
| 11-Nov | 0 | 0 | 33239 | 33562 | 0 | |
| 14-Nov | 0 | 0 | 33239 | 33562 | 0 | |
| 17-Nov | 0 | 0 | 33239 | 33562 | 0 | |
| 20-Nov | 0 | 0.2 | 33562 | 33573 | 0 | |
| 23-Nov | 0 | 0.2 | 33562 | 33573 | 0.05454545 | |
| 26-Nov | 0 | 0.2 | 33562 | 33573 | 0.10909091 | |
| 29-Nov | 0 | 0.2 | 33562 | 33573 | 0.16363636 | 0.03272727 |
| 02-Dec | 0.2 | 0.2 | 33573 | 33618 | 0.2 | |
| 05-Dec | 0.2 | 0.2 | 33573 | 33618 | 0.2 | |
| 08-Dec | 0.2 | 0.2 | 33573 | 33618 | 0.2 | |
| 11-Dec | 0.2 | 0.2 | 33573 | 33618 | 0.2 | |
| 14-Dec | 0.2 | 0.2 | 33573 | 33618 | 0.2 | |
| 17-Dec | 0.2 | 0.2 | 33573 | 33618 | 0.2 | |
| 20-Dec | 0.2 | 0.2 | 33573 | 33618 | 0.2 | |
| 23-Dec | 0.2 | 0.2 | 33573 | 33618 | 0.2 | |
| 26-Dec | 0.2 | 0.2 | 33573 | 33618 | 0.2 | |
| 29-Dec | 0.2 | 0.2 | 33573 | 33618 | 0.2 | 0.2 |

Sugar beets - north of Nees

| | |
|---|---|
| % SMD | 50.00 |
| RTZN | 6 |
| AWHC | 2 |
| SMD | 6 |
| crop'd Kc | 0.15 |
| Maturity % | 0.84 |

| | Dates | | | Kcs | | | |
|---|---|---|---|---|---|---|---|
| Start | 01/01/91 | 33239 | 33368 | 0 | 0 | | |
| Planting | 05/10/91 | 33368 | 33378 | 0 | 0.23 | | |
| Date A | 05/20/91 | 33378 | 33399 | 0.23 | 0.23 | | |
| Date B | 06/10/91 | 33399 | 33439 | 0.23 | 1.1 | | |
| Date C | 07/20/91 | 33439 | 33630 | 1.1 | 1.1 | | |
| Date D | 27-Jan | 33630 | 33678 | 1.1 | 0.95 | | |
| Date E | 03/15/92 | 33678 | 33678 | 0.95 | 0 | | |
| End | 03/15/92 | 33678 | | 0 | 0 | | |
| | | Kc1 | Kc2 | date 1 | date 2 | Kc | |
| | 01-jan-92 | 1.1 | 1.1 | 33439 | 33630 | 1.1 | |
| | 04-Jan | 1.1 | 1.1 | 33439 | 33630 | 1.1 | |
| | 07-Jan | 1.1 | 1.1 | 33439 | 33630 | 1.1 | |
| | 10-Jan | 1.1 | 1.1 | 33439 | 33630 | 1.1 | |
| | 13-Jan | 1.1 | 1.1 | 33439 | 33630 | 1.1 | |
| | 16-Jan | 1.1 | 1.1 | 33439 | 33630 | 1.1 | |
| | 19-Jan | 1.1 | 1.1 | 33439 | 33630 | 1.1 | |
| | 22-Jan | 1.1 | 1.1 | 33439 | 33630 | 1.1 | |
| | 25-Jan | 1.1 | 1.1 | 33439 | 33630 | 1.1 | |
| | 28-Jan | 1.1 | 0.95 | 33630 | 33678 | 1.096875 | |
| | 31-Jan | 1.1 | 0.95 | 33630 | 33678 | 1.0875 | 1.09857955 |
| | 03-Feb | 1.1 | 0.95 | 33630 | 33678 | 1.078125 | |
| | 06-Feb | 1.1 | 0.95 | 33630 | 33678 | 1.06875 | |
| | 09-Feb | 1.1 | 0.95 | 33630 | 33678 | 1.059375 | |
| | 12-Feb | 1.1 | 0.95 | 33630 | 33678 | 1.05 | |
| | 15-Feb | 1.1 | 0.95 | 33630 | 33678 | 1.040625 | |
| | 18-Feb | 1.1 | 0.95 | 33630 | 33678 | 1.03125 | |
| | 21-Feb | 1.1 | 0.95 | 33630 | 33678 | 1.021875 | |
| | 24-Feb | 1.1 | 0.95 | 33630 | 33678 | 1.0125 | |
| | 27-Feb | 1.1 | 0.95 | 33630 | 33678 | 1.003125 | 1.040625 |
| | 01-Mar | 1.1 | 0.95 | 33630 | 33678 | 0.99375 | |
| | 04-Mar | 1.1 | 0.95 | 33630 | 33678 | 0.984375 | |
| | 07-Mar | 1.1 | 0.95 | 33630 | 33678 | 0.975 | |
| | 10-Mar | 1.1 | 0.95 | 33630 | 33678 | 0.965625 | |
| | 13-Mar | 1.1 | 0.95 | 33630 | 33678 | 0.95625 | |
| | 16-Mar | 0 | 0 | 33678 | 0 | 0 | |
| | 19-Mar | 0 | 0 | 33678 | 0 | 0 | |
| | 22-Mar | 0 | 0 | 33678 | 0 | 0 | |
| | 25-Mar | 0 | 0 | 33678 | 0 | 0 | |
| | 28-Mar | 0 | 0 | 33678 | 0 | 0 | |
| | 31-Mar | 0 | 0 | 33678 | 0 | 0 | 0.44318182 |
| | 03-Apr | 0 | 0 | 33678 | 0 | 0 | |
| | 06-Apr | 0 | 0 | 33678 | 0 | 0 | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 09-Apr | 0 | 0 | 33678 | 0 | 0 | |
| 12-Apr | 0 | 0 | 33678 | 0 | 0 | |
| 15-Apr | 0 | 0 | 33678 | 0 | 0 | |
| 18-Apr | 0 | 0 | 33678 | 0 | 0 | |
| 21-Apr | 0 | 0 | 33678 | 0 | 0 | |
| 24-Apr | 0 | 0 | 33678 | 0 | 0 | |
| 27-Apr | 0 | 0 | 33678 | 0 | 0 | |
| 30-Apr | 0 | 0 | 33678 | 0 | 0 | 0 |
| 03-MAY-91 | 0 | 0 | 33239 | 33368 | 0 | |
| 06-May | 0 | 0 | 33239 | 33368 | 0 | |
| 09-May | 0 | 0 | 33239 | 33368 | 0 | |
| 12-May | 0 | 0.23 | 33368 | 33378 | 0.046 | |
| 15-May | 0 | 0.23 | 33368 | 33378 | 0.115 | |
| 18-May | 0 | 0.23 | 33368 | 33378 | 0.184 | |
| 21-May | 0.23 | 0.23 | 33378 | 33399 | 0.23 | |
| 24-May | 0.23 | 0.23 | 33378 | 33399 | 0.23 | |
| 27-May | 0.23 | 0.23 | 33378 | 33399 | 0.23 | |
| 30-May | 0.23 | 0.23 | 33378 | 33399 | 0.23 | 0.1265 |
| 02-Jun | 0.23 | 0.23 | 33378 | 33399 | 0.23 | |
| 05-Jun | 0.23 | 0.23 | 33378 | 33399 | 0.23 | |
| 08-Jun | 0.23 | 0.23 | 33378 | 33399 | 0.23 | |
| 11-Jun | 0.23 | 1.1 | 33399 | 33439 | 0.25175 | |
| 14-Jun | 0.23 | 1.1 | 33399 | 33439 | 0.317 | |
| 17-Jun | 0.23 | 1.1 | 33399 | 33439 | 0.38225 | |
| 20-Jun | 0.23 | 1.1 | 33399 | 33439 | 0.4475 | |
| 23-Jun | 0.23 | 1.1 | 33399 | 33439 | 0.51275 | |
| 26-Jun | 0.23 | 1.1 | 33399 | 33439 | 0.578 | |
| 29-Jun | 0.23 | 1.1 | 33399 | 33439 | 0.64325 | 0.38225 |
| 02-Jul | 0.23 | 1.1 | 33399 | 33439 | 0.7085 | |
| 05-Jul | 0.23 | 1.1 | 33399 | 33439 | 0.77375 | |
| 08-Jul | 0.23 | 1.1 | 33399 | 33439 | 0.839 | |
| 11-Jul | 0.23 | 1.1 | 33399 | 33439 | 0.90425 | |
| 14-Jul | 0.23 | 1.1 | 33399 | 33439 | 0.9695 | |
| 17-Jul | 0.23 | 1.1 | 33399 | 33439 | 1.03475 | |
| 20-Jul | 1.1 | 1.1 | 33439 | 33630 | 1.1 | |
| 23-Jul | 1.1 | 1.1 | 33439 | 33630 | 1.1 | |
| 26-Jul | 1.1 | 1.1 | 33439 | 33630 | 1.1 | |
| 29-Jul | 1.1 | 1.1 | 33439 | 33630 | 1.1 | 0.962975 |
| 01-Aug | 1.1 | 1.1 | 33439 | 33630 | 1.1 | |
| 04-Aug | 1.1 | 1.1 | 33439 | 33630 | 1.1 | |
| 07-Aug | 1.1 | 1.1 | 33439 | 33630 | 1.1 | |
| 10-Aug | 1.1 | 1.1 | 33439 | 33630 | 1.1 | |
| 13-Aug | 1.1 | 1.1 | 33439 | 33630 | 1.1 | |
| 16-Aug | 1.1 | 1.1 | 33439 | 33630 | 1.1 | |
| 19-Aug | 1.1 | 1.1 | 33439 | 33630 | 1.1 | |
| 22-Aug | 1.1 | 1.1 | 33439 | 33630 | 1.1 | |
| 25-Aug | 1.1 | 1.1 | 33439 | 33630 | 1.1 | |
| 28-Aug | 1.1 | 1.1 | 33439 | 33630 | 1.1 | |
| 31-Aug | 1.1 | 1.1 | 33439 | 33630 | 1.1 | 1.1 |
| 03-Sep | 1.1 | 1.1 | 33439 | 33630 | 1.1 | |
| 06-Sep | 1.1 | 1.1 | 33439 | 33630 | 1.1 | |
| 09-Sep | 1.1 | 1.1 | 33439 | 33630 | 1.1 | |

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|---|---|---|---|---|---|---|
| 12-Sep | 1.1 | 1.1 | 33439 | 33630 | 1.1 | |
| 15-Sep | 1.1 | 1.1 | 33439 | 33630 | 1.1 | |
| 18-Sep | 1.1 | 1.1 | 33439 | 33630 | 1.1 | |
| 21-Sep | 1.1 | 1.1 | 33439 | 33630 | 1.1 | |
| 24-Sep | 1.1 | 1.1 | 33439 | 33630 | 1.1 | |
| 27-Sep | 1.1 | 1.1 | 33439 | 33630 | 1.1 | |
| 30-Sep | 1.1 | 1.1 | 33439 | 33630 | 1.1 | 1.1 |
| 03-Oct | 1.1 | 1.1 | 33439 | 33630 | 1.1 | |
| 06-Oct | 1.1 | 1.1 | 33439 | 33630 | 1.1 | |
| 09-Oct | 1.1 | 1.1 | 33439 | 33630 | 1.1 | |
| 12-Oct | 1.1 | 1.1 | 33439 | 33630 | 1.1 | |
| 15-Oct | 1.1 | 1.1 | 33439 | 33630 | 1.1 | |
| 18-Oct | 1.1 | 1.1 | 33439 | 33630 | 1.1 | |
| 21-Oct | 1.1 | 1.1 | 33439 | 33630 | 1.1 | |
| 24-Oct | 1.1 | 1.1 | 33439 | 33630 | 1.1 | |
| 27-Oct | 1.1 | 1.1 | 33439 | 33630 | 1.1 | |
| 30-Oct | 1.1 | 1.1 | 33439 | 33630 | 1.1 | 1.1 |
| 02-Nov | 1.1 | 1.1 | 33439 | 33630 | 1.1 | |
| 05-Nov | 1.1 | 1.1 | 33439 | 33630 | 1.1 | |
| 08-Nov | 1.1 | 1.1 | 33439 | 33630 | 1.1 | |
| 11-Nov | 1.1 | 1.1 | 33439 | 33630 | 1.1 | |
| 14-Nov | 1.1 | 1.1 | 33439 | 33630 | 1.1 | |
| 17-Nov | 1.1 | 1.1 | 33439 | 33630 | 1.1 | |
| 20-Nov | 1.1 | 1.1 | 33439 | 33630 | 1.1 | |
| 23-Nov | 1.1 | 1.1 | 33439 | 33630 | 1.1 | |
| 26-Nov | 1.1 | 1.1 | 33439 | 33630 | 1.1 | |
| 29-Nov | 1.1 | 1.1 | 33439 | 33630 | 1.1 | 1.1 |
| 02-Dec | 1.1 | 1.1 | 33439 | 33630 | 1.1 | |
| 05-Dec | 1.1 | 1.1 | 33439 | 33630 | 1.1 | |
| 08-Dec | 1.1 | 1.1 | 33439 | 33630 | 1.1 | |
| 11-Dec | 1.1 | 1.1 | 33439 | 33630 | 1.1 | |
| 14-Dec | 1.1 | 1.1 | 33439 | 33630 | 1.1 | |
| 17-Dec | 1.1 | 1.1 | 33439 | 33630 | 1.1 | |
| 20-Dec | 1.1 | 1.1 | 33439 | 33630 | 1.1 | |
| 23-Dec | 1.1 | 1.1 | 33439 | 33630 | 1.1 | |
| 26-Dec | 1.1 | 1.1 | 33439 | 33630 | 1.1 | |
| 29-Dec | 1.1 | 1.1 | 33439 | 33630 | 1.1 | 1.1 |

Sorghum

| | |
|---|---|
| % SMD | 50.00 |
| RTZN | 4 |
| AWHC | 2 |
| SMD | 4 |
| crop'd Kc | 0.15 |
| Maturity % | 0.63 |

| | Dates | | | Kcs | | | |
|---|---|---|---|---|---|---|---|
| Start | 01/01/92 | 33604 | 33714 | 0 | 0 | | |
| Planting | 04/20/92 | 33714 | 33725 | 0 | 0.16 | | |
| Date A | 05/01/92 | 33725 | 33759 | 0.16 | 0.16 | | |
| Date B | 06/04/92 | 33759 | 33789 | 0.16 | 1.05 | | |
| Date C | 07/04/92 | 33789 | 33820.76 | 1.05 | 1.05 | | |
| Date D | 04-Aug | 33820.76 | 33877 | 1.05 | 0.45 | | |
| Date E | 09/30/92 | 33877 | 33878 | 0.45 | 0 | | |
| End | 10/01/92 | 33878 | | 0 | 0 | | |

| | Kc1 | Kc2 | date 1 | date 2 | Kc | |
|---|---|---|---|---|---|---|
| 01-jan-92 | 0 | 0 | 33604 | 33714 | 0 | |
| 04-Jan | 0 | 0 | 33604 | 33714 | 0 | |
| 07-Jan | 0 | 0 | 33604 | 33714 | 0 | |
| 10-Jan | 0 | 0 | 33604 | 33714 | 0 | |
| 13-Jan | 0 | 0 | 33604 | 33714 | 0 | |
| 16-Jan | 0 | 0 | 33604 | 33714 | 0 | |
| 19-Jan | 0 | 0 | 33604 | 33714 | 0 | |
| 22-Jan | 0 | 0 | 33604 | 33714 | 0 | |
| 25-Jan | 0 | 0 | 33604 | 33714 | 0 | |
| 28-Jan | 0 | 0 | 33604 | 33714 | 0 | |
| 31-Jan | 0 | 0 | 33604 | 33714 | 0 | 0 |
| 03-Feb | 0 | 0 | 33604 | 33714 | 0 | |
| 06-Feb | 0 | 0 | 33604 | 33714 | 0 | |
| 09-Feb | 0 | 0 | 33604 | 33714 | 0 | |
| 12-Feb | 0 | 0 | 33604 | 33714 | 0 | |
| 15-Feb | 0 | 0 | 33604 | 33714 | 0 | |
| 18-Feb | 0 | 0 | 33604 | 33714 | 0 | |
| 21-Feb | 0 | 0 | 33604 | 33714 | 0 | |
| 24-Feb | 0 | 0 | 33604 | 33714 | 0 | |
| 27-Feb | 0 | 0 | 33604 | 33714 | 0 | 0 |
| 01-Mar | 0 | 0 | 33604 | 33714 | 0 | |
| 04-Mar | 0 | 0 | 33604 | 33714 | 0 | |
| 07-Mar | 0 | 0 | 33604 | 33714 | 0 | |
| 10-Mar | 0 | 0 | 33604 | 33714 | 0 | |
| 13-Mar | 0 | 0 | 33604 | 33714 | 0 | |
| 16-Mar | 0 | 0 | 33604 | 33714 | 0 | |
| 19-Mar | 0 | 0 | 33604 | 33714 | 0 | |
| 22-Mar | 0 | 0 | 33604 | 33714 | 0 | |
| 25-Mar | 0 | 0 | 33604 | 33714 | 0 | |
| 28-Mar | 0 | 0 | 33604 | 33714 | 0 | |
| 31-Mar | 0 | 0 | 33604 | 33714 | 0 | 0 |
| 03-Apr | 0 | 0 | 33604 | 33714 | 0 | |
| 06-Apr | 0 | 0 | 33604 | 33714 | 0 | |

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|---|---|---|---|---|---|---|
| 09-Apr | 0 | 0 | 33604 | 33714 | 0 | |
| 12-Apr | 0 | 0 | 33604 | 33714 | 0 | |
| 15-Apr | 0 | 0 | 33604 | 33714 | 0 | |
| 18-Apr | 0 | 0 | 33604 | 33714 | 0 | |
| 21-Apr | 0 | 0.16 | 33714 | 33725 | 0.01454545 | |
| 24-Apr | 0 | 0.16 | 33714 | 33725 | 0.05818182 | |
| 27-Apr | 0 | 0.16 | 33714 | 33725 | 0.10181818 | |
| 30-Apr | 0 | 0.16 | 33714 | 33725 | 0.14545455 | 0.032 |
| 03-May | 0.16 | 0.16 | 33725 | 33759 | 0.16 | |
| 06-May | 0.16 | 0.16 | 33725 | 33759 | 0.16 | |
| 09-May | 0.16 | 0.16 | 33725 | 33759 | 0.16 | |
| 12-May | 0.16 | 0.16 | 33725 | 33759 | 0.16 | |
| 15-May | 0.16 | 0.16 | 33725 | 33759 | 0.16 | |
| 18-May | 0.16 | 0.16 | 33725 | 33759 | 0.16 | |
| 21-May | 0.16 | 0.16 | 33725 | 33759 | 0.16 | |
| 24-May | 0.16 | 0.16 | 33725 | 33759 | 0.16 | |
| 27-May | 0.16 | 0.16 | 33725 | 33759 | 0.16 | |
| 30-May | 0.16 | 0.16 | 33725 | 33759 | 0.16 | 0.16 |
| 02-Jun | 0.16 | 0.16 | 33725 | 33759 | 0.16 | |
| 05-Jun | 0.16 | 1.05 | 33759 | 33789 | 0.18966667 | |
| 08-Jun | 0.16 | 1.05 | 33759 | 33789 | 0.27866667 | |
| 11-Jun | 0.16 | 1.05 | 33759 | 33789 | 0.36766667 | |
| 14-Jun | 0.16 | 1.05 | 33759 | 33789 | 0.45666667 | |
| 17-Jun | 0.16 | 1.05 | 33759 | 33789 | 0.54566667 | |
| 20-Jun | 0.16 | 1.05 | 33759 | 33789 | 0.63466667 | |
| 23-Jun | 0.16 | 1.05 | 33759 | 33789 | 0.72366667 | |
| 26-Jun | 0.16 | 1.05 | 33759 | 33789 | 0.81266667 | |
| 29-Jun | 0.16 | 1.05 | 33759 | 33789 | 0.90166667 | 0.5071 |
| 02-Jul | 0.16 | 1.05 | 33759 | 33789 | 0.99066667 | |
| 05-Jul | 1.05 | 1.05 | 33789 | 33820.76 | 1.05 | |
| 08-Jul | 1.05 | 1.05 | 33789 | 33820.76 | 1.05 | |
| 11-Jul | 1.05 | 1.05 | 33789 | 33820.76 | 1.05 | |
| 14-Jul | 1.05 | 1.05 | 33789 | 33820.76 | 1.05 | |
| 17-Jul | 1.05 | 1.05 | 33789 | 33820.76 | 1.05 | |
| 20-Jul | 1.05 | 1.05 | 33789 | 33820.76 | 1.05 | |
| 23-Jul | 1.05 | 1.05 | 33789 | 33820.76 | 1.05 | |
| 26-Jul | 1.05 | 1.05 | 33789 | 33820.76 | 1.05 | |
| 29-Jul | 1.05 | 1.05 | 33789 | 33820.76 | 1.05 | 1.04406667 |
| 01-Aug | 1.05 | 1.05 | 33789 | 33820.76 | 1.05 | |
| 04-Aug | 1.05 | 1.05 | 33789 | 33820.76 | 1.05 | |
| 07-Aug | 1.05 | 0.45 | 33820.76 | 33877 | 1.02610242 | |
| 10-Aug | 1.05 | 0.45 | 33820.76 | 33877 | 0.99409673 | |
| 13-Aug | 1.05 | 0.45 | 33820.76 | 33877 | 0.96209104 | |
| 16-Aug | 1.05 | 0.45 | 33820.76 | 33877 | 0.93008535 | |
| 19-Aug | 1.05 | 0.45 | 33820.76 | 33877 | 0.89807966 | |
| 22-Aug | 1.05 | 0.45 | 33820.76 | 33877 | 0.86607397 | |
| 25-Aug | 1.05 | 0.45 | 33820.76 | 33877 | 0.83406828 | |
| 28-Aug | 1.05 | 0.45 | 33820.76 | 33877 | 0.80206259 | |
| 31-Aug | 1.05 | 0.45 | 33820.76 | 33877 | 0.7700569 | 0.92570154 |
| 03-Sep | 1.05 | 0.45 | 33820.76 | 33877 | 0.73805121 | |
| 06-Sep | 1.05 | 0.45 | 33820.76 | 33877 | 0.70604552 | |
| 09-Sep | 1.05 | 0.45 | 33820.76 | 33877 | 0.67403983 | |

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|---|---|---|---|---|---|---|
| 12-Sep | 1.05 | 0.45 | 33820.76 | 33877 | 0.64203414 | |
| 15-Sep | 1.05 | 0.45 | 33820.76 | 33877 | 0.61002845 | |
| 18-Sep | 1.05 | 0.45 | 33820.76 | 33877 | 0.57802276 | |
| 21-Sep | 1.05 | 0.45 | 33820.76 | 33877 | 0.54601707 | |
| 24-Sep | 1.05 | 0.45 | 33820.76 | 33877 | 0.51401138 | |
| 27-Sep | 1.05 | 0.45 | 33820.76 | 33877 | 0.48200569 | |
| 30-Sep | 0.45 | 0 | 33877 | 33878 | 0.45 | 0.5940256 |
| 03-Oct | 0 | 0 | 33878 | 0 | 0 | |
| 06-Oct | 0 | 0 | 33878 | 0 | 0 | |
| 09-Oct | 0 | 0 | 33878 | 0 | 0 | |
| 12-Oct | 0 | 0 | 33878 | 0 | 0 | |
| 15-Oct | 0 | 0 | 33878 | 0 | 0 | |
| 18-Oct | 0 | 0 | 33878 | 0 | 0 | |
| 21-Oct | 0 | 0 | 33878 | 0 | 0 | |
| 24-Oct | 0 | 0 | 33878 | 0 | 0 | |
| 27-Oct | 0 | 0 | 33878 | 0 | 0 | |
| 30-Oct | 0 | 0 | 33878 | 0 | 0 | 0 |
| 02-Nov | 0 | 0 | 33878 | 0 | 0 | |
| 05-Nov | 0 | 0 | 33878 | 0 | 0 | |
| 08-Nov | 0 | 0 | 33878 | 0 | 0 | |
| 11-Nov | 0 | 0 | 33878 | 0 | 0 | |
| 14-Nov | 0 | 0 | 33878 | 0 | 0 | |
| 17-Nov | 0 | 0 | 33878 | 0 | 0 | |
| 20-Nov | 0 | 0 | 33878 | 0 | 0 | |
| 23-Nov | 0 | 0 | 33878 | 0 | 0 | |
| 26-Nov | 0 | 0 | 33878 | 0 | 0 | |
| 29-Nov | 0 | 0 | 33878 | 0 | 0 | 0 |
| 02-Dec | 0 | 0 | 33878 | 0 | 0 | |
| 05-Dec | 0 | 0 | 33878 | 0 | 0 | |
| 08-Dec | 0 | 0 | 33878 | 0 | 0 | |
| 11-Dec | 0 | 0 | 33878 | 0 | 0 | |
| 14-Dec | 0 | 0 | 33878 | 0 | 0 | |
| 17-Dec | 0 | 0 | 33878 | 0 | 0 | |
| 20-Dec | 0 | 0 | 33878 | 0 | 0 | |
| 23-Dec | 0 | 0 | 33878 | 0 | 0 | |
| 26-Dec | 0 | 0 | 33878 | 0 | 0 | |
| 29-Dec | 0 | 0 | 33878 | 0 | 0 | 0 |

Stonefruit/almonds

| | |
|---|---|
| % SMD | 50.00 |
| RTZN | 6 |
| AWHC | 2 |
| SMD | 6 |
| crop'd Kc | 0.15 |
| Maturity % | 0.8 |

| | Dates | | | Kcs | | | |
|---|---|---|---|---|---|---|---|
| Start | 01/01/92 | 33604 | 33672 | 0 | 0 | | |
| Planting | 03/09/92 | 33672 | 33673 | 0 | 0.65 | | |
| Date A | 03/10/92 | 33673 | 33674 | 0.65 | 0.65 | | |
| Date B | 03/11/92 | 33674 | 33764 | 0.65 | 0.98 | | |
| Date C | 06/09/92 | 33764 | 33861.8 | 0.98 | 0.98 | | |
| Date D | 14-Sep | 33861.8 | 33909 | 0.98 | 0.85 | | |
| Date E | 11/01/92 | 33909 | 33910 | 0.85 | 0 | | |
| End | 11/02/92 | 33910 | | 0 | 0 | | |

| | Kc1 | Kc2 | date 1 | date 2 | Kc | | |
|---|---|---|---|---|---|---|---|
| 01-jan-92 | 0 | 0 | 33604 | 33672 | 0 | | |
| 04-Jan | 0 | 0 | 33604 | 33672 | 0 | | |
| 07-Jan | 0 | 0 | 33604 | 33672 | 0 | | |
| 10-Jan | 0 | 0 | 33604 | 33672 | 0 | | |
| 13-Jan | 0 | 0 | 33604 | 33672 | 0 | | |
| 16-Jan | 0 | 0 | 33604 | 33672 | 0 | | |
| 19-Jan | 0 | 0 | 33604 | 33672 | 0 | | |
| 22-Jan | 0 | 0 | 33604 | 33672 | 0 | | |
| 25-Jan | 0 | 0 | 33604 | 33672 | 0 | | |
| 28-Jan | 0 | 0 | 33604 | 33672 | 0 | | |
| 31-Jan | 0 | 0 | 33604 | 33672 | 0 | | 0 |
| 03-Feb | 0 | 0 | 33604 | 33672 | 0 | | |
| 06-Feb | 0 | 0 | 33604 | 33672 | 0 | | |
| 09-Feb | 0 | 0 | 33604 | 33672 | 0 | | |
| 12-Feb | 0 | 0 | 33604 | 33672 | 0 | | |
| 15-Feb | 0 | 0 | 33604 | 33672 | 0 | | |
| 18-Feb | 0 | 0 | 33604 | 33672 | 0 | | |
| 21-Feb | 0 | 0 | 33604 | 33672 | 0 | | |
| 24-Feb | 0 | 0 | 33604 | 33672 | 0 | | |
| 27-Feb | 0 | 0 | 33604 | 33672 | 0 | | 0 |
| 01-Mar | 0 | 0 | 33604 | 33672 | 0 | | |
| 04-Mar | 0 | 0 | 33604 | 33672 | 0 | | |
| 07-Mar | 0 | 0 | 33604 | 33672 | 0 | | |
| 10-Mar | 0.65 | 0.65 | 33673 | 33674 | 0.65 | | |
| 13-Mar | 0.65 | 0.98 | 33674 | 33764 | 0.65733333 | | |
| 16-Mar | 0.65 | 0.98 | 33674 | 33764 | 0.66833333 | | |
| 19-Mar | 0.65 | 0.98 | 33674 | 33764 | 0.67933333 | | |
| 22-Mar | 0.65 | 0.98 | 33674 | 33764 | 0.69033333 | | |
| 25-Mar | 0.65 | 0.98 | 33674 | 33764 | 0.70133333 | | |
| 28-Mar | 0.65 | 0.98 | 33674 | 33764 | 0.71233333 | | |
| 31-Mar | 0.65 | 0.98 | 33674 | 33764 | 0.72333333 | 0.49839394 | |
| 03-Apr | 0.65 | 0.98 | 33674 | 33764 | 0.73433333 | | |
| 06-Apr | 0.65 | 0.98 | 33674 | 33764 | 0.74533333 | | |

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|---|---|---|---|---|---|---|
| 09-Apr | 0.65 | 0.98 | 33674 | 33764 | 0.75633333 | |
| 12-Apr | 0.65 | 0.98 | 33674 | 33764 | 0.76733333 | |
| 15-Apr | 0.65 | 0.98 | 33674 | 33764 | 0.77833333 | |
| 18-Apr | 0.65 | 0.98 | 33674 | 33764 | 0.78933333 | |
| 21-Apr | 0.65 | 0.98 | 33674 | 33764 | 0.80033333 | |
| 24-Apr | 0.65 | 0.98 | 33674 | 33764 | 0.81133333 | |
| 27-Apr | 0.65 | 0.98 | 33674 | 33764 | 0.82233333 | |
| 30-Apr | 0.65 | 0.98 | 33674 | 33764 | 0.83333333 | 0.78383333 |
| 03-May | 0.65 | 0.98 | 33674 | 33764 | 0.84433333 | |
| 06-May | 0.65 | 0.98 | 33674 | 33764 | 0.85533333 | |
| 09-May | 0.65 | 0.98 | 33674 | 33764 | 0.86633333 | |
| 12-May | 0.65 | 0.98 | 33674 | 33764 | 0.87733333 | |
| 15-May | 0.65 | 0.98 | 33674 | 33764 | 0.88833333 | |
| 18-May | 0.65 | 0.98 | 33674 | 33764 | 0.89933333 | |
| 21-May | 0.65 | 0.98 | 33674 | 33764 | 0.91033333 | |
| 24-May | 0.65 | 0.98 | 33674 | 33764 | 0.92133333 | |
| 27-May | 0.65 | 0.98 | 33674 | 33764 | 0.93233333 | |
| 30-May | 0.65 | 0.98 | 33674 | 33764 | 0.94333333 | 0.89383333 |
| 02-Jun | 0.65 | 0.98 | 33674 | 33764 | 0.95433333 | |
| 05-Jun | 0.65 | 0.98 | 33674 | 33764 | 0.96533333 | |
| 08-Jun | 0.65 | 0.98 | 33674 | 33764 | 0.97633333 | |
| 11-Jun | 0.98 | 0.98 | 33764 | 33861.8 | 0.98 | |
| 14-Jun | 0.98 | 0.98 | 33764 | 33861.8 | 0.98 | |
| 17-Jun | 0.98 | 0.98 | 33764 | 33861.8 | 0.98 | |
| 20-Jun | 0.98 | 0.98 | 33764 | 33861.8 | 0.98 | |
| 23-Jun | 0.98 | 0.98 | 33764 | 33861.8 | 0.98 | |
| 26-Jun | 0.98 | 0.98 | 33764 | 33861.8 | 0.98 | |
| 29-Jun | 0.98 | 0.98 | 33764 | 33861.8 | 0.98 | 0.9756 |
| 02-Jul | 0.98 | 0.98 | 33764 | 33861.8 | 0.98 | |
| 05-Jul | 0.98 | 0.98 | 33764 | 33861.8 | 0.98 | |
| 08-Jul | 0.98 | 0.98 | 33764 | 33861.8 | 0.98 | |
| 11-Jul | 0.98 | 0.98 | 33764 | 33861.8 | 0.98 | |
| 14-Jul | 0.98 | 0.98 | 33764 | 33861.8 | 0.98 | |
| 17-Jul | 0.98 | 0.98 | 33764 | 33861.8 | 0.98 | |
| 20-Jul | 0.98 | 0.98 | 33764 | 33861.8 | 0.98 | |
| 23-Jul | 0.98 | 0.98 | 33764 | 33861.8 | 0.98 | |
| 26-Jul | 0.98 | 0.98 | 33764 | 33861.8 | 0.98 | |
| 29-Jul | 0.98 | 0.98 | 33764 | 33861.8 | 0.98 | 0.98 |
| 01-Aug | 0.98 | 0.98 | 33764 | 33861.8 | 0.98 | |
| 04-Aug | 0.98 | 0.98 | 33764 | 33861.8 | 0.98 | |
| 07-Aug | 0.98 | 0.98 | 33764 | 33861.8 | 0.98 | |
| 10-Aug | 0.98 | 0.98 | 33764 | 33861.8 | 0.98 | |
| 13-Aug | 0.98 | 0.98 | 33764 | 33861.8 | 0.98 | |
| 16-Aug | 0.98 | 0.98 | 33764 | 33861.8 | 0.98 | |
| 19-Aug | 0.98 | 0.98 | 33764 | 33861.8 | 0.98 | |
| 22-Aug | 0.98 | 0.98 | 33764 | 33861.8 | 0.98 | |
| 25-Aug | 0.98 | 0.98 | 33764 | 33861.8 | 0.98 | |
| 28-Aug | 0.98 | 0.98 | 33764 | 33861.8 | 0.98 | |
| 31-Aug | 0.98 | 0.98 | 33764 | 33861.8 | 0.98 | 0.98 |
| 03-Sep | 0.98 | 0.98 | 33764 | 33861.8 | 0.98 | |
| 06-Sep | 0.98 | 0.98 | 33764 | 33861.8 | 0.98 | |
| 09-Sep | 0.98 | 0.98 | 33764 | 33861.8 | 0.98 | |

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|---|---|---|---|---|---|---|
| 12-Sep | 0.98 | 0.98 | 33764 | 33861.8 | 0.98 | |
| 15-Sep | 0.98 | 0.85 | 33861.8 | 33909 | 0.97944915 | |
| 18-Sep | 0.98 | 0.85 | 33861.8 | 33909 | 0.97118644 | |
| 21-Sep | 0.98 | 0.85 | 33861.8 | 33909 | 0.96292373 | |
| 24-Sep | 0.98 | 0.85 | 33861.8 | 33909 | 0.95466102 | |
| 27-Sep | 0.98 | 0.85 | 33861.8 | 33909 | 0.94639831 | |
| 30-Sep | 0.98 | 0.85 | 33861.8 | 33909 | 0.93813559 | 0.96727542 |
| 03-Oct | 0.98 | 0.85 | 33861.8 | 33909 | 0.92987288 | |
| 06-Oct | 0.98 | 0.85 | 33861.8 | 33909 | 0.92161017 | |
| 09-Oct | 0.98 | 0.85 | 33861.8 | 33909 | 0.91334746 | |
| 12-Oct | 0.98 | 0.85 | 33861.8 | 33909 | 0.90508475 | |
| 15-Oct | 0.98 | 0.85 | 33861.8 | 33909 | 0.89682203 | |
| 18-Oct | 0.98 | 0.85 | 33861.8 | 33909 | 0.88855932 | |
| 21-Oct | 0.98 | 0.85 | 33861.8 | 33909 | 0.88029661 | |
| 24-Oct | 0.98 | 0.85 | 33861.8 | 33909 | 0.8720339 | |
| 27-Oct | 0.98 | 0.85 | 33861.8 | 33909 | 0.86377119 | |
| 30-Oct | 0.98 | 0.85 | 33861.8 | 33909 | 0.85550847 | 0.89269068 |
| 02-Nov | 0 | 0 | 33910 | 0 | 0 | |
| 05-Nov | 0 | 0 | 33910 | 0 | 0 | |
| 08-Nov | 0 | 0 | 33910 | 0 | 0 | |
| 11-Nov | 0 | 0 | 33910 | 0 | 0 | |
| 14-Nov | 0 | 0 | 33910 | 0 | 0 | |
| 17-Nov | 0 | 0 | 33910 | 0 | 0 | |
| 20-Nov | 0 | 0 | 33910 | 0 | 0 | |
| 23-Nov | 0 | 0 | 33910 | 0 | 0 | |
| 26-Nov | 0 | 0 | 33910 | 0 | 0 | |
| 29-Nov | 0 | 0 | 33910 | 0 | 0 | 0 |
| 02-Dec | 0 | 0 | 33910 | 0 | 0 | |
| 05-Dec | 0 | 0 | 33910 | 0 | 0 | |
| 08-Dec | 0 | 0 | 33910 | 0 | 0 | |
| 11-Dec | 0 | 0 | 33910 | 0 | 0 | |
| 14-Dec | 0 | 0 | 33910 | 0 | 0 | |
| 17-Dec | 0 | 0 | 33910 | 0 | 0 | |
| 20-Dec | 0 | 0 | 33910 | 0 | 0 | |
| 23-Dec | 0 | 0 | 33910 | 0 | 0 | |
| 26-Dec | 0 | 0 | 33910 | 0 | 0 | |
| 29-Dec | 0 | 0 | 33910 | 0 | 0 | 0 |

Tomato - processing

| | |
|---|---|
| % SMD | 50.00 |
| RTZN | 6 |
| AWHC | 2 |
| SMD | 6 |
| crop'd Kc | 0.15 |
| Maturity % | 0.72 |

| | Dates | | | Kcs | | | | |
|---|---|---|---|---|---|---|---|---|
| Start | 01/01/92 | 33604 | 33683 | 0 | 0 | | | |
| Planting | 03/20/92 | 33683 | 33695 | 0 | 0.24 | | | |
| Date A | 04/01/92 | 33695 | 33732 | 0.24 | 0.24 | | | |
| Date B | 05/08/92 | 33732 | 33783 | 0.24 | 1.12 | | | |
| Date C | 06/28/92 | 33783 | 33804.44 | 1.12 | 1.12 | | | |
| Date D | 19-Jul | 33804.44 | 33847 | 1.12 | 0.7 | | | |
| Date E | 08/31/92 | 33847 | 33848 | 0.7 | 0 | | | |
| End | 09/01/92 | 33848 | | 0 | 0 | | | |
| | | Kc1 | Kc2 | date 1 | date 2 | Kc | | |
| | 01-jan-92 | 0 | 0 | 33604 | 33683 | 0 | | |
| | 04-Jan | 0 | 0 | 33604 | 33683 | 0 | | |
| | 07-Jan | 0 | 0 | 33604 | 33683 | 0 | | |
| | 10-Jan | 0 | 0 | 33604 | 33683 | 0 | | |
| | 13-Jan | 0 | 0 | 33604 | 33683 | 0 | | |
| | 16-Jan | 0 | 0 | 33604 | 33683 | 0 | | |
| | 19-Jan | 0 | 0 | 33604 | 33683 | 0 | | |
| | 22-Jan | 0 | 0 | 33604 | 33683 | 0 | | |
| | 25-Jan | 0 | 0 | 33604 | 33683 | 0 | | |
| | 28-Jan | 0 | 0 | 33604 | 33683 | 0 | | |
| | 31-Jan | 0 | 0 | 33604 | 33683 | 0 | | 0 |
| | 03-Feb | 0 | 0 | 33604 | 33683 | 0 | | |
| | 06-Feb | 0 | 0 | 33604 | 33683 | 0 | | |
| | 09-Feb | 0 | 0 | 33604 | 33683 | 0 | | |
| | 12-Feb | 0 | 0 | 33604 | 33683 | 0 | | |
| | 15-Feb | 0 | 0 | 33604 | 33683 | 0 | | |
| | 18-Feb | 0 | 0 | 33604 | 33683 | 0 | | |
| | 21-Feb | 0 | 0 | 33604 | 33683 | 0 | | |
| | 24-Feb | 0 | 0 | 33604 | 33683 | 0 | | |
| | 27-Feb | 0 | 0 | 33604 | 33683 | 0 | | 0 |
| | 01-Mar | 0 | 0 | 33604 | 33683 | 0 | | |
| | 04-Mar | 0 | 0 | 33604 | 33683 | 0 | | |
| | 07-Mar | 0 | 0 | 33604 | 33683 | 0 | | |
| | 10-Mar | 0 | 0 | 33604 | 33683 | 0 | | |
| | 13-Mar | 0 | 0 | 33604 | 33683 | 0 | | |
| | 16-Mar | 0 | 0 | 33604 | 33683 | 0 | | |
| | 19-Mar | 0 | 0 | 33604 | 33683 | 0 | | |
| | 22-Mar | 0 | 0.24 | 33683 | 33695 | 0.04 | | |
| | 25-Mar | 0 | 0.24 | 33683 | 33695 | 0.1 | | |
| | 28-Mar | 0 | 0.24 | 33683 | 33695 | 0.16 | | |
| | 31-Mar | 0 | 0.24 | 33683 | 33695 | 0.22 | 0.04727273 | |
| | 03-Apr | 0.24 | 0.24 | 33695 | 33732 | 0.24 | | |
| | 06-Apr | 0.24 | 0.24 | 33695 | 33732 | 0.24 | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 09-Apr | 0.24 | 0.24 | 33695 | 33732 | 0.24 | |
| 12-Apr | 0.24 | 0.24 | 33695 | 33732 | 0.24 | |
| 15-Apr | 0.24 | 0.24 | 33695 | 33732 | 0.24 | |
| 18-Apr | 0.24 | 0.24 | 33695 | 33732 | 0.24 | |
| 21-Apr | 0.24 | 0.24 | 33695 | 33732 | 0.24 | |
| 24-Apr | 0.24 | 0.24 | 33695 | 33732 | 0.24 | |
| 27-Apr | 0.24 | 0.24 | 33695 | 33732 | 0.24 | |
| 30-Apr | 0.24 | 0.24 | 33695 | 33732 | 0.24 | 0.24 |
| 03-May | 0.24 | 0.24 | 33695 | 33732 | 0.24 | |
| 06-May | 0.24 | 0.24 | 33695 | 33732 | 0.24 | |
| 09-May | 0.24 | 1.12 | 33732 | 33783 | 0.2572549 | |
| 12-May | 0.24 | 1.12 | 33732 | 33783 | 0.30901961 | |
| 15-May | 0.24 | 1.12 | 33732 | 33783 | 0.36078431 | |
| 18-May | 0.24 | 1.12 | 33732 | 33783 | 0.41254902 | |
| 21-May | 0.24 | 1.12 | 33732 | 33783 | 0.46431373 | |
| 24-May | 0.24 | 1.12 | 33732 | 33783 | 0.51607843 | |
| 27-May | 0.24 | 1.12 | 33732 | 33783 | 0.56784314 | |
| 30-May | 0.24 | 1.12 | 33732 | 33783 | 0.61960784 | 0.3987451 |
| 02-Jun | 0.24 | 1.12 | 33732 | 33783 | 0.67137255 | |
| 05-Jun | 0.24 | 1.12 | 33732 | 33783 | 0.72313725 | |
| 08-Jun | 0.24 | 1.12 | 33732 | 33783 | 0.77490196 | |
| 11-Jun | 0.24 | 1.12 | 33732 | 33783 | 0.82666667 | |
| 14-Jun | 0.24 | 1.12 | 33732 | 33783 | 0.87843137 | |
| 17-Jun | 0.24 | 1.12 | 33732 | 33783 | 0.93019608 | |
| 20-Jun | 0.24 | 1.12 | 33732 | 33783 | 0.98196078 | |
| 23-Jun | 0.24 | 1.12 | 33732 | 33783 | 1.03372549 | |
| 26-Jun | 0.24 | 1.12 | 33732 | 33783 | 1.0854902 | |
| 29-Jun | 1.12 | 1.12 | 33783 | 33804.44 | 1.12 | 0.90258824 |
| 02-Jul | 1.12 | 1.12 | 33783 | 33804.44 | 1.12 | |
| 05-Jul | 1.12 | 1.12 | 33783 | 33804.44 | 1.12 | |
| 08-Jul | 1.12 | 1.12 | 33783 | 33804.44 | 1.12 | |
| 11-Jul | 1.12 | 1.12 | 33783 | 33804.44 | 1.12 | |
| 14-Jul | 1.12 | 1.12 | 33783 | 33804.44 | 1.12 | |
| 17-Jul | 1.12 | 1.12 | 33783 | 33804.44 | 1.12 | |
| 20-Jul | 1.12 | 0.7 | 33804.44 | 33847 | 1.11447368 | |
| 23-Jul | 1.12 | 0.7 | 33804.44 | 33847 | 1.08486842 | |
| 26-Jul | 1.12 | 0.7 | 33804.44 | 33847 | 1.05526316 | |
| 29-Jul | 1.12 | 0.7 | 33804.44 | 33847 | 1.02565789 | 1.10002632 |
| 01-Aug | 1.12 | 0.7 | 33804.44 | 33847 | 0.99605263 | |
| 04-Aug | 1.12 | 0.7 | 33804.44 | 33847 | 0.96644737 | |
| 07-Aug | 1.12 | 0.7 | 33804.44 | 33847 | 0.93684211 | |
| 10-Aug | 1.12 | 0.7 | 33804.44 | 33847 | 0.90723684 | |
| 13-Aug | 1.12 | 0.7 | 33804.44 | 33847 | 0.87763158 | |
| 16-Aug | 1.12 | 0.7 | 33804.44 | 33847 | 0.84802632 | |
| 19-Aug | 1.12 | 0.7 | 33804.44 | 33847 | 0.81842105 | |
| 22-Aug | 1.12 | 0.7 | 33804.44 | 33847 | 0.78881579 | |
| 25-Aug | 1.12 | 0.7 | 33804.44 | 33847 | 0.75921053 | |
| 28-Aug | 1.12 | 0.7 | 33804.44 | 33847 | 0.72960526 | |
| 31-Aug | 0.7 | 0 | 33847 | 33848 | 0.7 | 0.84802632 |
| 03-Sep | 0 | 0 | 33848 | 0 | 0 | |
| 06-Sep | 0 | 0 | 33848 | 0 | 0 | |
| 09-Sep | 0 | 0 | 33848 | 0 | 0 | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 12-Sep | 0 | 0 | 33848 | 0 | 0 | |
| 15-Sep | 0 | 0 | 33848 | 0 | 0 | |
| 18-Sep | 0 | 0 | 33848 | 0 | 0 | |
| 21-Sep | 0 | 0 | 33848 | 0 | 0 | |
| 24-Sep | 0 | 0 | 33848 | 0 | 0 | |
| 27-Sep | 0 | 0 | 33848 | 0 | 0 | |
| 30-Sep | 0 | 0 | 33848 | 0 | 0 | 0 |
| 03-Oct | 0 | 0 | 33848 | 0 | 0 | |
| 06-Oct | 0 | 0 | 33848 | 0 | 0 | |
| 09-Oct | 0 | 0 | 33848 | 0 | 0 | |
| 12-Oct | 0 | 0 | 33848 | 0 | 0 | |
| 15-Oct | 0 | 0 | 33848 | 0 | 0 | |
| 18-Oct | 0 | 0 | 33848 | 0 | 0 | |
| 21-Oct | 0 | 0 | 33848 | 0 | 0 | |
| 24-Oct | 0 | 0 | 33848 | 0 | 0 | |
| 27-Oct | 0 | 0 | 33848 | 0 | 0 | |
| 30-Oct | 0 | 0 | 33848 | 0 | 0 | 0 |
| 02-Nov | 0 | 0 | 33848 | 0 | 0 | |
| 05-Nov | 0 | 0 | 33848 | 0 | 0 | |
| 08-Nov | 0 | 0 | 33848 | 0 | 0 | |
| 11-Nov | 0 | 0 | 33848 | 0 | 0 | |
| 14-Nov | 0 | 0 | 33848 | 0 | 0 | |
| 17-Nov | 0 | 0 | 33848 | 0 | 0 | |
| 20-Nov | 0 | 0 | 33848 | 0 | 0 | |
| 23-Nov | 0 | 0 | 33848 | 0 | 0 | |
| 26-Nov | 0 | 0 | 33848 | 0 | 0 | |
| 29-Nov | 0 | 0 | 33848 | 0 | 0 | 0 |
| 02-Dec | 0 | 0 | 33848 | 0 | 0 | |
| 05-Dec | 0 | 0 | 33848 | 0 | 0 | |
| 08-Dec | 0 | 0 | 33848 | 0 | 0 | |
| 11-Dec | 0 | 0 | 33848 | 0 | 0 | |
| 14-Dec | 0 | 0 | 33848 | 0 | 0 | |
| 17-Dec | 0 | 0 | 33848 | 0 | 0 | |
| 20-Dec | 0 | 0 | 33848 | 0 | 0 | |
| 23-Dec | 0 | 0 | 33848 | 0 | 0 | |
| 26-Dec | 0 | 0 | 33848 | 0 | 0 | |
| 29-Dec | 0 | 0 | 33848 | 0 | 0 | 0 |

Vegetable

| | |
|---|---|
| % SMD | 50.00 |
| RTZN | 4 |
| AWHC | 2 |
| SMD | 4 |
| crop'd Kc | 0.15 |
| Maturity % | 0.75 |

| | Dates | | | Kcs | | | |
|---|---|---|---|---|---|---|---|
| Start | 01/01/92 | 33604 | 33623 | 0 | 0 | | |
| Planting | 01/20/92 | 33623 | 33635 | 0 | 0.3 | | |
| Date A | 02/01/92 | 33635 | 33662 | 0.3 | 0.3 | | |
| Date B | 02/28/92 | 33662 | 33706 | 0.3 | 1.05 | | |
| Date C | 04/12/92 | 33706 | 33725 | 1.05 | 1.05 | | |
| Date D | 01-May | 33725 | 33755 | 1.05 | 0.8 | | |
| Date E | 05/31/92 | 33755 | 33756 | 0.8 | 0 | | |
| End | 06/01/92 | 33756 | | 0 | 0 | | |
| | | Kc1 | Kc2 | date 1 | date 2 | Kc | |
| | 01-jan-92 | 0 | 0 | 33604 | 33623 | 0 | |
| | 04-Jan | 0 | 0 | 33604 | 33623 | 0 | |
| | 07-Jan | 0 | 0 | 33604 | 33623 | 0 | |
| | 10-Jan | 0 | 0 | 33604 | 33623 | 0 | |
| | 13-Jan | 0 | 0 | 33604 | 33623 | 0 | |
| | 16-Jan | 0 | 0 | 33604 | 33623 | 0 | |
| | 19-Jan | 0 | 0 | 33604 | 33623 | 0 | |
| | 22-Jan | 0 | 0.3 | 33623 | 33635 | 0.05 | |
| | 25-Jan | 0 | 0.3 | 33623 | 33635 | 0.125 | |
| | 28-Jan | 0 | 0.3 | 33623 | 33635 | 0.2 | |
| | 31-Jan | 0 | 0.3 | 33623 | 33635 | 0.275 | 0.05909091 |
| | 03-Feb | 0.3 | 0.3 | 33635 | 33662 | 0.3 | |
| | 06-Feb | 0.3 | 0.3 | 33635 | 33662 | 0.3 | |
| | 09-Feb | 0.3 | 0.3 | 33635 | 33662 | 0.3 | |
| | 12-Feb | 0.3 | 0.3 | 33635 | 33662 | 0.3 | |
| | 15-Feb | 0.3 | 0.3 | 33635 | 33662 | 0.3 | |
| | 18-Feb | 0.3 | 0.3 | 33635 | 33662 | 0.3 | |
| | 21-Feb | 0.3 | 0.3 | 33635 | 33662 | 0.3 | |
| | 24-Feb | 0.3 | 0.3 | 33635 | 33662 | 0.3 | |
| | 27-Feb | 0.3 | 0.3 | 33635 | 33662 | 0.3 | 0.3 |
| | 01-Mar | 0.3 | 1.05 | 33662 | 33706 | 0.33409091 | |
| | 04-Mar | 0.3 | 1.05 | 33662 | 33706 | 0.38522727 | |
| | 07-Mar | 0.3 | 1.05 | 33662 | 33706 | 0.43636364 | |
| | 10-Mar | 0.3 | 1.05 | 33662 | 33706 | 0.4875 | |
| | 13-Mar | 0.3 | 1.05 | 33662 | 33706 | 0.53863636 | |
| | 16-Mar | 0.3 | 1.05 | 33662 | 33706 | 0.58977273 | |
| | 19-Mar | 0.3 | 1.05 | 33662 | 33706 | 0.64090909 | |
| | 22-Mar | 0.3 | 1.05 | 33662 | 33706 | 0.69204545 | |
| | 25-Mar | 0.3 | 1.05 | 33662 | 33706 | 0.74318182 | |
| | 28-Mar | 0.3 | 1.05 | 33662 | 33706 | 0.79431818 | |
| | 31-Mar | 0.3 | 1.05 | 33662 | 33706 | 0.84545455 | 0.58977273 |
| | 03-Apr | 0.3 | 1.05 | 33662 | 33706 | 0.89659091 | |
| | 06-Apr | 0.3 | 1.05 | 33662 | 33706 | 0.94772727 | |

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|---|---|---|---|---|---|---|
| 09-Apr | 0.3 | 1.05 | 33662 | 33706 | 0.99886364 | |
| 12-Apr | 1.05 | 1.05 | 33706 | 33725 | 1.05 | |
| 15-Apr | 1.05 | 1.05 | 33706 | 33725 | 1.05 | |
| 18-Apr | 1.05 | 1.05 | 33706 | 33725 | 1.05 | |
| 21-Apr | 1.05 | 1.05 | 33706 | 33725 | 1.05 | |
| 24-Apr | 1.05 | 1.05 | 33706 | 33725 | 1.05 | |
| 27-Apr | 1.05 | 1.05 | 33706 | 33725 | 1.05 | |
| 30-Apr | 1.05 | 1.05 | 33706 | 33725 | 1.05 | 1.01931818 |
| 03-May | 1.05 | 0.8 | 33725 | 33755 | 1.03333333 | |
| 06-May | 1.05 | 0.8 | 33725 | 33755 | 1.00833333 | |
| 09-May | 1.05 | 0.8 | 33725 | 33755 | 0.98333333 | |
| 12-May | 1.05 | 0.8 | 33725 | 33755 | 0.95833333 | |
| 15-May | 1.05 | 0.8 | 33725 | 33755 | 0.93333333 | |
| 18-May | 1.05 | 0.8 | 33725 | 33755 | 0.90833333 | |
| 21-May | 1.05 | 0.8 | 33725 | 33755 | 0.88333333 | |
| 24-May | 1.05 | 0.8 | 33725 | 33755 | 0.85833333 | |
| 27-May | 1.05 | 0.8 | 33725 | 33755 | 0.83333333 | |
| 30-May | 1.05 | 0.8 | 33725 | 33755 | 0.80833333 | 0.92083333 |
| 02-Jun | 0 | 0 | 33756 | 0 | 0 | |
| 05-Jun | 0 | 0 | 33756 | 0 | 0 | |
| 08-Jun | 0 | 0 | 33756 | 0 | 0 | |
| 11-Jun | 0 | 0 | 33756 | 0 | 0 | |
| 14-Jun | 0 | 0 | 33756 | 0 | 0 | |
| 17-Jun | 0 | 0 | 33756 | 0 | 0 | |
| 20-Jun | 0 | 0 | 33756 | 0 | 0 | |
| 23-Jun | 0 | 0 | 33756 | 0 | 0 | |
| 26-Jun | 0 | 0 | 33756 | 0 | 0 | |
| 29-Jun | 0 | 0 | 33756 | 0 | 0 | 0 |
| 02-Jul | 0 | 0 | 33756 | 0 | 0 | |
| 05-Jul | 0 | 0 | 33756 | 0 | 0 | |
| 08-Jul | 0 | 0 | 33756 | 0 | 0 | |
| 11-Jul | 0 | 0 | 33756 | 0 | 0 | |
| 14-Jul | 0 | 0 | 33756 | 0 | 0 | |
| 17-Jul | 0 | 0 | 33756 | 0 | 0 | |
| 20-Jul | 0 | 0 | 33756 | 0 | 0 | |
| 23-Jul | 0 | 0 | 33756 | 0 | 0 | |
| 26-Jul | 0 | 0 | 33756 | 0 | 0 | |
| 29-Jul | 0 | 0 | 33756 | 0 | 0 | 0 |
| 01-Aug | 0 | 0 | 33756 | 0 | 0 | |
| 04-Aug | 0 | 0 | 33756 | 0 | 0 | |
| 07-Aug | 0 | 0 | 33756 | 0 | 0 | |
| 10-Aug | 0 | 0 | 33756 | 0 | 0 | |
| 13-Aug | 0 | 0 | 33756 | 0 | 0 | |
| 16-Aug | 0 | 0 | 33756 | 0 | 0 | |
| 19-Aug | 0 | 0 | 33756 | 0 | 0 | |
| 22-Aug | 0 | 0 | 33756 | 0 | 0 | |
| 25-Aug | 0 | 0 | 33756 | 0 | 0 | |
| 28-Aug | 0 | 0 | 33756 | 0 | 0 | |
| 31-Aug | 0 | 0 | 33756 | 0 | 0 | 0 |
| 03-Sep | 0 | 0 | 33756 | 0 | 0 | |
| 06-Sep | 0 | 0 | 33756 | 0 | 0 | |
| 09-Sep | 0 | 0 | 33756 | 0 | 0 | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 12-Sep | 0 | 0 | 33756 | 0 | 0 | |
| 15-Sep | 0 | 0 | 33756 | 0 | 0 | |
| 18-Sep | 0 | 0 | 33756 | 0 | 0 | |
| 21-Sep | 0 | 0 | 33756 | 0 | 0 | |
| 24-Sep | 0 | 0 | 33756 | 0 | 0 | |
| 27-Sep | 0 | 0 | 33756 | 0 | 0 | |
| 30-Sep | 0 | 0 | 33756 | 0 | 0 | 0 |
| 03-Oct | 0 | 0 | 33756 | 0 | 0 | |
| 06-Oct | 0 | 0 | 33756 | 0 | 0 | |
| 09-Oct | 0 | 0 | 33756 | 0 | 0 | |
| 12-Oct | 0 | 0 | 33756 | 0 | 0 | |
| 15-Oct | 0 | 0 | 33756 | 0 | 0 | |
| 18-Oct | 0 | 0 | 33756 | 0 | 0 | |
| 21-Oct | 0 | 0 | 33756 | 0 | 0 | |
| 24-Oct | 0 | 0 | 33756 | 0 | 0 | |
| 27-Oct | 0 | 0 | 33756 | 0 | 0 | |
| 30-Oct | 0 | 0 | 33756 | 0 | 0 | 0 |
| 02-Nov | 0 | 0 | 33756 | 0 | 0 | |
| 05-Nov | 0 | 0 | 33756 | 0 | 0 | |
| 08-Nov | 0 | 0 | 33756 | 0 | 0 | |
| 11-Nov | 0 | 0 | 33756 | 0 | 0 | |
| 14-Nov | 0 | 0 | 33756 | 0 | 0 | |
| 17-Nov | 0 | 0 | 33756 | 0 | 0 | |
| 20-Nov | 0 | 0 | 33756 | 0 | 0 | |
| 23-Nov | 0 | 0 | 33756 | 0 | 0 | |
| 26-Nov | 0 | 0 | 33756 | 0 | 0 | |
| 29-Nov | 0 | 0 | 33756 | 0 | 0 | 0 |
| 02-Dec | 0 | 0 | 33756 | 0 | 0 | |
| 05-Dec | 0 | 0 | 33756 | 0 | 0 | |
| 08-Dec | 0 | 0 | 33756 | 0 | 0 | |
| 11-Dec | 0 | 0 | 33756 | 0 | 0 | |
| 14-Dec | 0 | 0 | 33756 | 0 | 0 | |
| 17-Dec | 0 | 0 | 33756 | 0 | 0 | |
| 20-Dec | 0 | 0 | 33756 | 0 | 0 | |
| 23-Dec | 0 | 0 | 33756 | 0 | 0 | |
| 26-Dec | 0 | 0 | 33756 | 0 | 0 | |
| 29-Dec | 0 | 0 | 33756 | 0 | 0 | 0 |

Walnut/apple - with cover

| | |
|---|---|
| % SMD | 50.00 |
| RTZN | 6 |
| AWHC | 2 |
| SMD | 6 |
| crop'd Kc | 0.15 |
| Maturity % | 0.65 |

| | Dates | | | Kcs | | | |
|---|---|---|---|---|---|---|---|
| Start | 01/01/92 | 33604 | 33672 | 0 | 0 | | |
| Planting | 03/09/92 | 33672 | 33673 | 0 | 0.7 | | |
| Date A | 03/10/92 | 33673 | 33674 | 0.7 | 0.7 | | |
| Date B | 03/11/92 | 33674 | 33792 | 0.7 | 1.14 | | |
| Date C | 07/07/92 | 33792 | 33831.6 | 1.14 | 1.14 | | |
| Date D | 15-Aug | 33831.6 | 33917 | 1.14 | 0.15 | | |
| Date E | 11/09/92 | 33917 | 33918 | 0.15 | 0 | | |
| End | 11/10/92 | 33918 | | 0 | 0 | | |

| | Kc1 | Kc2 | date 1 | date 2 | Kc | |
|---|---|---|---|---|---|---|
| 01-jan-92 | 0 | 0 | 33604 | 33672 | 0 | |
| 04-Jan | 0 | 0 | 33604 | 33672 | 0 | |
| 07-Jan | 0 | 0 | 33604 | 33672 | 0 | |
| 10-Jan | 0 | 0 | 33604 | 33672 | 0 | |
| 13-Jan | 0 | 0 | 33604 | 33672 | 0 | |
| 16-Jan | 0 | 0 | 33604 | 33672 | 0 | |
| 19-Jan | 0 | 0 | 33604 | 33672 | 0 | |
| 22-Jan | 0 | 0 | 33604 | 33672 | 0 | |
| 25-Jan | 0 | 0 | 33604 | 33672 | 0 | |
| 28-Jan | 0 | 0 | 33604 | 33672 | 0 | |
| 31-Jan | 0 | 0 | 33604 | 33672 | 0 | 0 |
| 03-Feb | 0 | 0 | 33604 | 33672 | 0 | |
| 06-Feb | 0 | 0 | 33604 | 33672 | 0 | |
| 09-Feb | 0 | 0 | 33604 | 33672 | 0 | |
| 12-Feb | 0 | 0 | 33604 | 33672 | 0 | |
| 15-Feb | 0 | 0 | 33604 | 33672 | 0 | |
| 18-Feb | 0 | 0 | 33604 | 33672 | 0 | |
| 21-Feb | 0 | 0 | 33604 | 33672 | 0 | |
| 24-Feb | 0 | 0 | 33604 | 33672 | 0 | |
| 27-Feb | 0 | 0 | 33604 | 33672 | 0 | 0 |
| 01-Mar | 0 | 0 | 33604 | 33672 | 0 | |
| 04-Mar | 0 | 0 | 33604 | 33672 | 0 | |
| 07-Mar | 0 | 0 | 33604 | 33672 | 0 | |
| 10-Mar | 0.7 | 0.7 | 33673 | 33674 | 0.7 | |
| 13-Mar | 0.7 | 1.14 | 33674 | 33792 | 0.70745763 | |
| 16-Mar | 0.7 | 1.14 | 33674 | 33792 | 0.71864407 | |
| 19-Mar | 0.7 | 1.14 | 33674 | 33792 | 0.72983051 | |
| 22-Mar | 0.7 | 1.14 | 33674 | 33792 | 0.74101695 | |
| 25-Mar | 0.7 | 1.14 | 33674 | 33792 | 0.75220339 | |
| 28-Mar | 0.7 | 1.14 | 33674 | 33792 | 0.76338983 | |
| 31-Mar | 0.7 | 1.14 | 33674 | 33792 | 0.77457627 | 0.5351926 |
| 03-Apr | 0.7 | 1.14 | 33674 | 33792 | 0.78576271 | |
| 06-Apr | 0.7 | 1.14 | 33674 | 33792 | 0.79694915 | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 09-Apr | 0.7 | 1.14 | 33674 | 33792 | 0.80813559 | |
| 12-Apr | 0.7 | 1.14 | 33674 | 33792 | 0.81932203 | |
| 15-Apr | 0.7 | 1.14 | 33674 | 33792 | 0.83050847 | |
| 18-Apr | 0.7 | 1.14 | 33674 | 33792 | 0.84169492 | |
| 21-Apr | 0.7 | 1.14 | 33674 | 33792 | 0.85288136 | |
| 24-Apr | 0.7 | 1.14 | 33674 | 33792 | 0.8640678 | |
| 27-Apr | 0.7 | 1.14 | 33674 | 33792 | 0.87525424 | |
| 30-Apr | 0.7 | 1.14 | 33674 | 33792 | 0.88644068 | 0.83610169 |
| 03-May | 0.7 | 1.14 | 33674 | 33792 | 0.89762712 | |
| 06-May | 0.7 | 1.14 | 33674 | 33792 | 0.90881356 | |
| 09-May | 0.7 | 1.14 | 33674 | 33792 | 0.92 | |
| 12-May | 0.7 | 1.14 | 33674 | 33792 | 0.93118644 | |
| 15-May | 0.7 | 1.14 | 33674 | 33792 | 0.94237288 | |
| 18-May | 0.7 | 1.14 | 33674 | 33792 | 0.95355932 | |
| 21-May | 0.7 | 1.14 | 33674 | 33792 | 0.96474576 | |
| 24-May | 0.7 | 1.14 | 33674 | 33792 | 0.9759322 | |
| 27-May | 0.7 | 1.14 | 33674 | 33792 | 0.98711864 | |
| 30-May | 0.7 | 1.14 | 33674 | 33792 | 0.99830508 | 0.9479661 |
| 02-Jun | 0.7 | 1.14 | 33674 | 33792 | 1.00949153 | |
| 05-Jun | 0.7 | 1.14 | 33674 | 33792 | 1.02067797 | |
| 08-Jun | 0.7 | 1.14 | 33674 | 33792 | 1.03186441 | |
| 11-Jun | 0.7 | 1.14 | 33674 | 33792 | 1.04305085 | |
| 14-Jun | 0.7 | 1.14 | 33674 | 33792 | 1.05423729 | |
| 17-Jun | 0.7 | 1.14 | 33674 | 33792 | 1.06542373 | |
| 20-Jun | 0.7 | 1.14 | 33674 | 33792 | 1.07661017 | |
| 23-Jun | 0.7 | 1.14 | 33674 | 33792 | 1.08779661 | |
| 26-Jun | 0.7 | 1.14 | 33674 | 33792 | 1.09898305 | |
| 29-Jun | 0.7 | 1.14 | 33674 | 33792 | 1.11016949 | 1.05983051 |
| 02-Jul | 0.7 | 1.14 | 33674 | 33792 | 1.12135593 | |
| 05-Jul | 0.7 | 1.14 | 33674 | 33792 | 1.13254237 | |
| 08-Jul | 1.14 | 1.14 | 33792 | 33831.6 | 1.14 | |
| 11-Jul | 1.14 | 1.14 | 33792 | 33831.6 | 1.14 | |
| 14-Jul | 1.14 | 1.14 | 33792 | 33831.6 | 1.14 | |
| 17-Jul | 1.14 | 1.14 | 33792 | 33831.6 | 1.14 | |
| 20-Jul | 1.14 | 1.14 | 33792 | 33831.6 | 1.14 | |
| 23-Jul | 1.14 | 1.14 | 33792 | 33831.6 | 1.14 | |
| 26-Jul | 1.14 | 1.14 | 33792 | 33831.6 | 1.14 | |
| 29-Jul | 1.14 | 1.14 | 33792 | 33831.6 | 1.14 | 1.13738983 |
| 01-Aug | 1.14 | 1.14 | 33792 | 33831.6 | 1.14 | |
| 04-Aug | 1.14 | 1.14 | 33792 | 33831.6 | 1.14 | |
| 07-Aug | 1.14 | 1.14 | 33792 | 33831.6 | 1.14 | |
| 10-Aug | 1.14 | 1.14 | 33792 | 33831.6 | 1.14 | |
| 13-Aug | 1.14 | 1.14 | 33792 | 33831.6 | 1.14 | |
| 16-Aug | 1.14 | 0.15 | 33831.6 | 33917 | 1.135363 | |
| 19-Aug | 1.14 | 0.15 | 33831.6 | 33917 | 1.10058548 | |
| 22-Aug | 1.14 | 0.15 | 33831.6 | 33917 | 1.06580796 | |
| 25-Aug | 1.14 | 0.15 | 33831.6 | 33917 | 1.03103044 | |
| 28-Aug | 1.14 | 0.15 | 33831.6 | 33917 | 0.99625293 | |
| 31-Aug | 1.14 | 0.15 | 33831.6 | 33917 | 0.96147541 | 1.09004684 |
| 03-Sep | 1.14 | 0.15 | 33831.6 | 33917 | 0.92669789 | |
| 06-Sep | 1.14 | 0.15 | 33831.6 | 33917 | 0.89192037 | |
| 09-Sep | 1.14 | 0.15 | 33831.6 | 33917 | 0.85714286 | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 12-Sep | 1.14 | 0.15 | 33831.6 | 33917 | 0.82236534 | |
| 15-Sep | 1.14 | 0.15 | 33831.6 | 33917 | 0.78758782 | |
| 18-Sep | 1.14 | 0.15 | 33831.6 | 33917 | 0.7528103 | |
| 21-Sep | 1.14 | 0.15 | 33831.6 | 33917 | 0.71803279 | |
| 24-Sep | 1.14 | 0.15 | 33831.6 | 33917 | 0.68325527 | |
| 27-Sep | 1.14 | 0.15 | 33831.6 | 33917 | 0.64847775 | |
| 30-Sep | 1.14 | 0.15 | 33831.6 | 33917 | 0.61370023 | 0.77019906 |
| 03-Oct | 1.14 | 0.15 | 33831.6 | 33917 | 0.57892272 | |
| 06-Oct | 1.14 | 0.15 | 33831.6 | 33917 | 0.5441452 | |
| 09-Oct | 1.14 | 0.15 | 33831.6 | 33917 | 0.50936768 | |
| 12-Oct | 1.14 | 0.15 | 33831.6 | 33917 | 0.47459016 | |
| 15-Oct | 1.14 | 0.15 | 33831.6 | 33917 | 0.43981265 | |
| 18-Oct | 1.14 | 0.15 | 33831.6 | 33917 | 0.40503513 | |
| 21-Oct | 1.14 | 0.15 | 33831.6 | 33917 | 0.37025761 | |
| 24-Oct | 1.14 | 0.15 | 33831.6 | 33917 | 0.33548009 | |
| 27-Oct | 1.14 | 0.15 | 33831.6 | 33917 | 0.30070258 | |
| 30-Oct | 1.14 | 0.15 | 33831.6 | 33917 | 0.26592506 | 0.42242389 |
| 02-Nov | 1.14 | 0.15 | 33831.6 | 33917 | 0.23114754 | |
| 05-Nov | 1.14 | 0.15 | 33831.6 | 33917 | 0.19637002 | |
| 08-Nov | 1.14 | 0.15 | 33831.6 | 33917 | 0.16159251 | |
| 11-Nov | 0 | 0 | 33918 | 0 | 0 | |
| 14-Nov | 0 | 0 | 33918 | 0 | 0 | |
| 17-Nov | 0 | 0 | 33918 | 0 | 0 | |
| 20-Nov | 0 | 0 | 33918 | 0 | 0 | |
| 23-Nov | 0 | 0 | 33918 | 0 | 0 | |
| 26-Nov | 0 | 0 | 33918 | 0 | 0 | |
| 29-Nov | 0 | 0 | 33918 | 0 | 0 | 0.05891101 |
| 02-Dec | 0 | 0 | 33918 | 0 | 0 | |
| 05-Dec | 0 | 0 | 33918 | 0 | 0 | |
| 08-Dec | 0 | 0 | 33918 | 0 | 0 | |
| 11-Dec | 0 | 0 | 33918 | 0 | 0 | |
| 14-Dec | 0 | 0 | 33918 | 0 | 0 | |
| 17-Dec | 0 | 0 | 33918 | 0 | 0 | |
| 20-Dec | 0 | 0 | 33918 | 0 | 0 | |
| 23-Dec | 0 | 0 | 33918 | 0 | 0 | |
| 26-Dec | 0 | 0 | 33918 | 0 | 0 | |
| 29-Dec | 0 | 0 | 33918 | 0 | 0 | 0 |

Wheat

| | |
|---|---|
| % SMD | 50.00 |
| RTZN | 6 |
| AWHC | 2 |
| SMD | 6 |
| crop'd Kc | 0.15 |
| Maturity % | 0.75 |

| | Dates | | | Kcs | | |
|---|---|---|---|---|---|---|
| Start | 01/01/91 | 33239 | 33562 | 0 | 0 | |
| Planting | 11/20/91 | 33562 | 33573 | 0 | 0.22 | |
| Date A | 12/01/91 | 33573 | 33596 | 0.22 | 0.22 | |
| Date B | 12/24/91 | 33596 | 33665 | 0.22 | 1.17 | |
| Date C | 03/02/92 | 33665 | 33705 | 1.17 | 1.17 | |
| Date D | 11-Apr | 33705 | 33749 | 1.17 | 0.38 | |
| Date E | 05/25/92 | 33749 | 33750 | 0.38 | 0 | |
| End | 05/26/92 | 33750 | | 0 | 0 | |

| | Kc1 | Kc2 | date 1 | date 2 | Kc | |
|---|---|---|---|---|---|---|
| 01-jan-92 | 0.22 | 1.17 | 33596 | 33665 | 0.33014493 | |
| 04-Jan | 0.22 | 1.17 | 33596 | 33665 | 0.37144928 | |
| 07-Jan | 0.22 | 1.17 | 33596 | 33665 | 0.41275362 | |
| 10-Jan | 0.22 | 1.17 | 33596 | 33665 | 0.45405797 | |
| 13-Jan | 0.22 | 1.17 | 33596 | 33665 | 0.49536232 | |
| 16-Jan | 0.22 | 1.17 | 33596 | 33665 | 0.53666667 | |
| 19-Jan | 0.22 | 1.17 | 33596 | 33665 | 0.57797101 | |
| 22-Jan | 0.22 | 1.17 | 33596 | 33665 | 0.61927536 | |
| 25-Jan | 0.22 | 1.17 | 33596 | 33665 | 0.66057971 | |
| 28-Jan | 0.22 | 1.17 | 33596 | 33665 | 0.70188406 | |
| 31-Jan | 0.22 | 1.17 | 33596 | 33665 | 0.74318841 | 0.53666667 |
| 03-Feb | 0.22 | 1.17 | 33596 | 33665 | 0.78449275 | |
| 06-Feb | 0.22 | 1.17 | 33596 | 33665 | 0.8257971 | |
| 09-Feb | 0.22 | 1.17 | 33596 | 33665 | 0.86710145 | |
| 12-Feb | 0.22 | 1.17 | 33596 | 33665 | 0.9084058 | |
| 15-Feb | 0.22 | 1.17 | 33596 | 33665 | 0.94971014 | |
| 18-Feb | 0.22 | 1.17 | 33596 | 33665 | 0.99101449 | |
| 21-Feb | 0.22 | 1.17 | 33596 | 33665 | 1.03231884 | |
| 24-Feb | 0.22 | 1.17 | 33596 | 33665 | 1.07362319 | |
| 27-Feb | 0.22 | 1.17 | 33596 | 33665 | 1.11492754 | 0.94971014 |
| 01-Mar | 0.22 | 1.17 | 33596 | 33665 | 1.15623188 | |
| 04-Mar | 1.17 | 1.17 | 33665 | 33705 | 1.17 | |
| 07-Mar | 1.17 | 1.17 | 33665 | 33705 | 1.17 | |
| 10-Mar | 1.17 | 1.17 | 33665 | 33705 | 1.17 | |
| 13-Mar | 1.17 | 1.17 | 33665 | 33705 | 1.17 | |
| 16-Mar | 1.17 | 1.17 | 33665 | 33705 | 1.17 | |
| 19-Mar | 1.17 | 1.17 | 33665 | 33705 | 1.17 | |
| 22-Mar | 1.17 | 1.17 | 33665 | 33705 | 1.17 | |
| 25-Mar | 1.17 | 1.17 | 33665 | 33705 | 1.17 | |
| 28-Mar | 1.17 | 1.17 | 33665 | 33705 | 1.17 | |
| 31-Mar | 1.17 | 1.17 | 33665 | 33705 | 1.17 | 1.16874835 |
| 03-Apr | 1.17 | 1.17 | 33665 | 33705 | 1.17 | |
| 06-Apr | 1.17 | 1.17 | 33665 | 33705 | 1.17 | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 09-Apr | 1.17 | 1.17 | 33665 | 33705 | 1.17 | |
| 12-Apr | 1.17 | 0.38 | 33705 | 33749 | 1.15204545 | |
| 15-Apr | 1.17 | 0.38 | 33705 | 33749 | 1.09818182 | |
| 18-Apr | 1.17 | 0.38 | 33705 | 33749 | 1.04431818 | |
| 21-Apr | 1.17 | 0.38 | 33705 | 33749 | 0.99045455 | |
| 24-Apr | 1.17 | 0.38 | 33705 | 33749 | 0.93659091 | |
| 27-Apr | 1.17 | 0.38 | 33705 | 33749 | 0.88272727 | |
| 30-Apr | 1.17 | 0.38 | 33705 | 33749 | 0.82886364 | 1.04431818 |
| 03-May | 1.17 | 0.38 | 33705 | 33749 | 0.775 | |
| 06-May | 1.17 | 0.38 | 33705 | 33749 | 0.72113636 | |
| 09-May | 1.17 | 0.38 | 33705 | 33749 | 0.66727273 | |
| 12-May | 1.17 | 0.38 | 33705 | 33749 | 0.61340909 | |
| 15-May | 1.17 | 0.38 | 33705 | 33749 | 0.55954545 | |
| 18-May | 1.17 | 0.38 | 33705 | 33749 | 0.50568182 | |
| 21-May | 1.17 | 0.38 | 33705 | 33749 | 0.45181818 | |
| 24-May | 1.17 | 0.38 | 33705 | 33749 | 0.39795455 | |
| 27-May | 0 | 0 | 33750 | 0 | 0 | |
| 30-May | 0 | 0 | 33750 | 0 | 0 | 0.46918182 |
| 02-jun-91 | 0 | 0 | 33239 | 33562 | 0 | |
| 05-Jun | 0 | 0 | 33239 | 33562 | 0 | |
| 08-Jun | 0 | 0 | 33239 | 33562 | 0 | |
| 11-Jun | 0 | 0 | 33239 | 33562 | 0 | |
| 14-Jun | 0 | 0 | 33239 | 33562 | 0 | |
| 17-Jun | 0 | 0 | 33239 | 33562 | 0 | |
| 20-Jun | 0 | 0 | 33239 | 33562 | 0 | |
| 23-Jun | 0 | 0 | 33239 | 33562 | 0 | |
| 26-Jun | 0 | 0 | 33239 | 33562 | 0 | |
| 29-Jun | 0 | 0 | 33239 | 33562 | 0 | 0 |
| 02-Jul | 0 | 0 | 33239 | 33562 | 0 | |
| 05-Jul | 0 | 0 | 33239 | 33562 | 0 | |
| 08-Jul | 0 | 0 | 33239 | 33562 | 0 | |
| 11-Jul | 0 | 0 | 33239 | 33562 | 0 | |
| 14-Jul | 0 | 0 | 33239 | 33562 | 0 | |
| 17-Jul | 0 | 0 | 33239 | 33562 | 0 | |
| 20-Jul | 0 | 0 | 33239 | 33562 | 0 | |
| 23-Jul | 0 | 0 | 33239 | 33562 | 0 | |
| 26-Jul | 0 | 0 | 33239 | 33562 | 0 | |
| 29-Jul | 0 | 0 | 33239 | 33562 | 0 | 0 |
| 01-Aug | 0 | 0 | 33239 | 33562 | 0 | |
| 04-Aug | 0 | 0 | 33239 | 33562 | 0 | |
| 07-Aug | 0 | 0 | 33239 | 33562 | 0 | |
| 10-Aug | 0 | 0 | 33239 | 33562 | 0 | |
| 13-Aug | 0 | 0 | 33239 | 33562 | 0 | |
| 16-Aug | 0 | 0 | 33239 | 33562 | 0 | |
| 19-Aug | 0 | 0 | 33239 | 33562 | 0 | |
| 22-Aug | 0 | 0 | 33239 | 33562 | 0 | |
| 25-Aug | 0 | 0 | 33239 | 33562 | 0 | |
| 28-Aug | 0 | 0 | 33239 | 33562 | 0 | |
| 31-Aug | 0 | 0 | 33239 | 33562 | 0 | 0 |
| 03-Sep | 0 | 0 | 33239 | 33562 | 0 | |
| 06-Sep | 0 | 0 | 33239 | 33562 | 0 | |
| 09-Sep | 0 | 0 | 33239 | 33562 | 0 | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 12-Sep | 0 | 0 | 33239 | 33562 | 0 | |
| 15-Sep | 0 | 0 | 33239 | 33562 | 0 | |
| 18-Sep | 0 | 0 | 33239 | 33562 | 0 | |
| 21-Sep | 0 | 0 | 33239 | 33562 | 0 | |
| 24-Sep | 0 | 0 | 33239 | 33562 | 0 | |
| 27-Sep | 0 | 0 | 33239 | 33562 | 0 | |
| 30-Sep | 0 | 0 | 33239 | 33562 | 0 | 0 |
| 03-Oct | 0 | 0 | 33239 | 33562 | 0 | |
| 06-Oct | 0 | 0 | 33239 | 33562 | 0 | |
| 09-Oct | 0 | 0 | 33239 | 33562 | 0 | |
| 12-Oct | 0 | 0 | 33239 | 33562 | 0 | |
| 15-Oct | 0 | 0 | 33239 | 33562 | 0 | |
| 18-Oct | 0 | 0 | 33239 | 33562 | 0 | |
| 21-Oct | 0 | 0 | 33239 | 33562 | 0 | |
| 24-Oct | 0 | 0 | 33239 | 33562 | 0 | |
| 27-Oct | 0 | 0 | 33239 | 33562 | 0 | |
| 30-Oct | 0 | 0 | 33239 | 33562 | 0 | 0 |
| 02-Nov | 0 | 0 | 33239 | 33562 | 0 | |
| 05-Nov | 0 | 0 | 33239 | 33562 | 0 | |
| 08-Nov | 0 | 0 | 33239 | 33562 | 0 | |
| 11-Nov | 0 | 0 | 33239 | 33562 | 0 | |
| 14-Nov | 0 | 0 | 33239 | 33562 | 0 | |
| 17-Nov | 0 | 0 | 33239 | 33562 | 0 | |
| 20-Nov | 0 | 0.22 | 33562 | 33573 | 0 | |
| 23-Nov | 0 | 0.22 | 33562 | 33573 | 0.06 | |
| 26-Nov | 0 | 0.22 | 33562 | 33573 | 0.12 | |
| 29-Nov | 0 | 0.22 | 33562 | 33573 | 0.18 | 0.036 |
| 02-Dec | 0.22 | 0.22 | 33573 | 33596 | 0.22 | |
| 05-Dec | 0.22 | 0.22 | 33573 | 33596 | 0.22 | |
| 08-Dec | 0.22 | 0.22 | 33573 | 33596 | 0.22 | |
| 11-Dec | 0.22 | 0.22 | 33573 | 33596 | 0.22 | |
| 14-Dec | 0.22 | 0.22 | 33573 | 33596 | 0.22 | |
| 17-Dec | 0.22 | 0.22 | 33573 | 33596 | 0.22 | |
| 20-Dec | 0.22 | 0.22 | 33573 | 33596 | 0.22 | |
| 23-Dec | 0.22 | 0.22 | 33573 | 33596 | 0.22 | |
| 26-Dec | 0.22 | 1.17 | 33596 | 33665 | 0.24753623 | |
| 29-Dec | 0.22 | 1.17 | 33596 | 33665 | 0.28884058 | 0.22963768 |

# TECHNICAL APPENDIX C
## Rainfall Data

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## TECHNICAL APPENDIX C

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# Effective Precipitation and Runoff

**References:**

Rainfall information provided by Jeff Bryant at the San Joaquin River Exchange Contractor's Water Authority. Rainfall data read from a rain gage placed by the CCID at the Mendota Dam.

**Method:**

Evaporation, runoff and infiltration was calculated for use in determining the amount of rainfall contributing the soil moisture deficit (SMD) and net leaching fraction (NLF) for water districts in the Grasslands Basin Irrigation Area. The amount of rainfall in each category was determined according to the following table.

| | Evap | Infilt. | Runoff |
|---|---|---|---|
| R < 0.2 in | 100% | 0 | 0 |
| 0.2 < R < 0.5 | 0.2 in | R-0.2 | 0 |
| 0.5 in < R | 0.2 in | .3+(.7*(R-.5)) | .3*(R-.5) |

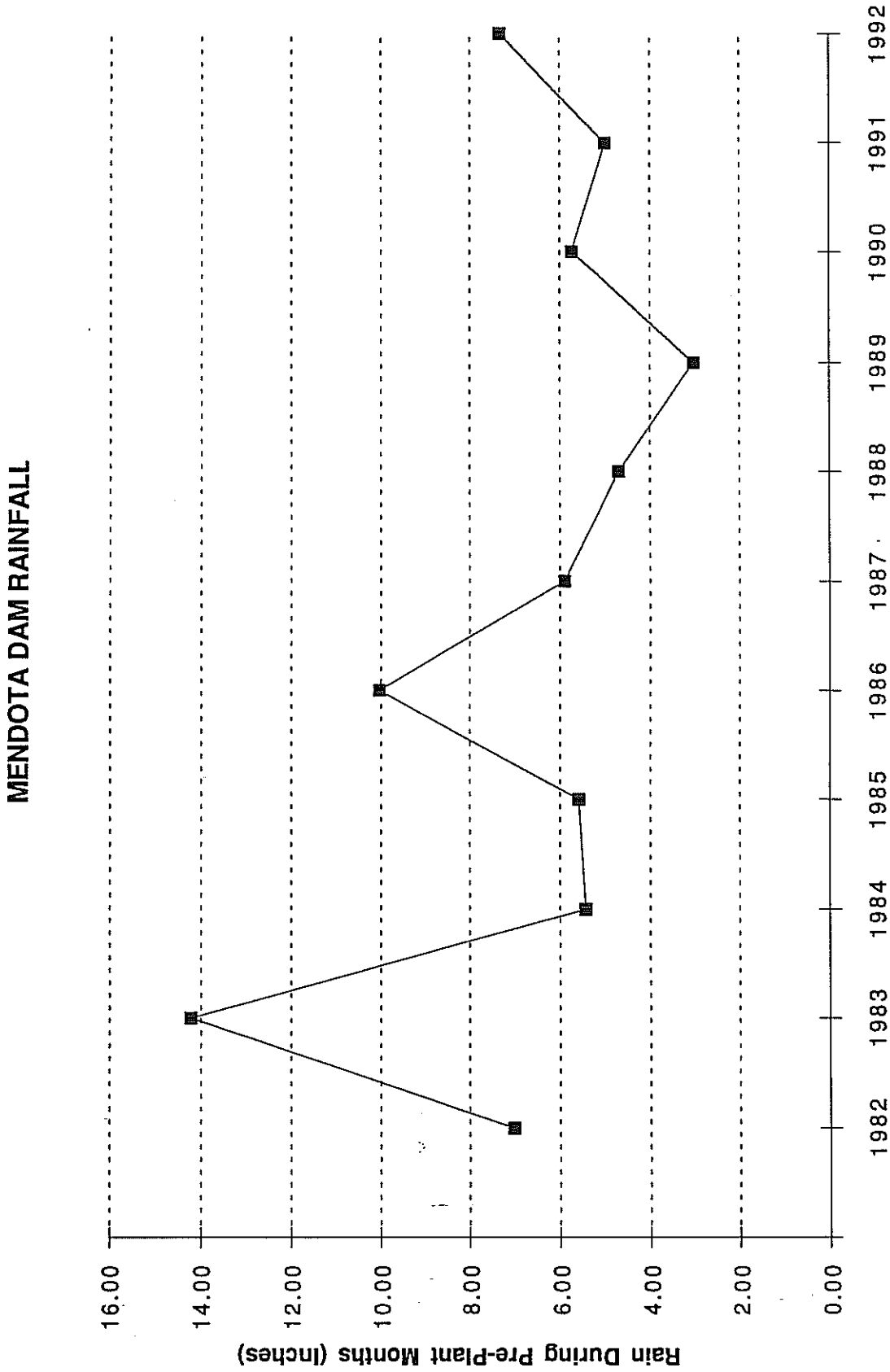
R = Rainfall

Each daily precipitation event was separately analyzed. If rain occurred over 3 or more consecutive days, then the sum of the rain over those days was used in the calculation. The resulting infiltration was used along with acreage data to provide acre-feet of water available to potentially satisfy SMD and NLF requirements.

Mendota Dam Effective Precipitation Summary indicates that 51% of the total annual rainfall is infiltrated, according to the procedure outlined above. Based on the results of the analysis, the effective precipitation used in calculating the Annual District IE is 50% of the total annual rainfall.

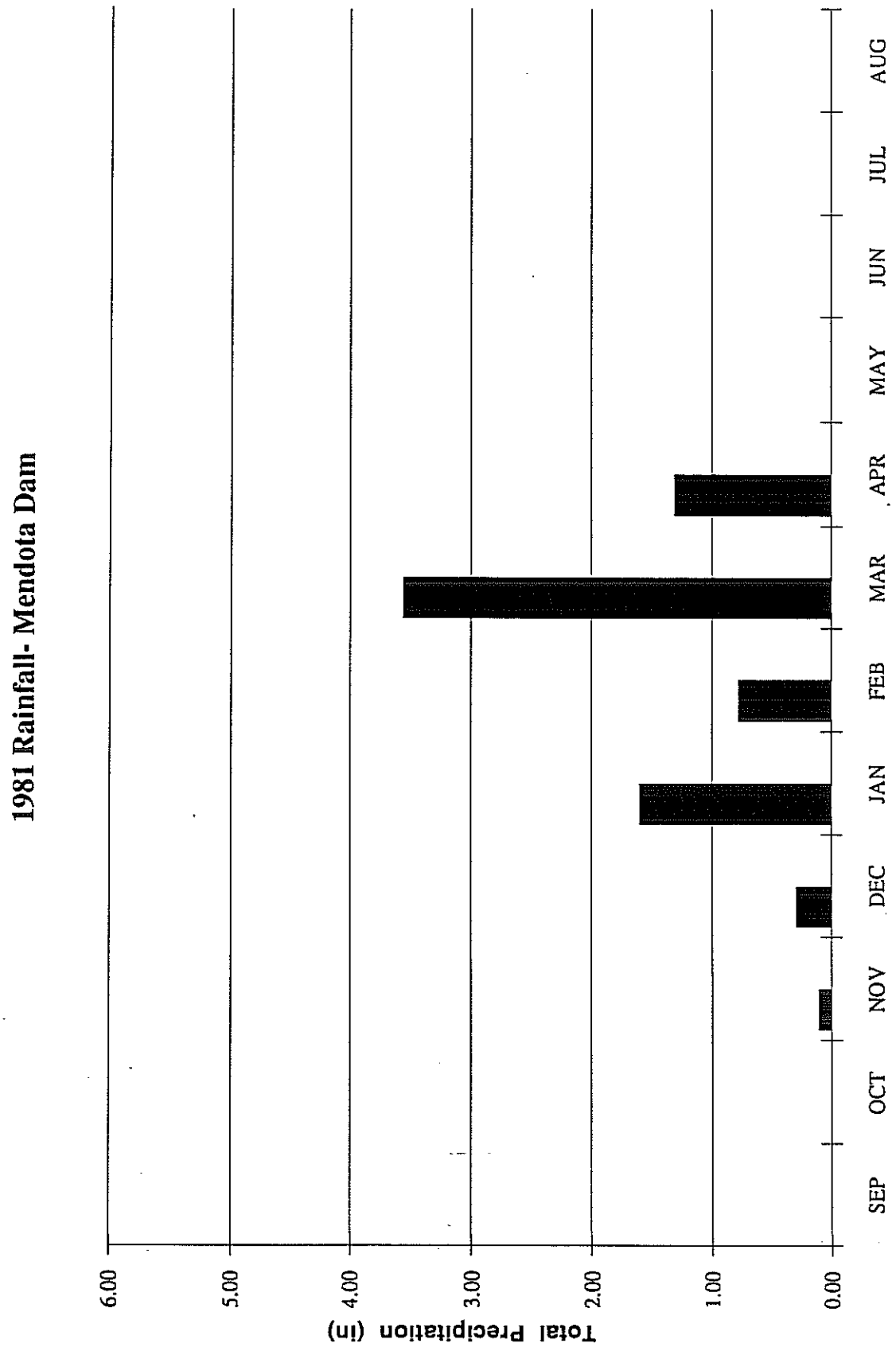
# MENDOTA DAM EFFECTIVE PRECIPITATION SUMMARY

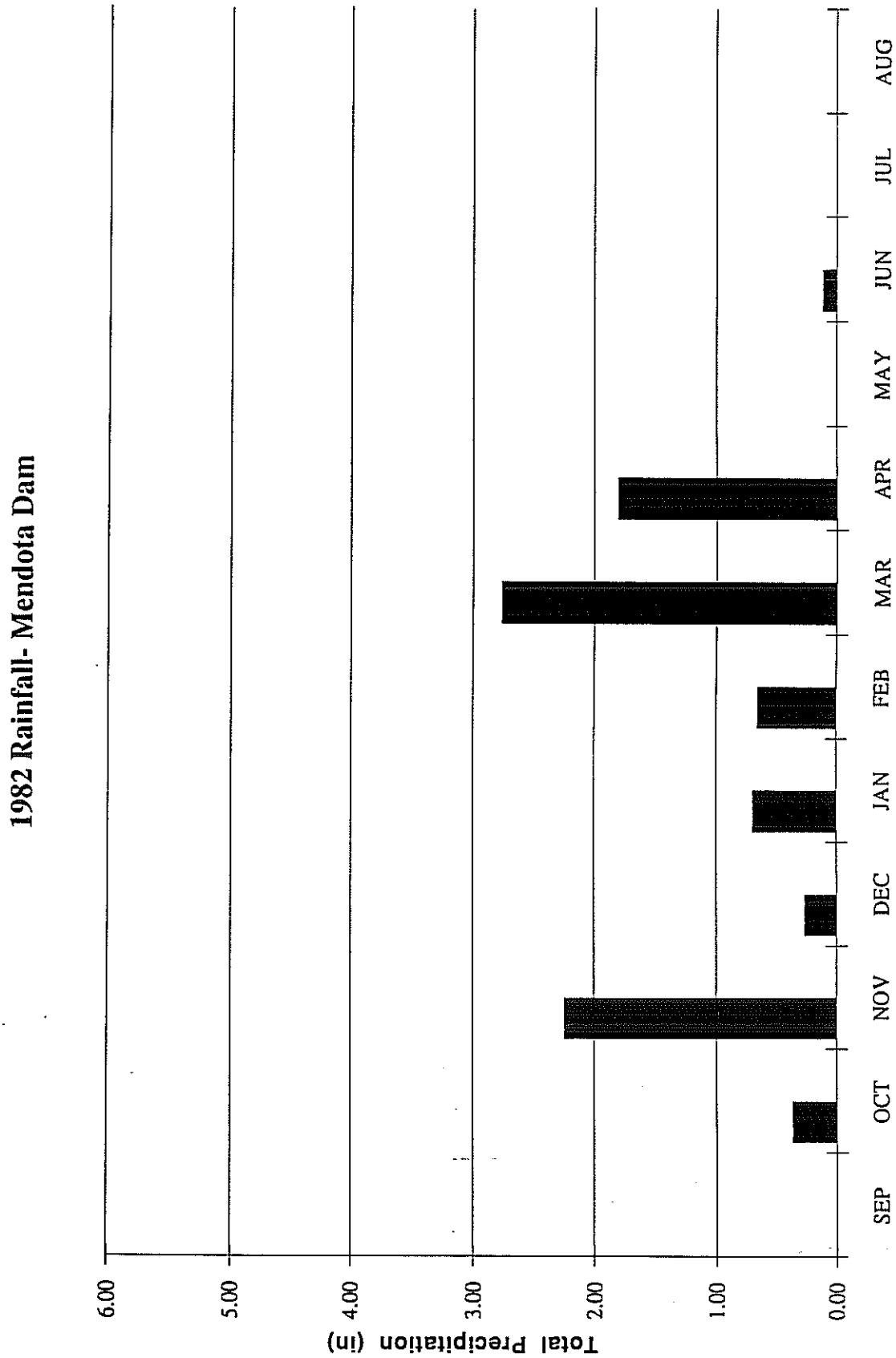
| | Precip. Annual (in) | % Infilt. of Annual (%) | Precip. Sept-Mar (in) | September - March Only | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Infilt. (in) | % Infilt. (%) | Evap. (in) | % Evap. (%) | Runoff (in) | % Runoff (%) |
| 1980-1981 | 7.69 | 47% | 6.2 | 3.6 | 58% | 1.6 | 26% | 1.0 | 17% |
| 1982 | 8.95 | 43% | 7.0 | 3.9 | 55% | 2.4 | 35% | 0.7 | 11% |
| 1983 | 15.51 | 56% | 14.2 | 8.6 | 61% | 2.8 | 19% | 2.5 | 18% |
| 1984 | 6.12 | 51% | 6.0 | 3.2 | 52% | 2.5 | 42% | 0.3 | 5% |
| 1985 | 5.77 | 47% | 5.6 | 2.7 | 49% | 2.3 | 42% | 0.5 | 9% |
| 1986 | 10.75 | 59% | 10.0 | 6.3 | 63% | 2.1 | 21% | 1.6 | 16% |
| 1987 | 6.02 | 52% | 5.9 | 3.1 | 53% | 2.1 | 36% | 0.7 | 12% |
| 1988 | 5.87 | 42% | 4.7 | 2.5 | 53% | 2.0 | 43% | 0.2 | 5% |
| 1989 | 5.35 | 52% | 5.1 | 2.8 | 54% | 1.8 | 35% | 0.6 | 12% |
| 1990 | 7.32 | 44% | 5.7 | 3.2 | 56% | 2.0 | 35% | 0.5 | 9% |
| 1991 | 5.14 | 55% | 5.0 | 2.8 | 56% | 1.7 | 34% | 0.5 | 10% |
| 1992 | 7.45 | 57% | 7.3 | 4.2 | 57% | 1.9 | 26% | 1.2 | 16% |
| **AVERAGE** | **7.7** | **51%** | **6.9** | **3.9** | **57%** | **2.1** | **30%** | **0.9** | **13%** |

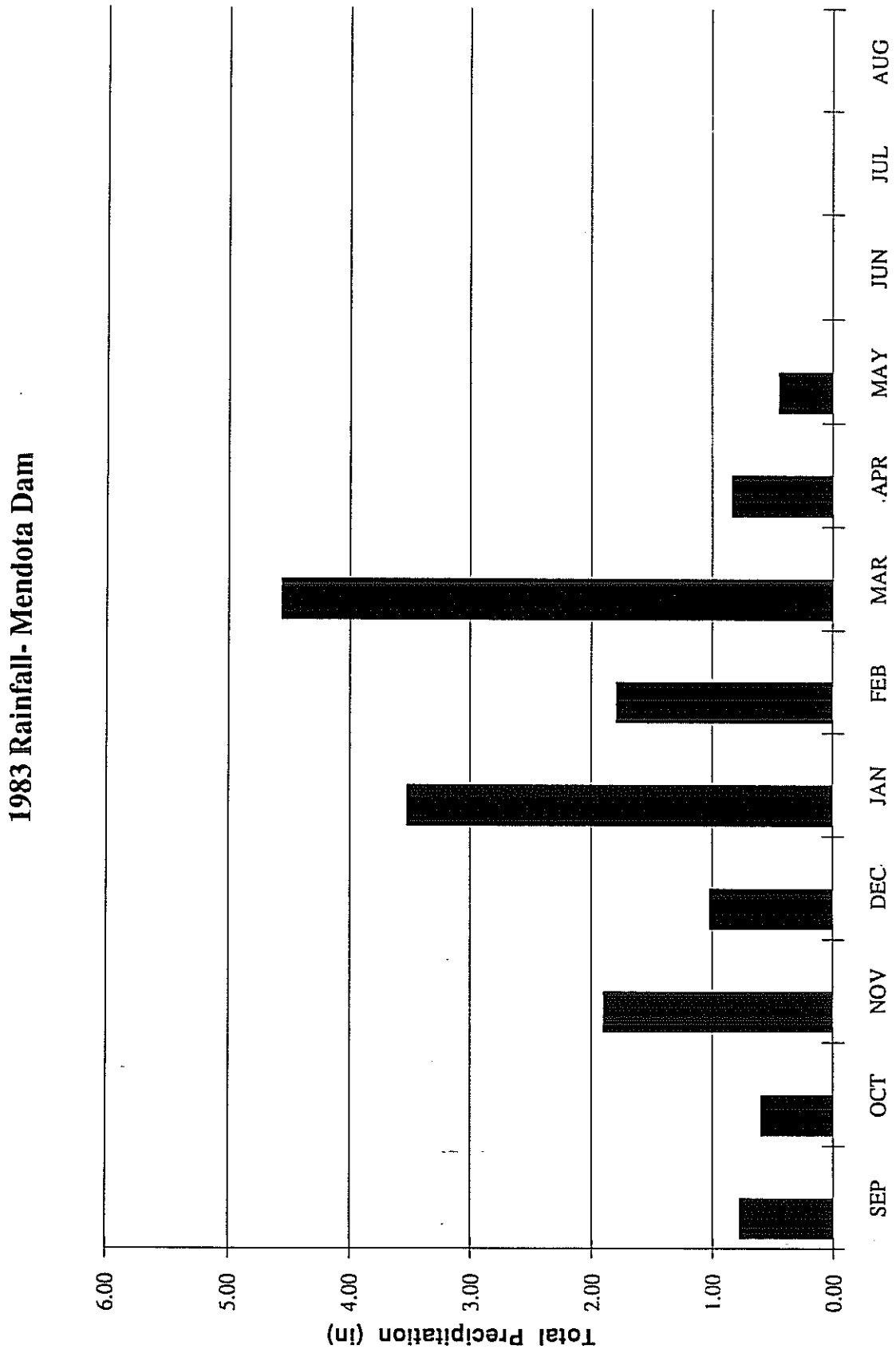

MENDOTA DAM RAINFALL
Rain During Pre-Plant Months (Inches)
16.00
14.00
12.00
10.00
8.00
6.00
4.00
2.00
0.00
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
1992

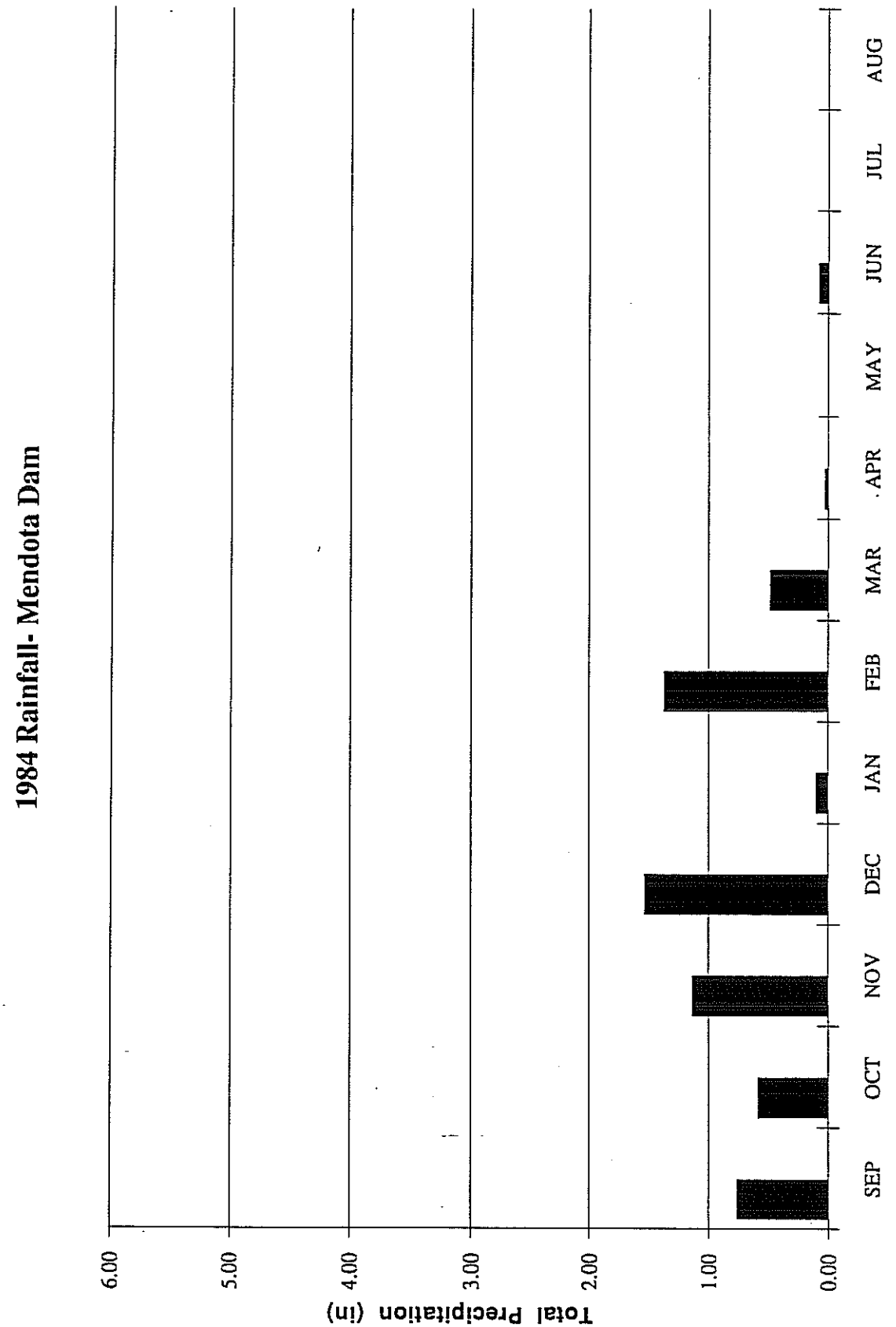
# Rainfall Data at Mendota Dam (in)

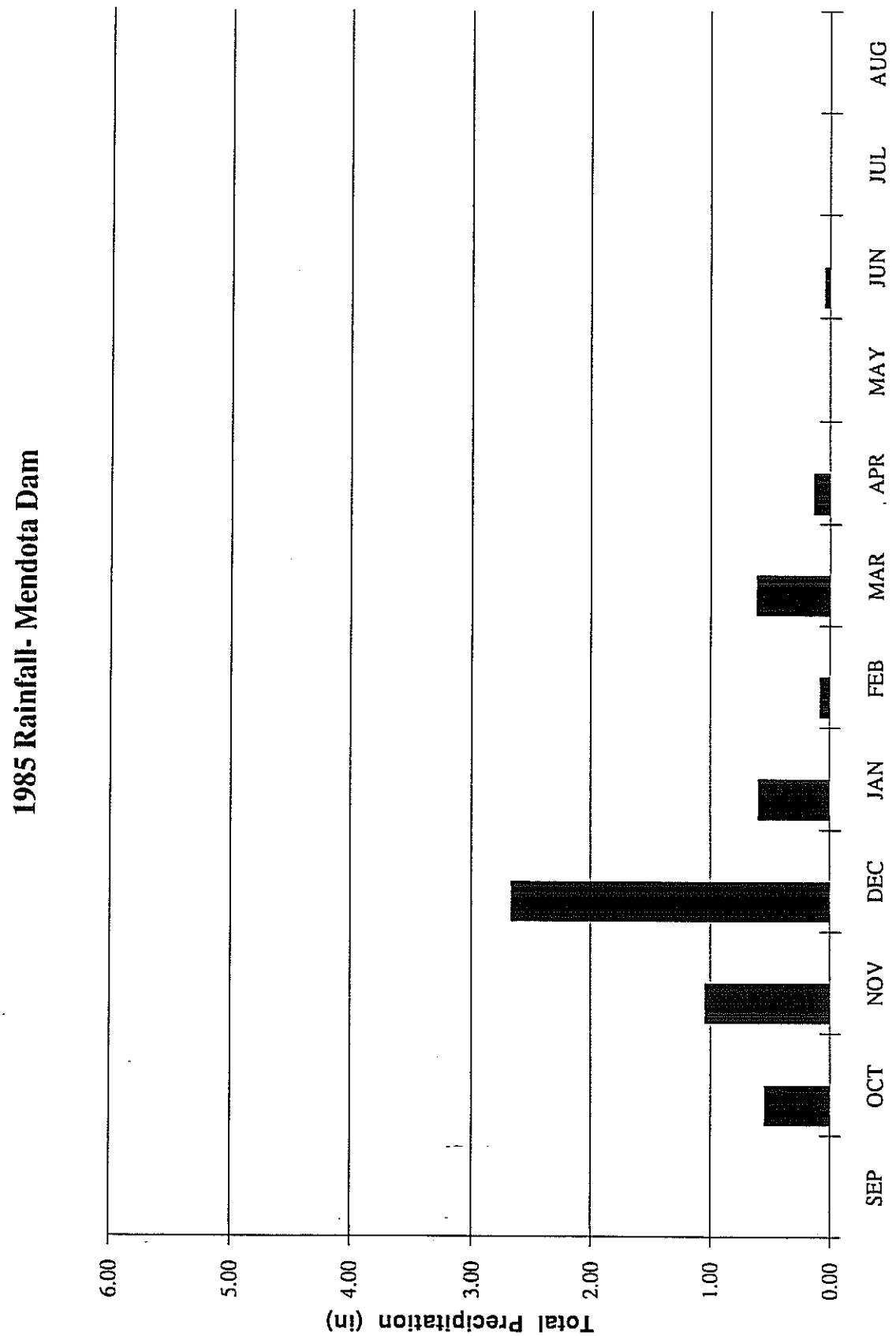
| | SEP | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1980-1981 | 0.00 | 0.00 | 0.11 | 0.30 | 1.61 | 0.78 | 3.57 | 1.32 | 0.00 | 0.00 | 0.00 | 0.00 | 7.69 |
| 1982 | 0.00 | 0.37 | 2.25 | 0.27 | 0.70 | 0.66 | 2.77 | 1.81 | 0.00 | 0.12 | 0.00 | 0.00 | 8.95 |
| 1983 | 0.78 | 0.60 | 1.91 | 1.03 | 3.53 | 1.80 | 4.57 | 0.84 | 0.45 | 0.00 | 0.00 | 0.00 | 15.51 |
| 1984 | 0.77 | 0.59 | 1.14 | 1.54 | 0.10 | 1.38 | 0.49 | 0.03 | 0.00 | 0.08 | 0.00 | 0.00 | 6.12 |
| 1985 | 0.00 | 0.55 | 1.05 | 2.67 | 0.60 | 0.09 | 0.62 | 0.14 | 0.00 | 0.05 | 0.00 | 0.00 | 5.77 |
| 1986 | 0.00 | 0.49 | 3.11 | 0.97 | 0.11 | 2.92 | 2.44 | 0.51 | 0.12 | 0.00 | 0.08 | 0.00 | 10.75 |
| 1987 | 0.36 | 0.00 | 0.00 | 0.35 | 1.14 | 1.90 | 2.15 | 0.00 | 0.12 | 0.00 | 0.00 | 0.00 | 6.02 |
| 1988 | 0.00 | 1.18 | 0.52 | 1.23 | 1.18 | 0.50 | 0.10 | 0.94 | 0.22 | 0.00 | 0.00 | 0.00 | 5.87 |
| 1989 | 0.00 | 0.00 | 0.67 | 2.13 | 0.29 | 1.15 | 0.89 | 0.13 | 0.09 | 0.00 | 0.00 | 0.00 | 5.35 |
| 1990 | 1.36 | 0.64 | 0.31 | 0.00 | 2.05 | 0.92 | 0.45 | 0.39 | 1.20 | 0.00 | 0.00 | 0.00 | 7.32 |
| 1991 | 0.09 | 0.04 | 0.27 | 0.41 | 0.07 | 1.01 | 3.12 | 0.11 | 0.00 | 0.00 | 0.00 | 0.02 | 5.14 |
| 1992 | 0.00 | 0.24 | 0.07 | 0.87 | 1.45 | 2.46 | 2.24 | 0.00 | 0.05 | 0.00 | 0.07 | 0.00 | 7.45 |
| Average | **0.28** | **0.39** | **0.95** | **0.98** | **1.07** | **1.30** | **1.95** | **0.52** | **0.19** | **0.02** | **0.01** | **0.00** | |

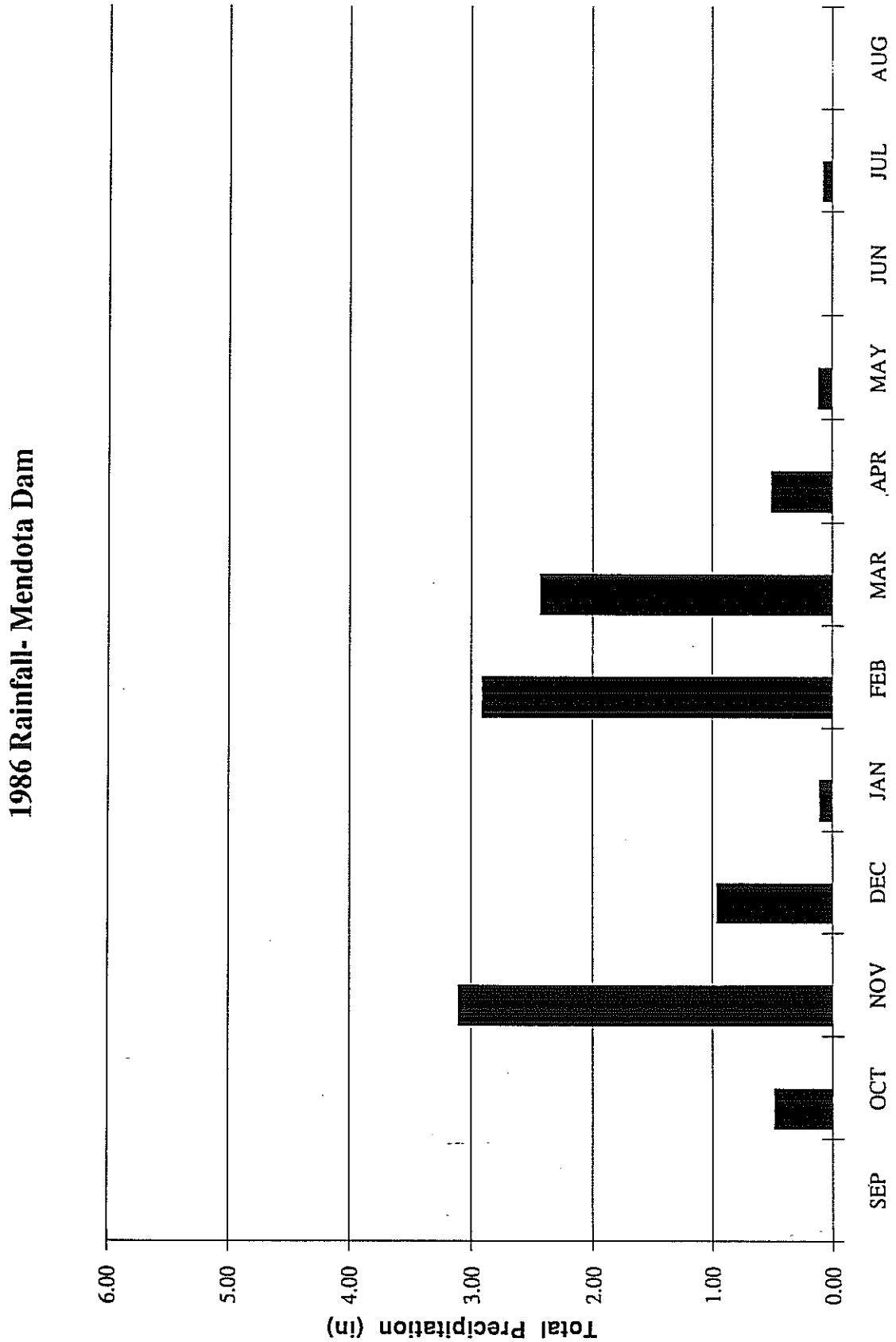

1981 Rainfall- Mendota Dam
Total Precipitation (in)
6.00
5.00
4.00
3.00
2.00
1.00
0.00
SEP
OCT
NOV
DEC
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG

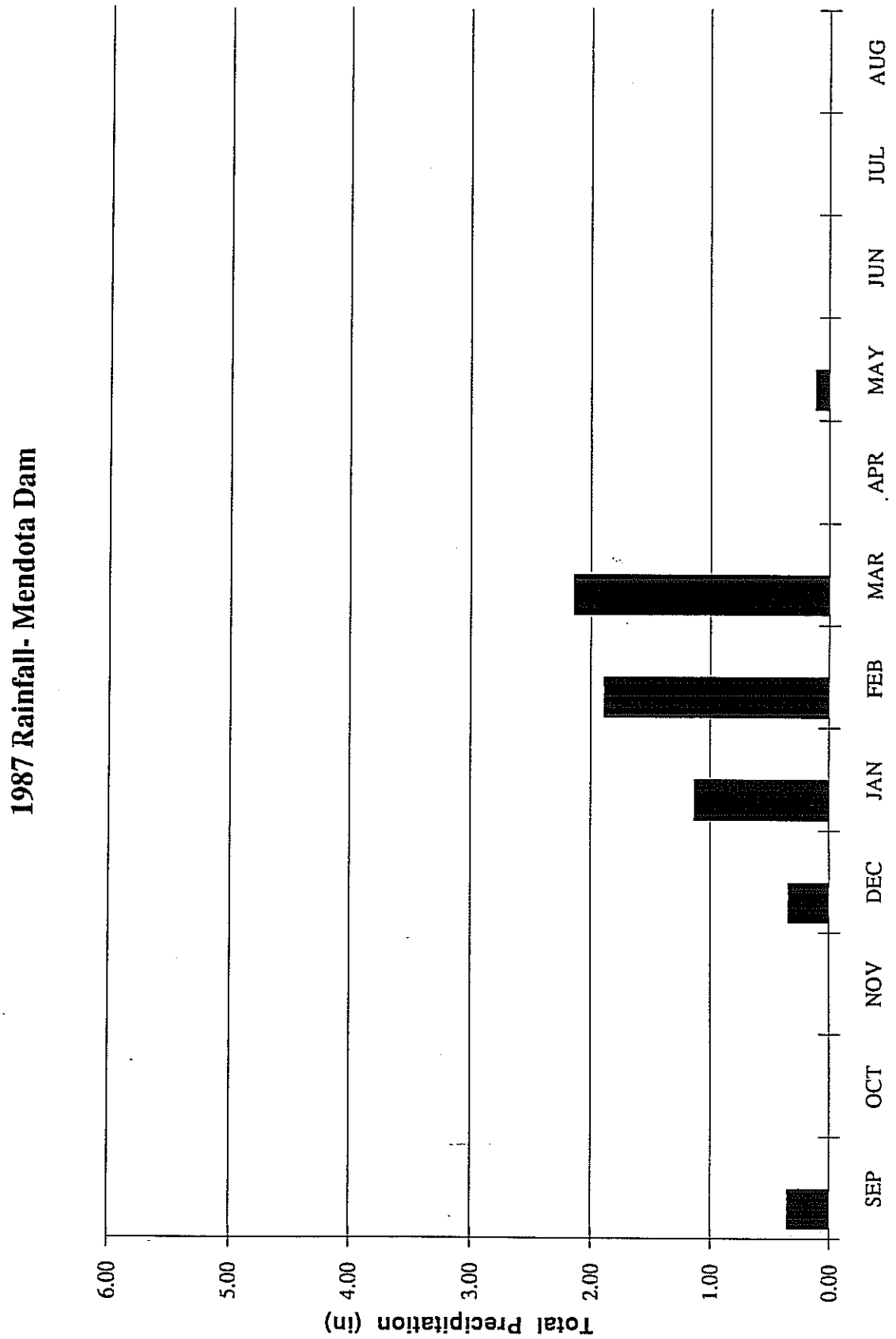

1982 Rainfall- Mendota Dam
Total Precipitation (in)
6.00
5.00
4.00
3.00
2.00
1.00
0.00
SEP
OCT
NOV
DEC
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG

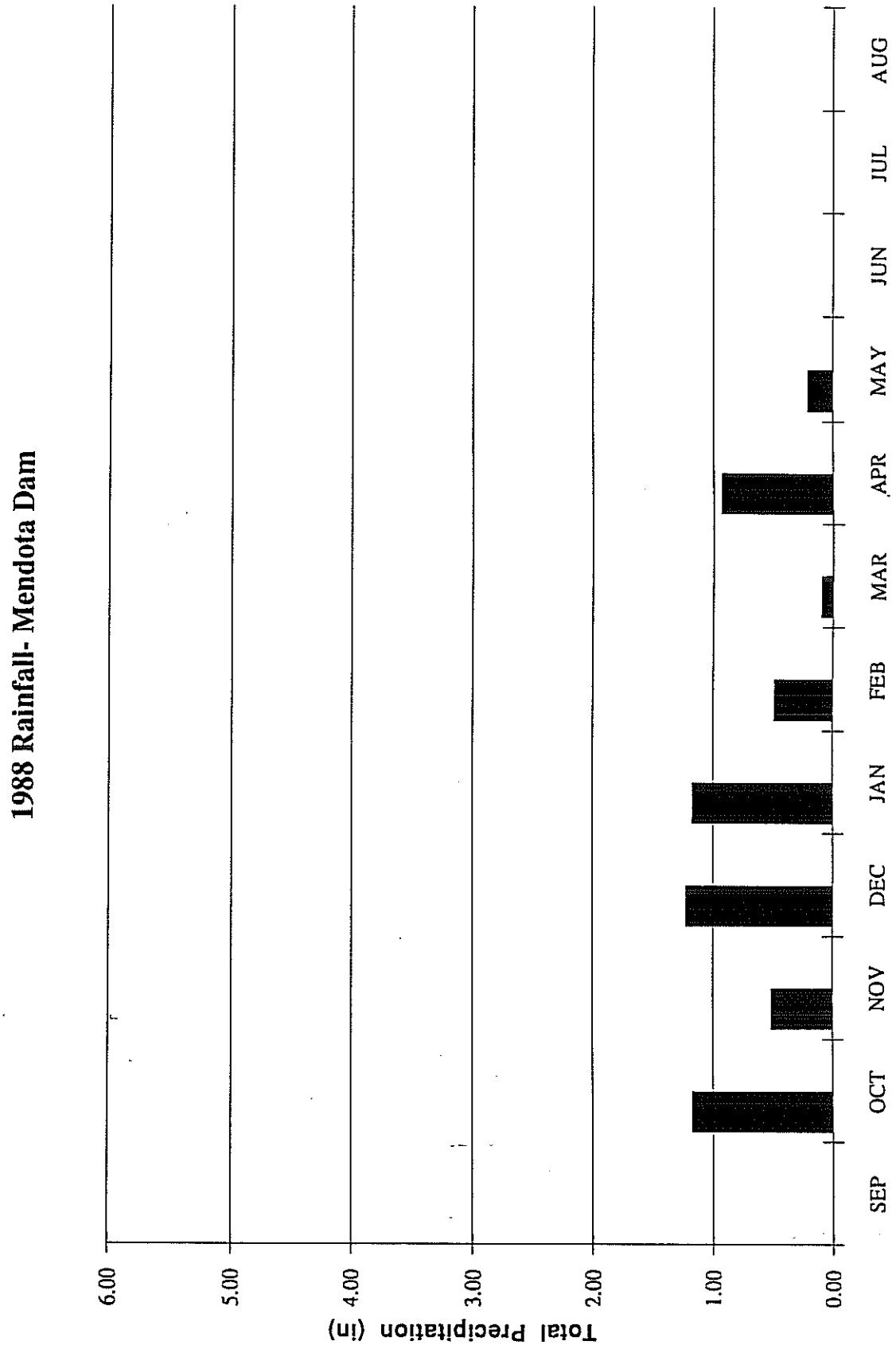

1983 Rainfall- Mendota Dam
Total Precipitation (in)
6.00
5.00
4.00
3.00
2.00
1.00
0.00
SEP
OCT
NOV
DEC
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG


1984 Rainfall- Mendota Dam
Total Precipitation (in)
6.00
5.00
4.00
3.00
2.00
1.00
0.00
SEP
OCT
NOV
DEC
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG


1985 Rainfall- Mendota Dam
Total Precipitation (in)
6.00
5.00
4.00
3.00
2.00
1.00
0.00
SEP
OCT
NOV
DEC
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG


1986 Rainfall- Mendota Dam
Total Precipitation (in)
6.00
5.00
4.00
3.00
2.00
1.00
0.00
SEP
OCT
NOV
DEC
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG


1987 Rainfall- Mendota Dam
Total Precipitation (in)
6.00
5.00
4.00
3.00
2.00
1.00
0.00
SEP
OCT
NOV
DEC
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG


1988 Rainfall- Mendota Dam
Total Precipitation (in)
6.00
5.00
4.00
3.00
2.00
1.00
0.00
SEP
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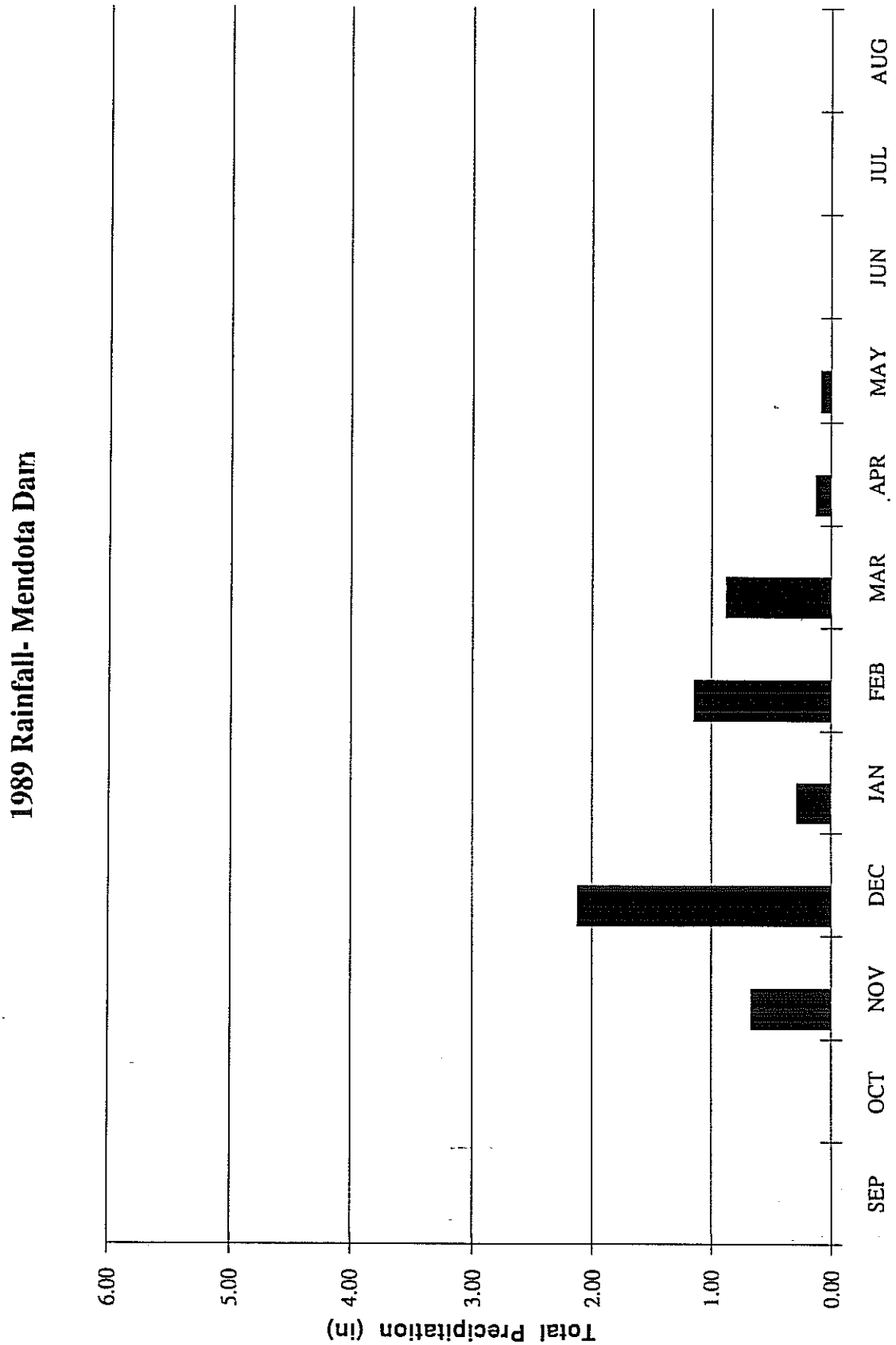
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG


1989 Rainfall- Mendota Dam
Total Precipitation (in)
6.00
5.00
4.00
3.00
2.00
1.00
0.00
SEP
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DEC
JAN
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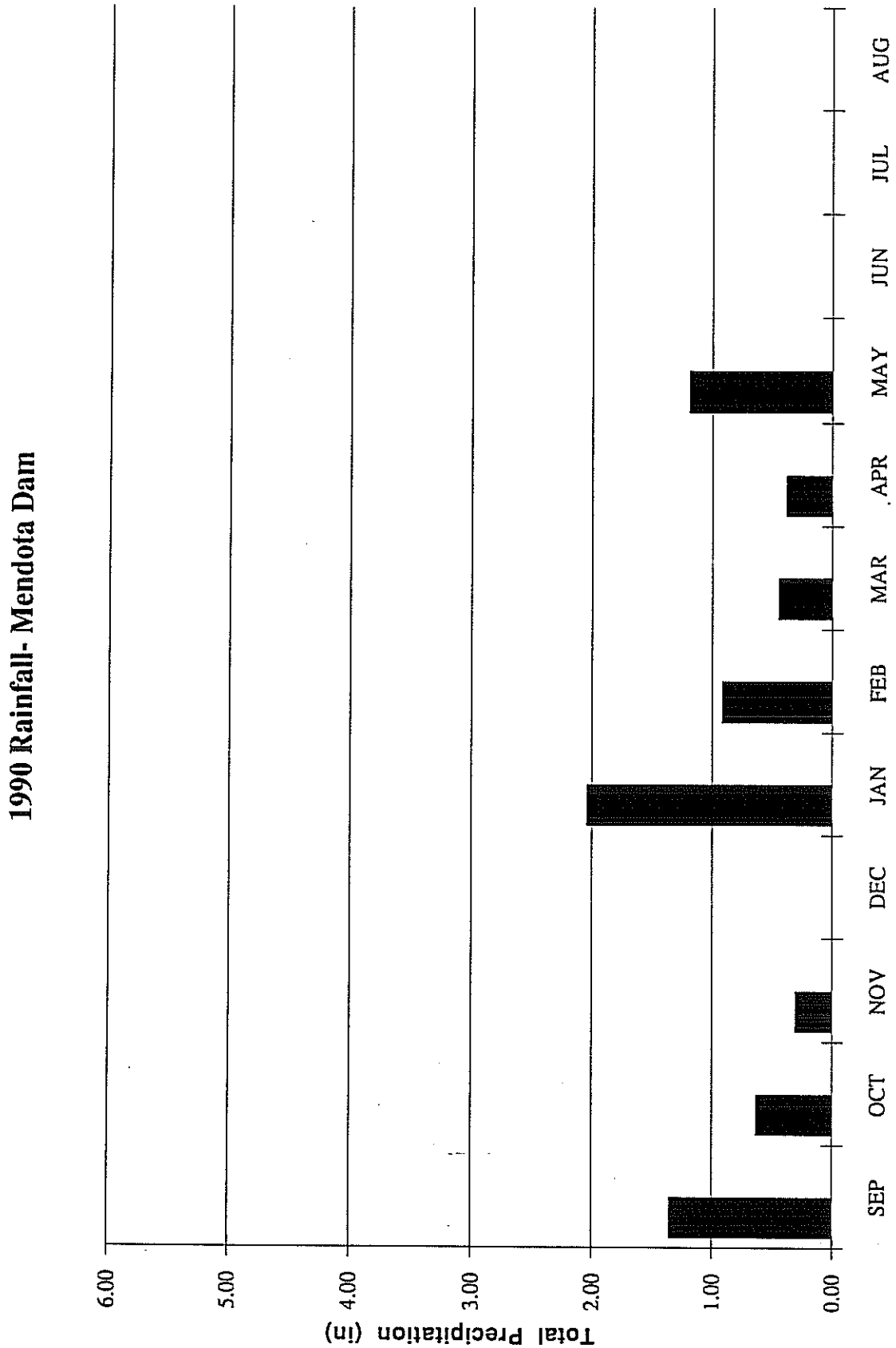
MAR
APR
MAY
JUN
JUL
AUG


1990 Rainfall- Mendota Dam
Total Precipitation (in)
6.00
5.00
4.00
3.00
2.00
1.00
0.00
SEP
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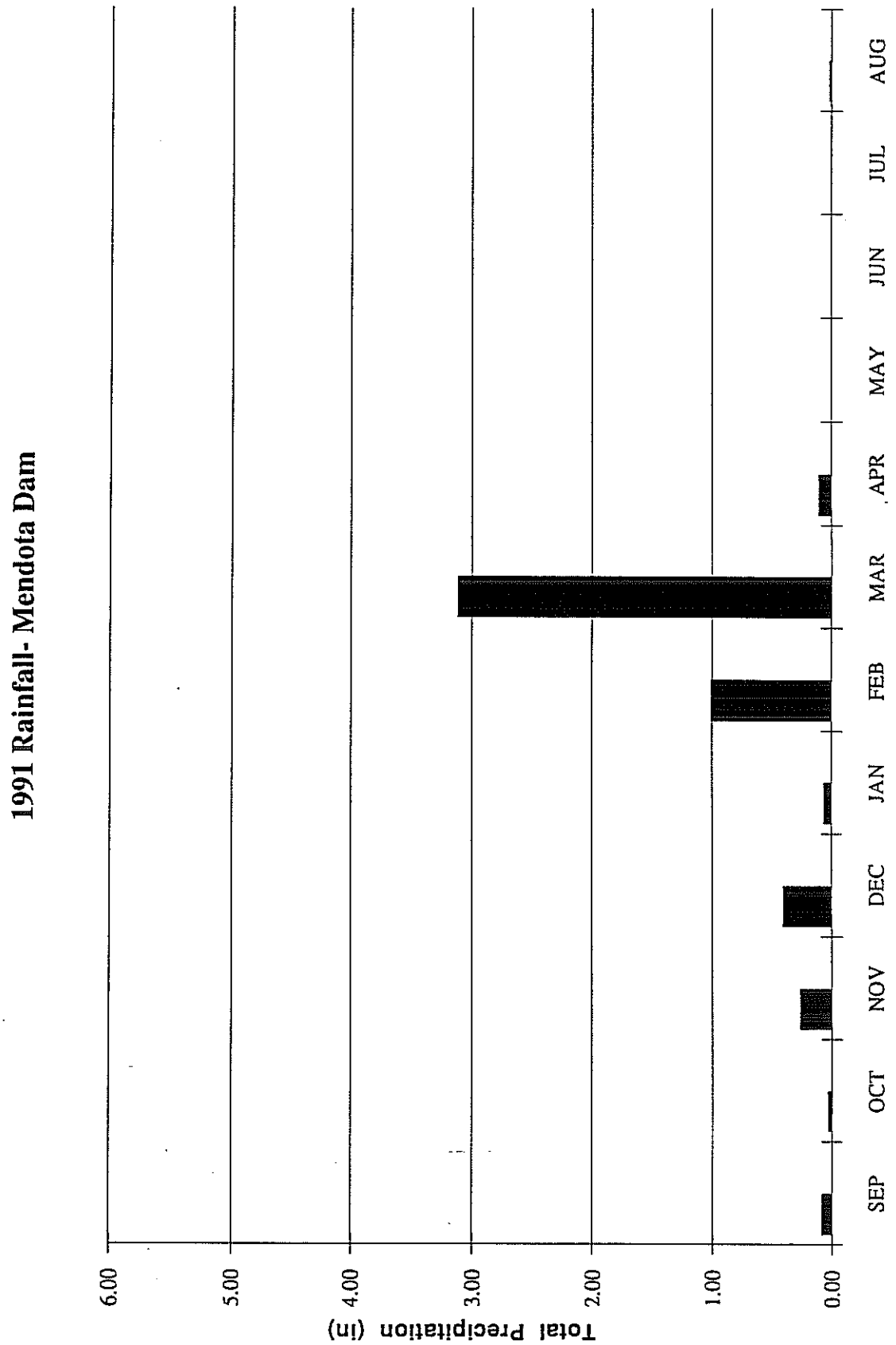
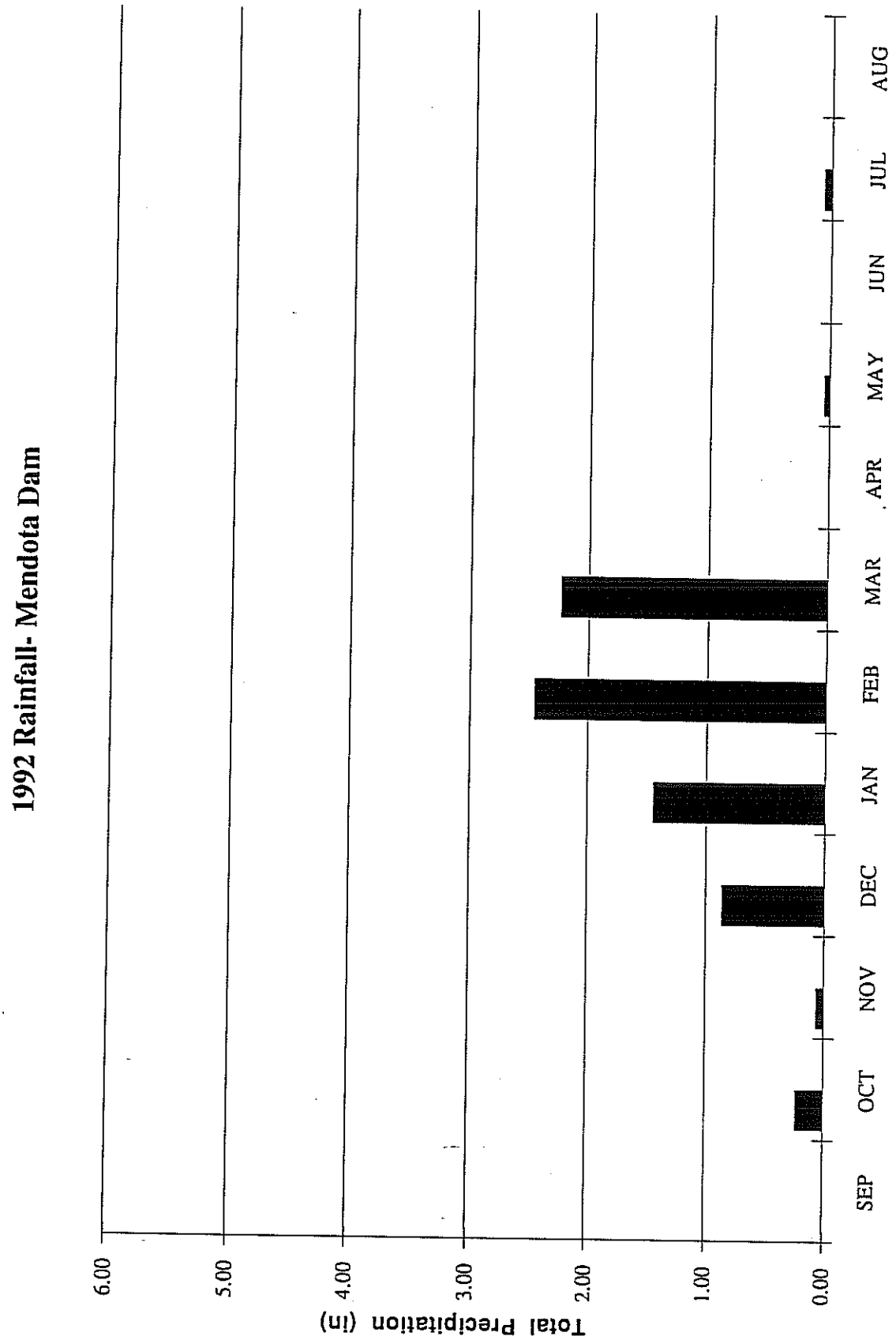
JUN
JUL
AUG


1991 Rainfall- Mendota Dam
Total Precipitation (in)
6.00
5.00
4.00
3.00
2.00
1.00
0.00
SEP
OCT
NOV
DEC
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG


1992 Rainfall- Mendota Dam
Total Precipitation (in)
6.00
5.00
4.00
3.00
2.00
1.00
0.00
SEP
OCT
NOV
DEC
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG

# TECHNICAL APPENDIX D
# IRRIGATION EFFICIENCY Spreadsheet
# ETc Approach

# TABLE OF CONTENTS
## TECHNICAL APPENDIX D

Spreadsheet Output ..... D3

# Grasslands Basin Irrigation and Drainage Study
## Cal Poly - ITRC

### Kc Calc

Kc Values Used for the ETo Analysis

| | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fallow | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| Misc. | 0.00 | 0.00 | 0.00 | 0.06 | 0.30 | 0.59 | 1.02 | 0.92 | 0.00 | 0.00 | 0.00 | 0.00 |
| Cotton | 0.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.10 | 0.23 | 0.70 | 1.03 | 1.02 | 0.56 |
| Alfalfa | 0.79 | 0.57 | 0.36 | 0.25 | 0.32 | 0.82 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Wheat | 0.00 | 0.04 | 0.23 | 0.54 | 0.95 | 1.17 | 1.04 | 0.47 | 0.00 | 0.00 | 0.00 | 0.00 |
| Melons | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.04 | 0.18 | 0.43 | 0.94 | 0.18 | 0.00 | 0.00 |
| Processing | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.05 | 0.24 | 0.40 | 0.90 | 1.10 | 0.85 | 0.00 |
| Sugar Beets | 1.10 | 1.10 | 1.10 | 1.10 | 1.04 | 0.44 | 0.00 | 0.13 | 0.38 | 0.96 | 1.10 | 1.10 |
| Barley | 0.00 | 0.03 | 0.23 | 0.53 | 0.93 | 1.15 | 0.96 | 0.30 | 0.00 | 0.00 | 0.00 | 0.00 |
| Beans | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 | 0.14 | 0.78 | 1.14 | 0.56 | 0.00 | 0.00 |
| Seed Alf. | 0.00 | 0.03 | 0.20 | 0.24 | 0.47 | 0.74 | 0.97 | 0.97 | 0.66 | 0.19 | 0.00 | 0.00 |
| Rice | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.19 | 0.95 | 1.14 | 1.25 | 1.17 | 1.02 | 0.00 |
| Corn | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.12 | 0.36 | 0.88 | 1.10 | 0.93 | 0.27 |
| Vegetable | 0.00 | 0.00 | 0.00 | 0.06 | 0.30 | 0.59 | 1.02 | 0.92 | 0.00 | 0.00 | 0.00 | 0.00 |
| Pasture | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Stonefruit/ | 0.89 | 0.00 | 0.00 | 0.00 | 0.00 | 0.50 | 0.76 | 0.89 | 0.98 | 0.98 | 0.98 | 0.97 |
| Walnut/Apple | 0.42 | 0.06 | 0.00 | 0.00 | 0.00 | 0.54 | 0.84 | 0.93 | 1.06 | 1.14 | 1.09 | 0.77 |
| Sorghum | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 | 0.16 | 0.51 | 1.04 | 0.93 | 0.59 |

Kc Values Used for the ETo Analysis

Adjustment to account for poor stands = 85%

| | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fallow | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| Misc. | 0.00 | 0.00 | 0.00 | 0.05 | 0.26 | 0.51 | 0.86 | 0.79 | 0.00 | 0.00 | 0.00 | 0.00 |
| Cotton | 0.04 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.09 | 0.19 | 0.60 | 0.89 | 0.88 | 0.49 |
| Alfalfa | 0.68 | 0.49 | 0.31 | 0.22 | 0.28 | 0.70 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 |
| Wheat | 0.00 | 0.03 | 0.20 | 0.46 | 0.82 | 1.01 | 0.90 | 0.40 | 0.00 | 0.00 | 0.00 | 0.00 |
| Melons | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 | 0.15 | 0.37 | 0.81 | 0.16 | 0.00 | 0.00 |
| Processing | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.04 | 0.21 | 0.34 | 0.78 | 0.95 | 0.73 | 0.00 |
| Sugar Beets | 0.95 | 0.95 | 0.95 | 0.94 | 0.89 | 0.38 | 0.00 | 0.11 | 0.33 | 0.83 | 0.95 | 0.95 |
| Barley | 0.00 | 0.03 | 0.20 | 0.46 | 0.80 | 0.99 | 0.83 | 0.26 | 0.00 | 0.00 | 0.00 | 0.00 |
| Beans | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 | 0.12 | 0.67 | 0.98 | 0.48 | 0.00 | 0.00 |
| Seed Alf. | 0.00 | 0.03 | 0.17 | 0.21 | 0.41 | 0.63 | 0.84 | 0.83 | 0.57 | 0.17 | 0.00 | 0.00 |
| Rice | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.16 | 0.82 | 0.98 | 1.08 | 1.01 | 0.88 | 0.00 |
| Corn | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.11 | 0.31 | 0.75 | 0.95 | 0.80 | 0.24 |
| Vegetable | 0.00 | 0.00 | 0.00 | 0.05 | 0.26 | 0.51 | 0.88 | 0.79 | 0.00 | 0.00 | 0.00 | 0.00 |
| Pasture | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 |
| Stonefruit/ | 0.77 | 0.00 | 0.00 | 0.00 | 0.00 | 0.43 | 0.67 | 0.77 | 0.84 | 0.84 | 0.84 | 0.83 |
| Walnut/Apple | 0.36 | 0.05 | 0.00 | 0.00 | 0.00 | 0.46 | 0.72 | 0.82 | 0.91 | 0.98 | 0.94 | 0.66 |
| Sorghum | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 | 0.14 | 0.44 | 0.90 | 0.80 | 0.51 |



File: DIE - ETo Approach
Date: 2/23/94

# Grasslands Basin Irrigation and Drainage Study
## Cal Poly - ITRC

### ETo Calc

ETo @ CIMIS #7 - inches

| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Annual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1981* | 3.83 | 1.96 | 1.14 | 1.19 | 2.05 | 3.80 | 5.75 | 7.70 | 8.45 | 8.50 | 7.09 | 5.43 | 57 |
| 1982* | 3.83 | 1.96 | 1.14 | 1.19 | 2.05 | 3.80 | 5.75 | 7.70 | 8.45 | 8.50 | 7.09 | 5.43 | 57 |
| 1983 | 3.83 | 1.96 | 1.14 | 0.85 | 1.80 | 3.00 | 4.84 | 6.80 | 9.57 | 9.24 | 7.48 | 5.73 | 58 |
| 1984 | 3.45 | 1.55 | 0.95 | 0.88 | 2.16 | 4.60 | 5.77 | 8.96 | 8.55 | 8.57 | 7.11 | 6.38 | 59 |
| 1985 | 3.83 | 1.75 | 1.74 | 0.96 | 2.37 | 3.53 | 6.43 | 7.56 | 8.57 | 8.19 | 7.19 | 5.40 | 58 |
| 1986 | 3.86 | 1.81 | 0.77 | 1.24 | 2.03 | 3.50 | 5.59 | 7.50 | 8.04 | 7.90 | 7.30 | 5.07 | 53 |
| 1987 | 4.01 | 2.54 | 0.73 | 1.32 | 1.71 | 3.78 | 6.65 | 7.71 | 8.29 | 8.25 | 7.06 | 5.40 | 57 |
| 1988 | 3.66 | 1.62 | 1.39 | 1.21 | 2.65 | 5.20 | 4.98 | 7.25 | 7.47 | 8.40 | 6.72 | 5.31 | 56 |
| 1989 | 3.30 | 1.59 | 0.94 | 1.49 | 1.70 | 3.83 | 5.75 | 7.86 | 8.58 | 8.95 | 7.40 | 5.12 | 57 |
| 1990 | 3.94 | 1.98 | 1.05 | 1.34 | 1.94 | 3.76 | 6.14 | 7.02 | 8.44 | 8.46 | 7.03 | 5.41 | 57 |
| 1991 | 4.44 | 2.55 | 1.51 | 1.31 | 2.09 | 2.97 | 5.61 | 6.66 | 8.57 | 8.57 | 6.51 | 5.15 | 56 |
| 1992 | 3.96 | 2.44 | 1.17 | 0.73 | 1.81 | 3.01 | 5.81 | 8.12 | 7.74 | 7.94 | 7.32 | 5.69 | 56 |
| Average | 3.83 | 1.96 | 1.14 | 1.15 | 2.03 | 3.73 | 5.76 | 7.74 | 8.39 | 8.46 | 7.13 | 5.45 | 56.74 |
| Std Dev | | | | | | | | | | | | | |

### ETc Calc

1981 ETc = ETo * Kc adj.

| | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | Total, Inches |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fallow | 0.20 | 0.10 | 0.06 | 0.06 | 0.11 | 0.20 | 0.30 | 0.40 | 0.44 | 0.44 | 0.37 | 0.28 | 3 |
| Misc. | 0.00 | 0.00 | 0.00 | 0.06 | 0.53 | 1.93 | 5.04 | 6.10 | 0.00 | 0.00 | 0.00 | 0.00 | 14 |
| Cotton | 0.16 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.51 | 1.49 | 5.07 | 7.54 | 6.22 | 2.64 | 24 |
| Alfalfa | 2.60 | 0.97 | 0.35 | 0.26 | 0.57 | 2.67 | 4.45 | 5.98 | 6.54 | 6.58 | 5.49 | 4.20 | 41 |
| Wheat | 0.00 | 0.06 | 0.22 | 0.55 | 1.67 | 3.82 | 5.17 | 3.11 | 0.00 | 0.00 | 0.00 | 0.00 | 15 |
| Melons | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.12 | 0.89 | 2.86 | 6.85 | 1.34 | 0.00 | 0.00 | 12 |
| Processing | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.15 | 1.19 | 2.64 | 6.56 | 8.04 | 5.17 | 0.00 | 24 |
| Sugar Beets | 3.62 | 1.85 | 1.08 | 1.12 | 1.83 | 1.45 | 0.00 | 0.84 | 2.78 | 7.04 | 6.71 | 5.14 | 33 |
| Barley | 0.00 | 0.06 | 0.22 | 0.54 | 1.65 | 3.75 | 4.86 | 1.98 | 0.00 | 0.00 | 0.00 | 0.00 | 13 |
| Beans | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.09 | 0.69 | 3.16 | 8.26 | 4.12 | 0.00 | 0.00 | 16 |
| Seed Alf. | 0.00 | 0.06 | 0.20 | 0.25 | 0.85 | 2.40 | 4.82 | 6.42 | 4.83 | 1.41 | 0.00 | 0.00 | 25 |
| Rice | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.61 | 4.72 | 7.55 | 9.09 | 8.58 | 6.25 | 0.00 | 37 |
| Corn | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.61 | 2.36 | 6.38 | 8.04 | 5.68 | 1.28 | 24 |
| Vegetable | 0.00 | 0.00 | 0.00 | 0.06 | 0.53 | 1.93 | 5.04 | 6.10 | 0.00 | 0.00 | 0.00 | 0.00 | 14 |
| Pasture | 2.97 | 1.52 | 0.88 | 0.92 | 1.59 | 2.94 | 4.45 | 5.96 | 6.54 | 6.58 | 5.49 | 4.20 | 44 |
| Stonefruit/ | 2.94 | 0.00 | 0.00 | 0.00 | 0.00 | 1.63 | 3.86 | 5.92 | 7.09 | 7.17 | 5.97 | 4.52 | 39 |
| Walnut/Apple | 1.39 | 0.10 | 0.00 | 0.00 | 0.00 | 1.75 | 4.14 | 6.26 | 7.70 | 8.32 | 6.65 | 3.60 | 40 |
| Sorghum | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.16 | 1.06 | 3.69 | 7.64 | 5.64 | 2.77 | 21 |



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Date: 2/23/94

# Grasslands Basin Irrigation and Drainage Study
## Cal Poly - ITRC

1982 ETc

| | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | Total, Inches |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fallow | 0.20 | 0.10 | 0.06 | 0.06 | 0.11 | 0.20 | 0.30 | 0.40 | 0.44 | 0.44 | 0.37 | 0.28 | 3 |
| Misc. | 0.00 | 0.00 | 0.00 | 0.06 | 0.53 | 1.93 | 5.04 | 6.10 | 0.00 | 0.00 | 0.00 | 0.00 | 14 |
| Cotton | 0.16 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.51 | 1.49 | 5.07 | 7.54 | 6.22 | 3.64 | 24 |
| Alfalfa | 2.60 | 0.97 | 0.35 | 0.26 | 0.57 | 2.67 | 4.45 | 5.96 | 6.54 | 6.58 | 5.49 | 4.20 | 41 |
| Wheat | 0.00 | 0.06 | 0.22 | 0.55 | 1.67 | 3.82 | 5.17 | 3.11 | 0.00 | 0.00 | 0.00 | 0.00 | 15 |
| Melons | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.12 | 0.89 | 2.68 | 6.65 | 1.34 | 0.00 | 0.00 | 12 |
| Processing | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.15 | 1.19 | 2.64 | 6.56 | 8.04 | 5.17 | 0.00 | 24 |
| Sugar Beets | 3.62 | 1.85 | 1.08 | 1.12 | 1.83 | 1.45 | 0.00 | 0.84 | 2.78 | 7.04 | 6.71 | 5.14 | 33 |
| Barley | 0.00 | 0.06 | 0.22 | 0.54 | 1.65 | 3.75 | 4.86 | 1.98 | 0.00 | 0.00 | 0.00 | 0.00 | 13 |
| Beans | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.09 | 0.69 | 5.16 | 8.26 | 4.12 | 0.00 | 0.00 | 18 |
| Seed Alf. | 0.00 | 0.06 | 0.20 | 0.25 | 0.83 | 2.40 | 4.82 | 6.42 | 4.83 | 1.41 | 0.00 | 0.00 | 21 |
| Rice | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.61 | 4.72 | 7.55 | 9.09 | 8.58 | 6.23 | 0.00 | 37 |
| Corn | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.61 | 2.36 | 6.36 | 8.04 | 5.68 | 1.28 | 24 |
| Vegetable | 0.00 | 0.00 | 0.00 | 0.06 | 0.53 | 1.93 | 5.04 | 6.10 | 0.00 | 0.00 | 0.00 | 0.00 | 14 |
| Pasture | 2.97 | 1.52 | 0.88 | 0.92 | 1.59 | 2.94 | 4.45 | 5.96 | 6.54 | 6.58 | 5.49 | 4.20 | 44 |
| Stonefruit/ | 2.94 | 0.00 | 0.00 | 0.00 | 0.00 | 1.63 | 3.88 | 5.92 | 7.09 | 7.17 | 5.97 | 4.53 | 38 |
| Walnut/Apple | 1.39 | 0.10 | 0.00 | 0.00 | 0.00 | 1.75 | 4.14 | 6.28 | 7.70 | 8.32 | 6.65 | 3.60 | 40 |
| Sorghum | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.16 | 1.06 | 3.68 | 7.64 | 5.64 | 2.77 | 21 |

1983 ETc

| | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | Total, Inches |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fallow | 0.20 | 0.10 | 0.06 | 0.04 | 0.09 | 0.15 | 0.25 | 0.45 | 0.49 | 0.48 | 0.39 | 0.30 | 3 |
| Misc. | 0.00 | 0.00 | 0.00 | 0.04 | 0.46 | 1.52 | 4.24 | 6.97 | 0.00 | 0.00 | 0.00 | 0.00 | 13 |
| Cotton | 0.18 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.43 | 1.71 | 5.74 | 8.20 | 6.56 | 2.78 | 26 |
| Alfalfa | 2.60 | 0.97 | 0.35 | 0.18 | 0.50 | 2.11 | 3.75 | 6.81 | 7.41 | 7.15 | 5.79 | 4.44 | 42 |
| Wheat | 0.00 | 0.06 | 0.22 | 0.39 | 1.47 | 3.02 | 4.35 | 3.55 | 0.00 | 0.00 | 0.00 | 0.00 | 13 |
| Melons | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.09 | 0.75 | 3.29 | 7.75 | 1.46 | 0.00 | 0.00 | 13 |
| Processing | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.12 | 1.00 | 3.02 | 7.43 | 8.74 | 5.46 | 0.00 | 26 |
| Sugar Beets | 3.62 | 1.85 | 1.08 | 0.80 | 1.61 | 1.14 | 0.00 | 0.96 | 3.15 | 7.65 | 7.06 | 5.42 | 34 |
| Barley | 0.00 | 0.06 | 0.22 | 0.39 | 1.45 | 2.96 | 4.09 | 2.27 | 0.00 | 0.00 | 0.00 | 0.00 | 11 |
| Beans | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.07 | 0.56 | 5.89 | 9.35 | 4.47 | 0.00 | 0.00 | 20 |
| Seed Alf. | 0.00 | 0.06 | 0.20 | 0.18 | 0.73 | 1.90 | 4.05 | 7.33 | 5.46 | 1.54 | 0.00 | 0.00 | 21 |
| Rice | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.48 | 3.97 | 8.63 | 10.29 | 9.33 | 6.58 | 0.00 | 39 |
| Corn | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.51 | 2.70 | 7.22 | 8.74 | 5.98 | 1.35 | 27 |
| Vegetable | 0.00 | 0.00 | 0.00 | 0.04 | 0.46 | 1.52 | 4.24 | 6.97 | 0.00 | 0.00 | 0.00 | 0.00 | 13 |
| Pasture | 2.97 | 1.52 | 0.88 | 0.66 | 1.38 | 2.32 | 3.75 | 6.81 | 7.41 | 7.15 | 5.79 | 4.44 | 45 |
| Stonefruit/ | 2.94 | 0.00 | 0.00 | 0.00 | 0.00 | 1.28 | 3.26 | 6.76 | 8.03 | 7.79 | 6.30 | 4.77 | 41 |
| Walnut/Apple | 1.39 | 0.10 | 0.00 | 0.00 | 0.00 | 1.38 | 3.46 | 7.17 | 8.72 | 9.04 | 7.01 | 3.80 | 42 |
| Sorghum | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.13 | 1.21 | 4.17 | 8.30 | 5.95 | 2.93 | 23 |



File: DIE - ETc Approach
Date: 2/23/94

# Grasslands Basin Irrigation and Drainage Study
## Cal Poly - ITRC

1994 ETc

| | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | Total, Inches |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fallow | 0.18 | 0.07 | 0.05 | 0.05 | 0.11 | 0.24 | 0.30 | 0.46 | 0.44 | 0.44 | 0.37 | 0.32 | 3 |
| Misc. | 0.00 | 0.00 | 0.00 | 0.05 | 0.56 | 2.33 | 5.06 | 7.10 | 0.00 | 0.00 | 0.00 | 0.00 | 15 |
| Cotton | 0.14 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.52 | 1.74 | 5.13 | 7.60 | 6.24 | 3.05 | 24 |
| Alfalfa | 2.34 | 0.67 | 0.29 | 0.21 | 0.60 | 3.24 | 4.47 | 6.94 | 6.62 | 6.63 | 5.50 | 4.86 | 42 |
| Wheat | 0.00 | 0.04 | 0.19 | 0.45 | 1.76 | 4.62 | 5.18 | 3.62 | 0.00 | 0.00 | 0.00 | 0.00 | 16 |
| Melons | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.14 | 0.69 | 3.35 | 6.92 | 1.31 | 0.00 | 0.00 | 13 |
| Processing | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.19 | 1.19 | 3.07 | 6.64 | 6.11 | 5.19 | 0.00 | 24 |
| Sugar Beets | 3.26 | 1.28 | 0.90 | 0.93 | 1.93 | 1.75 | 0.00 | 0.97 | 2.81 | 7.10 | 6.73 | 5.94 | 34 |
| Barley | 0.00 | 0.04 | 0.19 | 0.45 | 1.74 | 4.54 | 4.88 | 2.31 | 0.00 | 0.00 | 0.00 | 0.00 | 14 |
| Beans | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.11 | 0.69 | 6.00 | 8.36 | 4.15 | 0.00 | 0.00 | 19 |
| Seed Alf. | 0.00 | 0.04 | 0.16 | 0.20 | 0.88 | 2.91 | 4.83 | 7.47 | 4.88 | 1.42 | 0.00 | 0.00 | 23 |
| Rice | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.74 | 4.74 | 8.79 | 9.19 | 8.63 | 6.25 | 0.00 | 38 |
| Corn | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.61 | 2.75 | 6.45 | 8.11 | 5.70 | 1.45 | 25 |
| Vegetable | 0.00 | 0.00 | 0.00 | 0.05 | 0.56 | 2.33 | 5.06 | 7.10 | 0.00 | 0.00 | 0.00 | 0.00 | 15 |
| Pasture | 2.67 | 1.04 | 0.74 | 0.76 | 1.67 | 3.56 | 4.47 | 6.94 | 6.62 | 6.63 | 5.50 | 4.86 | 43 |
| Stonefruit/ | 2.65 | 0.00 | 0.00 | 0.00 | 0.00 | 1.97 | 3.89 | 6.69 | 7.17 | 7.22 | 5.99 | 5.22 | 41 |
| Walnut/Apple | 1.25 | 0.07 | 0.00 | 0.00 | 0.00 | 2.12 | 4.15 | 7.30 | 7.79 | 8.38 | 6.67 | 4.16 | 42 |
| Sorghum | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.16 | 1.23 | 3.73 | 7.69 | 5.66 | 3.21 | 23 |

1995 ETc

| | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | Total, Inches |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fallow | 0.20 | 0.09 | 0.09 | 0.05 | 0.12 | 0.18 | 0.33 | 0.39 | 0.44 | 0.42 | 0.37 | 0.26 | 3 |
| Misc. | 0.00 | 0.00 | 0.00 | 0.05 | 0.61 | 1.79 | 5.64 | 5.99 | 0.00 | 0.00 | 0.00 | 0.00 | 14 |
| Cotton | 0.16 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.58 | 1.47 | 5.14 | 7.27 | 6.31 | 2.62 | 24 |
| Alfalfa | 2.59 | 0.86 | 0.54 | 0.21 | 0.66 | 3.48 | 4.96 | 5.85 | 6.63 | 6.34 | 5.57 | 4.16 | 41 |
| Wheat | 0.00 | 0.05 | 0.34 | 0.44 | 1.94 | 3.55 | 5.77 | 3.05 | 0.00 | 0.00 | 0.00 | 0.00 | 15 |
| Melons | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.11 | 1.00 | 2.83 | 6.94 | 1.29 | 0.00 | 0.00 | 13 |
| Processing | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.14 | 1.33 | 2.59 | 6.65 | 7.75 | 5.24 | 0.00 | 24 |
| Sugar Beets | 3.62 | 1.66 | 1.65 | 0.91 | 2.12 | 1.35 | 0.00 | 0.82 | 2.82 | 6.78 | 6.80 | 5.11 | 34 |
| Barley | 0.00 | 0.05 | 0.34 | 0.44 | 1.90 | 3.48 | 5.44 | 1.95 | 0.00 | 0.00 | 0.00 | 0.00 | 14 |
| Beans | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.08 | 0.77 | 5.06 | 8.36 | 3.96 | 0.00 | 0.00 | 18 |
| Seed Alf. | 0.00 | 0.05 | 0.30 | 0.20 | 0.96 | 2.24 | 5.38 | 6.30 | 4.89 | 1.36 | 0.00 | 0.00 | 22 |
| Rice | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.57 | 5.28 | 7.41 | 9.21 | 8.27 | 6.32 | 0.00 | 37 |
| Corn | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.68 | 2.32 | 6.46 | 7.75 | 5.76 | 1.37 | 24 |
| Vegetable | 0.00 | 0.00 | 0.00 | 0.05 | 0.61 | 1.79 | 5.64 | 5.99 | 0.00 | 0.00 | 0.00 | 0.00 | 14 |
| Pasture | 2.96 | 1.35 | 1.35 | 0.74 | 1.83 | 2.73 | 4.96 | 5.85 | 6.63 | 6.34 | 5.57 | 4.16 | 43 |
| Stonefruit/ | 2.94 | 0.00 | 0.00 | 0.00 | 0.00 | 1.51 | 4.33 | 5.81 | 7.19 | 6.90 | 6.06 | 4.49 | 39 |
| Walnut/Apple | 1.39 | 0.09 | 0.00 | 0.00 | 0.00 | 1.62 | 4.62 | 6.16 | 7.81 | 8.01 | 6.74 | 3.58 | 40 |
| Sorghum | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.18 | 1.04 | 3.74 | 7.35 | 5.72 | 3.76 | 21 |





File: DIE - ETo Approach
Date: 2/23/94

# Grasslands Basin Irrigation and Drainage Study
## Cal Poly - ITRC

1986 ETc

| | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | Total, Inches |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fallow | 0.20 | 0.09 | 0.04 | 0.06 | 0.10 | 0.16 | 0.29 | 0.39 | 0.41 | 0.41 | 0.36 | 0.26 | 3 |
| Misc. | 0.00 | 0.00 | 0.00 | 0.06 | 0.52 | 1.76 | 4.90 | 5.94 | 0.00 | 0.00 | 0.00 | 0.00 | 13 |
| Cotton | 0.16 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.50 | 1.45 | 4.82 | 7.01 | 6.41 | 2.46 | 23 |
| Alfalfa | 2.63 | 0.89 | 0.24 | 0.27 | 0.57 | 2.46 | 4.53 | 5.81 | 6.22 | 6.11 | 5.65 | 3.92 | 39 |
| Wheat | 0.00 | 0.06 | 0.15 | 0.57 | 1.66 | 3.52 | 3.02 | 3.03 | 0.00 | 0.00 | 0.00 | 0.00 | 14 |
| Melons | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.11 | 0.67 | 2.80 | 6.51 | 1.25 | 0.00 | 0.00 | 12 |
| Processing | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.14 | 1.15 | 2.57 | 6.24 | 7.47 | 5.32 | 0.00 | 23 |
| Sugar Beets | 3.67 | 1.71 | 0.73 | 1.17 | 1.82 | 1.33 | 0.00 | 0.82 | 2.64 | 6.54 | 6.91 | 4.80 | 32 |
| Barley | 0.00 | 0.05 | 0.15 | 0.57 | 1.63 | 5.46 | 4.73 | 1.93 | 0.00 | 0.00 | 0.00 | 0.00 | 13 |
| Beans | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.08 | 0.67 | 3.02 | 7.86 | 3.82 | 0.00 | 0.00 | 17 |
| Seed Alf. | 0.00 | 0.05 | 0.13 | 0.26 | 0.82 | 2.22 | 4.68 | 6.25 | 4.59 | 1.31 | 0.00 | 0.00 | 20 |
| Rice | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.56 | 4.59 | 7.36 | 8.64 | 7.98 | 6.42 | 0.00 | 36 |
| Corn | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.59 | 2.30 | 6.06 | 7.47 | 5.85 | 1.20 | 23 |
| Vegetable | 0.00 | 0.00 | 0.00 | 0.06 | 0.52 | 1.76 | 4.90 | 5.94 | 0.00 | 0.00 | 0.00 | 0.00 | 13 |
| Pasture | 3.00 | 1.40 | 0.60 | 0.96 | 1.57 | 2.71 | 4.33 | 5.81 | 6.22 | 6.11 | 5.65 | 3.92 | 42 |
| Stonefruit/ | 2.98 | 0.00 | 0.00 | 0.00 | 0.00 | 1.50 | 3.77 | 5.77 | 6.75 | 6.66 | 6.15 | 4.22 | 38 |
| Walnut/Apple | 1.41 | 0.09 | 0.00 | 0.00 | 0.00 | 1.61 | 4.02 | 6.11 | 7.33 | 7.73 | 6.84 | 3.36 | 38 |
| Sorghum | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.15 | 1.03 | 3.51 | 7.09 | 5.81 | 2.59 | 20 |

1987 ETc

| | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | Total, Inches |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fallow | 0.21 | 0.13 | 0.04 | 0.07 | 0.09 | 0.20 | 0.34 | 0.40 | 0.43 | 0.43 | 0.36 | 0.28 | 3 |
| Misc. | 0.00 | 0.00 | 0.00 | 0.07 | 0.44 | 1.93 | 5.83 | 6.11 | 0.00 | 0.00 | 0.00 | 0.00 | 14 |
| Cotton | 0.17 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.59 | 1.49 | 4.97 | 7.32 | 6.19 | 2.62 | 23 |
| Alfalfa | 2.72 | 1.25 | 0.23 | 0.26 | 0.48 | 2.66 | 5.15 | 5.97 | 6.42 | 6.39 | 5.46 | 4.16 | 41 |
| Wheat | 0.00 | 0.08 | 0.14 | 0.61 | 1.40 | 3.80 | 3.97 | 3.11 | 0.00 | 0.00 | 0.00 | 0.00 | 13 |
| Melons | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.12 | 1.03 | 2.88 | 6.71 | 1.30 | 0.00 | 0.00 | 12 |
| Processing | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.15 | 1.37 | 2.64 | 6.43 | 7.80 | 5.13 | 0.00 | 24 |
| Sugar Beets | 3.80 | 2.40 | 0.69 | 1.25 | 1.53 | 1.44 | 0.00 | 0.84 | 2.73 | 6.83 | 6.68 | 5.11 | 33 |
| Barley | 0.00 | 0.07 | 0.14 | 0.60 | 1.37 | 3.73 | 5.62 | 1.99 | 0.00 | 0.00 | 0.00 | 0.00 | 14 |
| Beans | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.09 | 0.80 | 5.16 | 8.10 | 3.99 | 0.00 | 0.00 | 18 |
| Seed Alf. | 0.00 | 0.07 | 0.13 | 0.27 | 0.69 | 2.39 | 5.57 | 6.43 | 4.73 | 1.37 | 0.00 | 0.00 | 22 |
| Rice | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.61 | 5.46 | 7.56 | 8.91 | 8.33 | 6.21 | 0.00 | 37 |
| Corn | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.70 | 2.37 | 6.25 | 7.80 | 5.66 | 1.27 | 24 |
| Vegetable | 0.00 | 0.00 | 0.00 | 0.07 | 0.44 | 1.93 | 5.83 | 6.11 | 0.00 | 0.00 | 0.00 | 0.00 | 14 |
| Pasture | 3.11 | 1.97 | 0.57 | 1.02 | 1.32 | 2.93 | 5.15 | 5.97 | 6.42 | 6.39 | 5.46 | 4.16 | 44 |
| Stonefruit/ | 3.09 | 0.00 | 0.00 | 0.00 | 0.00 | 1.62 | 4.48 | 5.93 | 6.96 | 6.85 | 5.93 | 4.49 | 39 |
| Walnut/Apple | 1.46 | 0.13 | 0.00 | 0.00 | 0.00 | 1.74 | 4.76 | 6.29 | 7.56 | 8.07 | 6.62 | 3.58 | 40 |
| Sorghum | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.18 | 1.06 | 3.62 | 7.41 | 5.62 | 2.74 | 21 |



File: DIE - ETc Approach
Date: 2/23/94

# Grasslands Basin Irrigation and Drainage Study
## Cal Poly - ITRC

1988 ETc

| | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | Total, Inches |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fallow | 0.19 | 0.06 | 0.07 | 0.06 | 0.14 | 0.27 | 0.26 | 0.37 | 0.39 | 0.43 | 0.33 | 0.27 | 3 |
| Misc. | 0.00 | 0.00 | 0.00 | 0.06 | 0.66 | 2.64 | 4.37 | 5.74 | 0.00 | 0.00 | 0.00 | 0.00 | 13 |
| Cotton | 0.15 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.45 | 1.41 | 4.48 | 7.45 | 5.90 | 2.56 | 22 |
| Alfalfa | 2.46 | 0.60 | 0.43 | 0.26 | 0.74 | 3.66 | 3.85 | 5.61 | 5.78 | 6.50 | 5.20 | 4.11 | 39 |
| Wheat | 0.00 | 0.05 | 0.27 | 0.56 | 2.16 | 5.23 | 4.47 | 2.97 | 0.00 | 0.00 | 0.00 | 0.00 | 16 |
| Melons | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.16 | 0.77 | 2.71 | 6.05 | 1.32 | 0.00 | 0.00 | 11 |
| Processing | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.21 | 1.03 | 2.49 | 5.80 | 7.95 | 4.90 | 0.00 | 22 |
| Sugar Beets | 3.46 | 1.33 | 1.31 | 1.14 | 2.37 | 1.96 | 0.00 | 0.79 | 2.46 | 6.96 | 6.56 | 5.02 | 33 |
| Barley | 0.00 | 0.05 | 0.27 | 0.55 | 2.13 | 5.14 | 4.21 | 1.87 | 0.00 | 0.00 | 0.00 | 0.00 | 14 |
| Beans | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.12 | 0.60 | 4.85 | 7.30 | 4.07 | 0.00 | 0.00 | 17 |
| Seed Alf. | 0.00 | 0.05 | 0.24 | 0.25 | 1.08 | 3.29 | 4.17 | 6.04 | 4.26 | 1.40 | 0.00 | 0.00 | 21 |
| Rice | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.84 | 4.09 | 7.11 | 8.03 | 8.48 | 5.81 | 0.00 | 34 |
| Corn | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.52 | 2.23 | 5.63 | 7.95 | 5.98 | 1.25 | 23 |
| Vegetable | 0.00 | 0.00 | 0.00 | 0.06 | 0.66 | 2.64 | 4.37 | 5.74 | 0.00 | 0.00 | 0.00 | 0.00 | 13 |
| Pasture | 2.63 | 1.25 | 1.08 | 0.94 | 2.05 | 4.02 | 3.85 | 5.61 | 5.78 | 6.50 | 5.20 | 4.11 | 43 |
| Stonefruit/ | 2.81 | 0.00 | 0.00 | 0.00 | 0.00 | 2.23 | 3.36 | 5.57 | 6.27 | 7.08 | 5.66 | 4.42 | 37 |
| Walnut/Apple | 1.33 | 0.08 | 0.00 | 0.00 | 0.00 | 2.39 | 3.58 | 5.81 | 6.81 | 6.32 | 6.30 | 3.52 | 36 |
| Sorghum | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.14 | 1.00 | 3.26 | 7.54 | 5.35 | 2.71 | 20 |

1989 ETc

| | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | Total, Inches |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fallow | 0.17 | 0.06 | 0.05 | 0.06 | 0.09 | 0.30 | 0.30 | 0.41 | 0.44 | 0.46 | 0.38 | 0.26 | 3 |
| Misc. | 0.00 | 0.00 | 0.00 | 0.06 | 0.44 | 1.94 | 5.04 | 6.22 | 0.00 | 0.00 | 0.00 | 0.00 | 14 |
| Cotton | 0.14 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.51 | 1.52 | 5.14 | 7.94 | 6.49 | 2.49 | 24 |
| Alfalfa | 2.24 | 0.79 | 0.29 | 0.32 | 0.47 | 2.70 | 4.45 | 6.08 | 6.64 | 6.93 | 5.73 | 3.96 | 41 |
| Wheat | 0.00 | 0.05 | 0.19 | 0.69 | 1.38 | 3.85 | 5.16 | 3.17 | 0.00 | 0.00 | 0.00 | 0.00 | 14 |
| Melons | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.12 | 0.89 | 2.94 | 6.95 | 1.41 | 0.00 | 0.00 | 12 |
| Processing | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.16 | 1.19 | 2.70 | 6.66 | 8.47 | 5.40 | 0.00 | 25 |
| Sugar Beets | 3.12 | 1.50 | 0.89 | 1.41 | 1.52 | 1.46 | 0.00 | 0.86 | 2.82 | 7.41 | 7.00 | 4.84 | 33 |
| Barley | 0.00 | 0.05 | 0.19 | 0.66 | 1.37 | 3.78 | 4.86 | 2.02 | 0.00 | 0.00 | 0.00 | 0.00 | 13 |
| Beans | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.09 | 0.69 | 3.26 | 8.38 | 4.33 | 0.00 | 0.00 | 18 |
| Seed Alf. | 0.00 | 0.04 | 0.16 | 0.31 | 0.69 | 2.43 | 4.81 | 6.55 | 4.90 | 1.49 | 0.00 | 0.00 | 21 |
| Rice | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.62 | 4.72 | 7.71 | 9.23 | 9.04 | 6.51 | 0.00 | 38 |
| Corn | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.61 | 2.41 | 6.47 | 8.47 | 5.93 | 1.21 | 25 |
| Vegetable | 0.00 | 0.00 | 0.00 | 0.06 | 0.44 | 1.94 | 5.04 | 6.22 | 0.00 | 0.00 | 0.00 | 0.00 | 14 |
| Pasture | 2.55 | 1.23 | 0.73 | 1.15 | 1.32 | 2.96 | 4.45 | 6.08 | 6.64 | 6.93 | 5.73 | 3.96 | 44 |
| Stonefruit/ | 2.53 | 0.00 | 0.00 | 0.00 | 0.00 | 1.64 | 3.88 | 6.04 | 7.20 | 7.54 | 6.24 | 4.26 | 39 |
| Walnut/Apple | 1.20 | 0.08 | 0.00 | 0.00 | 0.00 | 1.76 | 4.13 | 6.41 | 7.62 | 8.73 | 6.94 | 3.38 | 40 |
| Sorghum | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.16 | 1.08 | 3.74 | 8.04 | 5.89 | 2.62 | 22 |



File: DIE - ETc Approach
Date: 2/23/94

# Grasslands Basin Irrigation and Drainage Study
## Cal Poly - ITRC

1990 ETc

| | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | Total, Inches |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fallow | 0.20 | 0.10 | 0.05 | 0.07 | 0.10 | 0.19 | 0.32 | 0.36 | 0.44 | 0.44 | 0.36 | 0.26 | 3 |
| Misc. | 0.00 | 0.00 | 0.00 | 0.07 | 0.50 | 1.91 | 5.38 | 5.56 | 0.00 | 0.00 | 0.00 | 0.00 | 13 |
| Cotton | 0.16 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.55 | 1.36 | 5.06 | 7.51 | 6.17 | 2.63 | 23 |
| Alfalfa | 2.67 | 0.98 | 0.33 | 0.28 | 0.54 | 2.65 | 4.75 | 5.43 | 6.53 | 6.55 | 5.44 | 4.19 | 40 |
| Wheat | 0.00 | 0.06 | 0.21 | 0.62 | 1.58 | 3.78 | 5.51 | 2.83 | 0.00 | 0.00 | 0.00 | 0.00 | 15 |
| Melons | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.11 | 0.95 | 2.62 | 6.63 | 1.35 | 0.00 | 0.00 | 12 |
| Processing | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.15 | 1.27 | 2.41 | 6.55 | 8.00 | 5.13 | 0.00 | 24 |
| Sugar Beets | 3.73 | 1.87 | 0.99 | 1.27 | 1.74 | 1.43 | 0.00 | 0.76 | 2.77 | 7.01 | 6.65 | 5.12 | 33 |
| Barley | 0.00 | 0.06 | 0.21 | 0.61 | 1.56 | 3.71 | 5.19 | 1.81 | 0.00 | 0.00 | 0.00 | 0.00 | 13 |
| Beans | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.09 | 0.74 | 4.70 | 6.25 | 4.10 | 0.00 | 0.00 | 16 |
| Seed Alf. | 0.00 | 0.06 | 0.16 | 0.28 | 0.79 | 2.36 | 5.14 | 5.85 | 4.62 | 1.41 | 0.00 | 0.00 | 21 |
| Rice | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.61 | 5.04 | 6.88 | 5.07 | 8.54 | 6.18 | 0.00 | 36 |
| Corn | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.65 | 2.15 | 6.37 | 8.00 | 5.63 | 1.28 | 24 |
| Vegetable | 0.00 | 0.00 | 0.00 | 0.07 | 0.50 | 1.91 | 5.38 | 5.56 | 0.00 | 0.00 | 0.00 | 0.00 | 13 |
| Pasture | 3.05 | 1.53 | 0.81 | 1.04 | 1.50 | 2.91 | 4.75 | 5.43 | 6.53 | 6.55 | 5.44 | 4.18 | 44 |
| Stonefruit/ | 3.02 | 0.00 | 0.00 | 0.00 | 0.00 | 1.61 | 4.14 | 5.40 | 7.08 | 7.13 | 5.92 | 4.50 | 39 |
| Walnut/Apple | 1.43 | 0.10 | 0.00 | 0.00 | 0.00 | 1.73 | 4.41 | 5.72 | 7.49 | 8.28 | 6.59 | 3.58 | 40 |
| Sorghum | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.17 | 0.97 | 3.68 | 7.60 | 5.60 | 3.76 | 21 |

1991 ETc

| | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | Total, Inches |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fallow | 0.23 | 0.13 | 0.08 | 0.07 | 0.11 | 0.15 | 0.29 | 0.34 | 0.44 | 0.44 | 0.34 | 0.27 | 3 |
| Misc. | 0.00 | 0.00 | 0.00 | 0.07 | 0.54 | 1.51 | 4.92 | 5.27 | 0.00 | 0.00 | 0.00 | 0.00 | 12 |
| Cotton | 0.19 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.50 | 1.29 | 5.14 | 7.60 | 5.71 | 2.50 | 23 |
| Alfalfa | 3.01 | 1.26 | 0.47 | 0.28 | 0.58 | 2.09 | 4.34 | 5.15 | 6.63 | 6.63 | 5.04 | 3.99 | 39 |
| Wheat | 0.00 | 0.08 | 0.30 | 0.60 | 1.71 | 2.99 | 5.04 | 2.69 | 0.00 | 0.00 | 0.00 | 0.00 | 13 |
| Melons | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.09 | 0.87 | 2.49 | 6.94 | 1.35 | 0.00 | 0.00 | 12 |
| Processing | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.12 | 1.16 | 2.26 | 6.65 | 8.11 | 4.75 | 0.00 | 23 |
| Sugar Beets | 4.20 | 2.41 | 1.43 | 1.24 | 1.87 | 1.13 | 0.00 | 0.72 | 2.82 | 7.10 | 6.16 | 4.87 | 34 |
| Barley | 0.00 | 0.07 | 0.30 | 0.60 | 1.68 | 2.93 | 4.74 | 1.72 | 0.00 | 0.00 | 0.00 | 0.00 | 12 |
| Beans | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.07 | 0.68 | 4.46 | 6.38 | 4.15 | 0.00 | 0.00 | 16 |
| Seed Alf. | 0.00 | 0.07 | 0.26 | 0.27 | 0.85 | 1.86 | 4.70 | 5.55 | 4.69 | 1.42 | 0.00 | 0.00 | 20 |
| Rice | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.48 | 4.61 | 6.53 | 5.21 | 8.65 | 5.72 | 0.00 | 33 |
| Corn | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.59 | 2.04 | 6.46 | 8.11 | 5.22 | 1.22 | 24 |
| Vegetable | 0.00 | 0.00 | 0.00 | 0.07 | 0.54 | 1.51 | 4.92 | 5.27 | 0.00 | 0.00 | 0.00 | 0.00 | 12 |
| Pasture | 3.44 | 1.97 | 1.17 | 1.01 | 1.62 | 2.30 | 4.34 | 5.15 | 6.63 | 6.63 | 5.04 | 3.89 | 43 |
| Stonefruit/ | 3.41 | 0.00 | 0.00 | 0.00 | 0.00 | 1.27 | 3.78 | 5.12 | 7.19 | 7.22 | 5.49 | 4.26 | 38 |
| Walnut/Apple | 1.61 | 0.13 | 0.00 | 0.00 | 0.00 | 1.37 | 4.03 | 5.43 | 7.81 | 8.38 | 6.10 | 3.41 | 38 |
| Sorghum | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.15 | 0.92 | 3.74 | 7.69 | 5.18 | 3.63 | 20 |



File: DIE - ETc Approach
Date: 2/23/94

# Grasslands Basin Irrigation and Drainage Study
## Cal Poly - ITRC

1992 ETo

| | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | Total, Inches |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fallow | 0.20 | 0.13 | 0.06 | 0.04 | 0.09 | 0.16 | 0.30 | 0.42 | 0.40 | 0.41 | 0.39 | 0.29 | 3 |
| Misc. | 0.00 | 0.00 | 0.00 | 0.04 | 0.47 | 1.53 | 5.08 | 6.43 | 0.00 | 0.00 | 0.00 | 0.00 | 14 |
| Cotton | 0.17 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.52 | 1.57 | 4.64 | 7.04 | 6.60 | 2.76 | 23 |
| Alfalfa | 2.68 | 1.20 | 0.36 | 0.16 | 0.51 | 2.12 | 4.50 | 6.28 | 5.89 | 6.15 | 5.62 | 4.40 | 40 |
| Wheat | 0.00 | 0.08 | 0.23 | 0.34 | 1.48 | 3.03 | 5.22 | 3.28 | 0.00 | 0.00 | 0.00 | 0.00 | 14 |
| Melons | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.09 | 0.90 | 3.04 | 6.27 | 1.25 | 0.00 | 0.00 | 12 |
| Processing | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.12 | 1.20 | 2.76 | 6.01 | 7.51 | 5.48 | 0.00 | 23 |
| Sugar Beets | 3.75 | 2.31 | 1.11 | 0.69 | 1.62 | 1.15 | 0.00 | 0.88 | 2.54 | 6.56 | 7.11 | 5.38 | 33 |
| Barley | 0.00 | 0.07 | 0.33 | 0.33 | 1.45 | 2.97 | 4.91 | 2.09 | 0.00 | 0.00 | 0.00 | 0.00 | 12 |
| Beans | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.07 | 0.70 | 5.44 | 7.56 | 3.84 | 0.00 | 0.00 | 18 |
| Seed Alf. | 0.00 | 0.07 | 0.20 | 0.15 | 0.74 | 1.91 | 4.86 | 6.77 | 4.42 | 1.32 | 0.00 | 0.00 | 20 |
| Rice | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.48 | 4.77 | 7.96 | 8.32 | 8.02 | 6.41 | 0.00 | 36 |
| Corn | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.61 | 2.49 | 5.84 | 7.51 | 6.02 | 1.34 | 24 |
| Vegetable | 0.00 | 0.00 | 0.00 | 0.04 | 0.47 | 1.53 | 5.08 | 6.43 | 0.00 | 0.00 | 0.00 | 0.00 | 14 |
| Pasture | 3.07 | 1.69 | 0.91 | 0.57 | 1.40 | 2.33 | 4.50 | 6.28 | 5.89 | 6.15 | 5.62 | 4.40 | 43 |
| Stonefruit/ | 3.04 | 0.00 | 0.00 | 0.00 | 0.00 | 1.28 | 3.92 | 6.24 | 6.49 | 6.69 | 6.34 | 4.73 | 39 |
| Walnut/Apple | 1.44 | 0.12 | 0.00 | 0.00 | 0.00 | 1.39 | 4.18 | 6.62 | 7.05 | 7.77 | 7.05 | 3.77 | 39 |
| Berghum | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.16 | 1.12 | 3.38 | 7.19 | 5.89 | 2.91 | 21 |

1960 -1992 Average ETo

| | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | Total, Inches |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fallow | 0.20 | 0.10 | 0.06 | 0.06 | 0.10 | 0.19 | 0.30 | 0.40 | 0.43 | 0.44 | 0.37 | 0.28 | 3 |
| Misc. | 0.00 | 0.00 | 0.00 | 0.06 | 0.52 | 1.89 | 5.05 | 6.13 | 0.00 | 0.00 | 0.00 | 0.00 | 14 |
| Cotton | 0.16 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.51 | 1.50 | 5.03 | 7.50 | 6.25 | 3.65 | 24 |
| Alfalfa | 2.60 | 0.97 | 0.35 | 0.25 | 0.57 | 2.63 | 4.46 | 5.99 | 6.50 | 6.55 | 5.51 | 4.22 | 41 |
| Wheat | 0.00 | 0.06 | 0.23 | 0.53 | 1.66 | 3.75 | 5.17 | 3.12 | 0.00 | 0.00 | 0.00 | 0.00 | 15 |
| Melons | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.11 | 0.89 | 3.89 | 6.80 | 1.35 | 0.00 | 0.00 | 12 |
| Processing | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.15 | 1.19 | 2.65 | 6.52 | 8.00 | 5.20 | 0.00 | 24 |
| Sugar Beets | 3.62 | 1.85 | 1.08 | 1.05 | 1.82 | 1.42 | 0.00 | 0.84 | 2.76 | 7.00 | 6.74 | 5.16 | 33 |
| Barley | 0.00 | 0.06 | 0.21 | 0.52 | 1.63 | 3.69 | 4.67 | 1.99 | 0.00 | 0.00 | 0.00 | 0.00 | 13 |
| Beans | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.09 | 0.68 | 5.18 | 8.20 | 4.09 | 0.00 | 0.00 | 18 |
| Seed Alf. | 0.00 | 0.06 | 0.20 | 0.24 | 0.82 | 2.36 | 4.82 | 6.45 | 4.79 | 1.40 | 0.00 | 0.00 | 21 |
| Rice | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.60 | 4.73 | 7.59 | 9.02 | 8.54 | 6.26 | 0.00 | 37 |
| Corn | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.61 | 2.37 | 6.33 | 8.00 | 5.71 | 1.29 | 24 |
| Vegetable | 0.00 | 0.00 | 0.00 | 0.06 | 0.52 | 1.89 | 5.05 | 6.13 | 0.00 | 0.00 | 0.00 | 0.00 | 14 |
| Pasture | 2.97 | 1.52 | 0.88 | 0.89 | 1.57 | 2.89 | 4.46 | 5.99 | 6.50 | 6.55 | 5.51 | 4.22 | 44 |
| Stonefruit/ | 2.94 | 0.00 | 0.00 | 0.00 | 0.00 | 1.60 | 3.88 | 5.95 | 7.04 | 7.13 | 6.00 | 4.54 | 39 |
| Walnut/Apple | 1.39 | 0.10 | 0.00 | 0.00 | 0.00 | 1.72 | 4.14 | 6.31 | 7.65 | 8.27 | 6.68 | 3.61 | 40 |
| Berghum | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.16 | 1.06 | 3.66 | 7.59 | 5.67 | 2.79 | 21 |



File: DIE - ETc Approach
Date: 2/23/94

# Grasslands Basin Irrigation and Drainage Study
## Cal Poly - ITRC

### Acreage

**Panoche Drainage District**

Acreage

| | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | AVERAGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fallow | 1,165 | 1,216 | 4,703 | 869 | 869 | 1,468 | 798 | 852 | 1,028 | 4,235 | 7,916 | 8,566 | 2,907 |
| Misc. | 0 | 0 | 0 | 0 | 188 | 0 | 0 | 277 | 0 | 0 | 0 | 809 | 106 |
| Cotton | 18,036 | 10,262 | 13,528 | 17,057 | 15,331 | 14,924 | 14,895 | 18,560 | 15,239 | 14,601 | 13,056 | 12,477 | 14,633 |
| Alfalfa | 1,454 | 550 | 872 | 1,543 | 1,543 | 2,464 | 2,439 | 2,853 | 2,999 | 3,546 | 2,712 | 2,867 | 2,154 |
| Wheat | 4,419 | 1,059 | 2,524 | 3,593 | 2,823 | 2,115 | 3,622 | 837 | 3,451 | 1,825 | 0 | 298 | 2,214 |
| Melons | 2,712 | 1,352 | 2,507 | 819 | 3,984 | 2,215 | 1,193 | 1,304 | 3,282 | 3,485 | 1,966 | 2,238 | 2,288 |
| Processing | 1,927 | 2,077 | 4,440 | 3,804 | 3,804 | 4,283 | 2,550 | 5,478 | 5,401 | 4,731 | 3,936 | 3,710 | 4,012 |
| Sugar Beets | 200 | 380 | 977 | 826 | 1,027 | 719 | 1,528 | 219 | 220 | 171 | 0 | 0 | 522 |
| Barley | 1,433 | 468 | 130 | 230 | 230 | 926 | 130 | 0 | 0 | 0 | 0 | 0 | 296 |
| Beans | 551 | 1,091 | 1,410 | 1,669 | 1,339 | 2,265 | 302 | 0 | 2,712 | 2,468 | 2,730 | 2,633 | 1,601 |
| Seed Alf. | 252 | 144 | 55 | 0 | 0 | 300 | 300 | 155 | 0 | 0 | 0 | 0 | 99 |
| Rice | 0 | 0 | 366 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 22 |
| Corn | 296 | 0 | 889 | 150 | 150 | 849 | 2,576 | 545 | 699 | 189 | 240 | 609 | 601 |
| Vegetable | 1,847 | 939 | 1,402 | 554 | 1,017 | 335 | 2,074 | 1,935 | 1,198 | 285 | 1,056 | 1,499 | 1,179 |
| Pasture | 111 | 111 | 111 | 0 | 680 | 45 | 0 | 1,122 | 26 | 0 | 0 | 0 | 184 |
| Stonefruit/ | 301 | 301 | 301 | 301 | 301 | 317 | 273 | 58 | 217 | 117 | 93 | 226 | 229 |
| Walnut/Apple | 0 | 0 | 0 | 32 | 32 | 250 | 253 | 252 | 252 | 379 | 393 | 376 | 165 |
| Sorghum | 632 | 1,012 | 290 | 156 | 926 | 1,026 | 73 | 0 | 0 | 0 | 0 | 0 | 343 |
| TOTAL (less fallow) | 34,151 | 19,966 | 29,703 | 30,754 | 33,375 | 33,153 | 32,208 | 33,795 | 35,686 | 31,795 | 28,126 | 27,742 | 30,873 |

**Broadview Water District**

Acreage

| | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | AVERAGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fallow | 0 | 334 | 3,730 | 95 | 345 | 854 | 1,128 | 531 | 452 | 799 | 3,460 | 4602 | 1,366 |
| Misc. | 290 | 300 | 0 | 140 | 150 | 140 | 75 | 0 | 147 | 0 | 50 | 148 | 120 |
| Cotton | 5,669 | 5,263 | 3,035 | 4,905 | 4,037 | 4,231 | 3,721 | 4,348 | 4,649 | 4,416 | 3,626 | 3257 | 4,115 |
| Alfalfa | 0 | 0 | 160 | 160 | 150 | 147 | 0 | 0 | 0 | 0 | 41 | 0 | 55 |
| Wheat | 1,046 | 1,149 | 835 | 900 | 983 | 988 | 1,160 | 689 | 708 | 903 | 304 | 0 | 804 |
| Melons | 0 | 455 | 450 | 300 | 790 | 670 | 1,080 | 1,535 | 1,279 | 814 | 198 | 446 | 668 |
| Processing | 220 | 0 | 300 | 150 | 750 | 750 | 450 | 680 | 840 | 850 | 682 | 1080 | 561 |
| Sugar Beets | 0 | 300 | 300 | 1,355 | 750 | 425 | 300 | 454 | 150 | 300 | 0 | 0 | 361 |
| Barley | 547 | 741 | 250 | 190 | 425 | 113 | 54 | 150 | 41 | 292 | 0 | 0 | 234 |
| Beans | 623 | 40 | 745 | 300 | 0 | 20 | 0 | 175 | 0 | 0 | 0 | 0 | 159 |
| Seed Alf. | 630 | 560 | 435 | 560 | 630 | 705 | 1,030 | 705 | 694 | 585 | 456 | 550 | 628 |
| Rice | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 175 | 0 | 0 | | 16 |
| Corn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Vegetable | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pasture | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Stonefruit/ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Walnut/Apple | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sorghum | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TOTAL (less fallow) | 9,025 | 8,828 | 9,310 | 8,960 | 8,663 | 8,169 | 7,870 | 8,736 | 8,686 | 8,160 | 5,539 | 4,483 | 7,721 |



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Date: 2/23/94

# Grasslands Basin Irrigation and Drainage Study
## Cal Poly - ITRC

Firebaugh Canal Water District

Acreage

| | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | AVERAGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fallow | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Misc. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Cotton | 10,314 | 9,536 | 4,989 | 11,671 | 10,699 | 7,371 | 8,993 | 11,851 | 10,112 | 11,074 | 13,778 | 13,367 | 10,314 |
| Alfalfa | 1,611 | 522 | 935 | 964 | 992 | 1,218 | 1,692 | 1,834 | 2,119 | 2,298 | 2,550 | 2,600 | 1,611 |
| Wheat | 3,425 | 3,931 | 3,461 | 3,823 | 2,941 | 3,587 | 3,063 | 2,311 | 3,969 | 3,947 | 2,760 | 4,448 | 3,425 |
| Melons | 1,336 | 0 | 0 | 0 | 942 | 1,249 | 1,378 | 1,607 | 1,953 | 3,075 | 2,636 | 1,833 | 1,336 |
| Processing | 555 | 0 | 0 | 0 | 0 | 0 | 0 | 710 | 968 | 1,394 | 1,534 | 1,336 | 556 |
| Sugar Beets | 2,119 | 1,951 | 1,674 | 1,459 | 2,759 | 2,823 | 3,463 | 2,489 | 3,115 | 2,564 | 832 | 168 | 2,119 |
| Barley | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Beans | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Seed Alf. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Rice | 1,101 | 1,946 | 3,057 | 1,691 | 649 | 1,240 | 1,145 | 1,387 | 601 | 303 | 88 | 111 | 1,101 |
| Corn | 141 | 125 | 157 | 0 | 0 | 1,269 | 0 | 0 | 0 | 0 | 0 | 0 | 141 |
| Vegetable | 793 | 2,208 | 1,763 | 1,083 | 748 | 811 | 565 | 66 | 515 | 303 | 312 | 353 | 793 |
| Pasture | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Stonefruit/ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Walnut/Apple | 22 | 0 | 0 | 0 | 0 | 0 | 40 | 40 | 40 | 40 | 40 | 40 | 22 |
| Sorghum (Cover) | 317 | 35 | 726 | 0 | 0 | 237 | 634 | 1,077 | 1,554 | 861 | 145 | 618 | 517 |
| TOTAL (less fallow) | 21,938 | 20,244 | 18,784 | 20,691 | 19,731 | 19,825 | 20,981 | 23,282 | 24,746 | 25,458 | 24,676 | 24,894 | 21,936 |

Note: 1981 are average values.

Pachoco Water District

Acreage

| | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | AVERAGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fallow | 0 | 0 | 714 | 621 | 1,120 | 720 | 802 | 321 | 739 | 0 | 0 | 0 | 420 |
| Misc. | 0 | 0 | 0 | 0 | 0 | 207 | 440 | 140 | 243 | 0 | 0 | 0 | 86 |
| Cotton | 2,663 | 1,727 | 2,271 | 2,271 | 2,263 | 2,076 | 2,194 | 2,320 | 2,080 | 2,011 | 2,138 | 2,373 | 2,189 |
| Alfalfa | 0 | 0 | 0 | 165 | 162 | 160 | 320 | 160 | 176 | 104 | 487 | 267 | 167 |
| Wheat | 734 | 271 | 80 | 80 | 0 | 0 | 20 | 139 | 257 | 370 | 0 | 0 | 139 |
| Melons | 37 | 0 | 0 | 0 | 673 | 1,057 | 823 | 966 | 516 | 1,363 | 747 | 433 | 551 |
| Processing | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 311 | 210 | 318 | 472 | 395 | 142 |
| Sugar Beets | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Barley | 169 | 0 | 0 | 0 | 0 | 0 | 0 | 143 | 127 | 7 | 0 | 0 | 59 |
| Beans | 153 | 517 | 702 | 702 | 0 | 0 | 0 | 0 | 37 | 0 | 110 | 127 | 196 |
| Seed Alf. | 234 | 1,330 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 130 |
| Rice | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Corn | 0 | 165 | 165 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 28 |
| Vegetable | 0 | 0 | 98 | 98 | 0 | 0 | 231 | 0 | 0 | 81 | 415 | 120 | 87 |
| Pasture | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Stonefruit/ | 400 | 400 | 400 | 400 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 133 |
| Walnut/Apple | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sorghum | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TOTAL (less fallow) | 4,410 | 4,410 | 3,696 | 3,696 | 3,100 | 3,500 | 4,028 | 4,178 | 3,648 | 4,254 | 4,369 | 3,705 | 3,916 |



File: DIE - ETc Approach
Date: 2/23/94

# Grasslands Basin Irrigation and Drainage Study
## Cal Poly - ITRC

Charleston Drainage District
Acreage

| | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | AVERAGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fallow | 140 | 115 | 146 | 281 | 526 | 661 | 34 | 171 | 151 | 612 | 416 | 416 | 339 |
| Misc. | 0 | 0 | 0 | 0 | 228 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 19 |
| Cotton | 669 | 318 | 1,604 | 1,996 | 1,206 | 1,864 | 2,453 | 1,671 | 2,408 | 2,544 | 2,595 | 2,595 | 1,835 |
| Alfalfa | 1,003 | 557 | 606 | 143 | 278 | 218 | 92 | 1,009 | 878 | 573 | 330 | 330 | 501 |
| Wheat | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Melons | 490 | 367 | 346 | 1,256 | 677 | 515 | 1,057 | 514 | 53 | 257 | 525 | 525 | 549 |
| Processing | 218 | 460 | 104 | 0 | 0 | 0 | 0 | 74 | 114 | 60 | 280 | 280 | 133 |
| Sugar Beets | 776 | 649 | 692 | 80 | 0 | 200 | 108 | 69 | 149 | 60 | 80 | 80 | 245 |
| Barley | 153 | 0 | 0 | 0 | 293 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 37 |
| Beans | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 44 | 0 | 0 | 0 | 0 | 4 |
| Seed Alf. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Rice | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Corn | 379 | 902 | 260 | 0 | 0 | 0 | 0 | 90 | 0 | 0 | 80 | 80 | 141 |
| Vegetable | 30 | 330 | 0 | 0 | 550 | 0 | 14 | 0 | 0 | 0 | 0 | 0 | 82 |
| Pasture | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 111 | 0 | 0 | 0 | 0 | 9 |
| Stonefruit/ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Walnut/Apple | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Berghum | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TOTAL (less fallow) | 3,618 | 3,643 | 3,612 | 3,477 | 3,232 | 2,897 | 3,724 | 3,582 | 3,602 | 3,494 | 3,890 | 3,880 | 3,555 |

CCID - Comp13
Acreage

| | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | AVERAGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fallow | 161 | 161 | 161 | 161 | 318 | 729 | 677 | 146 | 58 | 0 | 0 | 0 | 214 |
| Misc. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Cotton | 1,049 | 1,049 | 1,049 | 1,049 | 1,675 | 1,431 | 1,537 | 1,389 | 1,547 | 1,443 | 1,835 | 1,733 | 1,399 |
| Alfalfa | 288 | 288 | 288 | 288 | 0 | 0 | 340 | 485 | 551 | 551 | 745 | 784 | 384 |
| Wheat | 391 | 391 | 391 | 391 | 1,073 | 497 | 925 | 790 | 522 | 601 | 0 | 487 | 522 |
| Melons | 54 | 54 | 54 | 54 | 251 | 0 | 132 | 46 | 46 | 117 | 0 | 61 | 73 |
| Processing | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sugar Beets | 764 | 764 | 764 | 764 | 1,970 | 1,485 | 556 | 1,462 | 1,245 | 806 | 863 | 782 | 1,019 |
| Barley | 56 | 56 | 56 | 56 | 0 | 0 | 0 | 0 | 0 | 0 | 318 | 351 | 74 |
| Beans | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Seed Alf. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Rice | 540 | 540 | 540 | 540 | 442 | 1,039 | 1,452 | 1,047 | 355 | 720 | 793 | 630 | 720 |
| Corn | 41 | 41 | 41 | 41 | 0 | 88 | 130 | 0 | 0 | 198 | 0 | 72 | 54 |
| Vegetable | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pasture | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Stonefruit/ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Walnut/Apple | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Berghum | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TOTAL (less fallow) | 3,183 | 3,183 | 3,183 | 3,183 | 5,411 | 4,540 | 5,072 | 5,219 | 4,066 | 4,436 | 4,555 | 4,900 | 4,244 |

1981-1984 are average values.



File: DIE - ETc Approach
Data: 2/23/94

# Grasslands Basin Irrigation and Drainage Study
## Cal Poly - ITRC

Summary - Grasslands Study Area

Acreage

| | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | AVERAGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fallow | 1,466 | 1,828 | 9,514 | 2,028 | 3,178 | 4,632 | 3,439 | 2,021 | 2,429 | 5,846 | 11,792 | 13,564 | 5,146 |
| Misc. | 280 | 300 | 0 | 140 | 566 | 347 | 515 | 417 | 390 | 0 | 50 | 957 | 331 |
| Cotton | 38,400 | 38,195 | 25,477 | 38,951 | 35,211 | 31,997 | 33,785 | 40,139 | 36,035 | 36,069 | 37,231 | 34,822 | 34,694 |
| Alfalfa | 4,356 | 1,917 | 2,661 | 3,263 | 3,125 | 4,207 | 4,883 | 6,341 | 6,725 | 7,074 | 6,865 | 6,848 | 4,872 |
| Wheat | 10,015 | 6,791 | 7,291 | 8,767 | 7,820 | 7,167 | 8,810 | 4,766 | 8,707 | 7,046 | 3,064 | 5,233 | 7,123 |
| Melons | 4,839 | 2,428 | 3,357 | 2,439 | 7,319 | 5,726 | 5,663 | 6,172 | 7,128 | 9,111 | 6,074 | 5,526 | 5,464 |
| Processing | 2,923 | 2,537 | 4,844 | 3,954 | 4,554 | 5,033 | 3,000 | 7,253 | 7,533 | 7,553 | 8,886 | 6,801 | 5,406 |
| Sugar Beets | 3,859 | 4,044 | 6,407 | 4,484 | 6,306 | 5,632 | 5,955 | 4,703 | 4,879 | 3,901 | 1,775 | 1,030 | 4,266 |
| Barley | 2,378 | 1,265 | 436 | 476 | 948 | 1,039 | 184 | 293 | 168 | 299 | 319 | 331 | 680 |
| Beans | 1,327 | 1,648 | 2,857 | 2,691 | 1,339 | 2,305 | 302 | 219 | 2,749 | 2,468 | 2,840 | 2,760 | 1,959 |
| Seed Alf. | 1,096 | 2,034 | 490 | 560 | 630 | 1,005 | 1,330 | 860 | 494 | 585 | 456 | 550 | 858 |
| Rice | 1,641 | 2,486 | 3,863 | 2,231 | 1,091 | 2,279 | 2,595 | 2,334 | 1,134 | 1,022 | 681 | 741 | 1,856 |
| Corn | 757 | 1,233 | 1,512 | 191 | 150 | 2,306 | 2,706 | 635 | 699 | 367 | 320 | 781 | 971 |
| Vegetable | 2,670 | 3,557 | 3,263 | 1,735 | 2,316 | 1,146 | 2,684 | 2,001 | 1,703 | 669 | 1,783 | 1,972 | 2,142 |
| Pasture | 111 | 111 | 111 | 0 | 680 | 45 | 0 | 1,233 | 26 | 0 | 0 | 0 | 193 |
| Stonefruit/ | 701 | 701 | 701 | 701 | 301 | 317 | 273 | 58 | 217 | 117 | 35 | 226 | 362 |
| Walnut/Apple | 22 | 0 | 0 | 32 | 32 | 250 | 293 | 292 | 292 | 419 | 433 | 416 | 207 |
| Sorghum | 1,149 | 1,047 | 1,018 | 156 | 936 | 1,269 | 707 | 1,077 | 1,334 | 661 | 145 | 618 | 860 |
| TOTAL (less fallow) | 76,325 | 60,294 | 63,488 | 70,761 | 73,514 | 72,064 | 73,883 | 78,793 | 80,434 | 77,601 | 71,157 | 69,614 | 72,246 |



File: DIE - ETc Approach
Date: 2/23/94

# Grasslands Basin Irrigation and Drainage Study
## Cal Poly - ITRC

### Water Supply

**Panoche Drainage District**

**Water Supply**

| Month | 1980-1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | Average |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Oct | 2,585 | 2,585 | 2,805 | 3,636 | 1,556 | 833 | 2,860 | 1,506 | 863 | 315 | 507 | 138 | 1,708 |
| Nov | 3,331 | 3,331 | 3,521 | 4,662 | 3,311 | 2,026 | 5,770 | 3,216 | 948 | 3,524 | 1,366 | 350 | 3,117 |
| Dec | 6,032 | 6,032 | 6,163 | 9,935 | 3,866 | 1,539 | 3,182 | 6,015 | 4,430 | 5,973 | 540 | 374 | 4,510 |
| Jan | 10,278 | 4,045 | 3,371 | 5,856 | 1,217 | 6,387 | 5,086 | 5,618 | 6,906 | 6,357 | 2,371 | 1,251 | 5,063 |
| Feb | 6,585 | 8,412 | 2,678 | 7,128 | 7,341 | 5,759 | 7,654 | 11,416 | 15,335 | 9,108 | 4,765 | 957 | 7,256 |
| Mar | 3,598 | 7,266 | 867 | 7,282 | 9,169 | 4,355 | 4,075 | 6,190 | 2,222 | 4,507 | 1,354 | 1,697 | 4,374 |
| Dec-Mar | 26,493 | 25,755 | 12,981 | 30,201 | 21,693 | 18,050 | 19,997 | 29,241 | 28,893 | 27,945 | 8,930 | 4,279 | |
| Apr | 7,363 | 3,563 | 5,018 | 8,212 | 7,557 | 11,195 | 6,804 | 3,385 | 5,781 | 4,155 | 1,303 | 2,603 | 5,612 |
| May | 8,673 | 8,376 | 7,667 | 12,412 | 10,612 | 9,861 | 8,724 | 5,243 | 6,056 | 5,752 | 4,097 | 4,414 | 7,657 |
| Jun | 13,400 | 13,395 | 13,117 | 13,376 | 15,262 | 15,763 | 18,956 | 15,137 | 15,275 | 13,174 | 8,518 | 8,820 | 13,664 |
| Jul | 18,699 | 15,349 | 14,074 | 20,191 | 21,316 | 18,419 | 19,031 | 20,781 | 17,607 | 17,365 | 11,432 | 9,386 | 17,004 |
| Aug | 13,436 | 14,030 | 12,526 | 13,449 | 12,901 | 13,731 | 13,066 | 15,616 | 10,868 | 7,920 | 5,806 | 6,624 | 11,672 |
| Sep | 3,364 | 2,583 | 3,583 | 3,170 | 3,231 | 2,589 | 2,811 | 3,061 | 2,016 | 1,108 | 656 | 685 | 2,322 |
| Other | | | | | | | | | 3,000 | | 26,387 | 25,885 | 18,417 |
| Total | 97,344 | 89,153 | 75,306 | 109,511 | 98,241 | 92,487 | 98,119 | 97,196 | 91,300 | 81,258 | 69,706 | 63,416 | 88,587 |
| AF/A | 2.9 | 4.6 | 2.6 | 3.6 | 2.9 | 2.8 | 3.0 | 2.8 | 2.6 | 2.6 | 2.6 | 2.3 | 2.8 |

**Broadview Water District**

**Water Supply**

| Month | 1980-1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | Average |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Oct | 0 | 1,386 | 1,734 | 2,746 | 1,231 | 562 | 869 | 775 | 530 | 102 | 2,561 | 0 | 1,041 |
| Nov | 0 | 32 | 244 | 2,773 | 1,737 | 1,253 | 3,339 | 280 | 401 | 2,429 | 693 | 0 | 1,117 |
| Dec | 3,534 | 0 | 0 | 1,812 | 1,322 | 1,315 | 667 | 0 | 266 | 2,421 | 0 | 0 | 948 |
| Jan | 5,640 | 3,395 | 626 | 776 | 238 | 1,392 | 1,419 | 2,961 | 2,751 | 1,050 | 541 | 123 | 1,734 |
| Feb | 897 | 4,461 | 1,380 | 903 | 2,086 | 1,151 | 653 | 2,756 | 2,598 | 1,446 | 705 | 385 | 1,618 |
| Mar | 691 | 362 | 0 | 2,069 | 3,766 | 769 | 620 | 1,047 | 680 | 1,040 | 178 | 1,066 | 941 |
| Dec-Mar | 10,762 | 8,218 | 3,006 | 5,560 | 6,412 | 4,527 | 3,379 | 6,764 | 6,315 | 5,957 | 1,424 | 1,574 | |
| Apr | 1,038 | 1,197 | 1,488 | 2,459 | 2,638 | 1,659 | 2,511 | 2,018 | 2,181 | 1,031 | 312 | 594 | 1,611 |
| May | 1,784 | 2,094 | 1,982 | 3,426 | 2,845 | 2,490 | 2,121 | 2,245 | 1,745 | 939 | 327 | 1,503 | 1,938 |
| Jun | 4,793 | 3,603 | 2,754 | 5,168 | 5,127 | 4,787 | 4,367 | 4,462 | 4,906 | 3,543 | 2,083 | 2,011 | 3,948 |
| Jul | 5,895 | 4,602 | 3,167 | 5,944 | 5,351 | 5,311 | 4,132 | 5,812 | 5,980 | 4,286 | 2,962 | 1,681 | 4,594 |
| Aug | 4,196 | 3,963 | 2,174 | 3,523 | 2,812 | 3,575 | 2,453 | 3,439 | 3,980 | 2,067 | 1,478 | 739 | 2,763 |
| Sep | 462 | 94 | 141 | 312 | 87 | 254 | 137 | 96 | 162 | 0 | 0 | 0 | 145 |
| Other | | | | | | | | | | 238 | 862 | 984 | 695 |
| Total | 28,932 | 25,211 | 15,690 | 31,911 | 28,240 | 24,626 | 23,308 | 25,891 | 25,200 | 20,582 | 12,902 | 9,016 | 22,632 |
| AF/A | 3.2 | 2.8 | 2.8 | 3.6 | 3.3 | 3.0 | 3.0 | 3.0 | 2.8 | 2.5 | 2.3 | 2.0 | 2.9 |



File: DIE - ETo Approach
Data: 2/23/94

# Grasslands Basin Irrigation and Drainage Study
## Cal Poly - ITRC

Pixlough Canal Water District

Water Supply

| Month | 1980-1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | Average |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Oct | 2,764 | 2,764 | 1,513 | 4,778 | 3,097 | 2,551 | 3,649 | 3,805 | 2,359 | 1,882 | 6,290 | 4,400 | 3,208 |
| Nov | 819 | 819 | 510 | 648 | 984 | 1,329 | 3,508 | 948 | 846 | 2,588 | 3,536 | 4,140 | 1,737 |
| Dec | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Jan | 3,198 | 4,840 | 1,010 | 6,149 | 2,861 | 2,170 | 4,361 | 4,624 | 4,489 | 4,210 | 5,321 | 3,727 | 3,948 |
| Feb | 3,959 | 6,864 | 4,219 | 5,128 | 6,618 | 2,624 | 4,190 | 5,746 | 4,536 | 5,354 | 5,160 | 3,731 | 4,947 |
| Mar | 1,337 | 1,980 | 64 | 4,148 | 6,804 | 1,964 | 1,862 | 2,029 | 3,012 | 2,579 | 543 | 3,431 | 2,479 |
| Dec-Mar | 8,493 | 13,684 | 5,803 | 15,425 | 16,283 | 6,757 | 10,613 | 13,399 | 12,046 | 12,243 | 11,245 | 10,909 | 11,375 |
| Apr | 6,796 | 2,374 | 2,537 | 4,862 | 5,740 | 6,267 | 7,742 | 3,486 | 6,608 | 3,627 | 1,655 | 3,546 | 4,603 |
| May | 10,038 | 8,281 | 6,191 | 10,093 | 7,705 | 7,196 | 8,330 | 8,054 | 6,695 | 5,349 | 4,092 | 4,855 | 7,340 |
| Jun | 12,137 | 8,756 | 8,333 | 11,086 | 11,906 | 11,869 | 12,728 | 11,559 | 12,287 | 10,730 | 4,092 | 10,092 | 10,470 |
| Jul | 16,164 | 13,363 | 9,877 | 15,151 | 14,774 | 12,330 | 14,950 | 16,360 | 15,402 | 13,837 | 13,332 | 12,116 | 13,982 |
| Aug | 14,136 | 13,701 | 9,570 | 14,327 | 12,390 | 10,898 | 13,608 | 14,220 | 11,540 | 11,302 | 11,144 | 8,126 | 12,069 |
| Sep | 4,276 | 2,349 | 3,797 | 3,897 | 3,553 | 3,781 | 4,417 | 3,255 | 2,592 | 1,866 | 1,755 | 1,386 | 3,082 |
| Other | | | | | | | | | | | | | |
| Total | 75,645 | 66,132 | 47,400 | 80,268 | 75,432 | 62,966 | 79,545 | 75,106 | 70,326 | 63,903 | 57,141 | 59,569 | |
| AF/A | 3.4 | 3.3 | 2.8 | 3.8 | 3.8 | 3.2 | 3.8 | 3.2 | 2.8 | 2.5 | 2.3 | 2.4 | 3.1 |

Water Supply

| | 1980-1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | Average |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Pacheco Water District | 12,653 | 9,763 | 9,751 | 10,775 | 9,000 | 7,770 | 9,736 | 10,217 | 13,063 | 11,569 | 11,572 | 8,107 | 10,333 |
| Charleston Drainage District | 14,030 | 11,973 | 11,591 | 13,691 | 12,119 | 10,264 | 13,881 | 14,428 | 12,263 | 11,127 | 10,218 | 9,830 | 12,102 |
| CCID Comp 13 | 15,251 | 15,251 | 15,251 | 15,251 | 15,914 | 15,072 | 16,255 | 16,736 | 11,049 | 13,081 | 16,351 | 14,546 | 15,251 |



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# Grasslands Basin Irrigation and Drainage Study
## Cal Poly - ITRC

Combined - Pacheco, Chadestone, and CCID Camp 13

Assumed Monthly Water Supply

| Month | 1980-1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | Average |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Oct | 808 | 713 | 705 | 766 | 772 | 638 | 769 | 798 | 701 | 690 | 735 | 822 | 727 |
| Nov | 1,476 | 1,301 | 1,288 | 1,398 | 1,409 | 1,165 | 1,404 | 1,456 | 1,280 | 1,259 | 1,342 | 1,136 | 1,326 |
| Dec | 2,135 | 1,883 | 1,863 | 2,022 | 2,038 | 1,686 | 2,032 | 2,107 | 1,852 | 1,822 | 1,942 | 1,644 | 1,919 |
| Jan | 2,397 | 2,114 | 2,091 | 2,270 | 2,288 | 1,892 | 2,280 | 2,365 | 2,079 | 2,045 | 2,180 | 1,845 | 2,154 |
| Feb | 3,435 | 3,030 | 2,998 | 3,254 | 3,280 | 2,712 | 3,269 | 3,390 | 2,980 | 2,931 | 3,125 | 2,645 | 3,087 |
| Mar | 2,076 | 1,826 | 1,807 | 1,961 | 1,976 | 1,634 | 1,970 | 2,043 | 1,796 | 1,766 | 1,883 | 1,594 | 1,861 |
| Dec-Mar | 10,037 | 8,853 | 8,759 | 9,507 | 9,582 | 7,924 | 9,551 | 9,905 | 8,707 | 8,564 | 9,129 | 7,727 | 9,020 |
| Apr | 2,657 | 2,343 | 2,318 | 2,516 | 2,536 | 2,097 | 2,528 | 2,622 | 2,305 | 2,267 | 2,416 | 2,045 | 2,388 |
| May | 3,625 | 3,197 | 3,163 | 3,433 | 3,460 | 2,862 | 3,449 | 3,577 | 3,144 | 3,093 | 3,297 | 2,791 | 3,259 |
| Jun | 6,478 | 5,713 | 5,653 | 6,135 | 6,184 | 5,114 | 6,164 | 6,393 | 5,619 | 5,527 | 5,892 | 4,987 | 5,821 |
| Jul | 8,048 | 7,100 | 7,024 | 7,624 | 7,684 | 6,355 | 7,659 | 7,943 | 6,982 | 6,867 | 7,321 | 6,197 | 7,234 |
| Aug | 5,125 | 4,873 | 4,822 | 5,233 | 5,275 | 4,362 | 5,250 | 5,453 | 4,793 | 4,714 | 5,025 | 4,254 | 4,966 |
| Sep | 1,099 | 970 | 959 | 1,041 | 1,050 | 868 | 1,046 | 1,085 | 954 | 936 | 1,000 | 846 | 988 |
| Other | | | | | | | | | | | | | |
| Total | 39,754 | 35,065 | 34,691 | 37,653 | 37,952 | 31,386 | 37,826 | 39,232 | 34,484 | 33,918 | 36,158 | 30,605 | 35,727 |

Based on Pacheco DD water delivery distribution percentages by month.

Summary - Grasslands Study Area

Water Supply

| Month | 1980-1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | Average |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Oct | 6,178 | 7,468 | 6,337 | 12,127 | 5,658 | 4,584 | 8,248 | 6,884 | 4,455 | 2,988 | 10,094 | 5,160 | 6,683 |
| Nov | 5,625 | 5,503 | 5,643 | 9,481 | 9,440 | 5,773 | 14,021 | 5,900 | 3,475 | 9,500 | 7,139 | 5,666 | 7,297 |
| Dec | 11,701 | 7,915 | 7,568 | 13,768 | 7,326 | 4,540 | 5,901 | 8,122 | 6,566 | 10,216 | 2,482 | 2,018 | 7,377 |
| Jan | 21,512 | 14,393 | 7,108 | 13,031 | 6,404 | 11,751 | 13,346 | 15,566 | 16,235 | 15,662 | 10,613 | 6,946 | 12,698 |
| Feb | 14,876 | 22,767 | 11,235 | 16,413 | 19,324 | 12,246 | 15,766 | 24,310 | 25,439 | 19,039 | 13,774 | 7,758 | 16,911 |
| Mar | 7,496 | 11,434 | 2,737 | 15,460 | 20,716 | 8,722 | 8,527 | 11,309 | 7,709 | 9,882 | 3,858 | 7,787 | 9,654 |
| Apr | 17,653 | 9,476 | 11,361 | 18,049 | 18,271 | 21,416 | 19,565 | 11,521 | 16,874 | 11,079 | 6,286 | 6,788 | 14,214 |
| May | 24,119 | 21,946 | 19,003 | 29,365 | 24,623 | 22,409 | 23,624 | 19,119 | 17,641 | 15,123 | 11,813 | 13,564 | 20,113 |
| Jun | 36,807 | 31,466 | 29,857 | 35,765 | 38,479 | 37,563 | 42,215 | 37,551 | 38,097 | 33,093 | 20,585 | 23,910 | 33,944 |
| Jul | 46,808 | 40,635 | 34,142 | 48,910 | 49,135 | 42,405 | 45,772 | 50,916 | 45,971 | 42,456 | 35,047 | 29,560 | 42,814 |
| Aug | 37,295 | 36,537 | 29,193 | 36,533 | 33,377 | 32,566 | 34,365 | 38,728 | 30,182 | 26,003 | 23,555 | 19,742 | 31,510 |
| Sep | 9,201 | 5,995 | 6,482 | 8,421 | 6,521 | 7,491 | 8,411 | 7,497 | 5,664 | 4,032 | 3,411 | 2,927 | 31,510 |
| Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3,000 | 238 | 27,249 | 26,849 | 6,538 |
| Total | 241,675 | 215,562 | 173,087 | 259,343 | 239,864 | 211,467 | 238,800 | 237,425 | 221,310 | 199,661 | 175,907 | 162,676 | |



File: DIE - ETc Approach
Date: 2/23/94

## Rain Calc

Total Rainfall at Mendota Dam, inches

| | 1980-1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | Average |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Oct | 0.00 | 0.37 | 0.60 | 0.59 | 0.55 | 0.49 | 0.00 | 0.63 | 0.00 | 0.64 | 0.04 | 0.24 | 0.36 |
| Nov | 0.11 | 2.25 | 1.91 | 1.14 | 1.05 | 3.11 | 0.00 | 0.59 | 0.67 | 0.31 | 0.27 | 0.07 | 0.86 |
| Dec | 0.30 | 0.27 | 1.03 | 1.54 | 2.67 | 0.97 | 0.35 | 1.23 | 2.13 | 0.00 | 0.41 | 0.87 | 0.88 |
| Jan | 1.61 | 0.70 | 3.53 | 0.10 | 0.60 | 0.11 | 1.14 | 1.18 | 0.39 | 2.05 | 0.07 | 1.45 | 1.07 |
| Feb | 0.75 | 0.66 | 1.80 | 1.38 | 0.09 | 2.92 | 1.90 | 0.46 | 1.15 | 0.92 | 1.01 | 2.46 | 1.28 |
| Mar | 3.57 | 2.77 | 4.57 | 0.49 | 0.62 | 2.44 | 2.15 | 0.11 | 0.88 | 0.45 | 3.12 | 2.24 | 1.96 |
| Apr | 1.32 | 1.81 | 0.84 | 0.03 | 0.14 | 0.51 | 0.00 | 1.13 | 0.13 | 0.39 | 0.11 | 0.00 | 0.62 |
| May | 0.00 | 0.00 | 0.45 | 0.00 | 0.00 | 0.12 | 0.12 | 0.29 | 0.09 | 1.20 | 0.00 | 0.03 | 0.19 |
| Jun | 0.00 | 0.12 | 0.00 | 0.08 | 0.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 |
| Jul | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.07 | 0.01 |
| Aug | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 |
| Sep | 0.00 | 0.78 | 0.77 | 0.00 | 0.00 | 0.36 | 0.00 | 0.00 | 1.36 | 0.09 | 0.00 | 0.00 | 0.28 |
| Oct-Mar Only | 6.37 | 7.02 | 13.44 | 5.24 | 5.56 | 10.04 | 5.54 | 4.47 | 5.12 | 4.37 | 4.92 | 7.33 | |
| Totals | 7.66 | 9.73 | 16.50 | 6.36 | 6.77 | 11.03 | 6.66 | 5.89 | 6.70 | 6.06 | 6.06 | 7.46 | 7.66 |

Effective Precipitation

| District | 1980-1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | Average |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Panoche DD | 9,064 | 5,846 | 16,634 | 6,715 | 7,760 | 13,869 | 7,435 | 6,294 | 7,613 | 5,750 | 5,766 | 8,473 | 8,436 |
| Broadview WD | 2,385 | 2,582 | 3,086 | 1,956 | 2,015 | 3,417 | 1,617 | 1,627 | 1,853 | 1,486 | 1,135 | 1,369 | 2,062 |
| Firebaugh CWD | 5,823 | 5,921 | 9,399 | 4,518 | 4,587 | 8,293 | 4,649 | 4,336 | 5,279 | 4,635 | 5,059 | 7,603 | 5,858 |
| Pachaco WD | 1,170 | 1,290 | 2,070 | 807 | 721 | 1,464 | 930 | 776 | 778 | 775 | 896 | 1,132 | 1,068 |
| Charleston DD | 960 | 1,066 | 2,033 | 759 | 751 | 1,212 | 860 | 667 | 766 | 636 | 797 | 1,168 | 974 |
| CCID-Camp 13 | 845 | 931 | 1,783 | 695 | 1,258 | 1,899 | 1,171 | 972 | 867 | 806 | 934 | 1,497 | 1,138 |
| Total-Grasslands Study Area | 20,258 | 17,636 | 34,993 | 15,450 | 17,092 | 30,155 | 17,055 | 14,675 | 17,159 | 14,130 | 14,587 | 21,241 | 19,538 |

Assumed Effective precipitation = 50% Only for Oct-Mar.

References: Pre-plant IE analysis and DWR Report date 2/89 "Effective Precipitation".

Calculation = Acreage x Precipitation x Effective Precipitation Percent

# Grasslands Basin Irrigation and Drainage Study
## Cal Poly - ITRC

### Leaching

Water Quality, ECw in dS/m

| District | 1980-1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Panoche DD | 0.54 | 0.54 | 0.54 | 0.54 | 0.54 | 0.54 | 0.54 | 0.54 | 0.54 | 0.54 | 0.70 | 0.70 |
| Broadview WD | 3.21 | 2.89 | 0.89 | 0.74 | 0.65 | 0.67 | 0.56 | 0.87 | 0.75 | 1.06 | 1.25 | 1.00 |
| Pirebaugh CWD | 0.54 | 0.54 | 0.54 | 0.54 | 0.54 | 0.54 | 0.54 | 0.54 | 0.54 | 0.54 | 0.54 | 0.54 |
| Pachece WD | 1.15 | 1.15 | 1.15 | 1.15 | 1.15 | 1.15 | 1.15 | 1.15 | 1.54 | 1.54 | 1.54 | 1.54 |
| Charleston DD | 0.54 | 0.54 | 0.54 | 0.38 | 0.50 | 0.39 | 0.58 | 0.62 | 0.53 | 0.60 | 0.58 | 0.62 |
| CCID Camp 13 | 0.54 | 0.54 | 0.54 | 0.54 | 0.54 | 0.54 | 0.54 | 0.54 | 0.54 | 0.54 | 0.54 | 0.54 |
| Ave.-Grasslands Study Area | 1.09 | 1.03 | 0.70 | 0.65 | 0.65 | 0.64 | 0.65 | 0.71 | 0.74 | 0.80 | 0.86 | 0.82 |

Water For Leaching

| District | 1980-1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | Average |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Panoche DD | 4,385 | 4,025 | 3,400 | 4,944 | 4,436 | 4,176 | 4,430 | 4,388 | 4,122 | 3,669 | 4,135 | 3,762 | 4,157 |
| Broadview WD | 9,997 | 7,582 | 1,203 | 2,008 | 1,549 | 1,395 | 1,093 | 1,937 | 1,609 | 1,907 | 1,454 | 790 | 2,709 |
| Pirebaugh CWD | 3,415 | 2,986 | 2,140 | 3,624 | 3,406 | 2,843 | 3,592 | 3,391 | 3,175 | 2,885 | 2,560 | 2,690 | 3,061 |
| Pachece WD | 1,282 | 969 | 988 | 1,092 | 912 | 787 | 986 | 1,035 | 1,835 | 1,626 | 1,626 | 1,139 | 1,192 |
| Charleston DD | 633 | 541 | 523 | 429 | 505 | 331 | 686 | 753 | 543 | 581 | 506 | 503 | 543 |
| CCID Camp 13 | 689 | 689 | 689 | 688 | 854 | 681 | 734 | 756 | 498 | 591 | 736 | 657 | 689 |
| Total-Grasslands Study Area | 20,412 | 16,811 | 8,943 | 12,766 | 11,661 | 10,212 | 11,525 | 12,260 | 11,783 | 11,238 | 11,019 | 9,540 | 12,349 |

Assumed Threshold Salinity (ECe in dS/m) = 3.50

Calculation: Water for Leaching = Water Delivered x LR

LR = ECw/((1*ECe) ECw)



File: DIE - ETo Approach
Date: 2/23/94

# Grasslands Basin Irrigation and Drainage Study
## Cal Poly - ITRC

Firebaugh Canal Water District

Crop Water Requirement (Adj. ETo * Acres)

| | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | AVERAGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fallow | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Misc. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Cotton | 20,316 | 18,784 | 10,635 | 23,746 | 20,985 | 14,013 | 17,490 | 22,132 | 20,426 | 21,628 | 26,333 | 26,000 | 20,207 |
| Alfalfa | 5,457 | 1,766 | 3,277 | 3,403 | 3,381 | 3,969 | 5,807 | 6,026 | 7,168 | 7,726 | 8,389 | 8,704 | 5,423 |
| Wheat | 4,166 | 4,770 | 3,749 | 5,055 | 3,713 | 4,186 | 3,682 | 3,018 | 4,795 | 4,072 | 3,082 | 5,057 | 4,132 |
| Melons | 1,344 | 0 | 0 | 0 | 955 | 1,220 | 1,363 | 1,475 | 2,003 | 3,038 | 2,581 | 1,764 | 1,313 |
| Processing | 1,105 | 0 | 0 | 0 | 0 | 0 | 0 | 1,324 | 1,981 | 3,123 | 2,949 | 3,573 | 1,088 |
| Sugar Beets | 5,906 | 5,440 | 4,794 | 4,085 | 7,732 | 7,560 | 9,609 | 6,953 | 8,324 | 7,124 | 2,354 | 464 | 5,879 |
| Barley | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Beans | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Seed Alf. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Rice | 3,377 | 5,966 | 10,006 | 5,405 | 2,004 | 3,673 | 3,531 | 3,695 | 1,894 | 914 | 256 | 333 | 3,422 |
| Corn | 286 | 254 | 347 | 0 | 0 | 2,462 | 0 | 0 | 0 | 0 | 0 | 0 | 281 |
| Vegetable | 803 | 2,513 | 1,945 | 1,362 | 878 | 892 | 676 | 74 | 589 | 339 | 320 | 389 | 906 |
| Pasture | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Stonefruit/ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Walnut/Apple | 73 | 0 | 0 | 0 | 0 | 0 | 134 | 127 | 135 | 132 | 128 | 131 | 72 |
| Sorghum | 903 | 61 | 1,377 | 0 | 0 | 399 | 1,091 | 1,755 | 2,429 | 1,490 | 245 | 1,065 | 905 |
| TOTAL | 43,838 | 39,555 | 36,169 | 43,057 | 39,646 | 38,393 | 43,604 | 46,619 | 49,843 | 49,586 | 46,639 | 46,490 | 43,629 |

Pacheco Water District

Crop Water Requirement (Adj. ETo * Acres)

| | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | AVERAGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fallow | 0 | 0 | 179 | 157 | 277 | 169 | 196 | 77 | 180 | 0 | 0 | 0 | 103 |
| Misc. | 0 | 0 | 0 | 0 | 0 | 228 | 527 | 157 | 276 | 0 | 0 | 0 | 99 |
| Cotton | 5,245 | 3,402 | 4,841 | 4,621 | 4,439 | 3,847 | 4,272 | 4,333 | 4,202 | 4,082 | 4,176 | 4,609 | 4,346 |
| Alfalfa | 0 | 0 | 0 | 563 | 552 | 521 | 1,098 | 526 | 602 | 352 | 1,637 | 894 | 564 |
| Wheat | 893 | 330 | 65 | 79 | 0 | 0 | 25 | 182 | 310 | 447 | 0 | 0 | 194 |
| Melons | 37 | 0 | 0 | 0 | 684 | 1,016 | 626 | 867 | 529 | 1,388 | 736 | 407 | 543 |
| Processing | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 560 | 430 | 651 | 925 | 761 | 279 |
| Sugar Beets | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Barley | 206 | 0 | 0 | 0 | 0 | 0 | 0 | 169 | 137 | 5 | 0 | 0 | 43 |
| Beans | 234 | 769 | 1,192 | 1,129 | 0 | 0 | 0 | 0 | 58 | 0 | 164 | 166 | 313 |
| Seed Alf. | 414 | 2,351 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 230 |
| Rice | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Corn | 0 | 333 | 365 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 58 |
| Vegetable | 0 | 0 | 108 | 123 | 0 | 0 | 276 | 0 | 0 | 93 | 464 | 136 | 100 |
| Pasture | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Stonefruit/ | 1,304 | 1,304 | 1,371 | 1,367 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 444 |
| Walnut/Apple | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sorghum | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TOTAL | 8,332 | 8,510 | 8,121 | 8,059 | 5,952 | 5,881 | 7,222 | 6,910 | 6,725 | 7,010 | 8,104 | 6,982 | 7,314 |



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# Grasslands Basin Irrigation and Drainage Study
## Cal Poly - ITRC

Charleston Drainage District

Crop Water Requirement (Adj. ETo * Acres)

| | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | AVERAGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fallow | 34 | 28 | 37 | 71 | 130 | 202 | 9 | 41 | 37 | 197 | 100 | 100 | 82 |
| Misc. | 0 | 0 | 0 | 0 | 267 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 23 |
| Cotton | 1,316 | 626 | 3,419 | 4,065 | 2,365 | 3,734 | 4,776 | 3,121 | 4,864 | 4,969 | 4,959 | 5,040 | 3,605 |
| Alfalfa | 3,397 | 1,887 | 2,124 | 505 | 947 | 710 | 316 | 3,316 | 2,970 | 1,926 | 1,086 | 1,105 | 1,691 |
| Wheat | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Melons | 495 | 369 | 385 | 1,325 | 686 | 495 | 1,061 | 472 | 54 | 254 | 514 | 505 | 551 |
| Processing | 432 | 911 | 223 | 0 | 0 | 0 | 0 | 138 | 233 | 116 | 538 | 539 | 261 |
| Sugar Beets | 2,184 | 1,610 | 1,982 | 224 | 0 | 536 | 300 | 192 | 408 | 167 | 226 | 221 | 686 |
| Barley | 167 | 0 | 0 | 0 | 332 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 42 |
| Beans | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 62 | 0 | 0 | 0 | 0 | 5 |
| Seed Alf. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Rice | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Corn | 566 | 1,630 | 574 | 0 | 0 | 0 | 0 | 172 | 0 | 0 | 158 | 159 | 286 |
| Vegetable | 34 | 444 | 0 | 0 | 645 | 0 | 17 | 0 | 0 | 0 | 0 | 0 | 93 |
| Pasture | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 400 | 0 | 0 | 0 | 0 | 33 |
| Stonefruit/ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Walnut/Apple | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sorghum | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TOTAL | 8,604 | 7,505 | 8,744 | 6,190 | 5,374 | 5,677 | 6,477 | 7,913 | 8,567 | 7,630 | 7,581 | 7,669 | 7,361 |

CCID - Comp13

Crop Water Requirement (Adj. ETo * Acres)

| | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | AVERAGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fallow | 38 | 39 | 40 | 41 | 79 | 171 | 167 | 35 | 14 | 0 | 0 | 0 | 52 |
| Misc. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Cotton | 2,067 | 2,067 | 2,237 | 2,135 | 3,285 | 2,720 | 2,993 | 2,594 | 3,125 | 2,818 | 3,507 | 3,386 | 2,743 |
| Alfalfa | 975 | 975 | 1,009 | 1,017 | 0 | 0 | 1,167 | 1,594 | 1,864 | 1,852 | 2,431 | 2,625 | 1,394 |
| Wheat | 476 | 476 | 426 | 517 | 1,355 | 580 | 1,165 | 1,032 | 389 | 731 | 0 | 554 | 642 |
| Melons | 55 | 55 | 60 | 57 | 254 | 0 | 132 | 42 | 47 | 116 | 0 | 59 | 73 |
| Processing | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sugar Beets | 2,131 | 2,131 | 2,186 | 2,140 | 5,521 | 3,977 | 1,543 | 4,068 | 3,407 | 2,239 | 2,442 | 2,136 | 2,829 |
| Barley | 61 | 61 | 53 | 66 | 0 | 0 | 0 | 0 | 0 | 0 | 320 | 353 | 76 |
| Beans | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Seed Alf. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Rice | 1,695 | 1,695 | 1,767 | 1,726 | 1,365 | 3,077 | 4,486 | 3,006 | 1,119 | 2,179 | 2,326 | 1,899 | 2,186 |
| Corn | 53 | 53 | 90 | 85 | 0 | 172 | 261 | 0 | 0 | 397 | 0 | 143 | 109 |
| Vegetable | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pasture | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Stonefruit/ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Walnut/Apple | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sorghum | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TOTAL | 7,541 | 7,541 | 7,870 | 7,783 | 11,859 | 10,696 | 11,914 | 12,370 | 9,964 | 10,334 | 11,048 | 11,155 | 10,006 |



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# Grasslands Basin Irrigation and Drainage Study
## Cal Poly - ITRC

Summary - Grasslands Study Area

Crop Water Requirement (Adj. ETo * Acres)

| | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | AVERAGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fallow | 359 | 447 | 2,382 | 512 | 766 | 1,088 | 850 | 485 | 590 | 1,421 | 2,836 | 3,266 | 1,252 |
| Misc. | 330 | 341 | 0 | 176 | 664 | 382 | 616 | 469 | 446 | 0 | 51 | 1,081 | 380 |
| Cotton | 73,639 | 55,538 | 54,310 | 79,250 | 69,061 | 60,829 | 65,776 | 74,960 | 72,791 | 70,616 | 71,241 | 67,630 | 68,137 |
| Alfalfa | 14,754 | 6,493 | 10,026 | 11,520 | 10,650 | 13,708 | 14,760 | 20,836 | 22,751 | 23,785 | 22,621 | 23,926 | 16,403 |
| Wheat | 12,183 | 8,261 | 7,936 | 11,592 | 9,873 | 8,363 | 11,094 | 6,224 | 10,516 | 8,368 | 3,421 | 5,949 | 8,665 |
| Melons | 4,657 | 2,443 | 3,732 | 2,563 | 7,417 | 5,503 | 5,683 | 5,665 | 7,310 | 9,054 | 5,950 | 5,319 | 5,441 |
| Processing | 5,788 | 5,023 | 10,400 | 8,033 | 8,997 | 9,607 | 5,890 | 13,522 | 15,419 | 14,623 | 17,101 | 13,097 | 10,642 |
| Sugar Beets | 10,760 | 11,277 | 12,631 | 12,556 | 18,233 | 15,136 | 16,524 | 13,085 | 13,350 | 10,839 | 5,022 | 2,843 | 11,854 |
| Barley | 2,589 | 1,377 | 415 | 561 | 1,075 | 1,084 | 206 | 347 | 181 | 327 | 320 | 353 | 736 |
| Beans | 2,025 | 2,515 | 4,850 | 4,329 | 2,037 | 3,333 | 437 | 309 | 4,296 | 3,675 | 4,197 | 4,051 | 3,008 |
| Seed Alf. | 1,937 | 3,595 | 876 | 1,064 | 1,136 | 1,701 | 2,400 | 1,489 | 1,237 | 1,019 | 756 | 937 | 1,512 |
| Rice | 5,032 | 7,621 | 12,644 | 7,131 | 3,370 | 6,750 | 8,018 | 6,701 | 3,573 | 3,094 | 2,564 | 2,233 | 5,729 |
| Corn | 1,535 | 2,501 | 3,340 | 399 | 303 | 4,511 | 5,424 | 1,215 | 1,462 | 777 | 630 | 1,511 | 1,967 |
| Vegetable | 3,039 | 4,048 | 3,600 | 2,182 | 2,716 | 1,261 | 3,431 | 2,249 | 1,947 | 750 | 1,867 | 2,227 | 2,445 |
| Pasture | 407 | 407 | 417 | 0 | 2,523 | 159 | 0 | 4,442 | 95 | 0 | 0 | 0 | 704 |
| Stonefruit/ | 2,285 | 2,285 | 2,403 | 2,396 | 884 | 998 | 898 | 181 | 711 | 376 | 110 | 730 | 1,197 |
| Walnut/Apple | 71 | 0 | 0 | 112 | 107 | 802 | 982 | 928 | 985 | 1,381 | 1,381 | 1,363 | 676 |
| Sorghum | 2,007 | 1,829 | 1,925 | 282 | 1,604 | 2,125 | 1,216 | 1,795 | 2,429 | 1,490 | 245 | 1,065 | 1,501 |
| TOTAL | 145,399 | 116,002 | 131,877 | 144,637 | 141,538 | 137,360 | 146,246 | 154,904 | 160,093 | 152,001 | 140,335 | 136,384 | 142,250 |

## Irrigation Efficiency

Irrigation Efficiency = Adj. Crop Water Requirement - Effective Precipitation + Water For Leaching) / Water Delivered

| District | 1980-1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Panoche DD | 58% | 40% | 62% | 54% | 61% | 57% | 61% | 66% | 72% | 73% | 78% | 80% |
| Broadview WD | 81% | 81% | 58% | 57% | 55% | 51% | 56% | 58% | 62% | 73% | 87% | 94% |
| Firebaugh CWD | 55% | 55% | 61% | 53% | 51% | 52% | 53% | 61% | 68% | 73% | 77% | 70% |
| Pacheco WD | 67% | 84% | 72% | 77% | 68% | 67% | 75% | 70% | 60% | 68% | 76% | 86% |
| Charleston DD | 39% | 62% | 62% | 43% | 42% | 47% | 43% | 55% | 66% | 68% | 71% | 73% |
| CCID Comp 13 | 46% | 46% | 44% | 51% | 61% | 63% | 71% | 73% | 67% | 77% | 66% | 71% |
| Total-Grasslands Study Area | 60% | 53% | 61% | 53% | 57% | 56% | 59% | 64% | 70% | 75% | 76% | 77% |



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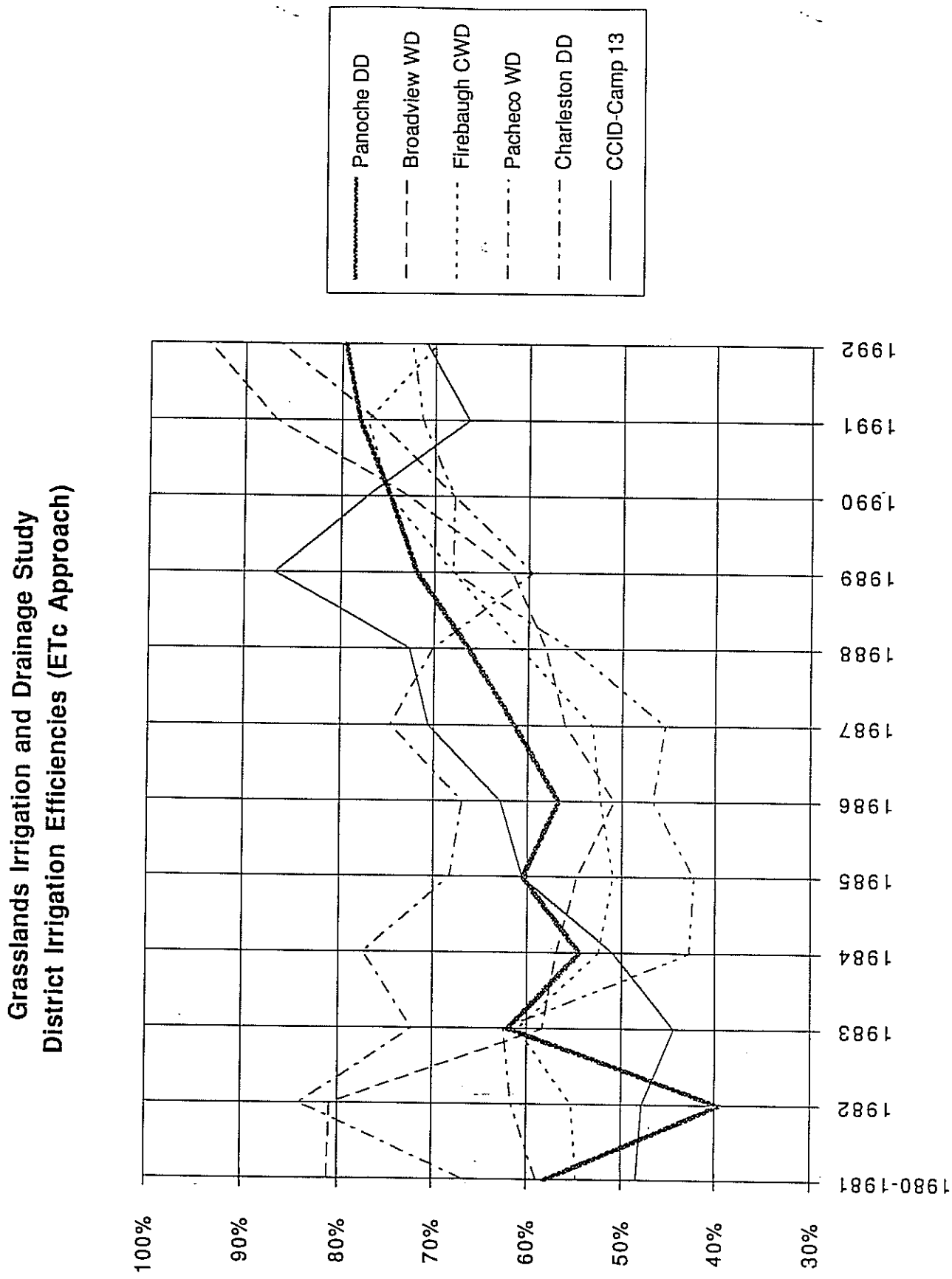
Grasslands Irrigation and Drainage Study
District Irrigation Efficiencies (ETc Approach)
Panoche DD
Broadview WD
Firebaugh CWD
Pacheco WD
Charleston DD
CCID-Camp 13
100%
90%
80%
70%
60%
50%
40%
30%
1980-1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
1992

# Grasslands Basin Irrigation and Drainage Study
## Cal Poly - ITRC

### Crop Water Requirement

Panoche Drainage District

Crop Water Requirement (Adj. ETo * Acres)

| | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | AVERAGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fallow | 285 | 298 | 1,178 | 219 | 215 | 345 | 197 | 205 | 250 | 1,029 | 1,904 | 2,060 | 682 |
| Misc. | 0 | 0 | 0 | 0 | 220 | 0 | 0 | 311 | 0 | 0 | 0 | 814 | 120 |
| Cotton | 35,537 | 20,253 | 28,840 | 34,704 | 30,070 | 28,372 | 28,001 | 34,661 | 30,783 | 26,316 | 24,931 | 24,232 | 28,159 |
| Alfalfa | 4,925 | 1,863 | 3,056 | 5,448 | 5,259 | 8,029 | 8,371 | 9,375 | 10,146 | 11,928 | 8,922 | 9,598 | 7,343 |
| Wheat | 5,376 | 1,288 | 2,747 | 4,751 | 3,564 | 2,468 | 4,561 | 1,093 | 4,169 | 2,220 | 0 | 339 | 2,715 |
| Melons | 2,728 | 1,561 | 2,786 | 864 | 4,037 | 2,129 | 1,197 | 1,360 | 3,365 | 3,444 | 1,923 | 2,353 | 2,297 |
| Processing | 9,815 | 4,112 | 9,533 | 7,728 | 7,515 | 8,176 | 5,006 | 10,213 | 11,055 | 9,268 | 11,416 | 7,145 | 7,915 |
| Sugar Beets | 558 | 1,060 | 2,788 | 2,313 | 2,078 | 1,926 | 4,240 | 609 | 602 | 475 | 0 | 0 | 1,455 |
| Barley | 1,560 | 510 | 124 | 271 | 261 | 966 | 147 | 0 | 0 | 0 | 0 | 0 | 320 |
| Beans | 841 | 1,665 | 2,393 | 2,717 | 2,037 | 3,324 | 457 | 0 | 4,240 | 3,675 | 4,033 | 3,865 | 2,437 |
| Seed Alf. | 410 | 255 | 96 | 0 | 0 | 508 | 541 | 268 | 0 | 0 | 0 | 0 | 173 |
| Rice | 0 | 0 | 871 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 73 |
| Corn | 601 | 0 | 1,964 | 314 | 303 | 1,856 | 5,164 | 1,043 | 1,482 | 379 | 473 | 1,209 | 1,231 |
| Vegetable | 2,102 | 1,091 | 1,547 | 697 | 1,193 | 369 | 2,482 | 2,175 | 1,356 | 319 | 1,063 | 1,693 | 1,343 |
| Pasture | 407 | 407 | 417 | 0 | 2,523 | 159 | 0 | 4,043 | 95 | 0 | 0 | 0 | 471 |
| Stonefruit/ | 981 | 981 | 1,032 | 1,029 | 884 | 998 | 896 | 181 | 711 | 378 | 110 | 730 | 751 |
| Walnut/Apple | 0 | 0 | 0 | 112 | 107 | 802 | 841 | 801 | 850 | 1,249 | 1,254 | 1,254 | 605 |
| Sorghum | 1,104 | 1,767 | 548 | 282 | 1,604 | 1,726 | 126 | 0 | 0 | 0 | 0 | 0 | 596 |
| TOTAL | 61,219 | 37,112 | 59,932 | 61,448 | 62,771 | 63,151 | 65,235 | 66,558 | 69,016 | 62,882 | 56,069 | 55,172 | 59,786 |

Broadview Water District

Crop Water Requirement (Adj. ETo * Acres)

| | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | AVERAGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fallow | 0 | 82 | 949 | 24 | 85 | 201 | 279 | 128 | 110 | 194 | 832 | 1,107 | 333 |
| Misc. | 330 | 341 | 0 | 176 | 178 | 154 | 90 | 0 | 168 | 0 | 51 | 167 | 138 |
| Cotton | 11,167 | 10,406 | 4,338 | 9,980 | 7,918 | 8,043 | 7,245 | 8,120 | 9,381 | 8,625 | 7,316 | 4,383 | 8,078 |
| Alfalfa | 0 | 0 | 561 | 565 | 511 | 479 | 0 | 0 | 0 | 0 | 135 | 0 | 186 |
| Wheat | 1,272 | 1,396 | 909 | 1,380 | 1,241 | 1,130 | 1,461 | 900 | 855 | 1,098 | 339 | 0 | 983 |
| Melons | 0 | 458 | 500 | 316 | 801 | 644 | 1,084 | 1,409 | 1,311 | 804 | 194 | 431 | 663 |
| Processing | 436 | 0 | 644 | 305 | 1,482 | 1,432 | 883 | 1,268 | 1,719 | 1,665 | 1,273 | 2,080 | 1,089 |
| Sugar Beets | 0 | 837 | 859 | 3,794 | 3,102 | 1,136 | 832 | 1,263 | 410 | 834 | 0 | 0 | 1,006 |
| Barley | 596 | 807 | 238 | 224 | 482 | 118 | 61 | 178 | 44 | 320 | 0 | 0 | 256 |
| Beans | 951 | 61 | 1,265 | 483 | 0 | 28 | 0 | 347 | 0 | 0 | 0 | 0 | 253 |
| Seed Alf. | 1,113 | 950 | 777 | 1,064 | 1,136 | 1,184 | 1,859 | 1,221 | 1,237 | 1,019 | 756 | 937 | 1,109 |
| Rice | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 561 | 0 | 0 | 0 | 47 |
| Corn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Vegetable | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pasture | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Stonefruit/ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Walnut/Apple | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sorghum | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TOTAL | 15,864 | 15,378 | 11,040 | 18,121 | 15,936 | 14,561 | 13,793 | 14,733 | 15,607 | 14,559 | 10,896 | 9,105 | 14,150 |



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# TECHNICAL APPENDIX E

# PRE-PLANT IRRIGATION EFFICIENCIES

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## TECHNICAL APPENDIX E

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References.....E16

Example Calculation for Panoche Water District.....E17

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## INTRODUCTION

Examination of pre-plant irrigation efficiencies for five of the Grassland Basin districts was completed in order to determine the potential for reduction of drainage water from the area during the period of time when pre-plant irrigation events occur (December through March). In theory, the timeframe for the poorest irrigation efficiencies occurs during the pre-plant irrigations since irrigations are required for germination but the soil moisture deficit may not warrant the quantity of water applied. The pre-plant efficiency analysis was completed during the summer of 1993. Some of the assumptions are slightly different than the assumptions used in the DIE analysis due to the timing of the analysis. The differences are discussed later in this section.

The five districts examined were Panoche, Firebaugh, Broadview, Pacheco, and Charleston. CCID was not evaluated due to lack of monthly water delivery data. Pre-plant irrigation efficiencies were determined by calculating the potential beneficial uses of irrigation water during the time period, and comparing that to the amount of water delivered to the district on a monthly basis during the same time period.

## RESULTS

Table 1 shows the results of this analysis. The main problem with this analysis is when the irrigation water applied is less than the amount required. Using the traditional irrigation efficiency equation below, the IE appears to be larger than 100% which is not possible.

$$IE = \frac{\text{Irrigation Water Beneficially Used}}{\text{Irrigation Water Applied}} \times 100$$

Therefore, the emphasis in this report was with the differences between the identified water beneficially used and the water applied. Values calculated above 100% are shown as 100%.

Table 1

Pre-Plant Irrigation Efficiency (in percent)

| YEAR | PANOCHE | PACHECO | FIREBAUGH | BROADVIEW | CHARLESTON |
|---|---|---|---|---|---|
| 1982 | 43 | 100 | | 100 | |
| 1983 | 4 | 100 | | 100 | |
| 1984 | 41 | 100 | 61 | 35 | |
| 1985 | 80 | | 77 | 100 | |
| 1986 | 34 | | 100 | 51 | 61 |
| 1987 | 71 | 52 | 100 | 100 | 21 |
| 1988 | 48 | 97 | 100 | 48 | 35 |
| 1989 | 56 | 57 | 100 | 67 | 66 |
| 1990 | 100 | 52 | 100 | 69 | 33 |
| 1991 | 100 | 76 | 100 | 100 | 100 |
| 1992 | 100 | 100 | 100 | 100 | 100 |

Figure 1 is a graph of the summary results. Note the dark line for Panoche.

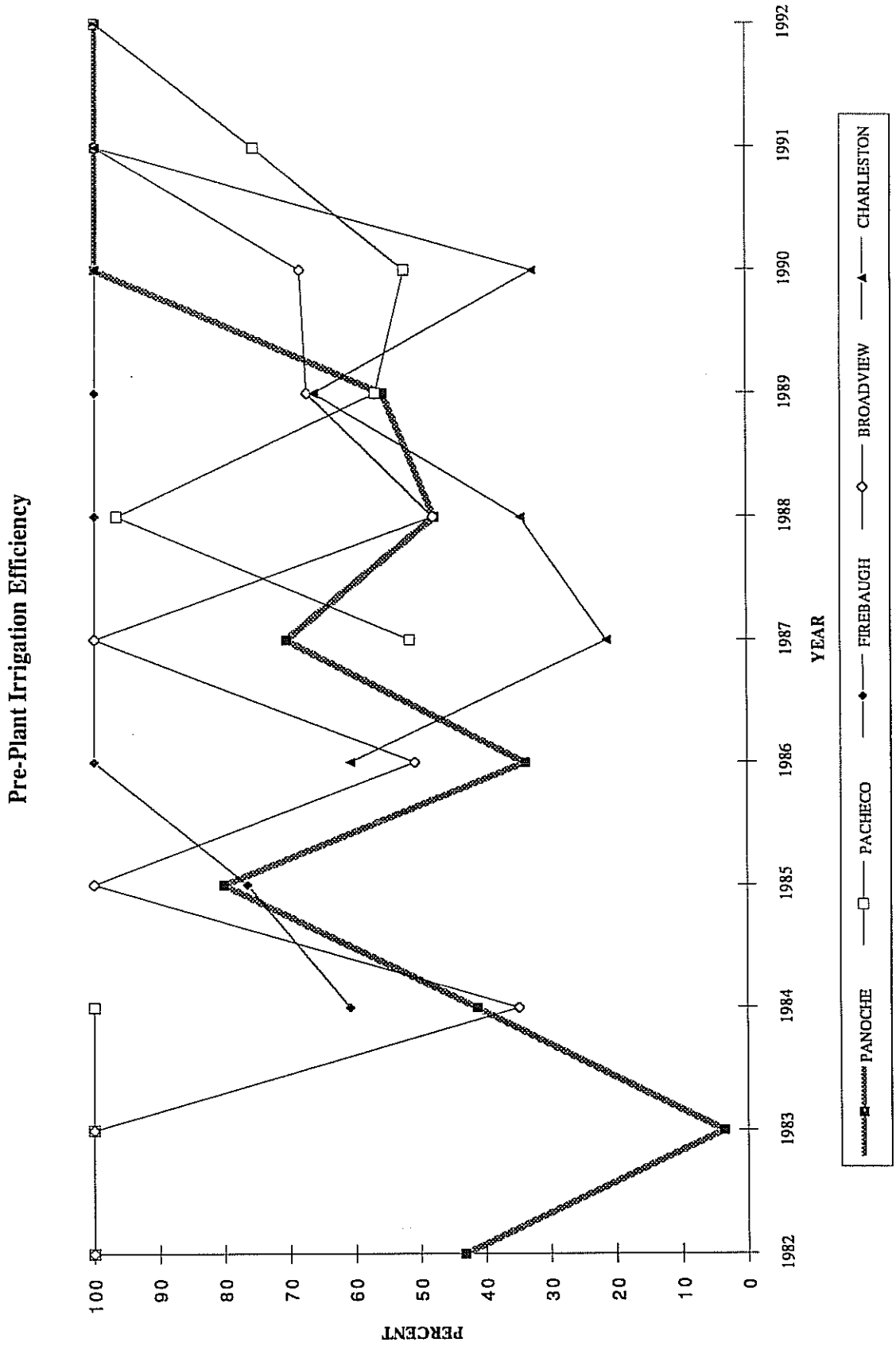

Pre-Plant Irrigation Efficiency
PERCENT
100
90
80
70
60
50
40
30
20
10
0
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
1992
YEAR
PANOCHE
PACHECO
FIREBAUGH
BROADVIEW
CHARLESTON

*Figure 1*

# CALCULATION STEPS

The following is a step by step breakdown of the steps taken in calculating district pre-plant irrigation efficiencies for the irrigation districts in the Grasslands Basin Irrigation and Drainage Study. The districts in the study include Broadview, Firebaugh, Panoche, and Pacheco Water Districts, and Charleston Drainage District. The Central California Irrigation District (Camp 13) is not included in the study due to the difficulty in obtaining needed water supply information.

## STEP 1:

**Determine the time period during the year when most of the pre-plant irrigation events occur.**

Pre-plant irrigation water is by definition applied prior to or just after planting. In estimating the district pre-plant irrigation efficiencies it was necessary to choose the time of year when pre-plant irrigation usually occurs. The time period chosen was December to March. This time period was chosen due to the lack of significant increases in monthly water deliveries prior to that period, which would be expected if there were many pre-plant irrigation events occurring. In the months following the time period, there was an insignificant amount of uncropped acreage in the districts, meaning the time for pre-plant irrigation had largely passed.

The various crops were separated into three categories during the period December-March.

a. Crops growing during the entire time period.

b. Crops not grown during the time period.

c. Crops growing during part of the time period.

## STEP 2:

**For the four months of the time period, determine the total *regular* irrigation requirements of crops in groups a and c.**

The regular irrigation requirement takes into account the water required to meet the plant's evapotranspiration (ETc) needs, the rainwater that is available for ETc (effective rainfall), and the efficiency of the application of irrigation water.

$$\text{Gross Irrigation Water Requirement} = \frac{(\text{Monthly ETc - Eff. Rain})}{(\text{Annual IE} * 0.8)}$$

Annual IE values are from spreadsheets in the 1992 D.I.E. Report using (ADJ. ETc-GW/AVAIL) values, with the exception of BWD where the (ADJ. ETc + RECL/AVAIL) figures where used in order to take into account the reclamation leaching in the district. The leaching requirement is left out because it is typically done once a year in the area, when there are no crops in the field. The calculated annual district IE figures were multiplied by about 80 % as an adjustment to the results from the previous study for inconsistent crop growth.

**Determine the rain contribution to soil moisture deficit (SMD) and leaching fraction (NLF).**

The calculation for rain contribution to SMD and NLF based on an infiltration of 50 % is

Rain Contribution = Infiltrated Rain - Eff. Rain Contribution to ETc

## STEP 3:

**Find the amount of water available during the four months for pre-plant irrigations.**

This represents the theoretical water available for pre-plant irrigation once the ETc of the growing crops had been met.

Pre-Plant Irrigation Water = Total Supply - Gross Irrigation for ETc

## STEP 4:

**Find the SMD for each month in the time period of interest (on a per district basis) for uncropped acreage.**

In order to find the amount of pre-plant irrigation water beneficially applied, it was necessary to estimate how dry the soil was after crops were harvested in the previous year using the following procedure.

A. Develop a calendar of crop life spans.

B. Estimate the SMD of fields with particular crops grown in the previous year.

1. Estimate the SMD at harvest for each crop.
   a. Estimate the MAD of the crops at harvest.
   b. Estimate the root zone depth of the crops at harvest.
   c. Calculate a value for SMD from the MAD values using soil maps of the area to assign a proportionate amount of the crops to the equivalent proportion of the soil type on a per district basis.

C. Multiply the SMD by the total number of acres of a particular crop.

## STEP 5:

**Find the annual NLF for the acreage not being cropped during the time period.**

It is assumed that the majority of the annual leaching occurs during the time between harvest and planting, which is usually during the time period being considered.

$$NLF = \frac{(\text{Ann. ETc - Rainfall ET Contrib.})}{(1 - LR)} - (\text{Ann. ETc - Rainfall ET Contrib.})$$

$$LR = \frac{ECw}{(5 \times ECe) - ECw}$$

where,

ECe = 2.5 dS/m, threshold value for tomatoes.

LR = based on a critical crop of tomatoes for all fields.

Rainfall ET Contribution = effective rain available for crop ET.

NLF = net inches of water required to maintain a salt balance at the critical point (driest point) in the field. See pg. 3 of Leaching Requirement Summary in the 1991 D.I.E. Report (Burt, 1991) for more information.

## STEP 6:

**Determine the amount of irrigation water needed to satisfy the SMD and NLF of the b and c crops.**

This represents the amount of irrigation water that in theory could be used beneficially for pre-plant irrigation.

Assumption: The annual NLF is satisfied during the time period. Total neglects the impact of DU, which is small since there is typically overirrigation at this point in the year.

Theoretical Water Requirement = (Prev. Year SMD + Prev. Year NLF) x (Prev. Year Acres)

## STEP 7:

**Calculate the irrigation efficiency of the pre-plant irrigation water.**

$$\text{Pre-Plant Irrigation Efficiencies} = \frac{\text{(Beneficially Used Pre-Plant Irrigation Water)}}{\text{( Total Pre-Plant Irrigation Water Applied)}}$$

Beneficially used pre-plant irrigation water is the irrigation water that has gone to satisfy the SMD in the root zone and the net leaching fraction needed to maintain a salt balance in the soil minus the contribution from rain.

Total pre-plant irrigation water applied is the difference between the total water supplied to the districts during December through March and the water used for regular irrigations on crops grown during that same time period.

# DETAILED EXPLANATION OF SPREADSHEET CALCULATIONS

Pre-plant irrigation efficiencies for Broadview, Firebaugh, Panoche and Pacheco Water Districts, and Charleston Drainage District were calculated using the following spreadsheets.

Unless indicated, the values used in spreadsheet columns were obtained from information included in the 1991 D.I.E. Report (Burt, 1991), and the 1992 D.I.E. Report (Burt, 1992). Values from sources other than the two mentioned reports include soil type percentages, total irrigation water supply figures, water quality figures, root zone depth values for particular crops, and soil moisture deficit values at harvest for particular crops. The source is cited under the column heading in which the values are used.

Four different spreadsheets were developed in determining district pre-plant irrigation efficiencies. The first spreadsheet was developed to answer STEPS 2 and 3 of the calculation of district pre-plant irrigation efficiencies. It calculates the amount of irrigation water available annually for pre-plant irrigation in each district from December through March. The spreadsheet also calculates how much of the total rain is available to satisfy the SMD and NLF.

The second spreadsheet is used to calculate values used in answering STEP 4, i.e., the soil moisture deficit in the district prior to pre-plant irrigation for each year.

The third spreadsheet is used to calculate the NLF required for each crop on an annual basis for STEP 5.

The fourth spreadsheet calculates the theoretical water required to satisfy the prior year SMD and NLF requirements needed for STEP 6. District pre-plant irrigation efficiencies are calculated in spreadsheet 5 for STEP 7.

| Spreadsheet | Step Number | Calculated Values |
|---|---|---|
| 1 | 2 and 3 | Water available for pre-plant irrigation. |
| 2 | 4 | Soil Moisture Deficit (SMD). |
| 3 | 5 | Net Leaching Fraction (NLF). |
| 4 | 6 | Theoretical water needed to satisfy SMD and NLF. |
| 5 | 7 | District Pre-Plant Irrigation Efficiencies. |

## SPREADSHEET 1:

**Answer Steps 2 and 3 of calculation of district pre-plant irrigation efficiencies.** Spreadsheet 1 calculates the theoretical amount of water available for pre-plant irrigation in each district on an annual basis and the rain contribution to SMD and NLF.

COLUMN A: GROUP

This column indicates the placement of crops into one of three categories. Group "a" indicates crops that are grown continuously in the period December-March, group "c" crops are grown only during a part of that time period.

COLUMN B: CROP

This column lists crops grown in the district. The values for MISC are the same as those for VEGETABLE. MILO values are the same as for SORGHUM.

COLUMNS C-F : ADJUSTED ETc VALUES (in)

This column lists calculated, monthly ETc values that are adjusted to reflect a lack of uniformity in crop growth in the planted acreage (bare spots and stunted plant growth). For more information on the procedure used in calculating adjusted ETc values, see page 8 of D.I.E. Report, (Burt, 1991). December values are from the year indicated on the spreadsheet and do not chronologically precede January-March. The calculated ETc values are the same regardless of the irrigation district being considered.

COLUMN G-J : CROPPED PPT <= ETc (IN), EFF RAIN

This column lists effective rainfall (rainfall that infiltrates into the ground and is available for crop ET) on cropped ground that is less than or equal to adjusted ETc. For more information, see page 4 of D.I.E. Report, (Burt, 1991).

COLUMN K: ANNUAL I.E. (ADJ ET-GW/AVAIL)

This column lists the annual DIEs. The DIEs values include the effects of ground water and adjustments for uneven crop growth. See pages 87-91 of D.I.E. Report, (Burt, 1992) for further explanation. Some of the values have been updated to reflect new information and are taken from the October 1993 D.I.E. Progress Report for the Grassland Basin Irrigation

and Study Area. The annual DIEs include water lost from operational discharges and seepage losses from supply canals.

Broadview Water District

DIE values used for BWD differ from those used for the other districts. The values include provision for reclamation leaching during the years studied. (The values are from the column heading ADJ ET + RECL/AVAIL on page 85 of the D.I.E. Report for one year values, (Burt, 1992)).

COLUMN L: CROP ACRES PLANTED

This column lists the total acres planted to the crop for a particular year.

COLUMN M-P: REG. WATER REQRD (AC-FT)

This column lists the calculated values for the amount of water required for irrigation of crops that are grown during the period December-March, taking into account effective rainfall. The DIEs are adjusted by a factor of about 0.8 to reflect uneven crop growth in the districts, and represents a subjective adjustment based on examination of aerial photos of the districts revealing uneven growth and bare spots within fields. For more information, see page 87 of D.I.E. Report, (Burt, 1992).

$$\text{Reg. water reqd.} = \frac{\text{ADJ. ETc - EFF. RAIN}}{\text{ANNUAL I.E./100 * 0.8}} * \frac{\text{FT}}{\text{12IN}} * \text{CROP ACRES}$$

$$\text{COLUMN M} = \frac{\text{COLUMN C - COLUMN G}}{\text{COLUMN K/100 * 0.8}} * \frac{1}{12} * \text{COLUMN L}$$

$$\text{COLUMN N} = \frac{\text{COLUMN D - COLUMN H}}{\text{COLUMN K/100 * 0.8}} * \frac{1}{12} * \text{COLUMN M}$$

$$\text{COLUMN O} = \frac{\text{COLUMN E - COLUMN I}}{\text{COLUMN K/100 * 0.8}} * \frac{1}{12} * \text{COLUMN N}$$

$$\text{COLUMN P} = \frac{\text{COLUMN F - COLUMN J}}{\text{COLUMN K/100 * 0.8}} * \frac{1}{12} * \text{COLUMN O}$$

COLUMN Q: TOTAL REQ. REG WATER, GROSS (AC-FT)

This column lists the sum of the monthly water requirements for crops grown during December-March.

TOTAL REQ. REG WATER= REG. WATER REQRD (DEC + JAN + FEB + MARCH)

COLUMN Q = COLUMN M + COLUMN N + COLUMN O + COLUMN P

COLUMN R: TOTAL SUPPLY

This column lists the amount of water supplied to the farmer by the irrigation district and from private well pumping.

Charleston Drainage District

The water supply values for 1991 and 1992 are questionable. The water supply values do not include the water supplied to CDD by CCID.

Panoche Water District

The water supply values for PeWD do not include water from private well pumping.

COLUMN S: PRE-IRR AVAILABLE (AC-FT)

This column lists the calculated value for the amount of water available for use in pre-plant irrigations on fields that were previously fallow or have been harvested.

AVAIL FOR PRE = TOTAL SUPPLY- SUM OF TOTAL REQ. REG WATER, GROSS

COLUMN S = COLUMN R - SUM OF COLUMN Q

COLUMN T: TOTAL EFFECTIVE RAIN WATER (AC-FT)

This column lists the total rain water that satisfies ETc during the time period December through March.

$$\text{TOTAL EFF. RAIN} = \text{EFF. RAIN (DEC + JAN + FEB + MARCH)} * \frac{1}{12} * \text{CROP ACRES}$$

$$\text{COLUMN T} = (\text{COL. G + COL. H + COL. I + COL. J}) * \frac{1}{12} * \text{COLUMN L}$$

COLUMN U: TOTAL RAIN WATER CONTRIBUTION TO SMD AND NLF (AC-FT)

TOTAL CONTRIBUTION = (50 % RAIN * CROP ACRES) - RAIN TO SATISFY ETc

COLUMN U = [COLUMN U * ACRES (FROM STEP 6)] - SUM OF COLUMN T

## SPREADSHEET 2:

**Answer Step 4 of calculation of district pre-plant irrigation efficiencies.** Spreadsheet 2 calculates the SMD in the district after crop harvest.

COLUMN A: CROP

This column lists the crops currently grown in the district.

COLUMN B: ACRES PLANTED

This column lists the number of acres of each crop planted within the district.

COLUMN C: HARVEST MAD (%)

This column lists the estimated management allowable deficit (MAD) for a particular crop at harvest time. These numbers are approximate values based on the experience of Jerry Robb of Westlands Water District and Dr. Charles Burt of the ITRC at California State Polytechnic University.

COLUMN D: RZD (FT)

This column lists the approximate root zone depth of the crop at harvest.

COLUMN E-G: SOIL TYPE (%)

This column lists the percentage of soil in the district that falls into one of three broad textural categories. The soil within the district was broken down into three categories to improve the estimate of the available water holding capacity (AWHC). The values were estimated based on soil survey maps of the districts. The AWHC values are 0.5 in., 1.5 in. and 2 in. for the light, medium and heavy soil categories respectively.

COLUMN H: AWHC (IN)

This column lists the calculated values which represent the amount of water held in one foot of soil when the soil is at field capacity. Available water holding capacities are based on estimates in CIM-AG (Burt, 1992). The accuracy of these estimated values have a significant impact on the calculated district pre-plant irrigation efficiencies.

$$AWHC = \frac{\%LIGHT}{100} * 0.5 + \frac{\%MED}{100} * 1.5 + \frac{\%HEAVY}{100} * 2$$

$$COLUMN\ H = \frac{COLUMN\ E}{100} * 0.5 + \frac{COLUMN\ F}{100} * 1.5 + \frac{COLUMN\ G}{100} * 2$$

COLUMN I: ADJUSTMENT TO RZD>6 FT DUE TO % TILED AREA

This column lists the percentage of cropped land that has been tiled in the district. The percentage figures used were based on values for tiled acreage reported in the State Water Resources Control Board Technical Report: Regulation of Agricultural Drainage to the San Joaquin River (1987)

COLUMN J: ADJUSTED HARVEST SMD FOR TILED AREA (FT)

This column lists the calculated values for the SMD in the acreage tiled. The figures are based on the assumption that the root zone depth is restricted to a maximum depth of 5 feet in the tiled area. This assumption is based on a typical tile spacing of 300 ft buried 6 ft below the soil surface according to David Cone of BWD. 1987 values for total cropped or fallow acreage in the district was used as a base value for the calculation

$$ADJUSTED\ HARVEST\ SMD = AWHC\ (IN) * 5\ FT\ OF\ RZD * \frac{MAD\ (\%)}{100} * \frac{1\ FT}{12\ IN}$$

COLUMN J = COLUMN H * 5 FT * COLUMN C * 1 FT/12 IN

COLUMN K: HARVEST SMD (FT)

This column lists the calculated values representing the SMD of the root zone at harvest.

$$HARVEST\ SMD = AWHC\ (IN) * RZD\ (FT) * \frac{MAD\ (\%)}{100} * \frac{1\ FT}{12\ IN}$$

COLUMN I = COLUMN H * COLUMN D * COLUMN C / 1200

COLUMN L: TOTAL WATER NEEDED FOR SMD FOR EACH CROP (AC-FT)

This column lists the calculated value for the amount of water needed to fill the root zone to field capacity for the planted acreage. Rows without an adjusted harvest SMD are calculated according to equation A, those with the adjusted value according to equation B.

A. TOTAL FOR SMD= SMD * ACRES PLANTED

COLUMN L= COLUMN K * COLUMN B

B. TOTAL FOR SMD= ACRES PLANTED*((TILED AREA(%)/100*

ADJ. HARVEST SMD)+((1- TILED AREA(%)/100)*HARVEST SMD))

COLUMN L= COLUMN B*((COLUMN I/100*COLUMN J)+((1- COLUMN I/

100)*COLUMN K)

SUMMARY VALUES - SPREADSHEET 2

A) TOTAL ACRES

This row lists the amount of planted or fallow acreage in the district.

TOTAL ACRES= SUM OF COLUMN B

B) TOTAL WATER

This row lists the calculated values of the total water needed in the district to fill the soil to field capacity after crop harvest.

TOTAL WATER= SUM OF COLUMN J

## SPREADSHEET 3:

**Answer Step 5 of calculation of district pre-plant irrigation efficiencies.** Spreadsheet 3 calculates the net leaching fraction required during the year to prevent soil salt build-up.

COLUMN A: CROP

This column lists the crops grown in the district.

COLUMN B: ADJUSTED ANNUAL ETc (IN)

This column lists the annual, calculated ETc.

COLUMN C: ANNUAL EFF PPT <= ETc (IN)

This column lists effective rainfall (rainfall that infiltrates into the ground and is available for crop ET) on cropped ground that is less than or equal to adjusted ETc. For more information, see page 4 of D.I.E. Report, (Burt, 1991).

COLUMN D: ECw (dS/M)

This column lists the ECw values for the districts.

COLUMN E: LR (%)

This column lists the calculated values for the fraction of infiltrated water required to maintain desirable root zone salinity levels in the soil. See page 1-6 of Leaching Requirement Summary in the D.I.E. Report, (Burt, 1991). ECe values are based on the most salt sensitive crop, in this case tomatoes. Tomatoes have a threshold ECe of 2.5 dS/M.

$$LR = \frac{ECw}{(5 \times ECe) - ECw}$$

COLUMN E = COLUMN D/(5 * 2.5 - COLUMN D)

COLUMN F: NLF (IN)

This column lists the calculated values representing the amount of water required for deep percolation below the root zone to fulfill the leaching requirement. See pages 1-6 of Leaching Requirement Summary in D.I.E. Report, (Burt, 1991) for more information.

NLF = (ANNUAL ETc - EFF PPT)/(1-LR) - (ANNUAL ETc - EFF PPT)

COLUMN F= (COLUMN B - COLUMN C)/(1-LR) - (COLUMN B - COLUMN C)

## SPREADSHEET 4:

**Answer Step 6 of calculation of district pre-plant irrigation efficiencies.** Spreadsheet 4 calculates the theoretical water (rain and irrigation) needed to satisfy the SMD and NLF for crops planted after or sometime during the period December through March. Previous year figures are used for the SMD and NLF values to estimate current year pre-plant irrigation requirements.

COLUMN A: b AND c CROPS

This column lists crops grown in the district that are planted during or after the time period December through March. Group "b" indicates crops planted after the time period. Group "c" indicates crops planted during the time period, but not before.

COLUMN B: PREVIOUS YEAR SMD (FT)

This column lists previous year SMD values from STEP 4, Spreadsheet 2.

COLUMN C: PREVIOUS YEAR ANNUAL NLF (IN)

This column lists previous year annual NLF values from STEP 5, Spreadsheet 3.

COLUMN D: PREVIOUS YEAR CROP ACRES

This column lists the number of acres grown in the crop in the previous year.

COLUMN E: THEORETICAL WATER TO SATISFY SMD + NLF (AC-FT)

This column indicates the calculated values for the amount of theoretical water (irrigation and rain) required to fill the soil to field capacity (equal to the SMD for the root zone) and satisfy the leaching requirements for the previous year's crops.

TOTAL = (SMD(FT) + NLF(IN) *1 FT/12 IN) * PREV YR CROP ACRES

COLUMN E = (COLUMN B + COLUMN C/12)*COLUMN D

TOTAL WATER FOR LISTED CROPS

This column lists the calculated values for the total theoretical water required annually to satisfy both the SMD and the NLF for the previous year's crops.

TOTAL WATER = SUM OF COLUMN E (which are associated with a listed crop)

# REFERENCES


1. Burt, C.M., P. Canessa, and J. Parrish. 1991. Irrigation Efficiencies in parts of the Selenium Drainage area on the West Side of the San Joaquin Valley, with a focus on Water District Irrigation Efficiencies. Irrigation and Research Training Center, California Polytechnic State University, San Luis Obispo, CA.

2. Burt, C.M., R.E. Walker, P. Canessa, and K. Robinson. 1992. Final Report, Irrigation and Drainage in the Grassland Area of the Westside of the San Joaquin Valley. Irrigation Research and Training Center, California Polytechnic State University, San Luis Obispo, CA.

3. Burt, C.M. 1992. CIM-AG. Irrigation Research and Training Center, California Polytechnic State University, San Luis Obispo, CA.

4. Cone, D. 1993. Personal communication. Broadview Water District, Firebaugh, CA.

5. Robb, J. 1993. Personal communication. Westlands Water District, Fresno County, CA.

6. State Water Resources Control Board Technical Report. 1987. Regulation of Agricultural Drainage to the San Joaquin River.

**PANOCHE WATER DISTRICT**
**Steps 1, 2, and 3**

| A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1981 | ADJUSTED ETc VALUES (IN) | | | | CROPPED PPT (IN) <= ETc, EFF. RAIN | | | | DISTRICT ANNUAL IE ADJ | ACRES | REG.WATER REQRD. (AC-FT) | | | | TOTAL REQ. REG WATER GROSS | TOTAL SUPPLY | PRE-IRR AVAILABLE | EFFECTIVE RAIN WATER | TOTAL RAIN CONTRIBUTION TO SMD AND NLF LESS EFF. PRECIP. |
| Group | CROP | DEC | JAN | FEB | MARCH | DEC | JAN | FEB | MARCH | ET-GW/AVAIL. (%) | PLANTED | DEC | JAN | FEB | MARCH | (AC-FT) | (AC-FT) | (AC-FT) | (AC-FT) | CONTRIBUTION |
| a | FALLOW | 0.07 | 0.07 | 0.12 | 0.23 | 0.00 | 0.00 | 0.00 | 0.00 | 47 | 1,165 | 18 | 18 | 32 | 59 | 127 | 20,461 | | 0 | |
| b | COTTON | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 47 | 18,038 | 0 | 0 | 0 | 0 | 0 | 20,461 | | 0 | |
| a | ALFALFA | 0.41 | 0.30 | 0.87 | 3.11 | 0.24 | 0.30 | 0.87 | 2.68 | 47 | 1,454 | 54 | 0 | 0 | 139 | 193 | 20,461 | | 471 | |
| a | WHEAT | 0.26 | 0.64 | 1.95 | 4.44 | 0.24 | 0.64 | 0.70 | 2.68 | 47 | 4,419 | 18 | 0 | 1,219 | 1,724 | 2,961 | 20,461 | | 1,569 | |
| c | MELONS | 0.00 | 0.00 | 0.00 | 0.13 | 0.00 | 0.00 | 0.00 | 0.00 | 47 | 2,712 | 0 | 0 | 0 | 81 | 81 | 20,461 | | 0 | |
| c | TOMATOES | 0.00 | 0.00 | 0.00 | 0.18 | 0.00 | 0.00 | 0.00 | 0.00 | 47 | 1,927 | 0 | 0 | 0 | 77 | 77 | 20,461 | | 0 | |
| a | SUGARBEET(N) | 1.25 | 1.31 | 2.13 | 1.68 | 0.24 | 1.31 | 0.70 | 1.68 | 47 | 200 | 45 | 0 | 63 | 0 | 108 | 20,461 | | 66 | |
| a | BARLEY | 0.26 | 0.63 | 1.92 | 4.36 | 0.24 | 0.63 | 0.70 | 2.68 | 47 | 1,433 | 6 | 0 | 385 | 535 | 926 | 20,461 | | 508 | |
| c | BEANS | 0.00 | 0.00 | 0.00 | 0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 47 | 551 | 0 | 0 | 0 | 13 | 13 | 20,461 | | 0 | |
| a | SD ALFALFA | 0.23 | 0.29 | 0.97 | 2.80 | 0.23 | 0.29 | 0.70 | 2.68 | 47 | 232 | 0 | 0 | 14 | 6 | 20 | 20,461 | | 75 | |
| c | RICE | 0.00 | 0.00 | 0.00 | 0.71 | 0.00 | 0.00 | 0.00 | 0.71 | 47 | 0 | 0 | 0 | 0 | 0 | 0 | 20,461 | | 0 | |
| b | CORN | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 47 | 298 | 0 | 0 | 0 | 0 | 0 | 20,461 | | 0 | |
| c | VEGETABLE | 0.00 | 0.07 | 0.62 | 2.24 | 0.00 | 0.00 | 0.62 | 2.24 | 47 | 1,847 | 0 | 29 | 0 | 0 | 29 | 20,461 | | 439 | |
| a | PASTURE | 1.03 | 1.07 | 1.85 | 3.42 | 0.24 | 1.07 | 0.70 | 2.68 | 47 | 111 | 19 | 0 | 28 | 18 | 66 | 20,461 | | 43 | |
| c | ALMOND-STONE | 0.00 | 0.00 | 0.00 | 1.89 | 0.00 | 0.00 | 0.00 | 1.89 | 47 | 301 | 0 | 0 | 0 | 0 | 0 | 20,461 | | 47 | |
| c | WALNUT | 0.00 | 0.00 | 0.00 | 2.03 | 0.00 | 0.00 | 0.00 | 2.03 | 47 | 0 | 0 | 0 | 0 | 0 | 0 | 20,461 | | 0 | |
| b | MILO | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 47 | 632 | 0 | 0 | 0 | 0 | 0 | 20,461 | | 0 | |
| | | | | | | | | | | | | | | | | | RAIN WATER TO SATISFY ET= | | 3,219 | |
| | | | | | | | | | | | | | | | | | | | EFF RAIN | 3.60 |
| | | | | | | | | | | | | | | | SUM OF GROSS= | 4,599 | AVAIL FOR PRE= | 15,862 | | #VALUE! |

| A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1982 | ADJUSTED ETc VALUES (IN) | | | | CROPPED PPT (IN) <= ETc, EFF. RAIN | | | | DISTRICT ANNUAL IE ADJ | ACRES | REG.WATER REQRD. (AC-FT) | | | | TOTAL REQ. REG WATER GROSS | TOTAL SUPPLY | PRE-IRR AVAILABLE | EFFECTIVE RAIN WATER | TOTAL RAIN CONTRIBUTION TO SMD AND NLF LESS EFF. PRECIP. |
| Group | CROP | DEC | JAN | FEB | MARCH | DEC | JAN | FEB | MARCH | ET-GW/AVAIL. (%) | PLANTED | DEC | JAN | FEB | MARCH | (AC-FT) | (AC-FT) | (AC-FT) | (AC-FT) | TO ETc |
| | | | | | | | | | | 32.00 | | | | | | | | | | |
| c | MISC | 0.00 | 0.07 | 0.62 | 2.24 | 0.00 | 0.00 | 0.59 | 2.24 | 32.00 | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | |
| b | COTTON | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 32.00 | 10,282 | 0 | 0 | 0 | 0 | 0 | | | 0 | |
| a | ALFALFA | 0.41 | 0.30 | 0.87 | 3.11 | 0.41 | 0.30 | 0.59 | 2.31 | 32.00 | 650 | 0 | 0 | 13 | 143 | 156 | | | 186 | |
| a | WHEAT | 0.26 | 0.64 | 1.95 | 4.44 | 0.26 | 0.63 | 0.59 | 2.31 | 32.00 | 1,059 | 0 | 3 | 466 | 734 | 1,203 | | | 335 | |
| c | MELONS | 0.00 | 0.00 | 0.00 | 0.13 | 0.00 | 0.00 | 0.00 | 0.00 | 32.00 | 1,552 | 0 | 0 | 0 | 68 | 68 | | | 0 | |
| c | TOMATOES | 0.00 | 0.00 | 0.00 | 0.18 | 0.00 | 0.00 | 0.00 | 0.00 | 32.00 | 2,077 | 0 | 0 | 0 | 121 | 121 | | | 0 | |
| a | SUGARBEET(N) | 0.90 | 1.31 | 2.13 | 1.68 | 0.90 | 0.63 | 0.59 | 1.68 | 32.00 | 380 | 0 | 84 | 190 | 0 | 274 | | | 121 | |
| a | BARLEY | 0.26 | 0.63 | 1.92 | 4.36 | 0.26 | 0.63 | 0.59 | 2.31 | 32.00 | 468 | 0 | 0 | 201 | 313 | 514 | | | 148 | |
| c | BEANS | 0.00 | 0.00 | 0.00 | 0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 32.00 | 1,091 | 0 | 0 | 0 | 37 | 37 | | | 0 | |
| a | SD ALFALFA | 0.23 | 0.29 | 0.97 | 2.80 | 0.23 | 0.29 | 0.59 | 2.31 | 32.00 | 144 | 0 | 0 | 18 | 23 | 41 | | | 41 | |
| c | RICE | 0.00 | 0.00 | 0.00 | 0.71 | 0.00 | 0.00 | 0.00 | 0.71 | 32.00 | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | |
| b | CORN | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 32.00 | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | |
| c | VEGETABLE | 0.00 | 0.07 | 0.62 | 2.24 | 0.00 | 0.00 | 0.59 | 2.24 | 32.00 | 959 | 0 | 22 | 7 | 0 | 28 | | | 226 | |
| a | PASTURE | 1.03 | 1.07 | 1.85 | 3.42 | 0.90 | 0.63 | 0.59 | 2.31 | 32.00 | 111 | 4 | 18 | 45 | 40 | 106 | | | 41 | |
| c | ALMOND-STONE | 0.00 | 0.00 | 0.00 | 1.89 | 0.00 | 0.00 | 0.00 | 1.89 | 32.00 | 301 | 0 | 0 | 0 | 0 | 0 | | | 47 | |
| c | WALNUT | 0.00 | 0.00 | 0.00 | 2.03 | 0.00 | 0.00 | 0.00 | 2.03 | 32.00 | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | |
| b | MILO | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 32.00 | 1,012 | 0 | 0 | 0 | 0 | 0 | 25,755 | | 0 | |
| | | | | | | | | | | | | | | | | | RAIN WATER TO SATIFY ET= | | 1,125 | |
| | | | | | | | | | | | | | | | | | | | EFF RAIN | 3.90 |
| | | | | | | | | | | | | | | | SUM OF GROSS= | 2,743 | AVAIL FOR PRE= | 23,012 | | 7,802 |

PANOCHE WATER DISTRICT
Steps 1, 2, and 3

| A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1983 | | ADJUSTED ETo VALUES (IN) | | | | CROPPED PPT (IN) <= ETo, EFF. RAIN | | | | DISTRICT ANNUAL IE ADJ ET-GW/AVAIL | ACRES PLANTED | REQ WATER REQRD. (AC-FT) | | | | TOTAL REQ REQ WATER GROSS (AC-FT) | TOTAL SUPPLY (AC-FT) | PRE-IRR AVAILABLE (AC-FT) | EFFECTIVE RAIN WATER (AC-FT) | TOTAL RAIN CONTRIBUTION TO SMD AND NLF LESS EFF. PRECIP. CONTRIBUTION TO ETo |
| Group | CROP | DEC | JAN | FEB | MARCH | DEC | JAN | FEB | MARCH | | | DEC | JAN | FEB | MARCH | | | | | |
| a | FALLOW | 0.06 | 0.05 | 0.11 | 0.18 | 0.00 | 0.00 | 0.00 | 0.00 | 47.00 | 4,703 | 59 | 53 | 113 | 188 | 413 | | | 0 | 0 |
| c | MISC | 0.00 | 0.05 | 0.54 | 1.77 | 0.00 | 0.00 | 0.54 | 1.77 | 47.00 | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | 0 |
| b | COTTON | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 47.00 | 13,529 | 0 | 0 | 0 | 0 | 0 | | | 0 | |
| a | ALFALFA | 0.34 | 0.21 | 0.58 | 2.46 | 0.34 | 0.21 | 0.58 | 2.46 | 47.00 | 872 | 0 | 0 | 1 | 0 | 2 | | | 261 | |
| a | WHEAT | 0.22 | 0.46 | 1.71 | 3.51 | 0.22 | 0.46 | 1.58 | 3.02 | 47.00 | 2,524 | 0 | 0 | 75 | 274 | 349 | | | 1,106 | |
| c | MELONS | 0.00 | 0.00 | 0.00 | 0.11 | 0.00 | 0.00 | 0.00 | 0.00 | 47.00 | 2,507 | 0 | 0 | 0 | 59 | 59 | | | 0 | |
| c | TOMATOES | 0.00 | 0.00 | 0.00 | 0.14 | 0.00 | 0.00 | 0.00 | 0.00 | 47.00 | 4,440 | 0 | 0 | 0 | 140 | 140 | | | 0 | |
| a | SUGARBEET(N) | 1.05 | 0.93 | 1.87 | 1.33 | 1.05 | 0.93 | 1.58 | 1.33 | 47.00 | 977 | 0 | 0 | 65 | 0 | 65 | | | 398 | |
| a | BARLEY | 0.22 | 0.45 | 1.68 | 3.45 | 0.22 | 0.45 | 1.58 | 3.02 | 47.00 | 130 | 0 | 0 | 3 | 12 | 15 | | | 57 | |
| c | BEANS | 0.00 | 0.00 | 0.00 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 47.00 | 1,410 | 0 | 0 | 0 | 26 | 26 | | | 0 | |
| a | SD ALFALFA | 0.19 | 0.20 | 0.85 | 2.21 | 0.19 | 0.20 | 0.85 | 2.21 | 47.00 | 55 | 0 | 0 | 0 | 0 | 0 | | | 16 | |
| c | RICE | 0.00 | 0.00 | 0.00 | 0.56 | 0.00 | 0.00 | 0.00 | 0.56 | 47.00 | 266 | 0 | 0 | 0 | 0 | 0 | | | 12 | |
| b | CORN | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 47.00 | 888 | 0 | 0 | 0 | 0 | 0 | | | 0 | |
| c | VEGETABLE | 0.00 | 0.05 | 0.54 | 1.77 | 0.00 | 0.00 | 0.54 | 1.77 | 47.00 | 1,402 | 0 | 16 | 0 | 0 | 16 | | | 270 | |
| a | PASTURE | 0.86 | 0.77 | 1.62 | 2.70 | 0.86 | 0.77 | 1.58 | 2.70 | 47.00 | 111 | 0 | 0 | 1 | 0 | 1 | | | 55 | |
| c | ALMOND-STONE | 0.00 | 0.00 | 0.00 | 1.50 | 0.00 | 0.00 | 0.00 | 1.50 | 47.00 | 301 | 0 | 0 | 0 | 0 | 0 | | | 38 | |
| c | WALNUT | 0.00 | 0.00 | 0.00 | 1.61 | 0.00 | 0.00 | 0.00 | 1.61 | 47.00 | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | |
| b | MILO | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 47.00 | 290 | 0 | 0 | 0 | 0 | 0 | | | 0 | |
| | | | | | | | | | | | | | | | | | 12,981 | | | |
| | | | | | | | | | | | | | | | | | RAIN WATER TO SATIFY ET= | | 2,213 | |
| | | | | | | | | | | | | | | | | | | | EFF RAIN | 8.60 |
| | | | | | | | | | | | | | | | SUM OF GROSS= | 1,085 | AVAIL FOR PRE= | 11,898 | | 11,040 |

| A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1984 | | ADJUSTED ETo VALUES (IN) | | | | CROPPED PPT (IN) <= ETo, EFF. RAIN | | | | DISTRICT ANNUAL IE ADJ ET-GW/AVAIL | ACRES PLANTED | REQ WATER REQRD. (AC-FT) | | | | TOTAL REQ REQ WATER GROSS (AC-FT) | TOTAL SUPPLY (AC-FT) | PRE-IRR AVAILABLE (AC-FT) | EFFECTIVE RAIN WATER (AC-FT) | TOTAL RAIN CONTRIBUTION TO SMD AND NLF LESS EFF. PRECIP. CONTRIBUTION TO ETo |
| Group | CROP | DEC | JAN | FEB | MARCH | DEC | JAN | FEB | MARCH | | | DEC | JAN | FEB | MARCH | | | | | |
| a | FALLOW | 0.10 | 0.08 | 0.13 | 0.28 | 0.00 | 0.00 | 0.00 | 0.00 | 52.00 | 869 | 18 | 10 | 23 | 48 | 99 | | | 0 | 0 |
| c | MISC | 0.00 | 0.08 | 0.65 | 2.71 | 0.00 | 0.00 | 0.65 | 0.44 | 52.00 | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | 0 |
| b | COTTON | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 52.00 | 17,057 | 0 | 0 | 0 | 0 | 0 | | | 0 | |
| a | ALFALFA | 0.63 | 0.25 | 0.70 | 3.77 | 0.63 | 0.09 | 0.70 | 0.44 | 52.00 | 1,543 | 0 | 48 | 0 | 1,027 | 1,076 | | | 239 | |
| a | WHEAT | 0.40 | 0.53 | 2.05 | 5.38 | 0.40 | 0.09 | 1.21 | 0.44 | 52.00 | 3,593 | 0 | 314 | 607 | 3,552 | 4,473 | | | 840 | |
| c | MELONS | 0.00 | 0.00 | 0.00 | 0.16 | 0.00 | 0.00 | 0.00 | 0.00 | 52.00 | 819 | 0 | 0 | 0 | 27 | 27 | | | 0 | |
| c | TOMATOES | 0.00 | 0.00 | 0.00 | 0.22 | 0.00 | 0.00 | 0.00 | 0.00 | 52.00 | 3,804 | 0 | 0 | 0 | 166 | 166 | | | 0 | |
| a | SUGARBEET(N) | 1.91 | 1.08 | 2.25 | 2.04 | 1.91 | 0.09 | 1.21 | 0.44 | 52.00 | 826 | 0 | 163 | 172 | 264 | 600 | | | 251 | |
| a | BARLEY | 0.40 | 0.52 | 2.02 | 5.28 | 0.40 | 0.09 | 1.21 | 0.44 | 52.00 | 230 | 0 | 20 | 37 | 223 | 280 | | | 41 | |
| c | BEANS | 0.00 | 0.00 | 0.00 | 0.13 | 0.00 | 0.00 | 0.00 | 0.00 | 52.00 | 1,689 | 0 | 0 | 0 | 43 | 43 | | | 0 | |
| a | SD ALFALFA | 0.35 | 0.24 | 1.02 | 3.39 | 0.35 | 0.09 | 1.02 | 0.44 | 52.00 | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | |
| c | RICE | 0.00 | 0.00 | 0.00 | 0.88 | 0.00 | 0.00 | 0.00 | 0.44 | 52.00 | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | |
| b | CORN | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 52.00 | 150 | 0 | 0 | 0 | 0 | 0 | | | 0 | |
| c | VEGETABLE | 0.00 | 0.08 | 0.65 | 2.71 | 0.00 | 0.00 | 0.65 | 0.44 | 52.00 | 554 | 0 | 6 | 0 | 252 | 259 | | | 50 | |
| a | PASTURE | 1.57 | 0.88 | 1.94 | 4.14 | 1.57 | 0.09 | 1.21 | 0.44 | 52.00 | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | |
| c | ALMOND-STONE | 0.00 | 0.00 | 0.00 | 2.29 | 0.00 | 0.00 | 0.00 | 0.44 | 52.00 | 301 | 0 | 0 | 0 | 112 | 112 | | | 11 | |
| c | WALNUT | 0.00 | 0.00 | 0.00 | 2.46 | 0.00 | 0.00 | 0.00 | 0.44 | 52.00 | 32 | 0 | 0 | 0 | 13 | 13 | | | 1 | |
| b | MILO | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 52.00 | 156 | 0 | 0 | 0 | 0 | 0 | | | 0 | |
| | | | | | | | | | | | | | | | | | 30,201 | | | |
| | | | | | | | | | | | | | | | | | RAIN WATER TO SATIFY ET= | | 1,234 | |
| | | | | | | | | | | | | | | | | | | | EFF RAIN | 3.20 |
| | | | | | | | | | | | | | | | SUM OF GROSS= | 7,147 | AVAIL FOR PRE= | 23,054 | | 6,696 |

PANOCHE WATER DISTRICT
Steps 1, 2, and 3

| A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1985 | | | | | | | | | | | | | | | | | | | | |
| Group | CROP | ADJUSTED ETc VALUES (IN) | | | | CROPPED PPT (IN) <= ETc, EFF. RAIN | | | | DISTRICT ANNUAL IE ADJ ET-GW/AVAIL | ACRES PLANTED | REQ.WATER REQRD. (AC-FT) | | | | TOTAL REQ REQ WATER GROSS (AC-FT) | TOTAL SUPPLY (AC-FT) | PRE-RR AVAILABLE (AC-FT) | EFFECTIVE RAIN WATER (AC-FT) | TOTAL RAIN CONTRIBUTION TO SMD AND NLF LESS EFF. PRECIP. CONTRIBUTION TO ETc |
| | | DEC | JAN | FEB | MARCH | DEC | JAN | FEB | MARCH | | | DEC | JAN | FEB | MARCH | | | | | |
| a | FALLOW | 0.05 | 0.06 | 0.14 | 0.21 | 0.00 | 0.00 | 0.00 | 0.00 | 59.00 | 869 | 7 | 9 | 22 | 32 | 70 | | | 0 | |
| c | MISC | 0.00 | 0.06 | 0.71 | 2.06 | 0.00 | 0.00 | 0.06 | 0.56 | 59.00 | 188 | 0 | 2 | 21 | 51 | 73 | | | 10 | |
| b | COTTON | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 59.00 | 15,331 | 0 | 0 | 0 | 0 | 0 | | | 0 | |
| a | ALFALFA | 0.28 | 0.24 | 0.77 | 2.89 | 0.28 | 0.24 | 0.06 | 0.56 | 59.00 | 1,543 | 0 | 0 | 188 | 635 | 823 | | | 149 | |
| a | WHEAT | 0.18 | 0.52 | 2.25 | 4.13 | 0.18 | 0.52 | 0.06 | 0.56 | 59.00 | 2,823 | 0 | 0 | 1,081 | 1,778 | 2,860 | | | 313 | |
| c | MELONS | 0.00 | 0.00 | 0.00 | 0.13 | 0.00 | 0.00 | 0.00 | 0.00 | 59.00 | 3,984 | 0 | 0 | 0 | 88 | 88 | | | 0 | |
| c | TOMATOES | 0.00 | 0.00 | 0.00 | 0.17 | 0.00 | 0.00 | 0.00 | 0.00 | 59.00 | 3,804 | 0 | 0 | 0 | 112 | 112 | | | 0 | |
| a | SUGARBEET(N) | 0.85 | 1.05 | 2.47 | 1.56 | 0.85 | 0.54 | 0.06 | 0.56 | 59.00 | 1,027 | 0 | 93 | 433 | 182 | 708 | | | 173 | |
| a | BARLEY | 0.18 | 0.51 | 2.21 | 4.06 | 0.18 | 0.51 | 0.06 | 0.56 | 59.00 | 230 | 0 | 0 | 87 | 142 | 228 | | | 25 | |
| c | BEANS | 0.00 | 0.00 | 0.00 | 0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 59.00 | 1,339 | 0 | 0 | 0 | 23 | 23 | | | 0 | |
| a | SD ALFALFA | 0.15 | 0.23 | 1.12 | 2.80 | 0.15 | 0.23 | 0.06 | 0.56 | 59.00 | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | |
| c | RICE | 0.00 | 0.00 | 0.00 | 0.66 | 0.00 | 0.00 | 0.00 | 0.56 | 59.00 | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | |
| b | CORN | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 59.00 | 150 | 0 | 0 | 0 | 0 | 0 | | | 0 | |
| c | VEGETABLE | 0.00 | 0.06 | 0.71 | 2.06 | 0.00 | 0.00 | 0.06 | 0.56 | 59.00 | 1,017 | 0 | 10 | 113 | 274 | 397 | | | 54 | |
| a | PASTURE | 0.69 | 0.66 | 2.13 | 3.18 | 0.69 | 0.54 | 0.06 | 0.56 | 59.00 | 680 | 0 | 39 | 246 | 314 | 600 | | | 106 | |
| c | ALMOND-STONE | 0.00 | 0.00 | 0.00 | 1.76 | 0.00 | 0.00 | 0.00 | 0.56 | 59.00 | 301 | 0 | 0 | 0 | 64 | 64 | | | 14 | |
| c | WALNUT | 0.00 | 0.00 | 0.00 | 1.89 | 0.00 | 0.00 | 0.00 | 0.56 | 59.00 | 32 | 0 | 0 | 0 | 6 | 6 | | | 1 | |
| b | MILO | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 59.00 | 926 | 0 | 0 | 0 | 0 | 0 | 21,693 | | 0 | |
| | | | | | | | | | | | | | | | | | RAIN WATER TO SATIFY ET= | | 846 | |
| | | | | | | | | | | | | | | | | | | | EFF RAIN | 2.70 |
| | | | | | | | | | | | | | | | SUM OF GROSS= | 6,054 | AVAIL FOR PRE= | 15,639 | | 4,876 |

| A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1986 | | | | | | | | | | | | | | | | | | | | |
| Group | CROP | ADJUSTED ETc VALUES (IN) | | | | CROPPED PPT (IN) <= ETc, EFF. RAIN | | | | DISTRICT ANNUAL IE ADJ ET-GW/AVAIL | ACRES PLANTED | REQ.WATER REQRD. (AC-FT) | | | | TOTAL REQ REQ WATER GROSS (AC-FT) | TOTAL SUPPLY (AC-FT) | PRE-RR AVAILABLE (AC-FT) | EFFECTIVE RAIN WATER (AC-FT) | TOTAL RAIN CONTRIBUTION TO SMD AND NLF LESS EFF. PRECIP. CONTRIBUTION TO ETc |
| | | DEC | JAN | FEB | MARCH | DEC | JAN | FEB | MARCH | | | DEC | JAN | FEB | MARCH | | | | | |
| a | FALLOW | 0.04 | 0.07 | 0.12 | 0.21 | 0.00 | 0.00 | 0.00 | 0.00 | 52.00 | 1,466 | 13 | 22 | 36 | 62 | 132 | | | 0 | |
| c | MISC | 0.00 | 0.07 | 0.61 | 2.06 | 0.00 | 0.00 | 0.61 | 2.03 | 52.00 | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | |
| b | COTTON | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 52.00 | 14,924 | 0 | 0 | 0 | 0 | 0 | | | 0 | |
| a | ALFALFA | 0.26 | 0.31 | 0.86 | 2.86 | 0.26 | 0.10 | 0.86 | 2.03 | 52.00 | 2,464 | 2 | 104 | 0 | 411 | 516 | | | 827 | |
| a | WHEAT | 0.17 | 0.67 | 1.93 | 4.09 | 0.17 | 0.10 | 1.93 | 2.03 | 52.00 | 2,115 | 0 | 240 | 0 | 872 | 1,112 | | | 745 | |
| c | MELONS | 0.00 | 0.00 | 0.00 | 0.12 | 0.00 | 0.00 | 0.00 | 0.00 | 52.00 | 2,215 | 0 | 0 | 0 | 55 | 55 | | | 0 | |
| c | TOMATOES | 0.00 | 0.00 | 0.00 | 0.17 | 0.00 | 0.00 | 0.00 | 0.00 | 52.00 | 4,283 | 0 | 0 | 0 | 142 | 142 | | | 0 | |
| a | SUGARBEET(N) | 0.80 | 1.36 | 2.11 | 1.55 | 0.32 | 0.10 | 2.11 | 1.55 | 52.00 | 719 | 70 | 182 | 0 | 0 | 252 | | | 244 | |
| a | BARLEY | 0.17 | 0.66 | 1.90 | 4.02 | 0.17 | 0.10 | 1.90 | 2.03 | 52.00 | 926 | 0 | 104 | 0 | 369 | 472 | | | 324 | |
| c | BEANS | 0.00 | 0.00 | 0.00 | 0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 52.00 | 2,285 | 0 | 0 | 0 | 44 | 44 | | | 0 | |
| a | SD ALFALFA | 0.15 | 0.30 | 0.96 | 2.56 | 0.15 | 0.10 | 0.96 | 2.03 | 52.00 | 300 | 0 | 12 | 0 | 33 | 45 | | | 81 | |
| c | RICE | 0.00 | 0.00 | 0.00 | 0.65 | 0.00 | 0.00 | 0.00 | 0.65 | 52.00 | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | |
| b | CORN | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 52.00 | 949 | 0 | 0 | 0 | 0 | 0 | | | 0 | |
| c | VEGETABLE | 0.00 | 0.07 | 0.61 | 2.06 | 0.00 | 0.00 | 0.61 | 2.03 | 52.00 | 335 | 0 | 5 | 0 | 2 | 7 | | | 74 | |
| a | PASTURE | 0.66 | 1.12 | 1.83 | 3.15 | 0.32 | 0.10 | 1.83 | 2.03 | 52.00 | 45 | 3 | 9 | 0 | 10 | 22 | | | 16 | |
| c | ALMOND-STONE | 0.00 | 0.00 | 0.00 | 1.74 | 0.00 | 0.00 | 0.00 | 1.74 | 52.00 | 317 | 0 | 0 | 0 | 0 | 0 | | | 46 | |
| c | WALNUT | 0.00 | 0.00 | 0.00 | 1.87 | 0.00 | 0.00 | 0.00 | 1.87 | 52.00 | 250 | 0 | 0 | 0 | 0 | 0 | | | 39 | |
| b | MILO | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 52.00 | 1,026 | 0 | 0 | 0 | 0 | 0 | 18,050 | | 0 | |
| | | | | | | | | | | | | | | | | | RAIN WATER TO SATIFY ET= | | 2,195 | |
| | | | | | | | | | | | | | | | | | | | EFF RAIN | 6.30 |
| | | | | | | | | | | | | | | | SUM OF GROSS= | 2,800 | AVAIL FOR PRE= | 15,250 | | 12,474 |

PANOCHE WATER DISTRICT
**Steps 1, 2, and 3**

| A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1987 | | ADJUSTED ETc VALUES (IN) | | | | CROPPED PPT (IN) <= ETc, EFF. RAIN | | | | DISTRICT ANNUAL IE ADJ ET-GW/AVAIL | ACRES PLANTED | REQ WATER REQRD. (AC-FT) | | | | TOTAL REQ REQ WATER GROSS (AC-FT) | TOTAL SUPPLY (AC-FT) | PRE-RR AVAILABLE (AC-FT) | EFFECTIVE RAIN WATER (AC-FT) | TOTAL RAIN CONTRIBUTION TO SMD AND NLF LESS EFF. PRECIP. CONTRIBUTION TO ETc |
| Group | CROP | DEC | JAN | FEB | MARCH | DEC | JAN | FEB | MARCH | | | DEC | JAN | FEB | MARCH | | | | | |
| a | FALLOW | 0.08 | 0.08 | 0.10 | 0.23 | 0.00 | 0.00 | 0.00 | 0.00 | 54.00 | 852 | 14 | 13 | 17 | 37 | 81 | | | 0 | |
| c | MISC | 0.00 | 0.08 | 0.51 | 2.23 | 0.00 | 0.00 | 0.51 | 1.79 | 54.00 | 277 | 0 | 4 | 0 | 23 | 28 | | | 53 | |
| b | COTTON | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 54.00 | 18,560 | 0 | 0 | 0 | 0 | 0 | | | 0 | |
| a | ALFALFA | 0.50 | 0.33 | 0.56 | 3.09 | 0.50 | 0.33 | 0.56 | 1.79 | 54.00 | 2,853 | 1 | 0 | 0 | 717 | 718 | | | 755 | |
| a | WHEAT | 0.32 | 0.71 | 1.62 | 4.42 | 0.32 | 0.71 | 1.62 | 1.79 | 54.00 | 837 | 0 | 0 | 0 | 424 | 424 | | | 310 | |
| c | MELONS | 0.00 | 0.00 | 0.00 | 0.13 | 0.00 | 0.00 | 0.00 | 0.00 | 54.00 | 1,504 | 0 | 0 | 0 | 39 | 39 | | | 0 | |
| c | TOMATOES | 0.00 | 0.00 | 0.00 | 0.18 | 0.00 | 0.00 | 0.00 | 0.00 | 54.00 | 5,478 | 0 | 0 | 0 | 189 | 189 | | | 0 | |
| a | SUGARBEET(N) | 1.53 | 1.45 | 1.78 | 1.68 | 1.08 | 1.00 | 1.68 | 1.68 | 54.00 | 219 | 19 | 19 | 5 | 0 | 43 | | | 99 | |
| a | BARLEY | 0.32 | 0.70 | 1.60 | 4.34 | 0.32 | 0.70 | 1.60 | 1.79 | 54.00 | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | |
| c | BEANS | 0.00 | 0.00 | 0.00 | 0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 54.00 | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | |
| a | SD ALFALFA | 0.28 | 0.32 | 0.81 | 2.78 | 0.28 | 0.32 | 0.81 | 1.79 | 54.00 | 155 | 0 | 0 | 0 | 30 | 30 | | | 41 | |
| c | RICE | 0.00 | 0.00 | 0.00 | 0.71 | 0.00 | 0.00 | 0.00 | 0.71 | 54.00 | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | |
| b | CORN | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 54.00 | 545 | 0 | 0 | 0 | 0 | 0 | | | 0 | |
| c | VEGETABLE | 0.00 | 0.08 | 0.51 | 2.23 | 0.00 | 0.00 | 0.51 | 1.79 | 54.00 | 1,935 | 0 | 29 | 0 | 164 | 193 | | | 372 | |
| a | PASTURE | 1.25 | 1.19 | 1.54 | 3.40 | 1.08 | 1.00 | 1.54 | 1.79 | 54.00 | 1,122 | 38 | 41 | 0 | 349 | 428 | | | 505 | |
| c | ALMOND-STONE | 0.00 | 0.00 | 0.00 | 1.66 | 0.00 | 0.00 | 0.00 | 1.79 | 54.00 | 58 | 0 | 0 | 0 | 1 | 1 | | | 9 | |
| c | WALNUT | 0.00 | 0.00 | 0.00 | 2.02 | 0.00 | 0.00 | 0.00 | 1.79 | 54.00 | 252 | 0 | 0 | 0 | 11 | 11 | | | 38 | |
| b | MILO | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 54.00 | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | |
| | | | | | | | | | | | | | | | | | 19,997 | | | |
| | | | | | | | | | | | | | | | | | RAIN WATER TO SATIFY ET= | | 2,181 | |
| | | | | | | | | | | | | | | | | | | | EFF RAIN | 3.10 |
| | | | | | | | | | | | | | | | SUM OF GROSS= | 2,184 | AVAIL FOR PRE= | 17,813 | | 5,066 |

| A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1988 | | ADJUSTED ETc VALUES (IN) | | | | CROPPED PPT (IN) <= ETc, EFF. RAIN | | | | DISTRICT ANNUAL IE ADJ ET-GW/AVAIL | ACRES PLANTED | REQ WATER REQRD. (AC-FT) | | | | TOTAL REQ REQ WATER GROSS (AC-FT) | TOTAL SUPPLY (AC-FT) | PRE-RR AVAILABLE (AC-FT) | EFFECTIVE RAIN WATER (AC-FT) | TOTAL RAIN CONTRIBUTION TO SMD AND NLF LESS EFF. PRECIP. CONTRIBUTION TO ETc |
| Group | CROP | DEC | JAN | FEB | MARCH | DEC | JAN | FEB | MARCH | | | DEC | JAN | FEB | MARCH | | | | | |
| a | FALLOW | 0.08 | 0.07 | 0.15 | 0.31 | 0.00 | 0.00 | 0.00 | 0.00 | 63.00 | 852 | 8 | 10 | 22 | 44 | 85 | | | 0 | |
| c | MISC | 0.00 | 0.07 | 0.60 | 3.07 | 0.00 | 0.00 | 0.41 | 0.16 | 63.00 | 277 | 0 | 3 | 17 | 133 | 154 | | | 13 | |
| b | COTTON | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 63.00 | 18,560 | 0 | 0 | 0 | 0 | 0 | | | 0 | |
| a | ALFALFA | 0.34 | 0.30 | 0.86 | 4.26 | 0.34 | 0.30 | 0.41 | 0.16 | 63.00 | 2,853 | 0 | 1 | 211 | 1,931 | 2,143 | | | 289 | |
| a | WHEAT | 0.22 | 0.65 | 2.52 | 6.08 | 0.22 | 0.65 | 0.41 | 0.16 | 63.00 | 837 | 0 | 0 | 291 | 819 | 1,110 | | | 101 | |
| c | MELONS | 0.00 | 0.00 | 0.00 | 0.18 | 0.00 | 0.00 | 0.00 | 0.00 | 63.00 | 1,504 | 0 | 0 | 0 | 46 | 46 | | | 0 | |
| c | TOMATOES | 0.00 | 0.00 | 0.00 | 0.25 | 0.00 | 0.00 | 0.00 | 0.00 | 63.00 | 5,478 | 0 | 0 | 0 | 223 | 223 | | | 0 | |
| a | SUGARBEET(N) | 1.03 | 1.33 | 2.76 | 2.30 | 1.03 | 1.03 | 0.41 | 0.16 | 63.00 | 219 | 0 | 11 | 85 | 78 | 173 | | | 46 | |
| a | BARLEY | 0.22 | 0.64 | 2.48 | 5.97 | 0.22 | 0.64 | 0.41 | 0.16 | 63.00 | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | |
| c | BEANS | 0.00 | 0.00 | 0.00 | 0.14 | 0.00 | 0.00 | 0.00 | 0.00 | 63.00 | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | |
| a | SD ALFALFA | 0.19 | 0.29 | 1.25 | 3.83 | 0.19 | 0.29 | 0.41 | 0.16 | 63.00 | 155 | 0 | 0 | 21 | 94 | 115 | | | 14 | |
| c | RICE | 0.00 | 0.00 | 0.00 | 0.97 | 0.00 | 0.00 | 0.00 | 0.16 | 63.00 | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | |
| b | CORN | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 63.00 | 545 | 0 | 0 | 0 | 0 | 0 | | | 0 | |
| c | VEGETABLE | 0.00 | 0.07 | 0.60 | 3.07 | 0.00 | 0.00 | 0.41 | 0.16 | 63.00 | 1,935 | 0 | 23 | 122 | 929 | 1,074 | | | 83 | |
| a | PASTURE | 0.85 | 1.09 | 2.39 | 4.68 | 0.85 | 1.03 | 0.41 | 0.16 | 63.00 | 1,122 | 0 | 10 | 360 | 836 | 1,214 | | | 229 | |
| c | ALMOND-STONE | 0.00 | 0.00 | 0.00 | 2.59 | 0.00 | 0.00 | 0.00 | 0.16 | 63.00 | 58 | 0 | 0 | 0 | 23 | 23 | | | 1 | |
| c | WALNUT | 0.00 | 0.00 | 0.00 | 2.78 | 0.00 | 0.00 | 0.00 | 0.16 | 63.00 | 252 | 0 | 0 | 0 | 109 | 109 | | | 3 | |
| b | MILO | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 63.00 | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | |
| | | | | | | | | | | | | | | | | | 29,241 | | | |
| | | | | | | | | | | | | | | | | | RAIN WATER TO SATIFY ET= | | 791 | |
| | | | | | | | | | | | | | | | | | | | EFF RAIN | 2.50 |
| | | | | | | | | | | | | | | | SUM OF GROSS= | 6,469 | AVAIL FOR PRE= | 22,772 | | 5,347 |

PANOCHE WATER DISTRICT
Steps 1, 2, and 3

| A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1989 | | ADJUSTED ETc VALUES (IN) | | | | CROPPED PPT (IN) <= ETc, EFF. RAIN | | | | DISTRICT ANNUAL IE ADJ ET-GW/AVAIL | ACRES PLANTED | REQ WATER REQRD. (AC-FT) | | | | TOTAL REQ REQ WATER GROSS | TOTAL SUPPLY | PRE-IRR AVAILABLE | EFFECTIVE RAIN WATER | TOTAL RAIN CONTRIBUTION TO SMD AND NLF LESS EFF. PRECIP. CONTRIBUTION TO ETc |
| Group | CROP | DEC | JAN | FEB | MARCH | DEC | JAN | FEB | MARCH | | | DEC | JAN | FEB | MARCH | (AC-FT) | (AC-FT) | (AC-FT) | (AC-FT) | |
| a | FALLOW | 0.06 | 0.09 | 0.10 | 0.23 | 0.00 | 0.00 | 0.00 | 0.00 | 66.00 | 1,029 | 10 | 14 | 16 | 36 | 76 | | | 0 | |
| c | MISC | 0.00 | 0.09 | 0.51 | 2.26 | 0.00 | 0.00 | 0.51 | 0.79 | 66.00 | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | |
| b | COTTON | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 66.00 | 15,239 | 0 | 0 | 0 | 0 | 0 | | | 0 | |
| a | ALFALFA | 0.38 | 0.37 | 0.55 | 3.13 | 0.00 | 0.26 | 0.55 | 0.79 | 66.00 | 2,999 | 174 | 51 | 1 | 1,076 | 1,302 | | | 401 | |
| a | WHEAT | 0.24 | 0.80 | 1.61 | 4.48 | 0.00 | 0.26 | 1.01 | 0.79 | 66.00 | 3,451 | 127 | 285 | 322 | 1,948 | 2,681 | | | 592 | |
| c | MELONS | 0.00 | 0.00 | 0.00 | 0.14 | 0.00 | 0.00 | 0.00 | 0.00 | 66.00 | 3,282 | 0 | 0 | 0 | 66 | 66 | | | 0 | |
| c | TOMATOES | 0.00 | 0.00 | 0.00 | 0.18 | 0.00 | 0.00 | 0.00 | 0.00 | 66.00 | 5,401 | 0 | 0 | 0 | 150 | 150 | | | 0 | |
| a | SUGARBEET(N) | 1.16 | 1.64 | 1.77 | 1.70 | 0.00 | 0.26 | 1.01 | 0.79 | 66.00 | 220 | 39 | 48 | 26 | 31 | 142 | | | 38 | |
| a | BARLEY | 0.24 | 0.79 | 1.59 | 4.40 | 0.00 | 0.26 | 1.01 | 0.79 | 66.00 | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | |
| c | BEANS | 0.00 | 0.00 | 0.00 | 0.11 | 0.00 | 0.00 | 0.00 | 0.00 | 66.00 | 2,712 | 0 | 0 | 0 | 44 | 44 | | | 0 | |
| a | SD ALFALFA | 0.21 | 0.36 | 0.80 | 2.82 | 0.00 | 0.26 | 0.80 | 0.79 | 66.00 | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | |
| c | RICE | 0.00 | 0.00 | 0.00 | 0.72 | 0.00 | 0.00 | 0.00 | 0.72 | 66.00 | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | |
| b | CORN | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 66.00 | 699 | 0 | 0 | 0 | 0 | 0 | | | 0 | |
| c | VEGETABLE | 0.00 | 0.09 | 0.51 | 2.26 | 0.00 | 0.00 | 0.51 | 0.79 | 66.00 | 1,188 | 0 | 16 | 0 | 267 | 283 | | | 129 | |
| a | PASTURE | 0.95 | 1.34 | 1.53 | 3.45 | 0.00 | 0.26 | 1.01 | 0.79 | 66.00 | 26 | 4 | 4 | 2 | 11 | 21 | | | 4 | |
| c | ALMOND-STONE | 0.00 | 0.00 | 0.00 | 1.91 | 0.00 | 0.00 | 0.00 | 0.79 | 66.00 | 217 | 0 | 0 | 0 | 37 | 37 | | | 14 | |
| c | WALNUT | 0.00 | 0.00 | 0.00 | 2.05 | 0.00 | 0.00 | 0.00 | 0.79 | 66.00 | 252 | 0 | 0 | 0 | 49 | 49 | | | 17 | |
| b | MILO | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 66.00 | 0 | 0 | 0 | 0 | 0 | 0 | 28,883 | | 0 | |
| | | | | | | | | | | | | | | | | | RAIN WATER TO SATIFY ET= | | 1,195 | |
| | | | | | | | | | | | | | | | | | | | EFF RAIN | 2.60 |
| | | | | | | | | | | | | | | | SUM OF GROSS= | 4,853 | AVAIL FOR PRE= | 24,030 | | 5679.34 |

1990

| Group | CROP | ADJUSTED ETc VALUES (IN) | | | | CROPPED PPT (IN) <= ETc, EFF. RAIN | | | | DISTRICT ANNUAL IE ADJ ET-GW/AVAIL | ACRES PLANTED | REQ WATER REQRD. (AC-FT) | | | | TOTAL REQ REQ WATER GROSS | TOTAL SUPPLY | PRE-IRR AVAILABLE | EFFECTIVE RAIN WATER | TOTAL RAIN CONTRIBUTION TO SMD AND NLF LESS EFF. PRECIP. CONTRIBUTION TO ETc |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | DEC | JAN | FEB | MARCH | DEC | JAN | FEB | MARCH | | | DEC | JAN | FEB | MARCH | (AC-FT) | (AC-FT) | (AC-FT) | (AC-FT) | |
| a | FALLOW | 0.09 | 0.08 | 0.12 | 0.23 | 0.00 | 0.00 | 0.00 | 0.00 | 74 | 4,235 | 54 | 48 | 89 | 134 | 306 | | | 0 | |
| c | MISC | 0.00 | 0.08 | 0.58 | 2.22 | 0.00 | 0.00 | 0.58 | 0.41 | 74 | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | |
| b | COTTON | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 74 | 14,801 | 0 | 0 | 0 | 0 | 0 | | | 0 | |
| a | ALFALFA | 0.54 | 0.34 | 0.83 | 3.06 | 0.37 | 0.34 | 0.83 | 0.41 | 74 | 3,548 | 88 | 0 | 0 | 1,335 | 1,422 | | | 514 | |
| a | WHEAT | 0.35 | 0.72 | 1.84 | 4.39 | 0.35 | 0.72 | 0.83 | 0.41 | 74 | 1,625 | 0 | 0 | 281 | 1,025 | 1,285 | | | 350 | |
| c | MELONS | 0.00 | 0.00 | 0.00 | 0.13 | 0.00 | 0.00 | 0.00 | 0.00 | 74 | 3,485 | 0 | 0 | 0 | 65 | 65 | | | 0 | |
| c | TOMATOES | 0.00 | 0.00 | 0.00 | 0.18 | 0.00 | 0.00 | 0.00 | 0.00 | 74 | 4,731 | 0 | 0 | 0 | 118 | 118 | | | 0 | |
| a | SUGARBEET(N) | 1.66 | 1.47 | 2.02 | 1.67 | 0.37 | 1.47 | 0.83 | 0.41 | 74 | 171 | 31 | 0 | 29 | 30 | 90 | | | 44 | |
| a | BARLEY | 0.35 | 0.71 | 1.81 | 4.32 | 0.35 | 0.71 | 0.83 | 0.41 | 74 | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | |
| c | BEANS | 0.00 | 0.00 | 0.00 | 0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 74 | 2,468 | 0 | 0 | 0 | 36 | 36 | | | 0 | |
| a | SD ALFALFA | 0.30 | 0.32 | 0.92 | 2.77 | 0.30 | 0.32 | 0.83 | 0.41 | 74 | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | |
| c | RICE | 0.00 | 0.00 | 0.00 | 0.70 | 0.00 | 0.00 | 0.00 | 0.41 | 74 | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | |
| b | CORN | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 74 | 189 | 0 | 0 | 0 | 0 | 0 | | | 0 | |
| c | VEGETABLE | 0.00 | 0.08 | 0.58 | 2.22 | 0.00 | 0.00 | 0.58 | 0.41 | 74 | 285 | 0 | 3 | 0 | 73 | 76 | | | 23 | |
| a | PASTURE | 1.36 | 1.21 | 1.75 | 3.36 | 0.37 | 1.21 | 0.83 | 0.41 | 74 | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | |
| c | ALMOND-STONE | 0.00 | 0.00 | 0.00 | 1.87 | 0.00 | 0.00 | 0.00 | 0.41 | 74 | 117 | 0 | 0 | 0 | 24 | 24 | | | 4 | |
| c | WALNUT | 0.00 | 0.00 | 0.00 | 2.01 | 0.00 | 0.00 | 0.00 | 0.41 | 74 | 379 | 0 | 0 | 0 | 66 | 66 | | | 13 | |
| b | MILO | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 74 | 0 | 0 | 0 | 0 | 0 | 0 | 10,480 | | 0 | |
| | | | | | | | | | | | | | | | | | RAIN WATER TO SATIFY ET= | | 948 | |
| | | | | | | | | | | | | | | | | | | | EFF RAIN | 3.20 |
| | | | | | | | | | | | | | | | SUM OF GROSS= | 3,509 | AVAIL FOR PRE= | 6,971 | | 7,057 |

PANOCHE WATER DISTRICT
Steps 1, 2, and 3

| A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1991 | | | | | | | | | | | | | | | | | | | |
| Group | CROP | ADJUSTED ETc VALUES (IN) | | | | CROPPED PPT (IN) <= ETo, EFF. RAIN | | | | DISTRICT ANNUAL IE ADJ ET-GW/AVAIL | ACRES PLANTED | REQ WATER REQRD. (AC-FT) | | | | TOTAL REQ. REQ WATER GROSS (AC-FT) | TOTAL SUPPLY (AC-FT) | PRE-IR AVAILABLE (AC-FT) | EFFECTIVE RAIN WATER (AC-FT) | TOTAL RAIN CONTRIBUTION TO SMD AND NLF LESS EFF. PRECIP. CONTRIBUTION TO ETc |
| | | DEC | JAN | FEB | MARCH | DEC | JAN | FEB | MARCH | | | DEC | JAN | FEB | MARCH | | | | | |
| a | | | | | | | | | | | | | | | | | | | | |
| c | FALLOW | 0.07 | 0.08 | 0.13 | 0.18 | 0.00 | 0.00 | 0.00 | 0.00 | 72 | 7,916 | 80 | 90 | 144 | 204 | 518 | | | 0 | |
| b | MISC | 0.00 | 0.08 | 0.63 | 1.75 | 0.00 | 0.00 | 0.63 | 1.75 | 72 | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | |
| a | COTTON | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 72 | 13,056 | 0 | 0 | 0 | 0 | 0 | | | 0 | |
| a | ALFALFA | 0.42 | 0.33 | 0.88 | 2.43 | 0.42 | 0.06 | 0.88 | 2.34 | 72 | 2,712 | 1 | 104 | -1 | 36 | 140 | | | 792 | |
| c | WHEAT | 0.27 | 0.70 | 1.96 | 3.47 | 0.27 | 0.06 | 0.88 | 2.34 | 72 | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | |
| c | MELONS | 0.00 | 0.00 | 0.00 | 0.11 | 0.00 | 0.00 | 0.00 | 0.00 | 72 | 1,966 | 0 | 0 | 0 | 30 | 30 | | | 0 | |
| a | TOMATOES | 0.00 | 0.00 | 0.00 | 0.14 | 0.00 | 0.00 | 0.00 | 0.00 | 72 | 5,936 | 0 | 0 | 0 | 121 | 121 | | | 0 | |
| a | SUGARBEET(N) | 1.29 | 1.44 | 2.17 | 1.32 | 0.78 | 0.06 | 0.88 | 1.32 | 72 | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | |
| c | BARLEY | 0.27 | 0.69 | 1.95 | 3.41 | 0.27 | 0.06 | 0.88 | 2.34 | 72 | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | |
| a | BEANS | 0.00 | 0.00 | 0.00 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 72 | 2,730 | 0 | 0 | 0 | 32 | 32 | | | 0 | |
| c | SD ALFALFA | 0.23 | 0.32 | 0.99 | 2.19 | 0.23 | 0.06 | 0.88 | 2.19 | 72 | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | |
| b | RICE | 0.00 | 0.00 | 0.00 | 0.56 | 0.00 | 0.00 | 0.00 | 0.56 | 72 | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | |
| c | CORN | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 72 | 240 | 0 | 0 | 0 | 0 | 0 | | | 0 | |
| a | VEGETABLE | 0.00 | 0.08 | 0.63 | 1.75 | 0.00 | 0.00 | 0.63 | 1.75 | 72 | 1,056 | 0 | 12 | 0 | 0 | 12 | | | 209 | |
| c | PASTURE | 1.05 | 1.16 | 1.88 | 2.67 | 0.78 | 0.06 | 0.88 | 2.34 | 72 | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | |
| c | ALMOND-STONE | 0.00 | 0.00 | 0.00 | 1.48 | 0.00 | 0.00 | 0.00 | 1.48 | 72 | 35 | 0 | 0 | 0 | 0 | 0 | | | 4 | |
| b | WALNUT | 0.00 | 0.00 | 0.00 | 1.59 | 0.00 | 0.00 | 0.00 | 1.59 | 72 | 393 | 0 | 0 | 0 | 0 | 0 | | | 52 | |
| | MILO | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 72 | 0 | 0 | 0 | 0 | 0 | 0 | 6,930 | | 0 | |
| | | | | | | | | | | | | | | | | | RAIN WATER TO SATIFY ET= | | 1,057 | |
| | | | | | | | | | | | | | | | | | | | EFF RAIN | 2.80 |
| | | | | | | | | | | | | | | | SUM OF GROSS= | 852 | AVAIL FOR PRE= | 6,078 | | 6,057 |

| A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1992 | | | | | | | | | | | | | | | | | | | |
| Group | CROP | ADJUSTED ETc VALUES (IN) | | | | CROPPED PPT (IN) <= ETo, EFF. RAIN | | | | DISTRICT ANNUAL IE ADJ ET-GW/AVAIL | ACRES PLANTED | REQ WATER REQRD. (AC-FT) | | | | TOTAL REQ. REQ WATER GROSS (AC-FT) | TOTAL SUPPLY (AC-FT) | PRE-IR AVAILABLE (AC-FT) | EFFECTIVE RAIN WATER (AC-FT) | TOTAL RAIN CONTRIBUTION TO SMD AND NLF LESS EFF. PRECIP. CONTRIBUTION TO ETo |
| | | DEC | JAN | FEB | MARCH | DEC | JAN | FEB | MARCH | | | DEC | JAN | FEB | MARCH | | | | | |
| a | | | | | | | | | | | | | | | | | | | | |
| c | FALLOW | 0.06 | 0.04 | 0.11 | 0.16 | 0.00 | 0.00 | 0.00 | 0.00 | 63 | 8,566 | 92 | 62 | 154 | 256 | 563 | | | 0 | |
| b | MISC | 0.00 | 0.04 | 0.54 | 1.78 | 0.00 | 0.00 | 0.54 | 1.78 | 63 | 809 | 0 | 6 | 0 | 0 | 6 | | | 156 | |
| a | COTTON | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 63 | 12,477 | 0 | 0 | 0 | 0 | 0 | | | 0 | |
| a | ALFALFA | 0.39 | 0.18 | 0.59 | 2.46 | 0.39 | 0.16 | 0.59 | 1.87 | 63 | 2,867 | 0 | 1 | -1 | 283 | 283 | | | 723 | |
| c | WHEAT | 0.25 | 0.39 | 1.72 | 3.52 | 0.25 | 0.39 | 1.72 | 1.87 | 63 | 298 | 0 | 0 | 0 | 81 | 81 | | | 105 | |
| c | MELONS | 0.00 | 0.00 | 0.00 | 0.11 | 0.00 | 0.00 | 0.00 | 0.00 | 63 | 2,238 | 0 | 0 | 0 | 39 | 39 | | | 0 | |
| a | TOMATOES | 0.00 | 0.00 | 0.00 | 0.14 | 0.00 | 0.00 | 0.00 | 0.00 | 63 | 3,710 | 0 | 0 | 0 | 87 | 87 | | | 0 | |
| a | SUGARBEET(N) | 1.19 | 0.60 | 1.86 | 1.33 | 1.09 | 0.60 | 1.68 | 1.33 | 63 | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | |
| c | BARLEY | 0.25 | 0.39 | 1.69 | 3.46 | 0.25 | 0.39 | 1.69 | 1.87 | 63 | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | |
| a | BEANS | 0.00 | 0.00 | 0.00 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 63 | 2,633 | 0 | 0 | 0 | 36 | 36 | | | 0 | |
| c | SD ALFALFA | 0.22 | 0.16 | 0.86 | 2.22 | 0.22 | 0.16 | 0.86 | 1.87 | 63 | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | |
| b | RICE | 0.00 | 0.00 | 0.00 | 0.56 | 0.00 | 0.00 | 0.00 | 0.56 | 63 | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | |
| c | CORN | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 63 | 609 | 0 | 0 | 0 | 0 | 0 | | | 0 | |
| a | VEGETABLE | 0.00 | 0.04 | 0.54 | 1.78 | 0.00 | 0.00 | 0.54 | 1.78 | 63 | 1,499 | 0 | 11 | 0 | 0 | 11 | | | 290 | |
| c | PASTURE | 0.97 | 0.66 | 1.63 | 2.71 | 0.97 | 0.66 | 1.63 | 1.87 | 63 | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | |
| c | ALMOND-STONE | 0.00 | 0.00 | 0.00 | 1.50 | 0.00 | 0.00 | 0.00 | 1.50 | 63 | 226 | 0 | 0 | 0 | 0 | 0 | | | 28 | |
| b | WALNUT | 0.00 | 0.00 | 0.00 | 1.61 | 0.00 | 0.00 | 0.00 | 1.61 | 63 | 378 | 0 | 0 | 0 | 0 | 0 | | | 50 | |
| | MILO | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 63 | 0 | 0 | 0 | 0 | 0 | 0 | 4,261 | | 0 | |
| | | | | | | | | | | | | | | | | | RAIN WATER TO SATIFY ET= | | 1,352 | |
| | | | | | | | | | | | | | | | | | | | EFF RAIN | 4.20 |
| | | | | | | | | | | | | | | | SUM OF GROSS= | 1,107 | AVAIL FOR PRE= | 3,154 | | 10,313 |

PANOCHE WATER DISTRICT
Step 4

1981 AVERAGE SMD FOR PANOCHE WATER DISTRICT

| A CROP | B ACRES PLANTED | C HARVEST MAD (%) | D RZD (FT) | E SOIL TYPE (%) LIGHT | MED | HEAVY | G AWHC (IN) | H ADJUSTMENT TO RZD > 6 FT DUE TO % TILED AREA | I ADJUSTED HARVEST SMD FOR TILED AREA (FT) | J HARVEST SMD (FT) | K TOTAL WATER BY CROP NEEDED FOR SMD (AC-FT) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| FALLOW | 1,165 | N/A | N/A | 0 | 21 | 79 | 1.89 | | | #VALUE! | |
| COTTON | 16,036 | 80 | 6 | 0 | 21 | 79 | 1.89 | 60 | 0.63 | 0.76 | 12290.82 |
| ALFALFA | 1,454 | N/A | N/A | 0 | 21 | 79 | 1.89 | | | #VALUE! | |
| WHEAT | 4,419 | 70 | 4 | 0 | 21 | 79 | 1.89 | | | 0.44 | |
| MELONS | 2,712 | 50 | 4 | 0 | 21 | 79 | 1.89 | | | 0.32 | 855.61 |
| TOMATOES | 1,927 | 60 | 5 | 0 | 21 | 79 | 1.89 | | | 0.47 | 911.93 |
| SUGARBEET N | 200 | 80 | 5 | 0 | 21 | 79 | 1.89 | | | 0.63 | |
| BARLEY | 1,433 | 70 | 4 | 0 | 21 | 79 | 1.89 | | | 0.44 | |
| BEANS | 551 | 60 | 5 | 0 | 21 | 79 | 1.89 | | | 0.47 | 260.75 |
| SD ALFALFA | 232 | 80 | 6 | 0 | 21 | 79 | 1.89 | 60 | 0.63 | 0.76 | |
| RICE | 0 | 20 | 3 | 0 | 21 | 79 | 1.89 | | | 0.09 | 0.00 |
| CORN | 296 | 50 | 5 | 0 | 21 | 79 | 1.89 | | | 0.39 | 116.73 |
| VEGETABLE | 1,847 | 40 | 3 | 0 | 21 | 79 | 1.89 | | | 0.19 | 349.63 |
| PASTURE | 111 | N/A | N/A | 0 | 21 | 79 | 1.89 | | | #VALUE! | |
| ALMOND-STONE | 301 | N/A | N/A | 0 | 21 | 79 | 1.89 | | | #VALUE! | |
| WALNUT | 0 | N/A | N/A | 0 | 21 | 79 | 1.89 | | | #VALUE! | |
| MILO | 632 | 60 | 5 | 0 | 21 | 79 | 1.89 | | | 0.63 | 398.76 |
| TOTAL ACRES = | 35,316 | | | | | | | | | TOTAL WATER = | 15184.25 |

TOTAL WATER/TOTAL ACRES (AVE SMD (FT)) = 0.43

PANOCHE WATER DISTRICT
Step 5

1981

| A CROP | B ADJUSTED ANNUAL ET (IN) | C ANNUAL EFF PPT <= ETc (IN) | D ECw (dS/M) | E LR (%) | F NLF (IN) |
|---|---|---|---|---|---|
| FALLOW | 3.41 | 0.00 | 0.54 | 0.05 | 0.18 |
| COTTON | 27.49 | 0.00 | 0.54 | 0.05 | 1.30 |
| ALFALFA | 47.26 | 6.50 | 0.54 | 0.05 | 1.93 |
| WHEAT | 16.97 | 5.42 | 0.54 | 0.05 | 0.55 |
| MELONS | 14.04 | 1.04 | 0.54 | 0.05 | 0.61 |
| TOMATOES | 27.63 | 1.16 | 0.54 | 0.05 | 1.25 |
| SUGARBEET N | 38.01 | 8.14 | 0.54 | 0.05 | 1.55 |
| BARLEY | 15.19 | 5.41 | 0.54 | 0.05 | 0.46 |
| BEANS | 21.30 | 0.00 | 0.54 | 0.05 | 1.01 |
| SD ALFALFA | 24.66 | 5.05 | 0.54 | 0.05 | 0.93 |
| RICE | 42.78 | 1.87 | 0.54 | 0.05 | 1.93 |
| CORN | 28.31 | 0.00 | 0.54 | 0.05 | 1.34 |
| VEGETABLE | 15.88 | 4.01 | 0.54 | 0.05 | 0.56 |
| PASTURE | 51.20 | 7.94 | 0.54 | 0.05 | 2.05 |
| ALMOND-STONE | 45.48 | 3.38 | 0.54 | 0.05 | 1.99 |
| WALNUT | 46.42 | 3.52 | 0.54 | 0.05 | 2.03 |
| MILO | 24.37 | 0.00 | 0.54 | 0.05 | 1.15 |

1982 AVERAGE SMD FOR PANOCHE WATER DISTRICT

| CROP | ACRES PLANTED | HARVEST MAD (%) | RZD (FT) | LIGHT | MED | HEAVY | AWHC (IN) | ADJUSTMENT TO RZD > 6 FT % TILED AREA | ADJUSTED HARVEST SMD (FT) | (FT) | TOTAL WATER BY CROP SMD (AC-FT) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| FALLOW | 1,218 | N/A | N/A | 0 | 21 | 79 | 1.89 | | | #VALUE! | |
| MSC | 0 | 40 | 3 | 0 | 21 | 79 | 1.89 | | | 0.19 | 0.00 |
| COTTON | 10,282 | 80 | 6 | 0 | 21 | 79 | 1.89 | 60 | 0.63 | 0.76 | 7006.78 |
| ALFALFA | 550 | N/A | N/A | 0 | 21 | 79 | 1.89 | | | #VALUE! | |
| WHEAT | 1,059 | 70 | 4 | 0 | 21 | 79 | 1.89 | | | 0.44 | |
| MELONS | 1,552 | 50 | 4 | 0 | 21 | 79 | 1.89 | | | 0.32 | 489.64 |
| TOMATOES | 2,077 | 60 | 5 | 0 | 21 | 79 | 1.89 | | | 0.47 | 982.91 |
| SUGARBEET N | 380 | 80 | 5 | 0 | 21 | 79 | 1.89 | | | 0.63 | |
| BARLEY | 466 | 70 | 4 | 0 | 21 | 79 | 1.89 | | | 0.44 | |
| BEANS | 1,091 | 60 | 5 | 0 | 21 | 79 | 1.89 | | | 0.47 | 516.30 |
| SD ALFALFA | 144 | 80 | 6 | 0 | 21 | 79 | 1.89 | 60 | 0.63 | 0.76 | |
| RICE | 0 | 20 | 3 | 0 | 21 | 79 | 1.89 | | | 0.09 | 0.00 |
| CORN | 0 | 50 | 5 | 0 | 21 | 79 | 1.89 | | | 0.39 | 0.00 |
| VEGETABLE | 959 | 40 | 3 | 0 | 21 | 79 | 1.89 | | | 0.19 | 181.53 |
| PASTURE | 111 | N/A | N/A | 0 | 21 | 79 | 1.89 | | | #VALUE! | |
| ALMOND-STONE | 301 | N/A | N/A | 0 | 21 | 79 | 1.89 | | | #VALUE! | |
| WALNUT | 0 | N/A | N/A | 0 | 21 | 79 | 1.89 | | | #VALUE! | |
| MILO | 1,012 | 80 | 5 | 0 | 21 | 79 | 1.89 | | | 0.63 | 638.55 |
| TOTAL ACRES = | 21,204 | | | | | | | | | TOTAL WATER = | 9815.72 |

TOTAL WATER/TOTAL ACRES (AVE SMD (FT)) = 0

1982

| CROP | ANNUAL ET (IN) | ANNUAL (IN) | ECw (dS/M) | LR (%) | NLF (IN) |
|---|---|---|---|---|---|
| FALLOW | 3.41 | 0.00 | 0.54 | 0.05 | 0.18 |
| MSC | 15.88 | 4.42 | 0.54 | 0.05 | 0.54 |
| COTTON | 27.49 | 0.81 | 0.54 | 0.05 | 1.28 |
| ALFALFA | 47.26 | 7.87 | 0.54 | 0.05 | 1.87 |
| WHEAT | 16.97 | 5.38 | 0.54 | 0.05 | 0.55 |
| MELONS | 14.04 | 1.14 | 0.54 | 0.05 | 0.61 |
| TOMATOES | 27.63 | 1.49 | 0.54 | 0.05 | 1.24 |
| SUGARBEET N | 38.91 | 6.83 | 0.54 | 0.05 | 1.52 |
| BARLEY | 15.19 | 5.38 | 0.54 | 0.05 | 0.46 |
| BEANS | 21.30 | 0.11 | 0.54 | 0.05 | 1.00 |
| SD ALFALFA | 24.66 | 5.11 | 0.54 | 0.05 | 0.92 |
| RICE | 42.78 | 2.40 | 0.54 | 0.05 | 1.91 |
| CORN | 28.31 | 0.81 | 0.54 | 0.05 | 1.30 |
| VEGETABLE | 15.88 | 4.42 | 0.54 | 0.05 | 0.54 |
| PASTURE | 51.20 | 9.04 | 0.54 | 0.05 | 1.99 |
| ALMOND-STONE | 45.48 | 4.83 | 0.54 | 0.05 | 1.92 |
| WALNUT | 46.42 | 4.97 | 0.54 | 0.05 | 1.96 |
| MILO | 24.37 | 0.81 | 0.54 | 0.05 | 1.11 |

PANOCHE WATER DISTRICT
Step 4

1983 AVERAGE SMD FOR PANOCHE WATER DISTRICT

| A CROP | B ACRES PLANTED | C HARVEST MAD (%) | D RZD (FT) | E SOIL TYPE (%) LIGHT | MED | HEAVY | G AWHC (IN) | H ADJUSTMENT TO RZD > 6 FT DUE TO % TILED AREA | I ADJUSTED HARVEST SMD FOR TILED AREA (FT) | J HARVEST SMD (FT) | K TOTAL WATER BY CROP NEEDED FOR SMD (AC-FT) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| FALLOW | 4,703 | N/A | N/A | 0 | 21 | 79 | 1.89 | | | #VALUE! | |
| MSC | 0 | 40 | 3 | 0 | 21 | 79 | 1.89 | | | 0.19 | 0.00 |
| COTTON | 13,529 | 80 | 6 | 0 | 21 | 79 | 1.89 | 60 | 0.83 | 0.76 | 9219.48 |
| ALFALFA | 872 | N/A | N/A | 0 | 21 | 79 | 1.89 | | | #VALUE! | |
| WHEAT | 2,524 | 70 | 4 | 0 | 21 | 79 | 1.89 | | | 0.44 | |
| MELONS | 2,507 | 50 | 4 | 0 | 21 | 79 | 1.89 | | | 0.32 | 700.94 |
| TOMATOES | 4,440 | 60 | 5 | 0 | 21 | 79 | 1.89 | | | 0.47 | 2101.17 |
| SUGARBEET N | 977 | 80 | 5 | 0 | 21 | 79 | 1.89 | | | 0.63 | |
| BARLEY | 130 | 70 | 4 | 0 | 21 | 79 | 1.89 | | | 0.44 | |
| BEANS | 1,410 | 60 | 5 | 0 | 21 | 79 | 1.89 | | | 0.47 | 667.26 |
| SD ALFALFA | 55 | 80 | 6 | 0 | 21 | 79 | 1.89 | 60 | 0.83 | 0.76 | |
| RICE | 266 | 20 | 3 | 0 | 21 | 79 | 1.89 | | | 0.09 | 25.18 |
| CORN | 889 | 50 | 5 | 0 | 21 | 79 | 1.89 | | | 0.39 | 350.59 |
| VEGETABLE | 1,402 | 40 | 3 | 0 | 21 | 79 | 1.89 | | | 0.19 | 265.39 |
| PASTURE | 111 | N/A | N/A | 0 | 21 | 79 | 1.89 | | | #VALUE! | |
| ALMOND-STONE | 301 | N/A | N/A | 0 | 21 | 79 | 1.89 | | | #VALUE! | |
| WALNUT | 0 | N/A | N/A | 0 | 21 | 79 | 1.89 | | | #VALUE! | |
| MILO | 290 | 80 | 5 | 0 | 21 | 79 | 1.89 | | | 0.63 | 182.98 |
| TOTAL ACRES = | 34,406 | | | | | | | | | TOTAL WATER = | 13602.99 |

TOTAL WATER/TOTAL ACRES (AVE SMD (FT)) = 0

1984 AVERAGE SMD FOR PANOCHE WATER DISTRICT

| CROP | ACRES PLANTED | HARVEST MAD (%) | RZD (FT) | SOIL TYPE (%) LIGHT | MED | HEAVY | AWHC (IN) | ADJUSTMENT TO RZD > 6 FT DUE TO % TILED AREA | ADJUSTED HARVEST SMD FOR TILED AREA (FT) | HARVEST SMD (FT) | TOTAL WATER BY CROP NEEDED FOR SMD (AC-FT) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| FALLOW | 889 | N/A | N/A | 0 | 21 | 79 | 1.89 | | | #VALUE! | |
| MSC | 0 | 40 | 3 | 0 | 21 | 79 | 1.89 | | | 0.19 | 0.00 |
| COTTON | 17,057 | 80 | 6 | 0 | 21 | 79 | 1.89 | 60 | 0.83 | 0.76 | 11623.67 |
| ALFALFA | 1,543 | N/A | N/A | 0 | 21 | 79 | 1.89 | | | #VALUE! | |
| WHEAT | 3,393 | 70 | 4 | 0 | 21 | 79 | 1.89 | | | 0.44 | |
| MELONS | 819 | 50 | 4 | 0 | 21 | 79 | 1.89 | | | 0.32 | 258.39 |
| TOMATOES | 3,804 | 60 | 5 | 0 | 21 | 79 | 1.89 | | | 0.47 | 1800.19 |
| SUGARBEET N | 826 | 80 | 5 | 0 | 21 | 79 | 1.89 | | | 0.63 | |
| BARLEY | 230 | 70 | 4 | 0 | 21 | 79 | 1.89 | | | 0.44 | |
| BEANS | 1,669 | 60 | 5 | 0 | 21 | 79 | 1.89 | | | 0.47 | 799.30 |
| SD ALFALFA | 0 | 80 | 6 | 0 | 21 | 79 | 1.89 | 60 | 0.83 | 0.76 | |
| RICE | 0 | 20 | 3 | 0 | 21 | 79 | 1.89 | | | 0.09 | 0.00 |
| CORN | 150 | 50 | 5 | 0 | 21 | 79 | 1.89 | | | 0.39 | 59.15 |
| VEGETABLE | 554 | 40 | 3 | 0 | 21 | 79 | 1.89 | | | 0.19 | 104.87 |
| PASTURE | 0 | N/A | N/A | 0 | 21 | 79 | 1.89 | | | #VALUE! | |
| ALMOND-STONE | 301 | N/A | N/A | 0 | 21 | 79 | 1.89 | | | #VALUE! | |
| WALNUT | 32 | N/A | N/A | 0 | 21 | 79 | 1.89 | | | #VALUE! | |
| MILO | 156 | 80 | 5 | 0 | 21 | 79 | 1.89 | | | 0.63 | 98.43 |
| TOTAL ACRES = | 31,623 | | | | | | | | | TOTAL WATER = | 14744.00 |

TOTAL WATER/TOTAL ACRES (AVE SMD (FT)) = 0

PANOCHE WATER DISTRICT
Step 5

1983

| A CROP | B ADJUSTED ANNUAL ET (IN) | C ANNUAL EFF PPT<=ETc (IN) | D ECw (dS/M) | E LR (%) | F NLF (IN) |
|---|---|---|---|---|---|
| FALLOW | 3.42 | 0.00 | 0.54 | 0.05 | 0.16 |
| MSC | 15.40 | 3.47 | 0.54 | 0.05 | 0.56 |
| COTTON | 29.73 | 1.10 | 0.54 | 0.05 | 1.35 |
| ALFALFA | 46.16 | 6.75 | 0.54 | 0.05 | 1.96 |
| WHEAT | 15.12 | 6.43 | 0.54 | 0.05 | 0.41 |
| MELONS | 15.51 | 1.16 | 0.54 | 0.05 | 0.68 |
| TOMATOES | 29.06 | 1.16 | 0.54 | 0.05 | 1.36 |
| SUGARBEET N | 38.66 | 7.10 | 0.54 | 0.05 | 1.40 |
| BARLEY | 13.23 | 6.42 | 0.54 | 0.05 | 0.32 |
| BEANS | 23.69 | 0.41 | 0.54 | 0.05 | 1.10 |
| SD ALFALFA | 24.88 | 4.81 | 0.54 | 0.05 | 0.96 |
| RICE | 45.67 | 1.72 | 0.54 | 0.05 | 2.08 |
| CORN | 30.83 | 1.10 | 0.54 | 0.05 | 1.41 |
| VEGETABLE | 15.40 | 3.47 | 0.54 | 0.05 | 0.56 |
| PASTURE | 51.35 | 9.28 | 0.54 | 0.05 | 1.99 |
| ALMOND-STONE | 47.50 | 3.68 | 0.54 | 0.05 | 2.06 |
| WALNUT | 48.75 | 3.99 | 0.54 | 0.05 | 2.12 |
| MILO | 25.39 | 1.10 | 0.54 | 0.05 | 1.20 |

1984

| CROP | ADJUSTED ANNUAL ET (IN) | ANNUAL EFF PPT<=ETc (IN) | ECw (dS/M) | LR (%) | NLF (IN) |
|---|---|---|---|---|---|
| FALLOW | 3.62 | 0.00 | 0.54 | 0.05 | 0.17 |
| MSC | 17.55 | 1.12 | 0.54 | 0.05 | 0.76 |
| COTTON | 28.41 | 0.07 | 0.54 | 0.05 | 1.34 |
| ALFALFA | 50.08 | 3.37 | 0.54 | 0.05 | 2.21 |
| WHEAT | 16.65 | 2.17 | 0.54 | 0.05 | 0.78 |
| MELONS | 14.72 | 0.10 | 0.54 | 0.05 | 0.69 |
| TOMATOES | 28.35 | 0.10 | 0.54 | 0.05 | 1.34 |
| SUGARBEET N | 40.80 | 5.14 | 0.54 | 0.05 | 1.89 |
| BARLEY | 16.83 | 2.16 | 0.54 | 0.05 | 0.68 |
| BEANS | 22.45 | 0.07 | 0.54 | 0.05 | 1.06 |
| SD ALFALFA | 26.66 | 2.00 | 0.54 | 0.05 | 1.17 |
| RICE | 44.60 | 0.54 | 0.54 | 0.05 | 2.08 |
| CORN | 29.10 | 0.07 | 0.54 | 0.05 | 1.38 |
| VEGETABLE | 17.55 | 1.12 | 0.54 | 0.05 | 0.76 |
| PASTURE | 54.27 | 4.62 | 0.54 | 0.05 | 2.34 |
| ALMOND-STONE | 48.03 | 1.04 | 0.54 | 0.05 | 2.22 |
| WALNUT | 48.90 | 1.04 | 0.54 | 0.05 | 2.26 |
| MILO | 25.21 | 0.07 | 0.54 | 0.05 | 1.19 |

PANOCHE WATER DISTRICT
Step 4

1985 AVERAGE SMD FOR PANOCHE WATER DISTRICT

| CROP | ACRES PLANTED | HARVEST MAD (%) | RZD (FT) | SOIL TYPE (%) LIGHT | MED | HEAVY | AWHC (IN) | ADJUSTMENT TO RZD > 6 FT DUE TO % TILED AREA | ADJUSTED HARVEST SMD FOR TILED AREA (FT) | HARVEST SMD (FT) | TOTAL WATER BY CROP NEEDED FOR SMD (AC-FT) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| FALLOW | 869 | N/A | N/A | 0 | 21 | 79 | 1.89 | | | #VALUE! | |
| MSC | 188 | 40 | 3 | 0 | 21 | 79 | 1.89 | | | 0.19 | 35.59 |
| COTTON | 13,331 | 80 | 6 | 0 | 21 | 79 | 1.89 | 60 | 0.63 | 0.76 | 10447.47 |
| ALFALFA | 1,543 | N/A | N/A | 0 | 21 | 79 | 1.89 | | | #VALUE! | |
| WHEAT | 2,823 | 70 | 4 | 0 | 21 | 79 | 1.89 | | | 0.44 | |
| MELONS | 3,984 | 50 | 4 | 0 | 21 | 79 | 1.89 | | | 0.32 | 1258.92 |
| TOMATOES | 3,804 | 60 | 5 | 0 | 21 | 79 | 1.89 | | | 0.47 | 1800.19 |
| SUGARBEET N | 1,027 | 80 | 5 | 0 | 21 | 79 | 1.89 | | | 0.63 | |
| BARLEY | 230 | 70 | 4 | 0 | 21 | 79 | 1.89 | | | 0.44 | |
| BEANS | 1,339 | 60 | 5 | 0 | 21 | 79 | 1.89 | | | 0.47 | 633.66 |
| SD ALFALFA | 0 | 80 | 6 | 0 | 21 | 79 | 1.89 | 60 | 0.63 | 0.76 | |
| RICE | 0 | 20 | 3 | 0 | 21 | 79 | 1.89 | | | 0.09 | 0.00 |
| CORN | 150 | 50 | 5 | 0 | 21 | 79 | 1.89 | | | 0.39 | 59.15 |
| VEGETABLE | 1,017 | 40 | 3 | 0 | 21 | 79 | 1.89 | | | 0.19 | 192.51 |
| PASTURE | 680 | N/A | N/A | 0 | 21 | 79 | 1.89 | | | #VALUE! | |
| ALMOND-STONE | 301 | N/A | N/A | 0 | 21 | 79 | 1.89 | | | #VALUE! | |
| WALNUT | 32 | N/A | N/A | 0 | 21 | 79 | 1.89 | | | #VALUE! | |
| MLO | 928 | 80 | 5 | 0 | 21 | 79 | 1.89 | | | 0.63 | 584.29 |
| TOTAL ACRES = | 34,244 | | | | | | | | | TOTAL WATER = | 15009.78 |
| TOTAL WATER/TOTAL ACRES (AVE SMD (FT)) = | | | | | 0 | | | | | | |

PANOCHE WATER DISTRICT
Step 5

1985

| CROP | ADJUSTED ANNUAL ET (IN) | ANNUAL EFF PPT<=ETc (IN) | ECw (dS/M) | LR (%) | NLF (IN) |
|---|---|---|---|---|---|
| FALLOW | 3.40 | 0.00 | 0.54 | 0.05 | 0.16 |
| MSC | 16.37 | 0.77 | 0.54 | 0.05 | 0.74 |
| COTTON | 27.37 | 0.05 | 0.54 | 0.05 | 1.29 |
| ALFALFA | 47.28 | 2.81 | 0.54 | 0.05 | 2.19 |
| WHEAT | 17.40 | 1.46 | 0.54 | 0.05 | 0.75 |
| MELONS | 14.14 | 0.17 | 0.54 | 0.05 | 0.66 |
| TOMATOES | 27.57 | 0.17 | 0.54 | 0.05 | 1.30 |
| SUGARBEET N | 36.16 | 4.50 | 0.54 | 0.05 | 1.59 |
| BARLEY | 15.60 | 1.45 | 0.54 | 0.05 | 0.67 |
| BEANS | 21.23 | 0.05 | 0.54 | 0.05 | 1.00 |
| SD ALFALFA | 25.02 | 1.20 | 0.54 | 0.05 | 1.13 |
| RICE | 43.10 | 0.73 | 0.54 | 0.05 | 2.00 |
| CORN | 28.19 | 0.05 | 0.54 | 0.05 | 1.33 |
| VEGETABLE | 16.37 | 0.77 | 0.54 | 0.05 | 0.74 |
| PASTURE | 50.99 | 4.11 | 0.54 | 0.05 | 2.22 |
| ALMOND-STONE | 45.68 | 1.17 | 0.54 | 0.05 | 2.10 |
| WALNUT | 46.57 | 1.17 | 0.54 | 0.05 | 2.15 |
| MLO | 24.18 | 0.05 | 0.54 | 0.05 | 1.14 |

1986 AVERAGE SMD FOR PANOCHE WATER DISTRICT

| CROP | ACRES PLANTED | HARVEST MAD (%) | RZD (FT) | SOIL TYPE (%) LIGHT | MED | HEAVY | AWHC (IN) | ADJUSTMENT TO RZD > 6 FT DUE TO % TILED AREA | ADJUSTED HARVEST SMD FOR TILED AREA (FT) | HARVEST SMD (FT) | TOTAL WATER BY CROP NEEDED FOR SMD (AC-FT) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| FALLOW | 1,468 | N/A | N/A | 0 | 21 | 79 | 1.89 | | | #VALUE! | |
| MSC | 0 | 40 | 3 | 0 | 21 | 79 | 1.89 | | | 0.19 | 0.00 |
| COTTON | 14,924 | 80 | 6 | 0 | 21 | 79 | 1.89 | 60 | 0.63 | 0.76 | 10170.11 |
| ALFALFA | 2,464 | N/A | N/A | 0 | 21 | 79 | 1.89 | | | #VALUE! | |
| WHEAT | 2,115 | 70 | 4 | 0 | 21 | 79 | 1.89 | | | 0.44 | |
| MELONS | 2,215 | 50 | 4 | 0 | 21 | 79 | 1.89 | | | 0.32 | 698.81 |
| TOMATOES | 4,283 | 60 | 5 | 0 | 21 | 79 | 1.89 | | | 0.47 | 2028.87 |
| SUGARBEET N | 719 | 80 | 5 | 0 | 21 | 79 | 1.89 | | | 0.63 | |
| BARLEY | 928 | 70 | 4 | 0 | 21 | 79 | 1.89 | | | 0.44 | |
| BEANS | 2,285 | 60 | 5 | 0 | 21 | 79 | 1.89 | | | 0.47 | 1081.35 |
| SD ALFALFA | 300 | 80 | 6 | 0 | 21 | 79 | 1.89 | 60 | 0.63 | 0.76 | |
| RICE | 0 | 20 | 3 | 0 | 21 | 79 | 1.89 | | | 0.09 | 0.00 |
| CORN | 949 | 50 | 5 | 0 | 21 | 79 | 1.89 | | | 0.39 | 374.25 |
| VEGETABLE | 335 | 40 | 3 | 0 | 21 | 79 | 1.89 | | | 0.19 | 63.41 |
| PASTURE | 45 | N/A | N/A | 0 | 21 | 79 | 1.89 | | | #VALUE! | |
| ALMOND-STONE | 317 | N/A | N/A | 0 | 21 | 79 | 1.89 | | | #VALUE! | |
| WALNUT | 250 | N/A | N/A | 0 | 21 | 79 | 1.89 | | | #VALUE! | |
| MLO | 1,028 | 80 | 5 | 0 | 21 | 79 | 1.89 | | | 0.63 | 647.39 |
| TOTAL ACRES = | 34,621 | | | | | | | | | TOTAL WATER = | 15062.20 |
| TOTAL WATER/TOTAL ACRES (AVE SMD (FT)) = | | | | | 0 | | | | | | |

1986

| CROP | ADJUSTED ANNUAL ET (IN) | ANNUAL EFF PPT<=ETc (IN) | ECw (dS/M) | LR (%) | NLF (IN) |
|---|---|---|---|---|---|
| FALLOW | 3.33 | 0.00 | 0.54 | 0.05 | 0.16 |
| MSC | 15.35 | 3.21 | 0.54 | 0.05 | 0.57 |
| COTTON | 26.53 | 0.43 | 0.54 | 0.05 | 1.23 |
| ALFALFA | 45.98 | 3.84 | 0.54 | 0.05 | 1.99 |
| WHEAT | 16.30 | 4.79 | 0.54 | 0.05 | 0.54 |
| MELONS | 13.41 | 0.57 | 0.54 | 0.05 | 0.61 |
| TOMATOES | 26.64 | 0.57 | 0.54 | 0.05 | 1.23 |
| SUGARBEET N | 36.28 | 4.40 | 0.54 | 0.05 | 1.60 |
| BARLEY | 14.57 | 4.76 | 0.54 | 0.05 | 0.48 |
| BEANS | 20.30 | 0.11 | 0.54 | 0.05 | 0.95 |
| SD ALFALFA | 23.84 | 3.80 | 0.54 | 0.05 | 0.94 |
| RICE | 41.33 | 1.22 | 0.54 | 0.05 | 1.90 |
| CORN | 27.29 | 0.43 | 0.54 | 0.05 | 1.27 |
| VEGETABLE | 15.35 | 3.21 | 0.54 | 0.05 | 0.57 |
| PASTURE | 49.91 | 5.16 | 0.54 | 0.05 | 2.12 |
| ALMOND-STONE | 44.06 | 2.64 | 0.54 | 0.05 | 1.96 |
| WALNUT | 44.87 | 2.76 | 0.54 | 0.05 | 1.99 |
| MLO | 23.47 | 0.43 | 0.54 | 0.05 | 1.09 |

PANOCHE WATER DISTRICT
Step 4

1985 AVERAGE SMD FOR PANOCHE WATER DISTRICT

| A CROP | B ACRES PLANTED | C HARVEST MAD (%) | D RZD (FT) | E SOIL TYPE (%) LIGHT | MED | HEAVY | H AWHC (IN) | I ADJUSTMENT TO RZD > 6 FT DUE TO % TILED AREA | J ADJUSTED HARVEST SMD FOR TILED AREA (FT) | K HARVEST SMD (FT) | L TOTAL WATER BY CROP NEEDED FOR SMD (AC-FT) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| FALLOW | 869 | N/A | N/A | 0 | 21 | 79 | 1.89 | | | #VALUE! | |
| MSC | 188 | 40 | 3 | 0 | 21 | 79 | 1.89 | | | 0.19 | 35.59 |
| COTTON | 15,331 | 60 | 6 | 0 | 21 | 79 | 1.89 | 60 | 0.63 | 0.76 | 10447.47 |
| ALFALFA | 1,543 | N/A | N/A | 0 | 21 | 79 | 1.89 | | | #VALUE! | |
| WHEAT | 2,823 | 70 | 4 | 0 | 21 | 79 | 1.89 | | | 0.44 | |
| MELONS | 3,984 | 50 | 4 | 0 | 21 | 79 | 1.89 | | | 0.32 | 1258.92 |
| TOMATOES | 3,804 | 60 | 5 | 0 | 21 | 79 | 1.89 | | | 0.47 | 1800.19 |
| SUGARBEET N | 1,027 | 80 | 5 | 0 | 21 | 79 | 1.89 | | | 0.63 | |
| BARLEY | 230 | 70 | 4 | 0 | 21 | 79 | 1.89 | | | 0.44 | |
| BEANS | 1,339 | 60 | 5 | 0 | 21 | 79 | 1.89 | | | 0.47 | 633.66 |
| SD ALFALFA | 0 | 80 | 6 | 0 | 21 | 79 | 1.89 | 60 | 0.63 | 0.76 | |
| RICE | 0 | 20 | 3 | 0 | 21 | 79 | 1.89 | | | 0.09 | 0.00 |
| CORN | 150 | 50 | 5 | 0 | 21 | 79 | 1.89 | | | 0.39 | 59.15 |
| VEGETABLE | 1,017 | 40 | 3 | 0 | 21 | 79 | 1.89 | | | 0.19 | 192.51 |
| PASTURE | 880 | N/A | N/A | 0 | 21 | 79 | 1.89 | | | #VALUE! | |
| ALMOND-STONE | 301 | N/A | N/A | 0 | 21 | 79 | 1.89 | | | #VALUE! | |
| WALNUT | 32 | N/A | N/A | 0 | 21 | 79 | 1.89 | | | #VALUE! | |
| MLO | 926 | 80 | 5 | 0 | 21 | 79 | 1.89 | | | 0.63 | 584.29 |
| TOTAL ACRES = | 34,244 | | | | | | | | | TOTAL WATER = | 15009.76 |

TOTAL WATER/TOTAL ACRES (AVE SMD (FT)) = 0

1986 AVERAGE SMD FOR PANOCHE WATER DISTRICT

| CROP | ACRES PLANTED | HARVEST MAD (%) | RZD (FT) | SOIL TYPE (%) LIGHT | MED | HEAVY | AWHC (IN) | ADJUSTMENT TO RZD > 6 FT DUE TO % TILED AREA | ADJUSTED HARVEST SMD FOR TILED AREA (FT) | HARVEST SMD (FT) | TOTAL WATER BY CROP NEEDED FOR SMD (AC-FT) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| FALLOW | 1,466 | N/A | N/A | 0 | 21 | 79 | 1.89 | | | #VALUE! | |
| MSC | 0 | 40 | 3 | 0 | 21 | 79 | 1.89 | | | 0.19 | 0.00 |
| COTTON | 14,924 | 60 | 6 | 0 | 21 | 79 | 1.89 | 60 | 0.63 | 0.76 | 10170.11 |
| ALFALFA | 2,464 | N/A | N/A | 0 | 21 | 79 | 1.89 | | | #VALUE! | |
| WHEAT | 2,115 | 70 | 4 | 0 | 21 | 79 | 1.89 | | | 0.44 | |
| MELONS | 2,215 | 50 | 4 | 0 | 21 | 79 | 1.89 | | | 0.32 | 699.81 |
| TOMATOES | 4,283 | 60 | 5 | 0 | 21 | 79 | 1.89 | | | 0.47 | 2026.87 |
| SUGARBEET N | 719 | 80 | 5 | 0 | 21 | 79 | 1.89 | | | 0.63 | |
| BARLEY | 926 | 70 | 4 | 0 | 21 | 79 | 1.89 | | | 0.44 | |
| BEANS | 2,285 | 60 | 5 | 0 | 21 | 79 | 1.89 | | | 0.47 | 1081.35 |
| SD ALFALFA | 300 | 80 | 6 | 0 | 21 | 79 | 1.89 | 60 | 0.63 | 0.76 | |
| RICE | 0 | 20 | 3 | 0 | 21 | 79 | 1.89 | | | 0.09 | 0.00 |
| CORN | 949 | 50 | 5 | 0 | 21 | 79 | 1.89 | | | 0.39 | 374.25 |
| VEGETABLE | 335 | 40 | 3 | 0 | 21 | 79 | 1.89 | | | 0.19 | 63.41 |
| PASTURE | 45 | N/A | N/A | 0 | 21 | 79 | 1.89 | | | #VALUE! | |
| ALMOND-STONE | 317 | N/A | N/A | 0 | 21 | 79 | 1.89 | | | #VALUE! | |
| WALNUT | 250 | N/A | N/A | 0 | 21 | 79 | 1.89 | | | #VALUE! | |
| MLO | 1,026 | 80 | 5 | 0 | 21 | 79 | 1.89 | | | 0.63 | 647.39 |
| TOTAL ACRES = | 34,821 | | | | | | | | | TOTAL WATER = | 15062.20 |

TOTAL WATER/TOTAL ACRES (AVE SMD (FT)) = 0

PANOCHE WATER DISTRICT
Step 5

1985

| A CROP | B ADJUSTED ANNUAL ET (IN) | C ANNUAL EFF PPT<=ETc (IN) | D ECw (dS/M) | E LR (%) | F NLF (IN) |
|---|---|---|---|---|---|
| FALLOW | 3.40 | 0.00 | 0.54 | 0.05 | 0.16 |
| MSC | 16.37 | 0.77 | 0.54 | 0.05 | 0.74 |
| COTTON | 27.37 | 0.05 | 0.54 | 0.05 | 1.29 |
| ALFALFA | 47.28 | 2.81 | 0.54 | 0.05 | 2.10 |
| WHEAT | 17.40 | 1.46 | 0.54 | 0.05 | 0.75 |
| MELONS | 14.14 | 0.17 | 0.54 | 0.05 | 0.66 |
| TOMATOES | 27.57 | 0.17 | 0.54 | 0.05 | 1.30 |
| SUGARBEET N | 36.16 | 4.50 | 0.54 | 0.05 | 1.59 |
| BARLEY | 15.80 | 1.45 | 0.54 | 0.05 | 0.67 |
| BEANS | 21.23 | 0.05 | 0.54 | 0.05 | 1.00 |
| SD ALFALFA | 25.02 | 1.20 | 0.54 | 0.05 | 1.13 |
| RICE | 43.10 | 0.73 | 0.54 | 0.05 | 2.00 |
| CORN | 28.19 | 0.05 | 0.54 | 0.05 | 1.33 |
| VEGETABLE | 16.37 | 0.77 | 0.54 | 0.05 | 0.74 |
| PASTURE | 50.99 | 4.11 | 0.54 | 0.05 | 2.22 |
| ALMOND-STONE | 45.66 | 1.17 | 0.54 | 0.05 | 2.10 |
| WALNUT | 46.57 | 1.17 | 0.54 | 0.05 | 2.15 |
| MLO | 24.16 | 0.05 | 0.54 | 0.05 | 1.14 |

1986

| CROP | ADJUSTED ANNUAL ET (IN) | ANNUAL EFF PPT<=ETc (IN) | ECw (dS/M) | LR (%) | NLF (IN) |
|---|---|---|---|---|---|
| FALLOW | 3.33 | 0.00 | 0.54 | 0.05 | 0.16 |
| MSC | 15.35 | 3.21 | 0.54 | 0.05 | 0.57 |
| COTTON | 26.53 | 0.43 | 0.54 | 0.05 | 1.23 |
| ALFALFA | 45.96 | 3.94 | 0.54 | 0.05 | 1.99 |
| WHEAT | 16.30 | 4.79 | 0.54 | 0.05 | 0.54 |
| MELONS | 13.41 | 0.57 | 0.54 | 0.05 | 0.61 |
| TOMATOES | 26.64 | 0.57 | 0.54 | 0.05 | 1.23 |
| SUGARBEET N | 36.26 | 4.40 | 0.54 | 0.05 | 1.60 |
| BARLEY | 14.57 | 4.76 | 0.54 | 0.05 | 0.46 |
| BEANS | 20.30 | 0.11 | 0.54 | 0.05 | 0.95 |
| SD ALFALFA | 23.64 | 3.80 | 0.54 | 0.05 | 0.94 |
| RICE | 41.33 | 1.22 | 0.54 | 0.05 | 1.90 |
| CORN | 27.29 | 0.43 | 0.54 | 0.05 | 1.27 |
| VEGETABLE | 15.35 | 3.21 | 0.54 | 0.05 | 0.57 |
| PASTURE | 49.01 | 5.16 | 0.54 | 0.05 | 2.12 |
| ALMOND-STONE | 44.06 | 2.64 | 0.54 | 0.05 | 1.96 |
| WALNUT | 44.87 | 2.78 | 0.54 | 0.05 | 1.99 |
| MLO | 23.47 | 0.43 | 0.54 | 0.05 | 1.09 |

PANOCHE WATER DISTRICT
Step 4

1989 AVERAGE SMD FOR PANOCHE WATER DISTRICT

| CROP | ACRES PLANTED | HARVEST MAD (%) | RZD (FT) | SOIL TYPE (%) LIGHT | MED | HEAVY | AWHC (IN) | I ADJUSTMENT TO RZD > 6 FT DUE TO % TILED AREA | J ADJUSTED HARVEST SMD FOR TILED AREA (FT) | K HARVEST SMD (FT) | L TOTAL WATER BY CROP NEEDED FOR SMD (AC-FT) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| FALLOW | 1,029 | N/A | N/A | 0 | 21 | 79 | 1.89 | | | #VALUE! | |
| MSC | 0 | 40 | 3 | 0 | 21 | 79 | 1.89 | | | 0.19 | 0.00 |
| COTTON | 15,239 | 60 | 6 | 0 | 21 | 79 | 1.89 | 60 | 0.63 | 0.76 | 10384.77 |
| ALFALFA | 2,999 | N/A | N/A | 0 | 21 | 79 | 1.89 | | | #VALUE! | |
| WHEAT | 3,451 | 70 | 4 | 0 | 21 | 79 | 1.89 | | | 0.44 | |
| MELONS | 3,282 | 50 | 4 | 0 | 21 | 79 | 1.89 | | | 0.32 | 1035.44 |
| TOMATOES | 5,401 | 60 | 5 | 0 | 21 | 79 | 1.89 | | | 0.47 | 2555.05 |
| SUGARBEET N | 220 | 80 | 5 | 0 | 21 | 79 | 1.89 | | | 0.63 | |
| BARLEY | 0 | 70 | 4 | 0 | 21 | 79 | 1.89 | | | 0.44 | |
| BEANS | 2,712 | 60 | 5 | 0 | 21 | 79 | 1.89 | | | 0.47 | 1283.42 |
| SD ALFALFA | 0 | 80 | 6 | 0 | 21 | 79 | 1.89 | 60 | 0.63 | 0.76 | |
| RICE | 0 | 20 | 3 | 0 | 21 | 79 | 1.89 | | | 0.09 | 0.00 |
| CORN | 899 | 50 | 5 | 0 | 21 | 79 | 1.89 | | | 0.39 | 275.66 |
| VEGETABLE | 1,186 | 40 | 3 | 0 | 21 | 79 | 1.89 | | | 0.19 | 224.88 |
| PASTURE | 26 | N/A | N/A | 0 | 21 | 79 | 1.89 | | | #VALUE! | |
| ALMOND-STONE | 217 | N/A | N/A | 0 | 21 | 79 | 1.89 | | | #VALUE! | |
| WALNUT | 252 | N/A | N/A | 0 | 21 | 79 | 1.89 | | | #VALUE! | |
| MLO | 0 | 80 | 5 | 0 | 21 | 79 | 1.89 | | | 0.63 | 0.00 |
| TOTAL ACRES = | 36,715 | | | | | | | | | TOTAL WATER = | 15750.12 |

TOTAL WATER/TOTAL ACRES (AVE SMD (FT)) = 0

PANOCHE WATER DISTRICT
Step 5

1989

| CROP | ADJUSTED ANNUAL ET (IN) | ANNUAL EFF PPT<=ETc (IN) | ECw (dS/M) | LR (%) | NLF (IN) |
|---|---|---|---|---|---|
| FALLOW | 3.48 | 0.00 | 0.54 | 0.05 | 0.16 |
| MSC | 15.06 | 1.50 | 0.54 | 0.05 | 0.68 |
| COTTON | 28.22 | 1.27 | 0.54 | 0.05 | 1.27 |
| ALFALFA | 47.67 | 3.85 | 0.54 | 0.05 | 2.09 |
| WHEAT | 16.10 | 2.26 | 0.54 | 0.05 | 0.69 |
| MELONS | 14.31 | 0.20 | 0.54 | 0.05 | 0.67 |
| TOMATOES | 28.56 | 0.20 | 0.54 | 0.05 | 1.34 |
| SUGARBEET N | 39.43 | 4.10 | 0.54 | 0.05 | 1.67 |
| BARLEY | 15.09 | 2.26 | 0.54 | 0.05 | 0.61 |
| BEANS | 21.62 | 0.08 | 0.54 | 0.05 | 1.03 |
| SD ALFALFA | 24.90 | 2.05 | 0.54 | 0.05 | 1.08 |
| RICE | 43.96 | 0.91 | 0.54 | 0.05 | 2.04 |
| CORN | 29.18 | 1.27 | 0.54 | 0.05 | 1.32 |
| VEGETABLE | 15.96 | 1.50 | 0.54 | 0.05 | 0.68 |
| PASTURE | 51.89 | 4.30 | 0.54 | 0.05 | 2.25 |
| ALMOND-STONE | 46.30 | 2.76 | 0.54 | 0.05 | 2.06 |
| WALNUT | 47.37 | 2.76 | 0.54 | 0.05 | 2.11 |
| MLO | 25.03 | 1.27 | 0.54 | 0.05 | 1.12 |

1990 AVERAGE SMD FOR PANOCHE WATER DISTRICT

| CROP | ACRES PLANTED | HARVEST MAD (%) | RZD (FT) | SOIL TYPE (%) LIGHT | MED | HEAVY | AWHC (IN) | ADJUSTMENT TO RZD > 6 FT DUE TO % TILED AREA | ADJUSTED HARVEST SMD FOR TILED AREA (FT) | HARVEST SMD (FT) | TOTAL WATER BY CROP NEEDED FOR SMD (AC-FT) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| FALLOW | 4,235 | N/A | N/A | 0 | 21 | 79 | 1.89 | | | #VALUE! | |
| MSC | 0 | 40 | 3 | 0 | 21 | 79 | 1.89 | | | 0.19 | 0.00 |
| COTTON | 14,601 | 60 | 6 | 0 | 21 | 79 | 1.89 | 60 | 0.63 | 0.76 | 9950.00 |
| ALFALFA | 3,548 | N/A | N/A | 0 | 21 | 79 | 1.89 | | | #VALUE! | |
| WHEAT | 1,625 | 70 | 4 | 0 | 21 | 79 | 1.89 | | | 0.44 | |
| MELONS | 3,485 | 50 | 4 | 0 | 21 | 79 | 1.89 | | | 0.32 | 1099.49 |
| TOMATOES | 4,731 | 60 | 5 | 0 | 21 | 79 | 1.89 | | | 0.47 | 2238.88 |
| SUGARBEET N | 171 | 80 | 5 | 0 | 21 | 79 | 1.89 | | | 0.63 | |
| BARLEY | 0 | 70 | 4 | 0 | 21 | 79 | 1.89 | | | 0.44 | |
| BEANS | 2,468 | 60 | 5 | 0 | 21 | 79 | 1.89 | | | 0.47 | 1167.95 |
| SD ALFALFA | 0 | 80 | 6 | 0 | 21 | 79 | 1.89 | 60 | 0.63 | 0.76 | |
| RICE | 0 | 20 | 3 | 0 | 21 | 79 | 1.89 | | | 0.09 | 0.00 |
| CORN | 189 | 50 | 5 | 0 | 21 | 79 | 1.89 | | | 0.39 | 74.53 |
| VEGETABLE | 285 | 40 | 3 | 0 | 21 | 79 | 1.89 | | | 0.19 | 53.95 |
| PASTURE | 0 | N/A | N/A | 0 | 21 | 79 | 1.89 | | | #VALUE! | |
| ALMOND-STONE | 117 | N/A | N/A | 0 | 21 | 79 | 1.89 | | | #VALUE! | |
| WALNUT | 379 | N/A | N/A | 0 | 21 | 79 | 1.89 | | | #VALUE! | |
| MLO | 0 | 80 | 5 | 0 | 21 | 79 | 1.89 | | | 0.63 | 0.00 |
| TOTAL ACRES = | 36,034 | | | | | | | | | TOTAL WATER = | 14584.80 |

TOTAL WATER/TOTAL ACRES (AVE SMD (FT)) = 0

1990

| CROP | ADJUSTED ANNUAL ET (IN) | ANNUAL EFF PPT<=ETc (IN) | ECw (dS/M) | LR (%) | NLF (IN) |
|---|---|---|---|---|---|
| FALLOW | 3.48 | 0.00 | 0.54 | 0.05 | 0.16 |
| MSC | 15.60 | 2.39 | 0.54 | 0.05 | 0.62 |
| COTTON | 27.28 | 1.13 | 0.54 | 0.05 | 1.24 |
| ALFALFA | 47.80 | 3.50 | 0.54 | 0.05 | 2.09 |
| WHEAT | 17.10 | 3.70 | 0.54 | 0.05 | 0.63 |
| MELONS | 13.79 | 1.40 | 0.54 | 0.05 | 0.59 |
| TOMATOES | 27.34 | 1.40 | 0.54 | 0.05 | 1.23 |
| SUGARBEET N | 40.45 | 3.43 | 0.54 | 0.05 | 1.75 |
| BARLEY | 15.41 | 3.89 | 0.54 | 0.05 | 0.55 |
| BEANS | 20.78 | 1.05 | 0.54 | 0.05 | 0.93 |
| SD ALFALFA | 24.41 | 3.26 | 0.54 | 0.05 | 1.00 |
| RICE | 42.24 | 1.81 | 0.54 | 0.05 | 1.91 |
| CORN | 28.00 | 1.13 | 0.54 | 0.05 | 1.27 |
| VEGETABLE | 15.60 | 2.39 | 0.54 | 0.05 | 0.62 |
| PASTURE | 52.24 | 4.57 | 0.54 | 0.05 | 2.25 |
| ALMOND-STONE | 45.57 | 1.92 | 0.54 | 0.05 | 2.06 |
| WALNUT | 46.22 | 1.92 | 0.54 | 0.05 | 2.09 |
| MLO | 24.15 | 1.13 | 0.54 | 0.05 | 1.09 |

PANOCHE WATER DISTRICT
Step 4

1991 AVERAGE SMD FOR PANOCHE WATER DISTRICT

| A | B | C | D | E | F | G | H | I | J | K | L |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CROP | ACRES PLANTED | HARVEST MAD (%) | RZD (FT) | SOIL TYPE (%) LIGHT | MED | HEAVY | AWHC (IN) | ADJUSTMENT TO RZD > 6 FT DUE TO % TILED AREA | ADJUSTED HARVEST SMD FOR TILED AREA (FT) | HARVEST SMD (FT) | TOTAL WATER BY CROP NEEDED FOR SMD (AC-FT) |
| FALLOW | 7,916 | N/A | N/A | 0 | 21 | 79 | 1.89 | | | #VALUE! | |
| MSC | 0 | 40 | 3 | 0 | 21 | 79 | 1.89 | | | 0.19 | 0.00 |
| COTTON | 13,056 | 60 | 6 | 0 | 21 | 79 | 1.89 | 60 | 0.63 | 0.76 | 8807.15 |
| ALFALFA | 2,712 | N/A | N/A | 0 | 21 | 79 | 1.89 | | | #VALUE! | |
| WHEAT | 0 | 70 | 4 | 0 | 21 | 79 | 1.89 | | | 0.44 | |
| MELONS | 1,966 | 50 | 4 | 0 | 21 | 79 | 1.89 | | | 0.32 | 620.26 |
| TOMATOES | 5,938 | 60 | 5 | 0 | 21 | 79 | 1.89 | | | 0.47 | 2810.06 |
| SUGARBEET N | 0 | 80 | 5 | 0 | 21 | 79 | 1.89 | | | 0.53 | |
| BARLEY | 0 | 70 | 4 | 0 | 21 | 79 | 1.89 | | | 0.44 | |
| BEANS | 2,730 | 60 | 5 | 0 | 21 | 79 | 1.89 | | | 0.47 | 1291.04 |
| SD ALFALFA | 0 | 80 | 6 | 0 | 21 | 79 | 1.89 | 60 | 0.63 | 0.76 | |
| RICE | 0 | 20 | 3 | 0 | 21 | 79 | 1.89 | | | 0.09 | 0.00 |
| CORN | 240 | 50 | 5 | 0 | 21 | 79 | 1.89 | | | 0.33 | 94.65 |
| VEGETABLE | 1,056 | 40 | 3 | 0 | 21 | 79 | 1.89 | | | 0.19 | 199.90 |
| PASTURE | 0 | N/A | N/A | 0 | 21 | 79 | 1.89 | | | #VALUE! | |
| ALMOND-STONE | 35 | N/A | N/A | 0 | 21 | 79 | 1.89 | | | #VALUE! | |
| WALNUT | 393 | N/A | N/A | 0 | 21 | 79 | 1.89 | | | #VALUE! | |
| MLO | 0 | 80 | 5 | 0 | 21 | 79 | 1.89 | | | 0.63 | 0.00 |
| TOTAL ACRES = | 36,042 | | | | | | | | | TOTAL WATER = | 13913.96 |

TOTAL WATER/TOTAL ACRES (AVE SMD (FT)) = 0

PANOCHE WATER DISTRICT
Step 5

| A | B | C | D | E | F |
|---|---|---|---|---|---|
| 1991 CROP | ADJUSTED ANNUAL ET (IN) | ANNUAL EFF PPT<=ETc (IN) | ECw (dS/M) | LR (%) | NLF (IN) |
| FALLOW | 3.30 | 0.00 | 0.54 | 0.05 | 0.16 |
| MSC | 14.31 | 2.48 | 0.54 | 0.05 | 0.56 |
| COTTON | 26.64 | 0.02 | 0.54 | 0.05 | 1.26 |
| ALFALFA | 45.34 | 3.90 | 0.54 | 0.05 | 1.96 |
| WHEAT | 15.50 | 3.65 | 0.54 | 0.05 | 0.56 |
| MELONS | 13.65 | 0.10 | 0.54 | 0.05 | 0.64 |
| TOMATOES | 26.83 | 0.12 | 0.54 | 0.05 | 1.26 |
| SUGARBEET N | 36.45 | 3.34 | 0.54 | 0.05 | 1.66 |
| BARLEY | 13.92 | 3.65 | 0.54 | 0.05 | 0.49 |
| BEANS | 20.61 | 0.00 | 0.54 | 0.05 | 0.97 |
| SD ALFALFA | 23.07 | 3.47 | 0.54 | 0.05 | 0.93 |
| RICE | 40.93 | 0.67 | 0.54 | 0.05 | 1.90 |
| CORN | 27.48 | 0.02 | 0.54 | 0.05 | 1.30 |
| VEGETABLE | 14.31 | 2.48 | 0.54 | 0.05 | 0.56 |
| PASTURE | 49.51 | 4.47 | 0.54 | 0.05 | 2.13 |
| ALMOND-STONE | 43.49 | 1.81 | 0.54 | 0.05 | 1.97 |
| WALNUT | 44.30 | 1.92 | 0.54 | 0.05 | 2.00 |
| MLO | 23.62 | 0.02 | 0.54 | 0.05 | 1.12 |

1992 AVERAGE SMD FOR PANOCHE WATER DISTRICT

| A | B | C | D | E | F | G | H | I | J | K | L |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CROP | ACRES PLANTED | HARVEST MAD (%) | RZD (FT) | SOIL TYPE (%) LIGHT | MED | HEAVY | AWHC (IN) | ADJUSTMENT TO RZD > 6 FT DUE TO % TILED AREA | ADJUSTED HARVEST SMD FOR TILED AREA (FT) | HARVEST SMD (FT) | TOTAL WATER BY CROP NEEDED FOR SMD (AC-FT) |
| FALLOW | 8,566 | N/A | N/A | 0 | 21 | 79 | 1.89 | | | #VALUE! | |
| MSC | 809 | 40 | 3 | 0 | 21 | 79 | 1.89 | | | 0.19 | 153.14 |
| COTTON | 12,477 | 60 | 6 | 0 | 21 | 79 | 1.89 | 60 | 0.63 | 0.76 | 8502.58 |
| ALFALFA | 2,867 | N/A | N/A | 0 | 21 | 79 | 1.89 | | | #VALUE! | |
| WHEAT | 298 | 70 | 4 | 0 | 21 | 79 | 1.89 | | | 0.44 | |
| MELONS | 2,236 | 50 | 4 | 0 | 21 | 79 | 1.89 | | | 0.32 | 706.07 |
| TOMATOES | 3,710 | 60 | 5 | 0 | 21 | 79 | 1.89 | | | 0.47 | 1755.71 |
| SUGARBEET N | 0 | 80 | 5 | 0 | 21 | 79 | 1.89 | | | 0.53 | |
| BARLEY | 0 | 70 | 4 | 0 | 21 | 79 | 1.89 | | | 0.44 | |
| BEANS | 2,633 | 60 | 5 | 0 | 21 | 79 | 1.89 | | | 0.47 | 1246.03 |
| SD ALFALFA | 0 | 80 | 6 | 0 | 21 | 79 | 1.89 | 60 | 0.63 | 0.76 | |
| RICE | 0 | 20 | 3 | 0 | 21 | 79 | 1.89 | | | 0.09 | 0.00 |
| CORN | 809 | 50 | 5 | 0 | 21 | 79 | 1.89 | | | 0.30 | 240.17 |
| VEGETABLE | 1,499 | 40 | 3 | 0 | 21 | 79 | 1.89 | | | 0.19 | 283.75 |
| PASTURE | 0 | N/A | N/A | 0 | 21 | 79 | 1.89 | | | #VALUE! | |
| ALMOND-STONE | 226 | N/A | N/A | 0 | 21 | 79 | 1.89 | | | #VALUE! | |
| WALNUT | 376 | N/A | N/A | 0 | 21 | 79 | 1.89 | | | #VALUE! | |
| MLO | 0 | 80 | 5 | 0 | 21 | 79 | 1.89 | | | 0.63 | 0.00 |
| TOTAL ACRES = | 36,306 | | | | | | | | | TOTAL WATER = | 12887.45 |

TOTAL WATER/TOTAL ACRES (AVE SMD (FT)) = 0

| A | B | C | D | E | F |
|---|---|---|---|---|---|
| 1992 CROP | ADJUSTED ANNUAL ET (IN) | ANNUAL EFF PPT<=ETc (IN) | ECw (dS/M) | LR (%) | NLF (IN) |
| FALLOW | 3.33 | 0.00 | 0.54 | 0.05 | 0.16 |
| MSC | 15.76 | 2.36 | 0.54 | 0.05 | 0.63 |
| COTTON | 27.09 | 0.11 | 0.54 | 0.05 | 1.28 |
| ALFALFA | 46.45 | 4.25 | 0.54 | 0.05 | 2.00 |
| WHEAT | 15.84 | 4.27 | 0.54 | 0.05 | 0.55 |
| MELONS | 13.43 | 0.11 | 0.54 | 0.05 | 0.63 |
| TOMATOES | 26.87 | 0.11 | 0.54 | 0.05 | 1.27 |
| SUGARBEET N | 38.06 | 6.29 | 0.54 | 0.05 | 1.50 |
| BARLEY | 14.00 | 4.24 | 0.54 | 0.05 | 0.48 |
| BEANS | 20.46 | 0.11 | 0.54 | 0.05 | 0.96 |
| SD ALFALFA | 23.74 | 3.22 | 0.54 | 0.05 | 0.97 |
| RICE | 42.05 | 0.67 | 0.54 | 0.05 | 1.96 |
| CORN | 27.70 | 0.11 | 0.54 | 0.05 | 1.30 |
| VEGETABLE | 15.76 | 2.36 | 0.54 | 0.05 | 0.63 |
| PASTURE | 49.08 | 6.35 | 0.54 | 0.05 | 2.08 |
| ALMOND-STONE | 44.85 | 2.73 | 0.54 | 0.05 | 1.99 |
| WALNUT | 45.69 | 2.84 | 0.54 | 0.05 | 2.03 |
| MLO | 24.04 | 0.11 | 0.54 | 0.05 | 1.13 |

**PANOCHE WATER DISTRICT**
**Step 6**

| A 1981 b AND c CROPS | B PREVIOUS YEAR SMD (AC-FT) | C PREVIOUS YEAR ANNUAL NLF (IN) | D PREVIOUS YR CROP ACRES | E SATISFY SMD + NLF (AC-FT) |
|---|---|---|---|---|
| | N/A | N/A | N/A | #VALUE! |
| COTTON | N/A | N/A | N/A | #VALUE! |
| | N/A | N/A | N/A | #VALUE! |
| | N/A | N/A | N/A | #VALUE! |
| MELONS | N/A | N/A | N/A | #VALUE! |
| TOMATOES | N/A | N/A | N/A | #VALUE! |
| | N/A | N/A | N/A | #VALUE! |
| | N/A | N/A | N/A | #VALUE! |
| BEANS | N/A | N/A | N/A | #VALUE! |
| | N/A | N/A | N/A | #VALUE! |
| RICE | N/A | N/A | N/A | #VALUE! |
| CORN | N/A | N/A | N/A | #VALUE! |
| VEGETABLE | N/A | N/A | N/A | #VALUE! |
| | N/A | N/A | N/A | #VALUE! |
| ALMOND-STONE | N/A | N/A | N/A | #VALUE! |
| WALNUT | N/A | N/A | N/A | #VALUE! |
| MILO | N/A | N/A | N/A | #VALUE! |

TOTAL WATER FOR LISTED CROP #VALUE!

ACREAGE OF LISTED CROPS+ FALLOW= #VALUE!

| 1982 b AND c CROPS | SMD (AC-FT) | ANNUAL NLF (IN) | PREVIOUS YR | SATISFY (AC-FT) |
|---|---|---|---|---|
| | 0.00 | 0.16 | 1,165 | 16 |
| MISC | 0.00 | 0.56 | 0 | 0 |
| COTTON | 12290.82 | 1.30 | 18,036 | 14,244 |
| | 0.00 | 1.93 | 1,454 | 234 |
| | 0.00 | 0.55 | 4,419 | 201 |
| MELONS | 855.61 | 0.61 | 2,712 | 995 |
| TOMATOES | 911.93 | 1.25 | 1,927 | 1,113 |
| | 0.00 | 1.55 | 200 | 26 |
| | 0.00 | 0.46 | 1,433 | 55 |
| BEANS | 260.75 | 1.01 | 551 | 307 |
| | 0.00 | 0.93 | 232 | 18 |
| RICE | 0.00 | 1.93 | 0 | 0 |
| CORN | 116.73 | 1.34 | 298 | 150 |
| VEGETABLE | 349.63 | 0.56 | 1,847 | 436 |
| | 0.00 | 2.05 | 111 | 19 |
| ALMOND-STONE | 0.00 | 1.99 | 301 | 50 |
| WALNUT | 0.00 | 2.03 | 0 | 0 |
| MILO | 398.78 | 1.15 | 632 | 459 |

TOTAL WATER FOR LISTED CROP 17,754

ACREAGE OF LISTED CROPS+ FALLOW= 27,467

**PANOCHE WATER DISTRICT**
**Step 6**

| A 1983 b AND c CROPS | B PREVIOUS YEAR SMD (AC-FT) | C PREVIOUS YEAR ANNUAL NLF (IN) | D PREVIOUS YR CROP ACRES | E SATISFY SMD + NLF (AC-FT) |
|---|---|---|---|---|
| | 0.00 | 0.16 | 1,2 8 | 16 |
| MISC | 0.00 | 0.54 | 0 | 0 |
| COTTON | 7006.78 | 1.26 | 10,282 | 8,088 |
| | 0.00 | 1.87 | 550 | 86 |
| | 0.00 | 0.55 | 1,059 | 48 |
| MELONS | 489.64 | 0.61 | 1,552 | 566 |
| TOMATOES | 982.91 | 1.24 | 2,077 | 1,197 |
| | 0.00 | 1.52 | 300 | 46 |
| | 0.00 | 0.46 | 466 | 18 |
| BEANS | 516.30 | 1.00 | 1,091 | 607 |
| | 0.00 | 0.92 | 144 | 11 |
| RICE | 0.00 | 1.91 | 0 | 0 |
| CORN | 0.00 | 1.30 | 0 | 0 |
| VEGETABLE | 181.53 | 0.54 | 959 | 225 |
| | 0.00 | 1.99 | 111 | 16 |
| ALMOND-STONE | 0.00 | 1.92 | 301 | 46 |
| WALNUT | 0.00 | 1.96 | 0 | 0 |
| MILO | 636.55 | 1.11 | 1,012 | 733 |
| | | TOTAL WATER FOR LISTED CROP! | | 11,466 |
| | | ACREAGE OF LISTED CROPS+ FALLOW= | 16,402 | |

| 1984 b AND c CROPS | PREVIOUS YEAR SMD (AC-FT) | PREVIOUS YEAR ANNUAL NLF (IN) | PREVIOUS YR CROP ACRES | SATISFY SMD + NLF (AC-FT) |
|---|---|---|---|---|
| | 0.00 | 0.16 | 4,703 | 63 |
| MISC | 0.00 | 0.56 | 0 | 0 |
| COTTON | 9219.46 | 1.35 | 13,529 | 10,746 |
| | 0.00 | 1.96 | 872 | 142 |
| | 0.00 | 0.41 | 2,524 | 86 |
| MELONS | 790.94 | 0.66 | 2,507 | 933 |
| TOMATOES | 2101.17 | 1.36 | 4,440 | 2,605 |
| | 0.00 | 1.49 | 977 | 121 |
| | 0.00 | 0.32 | 130 | 3 |
| BEANS | 667.26 | 1.10 | 1,410 | 797 |
| | 0.00 | 0.96 | 55 | 4 |
| RICE | 25.18 | 2.06 | 266 | 71 |
| CORN | 350.59 | 1.41 | 889 | 455 |
| VEGETABLE | 285.39 | 0.56 | 1,402 | 331 |
| | 0.00 | 1.99 | 111 | 16 |
| ALMOND-STONE | 0.00 | 2.06 | 301 | 52 |
| WALNUT | 0.00 | 2.12 | 0 | 0 |
| MILO | 182.06 | 1.20 | 290 | 212 |
| | | TOTAL WATER FOR LISTED CROP! | | 16,201 |
| | | ACREAGE OF LISTED CROPS+ FALLOW= | 29,737 | |

**PANOCHE WATER DISTRICT**
**Step 6**

| A 1985 b AND c CROPS | B PREVIOUS YEAR SMD (AC-FT) | C PREVIOUS YEAR ANNUAL NLF (IN) | D PREVIOUS YR CROP ACRES | E SATISFY SMD + NLF (AC-FT) |
|---|---|---|---|---|
| | 0.00 | 0.17 | 869 | 12 |
| MISC | 0.00 | 0.78 | 0 | 0 |
| COTTON | 11823.67 | 1.34 | 17,057 | 13,528 |
| | 0.00 | 2.21 | 1,543 | 284 |
| | 0.00 | 0.78 | 3,593 | 233 |
| MELONS | 258.39 | 0.89 | 819 | 306 |
| TOMATOES | 1800.19 | 1.34 | 3,804 | 2,224 |
| SUGARBEET N | 0.00 | 1.69 | 826 | 116 |
| | 0.00 | 0.68 | 230 | 13 |
| BEANS | 799.30 | 1.06 | 1,889 | 948 |
| | 0.00 | 1.17 | 0 | 0 |
| RICE | 0.00 | 2.08 | 0 | 0 |
| CORN | 59.15 | 1.38 | 150 | 76 |
| VEGETABLE | 104.87 | 0.78 | 554 | 141 |
| | 0.00 | 2.34 | 0 | 0 |
| ALMOND-STONE | 0.00 | 2.22 | 301 | 56 |
| WALNUT | 0.00 | 2.26 | 32 | 6 |
| MILO | 98.43 | 1.19 | 156 | 114 |
| | | TOTAL WATER FOR LISTED CROPS | | 17,398 |
| | | ACREAGE OF LISTED CROPS + FALLOW= | 25,431 | |

| 1986 b AND c CROPS | PREVIOUS YEAR SMD (AC-FT) | PREVIOUS YEAR ANNUAL NLF (IN) | PREVIOUS YR CROP ACRES | SATISFY SMD + NLF (AC-FT) |
|---|---|---|---|---|
| | 0.00 | 0.16 | 869 | 12 |
| MISC | 35.59 | 0.74 | 188 | 47 |
| COTTON | 10447.47 | 1.29 | 15,331 | 12,098 |
| | 0.00 | 2.10 | 1,543 | 270 |
| | 0.00 | 0.75 | 2,823 | 177 |
| MELONS | 1256.92 | 0.66 | 3,884 | 1,476 |
| TOMATOES | 1800.19 | 1.30 | 3,804 | 2,211 |
| | 0.00 | 1.59 | 1,027 | 136 |
| | 0.00 | 0.67 | 230 | 13 |
| BEANS | 633.66 | 1.00 | 1,339 | 745 |
| | 0.00 | 1.13 | 0 | 0 |
| RICE | 0.00 | 2.00 | 0 | 0 |
| CORN | 59.15 | 1.33 | 150 | 76 |
| VEGETABLE | 192.51 | 0.74 | 1,017 | 255 |
| | 0.00 | 2.22 | 680 | 126 |
| ALMOND-STONE | 0.00 | 2.10 | 301 | 53 |
| WALNUT | 0.00 | 2.15 | 32 | 6 |
| MILO | 584.29 | 1.14 | 928 | 672 |
| | | TOTAL WATER FOR LISTED CROPS | | 17,640 |
| | | ACREAGE OF LISTED CROPS + FALLOW= | 27,941 | |

PANOCHE WATER DISTRICT
Step 6

| A 1987 b AND c CROPS | B PREVIOUS YEAR SMD (AC-FT) | C PREVIOUS YEAR ANNUAL NLF (IN) | D PREVIOUS YR CROP ACRES | E SATISFY SMD + NLF (AC-FT) |
|---|---|---|---|---|
| | 0.00 | 0.16 | 1,468 | 19 |
| MISC | 0.00 | 0.57 | 0 | 0 |
| COTTON | 10170.11 | 1.23 | 14,924 | 11,705 |
| | 0.00 | 1.99 | 2,484 | 408 |
| | 0.00 | 0.54 | 2,115 | 96 |
| MELONS | 698.81 | 0.61 | 2,215 | 811 |
| TOMATOES | 2026.87 | 1.23 | 4,283 | 2,487 |
| | 0.00 | 1.60 | 719 | 96 |
| | 0.00 | 0.48 | 926 | 36 |
| BEANS | 1081.35 | 0.95 | 2,285 | 1,283 |
| | 0.00 | 0.94 | 300 | 23 |
| RICE | 0.00 | 1.90 | 0 | 0 |
| CORN | 374.25 | 1.27 | 949 | 475 |
| VEGETABLE | 83.41 | 0.57 | 335 | 79 |
| | 0.00 | 2.12 | 45 | 8 |
| ALMOND-STONE | 0.00 | 1.96 | 317 | 52 |
| WALNUT | 0.00 | 1.99 | 250 | 41 |
| MILO | 647.39 | 1.09 | 1,026 | 741 |
| | | TOTAL WATER FOR LISTED CROPS | | 17,834 |
| | | ACREAGE OF LISTED CROPS + FALLOW= | 28,052 | |

| 1988 b AND c CROPS | PREVIOUS YEAR SMD (AC-FT) | PREVIOUS YEAR ANNUAL NLF (IN) | PREVIOUS YR CROP ACRES | SATISFY SMD + NLF (AC-FT) |
|---|---|---|---|---|
| | 0.00 | 0.16 | 852 | 11 |
| MISC | 0.00 | 0.66 | 277 | 16 |
| COTTON | 10150.35 | 1.28 | 18,560 | 12,128 |
| | 0.00 | 2.02 | 2,853 | 481 |
| | 0.00 | 0.62 | 837 | 43 |
| MELONS | 376.38 | 0.66 | 1,504 | 459 |
| TOMATOES | 1208.75 | 1.29 | 5,478 | 1,798 |
| | 0.00 | 1.48 | 219 | 27 |
| | 0.00 | 0.54 | 0 | 0 |
| BEANS | 142.92 | 0.99 | 0 | 143 |
| | 0.00 | 1.04 | 155 | 13 |
| RICE | 0.00 | 2.00 | 0 | 0 |
| CORN | 1015.88 | 1.32 | 545 | 1,076 |
| VEGETABLE | 392.60 | 0.68 | 1,935 | 502 |
| | 0.00 | 2.10 | 1,122 | 196 |
| ALMOND-STONE | 0.00 | 2.03 | 58 | 10 |
| WALNUT | 0.00 | 2.08 | 252 | 44 |
| MILO | 46.08 | 1.13 | 0 | 48 |
| | | TOTAL WATER FOR LISTED CROPS | | 16,218 |
| | | ACREAGE OF LISTED CROPS + FALLOW= | 29,481 | |

PANOCHE WATER DISTRICT
Step 6

| A 1989 b AND c CROPS | B PREVIOUS YEAR SMD (AC-FT) | C PREVIOUS YEAR ANNUAL NLF (IN) | D PREVIOUS YR CROP ACRES | ADJUSTMENT SATISFY SMD + NLF (AC-FT) |
|---|---|---|---|---|
| | 0.00 | 0.16 | 852 | 11 |
| MISC | 51.43 | 0.66 | 277 | 68 |
| COTTON | 12647.90 | 1.22 | 18,580 | 14,533 |
| | 0.00 | 2.00 | 2,853 | 476 |
| | 0.00 | 0.73 | 837 | 51 |
| MELONS | 474.50 | 0.55 | 1,504 | 544 |
| TOMATOES | 2592.39 | 1.17 | 5,478 | 3,127 |
| | 0.00 | 1.64 | 219 | 30 |
| | 0.00 | 0.65 | 0 | 0 |
| BEANS | 0.00 | 0.92 | 0 | 0 |
| | 0.00 | 1.03 | 155 | 13 |
| RICE | 0.00 | 1.83 | 0 | 0 |
| CORN | 214.93 | 1.25 | 545 | 272 |
| VEGETABLE | 366.28 | 0.66 | 1,935 | 472 |
| | 0.00 | 2.14 | 1,122 | 200 |
| ALMOND-STONE | 0.00 | 1.97 | 56 | 10 |
| WALNUT | 0.00 | 2.02 | 252 | 42 |
| MILO | 0.00 | 1.09 | 0 | 0 |

TOTAL WATER FOR LISTED CROPS 19,067

ACREAGE OF LISTED CROPS+ FALLOW= 29,461

| 1990 b AND c CROPS | PREVIOUS YEAR SMD (AC-FT) | PREVIOUS YEAR ANNUAL NLF (IN) | PREVIOUS YR CROP ACRES | SATISFY SMD + NLF (AC-FT) |
|---|---|---|---|---|
| | 0.00 | 0.16 | 1,029 | 14 |
| MISC | 0.00 | 0.66 | 0 | 0 |
| COTTON | 10384.77 | 1.27 | 15,239 | 12,003 |
| | 0.00 | 2.09 | 2,999 | 521 |
| | 0.00 | 0.69 | 3,451 | 199 |
| MELONS | 1035.44 | 0.87 | 3,282 | 1,218 |
| TOMATOES | 2555.95 | 1.34 | 5,401 | 3,160 |
| | 0.00 | 1.67 | 220 | 31 |
| | 0.00 | 0.61 | 0 | 0 |
| BEANS | 1203.42 | 1.03 | 2,712 | 1,516 |
| | 0.00 | 1.08 | 0 | 0 |
| RICE | 0.00 | 2.04 | 0 | 0 |
| CORN | 275.66 | 1.32 | 699 | 353 |
| VEGETABLE | 224.88 | 0.68 | 1,188 | 293 |
| | 0.00 | 2.25 | 26 | 5 |
| ALMOND-STONE | 0.00 | 2.06 | 217 | 37 |
| WALNUT | 0.00 | 2.11 | 252 | 44 |
| MILO | 0.00 | 1.12 | 0 | 0 |

TOTAL WATER FOR LISTED CROPS 18,823

ACREAGE OF LISTED CROPS+ FALLOW= 30,019

**PANOCHE WATER DISTRICT**
**Step 6**

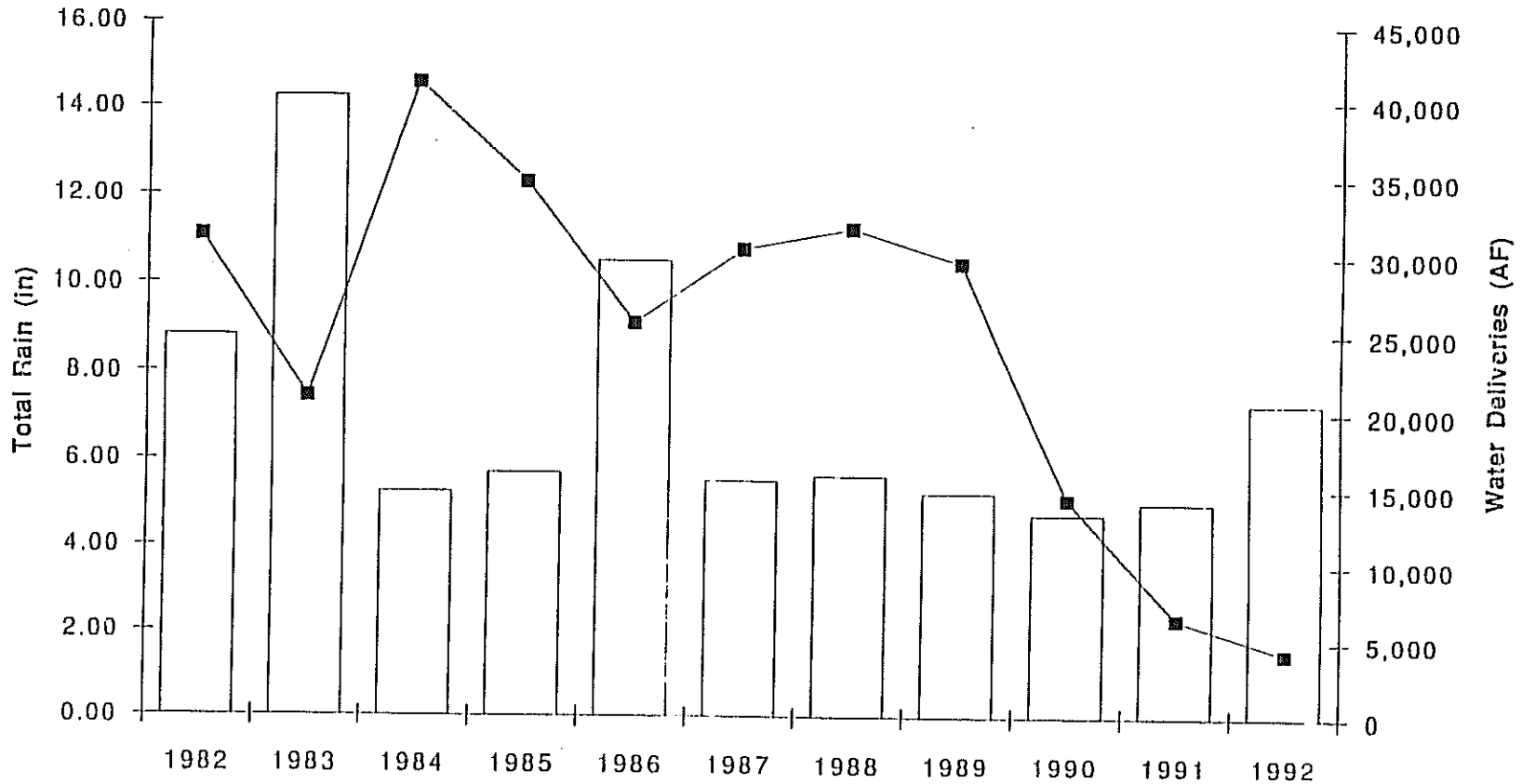
| A 1991 b AND c CROPS | B PREVIOUS YEAR SMD (AC-FT) | C PREVIOUS YEAR ANNUAL NLF (IN) | D PREVIOUS YR CROP ACRES | E SATISFY SMD + NLF (AC-FT) |
|---|---|---|---|---|
| | 0.00 | 0.16 | 4,235 | 58 |
| MISC | 0.00 | 0.62 | 0 | 0 |
| COTTON | 9950.00 | 1.24 | 14,601 | 11,454 |
| | 0.00 | 2.09 | 3,548 | 619 |
| | 0.00 | 0.63 | 1,825 | 96 |
| MELONS | 1099.49 | 0.59 | 3,485 | 1,270 |
| TOMATOES | 2238.88 | 1.23 | 4,731 | 2,722 |
| | 0.00 | 1.75 | 171 | 25 |
| | 0.00 | 0.55 | 0 | 0 |
| BEANS | 1167.95 | 0.93 | 2,468 | 1,360 |
| | 0.00 | 1.00 | 0 | 0 |
| RICE | 0.00 | 1.91 | 0 | 0 |
| CORN | 74.53 | 1.27 | 189 | 95 |
| VEGETABLE | 53.95 | 0.62 | 285 | 89 |
| | 0.00 | 2.25 | 0 | 0 |
| ALMOND-STONE | 0.00 | 2.06 | 117 | 20 |
| WALNUT | 0.00 | 2.09 | 379 | 66 |
| MILO | 0.00 | 1.09 | 0 | 0 |
| | | TOTAL WATER FOR LISTED CROPS | | 17,056 |
| | | ACREAGE OF LISTED CROPS + FALLOW= | 30,490 | |

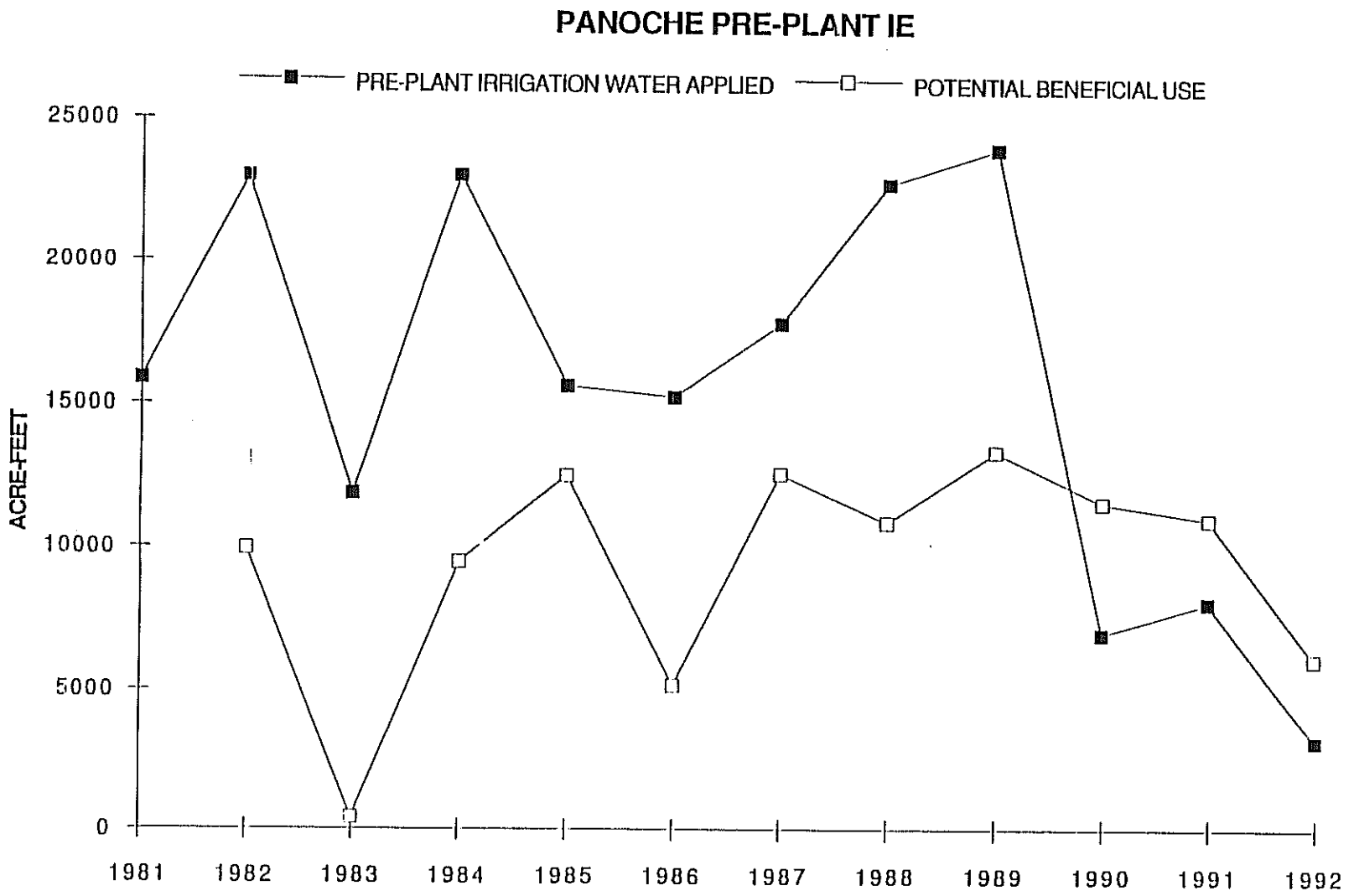
| 1992 b AND c CROPS | PREVIOUS YEAR SMD (AC-FT) | PREVIOUS YEAR ANNUAL NLF (IN) | PREVIOUS YR CROP ACRES | SATISFY SMD + NLF (AC-FT) |
|---|---|---|---|---|
| | 0.00 | 0.16 | 7,916 | 103 |
| MISC | 0.00 | 0.56 | 0 | 0 |
| COTTON | 8897.15 | 1.26 | 13,056 | 10,267 |
| | 0.00 | 1.96 | 2,712 | 443 |
| | 0.00 | 0.56 | 0 | 0 |
| MELONS | 820.26 | 0.64 | 1,966 | 725 |
| TOMATOES | 2810.06 | 1.26 | 5,936 | 3,435 |
| | 0.00 | 1.66 | 0 | 0 |
| | 0.00 | 0.49 | 0 | 0 |
| BEANS | 1291.04 | 0.97 | 2,730 | 1,514 |
| | 0.00 | 0.93 | 0 | 0 |
| RICE | 0.00 | 1.90 | 0 | 0 |
| CORN | 94.65 | 1.30 | 240 | 121 |
| VEGETABLE | 199.90 | 0.56 | 1,056 | 249 |
| | 0.00 | 2.13 | 0 | 0 |
| ALMOND-STONE | 0.00 | 1.97 | 35 | 6 |
| WALNUT | 0.00 | 2.00 | 393 | 66 |
| MILO | 0.00 | 1.12 | 0 | 0 |
| | | TOTAL WATER FOR LISTED CROPS | | 16,382 |
| | | ACREAGE OF LISTED CROPS + FALLOW= | 33,330 | |

PANOCHE WATER DISTRICT

| YEAR | TOTAL SUPPLY (AC-FT) | WATER TO MEET ETc (AC-FT) | PRE-PLANT IRRIGATION WATER AVAILABLE (AC-FT) | WATER FOR PREVIOUS YEAR (AC-FT) | WATER FOR PREVIOUS YEAR SMD + NLF (AC-FT) | RAINWATER CONTRIBUTION TO SMD, NLF (AC-FT) | WATER FOR PREVIOUS YEAR SMD + NLF LESS RAINWATER (AC-FT) | NO RAINWATER PRE-PLANT IRRIGATION EFFICIENCY | INCLUDES RAINWATER PRE-PLANT IRRIGATION EFFICIENCY |
|---|---|---|---|---|---|---|---|---|---|
| 1981 | 20461 | 4599 | 15862 | | | | | | |
| 1982 | 25755 | 2743 | 23012 | 15184 | 17754 | 7802 | 9952 | 77.15 | 43.25 |
| 1983 | 12981 | 1085 | 11896 | 9816 | 11466 | 11040 | 426 | 96.38 | 3.58 |
| 1984 | 30201 | 7147 | 23054 | 13603 | 16201 | 6696 | 9505 | 70.27 | 41.23 |
| 1985 | 21693 | 6054 | 15639 | 14744 | 17398 | 4876 | 12523 | 100.00 | 80.07 |
| 1986 | 18050 | 2800 | 15250 | 15010 | 17640 | 12474 | 5166 | 100.00 | 33.88 |
| 1987 | 19997 | 2184 | 17813 | 15062 | 17634 | 5066 | 12568 | 98.99 | 70.56 |
| 1988 | 29241 | 6469 | 22772 | 13331 | 16218 | 5347 | 10871 | 71.22 | 47.74 |
| 1989 | 28883 | 4853 | 24030 | 16348 | 19067 | 5679 | 13388 | 79.35 | 55.71 |
| 1990 | 10480 | 3509 | 6971 | 15760 | 18623 | 7057 | 11565 | 100.00 | 100.00 |
| 1991 | 8930 | 852 | 8078 | 14585 | 17056 | 6057 | 10999 | 100.00 | 100.00 |
| 1992 | 4261 | 1107 | 3154 | 13914 | 16382 | 10313 | 6069 | 100.00 | 100.00 |

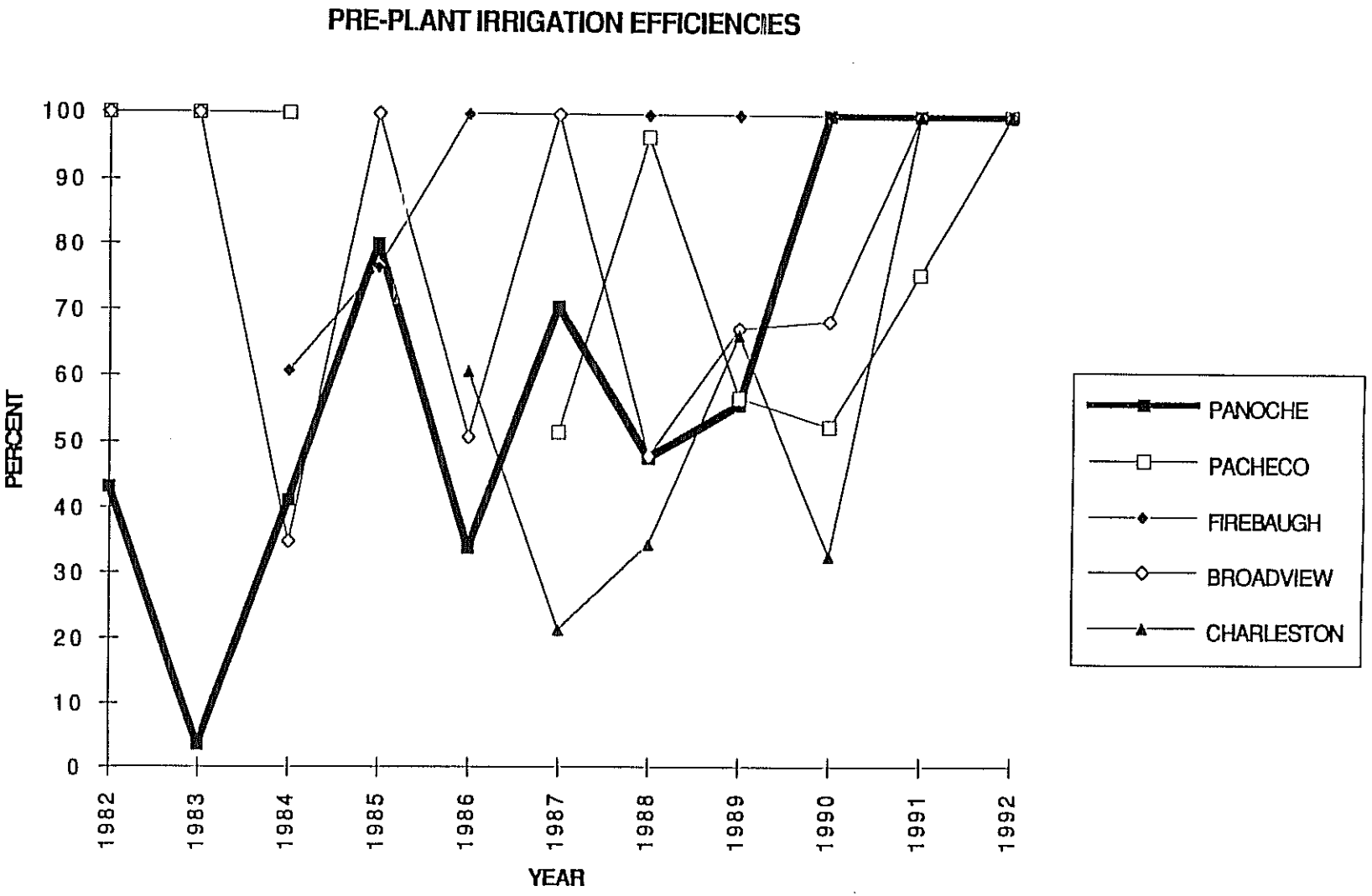
# Panoche D.D.
## Water Deliveries vs. Rainfall Between Oct. and Mar.
## Pre-Plant Timeframe




PANOCHE PRE-PLANT IE
PRE-PLANT IRRIGATION WATER APPLIED
POTENTIAL BENEFICIAL USE
ACRE-FEET
25000
20000
15000
10000
5000
0
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
1992

PRE-PLANT IE SUMMARY CHART

| PRE-PLANT IRRIGATION EFFICIENCIES FROM MASTER SPREADSHEETS | | | | | |
|---|---|---|---|---|---|
| | | | | | |
| YEAR | PANOCHE | PACHECO | FIREBAUGH | BROADVIEW | CHARLESTON |
| 1982 | 43 | 100 | | 100 | |
| 1983 | 4 | 100 | | 100 | |
| 1984 | 41 | 100 | 61 | 35 | |
| 1985 | 80 | | 77 | 100 | |
| 1986 | 34 | | 100 | 51 | 61 |
| 1987 | 71 | 52 | 100 | 100 | 21 |
| 1988 | 48 | 97 | 100 | 48 | 35 |
| 1989 | 56 | 57 | 100 | 67 | 66 |
| 1990 | 100 | 52 | 100 | 69 | 33 |
| 1991 | 100 | 76 | 100 | 100 | 100 |
| 1992 | 100 | 100 | 100 | 100 | 100 |




PRE-PLANT IRRIGATION EFFICIENCIES FOR GRASSLANDS WATER DISTRICTS

# TECHNICAL APPENDIX F
# IRRIGATION EFFICIENCY Spreadsheet
# Water Balance Approach

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# TECHNICAL APPENDIX F

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Graphs of Individual Subareas: PE-14, PO-1, CH-1, and FC-5 ..... F7

## Grasslands Basin Irrigation and Drainage Study

### Water Balance

| | | | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Water Delivery (IN) | | | | | | | | | | | | | | |
| | Panoche | W1: PoDD | 97,344 | 89,155 | 75,306 | 109,511 | 98,241 | 92,487 | 98,119 | 97,196 | 91,300 | 81,258 | 69,706 | 63,416 |
| | Pacheco | W2: PaWD | 12,653 | 9,763 | 9,751 | 10,775 | 9,000 | 7,770 | 9,756 | 10,217 | 13,063 | 11,569 | 11,572 | 8,107 |
| | Charleston | W3: SLWD | 14,030 | 11,973 | 11,591 | 13,691 | 12,119 | 10,264 | 13,891 | 14,428 | 12,263 | 11,127 | 10,218 | 9,630 |
| | Eastside Districts | W4=W5+W6+W7 | 119,828 | 106,594 | 78,341 | 127,430 | 122,585 | 102,667 | 119,108 | 117,735 | 106,574 | 97,567 | 86,394 | 83,201 |
| | Firebaugh | W5: FCWD | 75,645 | 66,132 | 47,400 | 80,268 | 75,432 | 62,966 | 79,545 | 75,106 | 70,326 | 63,903 | 57,141 | 59,569 |
| | Broadview | W6: BWD | 28,932 | 25,211 | 15,690 | 31,911 | 28,240 | 24,628 | 23,308 | 25,891 | 25,200 | 20,582 | 12,902 | 9,086 |
| | CCID | W7: CCID | 15,251 | 15,251 | 15,251 | 15,251 | 18,914 | 15,072 | 16,255 | 16,738 | 11,049 | 13,081 | 16,351 | 14,546 |
| | Total Volume (AF) | W8=W1+W2+W3+W4 | 243,855 | 217,485 | 174,989 | 261,407 | 241,945 | 213,188 | 240,874 | 239,576 | 223,200 | 201,521 | 177,890 | 164,354 |
| Precipitation | | | | | | | | | | | | | | |
| | Total Rain (in) | P1 | 7.7 | 9.7 | 15.5 | 5.4 | 5.8 | 11.0 | 5.7 | 5.9 | 6.7 | 6.1 | 5.1 | 7.5 |
| | Effective Rain | P2: Est. at 50% | 3.8 | 4.9 | 7.8 | 2.7 | 2.9 | 5.5 | 2.8 | 2.9 | 3.4 | 3.0 | 2.5 | 3.7 |
| | Rain Runoff | P3: Est. at 15% | 1.2 | 1.5 | 2.3 | 0.8 | 0.9 | 1.7 | 0.8 | 0.9 | 1.0 | 0.9 | 0.8 | 1.1 |
| Reference Evapotranspiration | | R1: CIMIS | 57 | 57 | 58 | 59 | 58 | 55 | 57 | 56 | 57 | 57 | 56 | 56 |
| Total Acreage | | | | | | | | | | | | | | |
| | Panoche | A1: PoDD | 34,151 | 19,986 | 29,703 | 30,754 | 33,375 | 33,153 | 32,208 | 33,795 | 35,686 | 31,799 | 28,126 | 27,742 |
| | Pacheco | A2: PaWD | 4,410 | 4,410 | 3,696 | 3,696 | 3,100 | 3,500 | 4,028 | 4,179 | 3,648 | 4,254 | 4,369 | 3,705 |
| | Charleston | A3: SLWD | 3,618 | 3,643 | 3,612 | 3,477 | 3,232 | 2,897 | 3,724 | 3,582 | 3,602 | 3,494 | 3,890 | 3,890 |
| | Eastside Districts | A4=A5+A6+A7 | 32,318 | 32,255 | 25,477 | 32,834 | 33,807 | 32,534 | 33,923 | 37,237 | 37,498 | 38,054 | 34,772 | 34,277 |
| | Firebaugh | A5: FCWD | 20,110 | 20,244 | 16,784 | 20,691 | 19,731 | 19,825 | 20,981 | 23,282 | 24,746 | 25,458 | 24,678 | 24,894 |
| | Broadview | A6: BWD | 9,025 | 8,828 | 5,510 | 8,960 | 8,665 | 8,169 | 7,870 | 8,736 | 8,686 | 8,160 | 5,539 | 4,483 |
| | CCID | A7: CCID | 3,183 | 3,183 | 3,183 | 3,183 | 5,411 | 4,540 | 5,072 | 5,219 | 4,066 | 4,436 | 4,555 | 4,900 |
| | Total Acreage | A8=A1+A2+A3+A4 | 74,497 | 60,294 | 62,488 | 70,761 | 73,514 | 72,084 | 73,883 | 78,793 | 80,434 | 77,601 | 71,157 | 69,614 |
| Fallow Acreage | | | | | | | | | | | | | | |
| | Total Acreage | A9 | 1,466 | 1,828 | 9,514 | 2,028 | 3,178 | 4,632 | 3,439 | 2,021 | 2,429 | 5,846 | 11,792 | 13,584 |
| Evaporation - Canals | | | | | | | | | | | | | | |
| | Panoche | E1: Est. 200 AF Vary by ETo | 200 | 200 | 205 | 206 | 202 | 192 | 202 | 196 | 199 | 199 | 197 | 197 |
| | Pacheco | E2: Est. 100 AF Vary by ETo | 100 | 100 | 102 | 103 | 101 | 96 | 101 | 98 | 99 | 99 | 98 | 98 |
| | Charleston | E3: Est. 100 AF Vary by ETo | 100 | 100 | 102 | 103 | 101 | 96 | 101 | 98 | 99 | 99 | 98 | 98 |
| | Eastside Districts | E4=E5+E6+E7 | 400 | 400 | 409 | 413 | 404 | 384 | 404 | 393 | 397 | 397 | 393 | 393 |
| | Firebaugh | E5: Est. 150 AF Vary by ETo | 150 | 150 | 154 | 155 | 152 | 144 | 151 | 147 | 149 | 149 | 147 | 147 |
| | Broadview | E6: Est. 100 AF Vary by ETo | 100 | 100 | 102 | 103 | 101 | 96 | 101 | 98 | 99 | 99 | 98 | 98 |
| | CCID | E7: Est. 100 AF Vary by ETo | 100 | 100 | 102 | 103 | 101 | 96 | 101 | 98 | 99 | 99 | 98 | 98 |
| | Total Volume (AF) | E8=E1+E2+E3+E4 | 800 | 800 | 819 | 826 | 809 | 768 | 808 | 785 | 795 | 795 | 787 | 787 |
| Evaporation - Phreatophytes, Fields & Head Ditches | | | | | | | | | | | | | | |
| | 3% Panoche | E11: Est. 3% of Delivered | 2,920 | 2,675 | 2,259 | 3,285 | 2,947 | 2,775 | 2,944 | 2,916 | 2,739 | 2,438 | 2,091 | 1,902 |
| | Pacheco | E12: Est. 3% of Delivered | 380 | 293 | 293 | 323 | 270 | 233 | 293 | 307 | 392 | 347 | 347 | 243 |
| | Charleston | E13: Est. 3% of Delivered | 421 | 359 | 348 | 411 | 364 | 308 | 417 | 433 | 368 | 334 | 307 | 289 |
| | Eastside Districts | E14=E15+E16+E17 | 3,595 | 3,198 | 2,350 | 3,823 | 3,678 | 3,080 | 3,573 | 3,532 | 3,197 | 2,927 | 2,592 | 2,496 |
| | Firebaugh | E14: Est. 3% of Delivered | 2,269 | 1,984 | 1,422 | 2,408 | 2,263 | 1,889 | 2,386 | 2,253 | 2,110 | 1,917 | 1,714 | 1,787 |
| | Broadview | E15: Est. 3% of Delivered | 868 | 756 | 471 | 957 | 847 | 739 | 699 | 777 | 756 | 617 | 387 | 273 |
| | CCID | E16: Est. 3% of Delivered | 458 | 458 | 458 | 458 | 567 | 452 | 488 | 502 | 331 | 392 | 491 | 436 |
| | Total Volume (AF) | E18=E11+E12+E13+E14 | 7,316 | 6,525 | 5,250 | 7,842 | 7,258 | 6,396 | 7,226 | 7,187 | 6,696 | 6,046 | 5,337 | 4,931 |
| Total Infiltrated or in Drains | | | | | | | | | | | | | | |
| | Panoche | IN1=W1-E1-E11 | 94,224 | 86,280 | 72,842 | 106,019 | 95,092 | 89,520 | 94,973 | 94,084 | 88,362 | 78,622 | 67,418 | 61,317 |
| | Pacheco | IN2=W2-E2-E12 | 12,173 | 9,370 | 9,356 | 10,349 | 8,629 | 7,441 | 9,362 | 9,812 | 12,572 | 11,123 | 11,127 | 7,765 |
| | Charleston | IN3=W3-E3-E13 | 13,509 | 11,514 | 11,141 | 13,177 | 11,654 | 9,860 | 13,373 | 13,897 | 11,796 | 10,694 | 9,813 | 9,243 |
| | Eastside Districts | IN4=W4-E4-E14 | 115,833 | 102,996 | 75,581 | 123,194 | 118,503 | 99,203 | 115,131 | 113,810 | 102,980 | 94,243 | 83,409 | 80,312 |
| | Firebaugh | IN5=W5-E5-E15 | 73,225 | 63,998 | 45,825 | 77,705 | 73,017 | 60,933 | 77,007 | 72,705 | 68,067 | 61,837 | 55,279 | 57,634 |
| | Broadview | IN6=W6-E6-E16 | 27,964 | 24,355 | 15,117 | 30,850 | 27,292 | 23,793 | 22,508 | 25,016 | 24,345 | 19,865 | 12,417 | 8,715 |
| | CCID | IN7=W7-E7-E17 | 14,693 | 14,693 | 14,691 | 14,690 | 18,245 | 14,524 | 15,666 | 16,138 | 10,618 | 12,590 | 15,762 | 14,012 |
| | Total Volume (AF) | IN8=W8-E8-E18 | 235,739 | 210,160 | 168,921 | 252,738 | 233,878 | 206,024 | 232,840 | 231,603 | 215,710 | 194,681 | 171,766 | 158,637 |

## Grasslands Basin Irrigation and Drainage Study

### Water Balance

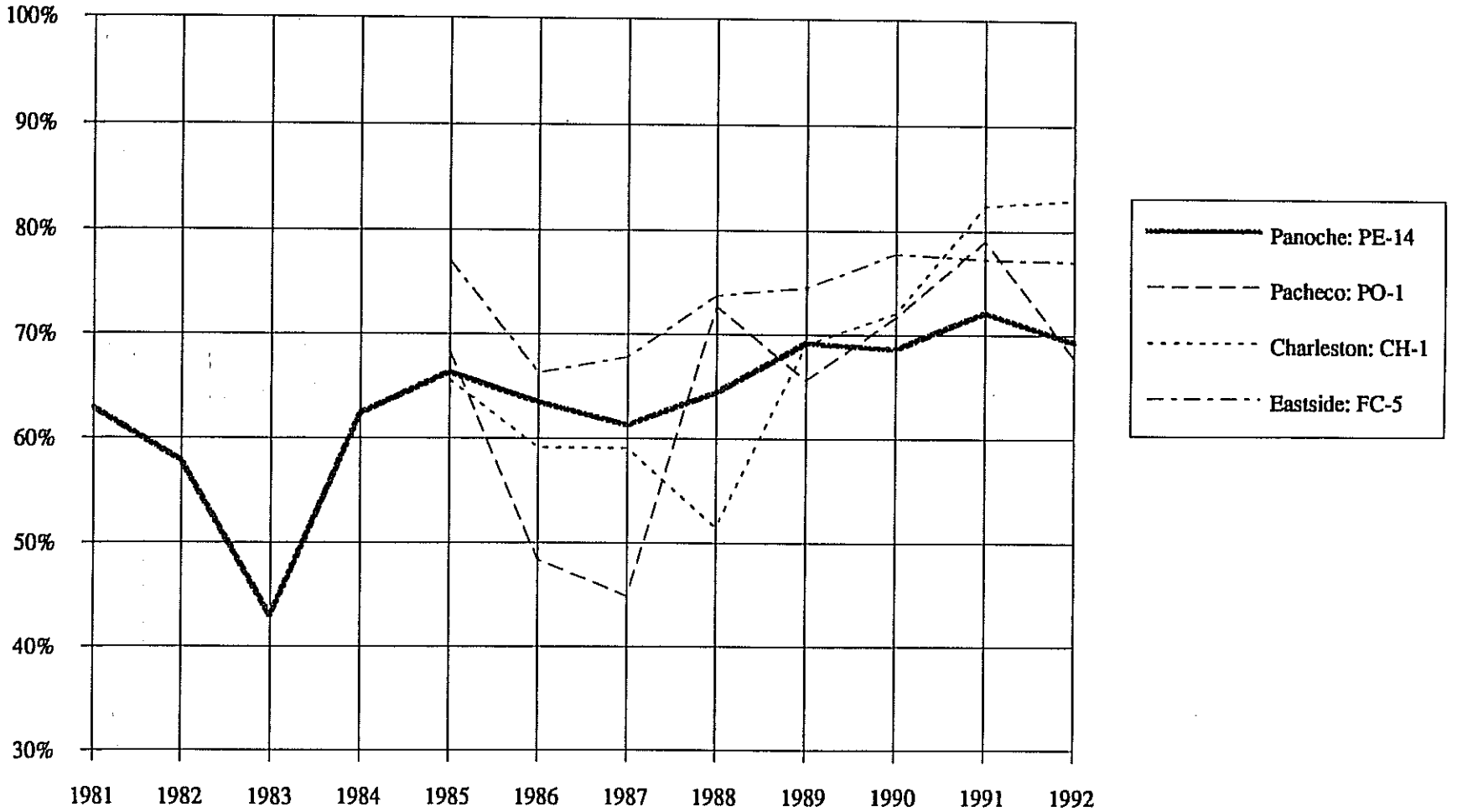
| | | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Water Drainage (OUT)** | | | | | | | | | | | | | |
| Panoche | D1: PB-14 | 34,411 | 34,861 | 43,278 | 38,359 | 30,468 | 33,257 | 34,724 | 30,144 | 24,875 | 19,835 | 13,475 | 13,532 |
| Pacheco | D2: PD-1/85-2337,3772,3231,655 | | | | | 2,531 | 3,884 | 5,176 | 2,664 | 5,122 | 3,160 | 2,716 | 2,716 |
| Charleston | D3: CH-1 | | | | | 3,090 | 3,186 | 4,769 | 6,136 | 2,799 | 2,126 | 781 | 781 |
| Eastside Districts | D4: FC-5 | | | | | 22,907 | 31,191 | 32,265 | 26,041 | 22,626 | 16,964 | 13,491 | 13,491 |
| Firebaugh | | | | | | | | | | | | | |
| Broadview | | | | | | | | | | | | | |
| CCID | | | | | | | | | | | | | |
| Total Volume (AF) | D5=D1+D2+D3+D4 | | | | | 58,995 | 71,518 | 76,934 | 64,985 | 55,422 | 42,085 | 30,463 | 30,520 |
| **Percent of Delivered** | | | | | | | | | | | | | |
| Panoche | Water Out/ Water In | 35% | 39% | 57% | 35% | 31% | 36% | 35% | 31% | 27% | 24% | 19% | 21% |
| Pacheco | - | | | | | 28% | 50% | 53% | 26% | 39% | 27% | 23% | 34% |
| Charleston | - | | | | | 25% | 31% | 34% | 43% | 23% | 19% | 8% | 8% |
| Eastside Districts | - | | | | | 19% | 30% | 27% | 22% | 21% | 17% | 16% | 16% |
| Firebaugh | | | | | | | | | | | | | |
| Broadview | | | | | | | | | | | | | |
| CCID | | | | | | | | | | | | | |
| Total | - | 0% | 0% | 0% | 0% | 24% | 34% | 32% | 27% | 25% | 21% | 17% | 19% |
| **Water For Leaching** | | | | | | | | | | | | | |
| Panoche | L1: From DIE Spreadsheet | 4,395 | 4,025 | 3,400 | 4,944 | 4,436 | 4,176 | 4,430 | 4,388 | 4,122 | 3,669 | 4,135 | 3,762 |
| Pacheco | L2: From DIE Spreadsheet | 1,282 | 989 | 988 | 1,092 | 912 | 787 | 988 | 1,035 | 1,835 | 1,626 | 1,626 | 1,139 |
| Charleston | L3: From DIE Spreadsheet | 633 | 541 | 523 | 429 | 505 | 331 | 688 | 753 | 543 | 561 | 506 | 503 |
| Eastside Districts | L4= L5+L6+97 | 14,101 | 11,256 | 4,031 | 6,321 | 5,809 | 4,918 | 5,419 | 6,084 | 5,283 | 5,383 | 4,752 | 4,136 |
| Firebaugh | L5: From DIE Spreadsheet | 3,415 | 2,986 | 2,140 | 3,624 | 3,406 | 2,843 | 3,392 | 3,391 | 3,175 | 2,885 | 2,580 | 2,690 |
| Broadview | L6: From DIE Spreadsheet | 9,997 | 7,582 | 1,203 | 2,008 | 1,549 | 1,395 | 1,093 | 1,937 | 1,609 | 1,907 | 1,434 | 790 |
| CCID | L7: From DIE Spreadsheet | 689 | 689 | 689 | 689 | 854 | 681 | 734 | 756 | 499 | 591 | 738 | 657 |
| Total Volume (AF) | L8=L1+L2+L3+L4 | 20,412 | 16,811 | 8,943 | 12,786 | 11,661 | 10,212 | 11,525 | 12,260 | 11,783 | 11,238 | 11,019 | 9,540 |
| **Subsurface Baseflow** | | | | | | | | | | | | | |
| Panoche | B1-B3:From John Pie | 4,800 | 4,800 | 4,800 | 4,800 | 4,800 | 4,800 | 4,300 | 2,900 | 3,700 | 2,000 | 1,600 | 906 |
| Pacheco | Personal Communication | 544 | 544 | 544 | 544 | 544 | 544 | 544 | 549 | 605 | 0 | 451 | 575 |
| Charleston | | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 1 | 0 | 0 | 30 |
| Eastside Districts | B4=B5+B6+B7 | 1,703 | 1,703 | 1,703 | 1,703 | 1,703 | 1,709 | 1,204 | 1,198 | 1,638 | 1,400 | 920 | 961 |
| Firebaugh | B5-B7:From John Pie | 609 | 609 | 609 | 609 | 609 | 609 | 438 | 524 | 501 | 509 | 368 | 409 |
| Broadview | Personal Communication | 594 | 594 | 594 | 594 | 594 | 600 | 266 | 174 | 637 | 391 | 52 | 52 |
| CCID | | 500 | 500 | 500 | 500 | 500 | 500 | 500 | 500 | 500 | 500 | 500 | 500 |
| Total Volume (AF) | B8=B1+B2+B3+B4 | 7,077 | 7,077 | 7,077 | 7,077 | 7,077 | 7,083 | 6,078 | 4,677 | 5,944 | 3,400 | 2,871 | 2,472 |
| **Rain Runoff** | | | | | | | | | | | | | |
| Panoche | R1:From DIE Spreadsheet | 3,283 | 2,431 | 5,755 | 2,057 | 2,407 | 4,571 | 2,279 | 2,488 | 2,989 | 2,405 | 1,775 | 2,583 |
| Pacheco | R2:From DIE Spreadsheet | 424 | 536 | 716 | 247 | 224 | 483 | 285 | 308 | 306 | 322 | 276 | 345 |
| Charleston | R3:From DIE Spreadsheet | 348 | 443 | 700 | 233 | 233 | 399 | 263 | 264 | 302 | 264 | 246 | 362 |
| Eastside Districts | R4=R5+R6+R7 | 3,107 | 3,923 | 4,936 | 2,196 | 2,438 | 4,486 | 2,400 | 2,742 | 3,140 | 2,878 | 2,195 | 3,192 |
| Firebaugh | R5:From DIE Spreadsheet | 1,933 | 2,462 | 3,252 | 1,384 | 1,423 | 2,733 | 1,484 | 1,714 | 2,072 | 1,925 | 1,558 | 2,318 |
| Broadview | R6:From DIE Spreadsheet | 868 | 1,074 | 1,068 | 599 | 625 | 1,126 | 557 | 643 | 727 | 617 | 350 | 417 |
| CCID | R7:From DIE Spreadsheet | 306 | 387 | 617 | 213 | 390 | 626 | 359 | 384 | 341 | 335 | 288 | 456 |
| Total Volume (AF) | R8=R1+R2+R3+R4 | 7,161 | 7,333 | 12,107 | 4,732 | 5,302 | 9,939 | 5,227 | 5,801 | 6,736 | 5,869 | 4,492 | 6,483 |

## Grasslands Basin Irrigation and Drainage Study

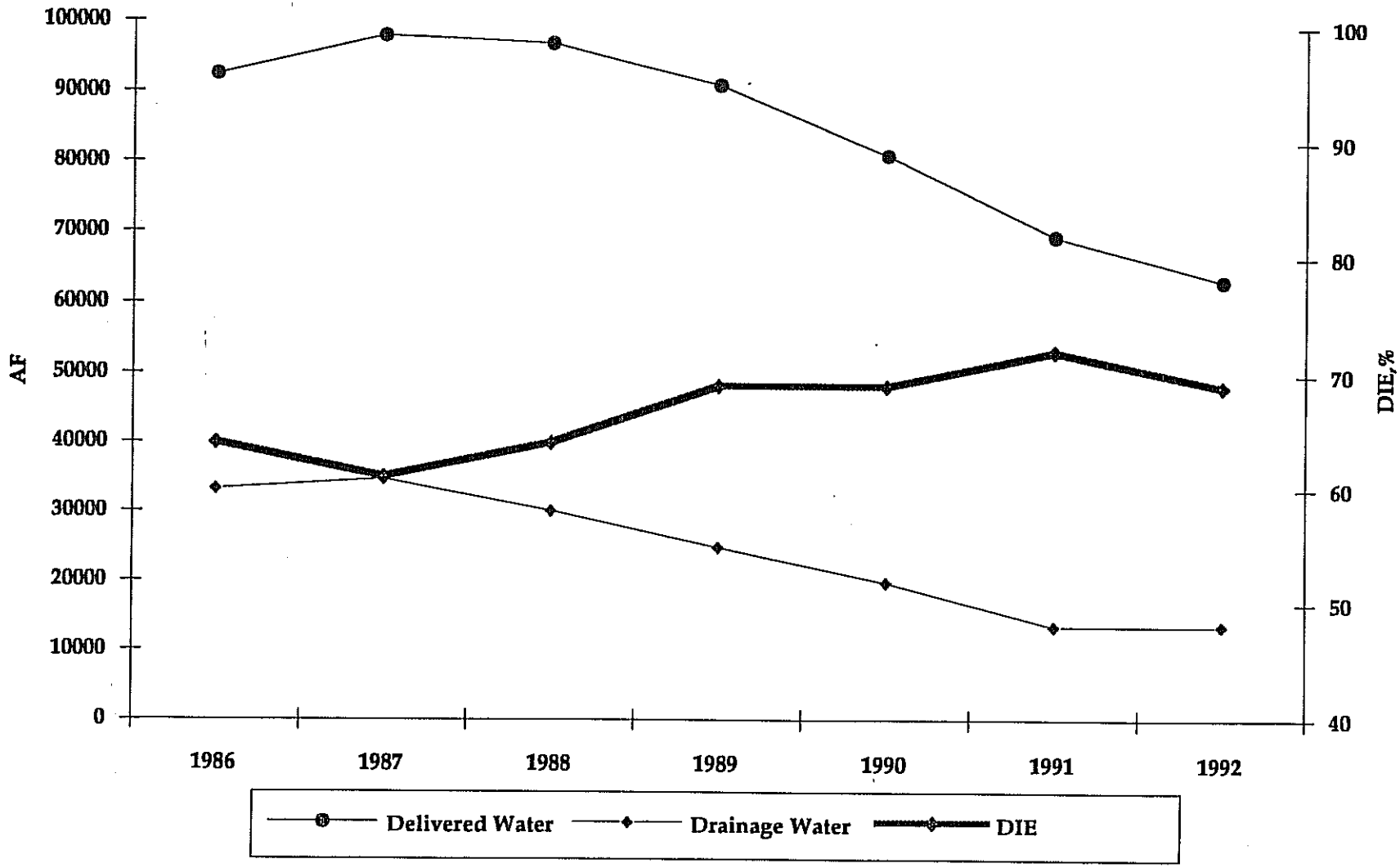
### Water Balance

| | | | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Drain Evaporation - Phreatophytes & Water Surfaces | | | | | | | | | | | | | | |
| | Panoche | B19: Est. 500 AF Vary by ETo | 500 | 500 | 512 | 516 | 506 | 480 | 505 | 491 | 497 | 497 | 492 | 492 |
| | Pacheco | B20: Est. 250 AF Vary by ETo | 250 | 250 | 256 | 258 | 253 | 240 | 252 | 245 | 248 | 248 | 246 | 246 |
| | Charleston | B21: Est. 250 AF Vary by ETo | 250 | 250 | 256 | 258 | 253 | 240 | 252 | 245 | 248 | 248 | 246 | 246 |
| | Eastside Districts | B22=B15+B16+B17 | 850 | 1,000 | 1,024 | 1,032 | 1,011 | 960 | 1,010 | 982 | 993 | 993 | 983 | 983 |
| | Firebaugh | B23: Est. 350 AF Vary by ETo | 350 | 350 | 358 | 361 | 354 | 336 | 353 | 344 | 348 | 348 | 344 | 344 |
| | Broadview | B24: Est. 250 AF Vary by ETo | 250 | 250 | 256 | 258 | 253 | 240 | 252 | 245 | 248 | 248 | 246 | 246 |
| | CCID | B25: Est. 250 AF Vary by ETo | 250 | 250 | 256 | 258 | 253 | 240 | 252 | 245 | 248 | 248 | 246 | 246 |
| | Total Volume (AF) | B26=B11+B12+B13+B14 | 1,850 | 2,000 | 2,047 | 2,065 | 2,022 | 1,920 | 2,020 | 1,964 | 1,987 | 1,987 | 1,966 | 1,966 |
| Deep Percolation Losses below Corcoran Clay | | | | | | | | | | | | | | |
| | Panoche | DP1=.31 AF/A x Acres in 1981 | 10,587 | 10,587 | 10,587 | 10,587 | 10,587 | 10,587 | 10,587 | 10,587 | 10,587 | 10,587 | 10,587 | 10,587 |
| | Pacheco | DP2=.31 AF/A x Acres | 1,367 | 1,367 | 1,367 | 1,367 | 1,367 | 1,367 | 1,367 | 1,367 | 1,367 | 1,367 | 1,367 | 1,367 |
| | Charleston | DP3=.31 AF/A x Acres | 1,122 | 1,122 | 1,122 | 1,122 | 1,122 | 1,122 | 1,122 | 1,122 | 1,122 | 1,122 | 1,122 | 1,122 |
| | Eastside Districts | DP4=DP5+DP6+DP7 | 10,019 | 10,019 | 10,019 | 10,019 | 10,019 | 10,019 | 10,019 | 10,019 | 10,019 | 10,019 | 10,019 | 10,019 |
| | Firebaugh | DP5=.21 AF/A x Acres | 6,234 | 6,234 | 6,234 | 6,234 | 6,234 | 6,234 | 6,234 | 6,234 | 6,234 | 6,234 | 6,234 | 6,234 |
| | Broadview | DP6=.26 AF/A x Acres | 2,798 | 2,798 | 2,798 | 2,798 | 2,798 | 2,798 | 2,798 | 2,798 | 2,798 | 2,798 | 2,798 | 2,798 |
| | CCID | DP7=.21 AF/A x Acres | 987 | 987 | 987 | 987 | 987 | 987 | 987 | 987 | 987 | 987 | 987 | 987 |
| | Total Volume (AF) | DP8=DP1+DP2+DP3+DP4 | 23,094 | 23,094 | 23,094 | 23,094 | 23,094 | 23,094 | 23,094 | 23,094 | 23,094 | 23,094 | 23,094 | 23,094 |
| Non-Beneficially Used Water | | | | | | | | | | | | | | |
| | Panoche | NB1=D1-L1-B1-R1+B19+DP1 | 33,020 | 34,692 | 40,422 | 37,661 | 29,918 | 30,777 | 34,807 | 31,445 | 25,147 | 22,845 | 17,143 | 17,359 |
| | Pacheco | NB2=D2-L2-B2-R2+B20+DP2 | | | | | 2,471 | 3,677 | 4,978 | 2,385 | 3,991 | 2,828 | 1,976 | 2,270 |
| | Charleston | NB3=D3-L3-B3-R3+B21+DP3 | | | | | 3,696 | 3,788 | 5,161 | 6,456 | 3,323 | 2,671 | 1,397 | 1,254 |
| | Eastside Districts | NB4=D4-L4-B4-R4+B22+DP4 | | | | | 23,986 | 31,057 | 34,271 | 27,018 | 23,577 | 18,315 | 16,626 | 16,203 |
| | Firebaugh | | | | | | | | | | | | | |
| | Broadview | | | | | | | | | | | | | |
| | CCID | | | | | | | | | | | | | |
| | Total Volume (AF) | NB5=NB1+NB2+NB3+NB4 | 33,020 | 34,692 | 40,422 | 37,661 | 60,071 | 69,299 | 79,217 | 67,304 | 56,039 | 46,659 | 37,142 | 37,086 |
| Beneficially Used Water | | | | | | | | | | | | | | |
| | Panoche | B1=IN1-NB1 | 61,204 | 51,589 | 32,421 | 68,358 | 65,174 | 58,743 | 60,166 | 62,639 | 63,215 | 55,777 | 50,275 | 43,958 |
| | Pacheco | B2=IN2-NB2 | 12,173 | 9,370 | 9,356 | 10,349 | 6,158 | 3,764 | 4,384 | 7,428 | 8,580 | 8,294 | 9,150 | 5,496 |
| | Charleston | B3=IN3-NB3 | 13,509 | 11,514 | 11,141 | 13,177 | 7,958 | 6,072 | 8,212 | 7,441 | 8,473 | 8,023 | 8,416 | 7,989 |
| | Eastside Districts | B4=IN4-NB4 | 115,833 | 102,996 | 75,581 | 123,194 | 94,517 | 68,146 | 80,860 | 86,792 | 79,403 | 75,928 | 66,783 | 64,109 |
| | Firebaugh | | | | | | | | | | | | | |
| | Broadview | | | | | | | | | | | | | |
| | CCID | | | | | | | | | | | | | |
| | Total Volume (AF) | B5=B1+B2+B3+B4 | 202,719 | 175,468 | 128,499 | 215,078 | 173,807 | 136,725 | 153,622 | 164,299 | 159,671 | 148,022 | 134,625 | 121,552 |
| District Irrigation Efficiency | | | | | | | | | | | | | | |
| | | | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 |
| | Panoche | IE1=B1/W1 | 63% | 58% | 43% | 62% | 66% | 64% | 61% | 64% | 69% | 69% | 72% | 69% |
| | Pacheco | IE2=B2/W2 | | | | | 68% | 48% | 45% | 73% | 66% | 72% | 79% | 68% |
| | Charleston | IE3=B3/W3 | | | | | 66% | 59% | 59% | 52% | 69% | 72% | 82% | 83% |
| | Eastside Districts | IE4=B4/W4 | | | | | 77% | 66% | 68% | 74% | 75% | 78% | 77% | 77% |
| | Firebaugh | | | | | | | | | | | | | |
| | Broadview | | | | | | | | | | | | | |
| | CCID | | | | | | | | | | | | | |
| | Total | IE5=B5/W5 | | | | | 72% | 64% | 64% | 69% | 72% | 73% | 76% | 74% |

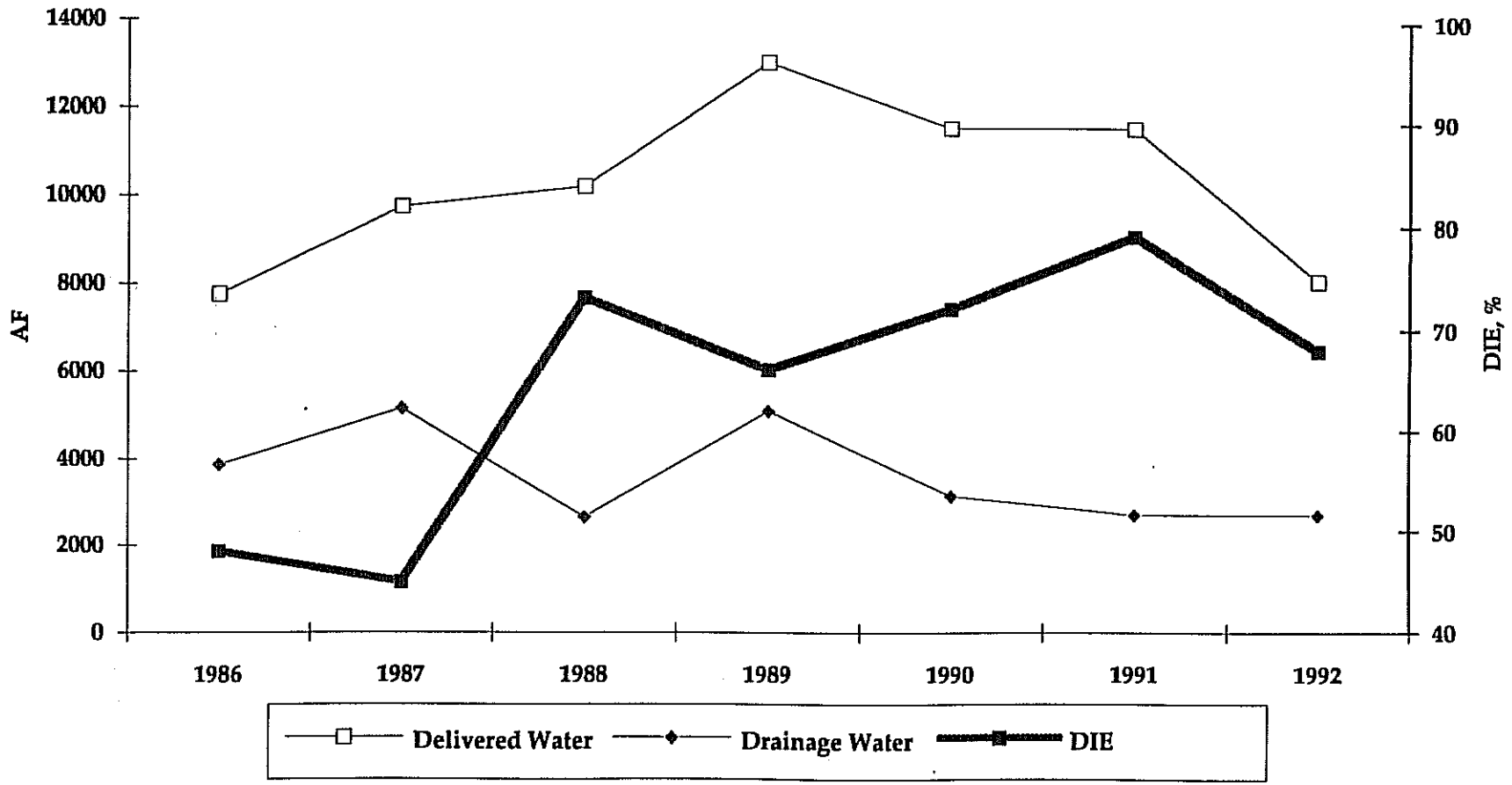
## Grasslands Basin Irrigation and Drainage Study
## District Irrigation Efficiencies (Water Balance Method)



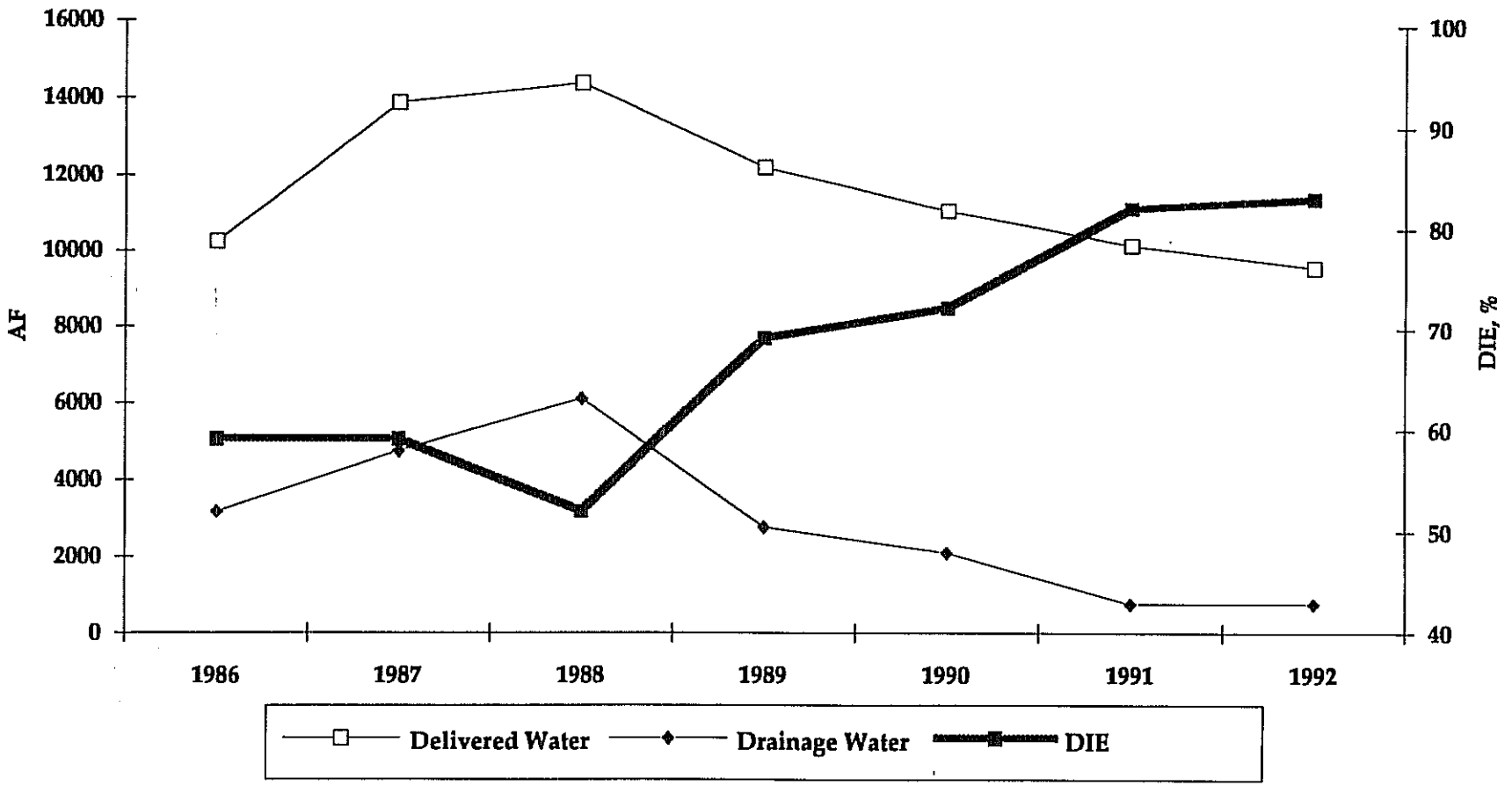
# PE-14
## District Irrigation Efficiency
## vs
## Delivered and Drainage Water



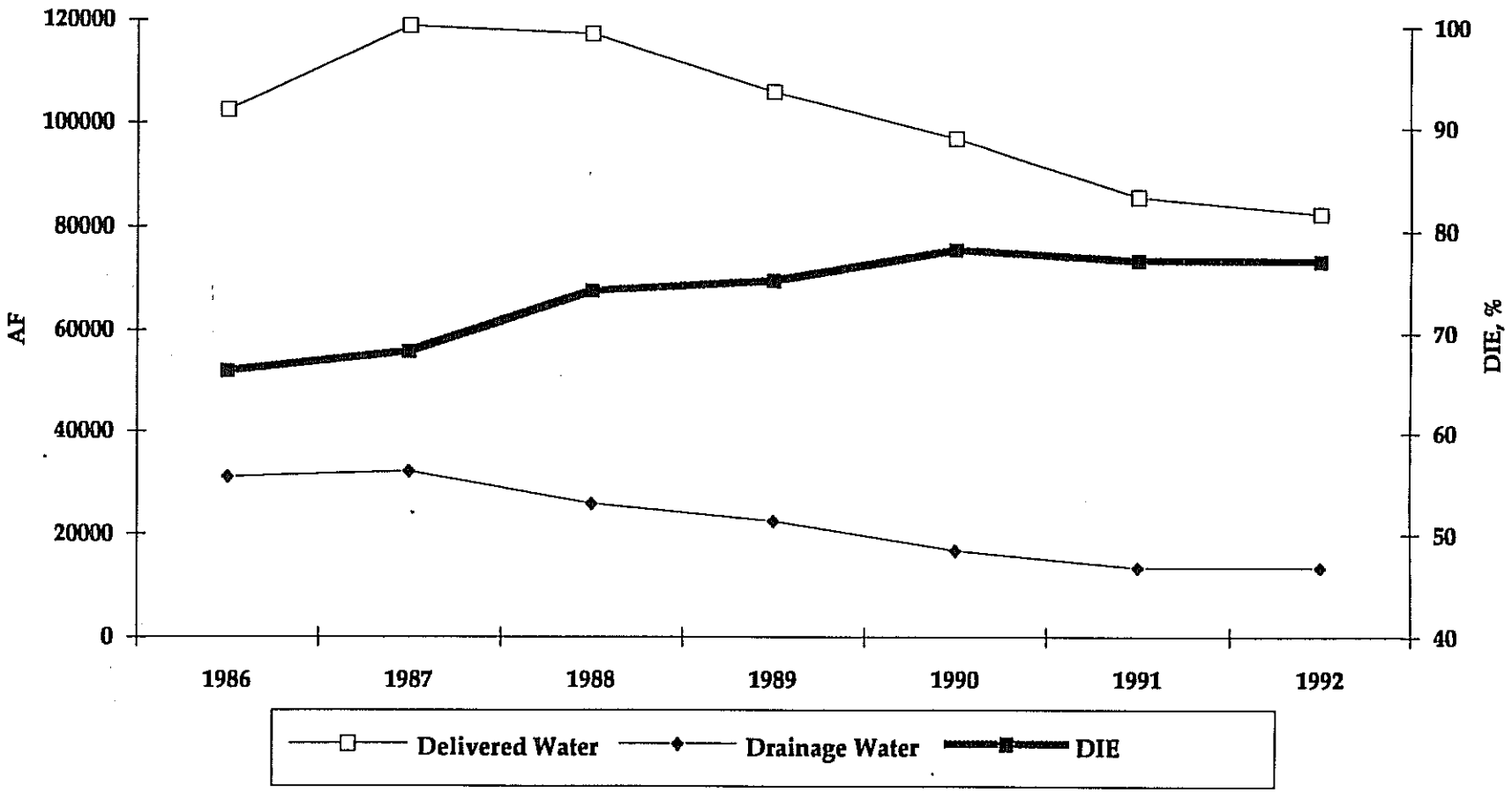
# PO-1
## District Irrigation Efficiency
## vs
## Delivered and Drainage Water



# CH-1
## District Irrigation Efficiency
## vs
## Delivered and Drainage Water



# FC-5
## Delivered and Drainage Water
## vs.
## District Irrigation Efficiency



# TECHNICAL APPENDIX G
## Water Quality and Discharge Measurements

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# TECHNICAL APPENDIX G

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## Salinity Model

While extensive analysis has not been completed at this time, researchers recognize the potential for improved analysis using computer salinity models. Such tools may be used to predict drainage water quality, drainage water quantity, and the effect of drainage water reuse on $EC_e$. Improved knowledge of such information would be useful in determining the appropriate management strategies of salt affected regions.

The programs vary in their capacity, scope, accuracy, and and ease of use--some models may be appropriate in some instances, while others may be better suited for other scenarios.

WATSUIT requires simple inputs: irrigation water quality and leaching fractions. It provides information on soil-water quality with varying leaching fractions. This program also addresses the potential for soil amendments for potential remedial measures: sulphuric acid, gypsum (top dressing), and gypsum (incorporated). Due to the program's simplicity, it has potential applications for management in determining strategies to establish a salt balance in a particular region.

C-HYSM is a conceptual hydro-salinity model which is more detailed than the previous program. The inputs are extensive and the program solves for the entire water and salt balance in an area. Output focuses on predicted drainage volumes and quality of discharge. There are 75 equations in the text: the majority are simple mass balance equations. In the past, this program has been used to predict flows of drainage water in the Panoche Water District. In addition, this program has been used by USBR in analyzing the Westlands Water District.

LEACHM is a leaching estimation and chemistry program. Inputs required are irrigation water compostion, soil physical properties, climate, chemical applications, and soil chemical properties.

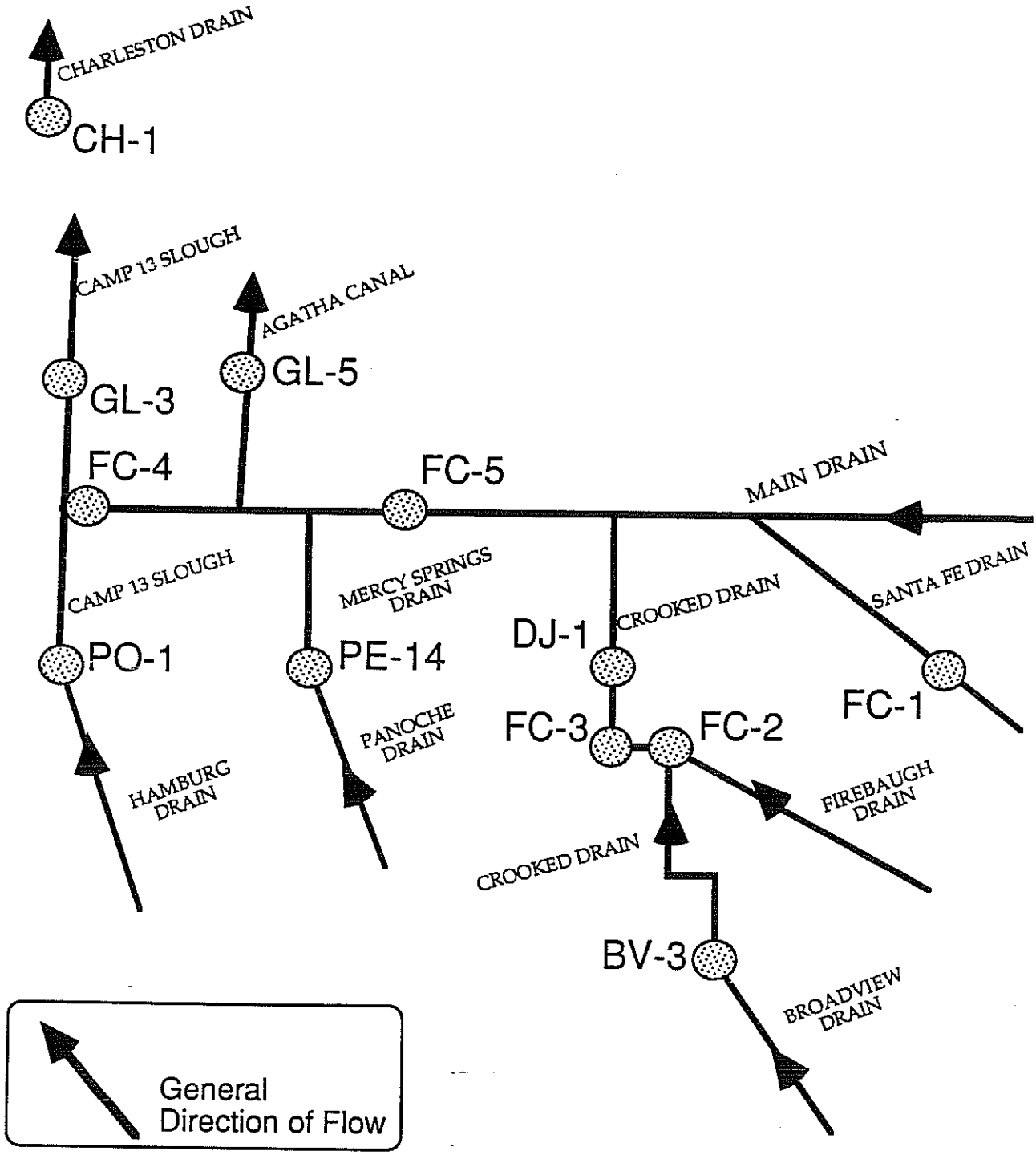
TETrans is a user-friendly functional model of solute transport. Inputs required are soil type, water holding capactiy, crop parameters, chemistry parameters, irrigation water quality, and irrigation scheduling. Output includes information on soil water concentrations at various

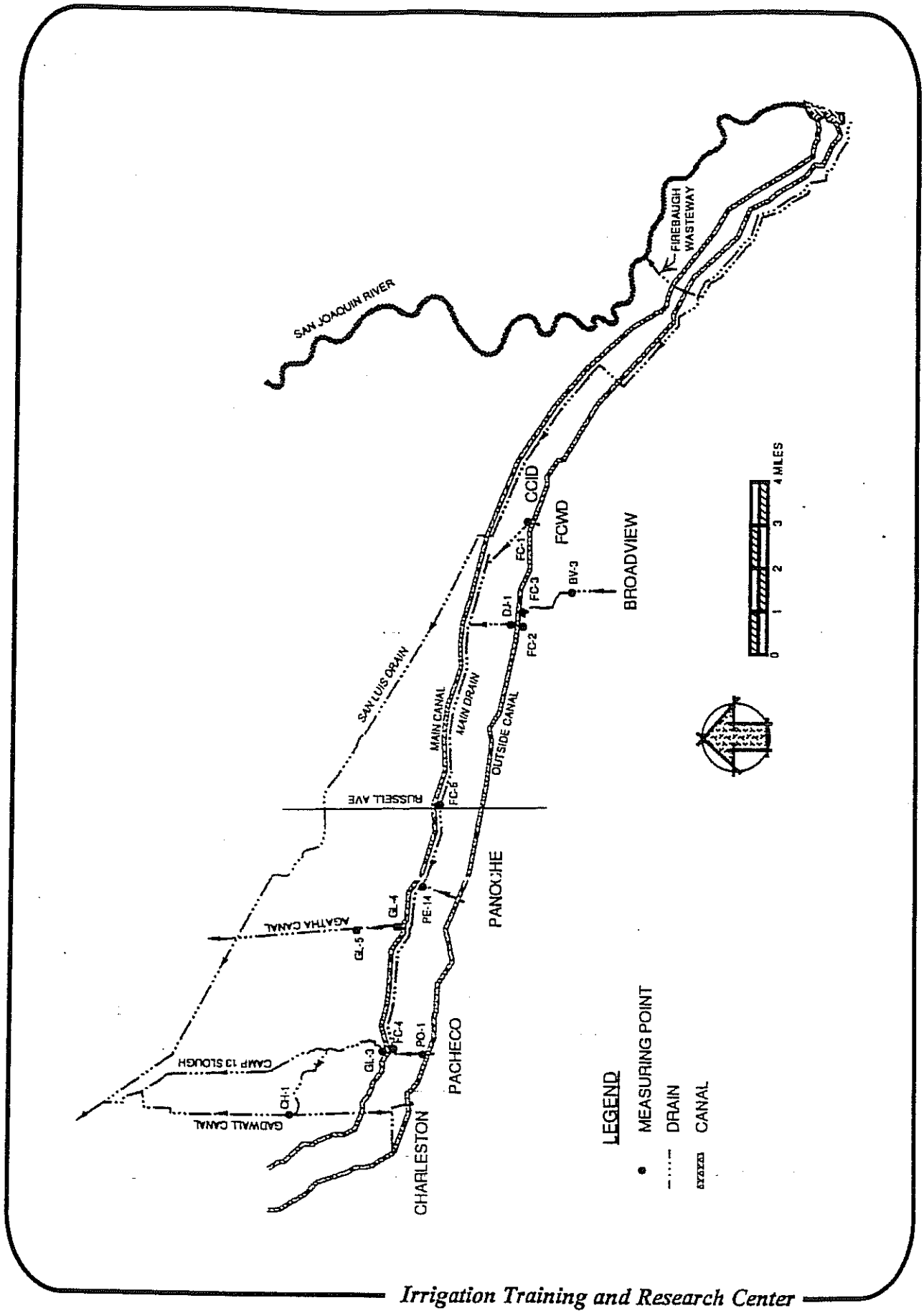
depths for each irrigation interval (before and after irrigations), water and solute balance at each irrigation, leaching fractions, and drainage water volumes.

A new version of TETrans (TETransgeo) has been developed as a standalone program. In this program, GIS is integrated with TETrans in order to compute salinity profiles and solute-loading to groundwater over selected geographic areas. Both the computed results and all input data are stored in the GIS database to allow for spatial representation of the physical variables. The US Salinity Laboratory has compiled a complete data set for 37 quarter-sections in the Broadview Water District.

Although these salinity modeling programs can improve the understanding of vertical solute movement in irrigated lands, it is hoped that they will be expanded to incorporate additional variables necessary for further analysis. For example, input regarding recycling percentages, distribution uniformity, and irrigation efficiency would be helpful in predicting the effects of drainage water reuse on the $EC_e$. The capability of handling additional variables would be helpful in predicting the effects of various scenarios--such information could be crucial in determining the best management strategies for these areas.

# Schematic of Drainage Water Monitoring Sites






*Irrigation Training and Research Center*

SELENIUM, BORON, AND SALT LOADS FROM GRASSLANDS DRAINERS

| Date | Drain | Flow (Acre-ft) | Se Load (lbs) | Salt Load (tons) | B Load (lbs) |
|---|---|---|---|---|---|
| 1986 | Charleston | 3,219 | 498 | 11,785 | 29,510 |
| | Firebaugh | 31,191 | 3,584 | 74,855 | 317,680 |
| | Hamburg | 8,618 | 1,218 | 29,371 | 90,661 |
| | Panoche | 33,257 | 4,840 | 106,610 | 455,825 |
| | *Camp 13* | *3,549* | *374* | *9,084* | *30,238* |
| | TOTAL | 72,736 | 9,766 | 213,537 | 863,438 |
| 1987 | Charleston | 4,698 | 947 | 20,364 | 49,096 |
| | Firebaugh | 30,229 | 4,213 | 87,148 | 302,840 |
| | Hamburg | 7,630 | 1,190 | 28,519 | 73,346 |
| | Panoche | 34,336 | 4,832 | 114,168 | 537,498 |
| | *Camp 13* | *4,970* | *595* | *15,680* | *54,934* |
| | TOTAL | 71,923 | 10,587 | 234,520 | 907,847 |
| 1988 | Charleston | 6,144 | 1,055 | 29,445 | 64,136 |
| | Firebaugh | 23,899 | 3,440 | 71,983 | 227,947 |
| | Hamburg | 3,669 | 651 | 16,758 | 47,254 |
| | Panoche | 30,144 | 4,967 | 111,521 | 477,347 |
| | *Camp 13* | *575* | *63* | *1,933* | *6,723* |
| | TOTAL | 63,281 | 10,051 | 227,774 | 809,961 |
| 1989 | Charleston | 3,021 | 579 | 12,542 | 31,006 |
| | Firebaugh | 23,787 | 3,152 | 69,625 | 241,639 |
| | Hamburg | 4,647 | 1,118 | 24,855 | 71,914 |
| | Panoche | 24,875 | 4,264 | 96,755 | 432,521 |
| | TOTAL | 56,330 | 9,113 | 203,777 | 777,080 |
| 1990 | Charleston | 1,924 | 370 | 8,494 | 20,166 |
| | Firebaugh | 16,942 | 3,397 | 67,360 | 244,375 |
| | Hamburg | 3,186 | 761 | 17,676 | 48,299 |
| | Panoche | 19,835 | 3,503 | 82,957 | 413,061 |
| | *Camp 13* | *3,430* | *655* | *16,141* | *56,723* |
| | TOTAL | 38,457 | 7,377 | 160,346 | 669,178 |
| 1991 | Charleston | 753 | 221 | 3,437 | 8,771 |
| | Firebaugh | 10,969 | 1,779 | 40,439 | 170,837 |
| | Hamburg | 2,630 | 694 | 15,230 | 41,610 |
| | Panoche | 12,028 | 2,136 | 52,548 | 245,003 |
| | *Camp 13* | *1,253* | *158* | *5,152* | *18,730* |
| | TOTAL | 25,127 | 4,673 | 106,502 | 447,491 |

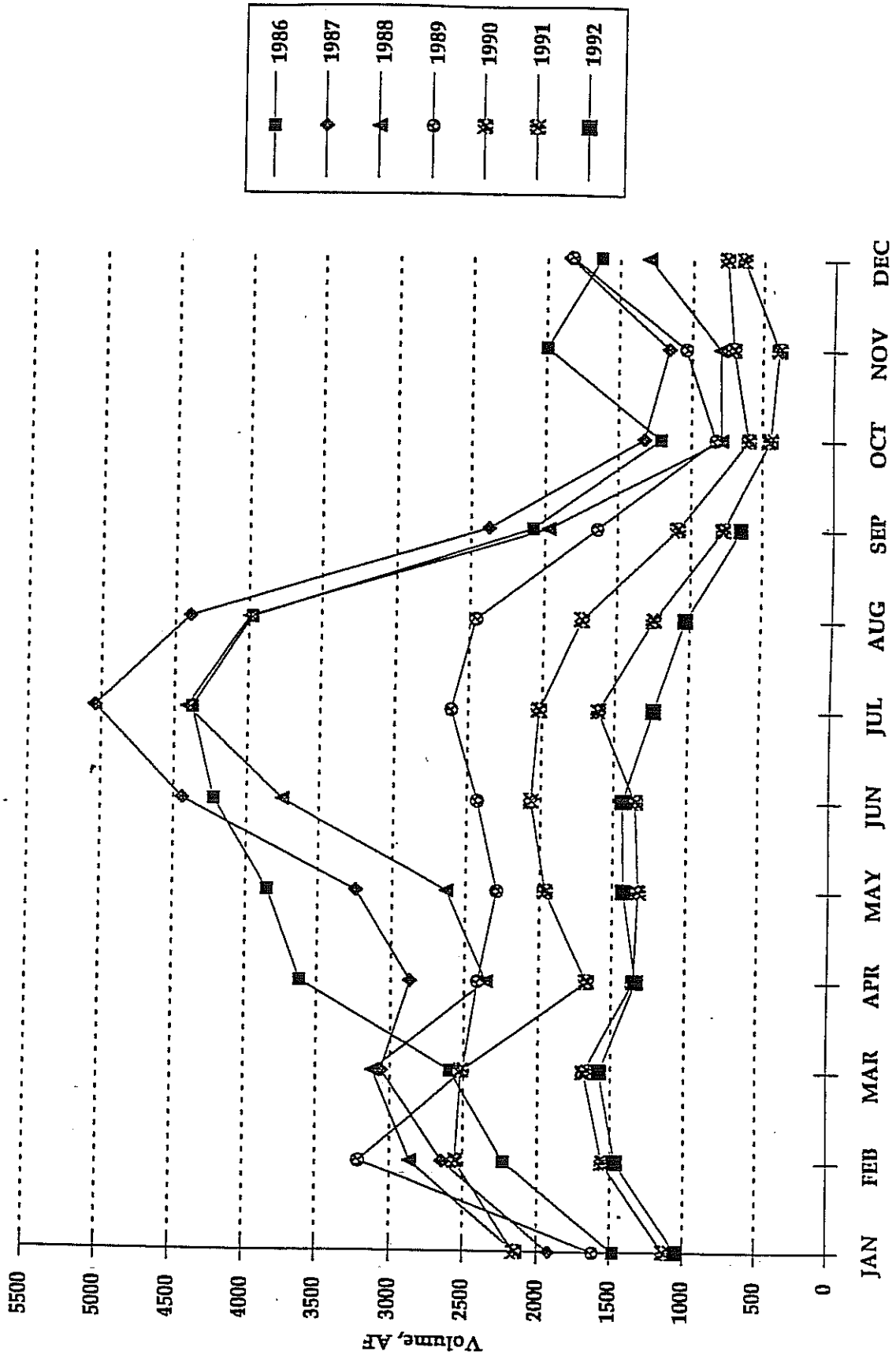
# PE-14: Selected Graphs Of Water Quality Data

## MONTHLY VOLUMES, Se, B, and EC - PE-14

| Month | 1986 | | | | 1987 | | | | 1988 | | | | 1989 | | | | 1990 | | | | 1991 | | | | 1992 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Vol | Se | B | EC | Vol | Se | B | EC | Vol | Se | B | EC | Vol | Se | B | EC | Vol | Se | B | EC | Vol | Se | B | EC | Vol | Se | B | EC |
| | ac-ft | ppb | ppm | dS/m | ac-ft | ppb | ppm | dS/m | ac-ft | ppb | ppm | dS/m | ac-ft | ppb | ppm | dS/m | ac-ft | ppb | ppm | dS/m | ac-ft | ppb | ppm | dS/m | ac-ft | ppb | ppm | dS/m |
| JAN | 1478 | 60 | 4.8 | 3.150 | 1922 | 78 | 5.1 | 3.395 | 2146 | 109 | 8.5 | 5.300 | 1617 | 77 | 7 | 4.390 | 2155 | 106 | 6.8 | 3.960 | 1132 | 63 | 8 | 4.415 | 1048 | 75 | 7.1 | 4.607 |
| FEB | 2233 | 56 | 5.8 | 3.650 | 2648 | 72 | 7.3 | 4.245 | 2866 | 59 | 6.3 | 4.300 | 3209 | 60 | 6.2 | 3.900 | 2556 | 77 | 8.2 | 4.200 | 1556 | 57 | 7 | 4.318 | 1469 | 74 | 5.6 | 4.635 |
| MAR | 2594 | 61 | 5.4 | 3.790 | 3062 | 72 | 8.6 | 4.140 | 3120 | 64 | 6.7 | 4.017 | 2507 | 95 | 6.9 | 4.573 | 2517 | 58 | 7.5 | 4.525 | 1687 | 61 | 7.5 | 4.600 | 1581 | 79 | 8.4 | 4.869 |
| APR | 3618 | 60 | 6.4 | 3.533 | 2874 | 68 | 7.2 | 4.010 | 2356 | 100 | 6.5 | 4.650 | 2414 | 90 | 7.7 | 5.100 | 1670 | 52 | 7.2 | 4.493 | 1348 | 86 | 8.3 | 4.810 | 1335 | 95 | 8.2 | 5.046 |
| MAY | 3852 | 54 | 6 | 3.59 | 3244 | 42 | 4.8 | 3.040 | 2634 | 55 | 6.6 | 3.990 | 2293 | 80 | 7 | 4.460 | 1962 | 79 | 8.8 | 4.835 | 1324 | 76 | 7.7 | 4.730 | 1425 | 85 | 7.6 | 4.930 |
| JUN | 4225 | 48 | 5.7 | 3.205 | 4443 | 45 | 4.6 | 3.205 | 3753 | 52 | 5.2 | 3.517 | 2430 | 40 | 5.1 | 3.400 | 2066 | 30 | 7.9 | 4.100 | 1348 | 55 | 7.2 | 4.480 | 1437 | 83 | 8.1 | 5.014 |
| JUL | 4378 | 40 | 1.7 | 3.220 | 5042 | 35 | 4.1 | 3.047 | 4413 | 38 | 4 | 2.980 | 2616 | 24 | 5.3 | 3.020 | 2018 | 31 | 7.1 | 3.715 | 1611 | 54 | 7.4 | 4.397 | 1236 | 89 | 7.9 | 4.933 |
| AUG | 3973 | 50 | 4.9 | 2.995 | 4399 | 42 | 4.9 | 2.900 | 3991 | 36 | 4.6 | 3.095 | 2458 | 13 | 5.3 | 3.460 | 1736 | 62 | 7.4 | 4.765 | 1246 | 61 | 7 | 4.305 | 1031 | 103 | 8.5 | 5.034 |
| SEP | 2079 | 57 | 6.7 | 3.647 | 2380 | 40 | 6.5 | 3.120 | 1974 | 52 | 5.2 | 3.445 | 1640 | 47 | 6.4 | 3.575 | 1091 | 81 | 8.4 | 4.300 | 776 | 91 | 7.6 | 4.757 | 649 | 81 | 9 | 5.200 |
| OCT | 1210 | 66 | 5 | 3.090 | 1321 | 60 | 8.4 | 4.355 | 789 | 87 | 7 | 4.310 | 827 | 151 | 9 | 5.230 | 596 | 77 | 8.7 | 4.695 | 442 | 58 | 8.5 | 5.118 | | | | |
| NOV | 1993 | 46 | 4 | 2.280 | 1158 | 46 | 7.3 | 4.185 | 801 | 80 | 7.5 | 4.250 | 1042 | 91 | 7.5 | 4.533 | 707 | 73 | 7.1 | 4.290 | 384 | 48 | 8 | 4.591 | | | | |
| DEC | 1624 | 75 | 5 | 3.520 | 1843 | 56 | 4.6 | 3.245 | 1301 | 82 | 6.7 | 4.190 | 1822 | 68 | 6.2 | 3.825 | 761 | 80 | 7.6 | 4.560 | 641 | 52 | 7.5 | 4.663 | | | | |
| TOT. | 33357 | | | | 29766 | | | | 30144 | | | | 24875 | | | | 19835 | | | | 13495 | | | | 11211 | | | |

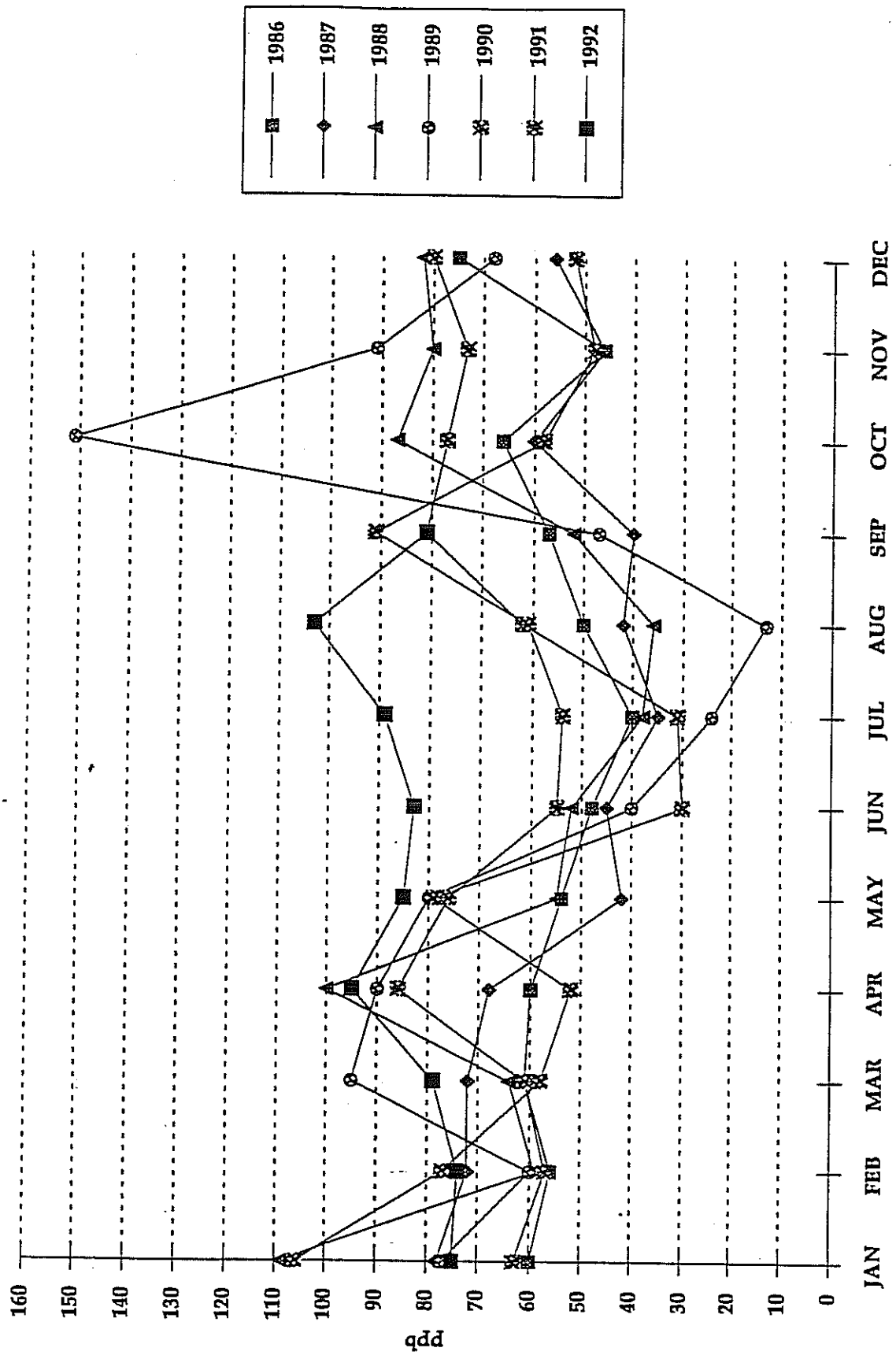
Source: Tables supplied by Joe Karkoski at the California Regional Water Quality Control Board on the monitoring points.

PE-14
Monthly Drainage Volume



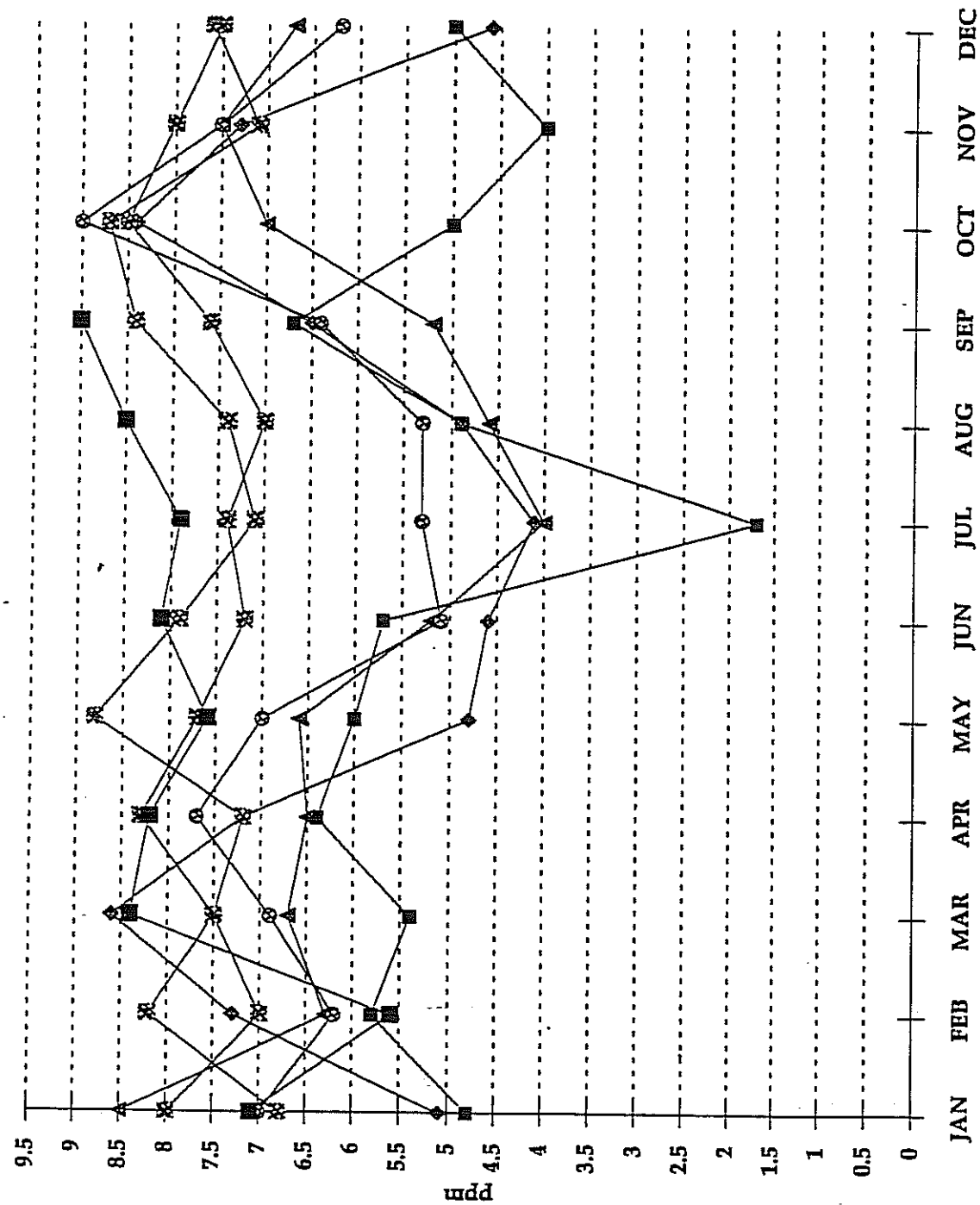
PE-14

## Monthly Selenium Concentration



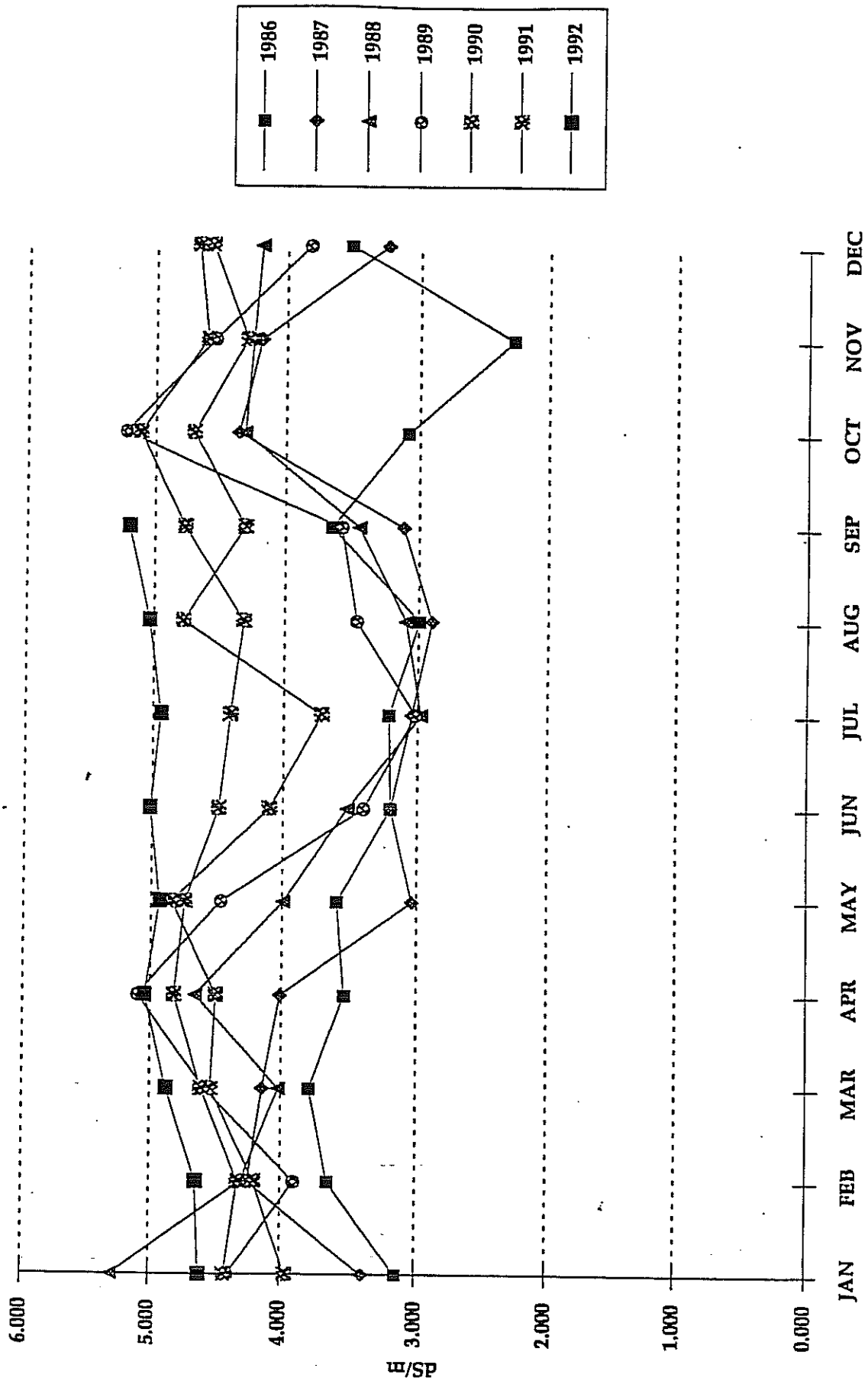
PE-14

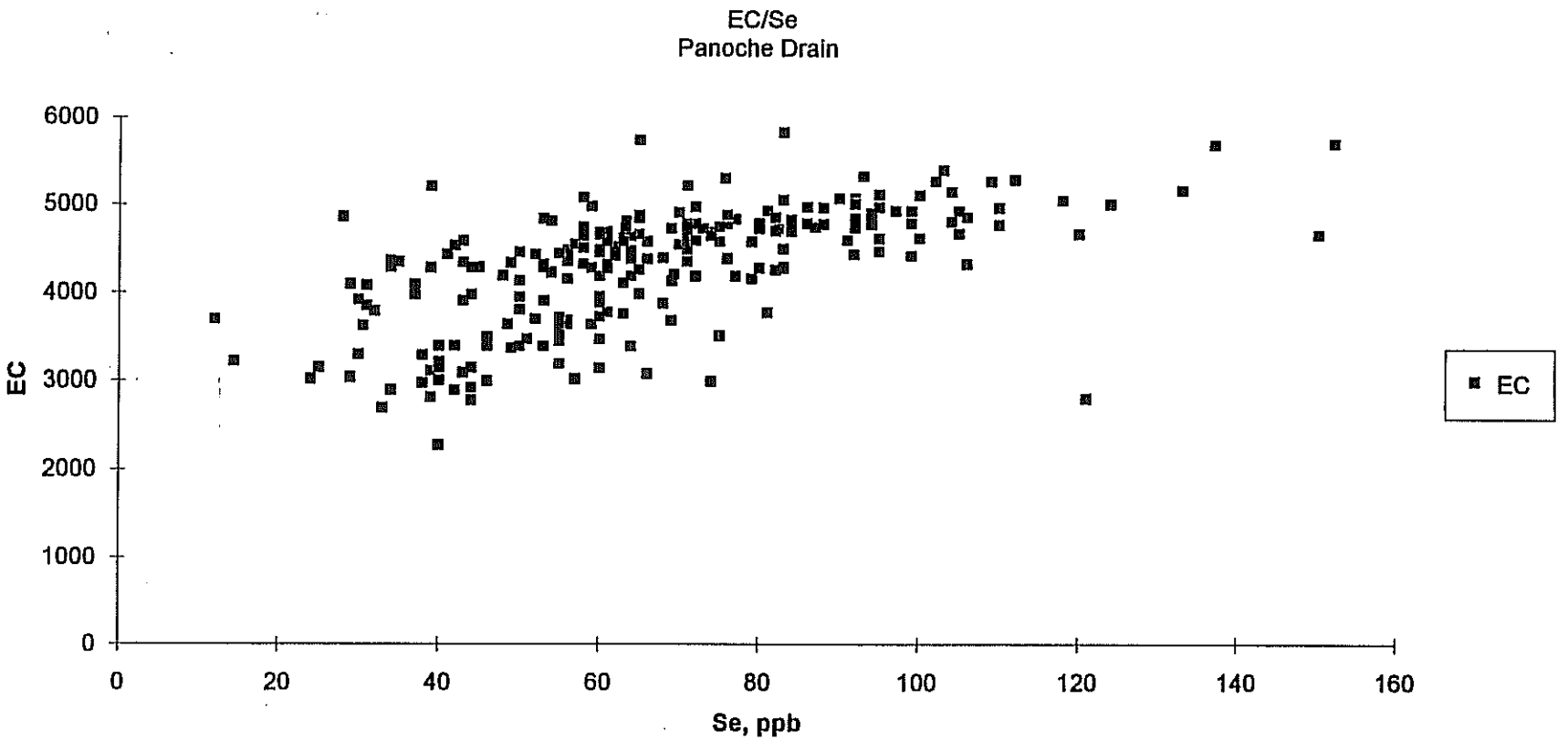
Monthly Boron Concentration



PE-14

## Monthly Electrical Conductivity Levels



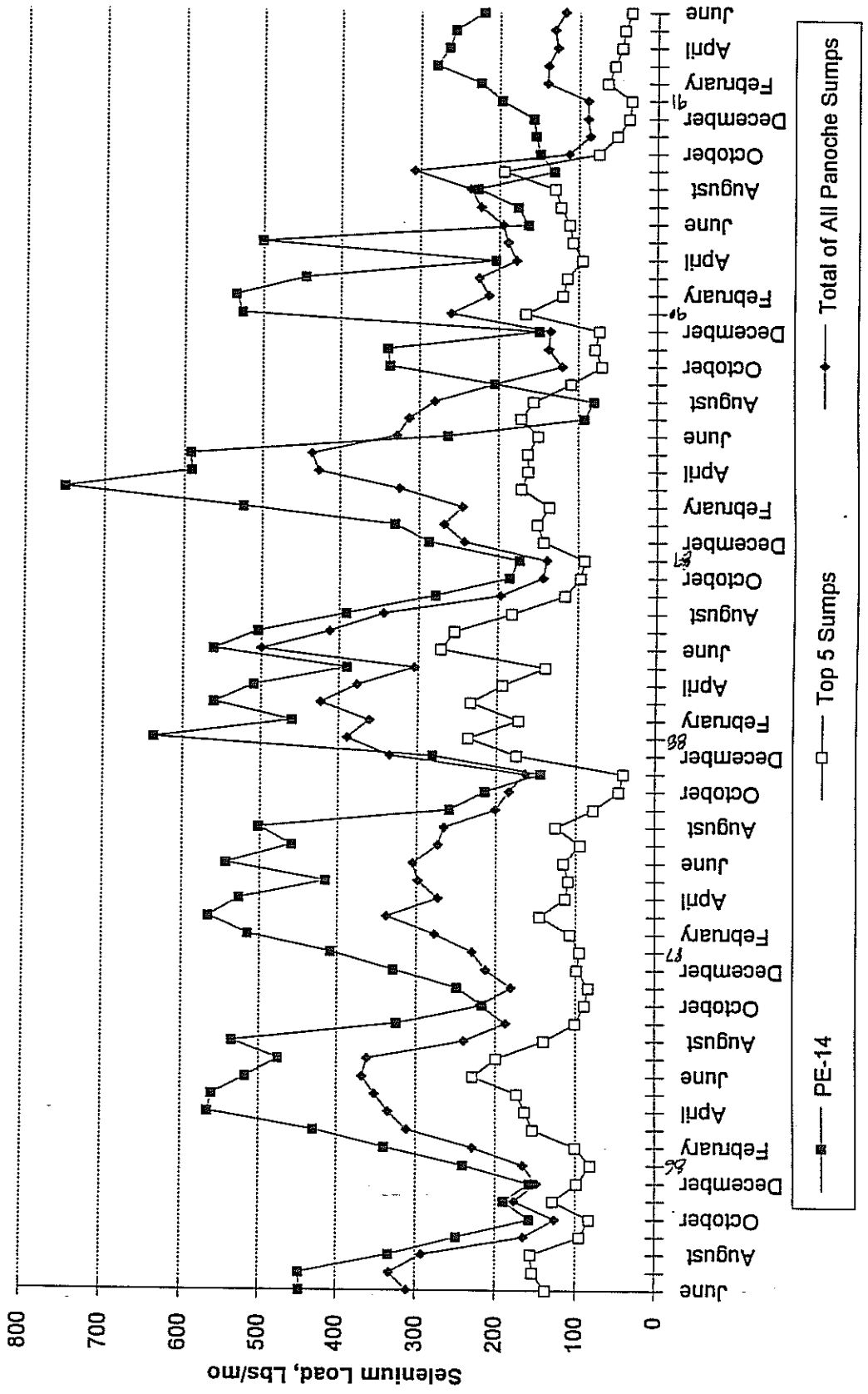

EC/Se
Panoche Drain
EC
6000
5000
4000
3000
2000
1000
0
0
20
40
60
80
100
120
140
160
Se, ppb
EC

PANOCHE DRAINAGE DISTRICT - DISCHARGE POINTS

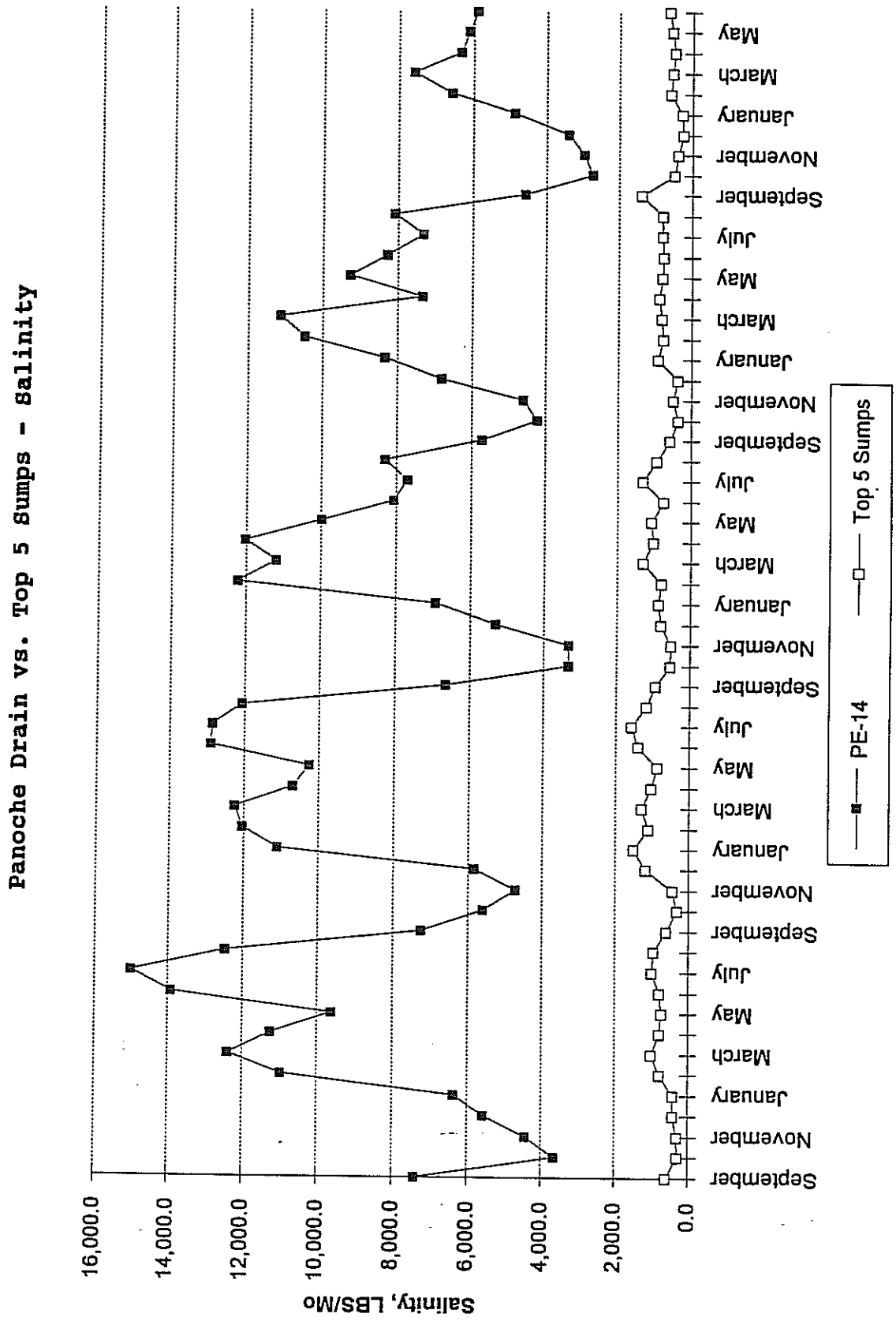
DISCHARGE MEASURED WITH FLOW METERS

| | Month | Year | DP - 25 | | | DP - 31 | | | DP - 35 | | | DP - 40 | | | DP - 42 | | | PE-14 | | | Total of Top 6 | | Total of Panoche Sumps | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (lbs) | (ac-ft) | (mg/l) | (lbs) | (ac-ft) | (mg/l) | (lbs) | (ac-ft) | (mg/l) | (lbs) | (ac-ft) | (mg/l) | (lbs) | (ac-ft) | (mg/l) | (lbs) | (ac-ft) | (mg/l) | (lbs) | % of PE14 | | % of Total |
| Jun-85 | June | 1985 | 42.1 | 42.2 | 0.36 | 11 | 26.9 | 0.15 | 17.4 | 1.9 | 3.57 | 45 | | | 21.4 | 23.1 | 0.34 | 447 | 4219 | 0.038 | 136.9 | 31% | 311 | 44% |
| | July | 1985 | 79.3 | 39 | 0.423 | 17.3 | 29.9 | 0.22 | 16.8 | 1.8 | 3.53 | 25 | | | 13.9 | 16.1 | 0.34 | 448 | 4676 | 0.036 | 153.3 | 34% | 333 | 46% |
| | August | 1985 | 69 | 33.1 | 0.467 | 21.6 | 27.4 | 0.29 | 16.7 | 1.8 | 3.5 | 34 | | | 14.2 | 16.4 | 0.34 | 334 | 3963 | 0.031 | 155.8 | 47% | 293 | 53% |
| Sep-85 | Septembe | 1985 | 32.5 | 21.2 | 0.51 | 23.7 | 22.2 | 0.393 | 24.6 | 2.6 | 3.5 | 12 | | | 2.4 | 2.5 | 0.34 | 249 | 1950 | 0.047 | 95.2 | 38% | 168 | 58% |
| | October | 1985 | 19.4 | 14.8 | 0.48 | 20.8 | 18.4 | 0.497 | 13 | 1.4 | 3.5 | 29 | | | 0.3 | 0.3 | 0.34 | 158 | 920 | 0.063 | 82.6 | 52% | 126 | 65% |
| | November | 1985 | 16.8 | 55.8 | 0.5 | 19.6 | 12 | 0.5 | 9.5 | 1 | 3.5 | 23 | | | 0.2 | 0.2 | 0.34 | 190 | 1168 | 0.06 | 128.1 | 67% | 177 | 72% |
| Dec-85 | December | 1985 | 68.7 | 67.7 | 0.445 | 13.6 | 12.4 | 0.4 | 6.3 | 0.7 | 3.35 | 9 | | | 0 | 0 | 0.34 | 158 | 1056 | 0.055 | 98.8 | 62% | 149 | 66% |
| | January | 1986 | 41.5 | 39.1 | 0.39 | 10.4 | 19.1 | 0.2 | 23.1 | 2.7 | 3.2 | 6 | | | 0 | 0 | 0.34 | 241 | 1478 | 0.06 | 91 | 34% | 156 | 49% |
| | February | 1986 | 30 | 27.8 | 0.397 | 16 | 19.7 | 0.29 | 17.9 | 2.1 | 3.17 | 24 | | | 13.9 | 16.9 | 0.34 | 349 | 2233 | 0.038 | 100.7 | 30% | 229 | 44% |
| Mar-86 | March | 1986 | 33.7 | 30.9 | 0.403 | 21 | 21.4 | 0.36 | 38.7 | 4.5 | 3.13 | 60 | | | 0.3 | 0.3 | 0.34 | 430 | 2594 | 0.061 | 153.7 | 36% | 312 | 49% |
| | April | 1986 | 29.8 | 26.8 | 0.41 | 22.5 | 18.9 | 0.44 | 44.8 | 5.3 | 3.1 | 66 | | | 0 | 0 | 0.34 | 566 | 3618 | 0.058 | 163.2 | 29% | 335 | 49% |
| | May | 1986 | 28.1 | 25.8 | 0.406 | 21.9 | 18.7 | 0.48 | 35.3 | 4.4 | 2.871 | 74 | | | 14.3 | 16.8 | 0.34 | 560 | 3652 | 0.053 | 173.6 | 31% | 382 | 48% |
| Jun-86 | June | 1986 | 44.2 | 40.7 | 0.404 | 23.6 | 17.5 | 0.5 | 61.8 | 8 | 2.843 | 88 | | | 0 | 0 | 0.34 | 617 | 4225 | 0.048 | 228.3 | 44% | 368 | 52% |
| | July | 1986 | 75.3 | 68.8 | 0.402 | 26.1 | 18.4 | 0.52 | 2.8 | 0.4 | 2.714 | 85 | | | 0 | 0 | 0.34 | 476 | 4378 | 0.04 | 199.2 | 42% | 382 | 55% |
| | August | 1986 | 68.1 | 64.4 | 0.4 | 21.3 | 14.5 | 0.54 | 13.5 | 1.9 | 2.586 | 34 | | | 11.9 | 12.9 | 0.34 | 535 | 3973 | 0.05 | 139.8 | 26% | 240 | 58% |
| Sep-86 | Septembe | 1986 | 34 | 23.4 | 0.533 | 15.5 | 11.9 | 0.48 | 30.5 | 4.6 | 2.457 | 17 | | | 3.7 | 4 | 0.34 | 325 | 2078 | 0.057 | 100.7 | 31% | 188 | 64% |
| | October | 1986 | 17.8 | 9.7 | 0.567 | 10 | 8.7 | 0.42 | 12 | 1.8 | 2.329 | 13 | | | 37.8 | 40.8 | 0.34 | 317 | 1210 | 0.066 | 89 | 41% | 220 | 40% |
| | November | 1986 | 24 | 11 | 0.8 | 9.2 | 8.4 | 0.36 | 8 | 1.3 | 2.2 | 11 | | | 33 | 35.7 | 0.34 | 249 | 1093 | 0.046 | 84.2 | 34% | 181 | 47% |
| Dec-86 | December | 1986 | 24.8 | 19.7 | 0.465 | 11.8 | 8 | 0.485 | 7.7 | 1.4 | 2.05 | 20 | | | 34.1 | 36.9 | 0.34 | 329 | 1824 | 0.076 | 98.8 | 30% | 213 | 46% |
| | January | 1987 | 11 | 31.1 | 0.13 | 13.3 | 8 | 0.61 | 7.2 | 1.4 | 1.9 | 33 | | | 30.7 | 33.2 | 0.34 | 408 | 1822 | 0.078 | 96.2 | 23% | 230 | 41% |
| | February | 1987 | 31.1 | 36.4 | 0.213 | 15.1 | 9.9 | 0.56 | 6.5 | 1.1 | 1.9 | 26 | | | 37.5 | 40.6 | 0.34 | 515 | 2548 | 0.072 | 107.2 | 21% | 278 | 38% |
| Mar-87 | March | 1987 | 26.9 | 35.8 | 0.297 | 21.2 | 15.3 | 0.51 | 14.8 | 2.8 | 1.9 | 30 | | | 50.6 | 54.7 | 0.34 | 556 | 3062 | 0.068 | 145.6 | 26% | 338 | 43% |
| | April | 1987 | 26.6 | 25.7 | 0.38 | 19.8 | 15.8 | 0.46 | 15.9 | 3.1 | 1.9 | 22 | | | 29.8 | 31.2 | 0.34 | 527 | 2674 | 0.067 | 113.1 | 21% | 274 | 41% |
| | May | 1987 | 25.3 | 23.7 | 0.393 | 29.5 | 21.8 | 0.505 | 13.7 | 2.2 | 2.267 | 18 | | | 21.8 | 24.8 | 0.327 | 415 | 3832 | 0.042 | 109.3 | 26% | 289 | 37% |
| Jun-87 | June | 1987 | 29.5 | 26.7 | 0.406 | 42.5 | 26.5 | 0.649 | 12.8 | 1.8 | 2.533 | 11 | | | 19.2 | 22.5 | 0.314 | 544 | 4443 | 0.045 | 115 | 21% | 305 | 38% |
| | July | 1987 | 37.8 | 36.5 | 0.28 | 26.4 | 32.7 | 0.32 | 28.7 | 3.5 | 3 | 2 | | | 7.1 | 21.8 | 0.12 | 469 | 6042 | 0.033 | 94 | 20% | 274 | 34% |
| | August | 1987 | 22.3 | 25.3 | 0.324 | 44.7 | 32 | 0.513 | 25.5 | 2.9 | 3.206 | 14 | | | 18.8 | 16.4 | 0.48 | 502 | 4389 | 0.042 | 126.3 | 25% | 266 | 47% |
| Sep-87 | Septembe | 1987 | 12.4 | 12.4 | 0.369 | 42.1 | 21.9 | 0.707 | 0.2 | 0 | 3.417 | 15 | | | 8.3 | 3.6 | 0.84 | 259 | 2380 | 0.04 | 78 | 30% | 201 | 33% |
| | October | 1987 | 7.9 | 7 | 0.413 | 26.1 | 10.6 | 0.8 | 0.7 | 0.1 | 3.625 | 10 | | | 1 | 0.3 | 1.2 | 214 | 1321 | 0.06 | 48.7 | 21% | 184 | 25% |
| | November | 1987 | 11.1 | 9 | 0.457 | 18.5 | 8.5 | 0.848 | 1.3 | 0.1 | 3.268 | 8 | | | 0.3 | 0.1 | 0.97 | 146 | 1158 | 0.046 | 40.3 | 28% | 164 | 25% |
| Dec-87 | December | 1987 | 44.8 | 32.9 | 0.501 | 37.8 | 17.4 | 0.788 | 0.8 | 0.1 | 2.913 | 33 | | | 58.6 | 29.2 | 0.74 | 281 | 1843 | 0.056 | 175 | 62% | 335 | 52% |
| | January | 1988 | 67.1 | 45.2 | 0.546 | 37.9 | 18.7 | 0.745 | 2.7 | 0.4 | 2.556 | 67 | | | 71.3 | 51.8 | 0.61 | 636 | 2146 | 0.109 | 236 | 37% | 389 | 61% |
| | February | 1988 | 45 | 28.1 | 0.69 | 26.1 | 13.6 | 0.695 | 13.6 | 2.3 | 2.2 | 60 | | | 27.8 | 36.5 | 0.28 | 460 | 2965 | 0.069 | 172.6 | 38% | 361 | 48% |
| Mar-88 | March | 1988 | 35.8 | 22.8 | 0.578 | 77.3 | 36.7 | 0.735 | 21.8 | 3.1 | 2.868 | 66 | | | 42.8 | 36.8 | 0.428 | 660 | 3120 | 0.066 | 233.7 | 42% | 423 | 65% |
| | April | 1988 | 27.4 | 18.3 | 0.65 | 70.9 | 33.7 | 0.775 | 23.8 | 3 | 2.935 | 21 | | | 60.3 | 32.2 | 0.675 | 509 | 2358 | 0.079 | 193.4 | 38% | 377 | 61% |
| | May | 1988 | 30.8 | 20.6 | 0.65 | 72.1 | 33.2 | 0.8 | 18.7 | 2.6 | 2.79 | 17 | | | 1.5 | 26.4 | 0.02 | 390 | 2634 | 0.064 | 140.1 | 36% | 305 | 45% |
| Jun-88 | June | 1988 | 56.7 | 37.9 | 0.65 | 102.5 | 45.7 | 0.825 | 9.2 | 1.3 | 2.645 | 76 | | | 28 | 27.2 | 0.378 | 561 | 3783 | 0.065 | 271.4 | 48% | 500 | 64% |
| | July | 1988 | 82.5 | 55.2 | 0.55 | 68.9 | 29.8 | 0.65 | 9.5 | 1.4 | 2.6 | 63 | | | 30.4 | 40 | 0.29 | 504 | 4413 | 0.042 | 254.3 | 50% | 412 | 62% |
| | August | 1988 | 66.9 | 35.4 | 0.692 | 7.2 | 3.3 | 0.808 | 39.6 | 6.2 | 2.8 | 67 | | | 21.7 | 30.8 | 0.256 | 381 | 3991 | 0.036 | 182.6 | 47% | 344 | 53% |
| Sep-88 | Septembe | 1988 | 38.1 | 22.2 | 0.633 | 6.2 | 2.6 | 0.767 | 28.1 | 3.3 | 3.15 | 36 | | | 8.8 | 13.7 | 0.237 | 279 | 1974 | 0.052 | 116.2 | 42% | 197 | 59% |
| | October | 1988 | 25.9 | 14.1 | 0.676 | 7.7 | 3.9 | 0.725 | 26.7 | 2.6 | 3.6 | 33 | | | 3.2 | 6.8 | 0.218 | 186 | 789 | 0.067 | 96.8 | 52% | 144 | 67% |
| | November | 1988 | 21.5 | 12.8 | 0.619 | 9.7 | 5.1 | 0.701 | 19 | 2.2 | 3.25 | 39 | | | 2.5 | 3.6 | 0.254 | 173 | 801 | 0.079 | 91.7 | 53% | 139 | 66% |
| Dec-88 | December | 1988 | 47.4 | 31 | 0.563 | 31.3 | 17 | 0.678 | 21.2 | 2.6 | 3 | 20 | | | 23.7 | 29.9 | 0.293 | 288 | 1301 | 0.081 | 143.6 | 50% | 243 | 59% |
| | January | 1989 | 49.8 | 36.3 | 0.506 | 33.6 | 16.8 | 0.654 | 20.6 | 2.9 | 2.76 | 16 | | | 30.7 | 34.1 | 0.331 | 330 | 1617 | 0.076 | 150.7 | 46% | 269 | 66% |
| | February | 1989 | 40.1 | 32.8 | 0.45 | 32 | 16.7 | 0.63 | 17.9 | 2.6 | 2.5 | 11 | | | 34.8 | 34.6 | 0.37 | 524 | 3208 | 0.06 | 135.7 | 26% | 245 | 55% |
| Mar-89 | March | 1989 | 54.8 | 41.5 | 0.485 | 41.8 | 24.4 | 0.62 | 25.7 | 3.2 | 2.99 | 2 | | | 46.4 | 46.7 | 0.365 | 760 | 2507 | 0.11 | 170.7 | 23% | 325 | 53% |
| | April | 1989 | 33.3 | 23.6 | 0.62 | 51.3 | 30 | 0.63 | 41.6 | 4.8 | 3.4 | 1 | | | 35.3 | 36 | 0.36 | 691 | 3414 | 0.09 | 162.4 | 27% | 427 | 58% |
| | May | 1989 | 29.7 | 22.1 | 0.483 | 71.1 | 42.2 | 0.62 | 37.6 | 4.4 | 3.133 | | | | 25.1 | 28.3 | 0.327 | 592 | 2293 | 0.095 | 163.4 | 28% | 436 | 37% |
| Jun-89 | June | 1989 | 27.2 | 21.4 | 0.467 | 67.7 | 40.9 | 0.61 | 33.2 | 4.3 | 2.867 | | | | 21.8 | 27.4 | 0.293 | 364 | 3430 | 0.04 | 149.9 | 67% | 328 | 46% |
| | July | 1989 | 61.8 | 51.7 | 0.44 | 58.6 | 36 | 0.6 | 31.2 | 4.4 | 2.6 | | | | 19.8 | 28 | 0.26 | 92 | 2618 | 0.013 | 171.4 | 186% | 313 | 55% |
| | August | 1989 | 61.2 | 38.1 | 0.677 | 37.6 | 23 | 0.7 | 36.7 | 4.6 | 2.967 | | | | 20.2 | 25.7 | 0.29 | 80 | 2458 | 0.012 | 165.7 | 190% | 281 | 55% |
| Sep-89 | Septembe | 1989 | 36 | 19.8 | 0.713 | 25.7 | 14 | 0.8 | 32.3 | 3.6 | 3.333 | | | | 13.7 | 16.8 | 0.32 | 205 | 1640 | 0.046 | 108.7 | 53% | 204 | 53% |
| | October | 1989 | 17.8 | 7.8 | 0.85 | 18.4 | 8.5 | 0.9 | 27.8 | 2.8 | 3.7 | | | | 6.8 | 6.2 | 0.35 | 337 | 827 | 0.15 | 70 | 21% | 120 | 58% |
| | November | 1989 | 35.2 | 17.3 | 0.77 | 16.9 | 7.7 | 0.825 | 15.1 | 1.6 | 3.425 | | | | 8 | 8.8 | 0.335 | 340 | 1042 | 0.12 | 78.2 | 23% | 137 | 67% |
| Dec-89 | December | 1989 | 33.5 | 17.9 | 0.69 | 17.9 | 8 | 0.75 | 16.3 | 1.7 | 3.16 | | | | 7.5 | 8.8 | 0.32 | 149 | 1822 | 0.03 | 73.3 | 49% | 135 | 54% |
| | January | 1990 | 45 | 27.1 | 0.61 | 41.1 | 20.2 | 0.675 | 43.6 | 6.6 | 2.875 | | | | 36.3 | 43.7 | 0.305 | 627 | 2188 | 0.09 | 186 | 31% | 281 | 64% |
| | February | 1990 | 22.9 | 16.9 | 0.53 | 31.8 | 17.4 | 0.6 | 30.2 | 4.3 | 2.8 | | | | 34.4 | 43.6 | 0.29 | 538 | 2586 | 0.077 | 119.3 | 22% | 213 | 56% |
| Mar-90 | March | 1990 | 21.6 | 15 | 0.53 | 29.4 | 18 | 0.6 | 25.1 | 3.6 | 2.8 | | | | 38 | 48.3 | 0.29 | 445 | 2517 | 0.065 | 114.1 | 26% | 225 | 61% |
| | April | 1990 | 25.6 | 23.8 | 0.411 | 8.2 | 20.3 | 0.145 | 25.8 | 3.4 | 2.915 | | | | 33.3 | 38.1 | 0.314 | 294 | 1670 | 0.046 | 94.9 | 47% | 176 | 63% |
| | May | 1990 | 30.4 | 24.6 | 0.484 | 12.1 | 21 | 0.213 | 40.7 | 5.3 | 2.846 | | | | 24.3 | 28.2 | 0.341 | 501 | 1962 | 0.094 | 107.6 | 21% | 199 | 67% |
| Jun-90 | June | 1990 | 32.2 | 23.8 | 0.497 | 15.2 | 20.3 | 0.276 | 38.4 | 5.1 | 2.777 | | | | 25.4 | 25.4 | 0.369 | 183 | 2068 | 0.029 | 111.2 | 58% | 195 | 67% |
| | July | 1990 | 36.2 | 24.6 | 0.54 | 19.3 | 21 | 0.34 | 38.7 | 5.3 | 2.788 | | | | 28.3 | 26.2 | 0.397 | 176 | 2018 | 0.032 | 122.5 | 70% | 223 | 65% |
| | August | 1990 | 39.1 | 24.6 | 0.584 | 23 | 21 | 0.403 | 37.7 | 5.3 | 2.638 | | | | 30.2 | 26.2 | 0.425 | 227 | 1736 | 0.048 | 130 | 57% | 237 | 65% |
| Sep-90 | Septembe | 1990 | 104.4 | 61.3 | 0.627 | 22.8 | 18 | 0.467 | 35.5 | 5.1 | 2.569 | | | | 31.2 | 28.4 | 0.452 | 131 | 1091 | 0.044 | 193.8 | 148% | 306 | 63% |
| | October | 1990 | 36.2 | 19.9 | 0.67 | 0 | 0 | 0.53 | 16.2 | 2.7 | 2.5 | 18 | | | 2 | 1.5 | 0.48 | 149 | 886 | 0.062 | 74.4 | 50% | 113 | 66% |
| | November | 1990 | 37.7 | 22.4 | 0.62 | 0 | 0 | 0.51 | 13.1 | 1.9 | 2.48 | | | | 0.6 | 0.6 | 0.464 | 154 | 707 | 0.08 | 81.4 | 33% | 96 | 60% |
| Dec-90 | December | 1990 | 31.3 | 20.1 | 0.57 | 0 | 0 | 0.49 | 4.5 | 0.7 | 2.45 | | | | 0.3 | 0.3 | 0.448 | 157 | 761 | 0.075 | 36.1 | 23% | 69 | 41% |
| | January | 1991 | 28.4 | 20.1 | 0.52 | 0 | 0 | 0.47 | 4.5 | 0.7 | 2.44 | | | | 0.3 | 0.3 | 0.432 | 197 | 1132 | 0.064 | 33.3 | 17% | 69 | 37% |
| | February | 1991 | 32.9 | 25.8 | 0.47 | 0 | 0 | 0.45 | 0 | 0 | 2.42 | | | | 30.8 | 37.2 | 0.416 | 224 | 1556 | 0.053 | 63.7 | 28% | 140 | 46% |
| Mar-91 | March | 1991 | 39.6 | 34.7 | 0.42 | 0 | 0 | 0.43 | 0 | 0 | 2.4 | | | | 15.1 | 13.9 | 0.4 | 260 | 1587 | 0.061 | 54.7 | 20% | 139 | 39% |
| | April | 1991 | 33.6 | 33.6 | 0.387 | 0 | 0 | 0.407 | 0 | 0 | 2.4 | | | | 12.2 | 13.8 | 0.333 | 264 | 1348 | 0.072 | 46.7 | 17% | 128 | 36% |
| | May | 1991 | 37.3 | 43.8 | 0.313 | | | 0.383 | 0 | 0 | 2.4 | | | | 5.4 | 7.4 | 0.267 | 256 | 1324 | 0.071 | 42.7 | 17% | 131 | 33% |
| Jun-91 | June | 1991 | 30 | 42.4 | 0.26 | | | 0.35 | 0 | 0 | 2.4 | | | | 3.9 | 7.2 | 0.2 | 220 | 1348 | 0.06 | 33.9 | 15% | 116 | 29% |
| | | TOTAL | 2781 | 2121.3 | 0.482 | 1870 | 1245.9 | 0.552 | 1452.9 | 187.7 | 2.846 | 1503 | | | 1417.1 | 1505.7 | 0.346 | 25604 | 169081 | 0.056 | 9023 | 35% | 17985 | 50% |

METERED2.XLS Chart 1



MAXLOAD.XLS Chart 1



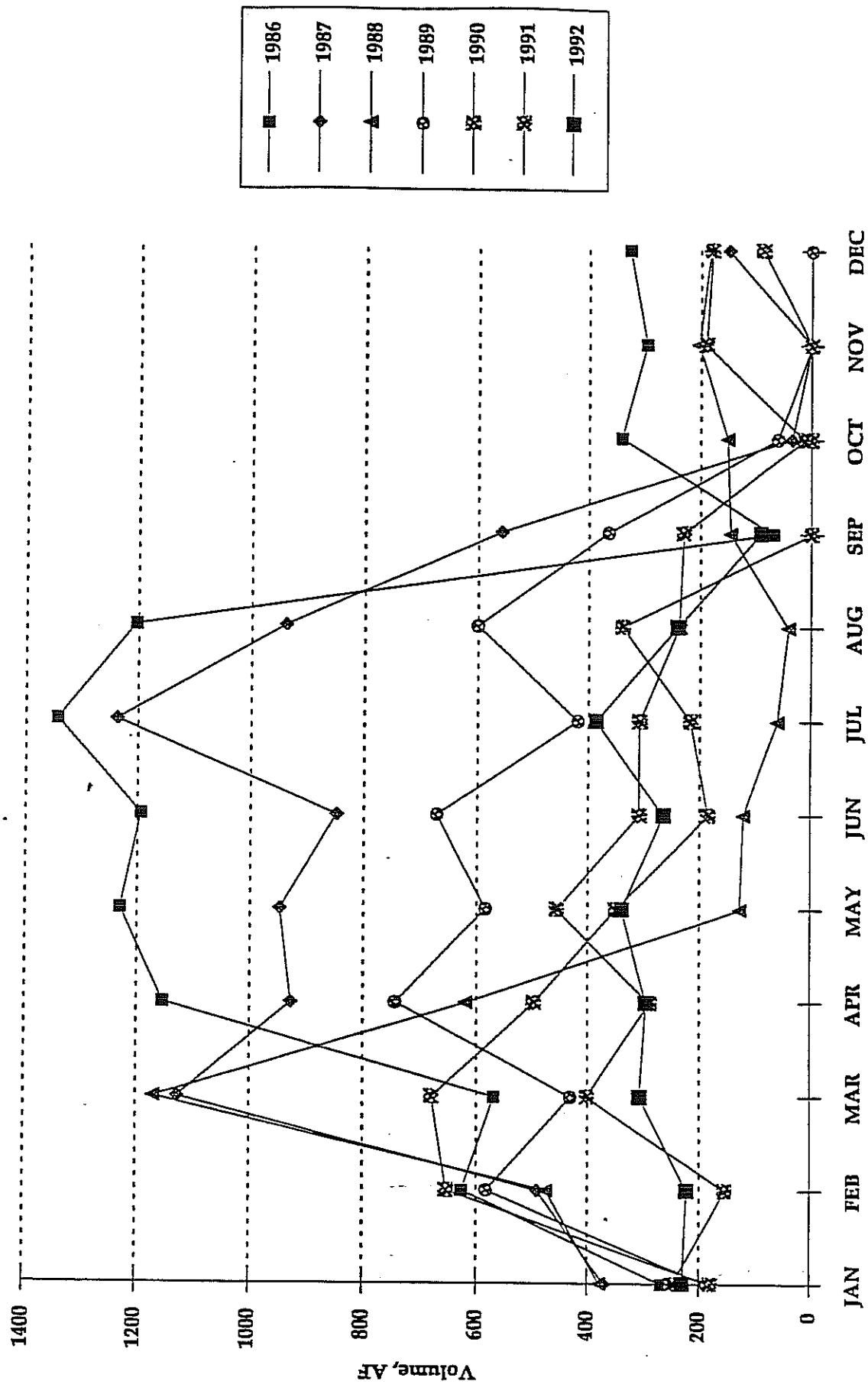
# PO-1: Selected Graphs Of Water Quality Data

# MONTHLY VOLUMES, Se, B, and EC - PO-1

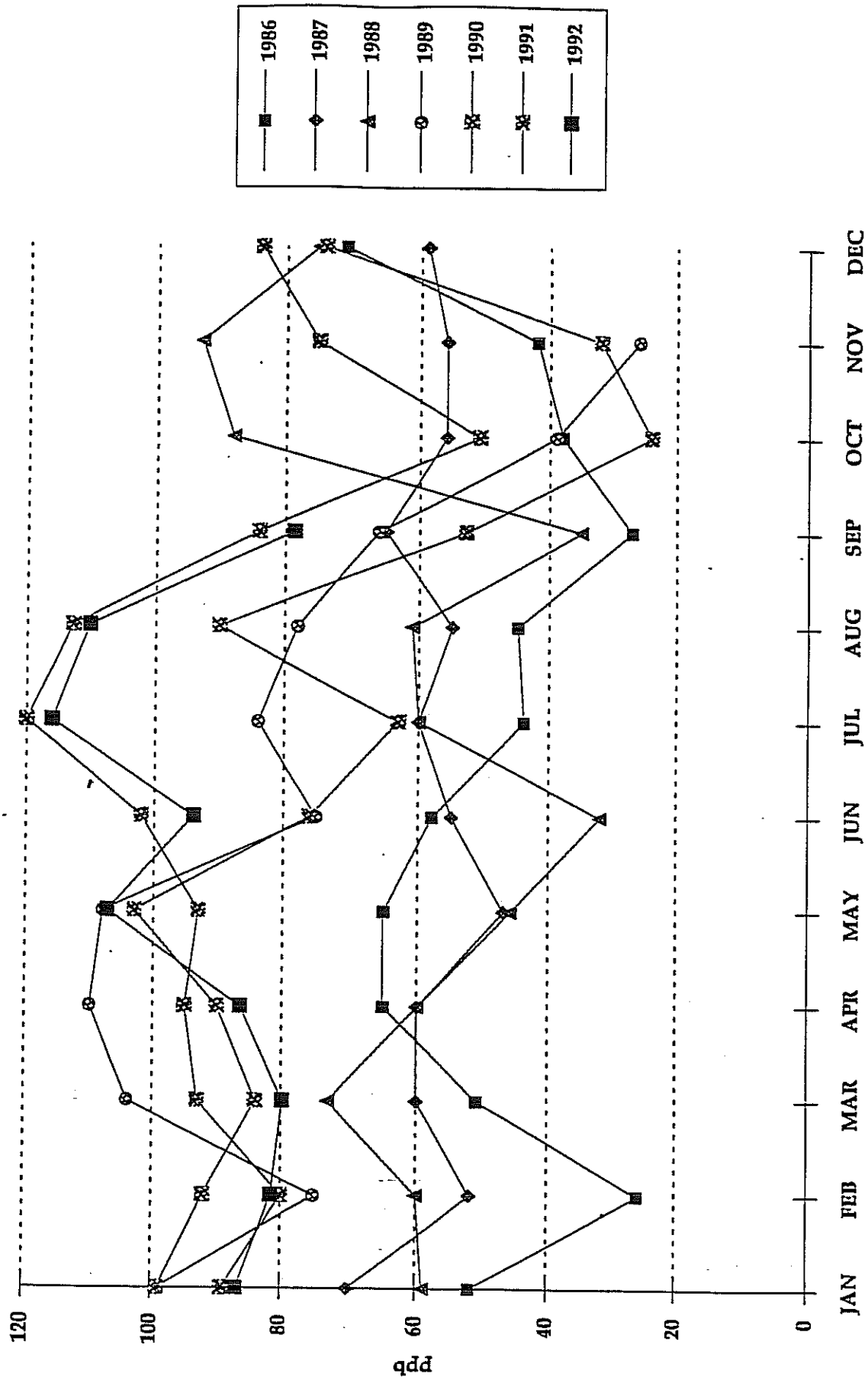
| Month | 1986 Vol | Se | B | EC | 1987 Vol | Se | B | EC | 1988 Vol | Se | B | EC | 1989 Vol | Se | B | EC | 1990 Vol | Se | B | EC | 1991 Vol | Se | B | EC | 1992 Vol | Se | B | EC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ac-ft | ppb | ppm | dS/m | ac-ft | ppb | ppm | dS/m | ac-ft | ppb | ppm | dS/m | ac-ft | ppb | ppm | dS/m | ac-ft | ppb | ppm | dS/m | ac-ft | ppb | ppm | dS/m | ac-ft | ppb | ppm | dS/m |
| JAN | 267 | 52 | 4.3 | 3.507 | 369 | 70 | 3.9 | 3.445 | 377 | 59 | 3 | 3.450 | 186 | 99 | 5.7 | 5.060 | 180 | 99 | 6 | 5.155 | 248 | 89 | 6.6 | 5.210 | 230 | 86.8 | 4.9 | 5.070 |
| FEB | 626 | 26 | 3.1 | 2.915 | 492 | 52 | 3.8 | 3.610 | 476 | 60 | 3.8 | 3.850 | 583 | 75 | 5.5 | 4.975 | 653 | 92 | 5.1 | 5.140 | 154 | 80 | 7.2 | 5.523 | 223 | 81.5 | 5 | 4.950 |
| MAR | 570 | 51 | 3 | 3.045 | 1127 | 60 | 3.2 | 3.970 | 1169 | 73 | 5.7 | 4.563 | 432 | 104 | 5.2 | 5.347 | 680 | 84 | 5.6 | 5.270 | 401 | 93 | 5.4 | 5.485 | 306 | 79.8 | 4.7 | 4.649 |
| APR | 1154 | 65 | 5.1 | 3.850 | 928 | 60 | 3.2 | 3.950 | 620 | 60 | 4.7 | 4.450 | 745 | 110 | 5.3 | 5.600 | 498 | 90 | 5.3 | 5.473 | 289 | 95 | 5.7 | 5.345 | 295 | 86.4 | 4.7 | 4.544 |
| MAY | 1230 | 65 | 4.5 | 3.685 | 948 | 47 | 3.2 | 2.970 | 126 | 46 | 4.4 | 4.128 | 585 | 108 | 7.4 | 5.917 | 349 | 103 | 6.1 | 5.685 | 456 | 93 | 5.4 | 5.455 | 338 | 107 | 5.9 | 5.590 |
| JUN | 1194 | 58 | 3.3 | 2.978 | 847 | 55 | 4.1 | 3.600 | 120 | 32 | 4.1 | 3.805 | 672 | 75 | 4.5 | 4.200 | 185 | 76 | 5.8 | 4.895 | 307 | 102 | 6 | 5.702 | 265 | 93.8 | 5.7 | 5.332 |
| JUL | 1343 | 44 | 3.4 | 2.880 | 1237 | 60 | 3.6 | 3.560 | 60 | 60 | 6.9 | 4.660 | 419 | 84 | 6.4 | 4.760 | 217 | 63 | 5.7 | 4.495 | 307 | 120 | 6.4 | 5.908 | 385 | 116 | 6.6 | 5.732 |
| AUG | 1204 | 45 | 4.2 | 2.985 | 939 | 55 | 3.6 | 3.410 | 41 | 61 | 7 | 4.850 | 601 | 78 | 6.2 | 4.775 | 338 | 90 | 6.2 | 5.100 | 238 | 113 | 5.9 | 5.390 | 241 | 110 | 6.4 | 5.456 |
| SEP | 68 | 27 | 5 | 3.275 | 558 | 65 | 3.9 | 3.695 | 145 | 35 | 3.3 | 3.100 | 364 | 66 | 5.5 | 4.433 | 0 | 53 | 5.6 | 4.090 | 230 | 84 | 4.9 | 4.640 | 90 | 78.6 | 5.6 | 4.832 |
| OCT | 340 | 38 | 2.9 | 2.640 | 36 | 56 | 4.4 | 3.650 | 150 | 88 | 6.6 | 5.375 | 60 | 39 | 4.7 | 3.900 | 0 | 24 | 3.4 | 3.190 | 13 | 51 | 12.2 | 3.920 | | | | |
| NOV | 296 | 42 | 3.3 | 2.700 | 0 | 56 | 4.4 | 3.650 | 203 | 93 | 4.5 | 4.985 | 0 | 26 | 2.1 | 3.060 | 0 | 32 | 2.6 | 3.440 | 190 | 75 | 5 | 4.646 | | | | |
| DEC | 326 | 71 | 4.2 | 3.520 | 149 | 59 | 3 | 3.450 | 182 | 75 | 3.9 | 4.245 | 0 | | | | 86 | 74 | 5.3 | 4.665 | 180 | 83.8 | 5.4 | 5.086 | | | | |
| TOT. | 8618 | | | | 6769 | | | | 3669 | | | | 4647 | | | | 3186 | | | | 3013 | | | | 2373 | | | |

Source: Tables supplied by Joe Karkoski at the California Regional Water Quality Control Board on the monitoring points.

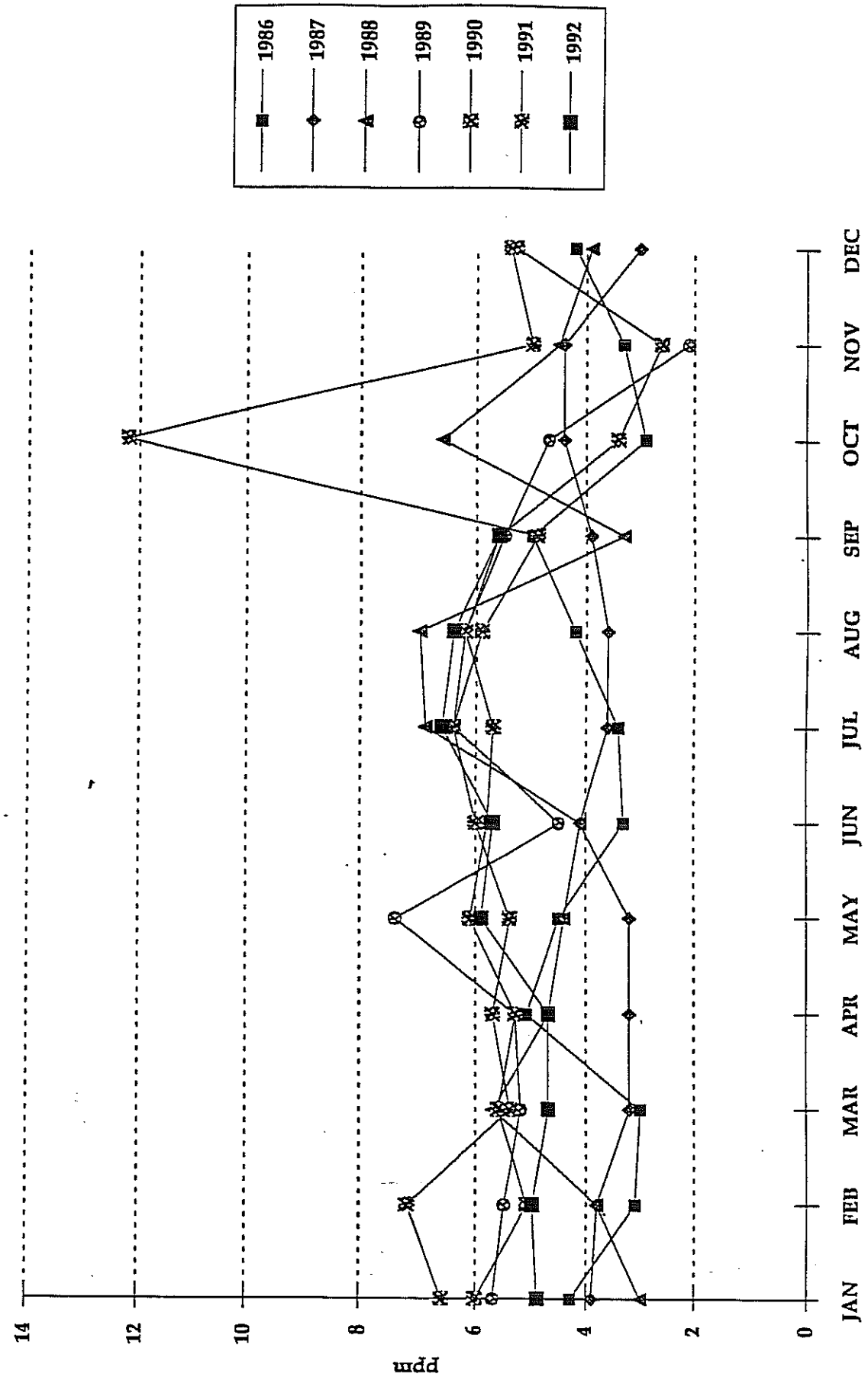
PO-1
Monthly Drainage Volume

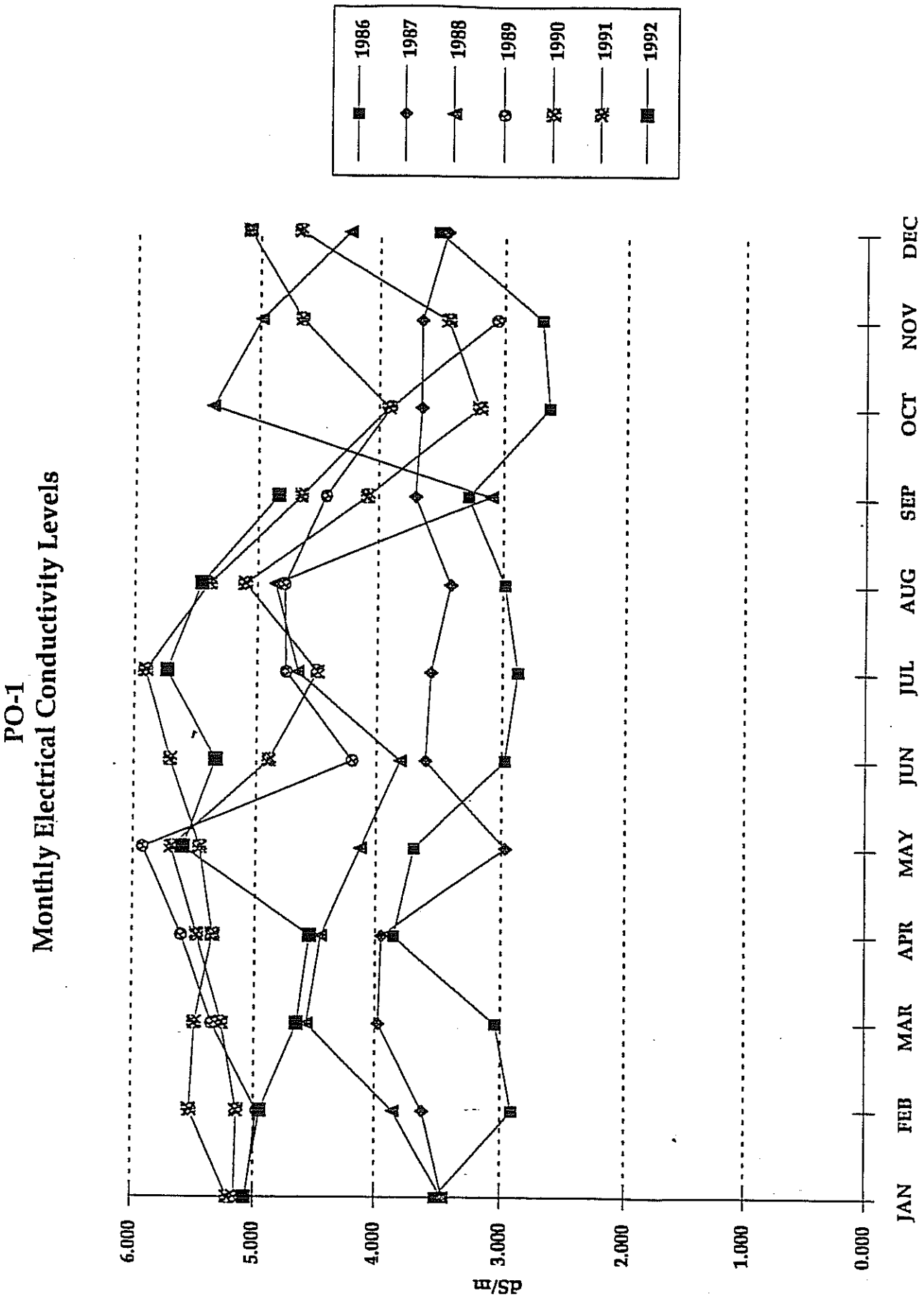


PO-1
Monthly Selenium Concentration

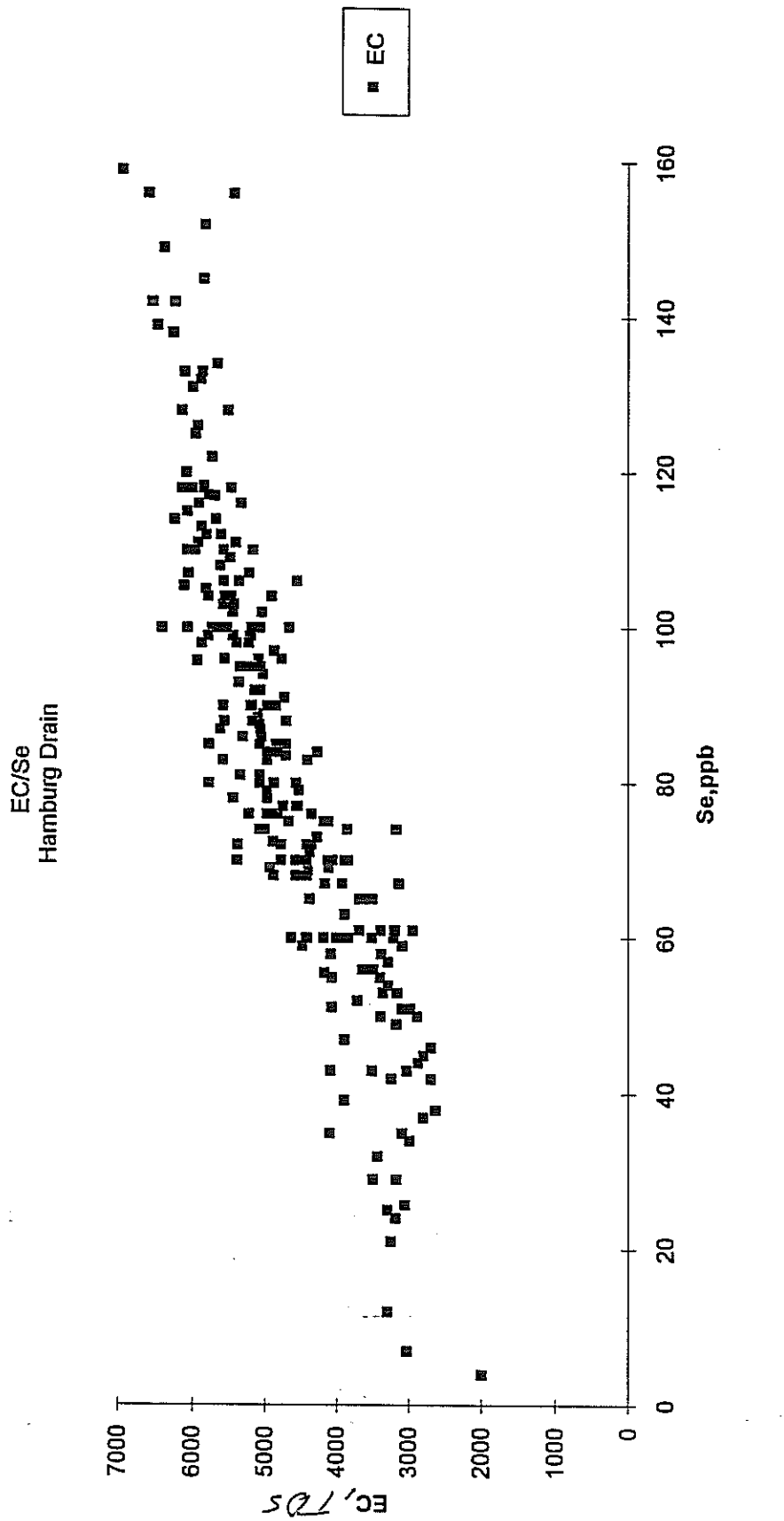


PO-1
Monthly Boron Concentration



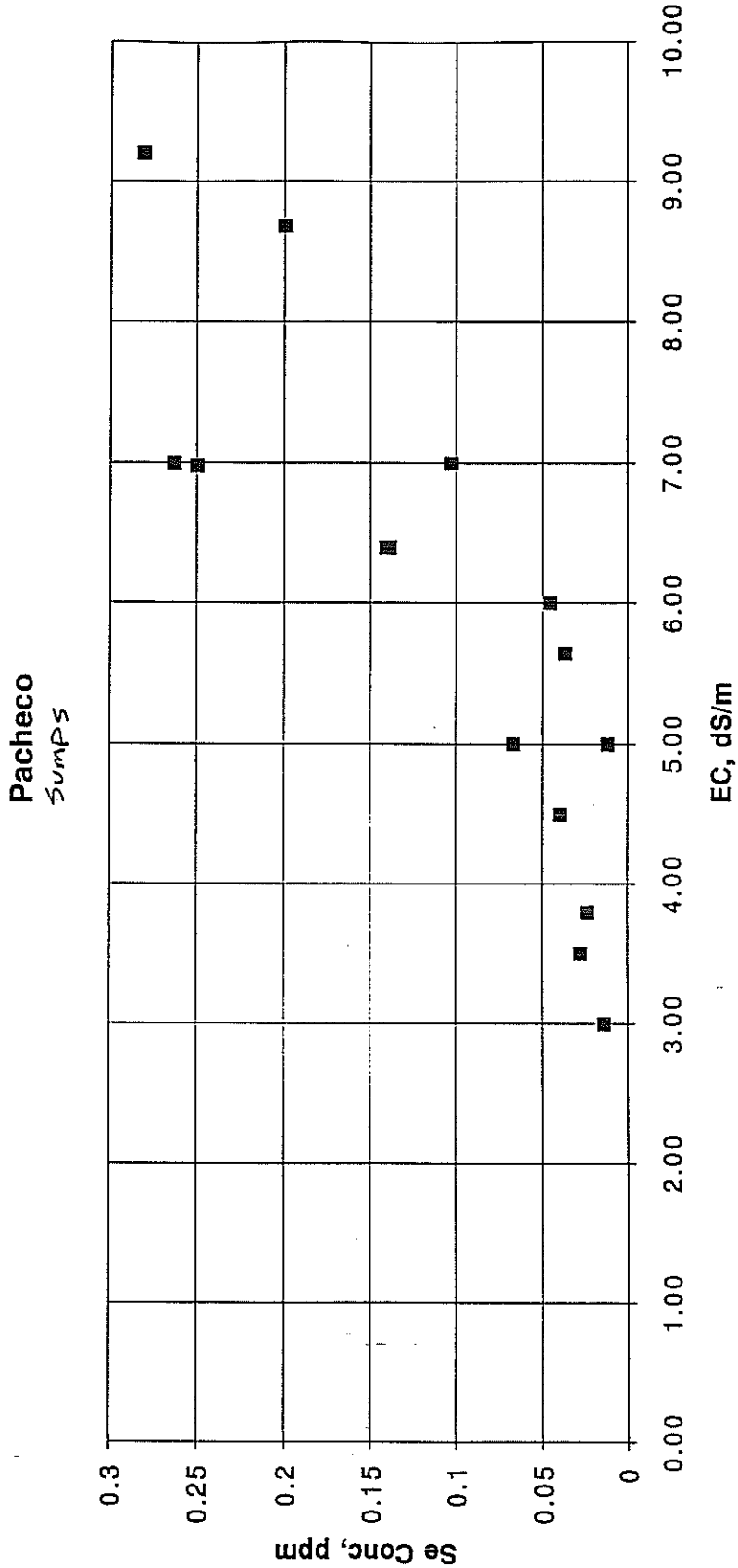

PO-1
Monthly Electrical Conductivity Levels
1986
1987
1988
1989
1990
1991
1992
6.000
5.000
4.000
3.000
2.000
1.000
0.000
dS/m
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC

HAMBURGD.XLS Chart 1




Page 1

#2 Chart 1

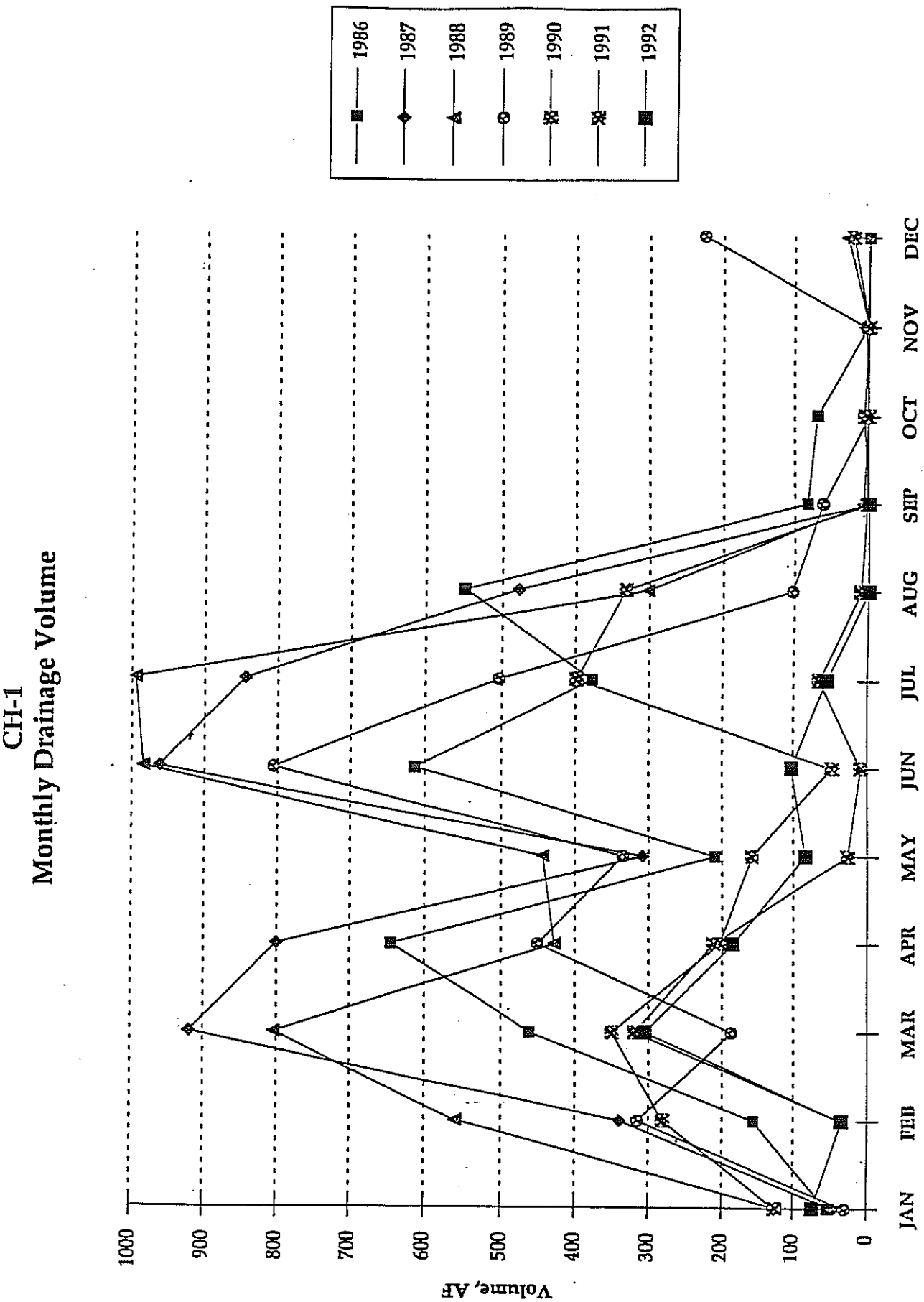

Pacheco
Sumps
Se Conc, ppm
0.3
0.25
0.2
0.15
0.1
0.05
0
EC, dS/m
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
10.00

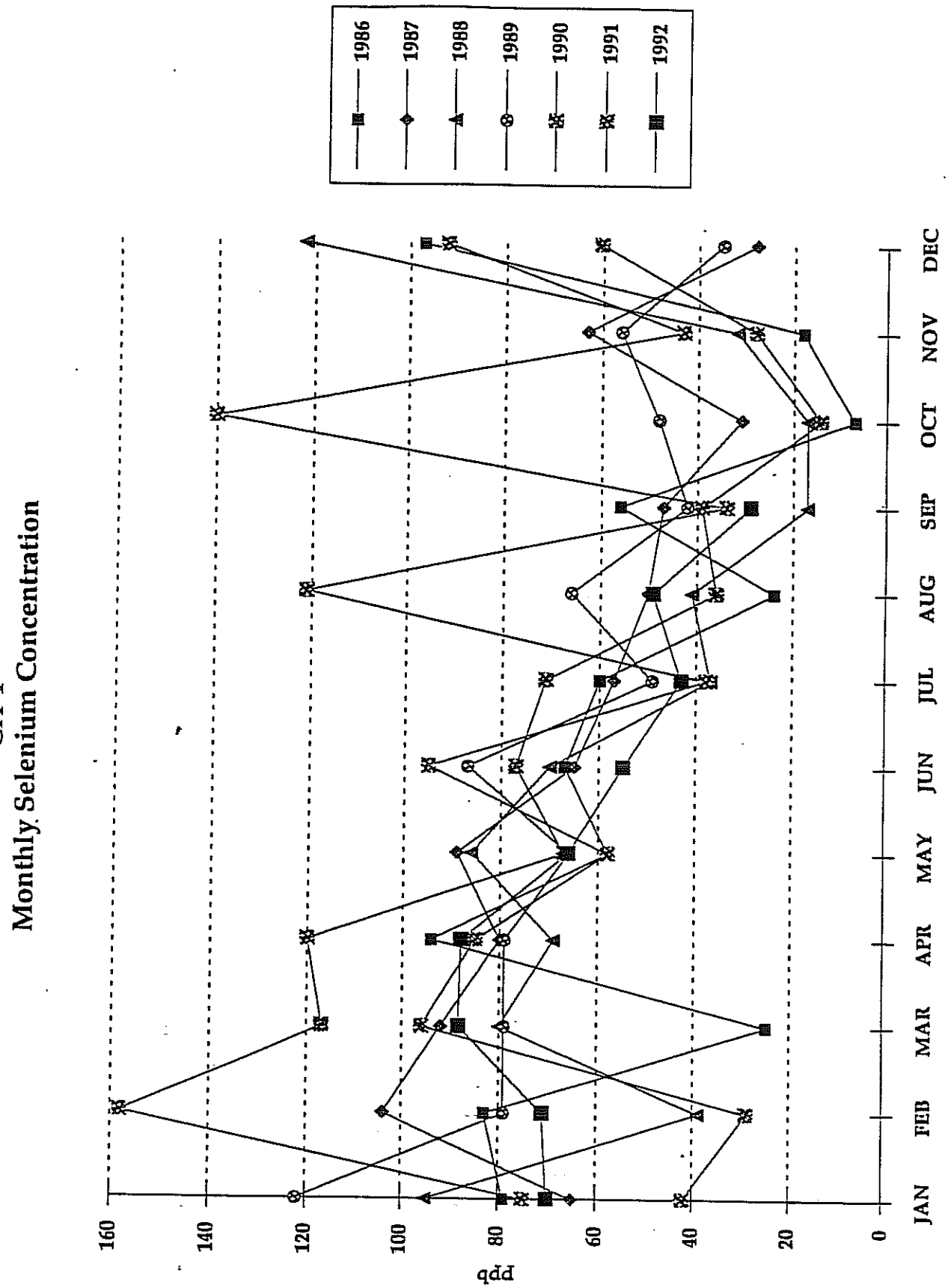
# CH-1: Selected Graphs Of Water Quality Data

# MONTHLY VOLUMES, Se, B, and EC - CH-1

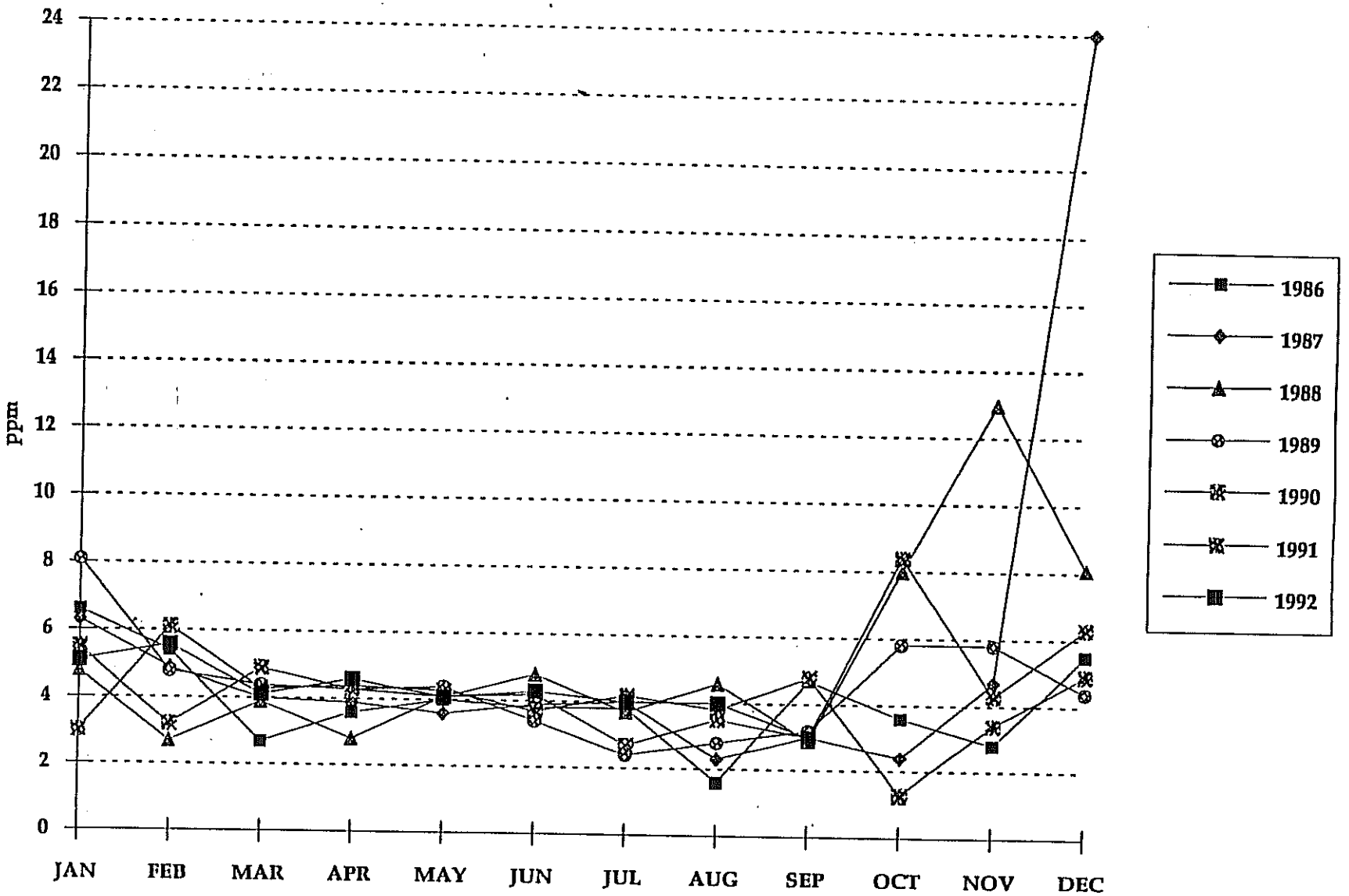
| Month | 1986 | | | | 1987 | | | | 1988 | | | | 1989 | | | | 1990 | | | | 1991 | | | | 1992 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Vol | Se | B | EC | Vol | Se | B | EC | Vol | Se | B | EC | Vol | Se | B | EC | Vol | Se | B | EC | Vol | Se | B | EC | Vol | Se | B | EC |
| | ac-ft | ppb | ppm | dS/m | ac-ft | ppb | ppm | dS/m | ac-ft | ppb | ppm | dS/m | ac-ft | ppb | ppm | dS/m | ac-ft | ppb | ppm | dS/m | ac-ft | ppb | ppm | dS/m | ac-ft | ppb | ppm | dS/m |
| JAN | 53 | 79 | 6.6 | 6.090 | 45 | 65 | 6.3 | 3.58 | 123 | 95 | 4.8 | 5.815 | 30 | 122 | 8.1 | 7.045 | 125 | 42 | 5.5 | 5.23 | 73 | 75 | 3 | 4.322 | 73 | 70 | 5.1 | 5.128 |
| FEB | 156 | 83 | 5.4 | 5.3 | 340 | 104 | 4.9 | 5.42 | 560 | 39 | 2.7 | 3.51 | 315 | 79 | 4.8 | 4.916 | 281 | 29 | 3.2 | 3.79 | 35 | 158 | 6.1 | 5.24 | 35 | 71 | 5.57 | 5.073 |
| MAR | 462 | 25 | 2.7 | 2.82 | 919 | 92 | 4 | 5.24 | 804 | 80 | 3.9 | 4.523 | 187 | 79 | 4.4 | 4.828 | 350 | 96 | 4.9 | 5.43 | 319 | 117 | 4.3 | 4.777 | 305 | 88.4 | 4.126 | 4.968 |
| APR | 644 | 94 | 3.6 | 3.983 | 801 | 80 | 3.9 | 4.66 | 428 | 69 | 2.8 | 3.683 | 451 | 79 | 4.3 | 4.633 | 204 | 85 | 4.3 | 4.95 | 212 | 120 | 4.4 | 3.877 | 185 | 88 | 4.6 | 4.882 |
| MAY | 210 | 58 | 4 | 4.11 | 308 | 89 | 3.6 | 4.23 | 444 | 86 | 4.1 | 4.934 | 335 | 66 | 4.4 | 4.718 | 158 | 58 | 4.1 | 4.423 | 27 | 67 | 4.3 | 4.538 | 83 | 66.2 | 4.1 | 4.598 |
| JUN | 613 | 67 | 3.8 | 4.058 | 962 | 65 | 3.9 | 3.895 | 983 | 70 | 4.8 | 5.724 | 806 | 87 | 3.4 | 4.439 | 47 | 95 | 4.2 | 5.319 | 9 | 77 | 3.7 | 4.452 | 102 | 55 | 4.3 | 4.386 |
| JUL | 378 | 60 | 3.8 | 3.71 | 845 | 57 | 4 | 3.143 | 994 | 37 | 3.7 | 5.262 | 504 | 49 | 2.4 | 3.268 | 399 | 38 | 2.7 | 3.19 | 64 | 71 | 4.2 | 4.286 | 55 | 43 | 4 | 3.597 |
| AUG | 550 | 24 | 1.6 | 1.965 | 478 | 50 | 2.3 | 3.13 | 302 | 41 | 4.6 | 4.131 | 102 | 66 | 2.8 | 3.76 | 332 | 121 | 3.5 | 3.667 | 11 | 36 | 3.8 | 3.512 | 0 | 49 | 4 | 3.832 |
| SEP | 82 | 56 | 4.7 | 4.273 | 0 | 47 | 3 | 3.32 | 8 | 17 | 2.9 | 3.086 | 61 | 42 | 3.2 | 3373 | 0 | 34 | 3 | 2.69 | 3 | 39 | 4.8 | 4.538 | 0 | 29 | 3 | 2.978 |
| OCT | 68 | 7 | 3.6 | 3.07 | 0 | 31 | 2.4 | 2.73 | 0 | 17 | 8 | 6.098 | 0 | 48 | 5.8 | 5.149 | 6 | 140 | 8.4 | 6.883 | 0 | 14.1 | 1.3 | 1.714 | | | | |
| NOV | 3 | 18 | 2.8 | 7.2 | 0 | 63 | 4.7 | 4.55 | 0 | 32 | 13 | 9.519 | 4 | 56 | 5.8 | 4.944 | 0 | 43 | 4.3 | 4.061 | 0 | 28 | 3.4 | 3.34 | | | | |
| DEC | 0 | 97 | 5.5 | 7.2 | 0 | 28 | 24 | 10.22 | 30 | 122 | 8.1 | 7.045 | 226 | 35 | 4.4 | 4.04 | 22 | 92 | 6.3 | 5.91 | 22 | 60.4 | 4.92 | 4.812 | | | | |
| TOT. | 3219 | | | | 4313 | | | | 4676 | | | | 3021 | | | | 1924 | | | | 775 | | | | 838 | | | |

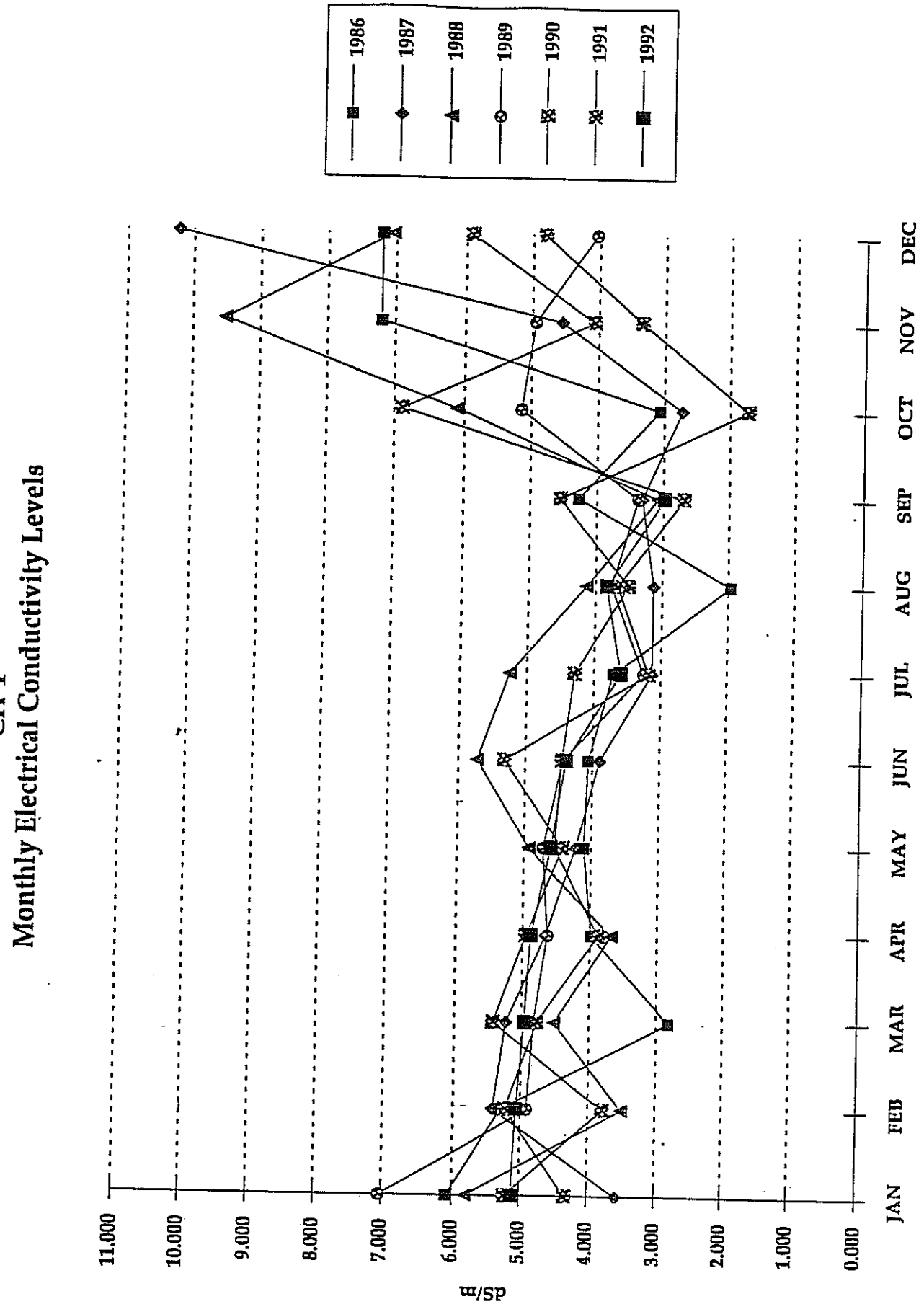
Source: Tables supplied by Joe Karkoski at the California Regional Water Quality Control Board on the monitoring points.


CH-1
Monthly Drainage Volume
1986
1987
1988
1989
1990
1991
1992
Volume, AF
1000
900
800
700
600
500
400
300
200
100
0
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC

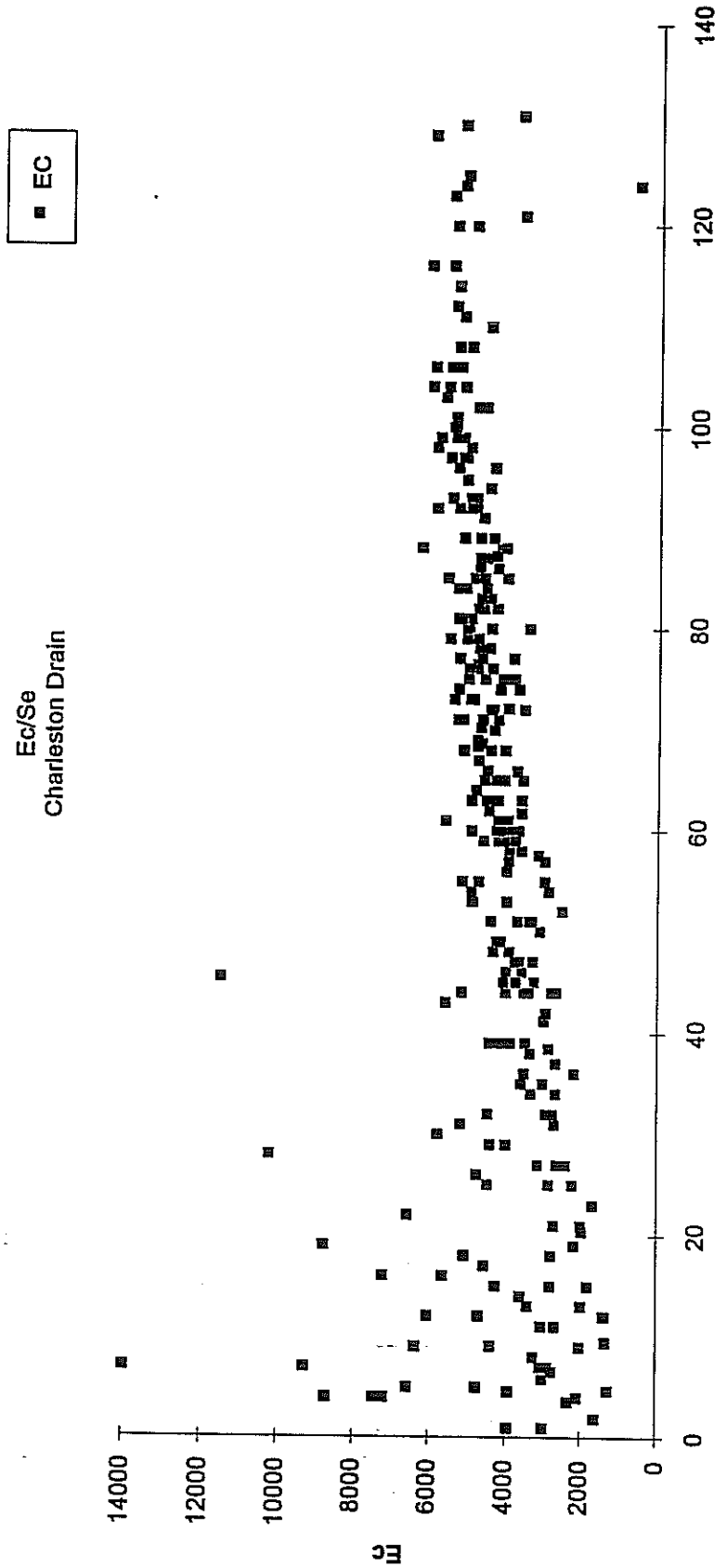

CH-1
Monthly Selenium Concentration
1986
1987
1988
1989
1990
1991
1992
ppb
160
140
120
100
80
60
40
20
0
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC

# CH-1
## Monthly Boron Concentration

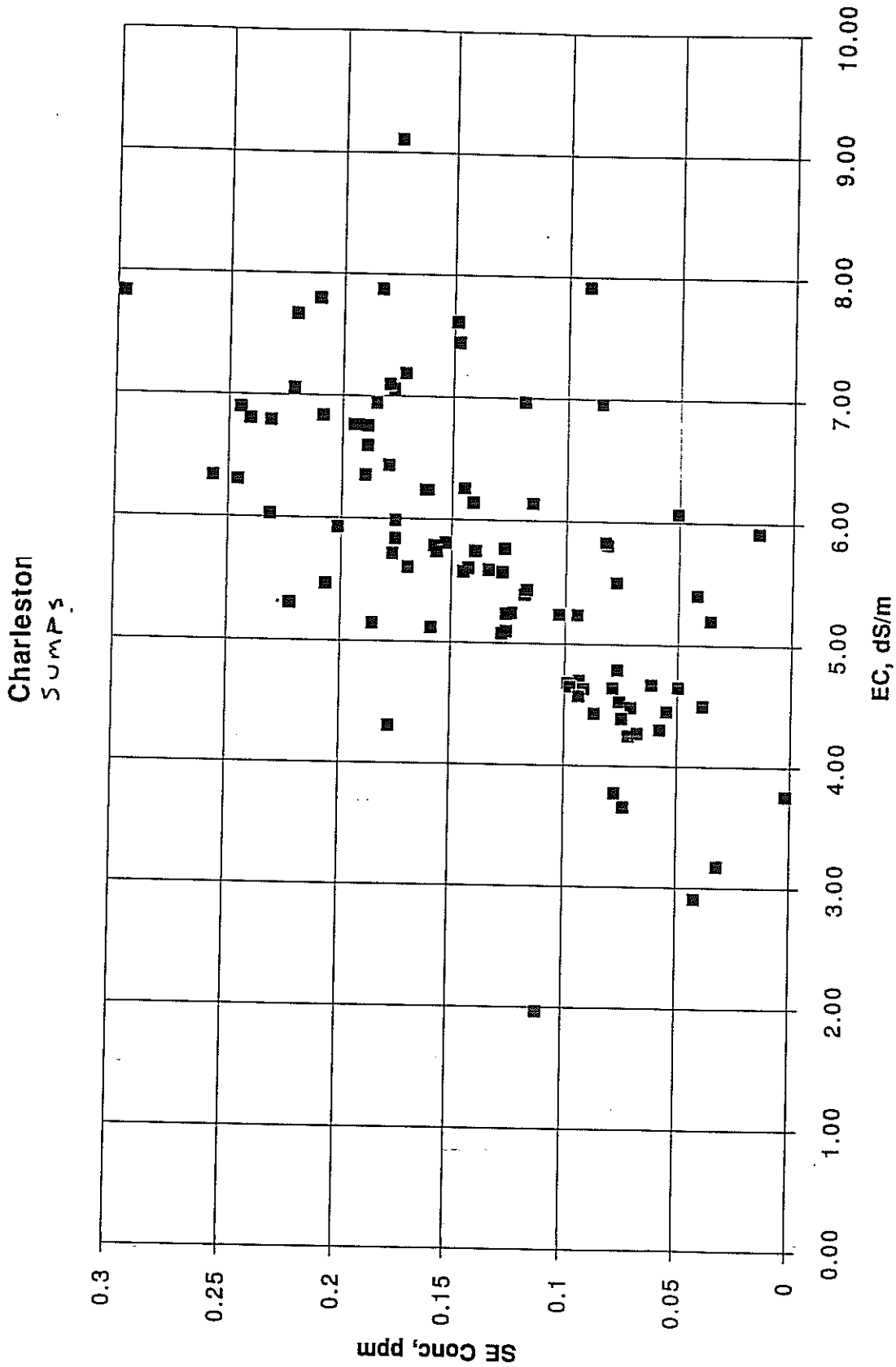



CH-1
Monthly Electrical Conductivity Levels
1986
1987
1988
1989
1990
1991
1992
11.000
10.000
9.000
8.000
7.000
6.000
5.000
4.000
3.000
2.000
1.000
0.000
dS/m
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC

CHARLESD.XLS Chart 2



#1 Chart 1


Charleston
SUMPS
SE Conc, ppm
0.3
0.25
0.2
0.15
0.1
0.05
0
EC, dS/m
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
10.00

# FC-5: Selected Graphs Of Water Quality Data

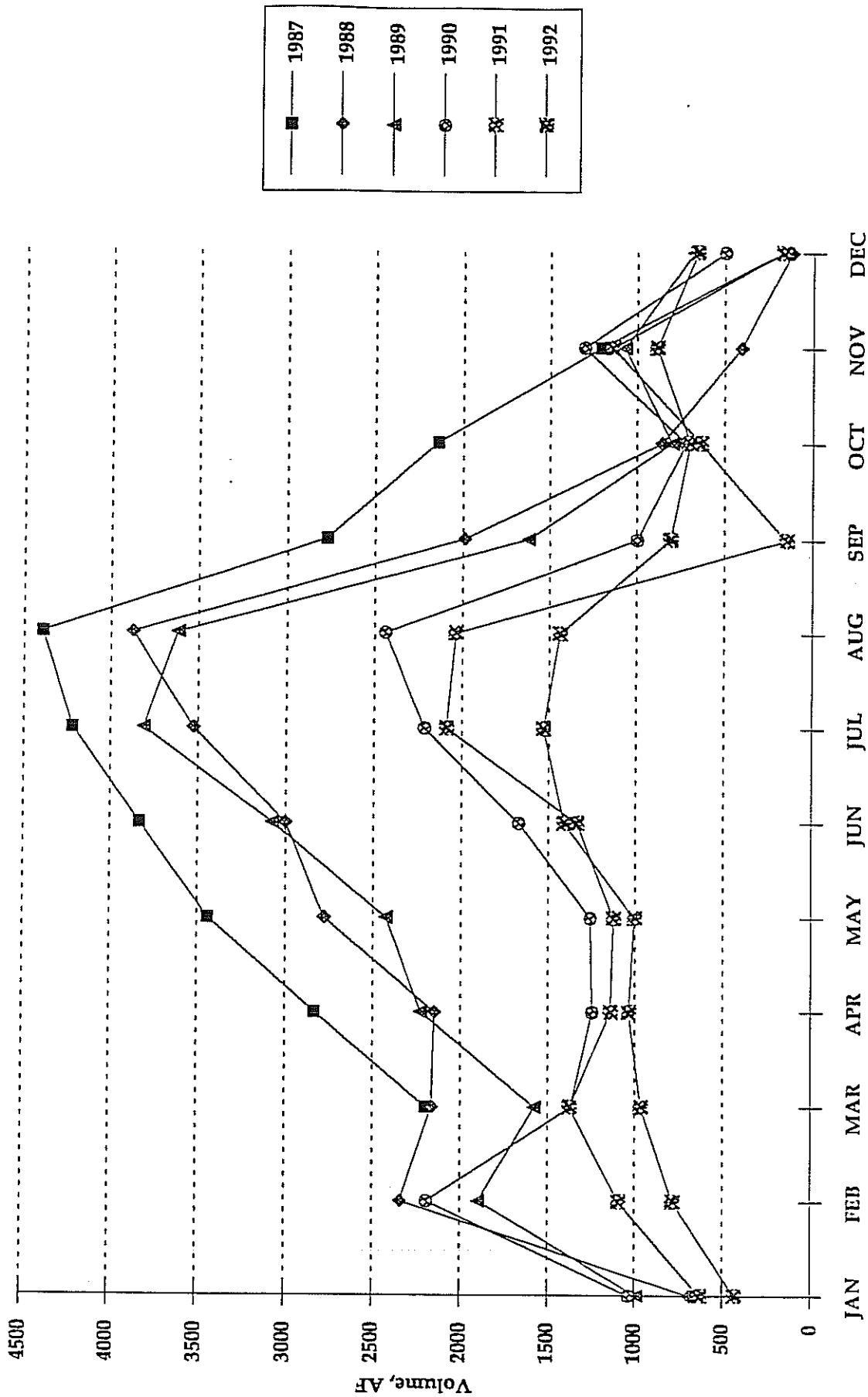
# MONTHLY VOLUMES, Se, B, and EC - FC-5

| MONTH | 1987 Vol ac-ft | Se ppb | B ppm | EC dS/m | 1988 Vol ac-ft | Se ppb | B ppm | EC dS/m | 1989 Vol ac-ft | Se ppb | B ppm | EC dS/m | 1990 Vol ac-ft | Se ppb | B ppm | EC dS/m | 1991 Vol ac-ft | Se ppb | B ppm | EC dS/m | 1992 Vol ac-ft | Se ppb | B ppm | EC dS/m |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | 687 | 119 | 7 | 5.747 | 988 | 74 | 4.5 | 3.400 | 1033 | 48 | 2.9 | 2.750 | 631 | 154 | 10.6 | 6.168 | 432 | 37 | 4 | 3.372 |
| FEB | | | | | 2344 | 60 | 3.3 | 3.220 | 1897 | 57 | 3 | 3.300 | 2194 | 62 | 3.7 | 3.605 | 1091 | 59 | 12.7 | 4.803 | 785 | 98 | 7 | 5.053 |
| MAR | 2200 | 110 | 6 | 5.15 | 2165 | 87 | 5.1 | 3.827 | 1578 | 75 | 4.8 | 3.925 | 1371 | 58 | 4.7 | 3.695 | 1376 | 83 | 5.1 | 4.530 | 965 | 104 | 7 | 4.878 |
| APR | 2833 | 56 | 3.3 | 2.975 | 2151 | 62 | 3.6 | 3.470 | 2228 | 50 | 3.8 | 3.500 | 1244 | 78 | 4.9 | 4.333 | 1140 | 68 | 5.1 | 3.738 | 1035 | 85 | 6 | 4.185 |
| MAY | 3442 | 42 | 2.8 | 2.345 | 2778 | 58 | 3.7 | 3.390 | 2429 | 44 | 3.9 | 2.980 | 1255 | 64 | 4.5 | 6.090 | 1121 | 61 | 5.9 | 4.000 | 1003 | 60 | 5 | 3.736 |
| JUN | 3832 | 39 | 3.4 | 2.58 | 3001 | 38 | 3.1 | 2.670 | 3075 | 55 | 4.2 | 3.200 | 1672 | 69 | 5.4 | 3.900 | 1335 | 44 | 4 | 3.351 | 1409 | 60 | 5 | 3.742 |
| JUL | 4219 | 42 | 3 | 2.443 | 3525 | 45 | 3.2 | 2.920 | 3809 | 41 | 3.7 | 2.800 | 2214 | 56 | 4.4 | 2.950 | 2089 | 45 | 4.3 | 3.215 | 1532 | 46 | 5 | 3.405 |
| AUG | 4390 | 36 | 2.6 | 2.23 | 3874 | 36 | 2.6 | 2.485 | 3616 | 32 | 2.7 | 2.080 | 2440 | 59 | 4.5 | 3.080 | 2036 | 34 | 3.7 | 2.786 | 1437 | 34 | 4 | 2.800 |
| SEP | 2773 | 35 | 4.9 | 2.37 | 1991 | 37 | 2.9 | 2.430 | 1623 | 45 | 4.4 | 2.700 | 997 | 65 | 7.5 | 5.000 | 150 | 61 | 6.5 | 4.061 | 809 | 82 | 9 | 5.052 |
| OCT | 2142 | 48 | 3 | 2.685 | 856 | 61 | 4.5 | 3.325 | 799 | 41 | 4.5 | 3.173 | 721 | 107 | 9.1 | 5.235 | 637 | 30 | 4 | 2.962 | 697 | 51 | 7.3 | 4.250 |
| NOV | 1204 | 46 | 3.4 | 3.335 | 402 | 36 | 2.7 | 2.575 | 1067 | 40 | 2.8 | 2.525 | 1303 | 128 | 7.9 | 5.435 | 1135 | 53 | 4 | 2.846 | 884 | 52 | 5.3 | 3.430 |
| DEC | 179 | 158 | 10.5 | 7.5 | 125 | 69 | 9.4 | 5.635 | 678 | 79 | 4.8 | 4.580 | 498 | 233 | 13.5 | 8.045 | 172 | 150 | 16 | 7.704 | 658 | 144 | 10.7 | 6.520 |
| TOT. | 27214 | | | | 23899 | | | | 23787 | | | | 16942 | | | | 12913 | | | | 11646 | | | |

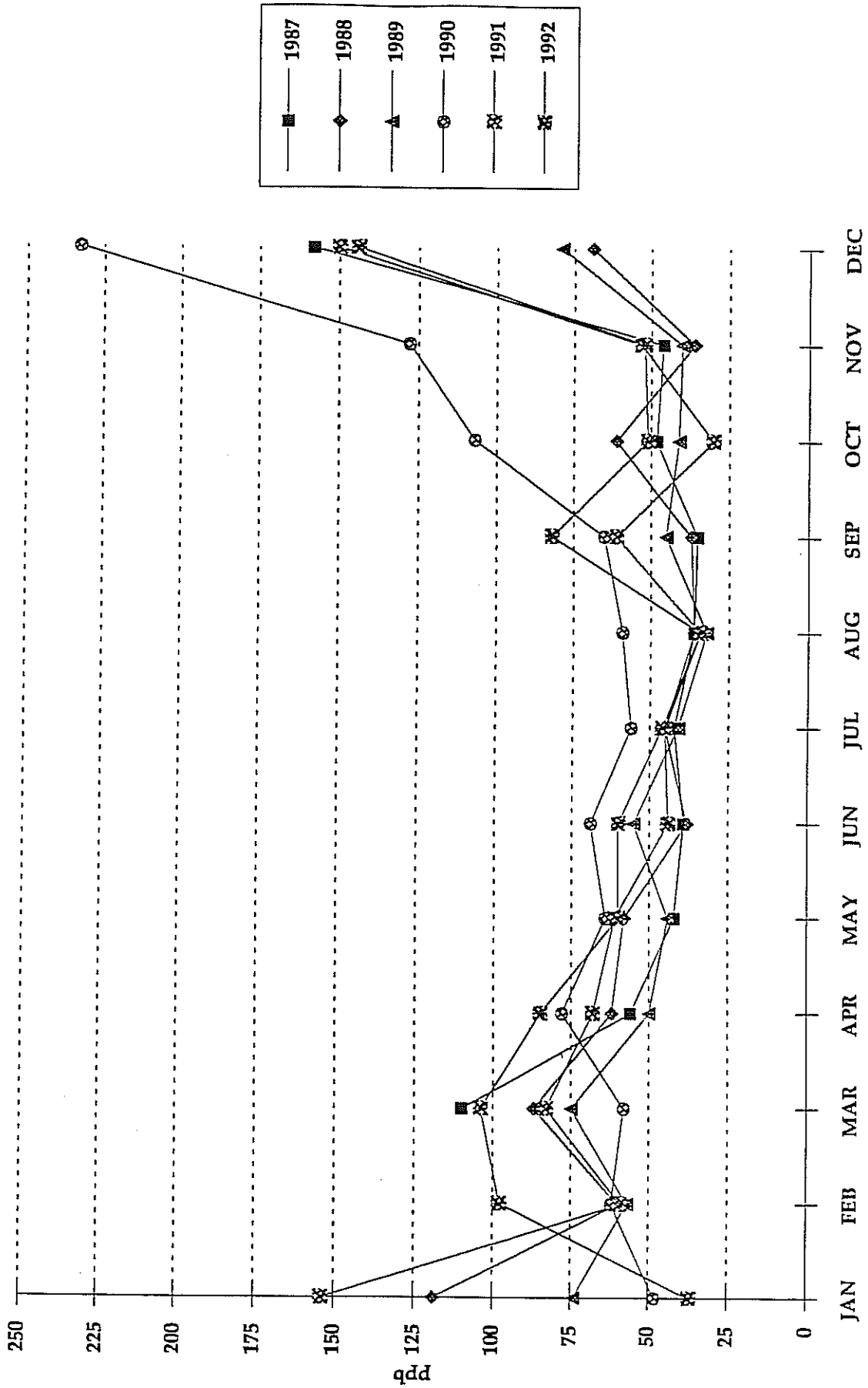
Source: Tables supplied by Joe Karkoski at the California Regional Water Quality Control Board on the monitoring points.

FC-5

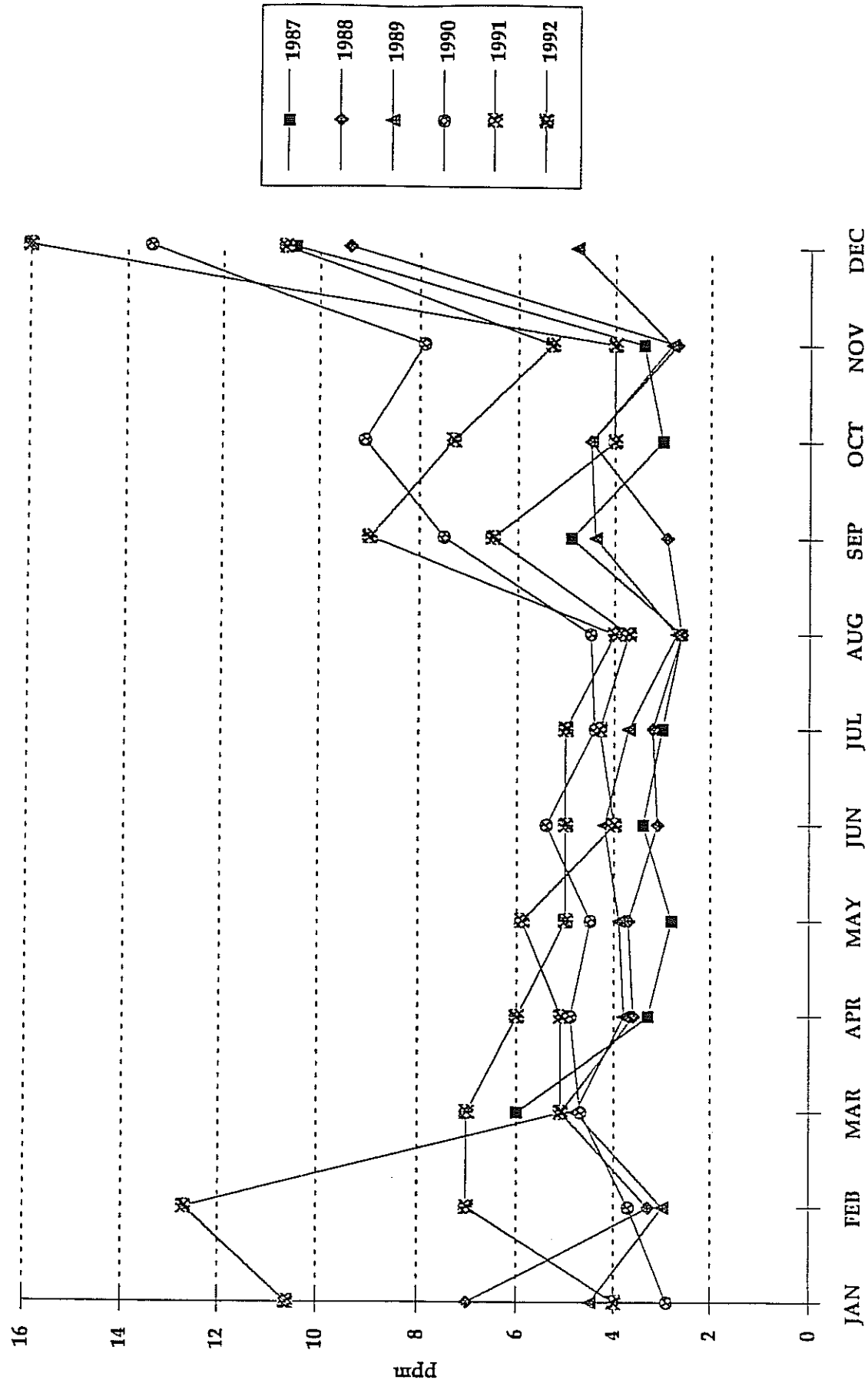
## Monthly Drainage Volume



FC-5
Monthly Selenium Concentration

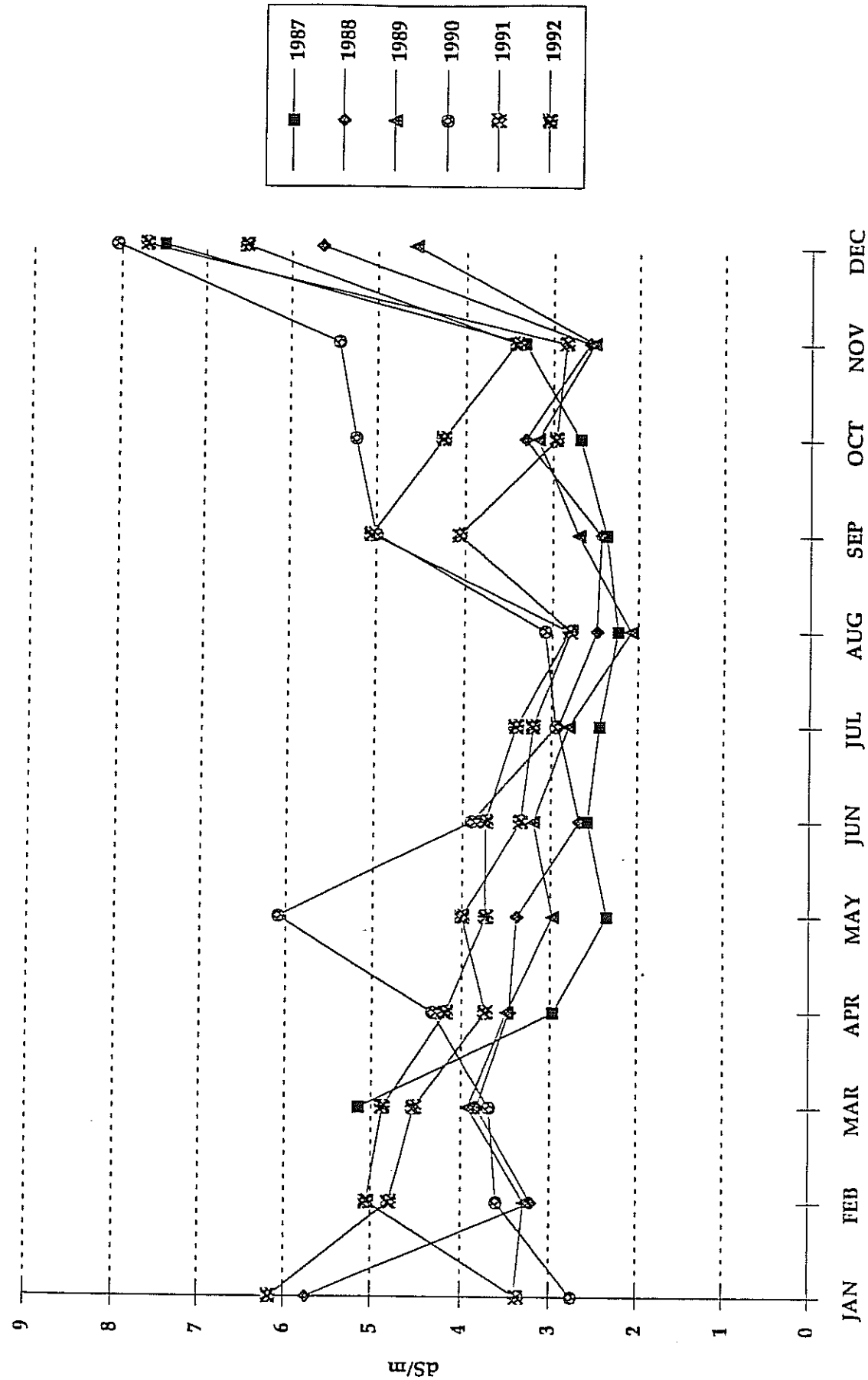


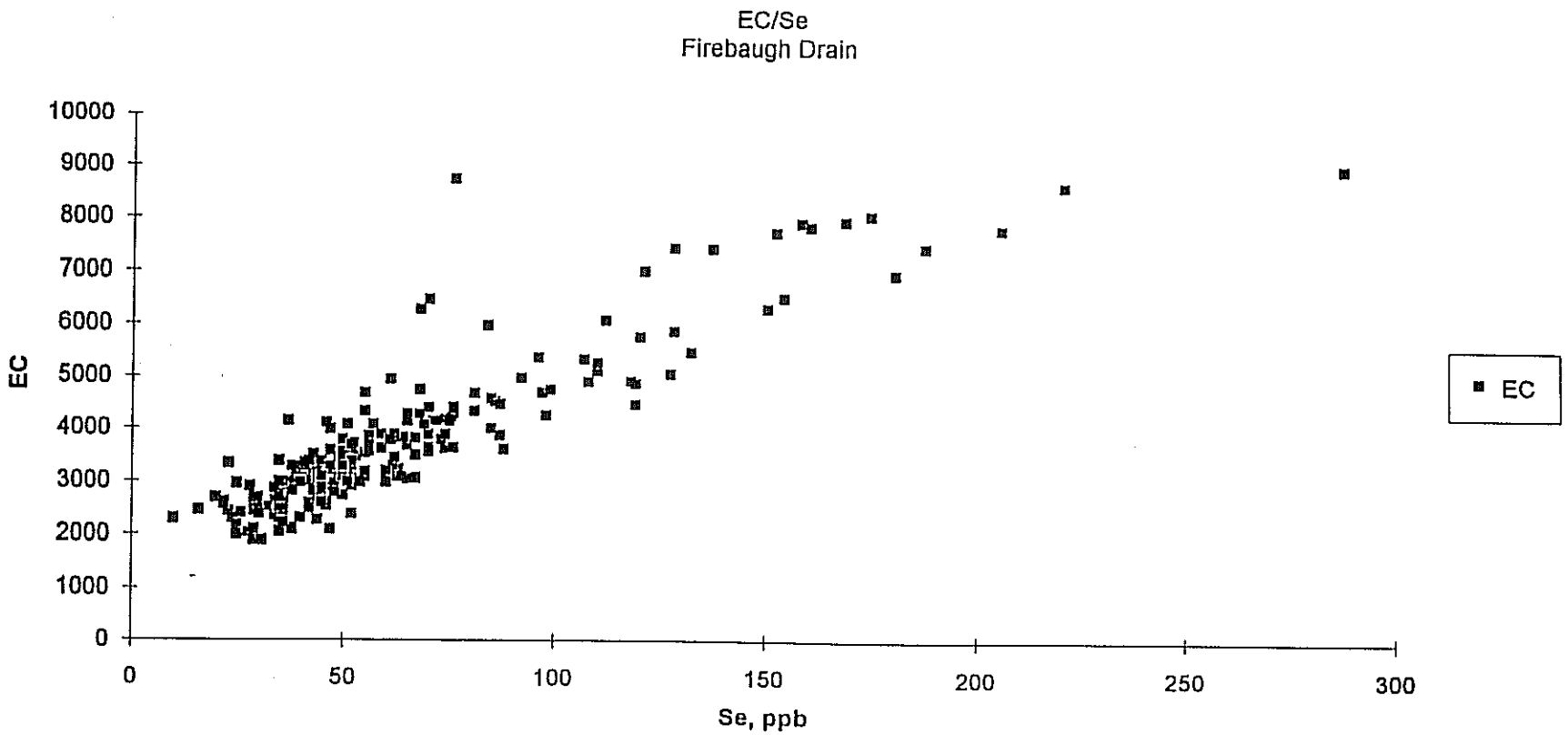
FC-5
Monthly Boron Concentration



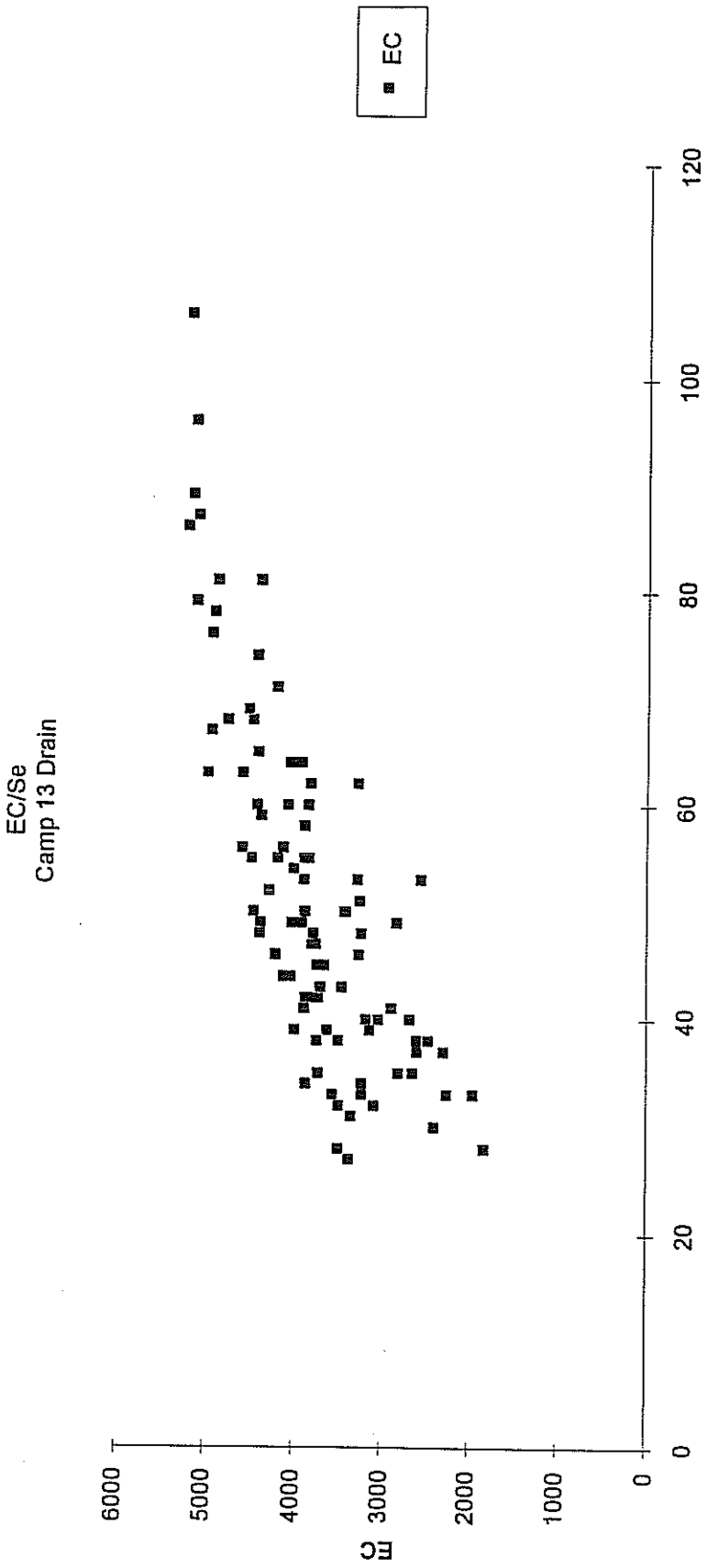
FC-5

## Monthly Electrical Conductivity Levels

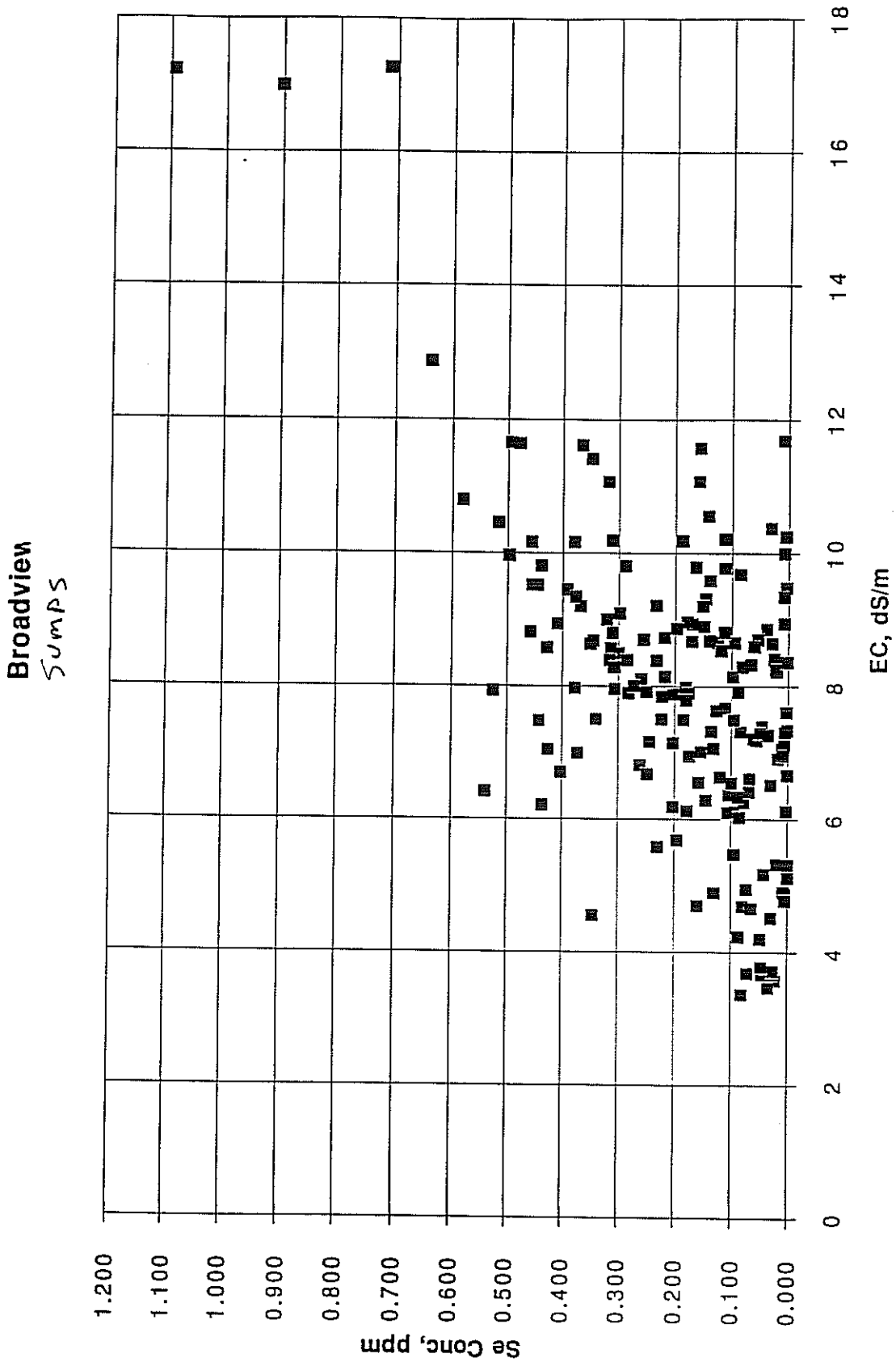



EC/Se
Firebaugh Drain
EC
10000
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
0
50
100
150
200
250
300
Se, ppb
EC

CAMP13D.XLS Chart 1



SDATA92.FL,SE,ED Chart 2



# TECHNICAL APPENDIX H
## Subsurface Flow Analysis

# TABLE OF CONTENTS
## TECHNICAL APPENDIX H

Analysis from John Fio ..... H3

## Approach

Sump discharge data from Broadview, Central California, Charleston, Firebaugh, Pacheco, and Panoche irrigation districts is stored as tables on computer diskettes in spreadsheet format. This data was compiled and collated in order to separate high-flow conditions measured during the irrigated season (typically late January through September) and low-flow conditions measured during the nonirrigated season (typically October through December). Total-, high-, and low-flow drainage volumes at each monitoring site were plotted (1992 data) using the ARC/INFO Geographic Information System (GIS) database developed by Cal Poly San Luis Obispo for spatial analysis of the data. Subsurface drainage during low-flow months may approximate ground-water baseflows intercepted by the drainage systems during nonirrigated conditions.

## Drainflows

A summary of total annual drainflow and total drainflow during low-flow conditions in 1992 is reported in Table 1 (1992 was selected because it was the most comprehensive when considering the data reported by all the water districts). The greatest volume of subsurface drainage during low-flow conditions in 1992 was discharged by Panoche Water District, and the smallest volume was discharged by Charleston Water District. In general, the greatest volumes of discharge during low-flow conditions is measured in water districts that discharge the greatest volume of total annual drainflow. The proportion of total drainflow discharged during low-flow conditions in 1992 ranges from 6 to 14 percent, with the average for all the water districts being 13 percent. Hence, 13 percent of the total annual drainflow occurs during the nonirrigated months (assumed to be October through December, or 25 percent of the reporting period).

Total drainflow from Panoche Water District, as measured at PE-14, was 12,117 acre-ft in 1992 and is more than 180 percent greater than total flow calculated from the sump measurements. One plausible explanation for the deviation is that flows at PE-14 include irrigation tailwater, seepage of ground-water into the unlined canals that transport the drainwater, and flows from unmetered sumps and collectors. For example, the weirs used to measure drainflow from unmetered sumps and collectors during 1987-88 were no longer operable in 1990, and many had been washed away; in 1987-88 weirs measured drainflow from 19 drainage points (38 percent of the total sites monitored) and accounted for about 50 percent of the total measured drainflow.

Maps of total drainflow for low- and high-flow conditions, as well as annual totals measured in 1992, are shown in plates 1, 2 and 3, respectively. Sumps that generate the most drainwater on an annual basis (plate 3) discharge the greatest volumes during low-flow conditions (plate 1), and most of these sumps are located in the northwestern part of the study area and are downslope of undrained areas.

## Results

### Data set

The drainflow data provided by the water districts is difficult to use because reporting periods, sampling dates, sampling frequency, and scope of analyses vary between reporting entities. Furthermore, the supporting ancillary data necessary for interpretation of the data is lacking (for example, site description, field conditions at the time of sampling, recent irrigation and drainage history, and so forth). One important piece of information missing from the data set and the ARC/INFO data base is a link between each point representing a sump and the area drained that discharges to it. This would be useful for assessing whether sumps discharging the greatest volumes of drainwater are a result of larger drainage areas, high rates of applied water, or if the drainage system is collecting substantial volumes of ground-water.

Retrieval of the raw measured data (volumes, dates, concentrations, and so forth) was time consuming because of reporting formats, embedded graphs and programmed cell formulas associated with the software each entity uses for their operations, and our own software incompatibility. Well-defined and consistent protocols and reporting formats for data storage and transmittal are therefore needed. For example, transmitted data should consist of only raw data and should be in ASCII format (American Standard Code of Information Interchange).

## Groundwater

Preliminary results from a steady-state ground-water-flow model constructed by Fio (in review) provide some insight into subsurface flow to drainage systems in Panoche Water District. The flow model simulates average hydrologic conditions within the District from data collected during the period 1986-90. Average recharge to the water table specified in the flow model (water applied less consumptive-use by crops) was about 45,100 acre-ft/yr (1.1 ft/yr). The model simulates bare-soil evaporation, drainflow, and deep flow of ground-water across depths of about 85 feet below land surface, and results indicate that these flows during the study period averaged 8,350 acre-ft/yr, 16,900 acre-ft/yr, and 21,000 acre-ft/yr, respectively. For comparison, measured drainflow in 1987-88 was 16,865 acre-ft/yr.

The model indicates that recharge originating in undrained areas of Panoche Water District upslope of the drainage system contribute about 11 percent of the total downslope drainflow. Irrigation water percolating past the drainage systems is removed by pumping from the semi-confined zone or recharges the underlying confined zone. Simulated incidental recharge within Panoche Water District, calculated as recharge less bare-soil evaporation and drainflow, is about 19,850 acre-ft/yr (0.5 ft/yr). The model does not explicitly simulate recharge to the confined zone, but average annual recharge to the confined zone calculated by Belitz and others (1992) for the region (over 350,000 acres studied) was about 0.3 ft/yr in 1980.

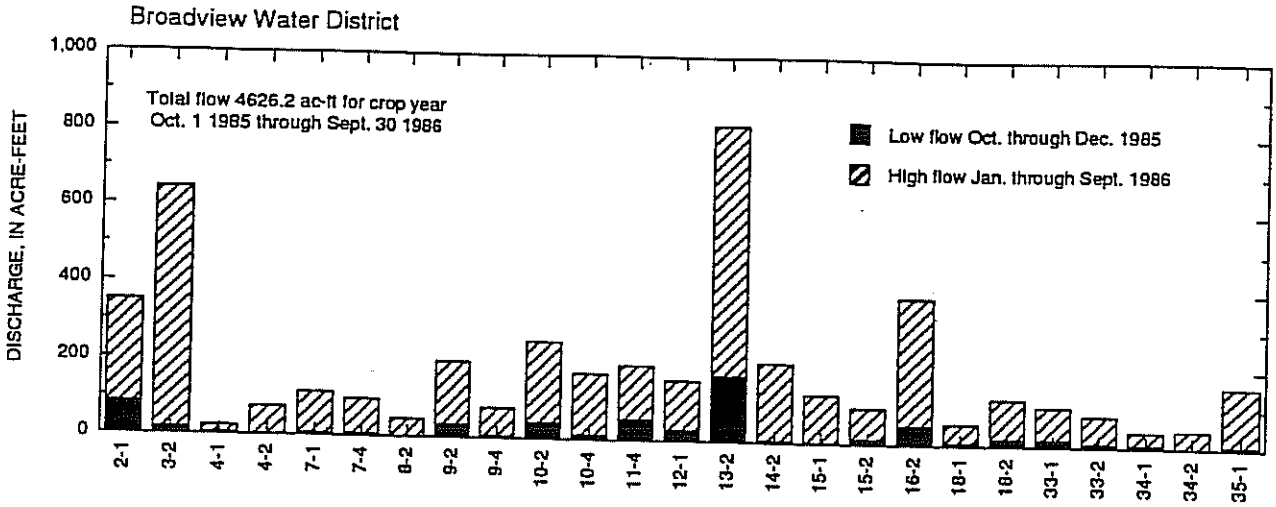
Results from the regional model provide qualitative insight into the relative magnitude of lateral and deep vertical flow at the water district scale in 1990. Net lateral flow out of San Luis and Panoche Water Districts simulated by the regional model is 220 acre-ft/yr and 260 acre-ft/yr, respectively; net lateral flow into Broadview and Firebaugh Water Districts is about 1 acre-ft/yr and 450 acre-ft/yr, respectively. These lateral flows are net flows, and in most cases are the result of lateral inflows and outflows across each district boundary. Also, it is important to note that not all flows are quantified for San Luis and Panoche Water Districts because the regional model does not include all of their service areas.

The results from the regional model are limited for interpreting 1990 conditions because recharge to the saturated zone (calculated as water applied less consumptive use by crops) and pumpage estimates specified in the model reflect conditions in 1980. Specified recharge in the regional model for San Luis, Panoche, Broadview, and Firebaugh Water Districts is 0.79 ft/yr, 0.96 ft/yr, 0.78 ft/yr, and 0.75 ft/yr, respectively; simulated incidental recharge to pumping wells and the confined zone in these water districts is 0.54 ft/yr, 0.31 ft/yr, 0.26 ft/yr, and 0.21 ft/yr, respectively.

TABLE 1

Subsurface Drainage Totals Reported at Sumps
(Calendar year 1992)

| Water District | Total (Jan. 1 - Sept. 30) | Low-flow (Oct. 1 - Dec. 31) | Percent Total |
|---|---|---|---|
| Broadview | 853 | 52 | 6 |
| Firebaugh | 3,045 | 409 | 13 |
| CCID | - | - | - |
| Pacheco | 4,232 | 575 | 14 |
| Charleston | 320 | 30 | 9 |
| Panoche | 6,715 | 970 | 14 |
| Total | 15,165 | 2,036 | 13 |


Broadview Water District
Total flow 4626.2 ac-ft for crop year
Oct. 1 1985 through Sept. 30 1986
Low flow Oct. through Dec. 1985
High flow Jan. through Sept. 1986
DISCHARGE, IN ACRE-FEET
1,000
800
600
400
200
0
2-1
3-2
4-1
4-2
7-1
7-4
8-2
9-2
9-4
10-2
10-4
11-4
12-1
13-2
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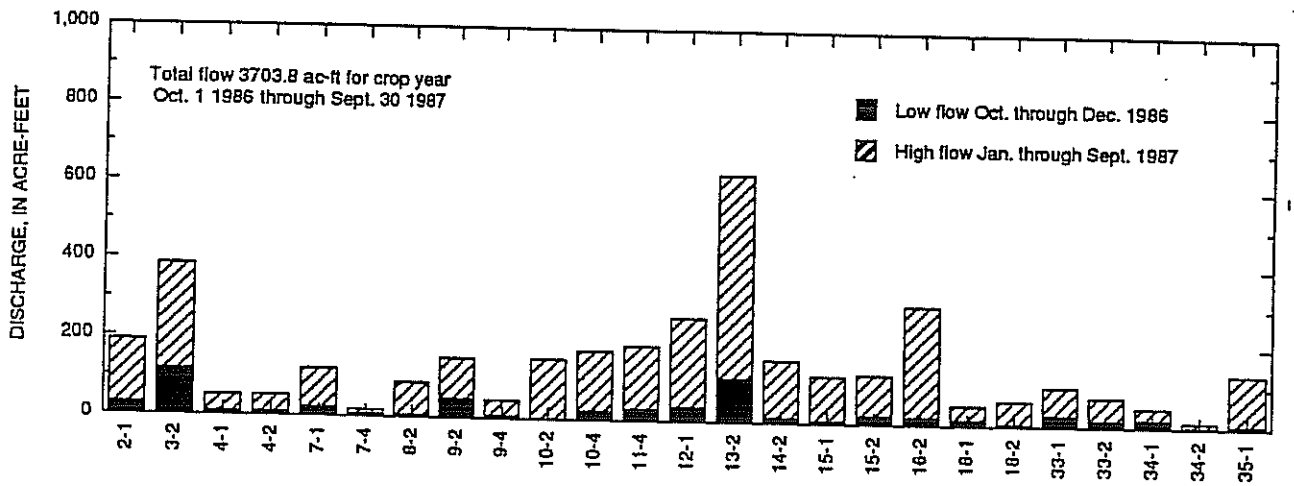
16-2
18-1
18-2
33-1
33-2
34-1
34-2
35-1


Total flow 3703.8 ac-ft for crop year
Oct. 1 1986 through Sept. 30 1987
Low flow Oct. through Dec. 1986
High flow Jan. through Sept. 1987
DISCHARGE, IN ACRE-FEET
1,000
800
600
400
200
0
2-1
3-2
4-1
4-2
7-1
7-4
8-2
9-2
9-4
10-2
10-4
11-4
12-1
13-2
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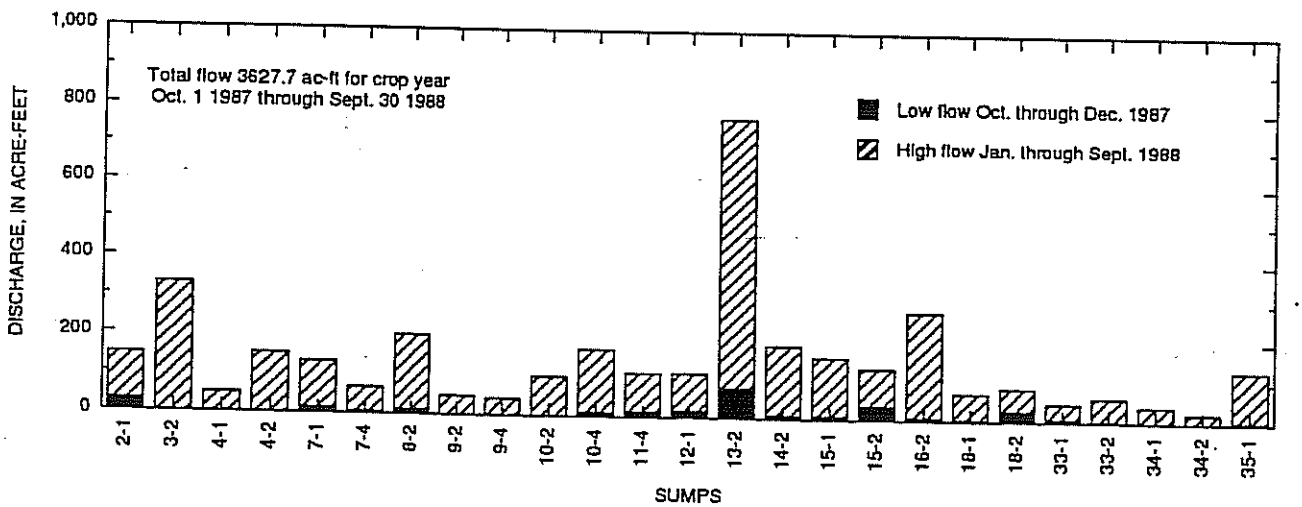
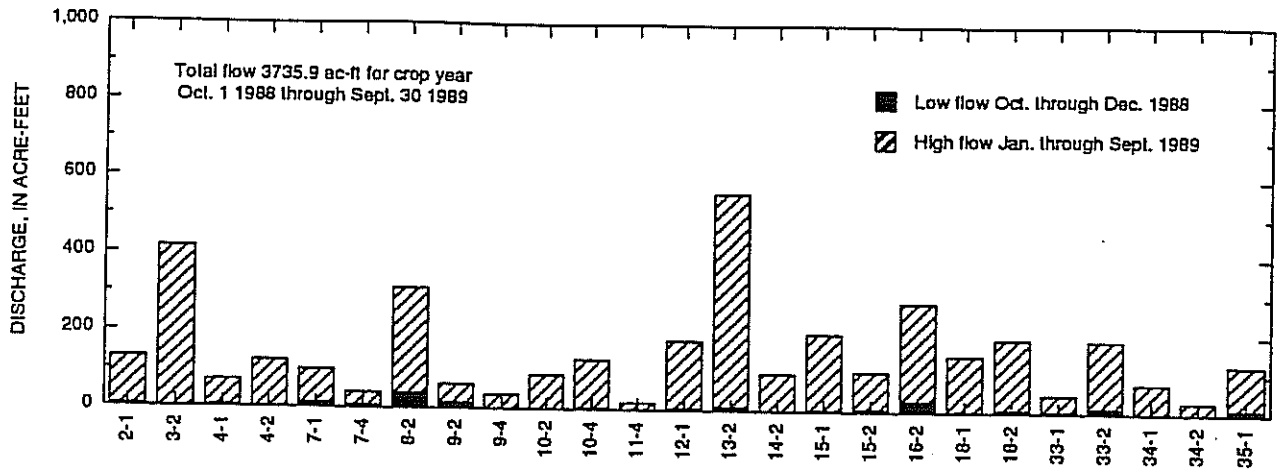
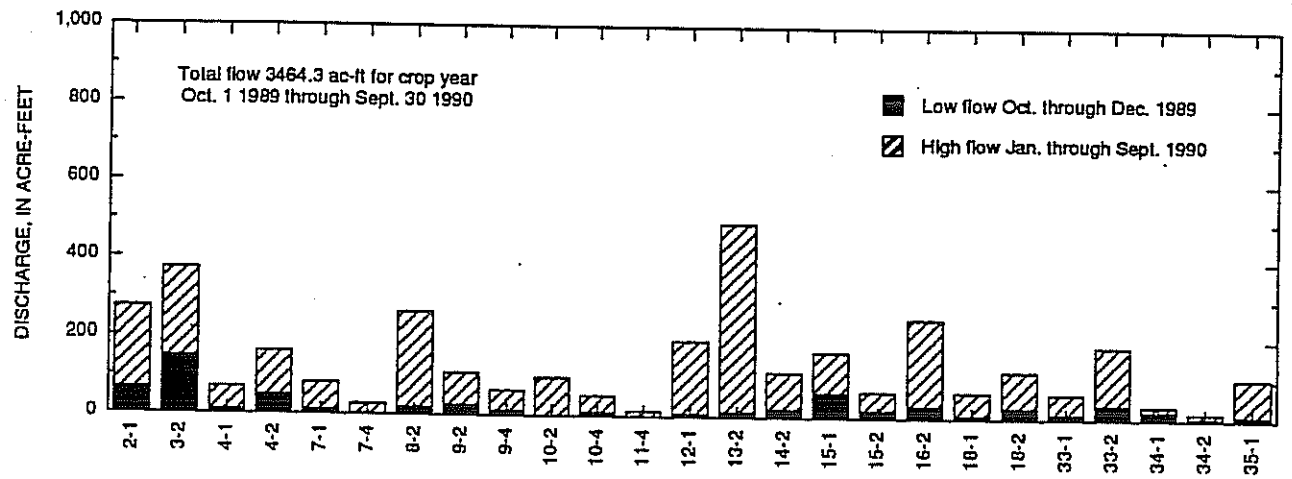
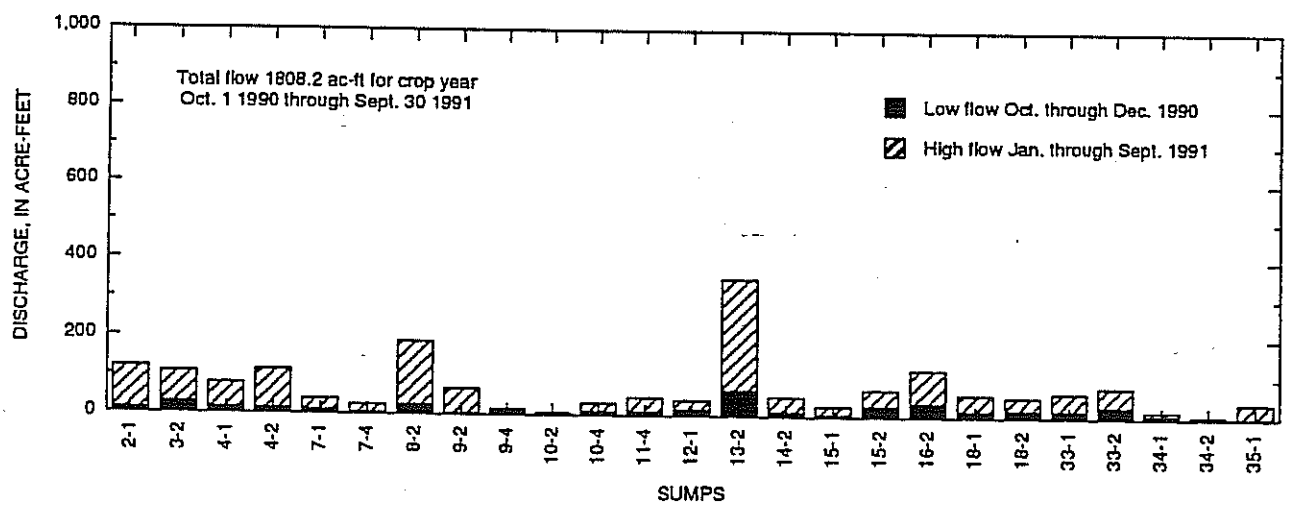
33-2
34-1
34-2
35-1

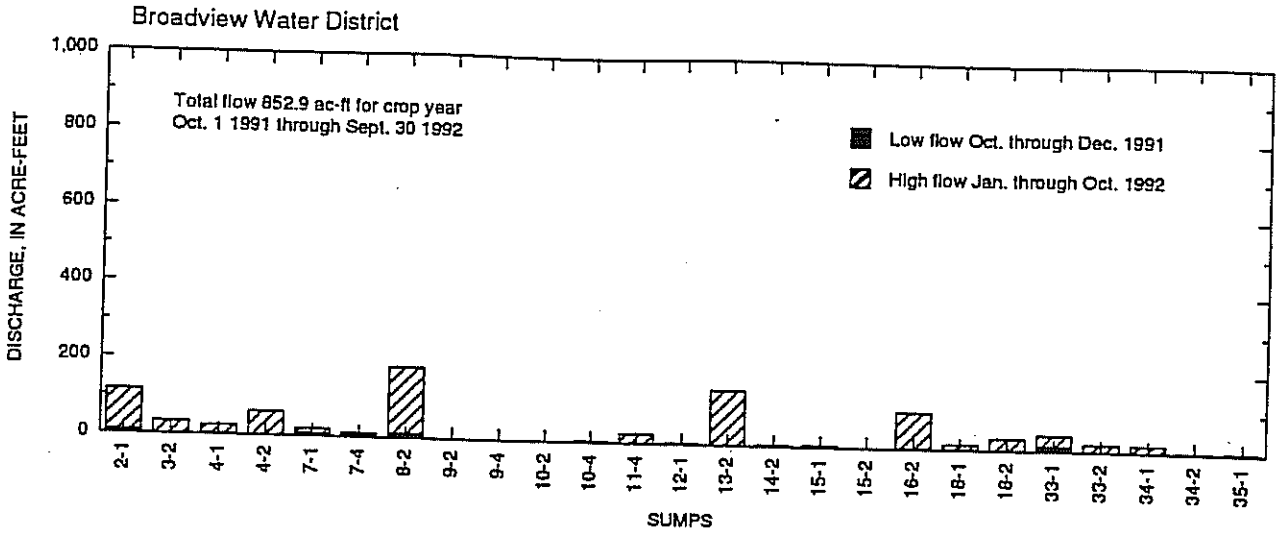

Total flow 3627.7 ac-ft for crop year
Oct. 1 1987 through Sept. 30 1988
Low flow Oct. through Dec. 1987
High flow Jan. through Sept. 1988
DISCHARGE, IN ACRE-FEET
1,000
800
600
400
200
0
2-1
3-2
4-1
4-2
7-1
7-4
8-2
9-2
9-4
10-2
10-4
11-4
12-1
13-2
14-2
15-1
15-2
16-2
18-1
18-2
33-1
33-2
34-1
34-2
35-1
SUMPS

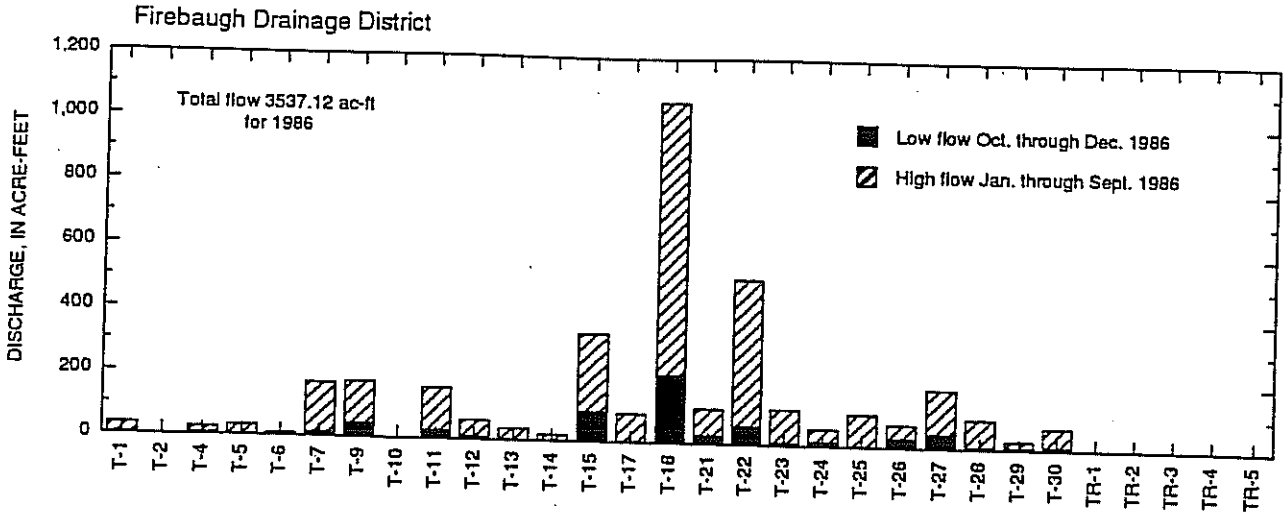
Broadview Water District

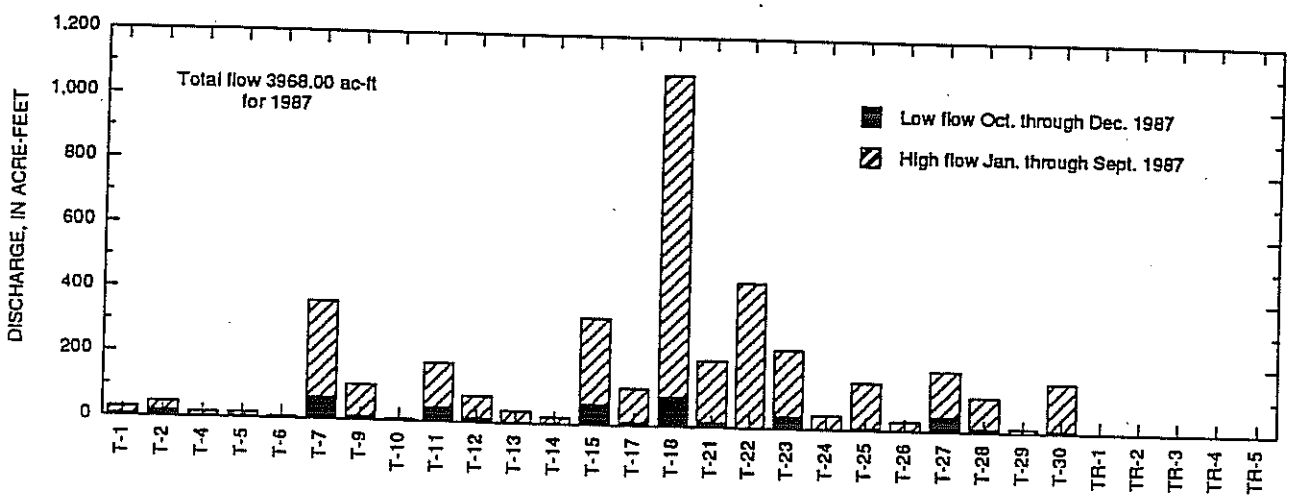


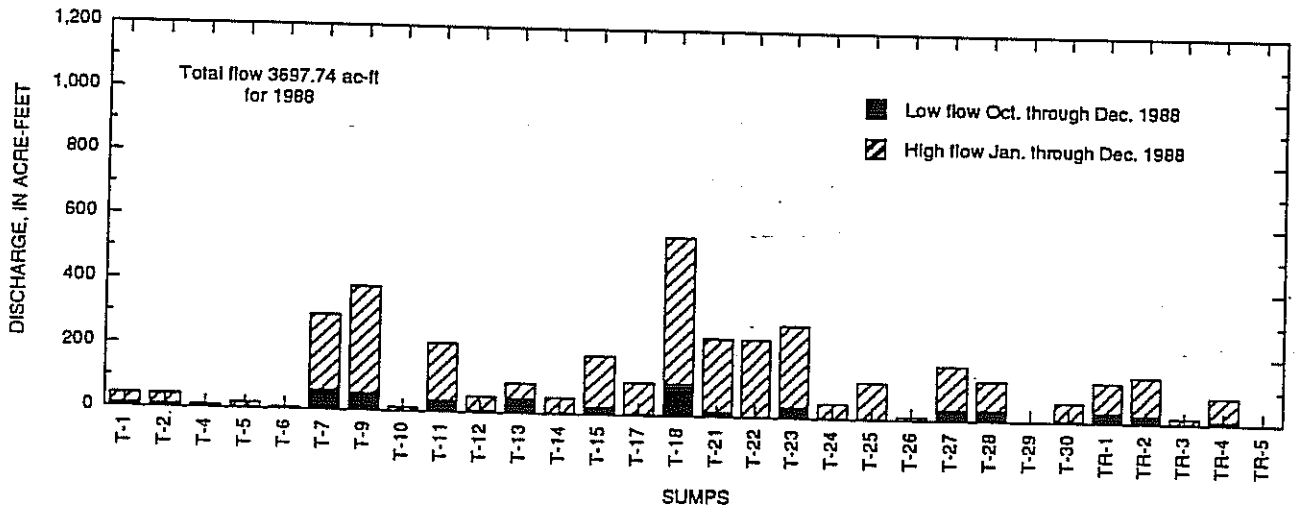



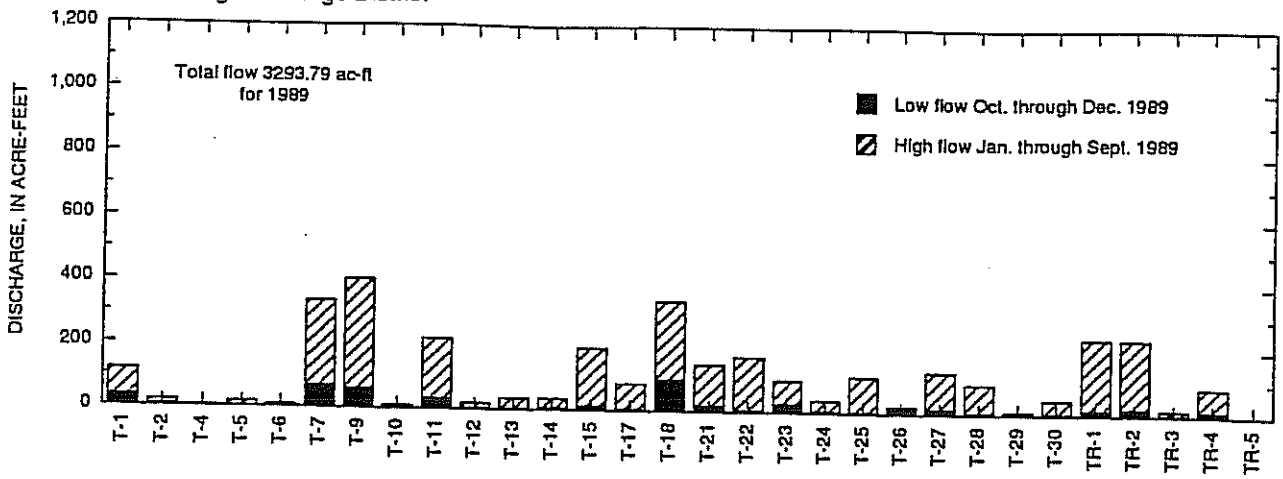

Broadview Water District
Total flow 852.9 ac-ft for crop year
Oct. 1 1991 through Sept. 30 1992
Low flow Oct. through Dec. 1991
High flow Jan. through Oct. 1992
DISCHARGE, IN ACRE-FEET
1,000
800
600
400
200
0
2-1
3-2
4-1
4-2
7-1
7-4
8-2
9-2
9-4
10-2
10-4
11-4
12-1
13-2
14-2
15-1
15-2
16-2
18-1
18-2
33-1
33-2
34-1
34-2
35-1
SUMPS

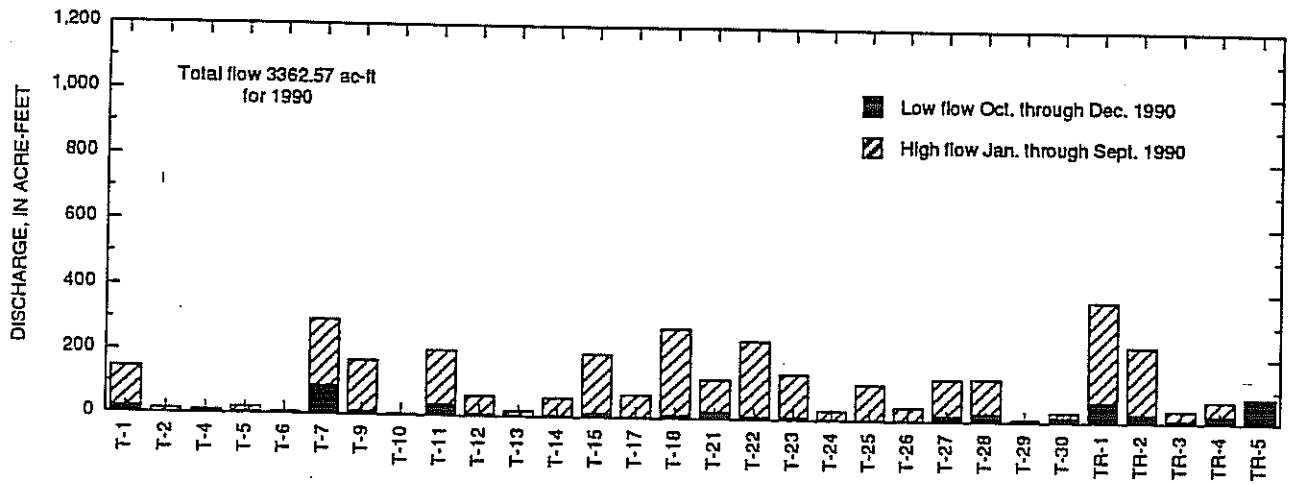

Firebaugh Drainage District
Total flow 3537.12 ac-ft for 1986
Low flow Oct. through Dec. 1986
High flow Jan. through Sept. 1986
DISCHARGE, IN ACRE-FEET
1,200
1,000
800
600
400
200
0
T-1 T-2 T-4 T-5 T-6 T-7 T-9 T-10 T-11 T-12 T-13 T-14 T-15 T-17 T-18 T-21 T-22 T-23 T-24 T-25 T-26 T-27 T-28 T-29 T-30 TR-1 TR-2 TR-3 TR-4 TR-5

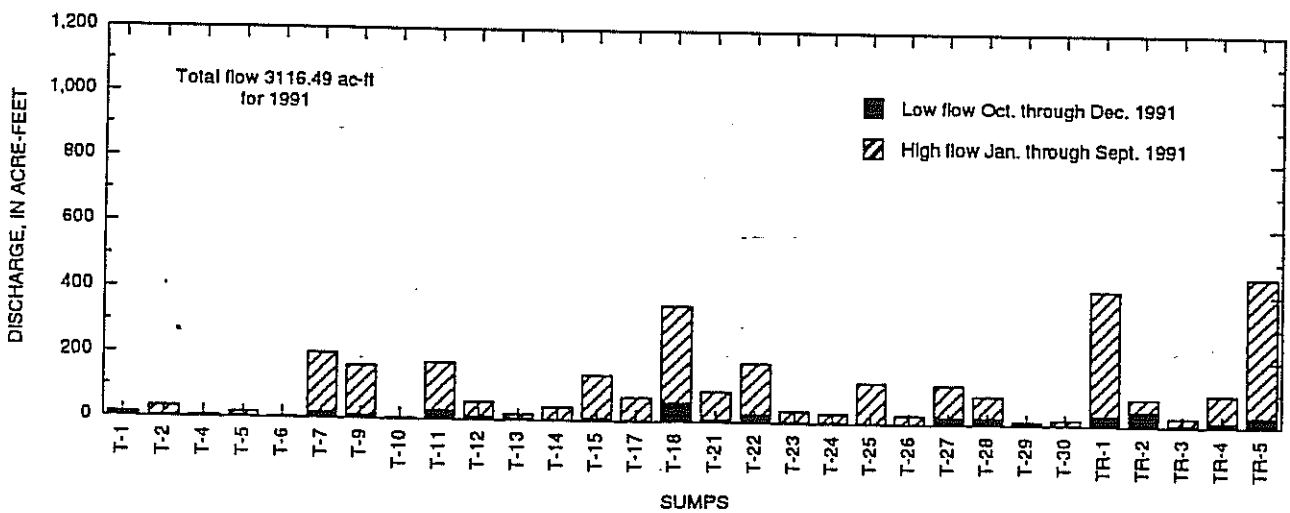

Total flow 3968.00 ac-ft for 1987
Low flow Oct. through Dec. 1987
High flow Jan. through Sept. 1987
DISCHARGE, IN ACRE-FEET
1,200
1,000
800
600
400
200
0
T-1 T-2 T-4 T-5 T-6 T-7 T-9 T-10 T-11 T-12 T-13 T-14 T-15 T-17 T-18 T-21 T-22 T-23 T-24 T-25 T-26 T-27 T-28 T-29 T-30 TR-1 TR-2 TR-3 TR-4 TR-5

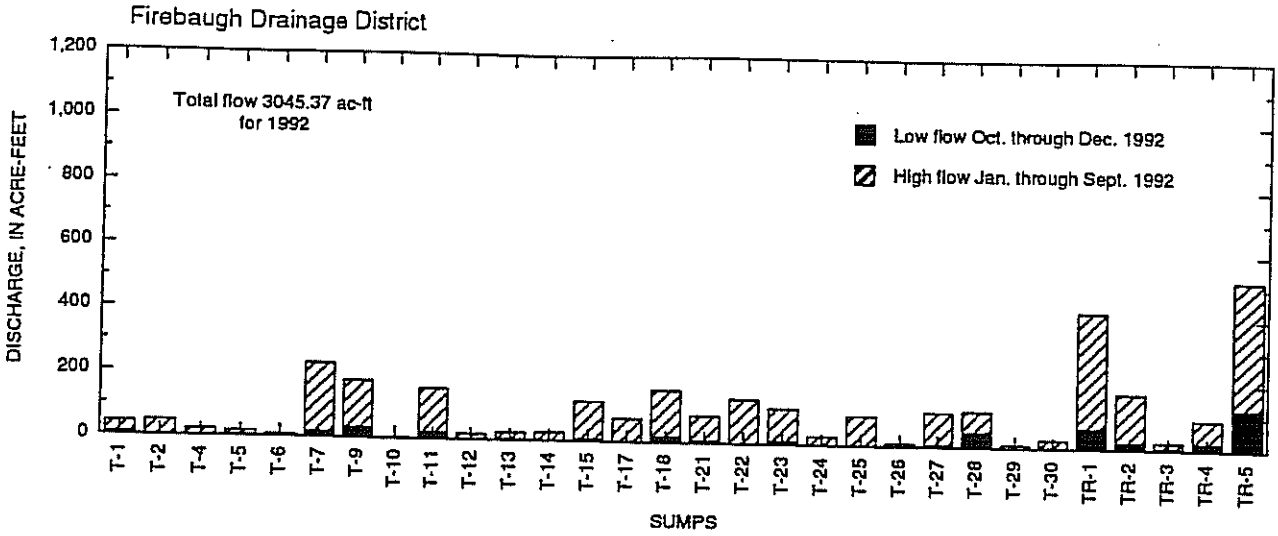

Total flow 3697.74 ac-ft for 1988
Low flow Oct. through Dec. 1988
High flow Jan. through Dec. 1988
DISCHARGE, IN ACRE-FEET
1,200
1,000
800
600
400
200
0
T-1 T-2 T-4 T-5 T-6 T-7 T-9 T-10 T-11 T-12 T-13 T-14 T-15 T-17 T-18 T-21 T-22 T-23 T-24 T-25 T-26 T-27 T-28 T-29 T-30 TR-1 TR-2 TR-3 TR-4 TR-5
SUMPS

Firebaugh Drainage District

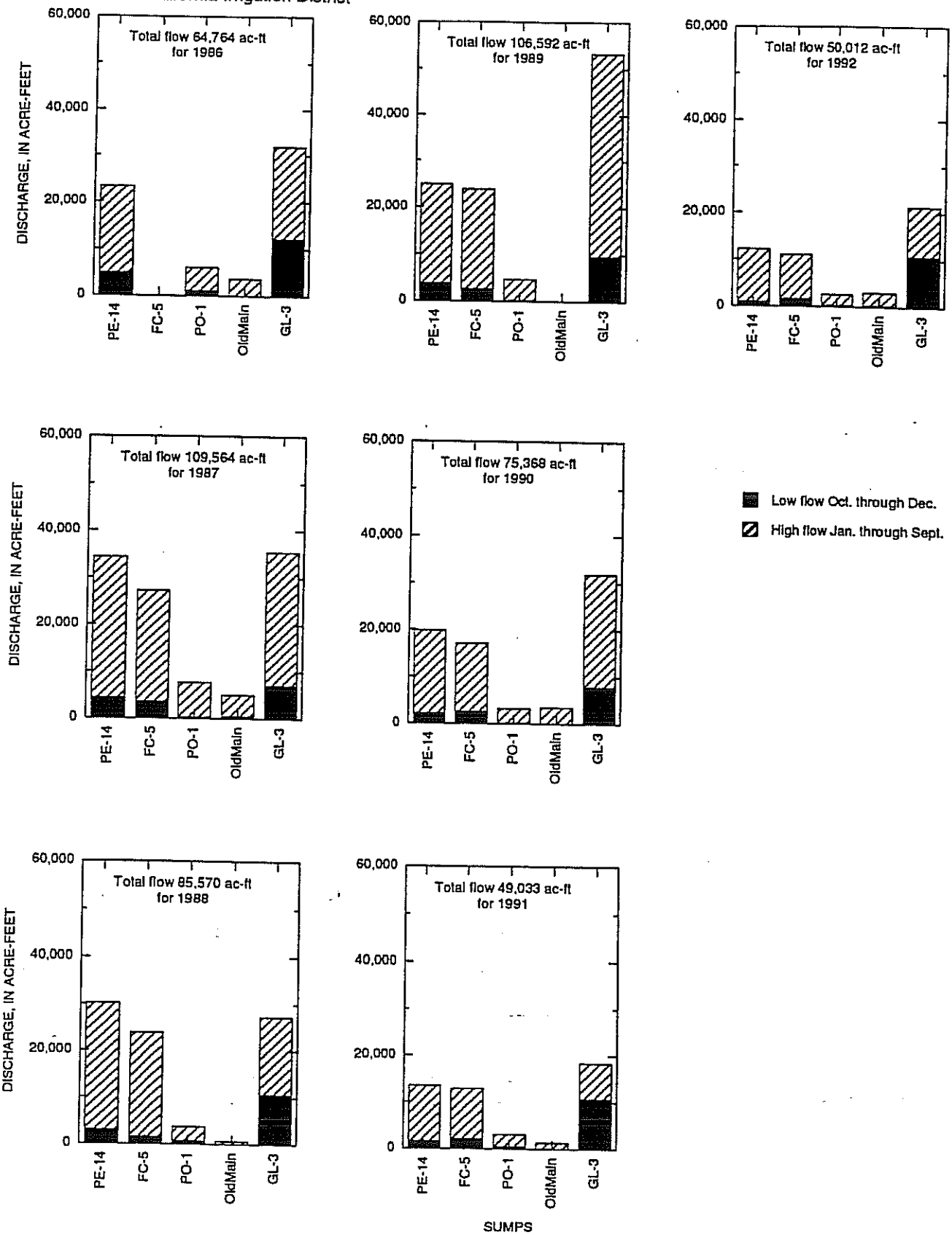


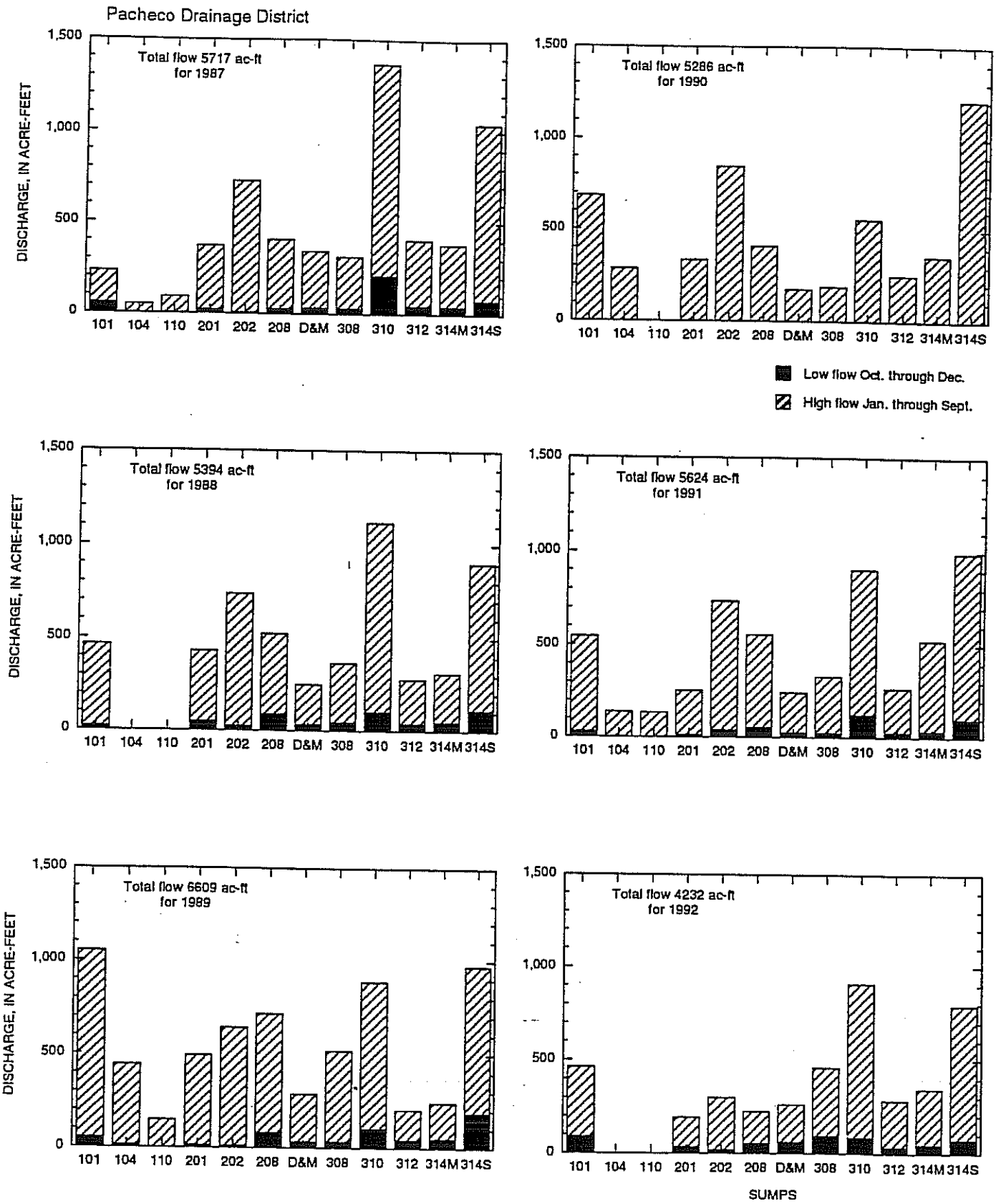



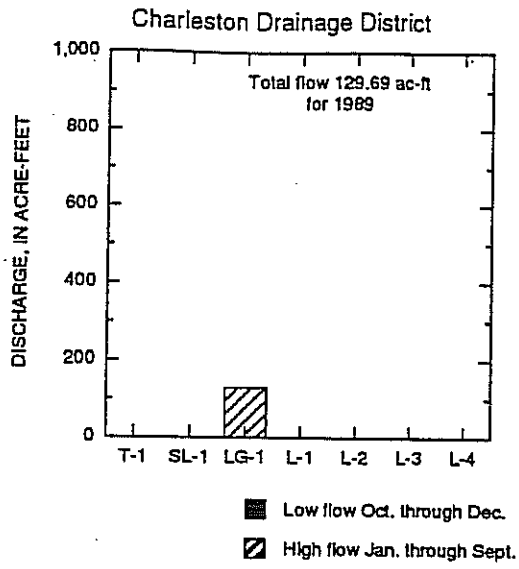



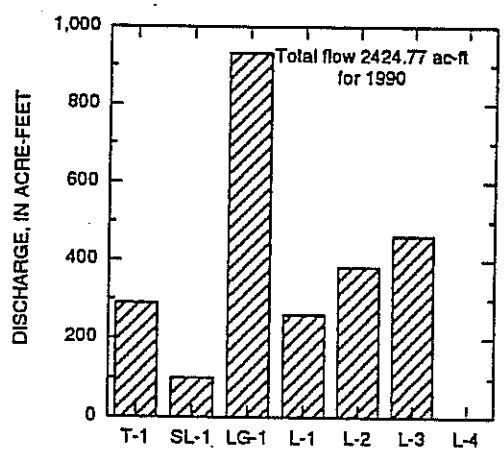

Firebaugh Drainage District
Total flow 3045.37 ac-ft
for 1992
Low flow Oct. through Dec. 1992
High flow Jan. through Sept. 1992
DISCHARGE, IN ACRE-FEET
1,200
1,000
800
600
400
200
0
T-1
T-2
T-4
T-5
T-6
T-7
T-9
T-10
T-11
T-12
T-13
T-14
T-15
T-17
T-18
T-21
T-22
T-23
T-24
T-25
T-26
T-27
T-28
T-29
T-30
TR-1
TR-2
TR-3
TR-4
TR-5
SUMPS

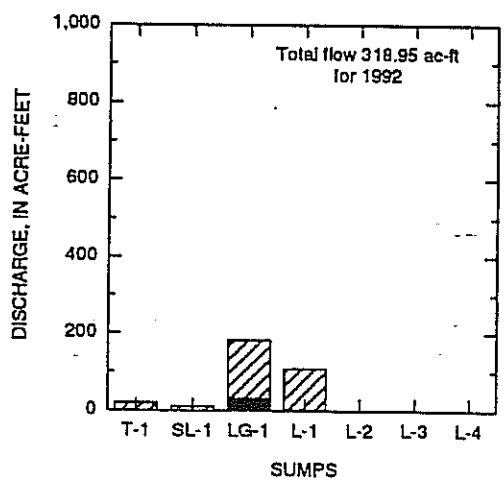
Central California Irrigation District

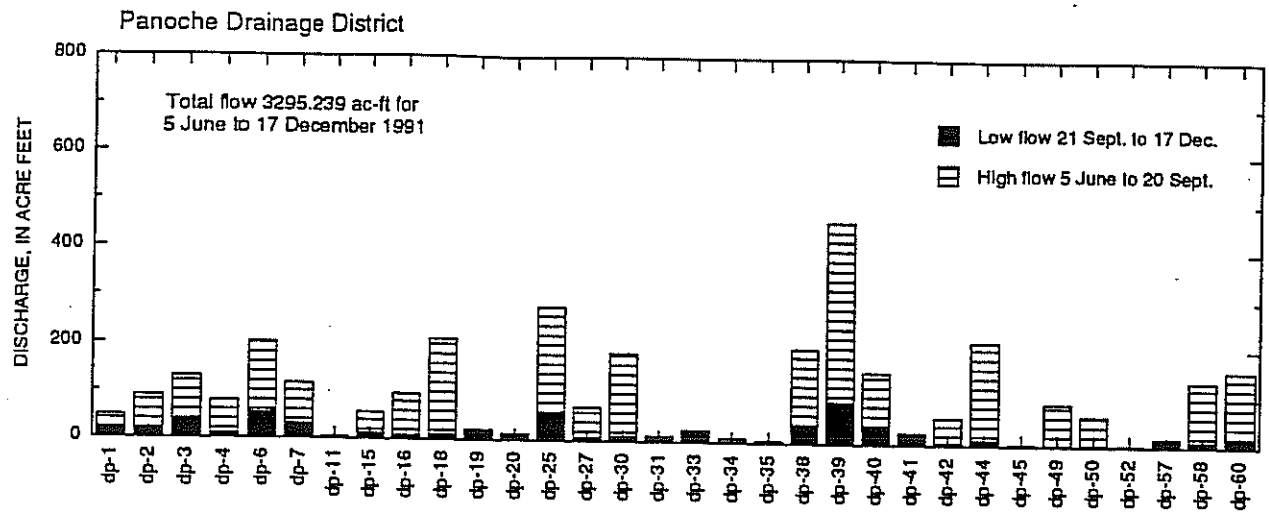



Pacheco Drainage District
Total flow 5717 ac-ft for 1987
Total flow 5286 ac-ft for 1990
Total flow 5394 ac-ft for 1988
Total flow 5624 ac-ft for 1991
Total flow 6609 ac-ft for 1989
Total flow 4232 ac-ft for 1992
DISCHARGE, IN ACRE-FEET
1,500
1,000
500
0
101 104 110 201 202 208 D&M 308 310 312 314M 314S
SUMPS
Low flow Oct. through Dec.
High flow Jan. through Sept.


Charleston Drainage District
Total flow 129.69 ac-ft
for 1989
DISCHARGE, IN ACRE-FEET
1,000
800
600
400
200
0
T-1
SL-1
LG-1
L-1
L-2
L-3
L-4
Low flow Oct. through Dec.
High flow Jan. through Sept.


Total flow 2424.77 ac-ft
for 1990
DISCHARGE, IN ACRE-FEET
1,000
800
600
400
200
0
T-1
SL-1
LG-1
L-1
L-2
L-3
L-4


Total flow 318.95 ac-ft
for 1992
DISCHARGE, IN ACRE-FEET
1,000
800
600
400
200
0
T-1
SL-1
LG-1
L-1
L-2
L-3
L-4
SUMPS


Panoche Drainage District
Total flow 3295.239 ac-ft for
5 June to 17 December 1991
Low flow 21 Sept. to 17 Dec.
High flow 5 June to 20 Sept.
DISCHARGE, IN ACRE FEET
800
600
400
200
0
dp-1
dp-2
dp-3
dp-4
dp-6
dp-7
dp-11
dp-15
dp-16
dp-18
dp-19
dp-20
dp-25
dp-27
dp-30
dp-31
dp-33
dp-34
dp-35
dp-38
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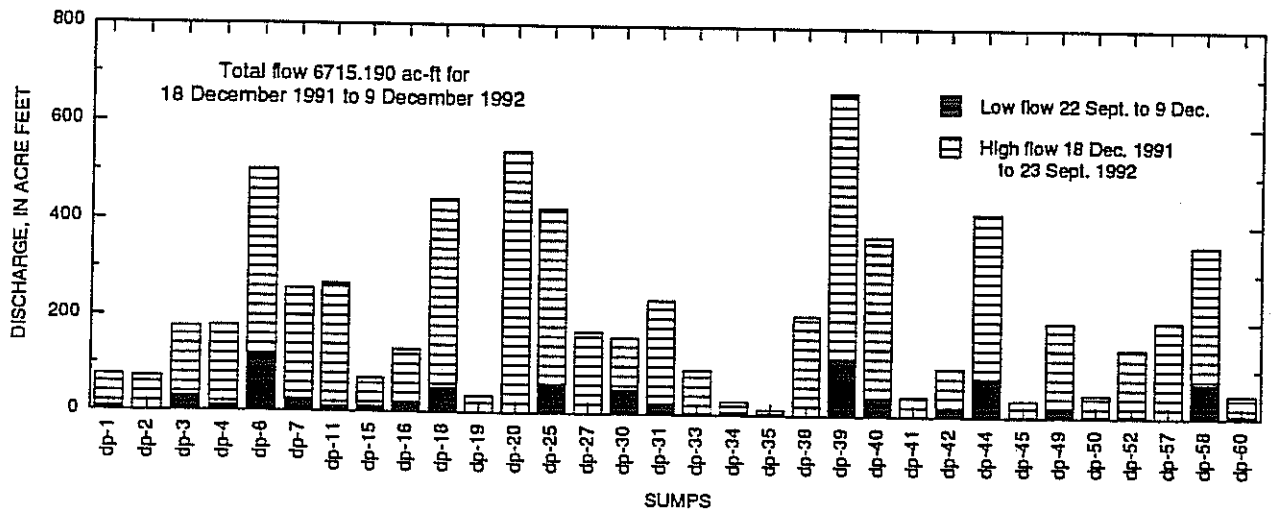
dp-52
dp-57
dp-58
dp-60


Total flow 6715.190 ac-ft for
18 December 1991 to 9 December 1992
Low flow 22 Sept. to 9 Dec.
High flow 18 Dec. 1991
to 23 Sept. 1992
DISCHARGE, IN ACRE FEET
800
600
400
200
0
dp-1
dp-2
dp-3
dp-4
dp-6
dp-7
dp-11
dp-15
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dp-41
dp-42
dp-44
dp-45
dp-49
dp-50
dp-52
dp-57
dp-58
dp-60
SUMPS

Broadview Water District

| | 85-86 | | | 86-87 | | | 87-88 | | | 88-89 | | | 89-90 | | | 90-91 | | | 91-92 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | tot | low | high | tot | low | high | tot | low | high | tot | low | high | tot | low | high | tot | low | high | tot | low | high |
| 2-1 | 349.2 | 83.4 | 265.8 | 189.6 | 27.5 | 162.1 | 147.1 | 20.2 | 118.9 | 129.9 | 5.5 | 124.4 | 272.7 | 66.9 | 205.8 | 119.2 | 10.7 | 108.5 | 114.9 | 7.7 | 107.2 |
| 3-2 | 642.7 | 16.8 | 625.9 | 385.1 | 115.2 | 269.9 | 330.2 | 0 | 330.2 | 416.8 | 0.2 | 416.6 | 372.3 | 146 | 226.3 | 107.9 | 27.5 | 80.4 | 32.6 | 0 | 32.6 |
| 4-1 | 22.5 | 2.9 | 19.6 | 51.6 | 7.8 | 43.8 | 49.6 | 0 | 49.8 | 70.1 | 2.7 | 67.4 | 70.1 | 9.7 | 60.4 | 70.3 | 15.1 | 63.2 | 24 | 2.3 | 21.7 |
| 4-2 | 74.1 | 0.7 | 73.4 | 52.2 | 8.5 | 43.7 | 150.1 | 0.3 | 149.8 | 120.9 | 0.5 | 120.4 | 160.6 | 48.9 | 111.7 | 113.2 | 12.4 | 100.8 | 61.7 | 0.1 | 61.6 |
| 7-1 | 113.3 | 5.7 | 107.6 | 119.1 | 21.9 | 97.2 | 131.7 | 12.8 | 118.9 | 98.2 | 11.3 | 86.9 | 81.1 | 10.7 | 70.4 | 37.9 | 9.5 | 28.4 | 20 | 7.2 | 12.8 |
| 7-4 | 95.9 | 4.7 | 91.2 | 17 | 6.3 | 10.7 | 66.2 | 4 | 62.2 | 40.3 | 5.9 | 34.4 | 27.5 | 1.9 | 25.6 | 25.4 | 3.7 | 21.7 | 9.2 | 0.9 | 8.3 |
| 8-2 | 46.4 | 0 | 46.4 | 88 | 5.6 | 82.4 | 200.7 | 11.8 | 188.9 | 310.6 | 37.5 | 273.1 | 261.3 | 20.5 | 240.8 | 187.3 | 24.2 | 163.1 | 183 | 10.9 | 172.1 |
| 9-2 | 197 | 33.1 | 163.9 | 151.6 | 48.4 | 103.2 | 48.1 | 0 | 48.1 | 62.8 | 15.1 | 47.7 | 108.3 | 25.9 | 82.4 | 67.2 | 3.1 | 64.1 | 0 | 0 | 0 |
| 9-4 | 78.5 | 5.5 | 73 | 47.3 | 6 | 41.3 | 43.2 | 0 | 43.2 | 36.5 | 0.1 | 36.4 | 65.4 | 13.6 | 51.8 | 16.8 | 10.8 | 6 | 0 | 0 | 0 |
| 10-2 | 252.5 | 41.5 | 211 | 153.1 | 0.7 | 152.4 | 99.9 | 0 | 99.9 | 88.2 | 0 | 88.2 | 97.9 | 0.4 | 97.5 | 6.9 | 1.4 | 5.5 | 0 | 0 | 0 |
| 10-4 | 171.4 | 11.5 | 159.9 | 176.5 | 22.9 | 153.6 | 169.4 | 9 | 160.4 | 128.7 | 3.8 | 124.9 | 53.1 | 9.5 | 43.6 | 31.5 | 9 | 22.5 | 3.1 | 0 | 3.1 |
| 11-4 | 193.6 | 54.5 | 139.3 | 190.4 | 29.3 | 161.1 | 110.4 | 13.2 | 97.2 | 18.9 | 0 | 18.9 | 15.1 | 0.1 | 15 | 45.6 | 10.1 | 35.5 | 35.2 | 0 | 25.2 |
| 12-1 | 156.5 | 28.5 | 128 | 263 | 36.7 | 226.3 | 111.3 | 16.5 | 94.8 | 179.3 | 4.9 | 174.4 | 193.1 | 8.7 | 184.4 | 39.7 | 15.7 | 24 | 3.5 | 3.5 | 0 |
| 13-2 | 820.4 | 170.1 | 650.3 | 629.3 | 110.1 | 519.2 | 773.7 | 74.9 | 698.8 | 560.1 | 9.7 | 550.4 | 493 | 12.5 | 480.5 | 350.7 | 65.6 | 285.1 | 141.6 | 0 | 141.6 |
| 14-2 | 205.6 | 5.5 | 200.1 | 158.4 | 13 | 145.4 | 183.9 | 8 | 175.9 | 96 | 0.1 | 95.9 | 114.1 | 20.7 | 93.4 | 50.2 | 10.9 | 39.3 | 2.8 | 0.3 | 2.5 |
| 15-1 | 126.1 | 1.1 | 125 | 119.4 | 6.4 | 113 | 155.4 | 8.2 | 147.2 | 199.6 | 2.5 | 197.1 | 166.9 | 65.6 | 101.3 | 27.9 | 5 | 22.9 | 4.6 | 0 | 4.6 |
| 15-2 | 95.2 | 13.6 | 81.6 | 124.4 | 21.1 | 103.3 | 129.3 | 34.9 | 94.4 | 102.5 | 6.2 | 96.3 | 68.1 | 19.1 | 49 | 69.4 | 28.2 | 41.2 | 0 | 0 | 0 |
| 16-2 | 381.9 | 50 | 331.9 | 300.9 | 20.3 | 280.6 | 274.8 | 6.5 | 268.3 | 281.2 | 27.8 | 253.4 | 251 | 31.7 | 219.3 | 120.3 | 34.1 | 86.2 | 95.2 | 1.8 | 93.4 |
| 18-1 | 55.9 | 7.2 | 48.7 | 51.1 | 14.6 | 36.5 | 68.5 | 2.2 | 66.3 | 145.7 | 1.9 | 143.8 | 68.1 | 7.6 | 60.5 | 57.5 | 16.9 | 40.6 | 14.8 | 1.2 | 13.6 |
| 18-2 | 121.5 | 17.8 | 103.7 | 63.9 | 4.3 | 59.6 | 83.6 | 24.5 | 59.1 | 188.2 | 6.6 | 181.6 | 119.7 | 28.1 | 91.6 | 51.3 | 18.6 | 32.7 | 31 | 0.7 | 30.3 |
| 33-1 | 102.2 | 17.8 | 84.4 | 99.8 | 28.1 | 71.7 | 45.5 | 7.1 | 38.4 | 45.9 | 4 | 41.9 | 64.7 | 13.5 | 51.2 | 63 | 17.9 | 45.1 | 41 | 13 | 28 |
| 33-2 | 79.4 | 7.5 | 71.9 | 74.1 | 16.8 | 57.3 | 61.6 | 1.4 | 60.2 | 185.5 | 13.9 | 171.6 | 183 | 36.6 | 146.4 | 77.2 | 28.6 | 48.6 | 20.3 | 0.2 | 20.1 |
| 34-1 | 40.7 | 6.8 | 33.9 | 49.7 | 19.9 | 29.8 | 40.4 | 0.1 | 40.3 | 75.7 | 0 | 75.7 | 34.4 | 22.2 | 12.2 | 18.6 | 9 | 9.6 | 19 | 0 | 19 |
| 34-2 | 45.7 | 0.6 | 45.1 | 14.3 | 2.8 | 11.5 | 23 | 0 | 23 | 29.3 | 0 | 29.3 | 17.8 | 4.3 | 13.5 | 6.9 | 1.3 | 5.6 | 2.2 | 0 | 2.2 |
| 35-1 | 157.8 | 7.1 | 150.7 | 134 | 5.9 | 128.1 | 129.9 | 2.4 | 127.5 | 125 | 13.4 | 111.6 | 105 | 12.3 | 92.7 | 38.3 | 1.4 | 36.9 | 3.2 | 2 | 1.2 |
| | 4626.2 | 593.9 | 4032.3 | 3703.8 | 600.1 | 3103.7 | 3627.7 | 266 | 3361.7 | 3735.9 | 173.6 | 3562.3 | 3464.3 | 637 | 2827.3 | 1808.2 | 390.7 | 1417.5 | 852.9 | 51.8 | 801.1 |

Firebaugh Drainage District

| | 1986 | | | 1987 | | | 1988 | | | 1989 | | | 1990 | | | 1991 | | | 1992 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | tot | low | high | tot | low | high | tot | low | high | tot | low | high | tot | low | high | tot | low | high | tot | low | high |
| T-1 | 33.94 | 2.05 | 31.89 | 28.14 | 5.91 | 22.23 | 42.03 | 10.39 | 31.64 | 115.65 | 34.34 | 81.31 | 146.28 | 20.54 | 125.74 | 13.1 | 5.85 | 7.25 | 41 | 5.1 | 35.9 |
| T-2 | 0 | 0 | 0 | 45.39 | 17.21 | 28.18 | 40.92 | 8.93 | 31.99 | 20.3 | 3.28 | 17.02 | 14.12 | 1.03 | 13.09 | 34.03 | 1.31 | 32.72 | 46.2 | 0.44 | 45.76 |
| T-4 | 23.9 | 3.24 | 20.66 | 15.34 | 4.78 | 10.56 | 10.01 | 2.99 | 7.02 | 2.95 | 0 | 2.95 | 9.13 | 2.24 | 6.89 | 5.23 | 0.83 | 4.4 | 21.9 | 0.4 | 21.5 |
| T-5 | 30.69 | 2.27 | 28.42 | 16.6 | 3.24 | 13.36 | 18.34 | 1.67 | 16.67 | 15.58 | 0.07 | 15.51 | 20.57 | 4.21 | 16.36 | 18.02 | 2.85 | 15.17 | 16.74 | 1.46 | 15.28 |
| T-6 | 7.89 | 2.12 | 5.77 | 5.68 | 0.41 | 5.27 | 5.35 | 0.31 | 5.04 | 7.67 | 0.58 | 7.09 | 6.74 | 0.42 | 6.32 | 3.52 | 0.49 | 3.03 | 5.34 | 0.39 | 4.95 |
| T-7 | 167.59 | 12.61 | 154.98 | 361.26 | 65.2 | 296.06 | 294.85 | 59.82 | 235.03 | 335.38 | 67.75 | 267.63 | 296.09 | 89.18 | 206.91 | 201.94 | 17.72 | 184.22 | 227.52 | 15.92 | 211.6 |
| T-9 | 174.94 | 41.44 | 133.5 | 108.45 | 9.78 | 98.67 | 383.02 | 51.88 | 331.14 | 403.75 | 60.91 | 342.84 | 170.26 | 9.76 | 160.5 | 162.83 | 10.52 | 152.31 | 175.91 | 29.15 | 146.76 |
| T-10 | 0.61 | 0.2 | 0.41 | 5.53 | 0.4 | 5.13 | 11.9 | 0.36 | 11.54 | 10.26 | 0.08 | 10.18 | 3.86 | 1.72 | 2.14 | 2.81 | 0.03 | 2.78 | 2.61 | 0 | 2.61 |
| T-11 | 160.47 | 26.75 | 133.72 | 177.01 | 41.66 | 135.35 | 212.9 | 33.02 | 179.88 | 220.4 | 34.79 | 185.61 | 204.44 | 34.85 | 169.59 | 175.87 | 27.41 | 148.46 | 153.62 | 19.87 | 133.75 |
| T-12 | 60.7 | 8.14 | 52.56 | 79.25 | 12.01 | 67.24 | 49.32 | 4.8 | 44.52 | 19.4 | 4.91 | 14.49 | 63.82 | 6.33 | 57.49 | 56.04 | 8.62 | 47.42 | 17.81 | 0 | 17.81 |
| T-13 | 36.54 | 1.92 | 34.62 | 35.69 | 1.15 | 34.54 | 91.57 | 43.87 | 47.7 | 35.74 | 1 | 34.74 | 17.05 | 1.76 | 15.29 | 19.35 | 4.65 | 14.7 | 24.24 | 1.81 | 22.43 |
| T-14 | 19.01 | 1.76 | 17.25 | 19.65 | 0 | 19.65 | 49.01 | 1.08 | 47.93 | 35.02 | 5.65 | 29.37 | 59.59 | 3.49 | 56.1 | 40.76 | 1.84 | 38.92 | 26.26 | 0.92 | 25.34 |
| T-15 | 338.32 | 93.25 | 245.07 | 325.81 | 61.21 | 264.6 | 181.03 | 22.44 | 158.59 | 194.93 | 13.13 | 181.8 | 197.79 | 11.21 | 186.58 | 140.6 | 7.04 | 133.56 | 122.8 | 5.91 | 116.89 |
| T-17 | 90 | 2.13 | 87.87 | 114.29 | 7.54 | 106.75 | 101.63 | 3.39 | 98.24 | 84.62 | 4.78 | 79.84 | 72.5 | 2.54 | 69.96 | 74.04 | 2.54 | 71.51 | 72.05 | 0.02 | 72.03 |
| T-18 | 1062.07 | 212.86 | 849.21 | 1083.49 | 88.55 | 994.94 | 551.95 | 99.02 | 452.93 | 343.61 | 98.21 | 245.4 | 279.33 | 10.41 | 268.92 | 356.47 | 58.48 | 296.99 | 159.32 | 17.07 | 142.25 |
| T-21 | 109.35 | 25.73 | 83.62 | 201.11 | 14.5 | 186.61 | 241.26 | 13.78 | 227.48 | 145.02 | 17.46 | 127.56 | 123.63 | 21.19 | 102.44 | 93.34 | 7.71 | 85.63 | 83.79 | 6.32 | 77.47 |
| T-22 | 513.8 | 57.26 | 456.54 | 443.71 | 0.31 | 443.4 | 240.43 | 0.03 | 240.4 | 170.77 | 5.94 | 164.83 | 243.7 | 8.64 | 235.06 | 183.78 | 25.02 | 158.76 | 136.35 | 0 | 136.35 |
| T-23 | 112.73 | 7.44 | 105.29 | 239.63 | 36.06 | 203.57 | 285.01 | 31.63 | 253.38 | 99.97 | 27.23 | 72.74 | 143.49 | 7.28 | 136.21 | 37.74 | 3.24 | 34.5 | 109.01 | 10.28 | 98.73 |
| T-24 | 53.07 | 14.08 | 38.99 | 42.65 | 1.04 | 40.81 | 46.35 | 0.89 | 45.46 | 40.34 | 5.15 | 35.19 | 30.55 | 1.99 | 28.56 | 31.76 | 2.6 | 29.16 | 26.61 | 0.64 | 25.97 |
| T-25 | 101.81 | 2.87 | 98.94 | 143.52 | 5.11 | 138.41 | 114.24 | 1.11 | 113.13 | 114.45 | 4.07 | 110.38 | 112.9 | 1.09 | 111.81 | 126.05 | 0.76 | 125.29 | 90.81 | 0.12 | 90.69 |
| T-26 | 71.85 | 27.33 | 44.52 | 37.38 | 2 | 25.38 | 10.59 | 0.05 | 10.54 | 24.36 | 21.77 | 2.59 | 43.22 | 2.7 | 40.52 | 27.38 | 0 | 27.38 | 9.8 | 0 | 9.8 |
| T-27 | 182.91 | 43.87 | 139.04 | 182.54 | 42.84 | 139.7 | 168.23 | 32.31 | 135.92 | 129.86 | 18.55 | 111.31 | 132.8 | 18.78 | 114.02 | 118.67 | 22.54 | 96.13 | 104.75 | 6.89 | 97.86 |
| T-28 | 91.6 | 6.04 | 85.56 | 105.22 | 9.37 | 95.85 | 123.7 | 30.69 | 93.01 | 92.75 | 6.6 | 86.15 | 135.89 | 25.64 | 110.25 | 87.11 | 20.83 | 66.28 | 109.01 | 45.12 | 63.89 |
| T-29 | 25.17 | 6.72 | 18.45 | 11.82 | 0.69 | 11.13 | 0.25 | 0.14 | 0.11 | 10.55 | 1.5 | 9.05 | 8.97 | 1.61 | 5.36 | 11.11 | 1.95 | 9.16 | 10.67 | 0.29 | 10.38 |
| T-30 | 68.16 | 7.2 | 60.96 | 148.84 | 6.34 | 142.5 | 58.99 | 3.82 | 55.17 | 45.26 | 4.35 | 40.91 | 31.18 | 15.01 | 16.17 | 18.18 | 2.48 | 15.7 | 26.49 | 2.41 | 24.08 |
| TR-1 | 0 | 0 | 0 | 0 | 0 | 0 | 123.07 | 30.55 | 92.52 | 236.43 | 15.97 | 220.46 | 373.16 | 62.86 | 310.3 | 412.53 | 32.47 | 380.06 | 417.55 | 62.71 | 354.84 |
| TR-2 | 0 | 0 | 0 | 0 | 0 | 0 | 142.49 | 24.06 | 118.43 | 234.67 | 22.62 | 212.05 | 235.29 | 28.7 | 206.59 | 84.12 | 45.36 | 38.76 | 169.78 | 21.27 | 148.51 |
| TR-3 | 0 | 0 | 0 | 0 | 0 | 0 | 18.47 | 2.44 | 16.03 | 17.85 | 4.42 | 13.43 | 38.79 | 8.52 | 30.27 | 28.31 | 6.29 | 21.92 | 23.65 | 6 | 17.65 |
| TR-4 | 0 | 0 | 0 | 0 | 0 | 0 | 80.83 | 8.95 | 71.88 | 86.25 | 15.92 | 70.33 | 68.66 | 24.54 | 44.12 | 98.09 | 15.51 | 82.58 | 91.35 | 22.44 | 68.91 |
| TR-5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 80.78 | 80.78 | 0.0 | 454.81 | 30.84 | 423.97 | 522.43 | 125.72 | 396.71 |
| | 3537.12 | 609.28 | 2927.84 | 3968 | 430.11 | 3529.89 | 3697.74 | 524.42 | 3173.32 | 3293.79 | 501.03 | 2792.76 | 3362.57 | 509.02 | 2853.55 | 3116.49 | 367.77 | 2748.72 | 3045.37 | 408.67 | 2636.7 |

Central California Irrigation District

| | 1986 | | | 1987 | | | 1988 | | | 1989 | | | 1990 | | | 1991 | | | 1992 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | tot | low | high | tot | low | high | tot | low | high | tot | low | high | tot | low | high | tot | low | high | tot | low | high |
| PE-14 | 23334 | 4827 | 18507 | 34336 | 4322 | 30014 | 30144 | 2891 | 27253 | 24855 | 3691 | 21164 | 19835 | 2064 | 17771 | 13487 | 1467 | 12020 | 12117 | 906 | 11211 |
| FC-5 | 0 | 0 | 0 | 27214 | 3525 | 23689 | 23899 | 1383 | 22516 | 23887 | 2644 | 21243 | 17042 | 2522 | 14520 | 12913 | 1944 | 10969 | 10979 | 1581 | 9398 |
| PO-1 | 6001 | 962 | 5039 | 7630 | 185 | 7445 | 3669 | 535 | 3134 | 4647 | 60 | 4587 | 3186 | 86 | 3100 | 3013 | 383 | 2630 | 2589 | 216 | 2373 |
| OldMain | 3549 | 0 | 3549 | 4970 | 401 | 4569 | 575 | 0 | 575 | 0 | 0 | 0 | 3430 | 0 | 3430 | 1253 | 0 | 1253 | 2996 | 168 | 2828 |
| GL-3 | 31080 | 12106 | 19774 | 35424 | 7036 | 28388 | 27283 | 10609 | 16674 | 53203 | 9612 | 43591 | 31875 | 7775 | 24100 | 18367 | 10651 | 7716 | 21331 | 10662 | 10669 |
| | 64764 | 17895 | 46869 | 109574 | 15469 | 94105 | 85570 | 15418 | 70152 | 106592 | 16007 | 90585 | 75368 | 12447 | 62921 | 49033 | 14445 | 34588 | 50012 | 13533 | 36479 |

Pacheco Drainage District

| | 1987 | | | 1988 | | | 1989 | | | 1990 | | | 1991 | | | 1992 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | tot | low | high | tot | low | high | tot | low | high | tot | low | high | tot | low | high | tot | low | high |
| 101 | 229 | 56 | 173 | 466 | 16 | 450 | 1051 | 51 | 1000 | 685 | 0 | 685 | 545 | 28 | 517 | 462 | 86 | 376 |
| 104 | 49 | 0 | 49 | 0 | 0 | 0 | 444 | 11 | 433 | 284 | 0 | 284 | 137 | 0 | 137 | 0 | 0 | 0 |
| 110 | 91 | 0 | 91 | 0 | 0 | 0 | 146 | 0 | 146 | 0 | 0 | 0 | 133 | 0 | 133 | 0 | 0 | 0 |
| 201 | 370 | 21 | 349 | 432 | 46 | 386 | 495 | 11 | 484 | 333 | 0 | 333 | 255 | 10 | 245 | 191 | 33 | 158 |
| 202 | 724 | 6 | 718 | 736 | 23 | 713 | 645 | 10 | 635 | 845 | 0 | 845 | 735 | 36 | 699 | 299 | 16 | 283 |
| 208 | 404 | 28 | 376 | 525 | 86 | 439 | 716 | 79 | 637 | 407 | 0 | 407 | 556 | 53 | 503 | 224 | 52 | 172 |
| D&M | 341 | 33 | 308 | 252 | 31 | 221 | 289 | 31 | 258 | 173 | 0 | 173 | 245 | 25 | 220 | 263 | 59 | 204 |
| 308 | 313 | 31 | 282 | 369 | 44 | 325 | 519 | 33 | 486 | 187 | 0 | 187 | 331 | 22 | 309 | 461 | 92 | 369 |
| 310 | 1367 | 208 | 1159 | 1117 | 103 | 1014 | 886 | 103 | 783 | 555 | 0 | 555 | 904 | 122 | 782 | 910 | 84 | 826 |
| 312 | 405 | 44 | 361 | 281 | 40 | 241 | 203 | 41 | 162 | 251 | 0 | 251 | 267 | 25 | 242 | 285 | 33 | 252 |
| 314M | 381 | 42 | 339 | 314 | 47 | 267 | 244 | 49 | 195 | 358 | 0 | 358 | 524 | 33 | 491 | 345 | 47 | 298 |
| 314S | 1043 | 75 | 968 | 902 | 113 | 789 | 971 | 186 | 785 | 1208 | 0 | 1208 | 992 | 97 | 895 | 792 | 73 | 719 |
| | 5717 | 544 | 5173 | 5394 | 549 | 4845 | 6609 | 605 | 6004 | 5286 | 0 | 5286 | 5624 | 451 | 5173 | 4232 | 575 | 3657 |

Charleston Drainage District

| | 1989 | | | 1990 | | | 1992 | | |
|---|---|---|---|---|---|---|---|---|---|
| | tot | low | high | tot | low | high | tot | low | high |
| T-1 | 0.009 | 0.009 | 0 | 289.33 | 0 | 289.33 | 19.409 | 0 | 19.409 |
| SL-1 | 0 | 0 | 0 | 100.51 | 0 | 100.51 | 10.99 | 0 | 10.99 |
| LG-1 | 128.96 | 0 | 128.96 | 931.37 | 0 | 931.37 | 181.62 | 29.43 | 152.19 |
| L-1 | 0 | 0 | 0 | 260.18 | 0 | 260.18 | 106.93 | 0.71 | 106.22 |
| L-2 | 0.721 | 0.721 | 0 | 382.206 | 0 | 382.206 | 0 | 0 | 0 |
| L-3 | 0 | 0 | 0 | 461.17 | 0 | 461.17 | 0 | 0 | 0 |
| L-4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | 129.69 | 0.73 | 128.96 | 2424.766 | 0 | 2424.766 | 318.949 | 30.14 | 288.809 |

Panoche Drainage District

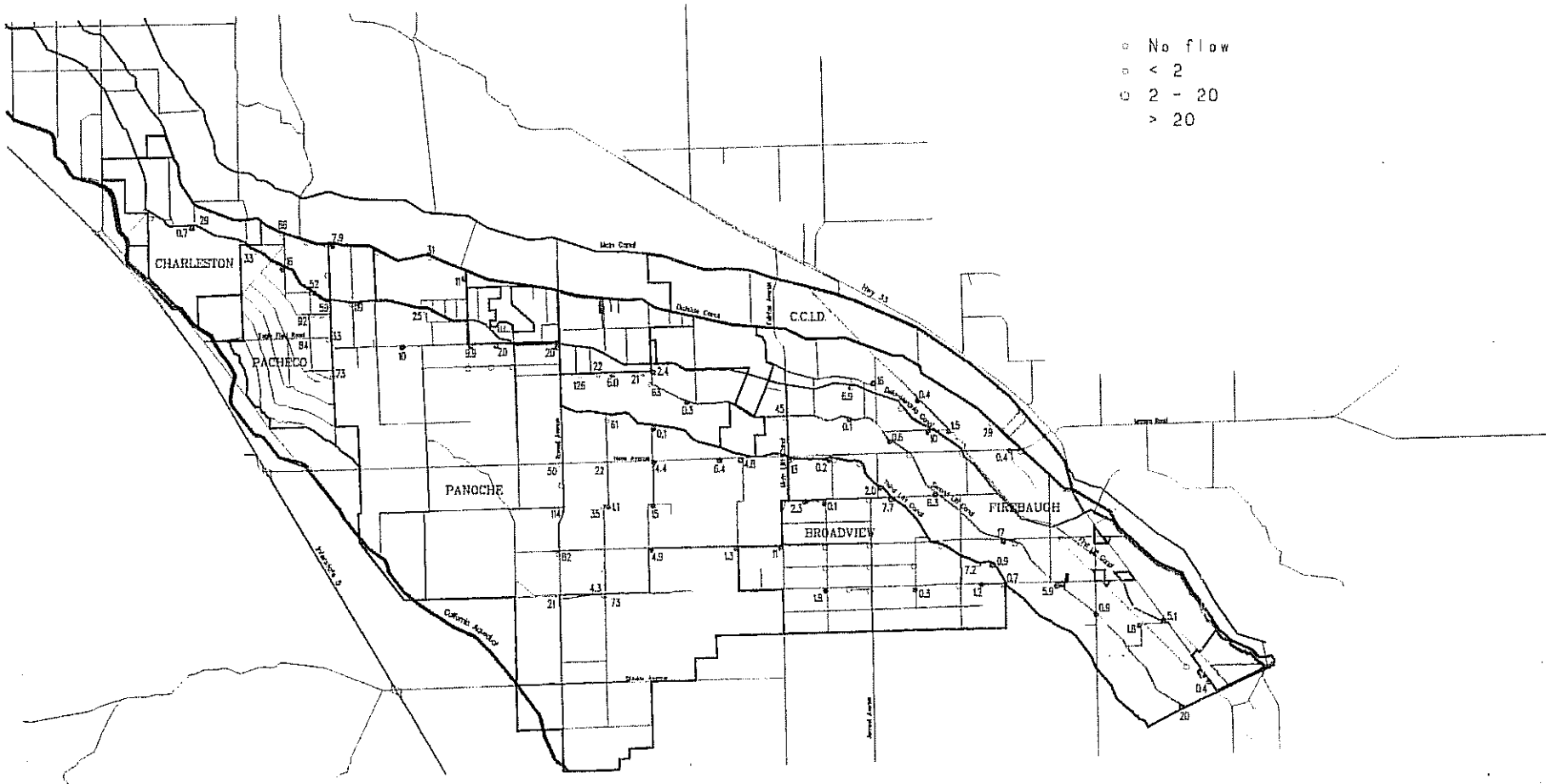
| | 1991 | low | high | 1992 | low | high |
|---|---|---|---|---|---|---|
| DP-1 | 48.053 | 16.022 | 32.031 | 74.903 | 7.856 | 67.047 |
| DP-2 | 89.948 | 19.967 | 69.981 | 72.425 | 0 | 72.425 |
| DP-3 | 130.706 | 34.427 | 96.279 | 176.436 | 30.981 | 145.455 |
| DP-4 | 78.702 | 8.902 | 69.8 | 177.94 | 11.142 | 166.798 |
| DP-6 | 200.77 | 53.596 | 147.174 | 501.839 | 118.902 | 382.937 |
| DP-7 | 115.95 | 30.57 | 85.38 | 256.37 | 24.83 | 231.55 |
| DP-11 | 3.81 | 0.666 | 3.144 | 266.401 | 10.305 | 256.096 |
| DP-15 | 56.627 | 11.339 | 45.288 | 70.296 | 9.945 | 60.351 |
| DP-16 | 95.904 | 8.47 | 87.434 | 130.863 | 20.001 | 110.862 |
| DP-18 | 211.019 | 10.176 | 200.843 | 443.185 | 50.295 | 392.89 |
| DP-19 | 21.0545 | 21.0545 | 0 | 34.0245 | 0 | 34.0245 |
| DP-20 | 13.9673 | 13.9673 | 0 | 540.7327 | 0 | 540.7327 |
| DP-25 | 278.99 | 54.46 | 224.53 | 425.51 | 60.59 | 364.92 |
| DP-27 | 70.736 | 6.455 | 64.281 | 170.192 | 0.059 | 170.133 |
| DP-30 | 183.56 | 11.08 | 172.48 | 158.52 | 49.97 | 108.55 |
| DP-31 | 11.401 | 11.4 | 0.001 | 237.29 | 22.19 | 215.1 |
| DP-33 | 25.96 | 16.8 | 9.16 | 93.46 | 4.42 | 89.04 |
| DP-34 | 9.397 | 2.887 | 6.51 | 28.388 | 6.42 | 21.968 |
| DP-35 | 4.91 | 4.91 | 0 | 12.44 | 4.85 | 7.59 |
| DP-38 | 197.29 | 38.37 | 158.92 | 208.18 | 0 | 208.18 |
| DP-39 | 459.969 | 87.753 | 372.216 | 665.951 | 113.959 | 551.992 |
| DP-40 | 150.512 | 34.397 | 116.115 | 373.044 | 35.056 | 337.988 |
| DP-41 | 25.369 | 17.878 | 7.491 | 40.863 | 1.142 | 39.721 |
| DP-42 | 57.292 | 4.796 | 52.496 | 101.728 | 14.962 | 86.766 |
| DP-44 | 214.312 | 12.193 | 202.119 | 423.036 | 81.686 | 341.35 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| DP-45 | 2.645 | 2.645 | 0 | 35.06 | 1.312 | 33.748 | |
| DP-49 | 88.112 | 1.607 | 86.505 | 198.36 | 20.978 | 177.382 | |
| DP-50 | 63.093 | 2.903 | 60.19 | 47.279 | 4.334 | 42.945 | |
| DP-52 | 65.721 | 65.721 | 0 | 142.317 | 4.852 | 137.465 | |
| DP-57 | 17.76 | 17.76 | 0 | 201.493 | 0 | 201.493 | |
| DP-58 | 135.201 | 12.049 | 123.152 | 357.984 | 72.992 | 284.992 | |
| DP-60 | 157.37 | 17.66 | 139.71 | 48.68 | 6.27 | 42.41 | |
| | 3295.239 | 680.7038 | 2614.536 | 6715.190 | 970.289 | 5744.901 | |

# Drainflows in the Grassland Area

Low flows in 1992, in acre-feet

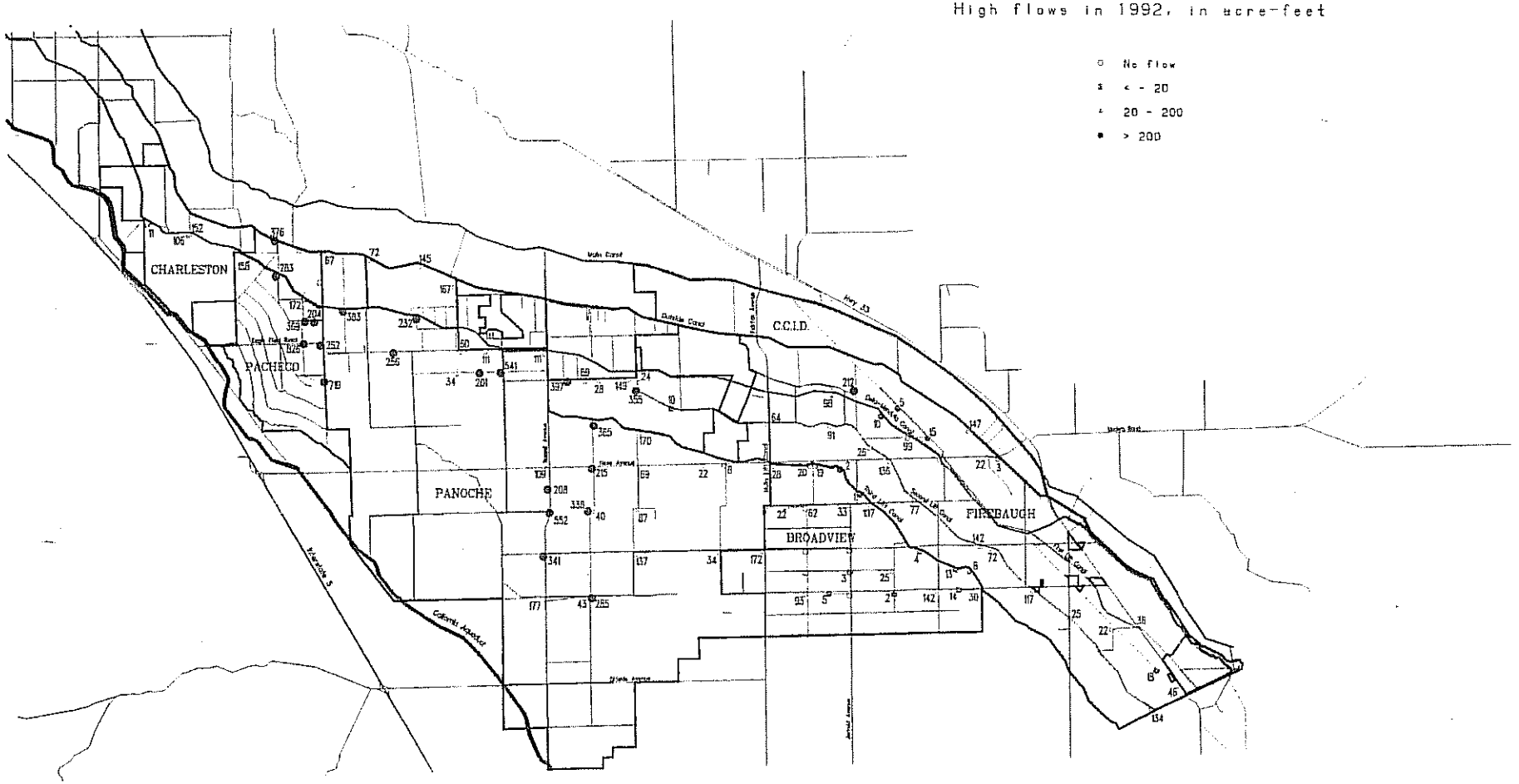
- No flow
- < 2
- 2 - 20
- > 20



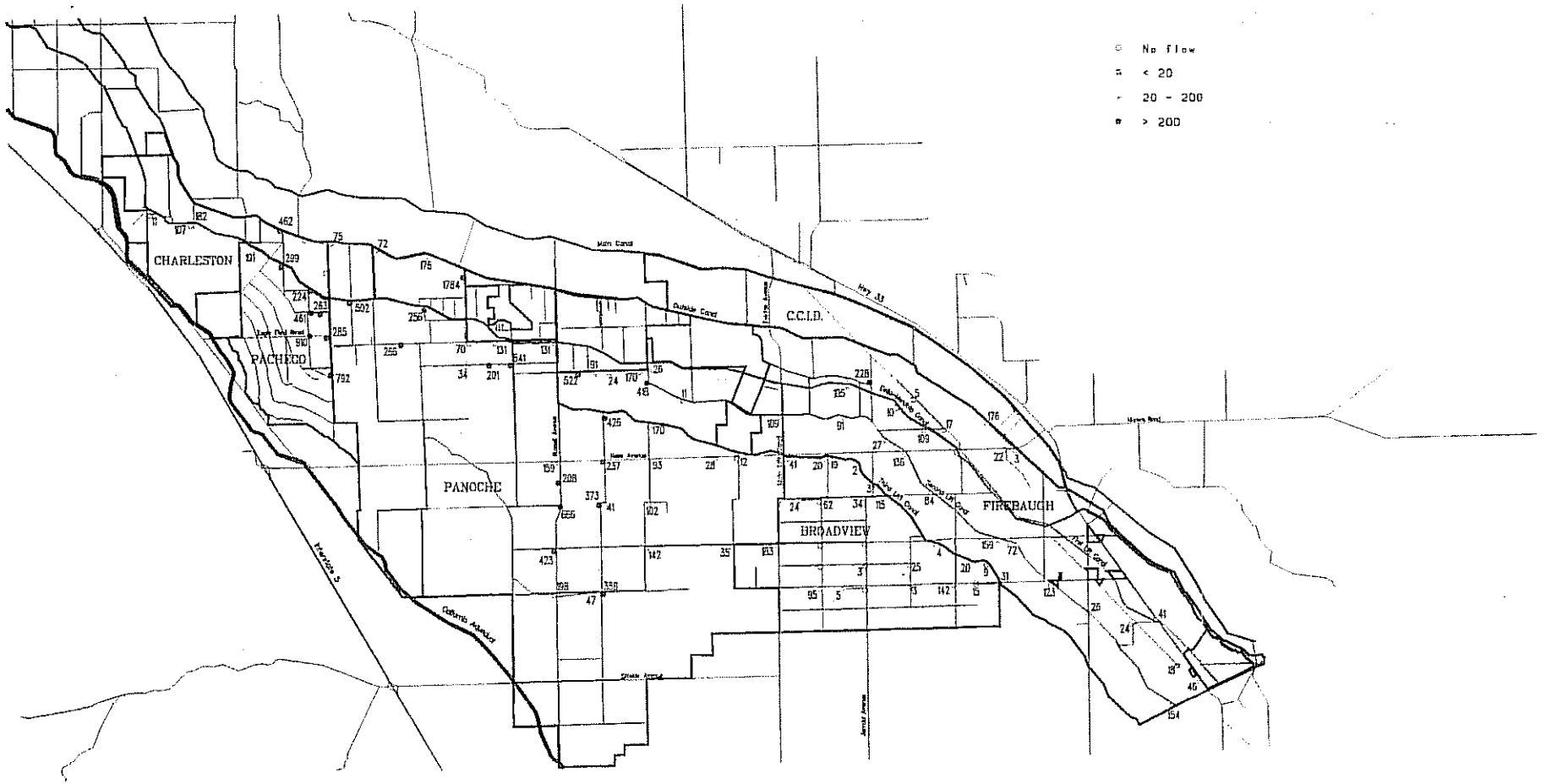
# Drainflows in the Grassland Area

High flows in 1992, in acre-feet

- No flow
- < - 20
- 20 - 200
- > 200



# Drainflows in the Grassland Area

Total flow in 1992, in acre-feet

- No flow
- < 20
- 20 - 200
- > 200