PCL 31

# Regional Economic Impacts of the Palo Verde Test Land Fallowing Program

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for

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## EXECUTIVE SUMMARY

On August 1, 1992, the Metropolitan Water District of Southern California (Metropolitan) initiated the Test Land Fallowing Program (Program) with farmers within the Palo Verde Irrigation District (PVID). The two-year agreement worked as follows: Program participants could enroll up to 25% of their productive acreage in the Program in exchange for a per enrolled acre payment of $1,240; enrolled acreage was then left fallow and not irrigated for two years; water savings were calculated and credited to Metropolitan. In total, 20,215 acres--roughly 22% of the valley's cultivated acreage--were enrolled in the Program. Program payments totaled approximately $25.1 million.

Program participants were surveyed at the end of the first and second years of the Program to evaluate farm level adjustments and costs associated with Program participation. The results of these surveys are reported in Great Western Research (1993; forthcoming).

The purpose of this study is to evaluate the economic impacts to Program non-participants such as local businesses providing farm services or supplies, as well as the Program's overall impact on the regional economy. Reported findings are based on telephone and field interviews and survey of local retail and wholesale businesses and community officials; crop budget analyses of changes in input purchase patterns; and analyses of regional quarterly sales tax and monthly employment data.

The principal findings of this study are as follows:

- **The Program was not found to have affected overall regional economic performance to any significant degree.** City officials and local bank representatives characterized the current state of the region's economy as improved relative to prior to the Program. The Program was not found to have affected the region's property or sales tax bases, or the provision of government services. It was, however, found to have contributed to a modest loss of employment in the region. Over the two-year period, the Program was found to have contributed to the loss of 27 full-time farm jobs, 25 full-time jobs in farm-related businesses, and seven part-time/seasonal jobs in farm-related businesses. The combined losses were equal to approximately 1.3% of the region's average employment for 1991-92.

- **The Program was not found to have caused non-farm-related businesses in the region to reduce employment or lose revenue.** Surveyed and interviewed non-farm-related businesses indicated that the Program had no perceptible effect on their revenues, and did not cause them to adjust their employment. In addition, businesses surveyed whose farm-related sales in the region comprised less than 20% of their total revenue also indicated that the Program did not affect their businesses in any significant way.

- **Negative economic impacts of the Program concentrated within farm-related businesses providing services or supplies to the region's farmers.** Three-fourths of surveyed businesses providing farm services characterized the Program as causing a significant decrease in revenues in 1993, while three of four respondents providing farm supplies characterized it as causing a minor decrease. It should be noted, however, that approximately 70% of all firms surveyed characterized the Program as causing only a minor decrease or having no impact on their revenues during the first year, while approximately 77% characterized it as causing a minor decrease, no impact, or a minor increase in their revenues during the second year.

Employment losses caused by the Program also were found to have concentrated within farm-related businesses. Overall, four of five surveyed firms providing farm services or supplies characterized the Program as a primary, though not necessarily the only, reason for

reducing employment between 1992 and 1994. These firms reduced full-time employment by a total of 25 jobs and part-time/seasonal employment by seven jobs over the two-year period.

While the Program did not negatively affect the overall performance of the local economy, it did result in concentrated impacts on a few businesses providing farm services and, to a lesser extent, farm supplies.

- **The Program was found to be only one of several causes for a reduced regional demand for farm-related labor, services, and manufactured inputs.** It is important to emphasize that there were many factors simultaneously affecting the local demand for farm services and supplies. For example, since 1988, the region's lettuce acreage has decreased by approximately 15,000 acres due to whitefly infestation and other factors unrelated to the Program. It is estimated that this reduction has caused the annual demand for seed, fertilizer, chemicals, and custom services to fall by approximately $8.3 million, and the annual demand for custom harvest services by approximately $19 million. By comparison, it is estimated that the Program reduced the annual demand for seed, fertilizer, chemicals, and custom services by approximately $4.0 million while it was in effect. While the Program did produce a measurable decrease in farm-related activity, it should be noted that the significant decrease in vegetable and melon production in the region due to whitefly and other factors not related to the Program has had a more pronounced and lasting effect on the demand for farm labor, services, and supplies.

- **A high proportion of Program payments were injected into the local economy.** Program participants reportedly spent 93% of Program payments in excess of fallowing and maintenance costs on farm-related investments, purchases, and debt repayment. Approximately 61% of Program payments in excess of costs was spent within the local economy. The Program was found to have provided timely financial relief to the region's agricultural producers who had been under significant hardship due to low prices for key commodities, especially alfalfa, and pest infestation.

Overall, the analysis indicates that the Program contributed to a modest decrease in regional employment--approximately 1.3% of average employment for 1991-92--but did not result in measurable changes in other regional economic performance indicators such as taxable sales, property tax revenues, and construction activity. It also should be noted that while approximately 61% of Program payments were reportedly spent locally, it was beyond the scope of this study to attempt to measure possible job gains or increased economic activity associated with this spending.

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## 1.0 INTRODUCTION

On August 1, 1992, the Metropolitan Water District of Southern California (Metropolitan) initiated the Test Land Fallowing Program (Program) with farmers within the Palo Verde Irrigation District (PVID). The two-year agreement worked as follows: Program participants could enroll up to 25% of their productive acreage in the Program in exchange for an annual payment of $620 per enrolled acre; enrolled acreage was then left fallow and not irrigated for two years; water savings were calculated and credited to Metropolitan. Farmers enrolled 20,215 acres--roughly 22% of the valley's cultivated acreage--in the Program.

The Program was monitored and periodically reviewed by a five-member Measurement Committee consisting of representatives from Metropolitan, PVID, Coachella Valley Water District, Imperial Irrigation District, and the Bureau of Reclamation. In addition, Program participants were surveyed at the end of the first and second years to tabulate farm level adjustments and costs associated with the Program. The results of these surveys are presented in Great Western (1993; forthcoming).

The purpose of this study is to further document the impact the Program has had on the local economy. Particular emphasis is given to businesses and individuals that provide farm services or supplies, or handle farm products, since these were likely to be the most significantly affected by the Program. The overall impact on the regional economy is investigated as well.

The analysis contained herein reflects an extensive literature review; telephone and field interviews and survey of local retail and wholesale businesses and community officials; analyses of regional quarterly sales tax and monthly employment data; as well as an analysis of agricultural production adjustments within the valley.

### 1.1 REPORT ORGANIZATION

The remainder of this report is organized as follows:

- **Section 2** provides background on the Palo Verde Valley, its regional economy, and recent economic events other than the Program that have impacted the regional economy.
- **Section 3** documents impacts of the Program using results from the local business surveys, interviews, employment and sales tax data analysis, and farm production adjustment analysis.
- **Section 4** examines community perceptions towards the Program as elicited from surveys and interviews with local businesses and community officials.

## 2.0 THE REGION

The Palo Verde Valley runs north to south for approximately 30 miles along the California side of the Colorado River as it flows between Arizona and California. From the river, the

valley extends westerly for about 9 miles until the Palo Verde Mesa is reached. In total, the valley encompasses an area of approximately 270 square miles of level, alluvial flood plain. The valley lies primarily within Riverside County, with its southern edge resting in Imperial County. U.S. Interstate Highway 10 (I-10) bisects the valley from east to west. State Routes 95 and 78 run north to south through the valley.

The valley's economic center is the City of Blythe, located along I-10 about five miles west of the Colorado River. Other communities within the valley include the small towns of Ripley and Palo Verde south on State Route 78. In Arizona, the towns of Ehrenberg and Quartzsite lie approximately six and twenty miles east of Blythe, respectively, along I-10.

The population of the market region is approximately 27,000, of which about half resides within Blythe. Official population estimates for the area include inmates and staff of the recently constructed Chuckawalla and Ironwood State Prisons. Excluding the incarcerated, the region's year-round population is approximately 23,000.[1] Table 1 shows the non-institutionalized population by subregion for 1990 and 1994. Since 1990, regional population has increased 11%, an average annual rate of growth of 2.7% for the period.

**Table 1**
**Year-Round Population**
**by Region of the Palo Verde Valley Market Area**

| Region | 1990 | 1994 | Percent Change |
|---|---|---|---|
| City of Blythe | 8,269 | 9,850 | 19% |
| East Blythe & Valley | 5,429 | 6,011 | 11 |
| Chuckawalla Division | 1,750 | 1,699 | (3) |
| City of Palo Verde | 658 | 695 | 6 |
| Ehrenberg, AZ | 1,197 | 1,277 | 7 |
| Quartzsite, AZ | 1,833 | 1,950 | 6 |
| Southern La Paz Co., AZ | 1,660 | 1,660 | 0 |
| Total | 20,796 | 23,142 | 11 |
| Average Annual Rate of Growth | | | 2.71 |

Source: Community and Economic Profile: Blythe and Palo Verde Market Area. City of Blythe, 1994.

## 2.1 THE ECONOMY

- **AGRICULTURE**

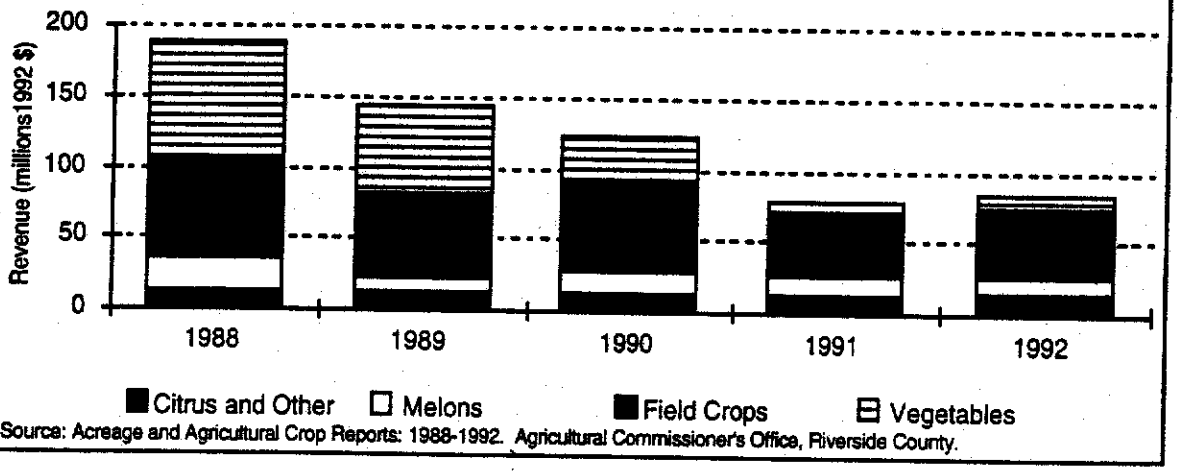
The Palo Verde Valley has been and continues to be rooted in agriculture. Its 270 square miles of level, alluvial soils, ample supply of Colorado River water, and year-round growing

[1] Institutionalized population is included in the official estimates so that the region may receive various state subventions based on population.

season create an ideal environment for irrigated crop production. In a typical year, between 90,000 and 95,000 acres of the valley are cultivated. A portion of this land is double cropped, so that gross acreage planted in the valley in a typical year is about 110,000 acres (Palo Verde Irrigation District 1977-1994). Principal crops grown in the valley include alfalfa, cotton, sudan grass, wheat, melons, lettuce, and onions, with alfalfa being by far the dominant crop in terms of acreage.

Between 1988 and 1992, the gross value of crops produced in the valley has, in 1992 dollars, ranged between $79 and $189 million, as shown in Figure 1. The average gross value of crop production over the period was approximately $124 million. As discussed more fully below, vegetable production in the valley has declined sharply over the past decade, both in terms of acreage and yield, and this has had a significant impact on the region's farm employment and gross value of production. Between 1988 and 1992, the gross value of vegetable production fell by 86%. It is important to emphasize that the regional decline in vegetable production is in no way related to the Program.

**Figure 1**
**Gross Farm Receipts from the Palo Verde Valley**




Source: Acreage and Agricultural Crop Reports: 1988-1992. Agricultural Commissioner's Office, Riverside County.

- **OTHER ECONOMIC ACTIVITY**

Other base economic activity in the region includes light manufacturing, tourism, and the two new prisons. The valley's location along I-10, the proximity of the Colorado River, and the desert climate make it host to a variety of seasonal visitors. In the winter, the area receives a substantial influx of "snowbirds" seeking the mild desert winters. It is estimated that during the five months of winter, the population in the area more than doubles (City of Blythe 1994). Most of this increase occurs around the town of Quartzite, Arizona, but some of it spills into the Blythe area. The City of Blythe also supports a large number of service stations, fast food restaurants, and motels that serve I-10 travelers. Service stations and fast food restaurants are the principal sources of sales tax revenue for the city (City of Blythe 1994).

Recently, the region became host to two new state prisons: the Chuckawalla Valley State Prison opened in November 1993; and the Ironwood State Prison opened in October 1994. With approximately 800 jobs at each prison, these are now the largest employers in the area (City of

Blythe 1994; Per. Comm. Steve Morgan 1994; Per. Comm. William Martindale 1994). Ironwood State Prison expects to hire an additional 200 people by the end of the year (Per. Comm. William Martindale 1994).

The region's largest employers are listed in Table 2. In addition to the prisons, major employers include manufacturing and agricultural processing firms, the Palo Verde Irrigation District, municipal services, and schools. Most businesses in the region, however, are small, averaging seven employees per business (City of Blythe 1994).

**Table 2**
**Employers in the Palo Verde Valley Market Area with more than 50 Employees**

| Name of Employer | Employment | Description |
|---|---|---|
| Cuckawalla State Prison | 800 | Level II Prison |
| Ironwood State Prison | 800 | Level III Prison |
| Palo Verde School Dist. | 384 | Public School |
| Morgan Corp. | 231 | Manufacturing |
| Palo Verde Hospital | 137 | Medical |
| Hi-Value Processors | 120 | Vegetable packer |
| County of Riverside | 120 | Government |
| Palo Verde Irrigation Dist. | 76 | Public Irrigation |
| City of Blythe | 71 | Municipality |
| Toshin Trading Co. | 65 | Feed Processor |
| Palo Verde Comm. College | 60 | Comm. College |

Source: Community and Economic Profile: Blythe and Palo Verde Market Area. City of Blythe, 1994.

## 2.2 NON-PROGRAM FACTORS AFFECTING THE REGIONAL ECONOMY OF PALO VERDE VALLEY

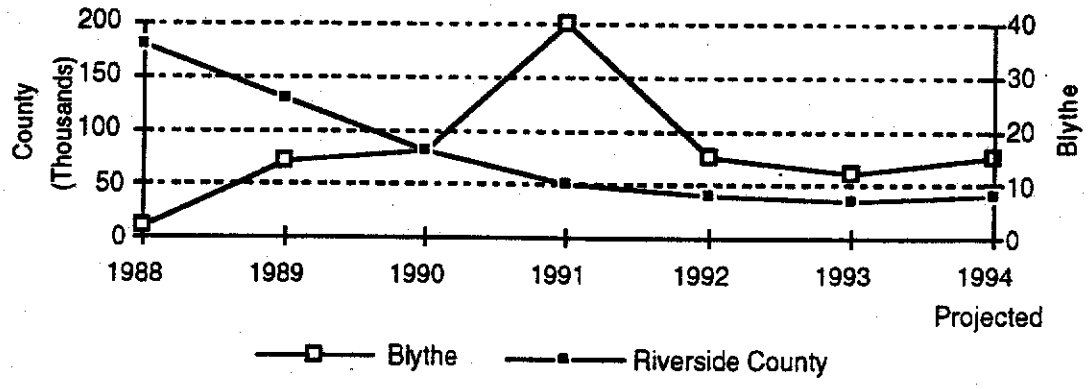
In recent years, several events other than the Program have affected regional economic activity, either positively or negatively. To assess the effect that the Program had on the local economy, it is necessary to first identify these other influences. These are briefly discussed below and include the following:

- the construction and staffing of Chuckawalla Valley and Ironwood State Prisons;
- a substantial increase in housing and commercial construction;
- the statewide economic recession; and
- the depressed agricultural economy in the valley.

- **State Prisons** -- The opening of the state prisons created a significant new source of employment and income for the region. As discussed above, 1,600 new jobs were added to the region, and an additional 200 are expected. Annual salaries for the majority of these jobs range between $20,000 and $30,000. An estimated 85% of prison employees reside within or around Blythe, with the remaining 15% commuting from Ehrenberg, Parker, Indio, and other outlying areas (Per. Comm. William Martindale 1994). The new prisons are a significant source of income to the region and have invigorated the Blythe economy.

• **New Construction** -- The construction of the prisons also created a significant demand for construction labor. In addition, the recent surge in new construction in the region is largely attributed to the additional demand for housing created by prison jobs (Per. Comm. J. Newell Sorensen 1994). As shown by Figure 2, new housing construction has occurred consistently in Blythe since 1988 despite a steady decline in housing starts for the whole of Riverside County over the same period. There were 2,968 units in the Blythe area in 1990 (U.S. Census 1990; U.S. Census 1990). In May 1994, there were approximately 3,488 units, an increase of eighteen percent (Construction Industry Research Board 1984-1994). In addition, there has been a considerable amount of new commercial construction, including two shopping centers and a 52 room motel.

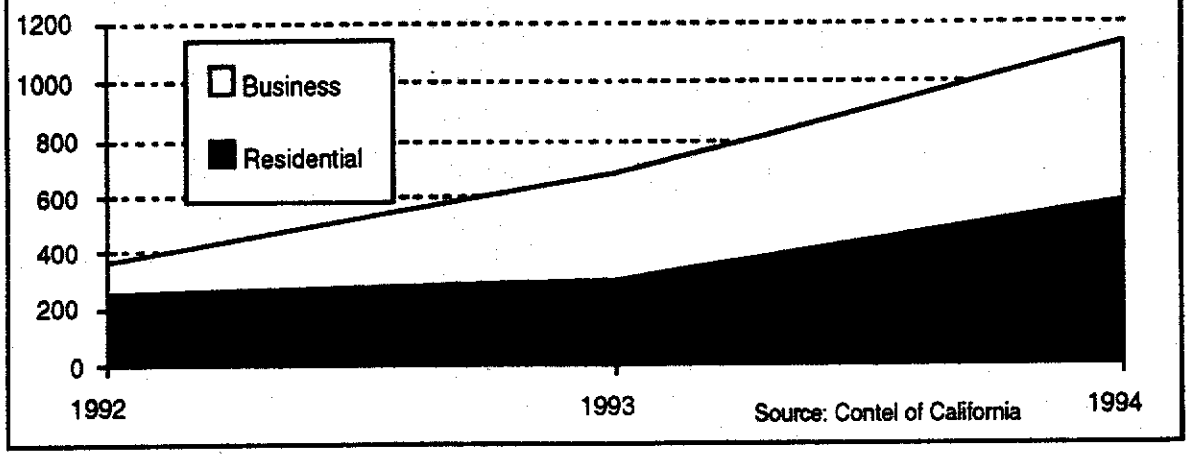
**Figure 2**
**Housing Starts**
**City of Blythe and Riverside County**




Source: Construction Industry Research Board

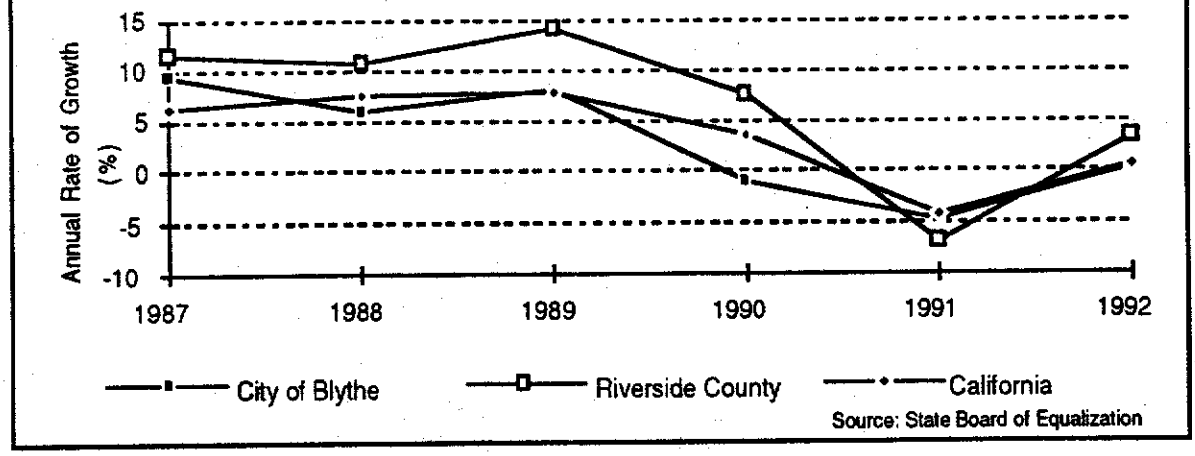
Another measure of growth in the region is the rate of new telephone service requests. In 1992, a second prefix for Blythe and surrounding areas was added to accommodate increasing demand. Requests for new service have grown steadily during the last three years, as shown in Figure 3. New service requests for 1994 are projected based on new service requests through June 1994. The large increase in business hookups between 1992 and 1993 is largely due to the opening of Ironwood State Prison.

**Figure 3**
**Cumulative Requests for New Telephone Service**
**City of Blythe 1992-1994**




• **Statewide Recession** -- The statewide recession had a measurable effect on taxable sales in Blythe, which have declined a total of 19.8% since 1989, as shown in Figure 4. Taxable sales in Blythe are generated primarily by fast food establishments and service stations serving I-10 travelers. The recession probably caused both tourism and commercial travel to decline, which would explain the sharp decrease in taxable sales revenue. The percentage decrease in taxable sales is consistent with that for Riverside County and the entire state, though, as seen by the figure, the trough in growth for Blythe was somewhat less than for the whole of Riverside County.

**Figure 4**
**Annual Rate of Growth in Taxable Sales**
**1987-1992**



A similar data series for regional employment cannot be constructed because of a change in the Employment Development Department's (EDD) employment reporting procedure in 1991. This change made counts occurring before 1991 inconsistent with those occurring after, particularly for small regions such as Blythe (Per. Comm. Diane R. Gilmore 1994).[2]

- **Depressed Agricultural Economy** -- Prior to the Program, the agricultural economy of Palo Verde Valley was under significant financial stress. Starting in 1989, gross farm receipts fell for three consecutive years: receipts fell by $45.2 million in 1989; by $19.6 million in 1990; and by $45.2 million in 1991 (Agricultural Commissioner's Office, Riverside County, 1988-92). In 1992, receipts increased a modest $5.1 million (Agricultural Commissioner's Office, Riverside County, 1988-92). By this date, however, gross agricultural revenue for the region was $84.5 million, or 56% , below its 1988 level. There are three primary causes for this decline: (1) the whitefly infestation; (2) the collapse of the alfalfa market in 1991; and (3) the long-term decline in the region's vegetable production. Each of these is discussed below.

**(1) Whitefly Infestation** -- The infestation of whitefly started about 1986 and had a significant impact on the production of many crops grown in the valley, but particularly on fall melons and lettuce. These two crops have essentially been lost to the valley until an economical control for the whitefly is found (Per. Comm. Bob Micalizio 1994). The whitefly is a principal cause for the decline in vegetable production in the valley, lettuce in particular. Cotton production also has been significantly impacted by whitefly.

**(2) Alfalfa Market** -- Between 1990 and 1991, the average price per ton received for alfalfa in the Palo Verde Valley fell by 36% and the average revenue per acre fell by 43%, as shown in Figure 5. Gross revenue per acre fell more than price because yields also fell between 1990 and 1991. The alfalfa market did not recover until 1993, after the Program had started.

The collapse of the alfalfa market had a significant effect on farm income in the valley. Gross receipts for field crops declined by $19 million or 31% between 1990 and 1991 -- this accounts for a little less than half of the valley's $45.2 million decline in total farm receipts between those two years. Gross receipts for field crops increased slightly in 1992 -- about $4 million -- but remained 32% below their 1988 level. The decline in employment was significantly less. It is estimated that the demand for farm labor in the region would have decreased by about 5% from its 1990 level whereas the decrease in total gross revenue was about 15%.[3] The difference is due to the fact that, acre for acre, field crops such as alfalfa are about 20 times less labor intensive than vegetable and fruit crops (Mitchell 1993).

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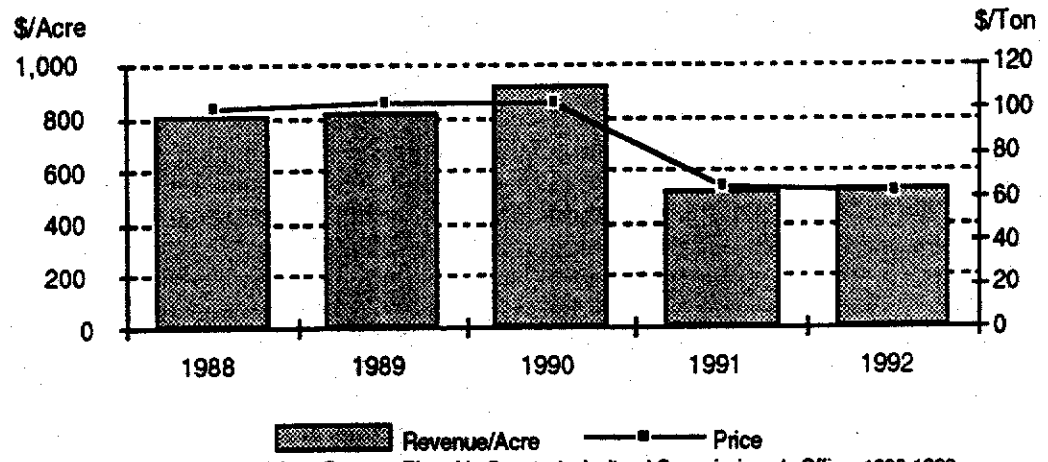
[2] It was also discovered that there was double counting of employment that resulted in inflated employment estimates prior to 1991. The EDD believes that this could significantly bias an analysis of employment changes that involved dates before and after 1991, particularly for small regions.

[3] Demand for direct farm labor was estimated for each crop category -- vegetables, melons, field crops, and citrus/other -- using employment multipliers from the Department of Water Resources 528 Sector Input-Output Model. These multipliers were used to derive annual hours of demand per million dollars of crop revenue.

**Figure 5**
**Average Alfalfa Price Per Ton and Gross Revenue Per Acre**
**Palo Verde Valley**

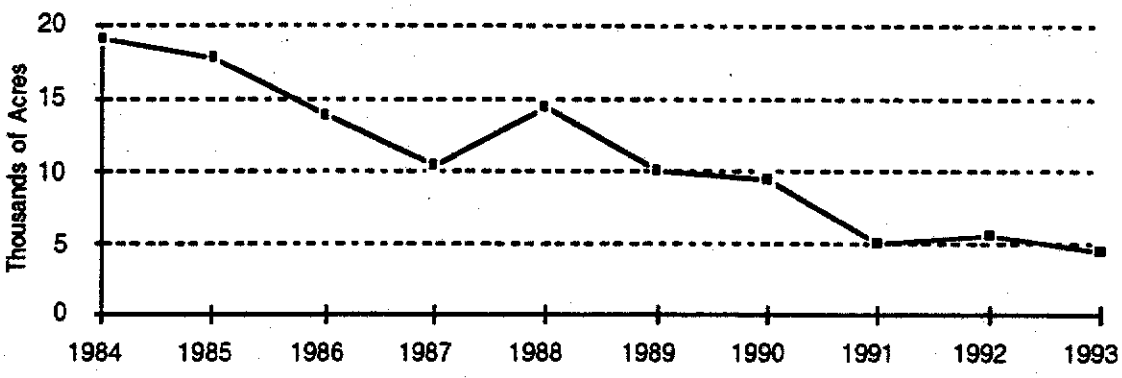



Source: Acreage and Agricultural Crop Reports, Riverside County Agricultural Commissioner's Office: 1988-1992.

**(3) Decline in Vegetable Acreage** -- Vegetable production within the valley has been in almost steady decline for a decade or more, as shown by Figure 6. Since 1984, vegetable acreage has declined, on average, by 1,600 acres, each year. By 1992, vegetable acreage was 76% below its 1984 level. Since 1988, gross revenue from vegetable production has decreased by 86%, or $73.6 million.

This has had a significant effect on the region's agricultural gross revenues and employment. In 1988, vegetable production accounted for 45% of gross farm revenue in the valley, by 1990 this had fallen to 28%, and by 1992 it was just 14%. In 1988, vegetable production accounted for an estimated 36% of the region's demand for farm labor. By 1992, this share had fallen to an estimated 16%. It is estimated that the total demand for farm labor in the region fell by 31% between 1988 and 1992 due to the decrease in vegetable production.

**Figure 6**
**Acres Planted To Vegetable Crops**
**Palo Verde Valley**




Source: Palo Verde Irrigation District Crop Reports: 1984 - 1993

## 2.3 SUMMARY OF REGIONAL ECONOMY PRIOR TO START OF PROGRAM

Prior to the start of the Program, the economic performance of the regional economy was mixed. The construction and subsequent staffing of the prisons brought an important new source of jobs and income to the region. By the end of 1994, it is estimated that the prisons will have created 1,800 jobs for the region. The prisons also are largely responsible for the mini-construction boom the valley has experienced since 1988, and probably helped lessen the regional effects of the statewide recession (Per. Comm. J. Newell Sorensen 1994). At the same time, the region's agricultural economy had been under significant financial stress. Gross farm revenue in 1991 was 58% below its 1988 level and the estimated total demand for farm labor was 68% lower.

It is important to emphasize that this decline occurred prior to the start of the Program and is largely due to the region's long-term decline in vegetable production and the more recent loss of much of the region's melon production (due to whitefly). In particular, it should be noted that the farm job losses associated with these adjustments are far larger than those that have been associated with the Program. As will be discussed more fully below, the Program was found to have resulted in the loss of 26 full-time farm jobs, whereas the imputed decrease in demand for farm labor associated with the reduction in vegetable and melon production between 1988 and 1991 is approximately 1,400 full-time-equivalent jobs.[4]

[4] The decrease in vegetable and melon production mostly affected the demand for migratory seasonal labor. We therefore estimated the change in hours demanded and converted to full-time-equivalents, where one full-time-equivalent job equaled 2000 hours of labor. Labor demand estimates for production changes that occurred prior to the Program are based on direct employment multipliers for vegetables and field crops, as reported in the Department of Water Resources 528-sector input-output model for California. Estimates of farm job losses associated with the Program are based on field surveys of Program participants.

## 3.0 ECONOMIC IMPACTS OF THE TEST LAND FALLOWING PROGRAM

The Program started August 1, 1992 and ended July 31, 1994. It enrolled 20,215 acres of productive farmland. During the length of the Program this acreage was neither planted to a commercial crop nor irrigated. Weeds were controlled on Program acreage, and on a small portion of this acreage a cover crop was planted (but not irrigated) to control wind erosion. Program participants received $1,240 per enrolled acre, paid in five installments over the two-year program. Total Program payments equaled $25.1 million.

### 3.1 ESTIMATED IMPACTS ON CROP PRODUCTION

Between 1992 and 1993, the Program displaced approximately 20,215 acres of field crop production. Based on interviews with growers and farm-related businesses, the most likely crops displaced by the Program were hays (primarily alfalfa) and grains (primarily wheat). While cotton acreage was lower in 1993 and 1994 compared to 1992, this was thought to have been caused primarily by the strong price for alfalfa in 1993, and most likely would have occurred with or without the Program (Per. Comm. Lloyd Colbert 1994).[5] It is not thought that the Program had any appreciable effect on planting decisions for vegetable and melon acreage.[6]

- **Change in Acreage**

The net change in field crop production due to the Program was approximated from Agricultural Commissioner's Acreage and Agricultural Crop Report data for 1992 and 1993. These data are shown in Table 3. Wheat, Sudan grass, and alfalfa are the crops most likely to have been affected by the Program. As can be seen in the table, the reported difference for these crops is very close to the Program acreage amount, though not exact. Estimated changes in gross farm revenue as well as purchases of farm inputs -- such as seed, fertilizer, other chemicals, and custom services -- due to the Program are based on the scaled acreage estimates shown in the right-hand column of the table.

- **Change in Gross Farm Revenue**

The Program did not have a significant impact on regional gross farm revenue because revenue losses from reduced acreage where mostly offset by Program payments. Gross receipts are estimated to have declined by $33.7 million (in nominal dollars) over the two years of the Program.[7] Program payments of $25.1 million partially offset this decrease, resulting in a net

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[5] Cotton and alfalfa acreage in the valley have a high negative correlation because alfalfa is one of the few crops that can be grown on cotton acreage that is enrolled in the Federal Commodity Program. When alfalfa prices are high, growers can shift out of cotton and into alfalfa without affecting their status in the Federal Commodity Program. Alfalfa prices in 1993 and 1994 were at historically high levels for the region.

[6] Although vegetable and melon acreage also decreased between 1992 and 1993, it is not thought that this was related to the Program. Interviews with farm-related businesses, as well as with growers provide the basis for this belief. Those interviewed expressed the opinion that the Program affected field crop acreage in the valley but not melon or vegetable acreage. Not a single person interviewed expressed the opinion that the Program has affected vegetable and melon production.

[7] Revenue estimates based on 1993 average farm-gate prices as reported by the Riverside County Agricultural Commissioner.

reduction of $8.6 million over the two-year period. This is 4.5% below what would have occurred absent the Program, assuming 1993 average prices and yields.

It must be emphasized, however, that the Program altered the distribution of farm revenue within the valley. Income to farm operators participating in the Program was at least as high, and possibly higher, than it would have been absent the Program because of Program payments, while for at least some farm-related businesses, income may have been lower than it would have been absent the Program because of reduced purchases of farm inputs. To some degree Program receipts were reinvested in the local economy through additional purchases by Program participants, as will be discussed below.

**Table 3**
**Estimated Program Crop Acreage Adjustments**

| Crop | 1992 | 1993 | Reported Difference | Scaled Difference |
|---|---|---|---|---|
| Wheat | 6,434 | 4,904 | (1,530) | (1,521) |
| Sudan | 6,427 | 4,000 | (2,427) | (2,413) |
| Alfalfa | 52,232 | 35,853 | (16,379) | (16,282) |
| Total | 65,093 | 44,757 | (20,336) | (20,215) |

Source: Acreage and Agricultural Crop Report: Palo Verde Valley, 1992-93. Agricultural Commissioner's Office, Riverside County.

- **Change in Input Purchases**

The reduction of input purchases implied by the acreage reductions shown in Table 3 were estimated with cost data from UC Cooperative Extension Crop Budgets, which tabulate production costs by activity for different crops and regions. Estimates of input purchases for each crop in Table 3 are provided in Appendix B. Some input purchases -- such as for fuels, oils, or repair and replacement of broken equipment -- are not broken out separately by UC Crop Budgets. These were estimated using data from the California Statistical Abstract on farm gross receipts and input expenditures. Table 4 presents the aggregated results for the two-year period of the Program. Table 4 also includes expenditures by Program participants to comply with fallowing, weed control, and wind erosion requirement. It is estimated that Program participants spent approximately $862,000 and $143,000 the first and second years of the Program, respectively. The high expenditure in the first year relative to the second was caused by (1) the need to rip and plow under alfalfa stands on some fields in the first year and (2) high weed control costs in the first year due to above average rainfall.

A net decrease of $7.9 million in farm input purchases over the two years of the Program was estimated, or approximately $4.0 million per year. It was beyond the scope of this study to estimate the percentage reduction this represented in total purchased farm inputs for all crops during the period. However, it was possible to compare the Program-induced reduction in input purchases to that associated with the recent decrease in lettuce acreage to gain a better sense of their relative impacts on input suppliers. Between 1988 and 1991, lettuce acreage decreased by approximately 15,000 acres. Based on UC Crop Budgets, it is estimated that this would have reduced annual purchases of inputs associated with lettuce production up to the

point of harvest by approximately $8.3 million. This is approximately 2.1 times greater than the annual reduction in purchased inputs associated with the Program. [8]

**Table 4**
**Estimated Change in Purchased Farm Inputs**
**During Test Land Fallowing Program 1,2/**

| Input Category | Estimated Reduction in Purchased Farm Inputs Over Two-Year Period |
|---|---|
| Irrigator Labor | (1,952,000) |
| Seed | (620,000) |
| Chemical Fertilizer | (1,060,000) |
| Other Chemicals | (2,518,000) |
| Fuel and Oil 3/ | (572,000) |
| Repair and Maintenance 4/ | (842,000) |
| Custom Services 5/ | (1,300,000) |
| Total | ($8,864,000) |
| 1992-93 Fallowing Expenditures 6/ | $862,000 |
| 1993-94 Fallowing Expenditures 7/ | $143,000 |
| Net Reduction | ($7,859,000) |

Notes:
1/ Estimates do not account for more intensive use of inputs on remaining cultivated acreage.
2/ Labor and material usage and cost estimates based on UC Cooperative Extension crop budgets, unless otherwise stated.
3/ Includes custom applications of seed, fertilizer, and chemicals. Does not include custom harvesting.
4/ Estimated from five-year average ratio of expenditures on fuel and oil to farm cash receipts, as reported in California Statistical Abstract, 1993.
5/ Estimated from five-year average ratio of expenditures on repair and maintenance to farm cash receipts, as reported in California Statistical Abstract, 1993.
6/ As reported in Great Western Research (1993).
7/ As reported in Great Western Research (1994).

- **Use of Program Payments**

Program participants indicated that a high proportion of Program payments were applied towards local farm-related expenditures (Great Western Research forthcoming). Program participants were asked to identify the primary uses of Program payments in excess of costs to

[8] It should be noted that this estimate does not account for costs associated with the lettuce harvest, which is very labor intensive. It is estimated that the reduction in lettuce production between 1988 and 1991 has reduced the annual regional demand for custom harvesters by approximately $19 million.

fallow and maintain Program acreage. Responses are summarized in Table 5. As shown by the table, Program participants indicated that 93% of excess Program payments were reinvested into the farm economy, either to pay down debt (37%), make farm improvements (11%), or cover operating expenses and rent (45%). The majority of Program payments were spent locally. Participants reported that 49% of Program payments--approximately $12 million--was directly injected into the local economy through purchases for farm improvements and operations. An additional 7% of Program payments--approximately $2 million--was locally applied towards debt repayment and rent. Overall, the Program was found to have provided timely financial relief to the region's agricultural producers following several years of depressed commodity prices and pest infestation that had seriously eroded farm incomes.

**Table 5**
**Primary Use of Program Payments in Excess of Fallowing Costs**

| | Total | Local | Outside of Area |
|---|---|---|---|
| Farm Improvements | 11% | 11% | 0% |
| Debt Repayment | 37% | 5% | 32% |
| Farm Operations | 42% | 38% | 4% |
| Rent | 3% | 2% | 1% |
| Other | 7% | 5% | 2% |
| Total | 100% | 61% | 39% |

Source: Great Western Research (forthcoming)

### 3.2 LOCAL AREA BUSINESS SURVEY RESULTS

A survey of businesses in the Blythe Market Area was fielded to gather additional information on impacts of the Program to non-Participants. This data supplements and adds to that collected through earlier surveys of Program participants (Great Western Research 1993; Great Western Research forthcoming). The purposes of the survey were as follows:[9]

- provide indication of how revenues of local businesses were affected by the Program versus other economic events;
- provide indication of how employment of local businesses was affected by the Program versus other economic events; and
- provide indication of perceptions held by local businesses of the Program and how it affected the local economy.

The scope of the project did not allow for random sampling of local businesses on a scale large enough to develop a sample from which statistically valid inferences could be drawn. Therefore, efforts were focused on identifying business most likely to have been affected by the Program and administering the survey to them. A list of these businesses was developed in consultation with Metropolitan consultants and with the aid of the Blythe Chamber of

[9] Appendix A provides a copy of the survey instrument.

Commerce roster. Twenty businesses were so identified.[10] The sampling population was reflective of farm-related businesses in the area. Survey participants also were asked to identify firms other than themselves in the region that they thought were affected by the Program. The sampling population included all but one firm mentioned.

The sample was classified into four categories, as follows:

(1) **Firms providing farm services** -- this category includes applicators of fertilizer, pesticide, seed, etc.; labor contractors; harvesters, packers, and haulers; maintenance and repair, and field preparation.

(2) **Firms providing farm supplies** -- this category includes suppliers of seed, nursery stock, fertilizer and chemicals; equipment rental and sales; and suppliers of fuels, oils, and lubricants.

(3) **Firms handling farm products** -- this category includes firms that store, process, sell, or ship farm products.

(4) **Firms not directly related to agriculture** -- this category includes businesses that do not directly provide farm services or supplies, or handle farm products.

Table 6 shows the number of businesses in each category and the number of returned surveys.

**Table 6**
**Businesses Contacted and Surveyed**

| Type of Business | Number Contacted | Number Completed and Returned |
|---|---|---|
| Provides Farm Services | 5 | 4 |
| Provides Farm Supplies | 6 | 4 |
| Handles Farm Products | 4 | 3 |
| Non-farm Related | 5 | 2* |
| Total | 20 | 13 |

*Two surveys were returned with notes stating that the Program had not affected their business.

As shown in the table, surveys were received from 13 of the initial 20 contacted. While five non-farm-related businesses were contacted and expressed willingness to participate in the

[10] These businesses were contacted by telephone and asked to participate. Surveys were mailed to willing participants. In most cases, surveys were collected in-person. When it was not possible to schedule an interview, participants were asked to return their survey by mail.

survey, only two returned the survey.[11] In both of these cases, the surveys were returned with notes stating that their businesses had not been affected by the Program.

### 3.2.1 REPORTED REVENUE IMPACTS

Surveyed businesses were asked a series of questions about their revenues in 1992, 1993, and 1994. Responses are summarized below:

- **Change in Revenue 1992-1993**

- Five respondents reported that revenues in 1993 were lower than in 1992, four reported that they were higher, and 2 reported that they were unchanged.

- Of the firms providing farm services, three of four reported lower revenues in 1993 than in 1992, and one reported revenues unchanged.

- Of the firms providing farm supplies, two of four reported lower revenues in 1993 than in 1992, one reported revenues unchanged, and one reported higher revenues.

- Of the firms handling farm products, three of three reported higher revenues in 1993 than in 1992.

- Of the five respondents reporting lower revenues, three identified the Program as the primary reason for the decrease; one reported the Program and the whitefly infestation as the primary reasons; and one reported the Program and low crop prices as the primary reasons. It should be noted that all five regarded the Program as a primary reason, though not necessarily the only reason, for lower revenues in 1993 compared to 1992.

- Of the four firms reporting higher revenues, none identified the Program as the primary reason for the increase.

- Firms were asked to indicate if a factor caused a significant decrease, minor decrease, no impact, minor increase, or significant increase in 1993 revenue. Ten factors, including the Program, were listed (see Appendix A, questions 11-12). Four of thirteen firms reported that the Program caused a significant decrease; five reported that it caused a minor decrease; and four reported it had no impact. Overall, nine of thirteen firms believed the Program had no impact or resulted in a minor decrease to their revenues, while four reported that the Program caused a significant decrease to their revenues.[12]

- Of the five firms reporting that revenues were lower in 1993 than in 1992, three disclosed actual revenues for each year.[13] For these three firms, revenue in 1993 was, on average, 13.0% below its 1992 level. The average dollar decrease was slightly more than $167,800 per firm .

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[11] For all survey participants, follow-up contacts-- both by telephone and in-person -- were made to make sure the survey was received and to address questions.

[12] Note that while nine firms reported that the Program caused either a significant or minor decrease in 1993 revenue, only five actually reported that revenues in 1993 were lower than in 1992. In four cases, the negative impact of the Program was offset by other factors that positively impacted revenue.

[13] Of the eleven respondents, three regarded revenues as proprietary information and chose not to disclose them. These firms did indicate whether revenues were lower, higher, or unchanged, and the

- **Change in Revenue 1993-1994**[14]

- Five respondents reported that revenues in 1994 were expected to be lower than in 1993, while six reported that revenues were expected to be higher.

- Of the firms providing farm services, two of four reported that revenues were expected to be lower in 1994 than in 1993, and two reported that they were expected to be higher. This differs from responses for the prior year, where three of four firms reported lower revenue, one reported revenue unchanged, and none reported higher revenue.

- Of the firms providing farm supplies, one of four expected lower revenues in 1994 than in 1993, and three expected higher revenues.

- Of the firms handling farm products, two of three expected lower revenues in 1994 than in 1993, and one expected higher revenues.

- Of the five respondents expecting lower revenues, three identified the Program as a primary reason for the expected decrease; two did not indicate the Program as a primary reason for the expected decrease.

- Of the six firms expecting higher revenues, two identified the Program as a primary reason for the expected increase, both because farming activity increased when the Program ended and because farm operators were investing revenue from the Program into their farms.

- As for 1993, firms were asked to indicate if a factor caused a significant decrease, minor decrease, no impact, minor increase, or significant increase in 1994 revenue. Three of thirteen firms reported that the Program caused a significant decrease; four reported that it caused a minor decrease; four reported it had no impact; and two reported a minor increase. Overall, ten of thirteen firms expected the Program would cause either a minor decrease, no impact, or a minor increase in their 1994 revenue, while three expected it would cause a significant decrease in 1994 revenue. In general, respondents viewed the impacts of the Program in 1994 as less severe than in 1993.

- Firms were asked to estimate 1994 revenue. Seven firms disclosed these estimates. For these firms, revenue was, on average, expected to be 14.5% higher in 1994 than in 1993. For the two firms that attributed higher revenue in 1994 to the Program, expected revenue was, on average, 23.4% higher than in 1993. Only one of the three firms that attributed lower revenue in 1994 to the Program provided an estimate of 1994 revenue. For this firm, 1994 revenue was expected to be 12.8% lower than in 1993.

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impact of the Program on revenues. In one case, the firm indicated the average percentage decrease in revenue over the last several years. The estimate above does not use that information, however, because it was unclear to which years the average percentage decrease referred.

14 The survey was conducted during August of 1994. Therefore, respondents were asked to estimate changes in 1994 revenues and employment based on year-to-date performance.

- **Revenue Impacts to Non-Farm Related Businesses**

As previously discussed, two of the five non-farm related businesses contacted returned the survey. Both indicated that they did not believe the Program had impacted their businesses. Of the eleven farm-related businesses completing the survey, two indicated that farm-related sales accounted for between 10% and 19% of total revenues, while the remaining nine indicated that they accounted for more than 75%. Neither of the two firms with the low proportion of farm-related revenue indicated that total revenues declined between 1992 and 1993; and both indicated that revenues increased between 1993 and 1994. Both indicated that, overall, the Program did not impact their businesses. **The above results, plus interviews with local bank representatives and City of Blythe staff, suggest that revenue impacts of the Program did not extend to any significant degree beyond farm-related enterprises** (Per. Comm. Alan Denewiler 1994; Per. Comm. J. Newell Sorensen 1994).

- **Summary of Reported Revenue Impacts** -- Responses indicate that revenues of firms providing farm services were the most significantly affected by the Program, followed by firms providing farm supplies. Three of four respondents providing farm services indicated that the Program resulted in a significant decrease in revenues in 1993, whereas three of four respondents providing farm supplies indicated that it resulted in only a minor decrease, and two of three respondents handling farm products indicated that it resulted in no revenue impacts. Available data does not indicate that non-farm related businesses were significantly impacted by the Program. It also should be noted that two respondents identified the Program as a primary reason for an expected increase in 1994 revenue, in part because farm operators were investing revenue from the Program into their farms.

### 3.2.2 REPORTED EMPLOYMENT IMPACTS

The second part of the survey asked the respondent a series of questions about full-time and part-time/seasonal employment for 1992, 1993, and 1994. Responses are summarized below:

- **Change in Employment 1992-1993**

- Five respondents reported that their full-time employment in 1993 was lower than in 1992, two reported it higher, two reported it unchanged, and four did not respond. Five reported that their part-time/seasonal employment in 1993 was lower than in 1992, two reported it higher, two reported it unchanged, two did not employ part-time/seasonal labor, and two did not respond.

- Of the firms providing farm services, two of four reported lower full-time employment in 1993 than in 1992, and two reported it unchanged. Three reported lower part-time/seasonal employment, and one reported it unchanged.

- Of the firms providing farm supplies, three of four reported lower full-time employment in 1993 than in 1992, and one reported it higher. One reported lower part-time/seasonal employment, one reported it higher, and two did not employ part-time/seasonal labor.

- Of the firms handling farm products, one of three reported lower employment in 1993 than in 1992, one reported it higher, and one did not respond. One reported lower part-time/seasonal employment, one reported it higher, and one reported it unchanged.

- Of the five respondents reporting lower full-time employment, three identified the Program as the primary reason for the decrease, one reported the Program and the whitefly infestation as the primary reasons, and one did not attribute the decrease to the Program. Overall, four of five respondents reporting lower full-time employment identified the Program as a primary, though not necessarily the only, reason for the decrease. These firms reduced full-time employment by a total of 15 jobs.

- Of the five respondents reporting lower part-time employment, two identified the Program as the primary reason for the decrease, two did not attribute the decrease to the Program, and one did not respond. Overall, only two of five respondents reporting lower part-time/seasonal employment identified the Program as a primary reason for the decrease. These firms decreased part-time employment by a total of seven jobs.

- **Change in Employment 1993-1994** [15]

- One respondent expected full-time employment to be lower in 1994 than in 1993, three expected it to be higher, six expected it to remain unchanged, and three did not respond. One expected part-time/seasonal employment to be lower in 1994 than in 1993, one expected it to be higher, seven expected it to remain unchanged, two did not employ part-time/seasonal labor, and two did not respond.

- Of the firms providing farm services, none expected lower full-time employment in 1994 than in 1993, one expected it to increase, and three expected it to remain the same as in 1993. All four expected part-time/seasonal employment to remain unchanged.

- Of the firms providing farm supplies, one of four expected lower full-time employment in 1994 than in 1993, one expected it to increase, and two expected it to remain the same. Two expected part-time/seasonal employment to remain unchanged, and two did not use part-time/seasonal employment.

- Of the firms handling farm products, one of three expected employment to be lower in 1994 than in 1993, one expected it to be higher, and one did not respond. One expected part-time/seasonal employment to decrease, one expected it to increase, and one expected it to remain unchanged.

- Of the two firms expecting lower full-time employment, one indicated the Program as the primary reason for the expected decrease and one did not attribute the expected decrease to the Program. The Program was not identified as a cause for lower part-time/seasonal employment in 1994 by any respondent. The one firm identifying the Program as a primary reason for lower full-time employment reported reducing its workforce by four jobs.

- None of the respondents that experienced higher employment in 1994 attributed the increase to the Program.

- **On-farm Employment Impacts** -- On-farm employment impacts of the Program are reported in Great Western Research (1993; forthcoming). Program participants reported that

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[15] Respondents were asked to estimate their full-time and seasonal employment for 1994.

they reduced their full-time workforce by 27 jobs due to the Program. None reported a change in part-time/seasonal workforce.

- **Reported Business Failure** -- There is one known instance where the Program may have contributed to a business failure in the region. This was a fertilizer and agricultural chemical supplier operated by Crop Protection Services, Inc. According to the former plant manager, the facility was shut down in part because of the revenue risk should the Program be repeated within the next five or ten years. At the time of its closing the facility was generating approximately 30% below its revenue target of $5 million. It is important to emphasize that the Program was not identified as the only cause for the closing, but it was identified as an important contributing factor. Other factors that contributed to the closing included the loss of vegetable production to the valley, which altered input purchase patterns, especially for fertilizer and chemicals, whitefly infestation, and heightened competition from other suppliers. Six full-time jobs were connected with the plant when it was closed (Per. Comm. Richard Wellman 1994).

- **Summary of Reported Employment Impacts** -- Over the two-year period of the Program, business survey respondents attributed the loss of 19 full-time and seven part-time/seasonal jobs to the Program. Including the 27 on-farm job losses reported by Program participants and the six associated with the closing of the fertilizer plant owned by Crop Protection Services, Inc. increases reported full-time job losses to 52.[16]

For farm-related businesses, survey respondents providing farm services and supplies reported the largest employment losses. Respondents handling farm products did not report any Program related employment losses. Similarly, respondents whose farm-related revenue was a low proportion of their total revenue did not report any Program related employment losses. Employment losses related to the Program were not found to have extended to non-farm related businesses. Based on Employment Development Department employment counts for the region, tallied employment losses associated with the Program are equal to approximately 1.3% of average regional employment for 1991-92. It should be noted, however, that it was beyond the scope of this analysis to estimate the employment stimulus associated with regional spending of Program payments. As a result, employment losses due to the Program may be less than stated here.

### 3.3 REGIONAL MACRO ECONOMIC INDICATORS

Employment and taxable sales data for the Blythe area were analyzed to determine if a statistically significant change in employment or taxable sales occurred following the start of the Program. It is important to note that such a difference does not establish the Program as the cause for the change. However, it would indicate that changes in the economy occurred that were coincident with the Program.

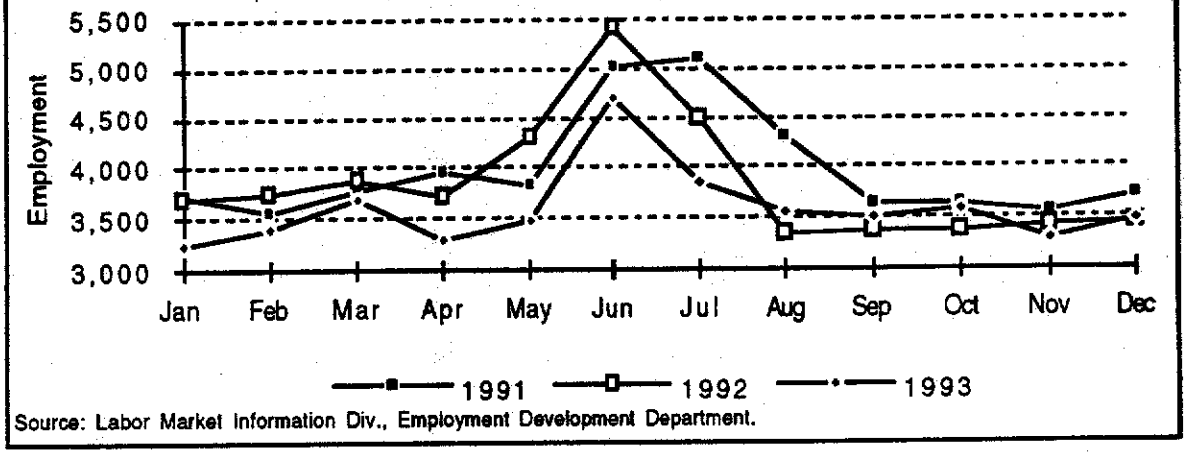
- **Employment** -- Monthly employment counts by zip code for the Blythe market area were provided by the Employment Development Department for the period January 1991 to

[16] It is important to note that this is only a tally of reported employment loss and not an estimate of the total change in employment caused by the Program. As previously mentioned, a sample of local businesses of sufficient scale to construct such an estimate was beyond the scope of this investigation.

December 1993, as shown in Figure 7.[17] Monthly employment counts were then classified as occurring either before or after the start of the Program, the cutoff month being July 1992. Because employment is strongly seasonal, monthly employment was also classified as either high-season or low-season. High-season included the months of June, July, and August; low-season included all other months.

In this way, two paired-samples of monthly employment were developed: (1) low-season employment before the Program paired with low-season employment while the Program was in effect; and (2) high-season employment before the Program paired with high-season employment while the Program was in effect. A standard t-test was used to determine if a statistically-significant difference in paired-means existed.[18]

**Figure 7**
**Monthly Employment Counts**
**Blythe and Surrounding Region**




Source: Labor Market Information Div., Employment Development Department.

Table 7 shows the difference in means, critical value, and p-value for the two paired-samples. In each case, the difference in paired-means was statistically significant at a level of confidence greater than 95%. Mean low-season employment for the period September 1992

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[17] The four zip codes are 92225, 92226, 92266, 92272. Employment counts after 1993 were not available. Employment counts prior to 1991 were not comparable with those after that date. See footnote 3.

[18] A paired t-test tests the hypothesis that the mean differences between pairs of experimental units is equal to some hypothesized value, usually set at zero. An hypothesized value of zero is equivalent to the hypothesis that there is no difference between the two samples. The test compares the two samples and determines the likelihood of the observed difference occurring by chance. The chance is reported as the p-value. A small p-value indicates that it is unlikely that the observed difference would occur by chance under the hypothesis that the two samples were generated from the same distribution. For example, a p-value of 0.01 indicates that the probability of the observed difference is only one in 100 if the samples came from the same distribution. Rather than accepting these long-odds, the hypothesis of no difference is typically rejected. In classical statistics, it is standard practice to reject the hypothesis of no difference if the p-value is less than 0.05. When this is the case, it is said that the hypothesis was rejected at the 95% level of confidence. This means that there was no more than a 5% chance of falsely rejecting the null hypothesis.

through December 1993 was 334 jobs lower than for the period December 1991 through May 1992. Mean high-season monthly employment for the period September 1992 through December 1993 was 1,000 jobs lower than for the period December 1991 through May 1992.

The reduction in melon acreage in 1993 is the most likely explanation for the decrease in monthly high-season employment (Per. Comm. Loraine Figueroa 1994). The spring melon harvest, which occurs in June of each year, is very labor-intensive, and creates the peak in the region's monthly employment, as shown in Figure 7. June employment in 1993 was 13% lower than in 1992. It is believed that this was primarily due to a 25% decrease in melon acreage from 1992 to 1993, and the subsequent decrease in demand for harvest labor.

The decrease in low-season employment could be due to a variety of factors. These include the Program, the continued decline in lettuce production – spring lettuce decreased by 1,541 acres between 1992 and 1993 -- the decrease in construction activity following the completion of Ironwood State Prison in the fourth quarter of 1993, as well as normal fluctuation inherent in any economy. It is likely that each of these factors contributed to the observed decrease in low-season employment. It was not possible to analyze employment data at the industry level to determine the relative importance of each factor because of Employment Development Department data disclosure rules.[19] Industry level data would better indicate which, if any, agriculturally-related industries suffered a significant decrease in employment over the period analyzed. However, based on the survey responses, it is unlikely that Program impacts would be able to account a large portion of the decrease.

**Table 7**
**Difference in Mean Montly Employment Prior To and During Program**

**Paired t-test**
**Effect: Land Fallowing Program**
**Significance Level: 5 %**
**Split By: Season**
**Season: Low**

| | Mean Diff. | Crit. Diff. | P-Value |
|---|---|---|---|
| Yes, No | -334.549 | 129.454 | <.0001 |

**Paired t-test**
**Effect: Land Fallowing Program**
**Significance Level: 5 %**
**Split By: Season**
**Season: High**

| | Mean Diff. | Crit. Diff. | P-Value |
|---|---|---|---|
| Yes, No | -1000.950 | 827.416 | .0243 |

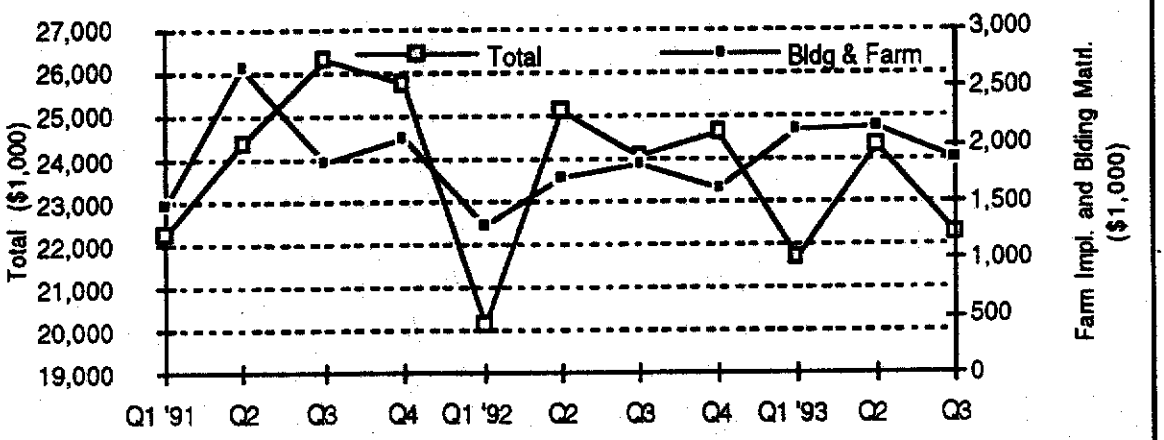
**Employment Zip Code Regions: 92225, 92226, 92266, 92272**

- **Taxable Sales** -- an analysis similar to the one just described was also done for quarterly taxable sales data provided by the State Board of Equalization for the City of Blythe. Quarterly taxable sales for 1991 through the third quarter of 1993 were classified as occurring either before or after the start of the Program, with the cutoff quarter for before the start of the Program being the second quarter 1992.[20] These data are shown in Figure 8.

[19] EDD will not release employment data counts by industry classification if it would be possible to infer from the data employment or wages reported by an individual employer. Because of the size of the region being studied and its geographic isolation, this was mostly the case.
[20] Taxable sales for Q3 1993 are the most recent available.

As with employment, a standard t-test was used to determine if a statistically-significant difference in mean quarterly taxable sales existed. This was done for total taxable sales and for just the Building Material and Farm Implements category. In each case, the difference in mean quarterly taxable sales was not statistically-significant. Table 8 shows the differences in means, critical values, and p-values for the two tests.

**Figure 8**
**Quarterly Taxable Sales**
**City of Blythe**




Source: State Board of Equalization. All dollars converted to 1992 constant dollars.

**Table 8**
**Difference in Mean Quarterly Taxable Sales Prior To and During Program**

**Paired t-test: Total Taxable Sales**
**Effect: Land Fallowing Program**
**Significance Level: 5 %**

| | Mean Diff. | Crit. Diff. | P-Value |
|---|---|---|---|
| Yes, No | -600.100 | 2676.800 | .6242 |

**Paired t-test: Taxable Sales Bldng Mtrl. and Farm Impl.**
**Effect: Land Fallowing Program**
**Significance Level: 5 %**

| | Mean Diff. | Crit. Diff. | P-Value |
|---|---|---|---|
| Yes, No | 78.200 | 544.127 | .7525 |

- **Summary of Macro Economic Indicators**[21] -- Employment count data indicate that the Program coincided with a decrease in regional employment in 1993. Both low- and high-season employment counts decreased following the advent of the Program. As discussed above, however, a reduced spring melon harvest is the most likely cause for the decrease in high-season employment, and is not considered an impact of the Program. The Program probably was a contributing factor to the decrease in low-season employment. However, data limitations

[21] It is important to note that the above analysis covers only a portion of the Program period. Data on 1994 employment and taxable sales were not available at the time this study was conducted.

prevent further analysis at this time to determine the extent to which the overall decrease was related to the Program versus other factors, including a tailing-off of prison construction activity and a decrease in lettuce harvest.[22]

The mean of quarterly taxable sales was 2.5% lower for all businesses in the five quarters following the advent of the Program compared to the six quarters prior, while it was 4.2% higher for just the building material and farm implements category. In both cases, the differences in mean values were not statistically-significant, i.e., the differences were consistent with the normal variation of the indicators and were not indicative of a significant decrease or increase. Taxable sales in the region are generated primarily by fast food restaurants and service stations serving I-10 travelers. These businesses were not found to be affected by the Program.

## 4.0 PERCEPTIONS OF THE PROGRAM

The research for this study entailed extensive telephone interviews with local business and community leaders, as well as a week of field work to conduct in-person interviews and collect survey data. From these informational interviews, several observations regarding how the community perceived the Program can be made. These are as follows:

- **High level of awareness** -- The community had a high level of awareness about the Program, though few contacted knew it as the Test Land Fallowing Program. The Program was commonly referred to as the set-aside, layby, water-sale, and water exchange.

- **Unclear on how Program worked** -- Though aware of it, many were unclear as to how the Program worked. Many expressed the belief that farmers had sold Metropolitan their rights to water, either temporarily or permanently, or that they had sold or leased their land.

- **Mistrustful of Metropolitan's intentions** -- Many were also mistrustful of Metropolitan's intentions. Several expressed the belief that the Program would lead to larger fallowing programs in the future, or that Metropolitan would gain access to more water by purchasing agricultural land in the valley.

- **Contributed to recovery of region's agriculture** -- The majority of persons interviewed, regardless of how they were personally affected by the Program, indicated that it provided timely relief to the region's farmers, who had been under significant financial stress since the mid 1980s, as discussed in Section 2.2. In this regard, the majority of those interviewed viewed the Program as contributing to the long-term stability of the region's agricultural base.

- **Benefited growers at the expense of other farm businesses** -- The majority of persons interviewed also perceived the Program as benefiting growers at the expense of other farm businesses. Several expressed the belief that businesses closely connected to the region's agriculture should also be compensated.

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[22] The limited data available -- both in terms of industry aggregation and extent of the time-series -- make these conclusions tentative. For example, when post-Program data on employment and taxable sales become available, a more definitive analysis on Program impacts would be possible.

- **Impact to the region's economy** -- Perceptions were mixed with regard to the Program's overall impact on the region's economy. Some expressed the belief that the Program had benefited the region's economy by stabilizing farm incomes and injecting a large amount of money into the region. Others expressed the opposite; that the Program had destroyed jobs and businesses, and was generally bad for the region. In this regard, no consensus view emerged. However, the impressions of those with a high degree of knowledge about the local economy -- local bank officials and City Planning staff -- expressed the belief that the Program did not have a negative impact on the overall economy, though it clearly affected some businesses.

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Per. Comm. J. Newell Sorensen (1994). Director of Development Services, City of Blythe.

Per. Comm. Lloyd Colbert (1994). Plant Manager of local cotton gin.

Per. Comm. Loraine Figueroa, Employment Development Department, City of Blythe Field Office (1994).

Per. Comm. Richard Wellman (1994). Former Plant Manager of Crop Protection Services, Inc.

Per. Comm. Steve Morgan (1994). Public Information Officer. Chuckawalla Valley State Prison.

Per. Comm. William Martindale (1994). Community Resource Manager. Ironwood State Prison.

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Name:_____
Business name:_____
Address:_____
_____
Phone:_____

# LOCAL AREA BUSINESS SURVEY

## PVID TEST LAND FALLOWING PROGRAM

Please answer the questions in this packet for

___ Your entire business
___ The branch/division doing business in the Blythe area

Please direct questions about this survey to:

David Mitchell
M.Cubed
5358 Miles Avenue
Oakland, CA 94618
510/547-4369 (phone/fax)

If you are returning your survey by mail, please use the above address.

**STATEMENT OF CONFIDENTIALITY**

All information that would permit identification of any person who completes this questionnaire will be regarded as strictly confidential. Such information will be used only for the purposes of this study and will not be disclosed or released for any other purposes without prior consent, except as required by law.

## ABOUT YOUR BUSINESS

1a. In 1992, how many full-time employees (including yourself) were employed by this business?

(Circle One)

| | |
|---|---|
| Less than 5 | 01 |
| 5 to 9 | 02 |
| 10 to 19 | 03 |
| 20 to 49 | 04 |
| 50 or more | 05 |

1b. In 1992, how many part-time or seasonal employees were employed by this business?

(Circle One)

| | |
|---|---|
| Less than 5 | 01 |
| 5 to 9 | 02 |
| 10 to 19 | 03 |
| 20 to 49 | 04 |
| 50 or more | 05 |

1c. In 1992, were the gross revenues of this business ...

(Circle One)

| | |
|---|---|
| Less than $50,000 | 01 |
| $50,000 to $99,999 | 02 |
| $100,000 to $499,999 | 03 |
| $500,000 to $999,999 | 04 |
| $1,000,000 to $4,999,999 | 05 |
| $5,000,000 to $9,999,999 | 06 |
| $10,000,000 or more | 07 |

2. Which of the following describes what your business does?

| | ALL ACTIVITIES (circle all that apply) | PRIMARY ACTIVITY (circle one) |
|---|---|---|
| A. PROVIDES FARM SERVICES | | |
| Application of pesticides, fertilizer, seed, etc. | 01 | 01 |
| Labor contracting | 02 | 02 |
| Maintenance/repair | 03 | 03 |
| Harvesting | 04 | 04 |
| Packing of farm products | 05 | 05 |
| Hauling of farm products | 06 | 06 |
| Land leveling | 07 | 07 |
| Other_____ | 08 | 08 |
| B. PROVIDES FARM SUPPLIES | | |
| Seed | 09 | 09 |
| Nursery stock | 10 | 10 |
| Fertilizer and chemicals | 11 | 11 |
| Equipment rental | 12 | 12 |
| Equipment sales | 13 | 13 |
| Fuel, oils, and lubricants | 14 | 14 |
| Other_____ | 15 | 15 |
| C. HANDLES FARM PRODUCTS | | |
| Storer 16 | 16 | |
| Processor | 17 | 17 |
| Seller 18 | 18 | |
| Shipper/Hauler | 19 | 19 |
| Other_____ | 20 | 20 |
| D. NOT FARM RELATED BUSINESS | | |
| (describe) _____ | 21 | 21 |

3. Is this business a farmer-owned cooperative?

| | (Circle One) |
|---|---|
| Yes | 01 |
| No | 02 |

## ABOUT SALES TO AND PURCHASES FROM FARMS

4a. Did this business sell products or services to farms in 1992, 1993, or 1994? (Please include cattle and dairy operations with farms.)

| | (Circle One) | |
|---|---|---|
| Yes | 01 | |
| No | 02 | go to question 5a |

4b. Of the revenues this business received from farms in 1992, 1993, and 1994, approximately what percent came from farms within PVID and from farms outside PVID?

| | 1992 | 1993 | 1994 |
|---|---|---|---|
| Within PVID | ____ | ____ | ____ |
| Outside PVID | ____ | ____ | ____ |
| Total must add to: | 100% | 100% | 100% |

5a. Did this business buy farm products directly from farms in 1992, 1993, or 1994? (Please include cattle and dairy operations with farms.)

| | (Circle One) | |
|---|---|---|
| Yes | 01 | |
| No | 02 | go to question 6 |

5b. Of the payments this business made directly to farmers in 1992, 1993, 1994, approximately what percent were made to farms operating within PVID and to farms operating outside PVID?

| | 1992 | 1993 | 1994 |
|---|---|---|---|
| Within PVID | ____ | ____ | ____ |
| Outside PVID | ____ | ____ | ____ |
| Total must add to: | 100% | 100% | 100% |

## ABOUT THIS BUSINESS' FINANCES

6. Approximately, what were the gross revenues for this business during the following years? (Please estimate what you expect gross revenues will be for 1994.)

| | |
|---|---|
| 1992 gross revenues | $_____ |
| 1993 gross revenues | $_____ |
| 1994 gross revenues | $_____ |

7. Were revenues higher, lower, or the same in 1993 as in 1992?

| | (Circle one) |
|---|---|
| Higher | 01 |
| Lower | 02 |
| Same | 03 |

8. What do you believe to be the primary reason for the change in revenue between 1992 and 1993 you indicated above?

_____
_____
_____
_____

9. Do you expect revenues will be higher, lower, or the same in 1994 as in 1993?

| | (Circle one) |
|---|---|
| Higher | 01 |
| Lower | 02 |
| Same | 03 |

10. What do you believe to be the primary reason for the expected change in revenue between 1993 and 1994 you indicated above?

_____
_____
_____
_____

11. Please indicate what you believe the impact of the following factors were on your revenues in 1993:

| | (Circle One for each factor) | | | | |
|---|---|---|---|---|---|
| | Significant Decrease | Minor Decrease | No Impact | Minor Increase | Significant Increase |
| Prices/availability of goods/services you sell | 01 | 02 | 03 | 04 | 05 |
| Prices/availability of goods/services you buy | 01 | 02 | 03 | 04 | 05 |
| Statewide recession | 01 | 02 | 03 | 04 | 05 |
| Weather | 01 | 02 | 03 | 04 | 05 |
| Land Fallowing Program | 01 | 02 | 03 | 04 | 05 |
| Gov't Commodity Program | 01 | 02 | 03 | 04 | 05 |
| Consolidation of business operation | 01 | 02 | 03 | 04 | 05 |
| Change in business competition | 01 | 02 | 03 | 04 | 05 |
| Prison expansion | 01 | 02 | 03 | 04 | 05 |
| Housing construction | 01 | 02 | 03 | 04 | 05 |
| Other_____ | 01 | 02 | 03 | 04 | 05 |

12. Please indicate what you expect the impact of the following factors will be on your revenues in 1994:

| | (Circle One for each factor) | | | | |
|---|---|---|---|---|---|
| | Significant Decrease | Minor Decrease | No Impact | Minor Increase | Significant Increase |
| Prices/availability of goods/services you sell | 01 | 02 | 03 | 04 | 05 |
| Prices/availability of goods/services you buy | 01 | 02 | 03 | 04 | 05 |
| Statewide recession | 01 | 02 | 03 | 04 | 05 |
| Weather | 01 | 02 | 03 | 04 | 05 |
| Land Fallowing Program | 01 | 02 | 03 | 04 | 05 |
| Gov't Commodity Program | 01 | 02 | 03 | 04 | 05 |
| Consolidation of business operation | 01 | 02 | 03 | 04 | 05 |
| Change in business competition | 01 | 02 | 03 | 04 | 05 |
| Prison expansion | 01 | 02 | 03 | 04 | 05 |
| Housing construction | 01 | 02 | 03 | 04 | 05 |
| Other_____ | 01 | 02 | 03 | 04 | 05 |

13. If this business <u>sold</u> products/services to farms, approximately what percent of <u>total</u> revenues did these sales account for?

| | (Circle One) |
|---|---|
| Less than 10% | 01 |
| 10% to 19% | 02 |
| 20% to 49% | 03 |
| 50% to 75% | 04 |
| More than 75% | 05 |

ABOUT THIS BUSINESS' EMPLOYEES

14. Approximately how many full-time employees (including yourself) were employed by this business in 1992, 1993, and 1994? (By full-time we mean people who worked 40 or more hours per week for nine or more months per year.)

1992 Full-time Employees _____
1993 Full-time Employees _____
1994 Full-time Employees _____

15. Did you employ more, less, or the same number of full-time employees in 1993 as in 1992?

| | (Circle one) |
|---|---|
| More | 01 |
| Less | 02 |
| Same | 03 |

16. What do you believe to be the primary reason for the change in employment between 1992 and 1993 you indicated above?

_____
_____
_____
_____

17. Will you employ more, less, or the same number of full-time employees in 1994 as in 1993?

| | (Circle one) |
|---|---|
| More | 01 |
| Less | 02 |
| Same | 03 |

18. What do you believe to be the primary reason for the expected change in employment between 1993 and 1994 you indicated above?

_____
_____
_____
_____

20. Approximately how many part-time/seasonal employees were employed by this business in 1992, 1993, and 1994? (By part-time/seasonal we mean people who work less than 40 hours per week or less than nine months per year.)

1992 Part-time/Seasonal Employees _____
1993 Part-time/Seasonal Employees _____
1994 Part-time/Seasonal Employees _____

21. Did you employ more, less, or the same number of part-time/seasonal employees in 1993 as in 1992?

| | (Circle one) |
|---|---|
| More | 01 |
| Less | 02 |
| Same | 03 |

22. What do you believe to be the primary reason for the change in employment between 1992 and 1993 you indicated above?

_____
_____
_____
_____

23. Will you employ more, less, or the same number of part-time/seasonal employees in 1994 as in 1993?

| | (Circle one) |
|---|---|
| More | 01 |
| Less | 02 |
| Same | 03 |

24. What do you believe to be the primary reason for the expected change in employment between 1993 and 1994 you indicated above?

_____
_____
_____
_____

## ABOUT THE LAND FALLOWING PROGRAM

25. We'd like to know if you think the Land Fallowing Program had any effect on the local economy. If there were any positive or negative effects, please briefly describe. (Attach additional pages as necessary.)

_____

_____

_____

_____

26. Do you know of any businesses in the area that you think were negatively affected by the Land Fallowing Program? If yes, please list their names and addresses:

Name: _____ Name: _____
Address: _____ Address: _____
_____ _____
Name: _____ Name: _____
Address: _____ Address: _____
_____ _____

27. Do you know of any businesses in the area that you think were positively affected by the Land Fallowing Program? If yes, please list their names and addresses:

Name: _____ Name: _____
Address: _____ Address: _____
_____ _____
Name: _____ Name: _____
Address: _____ Address: _____
_____ _____

28. Do you know of any Community Organizations in the area that you think were positively or negatively affected by the Land Fallowing Program? If yes, please list their names and addresses. (By community organizations we mean government social service agencies, churches, charities, and volunteer organizations.)

Name: _____ Name: _____
Address: _____ Address: _____
_____ _____
Positively affected ____ Positively affected ____
Negatively affected ____ Negatively affected ____

29. Do you have suggestions for how the Land Fallowing Program might have been managed differently? (Attach additional pages as necessary.)

30. What do you think could have been done to increase the positive effects or lessen the negative effects of the Land Fallowing Program? (Attach additional pages as necessary.)

Please indicate if you would like to receive a copy of the study results.

Yes _____
No _____

## THANK YOU FOR COMPLETING THE SURVEY

**Questions about this survey?**
**Call David Mitchell: 510/547-4369**

Table B4
Crop: Lettuce

| | |
|---|---|
| Estimated Reduction in Acreage: 1988-91 | 15,035 |
| Estimated Reduction in Gross Revenue | 35,708,125 |

Purchased inputs 1/

Labor

| Task | Quantity | Units | Unit Cost | Expenditures per acre | Reduction in expenditures due to decreased production 2/ |
|---|---|---|---|---|---|
| Irrigate | 8 | hrs | 5.75 | 46.00 | 691,610.00 |
| Weed | 12 | hrs | 5.75 | 69.00 | 1,037,415.00 |
| Thin | 17 | hrs | 5.75 | 97.75 | 1,469,671.25 |
| | | Total purchased labor | | $46.00 | $3,198,696.25 |

Materials

| Type | Quantity | Units | Unit Cost | Expenditures per acre | Reduction in expenditures due to decreased production 2/ |
|---|---|---|---|---|---|
| Seed | | | | 92.00 | 1,383,220.00 |
| 11-52-0 fert | 500 | lbs. | 0.14 | 67.75 | 1,018,621.25 |
| N fert | 180 | lbs. | 0.31 | 55.80 | 838,953.00 |
| Insecticide | | | | 113.00 | 1,698,955.00 |
| Herbicide | | | | 11.40 | 171,399.00 |
| Fuel and Oil | | | | | 0.00 |
| Repair and Maintenance | | | | | 0.00 |
| | | Total purchased materials | | | $5,111,148.25 |

Custom Hire

| Type | Quantity | Units | Unit Cost | Expenditures per acre | Reduction in expenditures due to decreased production 2/ |
|---|---|---|---|---|---|
| Seed | | | | 15.25 | 229,283.75 |
| Insect Control | | | | 45.00 | 676,575.00 |
| Weed Control | | | | 17.00 | 255,595.00 |
| Fertilize | | | | 27.00 | 405,945.00 |
| Cut and Pack | | | | 1,280.00 | 19,244,800.00 |
| | | Total custom hire | | $1,384.25 | $20,812,198.75 |

Notes:
1/ Production cost estimates from UC Cooperative Extension Imperial County Crop Budget for Iceburg Lettuce, 1992-93.
2/ The data in this table reflect the decrease in lettuce production that has occured between 1988 and 1991, and are for comparison purposes only. This study found no relationship between the fallowing program and changes in lettuce acreage.

Table B3
Crop: Alfalfa

| | |
|---|---|
| Estimated Acreage Displaced by Program | 16,282 |
| Estimated Reduction in Gross Revenue | 14,653,800 |

Purchased inputs 1/

Labor

| Task | Quantity | Units | Unit Cost | Expenditures per acre 2/ | Expenditures reduced by fallowed acreage 3/ |
|---|---|---|---|---|---|
| Irrigate to establish | 2 | hrs | 5.75 | 3.83 | 62,414.33 |
| Irrigate | 9 | hrs | 5.75 | 51.75 | 842,593.50 |
| | | Total purchased labor | | $51.75 | $905,007.83 |

Materials

| Type | Quantity | Units | Unit Cost | Expenditures per acre | Expenditures reduced by fallowed acreage |
|---|---|---|---|---|---|
| Fert to establish | 260 | lbs. | 0.15 | 13.00 | 211,666.00 |
| P205 fert. | 90 | lbs. | 0.12 | 10.80 | 175,845.60 |
| Seed to establish | 20 | lbs. | 1.45 | 9.67 | 157,392.67 |
| Insect. to establish | | | | 2.33 | 37,991.33 |
| Insect. | | | | 46.00 | 748,972.00 |
| Herb. to establish | | | | 4.33 | 70,555.33 |
| Herb. | | | | 24.00 | 390,768.00 |
| Fuel and Oil | | | | | 249,114.60 |
| Repair and Maintenance | | | | | 366,345.00 |
| | | Total purchased materials | | $97.13 | $2,408,650.53 |

Custom Hire

| Type | Quantity | Units | Unit Cost | Expenditures per acre | Expenditures reduced by fallowed acreage |
|---|---|---|---|---|---|
| Pre plant fert | | | | 2.67 | 43,418.67 |
| Seed to Establish | | | | 3.50 | 56,987.00 |
| Insect. to Establish | | | | 1.63 | 26,593.93 |
| Insect. | | | | 19.60 | 319,127.20 |
| Herb. to Establish | | | | 2.92 | 47,489.17 |
| Herb. | | | | 4.90 | 79,781.80 |
| | | Total custom hire | | $6.17 | $573,397.77 |

Notes:
1/ Production cost estimates from UC Cooperative Extension Imperial County Crop Budget for Alfalfa, 1991-92.
2/ Per acre expenditures for establishment costs divided by 1/3 to reflect 3-year field life.
3/ Estimates do not account for more intensive use of inputs on remaining cultivated acreage. Labor and material usage and cost for actual operations within PVID may differ from those reported here.

Table B2
Crop: Wheat

| | |
|---|---|
| Estimated Acreage Displaced by Program | 1,520 |
| Estimated Reduction in Gross Revenue | 565,440 |

Purchased inputs 1/

Labor

| Task | Quantity | Units | Unit Cost | Expenditures per acre | Expenditures reduced by fallowed acreage 2/ |
|---|---|---|---|---|---|
| all tasks | 1.8 | hrs | 5.75 | 10.35 | 15,732.00 |
| | | Total purchased labor | | $10.35 | $15,732.00 |

Materials

| Type | Quantity | Units | Unit Cost | Expenditures per acre | Expenditures reduced by fallowed acreage |
|---|---|---|---|---|---|
| Seed | | | | 19.50 | 29,640.00 |
| Fert. | | | | 45.90 | 69,768.00 |
| Pest. | | | | 4.08 | 6,201.60 |
| Herb. | | | | 2.66 | 4,043.20 |
| Fuel and Oil | | | | | 9,612.48 |
| Repair and Maintenance | | | | | 14,136.00 |
| | | Total purchased materials | | | $133,401.28 |

Custom Hire

| Type | Quantity | Units | Unit Cost | Expenditures per acre | Expenditures reduced by fallowed acreage |
|---|---|---|---|---|---|
| Pre plant fert | | | | 5.16 | 7,843.20 |
| Fertilize | | | | 5.16 | 7,843.20 |
| Insecticide | | | | 5.00 | 7,600.00 |
| Herbicide | | | | 5.00 | 7,600.00 |
| | | Total custom hire | | $10.32 | $30,886.40 |

Notes:
1/ Production cost estimates from UC Cooperative Extension San Joaquin Valley Crop Budget for Double Cropped Wheat, 1990.
2/ Estimates do not account for more intensive use of inputs on remaining cultivated acreage. Labor and material usage and cost for actual operations within PVID may differ from those reported here.

Table B1
Crop: Sudangrass

| | |
|---|---|
| Estimated Acreage Displaced by Program | 2,413 |
| Estimated Reduction in Gross Revenue | 1,628,775 |

Purchased inputs 1/

Labor

| Task | Quantity | Units | Unit Cost | Expenditures per acre | Expenditures reduced by fallowed acreage 2/ |
|---|---|---|---|---|---|
| Irrigate | 4 | hrs | 5.75 | 23.00 | 55,499.00 |
| | | Total purchased labor | | $23.00 | $55,499.00 |

Materials

| Type | Quantity | Units | Unit Cost | Expenditures per acre | Expenditures reduced by fallowed acreage |
|---|---|---|---|---|---|
| Seed | 85 | lbs. | 0.6 | 51.00 | 123,063.00 |
| NH3 fert. | 200 | lbs. | 0.15 | 30.00 | 72,390.00 |
| Fuel and Oil | | | | | 27,689.18 |
| Repair and Maintenance | | | | | 40,719.38 |
| | | Total purchased materials | | | $263,861.55 |

Custom Hire

| Type | Quantity | Units | Unit Cost | Expenditures per acre | Expenditures reduced by fallowed acreage |
|---|---|---|---|---|---|
| Seed | | | | 8.50 | 20,510.50 |
| Fertilize | | | | 10.50 | 25,336.50 |
| | | Total custom hire | | $19.00 | $45,847.00 |

Notes:
1/ Production cost estimates from UC Cooperative Extension Imperial County Crop Budget for Sudangrass Hay, 1991-92.
2/ Estimates do not account for more intensive use of inputs on remaining cultivated acreage. Labor and material usage and cost for actual operations within PVID may differ from those reported here.

# APPENDIX B

# CROP BUDGET ANALYSIS