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Mr. Joseph Simi, Water Resource Control Engineer
Central Valley Regional Water Quality Control Board
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Subject: Western Stanislaus County Crop Salt Tolerance Study Report Comments

The San Joaquin River Group Authority appreciates the opportunity to comment on the March 2010 Draft Report entitled *Salt Tolerance of Crops in the Lower San Joaquin River Stanislaus to Merced River Reaches*) prepared by staff of the Central Valley Regional Water Quality Control Board.

We are summarizing our main points in this letter and attaching a more detailed write-up on these and other points. In summary, we feel the report is well done but there are issues that must receive further analysis. These include:

- The Study Report needs to clarify the timing and cultural practices used for dry bean production in the Lower San Joaquin River to reflect present-day practices. Two issues are critical to this analysis:
 1. Dry-beans are not planted before the first weeks of May yet they are assumed to be planted as early as April 1st. The planting dates were verified by comments from the South Delta Water Agency during the 13 August SWRCB workshop on a similar analysis. Planting before this time could lead to crop loss due to low soil temperatures such as we experienced this year. Because of the return on bean production, replanting is not an option therefore growers use caution in choosing the planting dates. The modeling should be modified with these new planting dates.
 2. Need to verify and consider that present-day cultural practices include pre-irrigations, which minimize or eliminate any potential salinity impacts during germination and seedling emergence as well as greatly reduce salinity control throughout the growing season.
- A portion of the modeling is done with unrealistic assumptions regarding leaching. The study uses leaching fractions of 0.10 or less for modeling production of almonds and alfalfa. A leaching fraction of 0.10 or less is impossible to achieve without very sophisticated irrigation technology that is presently not available in the study area. This technology involves the use of low intensity, high frequency irrigation and these would invalidate the use of the present steady state models as they were developed for standard irrigation technology. Under high frequency, low intensity irrigation, the water use patterns would be totally different than assumed in the 40-30-20-10 model or the exponential model. We recommend that this portion of the modeling be noted as an academic exercise or dropped from the report.
- The modeling conducted as part of this study uses extremely conservative assumptions. These need to be corrected. Two assumptions illustrate this.
 1. The estimate of effective rainfall using soil evaporation rates that do not reflect reality during the winter period.
 2. Effective rainfall is assumed to be part of crop ET while in reality it also plays a major role in salinity control in any Mediterranean climate. This role of effective rainfall during the winter irrigation season has been left out of the report. This analysis needs to

Comments on the March 2010 Crop Tolerance Study for Western Stanislaus County

be conducted and the impact of winter rains on leaching and salt control needs to be fully evaluated. The lack of this analysis further validates the need for development of a transient model (see the comments below).

- The present study report cites the need to conduct an analysis of water quality impacts from boron in the Lower San Joaquin River. The SJRGA feel this would be a complete waste of resources. The entire study area is known to be a boron enriched area since the soils were developed from marine formations that line the western edge of the study area. In addition, it is well known that boron sensitivity is most pronounced in orchard crops including apricots, walnuts and stone fruits. The entire Western Stanislaus County is being converted to orchard crops and Patterson is known as the “Apricot Capital of the World”. These two factors alone should provide sufficient evidence that a problem does not exist in the area.
- The Study Report needs to take a closer look at actual leaching fractions (LF) in Western Stanislaus County. The tile drainage data presented in the Study Report shows that it may be 25% or higher and this is consistent with findings in the South Delta. Unfortunately the data upon which this conclusion is based is not a valid data set and the SJRGA is recommending the use of additional data that is in the Regional Board files. This new data will likely show that these high leaching fractions do exist as a result of present irrigation practices.
- The study report is based on the 100%-yield potential defined by the 1977 Mass and Hoffman analysis that established crop tolerance curves for major crops. Unfortunately, the dry bean data used for this analysis is now over 50 years old and does not represent more salt tolerant varieties used today and is likely over conservative. It is recommended that the Study Report strongly advise against the continued use of these data and it recommend that a new curve be established for dry beans.
- The SJRGA supports the development of a transient model for evaluating the crop tolerance of crops in Western Stanislaus County but in the absence of a valid transient model, the Study Report should recommend the use of the exponential steady state model over the 40-30-20-10 steady-state model. The 40-30-20-10 model does not represent the present state of knowledge regarding crop water uptake and would only compound the Study Report shortcomings since present crop tolerance data used in the model is over 50 years old.

Please feel free to call me at the above number if you have any questions or need any additional information.

Sincerely yours,

Original Signed by

Dennis W. Westcot
Project Administrator

Enclosure

cc: San Joaquin River Group Authority
Rudy Schnagl, Central Valley Regional Water Quality Control Board