Cropland Idling
Issue No. 2 - DRAFT Evapo-Transpiration Pattern of Applied Water Values

Background

Issue

Are current evapo-transpiration pattern of applied water (ETAW) values used to quantify transferrable water still valid or should information be updated? This is especially critical for rice since rice idling can potentially lead to large quantities of transferrable water from north to south. In addition, there is evidence that there may be significant quantities of evaporation coming from fallowed fields due to lateral seepage and weed growth.

Discussion

Water transfers based on idling/crop shifting are playing a greater role in meeting water needs in California. However, there is considerable uncertainty over the amount of water that should be credited to the transferring party and how to monitor the idled fields. This is because much of the data regarding crop consumptive use was determined several decades ago and, since that time, new crop varieties along with refined ET measurement techniques have been introduced. In addition, there is a question whether or not the consumptive use of idled fields should be zero due to significant evidence of weed growth and surface evaporation on fallowed rice fields participating in recent water transfer programs.

A significant unknown in determining the amount of real water that can be transferred is tied to the consumptive use value for rice. Estimates have ranged from less than 3.0 acre-feet per acre to over 3.3 acre-feet. Since it is anticipated that a majority of the "real water" will come from rice idling, it is very important to get as accurate consumptive use estimate for rice as possible. For instance, a 10% error in the estimate could result in either an over or under estimate of 20,000 acre-feet annually based on idling 30,000 acres.

In addition to rice idling, several districts are still interested in crop shifting. The California Department of Water Resources (DWR) and the Bureau of Reclamation (Reclamation) continue to get requests from districts and farms which request that the difference in ETAW between historic and water transfer year cropping be used to quantify transferrable water. As with rice, many of the crop evapo-transpiration (ET) coefficients have not been updated in several years.

Finally, Reclamation has concerns regarding deep-rooted crops such as safflower being substituted for rice. These crops have low ETAWs but potentially high overall consumptive use since they are able to mine stored water deeper in the soil profile.

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The overall impact is that if the following year is not "wet", water will be needed to fill up the drier soil profile that could indirectly impact river flows.

New technologies and methodologies will allow us to develop a more accurate estimate in the next year or two if a commitment can be made in the near future to begin funding research.

Recommendation for 2010

- Use the same ETAW values utilized for the 2009 Drought Water Bank. The ETAW value of 3.3 acre-feet for rice will be utilized in the 2010 water transfer program.

Future Discussions for the Long-Term Program

- Conduct an ET summit with experts to discuss the current established information and methodologies on ET related to crops grown in the Sacramento Valley and determine additional information needs. Included in the summit would be information and needs related to monitoring surface evaporation from idle fields under various management regimes.

- Develop plan with stakeholders for ET research and monitoring needs which establishes a timeline for updating critical ET information.

- Identify cooperators do field research.

- Develop financing plan to address funding needs for research and monitoring.

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