

Potential Water Savings through Improved Irrigation Efficiency in Pajaro Valley, California

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CONCLUSION

For this report, a comprehensive project was launched that successfully estimated the potential water savings in Pajaro Valley. This project consisted of (1) an interview campaign with growers, (2) an ET value consultation with experts, and (3) a statistical analysis of data collected. Through growers' interviews, data was acquired regarding the amount of money growers invest in crop production and their applied water data. ET data was provided by Michael Cahn of UC Davis and confirmed with similar data from Jean Caron of Laval University. This was a successful project, as it allowed us to calibrate our data with growers' information and compare it with expert knowledge.

The potential water savings in Pajaro Valley were estimated based on a combination of results acquired from the field campaign, expert-based criteria, remote sensing, and water metered data analysis. These results suggest that Pajaro Valley can save 4,600 to 5,100 AF of water per year through conservation measures. These numbers were attained by analyzing data for the 2009 water year, which was a normal year considering precipitation and climate conditions. A range of savings is proposed because there are some uncertainties with the "Unknown Agriculture" category of crops. Most of the land use data was very specific, but PVWMA was unsure of 16% of the crops grown in the valley. If we do not include the land with unknown agriculture as an area with potential water savings, the total water savings of the valley is estimated to be **4,600 AF/year**. If we consider the unknown agriculture and assume the land follows the same distribution of crops as the rest of the valley, then the total potential water savings are estimated as **5,100 AF/year**.

This increase in water savings was shown to influence a direct decrease in revenue for PVWMA ranging from \$862,000 to \$951,000 per year. To compensate for this loss in revenue, an increase in extraction fee rates was considered. This increase would affect farmers, especially vegetable crop growers in the coastal zone. These growers currently receive an estimated revenue of \$3,910 per growing season (Monterey County Agricultural

Commissioner, 2012). If water rates are increased by 50% (\$105/AF), their revenue will be decreased 6.9% (\$271) per growing season. This strategy will dramatically affect farmers, lowering their net profit on crops. Strawberry, raspberry, blackberry and nursery growers have a larger return, so increased water fees will affect them less severely.

It may be logical to suggest that all vegetable growers in Pajaro Valley should simply switch to growing other crops to avoid high losses. However, this is not as simple as it sounds. There is a rotation of crops between strawberries and vegetables. In essence, fields that are grown with strawberries for a given growing season will be grown with vegetables crops the following season. This rotation is practiced in order to keep the soil productive to maintain high strawberry crop yields. The other alternative is to fallow the land after the growing season, but that is not economically feasible for many growers.

From the data collected in this report, it is clear that there is room for water conservation in the Pajaro Valley. The PVWMA plans to complete seven projects, including a rigorous conservation program. The beauty of the program is that it will contribute to over one third of the estimated water savings potential in the valley without the construction of additional infrastructure. Instead, it seeks to improve water savings through the infrastructure growers already have. The main obstacle is closing the gap between our current knowledge and the traditional beliefs of growers. With the data collected from this project, growers can be better informed about applying water based on ET data. If all growers in the Pajaro Valley were briefed with this information, the Pajaro Valley could very easily see yearly water savings between 4,600 and 5,100 AF.

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