

Improving Water and Nutrient Management Practices on Dairies in the Southern San Joaquin Valley

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Executive Summary:

Dairy production in California has become an important environmental issue in recent years due to concerns surrounding the water and nutrient management of the manure water. In the southern San Joaquin Valley, this water is stored in ponds until it is mixed with groundwater or with freshwater from irrigation districts and applied to fields via furrow or border strip irrigation. Managing manure water irrigations in a responsible manner is both a water management and a nutrient management challenge since over-application of manure water irrigations can cause deep percolation of both water and manure water nutrients.

This project proposes to investigate and demonstrate methods of improving water and nutrient application efficiencies and uniformities. Surge irrigation and furrow torpedoes will be investigated to improve irrigation efficiency and uniformity. Also proposed is the investigation of the timing of manure water additions to irrigation water to improve nutrient application efficiency and uniformity. A combination of field experimentation and computer simulation will be used to evaluate the effects of these management practices.

The water and nutrient management techniques proposed have been chosen as practical means, implementable by dairies, of improving the handling of manure water. The proposed project contains elements for extending the project's results to dairies in the southern San Joaquin Valley.