Efficacy of Settlement Ponds for Reducing Pesticide Runoff in Almond Orchards

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PROJECT SUMMARY

Objectives:

- Evaluate one or more of several identified methods of increasing the efficacy of sediment ponds to reduce the amount of synthetic pyrethroid insecticides in runoff water draining from almond orchards.

Background:

Previous research has demonstrated that sediment ponds or basins, can play a useful role in reducing the amount of both sediment and pesticide runoff from agricultural lands. A 2008 study in almonds by Markle, for example, showed that use of such a pond can reduce the discharged sediment load by 80–84% and the discharged load of lambda-cyhalothrin (a synthetic pyrethroid) by 38–61%.

This new project will use an existing sediment pond with irrigation-water runoff to conduct trials on up to three specific reduction methods focused on increasing the efficacy of the sediment ponds in preventing sediment run-off offsite. Lambda-cyhalothrin applications will be used for testing the efficacy of the possible methods for sedimentation efficacy enhancement.

One method involves introducing polyacrylamide, a long-chained polymer that causes soil particles to coagulate, into the runoff water before it enters the pond and thereby increasing the amount of sediment trapped in the pond.

The second method uses sediment, or turbidity, curtains positioned in the pond to slow down the movement of water and thereby promote sedimentation of smaller particles.

The third method involves introducing into the pond a novel kind of enzyme, developed in Australia, which is known to breakdown a range of synthetic pyrethroids.

If successful, these trials are likely to contribute to the reduction of both sediment and synthetic pyrethroids in the Central Valley's waterways.

Project Cooperators: Terry Prichard, UCCE - San Joaquin County; Central Valley Water Quality Coalitions

For More Details, Visit

- Poster location 41, Exhibit Hall, Session 2 at the conference; or on the web (after January 2011) at AlmondBoard.com/AICposters