Dormant Season Organophosphate Use in California Almonds. (A05-zhang140613-Oral)

Authors:

- M.Zhang - *California Department of Pesticide Regulation*
- L.Wilhoit - *California Department of Pesticide Regulation*
- L.Ross - *California Department of Pesticide Regulation*
- N.Gorder - *California Department of Pesticide Regulation*

Abstract:

The contamination of surface water with OPs has been a concern in California since late in the 1980's. The use of OPs as a dormant spray on almonds and stone fruits during the winter rainy season may be one of the major sources of this contamination. The purpose of this study is to examine the trends and regional patterns of OP use in almond orchards and to identify the major influencing factors, including weather, pest pressures, and trends in use of alternatives to OPs. Pesticide use data were obtained from the California Department of Pesticide Regulation's (DPR) Pesticide Use Reporting system (PUR). Simple regression and correlation analyses were used to assess the use trends, and a Geographic Information System (GIS) was used to visualize the spatial variation in pesticide use among the almond growing counties. The results indicate, statewide, that dormant OP use decreased in the last nine years while the use of alternatives, pyrethroids and no dormant insecticides, increased. The trends were the same for use as measured by pounds applied, percent acres treated, and number of growers who used the different practices. The reduction in dormant OP use appeared in all the major almond growing counties. Several factors may be responsible for this reduction such as weather, pest pressures, and the degree to which ecological farm practices have been adopted. Correlation analyses revealed that less rainfall and higher temperatures were associated with less dormant OP use. There was also a positive correlation between insect damage to nuts and insecticide use in the following year. However, a decrease in dormant OP use does not necessarily mean reductions in risks associated with OP use. The efforts of several government, university, and commodity programs may have played a role in encouraging farmers to reduce their use of dormant-spray OPs.

Corresponding Author Information:

Minghua Zhang phone: 530-752-4953

Department of Land, Air and Water Resources, UC Davis
One Shields Ave.
Davis, CA 95616

fax: 530-752-5262
e-mail:
mhzhang@ucdavis.edu

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