Fungicides and Pollination

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Growing almonds in California is challenging for a number of reasons among which are the facts that the environment is conducive to the growth of fungal diseases and inoculum is plentiful. Fortunately, we have an expansive arsenal of fungicides available to us to help keep these diseases subdued. Occasionally, chemicals that are very effective for their intended purposes can have unanticipated side effects that escape detection during the time of their development and testing. These studies will be directed toward two possible side effects of fungicides on pollination.

The determinations of most interest to growers will be those dealing with the effects, if any, on their ability to germinate if pollen grains come into direct contact with fungicide sprays or spray residues. Laboratory studies will be conducted with solid and/or liquid pollen germination media and fresh pollen collected from numerous varieties of almonds. If any significant effects occur at field dose concentrations, serial dilutions will be conducted to determine the concentration at which no effects are observable. Limited field residue studies may be included, time permitting.

Similarly, beekeepers are very interested in what, if any, effects the fungicides might have on larval growth and development. We are able to rear larval bees to adults in laboratory culture. Fungicides will be incorporated into their royal jelly diet at concentrations that would be expected to be returned to the hive by foraging bees. Larval mortality and morphological abnormalities will be monitored. Limited trapped pollen residue analyses may be included, time permitting.