Organic fertilizers may foster the growth of a number of different kinds of agronomic pests. A positive relationship for the use of these fertilizers was marginally confirmed by the results. In tomatoes, aggregate pesticide and fungicide residues were both significantly influenced by organic fertilizer. Organic fertilizer coefficients were uniformly positive in the strawberry regressions, but only significant for insecticides.

Integrated Pest Management

Ten variables were included in the general practice models to represent various facets of integrated pest management (IPM). These included the use of: scouting, beneficial insects, biological control agents, pheromones, irrigation practices, mechanical cultivation, adjusting planting dates, alternating pesticides, soil testing for pests, and calibrating spray equipment to help control pests. All interviewed growers said they routinely scouted their fields for insect and fungus pests. What varied among operations was who performed this function. Some performed scouting "in-house", that is either doing it themselves or using their own employees. Other growers hired outside consultants. The scouting variable tested whether there was any relationship between residues and the use of "in-house" verses outside consultant scouting. In the strawberry regressions, the coefficient for this variable was uniformly negative and significant at the 0.05 level or better. Thus, owners and their employees appear to be prescribing fewer pesticide applications than outside consultants, thereby leaving fewer residues. This implication was not supported by the tomato regressions where in-house scouting was significant but only positive for fungicides.

Consideration of beneficial insects in pesticide applications was significant for insecticide residues in tomatoes. This coefficient was negative as hypothesized. The use of biological control agents had a significant negative impact on aggregate residues in the tomato regressions. Negative, but less than significant coefficients for fungicides and insecticides in tomatoes supported this result. Bio-control was inexplicably positive for fungicides in strawberries. When this survey was conducted, most bio-control practices were directed at controlling insect pests, thus this result for strawberries is suspicious. Pheromone monitoring was significantly negative for tomato insecticide residues. This confirmed the hypotheses that monitoring of insect pest populations using pheromones could help reduce pesticide applications and their consequent residues.

Adjusting irrigation practices as part of IPM was consistently insignificant for both commodities. Mechanical cultivation was found significant and positive in the tomato regressions for insecticides. This result indicates that disturbing the soil through cultivation may be beneficial to the pupa stage of development for some insect pests in tomatoes, ultimately resulting in the need for more insecticide applications. Adjusting planting dates was also positive for tomato insecticide residues. This was counter to expectations that shifting the growing period or season could help avoid certain seasonal pest pressures. Alternating pesticides to avoid the development of resistant strains was found to negatively influence aggregate residues in strawberries. Switching pesticides is supposed to help avoid the need to increase application rates due to the development of resistant strains. It may also help prevent a buildup of residue from the repeated use of one particular pesticide. Soil testing for pests is typically directed at detecting nematodes. Since the outcomes of these