

Summary, Conclusions, and Recommendations

Summary

The results of the empirical analysis in this investigation was generally encouraging. Of a total of 27 regressions, involving three types of models, 23 were significant at the 0.10 level and all but nine were significant above the 0.02 level (F tests). More aggregated residue data were used in the Attribute and General Practices models, consequently their implications can be more general. All regressions from these two categories performed well, except those for insecticide residues found in strawberries. Conversely, the regression modeling insecticide residues in tomatoes out-performed its fungicide counterpart. This may explain why regressions on combined insecticide and fungicide residues did not perform as well as those for each type of pesticide individually. The empirical models of the relationships between specific practices and residues were more difficult to implement and interpret. Although the majority of Specific Practices regressions were statistically significant, data and implementation related problems hindered the derivation of meaningful implications from these models.

Temperature and rainfall were the only explanatory variables common to all models in this analysis. These variables were included to account for the random influences of environmental factors on residues that might otherwise have been attributed to grower attributes or practices. By and large, their influence on residues was consistent between models. Temperature and rainfall had a uniformly positive impact on strawberry residues, particularly fungicides. Weather impacts on tomato residues were more varied, but higher temperatures invariably reduced insecticide residues. The signs of significant coefficients for these weather variables are summarized in Table 16.

Table 16. Significant temperature and rainfall empirical results.

		Strawberries			Tomatoes		
		Attri- butes	General Practices	Specific Practices	Attri- butes	General Practices	Specific Practices
Temp	Fung.	+	+	+	±	±	-
	Insect.			+	-	-	-
Rain	Fung.	+	+	+	+	-	+
	Insect.		+	+			±

Conclusions

Some important statistical relationships between attributes, practices, and residues were identified by the empirical analysis in this study. Many of these associations are unique to the commodity, type of pesticides, or active ingredient. In some cases, empirical results contradict the hypothesized relationships. For a substantial number of other variables, the null hypothesis could not be rejected. Certainly, insufficient and/or inaccurate