

Coefficients for the proportion of rental acres, total acres, and affiliation measure the association between organizational attributes of the firm and pesticide residues. Acres rented as a proportion of total acres had significant negative coefficients in both tomato and strawberry fungicide regressions. Total acres, a proxy for firm size, was positive and significant for insecticide and aggregate residues in tomatoes. This suggests that tomato growers who run larger operations tend to rely more heavily on insecticides than smaller operations. Both tomato and strawberry operations that were affiliated with downstream market stages were linked to lower insecticide residues. The significant negative signs for affiliation confirm the hypothesis that vertical coordination can reduce residues through better coordination and/or risk reduction. Affiliation was the only significant coefficient in the strawberry attribute regression for insecticides.

Soil type was represented by a mutually exclusive set of binary variables in the attribute regressions. As a result, one soil type had to be left out of the regressions in order to avoid a linear dependency. Sand was chosen for this purpose. Consequently, the significant negative coefficients for loam and sandy loam in the strawberry regressions indicate that these soils produced berries with lower residues relative to those grown on sand. For tomatoes, this relationship was partially reversed. Tomatoes grown on sandy loam soils were associated with higher residues relative to those grown on sand type soils. The binary variable for hydroponic soil type in tomatoes operated as a dummy for greenhouse operations. The positive sign of this coefficient was unexpected since it was presumed that greenhouses would have fewer insect pest problems than open field crop operations. Consultations with experts in this area revealed that many greenhouses in Florida have been experiencing significant problems with the sweet potato white fly. This may partially account for this result.

Since one type of soil is often predominant to a particular geographic area, it is possible that these variables captured some type of regional or geographically related phenomenon that influences pest infestations and/or residues. For this reason, the relationship between soil types and the county from which each sample was taken was examined. It was found that 79 percent of the tomatoes grown on sandy-loam soils originated from Dade county, which is located in the southeastern corner of the state. Soil types for strawberry samples were found to be much more evenly distributed. In fact, all three types are found in the largest strawberry producing county in the state, Hillsborough. Although it was presumed that temperature and rainfall data would accurately represent many of the geographically related aspects of pest infestations and pesticide residues, the influence of other (unknown) regional type of phenomenon in this analysis cannot be completely precluded. Thus, soil type variables may be partially reflecting such phenomenon, particularly for tomatoes.

Temperature and rainfall variables were included in the attributes models primarily to avoid the possibility of erroneously associating decision-maker and firm characteristics with residues that actually resulted from random or unusual weather phenomenon. For strawberries, harvest month rainfall and the prior month average temperatures were significantly positive for both fungicides and aggregate residues. For tomatoes, harvest month temperature and rainfall were positive and significant for fungicides and aggregate