

A Combination Treatment for Cucumber Beetles

Since 2006, Iowa State University has supported on-farm research through the ISU On-Farm Research and Demonstration Program, and PFI has helped promote this program. Projects submitted for funding must represent collaborations of farmers and ISU faculty, staff, or students. PFI organic vegetable grower **Susan Jutz** (Solon) had a question about managing cucumber beetles organically in winter squash. She recruited two other growers, **Laura Krouse** (Mt. Vernon) and **Sally Worley**, who at the time managed the CSA garden for The Homestead, in Runnells. PFI helped these producers team up with Dr. Hank Taber of the ISU Horticulture Dept.

Cucumber beetles are hard enough on the squash, but they also transmit bacterial wilt, *Erwinia tracheiphila*. Neem extract had seemed to Susan to be effective against the beetles, but the product is very expensive. So the research was designed to test a combination approach in which neem would be used to knock down the first surge of cucumber beetles, while the cheaper kaolinite clay spray (Surround®) would follow, keeping the beetles in check.



The Jutz trial with kaolinite-treated plots showing white.

The trial was only in the field one year, 2006, and only Jutz and Worley made it through the whole season. Additionally, beetle numbers were low, and on the Jutz farm foliar diseases complicated the situation. Figure 3 shows that the combined treatment did seem to consistently reduce beetle numbers on the Jutz farm; however, Hank Taber reports that the difference between treatments was not statistically significant.

Figure 3 and Table 5 provide beetle numbers and squash yields in the two treatments at the Jutz farm and the Homestead. Again, it would appear that the sprays increased squash yield for Susan Jutz. However, the data did not prove the treatments were different at the 95% level of confidence that we usually require. Nevertheless, the results are intriguing. Why was the outcome different at the Jutz farm and the Homestead? Susan used the combination treatment again in 2007 and believes it was moderately effective.

Farm	Treatment	Fruit Wt. (lbs)
Jutz	Control	7.3
	Treated	12.7
	Error rate †	0.17 N.S.
Homestead	Control	34.2
	Treated	35.1
	Error rate †	0.80 N.S.

† For the two treatments to be considered significantly different, the error rate must be less than 0.05, in other words a confidence level of at least 95%.

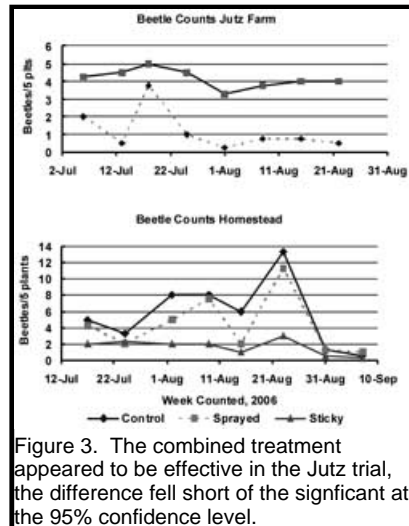


Figure 3. The combined treatment appeared to be effective in the Jutz trial, the difference fell short of the significant at the 95% confidence level.