WEED CONTROL IN NO-TILLAGE ZUCCHINI SQUASH PRODUCTION. S. Alan Walters, Mark F. Rundle, Scott A. Nolte, Joseph L. Matthews, and Bryan G. Young, Assistant Professor, Graduate Research Assistant, Researchers, and Associate Professor, Southern Illinois University, Carbondale, IL 62901.

Weed management in no-tillage vegetable production systems is a major problem, as tillage is often used in conventional production systems to reduce weed populations that preemergence herbicides fail to control. Various species of *Amaranthus*, including redroot pigweed, are problematic in no-tillage squash production in Illinois. A field study was conducted in 2002 and 2003 to evaluate various herbicides and herbicide combinations with or without a winter rye grass cover crop in no-tillage zucchini squash production. All herbicides were applied preemergence one day prior to transplant of squash plants.

In 2002, control of crabgrass at 56 days after herbicide treatment (DAT) was influenced by herbicide treatment but not cover crop. Crabgrass control was similar from all treatments that included ethafluralin & clomazone but significantly less from halosulfuron. There was an interaction between herbicide treatment and cover crop for redroot pigweed control at 56 DAT. Tank mixing halosulfuron or imazamox with ethafluralin & clomazone increased control of redroot pigweed compared with ethafluralin & clomazone alone with a ryegrass cover crop but not in the absence of a cover crop. The presence of a rye grass cover crop did not affect redroot pigweed control from any herbicide treatment except ethafluralin & clomazone plus imazamox. Redroot pigweed control from ethafluralin & clomazone plus imazamox was 22% greater in plots with a cover crop compared to no cover crop. In 2003, there was an interaction between herbicide and cover crop, with the greatest control of crabgrass observed from ethafluralin & clomazone with a rye grass cover crop. Control of redroot pigweed was not affected by herbicide treatment or cover crop in 2003.

2003 North Central Weed Science Society Proceedings 58:50.