

THE EFFECTS OF CULTURAL PRACTICES ON NIGHTSHADE COMPETITION WITH PROCESSING TOMATOES. Abram J. Bicksler and John B. Masiunas, Graduate Research Assistant, Department of Natural Resources and Environmental Sciences, University of Illinois Urbana-Champaign, Urbana, IL 61801 and Associate Professor, Department of Natural Resources and Environmental Sciences, University of Illinois Urbana-Champaign, Urbana, IL 61801.

In field experiments, the effects of rye cover cropping and staking on tomato (*Lycopersicon esculentum*) and *S. ptycanthum* competition were investigated. In 2003, nightshade interference decreased total tomato yield. Rye cover cropping reduced nightshade growth but also reduced total tomato yield by half compared to conventional tillage. In 2004, nightshade presence did not affect tomato yield, but rye again decreased total yield. The percentage of Grade A tomatoes in 2004 was greatest and the percentage of culls was lowest in the rye cover crop treatment. In 2004, staking increased tomato height, but did not consistently elevate tomato plants above nightshade plants. Staking seems to be ineffective as a means to minimize the competition of nightshades in tomatoes, and the utilization of a rye cover crop in our heavy Midwest soils reduces both nightshade and tomato growth and tomato total yields while increasing fruit quality.