

THE INFLUENCE OF CEREAL RYE SURFACE RESIDUES AND STAKING ON EASTERN BLACK NIGHTSHADE COMPETITIVENESS WITH TOMATO. Abram Bicksler and John Masiunas, Graduate Research Assistant and Associate Professor, University of Illinois, Urbana, IL 61801.

Eastern black nightshade (*Solanum ptycanthum* Dun.) is a difficult weed to control in tomatoes (*Lycopersicon esculentum*). The two species have similar herbicide susceptibilities and growth habits. Eastern black nightshade can overtop tomatoes and the two species primarily compete for light. Previous research has indicated that cereal rye surface residues controlled eastern black nightshade. It might be possible to modify tomato production systems to make the crop more competitive with nightshade. The objective of our research was to evaluate a rye cover crop and staking as techniques to increase the competitiveness of tomatoes with nightshade. The rye cover crop inhibited tomato and nightshade growth similarly, especially in wetter areas of the field. Tomato yields were also substantially reduced in the cover crop treatment compared to bare ground. This growth and yield inhibition was due to soil compaction. Staking raised the tomato canopy over the nightshade and made the tomatoes for competitive for light. PAR levels at the tomato canopy and tomato yields were greater in the staked plots than in the nonstaked plots. Staking fresh market tomatoes may be one way to increase competitiveness and thus yield in areas where eastern black nightshade is difficult to control.