NEW HERBICIDES FOR EASTERN BLACK NIGHTSHADE CONTROL IN TOMATO. Vijaikumar Pandian* and Bernard H. Zandstra, Research Assistant and Professor, Michigan State University, East Lansing MI 48824.

Eastern black nightshade (*Solanum ptycanthum* Dun.) (EBNS) is a serious problem in Michigan tomato production. It has shown variable response to different herbicides and there are few registered herbicides for control. Field studies were conducted in 2002 and 2003 to evaluate the efficacy of potential herbicides for EBNS control in tomato. The herbicides were applied as pre-transplant, post-transplant, post-emergence and post-directed applications. In pre-transplant applications, oxyfluorfen (0.28 kg/ha), sulfentrazone (0.34 kg/ha) and flumioxazin (0.05 kg /ha) gave at least 95% control of EBNS, with no crop injury or yield reduction in both years. In post-transplant applications, dimethenamid (1.1 kg/ha) and s-metolachlor (1.8 kg/ha) gave 100% control of EBNS, with no crop injury or yield reduction in both years. When the nightshade plants were about 15 cm in height, post-emergence and post-directed treatments were applied. In post-emergence applications, sulfentrazone (0.22 kg/ha) controlled EBNS 93% with yield reduction of 30% in 2002. However in 2003, sulfentrazone (0.22 kg/ha) gave 60% EBNS control with no crop injury or yield reduction. Similarly, sulfosulfuron (0.03 kg/ha) + NIS (0.5% V/V) gave 67% control in 2002, but in 2003 it failed to control EBNS and there was no yield reduction in either year. Post-emergence application of rimsulfuron (0.035 kg/ha) and halosulfuron (0.035 kg/ha) + NIS (0.5%V/V) had minimal effect on EBNS in both years and caused no significant yield reduction. Pyridate (1.01 kg /ha) post-emergence gave at least 60% control of EBNS in 2002 and 2003 with no crop injury or yield reduction. Post-directed applications of flumioxazin (0.05 kg ai/ha) +NIS (0.5 % v/v) gave 68% and 100% control of EBNS in 2002 and 2003, with slight crop injury of 14% in 2003 but there was no yield reduction in either year. Carfentrazone gave 80% and 100% control of EBNS as a post-directed application in 2002 and 2003 respectively. However, it caused 36% and 75% crop injury with yield reduction of 44% and 54% in 2002 and 2003 respectively.

2003 North Central Weed Science Society Proceedings 58:166.