

DIFFERENTIAL EFFECTS OF PHOTOPERIOD ON DEVELOPMENT OF SOLANACEOUS WEED SPECIES. Anita Kamboj, Douglas Doohan and Joel Felix, Graduate Research Associate, Department of Horticulture and Crop Science, OARDC, Ohio State University, Wooster, OH 44691

A green house study was conducted during 2003 and 2005, at the Ohio Agricultural Research and Development Centre in Wooster, to investigate the effect of three photoperiod treatments (10/14, 14/10 and 16/8 hours of light and dark intervals) on the growth and development of five Solanaceous weeds (apple of Peru, clammy ground cherry, eastern black nightshade, horsenettle and smooth ground cherry). The data including periodic plant height and number of leaves, days to flowering, leaf area and dry matter accumulation at the harvest stage were analyzed using the PROC GLM procedure in SAS. The results did not vary significantly for the two years, therefore, data were combined across the runs of the experiment.

The weeds under study responded differentially to the photoperiod treatments but they all grew well at the longer light period. Twenty eight days after emergence greater plant height and higher number of leaves were noted with increasing length of light period. This observation may indicate that solanaceous species need to reach a critical minimum stage of plant development before photoperiod becomes directive. Apple of Peru and eastern black nightshade were tallest among all the species, Apple of Peru plants in 16/8 hour photoperiod had highest number of leaves amongst the species. The number of days to flower was significantly reduced with the photoperiod of 10/14 hour both in apple of peru and eastern black nightshade, while, horsenettle, smooth- and clammy ground cherry did not flower with the 10/14 hour photoperiod. Final Leaf area and plant dry matter accumulation were greater in the 14/10 hour photoperiod than in the 10/14 hour photoperiod for all the species, no additional increase was noted amongst plants in the 16/8 hour photoperiod.