GROWTH AND DEVELOPMENT OF TRUMPETCREEPER (*CAMPSIS RADICANS*) DURING FIRST YEAR OF ESTABLISHMENT IN TWO TILLAGE REGIMES. Michael W. Marshall and J.D. Green, Research Specialist and Extension Specialist, University of Kentucky, Lexington, KY 40546.

The adoption of conservation or no-tillage production has resulted in dramatic and beneficial changes in soil physical properties. In Kentucky, the soils and topography are well suited to these limited tillage production systems because they allow an effective means to reducing soil erosion and plant nutrient losses by water while growing a crop on sloping land. However, one the major drawbacks to no-tillage production is the increase of populations of difficult to control perennial dicots, such as trumpetcreeper. Seed production is not commonly observed in plants found growing in agronomic fields; however, undisturbed established (> 5 years old) plants produce seed pods and they are typically found growing adjacent to agronomic fields. These seed are potentially transferred and/or spread to nearby agronomic fields by wildlife and other dispersal mechanisms. The objective of this study was to quantify, non-destructively, the growth and development of seedling trumpetcreeper transplants introduced into two different tillage regimes. Trumpetcreeper seeds were collected from established plants in and around fencerows on roadsides in Nelson County in Central Kentucky. Field experiments were conducted in Central Kentucky at Lexington and in Western Kentucky near Princeton. In 2001 and 2002, tillage blocks were tilled in the spring using a tandem disk set to depth of 7.6 cm. No-tillage blocks were left undisturbed. Seedling trumpetcreeper, at the 2- to 3-leaf stage, were transplanted to the field (Late May to Early June) to establish a uniform population. Transplants were initiated from seed planted in peat tablets in the greenhouse six weeks before transplanting to the field. Experimental design consisted of a randomized complete block with 3 replications of each tillage regime (2 years and 2 locations). Data collected were vine length, number of compound leaves per vine, and number of plantlets initiated per vine at the following intervals: 1, 2, 3, and 4 months after transplant (MAT). The term plantlet is defined as a stem axil that produces an adventitious root where it touches the ground. Data were analyzed using random coefficient analysis where quadratic models for each measure were fitted against time for each pot and tested at the $P = 0.05$ level to determine significant differences between tillage (T) and no-tillage (NT) as follows. Average slope and curvature parameters for T and NT were tested separately for significance using the sign rank test. When curvature or slope parameters were not significant for both tillages, they were dropped from the model. Next, comparisons were made using ANOVA for the remaining parameters to determine if significant differences occurred between tillages. If none were detected for slope or curvature parameters, a composite T + NT model was fitted. Population data 1 year after establishment was analyzed across tillage using ANOVA and means separated using pair-wise comparisons. At Lexington, models were fitted for vine length, compound leaves per vine, and plantlets per vine and pooled across T and NT because no significant differences were detected. At Princeton, models fitted for vine growth and compound leaves per vine were significantly different across tillage regime. However, plantlets per vine models were not significantly different across tillage regime. Trumpetcreeper population, 1 year after transplant, were significantly higher in the NT environments in 2002 and not significantly different between tillages in 2003 across both locations (but higher than initial population). In conclusion, tillage regime did have an impact on rate vine length production and number of compound leaves per vine at Princeton, but did not have an effect on rate of vine length production, compound leaves per vine at Lexington. Plantlets initiated per vine did not differ at both Princeton and Lexington. Number of plantlets produced per vine increased dramatically throughout the growing season and the significant number of new plants arising the following season indicated that this form of vegetative reproduction is very important for its propagation in agronomic fields.

2003 North Central Weed Science Proceedings 58:62.