

INTERACTION OF PURPLE DEADNETTLE AND SOYBEAN CYST NEMATODE. S. Kent Harrison, Ramarao Venkatesh, Emilie E. Regnier, and Richard M. Riedel, Associate Professor, Postdoctoral Research Associate, and Associate Professor, Department of Horticulture and Crop Science, and Professor, Department of Plant Pathology, Ohio State University, Columbus, OH 43210.

Purple deadnettle is a winter annual weed of no-tillage crop fields and serves as an alternate host of the soybean cyst nematode (SCN). Microplots were inoculated with SCN in spring 2001, and two experiments were established on the inoculated site to determine the effects of (1) purple deadnettle emergence time and (2) purple deadnettle removal time on SCN population development in continuous no-tillage soybeans. In the emergence time experiment, purple deadnettle was seeded weekly into SCN-infested plots beginning on 8/30/01 through 10/11/01. In the removal date experiment, purple deadnettle was seeded in all plots on 9/7/01, then hand-removed on 10/9/01, 10/25/01, 11/5/01, 11/21/01, 3/21/02, 4/11/02, 5/6/02, or not removed and allowed to reach full maturity. In both experiments, plots were soil-sampled just prior to establishment of PDN treatments in fall 2001, then again following soybean harvest in September 2002 to compare the single-year effects of purple deadnettle treatments versus weed-free soybean and plant-free controls. SCN population data (eggs+juveniles/200 cm³ soil) for 2001 and 2002 were log-transformed prior to analysis, and SCN population growth is expressed as Pf/Pi, the ratio of the final to the initial SCN population. Actual SCN populations across both experiments increased from a mean value of 409 eggs + juveniles/200 cm³ in 2001 to 2619 eggs + juveniles/200 cm³ in 2002. Results from the planting date study indicated no significant treatment differences at an alpha level of 0.05. Plots seeded with purple deadnettle on all planting dates except 8/30/01 resulted in mean Pf/Pi values ranging from 1.26 to 1.54, compared to 1.12 for weed-free soybean and 0.84 for the plant-free control. The earliest planting date (8/30/01) produced poor purple deadnettle establishment and a low over-wintering weed population (<5 plants/m²), resulting in a Pf/Pi value of 0.96. First-year treatment effects in the purple deadnettle removal time study were also non-significant at the 0.05 alpha level. Removal dates of 10/9 or later resulted in mean Pf/Pi values ranging from 1.35 to 1.72, compared to 1.12 for weed-free soybean and 0.84 for the weed-free control. Across both experiments, inherent among-plot variability in SCN counts contributed to the lack of significant treatment effects, although some treatments were significant at an alpha level of 0.1. Across both experiments, all PDN treatments except one had higher mean Pf/Pi values than the controls, so it is possible that statistical differences due to PDN may not become evident until additional PDN growing cycles occur.