

OCCURRENCE AND MANAGEMENT OF EASTERN BLACK NIGHTSHADE WITH PERENNIAL CHARACTERISTICS. Bryan G. Young, Scott A. Nolte, and James R. Martin, Assistant Professor and Graduate Research Assistant, Department of Plant, Soil, and General Agriculture, Southern Illinois University, Carbondale, IL 62901 and Extension Professor, Department of Agronomy, University of Kentucky, Princeton, KY 42445.

Eastern black nightshade (*Solanum ptycanthum*) usually exhibits an annual growth habit but it can also behave as a short-lived perennial. Perennial eastern black nightshade plants were reported in a single county in western Kentucky in 1993, but this isolated problem did not appear again in 1994. In 2001 perennial plants were identified over a large region including western Kentucky, southern Illinois, southern Indiana, and southeast Missouri after numerous growers experienced management problems with eastern black nightshade. Investigations were conducted on the biology and distribution of perennial eastern black nightshade and postemergence herbicide efficacy in soybean. The perennial plants have most commonly been found in no-tillage fields on well drained soils. Some excavated plants displayed root structures that spread for several feet to produce new plants. Berries were produced from early June through November. Perennial eastern black nightshade plants survived much longer in the fall than annual plants and the berries remained green until the plant entered winter dormancy. In most cases, plants exhibiting perennial characteristics in 2001 did not survive and grow in the spring of 2002.

Anecdotal reports from growers suggested that soybean herbicides traditionally effective on eastern black nightshade did not provide complete control of perennial plants. Field studies were conducted in 2001 and 2002 at a site in White County, Illinois where perennial plants had been identified in the spring of 2001. Herbicide treatments evaluated included imazamox (44 g ai/ha), fomesafen (395 g ai/ha), glyphosate (840 and 1300 g ae/ha), and glyphosate (1300 g/ha) plus imazamox (44 g/ha). Herbicides were applied July 13, 2001 and July 23, 2002 when perennial eastern black nightshade plants were 30 to 60 cm and 25 to 71 cm in height, respectively. Fomesafen and imazamox controlled 10 and 65% of perennial plants, respectively, at 28 days after treatment in 2001. However, perennial eastern black nightshade control was 94% from both fomesafen and imazamox at 28 days after treatment in 2002. Glyphosate controlled at least 90% of perennial eastern black nightshade by 28 days after treatment in both years. New perennial nightshade growth was observed in glyphosate treated plots at the end of season in 2001. Drought conditions following herbicide application in 2002 may explain the differences in perennial eastern black nightshade response to herbicides between years.