

SUPPRESSION OF JAPANESE KNOTWEED WITH GLYPHOSATE OR TRICLOPYR APPLIED SEQUENTIALLY OR FOLLOWING CUTTING. A. Gover, J. Johnson, K. Lloyd, and J. Sellmer, Penn State, University Park, PA.

ABSTRACT

The rhizomatous perennial Japanese knotweed (*Polygonum cuspidatum* Sieb. and Zucc.) was subjected to five, two-operation treatments during 2008, including cutting to the ground on June 18 and July 21, cutting on June 18 followed by a foliar application of glyphosate at 3.4 kg ae ha⁻¹ or triclopyr at 3.4 kg ae ha⁻¹ on September 30, or sequential foliar applications of glyphosate at 3.4 kg ae ha⁻¹ or triclopyr at 3.4 kg ae ha⁻¹ on July 21 and September 30. The July 21 foliar applications were applied in 1730 L ha⁻¹ of carrier, while the September 30 applications were applied to a reduced canopy at 865 L ha⁻¹. All herbicide treatments included a modified vegetable oil surfactant at 4.7 L ha⁻¹. Each treatment was replicated three times in a randomized complete block design. Prior to initiation of treatments, stem counts were taken in a permanent 2.25 m² subplot in each 4.7 by 7.6 m plot on May 18. At this time, average stem density was 15 to 20 m⁻², and average canopy height for the plots ranged from 2 to 3 m and height range of counted stems was 0.2 to 3 m. Peak average canopy heights of 4 m were observed June 18.

Visual ratings of percent canopy reduction were collected May 8, 2009, and stem counts and biomass fresh weights were collected from the permanent subplots on June 2, 2009. The untreated plots averaged 15 and 14 stems m⁻² in 2008 and 2009, and 5.4 kg fresh wt m⁻². The twice-cut plots were rated at 30 percent canopy reduction, increased from 20 to 28 stems m⁻² from 2008 to 2009, and averaged 4.8 kg fresh wt m⁻². This stem density was significantly greater than the untreated plots but the biomass was not significantly different. Fresh weight yields and percent canopy reduction ratings among the herbicide-treated plots were not significantly different, and ranged from 0.2 to 1.3 kg fresh weight m⁻² and 90 to 99 percent canopy reduction. There were significant differences in stem density among the herbicide-treated plots, as the cut-herbicide treatments averaged 9.3 and 13 stems m⁻² for glyphosate and triclopyr respectively, which was not significantly different from the untreated plots. The sequential treatment plots averaged 1.8 and 1.3 stems m⁻² for glyphosate and triclopyr, respectively.