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JAPANESE KNOTWEED RESPONSE TO GLYPHOSATE OR TRICLOPYR TREATMENT SEQUENCES. A.E. Gover*, J.M. Johnson, K. Lloyd, and J. Sellmer, Penn State, University Park, PA.

ABSTRACT

An infestation of Japanese knotweed (*Polygonum cuspidatum* Sieb. and Zucc.) at Milton State Park, Milton, PA, was subjected to treatments including two cuttings (May 6 and July 23, 2009), cutting (June 2) followed by application of glyphosate or triclopyr at 3.4 kg ae/ha (September 9), sequential treatment with glyphosate or triclopyr at 3.4 kg ae/ha on May 6 and September 9, or sequential treatment with glyphosate or triclopyr at 3.4 kg ae/ha on July 23 and September 9. The treatments were applied to 3.7 by 6.1 m plots arranged in a randomized complete block with three replications. The May 6 treatments were applied at a carrier volume of 750 L/ha to plots ranging from 15 to 45 percent cover, with stem heights ranging from emerging to 2 m. The July 23 and September 9 treatments were applied at a carrier volume of 1260 L/ha. The July treatments were applied to intact, 2 to 3 m tall canopies, while the September-treated plots were more variable, with canopy heights of 1 to 3 m and cover values of 15 to 100 percent. Canopy reduction was visually rated June 16, 2010, and a fresh weight harvest and stem count was taken September 24, 2010 from permanent 2.25 m^2 subplots, and converted to kg fresh wt/m^2. Data were subjected to analysis of variance and means separated using Fisher's Protected L.S.D. test when treatment effects were significant. Significant differences occurred between the herbicide treatments, but not between the treatment sequences for a given herbicide. The glyphosate treatments averaged between 97 and 98 percent canopy reduction, and were rated significantly higher than all other treatments. The triclopyr treatments ranged from 35 to 52 percent reduction, and were not significantly different from each other, and cutting twice resulted in a 20 percent canopy reduction. The untreated check averaged 1.8 kg fresh weight and the twice-cut plots averaged 3.4 kg. The glyphosate-treated plots yielded 0.02 to 0.18 kg/m^2, and the triclopyr-treated plots averaged 0.78 to 1.6 kg. Compared to the untreated plots, the glyphosate treatments reduced fresh weight biomass 90 to 99 percent, while the triclopyr treatments reduced fresh weight 11 to 56 percent. These data confirm results from a similar trial at this site in 2008. In that trial, suppression from glyphosate treatments was similar to 2009 results, and knotweed suppression was greater in glyphosate-treated plots than triclopyr-treated plots, but in 2008 the triclopyr treatments provided more suppression relative to the controls than in 2009.