



Privet (*Ligustrum sp.*) Control Field Trials and Results in Georgia using Ground Application Equipment

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E. David Dickens – Forest Productivity Professor – UGA - WSF&NR, Bryan C. McElvany- Bleckley County Extension Coordinator and ANR Agent – UGA – CAES, David J. Moorhead – Silviculture Professor -UGA – WSF&NR, and Chip Bates – Forest Health Specialist - Georgia Forestry Commission

Introduction and Study Objectives

Privet (*Ligustrum sp.*) is the second most prolific invasive species in the Southeastern United States occupying approximately 23 million acres. Privet is one of the most invasive species in Georgia and colonizes in low lying areas. It is spread easily by wildlife (in particular birds) and forms dense thicket walls, often impenetrable. Privet will shade out and competes with many native species.

This paper will discuss five trials installed in southeastern Georgia from 2006 through 2011 to control privet using ground applications. The main objectives were to determine herbicide and type of privet plant coverage efficacy using hand pump Solo diaphragm backpack or ATV mounted 12-volt sprayers applied in the fall, winter, or early spring (from October into early April). Herbicide control estimates used were as follows: Excellent; greater than 90% control, Good; 80-90% control, Fair; 60-80% control, and Poor; <60% control using visual observations and looking at the cambium color from broken privet stems (brown=dead, green=living) as well a control consistency across the plots.

Trial 1:

This replicated trial to control Chinese privet (*Ligustrum sinense*) was installed using the following treatments: (1) Garlon 4 (61.6% triclopyr) @ 25% solution + a basal bark penetrant oil @ 75% applied to the first 18 vertical inches of each stem 360 degrees around each stem, (2) Pasturegard (25% triclopyr + 8.6% fluroxypyr) @ 37% solution + a basal bark penetrant oil @ 63% applied as treatment #1, (3) Razor Pro (41% glyphosate + surfactant) @ 5% solution + water applied as a foliar spray (100% coverage to full wetting), and (4) Razor Pro @ 5% solution + 5% crop oil+water applied as a foliar spray. Two replications in 75 feet by 5 feet plots of each treatment were applied to 10 to 15 feet tall thick, small diameter (primarily < 1 inch at groundline) Chinese privet hedge-rows in Bulloch County on 31 October 2006 (Photo series 1 and 2). Six, 12, and 18 month post treatment evaluations were performed.

The 18 month results were as follows: the basal bark treatments of Garlon 4 and Pasturegard + penetrant oil gave inconsistent control with an overall rating of fair to poor for these two treatments while the foliar application of Razor Pro and Razor Pro + crop oil control was more consistent and with an overall rating of good to excellent for these two treatments.

Trial 2:

The second Chinese privet control trial was performed in early-October 2007 in a thinned pine stand using an ATV, a 12-volt mounted tank sprayer and a hand wand applied to the foliage. A formulation of 3% glyphosate (44% acid equivalent) and surfactant and 1 oz/ac Escort proved to be very effective. Signs of control were evident three weeks after application (Photo series 3).

Trial 3:

This trial also used glyphosate (44% acid equivalent) but at 4% with a surfactant and 1 oz/ac Escort. The formulation was foliar applied in mid-December 2007. Visual signs of control were evident in two months and control was good to excellent one year later. (Photo series 4).

Trial 4:

Trial four consisted of a basal bark treatment of 25% Garlon 4 + crop oil on the first 18 inches of each Chinese privet stem (all 360 degrees) in low density and larger diameter (groundline diameters of 1 to 2 inches). The basal bark treatment was applied by backpack sprayer in early April 2008. The control rating was good to excellent one year later as noted by photo series 5.

Trial 5:

The fifth trial (with three replications) to control Chinese privet was initiated using the following herbicides provided by Dow Agrosiences: (1) Accord XRT (53.6% glyphosate) @ 2% + water (white flags) as a foliar spray, (2) Accord XRT @ 4% + water (red flags) as a foliar spray, (3) Garlon 4 Ultra (60.5% trichlopyr) @ 20% solution + 80% UAP basal oil (yellow flags) as a basal bark treatment, and (4) Garlon 4 Ultra @ 20% solution + Milestone VM (21.1% aminopyralid) @ 2% solution + balance UAP basal oil (orange flags) as a basal bark treatment with three replications in thick, small diameter (<1 inch at groundline) stands. A set of untreated plots; controls were installed as well (pink flags) in this study. All treatments were applied in 20 feet long by 15 feet deep plots on 6 February 2009. Chinese privet control evaluations were performed on this site two (Photo series 6), six, 12, and 16 months post treatment.

Twelve months after treatment results were as follows: Accord XRT @ 4%; excellent and consistent control, Accord XRT @ 2%; good control and less consistent control than the 4% Accord XRT treatment, Garlon 4 Ultra @ 20% solution; good control, but somewhat variable control, and Garlon 4 Ultra + Milestone VM; poor to fair control and rather variable control. Results after 16 months were as follows: Accord XRT @ 4% solution; good to excellent control and consistent control, Accord XRT @ 2% solution; good control but not quite as consistent control as the 4% treatment, Garlon 4 Ultra; fair (from poor to good) control and relatively inconsistent control with some resprouting, Garlon 4 Ultra + Milestone VM; fair (from poor to good) control and relatively inconsistent with some resprouting (Photo series 7 and 8) .

Summary based on these trials in thick stands of small (< 1 inch) diameter privet

Based on these trials in thick, small diameter stands of privet, the foliar application of glyphosate with a surfactant @ 4% (using 53.6% glyphosate) or 5% (using 41% glyphosate) gave the best control results and the most consistent results when compared to the basal bark trichlopyr (with and without aminopyralid or fluroxypyr) treatments when applied in late October or early February. There was no collateral damage to adjacent mature loblolly pine, sweetgum, water oak, or sycamore trees at both sites during the evaluation periods using these treatments.

The glyphosate treatments were also the most cost-effective as 4 gallons/acre Accord XRT were used at the 4% rate (10.25 oz Accord XRT used per 0.02 acre) compared to 10 gallons Garlon 4 Ultra at the 20% rate (25.6 oz used per 0.02 are) used for the basal bark treatment. In another set of privet control trials in Bulloch County on larger diameter (1-2 inch groundline diameters) less dense stands, the Garlon 4 basal bark treatment was very effective. One oz/ac of Escort can be added the glyphosate with excellent control benefits.

Summary based on these trials in low density stands of larger diameter (≥ 1 inch) privet

A basal bark treatment of 25% Garlon 4 and crop oil proved to be an effective control option when applied in early April and should be effective throughout the dormant season (December into mid-February).

Precautions

There will be sites where re-treatment may be needed if a seed bank is present. Generally the best time of year to treat privet hedges will be the dormant season, but treatments applied in early October to late as early April have worked as evidenced by these trials.



Photo series 1: Pre-treatment conditions at privet control trial 1 in Bulloch County, GA.



Photo series 2: Six months post-treatment conditions at the privet control trial in Bulloch Co, GA.



Photo series 3: Privet control trial pre- and post-treatment conditions applying 3% glyphosate with a surfactant and 1 oz/ac Escort in early October with a 12-volt sprayer mounted on an ATV.

Trial 3: Privet control pre- and post-treatment



14 Dec 07



14 Feb 08

Photo series 4: Privet control trial pre- and post-treatment conditions using 4% glyphosate (44% ae) with a surfactant and 1 oz/ac Escort applied in mid-December.

Trial 4: Privet control one year post-treatment conditions



6 April 2009



6 April 2009

Photo series 5: Privet control one year post treatment conditions when applying 25% Garlon 4 and crop oil as a basal bark treatment to large diameter low density stands.

Trail 5: Privet control – two months post treatment



Control; 6 April 2009



**Accord XRT @ 4%
soln; 6 April 2009**

Photo series 6: Privet control trial 5; the control (no treatment) and a foliar application of 4% Accord XTR (53.6% glyphosate) two months after treatment.

Privet Control Trials

- **Trial 5 : February 2009 DOW Trial**
- **Photos 21 June 2010**



Control



**20% Garlon ultra + 2% Milestone
VM +basal bark oil
= fair (60%) but variable control**

Photo series 7: Privet control trial 5; the control (no treatment) on the left and the Garlon 4 ultra + Milestone VM and basal bark oil treatment showing fair but variable control 16 months after treatment.

Privet Control Trials

- **Trial 5 : February 2009 DOW Trial**
- **Photos 21 June 2010**



Control



**20% Garlon ultra +basal bark oil
= fair to good (60-75%) but
variable control**

Photo series 8: Privet control trial 5; the control (no treatment) on the left and the Garlon 4 ultra and basal bark oil as a basal bark treatment photo on the right illustrating fair to good but variable control 16 months after treatment.

Athens, Georgia 30602-2152

Phone: 706.542.6819 • fax: 706.542.5073

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