Extension Service Coos County
Oregon State University, 631 Alder Street, Myrtle Point, Oregon 97458
T 541-572-5263 | **F** 541-572-5963 | http://extension.oregonstate.edu/coos/

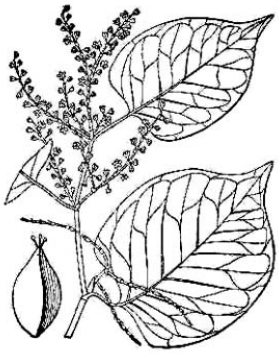
CCES 1010
March 1, 2006

Japanese Knotweed Management Trial in Coos County

By Amy Peters, Livestock Extension Agent

Introduction

Japanese knotweed (*Polygonum cuspidatum*) is an introduced ornamental that has become an increasing problem in Oregon. In Coos County, it was first noticed near the Coos River area after the 1996 flood. Japanese knotweed displaces native riparian vegetation such as willow. Woodland managers consider it a priority weed to control since it negatively impacts salmon restoration efforts. It competes with riparian planting projects, impacts wildlife, and reduces forage in pastures. Japanese knotweed is on the Coos County and Oregon noxious weed lists.



Japanese knotweed is an extremely aggressive plant that exhibits rapid early-season growth, often forming dense colonies that can reach 6 feet in height. Plant colonies are supported by hollow, jointed stems that resemble bamboo. Leaves are alternate, wide, and up to 10 inches in length. Flowers are small and white. It is a rhizomatous perennial whose extensive root system is easily spread through rhizome transport in fill dirt and streams, and once established, out-competes native plants for water and nutrients. Rhizomes can be up to 60 feet in length, emerge from soil depths of up to 3 feet, and are tough and tenacious enough to penetrate asphalt. As such, Japanese knotweed quickly dominates areas in which it has been introduced.

Control strategies have been limited given the fact that only a small fragment of a rhizome is necessary for the stimulation of new plant growth. Manual removal typically results in the unintentional spread of Japanese knotweed through rhizome fragmentation. Repeated cutting can be effective when combined with herbicide treatment of re-growth. Long term management plans need to be implemented to control this aggressive perennial plant.

Weed Control Trials in Coos County

An on-farm study was conducted in a pasture site in Coos County, Oregon to evaluate herbicide efficacy for Japanese knotweed control either as stand alone treatments or as a tank-mix combination. In the fall, the site was mowed to simulate spring growth and to make plant height consistent. After mowing, the site was fenced to exclude livestock and allow Japanese knotweed to re-grow for three weeks prior to herbicide treatment. Plants were 1 to 4 feet tall at time of application. Herbicides were applied in the fall with a backpack sprayer delivering 20 gallons of spray solution per acre. Non-ionic surfactant (0.25% v/v) was added to all

treatments. The study consisted of 5 treatments replicated 3 times. Individual plots were 6 ft by 12 ft. Treatments are listed in Table 1.

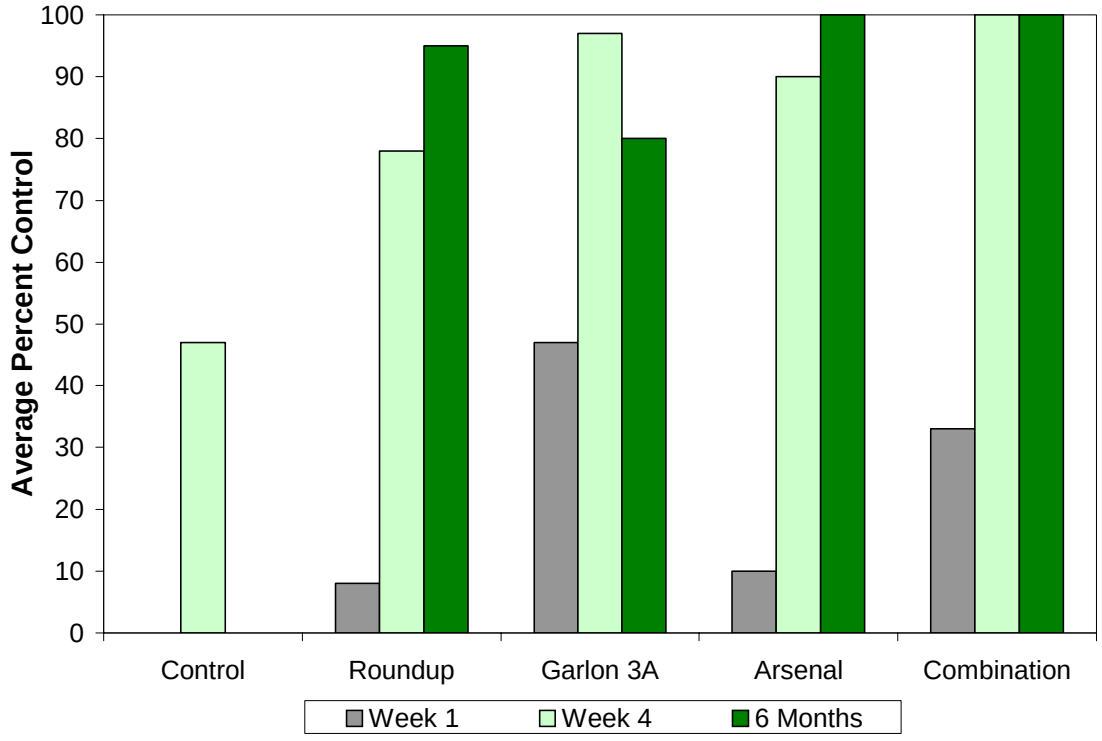
Plots were evaluated two ways: 1) percent control, a visual evaluation of damage caused by each herbicide at 7, 14, 21, and 28 days and 6 months after treatment and 2) stem counts of the number of plants remaining in each plot at 6 months after treatment (stems m^2). One is an estimate and the other is a count. They both lead to the same conclusion.

Table 1. Treatments used to control Japanese knotweed.

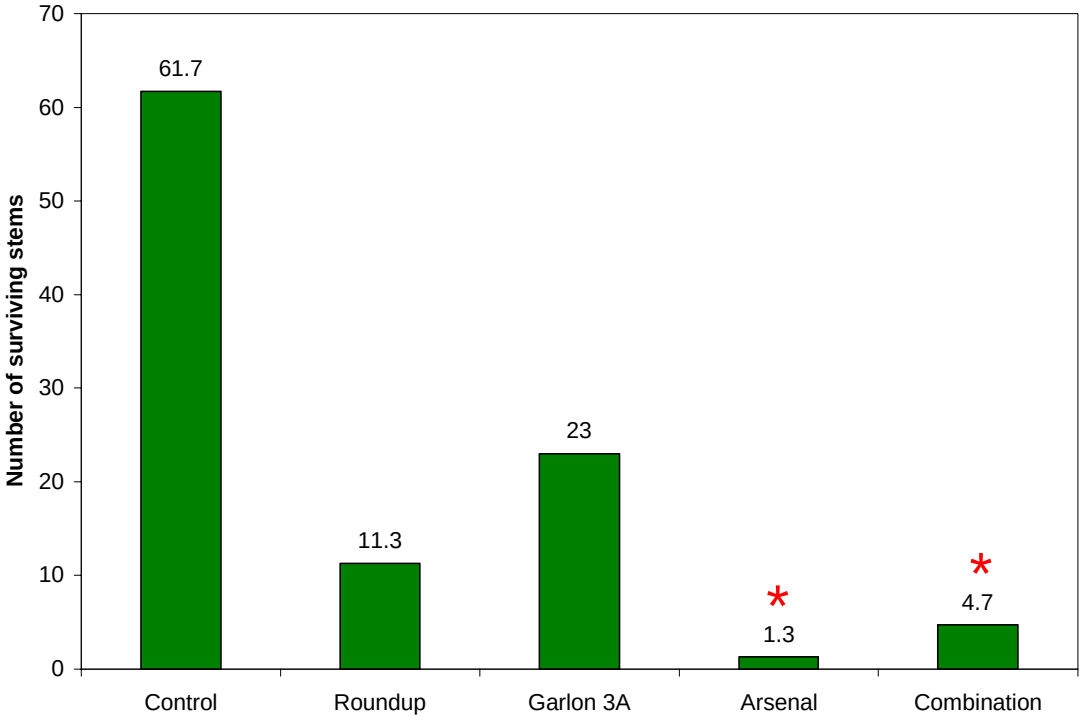
Treatment	Rate applied (20 gal/a)	% Solution	Amount herbicide per gallon of mix	Cost of herbicide per gallon of mix
Untreated check				
Roundup (glyphosate)	1 qt/a	1.25	1.6 ounces	$0.49
Garlon 3A (triclopyr)	2 qt/a	2.5	3.2 ounces	$2.17
Arsenal (imazapyr)	2.5 qt/a	3.1	4 ounces	$10.60
Combination Roundup+Garlon+Arsenal	1 qt/a + 2 qt/a + 2.5 qt/a	All above	8.8 ounces*	$13.26*

*sum of individual herbicide treatment values

Graph 1. Average percent control of Japanese knotweed based on visual evaluations of physical damage one week, four weeks, and six months after herbicide treatments.



Graph 2. Average stem counts of Japanese knotweed plots six months after herbicide treatments.



* significantly different

Results and Discussion

All treatments reduced Japanese knotweed at the end of the six month study period. Four weeks after application, Garlon 3A, Arsenal, and the tank-mix combination were most effective in controlling Japanese knotweed (≥ 90% control) based on visual evaluation. Six months after application, 100% control was achieved with Arsenal and the tank-mix combination, although statistically there was no significant difference between the effectiveness of any of the herbicides tested.

At six months, the numbers of stems remaining in each plot were counted. Arsenal and the tank-mix combination reduced number of stems remaining compared to the control plot and other treatments.

The visual estimates of percent control combined with stem counts six months after herbicide application suggest that Arsenal and the tank-mix combination were the most effective treatments at controlling Japanese knotweed.

With the relatively small infestations of Japanese knotweed in the county at this time and the potential for this plant to spread, a long-term control plan is recommended. Controlling this species now will reduce control costs in the future.

References

Colquhoun, J. 2003. Pacific Northwest's Least Wanted List: Invasive Weed Identification and Management, Oregon State University Extension Service, EC 1563.

Extension Services. 2004. Pacific Northwest Weed Management Handbook. Oregon State University.