

Houndstongue Biological Control Research/Demonstration Plots

On June 21, 2004, a biological control study on a severe infestation of houndstongue in the Duck Creek area north of Canyon Ferry reservoir was initiated. The infested area was divided into a treated and a non-treated area, and 5 1m² reference plots were marked in each area using wooden stakes and engineering ‘whiskers’. The reference plots were evaluated by counting the number of houndstongue stems, and in addition, cover classes and broad plant categories were determined using a modified Daubenmire method. After counts were made, the treated area was sprayed with *Pseudomonas syringae* pv. *tagetis* (Pst). Inoculum was prepared using 2.5 liters of a 3 day benchtop fermentor culture which was added to 100 liters of an aqueous solution of 0.5% Silwet L-77. Pst was applied with 4-wheeler sprayer equipped with a “hand-gun” spray nozzle. Blue dye was used to mark sprayed areas. Air temperature at the time of spraying fluctuated between 66 and 70F depending on cloud cover.

On September 16, 2004, houndstongue infestation and cover class evaluations were performed. At this time, the number of houndstongue stems per plot (1m²) were reduced 82% when compared with the spring infestation counts compared to a 52% reduction for the untreated control. The loss in houndstongue seedlings in the control plots can be attributed to late season drought and plant competition. The reductions in houndstongue population were still notable in the fall of 2005 where the percent reduction in houndstongue in the Pst treated area was still more than for the untreated control.

Treatment	Initial Infestation Stems/ m ² 6/04	Stems/ m ² 9/04	% Canopy Coverage CyOf 9/04	% Reduction	Stems/ m ² October, 2005	% Reduction	% Canopy Coverage CyOf 10/05
Untreated Control	106.2	51	40	52	21	80	17
Pst	200	36	22	82	12	94	11