# POSTEMERGENCE GRASS CONTROL OPTIONS IN VETCH GROWN FOR SEED

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**Introduction**

Common vetch (*Vicia sativa*) and hairy vetch (*Vicia villosa*) are grown in the Willamette Valley for seed production. Both species are annuals with stems up to six feet long. Leaves are pinnately compound and both species have tendrils and many purplish-red flowers per cluster. Common vetch has larger leaves and seed than hairy vetch. Currently there are no postemergence grass control herbicides registered for use in vetch grown for seed. Two studies were conducted, one with hairy vetch and one with common vetch, to evaluate the tolerance of the vetches to herbicides already registered and used for grass weed control in legume crops.

**Methods**

The 2009 studies were conducted in Yamhill County. The hairy vetch study was conducted near Carlton and the common vetch study was conducted near McMinnville. The experimental design for each study was a randomized complete block with four replications and plots that were 8 ft by 25 ft. Herbicides treatments were applied with a unicycle sprayer calibrated to deliver 20 gallons per acre at 20 psi. Herbicides evaluated in the studies were clethodim (Select) applied at two rates, sethoxydim (Poast) applied at two rates, imazamox (Raptor) applied at two rates and imazamox applied in combination with bentazon (Basagran).

The soil type at the hairy vetch study site was a Woodburn silt loam with a pH of 5.9 and an organic matter content of 3.56%. The soil type at the common vetch study site soil was a Woodburn silt loam with a pH of 5.6 and an organic matter content of 4.8%. Visual evaluations of vetch injury were conducted periodically after herbicide application. The vetch crops were swathed and threshed in August. Germination percentage tests were conducted with the seed of both species by placing a known amount of seed in a controlled growth chamber environment for 14 days in the Weed Science Lab at OSU.

**Results**

The final visual ratings of vetch injury are presented in Tables 1 and 2. None of the herbicide treatments in the hairy vetch study caused significant injury symptoms and there were no statistical differences among the vetch seed yields or percent germination means (Table 1). All of the imazamox treatments caused significant injury to the common vetch (Table 2). The injury ratings on the common vetch following the imazamox treatments were between 33% and 80%; however, the seed yield and percent germination was comparable to that from the untreated check.

None of the herbicides in these two studies are currently registered for use in hairy or common vetch grown for seed. These results will be used to develop future herbicide registrations for use in vetch seed production.

Table 1. Visible injury, seed yield and seed germination of hairy vetch following herbicide applications, 2009.

| | | Hairy vetch | | |
|---|---|---|---|---|
| Treatment[1] | Rate | Injury[2] | Seed yield[3] | 14 day germ |
| | (lb a.i./a) | (%) | (lb/a) | (%) |
| Check | 0 | 0 | 506 | 70 |
| Clethodim | 0.12 | 3 | 529 | 61 |
| Clethodim | 0.24 | 0 | 526 | 69 |
| Sethoxydim | 0.47 | 0 | 522 | 76 |
| Sethoxydim | 0.94 | 0 | 523 | 67 |
| Imazamox | 0.031 | 0 | 468 | 75 |
| Imazamox | 0.062 | 10 | 440 | 75 |
| Imazamox + Bentazon | 0.031 + 0.25 | 0 | 433 | 64 |
| LSD (0.05) | | | NS | 9 |

[1]Applied March 19, 2009
[2]Evaluated May 12, 2009
[3]Harvest August 19, 2009

Table 2. Visible injury, seed yield and seed germination of common vetch following herbicide applications, 2009.

| | | Common vetch | | |
|---|---|---|---|---|
| Treatment[1] | Rate | Injury[2] | Seed yield[3] | 14 day germ |
| | (lb a.i./a) | (%) | (lb/a) | (%) |
| Check | 0 | 0 | 1867 | 70 |
| Clethodim | 0.12 | 5 | 1533 | 67 |
| Clethodim | 0.24 | 0 | 1512 | 68 |
| Sethoxydim | 0.47 | 5 | 1489 | 66 |
| Sethoxydim | 0.94 | 0 | 1641 | 69 |
| Imazamox | 0.031 | 33 | 1782 | 71 |
| Imazamox | 0.062 | 80 | 1778 | 79 |
| Imazamox + Bentazon | 0.031 + 0.25 | 38 | 1680 | 76 |
| LSD (0.05) | | | NS | NS |

[1]Applied March 19, 2009
[2]Evaluated May 12, 2009
[3]Harvest August 19, 2009