Project Number: 13K 3419 7228

Title: Weed control in vegetable seed crops.

Personnel: Tim Miller and Bob Peterson, WSU NWREC

Reporting Period: 2004-05

Accomplishments: Four weed control trials in vegetable seed were conducted in 2004: one study each in table beet/Swiss chard seed, spinach seed, cabbage seed, and Apiaceae seed crops. Two additional cabbage seed trials testing Spartan (sulfentrazone) applied to transplants were also conducted, one this summer and a second is currently underway. Weed control and/or crop injury was measured in each study. Table beet, Swiss chard, spinach, and cabbage seed crops were also included for evaluation of rotational crop sensitivity to Sandea (halosulfuron) used in cucumber during 2003.

In addition, I understand that BASF will be registering Outlook (dimethenamid-p) for postemergence (POST) use in table beets in 2005. I am unsure whether the product will be available for the 2005 use season, however.

Results: Results will be presented at the Western Washington Horticultural Association meeting in January, 2005.

Table Beets/Swiss chard seed. Table beet roots and overwintered beet and Swiss chard seedlings were transplanted April 22-23 at WSU NWREC. Preplant-incorporated (PPI) treatments were applied April 21, preemergence (PRE) on April 24, and POST on April 30, May 7, and May 12. Weed control and crop injury were estimated July 9. Four representative beet plants per plot were pulled September 8 and seed threshed September 27-28; seed has not yet been sized or weighed. The trial was a randomized complete block with four replicates.

Spinach seed. Spinach was seeded May 21, 2004 at WSU NWREC. PPI, PRE, and POST herbicides were applied April 28, April 30-May 1, and May 16, respectively. Weed control and crop injury were estimated July 9. Plots were direct-harvest with a plot combine August 18; seed has not yet been sized or weighed. The trial was a randomized complete block with four replicates.

Apiaceae seed crops. Early-flowering and long-standing cilantro, coriander, carrot, dill, parsnip, and parsley were seeded into separate rows June 10, 2004 at WSU NWREC. Plants were sprayed POST with one of fifteen herbicides at two growth stages: early (cotyledon to 2-leaf seedlings) and late (3- to 4-leaf seedlings). Early applications were made July 22 and late applications July 30. Visible crop injury was estimated at approximately 3 and 10 days after treatment for both timings. Plants were then grown until 4 weeks after treatment (August 23 and August 30 for early and late POST applications, respectively) at which time the plants in 1 m of row were cut at the soil surface, and dry weights determined.

Cabbage seed. Cabbage seedlings (2- to 3-leaf) were transplanted at WSU NWREC and at-transplant treatments applied September 9, 2003. Split-plot, POST herbicides were applied to all plots October 13, 2003 and crop injury/weed control were estimated October 24, 2003 and March 29, 2004. Four cabbage plants were selected at late bud stage of growth and biomass was determined April 1. The trial was a split-plot, randomized complete block with three replicates.

The additional two Spartan trials were also conducted at WSU NWREC (Washington State Commission for Pesticide Registration co-funding). A total of 22 parental lines were tested for sensitivity to two formulations of Spartan. Trial number one was transplanted June 1, 2004 and treatments were applied post-transplant (POSTR) June 3 and 17 and July 1, 2004. Cabbage was harvested and fresh weight determined July 26-28, 2004. Trial number two was transplanted September 23, 2004, and two treatments have been applied to date (September 24 and October 7, 2004). Spartan did not cause appreciable damage during trial one, but damage to certain lines is apparent as of mid-October in trial two, indicating that environment plays an important role in crop safety of this herbicide POSTR.