PROSPECTIVE HERBICIDES FOR VEGETABLE CROPS: RESEARCH UPDATE

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Research was conducted in the 2007 growing season to evaluate potential herbicides in several vegetable crops, including cabbage, table beets, carrots, and snap bean. The intent of this paper is to provide an update on these research projects. *However, keep in mind, the majority of the herbicide products mentioned are NOT labeled on these crops.* As always, check and read the label prior to any herbicide use. A summary of these projects is included below.

Transplanted cabbage. Research continued in 2007 to evaluate the prospective herbicide Chateau (flumioxazin) and an unregistered post-transplant Spartan (sulfentrazone) application timing in transplanted cabbage. Both herbicides are PPO-inhibitor herbicides that provide residual control or suppression of several broadleaf and grass weed species that are problematic in cabbage production. Chateau was evaluated at three experimental use rates (1, 2, and 4 oz product/A) and at three application timings (immediately post-transplant, 3 days post-transplant, and 7 days post-transplant). Spartan was evaluated at similar application timings but only at a single application rate (4 oz product/A). Injury from Chateau applied at the 4 oz product/A rate was excessive regardless of application timing. Common lambsquarters, redroot pigweed, velvetleaf, and yellow foxtail control was excellent where either Chateau or Spartan were applied. Season-long weed control was slightly greater where Chateau was applied at the 2 oz product/A rate compared to the 1 oz product/A rate. Cabbage yield was related to season-long weed control and comparable to the standard treatment (Treflan/Goal) for Chateau at the 2 or 4 oz product/A rates and Spartan.

Table beets. Research continued to identify potential herbicides that would expand the weed control spectrum in table beets. In 2007, crop safety was excellent where Dual Magnum (s-metolachlor) was evaluated at rates ranging from 0.67 to 1.0 pint product/A. Minor injury was observed with Pyramin (pyrazon). This injury was slightly increased and crop stands were reduced when Betanex (desmedipham) was included in the weed control program. Weed control in programs that relied heavily on pre-emergent herbicides was compromised by droughty weather following herbicide application.

Carrots. Two herbicide trials were conducted in carrots in 2007. In the central sands production area, Dual Magnum was evaluated at three application rates (0.25, 0.5, and 1.0 pint product/A) applied alone and in combination with Lorox (linuron). No carrot injury was observed in this trial. In the Two Rivers area, a trial was conducted to evaluate several unregistered herbicides in carrots (or in the case of Dual Magnum, available only through an indemnified 24c Special Local Needs label). Injury was minimal where Dual Magnum was applied pre-emergence followed by Lorox post-emergence. In post-emergent applications, injury was greatest where Everest (flucarbazone) was applied at the 0.6 oz product/A rate. Other unregistered post-emergent herbicides evaluated included Chateau, Goal (oxyfluorfen), Nortron (ethofumesate), and Define (flufenacet). Carrot yields were generally variable but comparable to the standard Lorox program. Further research will be conducted to incorporate these experimental herbicides into current programs, thus expanding the weed control spectrum and providing weed resistance management strategies.

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Snap bean. Over thirty current and potential herbicide programs were evaluated in snap beans in Arlington and Hancock, Wisconsin. In particular, Reflex (fomesafen) was evaluated alone and in combination with current herbicides with the goal of expanding the current registration to include a greater geographic portion of the snap bean production in the upper Midwest. Weed control was excellent where Reflex was applied, and snap bean yield was comparable to the hand-weeded check. Future research will focus on the potential for Reflex carryover in multiple soil types and crop rotations.