EVALUATION OF POTENTIAL NEW HERBICIDES IN GARDEN BEETS

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Weed management options in garden beets have become limited in recent years, particularly after the introduction of glyphosate-resistant sugar beets and subsequent loss of herbicide registrations. The primary objective of this project was to evaluate registered and non-registered herbicides as part of pre- and post-emergent programs in an effort to achieve season-long weed control. Studies were conducted in 2013 at two locations (Arlington and Plover, WI). A total of 12 weed management programs were evaluated. Four garden beet varieties were included: 'Ruby Queen', 'Detroit Supreme', 'Red Ace' and 'Red Titan'. This study will be repeated in the 2014 growing season at both locations.

Plover Location Results:

Weed control was outstanding across all herbicide programs. Common lambsquarters, redroot pigweed, common purslane, wild buckwheat, wild proso millet and large crabgrass control throughout the season were almost always between 95 and 100%. In fact, season-long weed control likely would have been adequate with just the pre-emergent and 2-leaf herbicide application timings, with the 4- and 6-leaf herbicide applications available to control escaped or newly-germinated weeds if necessary. In particular, Dual Magnum plus Ethotron applied pre-emergence followed by Ethotron and UpBeet at the 2-leaf beet growth stage resulted in excellent weed control and minimal crop injury across varieties. Garden beet injury was variable by treatment and variety and there were no strong trends among registered herbicide programs. Of the herbicides not currently registered in garden beets (Chateau, Zidua, Curbit and Firstrate), only Zidua was worthy of further investigation. Injury was unacceptable with Curbit, and Chateau and Firstrate applied post-emergence eliminated the crop.

Arlington Location Results:

Treatments at the Arlington location were similar with the exception that Dual Magnum rates were generally increased to correspond to the heavier soil and the Upbeet rates were increased to provide additional velvetleaf control that was expected at this location. Nearly all treatments provided exceptional season long weed control. As in the Plover location, it again appeared that many of the treatments would have been satisfactory with just the pre-emergent and 2-leaf herbicide timings. Injury was greatest after the 2-leaf timing across all treatments, but there was very little variability in injury among varieties within a treatment. Overall, 'Ruby Queen' had the greatest correlation between injury and yield loss across all treatments.

While this study will be repeated in 2014 under a different set of environmental conditions and with varying weed spectrum and density, the 2013 results suggest that acceptable weed control without compromising crop yield are both still possible with existing herbicide tools. In fact, herbicides applied pre-emergence and at the 2-leaf beet growth stage may be adequate and still allow for another salvage herbicide treatment if scouting suggests the need.

Herbicides not registered for use on garden beets were included in this study. Always read and follow the herbicide label prior to use.

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