

## **The Effects of Terbacil, Halosulfuron, Clomazone, and S-metolachlor on Grafted Watermelon**

Grafting appears to have good potential for the future of watermelon production in the United States. Although various herbicides are labeled for use in watermelon production and in the production of other cucurbits (such as those utilized as rootstock for grafted watermelon), there was a lack of information as to the effects of various herbicides when applied to a grafted watermelon crop. Therefore, with financial assistance from the National Watermelon Association, field trials were conducted to examine the effect of terbacil, halosulfuron, clomazone, and S-metolachlor on grafted watermelon.

Trials were located at the University of Florida, Clemson University, and North Carolina State University. Tri-X-313 seedless watermelon scions grafted onto Emphasis (*Lagenaria siceraria*), Strong Tosa (*Cucurbita maxima* x *Cucurbita moschata*), and Ojakko (*Citrullus lanatus*) rootstocks were transplanted at each location in the spring of 2009. Nongrafted Tri-X-313 plants and Tri-X-313 grafted to Tri-X-313 rootstocks were also planted for comparison purposes. Each herbicide was applied at two rates prior to transplanting. Additionally, two rates of halosulfuron were applied “over the top” at 20 days after transplanting. Untreated control plots were also included in the study.

A large amount of data (yield and various phytotoxicity ratings) was collected at the three locations. Overall, preliminary data analysis revealed that these scion/rootstock combinations appear to be relatively tolerant (in terms of yield effect) of the examined herbicides. Yield of the grafted plants from treated plots was fairly consistent to yield of the same scion/rootstock combination from untreated plots.

Phytotoxicity was somewhat variable based on location. At the University of Florida, all plant types (grafted and nongrafted) exhibited bleaching when clomazone was applied prior to transplanting. Watermelons grafted onto Emphasis and Strong Tosa rootstocks appeared to be more tolerant of

clomazone compared to nongrafted plants. All plant types also exhibited bleaching due to clomazone at Clemson University. However, at this location, plants grafted onto Emphasis and Strong Tosa appeared to be less tolerant of clomazone compared to nongrafted plants. Considerable injury due to pre-transplant applications of S-metolachlor and halosulfuron was only observed at North Carolina State University. No terbacil injury was reported at any location for any plant types.

A consistent level of injury was observed on all plant types at the University of Florida subjected to “over the top” applications of halosulfuron. Symptoms of injury included stem splitting, shorter vines, and an increase in the number of nodes at the end of the vines. This was not a surprise since halosulfuron is known to injure watermelon when applied “over the top.” At the University of Florida, it did not appear that any of the rootstocks examined imparted tolerance to this type of application.

Plants appeared to recover fairly well from herbicide injury in terms of the total yield produced. Further data analysis may reveal differences in early season yield based on treatment. We hope to receive funding for another year of field trials. With additional data, we should have a better idea as to what products may be safe for growers to use on a grafted watermelon crop.