American Black Nightshade Interference in Watermelon

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American black nightshade is a problematic weed in watermelon production, especially in south Florida. When watermelon production follows tomato or pepper, the 3 major weeds are nutsedge, nightshade, and pigweeds (Amaranths). In 1997, Terry et al. found that 6 smooth amaranth (pigweed) per meter, competing season-long in watermelon, reduced yield 100%. Buker et al. (2003) found that 2 yellow nutsedge plants per square meter reduced watermelon yield 10% while 25 plants/m² reduced yield 50%. Until this past year, there was no herbicide to control nightshade in watermelon beds other than methyl bromide.

Celeste Gilbert, a graduate student, has completed a 2-year study, at 2 locations looking at the competition of American black nightshade in watermelon. Nightshade was planted in watermelons at 2, 4, 6, and 8 plants/m². Reduction in yield was calculated against a nightshade-free check. She ran 2 experiments, 1 with open culture (non-mulched) produced melons, and another with watermelons grown on polyethylene mulch. In both years, watermelon grown on mulch had higher yields than those grown on open culture. Yields were also greater for melons grown in 2006 than 2005. 2005 was a cooler, wetter year and watermelons did not produce as well.

Percent yield loss of watermelon at 2 nightshade/m² was 100% in 2005 on non-mulched produced watermelons. In 2006, the yield loss was 68% at 2 nightshade/m² and up to 93% at 8 nightshade/m² competing with the watermelon.

When watermelon was produced on mulch, the yield loss in 2005 was 80 to 98% at 2 to 8 nightshade/m², and in 2006 the yield loss was 54 to 88% at 2 to 8 nightshade/m².

The bottom line is that watermelon is a poor competitor with weeds. In these studies as with the others, the number of melons produced followed the same trend as the yield. The size and quality of the melons were not affected by the weed competition. Weeds seem to impact fruit set more than fruit quality.

Sinbar now (2006) has received labeling for use in watermelon. Sinbar does control both nightshade and amaranth. If nightshade is a problem in the fields to be planted to watermelon, it would be advisable to consider its use.