

Time to Think About Palmer Amaranth Control in Soybeans

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Figure 1: Palmer amaranth infested soybean field in Southern Maryland.

Palmer amaranth is a new aggressive pigweed that has been found in several parts of Maryland. Palmer amaranth is commonly resistant to glyphosate and ALS herbicide chemistry. Palmer has been found in Southern Maryland (Figure 1) in Charles and St. Mary's County; on the lower shore in Wicomico County and on the Upper Shore in Caroline county. It is most likely more widespread as it can migrate quickly through the production of many small seeds. Palmer amaranth is native to the arid desert regions of the southwest United States and Northern Mexico. It has gradually moved throughout the southeast as a major weed of soybean and cotton. The plant is well adapted to germinate and grow aggressively in the presence of moisture. In our region,

Palmer amaranth will germinate beginning in late April or early May and will continue to germinate through the summer. This weed is a prolific seed producer with female plants being capable of producing more than ½ million seeds. Due to its aggressive growth rate, high seed production and tolerance to both glyphosate and ALS chemistry, it is poised to become a major weed of grain and vegetable crops in the region. Besides resistance to the two sides of action that are found on the Delmarva (glyphosate and ALS inhibitors), resistance against atrazine herbicides, HPPD and PPO herbicides has been reported in North Carolina, and other Southern states. Considering how fast Palmer amaranth migrated from the Cotton belt into the Delmarva region, heightened awareness is required to avoid the spread of further resistances into the Palmer amaranth that already creates a problem for farmers in Maryland.

Key management steps:

Start clean. Options for effective post-emergent control in soybean are limited and the few options available must be used when Palmer amaranth plants are less than 4 inches tall. Palmer amaranth plants bigger than 4 inches are often only partly suppressed by herbicides and will grow back after a period of recovery. Fields should be clean of all Palmer amaranth before the crop emerges. Gramoxone® is an effective burn down treatment for smaller plants provided it is applied with adequate water and coverage is good.

Use a residual herbicide as close to planting as possible. Residual herbicides will provide 3-4 weeks of control in most cases. This added control might not seem like much, but it gives the soybean that much more time to establish a closed canopy and provides added time to apply post-emergent controls. Residuals need to be applied as close to planting as possible to extend the period of control as far into the growing season as possible. In Maryland trials, residual herbicides containing the active ingredients sulfentrazone or flumioxazin provided good control. Be sure to read labels carefully for factors such as rates and plant-back restrictions. To enhance the effect of residual pre-plant herbicides and speed up the canopy closure of soybeans, row spacing is also important. Canopy closure of 15-inch rows often happens two weeks earlier than of 30-inch rows. This, in combination with residual herbicides provides better weed suppression at early developmental stages .

