Science Societies

Offspring of Herbicide-Surviving Weed Still Susceptible

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This Palmer amaranth plant, taller than 4 inches, survived a glufos- inate application, but its young offspring might not. Photo courtesy of Eric Jones.

It is well documented that weeds can significantly decrease crop yields if not effectively controlled with herbicides as the primary control method utilized in row crops. Palmer amaranth is a pervasive, hard-to-control weed and has evolved resistance to 10 herbicide groups. Glufosinate is among the few effective herbicides left to control it. But if glufosinate is applied to large weeds (taller than 4 inches), those plants will survive and continue to grow.

In an article recently published in Agrosystems, Environment, and Geosciences, researchers report on the seed production, seed viability/germination, and the herbicide susceptibly of the offspring from large Palmer amaranth plants that survive glufosinate. These weeds produced 2,400 to 22,000 seeds, and at least 70% of those seeds were viable without differential germination patterns. Importantly, the offspring remained susceptible to glufosinate when treated at the correct size (2 to 3 inches).

This research highlights that plants that are not effectively controlled will not only reduce crop yield,
but will also contribute offspring that will need to be controlled in subsequent growing seasons. However, if large Palmer amaranth weeds are treated with glufosinate and survive, the offspring will likely be controlled with correctly applied herbicide.

Adapted from Jones, E., Leon, R.G., & Everman, W.J. (2022). Biological effects on Palmer amaranth surviving glufosinate. Agrosystems, Geosciences & Environment, 5,e20315. https://doi.org/10.1002/agg2.20315

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