

NCSRP: Getting into the weeds for Answers



SOYBEAN RESEARCH & INFORMATION NETWORK

Weed control in soybeans was revolutionized in the 1990s with the introduction of transgenic, herbicide-tolerant soybeans. Farmers could control weeds without killing the plants and reduce cultivation. But now as more weeds develop resistance to several popular herbicides, NCSRP is promoting what works today and exploring new innovations to enhance weed control.



WHERE WE'RE AT

Herbicide Resistance Management

Addressing weed resistance includes delaying potential resistance and taking control of already herbicide-resistant weeds. **Through the Take Action Herbicide Resistance Management Program** funded by the soybean checkoff, farmers get the direction needed to manage weeds most effectively. Rotating modes of action, adding in non-chemical practices and more put farmers in control.



Non-Chemical Control

Effective herbicide-resistance management combines a variety of chemical and non-chemical management tactics to diversify selection pressure on weed populations and minimize spread of resistance genes. For example, **tillage works the soil and can control weeds through burial of small weeds**, disrupting roots and cutting or severely stunting weed growth. Tillage practices must be monitored to prevent buildup of weeds in the soil seedbank.



WHERE WE'RE GOING

Weed Electrocutation

One non-chemical weed control option gaining traction with researchers is weed electrocutation. The **technology may prevent weed seed production** for some of the most common weeds found in Midwest soybean fields; including Palmer amaranth and waterhemp. Researchers in multiple states are comparing weed electrocutation to other non-chemical treatments and exploring the overall effectiveness of weed electrocutation on common weeds and weed density.



CRISPR Novel Resistance Traits

As existing and emerging weeds become tolerant to limited herbicides used in soybeans, researchers are collaborating to **equip soybeans with new genetic traits that confer tolerance** to three novel classes of herbicides. Improved cultivars amenable to a wider selection of herbicides would provide more effective weed control. Scientists are establishing a CRISPR base editing system to quickly and non-transgenically generate these new herbicide-resistant soybeans.

Funded by the soybean checkoff



13 NCSRP MEMBER STATES REPRESENT MORE THAN 355,000 SOYBEAN FARMERS



The Soybean Research and Information Network (SRIN) is a joint effort of the North Central Soybean Research Program and United Soybean Board. The online resource contains checkoff-funded soybean production challenge research findings with direct links to the respective underlying scientific studies housed in the National Soybean Checkoff Research Database.