

# Organic weed control in field crops

Dan Rossman, [Michigan State University Extension](#) - May 8, 2012

Share Save  Tweet  Share  Print  Email

Weed control continues to be one of the biggest challenges for organic field crop producers. New techniques stimulate interest, but multiple control methods are still the best strategy.

Organic farmers fight weeds every year. It is one of their biggest challenges. During summer farm tours it is exciting to see a “clean” organic field and hear about the farmer’s weed control strategy. It is also exciting to attend a winter organic conference trade show and see innovative weed control tools that look very promising.

Some farmers make weed control look easy, however, the reality is that every farm, field, soil type, crop and year is different. Organic farmers need to understand their own situation and utilize multiple control methods to reduce their weed problem risk. The foundation of an organic weed control strategy should take into consideration these basic tactics.

**Crop stand.** A healthy, vigorous, thick crop is prominent to good weed control. A thin stand increases light and opens it up for weeds to germinate and thrive.

**Crop rotation.** Multiple year crop rotations change the weed mix and yearly weed pressures. A rotation can break disease and pest cycles providing healthier, more vigorous competitive crops.

**Cover crops.** Year-round vegetation limits weed opportunities, adds to soil health and can provide allelopathic properties.

**Variety selection.** There is a big difference in crop varieties and their ability to compete with weeds. Varieties with strong early vigor, bushy type structure, leafiness and fast canopy closure improve the ability to minimize light penetration to the soil and can reduce weed pressure.

**Clean seed.** Do not introduce new weed species or increase the weed seed bank by planting crop seed that is not thoroughly cleaned.

**Soil health.** A balanced healthy soil will produce a healthy crop with the ability to compete with weed pressures.

**Soil structure.** Soil compaction reduces crop vigor and tends to promote certain small seeded weeds. Be patient. Do not work wet soil.

**Spring tillage.** Start with a weed-free seed bed. There are many tillage tool options used successfully by organic farmers. Do not overlook that moldboard plowing tends to bury weed seed and plant residues giving a little bit of an advantage.

**Delayed planting.** Warmer soils in late May and early June will promote more vigorous crop growth and can have corn and soybeans emerge in five days. Delayed planting can also provide an opportunity to till the first flush of weeds.

**Pre-emerge tillage.** Two to four days after planting and before corn or soybeans have emerged, the weeds are usually in the white root stage. This is a critical time to use a weeder, rotary hoe or another tool that will penetrate about 1 to 1.5 inches. This will dry out the top inch of soil and kill many of the small weeds.

**Post-emerge tillage.** Be ready with a variety of tools. The first cultivation might be the most important. The weeder and rotary hoe can be used with care after the crop has emerged. Flamers can be used pre- and early post, but skill and know-how is critical. Cutaway disks, weed controllers, spinners, shields, etc., are all special attachments that can aid in weed control effectiveness. Farmer ingenuity is at work with double frame rotary hoes, direct steering on cultivators, specialized attachments and precise timing. Correct speed, proper adjustment, good maintenance, operator skill and good weather make a huge difference in the weed control success.

**Hand weeding.** Do not let weeds like Jimsonweed go to seed. Walk your fields and eliminated patches of problem weeds before they go to seed.

**Mulches.** Small-scale systems can have excellent weed control from a wide assortment of mulching materials.

**Organic-based herbicides.** Vinegar and other products are being researched and marketed. Most are nonselective. Use is currently not widespread.

As organic farming continues to grow, we will surely find new methods and refine old techniques. Each producer needs to be knowledgeable and gain experience. Talk with other organic producers. Find mentors. Attend field days and conferences. Learn from your own experiences. Read articles, bulletins, fact sheets and books. Here is a brief list of resources:

- *Risk Management Guide for Organic Producers*, Chapter 6 Weed Management, University of Minnesota
- *Steel in the Field: A Farmers Guide to Weed Management Tools*, SARE
- *Organic Weed Control*, Acres USA
- *Organic Weed Control*, New Agriculture Network, Michigan State University
- *Flaming as a Method of Weed Control in Organic Farming Systems*, MSU Extension Bulletin E-3038
- *Integrated Weed Management: One Year's Seeding*, MSU Extension Bulletin E-2931
- *Integrated Weed Management: Fine Tuning the System*, MSU Extension Bulletin E-3065.
- *Organic Field Crop Handbook*, Second edition, Canadian Organic Growers
- *Organic Weed Management*, Organic Field Crop Production and Marketing, North Carolina State University.
- *Weed Management in Organic Cropping Systems*, Agronomy Facts 64, Penn State University Extension

This article was published by **Michigan State University Extension**. For more information, visit <https://extension.msu.edu>. To have a digest of information delivered straight to your email inbox, visit <https://extension.msu.edu/newsletters>. To contact an expert in your area, visit <https://extension.msu.edu/experts>, or call 888-MSUE4MI (888-678-3464).

MSU is an affirmative-action, equal-opportunity employer, committed to achieving excellence through a diverse workforce and inclusive culture that encourages all people to reach their full potential.

Michigan State University Extension programs and materials are open to all without regard to race, color, national origin, gender, gender identity, religion, age, height, weight, disability, political beliefs, sexual orientation, marital status, family status or veteran status. Issued in furtherance of MSU Extension work, acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture. Quentin Tyler, Director, MSU Extension, East Lansing, MI 48824. This information is for educational purposes only. Reference to commercial products or trade names does not imply endorsement by MSU Extension or bias against those not mentioned.

The 4-H Name and Emblem have special protections from Congress, protected by code 18 USC 707.

We comply with the Federal Trade Commission [1998 Children's Online Privacy Protection Act \(COPPA\)](https://www.ftc.gov/enforcement/rules/rulemaking-regulatory-reform-proceedings/childrens-online-privacy-protection-rule) (<https://www.ftc.gov/enforcement/rules/rulemaking-regulatory-reform-proceedings/childrens-online-privacy-protection-rule>).