Organic Weed Manager User Guide

The Organic Weed Manager is an online decision-making tool designed to compare organic weed management strategies. With user-friendly intuitive steps, the tool collects specific information on growing conditions, current practices, and farmer priorities. Using this information, the tool compares current practices against other weed management strategies, examining how each strategy effects soil health and the farmer’s time and cost of weeding. If farmers do prefer a new strategy, the website provides clear guidance on how to move forward, in particular identifying which practices a farmer would need to adopt—and cease—to pursue it.

The Organic Weed Manager is the product of 10 years of research including over 40 in-depth interviews with organic farmers, each helping to identify the objectives and practices assessed in the online tool. Farmers who tested the tool consistently reported that it helped them think about weeds and weed management differently. We believe the tool has potential for individual use as a means of engaging tradeoffs, prioritizing objectives for management, and making decisions in line with those objectives. We also believe it has value as an educational resource on ecological weed management in informal outreach and more formal classroom settings.

The website presents three strategies for the farmer to examine. These 3 strategies include:

1: Common organic farming strategy, or a suite of practices that were mentioned by farmers the highest number of times in surveys and interviews preceding the development of this website.

2: Critical-stage, or white-thread stage, weed management strategy, or a suite of practices aimed at destroying weeds early and often during the critical weed free period (6-8 weeks), and finally,

3: Seedbank elimination strategy, a suite of practices that relies on intensive weeding for the first four years to achieve zero weed seed formation. After four years however, the strategy involves reduced time, labor, and cultivation requirements (since weed seeds are reduced, and fewer weeds are present). As such, this strategy is often broken into two periods on the website: Years 1-4, and Years 5+.

Each of these strategies consists of a combination of different farming practices, and is described in more detail by the Organic Weed Manager.

To facilitate comparison and decision-making, the Organic Weed Manager uses a structured decision making approach. This approach involves multiple steps to help the farmer assess their current practices and their values, review alternative farming strategies, and finally perform an evaluation of each strategy based on the farmer’s own values and objectives.

The Organic Weed Manager’s 3 Steps are as follows:

Step 1: What You Do

- Here you will identify your current farming practices and compare your practices to the practices comprising the three new weed management strategies presented.

Step 2: How Well It Works

- Here you will identify how well your practices are performing across 6 Characteristics, or weeding objectives, ranging from your soil health to the time spent weeding to your annual costs.
  ** Read more about these characteristics on page 2.

- You will also compare how well your practices perform compared to the three alternative organic weed management strategies presented.
Step 3: Which Strategies Do You Prefer?

- Here you will rank both your current weed management strategy and the three strategies presented.
  - You will rank six characteristics, or weeding objectives, in order of importance to you personally.
  - You’ll also be able to examine how the strategies presented perform according to what's most important to you.
- Finally, if you like an alternative strategy better than your current suite of practices, the website offers simple printable instructions identifying which practices you should adopt and which you should cease in order to pursue that new strategy.

Throughout the website, the Organic Weed Manager uses clear instructions and pop-up guidance panels to help you walk through each step of the process.

Ultimately, deciding whether or not to change weed management strategies will require a look at which characteristics you care about most (values), and how well each strategy performs on those criteria (performance). Providing you a meaningful and straightforward means of doing both is the goal of the Organic Weed Manager.

** A note about the Organic Weed Manager’s Six Characteristics, or Weeding Objectives. **

A central objective for many organic farmers is to improve or maximize revenues. However, it is difficult to directly estimate revenues based on farming practices because there are so many variables involved. Weather, soil health, and the extent of weeds all contribute to yield, which determine revenues. As such, the website identifies 3 proxies for Sustainable Productivity.

The first is “Soil Health,” which can be characterized by three characteristics: 1) Soil Organic Matter, 2) the degree of Water Infiltration, and 3) Biological Health. If you have good soil health, then you have a good chance of high yields and revenues—provided that the weather cooperates. Additionally, 4) the Extent of Weed Seedbank contributes to revenues, as weeds detrimentally affect crops even if soil health is excellent. The combination of the three soil health characteristics and the extent of the weed seedbank are combined into an overall objective called “Sustainable Productivity.”

Additionally, farmers’ “Quality of Life” can be positively or negatively affected by weed management practices. As such, this objective is defined on the website as a function of 5) the farmer's time spent weeding. The more time weeding, the less time farmers have for other things, and so a diminished quality of life. Time spent weeding is influenced by the extent or number of weeds in the field, which is influenced by the extent of the weed seedbank in the soil. This seedbank is affected by different farming practices, and some of the strategies considered in this tool are designed to directly reduce the weed seedbank.

Finally, of course, a farmer must always confront 6) costs. As such, this website provides a straightforward assessment of the costs associated with both mechanical and manual weeding.

For more information on any of these six characteristics, the Organic Weed Manager provides pop-up information boxes. The website also contains a link to additional organic farming resources on weed management: [go.osu.edu/eco-weed-mngt](go.osu.edu/eco-weed-mngt)

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