

Integrated Weed Management



PennState Extension

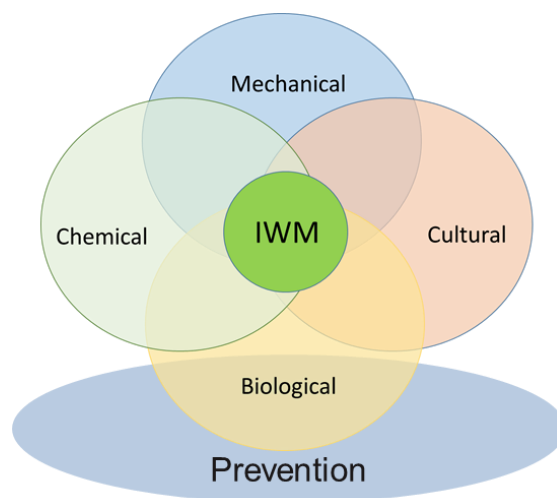
WHAT IS INTEGRATED WEED MANAGEMENT (IWM)?

IWM is a diversified approach to agricultural weed management that aims to more effectively target problem weeds by incorporating multiple strategies together. IWM allows the producer to design their weed management program around what is most effective for the particular weeds, crop, and farm operation.

THE FIVE COMPONENTS OF IWM:

PREVENTION: Monitor inputs to the farm to avoid bringing in things that may be contaminated with weed seeds. To do this, learn how key weeds are spread and whether those weeds are located in areas that the farm is transporting supplies from. Equipment, manure, feed, and seed are primary spreaders of weeds. Spread via wind and wildlife is more common for some weed species than others. Find state-level herbicide resistant weed lists at weedsience.org.

MECHANICAL: Common mechanical tools to disrupt weed growth and survival include cultivation, tillage, burning, and hand-weeding. Mechanical IWM tools also include emerging technologies like harvest-time seed destructors, cover crop rollers, and robotic weeders. Mechanical tools should be integrated when appropriate as part of a larger IWM program. Many of these mechanical techniques are available to no-till growers.



CHEMICAL: Herbicides are a key part of IWM in conventional and some organic systems. In conventional crops, using **multiple effective herbicide modes of action** (MOA) is essential for effective control of resistant weeds. This involves combining multiple MOA in tank mixes, and varying MOA between applications and seasons. For MOA with high occurrences of resistant weeds, avoid repeat use in consecutive seasons.

WHY NOW?

For many years, the availability of convenient, effective, affordable herbicides and tolerant crop genetics has allowed producers to streamline weed control. But the rapid rise in herbicide resistant weeds in the US has led to problematic weed populations that can no longer be managed with simple herbicide programs. Increasingly, stubborn weeds demand a diversified approach for effective management.

CULTURAL: Cultural tactics are crop management decisions that make crop more competitive against weeds and help optimize the effectiveness of herbicide applications. Common examples include timely scouting, row spacing, crop rotation, crop variety selection, timing of planting, and cover crops.

BIOLOGICAL: A less common IWM strategy is the use of living organisms, including livestock, insects, nematodes, fungi, and bacteria, to target weeds. Many biological agents target specific weed species, while livestock are typically more generalist in the weeds they consume.

For information, articles, and resources on how to implement IWM strategies for resistant weeds: www.integratedweedmanagement.org

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