

## News Column

Stacy Campbell

Cottonwood Extension District, Hays

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### **New publication on integrated pigweed management now available**

A new weed control publication from the Department of Agronomy and K-State Research and Extension is now available. This publication, **MF3448 “Integrated Pigweed Management”** aims to assist producers in developing an integrated strategy to manage pigweed in summer crops and fallow periods. Used in conjunction with local expertise, this guide can help tailor a targeted strategy for each field.

Pigweed is a summer annual broadleaf that emerges from April through October in Kansas with the majority emerging in May and June. Although there are numerous pigweed species, this publication focuses on Palmer amaranth and waterhemp. Pigweed can cause drastic yield losses and harvesting difficulties in summer crops. Controlling emerged pigweed can be challenging due to its rapid growth rate, which can easily exceed 1 inch in height per day. Pigweed is a prolific seed producer with large plants capable of producing nearly one million seeds.

#### **What is “Integrated Pigweed Management”?**

An integrated approach combines many different control tactics such as crop rotation, herbicides, tillage, and row spacing to manage pigweeds in a cropping system and has three main purposes.

1. Decrease the risk of selecting for resistant biotypes to an herbicide or other management practice.
2. Reduce pigweed seed population.
3. Increase long-term profitability and sustainability.

With enough selection pressure, it is possible to select for pigweed resistant to cultural or mechanical practices. For example, shifting crop planting date earlier may select for a biotype that emerges later in the season after POST herbicides are applied, or by implementing sequential tillage operations in fallow, a shift toward alternative seed dormancy mechanisms could occur. With an integrated approach, it is less likely for these types of shifts to occur because the selection pressure is shared among various tactics.

When developing an integrated pigweed management plan, consideration should first be given to cultural control tactics. It is not always possible or applicable to implement all strategies in certain systems; therefore, consideration must be given to how each tactic fits in combination with the other goals of the cropping system (Figure 1).

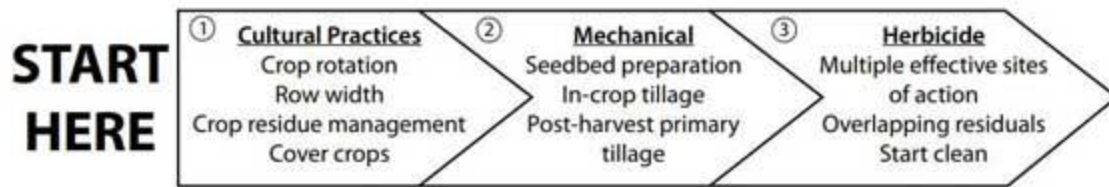


Figure 1. When developing an integrated pigweed management strategy, cultural practices should be considered first. Too often, it is easy to place all consideration on herbicide and neglect the potential benefits of cultural and mechanical tactics. Graphic from MF 3448, [Integrated Pigweed Management](#), K-State Research and Extension.

Cultural practices are discussed in more detail in the full publication. They include: crop rotation, crop cultivar selection and planting date, cover crops, row spacing, field border maintenance, and seed transfer.

### **Building an Integrated Strategy**

Combining control tactics yields the best results. When developing these recommendations, have realistic expectations and make considerations from a cropping systems point of view. It can be difficult to see direct economic profit from some cultural practices such as narrow row spacing, cover crops, or crop rotation; however, long-term gain will be realized through delaying the onset of herbicide resistance and reduced weed seed production.

### **Developing Herbicide Recommendation for Pigweed Management**

A common pitfall when trying to justify the cost of integrated strategies is through a reduction in herbicide use. This concept is not supported with research, and all integrated strategies still must be combined with a comprehensive herbicide program. Research shows herbicide programs targeting pigweed must have three key components (Figure 2).

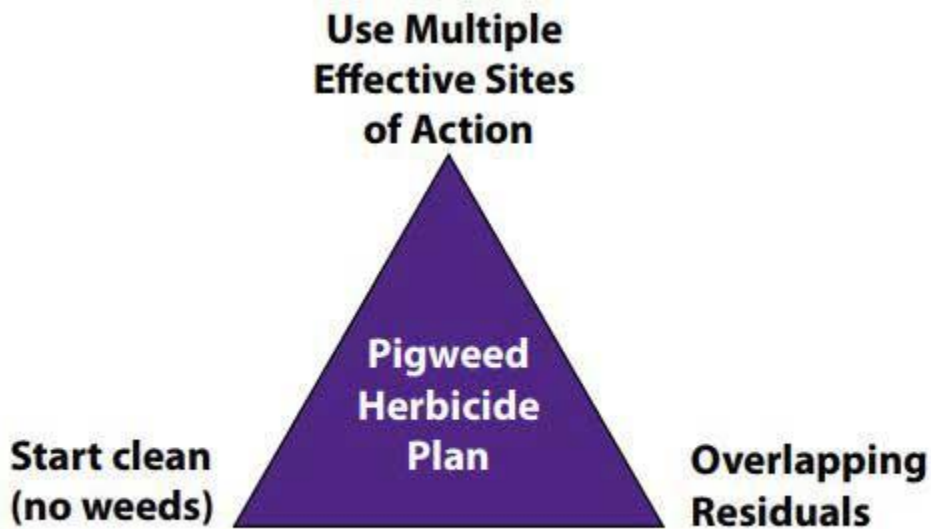


Figure 2. Three key components that should be found in every pigweed herbicide program. Graphic from MF 3448, [Integrated Pigweed Management](#), K-State Research and Extension.

More information about each of these three components can be found in the publication.

The full publication, "Integrated Pigweed Management", is available online at:  
<https://www.bookstore.ksre.ksu.edu/pubs/MF3448.pdf>.

Information provided by Dallas Peterson, Extension Weed specialist and Marshall Hay.