

# WEED RESISTANCE TO HERBICIDES

In Arkansas, many weeds have become resistant to herbicides that once provided excellent control. Palmer amaranth (pigweed) populations in certain areas of the state have become resistant to 6 different herbicide modes of action. The maps below shows the spread of pigweed populations that have become resistant to PPO herbicides (WSSA Group 14), metolachlor and acetochlor herbicides (WSSA Group 15), and HPPD herbicides (WSSA Group 27).

## Things That Promote Resistance

- 1) Overdependence on herbicides.
- 2) Relying on a single herbicide mode of action year after year.
- 3) Multiple applications of the same herbicides within a year.
- 4) Applying sub-lethal rates of herbicides.
- 5) Continuous cropping systems.

In order to manage herbicide-resistant weeds and to prevent the widespread development of resistance, the University of Arkansas recommends the following strategies:

## General Resistance Management Strategies

- 1) Rotate crops.
- 2) Plant a winter cover crop such as cereal rye.
- 3) Rotate herbicides using different modes of action.
- 4) Use deep tillage, cultivation and other cultural practices in rotation, when possible.
- 5) Use tank-mixtures at effective rates with different modes of action.
- 6) Avoid using sequential applications of the same single herbicide over and over again.
- 7) Control weeds on fallow ground or set aside land to prevent spreading (glyphosate-resistant horseweed is a good example).
- 8) **If you suspect resistance after a herbicide application: Attempt to eradicate escapes with alternative herbicides or cultural methods. Do not let them go to seed! Collect seed samples from suspect plants and take them to your county Extension agent who will have them tested at the University of Arkansas or can let you know if resistant populations are known to exist.**

