

# HERBICIDE RESISTANCE IN WASHAKIE COUNTY

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This bulletin is available online: <http://bit.ly/kochia>

## GLYPHOSATE RESISTANT KOCHIA IS ON THE MOVE

Glyphosate-resistant kochia (*Kochia scoparia*) has been confirmed in Washakie County. Genetic analysis confirmed that resistance has been developing for 2 to 3 generations.

Glyphosate is the active ingredient in Roundup® and many other herbicides. Resistance develops when herbicides with the same mode of action are used repeatedly over time. Glyphosate misuse is not restricted to farmers. Nearly 90% of glyphosate sold by Washakie County Weed and Pest is purchased by individuals who own less than 10 acres. Fourteen species of glyphosate resistant weeds have been identified across the US, including glyphosate resistant kochia in Washakie County. Please help by doing your part to stop the spread of glyphosate resistant kochia!

**Careful and judicious use of herbicides can help prevent further spread. Always read and follow label instructions carefully, and use the rate prescribed.**



### HIGH RISK AREAS

- *Ditches, roadsides, driveways, vacant lots, fencelines, etc.*
- *Areas with alkaline or saline soil where kochia thrives.*
- *Anywhere that glyphosate has been used repeatedly.*

### WHAT IS HERBICIDE RESISTANCE?

Herbicide resistance is the inherited ability of a species to survive and reproduce following exposure to a dose of herbicide that would normally be lethal. Glyphosate is the active ingredient in Roundup® and many other commonly used herbicides. Resistance develops when herbicides with the same active ingredients (in this case glyphosate) are used repeatedly over time without mixing or rotating. With repeated exposure to herbicides, wild plants develop genetic mutations and become resistant.

**Mix herbicides with different active ingredients (ie. glyphosate, 2-4-D, etc) to reduce the risk of developing herbicide resistance.**

## HOW DO I KNOW IF I HAVE HERBICIDE RESISTANT WEEDS?

Scout for weeds 7 to 14 days after herbicide application and properly identify any surviving weed species. Initially, the number of surviving individuals may be low, and distributed in small patches.

Resistant plants are typically surrounded by plants that are dead or dying (see photo). Resistant plants may initially show herbicide injury symptoms, but recover after a few days or weeks. More mature plants will be more difficult to kill, as will plants under stress.



If you suspect resistance, contact Washakie County Extension at 347-3431 or [cyoungqu@uwyo.edu](mailto:cyoungqu@uwyo.edu)

## MANAGEMENT STRATEGIES

Each kochia plant can produce thousands of seeds. Adopt a zero-tolerance policy for suspected resistant kochia populations!

- *Remove kochia plants by uprooting or tillage.*
- *Mowing will not kill the plant and they will still produce seed.*
- *Avoid pollen movement. Do not allow kochia to flower and produce seeds.*
- *Chemical control (herbicides) can be effective when kochia is small. Few herbicides will provide adequate control of kochia plants taller than 10-inches is difficult and may promote resistance.*

## CHEMICAL CONTROL OPTIONS FOR KOCHIA

Make sure that spray equipment is properly calibrated. Treating with a lower rate than recommended can cause glyphosate resistance in Kochia populations to develop faster.

**Always read and follow herbicide labels on the container. The label is the law!**

The following chemical recommendations are for driveways, alleys, fence lines, ditches, etc. They can be mixed with glyphosate or used separately.

Product	Rate	Notes
Banvel <i>or</i> Clarity	8 to 16 oz/acre	Do not use near trees or other desirable broadleaf vegetation, as severe injury can result.
Starane Ultra <i>or</i> Vista XRT	17 oz/acre	Mix Vista XRT at 0.4 fl. oz. per gallon of water.
E-2	1 quart/acre	Mix E-2 at 2 oz per gallon of water.

*Reference to commercial products does not constitute an endorsement by the University of Wyoming. Consult pesticide labels for specific use recommendations and rotational crop restrictions. Always read and follow pesticide labels carefully*

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