

Further Information About Herbicide Resistance Management In North Carolina Wheat

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The January 2013 Wheat Crop Update (<http://www.smallgrains.ncsu.edu/crop-alerts.html>) contained a short section about preventing the development of ALS resistant broadleaf weeds. The alert was intended to generate thought about wheat production practices, and it seems to have worked! Here are more details and some clarification.

There is a localized population of ALS-resistant common chickweed in Virginia, and we are currently investigating suspected resistant populations within North Carolina. However, we do not see ALS-resistant common chickweed as an immediate threat to our wheat acreage. As wheat producers plan their weed management programs, their first priority needs to be preventing further development of resistant Italian ryegrass. The January 2013 Update is intended to demonstrate that good resistance management can and should additionally include practices to prevent any future problem with resistant weeds.

There are many ways growers can implement a resistance management program. The example in the video was only “an example”, not an absolute recommendation. Harmony Extra is still an excellent broadleaf weed control option while Osprey and Powerflex will provide control of small broadleaf weeds and grasses. The update is suggesting that growers consider incorporating herbicides into their programs with additional modes of action instead of solely relying on a single mode of action. The example demonstrates how herbicides with multiple modes of action might be rotated across seasons. It included all the popular broadleaf herbicides currently used in North Carolina wheat production so that growers could see that all of them can fit into a resistance management program. Herbicide rotation can also be used within the same wheat season. For example, a preemergence or spike product could be followed by a postemergence herbicide with a different mode of action. Tank mixing herbicides with different modes of action, such as 2,4-D plus Harmony Extra, is also an effective method of resistance management.

Growers can choose the herbicides that will give them the best control of the weeds they are dealing with, and at the same time either rotate or mix different modes of action. To assist with that, here is a table of some small grain herbicides showing their modes of action. A complete list can be found in **Table 7-10A Herbicide Modes of Action** on page 279 of the **2013 North Carolina Agricultural Chemical Manual** (<http://ipm.ncsu.edu/agchem/7-toc.pdf>).

Mode of Action of Several Small Grain Herbicides¹

Herbicide Mode of Action	Small Grain Herbicides
ACCcase inhibition	Axial
ALS inhibition	Finesse, Harmony Extra, Osprey, PowerFlex
Photosystem II inhibition & PPO inhibition	Axiom
PPO inhibition	Valor SX
Synthetic auxin	2,4-D, Banvel, Clarity

¹ See **Table 7-10A Herbicide Modes of Action** on page 279 of the **2013 North Carolina Agricultural Chemical Manual** (<http://ipm.ncsu.edu/agchem/7-toc.pdf>) for a complete listing.