

APHIS Recommendations for Best Management Practices for Authorized Field Trials of Regulated Herbicide-Resistant Crops

On October 15, 2014 USDA announced measures to help farmers diversify weed control efforts: <http://www.usda.gov/wps/portal/usda/usdahome?contentid=2014/10/0227.xml&contentidonly=true>.

With respect to APHIS, this announcement says:

USDA's Animal and Plant Health Inspection Service (APHIS) will actively promote use of best management practices (BMPs) in design protocols for regulated authorized releases of genetically engineered (GE) crops and will include recommendations for BMPs with the authorization of field trials of herbicide-resistant (HR) crops.

In support of USDA's measures APHIS is now including recommendations for the adoption of best management practices (BMPs) to delay or mitigate evolution of herbicide resistance, with authorizations for regulated releases of genetically engineered crops. For information and resources on this topic please see <http://wssa.net/weed/resistance/>. In particular, Norsworthy et al. (2012) describe the multifaceted, multiyear approach for mitigating evolution of herbicide resistance and the use of BMPs, including, but not limited to the examples given in: Reducing the Risks of Herbicide Resistance: Best Management Practices and Recommendations (Weed Sci. 2012, Special Issue: 31-62).

"Mitigating the evolution of herbicide resistance depends on reducing selection through diversification of weed control techniques, minimizing the spread of resistance genes and genotypes via pollen or propagule dispersal, and eliminating additions of weed seed to the soil seedbank. Effective deployment of such a multifaceted approach will require shifting from the current concept of basing weed management on single-year economic thresholds. Programs for herbicide-resistance management must consider use of all cultural, mechanical, and herbicidal options available for effective weed control in each situation and employ the following best management practices (BMPs):

- 1. Understand the biology of the weeds present.*
- 2. Use a diversified approach toward weed management focused on preventing weed seed production and reducing the number of weed seed in the soil seedbank.*
- 3. Plant into weed-free fields and then keep fields as weed free as possible.*
- 4. Plant weed-free crop seed.*
- 5. Scout fields routinely.*
- 6. Use multiple herbicide mechanisms of action (MOAs) that are effective against the most troublesome weeds or those most prone to herbicide resistance.*
- 7. Apply the labeled herbicide rate at recommended weed sizes.*
- 8. Emphasize cultural practices that suppress weeds by using crop competitiveness.*
- 9. Use mechanical and biological management practices where appropriate.*
- 10. Prevent field-to-field and within-field movement of weed seed or vegetative propagules.*
- 11. Manage weed seed at harvest and after harvest to prevent a buildup of the weed seedbank.*
- 12. Prevent an influx of weeds into the field by managing field borders."*

For more information on USDA efforts to help farmers diversity weed control efforts and address the increase of herbicide resistant weeds in U.S. agricultural systems, please see: <http://www.usda.gov/wps/portal/usda/usdahome?contentid=2014/10/0227.xml&contentidonly=true>.