

Managing Dicamba in Roundup Ready 2 Xtend[®] and XtendFlex[®] Soybeans



The Xtend[®] trait provides resistance to the Group 4 synthetic auxin herbicide: dicamba. The trait allows postemergence applications of dicamba for broadleaf weed control in soybeans. However, many broadleaf plants are inherently sensitive to dicamba, and the use of Xtend technology requires proactive stewardship to reduce off-target movement.

Need to Know

1. Roundup Ready 2 Xtend[®] soybeans are resistant to dicamba and glyphosate. XtendFlex[®] soybeans are resistant to dicamba, glufosinate and glyphosate.
2. XtendiMax[®] with VaporGrip[®] Technology, Engenia[®] and Tavium[®] Plus VaporGrip[®] Technology are the only dicamba formulations that can be used preplant/preemergence without planting restrictions and postemergence in Roundup Ready 2 Xtend or XtendFlex soybeans.
3. XtendiMax with VaporGrip can be applied to dicamba-resistant soybeans through June 30 or through the R1 soybean stage, whichever occurs first. Engenia can be applied to dicamba-resistant soybeans through June 30. Both products can be applied to cotton through July 30. Restrictions may vary by state.
4. Tavium Plus VaporGrip can be applied through the V4 growth stage or June 30, whichever comes first, and through the six-leaf cotton growth stage or July 30, whichever comes first.
5. Many broadleaf plants, such as grapes, tomatoes, and non-dicamba-resistant soybeans, are highly sensitive to low doses of dicamba that can occur from drift or volatility.
6. XtendiMax with VaporGrip, Engenia, and Tavium Plus VaporGrip are restricted-use pesticides. The applicator must be certified and have completed annual mandatory training.
7. The person applying the herbicide is responsible for ensuring the application is made in accordance with the approved label.
8. Each label has specific record-keeping requirements with 14 or more items that need to be recorded within 72 hours of making the application unless otherwise specified by state requirements.
9. Each application of XtendiMax with VaporGrip, Engenia or Tavium Plus VaporGrip requires the addition of a pH buffering or volatility reduction agent. An approved drift reduction adjuvant must also be included unless otherwise indicated on the product website.

10. Dicamba injury to sensitive soybeans can appear worse on vegetative soybeans compared with later growth stages, but yield reductions are more likely to occur when sensitive soybeans are injured in the early-flowering and seed set stages. Injury and yield losses depend on the amount of dicamba that contacted the sensitive plants and subsequent environmental conditions.

Delaying Herbicide Resistance

- **Integrate multiple weed management techniques.** Overreliance on dicamba and/or glufosinate will eventually result in the development of weed populations resistant to these herbicides. Include preemergence residual herbicides in the management program. An effective residual herbicide adds one or more additional sites of action to the program and can provide control of emerging weeds, such as pigweed species (i.e., *Amaranthus* species). Consider including fall-seeded cover crops, deep tillage, narrow row spacing and/or higher soybean seeding rates in the program. These tactics can reduce competition from early-season pigweeds.
- **Make timely applications with labeled rates.** Apply labeled rates of the products when weeds are less than 4 inches tall for best control and to help avoid development of dicamba resistance.
- **Scout fields after application.** Remove escaped weeds from the field before they produce seed, which will return to the soil and germinate in subsequent years. Follow the herbicide label for reporting incidences of nonperformance of these products against a particular weed species.

Best Management Practices

1. **Use only the approved dicamba formulation when making applications to Xtend or XtendFlex crops.**
2. **Read the herbicide label.** XtendiMax with VaporGrip, Engenia and Tavium Plus VaporGrip labels have specific application parameters. Each herbicide has supplemental label(s). Updates to labels will be posted on each product's webpage.
3. **Add a volatility reduction agent.** Volatility reduction adjuvants, or pH buffering adjuvants, are required for all applications of approved dicamba products. Drift reduction adjuvants are required for most spray solutions. Find approved adjuvants on each product's website.

4. Check the weather.

- **Wind.** New formulations of dicamba will not minimize the risk of physical drift. These products can be applied only when wind speeds are between 3 and 10 mph. Wind speed is to be measured at boom height.
- **Rain.** The rainfast interval for these products is four hours from time of application. Do not apply when soil is saturated and conditions favor runoff or when rainfall that may exceed the soil field capacity is forecasted to occur within 48 hours for Engenia, XtendiMax with VaporGrip or Tavium Plus VaporGrip applications.
- **Temperature and humidity.** High temperatures and low humidity favor herbicide volatilization, which can result in vapor drift.
- **Temperature inversions.** Avoid making applications during calm, clear conditions when wind speeds are less than 3 mph. Herbicides can remain suspended in the stable air at time of application and move off-target.

5. Observe buffers.

Applications cannot be made when the wind is blowing toward an adjacent sensitive area or sensitive crop. These dicamba products require a 240-foot downwind buffer during application or a 110-foot downwind buffer if using an approved hooded spray boom. When any of the following are immediately adjacent to a treated field, they may be considered part of the buffer:

- Roads (paved or gravel surfaces).
- Mowed-grass alleys that run adjacent to the field.
- Fields that are prepared for planting but not yet planted.

- Areas that are bare ground and contiguous with the treated fields.
- Areas planted to dicamba-tolerant crops.
- Areas covered by the footprint of a building or other man-made structure with walls and/or a roof.

When these products are being applied in a county where endangered species are present, a 310-foot downwind buffer is required along with a 57-foot buffer on all sides of the application. Prior to making an application with any of these products, the applicator is responsible for consulting the Endangered Species Protection Bulletin (<https://www.epa.gov/endangered-species/bulletins-live-two-view-bulletins>) or calling 1-844-447-3813 no more than six months before using these products to determine if additional restrictions apply.

6. **Be aware of your surroundings.** Applicators are responsible for consulting a sensitive crop registry (if available) and surveying the neighboring fields prior to making an application.
7. **Use only approved nozzles.** Larger droplets reduce potential for drift. Use only approved nozzles, which can be found at each product's webpage.
8. **Know tank-mix restrictions.** Visit each product's webpage to find approved tank-mix partners.
9. **Clean the sprayer properly.** Proper cleanout of the spray tank and spray components is essential to avoid contamination. A triple-rinse cleanout procedure for each product can be found on the product label.



A field of sensitive soybeans with visible dicamba injury throughout.

For more information and links to additional resources, visit growiwm.org/take-action-home/.

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