

Managing 2,4-D in Enlist E3[®] Soybeans



The Enlist E3[®] trait provides resistance to the Group 4 synthetic auxin herbicide 2,4-D. The trait allows postemergence applications of 2,4-D choline for broadleaf weed control in soybeans. Proper stewardship of the technology is essential to delay development of 2,4-D-resistant weeds and to minimize 2,4-D drift onto sensitive broadleaf plants.

Need to Know

- Enlist E3 soybeans are resistant to 2,4-D, glufosinate and glyphosate.
- Enlist One[®] and Enlist Duo[®] are the only 2,4-D-containing products approved for use in preplant without restrictions and postemergence to Enlist E3 soybeans.
- Many broadleaf plants, such as grapes, tomatoes and non-2,4-D-resistant cotton, are highly sensitive to low doses of 2,4-D drift.
- The person applying the herbicide is responsible for ensuring the application is made in accordance with the approved label.

Mixing Considerations

- A mixture of 2,4-D choline with glufosinate represents two effective sites of action (groups 4 and 10) on herbicide-resistant weeds when used in Enlist E3 soybeans. Glufosinate products are only approved for mixing with Enlist One, not with Enlist Duo. Only products listed on enlisttankmix.com are approved for mixing with Enlist Duo herbicide or Enlist One herbicide.
- When Enlist One is mixed with a potassium salt of glyphosate, such as Roundup PowerMAX[®], the solution can



Pin oak injured by 2,4-D choline. New leaves are tightly curled and not unfurling properly.

form residue that plugs screens and nozzle tips if mixed incorrectly. Follow the label when mixing these chemicals; add products one at a time, allow sufficient agitation and use sufficient water. If ammonium sulfate is a part of the mixture, it must be fully dissolved in water prior to the addition of the herbicides.

- Mixing 2,4-D with glyphosate or clethodim can result in unsatisfactory control of grasses such as barnyardgrass, junglerice and volunteer corn. Both glyphosate and clethodim require rapid translocation or movement through the plant, and 2,4-D can antagonize that rapid movement. Separate applications may improve grass control.

Delaying Herbicide Resistance

- **Integrate multiple weed management techniques.** Never rely on postemergence applications of 2,4-D and/or glufosinate alone, as this practice will eventually result in the development of weed populations with resistance to these herbicides. Start with a clean field and include preemergence residual herbicides in the management program. Application of an effective residual herbicide adds one or more additional sites of action to the program and can provide control of emerging weeds, such as pigweeds (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 between 3 to 6 inches tall for best control and to help avoid development of 2,4-D 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. Contact your state extension weed scientist with questions about resistance or herbicide nonperformance. The label requires nonperformance issues with these products to be reported to a Corteva representative or retailer or by calling 1-855-ENLIST-1 (1-855-365-4781).

Best Management Practices

1. **Use only the approved 2,4-D formulation when making applications to Enlist™ crops.** The 2,4-D choline in Enlist products is less volatile than other 2,4-D formulations. Using non-Enlist 2,4-D products on Enlist crops is a violation of the law.
2. **Read the herbicide label.** The Enlist One and Enlist Duo labels have specific application parameters. Each herbicide has supplemental label(s). Updates to labels will be posted on <https://www.enlist.com/en/herbicides.html>.
3. **Check the weather.**
 - **Wind.** Enlist products can physically drift when applications are made in high winds. Recommended wind speed range is 3 to 10 mph; federal label maximum wind speed is 15 mph. Check with your state on maximum wind speed.
 - **Rain.** Do not apply Enlist One or Enlist Duo when rain is forecasted within the following 24 hours.
 - **Temperature and humidity.** High temperatures and low humidity favor herbicide volatilization, which can result in vapor drift.
4. **Be aware of your surroundings.** Many ornamental, vegetable and tree species are extremely sensitive to 2,4-D. Applicators are responsible for consulting a sensitive crop registry (if available) or surveying the neighboring fields prior to making an application.
5. **Be aware of downwind susceptible crops.** Enlist products cannot be applied when the wind is blowing toward an adjacent field of cotton, grapes, tomatoes and other fruiting vegetables, or cucurbit crops.
6. **Maintain a buffer zone.** Maintain a 30-foot downwind buffer during application from any area except:
 - Roads (paved or gravel surfaces).
 - Planted agricultural fields (except when the crop is a susceptible crop as indicated on the product label).
 - Fields that are prepared for planting but not yet planted.
 - Areas covered by the footprint of a building or other man-made structure with walls and/or a roof.
7. **Use only approved nozzles.** Refer to <https://www.enlist.com/en/herbicides.html> for lists of approved nozzles for use with Enlist One or Enlist Duo.
8. **Know tank-mix restrictions.** Refer to <https://www.enlist.com/en/herbicides.html> for a list of 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 Enlist product can be found on the product label.
10. **Record your application details.** As part of good farm management practices, maintain detailed records of spraying.



Grape leaves injured by 2,4-D. Leaves are strapped or may be drawstring-like in appearance.

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

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