

Enlist™ One and Enlist Duo are water-based formulations of 2,4-D that can only be sprayed on cotton varieties with Enlist traits. XtendiMax® with VaporGrip® Technology and Engenia® Herbicide are water-based formulations of dicamba that can only be sprayed on cotton varieties with XtendFlex traits. The EPA labels for these 2,4-D and dicamba products include many requirements designed to reduce off-target movement and help limit damage to downwind crops and other susceptible plants. These are summarized in this table comparing 2,4-D and dicamba herbicide products. Check labels and websites for current requirements before spraying.

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**Spray Legally: Summary of Enlist™, Engenia® and Xtendimax®**

**Application Use Requirements on Cotton**

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A PDF of this is available on-line at: <https://cals.arizona.edu/crops/cotton/files/auxinsummary.pdf>

Requirements	Enlist One & Enlist Duo	Engenia & XtendiMax
Check websites within 7 days before spraying	<a href="http://www.EnlistTankmix.com">www.EnlistTankmix.com</a>	<a href="http://www.EngeniaTankmix.com">www.EngeniaTankmix.com</a> <a href="http://www.XtendimaxApplicationRequirements.com">www.XtendimaxApplicationRequirements.com</a>
Restricted Use Pesticide?	NO	YES – Applicator must have certified applicator license
Training	Corteva applicator training	BASF or Bayer applicator training
Record keeping	Recommended – standard record keeping needed for 1080 form and for grower use	Required – Record keeping on restricted use pesticides by certified applicators (7 CFR Part 110 ), Records must be generated within 72 hr. and kept for two years.
Glyphosate tank-mix	Droplet size NOT reduced; Drift Reduction Agent not required	Droplet size reduced; Drift Reduction Agent required
Glufosinate tank-mix	Allowed	NOT allowed
Herbicide tank-mixtures	Only herbicides, other pesticides, drift reduction agents, and other adjuvants listed on labels or websites ( <a href="#">see above</a> ) are allowed. Website must be checked within 7 days before spraying.	
Application volumes	10 – 15 gallons per acre	Minimum of 15 gallons per acre
Maximum rate per acre	2 pints (Enlist One); 4.75 pints (Enlist Duo)	12.8 fl. oz. (Engenia); 22 fl. oz. in season, 44 fl. oz. preemergence/preplant (Xtendimax)
Maximum applications per year	3: one burndown spray before cotton emergence; two postemergence	3 or 4: 1 or 2 burndown sprays before cotton emergence depending on rate; two postemergence (maximum 2 lb ae/acre per season)
Sequential applications	Minimum of 12 days apart	Minimum of 7 days apart
Application window	Up to mid-bloom	Up to 60 days after planting or mid-bloom, whichever comes first
Nozzles	Only nozzles and pressure combinations listed on labels or websites ( <a href="#">see above</a> ) are allowed.	
Wind speed (includes gusts)	3 to 10 MPH recommended; 3 to 15 MPH allowed	3 to 10 MPH
Boom height	Use the minimum boom height above target canopy based on nozzle manufacturer's directions	Boom height based on nozzle selection and nozzle spacing but do not exceed 24 inches above target canopy
Sprayer speed	15 MPH maximum	15 MPH maximum
Temperature inversions	Do NOT spray during inversions; spray from sunrise to sunset	Do NOT spray during inversions; spray from 1 hour after sunrise to 2 hours before sunset
Susceptible crops in downwind field	Do NOT spray – Sensitive crops include grapes, melons, cotton and many other broadleaf plants including those in residential areas	
Sprayer clean out	Clean at end of day; use triple rinse procedures on labels	
Endangered species & sensitive area concerns: Check labels for types of areas that can be included in the buffer distances.	30 foot buffer on downwind side of field	220 foot buffer for >22 to 44 fl. oz. per acre 110 foot buffer for ≤22 fl. oz. per acre on downwind side of field. Applicator must check EPA website: <a href="http://www.epa.gov/espp">http://www.epa.gov/espp</a> within 6 months of application to determine if 57 foot buffers are required on the other sides of field
Area restrictions	<u>Enlist One</u> : Do not use in Yuma, La Paz, Maricopa, Pinal, Pima and Santa Cruz Counties. <u>Enlist Duo</u> : Do not use south of I-8 and west of Highway 85 in Arizona or on land administered by the US Fish & Wildlife Service or National Park Service in the above counties.	Restrictions on spraying field edges and buffer requirements where endangered species are present. Visit <a href="http://www.epa.gov/espp">http://www.epa.gov/espp</a> or <a href="http://www.epa.gov/endangered-species">http://www.epa.gov/endangered-species</a> or call 1-844-447-3813 within 6 months of application for specifics.

**Other Resources:**

McCloskey, W.B., Pier, N.M. 2019. Avoiding 2,4-D and Dicamba Off-Target Movement from Cotton. <http://cals.arizona.edu/crops/cotton/files/auxin.pdf>

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