

Dicamba and Honey Bees & Best Practices for Applicators

Keep Updated on Dicamba Here: bit.ly/3346m7p

Dicamba has no observed toxicity to bees and the required in field buffer used to protect off-target plants also prevents indirect effects on bees' habitat and their pollen and nectar sources.

Rigorous Testing. Dicamba is currently going through active ingredient re-registration and as part of this process, EPA's newly required tests that assess the potential for acute and chronic effects to honey bee larvae and adults have been conducted.

Data Shows. Dicamba has no observed effect to larvae and adults and passes EPA's conservative Tier 1 Testing (Screening Level) Risk Assessment for honey bees.

Label Requirements & Best Practices. XtendiMax applicators are required to use a 110 ft. downwind, in field buffer to protect off-target plants and indirect effects to honey bees.
 > Requirements specific to XtendiMax® with VaporGrip® Technology product label

Dicamba has no observed toxicity to bees

Testing for Direct Effects

Tier 1 Testing (Screening Level) and Assessment:

- > Studies exposing larva and adult honey bees to dicamba, for acute or chronic periods, showed no observed effect.
- > The U.S. EPA Tier 1 pollinator risk assessment ¹ shows that **direct effects** to honey bee larvae and adults are unlikely even at the highest maximum application rate per the label instructions.
- > EPA considers anything >11 ug/bee to be practically nontoxic to nontarget insects

Submitted to EPA to Support Dicamba Re-Registration

Test Type	Result
Adult acute contact ²	NOEC ≥100 ug a.i./bee
Adult acute oral ²	NOED ≥100 ug a.i./bee
Adult chronic ³	NOEC ≥66.3 ug a.i./bee/day or 2578 ppm in diet
Larval acute ⁴	NOEC ≥ 25 ug a.i./larva or 159 ppm in diet
Larval chronic ⁴	NOEC ≥ 25 ug a.i./larva or 159 ppm in diet

Test Type	Result
Adult chronic ⁵	NOEC ≥1,000 mg DMA/kg NOEC ≥1,000 mg Banvel/kg
Brood study ⁶	NOEC ≥1,000 mg DMA/kg

(NOEC = No-Observed-Effect Concentration) (NOED = No-Observed-Effect Dose)

Using an in field buffer is key

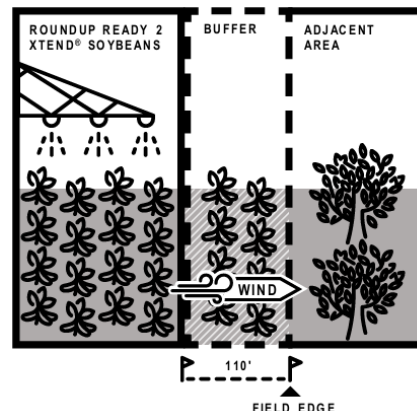
Indirect Effects

A 110 ft. Downwind, In Field, Buffer is Required for XtendiMax herbicide with VaporGrip Technology to Protect Off-Field Habitat & Indirect Effects to Honey Bees

The applicator must always maintain a downwind buffer between the last treated row and the nearest downwind field edge (in the direction the wind is blowing) for all uses of XtendiMax herbicide with VaporGrip Technology products.

- > 110 ft (when applying 0.5 lb ae per acre)
- > 220 ft (when applying >0.5 lb up to 1.0 lb ae per acre)

EPA's **indirect effects** assessment for pollinators used the most sensitive plant species impacted by dicamba – non-dicamba tolerant soybeans – as a conservative indicator for potential impacts to sensitive plant species. This approach is highly protective of plant communities outside the treated area and is therefore protective of indirect effects to honey bees.



Example: Buffer requirement for downwind adjacent areas. View the XtendiMax education deck at RoundupReadyXtend.com/training for more examples. Note: Downwind buffer is not intended for protection of downwind sensitive crop.

1. US EPA. 2016. Guidance on Exposure and Effects Testing for Assessing Risks to Bees.
 2. M. Franke. 2018. Acute toxicity of BAS 183 H to the honeybee Apis mellifera L. under laboratory conditions (submitted to E.P.A to support dicamba re-registration). MRID:50784601.
 3. S. Ruhland. 2018. Chronic toxicity of BAS 183 H to the honey bee Apis mellifera L. under laboratory conditions. (submitted to E.P.A to support dicamba re-registration). MRID: 50784603.
 4. K. Kleebaum. 2018. Repeated exposure of honey bee (Apis mellifera) larvae to BAS 183 H (Dicamba) under laboratory conditions. (submitted to E.P.A to support dicamba re-registration). MRID: 50784602.
 5. Morton et. al., 1972. Toxicity of Herbicides to Newly Emerged Honey Bees.
 6. Morton, H.L. and Moffett, J.O. 1972. Ovicidal and Larvicidal Effects of Certain Herbicides on Honey Bees.

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XtendiMax® herbicide with VaporGrip® Technology is part of the Roundup Ready® Xtend Crop System and is a restricted use pesticide. ALWAYS READ AND FOLLOW PESTICIDE LABEL DIRECTIONS. It is a violation of federal and state law to use any pesticide product other than in accordance with its labeling. XtendiMax® herbicide with VaporGrip® Technology and products with XtendFlex® Technology may not be approved in all states and may be subject to use restrictions in some states. Check with your local product dealer or representative or U.S. EPA and your state pesticide regulatory agency for the product registration status and additional restrictions in your state. For approved tank-mix products and nozzles visit XtendiMaxApplicationRequirements.com.

NOT ALL formulations of dicamba or glyphosate are approved for in-crop use with Roundup Ready 2 Xtend® soybeans. ONLY USE FORMULATIONS THAT ARE SPECIFICALLY LABELED FOR SUCH USES AND APPROVED FOR SUCH USE IN THE STATE OF APPLICATION. Contact the U.S. EPA and your state pesticide regulatory agency with any questions about the approval status of dicamba herbicide products for in-crop use with Roundup Ready 2 Xtend® soybeans or cotton with XtendFlex® Technology.

Roundup Ready 2 Xtend® soybeans contain genes that confer tolerance to glyphosate and dicamba. Glyphosate will kill crops that are not tolerant to glyphosate. Dicamba will kill crops that are not tolerant to dicamba. Contact your seed brand dealer or refer to the Monsanto Technology Use Guide for recommended weed control programs.

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