



U.S. ENVIRONMENTAL PROTECTION AGENCY  
Office of Pesticide Programs  
Registration Division (7505P)  
1200 Pennsylvania Ave., N.W.  
Washington, D.C. 20460

EPA Reg. Number:

7969-472

Date of Issuance:

10/27/20

NOTICE OF PESTICIDE:

Registration  
 Reregistration

(under FIFRA, as amended)

Term of Issuance:

Unconditional

Name of Pesticide Product:

Engenia Herbicide

Name and Address of Registrant (include ZIP Code):

BASF Corporation  
26 Davis Drive  
Research Triangle Park, NC 27709

**Note:** Changes in labeling differing in substance from that accepted in connection with this registration must be submitted to and accepted by the Registration Division prior to use of the label in commerce. In any correspondence on this product always refer to the above EPA registration number.

On the basis of information furnished by the registrant, the above named pesticide is hereby registered under the Federal Insecticide, Fungicide and Rodenticide Act.

Registration is in no way to be construed as an endorsement or recommendation of this product by the Agency. In order to protect health and the environment, the Administrator, on his motion, may at any time suspend or cancel the registration of a pesticide in accordance with the Act. The acceptance of any name in connection with the registration of a product under this Act is not to be construed as giving the registrant a right to exclusive use of the name or to its use if it has been covered by others.

If these terms outlined below are not complied with, the registration will be subject to cancellation in accordance with FIFRA section 6. Your release for shipment of the product constitutes acceptance of these conditions. A stamped copy of the label is enclosed for your records.

Please also note that the record for this product currently contains the following CSFs:

- Basic CSF dated 7/1/2020
- Alternate CSF 1 dated 7/1/2020

Signature of Approving Official:

Daniel Kenny, Chief  
Herbicide Branch, Registration Division (7505P)

Date:

10/27/20

Should you wish to add/retain a reference to the company's website on your label, then please be aware that the website becomes labeling under the Federal Insecticide Fungicide and Rodenticide Act and is subject to review by the Agency. If the website is false or misleading, the product would be misbranded and unlawful to sell or distribute under FIFRA section 12(a)(1)(E). 40 CFR 156.10(a)(5) list examples of statements EPA may consider false or misleading. In addition, regardless of whether a website is referenced on your product's label, claims made on the website may not substantially differ from those claims approved through the registration process. Therefore, should the Agency find or if it is brought to our attention that a website contains false or misleading statements or claims substantially differing from the EPA approved registration, the website will be referred to the EPA's Office of Enforcement and Compliance Assurance.

This product is unconditionally registered in accordance with FIFRA section 3(c)(5) provided that you comply with the terms listed below. This registration will automatically expire on December 20, 2025.

### **General Terms**

1. Submit and/or cite all data required for registration review of your product when the Agency requires all registrants of similar products to submit such data.
2. Submit one copy of the revised final printed label for the record before you release the product for shipment.

### **Herbicide Resistance Management Plan**

3. You must maintain, update and follow an Herbicide Resistance Management Plan (HRM) as described in Appendix D regarding grower agreements, field detection and remediation, education, evaluation, reporting, and best management practices (BMPs).

### **Tank Mixing, Spray Drift, and Volatility-Reduction Adjuvant Requirements**

4. You must maintain a website at [www.engeniatankmix.com](http://www.engeniatankmix.com). That website will include a list of products that have been tested pursuant to Appendix A and found, based upon such testing, not to adversely affect the spray drift properties of Engenia Herbicide. The website will identify a testing protocol, consistent with Appendix A, that is appropriate for determining whether the tested product will adversely affect the drift properties of Engenia Herbicide. The website must state that any person seeking to have a product added to the list of approved tank mix partners must perform a study either pursuant to the testing protocol identified on the website or another protocol that has been approved for the particular purpose by EPA, and must submit the test data and results, along with a certification that the studies were performed either pursuant to the testing protocols identified on the website or pursuant to another protocol(s) approved by EPA and that the results of the testing support adding the product to the list of products tested and found not to adversely affect the spray drift properties of Engenia Herbicide, to BASF. BASF will determine whether the testing and results conform to the conditions prescribed in this protocol and, depending on the test conditions and results, will either post the product on the website at [www.engeniatankmix.com](http://www.engeniatankmix.com) or notify the third-party entity that the product did not meet the requirements for posting. Once notified by a third party, you will add appropriately certified products to the list no more than 90 days after you receive such notice. Testing of tank-mix products must be conducted in compliance with procedures as stated forth in Appendix A.
5. All test data relating to the impact of tank-mixing any product with Engenia Herbicide on drift properties of Engenia Herbicide generated by you or somebody working for you or submitted to BASF by a third party, along with a certification indicating whether the study was performed either pursuant to the testing protocols identified on the website or pursuant to other protocols approved by EPA and whether the results of the testing support adding the product to the list of products tested and found not to adversely affect the spray drift properties of Engenia Herbicide, must be retained by BASF. Any and all such records must be submitted to the EPA's Office of Pesticide Programs upon request.
6. The prohibition of using products in a tank-mix with Engenia Herbicide unless the product used is contained on the list [www.engeniatankmix.com](http://www.engeniatankmix.com), and the identification of the website address, shall be included in educational and information materials developed for BASF, including the materials identified

in Appendix D, Section B.

7. Testing of any volatility-reduction adjuvant (may also be called Volatility Reduction Agent, pH Buffering Adjuvant, or pH Buffering Agent) must be conducted in compliance with procedures as set forth in Appendices A and E. Any potential volatility-reduction adjuvant must demonstrate passing results for both wind tunnel testing as set forth in Appendix A and humidome testing set forth in Appendix E.
8. BASF must maintain a volatility-reduction adjuvant tab (again, may also be called Volatility Reduction Agent, pH-Buffering Adjuvant, or pH-Buffering Agent) on the website at [www.engeniatankmix.com](http://www.engeniatankmix.com). The website must identify testing protocols, consistent with Appendices A and E. Products that have been tested pursuant to such testing protocol by BASF and found, based upon such testing, to meet the passing requirements according to Appendices A and E may be added to the list of approved volatility-reduction adjuvant products on the website tab described above. BASF must retain copies of all data and analysis from test performed by, or provided to, BASF based on the Appendix A and E protocols. Upon the Agency's request, copies of such test data and analysis must be submitted to EPA's Office of Pesticide Programs, along with certification indicating whether the study was performed either pursuant to the testing protocols identified on the website or pursuant to other protocols approved by EPA and whether the results of the testing support adding the product(s) to the list of products tested and found to meet the passing requirements of the testing standard in Appendices A and E.
9. If a third party requests the addition of a volatility-reduction adjuvant, at the discretion of BASF, the registrant will perform wind tunnel and humidome studies pursuant to the testing protocols in Appendices A and E or request the third-party to perform such studies. Should registrant decline to perform testing, the third-party entity or a testing facility on their behalf must perform a study pursuant to the testing protocol identified on the website and must submit to BASF the test data and results, along with certification that the studies were performed pursuant to the testing protocols identified on the website and that the results of the testing support adding the product to the list of approved volatility-reduction adjuvants for Engenia Herbicide. BASF will determine whether the testing and results conform to the conditions prescribed in the protocols and, depending on the test conditions and results, will either post the product on the website at [www.engeniatankmix.com](http://www.engeniatankmix.com) or notify the third-party entity that the product did not meet the requirements for posting. Once notified by a third-party, you will add appropriately certified products to the list no more than 90 days after you receive such notice. BASF will retain records related to this third-party testing and will supply these records to EPA upon their request.
10. The requirement that an approved volatility-reduction adjuvant must always be tank-mixed with Engenia Herbicide, and the identification of the website address for [www.engeniatankmix.com](http://www.engeniatankmix.com) containing the list of approved volatility-reduction adjuvants shall be included in educational and information materials developed by or for BASF, including materials identified in Appendix D, Section B.
11. So long as the Engenia Herbicide registration continues to require use of a volatility-reduction adjuvant with every application, BASF will:
  - a. Take appropriate action(s) to ensure that a sufficient supply of Sentris or any other qualified volatility-reduction adjuvant is in the channels of trade for all Engenia Herbicide applications each year, including quantities of Engenia Herbicide contained in products produced by other registrants. To ensure the supply of qualified volatility-reduction adjuvant is sufficient throughout each season, BASF will:
    - i. Project and monitor distribution of Engenia Herbicide
    - ii. Monitor available Sentris/volatility-reduction adjuvant in relevant channels of trade
    - iii. Make available additional supplies if needed to ensure sufficient quantities of Sentris volatility-reduction adjuvant are available to allow lawful application of the full quantity of Engenia Herbicide that is available in the channels of trade; and
    - iv. Maintain capacity to produce additional Sentris/ volatility-reduction adjuvants (or to cause more Sentris/volatility-reduction adjuvants to be produced) whenever any further need is anticipated.
  - b. Make arrangements through appropriate distribution networks to ensure that Sentris or other appropriate volatility-reduction adjuvants are timely available to applicators in all locations where Engenia Herbicide will be applied, before any applicator would apply Engenia Herbicide. Access to Sentris will either be through the same retail outlets as Engenia Herbicide, or if necessary, in particular locations, available from other readily accessible sources. Registrant will timely make available to every applicator information on where Sentris can be ordered or purchased.

- c. Ensure that all training materials clearly require the mandatory use of Sentris or another volatility-reduction adjuvant with every Engenia Herbicide application. Work with State authorities to ensure that appropriate training occurs before any application of Engenia Herbicide is made.
- d. Registrant Recordkeeping: BASF will keep records appropriate to document its compliance with its pH buffering adjuvant quantity commitments. BASF will make records available to EPA upon request.

### **Enhanced Reporting**

BASF must submit the information identified below to EPA's Office of Pesticide Programs under section 6(a)(2), or under 40 CFR 159.195, unless you have previously submitted that information to EPA's Office of Pesticide Programs. To the extent that this reporting requirement conflicts with or is more narrow than any reporting requirements of section 6(a)(2), 40 CFR part 159, or EPA's letter of March 27, 2020 pursuant to 40 CFR 159.195(c), the broader reporting requirement applies.

12. Information received by telephone or in writing regarding potential damage to non-target vegetation from use of dicamba during the 2021-2025 growing seasons regardless of any determination that the incident resulted from misuse (intentional or accidental). Information must be forwarded to EPA regardless of which dicamba product may have been used and/or whether or not the alleged damage resulted from a product being used according to label directions. Data must be organized by product and state to the extent practicable, and must include all available information regarding acreage involved, plant species involved, severity of damage, date and location (coordinates) of incident, known dicamba applications in vicinity of incident, location of application (coordinates), distance from application to incident, temperature and humidity data at time of application, and similar information received. Incident data must be submitted in narrative form and in a spreadsheet format. This information must be submitted with cumulative totals and be submitted annually by January 15 (beginning by January 15, 2022) and final report with all then available information due September 30, 2025.
13. Information received by telephone or in writing regarding reports of dicamba-resistant weeds, and cases of weed control failure and/or suspected resistance. All information must be forwarded to EPA regardless of which dicamba product may have been used and/or whether or not the alleged resistance occurred after an application made according to label directions. This information must be submitted annually by January 15 (beginning January 15, 2022) and final report with all then available information due September 30, 2025.
14. Any information received by BASF or finding in an analysis conducted by BASF that foods/commodities contain dicamba residues that are not covered by a tolerance or exceed established tolerance levels. This information must be submitted annually by January 15 (beginning January 15, 2022) and final report with all then available information due September 30, 2025.

### **Hooded Sprayer Qualification Requirement**

15. Testing of hooded sprayers must be conducted in compliance with procedures as set forth in Appendix F.
16. If Engenia Herbicide label provides for a reduced buffer when a qualified hooded sprayer is used, BASF must maintain a hooded sprayer tab on the website at [www.engeniatankmix.com](http://www.engeniatankmix.com) identifying the qualified hooded sprayers. The website must identify a testing protocol, consistent with Appendix F, that is appropriate for determining whether spray drift of dicamba from the proposed hooded sprayer is equivalent to or less than (*i.e.*, not statistically greater than) that from the established baseline hooded sprayer in Appendix F. Hooded sprayers that have been tested pursuant to Appendix F by BASF and found, based upon such testing, to reduce the spray drift of dicamba to a level that is equivalent to or less than that from the established baseline hooded sprayer identified in Appendix F may be added to the list of qualified hooded sprayers on the website tab described above. BASF must retain copies of all data and analysis from tests performed by, or provided to, BASF based on the Appendix F protocol. Upon the Agency's request, copies of such test data and analysis must be submitted to EPA's Office of Pesticide Programs, along with certification indicating whether the study was performed pursuant to the testing protocols identified on the website and whether the results of the testing support adding the tested hooded sprayer to the list of products tested and found to result in spray drift of dicamba to a level that is equivalent to or less than that from the established baseline hooded sprayer identified in Appendix F.

17. Additionally, the website must state that any other person or entity seeking to have a hooded sprayer added to BASF 's list of qualified hooded sprayers must contact BASF prior to any testing for this purpose. At the discretion of BASF, BASF will either perform a study pursuant to the testing protocol herein or request the third-party to perform such study. Should BASF decline to perform testing, the third-party entity or a testing facility on their behalf must perform a study pursuant to the testing protocol identified on the website and must submit to BASF the test data and results, along with certification that the studies were performed pursuant to the testing protocol identified on the website and that the results of the testing support adding the hooded sprayer to the list of qualified hooded sprayers for dicamba. BASF will certify that the testing and results conform to the conditions prescribed in this protocol and, pursuant to the test conditions and results, will either post the hooded sprayer on the website at [www.engeniatankmix.com](http://www.engeniatankmix.com) or notify the third-party entity that the hooded sprayer did not meet the requirements for posting. BASF will retain records related to this third-party testing of hooded sprayers and will supply these records to EPA upon their request.
18. Dicamba application requirements when using qualified hooded sprayers, the listing of qualified hooded sprayers on the [www.engeniatankmix.com](http://www.engeniatankmix.com) website, and the identification of the website address shall be included in educational and information materials developed by or for BASF, including the materials identified in Appendix D, Section B.

## Appendix A

### Testing of Tank Mix Products for Spray Drift Properties

Products proposed for tank-mixing with may be added to the list of products that will not adversely affect the spray drift properties of Engenia Herbicide contained on the web site if a study is performed under the testing conditions set forth below; the test information is reported as set forth below; and the results are interpreted as set forth below and the interpretation supports adding the tested product to the list of products that will not adversely affect the spray drift properties of Engenia Herbicide:

#### Testing Conditions

Spray chamber test using conditions described in ASTM E-2798-11; or Wind Tunnel test using conditions described in EPA Final Generic Verification Protocol for Testing Pesticide Application Spray Drift Reduction Technologies for Row and Field Crops (September, 2013)

Testing Media: Engenia Herbicide + Engenia Herbicide Proposed Tank Mix Product

Test Nozzle: Tee Jet® TTI 11004 at 63 psi

Number of Replicates: 3 for each tested medium

#### Reporting

Validation information as summarized in Appendix B

Full droplet spectrum to be reported for each replicate of each tested medium

Perform AGDISP (8.26) modeling run for each replicate droplet spectrum for each tested medium (AGDISP input parameters described in Appendix C)

Establish 110 foot (0.5 lb ae/A rate) or 220 foot (1.0 lb ae/A rate) spray drift deposition estimates from AGDISP run on each replicate for each tested medium

Establish mean and standard deviation of 110 foot (0.5 lb ae/A rate) or 220 foot (1.0 lb ae/A rate) deposition for the 3 replicates of each tested medium

One-tail (upper bound) t-test ( $p=0.1$ ) to determine if proposed tank-mix product is above Engenia Herbicide 110 foot (0.5 lb ae/A rate) or 220 foot (1.0 lb ae/A rate) spray drift deposition.

#### Interpretation of Results

If mean 110 foot (0.5 lb ae/A rate) or 220 foot (1.0 lb ae/A rate) deposition for proposed tank-mix product is not statistically greater than mean 110 foot deposition for Engenia Herbicide, proposed tank-mix product can be added to the list of products that will not adversely affect the spray drift properties of Engenia Herbicide contained on the web site. If mean 110 foot (0.5 lb ae/A rate) or 220 foot (1.0 lb ae/A rate) deposition for proposed tank-mix product is statistically greater than mean 110 foot (0.5 lb ae/A rate) or 220 foot (1.0 lb ae/A rate) deposition for Engenia Herbicide, proposed tank-mix product cannot be added to the list of products that will not adversely affect the spray drift properties of Engenia Herbicide contained on the web site.

Results from other testing protocols will be acceptable for adding products to the list of products that will not adversely affect the spray drift properties of Engenia Herbicide provided that EPA has determined in writing that such other protocol is appropriate for such purpose.

## **Appendix B**

### Validation Criteria

- a. Detailed information of instrument setting and measurements
  - The distance from the nozzle tips to the laser settings
  - Measurements of airspeed and flow rate of liquid
- b. Detailed information of test substances
  - Volume composition and density of Engenia Herbicide formulation and tank mixes
- c. Summary of the entire spray output distribution for each nozzle/tank mixes with statistical analysis of replicates.
- d. Graphical outputs of Sympatec Helos laser diffraction particle size analyzer for individual spectrum
- e. Report of DvO.1 (SD), DvO.5 (SD), and DV0.9 (SD) as well as mean % fines of (< 141µmSD)



## Appendix C

### AGDISP Input Parameters

Parameter	Value	Comments
Application Method Section		
Method	Ground	
Nozzle Type	Flat fan (Default)	The direct use of the DSD overrides the use of "nozzle type"
Boom Pressure	63 psi	If nozzles/tank mixes were tested at 63 psi. It has to be consistent with tank mix as well as Engenia Herbicide for both TeeJet® and AIXR nozzles
Release Height	3 ft	Default
Spray Lines	20	Default
Meteorology Section		
Wind Type	Single height	Default
Wind Speed	15 mph	Upper bound from label
Wind Direction	-90 deg	Worst-case and default
Temperature	65 F	Default
Relative Humidity	50%	Default
Surface Section		
Angles	0	Default
Canopy	None	Default
Surface Roughness	0.12 ft	Mean of "crops" cover type
Application Technique Section		
Nozzles	54, even spacing	Standard boom setup
DSD	From wind tunnel results, imported in library	
Atmospheric stability	Strong	Default
Swath Section		
Swath width	90 ft	Standard boom
Swath displacement	0 ft	Worst-case
Spray Material Section		
Spray volume rate	15 gal/A	From label
Volatile/nonvolatile fraction	M 1768 at 1.72% v/v	To calculate volatile/nonvolatile fraction in the tank mix for the model input, provide detailed information of the tested formulations and tank mixes. See sample calculation, below <sup>1</sup>
<sup>1</sup> The tested mixture was 1.72% (v/v) Engenia Herbicide. Engenia Herbicide has a density of 10.2 lb/gal and contains 42.8% (w/v) dicamba DGA salt (2.9 lb acid equivalent/gal). For example, a 10-gallon batch would contain the following: Engenia Herbicide 1.71% * 10 gal = 0.172 gal ; 0.172 gal * 10.2 lb/gal = 1.753 lb Water 10 gal (1280 fl oz) – 22 fl oz = 1258 fl oz = 82.0157 lb Total weight 1.753 lb + 82.016 lb = 83.769 lb Active ingredient fraction: 1.753 lb * 42.8% a.i. = 0.75 lb; 0.75 lb/83.769 lb = 0.00896 (dimensionless) Non-volatile fraction: 0.00896/0.428 = 0.021 (dimensionless)		

## Appendix D

### HERBICIDE RESISTANCE MANAGEMENT PLAN

**BASF must develop an herbicide resistance management plan that includes all of the following elements:**

#### **A. Field Detection and Remediation Components:**

1. Update and implement an education program for growers, as set forth under the “Educational / Informational Component,” below, that identifies appropriate best management practices (BMPs), as set forth under the “Best Management Practices (BMPs) Component,” below, to delay, contain, and/or control weed resistance. This plan must convey to growers the importance of complying with BMPs and addressing resistance concerns.
2. If any grower or user informs you of a lack of herbicide efficacy, then you or your representative must (unless denied access by the grower) evaluate the field for “likely resistance” to Engenia Herbicide for each specific species for which lack of herbicide efficacy is reported by applying the criteria set forth in Norsworthy, *et al.*, “Reducing the Risks of Herbicide Resistance: Best Management Practices and Recommendations,” Weed Science 2012 Special Issue: 31–62 (*hereinafter* “Norsworthy criteria”)<sup>1</sup> in each specific state. If denied access, BASF must document this denial of access.
3. If BASF receives information of confirmed resistance to dicamba in a specific state for a specific weed species, then BASF must immediately report such confirmation to EPA and applicable state pesticide authority and extension services (e.g., state in which resistance is found). After that time, BASF need no longer investigate new reports of lack of herbicide efficacy regarding that specific species in that specific state, but BASF must continue to comply with A.2. above in regard to any other weed species in any such state and develop, submit to EPA, and implement a strategy to address the ongoing resistance. In addition, for each grower or user in any jurisdiction who reports a lack of efficacy, BASF must continue to make available stewardship information about resistance management to the grower or user throughout their use of this product, regardless of whether resistance is confirmed.
4. BASF must keep records of all field evaluations and all grower or user reports of lack of efficacy or “likely resistance” for a period of 3 years and make such copies available to EPA upon request.
5. In any case described in A.2. above where one or more of the Norsworthy criteria are met for a weed species not already confirmed to be resistant to dicamba in that specific state, BASF must:

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Provide the grower with specific information and recommendations to control and contain likely resistant weeds, including retreatment and/or other non-chemical controls, as appropriate. If requested by grower, BASF or its agent must continue to provide information and recommendations in the implementation of weed control measures. At the time of the initial determination that one or more of the Norsworthy criteria are met, and prior to any application of alternative control practices, BASF

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<sup>1</sup> The Norsworthy “likely herbicide resistance” criteria are: (1) failure to control a weed species normally controlled by the herbicide at the dose applied, especially if control is achieved on adjacent weeds; or (2) a spreading patch of uncontrolled plants of a particular weed species; or (3) surviving plants mixed with controlled individuals of the same species. The identification of any of these criteria in the field indicates that “likely herbicide resistance” is present.

must request that the grower provide BASF access to the relevant field(s) to collect sufficient specimens of the likely resistant weeds (potted specimens or seeds) to be able to effectively evaluate the suspected resistant weeds for resistance for further evaluation in the greenhouse or laboratory. Alternately, BASF may request that the grower or user provide such specimens, at BASF's expense. If access is granted, BASF must promptly collect samples of the suspected resistant weeds if available. If viable specimens have been collected, BASF must commence greenhouse or laboratory studies to confirm whether resistance is present as soon as practicable following sample collection.

**B. Educational / Informational Component:**

1. BASF must develop, annually update, provide to EPA and make available to state pesticide authority and extension service, and implement an education program for growers and users that includes the following elements:
  - a. The education program shall identify appropriate best management practices (BMPs), set forth under the "Best Management Practices (BMPs) Component," below, to delay, contain, and/or control weed resistance, and shall convey to growers the importance of complying with BMPs;
  - b. The education program shall include at least one written communication regarding herbicide resistance management each year, directed to users of Engenia Herbicide for use over-the-top on dicamba tolerant soybean or cotton; and
  - c. BASF must transmit the BMPs to all users of Engenia Herbicide. In addition to the other requirements of these Terms and Conditions, this transmittal must describe to growers and users the commitments as described in section A.5 about investigations of suspected dicamba-resistant weeds.
  - d. All BASF herbicide sales representatives must have immediate access to the education program for distribution to growers, users, extension agents, neighboring landowners, and any other interested stakeholder.
2. BASF must develop, annually update, provide to EPA, and implement an education program on label requirements for growers and users that includes the following elements:
  - a. The education program must include information about how to determine the appropriate buffers so that users have a better understanding what constitutes a buffer on his/her field(s), and recommendations for weed control practices in buffer zones. The education program must also include information on determination of sensitive areas and cutoff date restrictions.
  - b. Provide training on the use of broadcast hooded sprayers (e.g., what qualifies as hooded sprayer, appropriate uses, manufactures).
  - c. Training for sprayer cleanouts (before and after spraying as indicated on labels).
  - d. Training for Bulletins Live 2!
  - e. Training on updated record keeping requirements.
  - f. Training should be modified to clearly prohibit the use of the dicamba products not intended for use on DT crops for all application timings.
  - g. Training on the use of newly required pH buffering adjuvants (volatility-reduction adjuvants) and/or drift reduction adjuvants.
  - h. Training on how users/growers can report incidents and control failures to EPA and states.
  - i. Provide to EPA the original education program for dicamba users within three months of the issuance of this registration. Provide the educational materials to states that provide their own training. Provide any other stakeholder with educational materials upon

request.

### **C. Evaluation Component:**

1. BASF will annually conduct a survey directed to users of Engenia Herbicide for use over-the-top of dicamba tolerant soybean or cotton. This survey must be based on a statistically representative sample. The sample size and geographical resolution should be adequate to allow analysis of responses within regions, between regions, and across the United States. BASF must submit the draft survey to EPA as well as the survey results. This survey shall evaluate, at a minimum, the following:
  - a. Growers' and users' adherence to the terms of the Engenia Herbicide Use Directions and Label Restrictions, if Engenia Herbicide is used, and
  - b. Whether growers have encountered any perceived issue with non-performance or lack of efficacy of Engenia Herbicide and, if so, how growers have responded.
  - c. Whether growers have reported any issues with non-performance or lack of efficacy of Engenia Herbicide and how the company representatives have responded.
  - d. A question asking about awareness of public records of resistance (e.g., any awareness of popular press or industry publications on dicamba resistance or suspected resistant biotypes).
  - e. A question directed to asking about awareness of personal/neighbor reports of resistance.
  - f. Application practices for dicamba product applied (rate, time, amount, etc.) to the fields planted with dicamba-resistant seed.
2. Utilize the results from the survey described in paragraph 1 of this section to annually review, and modify as appropriate for the upcoming growing season, the following elements of BASF's resistance management plan:
  - a. Efforts aimed at achieving adoption of BMP's;
  - b. Responses to incidents of likely resistance and confirmed resistance; and
  - c. The education program and effectiveness of information dissemination. At the initiative of either EPA or BASF, EPA and BASF shall consult about possible modifications of the education program.
3. BASF must annually report to EPA any changes to its resistance management plan made in response to survey results as provided in section D.1. below.

### **D. Reporting Component:**

1. Submit annual reports to EPA by January 15 (beginning January 15, 2022) and final report with all then available information due September 30, 2025. Such reports shall include:
  - a. Annual sales of Engenia Herbicide by state which shall be treated by EPA as confidential business information;
  - b. The first annual report shall include the current education program and associated materials, and subsequent annual reports shall include updates of any aspect of the education program and associated materials that have materially changed since submission of the previous annual report, along with results of the survey as described in section C of this document;
  - c. Summary of your efforts aimed at achieving implementation of BMP's by all growers and users;
  - d. Summary of your determinations as to whether each reported lack of herbicide

- efficacy was “likely resistance,” your follow-up actions taken, and, if available, the ultimate outcome (e.g., evaluation of success of additional weed control measures) regarding each case of “likely resistance.” In the annual report, BASF must list the cases of likely resistance by county and state.
- e. The results of the annual survey described in paragraph 1 under “Evaluation Component,” above, including the extent to which growers are implementing herbicide resistance BMPs, and a summary of your annual review and possible modification – based on that survey – of the education program, and response to reports of likely resistance, described in paragraph 2 under “Evaluation Component,” above; and
  - f. Summary of the status of any laboratory and greenhouse testing conducted pursuant to section A.5 following up on incidents of likely resistance, performed in the previous year. Data pertaining to such testing must be included in the annual reports. Any confirmed resistance must be reported through appropriate, publicly available HRM channels, such as [www.weedscience.org](http://www.weedscience.org) or [www.hracglobal.com](http://www.hracglobal.com).
  - g. Report how many training sessions BASF conducted, identifying the dates, locations, and numbers of individuals trained per session. If BASF supported or partnered with other entities to provide training, report the names of the entities and the number of training sessions conducted by each, identifying the dates, locations, and numbers of individuals trained per session.

Following your submission of the annual report, you shall meet with the EPA at EPA’s request in order to evaluate and consider the information contained in the report.

#### **E. Best Management Practices (BMPs) Component:**

1. Best management practices (BMPs) must be identified in your education program. Growers and users must be advised of BMP’s in product literature, educational materials and training. BASF’s transmittal of the BMPs must also describe to growers the commitments in this section of this document. Such BMPs must direct growers and users to scout fields before application to ensure proper weed identification and after application to confirm herbicide effectiveness, and that growers and users should report any incidence of lack of efficacy of this product against a particular weed species to BASF or a BASF representative.
2. The following are the additional elements and information that must be included in these BMPs:
  - a. Regarding crop selection and cultural practices:
    - i. Understand the biology of the weeds present.
    - ii. Use a diversified approach toward weed management focused on preventing weed seed production and reducing the number of weed seeds in the soil seed-bank.
    - iii. Emphasize cultural practices that suppress weeds by using crop competitiveness.
    - iv. Plant into weed free fields, keep fields as weed free as possible, and note areas where weeds were a problem in prior seasons.
    - v. Incorporate additional weed control practices whenever possible, such as mechanical cultivation, biological management practices, crop rotation, and weed-free crop seeds, as part of an integrated weed control program.
    - vi. Do not allow weed escapes to produce seeds, roots or tubers.
    - vii. Manage weed seed at harvest and post-harvest to prevent a buildup of the weed seed-bank.
    - viii. Prevent field-to-field and within-field movement of weed seed or vegetative propagules.

- ix. Thoroughly clean plant residues from equipment before leaving fields.
  - x. Prevent an influx of weeds into the field by managing field borders.
  - xi. Fields must be scouted before application to ensure that herbicides and application rates will be appropriate for the weed species and weed sizes present.
  - xii. Fields must be scouted after application to confirm herbicide effectiveness and to detect weed escapes.
  - xiii. If resistance is suspected, treat weed escapes with an alternate mode of action or use non-chemical methods to remove escapes.
- b. Regarding herbicide selection:
- i. Use a broad spectrum soil applied herbicide with a mechanism of action that differs from this product as a foundation in a weed control program.
  - ii. A broad spectrum weed control program should consider all of the weeds present in the field. Weeds should be identified through scouting and field history.
  - iii. Difficult to control weeds may require sequential applications of herbicides with alternative mechanisms of action.
  - iv. Fields with difficult to control weeds should be rotated to crops that allow the use of herbicides with alternative mechanisms of action.
  - v. Apply full rates of this herbicide for the most difficult to control weed in the field. Applications should be made when weeds are at the correct size to minimize weed escapes.
  - vi. Use of herbicides with differing modes of action is recommended to manage resistance.
  - vii. Report any incidence of lack of efficacy of this product against a particular weed species to BASF or a BASF representative.

## Appendix E

### Testing of Tank Mix Volatility-Reduction Adjuvants/Buffering Adjuvants Properties

Products proposed as [volatility-reduction adjuvants] (may also be called Volatility Reduction Agent, pH Buffering Adjuvant, or pH Buffering Agent) may be added to the list of approved products on [enter URL] website if found, based upon such testing, that the Test Mixture results in a humidome airborne dicamba concentration are comparable to or less than the established Testing Standard as defined below.

Testing Conditions: Humidome test using conditions based on ASTM STP1587\*, such as those outlined below. Testing is not required to be performed to GLP standards, but are expected to be well documented and validated, with associated record retention for potential future reference.

Testing Standard: [Dicamba Product] + Roundup PowerMAX + VaporGrip Xtra or Sentris (0.5 lb a.e./A + 1.125 lb a.e. glyphosate/A + XXX use rate)

Test Mixture: [Dicamba Product] + Roundup PowerMAX + Buffering Adjuvant  
(0.5 lb a.e. dicamba/A + 1.125 lb a.e. glyphosate/A + XXX use rate)

Water carrier rate: 15 GPA

Normal plastic humidome as specified in ASTM STP1587

Treated substrate: soil/soil blend as specified in ASTM STP1587 with 12-22% moisture

Temperature:  $35 \pm 5^\circ \text{C}$   
Relative humidity:  $40 \pm 5\% \text{RH}$

Sample collection duration: 24 hours

Air sampling rate: 1.5-3.0 L/min

Air sampling filter: any substrate validated to capture >95% of dicamba (e.g., fiberglass mesh + cotton pad, cellulose + PUF, MCE)

Replications: 3 minimum

Analysis: A one-tail (upper-bound) t-test ( $\alpha = 0.10$ ) performed for all test mixtures relative to testing standard.

Passing result: If the Test Mixture mean was not statistically greater than that of the Testing Standard, then the [volatility-reduction adjuvant/buffering adjuvant] in the Test Mixture demonstrated the ability to reduce volatility equivalent to or better than that of [VaporGrip/Sentris].

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\* Gavlick, W.K., D.R. Wright, A. MacInnes, J.W. Hemminghaus, J.K. Webb, V.I. Yermolenka, W. Su. 2016. A Method to Determine the Relative Volatility of Auxin Herbicide Formulations, Pesticide Formulation and Delivery Systems: 35th Volume, ASTM STP1587. pp. 24-32G. R. Goss, Ed. ASTM International, West Conshohocken, PA.

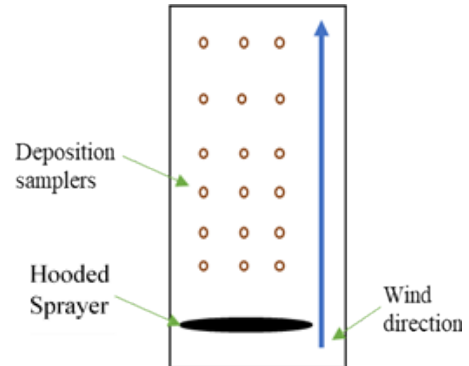
## Appendix F

### Protocol for Testing of Hooded Sprayers to Qualify for Reduced Downwind Spray Buffer Distances when Applying Engenia Herbicide

Application equipment, such as hooded sprayers, proposed for in-crop (over-the-top) dicamba applications may be added to the list of qualified hooded sprayers on [enter URL] [Herbicideapplicationrequirements.com](http://Herbicideapplicationrequirements.com) website if found, based upon such testing, that it reduces the spray drift of dicamba to a level that is equivalent to or less than that from the established baseline hooded sprayer as defined below.

#### Testing Conditions

Testing is to be conducted in an Ambient Breeze Tunnel (ABT) controlled environment wind tunnel using the conditions outlined below, with guidance from US EPA (2016)<sup>1</sup>. A section of a hooded sprayer must be placed in the tunnel with the boom length perpendicular to the wind direction. Absorbent pads must line the floor of the ABT to prevent droplet bounce. Dicamba deposition samples must be collected at pre-determined distances downwind from the sprayer. After a 2-minute clear-out period, samples must be retrieved from the farthest to the closest distances relative to the sprayer for subsequent



residue analysis to quantify dicamba deposition. Testing conditions are established herein with the express purpose of producing and comparing drift deposition curves between a baseline and a proposed hooded sprayer and are therefore not intended to be representative of field conditions.

Testing is not required to be performed to GLP standards but is expected to be well-documented and validated, with associated record retention for potential future reference. Results of testing must include a certification indicating whether the study was performed pursuant to this protocol and any deviations from it, and a conclusion stating whether the product tested meets the Passing Result criterion specified below.

Spray components: Clarity<sup>®</sup> + Induce  
(0.5 lb a.e./A + 0.25% v/v)

Baseline hooded sprayer: RedBall<sup>®</sup> 642E

Hooded sprayer tested: TBD

Boom Configuration: Contain a minimum of 4 nozzles with spacing according to manufacturer's use directions; fixed position; length perpendicular to wind direction; rear curtain of hood 3 inches above a simulated crop and, at the same boom height, above bare ground

<sup>1</sup> United States Environmental Protection Agency. 2016. Generic Verification Protocol for Testing Pesticide Application Spray Drift Reduction Technologies for Row and Field Crops



Nozzle/pressure:	TT 11003 at 50 psi
Spray rate:	15 GPA
Spray duration:	30 seconds
Wind speed:	Minimum 10 mph
Temperature:	10-35°C
Humidity:	20-80%
Deposition samplers:	Filter paper on blocks 3-in above ground
Number of samplers:	Minimum 3 at each downwind distance
Sampler distances:	Minimum 6 downwind distances for analysis purposes; distances should follow a geometric distribution ( <i>e.g.</i> , 2, 4, 8, 20, 30, 60, and 120 feet) and cover out to 120 feet but may vary based on study considerations.
Drift simulations:	Minimum 3 per hooded sprayer
Analytical analysis:	Conducted per latest version of analytical method ME-1871 or another validated method <sup>1</sup>
Analysis:	Appropriate non-linear and/or generalized linear models will be fit to the drift deposition measurements of each hooded sprayer evaluated. After an appropriate model is selected, deposition estimates will be made at 2, 4, 8, 20, 30, 60, and 120 feet for both the baseline and proposed hooded sprayer. The boom orientation (crop canopy or bare ground) that gives the highest overall deposition for the baseline sprayer will be used for analysis.
Passing result:	If a comparison of the deposition values for the proposed hooded sprayer to the baseline hooded sprayer at 20 feet, using a one-tailed t-test (assuming equal variances, upper bound, alpha=0.10), is not statistically different, then the proposed hooded sprayer functions equivalent to the baseline hooded sprayer.

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<sup>1</sup> A study conducted with a validated analytical method other than ME-1871 must be accompanied with a report containing the environmental chemistry method, describing in full the analytical method that was used and validated, as well as an independent laboratory validation of the method.

# RESTRICTED USE PESTICIDE

For retail sale to and use only by Certified Applicators. To be used by certified applicators only; NOT to be used by uncertified persons working under the supervision of a certified applicator, except that uncertified persons may transport containers.

This EPA registration expires December 20, 2025, **DO NOT** use or distribute this product after December 20, 2025.



We create chemistry

**Dicamba** | **Group** **4** | **Herbicide**

# Engenia®

## Herbicide

**ACCEPTED**

10/27/2020

Under the Federal Insecticide, Fungicide and Rodenticide Act as amended, for the pesticide registered under EPA Reg. No. 7969-472

### For weed control in Dicamba-tolerant (DT) cotton†; Dicamba-tolerant (DT) soybean†

† Only for use in states listed as US EPA approved in the **Dicamba-tolerant (DT) Crops**.

#### Active Ingredient\*:

dicamba: N,N-Bis-(3-aminopropyl)methylamine salt of 3,6-dichloro-*o*-anisic acid . . . . . 60.8%

**Other Ingredients:** . . . . . 39.2%

**Total:** . . . . . 100.0%

\* Contains 48.38% dicamba (5 pounds acid equivalent per gallon or 600 grams per liter)

**EPA Reg. No. 7969-472**

**EPA Est. No.**

**KEEP OUT OF REACH OF CHILDREN**

**CAUTION/PRECAUCION**

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle. (If you do not understand the label, find someone to explain it to you in detail.)

See full label for complete **First Aid, Precautionary Statements, Directions For Use, Conditions of Sale and Warranty**, and state-specific crop and/or use site restrictions.

**In case of an emergency endangering life or property involving this product, call day or night 1-800-832-HELP (4357).**

**Net Contents:**

BASF Corporation  
26 Davis Drive, Research Triangle Park, NC 27709

<b>FIRST AID</b>	
<b>If swallowed</b>	<ul style="list-style-type: none"> <li>• Call a poison control center or doctor immediately for treatment advice.</li> <li>• Have person sip a glass of water if able to swallow.</li> <li>• <b>DO NOT</b> induce vomiting unless told to do so by a poison control center or doctor.</li> <li>• <b>DO NOT</b> give anything by mouth to an unconscious person.</li> </ul>
<b>If inhaled</b>	<ul style="list-style-type: none"> <li>• Move person to fresh air.</li> <li>• If person is not breathing, call 911 or an ambulance; then give artificial respiration, preferably by mouth to mouth, if possible.</li> <li>• Call a poison control center or doctor for further treatment advice.</li> </ul>
<b>HOTLINE NUMBER</b>	
Have the product container or label with you when calling a poison control center or doctor or going for treatment. You may also contact BASF Corporation for emergency medical treatment information: 1-800-832-HELP (4357).	

## Precautionary Statements

### Hazards to Humans and Domestic Animals

**CAUTION.** Harmful if swallowed or inhaled. Avoid breathing vapor or spray mist. Remove and wash contaminated clothing before reuse. Wash hands thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, or using the toilet.

Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals.

### Personal Protective Equipment (PPE)

**All mixers, loaders, applicators, and other handlers must wear:**

- Long-sleeved shirt and long pants
- Shoes plus socks
- Waterproof gloves
- A NIOSH-approved dust/mist filtering respirator with any R, P, or HE filter. Examples include a filtering facepiece respirator with approval number prefix TC-84A and an R or P designation, or a full-face or half-mask respirator with R, P, or HE cartridges.

See **Engineering Controls** for additional requirements. Follow the manufacturer's instructions for cleaning and maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry.

### Engineering Controls

When handlers use closed systems or enclosed cabs in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240(d)(4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

## USER SAFETY RECOMMENDATIONS

### Users should:

- Wash hands after handling and before eating, drinking, chewing gum, using tobacco, or using the toilet.
- Remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

### Environmental Hazards

**DO NOT** apply directly to water, or to areas where surface water is present, or to intertidal areas below the mean high water mark. **DO NOT** contaminate water when disposing of equipment washwater or rinsate. Apply this product only as directed on the label.

This chemical is known to leach through soil into groundwater under certain conditions as a result of agricultural use. Use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in groundwater contamination.

### Ground and Surface Water Protection

#### Point-source Contamination

To prevent point-source contamination, **DO NOT** mix or load this pesticide product within 50 feet of wells (including abandoned wells and drainage wells), sinkholes, perennial or intermittent streams and rivers, and natural or impounded lakes and reservoirs. **DO NOT** apply pesticide product within 50 feet of wells. This setback does not apply to properly capped or plugged abandoned wells and does not apply to impervious pad or properly diked mixing/loading areas as described below.

Mixing, loading, rinsing, or washing operations performed within 50 feet of a well are allowed only when conducted on an impervious pad constructed to withstand the weight of the heaviest load that may be on or move across the pad. The pad must be self-contained to prevent surface water flow over or from the pad. The pad capacity must be

maintained at 110% that of the largest pesticide container or application equipment used on the pad and have sufficient capacity to contain all product spills, equipment or container leaks, equipment washwater, and rainwater that may fall on the pad. The containment capacity does not apply to vehicles delivering pesticide shipments to the mixing/loading site. States may have in effect additional requirements regarding wellhead setbacks and operational containment.

Care must be taken when using this product to prevent:

- Back-siphoning into wells
- Spills
- Improper disposal of excess pesticide, spray mixtures, or rinsate

Check valves or antisiphoning devices must be used on all mixing equipment.

### **Movement by Surface Runoff or Through Soil**

**DO NOT** apply under conditions which favor runoff.

**DO NOT** apply if soil is saturated with water or when rainfall that may exceed soil field capacity is forecast to occur within 48 hours.

Under some conditions, dicamba has the potential for runoff several days after application. Poorly draining, wet, or erodible soils with readily visible slopes toward adjacent sensitive areas are more prone to produce runoff. When used on erodible soils, best management practices for minimizing runoff should be employed. Consult your local Soil Conservation Service for recommendations in your use area.

**DO NOT** apply to impervious substrates such as paved or highly compacted surfaces in areas with high potential for groundwater contamination. Groundwater contamination may occur in areas where soils are permeable or coarse and groundwater is near the surface. **DO NOT** apply to soils classified as sand with less than 3% organic matter and where groundwater depth is shallow. To minimize the possibility of groundwater contamination, carefully follow the specified rates as affected by soil type in the **Crop-specific Information** section of this label.

### **Movement by Water Erosion of Treated Soil**

Ensure treated areas have received at least 1/2-inch rainfall (or irrigation) before using tailwater for subsequent irrigation of other fields.

**DO NOT** apply this product through any type of irrigation system including sprinkler, drip, flood, or furrow irrigation.

### **Endangered Species**

It is a Federal offense to use any pesticide in a manner that results in the death of an endangered species.

The use of any pesticide in a manner that may kill or otherwise harm an endangered species or adversely modify their habitat is a violation of federal law. Use of this product in a manner inconsistent with the label may pose a hazard to endangered or threatened species. When using this product, you must follow the measures contained in the

Endangered Species Protection Bulletin for the area in which you are applying the product. To obtain Bulletins, no more than six months before using this product, consult <http://www.epa.gov/espp/> or call 1-844-447-3813. You must use the Bulletin valid for the month in which you will apply the product. Please Note: Additional endangered or threatened species obligations are listed under **Endangered Species** on this label. See **Crop-specific Information – Dicamba-tolerant (DT) Crops** section for more details regarding protection of endangered species.

## **Directions For Use**

### **RESTRICTED USE PESTICIDE**

It is a violation of federal law to use this product in a manner inconsistent with its labeling. This labeling must be in the user's possession during application. To be used by certified applicators only; NOT to be used by uncertified persons working under the supervision of a certified applicator, except that uncertified persons may transport containers.

**DO NOT** apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your state or tribe, consult the agency responsible for pesticide regulation.

Observe all precautions, restrictions, and limitations in this label and the labels of products used in combination with this product. Keep containers closed to avoid spills and contamination.

All applicable directions, restrictions, precautions, and **Conditions of Sale and Warranty** are to be followed.

### **RESTRICTED USE PESTICIDE**

#### **RECORD KEEPING REQUIREMENTS**

Users must keep the following records for a period of two years; records must be generated within 72 hours after application and a record must be kept for every individual application. Records must be made available to State Pesticide Control Official(s), USDA, and EPA upon request. The following information must be recorded and kept as required by the Federal Pesticide Record Keeping Program, 7 CFR Part 110:

1. **Full name of the certified applicator**
2. **Certification number of the certified applicator**
3. **Product name**
4. **EPA registration number**
5. **Total amount applied of this product**
6. **Application month, day, and year**
7. **Start and Finish Times:** the time the applicator begins and the time the applicator completes applications of this product.
8. **Location of the application**
9. **Crop or site receiving the application**
10. **Size of area treated**

*(continued)*

**RESTRICTED USE PESTICIDE  
RECORD KEEPING REQUIREMENTS**

*(continued)*

11. **Training Requirement:** proof that the applicator completed dicamba-specific training described in this section.
12. **Application Timing:** whether the applicator applied this product preemergence or postemergence.
13. **Receipts of purchase:** receipts for the purchase of this product, and for the purchase of the required pH buffering adjuvant and any required drift reduction adjuvant.
14. **Product Label:** a copy of this product label(s), and any state special local needs label that supplements this label.
15. **Sensitive Areas, Sensitive Crops, and Residential Awareness (see Downwind Spray Buffer Areas and Sensitive Crops, Areas and Residential Areas):** Document/record that the applicator checked an applicable sensitive crop/specialty crop registry; and document that the applicator surveyed all adjacent fields for any sensitive areas, sensitive crops, or residential areas surrounding the field prior to application. At a minimum, records must include the date the applicator consulted the sensitive crop registry/specialty crop registry and the date the applicator surveyed within the required spray buffer distance **Downwind Spray Buffer Areas** and **Sensitive Crops, Areas and Residential Areas** adjacent fields, and the name of the sensitive crop registry/specialty crop registry the applicator consulted. The applicator must be aware that **WIND DIRECTION** may vary during the application. If wind direction shifts such that the wind is blowing toward adjacent sensitive crops or residential areas, **STOP** the application.
16. **Spray Buffer Requirement:** Record of the required downwind buffer distance (240 feet or required Endangered Species County requirements) determination and any areas included within the buffer distance determination.
17. **Spray System Cleanout:** Document that the applicator complied with the section of this label titled: **"Spray System Equipment Clean-out"**. At a minimum, records must include the date the applicator performed the required cleanout, and cleanout method that the applicator followed.
18. **Tank Mix Products:** a list of all products (pesticides, adjuvants, and other products) that the applicator tank mixed with this product for each application. Include EPA registration numbers in the case of any pesticides.
19. **Required Tank Mix Buffering Adjuvant:** list the Buffering Adjuvant and use rate that was tank mixed with **Engenia® herbicide**.
20. **Nozzle Selection:** which spray nozzle the applicator used to apply this product, and the nozzle pressure the applicator set the sprayer to.

*(continued)*

**RESTRICTED USE PESTICIDE  
RECORD KEEPING REQUIREMENTS**

*(continued)*

21. **Air Temperature:** the air temperature at boom height at the time the applicator starts and finishes applications of this product.
22. **Wind Speed and Direction:** the wind speed at boom height at the time the applicator starts and finishes applications of this product, and the wind direction at the time the applicator starts and finishes applications of this product.

**Training Requirements**

Prior to applying this product, all applicators must complete dicamba-specific training on an annual basis; NOT to be used by uncertified persons working under the supervision of a certified applicator, except that uncertified persons may transport containers. If training is available and required by the state where the applicator intends to apply this product, the applicator must complete that training before applying this product in-crop. If your state does not require dicamba-specific training, then the applicator must complete dicamba specific training provided by one of the following sources: a) a registrant of a dicamba product approved for in-crop use with dicamba-tolerant crops, or b) a state or state-authorized provider.

**AGRICULTURAL USE REQUIREMENTS**

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR Part 170. This standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about **Personal Protective Equipment (PPE)** and restricted-entry intervals. The requirements in this box only apply to uses of this product that are covered by the WPS.

**DO NOT** enter or allow worker entry into treated areas during the restricted-entry interval (REI) of **24 hours**.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as, plants, soil, or water is:

- Coveralls worn over short-sleeved shirt and short pants
- Chemical-resistant footwear plus socks
- Waterproof gloves
- Chemical-resistant headgear for overhead exposure
- Protective eyewear

## STORAGE AND DISPOSAL

**DO NOT** contaminate water, food, or feed by storage or disposal. Open dumping is prohibited.

### Pesticide Storage

Store in original container in a well-ventilated area separately from fertilizer, feed, and foodstuffs. Avoid cross-contamination with other pesticides. **Engenia® herbicide** freezes around 15° F and is stable under conditions of freezing and thawing. Product that has been frozen should be thawed and recirculated prior to use.

### Pesticide Disposal

Wastes resulting from this product must be disposed of on-site or at an approved waste disposal facility. Pesticide, spray mixture, or rinsate that cannot be used according to label instructions must be disposed of according to federal, state or local procedures under **Subtitle C of the Resource Conservation and Recovery Act**. Improper disposal of excess pesticide, spray mix, or rinsate is a violation of federal law.

### Container Handling

**Nonrefillable Container. DO NOT** reuse or refill this container. Triple rinse or pressure rinse container (or equivalent) promptly after emptying; then offer for recycling, if available, or reconditioning, if appropriate, or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures approved by state and local authorities.

**Triple rinse containers small enough to shake (capacity ≤ 5 gallons) as follows:** Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank, or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times.

**Triple rinse containers too large to shake (capacity > 5 gallons) as follows:** Empty the remaining contents into application equipment or a mix tank. Fill the container 1/4 full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank, or store rinsate for later use or disposal. Repeat this procedure two more times.

(continued)

## STORAGE AND DISPOSAL (continued)

### Container Handling (continued)

**Pressure rinse as follows:** Empty the remaining contents into application equipment or mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank, or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container and rinse at about 40 PSI for at least 30 seconds. Drain for 10 seconds after the flow begins to drip.

**Refillable Container.** Refill this container with pesticide only. **DO NOT** reuse this container for any other purpose. Triple rinsing the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller.

**Triple rinse as follows:** To clean the container before final disposal, empty the remaining contents from this container into application equipment or mix tank. Fill the container about 10% full with water. Agitate vigorously or recirculate water with the pump for 2 minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times.

When this container is empty, replace the cap and seal all openings that have been opened during use; return the container to the point of purchase or to a designated location. This container must only be refilled with a pesticide product. Prior to refilling, inspect carefully for damage such as cracks, punctures, abrasions, worn-out threads and closure devices. Check for leaks after refilling and before transport. **DO NOT** transport if this container is damaged or leaking. If the container is damaged, or leaking, or obsolete and not returned to the point of purchase or to a designated location, triple rinse emptied container and offer for recycling, if available, or dispose of container in compliance with state and local regulations.

### In Case of Emergency

In case of large-scale spill of this product, call:

- CHEMTREC 1-800-424-9300
- BASF Corporation 1-800-832-HELP (4357)

In case of medical emergency regarding this product, call:

- Your local doctor for immediate treatment
- Your local poison control center (hospital)
- BASF Corporation 1-800-832-HELP (4357)

### Steps to take if material is released or spilled:

- Dike and contain the spill with inert material (sand, earth, etc.) and transfer liquid and solid diking material to separate containers for disposal.
- Remove contaminated clothing and wash affected skin areas with soap and water.
- Wash clothing before reuse.
- Keep the spill out of all sewers and open bodies of water.

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## Product Information

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**Engenia® herbicide** is a water-soluble herbicide that provides postemergence and moderate rate-dependent residual control of many annual broadleaf weeds. **Engenia** is also active on many biennial and perennial broadleaf weeds as well as woody brush and vines (refer to **Table 1** for weeds controlled or suppressed).

**Engenia** may be applied preplant, at-planting, pre-emergence, and postemergence (in-crop) for weed control in dicamba-tolerant cotton and dicamba-tolerant soybeans. The use in dicamba-tolerant crops is only allowed in the following states:

Alabama, Arizona, Arkansas, Colorado, Delaware, Florida (excluding Palm Beach County), Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maryland, Michigan, Minnesota, Mississippi, Missouri, Nebraska, New Jersey, New Mexico, New York, North Carolina, North Dakota, Ohio, Oklahoma, Pennsylvania, South Carolina, South Dakota, Tennessee (excluding Wilson County), Texas, Virginia, West Virginia, Wisconsin.

Additional state restrictions and requirements may apply. The applicator must comply with any additional state requirements and restrictions.

**Engenia** does not control grass weeds and must be used sequentially or tank mixed with a grass herbicide for a complete weed control program. See **Tank Mixing Information** section for important information on herbicide tank mixes or **Crop-specific Information** section(s) for recommendations on sequential programs.

## Summary of Label Requirements – See Label Section for Details

Label Requirements Summary	Label Sections
<p><b>Mandatory Training:</b></p> <ul style="list-style-type: none"> <li>• Prior to applying, applicator must complete dicamba-specific training. Only certified applicators may apply this product.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Training Requirements</b></li> </ul>
<p><b>Record Keeping:</b></p> <ul style="list-style-type: none"> <li>• Certified applicators must complete their application records within 72 hour after the application and keep records for a period of two years.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Restricted Use Pesticide Record Keeping Requirements</b></li> </ul>
<p><b>Application:</b></p> <ul style="list-style-type: none"> <li>• For EVERY application of <b>Engenia® herbicide</b> an approved <b>pH Buffering Adjuvant</b> must be included in the spray mixture. Refer to <b>www.engeniatankmix.com</b> for a list of approved pH Buffering Adjuvants.</li> <li>• Rate and Timing: Apply 12.8 fl ozs per acre (0.5 lb. ae dicamba) for any single application: <ul style="list-style-type: none"> <li>- Applications to DT Cotton may only occur through July 30. <b>DO NOT</b> apply after July 30. A total of four applications (51.2 fl ozs per acre, 2.0 lbs ae dicamba per acre) may be made with a maximum of 12.8 fl ozs per acre per application. A maximum of two applications preemergence and two applications postemergence may be made per year.</li> <li>- Applications to DT Soybean may only occur through June 30. <b>DO NOT</b> apply after June 30. A total of four applications (51.2 fl ozs per acre, 2.0 lbs ae dicamba per acre) may be made with a maximum of 12.8 fl ozs per acre per application. A maximum of two applications preemergence and two applications postemergence may be made per year.</li> <li>- For details see crop-specific use directions.</li> </ul> </li> <li>• Spray volume: Apply in a minimum of 15 gallons of spray solution per acre.</li> <li>• Tank mixing: Use only approved tank-mix products found at <b>www.engeniatankmix.com</b>. <ul style="list-style-type: none"> <li>- Refer to all product labels to determine mix order or perform a mix compatibility test.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• <b>Tank Mixing Information</b></li> <li>• <b>Specific Use Directions</b></li> <li>• <b>Dicamba Tolerant (DT) Cotton</b></li> <li>• <b>Dicamba Tolerant (DT) Soybean</b></li> <li>• <b>Specific Crop Use Directions</b></li> <li>• <b>Application Methods and Equipment</b></li> <li>• <b>Tank Mixing Information</b></li> </ul>
<p><b>Application Equipment:</b></p> <ul style="list-style-type: none"> <li>• Spray system equipment cleanout: Ensure entire sprayer system is properly cleaned before and after application.</li> <li>• Nozzles: Use only approved nozzles and pressure as listed on <b>www.engeniatankmix.com</b>.</li> <li>• Spray boom height: Use manufacturer’s recommendation for boom height or 24 inches above the target pest/crop height, whichever is smaller.</li> <li>• Ground speed: <b>DO NOT</b> exceed 15 mph.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Spray System Equipment Cleanout</b></li> <li>• <b>Spray Drift Management</b></li> </ul>
<p><b>Environmental Conditions:</b></p> <ul style="list-style-type: none"> <li>• Wind speed: Apply when wind speed, measured at boom height, is 3 to 10 mph.</li> <li>• Inversions: <b>DO NOT</b> spray during an inversion; only spray between one hour after sunrise and two hours before sunset.</li> <li>• Rainfall: <b>DO NOT</b> apply this product if rain that may exceed soil field capacity and result in soil runoff is expected in the next 48 hours.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Spray Drift Management</b></li> <li>• <b>Use Restrictions</b></li> </ul>
<p><b>Downwind Requirements:</b></p> <ul style="list-style-type: none"> <li>• Sensitive areas, crops and residential areas downwind: <b>DO NOT</b> apply if sensitive areas, crops and residential areas, as defined in this label (see <b>Downwind Spray Buffer Areas</b> and <b>Sensitive Crops, Areas and Residential Areas</b>), are adjacent downwind to the application site.</li> <li>• Downwind buffer: After determining that no sensitive areas, crops or residential areas are adjacent downwind, maintain a 240-ft downwind spray buffer (see <b>Hooded Spray Booms</b> section).</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Sensitive Crops, Areas and Residential Areas</b></li> <li>• <b>Downwind Spray Buffer Areas</b></li> </ul>
<p><b>Endangered Species:</b></p> <ul style="list-style-type: none"> <li>• You must follow the measures contained in the Endangered Species Protection Bulletin for the area in which you are applying the product. To obtain Bulletins, no more than six months before using this product, consult <b>http://www.epa.gov/espp/</b> or call 1-844-447-3813. You must use the Bulletin valid for the month in which you will apply the product.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Endangered Species</b></li> </ul>



**Table 1. Weeds Controlled or Suppressed**

**Engenia® herbicide** will control or suppress the following weeds when used at rates described in **Table 2**. See additional information about weeds which are known to be resistant to dicamba at [www.Resistance-Information.BASF.US](http://www.Resistance-Information.BASF.US).

Common Name	Scientific Name
<b>Annuals</b>	
Alkanet	<i>Lithospermum arvense</i>
Amaranth, Palmer	<i>Amaranthus palmeri</i>
Amaranth, Powell	<i>Amaranthus powellii</i>
Amaranth, spiny	<i>Amaranthus spinosus</i>
Aster, slender	<i>Aster subulatus</i>
Bedstraw, catchweed	<i>Galium aparine</i>
Beggarweed, Florida	<i>Desmodium tortuosum</i>
Broomweed, common	<i>Gutierrezia dracunculoides</i>
Buckwheat, tartary	<i>Fagopyrum tataricum</i>
Buckwheat, wild	<i>Polygonum convolvulus</i>
Buffalobur	<i>Solanum rostratum</i>
Burclover, California	<i>Medicago polymorpha</i>
Burcucumber	<i>Sicyos angulatus</i>
Buttercup, corn	<i>Ranunculus arvensis</i>
Buttercup, creeping	<i>Ranunculus repens</i>
Buttercup, roughseed	<i>Ranunculus muricatus</i>
Buttercup, western field	<i>Ranunculus occidentalis</i>
Carpetweed	<i>Mollugo verticillata</i>
Catchfly, nightflowering	<i>Silene noctiflorum</i>
Chamomile, corn	<i>Anthemis arvensis</i>
Chervil, bur	<i>Anthriscus caucalis</i>
Chickweed, common	<i>Stellaria media</i>
Clover	<i>Trifolium</i> spp.
Cockle, corn	<i>Agrostemma githago</i>
Cockle, cow	<i>Vaccaria pyramidata</i>
Cocklebur, common	<i>Xanthium strumarium</i>
Copperleaf, hophornbeam	<i>Acalypha ostryifolia</i>
Cornflower	<i>Centaurea cyanus</i>
Croton, tropic	<i>Croton glandulosus</i>
Croton, woolly	<i>Croton capitatus</i>
Daisy, English	<i>Bellis perennis</i>
Dragonhead, American	<i>Dracocephalum parviflorum</i>
Eveningprimrose, cutleaf	<i>Oenothera laciniata</i>
Falseflax, smallseed	<i>Camelina microcarpa</i>
Fleabane, hairy	<i>Conyza bonariensis</i>

(continued)

**Table 1. Weeds Controlled or Suppressed (continued)**

Common Name	Scientific Name
<b>Annuals (continued)</b>	
Flixweed	<i>Descurainia sophia</i>
Fumitory	<i>Fumaria officinalis</i>
Goosefoot, nettleleaf	<i>Chenopodium murale</i>
Hempnettle	<i>Galeopsis tetrahit</i>
Henbit	<i>Lamium amplexicaule</i>
Horseweed (Marestail)	<i>Conyza canadensis</i>
Jacob's-ladder	<i>Polemonium caeruleum</i>
Jimsonweed	<i>Datura stramonium</i>
Knawel (German moss)	<i>Scleranthus annuus</i>
Knotweed, prostrate	<i>Polygonum aviculare</i>
Kochia <sup>2</sup>	<i>Kochia scoparia</i>
Ladysthumb	<i>Polygonum persicaria</i>
Lambsquarters, common	<i>Chenopodium album</i>
Lettuce, miner's	<i>Claytonia perfoliata</i>
Lettuce, prickly	<i>Lactuca serriola</i>
Mallow, common	<i>Malva neglecta</i>
Mallow, Venice	<i>Hibiscus trionum</i>
Mayweed	<i>Anthemis cotula</i>
Morningglory, ivyleaf	<i>Ipomoea hederacea</i>
Morningglory, tall	<i>Ipomoea purpurea</i>
Mustard, black	<i>Brassica nigra</i>
Mustard, blue	<i>Chorispora tenella</i>
Mustard, tansy	<i>Descurainia pinnata</i>
Mustard, treacle	<i>Erysimum repandum</i>
Mustard, tumble	<i>Sisymbrium altissimum</i>
Mustard, wild	<i>Sinapis arvensis</i>
Mustard, yellowtop	<i>Sinapis</i> spp.
Nightshade, black	<i>Solanum nigrum</i>
Nightshade, cutleaf	<i>Solanum triflorum</i>
Pennycress, field	<i>Thlaspi arvense</i>
Pepperweed, Virginia	<i>Lepidium virginicum</i>
Pigweed, prostrate	<i>Amaranthus blitoides</i>
Pigweed, redroot (rough)	<i>Amaranthus retroflexus</i>
Pigweed, smooth	<i>Amaranthus hybridus</i>
Pigweed, tumble	<i>Amaranthus albus</i>
Pineappleweed	<i>Matricaria matricarioides</i>
Poorjoe	<i>Diodia teres</i>
Poppy, red horn	<i>Glaucium corniculatum</i>

(continued)

**Table 1. Weeds Controlled or Suppressed** (continued)

Common Name	Scientific Name
<b>Annuals</b> (continued)	
Puncturevine	<i>Tribulus terrestris</i>
Purslane, common	<i>Portulaca oleracea</i>
Pusley, Florida	<i>Richardia scabra</i>
Radish, wild	<i>Raphanus raphanistrum</i>
Ragweed, common	<i>Ambrosia artemisiifolia</i>
Ragweed, giant	<i>Ambrosia trifida</i>
Ragweed, lanceleaf	<i>Ambrosia bidentata</i>
Rocket, London	<i>Sisymbrium irio</i>
Rocket, yellow	<i>Barbarea vulgaris</i>
Rubberweed, bitter	<i>Hymenoxys odorata</i>
Salsify	<i>Tragopogon porrifolius</i>
Senna, coffee	<i>Senna occidentalis</i>
Sesbania, hemp	<i>Sesbania exaltata</i>
Shepherd's purse	<i>Capsella bursa-pastoris</i>
Sicklepod	<i>Cassia obtusifolia</i>
Sida, prickly (Teaweed)	<i>Sida spinosa</i>
Smartweed, green	<i>Polygonum scabrum</i>
Smartweed, Pennsylvania	<i>Polygonum pennsylvanicum</i>
Sneezeweed, bitter	<i>Helenium amarum</i>
Sowthistle, annual	<i>Sonchus oleraceus</i>
Sowthistle, spiny	<i>Sonchus asper</i>
Spanish needles	<i>Bidens bipinnata</i>
Spikeweed, common	<i>Hemizonia pungens</i>
Spurge, prostrate	<i>Chamaesyce humistrata</i>
Spurry, corn	<i>Spergula arvensis</i>
Starbur, bristly	<i>Acanthospermum hispidum</i>
Starwort, little	<i>Stellaria graminea</i>
Sumpweed, rough	<i>Iva ciliata</i>
Sunflower, common (wild)	<i>Helianthus annuus</i>
Thistle, Russian	<i>Salsola iberica</i>
Velvetleaf	<i>Abutilon theophrasti</i>
Waterhemp	<i>Amaranthus tuberculatus</i>
Waterprimrose, winged	<i>Ludwigia decurrens</i>
Wormwood	<i>Artemisia annua</i>
<b>Biennials</b>	
Burdock, common	<i>Arctium minus</i>
Carrot, wild	<i>Daucus carota</i>
Cockle, white	<i>Melandrium album</i>

(continued)

**Table 1. Weeds Controlled or Suppressed** (continued)

Common Name	Scientific Name
<b>Biennials</b> (continued)	
Eveningprimrose, common	<i>Oenothera biennis</i>
Geranium, Carolina	<i>Geranium carolinianum</i>
Gromwell	<i>Lithospermum</i> spp.
Knapweed, diffuse	<i>Centaurea diffusa</i>
Knapweed, spotted	<i>Centaurea maculosa</i>
Mallow, dwarf	<i>Malva borealis</i>
Plantain, bracted	<i>Plantago aristata</i>
Ragwort, tansy	<i>Senecio jacobaea</i>
Starthistle, yellow	<i>Centaurea solstitialis</i>
Sweetclover	<i>Melilotus</i> spp.
Teasel	<i>Dipsacus sativus</i>
Thistle, bull	<i>Cirsium vulgare</i>
Thistle, musk	<i>Carduus nutans</i>
Thistle, plumeless	<i>Carduus acanthoides</i>
Thistle, variegated (milk)	<i>Silybum marianum</i>
<b>Perennials<sup>1</sup></b>	
Alfalfa	<i>Medicago sativa</i>
Apple, tropical soda	<i>Solanum viarum</i>
Artichoke, Jerusalem	<i>Helianthus tuberosus</i>
Aster, spiny	<i>Aster spinosus</i>
Aster, whiteheath	<i>Aster pilosus</i>
Bedstraw, smooth	<i>Gallium mollugo</i>
Bindweed, field	<i>Convolvulus arvensis</i>
Bindweed, hedge	<i>Calystegia sepium</i>
Blueweed, Texas	<i>Helianthus ciliaris</i>
Bursage, woollyleaf	<i>Ambrosia grayi</i>
Buttercup, tall	<i>Ranunculus acris</i>
Campion, bladder	<i>Silene vulgaris</i>
Chickweed, field	<i>Cerastium arvense</i>
Chickweed, mouseear	<i>Cerastium vulgatum</i>
Chicory	<i>Cichorium intybus</i>
Clover, hop	<i>Trifolium aureum</i>
Dandelion, common	<i>Taraxacum officinale</i>
Dock, broadleaf (Bitterdock)	<i>Rumex obtusifolius</i>
Dock, curly	<i>Rumex crispus</i>
Dogbane, hemp	<i>Apocynum cannabinum</i>
Dogfennel (Cypressweed)	<i>Eupatorium capillifolium</i>
Fern, bracken	<i>Pteridium aquilinum</i>

(continued)

**Table 1. Weeds Controlled or Suppressed** (continued)

Common Name	Scientific Name
<b>Perennials<sup>1</sup></b> (continued)	
Garlic, wild	<i>Allium vineale</i>
Goldenrod, Canada	<i>Solidago canadensis</i>
Goldenrod, Missouri	<i>Solidago missouriensis</i>
Goldenweed, common	<i>Isocoma coronopifolia</i>
Hawkweed	<i>Hieracium</i> spp.
Henbane, black	<i>Hyoscyamus niger</i>
Horsenettle, Carolina	<i>Solanum carolinense</i>
Ironweed	<i>Vernonia</i> spp.
Knapweed, black	<i>Centaurea nigra</i>
Knapweed, Russian	<i>Centaurea repens</i>
Lespedeza, sericea	<i>Lespedeza cuneata</i>
Milkweed, climbing	<i>Sarcostemma cyanchoides</i>
Milkweed, common	<i>Asclepias syriaca</i>
Milkweed, honeyvine	<i>Ampelamus albidus</i>
Milkweed, western whorled	<i>Asclepias subverticillata</i>
Nettle, stinging	<i>Urtica dioica</i>
Nightshade, silverleaf	<i>Solanum elaeagnifolium</i>
Onion, wild	<i>Allium canadense</i>
Plantain, broadleaf	<i>Plantago major</i>
Plantain, buckhorn	<i>Plantago lanceolata</i>
Pokeweed	<i>Phytolacca americana</i>
Ragweed, western	<i>Ambrosia psilostachya</i>
Redvine	<i>Brunnichia ovata</i>
Smartweed, swamp	<i>Polygonum coccineum</i>
Snakeweed, broom	<i>Gutierrezia sarothrae</i>
Sorrel, red (Sheep sorrel)	<i>Rumex acetosella</i>
Sowthistle, perennial	<i>Sonchus arvensis</i>
Spurge, leafy	<i>Euphorbia esula</i>
Sundrop	<i>Oenothera perennis</i>
Thistle, Canada	<i>Cirsium arvense</i>
Thistle, Scotch	<i>Onopordum acanthium</i>
Toadflax, Dalmatian	<i>Linaria genistifolia</i>
Trumpet creeper	<i>Campsis radicans</i>
Vetch	<i>Vicia</i> spp.
Waterhemlock, spotted	<i>Cicuta maculata</i>
Waterprimrose, creeping	<i>Ludwigia peploides</i>
Woodsorrel, creeping	<i>Oxalis corniculata</i>
Woodsorrel, yellow	<i>Oxalis stricta</i>

(continued)

**Table 1. Weeds Controlled or Suppressed** (continued)

Common Name	Scientific Name
<b>Perennials<sup>1</sup></b> (continued)	
Wormwood, Louisiana	<i>Artemisia ludoviciana</i>
Yankee weed	<i>Eupatorium compositifolium</i>
Yarrow, common	<i>Achillea millefolium</i>

<sup>1</sup> Suppression only.<sup>2</sup> Except dicamba resistant.

## Product Stewardship Recommendations

- Apply **Engenia® herbicide** to weeds 4 inches or less in size for best performance.
- Apply **Engenia** at the labeled rate to minimize the likelihood of weed resistance occurring. See **Crop-specific Information** for labeled rates by crop.
- Use **Engenia** as part of a herbicide program that includes the use of residual herbicides and herbicides with alternate sites of action to reduce resistance selection pressure.

## Product Stewardship Requirements

- Select only approved nozzles that produce **extremely coarse to ultra-coarse** spray droplets. See [www.engeniatankmix.com](http://www.engeniatankmix.com) for the list of nozzles approved for use with this product.
- Use manufacturer's recommendation for boom height or 24 inches above the target pest/crop height, whichever is smaller.
- Identify areas of sensitive nontarget crops/plants and maintain proper setback distance from these areas (see **Downwind Spray Buffer Areas** and **Sensitive Crops, Areas and Residential Areas** sections for **Spray Buffer** requirements). Sensitive crops in agricultural and/or residential settings can include, but are not limited to:
  - non-DT soybeans
  - cucumber and melons (EPA **Crop Group 9**)
  - flowers
  - fruit trees
  - grapes
  - ornamentals including greenhouse-grown and shade house-grown broadleaf plants
  - peanuts
  - peas and beans (EPA **Crop Group 6**)
  - peppers, tomatoes, and other fruiting vegetables (EPA **Crop Group 8**)
  - potato
  - sweet potato
  - tobacco
- Thoroughly clean spray equipment before and after application.

## Mode of Action

Dicamba, the active ingredient in **Engenia**, is a **Group 4** (WSSA) herbicide. Herbicides in this group mimic auxin (a plant hormone) resulting in a hormone imbalance in

sensitive plants that interferes with normal plant growth (e.g. cell division, cell enlargement, and protein synthesis). **Engenia® herbicide** is readily absorbed by leaves, roots, and shoots; translocates throughout the plant; and accumulates in areas of active growth to provide postemergence control of emerged weeds as well as moderate residual control of germinating weed seeds.

Any weed population may contain plants naturally resistant to **Group 4** herbicides. Weeds resistant to **Group 4** herbicides may be effectively managed using herbicide(s) from a different group and/or by using cultural or mechanical practices. Report any incidence of non-performance of this product against a particular weed species at [www.EngeniaQuestions.com](http://www.EngeniaQuestions.com). Consult your local BASF representative, state cooperative extension service, professional consultants, or other qualified authority to determine appropriate actions if you suspect resistant weeds. Additional information about weeds which are known to be resistant to dicamba can be found at [www.Resistance-Information.BASF.US](http://www.Resistance-Information.BASF.US).

## Resistance Management

While weed resistance to **Group 4** herbicides is infrequent, populations of resistant biotypes are known to exist. Resistance management should be part of a diversified weed control strategy that integrates multiple options including chemical, cultural, and mechanical (tillage) control tactics. Cultural control tactics include crop rotation, proper fertilizer placement, optimum seeding rate/row spacing, and timely tillage.

To aid in the prevention of developing weeds resistant to this product, the following steps should be followed where practical:

- Start clean with tillage or an effective burndown herbicide program.
- **DO NOT** rely on a single herbicide site of action for weed control during the growing season.
- Scout fields before application to ensure herbicides and rates will be appropriate for the weed species and weed sizes present.
- Apply full labeled rates of **Engenia** for the most difficult-to-control weed in the field at the specified time (correct weed size) to minimize weed escapes. See **Crop-specific Information** for labeled rates by crop.
- Use of preemergence herbicides that provide soil residual control of broadleaf and grass weeds is recommended to reduce early season weed competition and allow for more timely in-crop postemergence herbicide applications.
- Avoid application of herbicides with the same site of action more than twice a season.
- Scout fields after application to detect weed escapes or shifts in weed species.
- Indicators of possible herbicide resistance include:
  - (1) failure to control a weed species normally controlled by the herbicide at the dose applied, especially if control is achieved on adjacent weeds;
  - (2) a spreading patch of non-controlled plants of a particular weed species;
  - (3) surviving plants mixed with controlled individuals of the same species.

- Report any incidence of non-performance of this product against a particular weed species to your BASF retailer, representative or online at [www.EngeniaQuestions.com](http://www.EngeniaQuestions.com).
- If resistance is suspected, treat weed escapes with a herbicide having a mode of action other than **Group 4** and/or use non-chemical methods to remove escapes, as is practical, with the goal of preventing further seed production.
- For more information about weeds that are known to be resistant to dicamba go to [www.Resistance-Information.BASF.US](http://www.Resistance-Information.BASF.US).

Additionally, users should follow as many of the following herbicide resistance management practices as is practical:

- Use a broad spectrum soil-applied herbicide with other modes of action as a foundation in a weed control program.
- Utilize sequential applications of herbicides with alternative modes of action.
- Rotate the use of this product with non-**Group 4** herbicides.
- Avoid making more than two applications of **Engenia** and any other **Group 4** herbicides within a single growing season unless mixed with another mechanism of action with an overlapping spectrum for the difficult-to-control weeds.
- Incorporate non-chemical weed control practices, such as mechanical cultivation, crop rotation, cover crops and weed-free crop seeds, as part of an integrated weed control program.
- Thoroughly clean plant residues from equipment before and after leaving fields suspected to contain resistant weeds.
- Manage weeds in and around fields during and after harvest to reduce weed seed production.
- Contact the local agricultural extension service, BASF representative, ag retailer or crop consultant for further guidance on weed control practices as needed.

## Crop Tolerance

Crops growing under normal environmental conditions are tolerant to **Engenia** when applied according to label directions. Crop injury may occur under stressful growing conditions (e.g. low soil fertility, seedling disease, extreme hot or cold weather, excessive moisture, high soil pH, high soil salt concentration, drought).

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## Application Instructions

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Apply **Engenia** by ground to actively growing weeds as a band or broadcast spray application for postemergence control of emerged weeds as well as moderate residual control of germinating weed seeds.

Make postemergence applications of **Engenia** when broadleaf weeds are small and actively growing. An adjuvant is recommended with **Engenia** for best postemergence activity; refer to **Tank Mixing Information** section and **Crop-specific Information** sections for details. Postemergence activity may be slowed or reduced under cloudy and/or foggy or cooler weather conditions, or when weeds are growing under drought or other stress conditions. When

targeting dense weed populations and/or larger broadleaf weeds, use higher spray volumes and a higher application rate within an application rate range.

Cultivation should be delayed until 7 days after applying **Engenia® herbicide** or a reduction in weed control may occur.

Use extreme care when applying **Engenia** to prevent injury to desirable plants. **Engenia** may cause injury to desirable sensitive plants when contacting their roots, stems, or foliage.

## Application Rates

Always read and follow crop-specific use directions.

**Table 2. Application Rate to Control or Suppress Target Weed by Weed Type and Growth Stage**

Weed Type and Growth Stage	Rate/Acre <sup>2</sup> (fl ozs)
<b>Annual</b>	
Small, actively growing (less than 4-inches tall)	12.8
Small, actively growing (less than 4-inches tall) plus moderate residual control	12.8
<b>Biennial</b>	
Rosette diameter 1 to 3 inches	12.8
Rosette diameter more than 3 inches	12.8
<b>Perennial<sup>1</sup></b>	
Top growth suppression	12.8
Top growth control and root suppression	12.8
<sup>1</sup> <b>Engenia</b> will suppress the top growth of herbaceous perennials and can be combined with other approved herbicides to improve control. <sup>2</sup> <b>DO NOT</b> broadcast-apply more than 12.8 fl ozs/A per application. Retreatment or tank mixes may be necessary for best control of some weeds. However, sequential applications must not exceed a maximum cumulative total of 51.2 fl ozs/A of <b>Engenia</b> (2 lbs dicamba ae/A) per year.	

## Application Methods and Equipment

Apply **Engenia** by ground. Thorough spray coverage is important for best broadleaf weed control and can be improved with adjuvant, nozzle, and spray volume selection.

Calibrate application equipment for accurate target spray volume and application rate to ensure uniform distribution of spray and to avoid spray drift to nontarget areas. Adjust equipment to maintain continuous agitation during spraying with good mechanical or bypass agitation. Avoid overlaps that will increase rates above the labeled use rates.

**Engenia** may be applied using water; consult crop-specific information sections of this label for other spray carrier options.

## Ground Application

### Banding Applications

When applying **Engenia** by banding, use the following formula to calculate the amount of herbicide and water volume needed:

$$\frac{\text{Bandwidth in inches}}{\text{Row width in inches}} \times \text{Broadcast rate per acre} = \text{Banding herbicide rate per acre}$$

$$\frac{\text{Bandwidth in inches}}{\text{Row width in inches}} \times \text{Broadcast volume per acre} = \text{Banding water volume per acre}$$

### Broadcast Applications

Use a spray volume of 15 gallons of water or more per treated acre. Thorough coverage of existing vegetation is essential for postemergence applications; higher spray volumes may be necessary for optimum performance.

## Spray System Equipment Clean-out

The applicator must ensure that the spray system used to apply **Engenia** is clean before application. Small amounts of residual ammonium sulfate (AMS) that may remain in the sprayer from uses other than dicamba applications in DT crops can increase the volatility potential of **Engenia**. Severe crop injury may occur if any **Engenia** remains in the spray equipment following application and is subsequently applied to sensitive crops. After using **Engenia**, clean all mixing and spray equipment (including tanks, pumps, lines, filters, screens, and nozzles) with a strong detergent based sprayer cleaner. Dispose of rinsate in compliance with local, state, and federal guidelines.

1. After spraying, drain the sprayer (including boom and lines). Avoid allowing the spray solution to remain in the spray boom lines overnight or for extended periods of time.
2. Flush tank, hoses, boom, and nozzles with clean water. Open boom ends and flush if so equipped.
3. Inspect and clean all strainers, screens, and filters.
4. Use commercial sprayer cleaner containing strong detergents according to the manufacturer's directions.
5. Wash all parts of the tank, including the inside top surface. Start agitation in the sprayer and thoroughly recirculate the cleaning solution for at least 15 minutes. All visible deposits must be removed from the spraying system.
6. Flush hoses, spray lines, and nozzles with the cleaning solution for at least 1 minute. Remove nozzles, screens, and strainers, and clean separately in the cleaning solution after completing the above procedure.
7. Drain pump, filter, and lines.
8. Triple rinse the complete spraying system with clean water.
9. Clean and rinse the exterior of the sprayer.
10. Appropriately dispose of all rinsate in compliance with local, state, and federal requirements.

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## Spray Drift Management

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Avoiding spray drift at the application site is the responsibility of the applicator. The spray system and weather-related factors determine the potential for spray drift. The applicator is responsible for considering these factors when making application decisions to avoid spray drift onto nontarget areas.

Applicators must follow application requirements to avoid spray drift hazards, including those found in this labeling and applicable state and local regulations and ordinances. Where states have more stringent regulations, they must be observed.

All application equipment must be properly maintained and calibrated using appropriate carriers.

**DO NOT** allow herbicide solution to drip, physically drift, or splash onto desirable vegetation because injury to desirable broadleaf plants could result. The following physical spray drift management requirements must be followed.

### Controlling Droplets

Drift potential may be reduced by applying large droplets that provide sufficient coverage and control. Applying larger droplets can reduce drift potential, but will not prevent drift if the application is made improperly, or under unfavorable environmental conditions (see the **Temperature Inversions** and the **Wind Speed and Direction Requirements** sections).

- **Nozzle Type** - Use only approved nozzles when applying **Engenia® herbicide**. To find a list of approved nozzles visit [www.engeniatankmix.com](http://www.engeniatankmix.com) no more than seven days prior to applying **Engenia**.
- **Pressure** - **DO NOT** exceed the nozzle manufacturer's specified pressures or maximum pressures as listed for specific nozzles on [www.engeniatankmix.com](http://www.engeniatankmix.com). For many nozzle types, lower pressure produces larger droplets. When higher flow rates are needed, use higher flow rate (large orifice) nozzles instead of increasing pressure. Ensure sprayer rate controller hardware (if so equipped) does not allow pressure increases above the desired range.
- **Spray Volume** - Apply this product in a minimum of 15 gallons of spray solution per acre. Use a higher spray volume when treating dense vegetation. Higher spray volumes may also allow the use of larger nozzle orifices (sizes) which produce coarser spray droplets.
- **Equipment Ground Speed** - Select a ground speed that will deliver the desired spray volume while maintaining the desired spray pressure, but **DO NOT** exceed a ground speed of 15 miles per hour. Slower speeds generally result in better spray coverage and deposition on the target area. It is recommended that ground speed be reduced to 5 miles per hour when making applications to the edge of the treatment area.
- **Spray Boom Height** - Use manufacturer's recommendation for boom height or 24 inches above the target pest/crop height, whichever is smaller. Automated boom height controllers are recommended with large booms to better

maintain optimum nozzle to canopy height. Excessive boom height will increase the potential for spray drift.

- **Hooded Spray Booms** - Hooded spray booms are another tool that can be used to minimize spray drift potential. **Engenia** may be applied using a hooded spray boom in combination with approved nozzles; however, the applicator must ensure the configuration is compatible with equipment used. See Hooded Spray Boom section at [www.engeniatankmix.com](http://www.engeniatankmix.com) for additional options for using an approved hooded spray boom with **Engenia**. When using an approved hooded spray boom, listed on the [www.engeniatankmix.com](http://www.engeniatankmix.com) website, the required down wind spray buffer distance in DT soybeans may be reduced to 110 feet.

### Temperature Inversions

- **DO NOT** apply **Engenia** when temperature inversions exist at the field level.
- **Apply only during the following period: DO NOT** make applications at night. Applications are only permitted beginning one hour after sunrise, and ending two hours before sunset.

Temperature inversions increase drift potential by reducing atmospheric mixing and dispersion of any suspended spray mixture. Suspended spray residues can move in unpredictable directions because of the light, variable winds common during inversions. Temperature inversions are characterized by increasing temperatures with altitude and are common on nights with limited cloud cover and light-to-no wind.

Inversions begin to form as the sun sets and often continue into the morning before surface warming. Their presence can be indicated by ground fog, smoke not rising, dust hanging over a road, or presence of dew or frost. Smoke that layers and moves laterally (under low wind conditions) indicates an inversion, while smoke that moves upward and rapidly dissipates indicates good vertical air mixing. Inversion conditions typically dissipate with increased winds (above 3 MPH) or when surface air begins to warm (3° F from morning low).

### Downwind Spray Buffer Areas

Apply **Engenia** only when there is low potential for drift to sensitive areas (see **Definitions**). Only apply when the wind is blowing away from adjacent sensitive areas.

**Spray Buffer Requirement:** Applicator must always maintain a 240 foot buffer when applying this product from the downwind outer edges of the field (see **Hooded Spray Booms** section).

#### To maintain the required buffer zone:

- No application swath containing **Engenia** can be initiated in, or into an area that is within the applicable buffer distance.
- **Nonsensitive Crops and Areas** (see **Definitions**) - May be included in the buffer distance determination when within 240 feet of field edges (see **Hooded Spray Booms** section).

## Sensitive Crops, Areas and Residential Areas

- **DO NOT** apply under circumstances where spray drift may occur to food, forage, or other plantings that might be damaged or the crops thereof rendered unfit for sale, use or consumption.
- During application and sprayer clean-out, **DO NOT** allow contact of herbicide with foliage, green stems, exposed non-woody roots of crops, and desirable plants.
- **Downwind and Shifting Winds**
  - **DO NOT** apply when wind is blowing in the direction of adjacent sensitive crops or residential areas.
  - The applicator also must be aware that **WIND DIRECTION** may vary during the application. If wind direction shifts such that the wind is blowing toward adjacent sensitive crops or residential areas, **STOP** the application.

**Survey the area before spraying:** Small amounts of spray drift that may not be visible may injure sensitive broad-leaf plants. Before making an application, the applicator must survey the application site for adjacent sensitive crops and residential areas. **The applicator must consult sensitive crop registries where available.** Refer to **Sensitive Crops Awareness** section for record keeping requirements within the **RESTRICTED USE PESTICIDE RECORD KEEPING REQUIREMENTS** section.

### **AVOIDING SPRAY DRIFT AT THE APPLICATION SITE IS THE RESPONSIBILITY OF THE APPLICATOR.**

The interaction of equipment and weather related factors must be monitored to maximize performance and on-target spray deposition. The applicator is responsible for considering all of these factors when making a spray decision. The applicator is responsible for compliance with state and local pesticide drift regulations.

## Definitions

- **Sensitive Areas** - Bodies of water and nonresidential, uncultivated areas that may harbor sensitive plant species.
- **Sensitive Crops and Residential Areas** - Food, forage, or other plantings grown for sale, use or consumption. Sensitive crops/plants also can be present in nonagricultural settings, such as residential areas. Examples include, but are not limited to:
  - non-DT soybeans
  - cucumber and melons (EPA **Crop Group 9**)
  - flowers
  - fruit trees
  - grapes
  - ornamentals including greenhouse-grown and shade house-grown broadleaf plants
  - peanuts
  - peas and beans (EPA **Crop Group 6**)
  - peppers, tomatoes, and other fruiting vegetables (EPA **Crop Group 8**)
  - potato
  - sweet potato
  - tobacco

Plant injury could occur if contact between this product and these crops/plants occurs. See [www.driftwatch.org](http://www.driftwatch.org) or other sensitive crop registry websites for more information on possible sensitive sites near your application location.

## • Nonsensitive Crops and Areas

1. Roads, paved or gravel surfaces, adjacent to the field.
2. Mowed grassy areas adjacent to the field.
3. Agricultural fields that have been prepared for planting.
4. Areas of bare ground from recent plowing or grading that are contiguous with the treated field.
5. Planted agricultural fields containing asparagus, corn, DT cotton, DT soybeans, sorghum, proso millet, small grains, sugarcane and other crops approved for postemergence dicamba use. If the applicator intends to include such crops as dicamba tolerant cotton and/or dicamba tolerant soybeans in the buffer distance calculation, the applicator must confirm the crops are in fact dicamba tolerant.
6. Areas covered by the footprint of a building, shade house, silo, feed crib, or other man-made structure with walls and or roof.

Additional restrictions for the protection of specific sensitive areas may be required when making applications to DT cotton and DT soybeans. Use of this product in a manner inconsistent with the label may pose a hazard to endangered or threatened species. When using this product, you must follow the measures contained in the Endangered Species Protection Bulletin for the area in which you are applying the product. To obtain Bulletins, no more than six months before using this product, consult <http://www.epa.gov/espp/> or call 1-844-447-3813. You must use the Bulletin valid for the month in which you will apply the product. Please Note: Additional endangered or threatened species obligations are listed under **Endangered Species** on this label. See **Crop-specific Information – Dicamba-tolerant (DT) Crops** section for more details regarding protection of endangered species.

## Wind Speed and Direction Requirements

- **Wind Speed** - 3 to 10 mph
- **Wind Direction** - Local terrain can influence wind patterns. Every applicator must be familiar with local wind patterns and how they affect drift.

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## Tank Mixing Information

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**Engenia® herbicide** may only be tank mixed with products that have been tested and found by the EPA not to have an unreasonable adverse effect on the spray drift properties of **Engenia**. A list of those EPA approved products may be found at [www.engeniatankmix.com](http://www.engeniatankmix.com).

**DO NOT** tank mix any product with **Engenia** unless:

1. You check the list of EPA approved products for use with **Engenia** at [www.engeniatankmix.com](http://www.engeniatankmix.com) no more than 7 days before applying **Engenia**; and

2. The intended product tank mix with **Engenia® herbicide** is identified on that list of tested and approved products; and
3. The intended product to be tank mixed with **Engenia** is not prohibited on this label.
4. **Mandatory Use** of an approved pH buffering adjuvant product and minimum use rate, such as **Sentris™ Buffering Technology** is required. A list of EPA approved pH buffering adjuvants and required minimum use rates may be found at **www.engeniatankmix.com**.
5. Some COC, HSOC and MSO adjuvants may cause a temporary crop response.
6. **DO NOT** tank mix products containing ammonium salts such as ammonium sulfate and urea ammonium nitrate (UAN) unless specifically approved for use with **Engenia** at **www.engeniatankmix.com**.
7. Hard water does not usually affect the activity of **Engenia**. Use of an approved conditioning agent should be considered when hard water (i.e. total calcium, magnesium, and iron content above 500 ppm) is used as a spray carrier.
8. Drift reduction adjuvants listed on the website above can minimize the percentage of driftable fines. However, the applicator must check with the DRA manufacturer to determine if the approved DRA will work effectively with the spray nozzle, the spray pressure, and the desired spray solution.

For an up to date and complete list of approved tank mix options with **Engenia**, visit **www.engeniatankmix.com**.

It is the pesticide user's responsibility to ensure that all products are registered for the intended use. Read and follow the applicable restrictions and limitations and directions for use on all product labels involved in tank mixing. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

Mixing **Engenia** with postemergence grass (graminicide) herbicides may reduce the effectiveness of those products. Follow graminicide label when mixing with **Engenia** to ensure optimum weed control. Physical incompatibility, reduced weed control, or crop injury may result from mixing **Engenia** with other pesticides, additives, nutritionals, etc.

**Adjuvants.** BASF recommends the use of quality adjuvants with **Engenia** such as **Astonish™**, **Class Act®**, **Ridion®**, **Grounded®**, **Iconic®**, **Jackhammer™ Elite**, **R-11®**, **Strike Force®**, and **Verifact**.

### Compatibility Test for Mix Components

Before mixing components, always perform a compatibility jar test.

1. For 20 gallons per acre spray volume, use 3.3 cups (800 mL) of water. For other spray volumes, adjust rates accordingly. Only use water from the intended source at the source temperature.
2. Add components in the sequence indicated in the following **Mixing Order** instructions using 2 teaspoons for each pound or 1 teaspoon for each pint of labeled use rate per acre.

3. Cap the jar and invert 10 cycles between component additions.
4. When the components have all been added to the jar, let the solution stand for 15 minutes.
5. Evaluate the solution for uniformity and stability. The spray solution should not have free oil on the surface; fine particles that precipitate to the bottom; or thick (clabbered) texture. If the spray solution is not compatible, repeat the compatibility test with the addition of a suitable compatibility agent. If the solution is then compatible, use the compatibility agent as directed on its label. If the solution is still incompatible, **DO NOT** mix the ingredients in the same tank.

### Mixing Order

Make sure each component is thoroughly mixed and suspended before adding tank mix partners. Except when mixing products in PVA bags, maintain constant agitation during mixing and application.

1. **Water** - Begin by agitating a thoroughly clean sprayer tank 1/2 to 3/4 full of clean water.
2. **Inductor** - If an inductor is used, rinse it thoroughly after each component has been added.
3. **Products in PVA bags** - Place any product contained in water-soluble PVA bags into the mixing tank. Wait until all water-soluble PVA bags have fully dissolved and the product is evenly mixed in the spray tank before continuing.
4. **Water-soluble products and additives (Engenia, Sentris)**
5. **Water-dispersible products** (such as dry flowables, wettable powders, suspension concentrates, or suspo-emulsions)
6. **Emulsifiable concentrates** (including NIS and oil concentrate)
7. Remaining quantity of water

Maintain continuous and constant agitation throughout mixing and application until spraying is completed. If the spray mixture is allowed to settle for any period of time, thorough agitation is essential to resuspend the mixture before spraying is resumed. Continue agitation while spraying.

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### Use Precautions

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- **Stress** - Application to crops under stress because of lack of moisture, hail damage, flooding, herbicide injury, mechanical injury, or widely fluctuating temperatures may result in crop injury.
- Use caution when tank mixing **Engenia** with approved emulsifiable concentrates (EC) or oil-based products that may increase the potential for crop injury.
- **Rainfast Period - Engenia** is rainfast 4 hours after application and weed control performance should not be reduced if unexpected rain or unintended irrigation occurs within 4 hours after application. **DO NOT** apply **Engenia** if rain is expected within 48 hours after application.



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## Use Restrictions

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### Applicator **MUST ALSO** follow restrictions under **Crop-specific Information section(s)**.

- **DO NOT** apply more than 12.8 fl ozs/A (0.5 lb dicamba ae/A) per application. **DO NOT** apply more than 25.6 fl ozs/A (1.0 lb dicamba ae/A) preplant and pre-emergence and 25.6 fl ozs/A (1.0 lb dicamba ae/A) postemergence. **DO NOT** apply more than a total of 51.2 fl ozs/A (2.0 lbs dicamba ae/A) in all applications combined per year.
- **DO NOT** apply this product aerially.
- **DO NOT** apply **Engenia**<sup>®</sup> herbicide with ammonium-containing additives, conditioners, or fertilizers (e.g. AMS, UAN). Small quantities of AMS can greatly increase the volatility potential of dicamba.
- **DO NOT** apply **Engenia** if expected rainfall amount may exceed soil field capacity and result in soil runoff in the next 48 hours.
- **DO NOT** apply **Engenia** if wind speed is less than 3 mph or greater than 10 mph.
- **DO NOT** apply **Engenia** at night. **DO NOT** apply earlier than one hour after sunrise or later than two hours before sunset.
- **DO NOT** contaminate irrigation ditches or water used for domestic purposes.
- **DO NOT** apply **Engenia** through any type of irrigation system (e.g. chemigation).
- **DO NOT** tank mix **Engenia** with any product not found in the approved list at [www.engeniatankmix.com](http://www.engeniatankmix.com).
- In DT cotton, **DO NOT** apply **Engenia** later than July 30.
- In DT soybeans, **DO NOT** apply **Engenia** later than June 30.
- **DO NOT** apply DT cotton harvest aid application of **Engenia** within 7 days of harvest.

## Crop Rotation Restrictions

Use the following information to determine the required interval between **Engenia**<sup>®</sup> herbicide application and rotational crop planting as well as replanting after crop failure because of environmental factors such as drought, frost, or hail. Determine the rotational crop interval for tank mix products and use the most restrictive interval of all products applied.

**Table 3. Crop Rotation Restrictions by Application Rate**

Crop	Engenia (fl ozs/A)		
	≤ 6.4	9.6	12.8
	Rotational Crop Interval <sup>1</sup> (days after application)		
Corn	0	0	0
Cotton, non-DT <sup>2</sup>	21 <sup>†</sup>	28	42
Cotton, DT	0	0	0
Sorghum	14	21	28
Soybean, non-DT <sup>2</sup>	14	21	28
Soybean, DT	0	0	0
Grasses <sup>3</sup> 30 inches or more annual precipitation	14	21	28
Grasses <sup>3</sup> less than 30-inches annual precipitation	21	28	42
All other crops	120	120	120

<sup>1</sup> **DO NOT** include time when the soil is frozen and days before receiving any required rainfall or overhead irrigation.  
<sup>2</sup> Following application of **Engenia** and a minimum accumulation of 1 inch of rainfall or overhead irrigation, observe the indicated waiting interval.  
<sup>3</sup> Includes barley, oats, wheat, and other grass crops. Small grains may be planted with no waiting interval following **Engenia** applied at 3.2 fl ozs/A.  
<sup>†</sup> **Missouri and Tennessee Only.** Following application of **Engenia**, wait until an accumulation of 1 inch of rainfall or irrigation followed by an interval of **14 days** per 6.4 fl ozs/A or less before planting cotton. This interval must be observed before planting cotton or severe crop injury may occur.

## Crop-specific Information – Dicamba-tolerant (DT) Crops

### Dicamba-tolerant (DT) Crops

**Engenia® herbicide** is EPA approved for use in DT crops in the following states:

Alabama, Arizona, Arkansas, Colorado, Delaware, Florida (excluding Palm Beach County), Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maryland, Michigan, Minnesota, Mississippi, Missouri, Nebraska, New Jersey, New Mexico, New York, North Carolina, North Dakota, Ohio, Oklahoma, Pennsylvania, South Carolina, South Dakota, Tennessee (excluding Wilson County), Texas, Virginia, West Virginia, Wisconsin.

Within the above listed states, **Engenia** is subject to area-specific restrictions as required by <http://www.epa.gov/espp/> that must be consulted prior to making an **Engenia** application in DT cotton and DT soybeans. Prior to making an **Engenia** application in DT cotton or DT soybeans, an applicator must visit <http://www.epa.gov/espp/> to determine if there are any additional restrictions on **Engenia** use within the area to be sprayed. Nonsensitive areas defined below may be included as part of the required buffer distance.

**Nonsensitive areas** - The following areas may be included in the buffer distance calculation when directly adjacent to the treated field edges:

1. Roads, paved or gravel surfaces, adjacent to the field.
2. Mowed grassy areas adjacent to the field.
3. Planted agricultural fields containing: corn, dicamba tolerant cotton, dicamba tolerant soybean, sorghum, proso millet, small grains, sugarcane and other crops approved for postemergence dicamba use. If the applicator intends to include such crops as dicamba tolerant cotton and/or dicamba tolerant soybeans in the buffer distance calculation, the applicator must confirm the crops are in fact dicamba tolerant.
4. Agricultural fields that have been prepared for planting.
5. Areas of bare ground from recent plowing or grading that are contiguous with the treated field.
6. Areas covered by the footprint of a building, shade house, silo, feed crib, or other man-made structure with walls and or roof.

**The following directions are specific for Engenia use in DT cotton and DT soybeans.**

Depending on specific crop application directions, **Engenia** may be applied for postemergence control of emerged broadleaf weeds and/or residual control of germinating broadleaf weed seeds before crop planting (preplant and/or preseed) and after planting (preemergence, postemergence). Refer to **Table 1** for list of weeds controlled or suppressed.

**Engenia** may be applied preplant, at-planting, pre-emergence, and postemergence (in-crop) for weed control in DT cotton and DT soybeans.

### Dicamba-tolerant (DT) Cotton

**Engenia** may be applied preplant surface, preemergence, or postemergence (over the top) by ground only to control or suppress many annual, biennial, and perennial broad-leaf weeds (see **Table 1**) in dicamba-tolerant (DT) cotton. If **Engenia** is applied to non-dicamba-tolerant cotton other than as directed, severe crop injury will result. For non-dicamba-tolerant cotton information, see **Cotton** section in **Crop-specific Information** section.

Cotton gin byproducts may be fed to livestock.

### Application Rates and Timings

#### Maximum Application Rates in DT Cotton

Application Timing	Amount (fl ozs/A)
<b>Single Preplant Preemergence Postemergence</b>	12.8 (0.5 lb dicamba ae/A)
<b>Total Preplant and Preemergence</b>	25.6 (1 lb dicamba ae/A)
<b>Total Postemergence</b>	25.6 (1 lb dicamba ae/A)
<b>All Applications Combined Total per Year</b>	51.2 (2 lbs dicamba ae/A)

Application of **Engenia** may be made before and after cotton emergence. Separate sequential applications by 7 days or more. For best performance, apply **Engenia** when weeds are less than 4 inches in height and rosettes are less than 2-inches across. Timely application will improve control and reduce weed competition. Apply pre-plant, preemergence, and postemergence to DT cotton only by ground. **DO NOT** apply more than 51.2 fl ozs/A of **Engenia** per year (single growing season).

### Preplant and Preemergence Applications

**Engenia** can be applied at 12.8 fl ozs/A before, during, or after planting DT cotton. **Engenia** will provide burndown of emerged weeds. Apply as a sequential application with other preemergence herbicides to control emerged grass weeds and other broadleaf weeds, and with a pre-emergence residual herbicide to control germinating weed seeds. Early season weed control is critical for minimizing weed competition and protecting crop yield potential.

### Postemergence Applications

Apply **Engenia**® herbicide postemergence at 12.8 fl ozs/A from cotton emergence through July 30.

**DO NOT** apply more than 12.8 fl ozs/A in a single postemergence over-the-top application of **Engenia**. A total of two postemergence applications can be made in cotton.

For best weed control, **Engenia** applications should be made early in the season to small (less than 4-inches tall), actively growing weeds. Sequential postemergence applications may be necessary to control new weed flushes. Allow at least 7 days between applications. **DO NOT** apply **Engenia** postemergence more than twice in a year. Apply **Engenia** in a herbicide program that includes sequential application of herbicides with a different mechanism of action to control new weed regrowth.

Postemergence applications of **Engenia** mixed with some adjuvants may cause injury to DT cotton (see **Tank Mixing Information** section for details). Injury symptoms usually appear as necrotic spots on leaves. Potential for injury may be reduced when applications are made with spray volumes of at least 15 GPA and lower adjuvant rates. Symptomology is temporary with cotton recovering quickly after application.

### Use with Other Herbicides

Broad-spectrum control of grass weeds or additional broadleaf weeds may require a sequential herbicide application. Before considering the use of one or more of the below recommended herbicides in a tank mix with **Engenia**, please confirm at [www.engeniatankmix.com](http://www.engeniatankmix.com) that the product is on the approved list. **Engenia** may be applied sequentially with one or more of, but not limited to, the following herbicide products:

- **Outlook**® herbicide
- **Prowl**® H2O herbicide
- glyphosate (e.g. **Roundup**® herbicide)

For approved tank mix options see [www.engeniatankmix.com](http://www.engeniatankmix.com).

### DT Cotton Restrictions

- **DO NOT** apply **Engenia** to non-dicamba-tolerant cotton varieties other than as directed or severe cotton injury will occur.
- **DO NOT** make more than two applications preplant or preemergence per year.
- **DO NOT** apply more than 12.8 fl ozs/A (0.5 lb ae/A) per preplant or preemergence application.
- **DO NOT** make more than two applications postemergence per year.

- **DO NOT** apply more than 12.8 fl ozs/A (0.5 lb ae/A) per postemergence application.
- **DO NOT** apply **Engenia** later than July 30.
- **DO NOT** apply more than 51.2 fl ozs/A (2 lbs ae/A) per year.
- **DO NOT** apply DT cotton harvest aid application of **Engenia** within 7 days of harvest.

### Dicamba-tolerant (DT) Soybean

**Engenia** may be applied preplant surface, preemergence, or postemergence (over the top) by ground only to control or suppress many annual, biennial, and perennial broadleaf weeds (see **Table 1**) in dicamba-tolerant (DT) soybean.

### Application Rates and Timings

#### Maximum Application Rates in DT Soybean

Application Timing	Amount (fl ozs/A)
<b>Single Preplant Preemergence Postemergence</b>	12.8 (0.5 lb dicamba ae/A)
<b>Total Preplant and Preemergence</b>	25.6 (1 lb dicamba ae/A)
<b>Total Postemergence</b>	25.6 (1 lb dicamba ae/A)
<b>All Applications Combined Total per Year</b>	51.2 (2 lbs dicamba ae/A)

Application of **Engenia** plus specified adjuvants (refer to **Tank Mixing Information** section for details) may be made before and after soybean emergence. Separate sequential applications by 7 days or more. For best performance, apply **Engenia** when weeds are less than 4 inches in height and rosettes are less than 2-inches across. Timely application will improve control and reduce weed competition. Apply preplant, preemergence, and postemergence to DT soybean only by ground.

### Preplant and Preemergence Applications

**Engenia** can be applied at 12.8 fl ozs/A before, during, or after planting dicamba-tolerant soybean. **Engenia** will provide burndown of emerged weeds and moderate residual activity. Apply as a sequential application with other labeled herbicides to control emerged grass weeds and other broadleaf weeds, and with a preemergence residual herbicide to control germinating weed seeds. Early season weed control is critical for minimizing weed competition and protecting crop yield potential.

### Postemergence Applications

Up to two postemergence applications using 12.8 fl ozs/A of **Engenia® herbicide** per application may be made through June 30. Allow at least 7 days between applications. **DO NOT** apply more than a maximum cumulative total of 25.6 fl ozs/A of **Engenia** postemergence.

**Engenia** applications should be made to small (less than 4-inches tall), actively growing weeds. Sequential postemergence applications may be necessary to control new weed flushes. For best results, apply **Engenia** in a herbicide program that includes sequential application of herbicides with a different mechanism of action to control new weed growth.

Postemergence applications of **Engenia** may cause dicamba-tolerant soybeans to wilt or droop shortly after application. Symptomology is transient, and soybeans recover quickly after application.

### Use with Other Herbicides

Broad-spectrum control of grass weeds or additional broadleaf weeds may require a sequential herbicide application. Before considering the use of one or more of the below recommended herbicides in a tank mix with **Engenia**, please confirm at [www.engeniatankmix.com](http://www.engeniatankmix.com) that the product is on the approved list. **Engenia** may be applied sequentially with one or more of, but not limited to, the following herbicide products:

- **Optill® powered by Kixor® herbicide**
- **Outlook® herbicide**
- **Prowl® H2O herbicide**
- **Pursuit® herbicide**
- **Raptor® herbicide**
- **Sharpen® powered by Kixor® herbicide**
- **Varisto® herbicide**
- **Verdict® powered by Kixor® herbicide**
- **Zidua® herbicide**
- **Zidua® PRO powered by Kixor® herbicide**
- clethodim (e.g. **Select Max® herbicide**)
- glyphosate (e.g. **Roundup® herbicide**)

For approved tank mix options see [www.engeniatankmix.com](http://www.engeniatankmix.com).

### DT Soybean Restrictions

- **DO NOT** apply **Engenia** to non-dicamba-tolerant soybean varieties other than as directed or severe soybean injury will occur.
- **DO NOT** make more than two applications preplant or preemergence per year.
- **DO NOT** apply more than 12.8 fl ozs/A (0.5 lb ae/A) per preplant or preemergence application.
- **DO NOT** make more than two applications postemergence per year.
- **DO NOT** apply more than 12.8 fl ozs/A (0.5 lb ae/A) per postemergence application.
- **DO NOT** apply **Engenia** later than June 30.
- **DO NOT** apply more than 51.2 fl ozs/A (2 lbs ae/A) per year.
- **Soybean Forage:** Allow at least 7 days between final application and harvest or feeding of soybean forage.
- **Soybean Hay:** Allow at least 14 days between final application and harvest or feeding of soybean hay.

## Conditions of Sale and Warranty

The **Directions For Use** of this product reflect the opinion of experts based on field use and tests. The directions are believed to be reliable and must be followed carefully. However, it is impossible to eliminate all risks inherently associated with the use of this product. Crop injury, ineffectiveness or other unintended consequences may result because of such factors as weather conditions, presence of other materials, or use of the product in a manner inconsistent with its labeling, all of which are beyond the control of BASF CORPORATION ("BASF") or the Seller. To the extent consistent with applicable law, all such risks shall be assumed by the Buyer.

BASF warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes referred to in the **Directions For Use**, subject to the inherent risks, referred to above.

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**TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, BASF AND THE SELLER DISCLAIM ANY LIABILITY FOR CONSEQUENTIAL, EXEMPLARY, SPECIAL OR INDIRECT DAMAGES RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT.**

BASF and the Seller offer this product, and the Buyer and User accept it, subject to the foregoing **Conditions of Sale and Warranty** which may be varied only by agreement in writing signed by a duly authorized representative of BASF.

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**Referenced Herbicides** (tradename, EPA Reg. No., ai):

**Outlook® herbicide**, 7969-156, dimethenamid  
**Prowl® H2O herbicide**, 241-418, pendimethalin  
**Optill® powered by Kixor® herbicide**, 7969-280, imazethapyr/saflufenacil  
**Pursuit® herbicide**, 241-310, imazethapyr  
**Raptor® herbicide**, 241-379, imazamox  
**Sharpen® powered by Kixor® herbicide**, 7969-278, saflufenacil  
**Varisto® herbicide**, 241-447, bentazon/imazamox  
**Verdict® powered by Kixor® herbicide**, 7969-279, dimethenamid/saflufenacil  
**Zidua® herbicide**, 7969-338, pyroxasulfone  
**Zidua® PRO powered by Kixor® herbicide**, 7969-365, saflufenacil/pyroxasulfone  
**Roundup® herbicide**, 524-549, glyphosate  
**Select Max® herbicide**, 59639-132, clethodim

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