



Addendum to EPA's January 2022 Memorandum Supporting Decision to Extend Registrations for GF-3335 (Enlist One) and Enlist Duo, Expanding Use to Additional Counties

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1 Summary

This memorandum supports and outlines the underlying basis for the decision of the U.S. Environmental Protection Agency (referred to hereafter as EPA or the Agency) to grant an amendment to the time-limited registrations under Section 3(c)(5) of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) for the end-use herbicide products Enlist Duo[®] (EPA Registration Number 62719-649) containing the active ingredients 2,4-dichlorophenoxyacetic acid (2,4-D) choline salt and glyphosate dimethylammonium salt (glyphosate), and GF-3335, also referred to as Enlist One[®] (EPA Registration Number 62719-695) containing 2,4-D choline salt. Both Enlist One and Enlist Duo are registered for use in 34 states for the control of emerged annual and perennial broadleaf weeds as preplant, preemergence, and postemergence (over-the-top) uses on genetically-engineered (GE), herbicide-tolerant corn, cotton, and soybean containing the Enlist trait¹; preplant, preemergence, and postharvest uses on conventional/non-Enlist corn; preplant use on conventional/non-Enlist soybean; and preplant and preemergence uses in fallow systems to be planted with Enlist and non-Enlist corn, cotton, or soybean.

The amendment actions for the Enlist herbicides described in this memorandum expand the approved use area of Enlist One and Enlist Duo to an additional 128 counties not requested by the product registrant in an earlier amendment action that was approved in January 2022, and also remove county-level use prohibitions for Enlist Duo in six counties in the state of Minnesota. Use of Enlist One was already allowed in the six Minnesota counties, so only the Enlist Duo use area is changing for that state. The addition of these counties to the Enlist herbicide use areas (128 new counties for Enlist One; 134 new counties for Enlist Duo, including the same 128 as for Enlist One plus the additional six counties in Minnesota) was requested by the registrant. Additionally, the registrant requested that EPA remove from product labels prohibitions in counties in Massachusetts and Rhode Island because neither Enlist One nor Enlist Duo is registered for use in either of those states. These MA and RI counties were previously added to the labels in error, and that error is now being corrected by EPA.

The approval of these amendment actions is supported by a new addendum to EPA’s previous ecological risk and endangered species effects determination for Enlist One and Enlist Duo entitled “2,4-D Choline Salt and Glyphosate Dimethylammonium Salt: Ecological Risk and Endangered Species Effects Determination for the Expansion of Enlist One and Enlist Duo Product Use on Genetically-Modified Herbicide-Tolerant Corn, Soybean, and Cotton in 128 Counties and Removal of Enlist Duo County Prohibitions in Minnesota” (DP Barcode: 464753; March 24, 2022). EPA’s FIFRA risk assessment² conducted to support the January 2022 renewal

¹ On the Enlist website (<https://www.enlist.com/en>, last visited on 3/23/2022) the registrant Corteva describes Enlist-branded cotton and soybeans as having “herbicide tolerance to 2,4-D choline, glyphosate and glufosinate.” Enlist-branded corn is described elsewhere on the site; the Enlist seed trait website (<https://www.enlist.com/en/traits.html>, last visited in 3/23/2022) states that seed purchasers “get tolerance to 2,4-D choline and glyphosate with all Enlist crops, as well as glufosinate tolerance in Enlist[®] cotton and Enlist E3[®] soybeans, and FOP herbicide tolerance in Enlist corn.”

² USEPA. 2022. 2,4-D Choline Salt and Glyphosate Dimethylammonium Salt: 2022 Ecological Risk and Endangered Species Assessment for Use on Genetically-Modified Herbicide-Tolerant Corn, Soybean, and Cotton in Support of Registration Renewal Decision for Enlist One and Enlist Duo Products. Environmental Fate and Effects

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for Enlist herbicides was not done on a county-by-county basis and therefore is sufficient to inform this current amendment decision without the need for revision because the conclusions in the FIFRA assessment apply nationally. The only new support for this action is an endangered species effects determination for the additional counties. The Agency's human health risk assessment conclusions also remain unchanged from EPA's Enlist amendment action in January 2022. EPA's previous ecological and human health risk assessment documents can be found in docket EPA-HQ-OPP-2021-0957 on www.regulations.gov. For a summary of these assessments and the description of EPA's January 2022 registration amendments for Enlist One and Enlist Duo, see the January 11, 2022 memorandum "Memorandum Supporting Decision to Extend Registrations for GF-3335 (Enlist One) and Enlist Duo," also publicly available in docket EPA-HQ-OPP-2021-0957 on www.regulations.gov (US EPA, January 11, 2022).

In January 2022, EPA renewed the registrations for Enlist One and Enlist Duo with an expiration date of January 11, 2029 unless further action is taken by the Agency. The registrant did not request a change to the expiration date, nor changes to the required mitigation measures. In all counties being added to the Enlist One and Enlist Duo use area, all mitigations previously included in EPA's January 2022 registration amendment decision will apply. These mitigation measures result in reductions of exposure sufficient for EPA to project that the actions would not result in a likelihood of jeopardy or adverse modification (J/AM) for any listed species or designated critical habitat (CH) following the use of the Enlist products. In addition, these mitigations avoid or minimize exposure for all listed species and reduce the potential for take across areas where Enlist products may be used.

2 Background

On January 28, 2022, the registrant, Corteva Agriscience, LLC (Corteva; formerly Dow AgroSciences, LLC), sent an application to EPA requesting a label amendment for Enlist One. On February 22, 2022, Corteva revised the Enlist One application and submitted a label amendment application for Enlist Duo, which were both received by EPA on February 23, 2022. The February applications for both Enlist products requested use expansion in 128 counties and the removal of county prohibitions in Massachusetts and Rhode Island, which were previously added to the labels in error as neither state is registered for Enlist product use. On March 15, 2022, Corteva revised the Enlist Duo application to also request the removal of county prohibitions to six counties in Minnesota, in addition to the changes requested in the February application.

EPA conducted ESA (Endangered Species Act) analyses including effects determinations based upon the proposed draft labels submitted by Corteva. EPA relied upon the draft labels submitted in February for Enlist One and in March for Enlist Duo in its ESA analyses, re-evaluating for counties included in the registrant's requests. The draft labeling proposed expanded use to the aforementioned additional counties (128 for Enlist One; 134 for Enlist Duo, which includes the same 128 counties as Enlist One plus the six additional counties in Minnesota where Enlist One

Division. Office of Pesticide Programs. U.S. Environmental Protection Agency (DP Barcodes 462084, 462086). Can be found on regulations.gov in docket EPA-HQ-OPP-2021-0957-0014.

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but not Enlist Duo was previously permitted for use) but did not request changes to application instructions or required mitigation measures.

3 Summary of Environmental Risk and Endangered Species Assessment Conclusions for Adding 128 Counties and Removing Enlist Duo Prohibitions for Six Counties in Minnesota

EPA's January 2022 FIFRA risk assessment (USEPA 2022a) is representative of the FIFRA conclusions expected for the counties now being added to the approved use area for Enlist herbicides. Therefore, no update to that assessment is needed and only new endangered species assessments were done to support the current actions. The Agency completed new effects determinations (USEPA 2022c) for Endangered Species that were identified in the 128 counties proposed by the registrant to be added to the use areas of both Enlist Duo and Enlist One, and revisited the determinations for six Minnesota counties in which Enlist One was already approved for use but the registrant was requesting be added to the use area of Enlist Duo as well. This section contains a summary of notable findings and updates relevant to ESA.

3.1 Endangered Species Determination in 128 Counties

Corteva did not include the 128 counties in the requested use area for the Enlist herbicide amendment actions completed in January 2022 because of potential concerns regarding the federally listed American Burying Beetle (ABB; *Nicrophorus americanus*). Therefore, EPA did not at that time evaluate the 128 counties or complete an effects determination for the species and designated CHs within those counties. In response to the current amendment request, EPA reconsidered the effects determinations for species and designated CHs that were included in USEPA 2022a and USEPA 2022b and completed a new effects determination (USEPA 2022c) for the species that were new to the proposed action.

EPA conducted an analysis of the overlap between corn, soybeans, and cotton growing in the newly proposed 128 counties that previously had potential concerns regarding the ABB. EPA conducted this analysis using updated information on the ABB from the USFWS in 2020, including species location information at sub-county level resolution. Based on the overlap analyses provided here, the ABB is not present in 10 of these counties. For the remaining 118 counties with some presence of ABB, EPA did not identify the ABB as a species with greater than 1% overlap with corn, soybeans and cotton growing areas. Because the overlap is lower than one percent, EPA determined this proposed action would have no effect on the ABB. EPA uses a one percent overlap criteria to prevent false precision when calculating area and the percent overlap.

EPA then evaluated potential direct and indirect effects to determine if there are other listed species or their CH in these proposed 128 counties. EPA found one listed species, the black-footed ferret, that could be located on the field; based on information on the black-footed ferret diet, EPA reached a no effect finding for on-field exposure and a not likely to adversely affect (NLAA) finding for off-field environments. While there may be effects to 15 listed species and 3 designated critical habitats off of the field in these 128 counties, the label requirements (that

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apply nationally, and not just to areas with listed species) address these concerns as well as reduce the potential for take for the listed species and designated critical habitat in this action. EPA continues to predict a not likely J/AM determination for the use of Enlist One and Enlist Duo in this action.

3.2 Eastern Massasauga Rattlesnake

After EPA granted the amended Enlist One and Enlist Duo registrations in January 2022, EPA learned that in 2021 the USFWS had published an updated five-year review of the Eastern Massasauga rattlesnake (USFWS 2021). The registrations of Enlist One and Enlist Duo that were amended in January 2022 prohibited the use of Enlist Duo within six Minnesota counties because of a potential geographic overlap with the Eastern Massasauga. In a 2021 report (USFWS 2021), however, USFWS described the populations of Eastern Massasauga as extirpated (i.e., no longer found) from Minnesota. Because the species is no longer expected to be within the state, the use prohibition of Enlist Duo in these six counties is no longer necessary. In addition, the use restrictions on both Enlist One and Enlist Duo labels to mitigate runoff and spray drift from the January 2022 amendment decision for Enlist herbicides (US EPA, January 11, 2022) continues to allow EPA to predict not likely jeopardy or adverse modification determinations for all listed species and designated critical habitats in Minnesota.

4 Registration Decision Amendment

In accordance with FIFRA section 3(c)(5), EPA must register a pesticide when it finds that the use will not generally cause unreasonable adverse effects³ on human health or the environment, taking into account the economic, social, and environmental costs and benefits of the use of the pesticide. FIFRA section 3(c)(5) specifically requires EPA to register a pesticide if the Agency determines:

- (A) its composition is such as to warrant the proposed claims for it;
- (B) its labeling and other material required to be submitted comply with the requirements of FIFRA;
- (C) it will perform its intended function without unreasonable adverse effects on the environment; and
- (D) when used in accordance with widespread and commonly recognized practice it will not generally cause unreasonable adverse effects on the environment.

For the previous action in January 2022, EPA reviewed the composition of the Enlist One and Enlist Duo products. EPA reviewed the compositions of both products and determined that the claims made are warranted and the information supports the approval of the registrations. EPA, under the authority of Congress, has waived by regulation, data requirements as to efficacy issues for all agricultural pesticides; therefore, no efficacy data were reviewed in support of this registration decision. This regulation is further explained in Pesticide Registration Notice 96-4.

³ FIFRA section 2(bb) defines, in pertinent part, "unreasonable adverse effects" as "any unreasonable risk to man or the environment, taking into account the economic, social, and environmental costs and benefits of the use of any pesticide...."

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The composition of the products has not changed since January 2022 and EPA's conclusions on this matter therefore remain unchanged.

The final labeling, which has been revised to include additional counties as part of the approved use area, contains all the necessary requirements and restrictions and complies with the requirements of FIFRA. EPA has determined that these products will perform their intended function without unreasonable adverse effects on the environment and that allowing use of the products in the new counties will not generally cause unreasonable adverse effects on the environment when used in accordance with widespread and commonly recognized practice and the specific mitigation measures that were outlined in EPA's previous January 2022 amendment decision. Users in the additional counties where Enlist will now be allowed will benefit from having an additional herbicide system option for their location.

4.1 Addition of 128 Counties

Corteva submitted a request for EPA to consider an expansion of the use area for Enlist One and Enlist Duo to include 128 counties that were previously identified by Corteva as counties with American Burying Beetle populations. Those counties include:

- Arkansas: Crawford, Franklin, Johnson, Little River, Logan, Montgomery, Polk, Scott, Sebastian, Sevier, and Yell;
- Kansas: Chautauqua, Cherokee, Cowley, Elk, Greenwood, Labette, Montgomery, Neosho, Wilson, and Woodson;
- Missouri: Barton, Bates, Cedar, St. Clair, and Vernon;
- Nebraska: Antelope, Blaine, Boone, Boyd, Brown, Cherry, Custer, Dawson, Frontier, Furnas, Garfield, Gosper, Greeley, Hayes, Holt, Hooker, Howard, Keya Paha, Knox, Lincoln, Logan, Loup, McPherson, Merrick, Nance, Phelps, Red Willow, Rock, Sherman, Thomas, Valley, and Wheeler;
- Ohio: Athens, Butler, Fairfield, Guernsey, Hamilton, Hocking, Morgan, Muskingum, Noble, Perry, Vinton, and Washington;
- Oklahoma: Adair, Atoka, Bryan, Carter, Cherokee, Choctaw, Cleveland, Coal, Craig, Creek, Delaware, Garvin, Haskell, Hughes, Johnston, Kay, Latimer, Le Flore, Lincoln, Love, Marshall, Mayes, McClain, McCurtain, McIntosh, Murray, Muskogee, Noble, Nowata, Okfuskee, Okmulgee, Osage, Ottawa, Pawnee, Payne, Pittsburg, Pontotoc, Pottawatomie, Pushmataha, Rogers, Seminole, Sequoyah, Tulsa, Wagoner, and Washington;
- South Dakota: Bennett, Charles Mix, Gregory, Lyman, Mellette, Todd, and Tripp;
- Texas: Bowie, Cooke, Fannin, Grayson, Lamar, and Red River.

EPA had not considered use in these counties in for the January 2022 Enlist label amendment actions because Corteva had not sought use in these counties.

As noted in Section 3 of this memo, the proposed addition of these 128 counties does not change EPA's January 2022 FIFRA risk assessment (USEPA 2022a), but EPA did develop an addendum (USEPA 2022c) to its previous ESA analyses for these counties (USEPA 2022b). EPA considered all (not just ABB) of the federally listed threatened and endangered species and

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designated critical habitats within these 128 counties, Because EPA's FIFRA risk determination remains unchanged and the new ESA analyses suggest that the current mitigation is sufficient to maintain the EPA's prediction that FWS will make determinations of not likely J/AM for the taxa and designated critical habitats, EPA is granting use in the 128 additional counties listed in this section.

4.2 Removal of Use Prohibition in Six Minnesota Counties

As part of the current label amendment request, Corteva asked that the use area for Enlist Duo be expanded to include six counties in Minnesota that were previously identified by EPA as counties with populations of the Eastern Massasauga rattlesnake to potentially be on treated fields. In EPA's January 2022 label amendment actions for Enlist herbicides, use was prohibited in six Minnesota counties for Enlist Duo due to concerns regarding potential effects of glyphosate on the Eastern Massasauga rattlesnake, a federally listed species of snake. The affected counties included Clay, Marshall, Polk, Redwood, Renville, and Stearns counties of Minnesota. Because the Eastern Massasauga risk concerns were driven by glyphosate, only the use of Enlist Duo was prohibited in those six counties; Enlist One was registered for use in these counties.

EPA's January 2022 decision to prohibit Enlist Duo use in these six Minnesota counties was based on an analysis of species range data from USFWS that has been superseded by more recent mapping information. Since the amended registration renewal decision in January 2022 (US EPA, January 11, 2022), EPA was made aware that USFWS had updated the distribution of the Eastern Massasauga to now exclude it from Minnesota and described the rattlesnake as extirpated from Minnesota in their 5-year review, published August 2021 (USFWS 2021). Using USFWS' updated report, EPA re-evaluated the potential effects to listed species and designated critical habitats within these six counties and continues to predict that the existing mitigations required on labels (dated 1/11/2022) resulted in no J/AM. EPA approves the request to allow the use of Enlist Duo in Clay, Marshall, Polk, Redwood, Renville, and Stearns counties of Minnesota.

4.3 Removal of Massachusetts and Rhode Island Counties from Product Labels

Enlist One and Enlist Duo are not registered for use within Massachusetts and Rhode Island. However, two counties from these states were unnecessarily listed as prohibited counties on the 1/11/2022 Enlist product labels. The Enlist registrant has requested to remove these unnecessary prohibitions as part of this amendment. Removal of these counties from the list of prohibited counties on the label does not result in an increased environmental exposure because the use of Enlist One and Enlist Duo was already, and continues to be, prohibited in all of Massachusetts and Rhode Island. Therefore, removal of these counties from the list of prohibited counties on the label does not impact the effects determination nor does it require an effects determination to be completed. EPA is therefore granting the removal of the counties within Massachusetts and Rhode Island.

5 Endangered Species Act Consultation

On January 10, 2022, EPA initiated formal consultation with the United States Fish and Wildlife Service⁴ (USFWS) because the Agency made LAA (likely to adversely affect) determinations for certain listed species and designated critical habitats. With the mitigations that were included on Enlist One and Enlist Duo labels approved in January 2022, EPA projects that uses of Enlist One and Enlist Duo are not likely to jeopardize listed species or adversely modify designated critical habitats. These mitigations include both use prohibitions in certain counties and various application requirements and restrictions in all other counties. EPA also projects that these mitigations will minimize the potential for take. EPA and the USFWS may determine that additional mitigation, including additional geographic prohibitions, are necessary after completion of consultation with USFWS⁵. See “*Endangered Species Act Section 7(d) Consistency Determination with Respect to a Request to Amend the Enlist One Registration*,” and “*Endangered Species Act Section 7(d) Consistency Determination with Respect to a Request to Amend the Enlist Duo Registration*,” located in docket EPA-HQ-OPP-2021-0957 on regulations.gov.

As a result of the current evaluation, EPA has contacted the USFWS Region 3, for concurrence on the not likely to adversely affect determination for the Eastern Massasauga rattlesnake in Minnesota. Furthermore, On March 28, 2022, EPA informed USFWS of an update to the consultation to incorporate our decision to expand use in these 134 additional counties and EPA plans to include this into the ongoing consultation that was initiated in January 2022 for the Enlist product amended registrations.

EPA has complied with the Endangered Species Act (ESA) section 7(a)(2) by initiating formal consultation with FWS and, consistent with ESA section 7(d), determining that the granting of these amendments for Enlist One and Enlist Duo will not result in “irreversible or irretrievable commitment of resources” because it would not foreclose the formulation or implementation of Reasonable Prudent Alternatives (RPAs) during the consultation period. EPA’s ESA section 7(d) determination remains unchanged from January 2022. There were no listed species for which EPA identified on-field concerns and all off-field listed species had already been considered as part of EPA’s previous endangered species assessment. That determination can be found in the documents titled “*Endangered Species Act Section 7(d) Consistency Determination with Respect to a Request to Amend the Enlist One Registration*,” and “*Endangered Species Act Section 7(d)*

⁴ EPA has initiated consultation with only USFWS as there are no National Marine Fisheries Service (NMFS) species or designated critical habitats that may be affected by this action.

⁵ As noted in EPA’s January 11, 2022 label amendment letters “Registration Amendment – Extension of Time-Limited Registration with Amended Terms and Conditions, Revised Labeling and Supplemental Labeling, Product Name: Enlist Duo” and “Registration Amendment – Extension of Time-Limited Registration with Amended Terms and Conditions, Revised Labeling and Supplemental Labeling, Product Name: GF-3335 (alternate brand name: Enlist One),” term 1 of the terms and conditions for these registrations is that if, after formal consultation with FWS, additional modifications are identified in the Service’s Biological Opinion, EPA will notify Corteva in writing within 45 calendar days of the issuance of the Biological Opinion of any necessary required changes. Within 30 calendar days of receiving EPA’s notice, Corteva must submit an amendment application incorporating any required changes, including amended labels. Alternatively, Corteva may respond by submitting a request for voluntary cancellation of this product. If Corteva fails to comply with this term, Corteva has agreed in prior written acceptance of these terms that EPA may cancel the registration under an expedited process under FIFRA 6(e).”

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Consistency Determination with Respect to a Request to Amend the Enlist Duo Registration,” located in docket EPA-HQ-OPP-2021-0957 on regulations.gov.

6 References

US EPA. January 11, 2022. Memorandum Supporting Decision to Extend Registrations for GF-3335 (Enlist One) and Enlist Duo.

USEPA. 2022a. 2,4-D Choline Salt and Glyphosate Dimethylammonium Salt: 2022 Ecological Risk and Endangered Species Assessment for Use on Genetically-Modified Herbicide-Tolerant Corn, Soybean, and Cotton in Support of Registration Renewal Decision for Enlist One and Enlist Duo Products. Environmental Fate and Effects Division. Office of Pesticide Programs. U. S. Environmental Protection Agency (DP Barcodes 462084, 462086).

USEPA. 2022b. 2,4-D Choline Salt and Glyphosate Dimethylammonium Salt: Evaluation of Mitigations on Enlist One and Enlist Duo Labels to Address Listed Species Risks Identified in the 2022 Ecological Risk and Endangered Species Assessment for Use on Genetically-Modified Herbicide-Tolerant Corn, Soybean, and Cotton in Support of Registration Renewal Decision for Enlist One and Enlist Duo Products Environmental Fate and Effects Division. Office of Pesticide Programs. U. S. Environmental Protection Agency (DP Barcodes 464071, 464072).

USEPA. 2022c. 2,4-D Choline Salt and Glyphosate Dimethylammonium Salt: Ecological Risk and Endangered Species Effects Determination for the Expansion of Enlist One and Enlist Duo Product Use on Genetically-Modified Herbicide-Tolerant Corn, Soybean, and Cotton in 128 Counties and Removal of Enlist Duo County Prohibitions in Minnesota” (DP Barcode: 464753; March 24, 2022

USFWS. 2021. 5-YEAR REVIEW Eastern Massasauga Rattlesnake (*Sistrurus catenatus*). August 2021. https://ecos.fws.gov/docs/tess/species_nonpublish/3422.pdf