



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460**

**OFFICE OF CHEMICAL SAFETY
AND POLLUTION PREVENTION**

September 27, 2023

Robyn Clark
Syngenta Crop Protection, LLC
P.O. Box 18300
Greensboro, NC 27419

Subject: Registration Amendment – Amended Terms and Conditions, and Revised Labeling
Product Names: Fortenza, Fortenza Red, Minecto Duo Insecticide, Minecto Pro, Mainspring GNL, Zyrox Fly Granular Bait, Spinner Insecticide, Ference, Mainspring Flora and A16901B Residential Insecticide
EPA Registration Numbers: 100-1420, 100-1418, 100-1421, 100-1592, 100-1543, 100-1541, 100-1424, 100-1551, 100-1585 and 100-1423
Application Date: June 15, 2023
Decision Numbers: 593337, 593338, 593342, 593343, 593341, 593344, 594352, 593336, 593339 and 593334

Dear Ms. Clark:

The amended labels referred to above, submitted in connection with registration under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), as amended, are acceptable. Accordingly, EPA has approved the requested registration amendments, provided Syngenta Crop Protection, LLC (“Syngenta”) complies with all terms and conditions listed below.

Terms and Conditions

Syngenta must comply with all the following terms and conditions. Release for shipment of these products constitutes acceptance of the below conditions. If these conditions are not complied with, the registrations will be subject to cancellation in accordance with FIFRA section 6.

Endangered Species Protection and Formal Consultation

1. For this action, EPA conducted effects determinations under the Endangered Species Act (ESA). In its final effects determinations (included in a biological evaluation), EPA made may affect, likely to adversely affect (LAA), determinations for certain listed species and designated critical habitats for products containing cyantraniliprole (including this product). For these LAA determinations, EPA also assessed the potential likelihood of jeopardy or adverse modification in its effects determination, consistent with 50 C.F.R. § 402.40(b)(1). EPA predicted no potential likelihood of jeopardy for listed species or adverse modification for designated critical habitat. On September 25, 2023, EPA initiated formal consultation with the

Services. The Services will make the final determination as to the potential for jeopardy for listed species or adverse modification for designated critical habitat in any final biological opinions issued at the completion of consultation.

If, following formal consultation with Service(s), additional modifications are identified in any applicable Biological Opinion, EPA will notify Syngenta in writing within 45 calendar days of the issuance of the Biological Opinion of any necessary changes. Within 30 calendar days of receiving EPA's notice, Syngenta must submit an amendment application incorporating the necessary changes, including amended labels. Alternatively, Syngenta may respond by submitting a request for voluntary cancellation of this product. If Syngenta fails to comply with this term, Syngenta has agreed in prior written acceptance of these terms that EPA may cancel the registration under an expedited process under FIFRA 6(e).

Implementation of Revised Labeling

2. To ensure the prompt adoption of the mitigations in this registration amendment in newly produced product and previously produced product that is still under Syngenta's control, Syngenta must submit state registrations for approval, in all states where products are currently registered, for the products with the labeling associated with this approval letter no later than November 30, 2023.
3. In accordance with 40 C.F.R. § 152.130(c), product may be distributed or sold by Syngenta under the previously approved labeling for no longer than 12 months from the date of this letter or 75 days after the final state approval from those submitted under Term #2, whichever is earlier.
4. Nothing in Terms #2-3 should be read to obligate Syngenta to provide additional labeling for product that bears the previously approved label but is not under Syngenta's control as of the date of this letter. However, Syngenta should conduct outreach for users of this product to update them on the forthcoming changes to the label and their importance in mitigating potential effects to listed species and avoiding violations of the Endangered Species Act.

EPA's Rationale for Approving This Registration Amendment

FIFRA section 3(c)(5) requires EPA to unconditionally approve a registration amendment if:

- "its composition is such as to warrant the proposed claims for it";¹
- "its labeling and other material required to be submitted comply with the requirements of [FIFRA]";²

¹ FIFRA § 3(c)(5)(A), 7 U.S.C. § 136a(c)(5)(A). Here, EPA reviewed the proposed labeling and determined that the claims made for the product were consistent with composition of the product based on the data submitted.

² FIFRA § 3(c)(5)(B), 7 U.S.C. § 136a(c)(5)(B). Here, EPA reviewed the submitted labeling and other materials submitted and found them to be compliant with the requirements of FIFRA. Additionally, there are no data gaps.

- “it will perform its intended function without unreasonable adverse effects on the environment”;³ and
- “when used in accordance with widespread and commonly recognized practice it will not generally cause unreasonable adverse effects on the environment.”⁴

Prior to approving the previous registrations and registration amendments for this product and others containing cyantraniliprole, EPA considered risks and benefits of approving the registrations and registration amendments. To determine the risks and benefits, the Agency reviews a large body of information to determine the effects of using these products. In assessing the risks from use of products containing cyantraniliprole, EPA has conducted both human health risk assessments⁵ and ecological and environment fate risk assessments.⁶ EPA also updated its ecological and environmental fate risk assessments in support of the 2023 draft biological evaluation (BE).⁷ EPA believes that that these risk assessments (and the benefits discussed below) are also applicable to the action to approve this amended registration.

³ FIFRA § 3(c)(5)(C), 7 U.S.C. § 136a(c)(5)(C).

⁴ FIFRA § 3(c)(5)(D), 7 U.S.C. § 136a(c)(5)(D).

⁵ Summary of Analytical Chemistry and Residue Data (Jan. 25, 2013) ([EPA-HQ-OPP-2011-0668-0009](#)); Dietary Exposure and Risk Assessment (Jan. 29, 2013) ([EPA-HQ-OPP-2011-0668-0010](#)); Occupational and Residential Exposure and Risk Assessment for the Proposed New Uses of the New Active Insecticide Cyantraniliprole (Feb. 28, 2013) ([EPA-HQ-OPP-2011-0668-0011](#)); Aggregate Human Health Risk Assessment for the Proposed New Uses of the New Active Insecticide Cyantraniliprole (Mar. 7, 2013) ([EPA-HQ-OPP-2011-0668-0012](#)); Chronic Aggregate Dietary Exposure and Risk Assessments in Support of a Section 3 Registration Action (Sept. 7, 2016) ([EPA-HQ-OPP-2014-0357-0009](#)); Human Health Risk Assessment for Various Proposed Uses and Several Tolerance Requests without U.S. Registration (Jan. 12, 2017) ([EPA-HQ-OPP-2014-0357-0011](#)); Summary of Analytical Chemistry and Residue Data (Apr. 21, 2016) ([EPA-HQ-OPP-2014-0357-0012](#)); Summary of Analytical Chemistry and Residue Data (Aug. 8, 2016) ([EPA-HQ-OPP-2014-0357-0013](#)); Human Health Risk Assessment for Proposed Uses and Tolerance Requests on Coffee; Caneberry Subgroup 13-07A; Low Growing Berry Subgroup 13-07H, Except Strawberry, Lowbush Blueberry and Lingonberry; Brassica Leafy Greens Subgroup 4-16A; Leafy Greens Subgroup 4-16B (June 20, 2018) ([EPA-HQ-OPP-2017-0694-0011](#)); Chronic Aggregate Dietary Exposure and Risk Assessments for Proposed Uses and Tolerance Requests on Coffee; Caneberry Subgroup 13-07A; Low Growing Berry Subgroup 13-07H, Except Strawberry, Lowbush Blueberry and Lingonberry; Brassica Leafy Greens Subgroup 4-16A (May 30, 2018) ([EPA-HQ-OPP-2017-0694-0012](#)); Human Health Risk Assessment for an Inadvertent Tolerance on Sugarcane (Feb. 28, 2022) ([EPA-HQ-OPP-2021-0154-0007](#)); Highly Refined Chronic Aggregate Dietary Exposure and Risk Assessments for Proposed Inadvertent Use and Tolerance Request on Sugarcane (Feb. 28, 2022) ([EPA-HQ-OPP-2021-0154-0008](#)).

⁶ Environmental Fate and Ecological Risk Assessment for the Registration of the New Chemical Cyantraniliprole – Amended (April 30, 2013) ([EPA-HQ-OPP-2011-0668-0008](#)); Environmental Risk Assessment of Proposed New Global Chemical Cyantraniliprole – Addendum (Jan. 24, 2014) ([EPA-HQ-OPP-2011-0668-0055](#)); Revised Drinking Water Assessment including Ground Water Exposure Refinements for Proposed New Uses on Leafy, Bulb, Fruiting, and Cucurbit Vegetables with Two Seasons of Applications (June 9, 2016) ([EPA-HQ-OPP-2014-0357-0010](#)); Ecological Risk Assessment and Drinking Water Assessment for the IR-4 New Use Petition for Pronamide on Low Growing Berry Subgroup except Strawberry, Subgroup 13-07H; Stone Fruit Crop group 12-12; Pome Crop Group 11-10; Caneberry subgroup 13-07A; Bushberry subgroup 13-07B; and Small Fruit Vine Climbing Subgroup (except Fuzzy Kiwifruit Subgroup 13-07F) (May 14, 2018) ([EPA-HQ-OPP-2017-0694-0013](#)).

⁷ See EPA’s Draft Biological Evaluation for Cyantraniliprole and supporting documentation, available at [EPA-HQ-OPP-2011-0668](#), Document ID Nos. 71-72, 75-87.

In the human health risk assessments, EPA did not select an acute dietary toxicity endpoint because the Agency did not identify any effect attributed to a single dose (*i.e.*, CTP is not expected to pose an acute risk to humans). In general, CTP produces both adverse and adaptive changes in the liver, thyroid gland, and adrenal cortex. With repeat dosing, consistent findings of mild to moderate increases in liver weights are observed across multiple species (rats, mice, dogs). CTP was classified as “not likely to be carcinogenic to humans” based upon data demonstrating lack of treatment-related increase in tumor incidence in rats and mice. No cumulative effects were identified. CTP presents no mutagenicity, neurotoxicity, immunotoxicity, developmental reproductive toxicity.

In the environmental risk assessments, EPA identified risks of concern for both aquatic and terrestrial invertebrates. Overall, however, the major risks of concerns are for direct effects to freshwater, estuarine/marine, and benthic invertebrates. EPA did not identify direct risks of concerns for birds, reptiles, amphibians, freshwater fish, terrestrial plants, or aquatic plants.

EPA also considered the benefits of products containing cyantraniliprole, including CTP’s activity on a wide variety of target insects on a variety of crops. CTP is effective for controlling aphids, weevils and thrips—all major agricultural pests. CTP is not expected to pose any acute risk to humans and was registered in 2013 as a reduced risk pesticide due to it posing lower relative risk to alternative chemicals available at that time. CTP also poses lower risk to non-target organisms relative to alternatives and is compatible with IPM practices.

This amended registration includes additional mitigation measures to address effects to listed species, including the following:

- Requirement that applicators use coarse/coarser droplets for ground and aerial applications to reduce spray drift
- Requirement that aerial applications abide by wind-directional buffers, as identified in Bulletins Live Two (BLT), also to reduce spray drift
- Increase in distance of vegetative filter strips from 25 to 30 feet to mitigate the potential for runoff to aquatic habitats
- Use of a 25’ buffer for airblast applications to dormant, non-bearing and/or vegetation that is not yet fully leafed out
- Requirement that treated seeds be immediately covered or collected if spilled during loading

After consideration, EPA has determined that approving this amended registration will not cause unreasonable adverse effects because the amended registrations are not expected to result in increased exposures⁸ and because EPA continues to believe that—consistent with the 2014 registration decision⁹

⁸ While the mitigations in the amended registrations are intended to reduce exposures to listed species, EPA expects that the mitigations will (1) not increase exposures to other non-listed non-target organisms, and (2) will generally reduce exposures to all non-target organisms (both listed and non-listed).

⁹ For EPA’s full risk-benefit analysis, *see* Registration of New Active Ingredient Cyantraniliprole, at 13-14 (Jan. 24, 2014) ([EPA-HQ-OPP-2011-0668-0057](#)).

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and other previous registration decision for products contain cyantraniliprole—the benefits of these registrations outweigh any remaining risks of concern from its use and there are no human dietary risks from uses of cyantraniliprole that are inconsistent with the FFDCA safety standard.¹⁰ Accordingly, EPA is approving these registration amendments because the FIFRA registration standard is met.

Conclusion

A stamped copy of your labeling is enclosed for your records. This labeling supersedes all previously accepted labeling. You must submit one copy of the final printed labeling before you release the product for shipment with the new labeling. Consistent with Terms 2-5 above, and notwithstanding 40 C.F.R. § 152.130(c), you may only distribute or sell¹¹ this product under either the final stamped label associated with this approval letter or with accompanying labeling that incorporates the mitigations in this registration amendment.

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 FIFRA 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 C.F.R. § 156.10(a)(5) lists 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 product will be referred to EPA's Office of Enforcement and Compliance.

If you have any questions, please contact Gene Benbow at 703-712-9669 or at benbow.gene@epa.gov.

Sincerely,



Deanna (Dee) Colby, Chief
Invertebrate & Vertebrate Branch 3
Registration Division
Office of Pesticide Programs

Enclosure

¹⁰ See FIFRA § 2(bb) (defining “unreasonable adverse effects on the environment” as, in relevant part, “any unreasonable risk to [humans] or the environment, taking into account the economic, social, and environmental costs and benefits of the use of the pesticide” or any “human dietary risks” from pesticidal residues in or on food).

¹¹ See FIFRA § 2(gg), 7 U.S.C. § 136(gg); 40 C.F.R. § 152.3.

Sale, use, and distribution of this product in Nassau and Suffolk Counties in the State of New York is prohibited.

Minecto™ Duo

Insecticide

GROUP 4A 28 INSECTICIDES

For control of listed insect pests infesting specified crops

Active Ingredients:

Thiamethoxam¹ 20.0%

Cyantraniliprole² 20.0%

Other Ingredients: 60.0%

Total: 100.0%

¹CAS No. 153719-23-4

²CAS No. 736994-63-1

Minecto Duo is a water-dispersible granule that contains 3.2 ounces of active ingredient of thiamethoxam and 3.2 ounces of cyantraniliprole per pound of formulated product.

KEEP OUT OF REACH OF CHILDREN.

CAUTION

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 additional precautionary statements and directions for use in booklet[on bag].

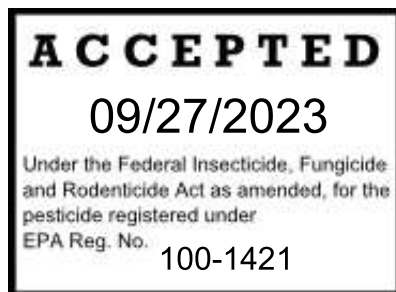
EPA Reg. No. 100-1421

EPA Est. XXXX

SCP 1421 MAS 0814

Net Weight

[Non-Refillable Container]



FIRST AID	
If in eyes	<ul style="list-style-type: none"> • Hold eye open and rinse slowly and gently with water for 15-20 minutes. • Remove contact lenses, if present, after the first 5 minutes, then continue rinsing. • Call a poison control center or doctor for treatment advice.
If inhaled	<ul style="list-style-type: none"> • Move person to fresh air. • If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. • Call a poison control center or doctor for further treatment advice.
If swallowed	<ul style="list-style-type: none"> • Call a poison control center or doctor immediately for treatment advice. • Have person sip a glass of water if able to swallow. • Do not induce vomiting unless told to do so by the poison control center or doctor. • Do not give anything by mouth to an unconscious person.
If on skin or clothing	<ul style="list-style-type: none"> • Take off contaminated clothing. • Rinse skin immediately with plenty of water for 15-20 minutes. • Call a poison control center or doctor for treatment advice.
<p>Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-800-888-8372 for emergency medical treatment information.</p>	
<p>HOT LINE NUMBER For 24-Hour Medical Emergency Assistance (Human or Animal) or Chemical Emergency Assistance (Spill, Leak, Fire or Accident) Call 1-800-888-8372</p>	

PRECAUTIONARY STATEMENTS

Hazards to Humans and Domestic Animals

CAUTION

Causes moderate eye irritation. Avoid contact with eyes, or clothing.

Personal Protective Equipment (PPE)

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Shoes plus socks
- Chemical-resistant gloves made of any waterproof material – Category A (e.g., natural rubber ≥14 mils)

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions exist for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

Engineering Control Statements

When handlers use closed systems, enclosed cabs, or aircraft 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 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.

Environmental Hazards

This pesticide is toxic to wildlife and highly toxic to aquatic invertebrates, oysters and shrimp. Do not apply directly to water, or to areas where surface water is present, or to intertidal areas below the mean high water mark. Drift or runoff from treated areas may be hazardous to aquatic organisms in neighboring areas. Do not contaminate water when cleaning equipment or disposing of equipment wash waters.

This product is highly toxic to bees exposed to direct treatment on blooming crops or weeds and may cause possible effects to pollinators from exposure to translocated residues in blooming crops. Do not apply this product or allow it to drift to blooming crops or weeds while bees are foraging in or adjacent to the treatment area.

- **Surface Water Advisory**
This product may impact surface water quality due to spray drift and runoff of rain water. This is especially true for poorly draining soils and soils with shallow ground water. This product is classified as having high potential for reaching surface water via runoff for several months after application. A level, well-maintained vegetative buffer strip between areas to which this product is applied and surface water features such as ponds, streams, and springs will reduce the potential loading of thiamethoxam water from runoff water and sediment. Runoff of this product will be reduced by avoiding applications when rainfall is forecast to occur within 48 hours. (See manual at the following internet address: <http://www.wsi.nrcs.usda.gov/products/W2Q/pest/core4.html>).
- **Surface Water Protection Statement**
For foliar uses, do not apply during rain.
- **Ground Water Advisory**
This product has properties and characteristics associated with chemicals detected in ground water. This chemical may leach into the ground water if used in areas where soils are permeable, particularly where the water table is shallow.
- **Spray Drift Advisory**

Do not allow this product to drift.

PROTECTION OF POLLINATORS



APPLICATION RESTRICTIONS EXIST FOR THIS PRODUCT BECAUSE OF RISK TO BEES AND OTHER INSECT POLLINATORS. FOLLOW APPLICATION RESTRICTIONS FOUND IN THE DIRECTIONS FOR USE TO PROTECT POLLINATORS.



Look for the bee hazard icon in the Directions for Use for each application site for specific use restrictions and instructions to protect bees and other insect pollinators.

This product can kill bees and other insect pollinators.

Bees and other insect pollinators will forage on plants when they flower, shed pollen, or produce nectar.

Bees and other insect pollinators can be exposed to this pesticide from:

- Direct contact during foliar applications, or contact with residues on plant surfaces after foliar applications
- Ingestion of residues in nectar and pollen resulting from seed treatment, soil application, and foliar applications.

When Using This Product Take Steps To:

- Minimize exposure of this product to bees and other insect pollinators when they are foraging on pollinator attractive plants in and around the application site.
- Minimize drift of this product on to beehives or to off-site pollinator attractive habitat. Drift of this product onto beehives or off-site to pollinator attractive habitat can result in bee kills.

Information on protecting bees and other insect pollinators may be found at the Pesticide Environmental Stewardship website at:

<http://pesticidestewardship.org/PollinatorProtection/Pages/default.aspx>.

Pesticide incidents (for example, bee kills) should immediately be reported to the state/tribal lead agency. For contact information for your state, go to: www.aapco.org/officials.html. Pesticide incidents should also be reported to the National Pesticide Information Center at: www.npic.orst.edu or directly to EPA at:

beekill@epa.gov

CONDITIONS OF SALE AND LIMITATION OF WARRANTY AND LIABILITY

NOTICE: Read the entire Directions for Use and Conditions of Sale and Limitation of Warranty and Liability before buying or using this product. If the terms are not acceptable, return the product at once, unopened, and the purchase price will be refunded.

The Directions for Use of this product must be followed carefully. 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 manner of use or application, weather or crop conditions, presence of other materials or other influencing factors in the use of the product, which are beyond the control of SYNGENTA CROP PROTECTION, LLC or Seller. To the extent permitted by applicable law, Buyer and User agree to hold SYNGENTA and Seller harmless for any claims relating to such factors.

SYNGENTA warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated in the Directions for Use, subject to the inherent risks referred to above, when used in accordance with directions under normal use conditions. To the extent permitted by applicable law: (1) this warranty does not extend to the use of the product contrary to label instructions or under conditions not reasonably foreseeable to or beyond the control of Seller or SYNGENTA, and (2) Buyer and User assume the risk of any such use. **TO THE EXTENT PERMITTED BY APPLICABLE LAW, SYNGENTA MAKES NO WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE NOR ANY OTHER EXPRESS OR IMPLIED WARRANTY EXCEPT AS WARRANTED BY THIS LABEL.**

To the extent permitted by applicable law, in no event shall SYNGENTA be liable for any incidental, consequential or special damages resulting from the use or handling of this product. **TO THE EXTENT PERMITTED BY APPLICABLE LAW, THE EXCLUSIVE REMEDY OF THE USER OR BUYER, AND THE EXCLUSIVE LIABILITY OF SYNGENTA AND SELLER FOR ANY AND ALL CLAIMS, LOSSES, INJURIES OR DAMAGES (INCLUDING CLAIMS BASED ON BREACH OF WARRANTY, CONTRACT, NEGLIGENCE, TORT, STRICT LIABILITY OR OTHERWISE) RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT, SHALL BE THE RETURN OF THE PURCHASE PRICE OF THE PRODUCT OR, AT THE ELECTION OF SYNGENTA OR SELLER, THE REPLACEMENT OF THE PRODUCT.**

SYNGENTA and Seller offer this product, and Buyer and User accept it, subject to the foregoing Conditions of Sale and Limitation of Warranty and Liability, which may not be modified except by written agreement signed by a duly authorized representative of SYNGENTA.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling. Read entire label before using this product.



1.FOR CROPS UNDER CONTRACTED POLLINATION SERVICES

Do not apply this product while bees are foraging. Do not apply this product until flowering is complete and all petals have fallen unless the following condition has been met.

If an application must be made when managed bees are at the treatment site, the beekeeper providing the pollination services must be notified no less than 48 hours prior to the time of the planned application so that the bees can be removed, covered or otherwise protected prior to spraying.



2.FOR FOOD CROPS AND COMMERCIALY GROWN ORNAMENTALS NOT UNDER CONTRACT FOR POLLINATION SERVICES BUT ARE ATTRACTIVE TO POLLINATORS

Do not apply this product while bees are foraging. Do not apply this product until flowering is complete and all petals have fallen unless one of the following conditions is met:

- **The application is made to the target site after sunset**
- **The application is made to the target site when temperatures are below 55°F**
- **The application is made in accordance with a government-initiated public health response**
- **The application is made in accordance with an active state-administered apiary registry program where beekeepers are notified no less than 48 hours prior to the time of the planned application so that the bees can be removed, covered or otherwise protected prior to spraying**
- **The application is made due to an imminent threat of significant crop loss, and a documented determination consistent with an IPM plan or predetermined economic threshold is met. Every effort should be made to notify beekeepers no less than 48 hours prior to the time of the planned application so that the bees can be removed, covered or otherwise protected prior to spraying.**

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.

This labeling must be in the possession of the user at the time of application.

RESTRICTIONS

- Minecto Duo is highly toxic to bees exposed to direct treatment on blooming crops or weeds and may cause possible effects to pollinators from exposure to translocated residues in blooming crops. Do not apply Minecto Duo or allow it to drift to blooming crops or weeds while bees are foraging in/or adjacent to the treated area.
- Use this product only in commercial and farm plantings.
- Not for use in home plantings.
- Not for use on ornamental plants or plants being grown for ornamental purposes.
- Do not use in greenhouses.
- Do not treat plants grown for transplanting.
- Do not apply to crops grown from thiamethoxam treated seed.
- For foliar uses, do not apply during rain.
- Do not make ground applications within 25 ft or aerial applications within 50 ft of aquatic habitats (such as, but not limited to, lakes, reservoirs, rivers, permanent streams, wetlands or natural ponds, estuaries, and commercial fish farm ponds). Do not cultivate within 30 ft of the aquatic area to allow growth of a vegetative filter strip.
- Unless otherwise stated for a specific crop, do not apply a total of more than 0.4 lb ai/A of cyantraniliprole-containing products per year. This is the total from all application methods (e.g., seed, soil, foliar).

Endangered and Threatened Species Protection Requirements:

Before using this product, you must obtain any applicable Endangered Species Protection Bulletins (“Bulletins”) within six months prior to or on the day of application. To obtain Bulletins, go to Bulletins Live! Two (BLT) at

<https://www.epa.gov/pesticides/bulletins>. When using this product, you must follow all directions and restrictions contained in any applicable Bulletin(s) for the area where you are applying the product, including any restrictions on application timing if applicable. It is a violation of federal law to use this product in a manner inconsistent with its labeling, including this labeling instruction to follow all directions and restrictions contained in any applicable Bulletin(s). For general questions or technical help, call 1-844-447-3813, or email ESPP@epa.gov.

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 interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 12 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
- Chemical-resistant gloves made of any waterproof material – Category A (e.g., natural rubber ≥ 14 mils)
- Shoes plus socks

FAILURE TO FOLLOW DIRECTIONS AND PRECAUTIONS ON THIS LABEL MAY RESULT IN CROP INJURY, POOR INSECT CONTROL, AND/OR ILLEGAL RESIDUES.

Sale, use, and distribution of this product in Nassau and Suffolk Counties in the State of New York is prohibited.

INFORMATION

Minecto Duo is a soil- or foliar-applied insecticide with dual modes of action that controls listed lepidopteran, sucking and chewing insect pests.

When Minecto Duo is applied to the soil, it is readily taken up by the roots of germinating seedlings or transplants and is rapidly translocated throughout the plant. Because of its systemic activity, Minecto Duo provides excellent residual control of key insect pests in vegetables and potatoes.

Foliar application of Minecto Duo exhibits excellent translaminar and locally systemic movement into plant tissue as well as accumulation on the leaf surface. Penetration into the leaf tissue forms a reservoir of active ingredient which results in extended residual control. Effective crop protection results from rapid feeding inhibition.

- Minecto Duo aids in the suppression of listed pests. Suppression can mean either inconsistent control (good to poor), or consistent control at a level below that generally considered acceptable for commercial control.
- Minecto Duo is a selective insecticide and is compatible with integrated pest management programs.
- Minecto Duo is safe when used in accordance with this label.

For best performance of soil applications, follow these directions:

- Minecto Duo can be applied during planting or transplanting as an in-furrow spray, transplant hole drench or narrow surface band above the seedline, or on dry fertilizer (potatoes only). Minecto Duo can be applied after planting as a post-seeding, post-transplanting, hill drench, drip chemigation, or root zone shank application.
- Apply specified dosage in sufficient water volume to ensure uniform application and incorporation at least 2 inches into the soil. For vegetables, apply Minecto Duo within 21 days after either plant emergence or transplanting.
- Although Minecto Duo is rapidly taken up by plant roots and rapidly moves throughout the plant, the use of sufficient water volume and root zone placement will ensure that the chemical contacts the roots, resulting in optimal uptake and performance.

For best performance of foliar applications, follow these directions:

- Apply Minecto Duo when insect pest populations begin to build, but before populations reach economically damaging levels. Check with your local agricultural authority for economic thresholds for pests controlled by Minecto Duo.
- Thorough spray coverage is essential for optimal performance. Apply Minecto Duo in sufficient water to ensure good coverage. See specific application information in the **Crop Use Directions** section of this label. The use of higher water volumes will result in better coverage, especially under adverse conditions (e.g., hot, dry) or where a dense plant canopy exists.
- Minecto Duo is rainfast once the spray solution has dried on treated plants.

RESISTANCE MANAGEMENT

Some insect pests are known to develop resistance to products after repeated use. Because resistance development cannot be predicted, the use of this product should conform to sound resistance management strategies established for the crop and use area. Syngenta encourages responsible product stewardship to ensure effective long-term control of the insects on this label.

Minecto Duo contains a Group 4A insecticide (thiamethoxam, belonging to the neonicotinoid class of chemistry) and a Group 28 insecticide (cyantraniliprole, belonging to the diamide class of chemistry). Insect biotypes with acquired or inherent resistance to Group 4A or Group 28 insecticides may eventually dominate the insect population if Group 4A or Group 28 insecticides are used repeatedly as the predominant method of control for targeted species. This may result in partial or total loss of control of those species by Minecto Duo or other Group 4A or Group 28 insecticides.

If resistance to this product develops in your area, this product, or other products with a similar mode of action, may not provide adequate control. If poor performance cannot be attributed to improper application or extreme weather conditions, a resistant strain of insect

may be present. If you experience difficulty with control and resistance is a reasonable cause, immediately consult your local company representative or agricultural advisor for the best alternative method of control for your area.

In order to maintain susceptibility to these classes of chemistry:

- Avoid using Group 4A and/or Group 28 insecticides exclusively for season-long control of insect species with more than one generation per crop season.
- For insect species with successive or overlapping generations, apply Minecto Duo or other Group 4A and/or Group 28 insecticides using a “treatment window” approach. A treatment window is a period of time as defined by the stage of crop development and/or the biology of the pests of concern. Within the treatment window, depending on the length of residual activity, there may either be single or consecutive applications (seed treatment, soil, foliar, unless otherwise stated in the Directions for Use) of the Group 4A and/or Group 28 insecticides. Do not exceed the maximum Minecto Duo allowed per year.
- Following a treatment window of Group 4A and/or Group 28 insecticides, rotate to a treatment window of effective products with a different mode of action before making additional applications of Group 4A and/or Group 28 insecticides.
- A treatment window rotation, along with other IPM practices for the crop and use area, is considered an effective strategy for preventing or delaying a pest’s ability to develop resistance to these classes of chemistry.
- If resistance is suspected, do not reapply Minecto Duo or other Group 4A or Group 28 insecticides.

Other Insect Resistance Management (IRM) practices include:

- Incorporating IPM techniques into your insect control program
- Monitoring treated insect populations for loss of field efficacy
- Using tank-mixtures or premixes with insecticides from a different target site of action group as long as the involved products are all registered for the same crop outlet and effective rates are applied
- **For additional information on Insect Resistance Management:**
- Contact your local extension specialist, certified crop advisor and/or product manufacturer for additional insect resistance management recommendations.
- Visit the Insecticide Resistance Action Committee (IRAC) on the web at <http://www.irac-online.org/>.

APPLICATION PROCEDURES AND SPRAY EQUIPMENT

Soil Application

Select spray nozzles or metering orifices which will provide accurate and uniform deposition. For broadcast applications made at planting or prior to the emergence of crops, applicators are required to use a coarse or coarser droplet size (ASABE S572.1). Minecto Duo can be applied during planting or transplanting as an in-furrow spray, transplant hole drench or narrow surface band above the seedline; after planting as a post-seeding, post-

transplanting, hill drench, drip chemigation, or root zone shank application. These application methods allow the insecticide to be absorbed by plant roots. Although Minecto Duo is rapidly taken up by plant roots and rapidly moves throughout the plant, the use of sufficient water volume and root zone placement will ensure that the chemical contacts the roots, resulting in optimal uptake and performance.

When making post-emergence applications, direct the application at the base of the plant for optimum root uptake. To help insure accuracy, calibrate sprayer before each use. For information on spray equipment and calibration, consult sprayer manufacturers and/or State Extension Service specialists.

Dry Bulk Granular Fertilizer – Potatoes only: Many dry bulk fertilizers may be impregnated or coated with Minecto Duo and used to control insects in potatoes. When applying Minecto Duo with dry bulk granular fertilizer, follow all directions for use and precautions on the Minecto Duo label contained in the potato direction for use section regarding rates per acre, pests controlled, and rotational crop restrictions.

All individual state regulations relating to dry bulk granular fertilizer blending, registration, labeling, and application, are the responsibility of the individual and/or company selling the insecticide/fertilizer mixture.

Prepare the insecticide/fertilizer mixture by using any closed drum, belt, ribbon, or other commonly used dry bulk fertilizer blender. Nozzles used to spray Minecto Duo onto the fertilizer must be placed to provide uniform spray coverage. Care should be taken to aim the spray onto the fertilizer only, avoiding the walls of the blender. Do not pour or dribble Minecto Duo directly from the product container onto the fertilizer.

Blender Mixing Directions

Fill the blender with the required amount of dry bulk granular fertilizer to be used. Start the blender. Spray the Minecto Duo directly onto the moving fertilizer. Allow the mixture to blend for at least 5 minutes or until uniform. Spread the insecticide/fertilizer mixture as soon as possible.

Calculate the amount of Minecto Duo by the following formula:

$$\frac{\text{oz/acre Minecto Duo}}{\text{lb/acre Fertilizer}} \times 2,000 \text{ lb/ton} = \text{oz/ton Minecto Duo}$$

Important: When more than 1,000 lb/A of dry bulk granular fertilizer is to be applied, mix Minecto Duo with water to improve coverage on the dry fertilizer. Mix one part Minecto Duo with up to 2 parts water [1:2] in a mix tank before application to fertilizer. Use a maximum of 2 qt liquid per ton of fertilizer.

Precautions: Do not impregnate Minecto Duo on straight unadulterated agricultural limestone, since adsorption will not be achieved. Limestone prills, which contain a binding agent, and fertilizer blends containing limestone can be impregnated.

Application: Apply the mixture uniformly to the soil with properly calibrated equipment **immediately** after blending. Non-uniform application of the insecticide/fertilizer mixture may result in unsatisfactory insect control.

Chemigation

Applications of Minecto Duo alone or in combination with other pesticides registered for application through irrigation systems may be applied in irrigation water at rates specified on this label. Apply this product only through low-pressure micro-sprinkler, drip type irrigation systems or through sprinkler irrigation equipment (center pivot, solid set, hand move or moving wheel irrigation systems - **potatoes only**).

Directions for All Specified Types of Irrigation Systems

Uniform Water Distribution and System Calibration

The irrigation system must provide uniform distribution of treated water. Crop injury, lack of effectiveness, or illegal pesticide residues in the crop can result from non-uniform distribution of treated water. The system must be calibrated to uniformly apply the rates specified. If you have questions about calibration, contact State Extension Service specialists, equipment manufacturers, or other experts. A person knowledgeable of the chemigation system and responsible for its operation, or under the supervision of the responsible person, shall shut the system down and make necessary adjustments should the need arise.

Dilute Minecto Duo in the solution tank at a ratio of at least 5 parts of water to one part of Minecto Duo. Injecting a larger volume of a more dilute solution will usually allow a more accurate calibration of the metering equipment. Meter the insecticide into the irrigation water during the irrigation cycle.

Using Water from Public Water Systems: DO NOT APPLY Minecto Duo THROUGH ANY IRRIGATION SYSTEM **PHYSICALLY CONNECTED** TO A PUBLIC WATER SYSTEM. Public water system means a system for the provision to the public of piped water for human consumption, if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year. Minecto Duo may be applied through irrigation systems, which may be **supplied** by a public water system **only if** the water from the public water system is discharged into a reservoir tank prior to pesticide introduction. There shall be a complete physical break (air gap) between the outlet end of the fill pipe and to top or overflow rim of the reservoir tank of at least twice the inside diameter of the fill pipe. Before beginning chemigation, always make sure that the air gap exists and that there is no blockage of the overflow of the reservoir tank.

Any irrigation system using water supplied from a public water system must also meet the following requirements.

Operating Instructions for All specified Types of Irrigation Systems

1. The system must be calibrated to uniformly apply the rates specified. If you have questions about calibration, contact State Extension Service specialists, equipment manufacturers, or other experts.
2. The system must contain a functional check-valve, vacuum relief valve, and low-pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.
3. The pesticide injection pipeline must contain a functional, automatic, quick-closing check-valve to prevent the flow of fluid back toward the injection pump.
4. The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
5. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
6. The irrigation line or water pump must include a functional pressure switch, which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
7. Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump or Venturi injector), effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
8. Do not apply when wind speed favors drift beyond the area intended.
9. The pesticide injection pipeline must be on the downstream (field) side of the system filters to avoid potential pesticide off-site contamination or misapplication as a result of the filter back-flushing process.
10. Have a dedicated pesticide injection tank for chemigation purposes rather than tank-mixing pesticides with fertilizers or other non-pesticide chemigation products. This reduces the potential for incompatibility issues which could result in misapplication.
11. Make Minecto Duo injections into the center of the water pipe for a thorough and quick mix. This can be accomplished with an "injection tube" which should contain a check valve.

Application Instructions – Low Pressure Micro-Sprinkler or Drip Type Irrigation Equipment

Minecto Duo must be applied on the schedule specified in the Crop Use Directions, not according to the irrigation schedule. The following calibration and application techniques are provided for user reference, but do not constitute a warranty of fitness for application through low-pressure micro-sprinkler or drip type irrigation equipment. Check with state and local regulatory agencies for potential use restrictions before applying any agricultural chemicals through irrigation equipment.

1. Each run of the irrigation system must be calibrated separately to determine the time it takes water to move through the system and to make sure all emitters in the system are putting out the same amount of water.
2. Use only pressure injection or Venturi equipment.
3. Determine the area to be treated in each irrigation run.
4. Measure the output of each of the emitters or drip tubes closest to and farthest from the injection point.
5. For calibration, substitute a concentrated detergent (such as Wisk) for the Minecto Duo mixture in the injector (solution) tank. It is important to use the same volume of soap solution as the planned volume of Minecto Duo solution when calibrating the system. The detergent will bubble as it leaves the emitters. Check the time period over which the bubbles occur for both the closest and farthest emitters. If these times are not within 2 minutes of each other, adjust the dilution ratio and/or the injection rate.

Step-by-Step Calibration and Application Instructions

1. Before starting to calibrate, operate the system until all of the emitters are putting out at equal flow rates or until the system is operating at full pressure.
2. Make up an indicator solution of detergent or fertilizer, using the same rate of indicator as the planned volume of Minecto Duo to be used in the mix.
3. Set the injector to apply the indicator solution at the injection rate to be used in the actual Minecto Duo application.
4. Attach a 12-inch length of flexible tubing over the emitter closest to the injection point, another 12-inch length over the emitter farthest away. Both emitters should be monitored to determine the time intervals that the indicator solutions are observed.
5. Begin injecting the indicator solution. Direct the flow from the flexible tubes into a small container. Begin timing when the indicator solution is first detected. Stop timing when the indicator solutions are no longer detected in the container.
6. If the period of detection of the indicator solution between the near and far emitter is within 2 minutes, comparable coverage will be obtained. If they are not, make

adjustments by increasing the dilution ratio, using more water per part of Minecto Duo, or adjust the injector to a slower flow rate.

7. Once the system is calibrated, dilute the needed amount of Minecto Duo with water and any other tank mix partners in the injection tank at a minimum dilution of 5 parts water to 1 part Minecto Duo. Follow the directions for mixing and equipment set up in the **Mixing Procedures** section of this label for complete details.
8. Do not begin to inject Minecto Duo into the system until all emitters are producing equal flow rates, or until the system is at full pressure.
9. Inject the Minecto Duo solution into the system at the beginning of the irrigation set in 1/2 -1 inch of irrigation water.

Application Instructions – Sprinkler irrigation equipment (center pivot, solid set, hand move or moving wheel irrigation systems – Potatoes only)

Minecto Duo alone or in combination with other products which are registered for application through sprinkler irrigation may be applied through irrigation systems. Apply this product through center pivot, solid set, hand move, or moving wheel irrigation systems. Lack of effectiveness or illegal pesticide residues can result from non-uniform distribution of treated water. If you have questions about calibration, contact State Extension Service specialists, equipment manufacturers, or other experts. A person knowledgeable of the chemigation system and responsible for its operation, or under the supervision of the responsible person, shall shut the system down and make necessary adjustments should the need arise.

Calibration and Application Instructions

Minecto Duo must be applied under the schedule specified in the specific Crop Use Directions, not according to the irrigation schedule unless the events coincide.

Set the equipment to apply the minimum amount of water per acre. Run the system at 85 - 90% of the manufacturer's maximum rated travel speed.

The following calibration and application techniques are provided for user reference, but do not constitute a warranty of fitness for application through sprinkler irrigation equipment. Check with state and local regulatory agencies for potential use restrictions before applying any agricultural chemical through sprinkler irrigation equipment.

Center Pivot Irrigation Equipment

Notes: (1) Use only drive systems that provide uniform water distribution. (2) Do not use end guns when chemigating Minecto Duo through center pivot systems because of non-uniform application. (3) Plug the first nozzle closest to the well-head to protect the water source.

1. Determine the size of the area to be treated.

2. Determine the time required to apply 0.1 – 0.25 inches of water over the area to be treated when the system and injection equipment are operated at normal pressures as recommended by the equipment manufacturer. Run the system at 80 - 95% of the manufacturer's rated maximum travel speed.
3. Using water, determine the injection pump output when operated at normal line pressure.
4. Determine the amount of Minecto Duo, and any tank mix partners, required to treat the area covered by the irrigation system.
5. Add the required amount of Minecto Duo, any tank mix partners, and sufficient water to meet the injection time requirements to the solution tank. (See **Mixing Procedures** section of this label.)
6. Make sure the system is fully charged with water before starting injection of the Minecto Duo solution. Time the injection to last at least as long as it takes to bring the system to full pressure.
7. Maintain constant agitation in the solution tank during the injection period.
8. Inject the specified amount of Minecto Duo per acre continuously for one complete revolution of the system.
9. Stop the injection equipment after treatment is completed. Continue to operate the system until the Minecto Duo solution has cleared all of the sprinkler heads.
10. Allow time for all lines to flush the pesticide through all nozzles before turning off irrigation water.

Solid Set, Hand Move, and Moving Wheel Irrigation Equipment

1. Determine the acreage covered by the sprinklers.
2. Fill injector solution tank with plain water and calibrate the flow rate of the system to deliver the contents of the tank over a 20-40 minute time interval.
3. Determine the amount of Minecto Duo required to treat the area covered by the irrigation system.
4. Add the required amount of Minecto Duo, and any other tank mix partners, into the same quantity of water used to calibrate the injection period. (See **Mixing Procedures** section of this label.)
5. Operate the system at the same pressure and time interval established during the calibration.

6. Inject specified amount of Minecto Duo per acre for either a 20-40 minute period at the end of a regular irrigation set, or as a 20-40 minute injection as a separate application not associated with a regular irrigation to maximize retention of the insecticide by the foliage.

7. Stop injection equipment after treatment is completed. Continue to operate the system until the Minecto Duo solution has cleared the last sprinkler head. To ensure lines are flushed and free from remaining pesticides, a dye indicator may be injected into the lines to mark the end of the application period.

GROUND APPLICATION

Select spray nozzles which will provide accurate and uniform spray deposition. For broadcast applications made at planting or prior to the emergence of crops, applicators are required to use a coarse or coarser droplet size (ASABE S572.1). For all other broadcast applications, applicators are required to use a medium or coarser droplet size (ASABE S572.1). Use spray nozzles, which provide medium-sized droplets and reduce drift. To help insure accuracy, calibrate sprayer before each use. For information on spray equipment and calibration, consult nozzle manufacturers and/or State Extension Service specialists.

Apply Minecto Duo using sufficient water volume to provide thorough and uniform coverage. In situations where a dense canopy exists and/or pest pressure is high, use greater water volumes. The use of a spray adjuvant may improve spray coverage but is not required. Do not make applications under conditions where uniform coverage cannot be obtained or where excessive spray drift may occur.

AERIAL APPLICATION

Apply Minecto Duo in water, using the minimum spray volume indicated in the **Crop Use Directions** section of this label. Increase spray volume where practical to improve coverage. Do not make application under conditions where uniform coverage cannot be obtained or where excessive spray drift may occur.

Spray Drift Precautions

As with all crop protection products, it is important to avoid off-target movement. Do not allow spray to drift onto adjacent land, crops, or aquatic areas. To avoid spray drift:

- Do not release spray at a height greater than 10 ft above the ground or vegetative canopy unless a greater application height is necessary for pilot safety.
- For fixed wing and helicopter aerial applications made at planting or prior to the emergence of crops, applicators are required to use a coarse or coarser droplet size (ASABE S572.1). For all other fixed wing and helicopter aerial applications, applicators are required to use a medium or coarser droplet size (ASABE S572.1).

- Do not apply when wind speeds exceed 15 mph at the application site. If the wind speed is greater than 10 mph, the boom length must be 65% or less of the wingspan for fixed wing aircraft and 75% or less of the rotor diameter for helicopters. Otherwise, the boom length must be 75% or less of the wingspan for fixed wing aircraft and 90% or less of the rotor diameter for helicopters.
- When the windspeed is 10 mph or less, applicators must use $\frac{3}{4}$ swath displacement upwind at the downwind edge of the field. When the windspeed is between 11-15 mph, applicators must use a full swath displacement upwind at the downwind edge of the field.
- Make applications when wind velocity favors on-target product deposition (approximately 3-10 mph).
- Do not make applications when wind direction is toward the aquatic area to reduce the risk of exposure to sensitive aquatic areas.
- Do not make applications during temperature inversions. Inversions are characterized by stable air and increasing temperatures with increased height above the ground. Mist or fog may indicate the presence of an inversion in humid areas. The applicator may detect the presence of an inversion by producing smoke and observing a smoke layer near the ground surface.

MIXING PROCEDURES

Prepare no more spray mixture than is needed for the immediate operation. Thoroughly clean spray equipment before using this product. Vigorous agitation is necessary for proper dispersal of the product. Maintain maximum agitation throughout the spraying operation. Do not let the spray mixture stand overnight in the spray tank. Flush the spray equipment thoroughly following each use and apply the rinsate to a previously treated area. Keep product container tightly closed when not in use.

Minecto Duo Alone

Add 1/2 of the required amount of water to the mix tank. With the agitator running, add the desired amount of Minecto Duo to the tank. Continue agitation while adding the remainder of the water. Begin application of the solution after Minecto Duo has completely dispersed into the mix water. Maintain agitation until all of the mixture has been applied.

Minecto Duo + Tank Mixtures

Add 1/2 of the required amount of water to the mix tank. Start the agitator running before adding any tank mix partners. Add tank mix partners in this order: products packaged in water-soluble packaging, wettable powders, wettable granules (dry flowables) such as Minecto Duo, liquid flowables, liquids, emulsifiable concentrates, and surfactants / adjuvants. Always allow each tank mix partner to become fully dispersed before adding the

next product. Provide sufficient agitation while adding the remainder of the water. Maintain agitation until all of the mixture has been applied.

Note: When using Minecto Duo in tank mixtures, add all products in water-soluble packaging to the tank before any other tank mix partner, including Minecto Duo. Allow the water-soluble packaging to completely dissolve and the product(s) to completely disperse before adding any other tank mix partner to the tank.

If using Minecto Duo in a tank mixture, observe all directions for use, crop/sites, use rates, dilution ratios, precautions, and limitations, which appear on the tank mix product label. Do not exceed any label dosage rate, and follow the most restrictive label precautions and limitations. Do not mix this product with any product which prohibits such mixing. Tank mixtures or other applications of products referenced on this label are permitted only in those states in which the referenced products are labeled.

When an adjuvant is to be used with this product, use an adjuvant that meets the standard of the Chemical Producers and Distributors Association (CPDA) adjuvant certification program.

Compatibility

Minecto Duo is compatible with most commonly used pesticides, crop oils, adjuvants, and nutritional sprays. However, since it is not possible to test all possible mixtures, the user should pre-test to assure the physical compatibility and lack of phytotoxic effect of any proposed mixtures with Minecto Duo. To determine the physical compatibility of Minecto Duo with other products, use a jar test, as described below.

Using a quart jar, add the proportionate amounts of the products to 1 qt of water. Add wettable powders and water-dispersible granular products first, then liquid flowables, and emulsifiable concentrates last. After thoroughly mixing, let stand for at least 5 minutes. If the combination remains mixed or can be remixed readily, it is physically compatible. Once compatibility has been proven, use the same procedure for adding required ingredients to the spray tank.

The crop safety of all potential tank mixes on all crops has not been tested. Confirm the safety to the target crop before applying any tank mixture not specified on this label.

CROP USE DIRECTIONS

Pollinator Precautions



- Minecto Duo is highly toxic to bees exposed to direct treatment on blooming crops or weeds and may cause possible effects to pollinators from exposure to translocated residues in blooming crops.
- Do not apply Minecto Duo or allow it to drift to blooming crops while bees are foraging in/or adjacent to the treatment area. This is especially critical if there are adjacent orchards that are blooming (Refer to **Spray Drift Precautions** for additional information).

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Consult with your local cooperative extension service or state agency responsible for regulating pesticide use for additional pollinator protection practices

BRASSICA (COLE) LEAFY VEGETABLES – CROP GROUP 5 INCLUDING:

Head & Stem *Brassica*

Broccoli, Broccoli, Chinese (gai lon), Brussels sprouts, Cabbage, Chinese (napa) Cabbage, Chinese mustard (gai choy) Cabbage, Cauliflower, Cavalo broccolo, Kohlrabi

Leafy *Brassica* Greens

Broccoli raab (rapini), Cabbage, Chinese (bok choy), Collards, Kale, Mizuna, Mustard greens, Mustard spinach, Rape greens

Application Method	Pests	Product Rate Per Acre Per Application
Soil	Aphids Beet Armyworm Cabbage Looper Cabbage Webworm Corn Earworm Diamondback Moth Fall Armyworm Flea Beetles Imported Cabbageworm Leafminers (larvae) Southern Cabbageworm Whiteflies Yellowstriped Armyworm	11 – 14 oz/A

Soil Application Use Restrictions:

- **Maximum Minecto Duo Allowed per Year:** Do not exceed a total of 14 oz/acre of Minecto Duo or 0.175 lb ai of thiamethoxam-containing products or 0.4 lb ai of cyantraniliprole-containing products per acre per year. These are the limits from all application methods combined (seed, soil and foliar).
- **Application Rate:** Use lower rates for short residual control and higher rates within the listed rate range for long residual control. See rate conversion chart for rate per 1000 linear feet.
- **Application Number:** Make only one soil application per crop season.
- **Application Timing & Method:** Apply Minecto Duo within 28 days of planting or transplanting using one of the following application methods and ensuring that adequate time is allowed for a 30-day pre-harvest interval. Apply specified dosage in sufficient water volume to ensure uniform application and incorporation at least 2 inches into the soil using one of the following methods:
 1. In-furrow spray at the seeding or transplant depth, or a narrow surface band above the seedline during planting. For surface-banded applications, incorporate to the seeding depth with sufficient sprinkle or drip irrigation within 24 hours.
 2. Post seeding, transplant, or hill drench using sufficient water volume to ensure incorporation into the root zone.
 3. In drip (trickle) chemigation.

4. Shanked into the root zone after establishment or transplanting using fertilizer knives or other similar equipment. After application, incorporate with enough irrigation to move the chemical to the root zone.

- **Pre-Harvest Interval (PHI):** 30 Days



Refer to Pollinator Precautions section, Environmental Hazards section and Directions for Use.
Refer to Resistance Management section.

Application Method	Pests	Product Rate Per Acre Per Application
Foliar	Alfalfa Looper Aphids Beet Armyworm Cabbage Looper Cabbage Webworm Corn Earworm Diamondback Moth Fall Armyworm Flea Beetles Imported Cabbageworm Leafminers (larvae) Sugarbeet Armyworm Thrips (Foliage Feeding) ¹ Whiteflies Yellowstriped Armyworm	4 – 7 oz/A

Foliar Application Use Restrictions:

- **Maximum Minecto Duo Allowed per Year:** Do not exceed a total of 14 oz/acre of Minecto Duo or 0.175 lb ai of thiamethoxam-containing products or 0.4 lb ai of cyantraniliprole-containing products per acre per year. These are the limits from all application methods combined (seed, soil and foliar).
- **Application Timing:** Apply before pests reach damaging levels. Scout fields and treat again if populations rebuild to potentially damaging levels. Apply higher rates within the listed rate range for heavy infestations.
- **Minimum Interval Between Foliar Applications:** 7 days.
- **Water Volume:** Use sufficient water volume to ensure thorough coverage of foliage. Do not use less than 10 GPA for ground applications or 5 GPA for aerial applications.
- **Pre-Harvest Interval (PHI):**
 - 1 Day for Head & Stem *Brassicas*
 - 7 Days for Leafy *Brassica* Greens
- **Pest Control:** ¹Suppression.



Refer to Pollinator Precautions section, Environmental Hazards and Directions for Use.
Refer to Resistance Management section.

CUCURBIT VEGETABLES – CROP GROUP 9 INCLUDING:

Chayote, Chinese waxgourd, Citron melon, Cucumber, Gherkin, Gourd, edible (hyotan, cucuzza, hechima, Chinese okra), *Momordica* species (balsam apple, balsam pear, bittermelon, Chinese cucumber), Muskmelon (hybrids and/or cultivars of *Cucumis melo*, includes true cantaloupe, cantaloupe, casaba, Crenshaw melon, golden pershaw melon, honeydew melon, honey balls, mango melon, Persian melon, pineapple melon, Santa Claus melon, and snake melon), Pumpkin, Squash: summer (crookneck squash, scallop squash, straightneck squash, vegetable marrow, zucchini) and winter (butternut squash, calabaza, hubbard squash, acorn squash, spaghetti squash), Watermelon (includes hybrids and/or varieties of *Citrullus lanatus*)

Application Method	Pests	Product Rate Per Acre Per Application
Soil	Aphids Cucumber Beetle ¹ Flea Beetles Leafhoppers Leafminers (larvae) Melonworm Pickleworm Whiteflies	11 – 14 oz/A

Soil Application Use Restrictions:

- **Maximum Minecto Duo Allowed per Year:** Do not exceed a total of 14 oz/acre of Minecto Duo or 0.175 lb ai of thiamethoxam-containing products or 0.4 lb ai of cyantraniliprole-containing products per acre per year. These are the limits from all application methods combined (seed, soil, and foliar).
- **Application Rate:** Use lower rates for short residual control and higher rates within the listed rate range for long residual control. See rate conversion chart for rate per 1000 linear feet.
- **Application Number:** Make only one soil application per year.
- **Application Timing & Method:** Apply Minecto Duo within 28 days of planting or transplanting using one of the following application methods and ensuring that adequate time is allowed for a 30-day pre-harvest interval. Apply specified dosage in sufficient water volume to ensure uniform application and incorporation at least 2 inches into the soil using one of the following methods:

1. In-furrow spray at the seeding or transplant depth, or a narrow surface band above the seedline during planting. For surface-banded applications, incorporate to the seeding depth with sufficient sprinkle or drip irrigation within 24 hours.
 2. Post seeding, transplant, or hill drench using sufficient water volume to ensure incorporation into the root zone.
 3. In drip (trickle) chemigation.
 4. Shanked into the root zone after establishment or transplanting using fertilizer knives or other similar equipment. After application, incorporate with enough irrigation to move the chemical to the root zone.
- **Pre-Harvest Interval (PHI):** 30 Days
 - **Pest Control:** ¹ Early Season Suppression



Refer to Pollinator Precautions section, Environmental Hazards and Directions for Use.
Refer to Resistance Management section.

Application Method	Pests	Product Rate Per Acre Per Application
Foliar	Aphids Cabbage Looper Corn Earworm Cucumber Beetle ¹ Flea Beetles Leafminers (larvae) Melonworm Pickleworm Rindworm species complex Thrips (Foliage Feeding) ¹ Tobacco Budworm Whiteflies	4 – 7 oz/A

Foliar Application Use Restrictions:

- **Maximum Minecto Duo Allowed per Year:** Do not exceed a total of 14 oz/Acre of Minecto Duo or 0.175 lb ai of thiamethoxam-containing products or 0.4 lb ai of cyantraniliprole-containing products per acre per year. These are the limits from all application methods combined (seed, soil, and foliar).
- **Application Timing:** Apply before pests reach damaging levels. Scout fields and treat again if populations rebuild to potentially damaging levels. Apply higher rates within the listed rate range for heavy infestations.
- **Minimum Interval Between Foliar Applications:** 5 days.
- **Water Volume:** Use sufficient water volume to ensure thorough coverage of foliage. Do not use less than 10 GPA for ground applications or 5 GPA for aerial applications.
- **Pre-Harvest Interval (PHI):** 1 day
- **Pest Control:** ¹Suppression.



**Refer to Pollinator Precautions section, Environmental Hazards section and Directions for Use.
Refer to Resistance Management section.**

FRUITING VEGETABLES – CROP GROUP 8 INCLUDING:

Eggplant, Groundcherry, Pepino, Peppers (bell, cooking, pimento, and sweet), Tomatillo, Tomato

Application Method	Pests	Product Rate Per Acre Per Application
Soil	Aphids Beet Armyworm Colorado Potato Beetle Fall Armyworm Flea Beetles Hornworms Leafhoppers Leafminers (larvae) Loopers Potato Psyllid Southern Armyworm Spotted Cucumber Beetle ¹ Tomato Fruitworm Tomato Pinworm Whiteflies Yellowstriped Armyworm	11 – 14 oz/A

Soil Application Use Restrictions:

- **Maximum Minecto Duo Allowed per Year:** Do not exceed a total of 14 oz/acre of Minecto Duo or 0.175 lb ai of thiamethoxam-containing products or 0.4 lb ai of cyantraniliprole-containing products per acre per year. These are the limits from all application methods combined (seed, soil, and foliar).
- **Application Rate:** Use lower rates for short residual control and higher rates within the listed rate range for long residual control. See rate conversion chart for rate per 1000 linear feet.
- **Application Number:** Make only one soil application per year.
- **Application Timing & Method:** Apply Minecto Duo within 28 days of planting or transplanting using one of the following application methods and ensuring that adequate time is allowed for a 30-day pre-harvest interval. Apply specified dosage in sufficient water volume to ensure uniform application and incorporation at least 2 inches into the soil using one of the following methods:

1. In-furrow spray at the seeding or transplant depth, or a narrow surface band above the seedline during planting. For surface-banded applications, incorporate to the seeding depth with sufficient sprinkle or drip irrigation within 24 hours.
 2. Post seeding, transplant, or hill drench using sufficient water volume to ensure incorporation into the root zone.
 3. In drip (trickle) chemigation.
 4. Shanked into the root zone after establishment or transplanting using fertilizer knives or other similar equipment. After application, incorporate with enough irrigation to move the chemical to the root zone.
- **Pre-Harvest Interval (PHI):** 30 Days
 - **Pest Control:** ¹ Early Season Suppression



Refer to Pollinator Precautions section, Environmental Hazards section and Directions for Use.
Refer to Resistance Management section.

Application Method	Pests	Product Rate Per Acre Per Application
Foliar	Aphids Beet Armyworm Colorado Potato Beetle European Corn Borer Fall Armyworm Flea Beetles Hornworms Leafhoppers Leafminers (larvae) Loopers Pepper Weevil Southern Armyworm Stinkbugs Thrips (Foliage Feeding) ¹ Tobacco Budworm Tomato Fruitworm Tomato Pinworm Whiteflies Yellowstriped Armyworm	4 – 7 oz/A

Foliar Application Use Restrictions:

- **Maximum Minecto Duo Allowed per Year:** Do not exceed a total of 14 oz/acre of Minecto Duo or 0.175 lb ai of thiamethoxam-containing products or 0.4 lb ai of cyantraniliprole-containing products per acre per year. These are the limits from all application methods combined (seed, soil, and foliar).
- **Application Timing:** Apply before pests reach damaging levels. Scout fields and treat again if populations rebuild to potentially damaging levels. Apply higher rates within the listed rate range for heavy infestations.

- **Minimum Interval Between Foliar Applications:** 5 days.
- **Water Volume:** Use sufficient water volume to ensure thorough coverage of foliage. Do not use less than 10 GPA for ground applications or 5 GPA for aerial applications.
- **Pre-Harvest Interval (PHI):** 1 day
- **Pest Control:** ¹Suppression



Refer to Pollinator Precautions section, Environmental Hazards section and Directions for Use.
Refer to Resistance Management section.

LEAFY VEGETABLES – CROP GROUP 4 INCLUDING:

Amaranth, Arugula, Cardoon, Celery, Chinese Celery, Celtuce, Chervil, Chrysanthemum: edible-leaved & garland, Corn Salad, Cress: garden and upland, (yellow rocket, winter cress), Dandelion, Dock (sorel), Endive (escarole), Fennel, Florence (finocchio), Lettuce: head & leaf, Orach, Parsley, Purslane: garden & winter Radicchio (red chicory), Rhubarb, Spinach including New Zealand & Vine (Malabar, Indian), Swiss chard

Application Method	Pest	Product Rate Per Acre Per Application
Soil	Aphids Beet Armyworm Cabbage Looper Corn Earworm Diamondback Moth Fall Armyworm Flea Beetles Imported Cabbageworm Leafhoppers Leafminers (larvae) Whiteflies	11 – 14 oz/A

Soil Application Use Restrictions:

- **Maximum Minecto Duo Allowed per Year:** Do not exceed a total of 14 oz/Acre of Minecto Duo or 0.175 lb ai of thiamethoxam-containing products or 0.4 lb ai of cyantraniliprole-containing products per acre per year. These are the limits from all application methods combined (seed, soil, and foliar).
- **Application Rate:** Use lower rates for short residual control and higher rates within the listed rate range for long residual control. See rate conversion chart for rate per 1000 linear feet.
- **Application Number:** Make only one soil application per year.
- **Application Timing & Method:** Apply Minecto Duo within 28 days of planting or transplanting using one of the following application methods and ensuring that adequate time is allowed for a 30-day pre-harvest interval. Apply specified dosage in sufficient

water volume to ensure uniform application and incorporation at least 2 inches into the soil using one of the following methods:

1. In-furrow spray at the seeding or transplant depth, or a narrow surface band above the seedline during planting. For surface-banded applications, incorporate to the seeding depth with sufficient sprinkle or drip irrigation within 24 hours.
 2. Post seeding, transplant, or hill drench using sufficient water volume to ensure incorporation into the root zone.
 3. In drip (trickle) chemigation.
 4. Shanked into the root zone after establishment or transplanting using fertilizer knives or other similar equipment. After application, incorporate with enough irrigation to move the chemical to the root zone.
- **Pre-Harvest Interval (PHI):** 30 Days



Refer to Pollinator Precautions section, Environmental Hazards section and Directions for Use.
Refer to Resistance Management section.

Application Method	Pest	Product Rate Per Acre Per Application
Foliar	Aphids Beet Armyworm Cabbage Looper Corn Earworm Diamondback Moth European Corn Borer Fall Armyworm Flea Beetles Imported Cabbageworm Leafhoppers Leafminers (larvae) Southern Armyworm Sugarbeet Armyworm Tobacco Budworm Whiteflies	4 – 7 oz/A

Foliar Application Use Restrictions:

- **Maximum Minecto Duo Allowed per Year:** Do not exceed a total of 14 oz/acre of Minecto Duo or 0.175 lb ai of thiamethoxam-containing products or 0.4 lb ai of cyantraniliprole-containing products per acre per year. These are the limits from all application methods combined (seed, soil, and foliar).
- **Application Timing:** Apply before pests reach damaging levels. Scout fields and treat again if populations rebuild to potentially damaging levels. Apply higher rates within the listed rate range for heavy infestations.
- **Minimum Interval Between Foliar Applications:** 7 days.

- **Water Volume:** Use sufficient water volume to ensure thorough coverage of foliage. Do not use less than 10 GPA for ground applications or 5 GPA for aerial applications.
- **Pre-Harvest Interval (PHI):** 7 days



**Refer to Pollinator Precautions section, Environmental Hazards section and Directions for Use.
Refer to Resistance Management section.**

TUBEROUS AND CORM VEGETABLES – CROP GROUP 1C INCLUDING:

Potato, Sweet potato, Yams, Yam bean, Arracacha, Arrowroot, Chinese artichoke, Jerusalem artichoke, Canna, Cassava, Bitter and Sweet, Chayote (root), Chufa, Dasheen, Ginger, Leren, Tanier, Turmeric

Application Method	Pest	Product Rate Per Acre Per Application
Soil	Aphids Colorado Potato Beetle European Corn Borer ¹ Flea Beetles Potato Leafhopper Potato Psyllid Wireworm (seed piece only)	6.5 – 10 oz/A

Soil Application Use Restrictions:

- **Maximum Minecto Duo Allowed per Year:** Do not exceed a total of 10 oz of Minecto Duo or 0.125 lb ai of soil-applied thiamethoxam-containing products or 0.4 lb ai of cyantraniliprole-containing products per acre per year. These are the limits from all application methods combined (seed, soil, and foliar).
- **Application Rate:** Use lower rates for short residual control and higher rates within the listed rate range for long residual control. See rate conversion chart for rate per 1000 linear feet.
- **Application Number:** Make only one soil application per year.
- **Application Method:** Apply specified dosage to ensure uniform application and incorporation at least 2 inches into the soil using one of the following methods:
 1. An in-furrow spray during planting. Spray directly on the seed pieces in the furrow. Apply in sufficient water to ensure good coverage of seed pieces.
 2. Apply specified amount of Minecto Duo impregnated on dry granular fertilizer before or during planting.
 3. Apply at plant emergence. Direct spray at the soil near the base of the plant during the last hilling operation. Incorporate into the root zone with sufficient overhead irrigation within 24 hours.
 4. Apply as a broadcast spray to the soil during the last hilling operation. Incorporate into the root zone with sufficient overhead irrigation within 24 hours.

5. Apply at plant emergence through overhead chemigation after hilling. Use from 0.10-0.50 inches of water. (For more details: see application through irrigation systems for potatoes in **APPLICATION PROCEDURES AND SPRAY EQUIPMENT** section.)

- **Pest Control:** ¹ Early Season Suppression



Refer to Pollinator Precautions section, Environmental Hazards section and Directions for Use.
Refer to Resistance Management section.

Minecto Duo Conversion Chart for Drip Linear Application

	20"	30"	34"	36"	38"	40"	46"	60"	72"	78"	80"	84"	Row Spacing
	26,136	17,424	15,374	14,520	13,756	13,068	11,363	8,712	7,260	6,702	6,534	6,223	Linear F/A
Rate (oz/acre)	Rate in oz of product per 1,000 linear feet for specified row spacing and rate per acre												Lb ai/A
6.5	0.25	0.37	0.42	0.45	0.47	0.50	0.57	0.75	0.90	0.97	0.99	1.04	0.163
10.0	0.38	0.57	0.65	0.69	0.73	0.77	0.88	1.15	1.38	1.49	1.53	1.61	0.25
11.0	0.42	0.63	0.72	0.76	0.80	0.84	0.97	1.26	1.52	1.64	1.68	1.77	0.28
12.0	0.46	0.69	0.78	0.83	0.87	0.92	1.06	1.38	1.65	1.79	1.84	1.93	0.30
13.0	0.50	0.75	0.85	0.90	0.95	0.99	1.14	1.49	1.79	1.94	1.99	2.09	0.33
14.0	0.54	0.80	0.91	0.96	1.02	1.07	1.23	1.61	1.93	2.09	2.14	2.25	0.35

ROTATIONAL RESTRICTIONS

Any cover crop planted for erosion control or soil improvement may be planted as soon as practical following the last application. However, the cover crop may not be grazed or harvested for food or feed. For all other rotational crops intended for food or feed, the plant-back intervals listed below must be observed.

Immediate Plant-Back Interval:

Treated areas may be replanted immediately following harvest or as soon as practical following the last application with **Brassica** (cole) leafy vegetables (crop group 5), cucurbit vegetables (crop group 9), fruiting vegetables (crop group 8), leafy vegetables (crop group 4), dry bulb onion, cotton, sunflower, oilseed crops (rapeseed, Indian rapeseed, Indian mustard seed, filed mustard seed, black mustard seed, flax seed, safflower seed, crambe seed and borage seed), blueberries, and strawberries.

30 - Day Plant-Back Interval:

Alfalfa, legume vegetables (crop groups 6), cereal grains (crop groups 15) (note: can use forage, fodder, or straw only from corn, barley, buckwheat, millet, rye, sorghum, or wheat planted with less than a 12-month plantback), peanut, tuberous and corm vegetables (crop group 1D), potato, root vegetables (crop group 1A).

120-Day Plant-Back Interval: Grass forage, fodder, and hay (crop group 17).

For all other crops, a 12-month plant-back interval must be observed.

STORAGE AND DISPOSAL

Do not contaminate water, food, or feed by storage or disposal.

Pesticide Storage

Store in a cool, dry place.

Pesticide Disposal

Pesticide wastes may be toxic. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal law. If these wastes cannot be used according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance in proper disposal methods.

For minor spills, leaks, etc., follow all precautions indicated on this label and clean up immediately. Take special care to avoid contamination of equipment and facilities during cleanup procedures and disposal of wastes. In the event of a major spill, fire, or other emergency, call 1-800-888-8372, day or night.

Container Handling (*plastic container*)

Non-refillable container. Do not reuse or refill this container.

Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: empty the remaining contents into application equipment or a mix tank. Fill the container $\frac{1}{4}$ full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures allowed by state and local authorities.

Container Handling (*bag*)

Non-refillable container. Do not reuse or refill this container.

Completely empty bag into application equipment. Then offer for recycling if available or dispose of empty bag in a sanitary landfill or by other procedures allowed by state and local authorities.

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For non-emergency (e.g., current product information) call Syngenta Crop Protection at 1-800-334-9481.

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