ISOCYCLOSERAM | GROUP 30 | INSECTICIDE

Zivalgo™

PULL HERE TO OPEN

Escanee QR
para Español

syngenta®

Insecticide

PLINAZOLIN® technology*

For control of mites, thrips, true bugs, lepidopterous pests, and other insects in: Citrus Fruit, Crop Group 10-10; Pome Fruit, Crop Group 11-10; Stone Fruit, Crop Group 12-12; Tree Nuts, Crop Group 14-12; and Tuberous and Corm Vegetables, Crop Subgroup 1C

Active Ingredient:

Isocycloseram**	34.8%
Other Ingredients:	65.2%
Total:	100.0%

**PLINAZOLIN® technology denotes the Syngenta trademark for the active ingredient isocycloseram*

**CAS No. 2061933-85-3

KEEP OUT OF REACH OF CHILDREN

Zivalgo™ is formulated as a suspension concentrate and contains 3.33 lb of isocycloseram per gallon.

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 inside booklet.

EPA Reg. No. 100-1711
EPA Est. 100-NE-001

SCP 1711C-L1 1125
4240320

1 quart (32 fl oz)

Net Contents

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DIRECTIONS FOR USE *(continued)*

1.0 FIRST AID

FIRST AID
Have the product container or label with you when calling a poison control center or doctor, or going for treatment.
SYNGENTA HOTLINE NUMBER For 24-Hour Medical Emergency Assistance (Human or Animal) Or Chemical Emergency Assistance (Spill, Leak, Fire or Accident) Call **1-800-888-8372**

PRECAUTIONARY STATEMENTS

2.0 PRECAUTIONARY STATEMENTS

2.1 Hazards to Humans and Domestic Animals

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

2.2 Personal Protective Equipment (PPE)

Mixers, loaders, applicators, and other handlers must wear:

- Long-sleeved shirt and long pants
- Socks
- Shoes

2.3 User Safety Requirements

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

2.4 Engineering Controls

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.

2.5 User Safety Recommendations

Users should:

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

2.6 Environmental Hazards

For terrestrial uses: Do not apply directly to water, or to areas where surface water is present, or to intertidal areas below the mean high-water mark. Do not contaminate water when disposing of equipment washwater or rinsate.

2.6.1 SURFACE WATER ADVISORY

This product may impact surface water quality due to runoff of rainwater. This is especially true for poorly draining soils and soils with shallow groundwater. This product is classified as having a medium potential for reaching both surface water and aquatic sediment via runoff for several months or more 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 isocycloseram from runoff water and sediment. Runoff of this product will be reduced by avoiding application when rainfall or irrigation is expected. Do not make applications during rain and avoid making applications when rainfall is expected before the product has sufficient time to dry.

2.6.2 POLLINATOR PRECAUTIONS

This product is highly toxic to bees and other pollinating insects exposed to direct treatment, or to residues in/on blooming crops or weeds. Protect pollinating insects by following label directions intended to minimize drift and to reduce risk to these organisms.

The RT_{25} (Residual Time to 25% mortality; the length of time over which field weathered foliar residues remain toxic to honey bees) for this product is ≤ 3 hours.

The following Best Management Practices (BMPs) can help reduce risk to pollinators:

- Develop and maintain clear communication with local beekeepers to help protect bees. To the extent possible, advise beekeepers within a 1-mile radius 48-hrs in advance of the application, and confirm hive locations before spraying.
- Use Pollinator Protection Plans when they are available. These plans may be available from state lead agencies and promote communication between growers, landowners, farmers, beekeepers, pesticide users, and other pest management professionals to reduce exposure of bees and other pollinators to pesticides.
- Use integrated pest management to prevent or mitigate potential negative effects to pollinators and consider multiple management options before resorting to a pesticide application.
- Mow understory weeds or cover crops in orchards and vineyards to prevent flowering of weeds and reduce exposure to bees where and when pesticides are applied.

The following Best Management Practices (BMPs) can help promote the health and habitat of ground-nesting bees:

- For uncultivated land, leave large undisturbed patches of land unmowed and untilled to provide nesting and forage sites.
- For uncultivated land, mow at the highest cutting height possible (minimum of 8-10 inches if possible) to increase and diversify food sources.

For additional resources on pollinator BMPs and Pollinator Protection Plans, visit https://www.epa.gov/pollinator-protection/find-best-management-practices-protect-pollinators.

2.6.3 NON-TARGET ORGANISM ADVISORY

This pesticide is toxic to fish and highly toxic to aquatic invertebrates. Drift and runoff may be hazardous to aquatic organisms in water adjacent to treated areas. Do not apply when weather conditions favor drift from target areas.

2.6.4 REPORTING ECOLOGICAL INCIDENTS

For guidance on reporting ecological incidents, including death, injury, or harm to plants and animals, including bees and other non-target insects, see EPA's Pesticide Incident Reporting website: https://www.epa.gov/pesticide-incidents or call 1-866-796-4368.

2.7 Physical or Chemical Hazards

Do not mix or allow to come into contact with oxidizing agents. A hazardous chemical reaction may occur.

DIRECTIONS FOR USE

It is a violation of federal law to use this product in a manner inconsistent with its labeling.

ZIVALGO must be used only in accordance with instructions on this label, in a supplemental label or in state-specific 24(c) labeling. Always read the entire label including the Conditions of Sale and Limitation of Warranty and Liability.

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 state or tribal agency responsible for pesticide regulation.

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

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), notification to workers, 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
- Socks
- Shoes
- Chemical-resistant gloves made of any waterproof material

3.0 PRODUCT INFORMATION

Zivalgo is a suspension concentrate that will control specified pests on the crops listed on this label when the product is applied as directed by this label. Thorough coverage of foliage is essential for good insect and mite control.

Mode of Action

Isocycloseram, the active ingredient in Zivalgo, binds to a site on the GABA receptor, resulting in a block of inhibitory neurotransmission, hyperexcitation, and death of target insects, and is classified by the Insecticide Resistance Action Committee (IRAC) as a Group 30 insecticide (GABA-gated chloride channel allosteric modulators).

Suppression

Suppression can mean either inconsistent control (good to poor) or consistent control at a level below what is generally considered acceptable for commercial control.

Crop Tolerance

Zivalgo has been tested for phytotoxicity and has a wide margin of safety on a variety of crops; however, not all crops within a crop group, and not all varieties, cultivars, or hybrids of crops have been individually tested for crop safety. It is not possible to evaluate crop safety for all applications of Zivalgo on all crops within a crop group, on all varieties, cultivars, or hybrids of those crops, or under all environmental conditions and growing circumstances. To test for crop safety, apply the product in accordance with the label instructions to a small area of the target crop to ensure that a phytotoxic response will not occur, especially where the application is a new use of the product by the applicator. For tank mix adjuvant safety, refer to **Section 4.4.5**.

3.1 Integrated Pest Management (IPM)

Syngenta supports the use of Integrated Pest Management (IPM) programs to manage pest populations. This product may be used as part of an IPM program, which can include genetic technologies and biological and cultural practices aimed at preventing economic pest damage. Integrated Pest Management principles and practices include field scouting or other detection methods, correct target pest identification, population monitoring, rotation of insecticides with different modes of action, and treatment when target pest populations reach locally determined action thresholds. Consult your state cooperative extension service, professional consultants, or other qualified authorities to determine appropriate action treatment threshold levels for treating specific pest/crop or site systems in your area.

3.2 Resistance Management

Some insect or mite 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 or mites on this label.

For resistance management, Zivalgo contains a Group 30 insecticide/miticide. Any insect or mite population may contain individuals that are inherently resistant to Zivalgo and other Group 30 insecticides/miticides. The resistant individuals may eventually dominate the insect or mite population if this group of insecticides/miticides are used repeatedly in the same fields. Appropriate resistance management strategies should be followed.

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

To delay insecticide/miticide resistance, take the following steps:

- Rotate the use of Zivalgo or other Group 30 insecticides/miticides within a growing season, or among growing seasons, with different groups that control the same pests.
- Use tank mixtures with insecticides/miticides from a different group that are equally effective on the target pest when such use is permitted. Do not rely on the same mixture repeatedly for the same pest population. Consider any known cross-resistance issues (for the targeted pests) between the individual components of a mixture. In addition, consider the following recommendations provided by the Insecticide Resistance

Action Committee (IRAC):

- Individual insecticides/miticides selected for use in mixtures should be highly effective and be applied at the rates at which they are individually registered for use against the target species.
- Mixtures with components having the same IRAC mode of action classification are not recommended for insect/mite resistance management.
- When using mixtures, consider any known cross-resistance issues between the individual components for the targeted pest(s).
- Mixtures become less effective if resistance is already developing to one or both active ingredients, but they may still provide pest management benefits.
- The insect/mite resistance management benefits of an insecticide/miticide mixture are greatest if the two components have similar periods of residual insecticidal/miticidal activity. Mixtures of insecticides/miticides with unequal periods of residual insecticide/miticide activity may offer an insect/mite resistance management benefit only for the period where both insecticides/miticides are active.

- Adopt an integrated pest management program for insecticide/miticide use that includes scouting, uses historical information related to pesticide use, crop rotation, record keeping, and which considers cultural, biological and other chemical control practices.
- Monitor after application for unexpected target pest survival. If the level of survival suggests the presence of resistance, consult with your local university specialist or certified pest control advisor.
- Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or IPM recommendations for the specific site and pest problems in your area.
- For further information or to report suspected resistance, contact your local Syngenta representative.

3.2.1 MAINTAINING SUSCEPTIBILITY TO THIS CLASS OF CHEMISTRY

- Avoid using Group 30 insecticides/miticides exclusively for season long control of insect or mite species with more than one generation per crop season.
- For insect or mite species with successive or overlapping generations, apply Zivalgo or other Group 30 insecticides/miticides 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) of the Group 30 insecticides/miticides. Do not exceed the maximum Zivalgo allowed per year.
- Following a treatment window of Group 30 insecticides/miticides, rotate to a treatment window of effective products with a different mode of action before making additional applications of Group 30 insecticides/miticides.
- 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 this class of chemistry.
- If resistance is suspected, do not reapply Zivalgo or other Group 30 insecticides/miticides.

3.2.2 OTHER INSECT RESISTANCE MANAGEMENT (IRM) PRACTICES

- Incorporate IPM techniques into your insect or mite control program.
- Monitor treated insect or mite populations for loss of field efficacy.
- Use tank mixtures or premixes with insecticides/miticides 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.

3.2.3 OTHER SOURCES FOR 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/.

4.0 APPLICATION DIRECTIONS

4.1 Methods of Application

Foliar applications of Zivalgo are permitted by ground, air, or chemigation as specified in **Section 7.0**, unless otherwise restricted in **Section 6.1**.

4.2 Application Equipment

- Zivalgo may be applied by foliar ground application equipment (tractor mounted, backpack, handgun, air-blast), aerial application equipment, or by chemigation equipment, except as otherwise directed in **Section 7.0** or **Section 6.1**.
- Prior to application, start with clean, well maintained application equipment. Immediately following application, thoroughly clean all spray equipment to reduce the risk of forming hardened deposits which might become difficult to remove.
- Spray equipment configuration should be arranged to provide accurate, uniform and thorough coverage of the target crop and minimize potential for spray drift.
- To ensure accuracy, calibrate sprayer before each use.
- For information on spray equipment and calibration, consult spray equipment manufacturers and/or state recommendations.
- All ground, aerial, and chemigation application equipment must be properly maintained and calibrated using appropriate carriers.

4.2.1 NOZZLES

- Use spray nozzles and pressure that deliver medium or coarser sized spray droplets (ASABE S572.1; ground and ASABE S641; aerial).
- In order to minimize the potential for spray drift, select spray nozzles and pressure that provide the coarsest droplet size that will still provide good coverage for the target pest.

4.2.2 HOODED (OR SHIELDED) SPRAYERS

- Shielding the boom or individual nozzles can reduce the effects of wind.
- However, it is the responsibility of the applicator to verify that the shields are minimizing drift potential and not interfering with uniform deposition of the product.

4.2.3 AIR-ASSISTED (AIR-BLAST) FIELD CROP SPRAYERS

- Air-assisted field crop sprayers carry droplets to the target via a downward-directed air stream. Some may reduce the potential for drift, but if a sprayer is unsuitable for the application and/or set up improperly, high drift potential can result.
- It is the responsibility of the applicator to determine that a sprayer is suitable for the intended application, that it is configured properly, and that drift potential has been minimized.

4.3 Application Volume and Spray Coverage

See **Section 7.0** for additional application volume information.

- Thorough spray coverage is essential for good insect and mite control.
- Use sufficient water carrier to obtain thorough, uniform coverage.
- The highest labeled rate for a specified pest may be needed when aerial applications are made.

4.4 Mixing Directions

1. Thoroughly clean spray equipment before using this product.
2. Prepare no more spray mixture than is needed for the immediate operation.
3. Keep product container tightly closed when not in use.
4. Agitate the spray solution before and during application.
5. Do not let the spray mixture stand overnight in the spray tank.
6. Flush the spray equipment thoroughly with water following each use and apply the rinsate to a previously treated area.

4.4.1 ZIVALGO ALONE

1. Fill clean spray tank 1/2 - 2/3 full of water.
2. Add Zivalgo directly to the spray tank.
3. Mix thoroughly to fully disperse Zivalgo. Once dispersed, continuous agitation is required.
4. Use mechanical or hydraulic means; do not use air agitation.

4.4.2 TANK MIX PRECAUTIONS

- It is the pesticide user's responsibility to ensure that all products are registered for the intended use. Read and follow the applicable restrictions, limitations, and directions for use on all product labels involved in tank mixing. User must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.
- Tank mixes of Zivalgo with other pesticides, fertilizers, or any other additives not specifically labelled for use with Zivalgo may result in tank mix incompatibility or unsatisfactory performance. In such cases, always check tank mix compatibility by conducting a jar test according to guidance in **Section 4.4.3** before actual tank mixing.

4.4.3 TANK MIX COMPATIBILITY

The following test assumes a spray volume of 25 gal/A. For other spray volumes, make appropriate changes in the components. Perform tank mix compatibility test as follows:

- Add 1 pt of carrier (water) to each of two clear 1-qt jars with tight lids.
- To **one** of the jars, add 1/4 tsp or 1.2 ml of a commercially available tank mix compatibility agent approved for this use (1/4 tsp is equivalent to 2 pt/100 gallons of spray solution). Close the lid, invert the jar, shake, or stir gently to ensure thorough mixing of the compatibility agent.

- To **both** jars, add the appropriate amount of each tank mix partner. If more than one tank mix partner is to be used, follow the mixing order, add dry formulations (wettable powders or water dispersible granules) first, followed by liquid flowables, capsule suspensions, emulsifiable concentrates, and finally add adjuvants. After each addition, invert the jar, shake, or stir gently to thoroughly mix. The appropriate amount of each tank mix partner for this test is as follows:

  Dry formulations: For each pound to be applied per acre, add 1.5 level teaspoons to each jar.

  Liquid formulations: For each pint to be applied per acre, add 0.5 teaspoon or 2.5 milliliters to each jar.

- After adding all ingredients, close the jars and tighten, then invert each jar 10 times to fully mix. Let the mixtures stand for 15-30 minutes and then assess by looking for separation, large flakes, precipitates, gels, heavy oily film on the jar, or other signs of incompatibility. Determine if a compatibility agent is needed in the spray mixture by comparing the two jars. If either mixture separates, but can be remixed readily, the mixture can be sprayed as long as continuous agitation is used. If the mixtures are incompatible, test the following methods of improving compatibility: (A) Pre-slurry dry formulations in water before addition to the jar, or (B) add the compatibility agent directly into liquid formulations, before addition to the jar. If these procedures are followed but incompatibility is still observed, do not prepare the tank mix in the spray tank.

4.4.4 ZIVALGO IN TANK MIXTURES

1. Always follow the tank mix instructions of the product label that are most restrictive.
2. Fill the tank with 1/2 - 2/3 volume of the mixing diluent.
3. Start the agitator running before adding any tank mix partners.
4. Add all products in water-soluble packaging to the tank before any other tank mix partner. 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.
5. In general, add tank mix partners in this order:
   a) Water-soluble bag (WSB)
   b) Water-soluble granules (SG)
   c) Water-dispersible granules (WG)
   d) Wettable powders (WP)
   e) Water-based suspension concentrates (SC) (ZIVALGO)
   f) Capsule suspensions (CS)
   g) Dispersible concentrates (DC)
   h) Suspo-emulsions (SE)
   i) Oil dispersions (OD)
   j) Emulsion in water (EW)
   k) Emulsifiable concentrates (EC)
   l) Water-soluble concentrates (SL)
   m) Adjuvants, surfactants, oils
   n) Soluble fertilizers
   o) Drift retardants
6. Make sure all other products are fully dispersed in the mixing diluent before adding the recommended rate of this product to the tank.
7. Add the remainder of the mixing diluent volume.
8. It is recommended that mixing and spray equipment have continuous agitation for best results.

4.4.5 SPRAY ADDITIVES

- The use of an adjuvant typically improves coverage and penetration and results in optimum insect/mite control, especially in crops with hard-to-wet leaf surfaces.
- Use of a non-phytotoxic, non-ionic, activator type wetting, spreading, and/or penetrating spray adjuvant or horticultural oil, (not a dormant oil) is recommended.
- Non-ionic activator type wetting, spreading and/or penetrating spray adjuvants include:
  - Non-ionic surfactants (NIS) with at least 75% surface active agent
  - Crop oil concentrates (COC)
  - Vegetable oil concentrates (VOC)
  - Methylated seed/vegetable oils (MSO)
  - Organosilicones (OS) with at least 15% emulsifiers/surfactants
  - Blends of these non-ionic activator type spray adjuvants
- Since spray adjuvants alone are known to cause phytotoxicity to certain crops under certain environmental conditions, **do not** use in combination with Zivalgo on a spray-adjuvant-sensitive crop unless the spray adjuvant supplier can confirm a known non-phytotoxic labeled use rate for the intended spray adjuvant on the target crop.
- Spray adjuvants must be compatible with Zivalgo and must be used at concentrations specified on the **spray adjuvant product label** directions for use for the targeted crop unless more specific directions are provided in **Section 7.0** for individual crops on this label.
- Syngenta recommends the use of a Chemical Producers and Distributors Association (CPDA) certified spray adjuvant.

4.5 Application through Irrigation Systems (Chemigation)

4.5.1 CHEMIGATION RESTRICTIONS

For Overhead Chemigation Systems

If unmanaged areas are present less than 25 ft from the application site, the following restrictions apply for applications via overhead chemigation systems, such as center pivot or traveler systems:

- Turn off end guns AND select two of the following options:
  - Reduce the pressure to ≤ 20 lbs per square inch (psi).
  - Reduce the release height to ≤ 5 ft from the ground or crop canopy.
  - Maintain a downwind drift barrier (windbreak, hedgerow, or shelterbelt) from the application site based on the description of this measure on EPA's mitigation menu website (https://www.epa.gov/pesticides/mitigation-menu).

Unmanaged areas are defined in comparison to managed areas--anything that is not a managed area is an unmanaged area. Refer to the "Managed Areas Definition" section of this label for information on managed areas.

For Non End-Gun Impact Sprinkler Chemigation Systems

If unmanaged areas are present less than 25 ft from the application site, the following restrictions apply when making applications with non-end gun impact sprinkler chemigation systems:

- Limit the throw distance to the edge of the field. This can be accomplished by reducing the pressure or reducing the throw angle.
- Maintain a downwind drift barrier (windbreak, hedgerow, or shelterbelt) based on the description on EPA's mitigation menu website (https://www.epa.gov/pesticides/mitigation-menu).

Unmanaged areas are defined in comparison to managed areas--anything that is not a managed area is an unmanaged area. Refer to the "Managed Areas Definition" section of this label for information on managed areas.

4.5.2 CHEMIGATION PRECAUTIONS

- Apply this product at rates and timings described in **Section 7.0**.
- Apply this product only through overhead sprinkler irrigation systems including center pivot, lateral move, end tow, side (wheel) roll, traveler, big gun, solid set, or hand move irrigation systems. Do not apply this product through any other type of irrigation system.
- Never put Zivalgo into a dry tank or other mixing equipment without first adding water. See **Section 4.4** for more information.
- Inject Zivalgo downstream from any water filtration system.
- The irrigation system used must provide uniform water distribution. Crop injury, lack of effectiveness, or illegal pesticide residues in the crop can result from non-uniform distribution of treated water.
- End guns must be turned off during application if they irrigate nontarget areas or if they do not provide uniform application and coverage.
- Nozzles in the immediate area of wells, control panels, chemical supply tanks, and system safety devices are to be plugged to prevent contamination of these areas.
- Do not apply when system connections or fittings leak or when nozzles do not provide uniform distribution.
- Do not allow irrigation water to collect or run-off during chemigation application.
- Do not apply when wind speeds favor drift beyond the area intended.
- Apply in up to 0.25 inches of water per acre. Excessive water may reduce efficacy.
- Ensure the irrigation system is calibrated to uniformly distribute the chemigation application to the crop. If you have questions about calibration, you should contact state extension service specialists, equipment manufacturers, or other experts.
- Do not connect an irrigation system (including greenhouse systems) used for pesticide application to a public water system unless the pesticide label-prescribed safety devices for public water systems are in place.
- 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.
- Wear the personal protective equipment as defined in **Section 2.2** for applicators and other handlers when making adjustments or repairs on the chemigation system with Zivalgo in the irrigation water.

4.5.3 OPERATING INSTRUCTIONS FOR CHEMIGATION

1. 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.
2. The pesticide injection pipeline must contain a functional, automatic, quick-closing check-valve to prevent the flow of fluid back toward the injection pump.
3. 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.
4. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.

5. 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.
6. Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump), effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.

4.5.4 SPECIFIC INSTRUCTIONS FOR PUBLIC WATER SYSTEMS

1. 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.
2. Chemigation systems connected to public water systems must contain a functional, reduced-pressure zone (RPZ), back-flow preventer or the functional equivalent in the water supply line upstream from the point of pesticide introduction. As an option to the RPZ, the water from the public water system should be 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 the top or overflow rim of the reservoir tank of at least twice the inside diameter of the fill pipe.
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 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, or in cases where there is no water pump, when the water pressure decreases to the point where pesticide distribution is adversely affected.
6. Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.

4.5.5 APPLICATION DIRECTIONS FOR IRRIGATION SYSTEMS

1. Apply Zivalgo in sufficient water and of sufficient duration to ensure the specified rate is applied evenly to the entire treated area.
2. A pesticide tank is recommended for the application of Zivalgo in chemigation systems.
3. Thoroughly clean the injection system and tank of any fertilizer or chemical residues using a standard clean out procedure. Dispose of any residues in accordance with state and federal laws. Consult your owner's manual or your local equipment dealer for cleanout procedures for your injection system
4. With the mix tank $^{1}/_{4}$ to $^{1}/_{2}$ full of water and the agitator running, measure the required amount of Zivalgo and add it to the tank. Then add additional water to bring the total pesticide mixture up to the desired volume for application.
5. Continue agitation throughout the application. Use mechanical or hydraulic agitation. Do not use air for agitation.
6. Injection should occur at a point in the main irrigation water flow to ensure proper mixing with the irrigation water.
7. For continuously moving systems inject the solution containing Zivalgo into the irrigation water line continually and uniformly throughout the irrigation cycle.
8. For continuously moving systems the maximum recommended water volume for overhead chemigation application is 0.25 acre inch of water.
9. For overhead sprinkler irrigation systems that are stationary, add the solution containing Zivalgo to the irrigation water line and apply in a maximum water volume of 0.25 acre inch of water.

10. Calibrate the irrigation system and injector before applying Zivalgo. Calibrate the injection pump while the system is running using the expected irrigation rate.
11. Start the water pump and sprinkler and let the system achieve the desired pressure and speed before starting the injector.
12. Start the injector and calibrate the injection system. This is necessary to deliver the desired product rate per acre in a uniform manner.
13. When the application is finished, allow the entire irrigation and injector system to be thoroughly flushed clean before stopping the system.
14. Thoroughly clean the injection system and tank of any fertilizer or chemical residues using a standard clean out procedure. Dispose of any residues in accordance with state and federal laws.

5.0 ROTATIONAL CROP RESTRICTIONS

The following crops may be planted at the specified interval following application of Zivalgo:

There is no plant back restriction for conversion of a treated field or for making a new or replacement planting into established orchards of Citrus (Crop Group 10-10); Pome Fruit (Crop Group 11-10); Stone Fruits (Crop Group 12-12) or Tree Nuts.

Any cover crop planted for erosion control or soil improvement may be planted as soon as practical following the last application. Do not allow the cover crop to be grazed or harvested for food or feed if planted less than 120 days after last application.

Crop, Crop Group or Subgroup	Plant-Back Interval
Brassica Head and Stem Vegetables (Crop Group 5-16)	0 days
Brassica Leafy Greens (Crop Subgroup 4-16B) (Except watercress)	
Bulb Vegetable Group (Crop Group 3-07)	
Cereals (barley, buckwheat, oats, pearl millet, proso millet, rye, teosinte, triticale, wheat)	
Corn (field, pop, seed)	
Cotton (Crop Subgroup 20C)	
Cucurbit Vegetables (Crop Group 9)	
Fruiting Vegetables (Crop Group 8-10)	
Leafy Greens (Crop Subgroup 4-16A)	
Peanut	
Pulses, Dried Shelled Bean, except Soybean, Crop Subgroup 6-22E	
Pulses, Dried Shelled Pea, Crop Subgroup 6-22F	
Rapeseed, Canola Varieties Only	
Soybean	
Tuberous and Corm Vegetables (Crop Subgroup 1C)	
All other crops Intended for Food and Feed	120 days

6.0 RESTRICTIONS AND PRECAUTIONS

6.1 Use Restrictions

- Aerial application is prohibited for all uses except Potato.
- **DO NOT** apply when soils are saturated or above field capacity.
- **DO NOT** apply during rain.
- **DO NOT** treat plants grown for transplanting. Zivalgo is not for use in nurseries, plant propagation houses, or greenhouses by commercial transplant producers on plants being grown for transplanting.
- **DO NOT** use on crops grown to harvest in greenhouses unless specified in the crop use section of this label.
- **DO NOT** use in residential areas or residential landscapes.
- **DO NOT** apply more than 0.32 lb ai per acre per year of isocycloseram-containing products, including all crop plantings and application types (seed treatment, soil, foliar). See **Section 7.0** for individual crop restrictions.
- **Ultra-low volume (ULV) applications**, spray volumes <2 gallons per acre, are prohibited.
- **Not for Use in Hawaii.**
- **DO NOT** apply by air in New York state.

6.2 Mandatory Runoff Mitigation

- **DO NOT** apply when soils are saturated or above field capacity.
- **DO NOT** apply during rain.

Applicators must access and search Bulletins Live! Two (BLT) at https://www.epa.gov/pesticides/bulletins within six months prior to or on the day of the application to determine whether the application site falls within a Pesticide Use Limitation Area (PULA). If you are located inside a PULA, follow the instructions in the "Inside a PULA" section below and in the BLT bulletin. If the application site falls outside of a PULA, follow the instructions in the "Outside a PULA" section below.

Outside a PULA

TWO mitigation points are required for all crops listed on this label. Follow the steps below to determine which applications need to achieve points, determine your eligibility for mitigation relief, and determine options to achieve mitigation points.

Inside PULAs

Different runoff/erosion mitigation point(s) are required inside specific PULAs. Access Bulletins Live! Two within 6 months prior to or on the day of the application to determine if you are inside a PULA. If your application site is located within a PULA, points are required for all uses. Access the BLT to determine the total number of points required. Follow the steps below to determine which applications need to achieve the points, determine eligibility for mitigation relief, and determine options to achieve mitigation points.

Steps to Achieve Points

Step A. To achieve the mitigation points specified above, visit EPA's mitigation menu website (www.epa.gov/pesticides/mitigation-menu) to determine which applications need to achieve points and for a full list of mitigation and mitigation relief options.

Step B. Determine if you are eligible for mitigation relief. Runoff/erosion mitigation is NOT needed if certain field/application parameters are present at the time of application (*e.g.*, subsurface or tile drains with controlled outlet, perimeter berm systems, irrigation tailwater return systems, etc.). Refer to the mitigation menu for a complete list of field/application parameters.

Step C. If the application site does not meet the field/application parameters specified on EPA's mitigation menu website, choose among the mitigation and/or mitigation relief options on EPA's mitigation menu website to meet or exceed the required points noted on this label before applying this product.

Step D. To achieve mitigation points for the application, the mitigation and mitigation relief measures must be:

- Employed in accordance with the instructions and descriptions on EPA's Mitigation Menu Website.
- In place during the application unless a different timing (such as before or after application) is specifically provided in the measure's description on EPA's Mitigation Menu Website.

Step E. Additional restrictions may be present in bulletins; always follow the most restrictive bulletin instructions. If you are located in an area where PULAs overlap, follow the most restrictive requirements across all bulletins. When tank mixing, the most restrictive requirements must be followed between the products' labels and bulletins.

EPA may periodically update the Mitigation Menu Website, for example, by adding new mitigation measures or updating a mitigation measure description.

6.3 Spray Drift Management

For All Applications:

- During application, the Sustained Wind Speed, as defined by the National Weather Service (standard averaging period of 2 minutes), must register between 3 and 15 miles per hour.
- **DO NOT** apply when wind speeds exceed 15 miles per hour at the application site.
- Wind speed and direction must be measured on location using a windsock, an anemometer (including systems to measure wind speed or velocity on an aircraft), or an aircraft smoke system.
- Wind speed must be measured at the release height or higher, in an area free from obstructions such as trees that are not the target crop, buildings, and farm equipment.
- **DO NOT** apply during temperature inversions.

For Aerial Application:

- Select nozzle and pressure that deliver medium or coarser spray droplets as indicated in nozzle manufacturer's catalogues and in accordance with the most current American Society of Agricultural & Biological Engineers standards (ASABE S641). When applying to crops via aerial application equipment, the spray boom must be mounted on the aircraft to minimize drift caused by wing tip or rotor blade vortices.
- When the wind speed is between 11-15 miles per hour, 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 wind speed is between 11-15 miles per hour, applicators must use a minimum of $^{3}/_{4}$ swath displacement upwind at the downwind edge of the field. Otherwise, applicators must use a minimum of $^{1}/_{2}$ swath displacement upwind at the downwind edge of the field.
- Do not release spray at a height greater than 10 ft above the crop canopy unless a greater application height is required for pilot safety.

For Airblast Application:

- Sprays must be directed into the canopy.
- User must turn off outward pointing nozzles at row ends and when spraying outer row.

For Ground Boom Application:

- Select nozzle and pressure that deliver medium or coarser spray droplets as indicated in nozzle manufacturer's catalogues and in accordance with the most current American Society of Agricultural & Biological Engineers standards (ASABE S572.1).
- Spray at the appropriate boom height based on nozzle selection and nozzle spacing, but do not exceed a boom height of 4 feet above ground or crop canopy. Set boom to lowest effective height over the target pest or crop canopy based on equipment manufacturer's directions.

For aerial, airblast and ground applications, always maintain a no-application area (buffer) from the downwind edge of the last spray row and any non-managed area (i.e., the protection area). Non-managed areas are defined as anything that is not part of the "managed areas" listed below.

Downwind Managed Areas That Can Represent Spray Drift Buffers

When spray drift buffers are identified as mitigation, the following managed areas can be included as part of the buffer footage if they are downwind and are immediately adjacent/contiguous to the treated field, and people are not present in those areas (including inside closed buildings/structures). If the pesticide product label or bulletin, or the state or local government in which the application area is located has a requirement that prohibits or restricts spray drift in any area, including these specific managed areas, that prohibition/restriction must be followed.

a. Fields, pastures, forage fields, and private rangelands, including untreated portions of the treated areas;

b. Roads, paved or gravel surfaces, mowed grassy/fallowed areas adjacent to the treated area, and areas of bare ground from recent plowing or grading that are contiguous with the treated area;

c. On-site buildings and their perimeters, or other man-made structures with walls and/or roof;

d. Areas present and/or maintained as a runoff/erosion measure as listed on EPA's Mitigation Menu website. Examples include vegetative filter strips (VFS), field borders, grassed waterways, vegetated ditches that retain runoff on-site, riparian areas, managed/constructed wetlands, or other areas of intentional habitat improvement;

e. Areas present and/or maintained as a drift buffer reduction measure as listed on EPA's Mitigation Menu website. Examples include vegetative windbreaks, hedgerows, shelterbelts, riparian areas, private forests, woodlots, and shrublands;

f. Conservation Reserve Program (CRP)[1] and Agricultural Conservation Easement Program (ACEP) lands;

g. On-site contained irrigation water resources that are not connected to adjacent water bodies, including on-farm irrigation canals and ditches, water conveyances, managed irrigation/runoff retention basins, farm ponds, and tailwater collection ponds.

[1] Applicators may need to ensure that pesticide use does not cause degradation of CRP habitat.

Spray Drift Buffers for Broadcast Applications

Wind-directional ecological spray drift buffers are required for applications as follows in **Table A:**

Table A. Wind-Directional Ecological Spray Drift Buffers

Application Method	Droplet Size Distribution (DSD)	Minimum Buffer Distance From Non-Managed Areas
Aerial	Medium or coarser	300 ft
Ground boom (2–4 ft boom height)	Medium or coarser	25 ft
Airblast	NA	85 ft

Reduction Options for All Ecological Wind-Directional Drift Buffers

The applicator may choose among the ecological drift buffer reduction options on EPA's Mitigation Menu Website (https://www.epa.gov/pesticides/mitigation-menu) to reduce the wind-directional ecological buffer distance before applying this product. All buffer reduction options selected must align with the minimum droplet size and release height requirements on this label.

To reduce the buffer distance for the application, the buffer reduction options must be employed in accordance with the instructions and descriptions on EPA's Mitigation Menu Website. These buffer reduction options do not apply to areas occupied by humans for residential or commercial purposes (such as lawns, sidewalks, outdoor recreational areas, athletic fields, buildings/homes, farmworker housing, schools, daycare centers, nursing homes, and hospitals).

When using more than one option during the application, the percent reduction in the buffer distances may be added together. The maximum buffer reduction that can be achieved by a combination of buffer reduction options is 100% (i.e., no drift buffer required).

The website includes the full menu of wind-directional ecological drift buffer reduction options for each application method. The following are examples, but may not be applicable for all application methods:

- Reduce single application rate (all)
- Increase in droplet size above the minimum size required (ground and aerial)
- Use targeted applications (e.g., hooded sprayers, layby application, deflectors, or drop nozzles (ground and airblast only)
- Lower release boom height (ground only)
- Reduce the number of passes across the field (all)
- Install a downwind windbreak, hedgerow, or artificial screen (all)
- Apply when the relative humidity ≥ 60% (ground and aerial only)

EPA may periodically update the Mitigation Menu Website, for example, by adding new drift buffer reduction options or updating an option's description.

When tank mixing, the most restrictive of the products' label or bulletin requirements must be followed (e.g., drift buffers that are not wind-directional, Application Exclusion Zone drift requirements, drift buffers to residences, schools, and parks where bystanders could be present, use prohibitions, timing restrictions, and application method prohibitions).

Chemigation Restrictions

For Overhead Chemigation Systems

If unmanaged areas are present less than 25 ft from the application site, the following restrictions apply for applications via overhead chemigation systems, such as center pivot or traveler systems:

- Turn off end guns AND select two of the following options:
  - o Reduce the pressure to ≤ 20 lbs per square inch (psi).
  - o Reduce the release height to ≤ 5 ft from the ground or crop canopy.
  - o Maintain a downwind drift barrier (windbreak, hedgerow, or shelterbelt) from the application site based on the description of this measure on EPA's mitigation menu website (https://www.epa.gov/pesticides/mitigation-menu).

Unmanaged areas are defined in comparison to managed areas -- anything that is not a managed area is an unmanaged area. Refer to the "Managed Areas Definition" section of this label for information on managed areas.

For Non-End Gun Impact Sprinkler Chemigation Systems

If unmanaged areas are present less than 25 ft from the application site, the following restrictions apply when making applications with non-end gun impact sprinkler chemigation systems:

- Limit the throw distance to the edge of the field. This can be accomplished by reducing the pressure or reducing the throw angle.
- Maintain a downwind drift barrier (windbreak, hedgerow, or shelterbelt) based on the description on EPA's mitigation menu website (https://www.epa.gov/pesticides/mitigation-menu).

Unmanaged areas are defined in comparison to managed areas -- anything that is not a managed area is an unmanaged area. Refer to the "Managed Areas Definition" section of this label for information on managed areas.

6.4 Spray Drift Advisories

THE APPLICATOR IS RESPONSIBLE FOR AVOIDING OFF-SITE SPRAY DRIFT.
Be aware of nearby non-target sites and environmental conditions.

6.4.1 IMPORTANCE OF DROPLET SIZE

An effective way to reduce spray drift is to apply large droplets. Consider the largest droplets that provide target pest control. While applying larger droplets will reduce spray drift, the potential for drift will be greater if applications are made improperly or under unfavorable environmental conditions.

- **Controlling Droplet Size – Ground Application**
  - o **Volume** - Increasing the spray volume so that larger droplets are produced will reduce spray drift. Consider using the highest practical spray volume for the application. If a greater spray volume is needed, consider using a nozzle with a higher flow rate.
  - o **Pressure** - Using the lowest spray pressure recommended for the nozzle will produce the target spray volume and droplet size.
  - o **Spray Nozzle** – Consider using a spray nozzle that is designed for the intended application, as well as using nozzles designed to reduce drift.

- **Controlling Droplet Size – Aerial Application**
  - **Adjust Nozzles** – Applicators should follow nozzle manufacturers' recommendations for setting up nozzles. Generally, to reduce fine droplets, nozzles should be oriented parallel with the airflow in flight.

6.4.2 RELEASE HEIGHT – GROUND APPLICATION

For ground equipment, the boom should remain level with the crop and have minimal bounce. Automated boom height controllers are recommended with large booms to better maintain optimum nozzle-to-canopy height. Excessive boom height will increase the potential for spray drift.

6.4.3 RELEASE HEIGHT – AERIAL APPLICATION

Higher release heights increase the potential for spray drift.

6.4.4 HOODED (OR SHIELDED) SPRAYERS

Shielding the boom or individual nozzles can reduce spray drift. Consider using hooded sprayers. Applicators should verify that the shields are not interfering with the uniform deposition of the spray on the target area.

6.4.5 TEMPERATURE AND HUMIDITY

When making applications in hot and dry conditions, consider using larger droplets to reduce effects of evaporation.

6.4.6 TEMPERATURE INVERSIONS

Drift potential is high during a temperature inversion. Temperature inversions are characterized by increasing temperature with altitude and are common on nights with limited cloud cover and light to no wind. The presence of an inversion can be indicated by ground fog or by the movement of smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a concentrated cloud (under low wind conditions) indicates an inversion, while smoke that moves upward and rapidly dissipates indicates good vertical air mixing. Avoid making applications during temperature inversions.

6.4.7 WIND

Drift potential generally increases with wind speed. Applicators need to be familiar with local wind patterns and terrain that could affect spray drift.

6.4.8 MEASURING WIND SPEED AND WIND DIRECTION

Best management practices for measuring wind speed and wind direction:

- Applicators should check and acquire the predicted wind speed and direction for the application site within 12 hours prior to conducting applications to determine the time periods wind speed is likely to fall outside the applicable thresholds.
- Applicators should reassess wind speed and direction at the application site at least every hour while applications are in progress.
- Measuring wind speed and direction can be done by:
  - Relying on equipment on the application equipment that measures wind speed (e.g., aerial equipment).
  - Using a tower anemometer with telemetry or handheld anemometer: Users should read user manual on how to calibrate, operate and interpret the output from an anemometer. Ground applicators should stop at least every hour to take a reading with a tower anemometer with telemetry or handheld anemometer. Some anemometers may have software that would allow users to view wind measurements in real time while making an application, and, in those cases, applicators would not have to stop to take measurements.

- o Using a windsock: Wind can be estimated with a windsock using the strips on a windsock. The applicator should consult the user manual for the windsock on wind speed estimation and direction of wind. Applicators should look at the sock at least every hour to estimate wind speed and direction. The windsock should be pointed in the opposite direction of the windbreak and the non-managed area.
- o Using an aircraft smoke system: Laying down several puffs of smoke along different lines using an aircraft smoke system can provide an accurate view of what the wind speed and direction for the application.
- o Checking behind the spray rig at least every hour to see if the spray has changed direction from when the application started.

6.4.9 SENSITIVE AREAS

Making applications when there is a sustained wind moving away from adjacent sensitive areas (e.g., residential areas, bodies of water, known habitat for threatened or endangered species, non-target crops) is an effective way to minimize the effect of spray drift.

6.4.10 DRIFT CONTROL ADDITIVES

- Using product compatible drift control additives can reduce drift potential.
- When a drift control additive is used, read and carefully observe cautionary statements and all other information on the additive's label.
- If using an additive that increases viscosity, ensure that the nozzles and other application equipment will function properly with a viscous spray solution.
- Preferred drift control additives have been certified by the Council of Producers and Distributors of Agrotechnology.

7.0 CROP USE DIRECTIONS

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 label 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.

7.1 Citrus Fruit, Crop Group 10-10

Crops (Including all cultivars, varieties, and/or hybrids of these)		
Australian desert lime	Lemon	Satsuma mandarin
Australian finger lime	Lime	Sweet lime
Australian round lime	Mediterranean mandarin	Tachibana orange
Brown River finger lime	Mount White lime	Tahiti lime
Calamondin	New Guinea wild lime	Tangelo
Citron	Orange, sour	Tangerine (mandarin)
Citrus hybrids	Orange, sweet	Tangor
Grapefruit	Pummelo	Trifoliate orange
Japanese summer grapefruit	Russell River lime	Uniq fruit
Kumquat		

Target Pest	Rate (fl oz/A)	Application Timing	Use Directions
Broad mite Citrus leafminer Citrus rust mite Spider mites Texas citrus mite	1.1 – 1.6	Time applications to the most susceptible insect or mite pest life-stage at locally determined action thresholds before populations reach damaging levels. For **Asian citrus psyllid** and **citrus leafminer** control, apply to protect flush of newly expanding foliage. For **mite** control, apply when mites are first observed. For **citrus thrips** control, apply when economic thresholds have been reached (after egg hatch has begun – preferably early to mid-hatch).	Under high pest populations, apply a higher rate within the labeled rate range. Apply this product diluted in a minimum volume of 30 gal/A by ground. Thorough coverage is essential to obtain best results. Select a spray volume appropriate for the size of trees and density of foliage. Under conditions such as high pest populations, dense foliage, or adverse application conditions (such as high temperatures), use a greater volume of water to ensure adequate coverage.
Asian citrus psyllid Citrus thrips	1.6 – 2.5		
Diaprepes root weevil (adults)	2.1 – 2.5		

Resistance Management:
- Refer to **Section 3.2**.

continued…

7.1 Citrus Fruit, Crop Group 10-10 *(continued)*

USE RESTRICTIONS
1) Refer to **Section 6.1** for additional product use restrictions. 2) **Maximum Single Application Rate:** 2.5 fl oz/A/application a. **DO NOT** exceed 0.0650 lb ai/A of isocycloseram-containing products. 3) **Minimum Application Interval:** 7 days 4) **Maximum Annual Rate:** 7.2 fl oz/A/year a. **DO NOT** exceed 0.187 lb ai/A/year of isocycloseram-containing products. 5) **DO NOT** make more than two applications at 2.5 fl oz/A per year 6) **DO NOT** make more than four applications per year. 7) **DO NOT** apply by air. 8) **DO NOT** apply 3 days prior to flowering until the end of the flowering period. In areas where the authorities provide a declaration or definition of the flowering period, observe defined flowering periods as established by local university extension offices, county agricultural commissioners, or other state/tribal lead agencies. 9) **Pre-Harvest Interval (PHI):** a. Use rate of 1.1 fl oz/A: 7 days b. Use rate of >1.1 fl oz/A: 21 days

7.2 Pome Fruit, Crop Group 11-10

Crops (Including all cultivars, varieties, and/or hybrids of these)		
Apple	Mayhaw	Quince
Azarole	Medlar	Quince, Chinese
Crabapple	Pear	Quince, Japanese
Loquat	Pear, Asian	Tejocote

Target Pest	Rate (fl oz/A)	Application Timing	Use Directions
European red mite Twospotted spider mite	1.1 – 1.6	Time applications to the most susceptible insect or mite pest life-stage at locally determined action thresholds before populations reach damaging levels. Use local pheromone trap catches and degree day models to help time applications for **codling moth** and **Oriental fruit moth**. For **thrips** control, begin making applications when populations are low. For **apple maggot** suppression, begin making applications when pest populations are at or below threshold.	Under high pest populations apply a higher rate within the labeled rate range. Apply this product diluted in a minimum volume of 30 gal/A by ground only. Thorough coverage is essential to obtain best results. Select a spray volume appropriate for the size of trees and density of foliage. Under conditions such as high pest populations, dense foliage, or adverse application conditions (such as high temperatures), use a greater volume of water to ensure adequate coverage.
Codling moth Obliquebanded leafroller Oriental fruit moth Plum curculio Red banded leafroller Thrips	1.6 – 2.5		
Pear psylla **Suppression:** Apple maggot	2.1 – 2.5		

Resistance Management:

- Refer to **Section 3.2**.
- In order to decrease the likelihood of insecticide resistance development, alternate row middle (ARM) spray practices are not recommended.
- **Codling moth:** Do not apply Zivalgo (or other Group 30 insecticides) more than three times within a single generation of codling moth (codling moth typically has a single generation "treatment window" of 30 - 45 days. Application(s) to the next generation of codling moth must be with an effective product(s) with a different mode of action (different IRAC group number) for at least a 30 – 45 day "treatment window" before making additional applications of Zivalgo or other Group 30 insecticides.
- **Obliquebanded leafroller:** Apply Zivalgo (or other Group 30 insecticides to only one generation of obliquebanded leafroller per year. Application(s) to other generations of obliquebanded leafroller must be with an effective product with a different mode of action (different IRAC group number).

Precaution:

- The use of horticultural oil fewer than 14 days before or after applying Captan® or other sulfur containing products can result in crop injury and loss.

continued…

7.2 Pome Fruit, Crop Group 11-10 *(continued)*

USE RESTRICTIONS
1) Refer to **Section 6.1** for additional product use restrictions. 2) **Maximum Single Application Rate:** 2.5 fl oz/A/application a. **DO NOT** exceed 0.0650 lb ai/A of isocycloseram-containing products. 3) **Minimum Application Interval:** 7 days 4) **Maximum Annual Rate:** 7.5 fl oz/A/year a. **DO NOT** exceed 0.195 lb ai/A/year of isocycloseram-containing products. 5) **DO NOT** make more than three applications per year. 6) **DO NOT** apply by air. 7) **DO NOT** apply 3 days prior to flowering until the end of the flowering period. 8) **Pre-Harvest Interval (PHI):** 14 days

7.3 Stone Fruit, Crop Group 12-12

Crops (Including all cultivars, varieties, and/or hybrids of these)		
Apricot	Nectarine	Plum, Chickasaw
Apricot, Japanese	Peach	Plum, Damson
Capulin	Plum	Plum, Japanese
Cherry, black	Plum, American	Plum, Klamath
Cherry, Nanking	Plum, beach	Plum, prune (fresh)
Cherry, sweet	Plum, Canada	Plumcot
Cherry, tart	Plum, cherry	Sloe
Jujube, Chinese		

Target Pest	Rate (fl oz/A)	Application Timing	Use Directions
Spider mites Spotted wing drosophila	1.1 – 1.6	Time applications to the most susceptible insect or mite pest life-stage at locally determined action thresholds before populations reach damaging levels. For **spider mite** control, apply when spider mites are first observed. For **thrips** control, begin making applications when populations are low.	Under high pest populations apply a higher rate within the labeled rate range. Apply this product diluted in a minimum volume of 30 gal/A by ground only. Thorough coverage is essential to obtain best results. Select a spray volume appropriate for the size of trees and density of foliage. Under conditions such as high pest populations, dense foliage, or adverse application conditions (such as high temperatures), use a greater volume of water to ensure adequate coverage.
Codling moth Obliquebanded leafroller Oriental fruit moth Plant bugs Plum curculio Stink bugs Thrips	1.6 – 2.5		

Resistance Management:
- Refer to **Section 3.2**.
- In order to decrease the likelihood of insecticide resistance development, alternate row middle (ARM) spray practices are not recommended.

USE RESTRICTIONS
1) Refer to **Section 6.1** for additional product use restrictions. 2) **Maximum Single Application Rate:** 2.5 fl oz/A/application a. **DO NOT** exceed 0.0650 lb ai/A of isocycloseram-containing products. 3) **Minimum Application Interval:** 7 days 4) **Maximum Annual Rate:** 5.0 fl oz/A/year a. **DO NOT** exceed 0.130 lb ai/A/year of isocycloseram-containing products. 5) **DO NOT** make more than two applications per year. 6) **DO NOT** apply by air. 7) **DO NOT** apply 3 days prior to flowering until the end of the flowering period. 8) **Pre-Harvest Interval (PHI):** 14 days

7.4 Tree Nuts

Crops (Including all cultivars, varieties, and/or hybrids of these)		
African nut-tree	Coconut	Okari nut
Almond	Coquito nut	Pachira nut
Beech nut	Dika nut	Peach palm nut
Brazil nut	Ginkgo	Pecan
Brazilian pine	Guiana chestnut	Pequi
Bunya	Hazelnut (filbert)	Pili nut
Bur oak	Heartnut	Pine nut
Butternut	Hickory nut	Pistachio
Cajou nut	Japanese horse-chestnut	Sapucaia nut
Candlenut	Macadamia nut	Tropical almond
Cashew	Mongongo nut	Walnut, black
Chestnut	Monkey-pot	Walnut, English
Chinquapin	Monkey puzzle nut	Yellowhorn

continued…

7.4 Tree Nuts *(continued)*

Target Pest	Rate (fl oz/A)	Application Timing	Use Directions
Leaffooted bug Scorch mite Spider mites	1.1 – 2.5	Time applications to the most susceptible insect or mite pest life-stage at locally determined action thresholds before populations reach damaging levels. For **mite** control, apply when mites are first observed.	Under high pest populations apply a higher rate within the labeled rate range. Apply this product diluted in a minimum volume of 30 gal/A by ground only. Thorough coverage is essential to obtain best results. Select a spray volume appropriate for the size of trees and density of foliage. Under conditions such as high pest populations, dense foliage, or adverse application conditions (such as high temperatures), use a greater volume of water to ensure adequate coverage.
Codling moth Hickory shuckworm Oriental fruit moth Pecan nut casebearer **Suppression:** Navel orangeworm Peach twig borer	2.5		

Resistance Management:
- Refer to **Section 3.2**.
- In order to decrease the likelihood of insecticide resistance development, alternate row middle (ARM) spray practices are not recommended.

USE RESTRICTIONS

1) Refer to **Section 6.1** for additional product use restrictions.
2) **Maximum Single Application Rate:** 2.5 fl oz/A/application
   a. **DO NOT** exceed 0.0650 lb ai/A of isocycloseram-containing products.
3) **Minimum Application Interval:** 7 days
4) **Maximum Annual Rate:** 7.5 fl oz/A/year
   a. **DO NOT** exceed 0.195 lb ai/A/year of isocycloseram-containing products.
5) **DO NOT** make more than three applications per year.
6) **DO NOT** apply by air.
7) **DO NOT** apply 3 days prior to flowering until the end of the flowering period.
8) **Pre-Harvest Interval (PHI):** 14 days

7.5 Tuberous and Corm Vegetables, Crop Subgroup 1C

Crops (Including all cultivars, varieties, and/or hybrids of these)		
Arracacha	Chayote (root)	Sweet potato
Arrowroot	Chufa	Tanier
Artichoke, Chinese	Dasheen	Turmeric
Artichoke, Jerusalem	Ginger	Yam bean
Canna, edible	Leren	Yam, true
Cassava, bitter and sweet	Potato	

Target Pest	Rate (fl oz/A)	Application Timing	Use Directions
Colorado potato beetle Leafminers (*Liriomyza* sp.) Potato leafhopper Spider mites	0.7 – 2.0	Time applications to the most susceptible insect or mite pest life-stage at locally determined action thresholds before populations reach damaging levels. For **spider mite** and **leafminer** control, apply when spider mites or adult leafminer flies are first observed. For **thrips** control, begin making applications when populations are low.	Under high pest populations or when using aerial application, apply a higher rate within the labeled rate range. Apply this product diluted in a minimum volume of 10 gal/A by ground or 5 gal/A by air. Under conditions such as high pest populations, dense foliage, or adverse application conditions (such as high temperatures), use a greater volume of water to ensure adequate coverage. For best control, apply Zivalgo with ground application equipment. With aerial application, the resulting level and duration of control could be less than with ground application. Zivalgo may be applied via overhead chemigation in a volume of up to 0.25 inches of water per acre, however the resulting level and duration of control could be less than with ground application.
European corn borer Flea beetle	1.1 – 2.0		
Thrips	1.6 – 2.0		

Resistance Management:

- Refer to **Section 3.2**.
- **Colorado Potato Beetle:**
  - o Do not apply less than 0.7 fl oz/A/application of Zivalgo for Colorado potato beetle control.
  - o Do not apply Zivalgo or other Group 30 insecticides products more than three times to a generation of Colorado potato beetle or within any 30-day "treatment window."
  - o Application(s) to the next generation of Colorado potato beetle must be with an effective product(s) with a different mode of action (i.e., a non-Group 30 insecticide) for at least a 30-day "treatment window" before making any additional applications of Zivalgo or other Group 30 insecticides.
- **Thrips:**
  - o Use as part of an effective thrips control program. Rotate with products of different modes of action.

continued...

7.5 Tuberous and Corm Vegetables, Crop Subgroup 1C *(continued)*

USE RESTRICTIONS
1) Refer to **Section 6.1** for additional product use restrictions.
2) **Maximum Single Application Rate:** 2.0 fl oz/A/application a. **DO NOT** exceed 0.0520 lb ai/A of isocycloseram-containing products.
3) **Minimum Application Interval:** 7 days
4) **Maximum Annual Rate:** 6.0 fl oz/A/year a. **DO NOT** exceed 0.156 lb ai/A/year of isocycloseram-containing products including all application types (seed treatment, soil, foliar).
5) **DO NOT** make more than three applications per year.
6) Aerial application is prohibited for all crops in Tuberous and Corm Vegetables Crop Subgroup 1C **except Potato**.
7) For potato, foliar application of this product is prohibited from onset of flowering until flowering is complete unless: (i) the application is made before 10 am or after 3 pm, OR (ii) the application is being made at a time when the temperature at the application site is 50°F or less.
8) For all crops in Subgroup 1C except potato, foliar application of this product is prohibited from onset of flowering until flowering is complete unless: (i) the application is being made between 2-hrs prior to sunset and 2-hrs after the following sunrise, **OR** (ii) the application is being made at a time when the temperature at the application site is 50°F or less.
9) **DO NOT** apply more than two times during bloom.
10) **Pre-Harvest Interval (PHI):** 14 days

8.0 STORAGE AND DISPOSAL

Storage and Disposal

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

Pesticide Storage

Keep container closed when not in use. Store in the original container. Store in a cool, dry, and well-ventilated place. Protect from extreme heat. Do not store near food or feed.

Pesticide Disposal

Pesticide wastes may be hazardous. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of federal law. If these wastes cannot be disposed of by use 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.

Container Handling – (less than or equal to 5 gallons)

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 and drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures approved by state and local authorities.

Container Handling – (greater than 5 gallons)

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 1/4 full with water. Recap and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times. Then offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures approved by state and local authorities.

Container Handling – (greater than 5 gallons)

Refillable container. Refill this container with pesticide only. Do not reuse this container for any other purpose. Cleaning the container before final disposal is the responsibility of the person refilling. To clean container before final disposal, empty the remaining contents from this container into application equipment or mix tank. Fill the container about 10 percent full with water. Agitate vigorously or recirculate water with the pump for 2 minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times. Then offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration, or by procedures approved by state and local authorities.

CONTAINER IS NOT SAFE FOR FOOD, FEED, OR DRINKING WATER.

9.0 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.

For non-emergency (e.g., current product information), call Syngenta Crop Protection at 1-866-796-4368.

Manufactured for:
Syngenta Crop Protection, LLC
P.O. Box 18300
Greensboro, North Carolina 27419-8300

SCP 1711C-L1 1125
4240320

(01) 0 07 02941 01125 0

ISOCYCLOSERAM | GROUP 30 | INSECTICIDE

Zivalgo™

syngenta®

Insecticide

PLINAZOLIN® technology*

For control of mites, thrips, true bugs, lepidopterous pests, and other insects in: Citrus Fruit, Crop Group 10-10; Pome Fruit, Crop Group 11-10; Stone Fruit, Crop Group 12-12; Tree Nuts, Crop Group 14-12; and Tuberous and Corm Vegetables, Crop Subgroup 1C

Active Ingredient:	
Isocycloseram**	34.8%
Other Ingredients:	65.2%
Total:	100.0%

**PLINAZOLIN® technology denotes the Syngenta trademark for the active ingredient isocycloseram*

**CAS No. 2061933-85-3

Zivalgo™ is formulated as a suspension concentrate and contains 3.33 lb of isocycloseram per gallon.

1 quart (32 fl oz)
Net Contents

Zivalgo™

KEEP OUT OF REACH OF CHILDREN

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 inside booklet.

EPA Reg. No. 100-1711
EPA Est. 100-NE-001
Zivalgo™, PLINAZOLIN®, Purpose Icon, Alliance Frame, and the Syngenta Logo are Trademarks of a Syngenta Group Company.

Manufactured for: Syngenta Crop Protection, LLC P.O. Box 18300, Greensboro, North Carolina 27419-8300

SCP 1711C-L1 1125
4240320

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. Refer to supplemental labeling under "Agricultural Use Requirements" in the Directions for Use section for information about this standard.

FIRST AID: Have the product container or label with you when calling a poison control center or doctor, or going for treatment. **SYNGENTA HOTLINE NUMBER:** For 24-Hour Medical Emergency Assistance (Human or Animal) Or Chemical Emergency Assistance (Spill, Leak, Fire or Accident) Call **1-800-888-8372**.

PRECAUTIONARY STATEMENTS

Hazards to Humans and Domestic Animals

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

Environmental Hazards: For terrestrial uses: Do not apply directly to water, or to areas where surface water is present, or to intertidal areas below the mean high-water mark. Do not contaminate water when disposing of equipment washwater or rinsate.

Surface Water Advisory: This product may impact surface water quality due to runoff of rainwater. This is especially true for poorly draining soils and soils with shallow groundwater. This product is classified as having a medium potential for reaching both surface water and aquatic sediment via runoff for several months or more 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 isocycloseram from runoff water and sediment. Runoff of this product will be reduced by avoiding application when rainfall or irrigation is expected. Do not make applications during rain and avoid making applications when rainfall is expected before the product has sufficient time to dry.

Non-Target Organism Advisory: This pesticide is toxic to fish and highly toxic to aquatic invertebrates. Drift and runoff may be hazardous to aquatic organisms in water adjacent to treated areas. Do not apply when weather conditions favor drift from target areas.

Reporting Ecological Incidents: For guidance on reporting ecological incidents, including death, injury, or harm to plants and animals, including bees and other non-target insects, see EPA's Pesticide Incident Reporting website: https://www.epa.gov/pesticide-incidents or call 1-866-796-4368.

Physical or Chemical Hazards: Do not mix or allow to come into contact with oxidizing agents. A hazardous chemical reaction may occur.

Storage and Disposal

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

Pesticide Storage

Keep container closed when not in use. Store in the original container. Store in a cool, dry, and well-ventilated place. Protect from extreme heat. Do not store near food or feed.

Pesticide Disposal

Pesticide wastes may be hazardous. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of federal law. If these wastes cannot be disposed of by use 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.

Container Handling

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 and drain for 10 seconds after the flow begins to drip. Fill the container ¼ full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures approved by state and local authorities.

CONTAINER IS NOT SAFE FOR FOOD, FEED, OR DRINKING WATER.

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