

# **FOLIAR APPLICATION - LOW GROWING BERRY - THRIPS, WHITEFLIES**

## General Information

### PRODUCT INFORMATION

#### ALTUS:

- Is a broad-spectrum insecticide, formulated in a 1.67 lb AI/gallon (200 grams AI/liter) soluble liquid.
- Belongs to a class of chemicals known as the Butenolides.
- Is acropetally systemic, moving from roots to the leaves in the case of soil applications.
- Is translaminar through the leaf tissue (can provide control of labeled pests on the underside of leaves) and acropetally systemic, moving from points of contact to leaf tips in the case of foliar applications.
- Is readily absorbed into leaf tissue and is considered rainfast within 1 hour after spray dries.

#### FOR USE ON:

- Ornamentals in greenhouses, field and container nurseries, lathhouses, shadehouses, interiorscapes, golf courses, and residential, commercial, municipal, and institutional landscapes.
- Vegetables and fruit crops (including transplants) in greenhouses, field and container nurseries, lathhouses, shadehouses, and residential, commercial, municipal, and institutional landscapes.
- Tree nut crops in field and container nurseries, lathhouses, shadehouses, and residential, commercial, municipal, and institutional landscapes.

ALTUS may be:

- Applied as a foliar application using properly calibrated ground sprayers, or through properly designed, sprinkler-type overhead chemigation equipment (See Chemigation – Directions for Use section below).
- Applied as a soil application using low-pressure drip, trickle or micro-sprinkler chemigation, plant drench, or a greenhouse tray drench. For seedling flats or trays, only apply with broadcast, foliar applications or where product is intended to be washed from foliage to soil prior to drying on foliage.

#### USE RESTRICTIONS

- Do not tank mix with azole fungicides (FRAC group 3) during bloom period.
- Not for use on crops intended to be grown for seed unless specified otherwise in the crop specific sections of this label or allowed by state specific 24(c) labeling.
- Do not apply more than 0.365 lb flupyradifurone/Acre (28 fl oz of Altus) per calendar year, except as noted below.
- Do not apply more than 0.365 lb flupyradifurone/Acre (28 fl oz of Altus) per crop production cycle for greenhouses and container grown ornamentals in nurseries.

#### RESISTANCE MANAGEMENT

ALTUS contains an active ingredient with a mode of action classified as a Group 4D Insecticide.

Repeated use of any crop protection product may increase the development of resistant strains of insects. To delay insecticide resistance:

- Where possible, rotate the use of ALTUS or other Group 4 insecticides with different mode of action groups that control the same pests.
- Insecticide use should be based on an Integrated Pest Management (IPM) program that includes scouting and record keeping, and considers cultural, biological, and other chemical control practices.
- Before spraying ALTUS, correctly identify the pest and ensure economic and agronomic thresholds are met as recommended by local provincial or IPM specialists.
- Monitor treated pest populations for resistance development.
- Contact your local extension specialist or certified crop advisors for any additional pesticide IRM and/or IPM recommendations for the specific site and pest problems in your area. Also, for more information on IRM, visit the Insecticide Resistance Action Committee (IRAC) on the web at <http://www.irac-online.org>.
- For further information or to report suspected resistance contact your local Bayer

CropScience representative for additional IRM or IPM recommendations in your area.

## CHEMIGATION

Types of irrigation systems

ALTUS may be applied by chemigation:

- For foliar applications, through overhead sprinkler-type irrigation systems, including center pivot, lateral move, side roll, or overhead solid-set systems or equivalent equipment.
- For soil applications, through low-pressure drip, trickle or micro-sprinkler systems or equivalent equipment.

### Uniform Water Distribution and System Calibration

The chemigation 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 chemigation system must be calibrated to uniformly apply the rates specified in crop-specific label sections. If you have questions about calibration, you should contact State Extension Service specialists, equipment manufacturers or other experts.

### Chemigation Monitoring

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.

### Required System Safety Devices

Use for sprinkler or drip (trickle) chemigation:

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.

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

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.

Do not apply when wind speed favors drift beyond the area intended for treatment.

Use for floor, furrow and border chemigation:

Systems using a gravity flow pesticide dispensing system must meter the pesticide into the water at the head of the field and downstream of a hydraulic discontinuity such as a drop structure or weir box to decrease potential for water source contamination from back flow if water flow stops.

Systems utilizing a pressurized water and pesticide injection system must meet the following requirements: The system must contain a functional check valve, vacuum relief valve, and lowpressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow. The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump. 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. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops. 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. 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.

Using Water From Public Water Systems

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.

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. Chemigation systems connected to public water systems must contain a functional, reduced-pressure zone, back-flow preventer (RPZ) 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 to top or overflow rim of the reservoir tank of at least twice the inside diameter of the fill pipe. The pesticide injection pipeline must contain a functional automatic quick-closing check valve to prevent the flow of fluid back toward the injection pump. 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. 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. 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.

#### Injection For Chemigation

Inject the specified dosage of ALTUS into the irrigation main water stream: (1) through a constant flow, metering device; (2) into the center of the main line flow via a pilot tube or equivalent; (3) at a point ahead of at least one, right-angle turn in the main stream flow such that thorough mixing with the irrigation water is ensured.

#### Solid Set and Manually Controlled Linear Systems

For foliar application, injection should be applied at the end of the irrigation cycle and followed by sufficient water to flush the product out of the irrigation system.

## Flushing and Cleaning the Chemical Injection System

At the end of the application period, allow time for all lines to flush the pesticide through all nozzles or emitters before turning off irrigation water. To ensure the lines are flushed and free of pesticides, a dye indicator may be injected into the lines to mark the end of the application period.

In order to apply pesticides accurately, the chemical injection system must be kept clean, free of chemical or fertilizer residues and sediments. Refer to your owner's manual or ask your equipment supplier for the cleaning procedure for your injection system.

## Limitations, Restrictions, and Exceptions

### CROP USE RESTRICTIONS AND PRECAUTIONS

- Do not apply more than 0.365 lb flupyradifurone/Acre (28 fl oz of Altus) per calendar year, except as noted below.
- Do not apply more than 0.365 lb flupyradifurone/Acre (28 fl oz of Altus) per crop production cycle for greenhouses and container grown ornamentals in nurseries.

### Application Method (Foliar)

Suggested volumes for foliar application are 50 – 100 gallons/Acre.

MINIMUM APPLICATION INTERVAL: 10 days

### Method

[Broadcast/Foliar Air](#)

### Rates

[field\\_rates 0](#)

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### Restricted Entry Interval

12 hours

### Timings

[When pests are first detected.](#)