

# **CITRUS GROVES - BROADLEAF WEEDS**

## General Information

### PRODUCT INFORMATION

Alion Herbicide is formulated as a suspension concentrate of indaziflam at a concentration of 1.67 pounds of active ingredient per gallon.

Alion Herbicide is a preemergence herbicide for control of annual grasses and broadleaf weeds in Citrus Fruit, Grapes, Stone Fruit, Pome Fruit, Tree Nuts, and Olives. Alion Herbicide may be applied to the soil as a uniform broadcast or band application for the prevention of new weed emergence.

Alion Herbicide provides preemergence, residual control of weeds. A dry soil surface at time of application and 48 hours after application is optimum for binding the active ingredient to soil particles and preventing its downward movement to the crop's roots. Moisture is needed for activation of Alion Herbicide. Dry soil conditions following the initial 48-hour period after application of Alion Herbicide may result in reduced weed control. Weeds that germinate prior to activation by rain or irrigation may not be controlled. If weeds have emerged, the addition of a foliar active herbicide is needed. Alion Herbicide applied alone will not control weeds that are already emerged. Refer to the "Tank Mix Instructions" section.

This product controls weeds by inhibiting cellulose biosynthesis in plants. It may be applied at any time when the ground is not frozen or covered with snow. It will provide most effective residual weed control when applied to a dry soil surface followed by 48 hours without irrigation or rain, and then followed by adequate moisture from rain or an irrigation event within 21 days and prior to weed seed germination. Weed seeds and seedlings must come into contact with Alion Herbicide prior to emergence to be controlled. If insufficient moisture is present, some weeds may germinate and emerge from below the treated layer of soil. Avoid using Alion Herbicide in areas where soil runoff or erosion is likely to occur.

Excessive crop or weed debris present on the soil surface at the time of application may prevent a uniform distribution of the product reaching the soil and consequently may reduce weed control. Performance may be improved by removing the debris prior to applying Alion Herbicide. In very dense stands of living

weeds, an application of a foliar active herbicide first then followed 3-6 weeks later with the application of Alion Herbicide is recommended for improved performance.

The level of weed control is dependent on many variables including soil texture, moisture, temperature, weed species present, the amount of weed seed present in the soil, and the crop canopy.

Do not apply within 25 feet of ponds, lakes, rivers, streams, wetlands, and habitat containing aquatic and semi-aquatic plants.

The Pre-Harvest Interval (PHI) is 7 days for citrus and 14 days for all other crops listed on this label.

#### PRECAUTIONS FOR USE

- Avoid direct or indirect spray contact with crop foliage, green bark, roots, or fruit as it may cause localized crop injury or death. Only trunks with callused, mature brown bark may be sprayed with Alion Herbicide. If the trunks are not fully callused mature brown bark, they should not be sprayed unless protected from spray contact by nonporous wraps, grow tubes or waxed containers. Contact of Alion Herbicide with tissues other than mature brown bark may result in serious damage or plant death.
- The soil surface where Alion Herbicide is to be applied should not have open channels or cracks in the soil. This is to prevent the product from reaching the crop roots either through direct contact from the spray application or with water movement from rain or irrigation as this may cause crop injury. If depressions in the soil such as from settling following transplanting exist around the base of the crop, fill them in with soil prior to applying Alion Herbicide. Crops that are stressed may be more sensitive to herbicide injury and should not be treated.

- Weed control activity may be reduced if the application is made to soil covered in heavy crop or weed debris that prevents a uniform distribution of the product reaching the soil. Removing the debris prior to applying Alion Herbicide may improve weed control. Rates provided on this label are based on broadcast treatment. For banded applications, reduce the broadcast rate of Alion Herbicide to the proportion of the field being treated. No area of the field may be treated with more than the highest rate provided on this label regardless of the portion of the field that this represents.

- Do not use in crops that exhibit low vigor or poor health as they may be more susceptible to crop injury. Causes of reduced vigor may include such things as previous pesticide applications, excess fertilizer or salt, diseases, insects, nematodes, drought, flooding, wind damage, frost, nutrient deficiency, or mechanical damage.

#### RESTRICTIONS FOR USE

- Alion Herbicide can only be applied in citrus trees established for a minimum of one year after transplanting and exhibiting normal growth and good vigor or in new citrus groves one month after planting if the transplanted trees were potted plants (such as citripots) and not bare-rooted, the trunks are protected from spray contact by nonporous wraps, grow tubes or waxed containers, and the trees are actively growing and exhibiting good health and vigor.

- Alion Herbicide can only be applied in labeled tree nut crops (except pecan) that have been established for a minimum of one year after transplanting and exhibiting normal growth and good vigor.

- Alion Herbicide can only be applied in labeled pome and stone fruit, pecan, and olive that have been established for a minimum of three years after transplanting and exhibiting normal growth and good vigor.

- Do not use on soils with 20% or more gravel content. To determine gravel content do not remove gravel from soil samples before sending the samples for soil texture analysis, and request that gravel content be included in the analysis. The gravel content (greater than 2 mm or 0.079 inches in size, US standard sieve size 10) is defined as total percent gravel by weight before conducting soil texture analysis.

- Determine soil organic matter content (%OM) of specific orchards, vineyards, and groves by having soil core samples to a minimum depth of 6 inches of soil analyzed.
- Do not apply more than the amount of Alion Herbicide specified per application and per year or in a 12 month period on this label based on soil texture, percent organic matter content, application site, and crop.
- Allow at least 90 days between applications of Alion Herbicide.
- Only use in vineyards where the grapes have at least 6 inches of soil barrier between the soil surface and the major portion of the root system.
- Alion Herbicide can only be applied in grapes that have been established for a minimum of three years after transplanting and exhibiting normal growth and good vigor.
- Do not apply this product through any type of irrigation system.
- Use of spot spraying around desired plants is not allowed due to the variability of the actual application rate. Excessive application rates may result in severe crop injury or death.
- Do not apply this product by aerial application.
- Do not harvest citrus crops within 7 days after the application of Alion Herbicide.
- Do not harvest crops other than citrus within 14 days after the application of Alion Herbicide.
- Only crops listed on this label may be replanted or rotated within 24 months after the last application of Alion Herbicide and while following the instructions listed in the "Rotational Crop Restrictions" section.
- Do not apply this product to frozen or snow covered soil.
- Do not apply this product to water-saturated soil.
- Do not flood-irrigate orchards or vineyards containing stone fruit, pome fruit, grapes, tree nuts, or olives within 60 days following application of Alion Herbicide.
- Do not apply irrigation, exclusive of flood-irrigation, to treated areas within 48

hours after application.

- Do not apply within 25 feet of ponds, lakes, rivers, streams, wetlands, and habitat containing aquatic and semi-aquatic plants.
- Do not use Alion Herbicide in Nassau and Suffolk Counties of New York State.

#### APPLICATION INFORMATION

Alion Herbicide can only be applied by ground equipment. Do not apply by aerial equipment, chemigation, or spot spraying around desired plants.

Apply Alion Herbicide alone or in an approved tank mixture in a minimum of 10 gallons of spray mixture per acre. Use higher spray volumes to improve distribution in high densities of emerged weeds or debris. Uniform, thorough spray coverage directed to the soil at the base of the crop is important to achieve consistent weed control. Do not allow spray to directly or indirectly contact crop foliage, green bark, roots, or fruit as it may cause localized crop injury.

Application may be made as a broadcast treatment or as a banded treatment under vineyard, grove, or orchard crops. When making banded applications use proportionately less spray water and Alion Herbicide. The dosage listed on this label is for the treated area of the field regardless of the portion of the field that this represents.

#### Application Equipment

To minimize spray drift to non-target areas, apply this product using nozzles that deliver a medium or larger spray droplet as defined by the ASAE standard S-572 and as shown in nozzle manufacturer's catalogues. Keep the spray boom at the lowest possible spray height recommended by the nozzle manufacturer above the target surface. Refer to nozzle manufacturer's recommendations for proper nozzle, pressure setting and sprayer speed for optimum product performance and minimal spray drift. Use sprayers that provide accurate and uniform application to ensure proper distribution. An off-center (OC) nozzle located at the end of the boom may be used to spray near the trunk but must be oriented so that it directs spray to avoid spray contact with crop foliage and green bark. Maintain adequate agitation at all times including momentary stops. Since settling may occur and be difficult to get back into suspension, spray solution should not be left in the tank overnight.

Ensure that the spray equipment including spray tank, pumps, lines, filters, screens,

and nozzles are clean and free of residue from previous use before mixing and applying Alion Herbicide by following the instructions listed under SPRAYER CLEANUP PROCEDURE. Residue remaining in the spray equipment from previous uses can cause crop injury if not properly cleaned. After applying Alion Herbicide, follow the cleaning instructions again to ensure that no product remains in the spray equipment.

Uniform thorough spray coverage is important to achieve consistent weed control. Select nozzles, pressure, and application speed that will deliver medium or larger droplets. Verify that application equipment is in good working condition and is properly calibrated to apply the correct amount of product.

## Application Method

### Broadcast Applications

For all crops listed on this label, apply Alion Herbicide at rates described in the Dose Rate Chart in the APPLICATION DIRECTIONS section for the specific crop or site where this product will be used.

### Banded Applications

When making banded applications, use the same dosage rate as for broadcast applications but use proportionately less spray water and Alion Herbicide. The use rate provided is for the treated area of the field regardless of the portion of the field that it represents. Banded applications may be made using the formula given in the label to calculate the amount of herbicide and spray volume needed for orchard or vineyard strip sprays.

### Weed Control

Alion Herbicide provides residual control of susceptible grass and broadleaf weeds when applied prior to germination. Best weed control is obtained when Alion Herbicide is applied to a dry soil surface followed by 48 hours without irrigation or rain, and then followed by adequate moisture from rain or an irrigation event within 21 days and prior to weed seed germination and adequate rain or irrigation is received soon after application and prior to weed germination. Supplemental irrigation may be applied following application to improve weed control.

The weed control activity may be reduced if the application is made to dense weed vegetation or to soil covered in heavy crop or weed debris that prevents a uniform distribution of the product reaching the soil. Removing the debris and / or

controlling the existing weeds prior to applying Alion Herbicide may improve weed control. In very dense stands of living weeds, an application of a foliar active herbicide first then followed 3-6 weeks later with the application of Alion Herbicide is recommended for improved performance.

If weeds are emerged at application, the addition of a foliar active herbicide is needed. The spectrum of weed control may be increased when Alion Herbicide is tank mixed with other herbicides. Refer to Tank Mix Instructions section.

#### Rate Ranges

Select proper use rate based on crop or application site and soil texture, and percent organic matter content. Soils with high clay content may require a higher use rate of Alion Herbicide than soils with low clay content. Where rate ranges are given, use lower rates within the range on coarser textured soils and higher rates within the range on finer textured soils. Using the higher rates will provide longer weed control and may also improve control in fields with heavy weed or crop debris.

If individual orchards, vineyards, or citrus groves have multiple %OM contents throughout the area where Alion Herbicide is to be applied by a single tank or tank mix, then use the lowest rate of Alion Herbicide corresponding to the lowest %OM content for that area.

Alion Herbicide may be used on soils with greater than 10% organic matter; however, the length and level of weed control may be reduced compared to soils with lower organic matter.

## ROTATIONAL CROP RESTRICTIONS

Alion Herbicide is intended for use in perennial tree and vine crops listed in this label and for noncrop farmstead uses. Do not rotate to any crops not listed on this label within 24 months after the last application. Planting earlier than this may result in crop injury or death. If a crop is not on this label, a bioassay should be conducted prior to planting if Alion Herbicide has been used in the previous 36 months. A successful field bioassay means growing a test strip or several plots of the intended crop from seed or transplant to maturity without any observed herbicide symptoms. The test should be conducted in representative areas across the field that includes knolls, low areas, field edges, and changes in soil texture. The rotational crop interval must be extended if the field bioassay does not result in acceptable crop tolerance.

Labeled citrus crops may be transplanted into soil previously treated with Alion Herbicide 1 month or more after the last application provided potted trees (such as citripots) are used.

New orchards of labeled pome and stone fruit, tree nut, and olive may be established in a location previously treated with Alion Herbicide 1 year after application. Grape vineyards may be established in a location previously treated with Alion Herbicide 2 years after application. In labeled pome and stone fruit, tree nuts, grapes, and olive previously treated soil must be thoroughly mixed to a depth of at least 6 inches prior to planting. This may be done through any combination of tillage operations such as ripping, disking, or plowing.

If other herbicides have also been used, follow the most restrictive label for the crop rotation interval.

## RESISTANCE MANAGEMENT

Indaziflam, the active ingredient in this product, is a Group 29 herbicide based on the mode of action classification system of the Weed Science Society of America. A given weed population may contain plants naturally resistant to Group 29 herbicides. Such resistant weed plants may not be effectively managed using Group 29 herbicides but may be effectively managed using another herbicide alone or in mixtures from a different Group and/or by using cultural or mechanical practices. However, a herbicide mode of action classification by itself may not adequately address specific weeds that are resistant to specific herbicides. Consult your local



company representative, state cooperative extension service, professional consultants, or other qualified authorities to determine appropriate actions for treating specific resistant weeds.

### Best Management Practices

Proactively implementing diversified weed control strategies to minimize selection for weed populations resistant to herbicides is recommended. A diversified weed management program may include the use of multiple herbicides with different modes of action with overlapping weed control spectrum, tillage operations and/or other cultural practices that control weeds. Research has demonstrated that using the labeled rate and directions for use is important to delay the selection for resistance. Scouting after a herbicide application is important because it can facilitate the early identification of weed shifts and/or weed resistance and thus provide direction on future weed management practices. One of the best ways to contain resistant populations is to implement measures to avoid allowing weeds to reproduce by seed or to proliferate vegetatively. Cleaning equipment between sites and avoiding movement of plant material between sites will greatly aid in retarding the spread of resistant weed seed.

There are no known cases of weed resistance to Alion Herbicide or any known instances of crossresistance between Alion Herbicide and other classes of herbicides or modes of action. Research has shown that performance of Alion Herbicide is not affected by the presence of biotypes resistant to glyphosate, triazines, ALS-inhibiting, growth regulant, or other herbicide modes of action.

To delay the development of herbicide resistance, the following practices are recommended:

- Use herbicides with different modes of action in the tank mixture, rotation, or in conjunction with alternate cultural practices.
- Always use at least the minimum rate specified by the label and observe all use rate instructions.
- Avoid the consecutive use of Alion Herbicide unless another herbicide that is effective on the same target weeds is used in rotation or as a tankmix partner.

- Base herbicide use on a comprehensive Integrated Pest Management (IPM) program.
- Monitor treated areas and control escaped weeds by alternate means.
- Contact local extension or crop advisor for IPM and resistance management information.

#### Limitations, Restrictions, and Exceptions

#### CITRUS GROVES

Only apply Alion Herbicide in citrus groves where the soil has completely settled around citrus trees and there are no open channels or depressions in the soil that would allow the product to move into the root zone through open channels.

Soil Texture: Any soil except those that contain 20% or greater gravel content

When making more than one application per year, allow a minimum of 90 days between applications.

#### Use in Established Groves:

Only apply Alion Herbicide in groves where the trees have been established for a minimum of one year after transplanting.

#### Use in Recently Planted Citrus Groves:

Alion Herbicide may be used in groves planted a minimum of one month provided the following condition exists:

- 1) The transplanted trees were potted plants (such as citripots) and not bare-rooted.
- 2) The trunks are protected from spray contact by nonporous wraps, grow tubes, or waxed containers.
- 3) The trees are actively growing and exhibiting good health and vigor.

Avoid direct or indirect spray contact with crop foliage, green bark, roots, or fruit as it may cause localized crop injury or death. Only the trunks of trees transplanted more than one year may be sprayed with Alion Herbicide if the trunk is callused, mature brown bark. Contact of Alion Herbicide with tissues other than mature brown bark can result in serious damage or plant death.

#### Method

[Broadcast/Foliar Ground](#)

[Band application](#)

Pre-Harvest Interval

7 days

Rates

[field rates 0](#)

[field rates 1](#)

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Restricted Entry Interval

12 hours

Timings

[Preemergence \(Weed\)](#)