



**OFFICE OF CHEMICAL SAFETY AND POLLUTION PREVENTION**

WASHINGTON, D.C. 20460

September 30, 2024

Niamh McMahon  
Product Regulatory Manager  
AMVAC Chemical Corporation  
4695 MacArthur Court, Suite 1200  
Newport Beach, CA 92660

Subject: Label Amendment – Remove statements that were proposed but never finalized by EPA and to incorporate abamectin ID language  
Product Name: Abba Ultra Miticide/Insecticide  
EPA Registration Number: 5481-621  
Application Date: 05/16/2023 and 10/7/2019  
Case Number: 606535 and 482254

Dear Ms. McMahon:

The amended label referred to above, submitted in connection with registration under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), as amended, is acceptable. This approval does not affect any conditions that were previously imposed on this registration. You continue to be subject to existing conditions on your registration and any deadlines connected with them.

The Agency, in accordance with the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA), as amended, has completed reviewing all of the information submitted with your application to support the Registration Review of the above referenced product in connection with the Abamectin Interim Decision, and has concluded that your submission is acceptable.

A copy of your label stamped “Accepted” is enclosed. This labeling supersedes all previously accepted labeling. Products shipped after 12 months from the date of this amendment or the next printing of the label, whichever occurs first, must bear the new revised label. You must submit one copy of the final printed labeling before you release the product for shipment with the new labeling.

Should you wish to add/retain a reference to the company’s website on your label, then please be aware that the website becomes labeling under the Federal Insecticide Fungicide and Rodenticide Act and is subject to review by the Agency. If the website is false or misleading, the product

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would be misbranded and unlawful to sell or distribute under FIFRA section 12(a)(1)(E). 40 CFR 156.10(a)(5) list examples of statements EPA may consider false or misleading. In addition, regardless of whether a website is referenced on your product's label, claims made on the website may not substantially differ from those claims approved through the registration process. Therefore, should the Agency find or if it is brought to our attention that a website contains false or misleading statements or claims substantially differing from the EPA approved registration, the website will be referred to the EPA's Office of Enforcement and Compliance.

Your release for shipment of the product constitutes acceptance of these conditions. If these conditions are not complied with, the registration will be subject to cancellation in accordance with FIFRA section 6.

If you have any questions, please contact Joseph Belsky at (202) 566-2495 or by email at [belsky.joseph@epa.gov](mailto:belsky.joseph@epa.gov).

Sincerely,

A handwritten signature in black ink, appearing to read 'Melissa Bridges', with a stylized flourish at the end.

Melissa Bridges, Product Manager 7  
Invertebrate and Vertebrate Branch 3  
Registration Division  
Office of Pesticide Programs

Enclosure: Stamped Label

**RESTRICTED USE PESTICIDE**

TOXIC TO FISH, MAMMALS, AND AQUATIC ORGANISMS FOR RETAIL SALE TO AND USE ONLY BY CERTIFIED APPLICATORS OR PERSONS UNDER THEIR DIRECT SUPERVISION AND ONLY FOR THOSE USES COVERED BY THE CERTIFIED APPLICATOR'S CERTIFICATION.

**ACCEPTED**

Sep 30, 2024

Under the Federal Insecticide, Fungicide  
and Rodenticide Act as amended, for the  
pesticide registered under

EPA Reg. No. 5481-621

**ABAMECTIN GROUP 6 INSECTICIDE****ABBA<sup>®</sup> ULTRA**

MITICIDE/INSECTICIDE

**ACTIVE INGREDIENT:**

Abamectin: ..... 3.74%

**OTHER INGREDIENTS:** ..... 96.26%**TOTAL:** ..... 100.00%

Contains 0.3 lb abamectin per gallon

**KEEP OUT OF REACH OF CHILDREN****WARNING / AVISO**

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.

**FIRST AID****IF SWALLOWED:**

- Call a poison control center or doctor immediately for treatment advice.
- Have person sip a glass of water.
- Do not induce vomiting unless told to do so by a poison control center or doctor.
- Do not give anything by mouth to an unconscious person.

**IF IN EYES:**

- Hold eye open and rinse slowly and gently with water for 15 – 20 minutes.
- Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.
- Call a poison control center or doctor immediately for treatment advice.

**IF ON SKIN OR  
CLOTHING:**

- Take off contaminated clothing.
- Rinse skin immediately with plenty of soap and water for 15 – 20 minutes.
- Call a poison control center or doctor for treatment advice.

**IF INHALED:**

- Move person to fresh air.
- If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth, if possible.
- Call a poison control center or doctor for treatment advice.

**Note to physician:** Early signs of intoxication include mydriasis (dilated pupils), ataxia (unsteadiness), and muscle tremors. Toxicity following accidental ingestion of the Abba<sup>®</sup> ULTRA can be minimized by promptly administering activated charcoal. If toxicity from exposure has progressed to cause severe vomiting, the extent of resultant fluid and electrolyte imbalance should be gauged. Appropriate supportive parenteral fluid replacement therapy should be given, along with other required supportive measures (such as maintenance of blood pressure levels and respiratory functionality) as indicated by clinical signs, symptoms, and measurements. In severe cases, observations should continue for at least several days until clinical condition is stable and normal. Since abamectin is believed to enhance GABA activity in animals, it is probably wise to avoid drugs that enhance GABA activity (barbiturates, benzodiazepines, valproic acid) in patients with potentially toxic abamectin exposure.

Have the product container or label with you when calling a poison control center or doctor, or going for treatment.

FOR THE FOLLOWING EMERGENCIES, PHONE 24 HOURS A DAY:

For Medical Emergencies phone:.....1-888-681-4261

For Transportation Emergencies, including spill, leak or fire, phone: CHEMTREC<sup>®</sup> .....1-800-424-9300

For Product Use Information phone: AMVAC<sup>®</sup> .....1-888-462-6822

See First Aid, Precautionary Statements, Storage And Disposal and Directions for Use inside booklet.

EPA Reg. No. 5481-621

EPA Est. No. \_\_\_\_\_

NET CONTENTS:



[Manufactured for]  
AMVAC Chemical Corporation  
4695 MacArthur Court, Suite 1200  
Newport Beach, CA 92660

*(Optional marketing claims)*

*{This product, Abba ULTRA, contains 0.3lb abamectin, twice the concentration of Abba 0.15EC and other Abamectin products formulated as 0.15EC and, therefore, will require half the use rate. Please read the label to ensure the correct amount of Abba ULTRA is applied.*

*Este producto, Abba ULTRA, contiene 0.3 lb abamectin, el doble de concentración de Abamectina que Abba 0.15EC y otros productos conteniendo Abamectina formulados como 0.15EC, por lo tanto se requiere usar la mitad de la dosis. Por favor lea con cuidado la etiqueta a fin de asegurarse que se aplique la cantidad correcta de Abba ULTRA.*

*Abba ULTRA is twice as concentrated as standard 0.15lb abamectin formulations in the market place. This innovative change with Abba ULTRA means half the storage, half the transportation and half the container disposal – saving users time and money without sacrificing performance*

*Abba ULTRA is created with advanced formulation technology while providing efficacy on labeled pests.*

*An excellent foundational tool in a miticide spray program with rotation partners*

*Activity: Abba ULTRA works upon contact and translaminar movement for extended residual control}*

**PRECAUTIONARY STATEMENTS**  
**HAZARDS TO HUMANS AND DOMESTIC ANIMALS**  
**WARNING/AVISO:**

May be fatal if swallowed. Causes moderate eye irritation. Harmful if inhaled or absorbed through skin. Avoid contact with eyes, skin or clothing.

**PERSONAL PROTECTIVE EQUIPMENT (PPE)**

Some materials that are chemical resistant to this product are listed below.

**Applicators and other handlers must wear:**

- Long-sleeved shirt and long pants
- Socks and shoes
- Chemical-resistant gloves made of barrier laminate or butyl rubber  $\geq$  14 mils
- For overhead exposure wear chemical resistant headgear

Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them. Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

**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.

### USER SAFETY RECOMMENDATIONS

#### Users should:

- Wash hands thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, or using the toilet.
- Remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- 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.

### ENVIRONMENTAL HAZARDS

This pesticide is toxic to fish and wildlife. Do not apply directly to water, to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not apply when weather conditions favor drift from target areas. Do not contaminate water when disposing of equipment wash water or rinsate. This product is highly toxic to bees exposed to direct treatment or residues on blooming crops or weeds. Do not apply this product or allow it to drift to blooming crops or weeds if bees are visiting the treatment area.

Use of this product may pose a risk to threatened and endangered species of fish, amphibians, crustaceans (including fresh water shrimp), and insects. All use of this product in the state of California must comply with the directions of the California Endangered Species Project. Before using this product in California, consult with your county agriculture commissioner to determine use limitations that apply in your area.

This product may impact surface water quality due to runoff of rain water. This is especially true for poorly draining soils and soils with shallow ground water. This product is classified as having a medium potential for reaching both surface water and aquatic sediment via runoff for several weeks to months after application. A level, well-maintained vegetative buffer strip between areas to which this product is applied and surface water features such as ponds, streams, and springs will reduce the potential loading of abamectin from runoff water and sediment.

### PHYSICAL OR CHEMICAL HAZARDS

Do not use or store near heat or open flame. This product is reactive toward and should be stored away from strong oxidants.

### DIRECTIONS FOR USE RESTRICTED USE PESTICIDE

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

**Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.**

### AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR Part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE) and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

**Do not enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 12 hours.**

**Exception: For grape girdling, cane turning, and tying in grapes, do not enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 4 days.**

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 over short-sleeved shirt and short pants
- Chemical-resistant gloves made of barrier laminate or butyl rubber  $\geq$  14 mils
- Chemical-resistant footwear plus socks

- Protective eyewear
- Chemical-resistant headgear for overhead exposure

ABAMECTIN	GROUP	6	INSECTICIDE
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## RESISTANCE MANAGEMENT

Abba ULTRA contains a Group 6 insecticide. Insect/mite biotypes with acquired resistance to Group 6 (Chloride channel activators) may eventually dominate the insect/mite population if Group 6 insecticides/acaricides are used repeatedly in the same field or in successive years as the primary method of control for targeted species. This may result in partial or total loss of control of those species by Abba ULTRA or other Group 6 Insecticides. Appropriate resistance management strategies should be followed.

To delay insecticide resistance take the following steps:

- Avoid the consecutive use of Abba ULTRA or other Group 6 insecticides/acaricides that have a similar target site of action, on the same insect/mite species. Rotate with different groups that control the same pests.
- Use tank-mixtures or premixes with insecticides/acaricides from a different target site of action Group as long as the involved products are equally effective, all registered for the same use and have different sites of action. Do not rely on the same mixture repeatedly for the same pest population. Consider the following recommendations provided by the Insecticide Resistance Action Committee (IRAC)
  - Individual insecticides 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 resistance management.
  - Consider any known cross-resistance issues between the individual components of a mixture.
  - 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 resistance management benefits of an insecticide mixture are greater if the two components have similar periods of residual insecticidal activity. Mixtures of insecticides with unequal periods of residual insecticide activity may offer an insect resistance management benefit only for the period where both insecticides are active.
- Base insecticide/acaricide use on a comprehensive IPM program including scouting, crop rotation and use of historical information and records. Consider cultural, biological and other chemical control practices.
- Monitor treated insect/mite populations for loss of field efficacy. If the level of survival suggest the presence of resistance, consult with your local university specialist or certified pest control advisor.
- Contact your local extension specialist, certified crop advisors, and/or manufacturer for insecticide/acaricide resistance management and/or IPM recommendations for the specific site and resistant pest problems.

**FAILURE TO STRICTLY FOLLOW THE DIRECTIONS FOR USE AND RESTRICTIONS ON THIS LABEL CAN RESULT IN INJURY TO CROPS, INEFFECTIVE PEST CONTROL, AND/OR ILLEGAL RESIDUES.**

## PRODUCT INFORMATION

When applied to crops in accordance with the **DIRECTIONS FOR USE**, Abba ULTRA, a microemulsion, effectively controls mites and other insects specified on this label. Thorough coverage is essential for effective insect and mite control.

Abba ULTRA offers a wide margin of safety when applied to a variety of crops. Abba ULTRA is also compatible with other commonly used pesticides, nutritional sprays, and adjuvants. Performance maybe enhanced by mixing Abba ULTRA with a non-phytotoxic non-ionic adjuvant type wetting, spreading and/or penetrating adjuvant or horticultural spray oil (not a dormant oil) unless prohibited by specific crop Directions for Use statements or Crop Use Instructions. In addition to the container label instructions for the use of a horticultural spray oil (not a dormant oil), Abba Ultra may also be used with adjuvants approved for use on crops listed due to their spreading and penetrating properties to maximize leaf uptake. If applications are made without horticultural spray oil or a spray adjuvant having spreading and penetrating properties to maximize leaf uptake, reduced efficiency and/or reduced residual control could result.

See Directions for Use for specific adjuvant recommendations.

Pretest use of this product for physical compatibility and lack of phytotoxic effect when using any proposed mixtures with Abba ULTRA.

Do not use binder or sticker type adjuvants because these type adjuvants may reduce translaminar movement of the active ingredient into the plant.

Use of an adjuvant that meets the standards of the Chemical Producers and Distributors Association (CPDA) adjuvant certification program is recommended. Do not use binder or sticker type adjuvants as they may reduce performance of Abba ULTRA. For tree crops, use of narrow range horticultural oil is recommended with Abba ULTRA to improve penetration, translaminar movement, and residual effect of the active compound.



## CHEMIGATION

### For Onion, Bulb, Onion, Green, and Tuberous and Corm (suppression of thrips)

#### Sprinkler Irrigation Application Only

Apply Abba ULTRA at rates and timing described elsewhere in this label. As local recommendations differ, consult your local State Extension Service or other local experts for recommendations on adjuvant or diluent types, rates, and mixing instructions. These recommendations should be proven, through university and extension field trials, to be effective with Abba ULTRA applied by chemigation. Check the irrigation system to ensure uniform application of water to all areas. Thorough coverage of foliage is required for good control. Good agitation in the pesticide supply tank should be maintained prior to and during the entire application period.

Apply by injecting the recommended rate of Abba ULTRA into the irrigation system using a metering device that will introduce a constant flow and by distributing the product to the target area in 0.1 acre-inch of water. In general, use the least amount of water required for proper distribution and coverage. It is recommended that the product be injected into the main irrigation line ahead of a right angle turn in the line to ensure adequate dispersion or mixing in the irrigation water. Once the application is completed, flush the entire irrigation and injection system with clean water before stopping the system.

*In addition to the above recommendations, if application is being made during a normal irrigation set of a stationary sprinkler, the recommended rate of Abba ULTRA for the area covered should be injected into the system only during the end of the irrigation set for sufficient time to provide adequate coverage and product distribution.*

Do not apply Abba ULTRA through an irrigation system connected 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.

#### Use Precautions - Sprinkler Irrigation Applications

Apply Abba ULTRA only through sprinkler irrigation systems including center pivot, lateral move, end tow, side (wheel) roll, traveler, big gun, solid set, or hand move. Do not apply this product through any other type of irrigation system. Crop injury, lack of effectiveness, or illegal pesticide residues in the crop can result from non-uniform distribution of treated water. If you have any 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.

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 back-flow.

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 are capable of being fitted with a system interlock. Any alternatives to the above required safety devices must conform to the list of EPA-approved alternative devices. Do not apply when wind speed favors drift beyond the area intended for treatment or non-uniform distribution of treated water.

Do not apply through chemigation systems connected to public water systems.



## USE RESTRICTIONS

Do not apply Abba ULTRA by aerial application equipment in New York State.

Do not apply in greenhouses in New York State.

## RUNOFF PREVENTION

To protect the environment, do not allow pesticide to enter or run off into storm drains, drainage ditches, gutters or surface waters. Applying this product in calm weather when rain is not predicted for the next 24 hours will help ensure that wind or rain does not blow or wash pesticide off the treatment area. Rinsing application equipment over the treated area will help avoid run off to water bodies or drainage systems.

## SPRAY DRIFT

### AERIAL APPLICATIONS

#### SPRAY DRIFT

- Do not release spray at a height greater than 10 ft above the ground or vegetative canopy, unless a greater application height is necessary for pilot safety.
- Applicators are required to use a medium or coarser droplet size (ASABE S562.1)
- Do not apply when wind speeds exceed 15 mph at the application site. If the wind speed is greater than 10 mph, the boom length must not exceed 65% of the wingspan for fixed wing aircraft or 75% of the rotor diameter for helicopters. Otherwise, the boom length must not exceed 75% of the wingspan for fixed wing aircraft or 90% of the rotor diameter for helicopters.
- Applicators must use ½ swath displacement upwind at the downwind edge of the field.
- Do not apply during temperature inversions.

### AIRBLAST APPLICATIONS

#### SPRAY DRIFT

- Sprays must be directed into the canopy.
- Do not apply when wind speeds exceed 15 mph at the application site.
- User must turn off outward pointing nozzles at the row end and when spraying the outer row.
- Do not apply during temperature inversions.

### GROUND BOOM APPLICATIONS

#### SPRAY DRIFT

- User must only apply with the release height recommended by the manufacturer, but no more than 4 feet above the crop canopy.
- Applicators are required to use a medium or coarser droplet size (ASABE S572.1).
- Do not apply when wind speeds exceed 15 miles per hour at the application site.
- Do not apply during temperature inversions.

### BOOM-LESS GROUND APPLICATIONS:

#### SPRAY DRIFT

- Applicators are required to use a medium or coarser droplet size (ASABE S572.1).
- Do not apply when wind speeds exceed 15 miles per hour at the application site.

## SPRAY DRIFT ADVISORIES

THE APPLICATOR IS RESPONSIBLE FOR AVOIDING OFF-SITE SPRAY DRIFT.

BE AWARE OF NEARBY NON-TARGET SITES AND ENVIRONMENTAL CONDITIONS.

**NOTE:** When states have more stringent regulations, they must be observed.

- Do not apply with ground application equipment within 25 ft of or with aircraft within 150 ft of lakes, reservoirs, rivers, permanent streams, marshes, potholes, natural ponds, estuaries, or commercial fish farm ponds.
- Do not cultivate within 25 ft of the aquatic area to allow growth of a vegetative filter strip.

Do not allow this product to drift onto non-target areas. Drift may result in illegal residues or injury to nontarget species. Risk of exposure to sensitive areas can be reduced by applying this product when the wind direction is away from the sensitive area.

- Observe the following restrictions when using ground application to spray tree crops (almond, apple, avocado, citrus, pear, plum, prune, and walnut) or hops in the vicinity of aquatic areas such as lakes, reservoirs, permanent streams, marshes, potholes, natural ponds, estuaries, or commercial fish ponds:
  - Do not apply Abba ULTRA when weather conditions favor drift to aquatic areas.
  - Do not apply within 110 ft upwind of aquatic areas or when wind speed is above 8 mph.
  - Spray last 3 rows upwind of aquatic areas using nozzles on one side only, with spray directed away from the aquatic areas.
  - Avoid spray going over tops of trees by adjusting or turning off top nozzles. Shut off nozzles on the side away from the grove/orchard when spraying the outside row. Shut off nozzles when turning at ends of row and passing tree gaps in rows.

### **Importance of Droplet Size**

An effective way to reduce drift potential is to apply large droplets. The best drift management strategy is to apply the largest droplets that provide sufficient coverage and control. Applying larger droplets reduces drift potential but will not prevent drift if applications are made improperly, or under unfavorable environmental conditions

### **Controlling Droplet Size - Ground Boom**

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

### **Controlling Droplet Size - Aircraft**

- Adjust nozzles - Follow nozzle manufacturers' recommendations for setting up nozzles. Generally, to reduce fine droplets, nozzles should be oriented parallel with the airflow in flight.

### **Boom Height**

Ground boom: For ground equipment, the boom should remain level with the crop and have minimal bounce.

### **Release Height**

Higher release heights increase the potential for spray drift.

Boom-less Ground Applications: setting nozzles at the lowest effective height will help reduce the potential for spray drift.

Handheld Technology Applications: take precautions to minimize spray drift.

**Wind** - Drift potential generally increases with wind speed. **AVOID APPLICATIONS DURING GUSTY WIND CONDITIONS.** Application must be avoided below 2 mph due to variable wind direction and high inversion potential.

**Note:** Local terrain can influence wind patterns. Every applicator should be familiar with local wind patterns and how they affect spray drift.

### **Shielded Sprayers**

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

### **Temperature and Humidity**

To compensate for evaporation when applying Abba ULTRA in hot and dry conditions, set up equipment to produce larger droplets. Evaporation of droplets is most severe when conditions are both hot and dry.

### **Temperature Inversions**

Abba ULTRA must not be applied during a temperature inversion because the potential for drift is high. Temperature inversions restrict vertical air mixing, and this causes small, suspended droplets to remain in a concentrated cloud. This cloud can move in unpredictable directions due to the light variable winds that are common during inversions. Temperature inversions are characterized by temperatures that increase with altitude and are common on nights with limited cloud cover

and light to no wind. Inversions begin to form as the sun sets and often continue into the morning. Their presence can be indicated by ground fog; however, if fog is not present, the movement of smoke from a ground source or an aircraft smoke generator can also identify inversions. 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.

## CROP USE INSTRUCTIONS

### AVOCADO

#### For controlling avocado thrips and perseia mite.

Apply Abba ULTRA using ground or aerial application equipment. Aerial application is permitted; however, aerial application is not the preferred method of application for the best control of thrips. Spray coverage and the resulting control of thrips when applied by air is less than with ground application. The user accepts all liability for the level and duration of control of thrips when Abba ULTRA is aerially applied. When applying by ground, use a minimum of 100 gallons of water per acre and when applying by air, use a minimum of 50 gallons of water per acre. Spray volume will vary with the size and number of trees per acre and foliage density. Assure thorough coverage to attain mite and insect control.

Pests	Rate of Abba ULTRA fl oz/A	Thrips infestation level**	Number of immature thrips per leaf/fruit
Avocado Thrips ( <i>Scirtothrips perseae</i> ) Persea mite ( <i>Oligonychus perseae</i> )	5.0 – 10.0 use a horticultural spray oil*	Low	1 – 2
		Moderate	3 – 4
		Severe	More than 5

\*Not a dormant oil

**Avocado Thrips:** Apply when immature thrips are first observed but before numbers exceed 5 immature thrips per leaf/fruit.

\*\*Use 5 – 7.5 fl oz of product/A for low to moderate infestations and 7.5 – 10 fl oz of product/A for severe infestations.

Add a 1.0% - 4.0% NR (narrow range) 415 oil approved for use on avocados.

Make a second application, if needed, to maintain control, but wait at least 30 days after the first application to retreat (see **Use Restrictions**).

For Ground Application: If spray volume is greater than 400 gals/A, apply Abba ULTRA at a rate of 1.25 fl oz per 100 gals of water plus 1.0% - 4.0% of a NR415 oil approved for use on avocados. Observe all restrictions on the oil label to prevent crop injury. Treat a small test area before making a large scale application when using oil concentrations above 2.0%.

#### Use Restrictions — Avocado

- Do not apply within 14 days of harvest (PHI).
- Do not apply less than 5 fl oz of Abba ULTRA/A (0.012 lb ai/A) per application.
- Do not apply more than 10 fl oz/A of Abba ULTRA (0.023 lb ai/A) per application.
- Do not retreat within 30 days of the first application.
- Do not make more than 2 applications of Abba ULTRA or any other foliarly applied product containing abamectin per year.
- Do not apply more than 20 fl oz/A of Abba ULTRA or 0.047 lb/A of abamectin via any foliar applied product per year.
- Do not allow livestock to graze in treated orchard.

### CANEBERRY (CROP SUBGROUP 13-07A)

Blackberry; loganberry; raspberry (red and black), wild raspberry; cultivars, varieties, and/or hybrids of these.

#### For controlling spider mites and Broad mite

Apply Abba ULTRA with ground application equipment or aircraft.

**Spider mites and Broad mite:** Apply when mites are first observed and repeat application, as needed, to maintain control (see **Use restrictions**).

For best efficacy, always use ABBA Ultra with a non-ionic adjuvant. Do not use binder or sticker type adjuvants.

Pests	Abba ULTRA fl oz/A
Spider mites	4.0 – 8.0*
Broad mite	8.0

\*Use 4 - 6 fl oz/A for moderate infestations and 8 fl oz of product/A for severe infestations.

#### Use Restrictions — Caneberry (Crop Subgroup 13-07A)

- Do not apply within 7 days of harvest (PHI).
- Aerial application is not approved in the State of New York.
- Application is not permitted from onset of flowering until petal fall is complete.
- Do not apply in less than 10 gallons of water per acre with ground application equipment. Do not apply in less than 5 gallons of water/A with aircraft. Under conditions of high pest population, dense foliage, or adverse weather conditions (high temperatures), use greater water volume to ensure adequate coverage.
- Do not reapply within 7 days of first application.
- Do not apply more than 8 fl oz/A (0.019 lb ai/A) of Abba ULTRA per application.
- Do not apply more than 24 fl oz/A of Abba ULTRA or 0.056 lb/A of abamectin via any foliar applied product per year.
- Do not make more than two sequential applications of Abba ULTRA or any other foliarly applied product containing abamectin.

#### CELERIAC (*Apium graveolens*)

##### For controlling two-spotted spider mites.

Apply Abba ULTRA when mites first appear and repeat as necessary to maintain control (see **Use Restrictions**).

Use conventional dilute or concentrate ground sprayers with enough water to provide thorough coverage of the foliage. Inadequate foliage coverage could result in reduced control. Best results are obtained when ABBA Ultra is used in combination with a non-ionic surfactant.

Pests	Abba ULTRA fl oz/A
Two-spotted spider mites	8.0

#### Use Restrictions — Celeriac

- Do not apply within 7 days of harvest (PHI).
- Do not apply aerially.
- Do not apply in less than 20 gallons of water per acre.
- Do not apply at intervals of less than 7 days.
- Do not apply more than 8 fl oz/A (0.019 lb ai/A) of Abba ULTRA per application.
- Do not exceed 24 fl oz/A (0.056 lb ai/A) of Abba ULTRA after transplanting. Do not apply more than 24 fl oz/A of Abba ULTRA or 0.056 lb/A of abamectin via any foliar applied product per year.
- For resistance management, do not exceed 2 applications sequentially of Abba ULTRA or any other foliarly applied product containing abamectin.

#### CITRUS FRUIT CROP GROUP (CROP GROUP 10-10)

Australian desert lime; Australian finger-lime; Australian round lime; Brown River finger lime, Calamondin; Citron; Citrus hybrids; Grapefruit; Japanese summer grapefruit; Kumquat; Lemon; Lime; Mandarin (tangerine); Mediterranean mandarin; Mount White lime; New Guinea wild lime; Russell River lime; Sour orange; Sweet orange; Pummelo; Satsuma mandarin, sweet lime; tachibana orange; Tahiti lime; tangelo; tangor; trifoliate orange; unqi fruit; cultivars, varieties, and/or hybrids of these.

#### Aerial Application – Citrus Leafminer only:

- Aerial application is permitted **only** for control of citrus leafminer.
- Do not apply with aircraft to citrus in California

#### Ground Application

- Apply Abba ULTRA using conventional dilute or concentrate ground sprayers with enough water to provide thorough coverage (or outside coverage to control Asian citrus psyllid, citrus thrips, and citrus leafminers).
- Spray volume varies with the number and size of trees per acre, and also with foliage density. For good pest control, ensure thorough coverage.

**For controlling citrus rust mites, broad mites, two-spotted spider mites, citrus bud mites, Asian citrus psyllid, citrus leafminers, and citrus thrips.**

**Mites (other than citrus bud mites):** Apply Abba ULTRA when mites initially appear in the spring, summer, and/or fall months.

**Citrus Bud Mites:** Best results can be attained when Abba ULTRA is applied at “bud swell.”

**Asian Citrus Psyllid:** Apply Abba ULTRA to protect new growth during the spring, summer, or fall months but will only control adult and nymphs present at the time of application. For aerial application, use a minimum of 10 gallons of finished spray volume per acre. Under conditions such as high pest populations, dense foliage, adverse application conditions (i.e., high temperatures) use a greater volume of water to insure adequate coverage.

**Citrus Leafminers:** Apply Abba ULTRA to protect new growth during the spring, summer, or fall months. Ground or aerial application is permitted in all citrus areas. NOTE: Aerial application is not approved in California. For aerial application, use a minimum of 10 gallons of finished spray volume per acre. Under conditions such as high pest populations, dense foliage, adverse application conditions (i.e., high temperatures) use a greater volume of water to insure adequate coverage.

**Citrus Thrips:** Each application of Abba ULTRA only controls the current generation. Therefore, applications must be timed when economic thresholds have been reached—after eggs have begun to hatch, preferably at early to mid-hatch.

Apply Abba ULTRA using conventional dilute or concentrate ground sprayers with enough water to provide thorough coverage (or outside coverage to control Asian citrus psyllid, citrus thrips, and citrus leafminers). Spray volume varies with the number and size of trees per acre, and also with foliage density. For good pest control, ensure thorough coverage.

Unless specified differently below, application of Abba ULTRA with at least 1.6 pt Horticultural Spray Oil (not a dormant oil)/100 gals finished spray (i.e., 0.2% of finished spray) for dilute sprays or at least 1.0 gallon of Horticultural Spray Oil per acre in concentrate sprays is recommended for best efficacy and performance.

Pests	Dilute Sprays <sup>1</sup>	Concentrate Sprays <sup>2</sup>
	Abba ULTRA fl oz/100 gals	Abba ULTRA fl oz/A
Citrus rust mite	0.25 – 1.0	2.5 – 10 <sup>3</sup>
Broad mite	0.5 – 1.0	5 – 10 <sup>3</sup>
Two-spotted spider mite	0.5 – 1.0	5 – 10
Citrus bud mite	0.5 – 1.0	5 – 10 <sup>4</sup>
Asian Citrus Psyllid	---	5 – 10 <sup>3</sup>
Citrus leafminer	---	2.5 – 10 <sup>3</sup>
Citrus thrips	---	5 – 10 <sup>5</sup>
	Use at least 1.6 pt Horticultural Spray Oil*/100 gals (i.e., 0.2% of finished spray) for best performance	Use at least 1 gal Horticultural Spray Oil*/A for best performance

\*Not a dormant oil

<sup>1</sup> The rate of Abba ULTRA per 100 gals is based on a volume of 1,000 gals/A dilute spray.

<sup>2</sup> For concentrate sprays, the dosage must be adjusted to apply an amount of product per acre equal to the amount required for full cover dilute sprays.

<sup>3</sup> For ground application, use 150 – 300 gals/A of spray mix with a minimum of 3 gals /A of horticultural spray oil and apply at a ground speed of 1 to 1.5 MPH.

<sup>4</sup> Use at least 500 gals of spray mix per acre with at least 0.5% Horticultural Spray Oil.

<sup>5</sup> Use 100-250 gals of spray mix/A applied to achieve outside coverage.

#### Use Restrictions — Citrus Fruit Crop Group

- Do not apply within 7 days of harvest (PHI).
- Aerial application is permitted only for control of citrus leafminer.

- All other pests: Ground application only. Do not apply by air.
- Aerial application to citrus is not approved in California.
- Always apply Abba ULTRA with Horticultural Spray Oil (not a dormant oil) as directed.
- Do not apply Abba ULTRA or any other foliarly applied product containing abamectin within 30 days of the last treatment.
- Do not apply more than 20 fl oz/A of Abba ULTRA or 0.047 lb/A of abamectin via any foliar applied product per year.
- Do not make more than 3 applications of Abba ULTRA or any other foliarly applied product containing abamectin per year.
- Do not allow livestock to graze in treated orchards.
- For resistance management, do not apply Abba ULTRA in citrus nurseries.
- Do not apply Abba ULTRA by aerial application equipment on citrus in the states of California and New York.

## COTTON

### For control of two-spotted spider mites, carmine spider mites, Pacific spider mites, and strawberry spider mites.

Apply when mites first appear. Aerial or ground applications are permitted. Thorough coverage of the crop is essential; for best coverage and control, apply Abba ULTRA with ground application equipment. Mix with sufficient volume of water to ensure thorough coverage but do not apply in less than 5 gallons of water per acre. The use rate depends on the size of the plant and the density of the foliage. Repeat applications as necessary (see **Use Restrictions**).

ABBA Ultra can be used without a wetting agent. Improved mite control can be achieved by the addition of a spreading or penetrating surfactant. Use a nonionic surfactant to improve the wetting of foliage and to smooth out spray deposits. Do not use binder or sticker-type surfactants.

Pests	Timing	Abba ULTRA fl oz/A
Two spotted spider mite Carmine spider mite Pacific sider mite Strawberry spider mite	Early season (crop less than 10 inches)  Crop taller than 10 inches when mites first appear	2.0- 3.0  4.0 – 8.0

For early-season applications, do not use less than 2 fl oz of Abba ULTRA /A. **West of the Rockies:** the lower use rates can only be used on cotton that is no more than 10 inches tall and on applications that are made with ground equipment only.

### Use Restrictions — Cotton

- Do not apply within 20 days of harvest (PHI).
- Do not apply more than 2 applications of Abba ULTRA or any other foliarly applied product containing abamectin per year.
- Do not apply more than 8 fl oz/A (0.019 lb ai/A) of Abba ULTRA per application.
- Do not apply more than 16 fl oz/A of Abba ULTRA or 0.038 lb/A of abamectin via any foliar applied product per year.
- Do not apply at intervals of less than 21 days.
- Do not feed or allow livestock to graze treated cotton.

### CUCURBIT VEGETABLES CROP GROUP (CROP GROUP 9)

Chayote (fruit); Chinese waxgourd; Citron Melon; Cucumber; Gherkin; Edible Gourds (*Lagenaria* spp including hyotan, cucuzza; Luffa acutangula, *L. cylindrica* spp including hechima, Chinese okra); *Momordica* spp (includes balsam apple, balsam pear, bittermelon, Chinese cucumber); Muskmelon (hybrids and cultivars of Cucumis melo includes true cantaloupe, cantaloupe, casaba, Crenshaw melon, golden pershaw melon, honeydew melon, honey balls, mango melon, Persian melon, pineapple melon, Santa Claus melon, and snake melon); Pumpkin; Summer Squash (includes crookneck squash, scallop squash, straightneck squash, vegetable marrow, zucchini); Winter Squash (includes butternut squash, calabaza, hubbard squash, acorn squash, spaghetti squash); and Watermelon (includes hybrids and/or varieties of *Citrullus lanatus*).

### For controlling leafminers and spider mites.

Apply Abba ULTRA when adult leafminer flies or spider mites are initially seen. Repeat applications when needed to maintain control (see **Use Restrictions**). When low to moderate infestations are present, use 4 fl oz/A; for severe infestations, use 8 fl oz/A.

Apply as a foliar spray in at least 20 gallons of water per acre by ground or in at least 5 gallons per acre by air. For best control, apply Abba ULTRA with ground application equipment. With aerial application, the resulting control of leafminers and spider mites could be less then with ground application. Under conditions such as high pest populations, dense or rank foliage, high temperatures or other such adverse application situations, use a greater water volume to ensure adequate coverage. For best results, ensure that good upper and lower leaf coverage is attained.

ABBA Ultra can be used without a wetting agent. Improved insect and mite control can be achieved by the addition of a spreading or penetrating surfactant. Use a nonionic surfactant to improve the wetting of foliage and to smooth out spray deposits. Do not use binder or sticker-type surfactants.



Pests	Abba ULTRA fl oz/A
Spider mites Leafminers	4.0 – 8.0

#### Use Restrictions — Cucurbit Vegetables Crop Group

- Do not apply within 7 days of harvest (PHI).
- Do not apply in less than 20 gallons of water per acre by ground or in less than 5 gallons per acre by aircraft.
- Do not apply at intervals of less than 7 days.
- Do not apply more than 8 fl oz/A (0.019 lb ai/A) of Abba ULTRA per application.
- Do not apply more than 24 fl oz/A of Abba ULTRA or 0.056 lb/A of abamectin via any foliar applied product per year.
- For resistance management, do not exceed 2 sequential applications of Abba ULTRA or any other foliarly applied product containing abamectin.
- Do not apply Abba ULTRA by aerial application equipment in New York State.

#### DRY BEANS

*Cicer arietinum* - Chickpea, Garbanzo bean

*Lupinus* spp. - Sweet lupine, White sweet lupine, White lupine and Grain lupine

*Phaseolus* spp. - Kidney bean, Lima bean, Navy bean, Pinto bean, Snap bean and Waxbean

*Vicia faba* - Broad bean and Fava bean

*Vigna* spp. – Adzuki bean, Asparagus bean, Blackeyed pea, Catjang, Chinese longbean, Cowpea\*, Crowder pea, Moth bean, Mung bean, Rice bean, Southern pea, Urd bean and Yardlong bean

\* For use on cowpeas grown for dry seed only. Do not allow livestock to graze cowpea forage and do not harvest cowpea forage or hay for use as livestock feed.

#### For controlling *Liriomyza* leafminers and spider mites.

Apply Abba ULTRA when adult leafminer flies or spider mites are initially seen. Repeat applications when needed to maintain control (see **Use Restrictions**). When low to moderate infestations are present, use 4.0 fl oz/A; for severe infestations, use 8.0 fl oz/A.

Apply as a foliar spray in at least 20 gallons of water per acre by ground or in at least 5 gallons per acre by air. For best control, apply Abba ULTRA with ground application equipment. With aerial application, the resulting control of leafminers and spider mites could be less than with ground application. Under conditions such as high pest populations, dense or rank foliage, high temperatures or other such adverse application situations, use a greater water volume to ensure adequate coverage. For best results, ensure that good upper and lower leaf coverage is attained.

ABBA Ultra can be used without a wetting agent. Improved insect and mite control can be achieved by the addition of a spreading or penetrating surfactant. Use a nonionic surfactant to improve the wetting of foliage and to smooth out spray deposits. Do not use binder or sticker-type surfactants.

Pests	Abba ULTRA fl oz/A
Spider mites <i>Liriomyza</i> leafminers	4.0 – 8.0

#### Use Restrictions — Dry Beans

- Do not apply within 7 days of harvest (PHI).
- Do not apply in less than 20 gallons of water per acre by ground or in less than 5 gallons per acre by aircraft.
- Do not apply at intervals of less than 7 days.
- Do not apply more than 8.0 fl oz/A (0.019 lb ai/A) of Abba ULTRA per application.
- Do not apply more than 24 fl oz/A of Abba ULTRA or 0.056 lb/A of abamectin via any foliar applied product per year.
- For resistance management, do not exceed 2 sequential applications of Abba ULTRA or any other foliarly applied product containing abamectin.
- Do not apply Abba ULTRA by aerial application equipment in New York State.

**FRUITING VEGETABLES CROP GROUP (EXCEPT CUCURBITS) (CROP GROUP 8-10)**

African eggplant; bush tomato; bell pepper; cocona; currant tomato; eggplant; garden huckleberry; goji berry; groundcherry; martynia; naranjilla; okra; pea eggplant; pepino; nonbell pepper; roselle; scarlet eggplant; sunberry; tomatillo; tomato; tree tomato; cultivars, varieties, and/or hybrids of these

**For controlling Tomato pinworm, Broad mite, *Liriomyza* leafminers, Colorado potato beetle, Spider mites, *Thrips palmi*, Tomato russet mite, and Tomato psyllid.**

**Broad, russet, and spider mites:** Apply when mites first appear.

***Thrips palmi*:** Apply when thrips are first observed.

**Tomato pinworm:** Application can be made from the time moth activity is detected up to, but no later than the time when newly emerged larvae are present.

**Mites, leafminers, *Thrips palmi*, and Colorado potato beetle:** Use 4 fl oz/A for low to moderate infestations and 8 fl oz/A for severe infestations.

Apply as a foliar spray in at least 20 gallons of water per acre by ground or in at least 5 gallons per acre by air. For best control, apply Abba ULTRA with ground application equipment. With aerial application, the resulting control of leafminers and spider mites could be less than with ground application. Under conditions such as high pest populations, dense or rank foliage, high temperatures or other such adverse application situations, use a greater water volume to ensure adequate coverage. For best results, ensure thorough coverage of the crop canopy. For this reason, the user accepts all liability for the level and duration of control of mites when Abba ULTRA is aerially applied.

Repeat application as necessary to maintain control (see **Use Restrictions**).

ABBA Ultra can be used without a wetting agent. Improved insect and mite control can be achieved by the addition of a spreading or penetrating surfactant. Use a nonionic surfactant to improve the wetting of foliage and to smooth out spray deposits. Do not use binder or sticker-type surfactants.

Pests	Abba ULTRA fl oz/A
Broad mite Colorado potato beetle <i>Liriomyza</i> leafminers Spider mites <i>Thrips palmi</i> Tomato psyllid Tomato Russet mite	4.0 – 8.0
Tomato pinworm	8.0

**Use Restrictions — Fruiting Vegetables Crop Group (Except Cucurbits)**

- Do not apply within 7 days of harvest (PHI).
- For resistance management, do not use on fruiting vegetables grown for transplanting.
- Wait at least 7 days before repeating application.
- Do not apply more than 8 fl oz/A (0.019 lb ai/A) of Abba ULTRA per application.
- Do not make more than 2 sequential applications of Abba ULTRA or any other foliarly applied product containing abamectin.
- Do not apply more than 24 fl oz/A of Abba ULTRA or 0.056 lb/A of abamectin via any foliar applied product per year.
- Do not apply Abba ULTRA by aerial application equipment in New York State.

**Commercially Grown Greenhouse Tomatoes Only**

**For controlling Tomato pinworm, *Liriomyza* leafminers, Spider mites, *Thrips palmi*, Tomato russet mite, and Tomato psyllid**

Pests	Abba ULTRA fl oz/A
<i>Liriomyza</i> leafminers Spider mites <i>Thrips palmi</i> Tomato psyllid Tomato Russet mite	4.0 – 8.0
Tomato pinworm	8.0

**Use Restrictions — Commercially Grown Greenhouse Tomatoes Only**

- Do not apply within 1 day of harvest (PHI).
- For resistance management, do not make more than 2 sequential applications of Abba ULTRA or any other foliar-applied abamectin containing product.
- Wait at least 7 days before repeating application.
- Do not apply more than 8 fl oz/A (0.019 lb ai/A) of Abba ULTRA per application.
- Do not apply more than 24 fl oz/A of Abba ULTRA or 0.056 lb/A of abamectin via any foliar applied product per year.
- Not for use in nurseries, plant propagation houses, or greenhouses by commercial transplant producers of plants being grown for transplanting.
- Not for greenhouse use in New York State

**GRAPES AND SMALL FRUIT VINE CLIMBING SUBGROUP (EXCEPT FUZZY KIWIFRUIT) (CROP SUBGROUP 13-07F)**

Amur river grape; gooseberry; grape; hardy kiwifruit, Maypop; schisandra berry; cultivars varieties, and/or hybrids of these.

**For controlling two-spotted spider mites, Pacific spider mites, Willamette spider mites, Western grapeleaf skeletonizers, European Red mite\*\* and for contact knock-down of Variegated leafhopper and Western grape leafhoppers.**

**Spider mites:** Apply with a non-ionic surfactant when mites initially appear, but before the number of motiles exceeds 5 per leaf. For low to moderate infestations, use 4 fl oz/A; for severe infestations, use 8 fl oz/A.

**Western grapeleaf skeletonizer:** Apply Abba ULTRA with a non-ionic surfactant when the larvae are initially seen. For best results, apply Abba ULTRA shortly after eggs hatch. For low to moderate infestations, use 4 fl oz/A; for severe infestations, use 8 fl oz/A.

**Western grape leafhoppers and variegated leafhoppers:** For contact knock-down control of these pests, apply Abba ULTRA with a non-ionic surfactant when pest first appears. For low to moderate infestations, use 4 fl oz/A; for severe infestations, use 8 fl oz/A.

Use conventional ground sprayers only with enough water to provide thorough coverage. For good pest control, thorough coverage is essential. To improve the wetting of foliage and to spread out spray deposits always use Abba Ultra in combination with a non-ionic surfactant. To maximize coverage, Abba ULTRA must be applied to both sides of each row. Do not use alternate row treatments.

Pests	Abba ULTRA fl oz/A
Two-spotted spider mite Pacific spider mite Willamette spider mite Western grapeleaf skeletonizer Western grape leafhopper* Variegated leafhopper* European Red mite**	4.0 – 8.0

\* Abba ULTRA only provides contact knock-down control of this pest.

\*\*Not for use in California

#### Use Restrictions — Grapes

- Do not apply within 28 days of harvest (PHI).
- Do not apply aerially.
- Do not apply in less than 50 gallons of water per acre except when using an electrostatic sprayer; do not use less than 5 gallons of water per acre with this type of spray equipment.
- Do not reapply within 21 days of first application.
- Do not apply more than 8 fl oz/A (0.019 lb ai/A) of Abba ULTRA per application.
- Do not apply more than 16 fl oz/A of Abba ULTRA or 0.038 lb/A of abamectin via any foliar applied product per year.
- Do not exceed two applications of Abba ULTRA or any other foliarly applied product containing abamectin per year.
- Do not allow livestock to graze in treated vineyards.

#### GUAVA (Not for use in California)

Crops in this group are: guava, feijoa, jaboticaba, wax jambu, starfruit, passionfruit, acerola

#### For controlling Two-spotted spider mite:

Thorough spray coverage is essential for good mite and insect control. Spray gallonage may vary depending on size and number of trees per acre as well as density of foliage.

Ground Application: Apply using conventional ground application sprayers calibrated to deliver sufficient water for thorough coverage.

For best results, use 150-300 gal/A of spray mix with 1 - 3 gal/A of horticultural spray oil (not dormant oil) and apply at a ground speed of 1 – 1.5 MPH. Do not use binder or sticker type adjuvants.

Apply Abba ULTRA when mites first appear during spring, summer, and/or fall.

Pests	Abba ULTRA fl oz/A
Two-spotted spider mite	5.0 – 10.0*

\*Use 5 - 8 fl oz/A for moderate infestations and 10 fl oz of product/A for severe infestations.

#### Use Restrictions — Guava

- Do not apply within 7 days of harvest (PHI).
- Do not apply aerially.
- Do not apply in less than 50 gallons of water per acre except when using an electrostatic sprayer; do not use less than 5 gallons of water per acre with this type of spray equipment.
- Do not reapply within 14 days of first application.
- Do not apply more than 10 fl oz/A (0.023 lb ai/A) of Abba ULTRA per application.
- Do not apply more than 30 fl oz/A of Abba ULTRA or 0.070 lb/A of abamectin via any foliar applied product per year.
- Do not exceed three applications of Abba ULTRA or any other foliarly applied product containing abamectin per year.
- Do not allow livestock to graze in treated orchards.

#### HERB CROP SUBGROUP (CROP SUBGROUP 19A)

Some of the crops in this group are Angelica; Balm; Basil; Borage; Burnet; Chamomile; Catnip; Chervil (dried); Chives; Chives (Chinese); Clary; Coriander (leaf); Cilantro (leaf); Costmary; Culantro (leaf); Curry (leaf); Dill weed; Horehound; Hyssop; Lavender; Lemongrass; Lovage (leaf); Marigold; Marjoram (*Origanum* spp.); Nasturtium; Parsley (dried); Pennyroyal; Rosemary; Rue; Sage; Savory (summer and winter); Sweet bay; Tansy; Tarragon; Thyme; Wintergreen; Woodruff; and Wormwood.

**For controlling *Liriomyza* leafminers and Spider mites.**

Apply using conventional ground sprayers only in a minimum of 20 gallons of water per acre. Apply as a foliar spray providing thorough coverage of the upper and lower leaf surfaces. Use the lower rate for low to moderate infestations and the higher rate for severe infestations. Apply when adult flies are first observed and repeat application as necessary to maintain control (see **Use Restrictions**).

ABBA Ultra may be used without a wetting agent. When necessary to improve the wetting of foliage and to smooth out spray deposits, a nonionic surfactant is recommended for all crops in the Herb Crop Subgroup except chives. Do not use a surfactant when applying ABBA Ultra to chives.

Pest	Abba ULTRA fl oz/A
<i>Liriomyza</i> leafminers Spider mites	4.0 – 8.0

**Use Restrictions — Herb (Crop Subgroup 19A)**

- Do not apply within 14 days of harvest (PHI). For chives, do not apply within 7 days of harvest.
- Do not apply aerially.
- Do not reapply Abba ULTRA or any other foliarly applied product containing abamectin per application at less than 7 day intervals.
- Do not apply more than 8.0 fl oz/A (or 0.019 lb ai/A) of Abba ULTRA per application.
- Do not make more than 2 applications of Abba ULTRA or any other foliarly applied product containing abamectin per single cutting (harvest).
- Do not apply more than 24 fl oz/A of Abba ULTRA or 0.056 lb/A of abamectin via any foliar applied product per year.

**HOPS (Not registered for use in California)****For controlling two-spotted spider mites.**

Apply Abba ULTRA when populations of two-spotted spider mites reach treatment thresholds. When hop vines are 6 - 8 feet tall, use 4 – 8 fl oz Abba ULTRA per acre in at least 40 gallons of water using conventional ground equipment only. When hop vines exceed 8 feet in height, use 8 fl oz Abba ULTRA per acre in at least 100 gallons of water.

Mix with water as specified then apply with ground equipment as a foliar spray to obtain good upper and lower leaf coverage. Spray volume can vary with plant size and density of foliage. To control two-spotted mites, thorough coverage of foliage is essential. When using concentrate sprays, the volume of water is reduced, but the amount per acre of Abba ULTRA remains the same as that of dilute sprays. ABBA Ultra can be used without a wetting agent; however, use a nonionic surfactant to improve wetting of foliage and to spread out spray deposits.

Pests	Abba ULTRA fl oz/A
Two-spotted spider mite	4.0 – 8.0

**Use Restrictions — Hops**

- Do not apply within 28 days of harvest (PHI).
- Do not apply aerially.
- Do not exceed 2 applications of Abba ULTRA or any other foliarly applied product containing abamectin per year.
- Do not apply more than 8 fl oz/A (0.019 lb ai/A) of Abba ULTRA per application.
- Do not apply more than 16 fl oz/A of Abba ULTRA or 0.038 lb/A of abamectin via any foliar applied product per year.
- Do not allow livestock to graze in treated hop yards.
- Do not retreat with an abamectin product within 21 days of the initial application and then only after treatment with an alternative miticide with a different mode of action.

#### LEAFY VEGETABLE CROP GROUP (EXCEPT BRASSICA VEGETABLES) (CROP GROUP 4)

Some of the crops in this group are Amaranth (leafy Amaranth, Chinese spinach, tampala) (*Amaranthus* spp.); Arugula (Roquette) (*Eruca sativa*); Cardoon (*Cynara cardunculus*); Celery (*Apium graveolens* var. *dulce*); Celery, Chinese (*Apium graveolens* var. *secalinum*); Celtuce (*Lactuca sativa* var. *angustana*); Chervil (*Anthriscus cerefolium*); Chrysanthemum, edible-leaved (*Chrysanthemum coronarium* var. *coronarium*); Chrysanthemum, garland (*Chrysanthemum coronarium* var. *spatiosum*); Corn salad (*Valerianella locusta*); Cress, garden (*Lepidium sativum*); Cress, upland (yellow rocket, winter cress) (*Barbarea vulgaris*); Dandelion (*Taraxacum officinale*); Dock (sorrel) (*Rumex* spp.); Endive (escarole) (*Cichorium endivia*); Fennel, Florence (finocchio) (*Foeniculum vulgare* Azoricum Group); Lettuce, head and leaf (*Lactuca sativa*); Orach (*Atriplex hortensis*); Parsley (*Petroselinum crispum*); Purslane, garden (*Portulaca oleracea*); Purslane, winter (*Montia perfoliata*); Radicchio (red chicory) (*Cichorium intybus*); Rhubarb (*Rheum rhabarbarum*); Spinach (*Spinacia oleracea*); Spinach, New Zealand (*Tetragonia tetragonioides*. *T. expansa*); Spinach, vine (Malabar spinach, Indian spinach) (*Basella alba*); and Swiss chard (*Beta vulgaris* var. *cicla*).

**For controlling carmine spider mite, *Liriomyza* leafminers, and two-spotted spider mite.**

**Leafminers:** Apply when adult flies are first observed and repeat applications as needed to maintain control (see **Use Restrictions**).

**Spider mites:** Apply when mites first appear, and repeat as needed to maintain control (see **Use Restrictions**).

Apply as a foliar spray in at least 20 gallons of water per acre by ground or in at least 5 gallons per acre by air. For best control, apply Abba ULTRA with ground application equipment. With aerial application, the resulting control of leafminers and spider mites could be less than with ground application. Under conditions such as high pest populations, dense foliage, high temperatures, or other such adverse application situations, use a greater water volume to ensure adequate coverage. Thorough coverage of the crop canopy is essential. For this reason, the user accepts all liability for the level and duration of control of mites when Abba ULTRA is aerially applied. Use the lower rates for low to moderate infestations and the higher rate for severe infestations.

ABBA Ultra can be used without a surfactant. Improved insect and mite control can be achieved by the addition of a spreading or penetrating surfactant. Use a nonionic surfactant to improve the wetting of foliage and to smooth out spray deposits. Do not use binder or sticker-type surfactants.

Pests	Abba ULTRA fl oz/A
Carmine spider mite <i>Liriomyza</i> leafminers Two-spotted spider mite	4.0 – 8.0

#### Use Restrictions — Leafy Vegetable Crop Group (Except Brassica Vegetables)

- Do not apply within 7 days of harvest (PHI).
- For resistance management, do not use on leafy vegetables grown for transplanting.
- Do not apply more than 8 fl oz/A (0.019 lb ai/A) of Abba ULTRA per application.
- Do not make more than 2 sequential applications of Abba ULTRA or any other foliarly applied product containing abamectin.
- Do not reapply within 7 days of first application.
- Do not apply more than 24 fl oz/A of Abba ULTRA or 0.056 lb/A of abamectin via any foliar applied product per year.
- Do not apply Abba ULTRA by aerial application equipment in New York State.

#### LYCHEE (Not for use in California)

**CROPS IN THIS GROUP ARE: LYCHEE, LONGAN, SPANISH LIME, RAMBUTAN, PULASAN**

**For controlling Two-spotted spider mite, *Liriomyza* leafminers, and thrips**

**Mites:** Apply when mites first appear during spring, summer, and/or fall.

**Leafminers:** Apply to protect new growth during spring, summer or fall

**Thrips:** Applications targeted for thrips will only control the current generation and must be correctly timed. Apply when economic thresholds have been reached (after egg hatch has begun – preferably early to mid-hatch).

Thorough spray coverage is essential for good mite and insect control. Spray gallonage may vary depending on size and number of trees per acre as well as density of foliage.

Ground Application: Apply using conventional ground application sprayers calibrated to deliver sufficient water for thorough coverage.

For best results, use 150-300 gal/A of spray mix with 1 - 3 gal/A of horticultural spray oil (not dormant oil) and apply at a ground speed of 1 – 1.5 MPH. Do not use binder or sticker type adjuvants.

Pests	Abba ULTRA fl oz/A
Two-spotted spider mite <i>Liriomyza</i> leafminers Thrips	5.0 – 10.0*

\*Use 5 - 8 fl oz/A for moderate infestations and 10 fl oz of product/A for severe infestations.

#### Use Restrictions — Lychee

- Do not apply within 14 days of harvest (PHI).
- Do not apply aerially.
- Do not apply in less than 50 gallons of water per acre except when using an electrostatic sprayer; do not use less than 5 gallons of water per acre with this type of spray equipment.
- Do not reapply within 30 days of first application.
- Do not apply more than 10 fl oz/A (0.023 lb ai/A) of Abba ULTRA per application.
- Do not apply more than 20 fl oz/A Abba ULTRA or 0.047 lb/A of abamectin via any foliar applied product per year.
- Do not exceed two applications of Abba ULTRA or any other foliarly applied product containing abamectin per year.
- Do not allow livestock to graze in treated orchards.

#### MINT (PEPPERMINT AND SPEARMINT)

##### For controlling two-spotted spider mite

Apply as a foliar spray in at least 20 gallons of water per acre by ground or in at least 5 gallons per acre by air. Under conditions such as high pest populations, dense foliage, high temperatures, or other such adverse application situations, use a greater water volume to ensure adequate coverage. Thorough coverage of the crop canopy is essential. With aerial application, spray coverage and the resulting control of mites is less than when using ground application equipment. For this reason, the user accepts all liability for the level and duration of control of mites when Abba ULTRA is aerially applied. Use the lower rates for low to moderate infestations and the higher rate for severe infestations.

For optimum control, a nonionic surfactant can be used at rates specified on the surfactant label. To avoid crop injury, carefully follow the Directions for Use and Restrictions sections of the surfactant labels and/or official spray guides when using in the spray mixture.

Pest	Abba ULTRA fl oz/A
Two-spotted spider mite	4.0 – 6.0

#### Use Restrictions — Mint (Peppermint and Spearmint)

- Do not apply within 28 days of harvest (PHI).
- Do not apply more than 6 fl oz/A (0.014 lb ai/A) of Abba ULTRA per application.
- Do not apply more than 18 fl oz/A of Abba ULTRA or 0.042 lb/A of abamectin via any foliar applied product per year.
- Do not reapply within 7 days of first application.
- Do not make more than 2 sequential applications of Abba ULTRA or any other foliarly applied product containing abamectin.
- Do not apply more than 3 applications of Abba ULTRA or any other foliarly applied product containing abamectin per year.
- Do not allow livestock to graze or feed treated foliage to livestock.



- Do not apply Abba ULTRA by aerial application equipment in New York State.

#### **ONION, BULB (CROP SUBGROUP 3-07A)**

Onion, bulb including daylilly bulb; Fritillaria bulb; Garlic bulb; Garlic, great-headed bulb; Garlic, serpeant bulb; Lily bulb; Onion, Chinese bulb; Onion, pearl; Onion, potato bulb; Shallot, bulb; Cultivars, varieties and/or hybrids of these.

##### **For controlling *Liriomyza* leafminers and thrips.**

For leafminers, apply Abba ULTRA when adult leafminer flies are initially seen and repeat applications as needed for control (see **Use Restrictions**). For thrips, apply Abba ULTRA when thrips are at economic threshold and repeat applications when needed to maintain control (see **Use Restrictions**). When low to moderate infestations are present, use 4.0 fl oz/A; for severe infestations, use 8.0 fl oz/A.

Apply as a foliar spray in at least 20 gallons of water per acre by ground or in at least 5 gallons per acre by air. For best control, apply Abba ULTRA with ground application equipment. Abba ULTRA may be applied through overhead sprinkler chemigation for suppression of thrips. With aerial and chemigation applications, the resulting control of leafminers and thrips could be less than with ground application. Under conditions such as high pest populations, dense or rank foliage, high temperatures or other such adverse application situations, use a greater water volume to ensure adequate coverage. For best results, ensure that good upper and lower leaf coverage is attained.

ABBA Ultra can be used without a wetting agent. Improved insect and mite control can be achieved by the addition of a spreading or penetrating surfactant. Use a nonionic surfactant to improve the wetting of foliage and to smooth out spray deposits. Do not use binder or sticker-type surfactants.

<b>Pests</b>	<b>Abba ULTRA fl oz/A</b>
Thrips <i>Liriomyza</i> leafminers	4.0 – 8.0

##### **Use Restrictions — Onion, Bulb (Crop Subgroup 3-07A)**

- Do not apply within 30 days of harvest (PHI).
- Do not apply in less than 20 gallons of water per acre by ground or in less than 5 gallons per acre by aircraft.
- Do not apply at intervals of less than 7 days.
- Do not apply more than 8.0 fl oz/A (or 0.019 lb ai/A) of Abba ULTRA per application.
- Do not apply more than 24.0 fl oz/A of Abba ULTRA or 0.056 lb/A of abamectin via any foliar applied product per year.
- Make 2 consecutive applications of Abba ULTRA, then rotate to a chemistry with a different mode of action. Make at least 2 applications of a chemistry with a different mode of action before making additional Abba ULTRA applications. For resistance management, do not exceed 2 sequential applications of Abba ULTRA or any other foliarly applied product containing abamectin.
- Do not apply Abba ULTRA by aerial application equipment in New York State.

#### **ONION, GREEN (CROP SUBGROUP 3-07B)**

Chive, fresh leaves; chive, Chinese, fresh leaves; elegans hosta; fritillaria, leaves; kurrat; lady's leek; leek; leek, wild; Onion, Beltsville bunching; onion, fresh; onion, green; onion, macrostem; onion, tree, tops; onion, Welsh, tops; shallot, fresh leaves; cultivars, varieties, and/or hybrids of these.

##### **For controlling *Liriomyza* leafminers and thrips**

Apply Abba ULTRA with ground application equipment or aircraft. Abba ULTRA may be applied through overhead sprinkler chemigation for suppression of thrips.

For best control, apply Abba ULTRA with ground application equipment. Control of leafminers and thrips could be lower with aerial and chemigation applications than with ground application.

For best performance, always use Abba ULTRA with a non-ionic adjuvant. Do not use binder or sticker type adjuvants or products such as Bravo Weather Stik®.

**Leafminers:** Apply when adult leafminer flies are first observed and repeat application, as needed, to maintain control (see **Use Restrictions**).

**Thrips:** Use in a thrips management program when thrips are at economic threshold. Repeat application to maintain control (see **Use Restrictions**). Do not use AbbA ULTRA as a rescue treatment for thrips control.

Pests	AbbA ULTRA fl oz/A
<i>Liriomyza</i> leafminers Thrips	4.0 – 8.0*

\*Use 4 - 6 fl oz/A for moderate infestations and 8 fl oz of product/A for severe infestations.

#### Use Restrictions — Onion, Green (Crop Subgroup 3-07B)

- Do not apply within 7 days of harvest (PHI).
- Aerial application is not approved in the States of New York or California.
- Do not apply in less than 20 gallons of water per acre with ground application equipment. Do not apply in less than 5 gallons of water/A with aircraft. Under conditions of high pest population, dense foliage, or adverse weather conditions (high temperatures), use greater water volume to ensure adequate coverage.
- Do not reapply within 7 days of first application.
- Do not apply more than 8 fl oz/A (0.019 lb ai/A) of AbbA ULTRA per application.
- Do not apply more than 32 fl oz/A of AbbA ULTRA or 0.075 lb/A of abamectin via any foliar applied product per year.
- Do not make more than two sequential applications of AbbA ULTRA or any other foliarly applied product containing abamectin. Rotate to a different mode of action and make at least 2 applications before making additional AbbA ULTRA applications.

#### PAPAYA (Not for use in California)

**Crops in this group are: papaya, star apple, black sapote, sapodilla, canistel, mamey sapote**

#### For controlling Two-spotted spider mite

Thorough spray coverage is essential for good mite and insect control. Spray gallonage may vary depending on size and number of trees per acre as well as density of foliage.

Ground Application: Apply using conventional ground application sprayers calibrated to deliver sufficient water for thorough coverage.

For best results, use 150-300 gal/A of spray mix with 1 - 3 gal/A of horticultural spray oil (not dormant oil) and apply at a ground speed of 1 – 1.5 MPH. Do not use binder or sticker type adjuvants.

**Mites:** Apply when mites first appear during spring, summer, and/or fall.

Pests	AbbA ULTRA fl oz/A
Two-spotted spider mite	5.0 – 10.0*

\*Use 5 - 8 fl oz/A for moderate infestations and 10 fl oz of product/A for severe infestations.

#### Use Restrictions — Papaya

- Do not apply within 16 weeks of harvest (PHI).
- Do not apply aerially.
- Do not apply to mango
- Do not apply in less than 50 gallons of water per acre except when using an electrostatic sprayer; do not use less than 5 gallons of water per acre with this type of spray equipment.
- Do not reapply within 14 days of first application.

- Do not apply more than 10 fl oz/A (0.023 lb ai/A) of Abba ULTRA per application.
- Do not apply more than 30 fl oz/A of Abba ULTRA or 0.070 lb/A of abamectin via any foliar applied product per year.
- Do not exceed three applications of Abba ULTRA or any other foliarly applied product containing abamectin per year.
- Do not allow livestock to graze in treated orchards.

#### **PINEAPPLE (Not for use in California)**

##### **For controlling Two-spotted spider mite**

Thorough spray coverage is essential for good mite and insect control. Spray gallonage may vary depending on size and number of plants per acre as well as density of foliage.

Ground Application: Apply using conventional ground application sprayers calibrated to deliver sufficient water for thorough coverage.

For best results, Abba ULTRA can be mixed with a non-ionic activator type wetting, spreading and/or penetrating agent. This additionally improves pest control, wetting of foliage and smoothes out spray deposits. Do not use binder or sticker type adjuvants.

**Mites:** Apply when mites first appear during spring, summer, and/or fall.

<b>Pests</b>	<b>Abba ULTRA fl oz/A</b>
Two-spotted spider mite	5.0 – 10.0*

\*Use 5 - 8 fl oz/A for moderate infestations and 10 fl oz of product/A for severe infestations.

##### **Use Restrictions — Pineapple**

- Do not apply within 16 weeks of harvest (PHI).
- Do not apply aerially.
- Do not apply in less than 50 gallons of water per acre except when using an electrostatic sprayer; do not use less than 5 gallons of water per acre with this type of spray equipment.
- Do not reapply within 7 days of first application.
- Do not apply more than 10 fl oz/A (0.023 lb ai/A) of Abba ULTRA per application.
- Do not apply more than 20 fl oz/A of Abba ULTRA or 0.047 lb/A of abamectin via any foliar applied product per year.
- Do not exceed two applications of Abba ULTRA or any other foliarly applied product containing abamectin per year.

#### **POME FRUIT (CROP GROUP 11-10)**

Crops in this group are: apple, crabapple, loquat, mayhaw, medlar, pear, asian pear, quince (Chinese and Japanese), tejocote

##### **For controlling European red mite, McDaniel spider mite, pear psylla, pear rust mite, two-spotted spider mite, yellow mite, tentiform leafminer, and white apple leafhopper**

Thorough spray coverage is essential for good mite and insect control. Spray gallonage may vary depending on size and number of trees per acre as well as density of foliage.

Apply Abba ULTRA when pest thresholds are reached. If necessary, make a second application after a minimum of 21 days to attain adequate control.

Ground Application: Apply using conventional ground application sprayers calibrated to deliver sufficient water for thorough coverage.

For best results, use 150-300 gal/A of spray mix with 1 - 3 gal/A of horticultural spray oil (not dormant oil) and apply at a ground speed of 1 – 1.5 MPH. Do not use spray volumes less than 40 gal/A. Do not use binder or sticker type adjuvants.

For best performance, apply Abba ULTRA using at least 1 qt Horticultural Spray Oil/100 gals (i.e., 0.25% of finished spray) in dilute sprays or with at least 1.0 gal of Horticultural Spray Oil per acre in concentrate sprays.

For best results, apply as directed in combination with an Horticultural Spray Oil that has been approved for use on apples and or pears is recommended. If an ajuvant agent other than an Horticultural Spray Oil is used, reduced efficacy and/or reduced residual control could result.

Abba ULTRA can cause injury to fruit of some apple varieties when used with Horticultural Spray Oils or when other products are sequentially applied. For example, russetting can occur on Golden Delicious and other light-skinned varieties. Users must carefully follow the **DIRECTIONS FOR USE** and **RESTRICTIONS** on the labels of Horticultural Spray Oils or those in official spray guides when using Abba ULTRA in combination with Horticultural Spray Oils. For example, applications of Abba ULTRA with Horticultural Spray Oil less than 14 days before or after a Captan® or other sulfur-containing products can result in phytotoxicity or crop loss.

**White Apple Leafhopper (Do not use west of Rocky Mountains):** Only apply Abba ULTRA to the first generation white apple leafhopper. Apply with a horticultural spray oil (not a dormant oil) soon after petal fall.

**Spider Mites:** Apply Abba ULTRA before the population reaches 5 spider mites per leaf. Residual control is improved when spray deposits are on newer leaves (compared to older leaves). Limit applications to the period between petal fall through six weeks after petal fall.

**Tentiform Leafminers:** Apply Abba ULTRA onto eggs to control new hatch and at early sap feeder stages of the first and second generations when leafminer populations reach locally established thresholds. Do not apply Abba ULTRA during bloom stage.

Pests	Rate of Abba ULTRA & Horticultural Spray Oil *	
	Dilute Sprays <sup>1</sup>	Concentrate Sprays <sup>2</sup>
Two-spotted spider mite McDaniel spider mite European red mite Pear rust mite Yellow mite Pear psylla Tentiform leafminer White apple leafhopper	1.25 – 2.5 fl oz Abba ULTRA/100 gals water use 1 qt. Horticultural Spray Oil*/100 gals (i.e., 0.25% of finished spray)	5 – 10 fl oz Abba ULTRA/A use at least 1.0 gal Horticultural Spray Oil*/A
*Not a dormant oil		
<sup>1</sup> Rates per 100 gals are based on a volume of 400 gals/acre dilute spray. <sup>2</sup> To determine the Abba ULTRA rate per acre for concentrate sprays, it is necessary to first determine the amount needed for a full cover dilute spray. Use the same amount of product per acre in concentrate sprays as required for dilute sprays to the same grove/orchard. The result can be less than 5 fl oz/acre when used on smaller trees.		

#### Use Restrictions — Pome fruit

- Do not apply within 28 days of harvest (PHI).
- Do not apply aerially.
- Do not apply Abba ULTRA during bloom stage.
- Do not apply in less than 40 gallons of water per acre.
- Do not reapply within 21 days of first application.
- Do not apply more than 10 fl oz/A (0.023 lb ai/A) of Abba ULTRA per application.
- Do not apply more than 20 fl oz/A of Abba ULTRA or 0.047 lb/A of abamectin via any foliar applied product per year.
- Do not exceed 2 applications per year.
- Do not allow livestock to graze in treated orchards.

**STONE FRUIT CROP GROUP (CROP GROUP 12-12)**

Apricot; capulin; cherry (black, Nanking, sweet, tart); Chinese Jujube, Japanese Apricot, nectarine; peach; plum; plum (American, beach, Canada, cherry, Chickasaw, Damson, Japanese, Klamath), prune; plumcot; sloe; cultivars, varieties, and/or hybrids of these

**For controlling European red mite, Pacific spider mite, and two-spotted spider mite.**

Use conventional dilute or concentrate ground sprayers only with enough water to produce thorough coverage, but do not use less than 40 gallons of water per acre. Spray volume will vary with the size and number of trees per acre and foliage density. Assure thorough coverage to attain spider mite control.

Apply when mites first appear. A second application can be made, if needed, to maintain control (see **Use Restrictions**).

Apply Abba ULTRA in combination with a nonionic surfactant that spreads on and/or penetrates the leaf cuticle or apply with horticultural spray oil (not a dormant oil). To avoid crop injury, carefully follow the **DIRECTIONS FOR USE** and **RESTRICTIONS** sections of the surfactant or oil label(s) and/or official spray guides when using in the spray mixture. Application with a horticultural spray oil (not a dormant oil) is recommended for best efficacy and performance.

Pest	Rate of Abba ULTRA & Horticultural Spray Oil *	
	For dilute sprays <sup>1</sup>	For Concentrate sprays <sup>2</sup>
European red mite Pacific spider mite Two-spotted spider mite	1.25 – 2.5 fl oz Abba ULTRA/100 gals water <i>use</i> 0.25% or 1 gal/A horticultural spray oil or nonionic surfactant at the labeled rate	5 – 10 fl oz Abba ULTRA/A <i>use</i> horticultural spray oil at a minimum of 1 gal/A
<sup>1</sup> The rate of Abba ULTRA per 100 gals is based on volume of 400 gals/A dilute spray. <sup>2</sup> To determine the amount of product per acre for concentrate sprays, first determine the amount that would be required in a full cover dilute spray. Use the same amount of product per acre in concentrate sprays as would be required for the dilute sprays to the same orchard/grove. This can result in use of less than 5 fl oz/A on small trees.		

**Use Restrictions — Stone Fruit Crop Group**

- Do not apply within 21 days of harvest (PHI).
- Do not apply aerially.
- Do not reapply within 21 days of first application.
- Do not apply more than 10 fl oz/A (0.023 lb ai/A) of Abba ULTRA per application.
- Do not apply more than 20 fl oz/A of Abba ULTRA or 0.047 lb/A of abamectin via any foliar applied product per year.
- Do not make more than 2 applications of Abba ULTRA or any other foliarly applied product containing abamectin per year.
- Do not allow livestock to graze in treated orchards.

**STRAWBERRIES AND CROP GROUP 13-07G:**

Bearberry; bilberry; blueberry, lowbush; cloudberry; cranberry; lingonberry; muntries; partridgeberry; strawberry; cultivars, varieties, and/or hybrids of these.

**For controlling two-spotted spider mite, strawberry spider mite and carmine spider mite and suppression of cyclamen mite.**

Apply 8 fl oz/A of Abba ULTRA when mites are initially seen. Make 2 applications at intervals of 7 - 10 days and repeat this sequence as needed to maintain control (see **Use Restrictions**). To ensure maximum coverage of tops and undersides of foliage, adjust nozzle placement and spray volume. ABBA Ultra can be used without a wetting agent; however, use a nonionic surfactant to improve wetting of foliage and to spread out spray deposits.

Pests	Abba ULTRA fl oz/A
Two-spotted spider mite Strawberry spider mite Carmine spider mite Cyclamen mite <sup>1</sup>	8.0

<sup>1</sup> suppression

#### Use Restrictions — Strawberries

- Do not apply within 3 days of harvest (PHI).
- Do not apply aerially.
- Do not apply in less than 50 gallons of water per acre with conventional ground application equipment only except when using an electrostatic sprayer; do not use less than 10 gallons of water per acre with this type of spray equipment.
- Wait at least 21 days after the second application before repeating application.
- Do not apply more than 8 fl oz/A (0.019 lb ai/A) of Abba ULTRA per application.
- Do not apply more than 32 fl oz/A of Abba ULTRA or 0.075 lb/A of abamectin via any foliar applied product per year.
- For resistance management, do not use Abba ULTRA in strawberry nurseries.

#### TREE NUTS CROP GROUP (CROP GROUP 14-12) AND PISTACHIO

African nut-tree; almond; beechnut; Brazil nut; Brazilian pine; bunya; bur oak; butternut; Cajou nut; candlenut; cashew; chestnut; chinquapin; coconut; coquito nut; dika nut; filbert (hazelnut); ginkgo; Guiana chestnut; heartnut; hickory nut; Japanese horse-chestnut; macadamia nut; mongongo nut; monkey-pot; monkey puzzle nut; Okari nut; Pachira nut; peach palm nut; pecan; pequi; Pili nut; pine nut; pistachio; Sapucaia nut; tropical almond; walnut (black and English); yellowhorn; cultivars, varieties, and/or hybrids of these.

#### For controlling strawberry spider mite, Pacific spider mite, two-spotted spider mite, and European red mite. (Ground application only.)

Apply Abba ULTRA when mites initially appear. To maintain control (see **Use Restrictions**), make a second application of Abba ULTRA after at a minimum of 21 days, if needed. Spray deposits on newer leaves (compared to older leaves) provide greater residual spider mite control.

Use conventional dilute or concentrate ground sprayers with enough water to provide thorough coverage. Volume of spray will vary with the size and number of trees per acre and foliage density. Assure thorough coverage to attain spider mite control.

For best performance, apply Abba ULTRA in combination with a nonionic surfactant that spreads on and/or penetrate the leaf cuticle or apply with a Horticultural Spray Oil (not a dormant oil) that is approved for use on Tree Nuts Crop Group and Pistachio. Application with a horticultural oil (not a dormant oil) is recommended for best efficacy and performance.

Pests	Rate of Abba ULTRA & Horticultural Spray Oil*	
	Dilute Sprays <sup>1</sup>	Concentrate Sprays <sup>2</sup>
Two-spotted spider mite Pacific spider mite Strawberry spider mite European red mite	1.25 – 2.5 fl oz Abba ULTRA/100 gals water use 1 qt. Horticultural Spray Oil*/100 gals (i.e., 0.25% of finished spray) for best performance	5 – 10 fl oz Abba ULTRA/A use at least 1 gal Horticultural Spray Oil*/A for best performance
*Not a dormant oil		
<sup>1</sup> Rates per 100 gals dilute spray are based on a 400 gal/acre spray volume.		
<sup>2</sup> To determine the Abba ULTRA rate per acre for concentrate sprays, it is necessary to first determine the amount needed for a full cover dilute spray. Use the same amount of product per acre in concentrate sprays as required for dilute sprays to the same grove/orchard. The result can be less than 5 fl oz/acre when used on smaller trees.		

#### Use Restrictions — Tree Nuts Crop Group and Pistachio

- Do not apply within 21 days of harvest (PHI).
- Do not apply aerially.

- Do not apply in less than 40 gallons of water per acre.
- Do not retreat within 21 days of the first application.
- Do not apply more than 10 fl oz/A (0.023 lb ai/A) of Abba ULTRA per application.
- Do not apply more than 20 fl oz/A of Abba ULTRA or 0.047 lb/A of abamectin via any foliar applied product per year.
- Do not exceed 2 applications of Abba ULTRA or any other foliarly applied product containing abamectin per year.
- Do not allow livestock to graze treated groves or orchards.

#### **TUBEROUS AND CORM VEGETABLES CROP SUBGROUP (CROP SUBGROUP 1C)**

Crops in this subgroup are: arracha; arrowroot; artichoke, Chinese; artichoke, Jerusalem; canna, edible; cassava (bitter and sweet); chayote (root); chufa; dasheen; ginger; leren; potato; sweet potato; tanier; turmeric; yam bean; and yam, true.

**For controlling Colorado potato beetle, *Liriomyza* leafminers, Potato psyllid and Spider mites.**

**Colorado potato beetle:** Apply Abba ULTRA when 50% of egg masses have hatched and larvae are observed. If two applications are planned, they must be restricted to a single Colorado potato beetle generation per season, and intervals of at least 7 days must be observed. For low to moderate infestations, use 4 fl oz/A; for severe infestations, use 8 fl oz/A. Do not exceed 2 applications per season.

***Liriomyza* leafminers:** Make initial application when adult flies are first seen. Repeat applications as necessary to maintain control (see **Use Restrictions**) as long as there is a minimum of 7-day intervals between applications. For low to moderate infestations, use 4 fl oz/A; for severe infestations, use 8 fl oz/A.

**Potato psyllid:** Apply Abba ULTRA when pest monitoring indicates that populations are present and at a local threshold (an average of 1 to 2 psyllids/leaf or 10/plant). With a severe infestation, an additional treatment may be warranted (See **Use restrictions**).

**Spider mites:** Apply the first application when mites first appear. Repeat applications as necessary to maintain control (see **Use Restrictions**) as long as there is a minimum of 7-day interval between applications. For low to moderate infestations, use 4 fl oz/A; for severe infestations, use 8 fl oz/A.

**Thrips (suppression):** Apply in a thrips management program and when thrips are at economic threshold. Repeat application, as needed, to maintain control per resistance management best practices and use restrictions. Do not use Abba ULTRA as a rescue treatment for thrips control. With chemigation application, the resulting suppression of thrips could be less than with ground application.

Apply as a foliar spray in at least 20 gallons of water per acre by ground or in at least 5 gallons per acre by air. Abba ULTRA may be applied through overhead sprinkler chemigation for suppression of thrips. For best control, apply Abba ULTRA with ground application equipment. With aerial application, the resulting control of leafminers and spider mites could be less than with ground application. Under conditions such as high pest populations, dense or rank foliage, high temperatures or other such adverse application situations, use a greater water volume to ensure adequate coverage. For best results, ensure that good upper and lower leaf coverage is attained.

To optimize pest control, add a non-ionic surfactant at the manufacturer's specified rate. Effectiveness can be reduced if ABBA Ultra is used with a binder or sticker type product (such as Bravo Weather Stik®).

<b>Pests</b>	<b>Abba ULTRA fl oz/A</b>
Colorado potato beetles Spider mites <i>Liriomyza</i> leafminers Potato psyllid	4 – 8
Thrips (suppression)	8

#### **Use Restrictions — Tuberous and Corm Vegetables Crop Subgroup**

- Do not apply within 14 days of harvest (PHI).
- Do not apply more than 8 fl oz/A (0.019 lb ai/A) of Abba ULTRA per application.



- Do not apply more than 16 fl oz/A (0.038 lb ai/A) of Abba ULTRA per year to control spider mites or Colorado potato beetles.
- Do not apply more than 24 fl oz/A of Abba ULTRA or 0.056 lb/A of abamectin via any foliar applied product per year.
- Do not exceed 2 sequential applications of Abba ULTRA or any other foliarly applied product containing abamectin.
- Wait at least 7 days between applications.
- Do not allow livestock to graze or feed treated foliage.
- Do not apply Abba ULTRA by aerial application equipment in New York State.

#### **STORAGE AND DISPOSAL**

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

##### **PESTICIDE STORAGE:**

Store in a cool, dry place and in such a manner as to prevent cross contamination with other pesticides, fertilizers, food and feed. Store in original container and out of reach of children, preferably in a locked storage area.

Do not store above 100°F for extended periods of time. Storage below 20°F can result in formation of crystals. If product crystallizes, store at 50°F to 70°F and agitate to redissolve crystals. If container is damaged or spill occurs, use product immediately or dispose of product and damaged container as indicated below.

##### **PESTICIDE DISPOSAL:**

Open dumping is prohibited. Pesticide wastes are toxic. Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility. 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:**

##### **NONREFILLABLE CONTAINERS:**

##### **Rigid, Nonrefillable containers small enough to shake (i.e. with capacities equal to less than five gallons).**

Nonrefillable container. Do not reuse or refill this container. Triple rinse or pressure 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 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 or reconditioning if available, or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities.

Pressure rinse as follows: Empty the remaining contents into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or a mix tank or collect rinsate at about 40 PSI for at least 30 seconds. Drain for 10 seconds after the flow begins to drip. Once container is rinsed, offer for recycling if available, or puncture and dispose of in a sanitary landfill.

##### **Rigid, Nonrefillable containers that are too large to shake (i.e. with capacities greater than 5 gallons or 50 lbs).**

Nonrefillable container. Do not reuse or refill this container. Triple rinse or pressure 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. Replace 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. Offer for recycling or reconditioning if available, or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities.

Pressure rinse as follows: Empty the remaining contents into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or a mix tank or collect rinsate at about 40 PSI for at least 30 seconds. Drain for 10 seconds after the flow begins to drip. Once container is rinsed, offer for recycling if available, or puncture and dispose of in a sanitary landfill.

**REFILLABLE CONTAINERS:**

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 disposing of the container. Cleaning before refilling is the responsibility of the refiller.

**REFILLING OR RETURNING CONTAINERS:**

If refilling or returning container is planned, end users are not authorized to remove tamper evident cables, one way valves or clean container.

**RECYCLE OR DISPOSAL OF CONTAINERS:**

End users are authorized to remove tamper evident cable as required to remove the product from the container unless the container is equipped with one way valves and refilling or returning is planned. Instructions for container rinsing and either recycling or disposal are as follows:

**Bottom Discharge IBC (e.g. Schuetz Caged IBC or Snyder Square Stackable).**

Pressure rinsing the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller. To pressure rinse the container before final disposal, empty the remaining contents from the IBC into application equipment or mix tank. Raise the bottom of the IBC by 1.5 inches on the side which is opposite of the bottom discharge valve to promote more complete product removal. Completely pump or drain rinsate into application equipment or rinsate collection system while pressure rinsing. Continue pressure rinsing for 2 minutes or until rinsate becomes clear. Replace the lid and close bottom valve.

**Top Discharge IBC, Drums, Kegs (e.g. Snyder 120 Next Gen, Bonar B120, Drums and Kegs).**

Triple rinsing the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller. To triple rinse the 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. Rinse all interior surfaces. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times.

**LIMITED WARRANTY AND DISCLAIMER**

The manufacturer warrants (a) that this product conforms to the chemical description on the label and (b) that the directions, warnings, and other statements on this label are based upon responsible experts' evaluations of reasonable tests of effectiveness, of toxicity to laboratory animals and to plants and residues on food crops, and upon reports of field experience. Tests have not been made on all varieties of food crops and plants, or in all states or under all conditions. This warranty does not extend to the use of this product contrary to label instructions, or under conditions not reasonably foreseeable.

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