

# ZALTUS™ SC



For control and/or suppression of certain weeds in alfalfa; artichoke; asparagus; bushberries; caneberries; celery; citrus fruit; clover; cotton; dry beans; field corn; field peas; flax; garlic; grape; hops; lentils; mint; onion (dry bulb); olive; peanut; pome fruit; pomegranate; potato; soybean; stone fruit; strawberry; sugarcane; sunflower and safflower; sweet potato; tree nuts; wheat; non-bearing fruit trees; fallowbed use on transplanted melon, pepper, and tomato beds; fallow land and to maintain bare ground on non-crop areas of farms; orchards and vineyards.

<b>ACTIVE INGREDIENT:</b>	<b>(% by weight)</b>
Flumioxazin* .....	41.4%
<b>OTHER INGREDIENTS:</b> .....	<b>58.6%</b>
<b>TOTAL:</b> .....	<b>100.0%</b>

\* 2-7-fluoro-3,4-dihydro-3-oxo-4-(2-propynyl)-2H-1,4-benzoxazin-6-yl-4,5,6,7-tetrahydro-1H-isoindole-1,3(2H)-dione

ZALTUS SC is a suspension concentrate containing 41.4% active ingredient.

EPA Reg. No.: 91234-203

## KEEP OUT OF REACH OF CHILDREN

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle.  
(If you DO NOT understand the label, find someone to explain it to you in detail.)

See inside for Precautionary Statements and Directions for Use.

For Chemical Emergency: Spill, Leak, Fire, Exposure, or Accident,

Call CHEMTREC Day or Night Within USA and Canada:

1-800-424-9300 or +1 703-527-3887 (collect calls accepted)

## PRECAUTIONARY STATEMENTS HAZARDS TO HUMANS & DOMESTIC ANIMALS

Harmful if inhaled or absorbed through the skin. Causes moderate eye irritation. Avoid breathing spray mist. Avoid contact with skin, eyes or clothing. Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.

### PERSONAL PROTECTIVE EQUIPMENT (PPE):

**Applicators and other handlers must wear:** long-sleeved shirt and long pants, chemical-resistant gloves made of any waterproof material including polyethylene or polyvinyl chloride, shoes and socks.

**For aerial application to sugarcane, mixer/loaders must also wear:** coveralls, chemical resistant apron and chemical resistant boots.

**For aerial application to artichoke; field peas; flax; lentils; safflower; sunflower and wheat, mixer/loaders must also wear:** filtering face piece respirator (N95, R95 or P95).

**For ground boom application to olive and pomegranate, mixer/loaders must also wear:** filtering face piece respirator (N95, R95 or P95).

### USER SAFETY REQUIREMENTS

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

#### User Safety Recommendations

##### Users should:

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

### ENVIRONMENTAL HAZARDS

This product is toxic to non-target plants and aquatic invertebrates. **DO NOT** apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Drift or runoff may be hazardous to non-target plants and aquatic organisms in neighboring areas. **DO NOT** apply where runoff is likely to occur. **DO NOT** apply when weather conditions favor drift from treated areas. **DO NOT** contaminate water when disposing of equipment washwaters or rinsate.

This pesticide is toxic to plants and should be used strictly in accordance with the drift and run-off precautions on this label in order to minimize off-site exposures.

Under some conditions this product may have a potential to run-off to surface water or adjacent land. Where possible, use methods which reduce soil erosion, including no till, limited till and contour plowing; these methods also reduce pesticide run-off. Use of vegetation filter strips along rivers, creeks, streams, wetlands or on the downhill side of fields where run-off could occur will minimize water run-off.

### PHYSICAL OR CHEMICAL HAZARDS

**DO NOT** mix or allow coming in contact with oxidizing agent. Hazardous chemical reaction may occur.

## DIRECTIONS FOR USE

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

**READ ENTIRE LABEL. USE STRICTLY IN ACCORDANCE WITH PRECAUTIONARY STATEMENTS AND DIRECTIONS, AND WITH APPLICABLE STATE AND FEDERAL REGULATIONS.**

**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 statements on this label about personal protective equipment (PPE), and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

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

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, including plants, soil or water is: coveralls, chemical resistant gloves made of waterproof material, shoes plus socks.

### NON-AGRICULTURAL USE REQUIREMENTS

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standards for agricultural pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, forest, nurseries or greenhouses.

Keep all unprotected persons out of operating areas, or vicinity where there may be drift. **DO NOT** enter or allow others to enter treated areas until sprays have dried.

### PRODUCT INFORMATION

- **ZALTUS SC** provides residual control of susceptible weeds.
- **ZALTUS SC** provides additional burndown activity when used as part of a burndown program.
- **ZALTUS SC** can be applied as part of a fall burndown program for control of susceptible winter annuals.
- **ZALTUS SC** can be applied with a hooded or shielded sprayer, as well as part of a layby application, in selected crops for postemergence weed control as well as residual control of susceptible weeds.
- **ZALTUS SC** can be used on farms, orchards and vineyards for non-selective vegetation control to maintain bare ground non-crop areas that must be kept weed free.
- **ZALTUS SC**, when applied according to label use directions, will control the weeds claimed in crop specific use directions. This label makes no claims concerning control of other weed species. It is the pesticide user's responsibility to ensure that all products are registered for the intended use. Read and follow the applicable restrictions and limitations and directions for use on all product labels involved in tank mixing. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

ZALTUS SC Rate Summary	
FL OZ of ZALTUS SC	Pounds of Flumioxazin
0.5	0.016
1	0.031
1.5	0.047
2	0.063
2.5	0.080
3	0.094
4	0.125
6	0.188
8	0.250
12	0.375
24	0.750

**AVOIDING SPRAY DRIFT AT THE APPLICATION SITE IS THE RESPONSIBILITY OF THE APPLICATOR.**

The interaction of many equipment and weather-related factors determine the potential for spray drift. The applicator is responsible for considering all of these factors when making decisions. Where states have more stringent regulations, they must be observed.

**RESTRICTIONS AND LIMITATIONS**

- **DO NOT** apply this product when weather conditions favor spray drift from treated areas.
- **DO NOT** apply during low-level inversion conditions, including fog.
- **DO NOT** apply to frozen or snow-covered soil.
- **DO NOT** apply to farm alleys or roads where traffic may result in treated dust settling onto crops or other desirable vegetation.
- **DO NOT** apply within 300 yards of non-dormant pears.
- **DO NOT** apply to powdery soils or soils that are susceptible to wind displacement unless irrigation can be applied immediately after application.

**PRECAUTIONS**

- When applying by air, observe drift management restrictions and precautions listed under **AERIAL APPLICATION**.
- Mechanical incorporation into the soil will reduce residual weed control.
- Apply post directed and layby applications of **ZALTUS SC** only to healthy growing crops.

**Before using spray equipment to apply other products to crop foliage follow cleanup procedures identified in this label. See SPRAYER CLEANUP for more information.**

**ENVIRONMENTAL CONDITIONS AND BIOLOGICAL PERFORMANCE**  
**Preemergence Application (Conventional Tillage)**

**Important:** Crop injury may occur from applications made to poorly drained soils and/or applications made under cool, wet conditions. Risk of crop injury can be minimized by using on well drained soils, planting at least 1.5 inches deep, using high quality seed and completely covering seeds with soil prior to preemergence applications. Treated soil that is splashed onto newly emerged crops may result in temporary crop injury. Moisture is necessary to activate **ZALTUS SC** in soil for residual weed control. Dry weather following applications of **ZALTUS SC** may reduce effectiveness. However, when adequate moisture is received after dry conditions, **ZALTUS SC** will control

susceptible germinating weeds. **ZALTUS SC** may not control weeds that germinate after application but before an activating rainfall/irrigation or weeds that germinate through cracks resulting from dry soil.

When adequate moisture is not received after a **ZALTUS SC** application, weed control may be improved by irrigation with at least 1/4 inch of water. If emerged weeds are controlled by cultivation, residual weed control will be reduced.

**Burndown Application**

For best results, apply **ZALTUS SC** as part of a burndown program to actively growing weeds. Applying **ZALTUS SC** under conditions that **DO NOT** promote active weed growth will reduce herbicide effectiveness. **DO NOT** apply **ZALTUS SC** when weeds are under stress due to drought, excessive water, extremes in temperature, disease or low humidity. Weeds under stress tend to become less susceptible to herbicidal action. **ZALTUS SC** is most effective when applied under warm sunny conditions.

Reduced residual weed control may occur when burndown applications are made to fields where heavy crop and/or weed residue exist.

**Postemergence Application**

Only apply **ZALTUS SC** to healthy crops labeled for postemergence use. **DO NOT** apply **ZALTUS SC** to crops that have been weakened by disease, drought, flooding, excessive fertilization, soil salts, previously applied pesticides, nematodes, insects or winter injury.

**Rainfastness**

**ZALTUS SC** is rainfast one hour after application. **DO NOT** make applications if rain is expected within one hour of application or postemergence efficacy may be reduced.

**Soil Characteristics**

Application of **ZALTUS SC** to soils with high organic matter and/or high clay content may require higher dosages than soils with low organic matter and/or low clay content. Application to cloddy seedbeds can result in reduced weed control.

**HERBICIDE RATE**

**Residual Weed Control (Including Preemergence Applications or Applications as Part of a Fall or Spring Burndown and Fallow Seedbed Program)**

Based upon soil characteristics (organic matter content and texture), the most difficult to control weed species being targeted, and the crop being grown, select the proper **ZALTUS SC** dosage from the rate range tables contained in this label.

**CARRIER VOLUME AND SPRAY PRESSURE**

(Ground Equipment only. See Information for Aerial Equipment under **AERIAL APPLICATION**.)

**Preemergence Application (Conventional Tillage)**

To ensure uniform coverage, use 10 to 30 gallons of spray solution per acre for conventional tillage applications. Nozzle selection must meet manufacturer's gallonage and pressure guidelines for preemergence herbicide application.

**Burndown Application (Prior to Crop Emergence)**

To ensure thorough coverage in burndown applications, use 15 to 60 gallons spray solution per acre. Use 20 to 60 gallons per acre if dense vegetation or heavy crop residue is present. Nozzle selection must meet manufacturer's gallonage and pressure guidelines for postemergence herbicide application. **DO NOT** use flood jet nozzles.

**Postemergence Application (Emerged Crop)**

Check use directions for specific crops in which **ZALTUS SC** can be applied postemergence. To ensure thorough coverage in burndown applications, use a minimum of 15 gallons spray solution per acre. Use a minimum of 20 gallons per acre if dense vegetation or heavy crop residue is present. Nozzle selection must meet manufacturer's gallonage and pressure guidelines for postemergence herbicide application.



## ADDITIVES

### Burndown Application (Prior to Crop Emergence)

Postemergence control of weeds from **ZALTUS SC** tank mixes will require the addition of an agronomically approved adjuvant to the spray mixture. When an adjuvant is to be used with **ZALTUS SC**, Atticus, LLC recommends the use of a Chemical Producers and Distributors Association certified adjuvant. Either a crop oil concentrate or methylated seed oil which contains at least 15% emulsifiers and 80% oil or a non-ionic surfactant at 0.25% v/v, may be used when applying **ZALTUS SC** as part of a burndown program. Some tank mix partners, for example glyphosate, are formulated with sufficient adjuvants and **DO NOT** require the addition of a crop oil concentrate, methylated seed oil or non-ionic surfactant when tank mixed with **ZALTUS SC**. The addition of a crop oil concentrate or methylated seed oil may increase the burndown activity on certain weeds including cutleaf evening primrose and Carolina geranium. Verify mixing compatibility qualities by a jar test.

A spray grade nitrogen source (either ammonium sulfate at 2 to 2.5 lb/A or a 28 to 32% nitrogen solution at 1 to 2 qt/A) may be added to the spray mixture along with either a crop oil concentrate, methylated seed oil or non-ionic surfactant to enhance weed control. The addition of a nitrogen source does not replace the need for a crop oil concentrate, a methylated seed oil or a non-ionic surfactant.

### JAR TEST TO DETERMINE COMPATIBILITY OF ADJUVANTS AND ZALTUS SC

When using **ZALTUS SC** and an adjuvant, including in stale seed bed, layby, hooded/shielded or reduced tillage situations, perform a jar test before mixing commercial quantities of **ZALTUS SC**, when using **ZALTUS SC** for the first time, when using new adjuvants or when a new water source is being used.

1. Add 1 pt of the water to a quart jar. Use water from the same source and temperature as which will be used in the spray tank mixing operation.
2. Add 1 g of **ZALTUS SC** to the quart jar for every 3 fl oz of **ZALTUS SC** per acre being applied (4 g if 12 fl oz/A is the desired **ZALTUS SC** rate), gently mix until product goes into suspension.
3. Add 60 ml (4 Tbsp or 2 fl oz) of the crop oil or methylated seed oil to the quart jar or 1 ml of non-ionic surfactant if it is being used in place of oil, gently mix.
4. If nitrogen is being used, add 16 ml (1 Tbsp or 0.5 fl oz) of the 28 to 32% nitrogen source to the quart jar. If ammonium sulfate is being used, add 19 g AMS to the quart jar in place of the 28 to 32% nitrogen.
5. Place cap on jar, invert 10 times, let stand for 15 minutes, evaluate.
6. An ideal tank mix combination will be uniform and free of suspended particles. Question the choice of adjuvant if any of the following conditions are observed:
  - a) Layer of oil or globules on the mixture's surface.
  - b) Flocculation: fine particles in suspension or as a layer on the bottom of the jar.
  - c) Clabbering: thickening texture (coagulated) like gelatin.

### SPRAYER PREPARATION

Before applying **ZALTUS SC**, start with clean, well maintained application equipment. The spray tank, as well as all hoses and booms, must be cleaned to ensure no residue from the previous spraying operation remains in the sprayer. Some pesticides, including but not limited to, the sulfonyleurea and phenoxy herbicides, are active at very small amounts and can cause crop injury when applied to susceptible crops. The spray equipment must be cleaned according to the manufacturer's directions for the last product used before the equipment is used to apply **ZALTUS SC**. If two or more products were tank mixed prior to **ZALTUS SC** application, follow the most restrictive cleanup procedure.

## MIXING INSTRUCTIONS

1. Fill clean spray tank 1/2 to 2/3 of desired level with clean water.
2. If a drift retardant is to be used, add 10 lb of spray grade ammonium sulfate per 100 gallons of spray solution.
3. While agitating, slowly add **ZALTUS SC** to the spray tank. Agitation creates a rippling or rolling action on the water surface.
4. If tank mixing **ZALTUS SC** with other labeled herbicides, add water soluble bags first, followed by dry formulations, flowables, emulsifiable concentrates and then solutions. Prepare no more spray mixture than is required for the immediate spray operation.
5. Add any required adjuvants.
6. Fill spray tank to desired level with water. **Continue agitation until all spray solution has been applied.**
7. Mix only the amount of spray solution that can be applied the day of mixing. Apply **ZALTUS SC** within 6 hours of mixing.

## SPRAYER CLEANUP

Spray equipment, including mixing vessels and nurse tanks, must be cleaned each day following **ZALTUS SC** application. After **ZALTUS SC** is applied, the following steps must be used to clean the spray equipment:

1. Completely drain the spray tank, rinse the sprayer thoroughly, including the inside and outside of the tank and all in-line screens.
2. Fill the spray tank with clean water and flush all hoses, booms, screens and nozzles.
3. Top off tank, add 1 gallon of 3% household ammonia (or equivalent) for every 100 gallons of water, circulate through sprayer for 5 minutes, and then flush all hoses, booms, screens and nozzles for a minimum of 15 minutes. If diaphragms are being used on the spray boom, loosen diaphragms before flushing the spray system, allowing cleaning solution to spray through the open diaphragm. If spray lines have any end caps, they must be loosened before flushing the system, allowing cleaning solution to spray through the loosened caps. To enhance removal of **ZALTUS SC** from the spray system, add a tank cleaner in place of ammonia and allow the cleaning solution to remain in the pressurized spray system (spray tank, hoses and boom) overnight before flushing the system for a minimum of 15 minutes.
4. Drain tank completely.
5. Add enough clean water to the spray tank to allow all hoses, booms, screens and nozzles to be flushed for 2 minutes.
6. Remove all nozzles and screens and rinse them in clean water.

Thoroughly clean spray equipment, including all tanks, hoses, booms, screens and nozzles, cleaned before it is used to apply postemergence pesticides. Equipment with **ZALTUS SC** residue remaining in the system may result in crop injury to the subsequently treated crop.

## APPLICATION EQUIPMENT

Ensure application equipment is clean and in good repair, nozzles are uniformly spaced on the boom and frequently checked for accuracy.

## BROADCAST APPLICATION

Apply **ZALTUS SC**, and **ZALTUS SC** tank mixes, with ground equipment using standard commercial sprayers equipped with flat fan or flood nozzles (preemergence applications only) designed to deliver the desired spray pressure and spray volume.



## BAND APPLICATION

When banding, use proportionately less water and **ZALTUS SC** per acre. The rate of **ZALTUS SC** required per acre, when applied as a banded application, can be calculated with the following formula:

$$\text{Amount Needed per Acre for Banded Application} = \frac{\text{Band Width in Inches}}{\text{Row Width in Inches}} \times \text{Rate per Broadcast Acre}$$

## AERIAL APPLICATION

Spray drift away from the site of application may cause damage to non-target vegetation. To minimize drift, apply the largest droplet size consistent with uniform coverage and satisfactory weed control. To obtain satisfactory application and avoid drift, the following directions must be observed:

### Restrictions

- **DO NOT** apply during low-level inversion conditions (including fog), when winds are gusty or under other conditions that favor drift. **DO NOT** spray when wind velocity is less than 2 mph or more than 10 mph.
- **DO NOT** apply this product by air within 40 ft of non-target plants including non-target crops.
- **DO NOT** apply this product by air within 100 ft of emerged cotton crops.
- **DO NOT** apply this product by air within 40 ft of streams, wetlands, marshes, ponds, lakes and reservoirs.

### Mandatory Spray Drift

#### Aerial Applications

- **DO NOT** release spray at a height greater than 10 ft above the vegetative canopy, unless a greater application height is necessary for pilot safety.
- For all applications, applicators are required to use a medium or coarser spray droplet size (ASABE S572.1).
- The boom length must not exceed 65% of the wingspan for airplanes or 75% of the rotor blade diameter for helicopters.
- Applicators must use 1/2 swath displacement upwind at the downwind edge of the field.
- Nozzles must be oriented so the spray is directed toward the back of the aircraft.
- **DO NOT** apply when wind speeds exceed 10 miles per hour at the application site.
- **DO NOT** apply during temperature inversions.

#### Ground Applications

- Apply with the nozzle height recommended by the manufacturer, but no more than 3 feet above the ground or crop canopy.
- For all applications, applicators are required to use a medium or coarser spray droplet size (ASABE S572.1).
- **DO NOT** apply when wind speeds exceed 10 miles per hour at the application site.
- **DO NOT** apply during temperature inversions.

#### Boom-less Ground Applications

- Applicators are required to use a medium or coarser droplet size (ASABE S572.1) for all applications.
- **DO NOT** apply when wind speeds exceed 10 miles per hour at the application site.
- **DO NOT** apply during temperature inversions.

## Spray Drift Advisories

- THE APPLICATOR IS RESPONSIBLE FOR AVOIDING OFF-SITE SPRAY DRIFT.
- BE AWARE OF NEARBY NON-TARGET SITES AND ENVIRONMENTAL CONDITIONS.

## IMPORTANCE OF DROPLET SIZE

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

### Controlling Droplet Size - Ground 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

Use the lowest boom height that is compatible with the spray nozzles that will provide uniform coverage. For ground equipment, the boom should remain level with the crop and have minimal bounce.

### RELEASE HEIGHT - Aircraft

Higher release heights increase the potential for spray drift. When applying aurally to crops, **DO NOT** release spray at a height greater than 10 ft above the crop canopy, unless a greater application height is necessary for pilot safety.

### 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

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

### TEMPERATURE INVERSIONS

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

### WIND

Drift potential generally increases with wind speed. **AVOID APPLICATIONS DURING GUSTY WIND CONDITIONS.**

Applicators need to be familiar with local wind patterns and terrain that could affect spray drift.

### Boom-less Ground Applications:

Setting nozzles at the lowest effective height will help to reduce the potential for spray drift.

### Handheld Technology Applications:

Take precautions to minimize spray drift.

## RESISTANCE MANAGEMENT

For resistance management, **ZALTUS SC** is a Group 14 herbicide. Any weed population may contain or develop plants naturally resistant to **ZALTUS SC** and other Group 14 herbicides. The resistant biotypes may dominate the weed population if these herbicides are used repeatedly in the same field. Appropriate resistance-management strategies should be followed.

To delay herbicide resistance take one or more of the following steps:

- Rotate the use of **ZALTUS SC** or other Group 14 herbicides within a growing season sequence or among growing seasons with different herbicide groups that control the same weeds in a field.
- Use tank mixtures with herbicides from a different group if such use is permitted; where information on resistance in target weed species is available, use the less resistance-prone partner at a rate that will control the target weed(s) equally as well as the more resistance-prone partner. Consult your local extension service or certified crop advisor if you are unsure as to which active ingredient is currently less prone to resistance.
- Adopt an integrated weed-management program for herbicide use that includes scouting and uses historical information related to herbicide use and crop rotation, and that considers tillage (or other mechanical control methods), cultural (e.g., higher crop seeding rates; precision fertilizer application method and timing to favor the crop and not the weeds), biological (weed-competitive crops or varieties) and other management practices.
- Scout after herbicide application to monitor weed populations for early signs of resistance development. Indicators of possible herbicide resistance include: (1) failure to control a weed species normally controlled by the herbicide at the dose applied, especially if control is achieved on adjacent weeds; (2) a spreading patch of non-controlled plants of a particular weed species; (3) surviving plants mixed with controlled individuals of the same species. If resistance is suspected, prevent weed seed production in the affected area by an alternative herbicide from a different group or by a mechanical method such as hoeing or tillage. Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment when moving between fields, and planting clean seed.
- If a weed pest population continues to progress after treatment with this product, discontinue use of this product, and switch to another management strategy or herbicide with a different mode of action, if available.
- Contact your local extension specialist or certified crop advisors for additional pesticide resistance-management and/or integrated weed-management recommendations for specific crops and weed biotypes.
- For further information or to report suspected resistance, contact Atticus, LLC at (984) 465-4800.

## CHEMIGATION

Follow all label directions for crops regarding rates, timing of application, special instructions and precautions.

Apply this product only through center pivot systems. End guns must be turned off due to uneven application. Restriction: **DO NOT** apply this product through any other type of irrigation system.

Crop injury, lack of efficacy or illegal pesticide residues in the crop can result from non-uniform distribution of treated water.

The system must be properly calibrated (with water only) to ensure that the amount of **ZALTUS SC** applied corresponds to the specified rate.

Apply **ZALTUS SC** in 1/2 to 3/4 inches of water during the first sprinkler set. Allow time for all lines to flush the herbicide through all nozzles before turning off irrigation water. To ensure the lines are flushed and free of remaining herbicide, a dye indicator may be injected into the lines to mark the end of the application period. Once chemigation has begun, the run must be completed to ensure no product is left in the system.

If you have any questions about calibration, contact your State Extension Service Specialist, equipment manufacturers or other experts.

## Special Precautions for Chemigation

1. **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.
2. 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 if the need arises.
3. The system must be free of leaks and clogged nozzles.
4. The pesticide must be supplied continuously for the duration of the aqueous application. An uneven application may cause injury to the crop or poor weed control.
5. Agitation must be maintained in the nurse tank.
6. The sprinkler chemigation system must contain a functional check valve, vacuum relief valve and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.
7. The pesticide injection pipeline must contain a functional, automatic, quick closing check valve to prevent the flow of fluid back toward the injection pump.
8. The pesticide injection pipeline must contain a functional, normally closed, solenoid operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
9. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops, or in the case where there is no water pump, when the water pressure decreases to the point where pesticide distribution is adversely affected.
10. 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.
11. Systems must use a metering pump, for example a positive displacement injection pump (e.g., diaphragm pump), effectively designed and constructed of materials that are compatible with the pesticides and capable of being fitted with a system interlock.
12. **DO NOT** apply when wind speed favors drift beyond the area intended for treatment.

## Chemigation Systems Connected to Public Water Systems

1. Public water system means a system for the provision to the public of piped water for human consumption, if such a system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year.
2. Chemigation systems connected to the public water system must contain a functional, reduced pressure zone, backflow preventer (RPZ) or the functional equivalent in the water supply line upstream from the point of pesticide introduction. As an option to the RPZ, discharge the water from the public water system into a reservoir tank prior to pesticide introduction. There shall be a complete physical break (air gap) between the outlet end of the fill pipe and the top overflow rim of the reservoir tank of at least twice the inside diameter of the fill pipe.
3. All chemigation systems connected to the public water system must also follow restrictions listed in the preceding section titled **Special Precautions for Chemigation**.

## APPLICATION WITH DRY BULK FERTILIZERS

Dry bulk fertilizer may be impregnated or coated with **ZALTUS SC**. Application of dry bulk fertilizer with **ZALTUS SC** provides weed control equal to, or slightly below, the same rate of **ZALTUS SC** applied in liquid carriers, due to better coverage with application via spray equipment. Follow label directions for **ZALTUS SC** regarding rates, special instructions, cautions and special precautions. Apply 400 to 700 lbs of the fertilizer/herbicide mixture per acre to obtain adequate soil coverage. Apply the mixture to the soil with properly calibrated equipment immediately after blending. Uniform application of the herbicide/fertilizer mixture is essential to prevent possible crop injury and to obtain uniform weed control.

**DO NOT** use ammonium nitrate and/or limestone as the sole source of fertilizer, as the **ZALTUS SC** may not adhere to these materials.

Compliance with all Federal and State regulations relating to blending pesticide mixtures with dry bulk fertilizer, registrations, labeling and application are the responsibility of the individual and/or company offering the fertilizer and **ZALTUS SC** mixture for sale.

**ZALTUS SC** must be premixed with water to form a slurry prior to impregnation on dry bulk fertilizer. For best results, use a minimum of 1 pt of water for each 2 fl oz of **ZALTUS SC**. Use a minimum of 6 pt of the **ZALTUS SC** slurry to impregnate 2000 lbs of the fertilizer for uniform coverage of the fertilizer. Closed drum, belt, ribbon or other commonly used dry bulk blenders may be used.

The amount of **ZALTUS SC** required can be calculated with the following formula:

$$\text{fluid ounces of ZALTUS SC per ton of fertilizer} = \text{fluid ounces of ZALTUS SC per acre} \times 2000 \div \text{pounds of fertilizer per acre}$$

Thoroughly clean dry fertilizer blending equipment after **ZALTUS SC** has been placed in the system to avoid injury to sensitive crops that may be treated with fertilizers blended after the equipment has been used for **ZALTUS SC**. Rinse the sides of the blender and the herbicide tank with water. Then impregnate the rinsate onto a load of dry fertilizer intended for an approved crop. Use a maximum rate of 1 gallon of rinsate per ton of fertilizer. Follow with 1 to 2 loads of unimpregnated fertilizer in the blender before switching herbicides.

## ROTATIONAL RESTRICTIONS

The following rotational crops may be planted after applying **ZALTUS SC** at the listed rate. Planting earlier than the specified rotational interval may result in crop injury.

• **DO NOT** plant any crop, except corn (field), cotton, peanut, soybean, sugarcane and sweet potato earlier than 30 days after applying **ZALTUS SC**.

Application Rates	Crops	Rotation Intervals
1 fl oz/A	Cotton (no-till or strip-till only)	14 days <sup>(1)</sup>
1.5 to 2 fl oz/A	Cotton (no-till or strip-till only)	21 days <sup>(1)</sup>
2 fl oz/A or less	Peanut, Soybean, Sugarcane and Sweet Potato	Immediately
	Field Corn (minimum and no-till)	7 days
	Cotton and Field Corn (conventional tillage), Rice, Sorghum, Sunflower, Tobacco and Wheat	30 days <sup>(1)</sup>
	Barley, Dry and Snap Beans, Flax, Peas, Rye, Safflower and Sweet Corn	3 months
	Alfalfa, Canola, Clover, Oats, Potato, Sugar Beet and all other crops not listed <sup>(2)</sup>	4 months if soil is tilled prior to planting 8 months if no tillage is performed
	Lentil	6 months
Up to 3 fl oz/A	Peanut, Soybean, Sugarcane and Sweet Potato	Immediately
	Field Corn (minimum and no-till)	14 days
	Field Corn (conventional tillage) and Sorghum	30 days <sup>(1)</sup>
	Cotton, Rice, Sunflower, Tobacco and Wheat	2 months <sup>(1)</sup>
	Barley, Dry and Snap Beans, Flax, Pea, Rye, Safflower and Sweet Corn	4 months
	Alfalfa, Clover, Oats, Potato, Sugar Beet	5 months if soil is tilled prior to planting 10 months if no tillage is performed
	Canola and all other crops not listed <sup>(2)</sup>	6 months if soil is tilled prior to planting 12 months if no tillage is performed
	Lentil	7 months
Up to 4 fl oz/A	Sugarcane	Immediately
	Alfalfa, Canola, Potato, Sugar Beet and all other crops not listed <sup>(2)</sup>	6 months if soil is tilled prior to planting 12 months if no tillage is performed
	Cotton, Field Corn, Peanut, Rice, Sorghum, Soybean, Sunflower, Tobacco and Wheat	4 months
	Transplanted on raised beds only: melon, pepper and tomato	2 months (if the top 4 inches of the beds have been removed)
6 to 12 fl oz/A	Cotton, Field Corn, Peanut, Rice, Sorghum, Soybean, Sunflower, Tobacco and Wheat	9 months
	Alfalfa, Canola, Sugar Beet and all other crops not listed <sup>(2)</sup>	12 months if soil is tilled prior to planting 18 months if no tillage is performed
	Trees can be transplanted 2 months after an application of <b>ZALTUS SC</b> <sup>(3)</sup>	

<sup>(1)</sup> At least one inch of rainfall/irrigation must occur between application and planting or crop injury may occur.

<sup>(2)</sup> Successful soil bioassay must be performed prior to planting these crops.

<sup>(3)</sup> Transplanted apple, apricot, avocado, bushberries (including blueberry), cherry, fig, grape, grapefruit, lemon, nectarine, olive, orange, peach, pear, plum (including dried plum), tangerine and tree nuts (including pistachio) can be planted 2 months after a **ZALTUS SC** application of 2 to 12 fl oz/A.

**Table 1. Broadleaf Weeds Controlled by Residual Activity of ZALTUS SC**

<b>Broadleaf Weed Species</b>				
<b>Section A</b>				
<b>Common Name</b>	<b>Scientific Name</b>	<b>Organic Matter</b>	<b>Soil Type</b>	<b>Application Rate</b>
Carpetweed	<i>Mollugo verticillata</i>	Up to 5%	All Soil Types	2 fl oz/A
Chickweeds				
Common	<i>Stellaria media</i>			
Mouseear	<i>Cerastium vulgatum</i>			
Dandelion	<i>Taraxacum officinale</i>			
Eclipta	<i>Eclipta prostrate</i>			
Evening primrose, Cutleaf	<i>Oenothera laciniata</i>			
Field Pennycress*	<i>Thlaspi arvense</i>			
Florida Pusley	<i>Richardia scabra</i>			
Henbit	<i>Lamium amplexicaule</i>			
Lambsquarters, Common	<i>Chenopodium album</i>			
Little Mallow	<i>Malva parviflora</i>			
Marestail/Horseweed	<i>Conyza canadensis</i>			
Mayweed/False Chamomile	<i>Matricaria maritima</i>			
Nightshades				
Black	<i>Solanum nigrum</i>			
Eastern Black	<i>Solanum ptycanthum</i>			
Hairy	<i>Solanum sarrachoides</i>			
Pigweeds				
Redroot	<i>Amaranthus retroflexus</i>			
Smooth	<i>Amaranthus hybridus</i>			
Spiny Amaranth	<i>Amaranthus spinosus</i>			
Tumble	<i>Amaranthus albus</i>			
Prickly Lettuce	<i>Lactuca serriola</i>			
Prickly Sida (Teaweed)	<i>Sida spinosa</i>			
Puncturevine	<i>Tribulus terrestris</i>			
Purslane, Common	<i>Portulaca oleracea</i>			
Radish, Wild	<i>Raphanus raphanistrum</i>			
Redmaids	<i>Calandrinia ciliata</i> var. <i>menziesii</i>			
Shepherd's-purse	<i>Capsella bursa-pastoris</i>			
Smallflower Morningglory	<i>Jacquemontia tamnifolia</i>			
Sowthistle, Prickly*	<i>Sonchus asper</i>			
Spotted Spurge	<i>Euphorbia maculata</i>			
Venice Mallow	<i>Hibiscus trionum</i>			

\*Not for use in California

(continued)



**Table 1. Broadleaf Weeds Controlled by Residual Activity of ZALTUS SC (continued)**

<b>Broadleaf Weed Species (continued)</b>				
<b>Section B - All weeds listed in Section A plus:</b>				
<b>Common Name</b>	<b>Scientific Name</b>	<b>Organic Matter</b>	<b>Soil Type</b>	<b>Application Rates<sup>(2)</sup></b>
Coffee Senna	<i>Cassia occidentalis</i>	Up to 3%	All Soil Types	2 fl oz/A Cotton and Dry Bean 2.5 fl oz/A Field Corn and Soybean 3 fl oz/A Peanut and all other labeled crops
Common Ragweed <sup>(1)</sup>	<i>Ambrosia artemisiifolia</i>			
False Chamomile*	<i>Tripleurospermum maritimum</i>			
Florida Beggarweed	<i>Desmodium tortuosum</i>			
Golden Crownbeard	<i>Verbesina encelioides</i>			
Hairy Indigo	<i>Indigofera hirsute</i>			
Hemp Sesbania	<i>Sesbania exaltata</i>	3 to 5%	Coarse and Medium Soils: (sandy loam, loamy sand, loamy silt-loam, silt, sandy clay, sandy clay loam)	2 fl oz/A Cotton and Dry Bean 2.5 fl oz/A Field Corn and Soybean 3 fl oz/A Peanut and all other labeled crops
Jimsonweed	<i>Datura stramonium</i>			
Kochia	<i>Kochia scoparia</i>			
London Rocket*	<i>Sisymbrium irio</i>			
Morningglories <sup>(3)</sup>				
Entireleaf	<i>Ipomoea hederacea</i> var. <i>integriuscula</i>			
Ivyleaf	<i>Ipomoea hederacea</i>			
Red/Scarlet	<i>Ipomoea coccinea</i>			
Tall	<i>Ipomoea purpurea</i>			
Mustard, Wild	<i>Brassica kaber</i>		Fine Soils: (silty clay, silty clay loam, clay, clay loam)	2 fl oz/A Cotton and Dry Bean 3 fl oz/A Field Corn, Peanut, Soybean and all other labeled crops
Palmer Amaranth	<i>Amaranthus palmeri</i>			
Spurred Anoda	<i>Anoda cristata</i>			
Tropic Croton	<i>Croton glandulosus</i>			
Waterhemp <sup>(1)</sup>				
Common	<i>Amaranthus rudis</i>			
Tall	<i>Amaranthus tuberculatus</i>			
Wild Poinsettia	<i>Euphorbia heterophylla</i>			
Yellow Rocket*	<i>Barbarea vulgaris</i>			

\*Not for use in California.

<sup>(1)</sup> A postemergence herbicide, including lactofen, Phoenix™ Herbicide glyphosate (glyphosate soybeans only) may be needed following a preemergence application of ZALTUS SC to adequately control common ragweed or waterhemp in soybean fields with heavy pressure.

<sup>(2)</sup> ZALTUS SC will provide residual control of these weeds at 2 fl oz/A when applied under a cotton canopy.

<sup>(3)</sup> Morningglory species are not adequately controlled on fine soils or soils with greater than 3% organic matter.

**Table 2. Weeds Suppressed by Residual Activity of ZALTUS SC Application Rates**

<b>Broadleaf Weed Species</b>			
<b>Common Name</b>	<b>Scientific Name</b>	<b>Organic Matter</b>	<b>Application Rates</b>
Bristly Starbur	<i>Acanthospermum hispidum</i>	Up to 5%	2 to 3 fl oz/A
Copperleaf, Hophornbeam	<i>Acalypha ostryifolia</i>		
Ragweed, Giant	<i>Ambrosia trifida</i>		
Russian Thistle	<i>Salsola iberica</i>		
Smartweeds			
Ladysthumb	<i>Polygonum persicaria</i>		
Pennsylvania	<i>Polygonum pennsylvanicum</i>		
Smellmelon*	<i>Cucumis melo</i>		
Velvetleaf	<i>Abutilon theophrasti</i>		
Wild Buckwheat	<i>Polygonum convolvulus</i>		
Wormwood, Biennial	<i>Artemisia biennis</i>		
<b>Grass Weed Species</b>			
Barnyardgrass	<i>Echinochloa crus-galli</i>	Up to 5%	2 to 3 fl oz/A
Bluegrass, Annual	<i>Poa annua</i>		
Crabgrass, Large	<i>Digitaria sanguinalis</i>		
Foxtail, Giant	<i>Setaria faberi</i>		
Goosegrass	<i>Eleusine indica</i>		
Lovegrass, California	<i>Eragrostis diffusa</i>		
Panicums			
Fall	<i>Panicum dichotomiflorum</i>		
Texas	<i>Panicum texanum</i>		
Ryegrass, Italian*	<i>Lolium multiflorum</i>		
Signalgrass, Broadleaf	<i>Brachiaria platyphylla</i>		
Cheat	<i>Bromus secalinus</i>		1.5 to 3 fl oz/A
Downy Brome*	<i>Bromus tectorum</i>		

\*Not for use in California

**DIRECTIONS FOR USE IN FALL AND SPRING PREPLANT BURNDOWN AND FALLOW SEEDBED PROGRAMS IN FIELD CORN, PEANUT AND SOYBEAN**

**(Preemergence to Crop)**

**RESTRICTIONS AND LIMITATIONS**

- **DO NOT** apply more than 12 fl oz of ZALTUS SC per acre.
- **DO NOT** apply to frozen or snow-covered soil.
- **DO NOT** perform any tillage operation after application or residual weed control will be reduced.
- Observe all rotational intervals prior to planting as listed in the **ROTATIONAL RESTRICTIONS** table.



## FALL BURNDOWN AND FALLOW SEEDBED PROGRAMS

ZALTUS SC at 2 to 4 fl oz/A can be used in the fall to provide residual weed control in fields that will be planted the following spring with field corn, peanut or soybean (refer to **ROTATIONAL RESTRICTIONS** table for rates and rotational intervals prior to planting). Weeds controlled by residual activity are listed in **Table 1. Broadleaf Weeds Controlled by Residual Activity of ZALTUS SC, (Sections A and B); Table 3. Weeds Controlled by Fall and Spring Preplant Burndown Programs;** and **Table 7. Weeds Controlled by Residual Activity of ZALTUS SC.** If weeds have emerged at the time of application, use ZALTUS SC in combination with a labeled burndown herbicide. ZALTUS SC can be used in a fall burndown or fallow seedbed program, however the length of residual control may be variable.

Abnormally warm or wet winters will reduce the length of weed control observed in the spring.

Weeds controlled by postemergence or residual activity are listed in **Table 3.** Preplant burndown treatment tank mixes and rates are:

Herbicide	Product Rate
<b>Program 1<sup>(1)</sup></b>	
ZALTUS SC Plus	2 to 3 fl oz/A
glyphosate Plus	0.5 to 1.0 lb ai/A (equivalent to 1 to 2 pt/A of Roundup Original®)
2,4-D LVE (2,4-D for use on preplant soybeans only) Plus	0.5 to 1.0 lb ai/A (equivalent to 1 to 2 pt/A of 2,4-D 4 LVE)
NIS + AMS	0.5% v/v + 17 lb/100 gallons of water

or

Herbicide	Product Rate
<b>Program 2<sup>(1)</sup></b>	
ZALTUS SC Plus	2 to 3 fl oz/A
glyphosate Plus	0.5 to 1.0 lb ai/A (equivalent to 1 to 2 pt/A of Roundup Original)
COC <sup>(2)</sup> or NIS + AMS	1 pt/A or 0.5% v/v + 17 lb/100 gallons of water

or

Herbicide	Product Rate
<b>Program 3<sup>(1)</sup></b>	
ZALTUS SC Plus	2 to 3 fl oz/A
2,4-D LVE (2,4-D for use on preplant soybeans only) Plus	0.5 to 1.0 lb ai/A (equivalent to 1 to 2 pt/A of 2,4-D 4 LVE)
COC	1 pt/A

<sup>(1)</sup> Dicamba, at 0.188 lb ai/A (6 fl oz/A of dicamba) can be added to Programs 1, 2 & 3 to assist in the control emerged broadleaves. Refer to dicamba label for rotational restrictions.

<sup>(2)</sup> Crop oil concentrate has been found to increase glyphosate burndown of emerged cutleaf evening primrose and Carolina geranium.

**Table 3. Weeds Controlled by Fall and Spring Preplant Burndown Programs**

Weeds Controlled <sup>(1)</sup>		Postemergence			Residual
Common Name	Scientific Name	Program 1	Program 2	Program 3	
		<b>Weeds 3 inches or less</b>			
Chamomile, False	<i>Matricaria maritima</i>	Yes	Yes	No	Yes
Cheatgrass	<i>Bromus tectorum</i>	Yes	Yes	No	Yes
Chickweed, Common	<i>Stellaria media</i>	Yes	Yes	No	Yes
Chickweed, Mouseear	<i>Cerastium vulgatum</i>	Yes	Yes	No	Yes
Cockle, White	<i>Silene latifolia</i>	No	Yes	Yes	Yes
Dandelion	<i>Taraxacum officinale</i>	Yes	No	Yes <sup>(2)</sup>	Yes
Deadnettle, Purple	<i>Lamium purpureum</i>	Yes	Yes	Yes	Yes
Groundsel, Cressleaf	<i>Senecio glabellus</i>	Yes	Yes	-	Yes
Henbit	<i>Lamium amplexicaule</i>	Yes	Yes	Yes	Yes
Kochia	<i>Kochia scoparia</i>	Yes	Yes	Yes	Yes
Marestail/Horseweed	<i>Conyza canadensis</i>	Yes	Yes <sup>(3)</sup>	Yes	Yes
Mallow, Common	<i>Malva neglecta</i>	Yes	Yes	No	Yes
Prickly Lettuce	<i>Lactuca serriola</i>	Yes	Yes	Yes	Yes
Wormwood, Biennial	<i>Artemisia biennis</i>	Yes	Yes	Yes	Yes
		<b>Weeds 12 inches or less</b>			
Canola, Volunteer	<i>Brassica napus</i>	Yes	Yes	Yes	Yes
Carolina Geranium	<i>Geranium carolinianum</i>	Yes	Yes	Yes	-
Evening Primrose, Cutleaf <sup>(4)</sup>	<i>Oenothera laciniata</i>	Yes	Yes	Yes	Yes
Flixweed	<i>Descurainia sophia</i>	Yes	Yes	Yes	Yes
Mustard, Tansy	<i>Descurainia pinnata</i>	Yes	Yes	Yes	Yes
Mustard, Wild	<i>Brassica kaber</i>	Yes	Yes	Yes	Yes
Shepherd's-purse	<i>Capsella bursa-pastoris</i>	Yes	Yes	Yes	Yes

<sup>(1)</sup> Refer to glyphosate and/or 2,4-D labels for additional weeds controlled and rotational restrictions.

<sup>(2)</sup> Use 1 lb ai/A of 2,4-D LVE (equivalent to 2 pt/A of 2,4-D 4 LVE) for control of emerged dandelion.

<sup>(3)</sup> Program 2 will not control emerged glyphosate resistant marestail/horseweed.

<sup>(4)</sup> Use Program 1 to control cutleaf evening primrose that are nearing 12 inches in height or are past the rosette stage. Use Programs 2 or 3 to control cutleaf evening primrose that are 12 inches or less and in the rosette stage.

### SPRING BURNDOWN PROGRAMS

**ZALTUS SC** can be used in combination with labeled preplant burndown herbicides to assist in the postemergence burndown of emerged weeds and provide residual weed control prior to crop emergence. Weeds controlled by residual activity are listed in **Table 1**.

No-till planters that incorporate the soil during planting may result in decreased weed control in the row. Apply **ZALTUS SC** after planting peanuts and soybeans when these types of planters are used (within 3 days after planting soybeans, within 2 days after planting peanuts and before the crop emerges). **ZALTUS SC** cannot be applied after planting field corn.

**ZALTUS SC** can be used at 1 to 3 fl oz/A with labeled preplant burndown herbicides to enhance the speed of burndown and increase weed spectrum.

**ZALTUS SC** can be used at 1 to 3 fl oz/A in field corn, peanut and soybean burndown programs. See **DIRECTIONS FOR USE IN FIELD CORN**, **DIRECTIONS FOR USE IN PEANUT**, **DIRECTIONS FOR USE IN SOYBEAN** for more information.

## DIRECTIONS FOR USE IN FALL AND SPRING BURNDOWN PROGRAMS IN COTTON AND SUGARCANE

### RESTRICTIONS AND LIMITATIONS

- **DO NOT** apply more than 12 fl oz per acre per application.
- **DO NOT** apply to frozen or snow-covered soil.
- **DO NOT** perform any tillage operation after application or residual weed control will be reduced.
- **ZALTUS SC** can be used at 1 to 2 fl oz/A with labeled burndown herbicides to enhance the speed of burndown and increase weed spectrum.
- A minimum of 30 days must pass, and 1 inch of rainfall/irrigation must occur, between **ZALTUS SC** application and planting of conventionally tilled cotton.
- A minimum of 14 days must pass, and 1 inch of rainfall/irrigation must occur, between **ZALTUS SC** application and planting of no-till or strip-till cotton when a **ZALTUS SC** rate of 1 fl oz/A is used and 21 days when a **ZALTUS SC** rate of 1.5 to 2 fl oz/A is used. The field must contain the stubble from the previous crop.
- **ZALTUS SC** can be applied as part of a burndown application to sugarcane until cane emergence.
- Observe all rotational intervals prior to planting as listed in the **ROTATIONAL RESTRICTIONS** table.
- Refer to most restrictive label for minimum interval between application and planting.

### FALL BURNDOWN PROGRAMS

**ZALTUS SC** at 2 to 4 fl oz/A, can be used in the fall to provide residual weed control in fields that will be planted the following spring with cotton or sugarcane (refer to **ROTATIONAL RESTRICTIONS** table for rates and rotational intervals prior to planting). Weeds controlled by residual activity are listed in **Table 1** and **Table 7**. If weeds have emerged at the time of application, use **ZALTUS SC** in combination with a labeled burndown herbicide.

Abnormally warm or wet winters will reduce the length of weed control observed in the spring.

### SPRING BURNDOWN PROGRAMS

**ZALTUS SC** at 1 to 2 fl oz/A, can be used in combination with labeled preplant burndown herbicides to assist in the postemergence burndown of emerged weeds and provide residual weed control prior to crop emergence in fields that will be planted with cotton or sugarcane. Weeds controlled by residual activity are listed in **Table 1**.

No-till planters that incorporate the soil during planting may result in decreased weed control in the row.

## DIRECTIONS FOR USE IN FALL AND SPRING BURNDOWN PROGRAMS IN RICE, SORGHUM, SUNFLOWER, TOBACCO AND WHEAT

(Preplant to Crop)

### RESTRICTIONS AND LIMITATIONS

- **DO NOT** apply more than 12 fl oz per acre per application.
- **DO NOT** apply to frozen or snow-covered soil.
- **DO NOT** perform any tillage operation after application or residual weed control will be reduced.
- **ZALTUS SC** can be used at 1 to 2 fl oz/A with labeled burndown herbicides to enhance the speed of burndown and increase weed spectrum. A minimum of 30 days must pass, and 1 inch of rainfall/irrigation must occur, between **ZALTUS SC** application and planting of rice, sorghum, sugarcane, sunflowers, tobacco or wheat. Refer to most restrictive label for minimum interval between application and planting.
- Observe all rotational intervals prior to planting as listed in the **ROTATIONAL RESTRICTIONS** table.

### FALL BURNDOWN PROGRAMS

**ZALTUS SC** can be used in combination with labeled burndown programs to control emerged weeds and provide residual weed control in fields that will be planted the following spring (refer to **ROTATIONAL RESTRICTIONS** table for rates and rotational intervals prior to planting).

Abnormally warm winters may reduce the length of weed control observed in the spring.

### SPRING BURNDOWN PROGRAMS

**ZALTUS SC** can be used in combination with labeled burndown programs to control emerged weeds and provide residual weed control prior to crop emergence. Weeds controlled by residual activity are listed in **Table 1, Section A**. Crops that will be planted following application must be in compliance with the rotational interval listed in the **ROTATIONAL RESTRICTIONS** table above.

No-till planters that incorporate the soil during planting may result in decreased weed control in the row.



## DIRECTIONS FOR USE IN FALL BURNDOWN PROGRAMS IN FIELDS TO BE PLANTED TO BARLEY, FIELD PEAS, FLAX, LENTIL, SAFFLOWER, SUNFLOWER AND SPRING WHEAT

(Preplant to Crop)

### RESTRICTIONS AND LIMITATIONS

- **DO NOT** apply more than 12 fl oz per acre per application.
- **DO NOT** apply to frozen or snow-covered soil.
- **DO NOT** perform any tillage operation after application or residual weed control will be reduced.
- **ZALTUS SC** can be mixed with 2,4-D and/or glyphosate formulations labeled for burndown programs (preplant to crop) in accordance with the most restrictive label limitations and precautions.
- **DO NOT** mix **ZALTUS SC** with any product containing a label prohibition against such mixing.
- Observe all rotational intervals prior to planting as listed in the **ROTATIONAL RESTRICTIONS** table.

### FALL BURNDOWN PROGRAMS

**ZALTUS SC** can be used at 2 to 4 fl oz/A with labeled burndown herbicides to enhance the speed of burndown, increase weed spectrum and provide residual weed control of the weeds listed in **Table 3** until the following spring. Rotational intervals must be followed for crop to be planted in the spring following the fall **ZALTUS SC** application. Refer to most restrictive label for minimum interval between application and planting.

## DIRECTIONS FOR USE IN FALLOW LAND

**ZALTUS SC** may be used as a preemergence fallow treatment. Weeds controlled by residual activity are listed in **Table 1**.

**ZALTUS SC** at 2 to 4 fl oz/A, can be used in the fall to provide residual weed control in fallow fields (refer to **ROTATIONAL RESTRICTIONS** table for rates and rotational intervals prior to planting). If weeds have emerged at the time of application, use **ZALTUS SC** in combination with a labeled fallow herbicide.

Abnormally warm or wet winters will reduce the length of weed control observed in the spring.

**ZALTUS SC** at 1 to 4 fl oz/A, can be used in spring in combination with labeled burndown herbicides to control emerged weeds and provide residual weed control.

### RESTRICTIONS AND LIMITATIONS

- **DO NOT** make more than 4 fl oz per acre application.
- **DO NOT** make more than 2 applications per year.
- **DO NOT** make more than 8 fl oz per year.
- **DO NOT** make a sequential **ZALTUS SC** application within 30 days of the first **ZALTUS SC** application.

## DIRECTIONS FOR USE IN ESTABLISHED ALFALFA

### RESTRICTIONS AND LIMITATIONS

- **DO NOT** apply more than 4 fl oz of **ZALTUS SC** per acre per application.
- **DO NOT** apply more than 2 applications of **ZALTUS SC** per acre per year.
- **DO NOT** apply more than 8 fl oz of **ZALTUS SC** per acre per year.
- **DO NOT** make a sequential **ZALTUS SC** application within 60 days of the first **ZALTUS SC** application.
- **DO NOT** apply to alfalfa with greater than 6 inches of growth. Application will result in burning of treated leaves and stems. **Understand and accept this risk before using ZALTUS SC on alfalfa.**
- **DO NOT** apply within 25 days of harvest or grazing.
- **DO NOT** use on alfalfa grown for seed unless approved by a State authority to support a Special Local Need (SLN) under FIFRA section 24(c).
- Only apply with an adjuvant or tank mix with products formulated as an emulsifiable concentrate "EC" when targeting control of emerged weeds (expect and accept crop burn and/or stunting if **ZALTUS SC** is used with an adjuvant, a tank mix partner formulated as an emulsifiable concentrate (EC) or a tank mix partner formulated with an adjuvant.)
- Application with paraquat can be used to burndown winter annuals prior to winter dormant period.
- **DO NOT** use on intended mixed alfalfa-grass stands.

### TIMING TO ALFALFA

**ZALTUS SC** may be applied to established alfalfa with a maximum amount of growth of 6 inches or less for the preemergence control of the weeds listed in **Table 7. Weeds Controlled by Residual Activity of ZALTUS SC**. Established alfalfa is defined as alfalfa planted in the fall or spring which has gone through a first cutting/mowing. Application to alfalfa with greater than 6 inches of growth may result in unacceptable crop injury.

For control of winter annual weeds: the best timing for preemergence control is in the fall immediately after the last cutting or sheepling-off has occurred.

For control of summer annual weeds: the best timing for preemergence control is in the spring prior to alfalfa growth and before 6 inches of growth.

## TIMING TO WEEDS

### Preemergence - Preemergence to Weeds

Apply **ZALTUS SC** before alfalfa growth exceeds 6 inches in height for the preemergence control of weeds listed in **Table 7. Weeds Controlled by Residual Activity of ZALTUS SC**. Make applications as soon as possible after cutting and removing alfalfa to minimize injury to alfalfa growth.

### Postemergence Dodder Suppression

Apply **ZALTUS SC** at 4 fl oz per acre with an adjuvant for postemergence suppression of dodder. Tank mixes with imazethapyr or imazamox will increase control.

## DIRECTIONS FOR USE IN ARTICHOKE

### RESTRICTIONS AND LIMITATIONS

- **DO NOT** apply more than 4 fl oz of **ZALTUS SC** per acre per application on annual or perennial artichoke varieties after new planting.
- **DO NOT** apply more than 6 fl oz of **ZALTUS SC** per acre per application on perennial artichoke varieties after cutback.
- **DO NOT** make more than 1 application of **ZALTUS SC** per acre per year.
- **DO NOT** apply more than 6 fl oz of **ZALTUS SC** per acre per year.
- Application to artichoke foliage may result in unacceptable crop injury.

### TIMING TO ARTICHOKE

**Annual Varieties:** **ZALTUS SC** may be applied to artichoke beds prior to transplanting. Application of **ZALTUS SC** must be made to the beds no later than 2 days prior to transplanting. Irrigation or rainfall after transplanting is necessary to activate the **ZALTUS SC**. **DO NOT** irrigate the **ZALTUS SC** before transplanting. Heavy irrigation or rainfall may result in crop injury. The injury is usually transitory and the plants will quickly grow out of the crop damage. Take care to minimize soil disturbance during transplanting, as pre-emergence weed control will decrease as soil disturbance increases.

**Perennial Varieties:** **ZALTUS SC** may be applied to artichokes after planting of crown pieces or "cut back" of mature plants. Applications of **ZALTUS SC** must be made within 2 days after planting or cut back and prior to artichoke emergence. Application after the artichokes have begun to crack, or are emerged, will result in crop injury. Apply before artichokes have begun to emerge (cracking).

### TIMING TO WEEDS

#### Pre-plant (annual)/Preemergence (perennial) to Artichokes - Preemergence to Weeds

Apply **ZALTUS SC** pre-plant to annual artichokes for preemergence control of the weeds. For perennial artichokes apply before cracking for preemergence control the weeds. Apply prior to weed emergence. A post-emergence herbicide may be necessary to control emerged weeds. **ZALTUS SC** may be applied to annual or perennial artichokes as specified above for preemergence control of weeds listed in **Table 7. Weeds Controlled by Residual Activity of ZALTUS SC**.

## DIRECTIONS FOR USE IN ESTABLISHED ASPARAGUS

### RESTRICTIONS AND LIMITATIONS

- **DO NOT** apply more than 6 fl oz of **ZALTUS SC** per acre per application.
- **DO NOT** make more than 1 application of **ZALTUS SC** per acre per year.
- **DO NOT** apply more than 6 fl oz of **ZALTUS SC** per acre per year.
- Apply only to dormant asparagus no less than 14 days before spears emerge. Application to non-dormant asparagus may result in unacceptable crop injury.
- **DO NOT** work soil within 60 days prior to application in the spring. Soil can be worked after spear harvest in preparation for **ZALTUS SC** application prior to fern emergence. Treated soil that is splashed onto the ferns may result in spotting.

### TIMING TO ASPARAGUS - Dormant

**ZALTUS SC** may be applied to dormant asparagus for preemergence control of the weeds listed in **Table 10. Weeds Controlled by Preemergence Application of ZALTUS SC**. Application to non-dormant asparagus will result in unacceptable crop injury. Apply a minimum of two weeks before spear emergence. Scoring may result if a minimum of 0.5 inch of either rainfall or irrigation has not occurred two weeks prior to emergence.

### TIMING TO ASPARAGUS - Post Harvest

Apply **ZALTUS SC** after the final harvest of the year, but prior to fern emergence, for preemergence control of the weeds listed in **Table 10. Weeds Controlled by Preemergence Application of ZALTUS SC**. Application after fern emergence will result in unacceptable crop injury. Apply no less than two weeks prior to fern emergence and must be sprinkler or rainfall incorporated with 1/2 to 3/4 inches of water. Add a burndown tank mix partner for the control of emerged weeds labeled for asparagus in accordance with the most restrictive labeled limitations and precautions.

## TIMING TO WEEDS

### Burndown - Dormant Asparagus, Postemergence to Weeds

ZALTUS SC may be used for residual weed control, as well as to assist in postemergence burndown of many annual and perennial weeds where asparagus is dormant. For control of emerged weeds, tank mix ZALTUS SC with paraquat. Refer to paraquat label for rates and application parameters. To ensure thorough coverage, use a minimum of 15 gallons of spray solution per acre. ZALTUS SC tank mixes applied to assist in the control of emerged weeds must be applied with a non-ionic surfactant at 0.25% v/v. A spray grade nitrogen source (either ammonium sulfate at 2 to 2.5 lb/A or 28 to 32% nitrogen solution at 1 to 2 qt/A) may be added to increase herbicidal activity.

### Burndown - After Last Harvest of Season, Postemergence to Weeds

Use ZALTUS SC for residual weed control and to assist in postemergence burndown for many annual and perennial weeds where asparagus harvest has been completed for the year. For control of emerged weeds, use a labeled tank mix partner with activity on the emerged weeds.

### Preemergence - Dormant Asparagus or After Last Harvest of the Year, Preemergence to Weeds

Apply ZALTUS SC for the preemergence control of weeds listed in Table 10. Weeds Controlled by Preemergence Application of ZALTUS SC.

## DIRECTIONS FOR USE IN CELERY

For Use in California, Michigan, and Wisconsin Only

### RESTRICTIONS AND LIMITATIONS

- DO NOT apply more than 3 fl oz of ZALTUS SC per acre during a pre-transplant application.
- DO NOT apply more than 3 fl oz of ZALTUS SC per acre during a post-transplant application.
- DO NOT make more than 1 application of ZALTUS SC per acre per year.
- DO NOT apply more than 3 fl oz of ZALTUS SC per acre during per year.
- DO NOT use with an adjuvant.
- Post-transplant applications must be made between 3 to 7 days following transplanting.
- DO NOT apply as part of a tank mix.

### PRECAUTIONS

- In the state of California, use as pre-transplant application only.

### TIMING TO CELERY

Apply ZALTUS SC at 3 fl oz/A prior to transplanting, or between 3 and 7 days following transplanting, for preemergence control of the weeds listed in Table 1. Broadleaf Weeds Controlled by Residual Activity of ZALTUS SC.

### TIMING TO WEEDS

Use ZALTUS SC prior to weed emergence for residual control.

Refer to PRODUCT INFORMATION section for tank mix guidance. ZALTUS SC, when applied according to label use directions, will control the weeds listed in Table 1. Broadleaf Weeds Controlled by Residual Activity of ZALTUS SC.

## DIRECTIONS FOR USE IN ESTABLISHED CLOVER AND CLOVER GROWN FOR SEED

For Use in Idaho, Oregon and Washington Only

### RESTRICTIONS AND LIMITATIONS

- DO NOT apply more than 4 fl oz of ZALTUS SC per acre per application.
- DO NOT make more than 1 application of ZALTUS SC per acre per year.
- DO NOT apply more than 4 fl oz of ZALTUS SC per acre per year.
- DO NOT apply within 25 days of harvest or grazing.
- Application to clover with greater than 6 inches of growth may result in unacceptable crop injury.

### PRECAUTIONS

- Applications to clover with 6 inches of growth will result in burning of treated leaves and stems. **Understand and accept this risk before using ZALTUS SC on clover.**
- Only apply with an adjuvant or tank mix with products formulated as an emulsifiable concentrate "EC" when targeting control of emerged weeds (expect and accept crop may be burned and/or stunting when applying tank mixes of ZALTUS SC with an adjuvant).
- Application with paraquat can be used to burndown winter annuals prior to winter dormant period.
- Application to mixed clover grass stands may result in unacceptable injury to the grass.

## TIMING TO CLOVER

ZALTUS SC may be applied to established clover with a maximum amount of growth of 6 inches or less for the preemergence control of the weeds listed in **Table 7. Weeds Controlled by Residual Activity of ZALTUS SC**. Established Clover is defined as clover planted in the fall or spring which has gone through a first cutting/mowing.

For control of winter annual weeds: the best timing for preemergence control is in the fall immediately after the last cutting or sheepling-off has occurred.

For control of summer annual weeds: the best timing for preemergence control is in the spring prior to clover growth and before 6 inches of growth.

## TIMING TO WEEDS

### Preemergence - Preemergence to Weeds

Apply ZALTUS SC before clover growth exceeds 6 inches in height for the preemergence control of weeds listed in **Table 7. Weeds Controlled by Residual Activity of ZALTUS SC**. Make applications as soon as possible after cutting and removing clover to minimize injury to clover growth.

### Postemergence Dodder Suppression

Apply ZALTUS SC at 4 fl oz per acre with an adjuvant for postemergence suppression of dodder. Tank mixes with Pursuit Herbicide or Raptor Herbicide will increase control.

## DIRECTIONS FOR USE IN COTTON

### RESTRICTIONS AND LIMITATIONS

- **DO NOT** apply more than 2 fl oz of ZALTUS SC per acre per application.
- **DO NOT** make more than 2 applications of ZALTUS SC per acre per year.
- **DO NOT** apply more than 4 fl oz of ZALTUS SC per acre per year.
- **DO NOT** make a sequential ZALTUS SC application within 30 days of the first ZALTUS SC application.
- **DO NOT** apply within 60 days of harvest.

### ENVIRONMENTAL CONDITIONS AND BIOLOGICAL PERFORMANCE

#### Hooded, Shielded and Layby Application

For best results, apply ZALTUS SC to actively growing weeds within the growth stages indicated in this label. Applying ZALTUS SC under conditions that **DO NOT** promote active weed growth will reduce herbicide effectiveness. **DO NOT** apply ZALTUS SC when the crop or weeds are under stress due to drought, excessive water, extremes in temperature, disease or low humidity. Weeds under stress tend to become less susceptible to herbicidal action. ZALTUS SC is most effective when applied under sunny conditions at temperatures above 65°F.

ZALTUS SC is rainfast one hour after application. **DO NOT** make applications if rain is expected within one hour of application or postemergence efficacy may be reduced.

### HERBICIDE RATE

#### Hooded, Shielded and Layby Application

For postemergence weed control, apply ZALTUS SC through a hooded or shielded sprayer or at layby, at 2 fl oz/A, in combinations with MSMA or at 1 to 2 fl oz/A in combination with glyphosate, to assist in the control of weeds listed in **Table 4**. Residual weed control can also be obtained through hooded, shielded and layby application of ZALTUS SC. Weeds that are controlled through residual activity of ZALTUS SC are listed in **Table 1**. Weeds that are suppressed by residual activity of ZALTUS SC are listed in **Table 2**.

**Table 4. Emerged Broadleaf Weeds Controlled by Hooded, Shielded and Layby Application of ZALTUS SC Tank Mixes With Glyphosate or MSMA in Cotton**

Broadleaf Weed Species		
Common Name	Scientific Name	Weed Height (inches) 2 fl oz/A
Bindweed, Field <sup>(1)</sup>	<i>Convolvulus arvensis</i>	4
Carpetweed	<i>Mollugo verticillata</i>	4
Chickweed, Common	<i>Stellaria media</i>	4
Cocklebur, Common	<i>Xanthium strumarium</i>	4
Florida Beggarweed	<i>Desmodium tortuosum</i>	2
Hemp Sesbania	<i>Sesbania exaltata</i>	6
Jimsonweed	<i>Datura stramonium</i>	4
Lambsquarters, Common	<i>Chenopodium album</i>	4

(continued)

**Table 4. Emerged Broadleaf Weeds Controlled by Hooded, Shielded and Layby Application of ZALTUS SC Tank Mixes with Glyphosate or MSMA in Cotton (continued)**

<b>Broadleaf Weed Species (continued)</b>		
<b>Common Name</b>	<b>Scientific Name</b>	<b>Weed Height (inches) 2 fl oz/A</b>
Morningglories		
Entireleaf	<i>Ipomoea hederacea</i> var. <i>integriuscula</i>	4
Ivyleaf	<i>Ipomoea hederacea</i>	4
Pitted	<i>Ipomoea lacunose</i>	4
Red	<i>Ipomoea coccinea</i>	4
Tall	<i>Ipomoea purpurea</i>	2
Mustard, Wild	<i>Brassica kaber</i>	6
Nightshades		
Black	<i>Solanum nigrum</i>	4
Eastern Black	<i>Solanum ptycanthum</i>	4
Hairy	<i>Solanum sarrachoides</i>	4
Pigweeds		
Palmer Amaranth	<i>Amaranthus palmeri</i>	4
Redroot	<i>Amaranthus retroflexus</i>	4
Smooth	<i>Amaranthus hybridus</i>	4
Plantain, Broadleaf	<i>Plantago major</i>	6
Prickly Sida (Teaweed)	<i>Sida spinosa</i>	4
Purslane, Common	<i>Portulaca oleracea</i>	2
Ragweeds		
Common	<i>Ambrosia artemisiifolia</i>	2
Giant	<i>Ambrosia trifida</i>	4
Rice Flatsedge	<i>Cyperus iria</i>	2
Sicklepod	<i>Senna obtusifolia</i>	4
Smartweeds		
Ladythumb	<i>Polygonum persicaria</i>	4
Pale	<i>Polygonum lapathifolium</i>	4
Pennsylvania	<i>Polygonum pennsylvanicum</i>	4
Spotted Spurge	<i>Euphorbia maculata</i>	4
Velvetleaf	<i>Abutilon theophrasti</i>	4
Venice Mallow	<i>Hibiscus trionum</i>	2
Waterhemp		
Common	<i>Amaranthus rudis</i>	2
Tall	<i>Amaranthus tuberculatus</i>	2

<sup>(1)</sup> ZALTUS SC tank mixes will control the above ground portion of field bindweed. Repeated applications will be needed to control regrowth.



## CARRIER VOLUME AND SPRAY PRESSURE

### Hooded, Shielded and Layby Application

To ensure thorough coverage in hooded, shielded and layby applications, use 15 to 30 gallons spray solution per treated acre. Use 20 to 30 gallons per treated acre under heavy weed pressure. Nozzle selection must meet manufacturer's gallonage and pressure guidance for application method being used. **DO NOT** use "Flood Jet" nozzles, as they tend to increase the chance of crop injury.

## ADDITIVES

### Hooded, Shielded and Layby Application

Weed control from hooded, shielded or layby application of **ZALTUS SC** in cotton requires the addition of an agronomically approved non-ionic surfactant to the spray mixture. Non-ionic surfactant must contain at least 80% active ingredient. Verify mixing compatibility qualities by a jar test. **The use of crop oil concentrates, methylated seed oils, organo-silicant surfactants or products containing these ingredients, may result in severe crop injury.**

## APPLICATION EQUIPMENT

Apply **ZALTUS SC** tank mixes, with ground equipment using standard commercial sprayers equipped with nozzles designed to deliver the desired spray pressure and spray volume. Application equipment must be clean and in good repair. Nozzles must meet manufacturer's guidelines for spray pattern and placement on spray boom and must be checked frequently for accuracy.

## TIMING TO COTTON

### Hooded and Shielded Application

**ZALTUS SC** tank mixes may be applied with a hooded or shielded sprayer after cotton has reached a minimum of 6 inches in height. All nozzles must be under the hood or behind the shield to ensure no spray solution comes in contact with the cotton. **Care must be taken to ensure the spray solution or drift does not come in contact with the cotton or severe crop injury can occur.**

### Layby Application

Layby application of **ZALTUS SC** tank mixes may be made once cotton has reached a minimum of 16 inches in height. Cotton that is smaller than 16 inches in height may be injured by **ZALTUS SC** applications. **ZALTUS SC** application must be directed to the lower 2 inches of the cotton stem to avoid crop injury.

## TIMING TO WEEDS

**ZALTUS SC** tank mix applications must be made to weeds within the height range given in **Table 4**.

## TANK MIXES

**ZALTUS SC** must be tank mixed with one of the herbicides listed in **Table 5** for postemergence control of the weeds listed in **Table 4**.

Table 5. Tank Mixes with **ZALTUS SC** for Hooded, Shielded and/or Layby Use in Cotton

Tank Mix Partner	Target Weeds	Hooded and Shielded	Layby
glyphosate	Perennial Grasses and Broadleaves	X	X <sup>(1)</sup>
MSMA	Annual Grasses Yellow Nutsedge	X	X

<sup>(1)</sup> For use only in cotton with the Roundup Ready gene.

## DIRECTIONS FOR USE IN DRY BEANS

Dried cultivars of bean (*Lupinus*); bean (*Phaseolus*) (includes field bean, kidney bean, lima bean (dry), navy bean, pinto bean, tepary bean); bean (*Vigna*) (includes adzuki bean, black-eyed pea, catjang, cowpea, crowder pea, moth bean, mung bean, rice bean, southern pea, urd bean); broad bean (dry); chickpea (garbanzo bean); guar; lablab bean and lentil

## WEED SUPPRESSION IN DRY BEANS AND WEED CONTROL IN CHICKPEAS (GARBANZO BEANS)

Arizona, California, Colorado, Hawaii, Idaho, Montana, Nebraska, Oregon and Washington only

### RESTRICTIONS AND LIMITATIONS

- For Chickpeas, **DO NOT** apply more than 2 fl oz of **ZALTUS SC** per acre per application. For all other Dry Beans, **DO NOT** apply more than 1.5 fl oz of **ZALTUS SC** per acre per application.
- **DO NOT** make more than 1 application of **ZALTUS SC** per acre per year.
- For Chickpeas, **DO NOT** apply more than 2 fl oz of **ZALTUS SC** per acre per year. For all other Dry Beans, **DO NOT** apply more than 1.5 fl oz of **ZALTUS SC** per acre per year.

Many weather-related factors, including high wind, splashing or heavy rains or cool conditions at or near crop emergence, may result in dry bean injury in fields treated with **ZALTUS SC**. On occasion this has resulted in a delay in maturity. Understand and accept these risks before using **ZALTUS SC**.

### TIMING TO DRY BEANS AND CHICKPEAS

**ZALTUS SC** may be applied to dry beans within 2 days after planting for the preemergence suppression of the weeds listed in **Table 1. Broadleaf Weeds Controlled by Residual Activity of ZALTUS SC** or **Table 8. Weeds Suppressed by Residual Activity of ZALTUS SC**. Tank mix **ZALTUS SC** with other labeled herbicides for broad spectrum weed control.

## TIMING TO WEEDS

ZALTUS SC may be applied to dry beans prior to planting or preemergence (after planting). Preemergence application of ZALTUS SC must be made within 2 days after planting and prior to dry bean emergence. To avoid severe crop injury, **DO NOT** apply to dry beans after beans begin to crack or have emerged.

Preplant incorporation (PPI) applications may result in reduced weed control.

## ADDITIONAL RESIDUAL GRASS CONTROL

ZALTUS SC can be tank mixed with pendimethalin for additional grass control.

## HARVEST AID

All states

## RESTRICTIONS AND LIMITATIONS

- **DO NOT** apply more than 3 fl oz of ZALTUS SC per acre per application.
- **DO NOT** make more than 1 application of ZALTUS SC per acre per year.
- **DO NOT** apply more than 3 fl oz of ZALTUS SC per acre per year.
- **DO NOT** harvest within 5 days of application.

Desiccation from ZALTUS SC requires the addition of an agronomically approved adjuvant to the spray mixture. Use a methylated seed oil which contains at least 15% emulsifiers and 80% oil at 2% v/v. A spray grade nitrogen source (either ammonium sulfate at 2 to 2.5 lb/A or a 28 to 32% nitrogen solution at 1 to 2 qt/A) may be added to the spray mixture along with either a crop oil concentrate or methylated seed oil to enhance desiccation. The addition of a nitrogen source does not replace the need for a crop oil concentrate or a methylated seed oil. Tank mixing ZALTUS SC with glyphosate or paraquat will increase control of emerged weeds and aid in harvest. Add a burndown tank mix partner for the control of emerged weeds labeled for dry bean in accordance with the most restrictive labeled limitations and precautions.

## TIMING TO DRY BEANS AND CHICKPEAS

Apply when crop is mature and at least 80% of the pods are yellowing and mostly ripe with no more than 40% (bush type beans) or 30% (vine type beans) of the leaves still green in color. Dry beans can be harvested 5 days after application. To ensure thorough coverage use 15 to 30 gallons spray solution per acre. Nozzle selection must meet manufacturer's gallonage and pressure guidelines for postemergence application.

## DIRECTIONS FOR USE IN FIELD CORN

### RESTRICTIONS AND LIMITATIONS

- Use only on no-till or minimum tillage fields where last years crop residue has not been incorporated into the soil.
- Corn must be planted between 14 and 30 days after application unless the application is made as part of a Fall burndown program.
- Corn can be planted 7 days after an application of 2 fl oz/A if a minimum of 25% of the soil surface is covered with the residue of the preceding crop and a minimum of 1/4 inch of rainfall has occurred between application and planting.
- **DO NOT** apply more than 3 fl oz of ZALTUS SC per acre per application.
- **DO NOT** make more than 1 application of ZALTUS SC per acre per year.
- **DO NOT** apply more than 3 fl oz of ZALTUS SC per acre per year.
- **DO NOT** irrigate between emergence and 2-leaf corn.
- **DO NOT** use on popcorn, sweet corn or corn grown for seed.

### TIMING TO FIELD CORN

- Apply ZALTUS SC, at 2 to 3 fl oz/A, between 7 and 30 days prior to planting field corn for the preemergence control of the weeds listed in **Table 1. Broadleaf Weeds Controlled by Residual Activity of ZALTUS SC.**
- Apply ZALTUS SC at 2 fl oz/A between 7 and 30 days prior to planting field corn if a minimum of 25% of the soil surface is covered with the residue of the preceding crop and a minimum of 1/4 inch of rainfall has occurred between application and planting.
- Apply ZALTUS SC at 3 fl oz/A between 14 and 30 days prior to planting field corn.

### Burndown Use Directions - For Preplant Applications in Field Corn

ZALTUS SC, applied as part of a burndown program, may be used for residual weed control, as well as to assist in postemergence burndown of many weeds where field corn will be planted directly into the residue of the previous year. See **DIRECTIONS FOR USE IN FALL AND SPRING PREPLANT BURNDOWN AND FALLOW SEEDBED PROGRAMS IN FIELD CORN, PEANUT AND SOYBEAN** for rates and timing of applications. For control of emerged weeds, ZALTUS SC must be applied with an appropriate burndown tank mix partner listed in **Table 6.**

To ensure thorough coverage, use a minimum of 15 gallons of spray solution per acre. Refer to tank mix partner's label for application pressures and adjuvant systems.

## INCREASING SPEED OF GLYPHOSATE BURNDOWN ACTIVITY

**ZALTUS SC**, at 1 fl oz/A, may be tank mixed with glyphosate to increase the speed of burndown activity compared to glyphosate applied alone. Residual weed control will not be provided at rates lower than 2 fl oz/A; however, suppression of the weeds in **Table 2** may occur at **ZALTUS SC** rates as low as 1 fl oz/A. Applications of **ZALTUS SC** at 1 fl oz/A must be made a minimum of 14 days prior to planting field corn.

## TANK MIXES

**ZALTUS SC** may be tank mixed with the herbicides listed in **Table 6** for pre-plant burndown applications.

Refer to tank mix partner's label for adjuvants.

**Table 6. Tank Mix Partners for Burndown and/or Residual Control of Weeds in Field Corn**

Tank Mix Partners <sup>(1)</sup>	
2,4-D LVE	glyphosate
atrazine	metribuzin
Basis® (rimsulfuron + thifensulfuron, EPA Reg. No. 352-854)	paraquat
clopyralid	Resolve® (rimsulfuron + thifensulfuron, EPA Reg. No. 352-777)
dicamba	simazine
flumetsulam	tribenuron-methyl

<sup>(1)</sup> Refer to tank mix product labels for specific application directions.

## TANK MIX RESTRICTIONS

Tank mixes with flufenacet, metolachlor or s-metolachlor, dimethenamid or dimethenamid-p, or acetochlor may result in injury to field corn when application is followed by prolonged periods of cool wet weather.

## DIRECTIONS FOR USE IN FIELD PEAS

### WEED CONTROL

#### RESTRICTIONS AND LIMITATIONS

- **DO NOT** apply more than 2 fl oz of **ZALTUS SC** per acre per application.
- **DO NOT** make more than 1 application of **ZALTUS SC** per acre per year.
- **DO NOT** apply more than 2 fl oz of **ZALTUS SC** per acre per year.

Many weather-related factors, including high wind, splashing or heavy rains or cool conditions at or near crop emergence, may result in peas injury in fields treated with **ZALTUS SC**. On occasion this has resulted in a delay in maturity. Understand and accept these risks before using **ZALTUS SC**.

#### TIMING TO FIELD PEAS

**ZALTUS SC** may be applied to field peas within 2 days after planting for the preemergence control of the weeds listed in **Table 1. Broadleaf Weeds Controlled by Residual Activity of ZALTUS SC** or **Table 8. Weeds Suppressed by Residual Activity of ZALTUS SC**. Tank mix **ZALTUS SC** with other labeled herbicides for broad spectrum weed control.

#### TIMING TO WEEDS

**ZALTUS SC** may be applied to field peas prior to planting or preemergence (after planting). Preemergence application of **ZALTUS SC** must be made within 2 days after planting and prior to field pea emergence. To avoid severe crop injury, **DO NOT** apply to field peas after peas begin to crack or have emerged.

Preplant incorporation (PPI) applications may result in reduced weed control.

#### ADDITIONAL RESIDUAL GRASS CONTROL

**ZALTUS SC** can be tank mixed with pendimethalin for additional grass control.

### HARVEST AID

#### RESTRICTIONS AND LIMITATIONS

- **DO NOT** apply more than 3 fl oz of **ZALTUS SC** per acre per application.
- **DO NOT** make more than 1 application of **ZALTUS SC** per acre per year.
- **DO NOT** apply more than 3 fl oz of **ZALTUS SC** per acre per year.
- **DO NOT** harvest within 5 days of application.

Desiccation from **ZALTUS SC** requires the addition of an agronomically approved adjuvant to the spray mixture. Use a methylated seed oil which contains at least 15% emulsifiers and 80% oil at 1 qt/A. A spray grade nitrogen source (either ammonium sulfate at 2 to 2.5 lb/A or a 28 to 32% nitrogen solution at 1 to 2 qt/A) may be added to the spray

mixture along with methylated seed oil to enhance desiccation. The addition of a nitrogen source does not replace the need for methylated seed oil. Tank mixing **ZALTUS SC** with glyphosate will increase control of emerged weeds and aid in harvest.

### **TIMING TO FIELD PEAS**

Apply **ZALTUS SC**, at 1.5 to 2 fl oz/A, when crop is physiologically mature and a minimum of 80% of the pods are yellow to tan in color and 20% are yellow in color. If field peas are treated too early, a reduction in seed quality may occur. **DO NOT** spray herbicide on any area of the field with a significant amount of plants with green color. Peas can be harvested 5 days after application.

To ensure thorough coverage, use 15 to 30 gallons of spray solution per acre and select nozzle type using manufacturer's gallonage and pressure guidelines for postemergence application.

## **DIRECTIONS FOR USE IN FLAX**

### **HARVEST AID**

#### **RESTRICTIONS AND LIMITATIONS**

- **DO NOT** apply more than 3 fl oz of **ZALTUS SC** per acre per application.
- **DO NOT** make more than 2 applications of **ZALTUS SC** per acre per year at the 1.5 fl oz rate.
- **DO NOT** apply more than 3 fl oz of **ZALTUS SC** per acre per year.
- **DO NOT** harvest within 5 days of application.

**DO NOT** make a sequential **ZALTUS SC** application within 14 days of the first **ZALTUS SC** application. Desiccation from **ZALTUS SC** requires the addition of an agronomically approved adjuvant to the spray mixture. Use a methylated seed oil which contains at least 15% emulsifiers and 80% oil at 1 qt/A. A spray grade nitrogen source (either ammonium sulfate at 2 to 2.5 lb/A or a 28 to 32% nitrogen solution at 1 to 2 qt/A) may be added to the spray mixture along with methylated seed oil to enhance desiccation. The addition of a nitrogen source does not replace the need for methylated seed oil.

### **TIMING TO FLAX**

Apply **ZALTUS SC** at 1.5 to 2 fl oz/A, when crop is physiologically mature and at least 75% of the bolls are brown in color. Flax can be harvested 5 days after application.

To ensure thorough coverage, use 15 to 30 gallons of spray solution per acre and select nozzle type using manufacturer's gallonage and pressure guidelines for postemergence application.

## **DIRECTIONS FOR USE IN GARLIC**

#### **RESTRICTIONS AND LIMITATIONS**

- **DO NOT** apply more than 6 fl oz of **ZALTUS SC** per acre per application.
- **DO NOT** make more than 1 application of **ZALTUS SC** per acre per year.
- **DO NOT** apply more than 6 fl oz of **ZALTUS SC** per acre per year.

### **TIMING TO GARLIC**

**ZALTUS SC** may be applied, at 6 fl oz/A, to garlic prior to garlic emergence. Make application within 3 days after planting garlic.

### **TIMING TO WEEDS**

#### **Preemergence - Preemergence to Weeds**

Apply **ZALTUS SC** to weed free garlic for preemergence control of the weeds listed in **Table 10. Weeds Controlled by Preemergence Application of ZALTUS SC.**

## **DIRECTIONS FOR USE IN HOPS**

**Not for Use in California and New York.**

#### **RESTRICTIONS AND LIMITATIONS**

- **DO NOT** apply more than 6 fl oz of **ZALTUS SC** per acre per application.
- **DO NOT** make more than 1 application of **ZALTUS SC** per acre per year.
- **DO NOT** apply more than 6 fl oz of **ZALTUS SC** per acre per year.
- **DO NOT** allow spray to contact green stem (unless used for sucker control), foliage, flowers or cones or unacceptable injury may occur.
- **DO NOT** apply within 30 days of harvest.
- **DO NOT** use with an adjuvant.

**ZALTUS SC** can be used in hops for preemergence weed control as well as sucker control.

## TIMING TO HOPS FOR SUCKER CONTROL

Apply **ZALTUS SC** at 6 fl oz/A as a directed application after hops have reached a minimum of 6 feet in height for sucker control. Direct application to the lower 2 feet of the hops.

## TIMING TO HOPS FOR PREEMERGENCE WEED CONTROL

Apply **ZALTUS SC** at 6 fl oz/A as a 1 to 1.5 foot band to each side of the hop row, to dormant hops November thru February to ensure time for rain incorporation and activation. If weeds are emerged at the time of application, tank mix **ZALTUS SC** with a labeled burndown herbicide including paraquat or glyphosate to assist with control of emerged weeds. **DO NOT** mow or rake over treated areas, as dust created by mowing may drift onto sensitive crops or vegetation resulting in injury.

## TIMING TO WEEDS

**ZALTUS SC** applications must be made prior to weed emergence for control of weeds listed in Table 10. **Weeds Controlled by Preemergence Application of ZALTUS SC.** Refer to **PRODUCT INFORMATION** section for tank mix guidance. **ZALTUS SC**, when applied according to label use directions, will control the weeds listed in Table 10. **Weeds Controlled by Preemergence Application of ZALTUS SC.**

## DIRECTIONS FOR USE IN LENTILS

### HARVEST AID

#### RESTRICTIONS AND LIMITATIONS

- **DO NOT** apply more than 3 fl oz of **ZALTUS SC** per acre per application.
- **DO NOT** make more than 1 application of **ZALTUS SC** per acre per year.
- **DO NOT** apply more than 3 fl oz of **ZALTUS SC** per acre per year.
- **DO NOT** harvest within 5 days of application.

Desiccation from **ZALTUS SC** requires the addition of an agronomically approved adjuvant to the spray mixture. Use a methylated seed oil which contains at least 15% emulsifiers and 80% oil at 1 qt/A. A spray grade nitrogen source (either ammonium sulfate at 2 to 2.5 lb/A or a 28 to 32% nitrogen solution at 1 to 2 qt/A) may be added to the spray mixture along with methylated seed oil to enhance desiccation. The addition of a nitrogen source does not replace the need for methylated seed oil. Tank mixing **ZALTUS SC** with glyphosate or paraquat will increase control of emerged weeds and aid in harvest.

#### TIMING TO LENTILS

Apply **ZALTUS SC**, at 1.5 to 2 fl oz/A, when crop is physiologically mature and a minimum of 80% of the pods are yellow to tan in color and 20% are yellow in color. If lentils are treated too early, a reduction in seed quality may occur. **DO NOT** spray **ZALTUS SC** on any area of the field with a significant amount of plants with green color. Lentils can be harvested 5 days after application.

To ensure thorough coverage, use 15 to 30 gallons of spray solution per acre and select nozzle type using manufacturer's gallonage and pressure guidelines for postemergence application.

## DIRECTIONS FOR USE IN MINT

(Peppermint and Spearmint)

#### RESTRICTIONS AND LIMITATIONS

- **DO NOT** apply more than 4 fl oz of **ZALTUS SC** per acre per application.
- **DO NOT** make more than 2 applications of **ZALTUS SC** per acre per year.
- **DO NOT** apply more than 8 fl oz of **ZALTUS SC** per acre per year.
- **DO NOT** make a sequential **ZALTUS SC** application within 60 days of the first **ZALTUS SC** application.
- Apply only to dormant mint. Application to non-dormant mint may result in unacceptable crop injury.
- **DO NOT** apply within 80 days of harvest.

#### PRECAUTIONS

To avoid crop injury:

- Application to stands established longer than 3 years may result in crop injury.
- Applications to stands with weak, thin, or damaged roots or rhizomes may result in crop injury.
- Application to mint in Southern Union County (south of Ladd Canyon) or Baker County in Oregon may result in unacceptable crop injury.
- Use only on established meadow mint.
- Applications to mint that has been weakened by diseases, insects (example mint root borer), nematodes, drought, soil salts, high soil pH, previous pesticides, winter injury or double cutting, may result in severe injury. Apply only to healthy vigorous mint with undamaged rhizomes.

Many weather related factors, including high wind, splashing or heavy rains or cool conditions at or near mint emergence, may result in mint injury in fields treated with **ZALTUS SC**.



**Understand and accept these risks before using ZALTUS SC.**

Tank mixes with labeled rates of paraquat are recommended to control emerged weeds and increase crop safety.

**TIMING TO MINT**

As a spray, **ZALTUS SC** may be applied only to established, dormant mint for preemergence control of the weeds listed in **Table 7** as well as to assist in the postemergence control of emerged weeds. Application to non-dormant mint or to baby (row) mint (time from planting of mint roots through the first cutting), may result in unacceptable crop injury. As a bulk fertilizer application, **ZALTUS SC** may be applied at least 80 days prior to harvest. Leaves must be dry at the time of applications or severe injury may occur.

**TIMING TO WEEDS**

**Burndown - Dormant Mint, Postemergence to Weeds**

**ZALTUS SC** may be used for residual weed control, as well as to assist in postemergence burndown of many annual and perennial weeds where established mint is dormant. For control of emerged weeds, tank mix **ZALTUS SC** with paraquat. Refer to paraquat label for rates and use directions. To ensure thorough coverage, use a minimum of 15 gallons of spray solution per acre. **ZALTUS SC** tank mixes applied to assist in the control of emerged weeds must be applied with a non-ionic surfactant at 0.25% v/v. A spray grade nitrogen source (either ammonium sulfate at 2 to 2.5 lb/A or 28 to 32% nitrogen solution at 1 to 2 qt/A) may be added to increase herbicidal activity.

**Preemergence - Dormant Mint, Preemergence to Weeds**

Apply **ZALTUS SC** to dormant mint for the preemergence control of weeds listed in **Table 7**. Fall applications of **ZALTUS SC**, followed by a sequential application in the Spring, have resulted in better Summer annual weed control than a single Fall or single Spring application.

Fall application is most effective for Fall germinating weeds for example groundsel. Fields plowed or harrowed after a **ZALTUS SC** application will result in less effective pre-emergence activity. In furrow irrigated fields, corrugating that is done after a **ZALTUS SC** application will expose untreated soil and break the herbicide barrier resulting in poor weed control.

**Table 7. Weeds Controlled by Residual Activity of ZALTUS SC**

Broadleaf Weed Species				
Common Name	Scientific Name	Organic Matter	Soil Type	Application Rate
Bristly Starbur	<i>Acanthospermum hispidum</i>	Up to 5%	All Soil Types	4 fl oz/A
Carpetweed	<i>Mollugo verticillata</i>			
Chickweeds				
Common	<i>Stellaria media</i>			
Mouseear	<i>Cerastium vulgatum</i>			
Coffee Senna	<i>Cassia occidentalis</i>			
Copperleaf, Hophornbeam	<i>Acalypha ostryifolia</i>			
Dandelion	<i>Taraxacum officinale</i>			
Dodder (suppression only)* <sup>(1)</sup>	<i>Cuscuta</i> spp.			
Eclipta	<i>Eclipta prostrata</i>			
Evening Primrose, Cutleaf	<i>Oenothera laciniata</i>			
False Chamomile*	<i>Tripleurospermum maritimum</i>			
Fiddleneck, Coast*	<i>Amsinckia menziesii</i>			
Field Pennycress*	<i>Thlaspi arvense</i>			
Fleabane, Hairy*	<i>Conyza bonariensis</i>			
Flixweed*	<i>Descurainia sophia</i>			
Florida Beggarweed	<i>Desmodium tortuosum</i>			
Florida Pusley	<i>Richardia scabra</i>			
Golden Crownbeard	<i>Verbesina encelioides</i>			
Groundsel, Common	<i>Senecio vulgaris</i>			
Hairy Indigo	<i>Indigofera hirsuta</i>			

(continued)

**Table 7. Weeds Controlled by Residual Activity of ZALTUS SC (continued)**

<b>Broadleaf Weed Species (continued)</b>				
<b>Common Name</b>	<b>Scientific Name</b>	<b>Organic Matter</b>	<b>Soil Type</b>	<b>Application Rate</b>
Hemp Sesbania	<i>Sesbania exaltata</i>	Up to 5%	All Soil Types	4 fl oz/A
Henbit	<i>Lamium amplexicaule</i>			
Jimsonweed	<i>Datura stramonium</i>			
Kochia	<i>Kochia scoparia</i>			
Lambsquarters, Common	<i>Chenopodium album</i>			
Little Mallow	<i>Malva parviflora</i>			
London Rocket*	<i>Sisymbrium irio</i>			
Marestail/Horseweed	<i>Conyza canadensis</i>			
Mayweed/False Chamomile*	<i>Matricaria maritimum</i>			
Morningglories				
Entireleaf	<i>Ipomoea hederacea</i> var. <i>integruscula</i>			
Ivyleaf	<i>Ipomoea hederacea</i>			
Red/Scarlet	<i>Ipomoea coccinea</i>			
Smallflower	<i>Jacquemontia tamnifolia</i>			
Tall	<i>Ipomoea purpurea</i>			
Mustard				
Tansy*	<i>Descurainia pinnata</i>			
Tumble*	<i>Sisymbrium altissimum</i>			
Wild	<i>Brassica kaber</i>			
Nettle, Burning*	<i>Urtica urens</i>			
Nightshades				
Black	<i>Solanum nigrum</i>			
Eastern Black	<i>Solanum ptycanthum</i>			
Hairy	<i>Solanum sarrachoides</i>			
Pigweeds				
Palmer Amaranth	<i>Amaranthus palmeri</i>			
Redroot	<i>Amaranthus retroflexus</i>			
Smooth	<i>Amaranthus hybridus</i>			
Spiny Amaranth	<i>Amaranthus spinosus</i>			
Tumble	<i>Amaranthus albus</i>			
Prickly Lettuce (China Lettuce)	<i>Lactuca serriola</i>			
Prickly Sida (Teaweed)	<i>Sida spinosa</i>			
Puncturevine	<i>Tribulus terrestris</i>			
Purslane				
Common	<i>Portulaca oleracea</i>			
Horse*	<i>Trianthema portulacastrum</i>			

(continued)

**Table 7. Weeds Controlled by Residual Activity of ZALTUS SC (continued)**

<b>Broadleaf Weed Species (continued)</b>				
<b>Common Name</b>	<b>Scientific Name</b>	<b>Organic Matter</b>	<b>Soil Type</b>	<b>Application Rate</b>
Radish, Wild	<i>Raphanus raphanistrum</i>	Up to 5%	All Soil Types	4 fl oz/A
Ragweed, Common	<i>Ambrosia artemisiifolia</i>			
Redmaids	<i>Calandrinia ciliata</i> var. <i>menziesii</i>			
Russian Thistle	<i>Salsola iberica</i>			
Shepherd's-purse	<i>Capsella bursa-pastoris</i>			
Smartweeds				
Ladysthumb	<i>Polygonum persicaria</i>			
Pennsylvania	<i>Polygonum pennsylvanicum</i>			
Smellmelon*	<i>Cucumis melo</i>			
Sowthistle, Prickly*	<i>Sonchus asper</i>			
Spotted Spurge	<i>Euphorbia maculata</i>			
Spurred Anoda	<i>Anoda cristata</i>			
Tropic Croton	<i>Croton glandulosus</i>			
Velvetleaf	<i>Abutilon theophrasti</i>			
Venice Mallow	<i>Hibiscus trionum</i>			
Waterhemp				
Common	<i>Amaranthus rudis</i>			
Tall	<i>Amaranthus tuberculatus</i>			
White Cockle*	<i>Silene latifolia</i>			
Wild Poinsettia	<i>Euphorbia heterophylla</i>			
Wormwood, Biennial	<i>Artemisia biennis</i>			
Yellow Rocket*	<i>Barbarea vulgaris</i>			
<b>GRASS WEED SPECIES</b>				
Barnyardgrass	<i>Echinochloa crus-galli</i>	Up to 5%	All Soil Types	4 fl oz/A
Bluegrass, Annual	<i>Poa annua</i>			
Crabgrass, Large	<i>Digitaria sanguinalis</i>			
Foxtail, Giant	<i>Setaria faberi</i>			
Goosegrass	<i>Eleusine indica</i>			
Lovegrass, California	<i>Eragrostis diffusa</i>			
Panicums				
Fall	<i>Panicum dichotomiflorum</i>			
Texas	<i>Panicum texanum</i>			
Ryegrass, Italian*	<i>Lolium multiflorum</i>			
Signalgrass, Broadleaf	<i>Brachiaria platyphylla</i>			

<sup>(1)</sup> **ZALTUS SC** at 4 fl oz/A will provide postemergence dodder suppression when applied in combination with imazethapyr or imazamox at labeled rates. Imazethapyr and imazamox require the use of NIS, which will result in burn and stunting of alfalfa. Understand and accept these risks before tank mixing with **ZALTUS SC**.

\*Not for use in California.

## DIRECTIONS FOR USE IN ONION (DRY BULB)

For Use in Michigan, New York, North Dakota and Wisconsin Only.

### RESTRICTIONS AND LIMITATIONS

- **DO NOT** apply more than 2 fl oz of **ZALTUS SC** per acre per application.
- **DO NOT** make more than 6 applications of **ZALTUS SC** per acre per year at the 0.5 fl oz rate.
- **DO NOT** apply more than 3 fl oz of **ZALTUS SC** per acre per year.
- **DO NOT** make a sequential **ZALTUS SC** application within 14 days of the first **ZALTUS SC** application **DO NOT** apply more than 1 fl oz of **ZALTUS SC** per year on soils that contain greater than 90% sand plus gravel.
- **DO NOT** apply as part of a tank mix, other than Prowl® H2O Herbicide, or unacceptable injury may result. **DO NOT** tank mix other formulations of pendimethalin with **ZALTUS SC** for use in onions.
- **DO NOT** apply with any type of adjuvant.
- **DO NOT** apply within 45 days of harvest.

Use of **ZALTUS SC** may result in necrotic spotting of onion leaves that come in contact with the spray. Understand and accept this risk before using **ZALTUS SC**.

### Microrate Application

Sequential applications of **ZALTUS SC** may be applied to onions (dry bulb), between the 2-leaf and 6-leaf stage, at rates of 0.5 to 1 fl oz/A, on a 7 day interval.

### TIMING TO ONIONS (dry bulb)

Apply **ZALTUS SC** to transplanted onions (dry bulb) between the 2-leaf and 6-leaf stage and on direct seed onions (dry bulb) between the 3-leaf and 6-leaf stage.

### TIMING TO WEEDS

#### Preemergence - Emerged Onions (dry bulb), Preemergence to Weeds

Apply **ZALTUS SC** to weed free onions (dry bulb) for preemergence control of the weeds listed in Table 1. Broadleaf Weeds Controlled by Residual Activity to **ZALTUS SC**, Section A.

## DIRECTIONS FOR USE IN PEANUT

### RESTRICTIONS AND LIMITATIONS

- **DO NOT** apply more than 3 fl oz of **ZALTUS SC** per acre per application.
- **DO NOT** apply more than 1 application of **ZALTUS SC** per acre per year.
- **DO NOT** apply more than 3 fl oz of **ZALTUS SC** per acre per year.
- **DO NOT** irrigate when peanuts are cracking.
- **DO NOT** graze treated fields or feed treated hay to livestock.

Many weather related factors, including high wind, splashing or heavy rains or cool conditions at or near peanut emergence, may result in peanut injury in fields treated with **ZALTUS SC**. On occasion this has resulted in a delay in maturity or even a slight decrease in yield.

### WIND MANAGEMENT

In areas where shallow cultivation is used between rows to reduce wind-borne sand damage to peanuts, weed control from **ZALTUS SC** may be reduced.

### TIMING TO PEANUTS

**ZALTUS SC** may be applied to peanuts prior to planting or preemergence (after planting). Preemergence applications of **ZALTUS SC** must be made within 2 days after planting and prior to peanut emergence. Application after the peanuts have begun to crack, or are emerged, will result in severe crop injury. Apply before peanuts have begun to crack. Select **ZALTUS SC** rate from Table 1 according to anticipated weed spectrum.

### TIMING TO WEEDS

#### Burndown - Preemergence to Peanuts, Postemergence to Weeds

**ZALTUS SC**, applied as part of a burndown program, may be used for residual weed control, as well as to assist in postemergence burndown of many annual and perennial weeds where peanuts will be planted directly into a stale seedbed, cover crop or in previous crop residues. Apply **ZALTUS SC** before planting, during planting or after planting, but before the crop emerges. For control of emerged weeds, tank mix **ZALTUS SC** with glyphosate. Refer to glyphosate label for rates and application pressure. To ensure thorough coverage, use a minimum of 15 gallons of spray solution per acre. **ZALTUS SC** tank mixes applied to assist in the control of emerged weeds must be applied with an adjuvant, including a non-ionic surfactant at 0.25% v/v or a crop oil concentrate or a methylated seed oil at 1 to 2 pt/A. A spray grade nitrogen source (either ammonium sulfate at 2 to 2.5 lb/A or 28 to 32% nitrogen solution at 1 to 2 qt/A) may be added to increase herbicidal activity.

Preemergence (conventional tillage) applications of **ZALTUS SC** must be applied prior to weed emergence.

## ADDITIONAL RESIDUAL GRASS CONTROL: SEQUENTIAL

ZALTUS SC may be applied sequentially following a preplant incorporated application of trifluralin (states of New Mexico, Oklahoma and Texas only), ethalfluralin, metolachlor, pendimethalin or dimethenamid.

## ADDITIONAL RESIDUAL GRASS CONTROL: TANK MIXED

ZALTUS SC can be tank mixed with alachlor, metolachlor or dimethenamid for additional grass and broadleaf weed control. ZALTUS SC can also be tank mixed with pendimethalin or ethalfluralin in states where they are labeled, provided overhead irrigation guidelines on the pendimethalin and/or ethalfluralin labels are followed.

## DIRECTIONS FOR USE IN POTATO

For Use in Arizona, California, Colorado, Delaware, Florida, Hawaii, Idaho, Maryland, Minnesota, Montana, Nebraska, Nevada, New Jersey, New Mexico, North Carolina, North Dakota, Oregon, South Carolina, South Dakota, Texas, Utah, Virginia, Washington, Washington DC and Wyoming only.

## RESTRICTIONS AND LIMITATIONS

- **DO NOT** apply more than 1.5 fl oz of ZALTUS SC per acre per application.
- **DO NOT** apply more than 1 application of ZALTUS SC per acre per year.
- **DO NOT** apply more than 1.5 fl oz of ZALTUS SC per acre per year.
- **DO NOT** apply to Rill (furrow) irrigated potatoes.

Many weather related factors, including high wind, splashing or heavy rains or cool conditions at or near potato emergence, may result in potato injury in fields treated with ZALTUS SC. On occasion this has resulted in a delay in maturity. Understand and accept these risks before using ZALTUS SC.

## TIMING TO POTATOES

ZALTUS SC may be applied to potatoes after hilling for the preemergence suppression of the weeds listed in Table 8. Weeds Suppressed by Residual Activity of ZALTUS SC at 1.5 fl oz/A. Tank mix ZALTUS SC with other labeled herbicides for broad spectrum weed control. A minimum of 2 inches of settled soil must cover the vegetative portion of the potato plant at the time of ZALTUS SC application.

Application to potatoes with less than 2 inches of soil covering the vegetative portion of the potato may result in crop injury. In areas with historically higher amounts of rainfall during the time of preemergence herbicide applications, including the Red River Valley, Minnesota and North Dakota, the requirement for 2 inches of settled soil is critical to avoid crop injury. Mechanical incorporation of ZALTUS SC will result in decreased weed control. In areas with sprinkler irrigation, incorporate ZALTUS SC with 1/4 to 3/4 inches of irrigation, after application and before any sprouts are within 2 inches of the settled soil surface if a rainfall event has not yet occurred.

## TIMING TO WEEDS

### Preemergence - Soil Covered Potatoes, Preemergence To Weeds

Apply ZALTUS SC to soil covered potatoes for the preemergence suppression of the weeds listed in Table 8. Harrowing, cultivation or corrugating after ZALTUS SC application will reduce weed control.

Table 8. Weeds Suppressed by Residual Activity of ZALTUS SC at 1.5 fl oz/A

Common Name	Scientific Name	Organic Matter	Application Rate
Lambsquarters, Common	<i>Chenopodium album</i>	Up to 5%	1.5 fl oz/A
Mustard, Wild	<i>Brassica kaber</i>		
Nightshades			
Black	<i>Solanum nigrum</i>		
Eastern Black	<i>Solanum ptycanthum</i>		
Hairy	<i>Solanum sarrachoides</i>		
Pigweeds			
Palmer Amaranth	<i>Amaranthus palmeri</i>		
Redroot	<i>Amaranthus retroflexus</i>		
Smooth	<i>Amaranthus hybridus</i>		
Spiny Amaranth	<i>Amaranthus spinosus</i>		
Tumble	<i>Amaranthus albus</i>		
Prickly Lettuce (China Lettuce)	<i>Lactuca serriola</i>		
Radish, Wild	<i>Raphanus raphanistrum</i>		

## DIRECTIONS FOR USE IN SOYBEAN

### RESTRICTIONS AND LIMITATIONS

- **DO NOT** apply more than 3 fl oz of **ZALTUS SC** per acre per application.
- **DO NOT** apply more than 1 application of **ZALTUS SC** per acre per year.
- **DO NOT** apply more than 3 fl oz of **ZALTUS SC** per acre per year.
- Graze treated fields or feed treated hay to livestock no sooner than 21 days after application.

### PRECAUTIONS

- If **ZALTUS SC** is tank mixed with flufenacet, metolachlor or dimethenamid and applied within 14 days of planting soybeans, plant under no-till or minimum tillage conditions on wheat stubble or field corn stubble.
- Irrigation when soybeans are cracking may result in severe injury.

### TIMING TO SOYBEANS

**ZALTUS SC** may be applied to soybeans prior to planting or preemergence (after planting). Preemergence application of **ZALTUS SC** must be made within 3 days after planting and prior to soybean emergence. Application after the soybeans have begun to crack, or are emerged, will result in severe crop injury. Apply before soybeans have begun to crack. Select **ZALTUS SC** rate from **Table 1** according to anticipated weed spectrum.

### TIMING TO WEEDS

#### Burndown - Preemergence to Soybeans, Postemergence to Weeds

**ZALTUS SC**, applied as part of a burndown program, may be used for residual weed control, as well as to assist in postemergence burndown of many annual and perennial weeds where soybeans will be planted directly into a stale seedbed, cover crop or in previous crop residues. For control of emerged weeds, choose the most appropriate tank mix partner from **Table 9**. Apply **ZALTUS SC** with ground equipment before planting, during planting or within 3 days after planting, **but before the crop emerges**. To ensure thorough coverage, use a minimum of 15 gallons of spray solution per acre. Refer to tank mix partner's label for rates and application pressures. All **ZALTUS SC** tank mixes applied to assist in the control of emerged weeds must be applied with crop oil concentrate or methylated seed oil at 1 to 2 pt/A or a non-ionic surfactant at 0.25% v/v.

#### INCREASING SPEED OF GLYPHOSATE BURNDOWN ACTIVITY

**ZALTUS SC**, at rates as low as 1 fl oz/A, may be tank mixed with glyphosate to increase the speed of burndown activity compared to glyphosate applied alone. Residual weed control will not be provided at rates lower than 2 fl oz/A; however, suppression of the weeds in **Table 2**, may occur at **ZALTUS SC** rates as low as 1 fl oz/A.

### TANK MIXES

**ZALTUS SC** may be tank mixed with the herbicides listed in **Table 9** for increased burndown activity, additional residual broadleaf and/or additional grass control. Refer to tank mix partner's label for adjuvant selection.

**Table 9. Tank Mix Partners for Control of Emerged Weeds in Reduced Tillage Soybeans**

Tank Mix Partner	Target Weeds <sup>(1)</sup>
2,4-D LVE	Marestail Giant Ragweed Dandelion
paraquat	Annual Grasses Henbit
glyphosate	General Burndown
Select Max <sup>®</sup> (clethodim, EPA Reg. No. 59639-132)	Annual Grasses
Scepter <sup>®</sup> 70 DG (imazaquin, EPA Reg. No. 5481-610)	Cocklebur Common Sunflower
Weedmaster <sup>®</sup> (dicamba + 2,4-D, dimethylamine salt, EPA Reg. No. 71368-34)	Marestail Giant Ragweed Dandelion

<sup>(1)</sup> Refer to tank mix product labels for specific use directions for control of emerged weeds present.

### ADDITIONAL RESIDUAL BROADLEAF CONTROL

**ZALTUS SC** can be tank mixed with metribuzin, cloransulam-methyl, linuron, imazethapyr, flumetsulam, Squadron<sup>®</sup>, Scepter (imazaquin, EPA Reg. No. 5481-597) or Steel<sup>®</sup> (imazaquin + imazethapyr + pendimethalin, EPA Reg. No. 5481-605) for additional broadleaf control.



## ADDITIONAL RESIDUAL GRASS CONTROL

ZALTUS SC can be tank mixed with pendimethalin or Command® (clomazone, EPA Reg. No. 279-3158) for additional grass control. In the states of Alabama, Arkansas, Delaware, Georgia, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas and Virginia. ZALTUS SC can be tank mixed with microencapsulated acetochlor at 2 fl oz per acre. Tank mixes with flufenacet, metolachlor or dimethenamid may result in severe injury to soybeans when application is followed by prolonged periods of cool wet weather.

## ROUNDUP READY PROGRAM

ZALTUS SC may be applied as part of a burndown program or preemergence in conventional tillage programs, at 2 to 3 fl oz/A to reduce early season weed competition from waterhemp, velvetleaf, nightshade and morningglories as well as other weeds listed in Tables 2 and 3 in Roundup Ready programs. A sequential post emergence application of glyphosate will be required to control weeds not controlled by ZALTUS SC.

## DIRECTIONS FOR USE IN STRAWBERRY

### RESTRICTIONS AND LIMITATIONS:

- **DO NOT** apply more than 3 fl oz of ZALTUS SC per acre per application.
- **DO NOT** apply more than 1 application of ZALTUS SC per acre per year.
- **DO NOT** apply more than 3 fl oz of ZALTUS SC per acre per year.

### PRECAUTIONS

- ZALTUS SC, at 3 fl oz per acre, can be applied to the soil a minimum of 30 days prior to transplanting strawberries provided the strawberries will be transplanted through a plastic mulch.
- ZALTUS SC at 3 fl oz per acre can be applied to dormant (established or newly planted) strawberries for the preemergence control of the weeds listed in Table 1. **Broadleaf Weeds Controlled by Residual Activity of ZALTUS SC.**
- ZALTUS SC, at 3 fl oz per acre, can be applied in strawberry row middles with a shielded or hooded sprayer for the preemergence control of the weeds listed in Table 1. **Broadleaf Weeds Controlled by Residual Activity of ZALTUS SC.**

Application Method	Minimum Time From Application to Harvest (PHI)	Use Rate Per Acre Per Application (fl oz)	Use Rate Per Acre Per Year (fl oz)	Special Use Instructions
Pre-transplant	Not applicable	3	3	Apply a minimum of 30 days prior to transplanting and prior to plastic mulch being laid. Apply as part of a tank mix to control emerged weeds.
Pre-emergence to dormant strawberries	Not applicable	3	3	Crop oil concentrate, at 1% v/v, or non-ionic surfactant, at 0.25% v/v, may be added to help control emerged broadleaf weeds.
Hooded or shielded sprayer application to row middles	<b>DO NOT</b> apply after fruit set	3	3	<b>Apply only to row middles - DO NOT apply over strawberries</b> Apply prior to weed emergence. Crop spotting may occur if an adjuvant is added. <b>DO NOT apply after fruit set or spotting of fruit may occur.</b> <b>DO NOT</b> allow spray drift to come in contact with fruit or foliage.

**Table 10. Weeds Controlled by Preemergence Application of ZALTUS SC**

Broadleaf Weed Species				
Common Name	Scientific Name	Organic Matter	Soil Type	Application Rates
Bristly Starbur	<i>Acanthospermum hispidum</i>	Up to 10% <sup>(1)</sup>	All Soil Types <sup>(2)</sup>	Asparagus, Caneberries, Garlic, Hops 6 fl oz/A Sugarcane 6 to 8 fl oz/A Bushberries, Citrus Fruit, Grapes, Olive, Pome Fruit, Pomegranate, Stone Fruit, Tree Nuts and Non-Bearing Fruit Trees 6 to 12 fl oz/A <sup>(2)</sup> To Maintain Bare Ground on Non-Crop Areas of Farms, Orchards & Vineyards 6 to 12 fl oz/A
Carpetweed	<i>Mollugo verticillata</i>			
Chickweeds				
Common	<i>Stellaria media</i>			
Mouseear	<i>Cerastium vulgatum</i>			
Coffee Senna	<i>Cassia occidentalis</i>			
Dandelion	<i>Taraxacum officinale</i>			
Eclipta	<i>Eclipta prostrata</i>			
Evening Primrose, Cutleaf	<i>Oenothera laciniata</i>			
False Chamomile*	<i>Tripleurospermum maritimum</i>			
Filaree				
Redstem	<i>Erodium cicutarium</i>			
Whitestem	<i>Erodium moschatum</i>			
Fiddleneck, Coast*	<i>Amsinckia menziesii</i>			
Fleabane, Hairy	<i>Conyza bonariensis</i>			
Field Pennycress*	<i>Thlaspi arvense</i>			
Florida Beggarweed	<i>Desmodium tortuosum</i>			
Florida Pusley	<i>Richardia scabra</i>			
Golden Crownbeard	<i>Verbesina encelioides</i>			
Groundsel, Common	<i>Senecio vulgaris</i>			
Hairy Indigo	<i>Indigofera hirsuta</i>			
Hemp Sesbania	<i>Sesbania exaltata</i>			
Henbit	<i>Lamium amplexicaule</i>			
Jimsonweed	<i>Datura stramonium</i>			
Kochia	<i>Kochia scoparia</i>			
Lambsquarters, Common	<i>Chenopodium album</i>			
Mallow				
Common (Cheeseweed)	<i>Malva neglecta</i>			
Little	<i>Malva parviflora</i>			
Horseweed/Marestail	<i>Conyza canadensis</i>			
Mayweed/False Chamomile*	<i>Matricaria maritimum</i>			

(continued)

**Table 10. Weeds Controlled by Pre-emergence Application of ZALTUS SC (continued)**

<b>Broadleaf Weed Species (continued)</b>				
<b>Common Name</b>	<b>Scientific Name</b>	<b>Organic Matter</b>	<b>Soil Type</b>	<b>Application Rates</b>
Morningglories		Up to 10% <sup>(1)</sup>	All Soil Types <sup>(2)</sup>	Asparagus, Caneberries, Garlic, Hops 6 fl oz/A Sugarcane 6 to 8 fl oz/A Bushberries, Citrus Fruit, Grapes, Olive, Pome Fruit, Pomegranate, Stone Fruit, Tree Nuts and Non-Bearing Fruit Trees 6 to 12 fl oz/A <sup>(2)</sup> To Maintain Bare Ground on Non-Crop Areas of Farms, Orchards & Vineyards 6 to 12 fl oz/A
Entireleaf	<i>Ipomoea hederacea</i> var. <i>integriuscula</i>			
Ivyleaf	<i>Ipomoea hederacea</i>			
Red/Scarlet	<i>Ipomoea coccinea</i>			
Smallflower	<i>Jacquemontia tamnifolia</i>			
Tall	<i>Ipomoea purpurea</i>			
Mustards				
London Rocket*	<i>Sisymbrium irio</i>			
Tansy*	<i>Descurainia pinnata</i>			
Tumble	<i>Sisymbrium altissimum</i>			
Wild	<i>Brassica kaber</i>			
Nettle, Burning*	<i>Urtica urens</i>			
Nightshades				
Black	<i>Solanum nigrum</i>			
Eastern Black	<i>Solanum ptycanthum</i>			
Hairy	<i>Solanum sarrachoides</i>			
Pigweeds				
Palmer Amaranth	<i>Amaranthus palmeri</i>			
Redroot	<i>Amaranthus retroflexus</i>			
Smooth	<i>Amaranthus hybridus</i>			
Spiny Amaranth	<i>Amaranthus spinosus</i>			
Tumble	<i>Amaranthus albus</i>			
Prickly Lettuce (China Lettuce)	<i>Lactuca serriola</i>			
Prickly Sida (Teaweed)	<i>Sida spinosa</i>			
Puncturevine	<i>Tribulus terrestris</i>			
Purslane				
Common	<i>Portulaca oleracea</i>			
Horse*	<i>Trianthema portulacastrum</i>			
Radish, Wild	<i>Raphanus raphanistrum</i>			
Ragweed, Common	<i>Ambrosia artemisiifolia</i>			
Redmaids	<i>Calandrinia ciliata</i> var. <i>menziesii</i>			
Redweed	<i>Melochia corchorifolia</i>			
Shepherd's-purse	<i>Capsella bursa-pastoris</i>			
Smellmelon*	<i>Cucumis melo</i>			
Sowthistle, Annual	<i>Sonchus oleraceus</i>			
Spotted Spurge	<i>Euphorbia maculata</i>			
Spurred Anoda	<i>Anoda cristata</i>			

(continued)

**Table 10. Weeds Controlled by Pre-emergence Application of ZALTUS SC (continued)**

<b>Broadleaf Weed Species (continued)</b>				
<b>Common Name</b>	<b>Scientific Name</b>	<b>Organic Matter</b>	<b>Soil Type</b>	<b>Application Rates</b>
Thistle, Russian	<i>Salsola iberica</i>	Up to 10% <sup>(1)</sup>	All Soil Types <sup>(2)</sup>	Asparagus, Caneberries, Garlic, Hops 6 fl oz/A Sugarcane 6 to 8 fl oz/A Bushberries, Citrus Fruit, Grapes, Olive, Pome Fruit, Pomegranate, Stone Fruit, Tree Nuts and Non-Bearing Fruit Trees 6 to 12 fl oz/A <sup>(2)</sup> To Maintain Bare Ground on Non-Crop Areas of Farms, Orchards & Vineyards 6 to 12 fl oz/A
Tropic Croton	<i>Croton glandulosus</i>			
Venice Mallow	<i>Hibiscus trionum</i>			
Waterhemp				
Common	<i>Amaranthus rudis</i>			
Tall	<i>Amaranthus tuberculatus</i>			
Wild Poinsettia	<i>Euphorbia heterophylla</i>			
White Cockle*	<i>Silene latifolia</i>			
Wormwood, Biennial	<i>Artemisia biennis</i>			
Yellow Rocket*	<i>Barbarea vulgaris</i>			
<b>Grass Weed Species</b>				
Barnyardgrass	<i>Echinochloa crus-galli</i>	Up to 10% <sup>(1)</sup>	All Soil Types <sup>(2)</sup>	Asparagus, Caneberries, Garlic, Hops 6 fl oz/A Sugarcane 6 to 8 fl oz/A Bushberries, Citrus Fruit, Grapes, Olive, Pome Fruit, Pomegranate, Stone Fruit, Tree Nuts and Non-Bearing Fruit Trees 6 to 12 fl oz/A <sup>(2)</sup> To Maintain Bare Ground on Non-Crop Areas of Farms, Orchards & Vineyards 6 to 12 fl oz/A
Bluegrass, Annual	<i>Poa annua</i>			
Crabgrass				
Large	<i>Digitaria sanguinalis</i>			
Smooth	<i>Digitaria ischaemum</i>			
Foxtails				
Bristly	<i>Setaria verticillata</i>			
Giant	<i>Setaria faberi</i>			
Green	<i>Setaria viridis</i>			
Yellow	<i>Setaria glauca</i>			
Goosegrass	<i>Eleusine indica</i>			
Guineagrass	<i>Panicum maximum</i>			
Johnsongrass, Seedling	<i>Sorghum halepense</i>			
Lovegrass, California	<i>Eragrostis diffusa</i>			
Panicum				
Fall	<i>Panicum dichotomiflorum</i>			
Texas	<i>Panicum texanum</i>			
Ryegrass, Italian*	<i>Lolium multiflorum</i>			
Signalgrass, Broadleaf	<i>Brachiaria platyphylla</i>			

\* Not for use in California.

<sup>(1)</sup> ZALTUS SC can be used on soils with greater than 10% organic matter; however, length of residual control may be shorter than on soils with lower organic matter content.

<sup>(2)</sup> Use a maximum ZALTUS SC rate of 6 fl oz/A per application on any soil that has a sand plus gravel content over 80% if bushes, trees or vines are under 3 years of age.

## DIRECTIONS FOR USE IN SUGARCANE

### RESTRICTIONS AND LIMITATIONS

- **DO NOT** apply more than 8 fl oz of **ZALTUS SC** per acre per application.
- **DO NOT** make a sequential **ZALTUS SC** application within 14 days of the first **ZALTUS SC** application **DO NOT** apply more than 4 applications of **ZALTUS SC** per acre per year at the 3 fl oz rate.
- **DO NOT** apply more than 12 fl oz of **ZALTUS SC** per acre per year.
- **DO NOT** apply within 90 days of harvest.

### TIMING TO SUGARCANE

**ZALTUS SC** may be applied from 2 weeks prior to planting to before the sugarcane emerges, post directed or at layby. Select the proper **ZALTUS SC** rate from **Table 10** according to anticipated weed spectrum and soil organic matter content for preemergence applications. Select **ZALTUS SC** rate from **Table 11** according to emerged weed spectrum and weed heights for post-directed and layby applications.

### TIMING TO WEEDS

#### Burndown - Preemergence to Sugarcane, Postemergence to Weeds

**ZALTUS SC** may be used for preemergence control, and to assist in postemergence burndown, of many annual broadleaf weeds in sugarcane. For control of emerged weeds, choose the most appropriate tank mix partner from **Table 12**. Apply **ZALTUS SC** before the crop emerges. To ensure thorough coverage, use a minimum of 15 gallons of spray solution per acre. All **ZALTUS SC** tank mixes applied to assist in the control of emerged weeds must be applied with crop oil concentrate or methylated seed oil at 1 qt/A or a non-ionic surfactant at 0.25% v/v. Some tank mix products, for example Roundup Original Max (glyphosate), may be formulated with a suitable adjuvant and **DO NOT** require additional adjuvant.

#### Preemergence - Preemergence to Sugarcane, Preemergence to Weeds

**ZALTUS SC** may be used for preemergence control of many annual broadleaf and grassy weeds in sugarcane. Select rate based on anticipated weed spectrum and soil organic matter content from **Table 10**. Apply **ZALTUS SC** before the crop emerges.

#### Post-Directed - Postemergence to Sugarcane, Postemergence to Weeds

Make post-directed applications to upright sugarcane varieties after the sugarcane has exceeded 24 inches in height and has begun to joint. Post-directed applications to "PINEAPPLE" varieties or to upright varieties that are less than 24 inches in height and have not begun to joint, may result in unacceptable crop injury. To ensure thorough coverage, use a minimum of 15 gallons of spray solution per acre. Post-directed applications of flumioxazin must include a crop oil concentrate or methylated seed oil at 1 qt/A or a non-ionic surfactant at 0.25% v/v. Select the proper **ZALTUS SC** rate based on weed spectrum and weed height from **Table 11**.

#### Layby - Postemergence to Sugarcane, Postemergence to Weeds

Layby applications can be made to upright and "PINEAPPLE" varieties after the sugarcane has exceeded 30 inches in height and the spray solution will not contact foliage above 6 inches from the base of the sugarcane. To ensure thorough coverage, use a minimum of 15 gallons of spray solution per acre. Layby applications of **ZALTUS SC** must be applied with crop oil concentrate or methylated seed oil at 1 qt/A or a non-ionic surfactant at 0.25% v/v. Select the proper **ZALTUS SC** rate based on weed spectrum and weed height from **Table 11**.

**Table 11. Broadleaf Weeds Controlled by Post-Directed or Layby Application of ZALTUS SC in Sugarcane**

Broadleaf Weed Species		Weed Height (Inches)	
Common Name	Scientific Name	3 fl oz/A	4 fl oz/A
Bindweed, Field <sup>(1)</sup>	<i>Convolvulus arvensis</i>	4	8
Carpetweed	<i>Mollugo verticillata</i>	4	4
Cocklebur, Common	<i>Xanthium strumarium</i>	4	4
Florida Beggarweed	<i>Desmodium tortuosum</i>	2	2
Hemp Sesbania	<i>Sesbania exaltata</i>	6	8
Jimsonweed	<i>Datura stramonium</i>	4	4
Lambsquarters, Common	<i>Chenopodium album</i>	4	4
Morningglories			
Entireleaf	<i>Ipomoea hederacea</i> var. <i>integriuscula</i>	-	4
Ivyleaf	<i>Ipomoea hederacea</i>	4	4
Pitted	<i>Ipomoea lacunosa</i>	4	6
Red	<i>Ipomoea coccinea</i>	-	4
Tall	<i>Ipomoea purpurea</i>	2	4

(continued)

Table 11. Broadleaf Weeds Controlled by Post-directed or Layby Application of ZALTUS SC in Sugarcane (continued)

Broadleaf Weed Species (continued)			
Common Name	Scientific Name	Weed Height (Inches)	
		3 fl oz/A	4 fl oz/A
Mustard, Wild	<i>Brassica kaber</i>	6	6
Pigweeds			
Palmer Amaranth	<i>Amaranthus palmeri</i>	4	6
Redroot	<i>Amaranthus retroflexus</i>	4	6
Smooth	<i>Amaranthus hybridus</i>	4	6
Plantain, Broadleaf	<i>Plantago major</i>	6	6
Prickly Sida	<i>Sida spinosa</i>	4	6
Purslanes			
Common	<i>Portulaca oleracea</i>	2	4
Rock	<i>Calandrinia</i> spp.	-	2
Ragweeds			
Common	<i>Ambrosia artemisiifolia</i>	2	2
Giant	<i>Ambrosia trifida</i>	4	4
Rice Flatsedge	<i>Cyperus iria</i>	2	4
Sicklepod	<i>Senna obtusifolia</i>	4	4
Smartweeds			
Ladysthumb	<i>Polygonum persicaria</i>	4	4
Pale	<i>Polygonum lapathifolium</i>	4	4
Pennsylvania	<i>Polygonum pennsylvanicum</i>	4	4
Spotted Spurge	<i>Euphorbia maculata</i>	4	4
Velvetleaf	<i>Abutilon theophrasti</i>	4	6
Venice Mallow	<i>Hibiscus trionum</i>	2	2
Waterhemp			
Common	<i>Amaranthus rudis</i>	2	2
Tall	<i>Amaranthus tuberculatus</i>	2	2

<sup>(1)</sup> ZALTUS SC tank mixes will only control the above ground portion of field bindweed. Repeated applications will be needed to control regrowth.



## TANK MIXES

ZALTUS SC may be tank mixed with the herbicides listed in **Table 12** for additional weed control in burndown, preemergence, post-directed and layby applications. Refer to tank mix partner's label for adjuvants.

**Table 12. Tank Mixes with ZALTUS SC for Post-Directed or Layby Use in Sugarcane**

Tank Mix Partner <sup>(1)</sup>	Target Weeds	Burndown	Post-Directed <sup>(2)</sup>	Layby
2,4-D amine	Annual and Perennial Broadleaf Weeds	X		
atrazine	Pigweeds Cocklebur	X	X	X
Asulam <sup>(3)</sup>	Annual Grasses		X	X
Ametryn <sup>(4)</sup>	Annual Grasses		X	X
glyphosate <sup>(5)</sup>	Annual and Perennial Weeds	X		X
metribuzin <sup>(6)</sup>	Broadleaf Panicum Goosegrass		X	X
Sempre <sup>®</sup>	Purple Nutsedge Yellow Nutsedge	X	X	X
dicamba	Annual and Perennial Broadleaf Weeds	X		

<sup>(1)</sup> Refer to tank mix product labels for specific use directions for control of emerged weeds present not listed in **Table 11**.

<sup>(2)</sup> Make post-directed applications to upright sugarcane varieties after the sugarcane has exceeded 24 inches in height. Post-directed applications to "PINEAPPLE" varieties or to upright varieties that are less than 24 inches in height may result in unacceptable crop injury.

<sup>(3)</sup> Apply to sugarcane at least 24 inches tall.

<sup>(4)</sup> Apply before weeds are greater than 6 inches tall.

<sup>(5)</sup> Glyphosate applications must be made with a hooded sprayer. Sugarcane must be at least 3 feet tall. Contact with the sugarcane foliage by either the spray mixture or the treated weed foliage will result in sugarcane injury.

<sup>(6)</sup> Refer to metribuzin label for restrictions based on soil type.

## ADDITIONAL PREEMERGENCE BROADLEAF CONTROL

ZALTUS SC can be tank mixed with atrazine or diuron for additional preemergence broadleaf control.

## ADDITIONAL PREEMERGENCE GRASS CONTROL

ZALTUS SC can be tank mixed with pendimethalin products for additional preemergence grass control provided sugarcane has not emerged.

## DIRECTIONS FOR USE IN SUNFLOWER AND SAFFLOWER

### HARVEST AID

#### RESTRICTIONS AND LIMITATIONS

- **DO NOT** apply more than 3 fl oz of ZALTUS SC per acre per application.
- **DO NOT** apply more than 1 application of ZALTUS SC per acre per year.
- **DO NOT** apply more than 3 fl oz of ZALTUS SC per acre per year.
- **DO NOT** harvest within 5 days of application.

Desiccation from ZALTUS SC requires the addition of an agronomically approved adjuvant to the spray mixture. Use a methylated seed oil which contains at least 15% emulsifiers and 80% oil at 1 qt/A. A spray grade nitrogen source (either ammonium sulfate at 2 to 2.5 lb/A or a 28 to 32% nitrogen solution at 1 to 2 qt/A) may be added to the spray mixture along with methylated seed oil to enhance desiccation. The addition of a nitrogen source does not replace the need for methylated seed oil. Tank mixing ZALTUS SC with glyphosate or paraquat will increase control of emerged weeds and aid in harvest for sunflowers. Tank mixing ZALTUS SC with glyphosate will increase control of emerged weeds and aid in harvest for safflower.

#### TIMING TO SUNFLOWER AND SAFFLOWER

Apply ZALTUS SC, at 1.5 to 2 fl oz/A, when crop is mature (when seed is 35% moisture or less). For many varieties, this is when the backs of the heads are turning yellow and the bracts are turning brown. Sunflower and safflower can be harvested 5 days after application.

To ensure thorough coverage, use 15 to 30 gallons of spray solution per acre and select nozzle type using manufacturer's gallonage and pressure guidelines for postemergence application.

## DIRECTIONS FOR USE IN SWEET POTATO

### RESTRICTIONS AND LIMITATIONS

- **DO NOT** apply more than 3 fl oz of **ZALTUS SC** per acre per application.
- **DO NOT** apply more than 1 application of **ZALTUS SC** per acre per year.
- **DO NOT** apply more than 3 fl oz of **ZALTUS SC** per acre per year.
- **DO NOT** apply postemergence to sweet potatoes.
- **DO NOT** use greenhouse grown transplants.
- **DO NOT** use transplants harvested more than 2 days prior to transplanting.
- **DO NOT** use on any sweet potato variety other than "BEAUREGARD", unless user has tested **ZALTUS SC** on other variety and has found crop tolerance to be acceptable.
- **DO NOT** apply as a part of any tank mix, except with labeled rates of Command, if tank mix is applied prior to transplanting.

### TIMING TO SWEET POTATOES

**ZALTUS SC** must be applied prior to transplanting sweet potatoes.

### TIMING TO WEEDS

#### Preemergence to Weeds

Apply **ZALTUS SC** to soil prior to transplanting sweet potato slips for the preemergence control of the weeds listed in **Table 1**.

## DIRECTIONS FOR USE IN WHEAT

### RESTRICTIONS AND LIMITATIONS

- **DO NOT** apply more than 2 fl oz of **ZALTUS SC** per acre per application.
- **DO NOT** apply more than 1 application of **ZALTUS SC** per acre per year.
- **DO NOT** apply more than 2 fl oz of **ZALTUS SC** per acre per year.

### PRE-PLANT APPLICATIONS, PRE-EMERGENCE WEED CONTROL

For Use in Delaware, Idaho, Kentucky, Maryland, Minnesota, Montana, North Carolina, North Dakota, New Jersey, Oregon, Pennsylvania, South Carolina, South Dakota, Tennessee, Virginia, Washington and Wisconsin Only

### RESTRICTIONS AND LIMITATIONS

- For pre-plant weed control, use only on no-till or minimum tillage fields where the previous year's crop residue has not been incorporated into the soil.
- Plant wheat no sooner than 7 days after **ZALTUS SC** application in the states of DE, KY, MD, NC, NJ, PA, SC, TN or VA
- Plant wheat no sooner than 14 days after **ZALTUS SC** application in the states of ID, MN, MT, ND, OR, SD, WA or WI
- **DO NOT** use on Durum wheat.
- **DO NOT** irrigate between emergence and spike.
- Wheat must be planted a minimum of 1" deep.
- **DO NOT** graze until wheat has reached 5 inches in height.

### Burndown Use Directions

**ZALTUS SC**, applied as part of a burndown program, at 2 fl oz/A, may be used for residual weed control, as well as to assist in postemergence burndown of many weeds where wheat will be planted directly into the residue of the previous crop. See Directions for Use in Fall Burndown Programs in Fields to be Planted to Barley, Field Pea, Flax, Lentil, Safflower, Sunflower and Spring Wheat for rates and timing of applications. For control of emerged weeds, **ZALTUS SC** must be applied with an appropriate burndown tank mix partner. To ensure thorough coverage, use a minimum of 15 gallons of spray solution per acre. Refer to tank mix partner's label for application pressure and adjuvant systems.

### HARVEST AID

### RESTRICTIONS AND LIMITATIONS

- **DO NOT** harvest within 10 days of application.

### Use Directions

**ZALTUS SC**, applied at 2 fl oz/A for desiccation requires the addition of an agronomically approved adjuvant to the spray mixture. Use a methylated seed oil which contains at least 15% emulsifiers and 80% oil at 1 qt/A. A spray grade nitrogen source (either ammonium sulfate at 2 to 2.5 lb/A or a 28 to 32% nitrogen solution at 1 to 2 qt/A) may be added to the spray mixture along with methylated seed oil to enhance desiccation. The addition of a nitrogen source does not replace the need for methylated seed oil. Tank mixing **ZALTUS SC** with glyphosate will increase control of emerged weeds and aid in harvest.

To ensure thorough coverage, use a minimum of 10 gallons spray solution per acre by ground application and a minimum of 5 gallons per acre by aerial application. Select nozzle based on manufacturer's gallonage and pressure guidelines for postemergence application.

## TIMING TO WHEAT

Apply **ZALTUS SC**, at 1.5 to 2 fl oz/A, after wheat reaches the hard dough stage and grain has no more than 30% moisture. Wheat can be harvested 10 days after application. Atticus, LLC recommends tank mixing with glyphosate.

## DIRECTIONS FOR USE IN BUSHBERRIES, CANEBERRIES, CITRUS FRUIT, GRAPE, OLIVE, POME FRUIT, POMEGRANATE, STONE FRUIT, TREE NUTS AND NON-BEARING FRUIT TREES

Bushberries (Subgroup 13-07B): Aronia Berry; Blueberry, Highbush; Blueberry, Lowbush; Buffalo Currant; Chilean Guava; Cranberry, Highbush; Currant, Black; Currant, Red; Elderberry; European Barberry; Gooseberry; Honeysuckle, edible; Huckleberry; Jostaberry; Juneberry (Saskatoon Berry); Lingonberry; Native Currant; Salal; Sea Buckthorn; cultivars, varieties, and/or hybrids of these.

Caneberries (Subgroup 13-07A): Blackberry, Loganberry, Black Raspberry, Red Raspberry, Wild Raspberry cultivars, varieties and/or hybrids of these.

Citrus Fruit (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; Mediterranean Mandarin; Mount White Lime; New Guinea Wild Lime; Orange, Sour; Orange, Sweet; Pummelo; Russell River Lime; Satsuma Mandarin; Sweet Lime; Tachibana Orange; Tahiti Lime; Tangelo; Tangerine (mandarin); Tangor; Trifoliolate Orange; Uniq Fruit; cultivars, varieties and/or hybrids of these.

Tree Nuts (Crop Group 14-12): African Nut-tree; Almond; Beechnut; Brazil Nut; Brazilian Pine; Bunya; Bur Oak; Butternut; Cajou Nut; Candlenut; Cashew; Chestnut; Chinquapin; Coconut; Coquito Nut; Dika Nut; Ginkgo; Guiana Chestnut; Hazelnut (Filbert); 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; Walnut, English; Yellowhorn, cultivars, varieties and/or hybrids of these.

Pome Fruit (Crop Group 11-10): Apple; Azarole; Crabapple; Loquat; Mayhaw; Medlar; Pear; Pear, Asian; Quince; Quince, Chinese; Quince, Japanese; Tejocote; cultivars, varieties and/or hybrids of these.

Stone Fruit (Crop Group 12-12): Apricot; Apricot, Japanese; Capulin; Cherry, Black; Cherry, Nanking; Cherry, Sweet; Cherry, Tart; Jujube, Chinese; Nectarine; Peach; Plum; Plum, American; Plum, Beach; Plum, Canada; Plum, Cherry; Plum, Chickasaw; Plum, Damson; Plum, Japanese; Plum, Klamath; Plum, Prune; Plumcot; Sloe and cultivars, varieties and/or hybrids of these.

## RESTRICTIONS AND LIMITATIONS

- **DO NOT** apply more than 12 fl oz of **ZALTUS SC** per acre per application, except Caneberries **DO NOT** apply more than 6 fl oz **ZALTUS SC** per acre per application.
- **DO NOT** make more than 12 applications per year.
- **DO NOT** apply more than 24 fl oz of **ZALTUS SC** per acre per year, except Bushberries; for Bushberries **DO NOT** apply more than 12 fl oz of **ZALTUS SC** per acre per year.
- **DO NOT** make a sequential application within 30 days of the first application, except tree nuts, **DO NOT** make a sequential application within 60 days of the first application.
- **DO NOT** apply to farm alleys or roads where traffic may result in treated dust settling onto crops or other desirable vegetation.
- **DO NOT** apply within 300 yards of non-dormant pears.
- Raise mower height during all mowing to reduce dust. Dust created by mowing can drift onto desirable vegetation resulting in injury.
- **DO NOT** apply to powdery soils or soils that are susceptible to wind displacement unless irrigation can be applied immediately after application.
- **DO NOT** mow treated areas between bud break and final harvest. Dust created by mowing may drift onto desirable vegetation resulting in injury.
- Follow the most restrictive label limitations and precautions of the tank mix product(s) being used.
- Avoid direct or indirect spray contact to foliage and green bark (non-barked trunk and non-barked vines with the exception of undesirable suckers).
- **DO NOT** apply to tree nuts established less than one year, unless protected from spray contact by non-porous wraps, grow tubes, or waxed containers.
- For non-bearing fruit trees (avocado and fig), **DO NOT** harvest fruit from treated trees within one year of application.

### Preharvest Interval (PHI)

- |                        |                      |                        |
|------------------------|----------------------|------------------------|
| - Citrus Fruit: 3 days | - Grape: 60 days     | - Pome Fruit: 60 days  |
| - Bushberries: 7 days  | - Tree Nuts: 60 days | - Pomegranate: 60 days |
| - Caneberries: 7 days  | - Olive: 60 days     | - Stone Fruit: 60 days |

## PRECAUTIONS

- Use a maximum **ZALTUS SC** rate of 6 fl oz/A per application on any soil that has a sand plus gravel content over 80% if bushes, trees or vines are less than 3 years of age. (Two applications of 6 fl oz/A in a 12 month period can still be made as long as there have been 60 days between applications).
- Raise mower height during all mowing to reduce dust. Dust created by mowing can drift onto desirable vegetation resulting in injury.
- Follow the most restrictive label limitations and precautions of the tank mix product(s) being used.
- Avoid direct or indirect spray contact to foliage and green bark or canes (non-barked trunk and non-barked vines with the exception of undesirable suckers).
- Irrigate after application with minimum of 1/4 inch of water to activate the herbicide and to reduce wind displacement of soil.

## USE PRECAUTIONS FOR BUSHBERRIES

- If bushberries are established less than 2 years ensure that they are protected from spray contact by non-porous wrap, grow tubes or waxed containers.

## USE PRECAUTIONS FOR GRAPES

- If grapes are established less than 2 years ensure that they are trellised at least 3 ft from the soil surface or are protected from spray contact by non-porous wrap, grow tubes or waxed containers.
- Apply only to grapes that are trellised, staked or are free standing.
- Avoid direct or indirect spray contact to foliage and green bark (non-barked vines, with the exception of undesirable suckers).
- Plant new plantings of "own-rooted varieties", for example Concord, so that all roots are a minimum 8 inches below the soil surface to be treated. In some situations, this may require hilling soil around newly planted vines so that the settled depth of the hill will be 4 to 5 inches above the vineyard floor.

### Juice, Raisin and Wine Grapes

- If applied during the period after bud break through final harvest, use shielded application equipment and applicator can ensure spray drift will not come in contact with crop fruit or foliage.

### Table Grapes

- Apply **ZALTUS SC** between final harvest up to bud break.

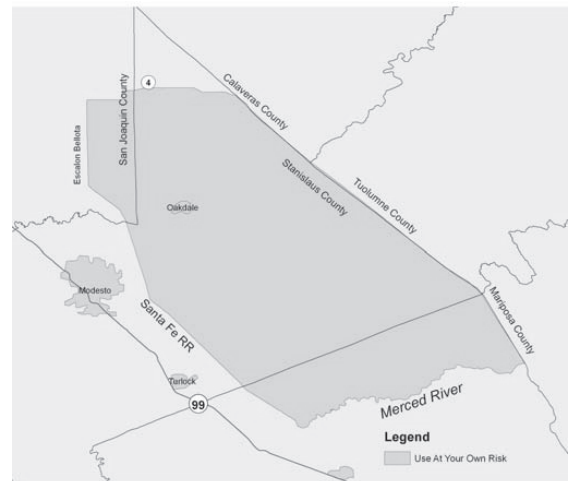
## USE PRECAUTIONS FOR CITRUS FRUIT, OLIVE, POME FRUIT, POMEGRANATE, STONE FRUIT AND TREE NUTS

- For pome fruit and stone fruit, **ZALTUS SC** can only be applied as a uniform band directed at the base of the trunk prior to silver tip in apples and bud break in stone fruit.
- For pome fruit and stone fruit make applications only to berms.
- For olive, pomegranate and tree nuts apply after bud break through final harvest using shielded application equipment if the applicator can ensure the spray drift will not come into contact with non-target vegetation, crop fruit and/or foliage. Shielded application equipment is not required if the following application parameters are followed:
  - Application pressure (at boom) < 30 PSI.
  - Application speed < 5 MPH.
  - Applicator can ensure the spray drift will not come into contact with non-target vegetation, crop fruit and/or foliage.
- If application is made to trees established less than one year, ensure they are protected from spray contact by non-porous wraps, grow tubes, paint or waxed containers.
  - For apples east of the Cascade Mountains in Washington, follow the restrictions above plus:
    - . ▪ Apply between final harvest and January 1.
    - . ▪ Apply only to apple blocks with an established (2 years or older) permanent cover crop that covers a minimum of 60% of the surface area in the block.
    - . ▪ Application must be incorporated with a minimum of one-half inch of water within 48 hours after application.
    - . ▪ Apply only to orchard berms.
    - . ▪ **California only:** See use precautions and stone fruit in the counties of Merced, San Joaquin and Stanislaus section of this label.

## USE PRECAUTIONS ON ALMOND AND STONE FRUIT IN DEFINED AREAS OF MERCED, SAN JOAQUIN AND STANISLAUS COUNTIES OF CALIFORNIA

The use of **ZALTUS SC** in soils common in parts of Merced, San Joaquin and Stanislaus counties in California is known to have resulted in injury to almonds under drought stress conditions. These soils are characterized by having been cut or filled, high sand content, low clay content and shallow profiles. Growers in the Defined Area must be aware and assume the risk of using **ZALTUS SC** on almond or stone fruit crops. The Defined Area can be seen on the Map or by the description that follows:

- Intersection of Highway 4 and Escalon-Bellota Road at Farmington in San Joaquin County;
- Directly South on Escalon-Bellota to the Santa Fe Avenue and railroad tracks at Escalon;
- Southeast on Santa Fe Avenue down to the Merced River;
- East following the Merced River to the Merced/Mariposa County line;
- Northwest following the Merced County line through the intersection of Merced and Stanislaus County line following the Stanislaus/Tuolumne County and Calaveras County line to Highway 4;
- West on Highway 4 back to the Farmington intersection of Escalon - Bellota Road.



## USE PRECAUTIONS FOR NON-BEARING FRUIT TREES

### Non-Bearing Avocado and Fig

- Trees are established less than one year, protected from spray contact by non-porous wraps, grow tubes or waxed containers.
- If applied after flowering through leaf drop, use shielded application equipment and ensure that spray drift will not come in contact with the crop foliage.

## USE DIRECTIONS

For bushberries, caneberries, citrus fruit, grape, olive, pomegranate, tree nuts, and non-bearing fruit trees, **ZALTUS SC** as a uniform broadcast application to the orchard or vineyard floor or as a uniform band directed at the base of the bush, cane, trunk or vine. For stone fruit and pear, **ZALTUS SC** can only be applied as a uniform band directed at the base of the trunk prior to “bud break”. For apple, herbicide can only be applied as a uniform band directed at the base of the trunk prior to “silver tip”. For other pome fruit, check with Atticus, LLC personnel for application timing. The preferred application timing for **ZALTUS SC** is in the fall to maximize the potential for rainfall to activate and set the herbicide. **DO NOT** apply over the top of crop or allow spray to come in contact with crop as a result of application or drift.

### Preemergence Application

Apply 6 to 12 fl oz (maximum 6 fl oz/A for caneberries) of **ZALTUS SC** per broadcast acre as a preemergence application. Make preemergence (to weed emergence) applications of **ZALTUS SC** to a weed-free soil surface. Preemergence applications of **ZALTUS SC** must be completed prior to weed emergence. Moisture is necessary to activate **ZALTUS SC** on soil for residual weed control. Dry weather following application of **ZALTUS SC** may reduce effectiveness. However, when adequate moisture is received after dry conditions, **ZALTUS SC** will control susceptible germinating weeds.

### Postemergence Application

Apply 6 to 12 fl oz (maximum 6 fl oz/A for caneberries) of **ZALTUS SC** per broadcast acre plus an adjuvant (0.25% v/v non-ionic surfactant or 1 qt/A crop oil concentrate). The addition of an adjuvant enhances **ZALTUS SC** activity on emerged weeds. Thorough spray coverage is necessary to maximize the postemergence activity of **ZALTUS SC**.

Refer to **Table 10** for weeds controlled by the residual activity of **ZALTUS SC**. **ZALTUS SC** should be tank mixed with a labeled burndown herbicide for control of the emerged weeds listed in **Table 13**. Refer to tank mix partner’s label for additional weed species and increased weed heights claimed. Refer to tank mix partner’s label for additional restrictions, including minimum carrier volume and crops in which tank mix partner may be used. Burndown tank mix partners include glyphosate, paraquat, 2,4-D and glufosinate. Tank mixes with glyphosate or 2,4-D containing products are not recommended during the period after bloom through final harvest to ensure crop safety from drift.

Residual weed control will be reduced if vegetation prevents the **ZALTUS SC** from reaching the soil surface. If vegetation is heavy, it is recommended to use a burndown herbicide with **ZALTUS SC** and make a sequential **ZALTUS SC** application prior to the emergence of new weeds.

### Carrier Volume and Spray Pressure

To ensure thorough coverage in burndown applications, use a minimum of 15 gallons of spray solution per acre. Use higher gallonage if dense vegetation or heavy crop residue is present. Nozzle selection must meet manufacturer’s gallonage and pressure guidelines.

### Banded Application

Rates listed in **Table 13. Weeds Controlled by Postemergence Activity of ZALTUS SC Tank Mixes**, refer to a broadcast application covering the entire acre. Refer to the **Band Application** table in **PRODUCT INFORMATION** section to calculate amount needed per acre when making a banded application.

**Table 13. Weeds Controlled by Postemergence Activity of ZALTUS SC Tank Mixes**

Broadleaf Weed Species			
Common Name	Scientific Name	Weed Height/Length (Inches)	Application Rates
Bindweed, Field <sup>(1)</sup>	<i>Convolvulus arvensis</i>	8	6 to 12 fl oz/A
Carpetweed	<i>Mollugo verticillata</i>	4	
Chickweeds			
Common	<i>Stellaria media</i>	4	
Mouseear	<i>Cerastium vulgatum</i>	4	
Cocklebur, Common	<i>Xanthium strumarium</i>	4	
Evening Primrose, Cutleaf <sup>(2)</sup>	<i>Oenothera laciniata</i>	12	
Filaree			
Broadleaf	<i>Erodium botrys</i>	4	
Redstem	<i>Erodium cicutarium</i>	4	
Florida Beggarweed	<i>Desmodium tortuosum</i>	2	
Hemp Sesbania	<i>Sesbania exaltata</i>	8	
Jimsonweed	<i>Datura stramonium</i>	4	

(continued)

Table 13. Weeds Controlled by Postemergence Activity of ZALTUS SC Tank Mixes (continued)

Broadleaf Weed Species (continued)			
Common Name	Scientific Name	Weed Height/Length (Inches)	Application Rates
Lambsquarters, Common	<i>Chenopodium album</i>	4	6 to 12 fl oz/A
Morningglories			
Entireleaf	<i>Ipomoea hederacea</i> var. <i>integriscula</i>	4	
Ivyleaf	<i>Ipomoea hederacea</i>	4	
Pitted	<i>Ipomoea lacunosa</i>	6	
Red/Scarlet	<i>Ipomoea coccinea</i>	4	
Tall	<i>Ipomoea purpurea</i>	4	
Mustard, Wild	<i>Brassica kaber</i>	6	
Pigweeds			
Palmer Amaranth	<i>Amaranthus palmeri</i>	6	
Redroot	<i>Amaranthus retroflexus</i>	6	
Smooth	<i>Amaranthus hybridus</i>	6	
Plantain, Broadleaf	<i>Plantago major</i>	6	
Prickly Sida (Teaweed)	<i>Sida spinosa</i>	6	
Purslanes			
Common	<i>Portulaca oleracea</i>	4	
Rock	<i>Calandrinia</i> spp.	2	
Ragweeds			
Common	<i>Ambrosia artemisiifolia</i>	2	
Giant	<i>Ambrosia trifida</i>	4	
Rice Flatsedge	<i>Cyperus iria</i>	4	
Sicklepod	<i>Senna obtusifolia</i>	4	
Smartweeds			
Ladysthumb	<i>Polygonum persicaria</i>	4	
Pale	<i>Polygonum lapathifolium</i>	4	
Pennsylvania	<i>Polygonum pennsylvanicum</i>	4	
Spotted Spurge	<i>Euphorbia maculata</i>	4	
Velvetleaf	<i>Abutilon theophrasti</i>	4	
Venice Mallow	<i>Hibiscus trionum</i>	4	
Waterhemp			
Common	<i>Amaranthus rudis</i>	2	
Tall	<i>Amaranthus tuberculatus</i>	2	

(1) ZALTUS SC will only provide control of the above ground portion of bindweed. Repeated applications will be needed to control regrowth.

(2) For acceptable control, cutleaf evening primrose must be 12 inches or less and in the rosette stage. Add crop oil concentrate, at 1 pt/A, or non-ionic surfactant at 0.25% v/v, to glyphosate tank mixes for cutleaf evening primrose control, including glyphosate formulations that contain a built-in adjuvant system.



## ADDITIONAL RESIDUAL WEED CONTROL

ZALTUS SC maybe tank mixed with oryzalin, simazine or diuron for additional residual weed control. Always read and follow label use directions for all products being used.

### FALLOWBED USE ON TRANSPLANTED MELON, PEPPER AND TOMATO BEDS

For Use in Arizona, California and Hawaii Only

#### RESTRICTIONS AND LIMITATIONS

- **DO NOT** apply more than 4 fl oz of ZALTUS SC per acre per application.
- **DO NOT** make more than 2 applications of ZALTUS SC per acre per year.
- **DO NOT** apply more than 8 fl oz of ZALTUS SC per acre per year.
- **DO NOT** make a sequential ZALTUS SC application within 14 days of the first ZALTUS SC application.

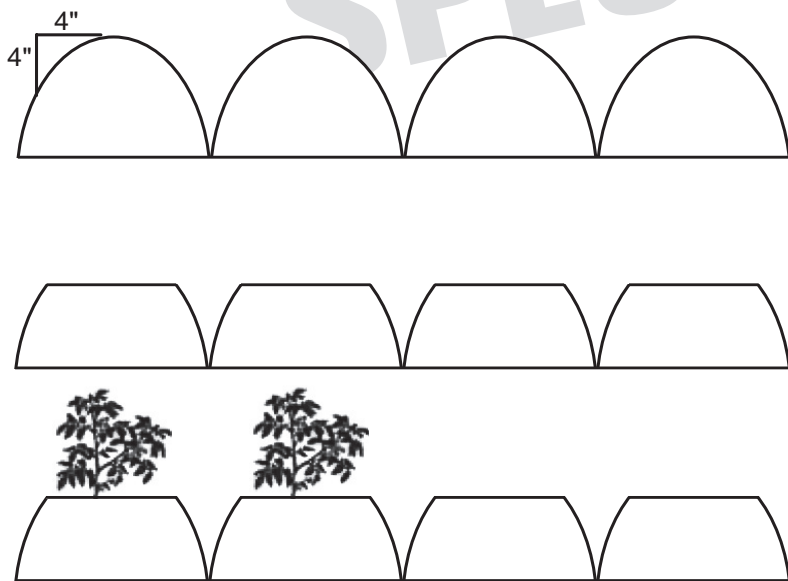
Many weather-related factors, including high wind or heavy rains or cool conditions at or near crop transplanting, may result in crop injury in fields treated with ZALTUS SC. On occasion this has resulted in a delay in maturity. Understand and accept these risks before using ZALTUS SC.

Application Rate	Adjuvant	GPA	Transplanting Interval
4 fl oz/A	Required by burndown tank mix partner	Ground - 20 to 40	2 Months

**Application Method:** Apply with a burndown herbicide labeled for the control of emerged weeds. ZALTUS SC, when used alone, will not provide satisfactory control of emerged weeds.

#### Use for Preemergence Fallowbed Weed Control Prior To Transplanting

- Always read and follow all label directions when using any pesticide alone or in tank mix combinations.
- The top 4 inches of the bed, from a horizontal and vertical perspective, where the crop will be transplanted, must be removed prior to transplanting.
- Irrigate treated field after application and prior to transplanting with minimum of 1/4 inch of water if rainfall does not occur between application and transplanting.
- Use only healthy transplants. **DO NOT** use on direct seeded crops.
- On flat beds (tomato only), the soil must be incorporated to a depth of at least 4 inches, twice, prior to transplanting. Failure to incorporate may result in stand reduction and/or crop injury.
- This use pattern makes no claim for in-season weed control after the beds have been disturbed.



Beds are formed and ZALTUS SC is applied with a burndown herbicide.

A minimum of 2 months after ZALTUS SC application, the tops of the beds are removed and the soil from the tops of the beds is placed in the area between the beds.

Crops are transplanted into beds.

## DIRECTIONS FOR USE TO MAINTAIN BARE GROUND ON NON-CROP AREAS OF FARMS, ORCHARDS AND VINEYARDS

### RESTRICTIONS AND LIMITATIONS

- **DO NOT** apply more than 12 fl oz/A per application.
- **DO NOT** apply more than 2 applications per year.
- **DO NOT** apply more than 24 fl oz/A per year.
- **DO NOT** make a sequential **ZALTUS SC** application within 14 days of the first **ZALTUS SC** application **DO NOT** apply to farm alleys or roads where traffic may result in treated dust settling onto crops or other desirable vegetation.
- **DO NOT** apply to ditch banks.

**ZALTUS SC**, when used as directed, can be used on farms, orchards and vineyards for non-selective vegetation control to maintain bare ground on non-crop areas that must be kept weed free. Follow all applicable directions as outlined above under **PRODUCT INFORMATION**.

**ZALTUS SC** offers residual and postemergence control of susceptible broadleaf and grass weeds as well as an additional mode of action to assist in the control of ALS (acetolactate synthase) resistant weeds. **ZALTUS SC** can be tank mixed with the herbicides listed in **Table 14** for increased residual or postemergence control. The length of residual control is dependent on the rate applied as well as on rainfall and temperature conditions. Length of residual control will decrease as temperature and precipitation increase. **ZALTUS SC** rates of 6 to 12 fl oz/A are required to provide residual control of the weeds listed in **Table 10**.

### PREEMERGENCE APPLICATION

Apply 6 to 12 fl oz (0.188 to 0.38 lb ai/A) of **ZALTUS SC** per broadcast acre as a preemergence application. Make preemergence (to weed emergence) applications of **ZALTUS SC** to a weed-free soil surface. Preemergence applications of **ZALTUS SC** must be completed prior to weed emergence. Moisture is necessary to activate **ZALTUS SC** on soil for residual weed control. Dry weather following application of **ZALTUS SC** may reduce effectiveness. However, when adequate moisture is received after dry conditions, **ZALTUS SC** will control susceptible germinating weeds.

### POSTEMERGENCE APPLICATION

Apply 6 to 12 fl oz (0.188 to 0.38 lb ai/A) of **ZALTUS SC** per broadcast acre plus an adjuvant (0.25% v/v non-ionic surfactant or 1 qt/A crop oil concentrate). The addition of an adjuvant enhances **ZALTUS SC** activity on emerged weeds. Thorough spray coverage is necessary to maximize the postemergence activity of **ZALTUS SC**. Emerged weeds are controlled postemergence with **ZALTUS SC**, however, translocation of **ZALTUS SC** within a weed is limited, and control is affected by spray coverage and by the addition of an adjuvant. The most effective postemergence weed control with **ZALTUS SC** occurs when applied in combination with a surfactant to weeds less than 2 inches in height. Use a tank mix partner in combination with **ZALTUS SC** for the postemergence control of weeds larger than 2 inches. Specified tank mix partners are listed in **Table 14**.

**IMPORTANT:** Completely read and follow the label of any potential tank mix partner with **ZALTUS SC**. When using tank mixtures, use conditions must be in accordance with the most restrictive of the label limitations and precautions on either herbicide label.

**Table 14. Tank Mix Combinations to Maintain Bare Ground on Non-Crop Areas**

glyphosate	2,4-D	Rely	paraquat
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## STORAGE AND DISPOSAL

**DO NOT** contaminate water, food or feed by storage or disposal.

**PESTICIDE STORAGE:** Store in a tightly closed container in a cool, dry place. Store in original container and out of reach of children, preferably in a locked storage area.

**PESTICIDE DISPOSAL:** Pesticide spray mixture or rinsate that cannot be used should be disposed of in a landfill approved for pesticides. Improper disposal of excess pesticide spray mixture or rinsate is a violation of Federal law. If these wastes cannot be disposed of by the 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:

**For plastic containers ≤ 5 gallons: Nonrefillable Container: DO NOT** reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling if available or puncture and dispose of in a sanitary landfill, or by other procedures allowed by state and local authorities.

**For plastic containers > 5 gallons: Nonrefillable container. DO NOT** reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container 1/4 full with water. Recap and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times. Then offer for recycling if available or puncture and dispose of in a sanitary landfill, or by other procedures allowed by state and local authorities.

## LIMITATION OF WARRANTY AND LIABILITY

**IMPORTANT: READ BEFORE USE.** Read the entire Directions for Use, Conditions of Warranties and Limitations of Liability before using this product. If these terms and conditions are not acceptable, return the unopened product container at once. By using this product, user or buyer accepts the following Disclaimer of Warranties and Limitations of Liability. **CONDITIONS:** The directions for use of this product are believed to be adequate and must be followed carefully. However, it is impossible to eliminate all risks associated with the use of this product. Ineffectiveness, injury, and other unintended consequences may result because of such factors as manner of use or application (including misuse), the presence of other materials, weather conditions, and other unknown factors, all of which are beyond the control of ATTICUS, LLC. To the extent consistent with applicable law, all such risks shall be assumed by the user or buyer.

**DISCLAIMER OF WARRANTIES:** To the extent consistent with applicable law, ATTICUS, LLC makes no other warranties, express or implied, of merchantability or of fitness for a particular purpose or otherwise, that extend beyond statements on this label. **LIMITATIONS OF LIABILITY:** To the extent consistent with applicable law, neither ATTICUS, LLC the manufacturer, nor the Seller shall be liable for any indirect, special, incidental or consequential damages resulting from the use, handling, application, storage, or disposal of this product. To the extent consistent with applicable law, the exclusive remedy of the user or buyer for any and all losses, injuries or damages resulting from the use, handling, application, or storage of this product, whether in contract, warranty, tort, negligence, strict liability or otherwise, shall not exceed the purchase price paid.

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