

71532-21

04/24/2007

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U.S. ENVIRONMENTAL PROTECTION AGENCY  
Office of Pesticide Programs  
Registration Division (7505C)  
1200 Pennsylvania Avenue NW  
Washington, D.C. 20460

EPA Reg. Number: 71532-21  
Date of issuance: 04/24/07

NOTICE OF PESTICIDE:  
 Registration  
 Reregistration  
(under FIFRA, as amended)

Term of Issuance:  
Conditional

Name of Pesticide Product:  
EsfenStar 8% EC Insecticide

Name and Address of Registrant (include ZIP Code):  
LG Life Sciences, Ltd  
c/o Biologic, Inc.  
115 Obtuse Hill Road  
Brookfield, Connecticut 06804

Note: Changes in labeling differing in substance from that accepted in connection with this registration must be submitted to and accepted by the Registration Division prior to use of the label in commerce. In any correspondence on this product always refer to the above EPA registration number.

On the basis of information furnished by the registrant, the above named pesticide is hereby registered/reregistered under the Federal Insecticide, Fungicide and Rodenticide Act.

Registration is in no way to be construed as an endorsement or recommendation of this product by the Agency. In order to protect health and the environment, the Administrator, on his motion, may at any time suspend or cancel the registration of a pesticide in accordance with the Act. The acceptance of any name in connection with the registration of a product under this Act is not to be construed as giving the registrant a right to exclusive use of the name or to its use if it has been covered by others.

This product is conditionally registered in accordance with FIFRA sec 3(c)(7)(A) provided that you:

1. Submit and/or cite all data required for registration of your product under FIFRA sec. 3(c)(5) when the Agency requires all registrants of similar products to submit such data; and submit acceptable responses required for re-registration of your product under FIFRA section 4.
2. Make the following labeling changes before you release the product for shipment:
  - a. Revise the EPA Registration Number to read: "EPA Registration No. 71532-21"

Signature of Approving Official:  
  
George LaRocca  
Product Manager (RM 13)  
Insecticide Branch  
Registration Division (7505P)

Date:  
April 24, 2007

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- b. On the first page, above the ingredient statement, and directly below the statement "Contains the same active ingredient as Asana XL insecticide", add "Asana XL insecticide is not manufactured or distributed by LG Life Sciences, Ltd".
  - c. Add the precautionary statement "*Harmful if absorbed through skin*" – Category III for acute dermal toxicity.
  - d. You may delete the precautionary statements "Harmful if inhaled" and "Avoid breathing vapor or spray mist", and the associated first aid statements relative to "If Inhaled . . ." You may also delete the first aid statements relative to "If in eyes . . ." Based on the present EPA toxicity categories, we have assigned a toxicity category IV for the acute inhalation and primary eye irritation studies.
  - e. Under Conditions of Sale and Limitation of Warranty and Liability, revise the statements (1) "To the extent permitted by law, LG Life . . ." to read "***To the extent consistent with applicable law***, LG Life . . ." (2) "In no event shall LG Life Sciences, Ltd. Or Seller is liable for any . . ." to read "***To the extent consistent with applicable law***, LG Life Sciences, Ltd. Or Seller shall not be liable for any . . ."
3. Submit to the Agency, data on one year storage stability testing (830.6317), conducted concurrently with the corrosion characteristics study (830-6320) at 0, 3, 6, 9 and 12 months of warehouse storage.
  4. Submit two (2) copies of the final printed label bearing the above stated revisions prior to releasing this product for sale.

If you fail to comply with the above stated conditions, this registration will be subject to cancellation in accordance with FIFRA sec. 6(e). Your release for shipment of the product constitutes acceptance of these conditions.

See enclosed copy of the stamped label for your records. If you have any questions concerning this action, please contact Dr. B. A. Akinlosotu at (703) 605-0653.

Enclosure

**RESTRICTED USE PESTICIDE**  
DUE TO TOXICITY TO FISH AND AQUATIC ORGANISMS.  
For retail sale to and use only by Certified Applicators or persons under their direct supervision and only for those uses covered by the Certified Applicator's certification.

# EsfenStar 8% EC

Insecticide

**ACCEPTED  
with COMMENTS  
In EPA Letter Dated:**

APR 24 2007

**Under the Federal Insecticide,  
Fungicide, and Rodenticide Act,  
as amended, for the pesticide  
registered under EPA Reg. No.  
71532-21**

For the control of insect pests on:

- Field Crops
- Vegetable Crops
- Fruit Crops
- Tree Nut Crops

Contains the same active ingredient as Asana® XL insecticide.

Active Ingredient:	By Weight
Esfenvalerate	
(S)-cyano (3-phenoxyphenyl) methyl	
(S)-4-chloro-alpha-(1-methylethyl)	
benzeneacetate	8.4%
Inert Ingredients:	91.6%
TOTAL	100 %

This product contains 0.66 lbs. active ingredient per gallon.

**KEEP OUT OF REACH OF CHILDREN**

## WARNING AVISO

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

EPA Reg. No. 71532-XXX  
EPA Est. No. XXXXX-XX-XXX

Manufactured By:  
LG Life Sciences, Ltd.  
Seoul, Korea

<b>FIRST AID</b>	
<b>IF SWALLOWED:</b>	Call a poison control center or doctor immediately for treatment advice. Do not give any liquid to the person. Do not induce vomiting unless told to do so by a poison control center or a doctor. Do not give anything by mouth to an unconscious person.
<b>IF INHALED:</b>	Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a poison control center or doctor for further treatment advice.
<b>IF IN EYES:</b>	Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eyes. Call a poison control center for treatment advice.
<b>IF ON SKIN OR CLOTHING:</b>	Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.
<b>NOTE TO PHYSICIAN</b>	
If on skin, after drying apply vitamin E cream or oil if available. If not available, apply vegetable oil liberally over painful areas. The oil or cream may be used repeatedly until relief is achieved.	
Have the product container or label with you when calling a poison control center or doctor, or going for treatment.	

### **PRECAUTIONARY STATEMENTS**

#### **HAZARDS TO HUMANS AND DOMESTIC ANIMALS**

**WARNING.** May be fatal if swallowed. Harmful if inhaled. Do not get in eyes, on skin, or on clothing. Avoid breathing vapor or spray mist. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet. Remove contaminated clothing and wash clothing before reuse.

#### **PERSONAL PROTECTIVE EQUIPMENT**

Some materials that are chemical-resistant to this product are listed below. If you want more options, follow the instructions for category E on an EPA chemical-resistance category selection chart.

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants.
- Chemical-resistant gloves, such as Barrier Laminate or Neoprene Rubber or Nitrile Rubber or Viton.
- Shoes plus socks.
- Protective eyewear.

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

**USER SAFETY RECOMMENDATIONS**

**USERS SHOULD:**

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

**ENGINEERING CONTROL STATEMENTS**

When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR part 170.240 (d)(4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

**ENVIRONMENTAL HAZARDS**

This pesticide is extremely toxic to fish and aquatic invertebrates. Do not apply directly to water, or to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not apply when weather conditions favor drift from treated areas. Drift and runoff from treated areas may be hazardous to aquatic organisms in neighboring areas. Do not contaminate water when cleaning equipment or when disposing of equipment wash-waters.

This product is highly toxic to bees exposed to direct treatment or residues on blooming crops or weeds. Do not apply this product or allow it to drift to blooming crops if bees are visiting the treatment area.

**DIRECTIONS FOR USE**

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

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

**AGRICULTURAL USE REQUIREMENTS**

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

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

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, is:

- Coveralls.
- Chemical-resistant gloves, such as Barrier Laminate or Neoprene Rubber or Nitrile Rubber or

Viton.

- Shoes plus socks.
- Protective eyewear.

**GENERAL INFORMATION**

EsfenStar 8% EC emulsifiable concentrate contains 0.66 pounds of active ingredient per gallon. For the applications given below, mix the required amount of EsfenStar 8% EC in sufficient diluent to provide uniform coverage (Refer to Use Tables). EsfenStar 8% EC may be applied by ground or aerial application equipment For aerial application use the following directions unless otherwise specified in this label: use a minimum of 2 gallons per acre (gpa) of water, except in tree and orchard crops use a minimum of 10 gpa.

Apply at the recommended rates when insect populations reach locally determined economic thresholds. Consult the cooperative extension service, professional consultants or other qualified authorities to determine appropriate threshold levels for treatment in your area

**RESISTANCE**

For resistance management, EsfenStar 8% EC is a group 3 insecticide. Repeated exclusive use of EsfenStar 8% EC, or other group 3 insecticides may lead to the buildup of resistant strains of insects in some crops.

Some insects are known to develop resistance to products used repeatedly for control. Because the development of resistance cannot be predicted, the use of this product should conform to resistance management strategies established for the use area. Consult your local or state agricultural authorities for details.

If resistance to this product develops in your area, this product, or other products with a similar mode of action, may not provide adequate control. If poor performance cannot be attributed to improper application or extreme weather conditions, a resistant strain of insect may be present. If you experience difficulty with control and resistance is a reasonable cause, immediately consult your local company representative or agricultural advisor for the best alternative method of control for your area.

**INTEGRATED PEST MANAGEMENT**

It is recommended to use Integrated Pest Management (IPM) programs to control pests. This product may be used as part of an Integrated Pest Management (IPM) program which can include biological, cultural, and genetic practices aimed at preventing economic pest damage. Application of this product should be based on IPM principles and practices including field scouting or other detection methods, correct target pest identification, population monitoring, and treating when target pest populations reach locally determined action thresholds. Consult your state cooperative extension service, professional consultants or other qualified authorities to determine appropriate action treatment threshold levels for treating specific pest/crop or site systems in your area.

**SPRAY PREPARATION**

Spray equipment must be clean and free of previous pesticide deposits before applying EsfenStar 8% EC.

## TANK MIXING AND COMPATIBILITY

Unless directed otherwise in a specific crop section of this label, do not tank mix EsfenStar 8% EC with fungicides containing fenitrothion hydroxide (triphenyltin hydroxide) such as "Super Tin" as crop injury may result.

This product can be mixed with pesticide products labeled for use on crops on this label in accordance with the most restrictive of label limitations and precautions. No label dosage rates should be exceeded. This product cannot be mixed with any product containing a label prohibition against such mixing. Since formulations may be changed and new ones introduced, it is recommended that users premix a small quantity of a desired tank mix and observe for possible adverse changes (settling out, flocculation, etc.). Avoid mixtures of several materials and very concentrated spray mixtures. For best results, use of spray equipment having continuous agitation is recommended.

EsfenStar 8% EC may be tank mixed with herbicide products when insect populations require control concurrent with the need for weed control. Follow all herbicide and EsfenStar 8% EC label directions regarding proper usage.

EsfenStar 8% EC may be used in combination with 2,4D herbicides providing that the following mixing directions are followed: 1) Do not apply the combination in a volume of water less than 2 gallons per acre total spray. 2) Always mix EsfenStar 8% EC thoroughly in the total volume of spray water first, followed by the addition of the 2,4D herbicide. Because of the availability of a great variety of 2,4-D herbicide products, a test for physical compatibility should be conducted before field mixtures of a particular combination are made.

## CHEMIGATION

Apply this product only through sprinkler including center pivot, lateral move, end tow, side (wheel) row, traveler, big gun, solid set, or hand move irrigation systems. Do not apply this product through any other type of irrigation system. EsfenStar 8% EC may be premixed in a supply tank with water, oil, fertilizer, or other appropriate tank mixed agricultural chemicals. A pretest of physical compatibility for untried tank mixes is advised. Agitation may be necessary. Application should be in sufficient water and of sufficient duration to apply the recommended rate evenly to the entire treated area. No run-off can be permitted during chemigation. Crop injury, lack of effectiveness, or illegal pesticide residues in the crop can result from nonuniform distribution of treated water. Do not apply when wind speed favors drift beyond the area intended for treatment.

If you have questions about calibration, you should contact State Extension Service specialists, equipment manufacturers or other experts. A person knowledgeable of the chemigation system and responsible for its operation, or under the supervision of the responsible person, shall shut the system down and make necessary adjustments should the need arise.

Do not connect an irrigation system (including greenhouse systems) used for EsfenStar 8% EC application to a public water system.

The system must contain a functional check valve, vacuum relief valve, and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from

backflow. The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump. The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down. The system must contain functional interlocking controls to automatically shut-off the pesticide injection pump when the water pump motor stops. The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected. Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.

### **CROP ROTATION**

ALL ROTATION CROPS MAY BE PLANTED IMMEDIATELY FOLLOWING LAST APPLICATION.

### **SPRAY RECOMMENDATIONS AND PRECAUTIONS**

All aerial and ground application equipment must be properly maintained and calibrated using appropriate carriers.

OBSERVE THE FOLLOWING PRECAUTIONS WHEN SPRAYING IN THE VICINITY OF AQUATIC AREAS SUCH AS LAKES; RESERVOIRS; RIVERS; PERMANENT STREAMS, MARSHES, OR NATURAL PONDS; ESTUARIES AND COMMERCIAL FISH FARM PONDS.

Do not apply by ground within 25 feet, or by air within 150 feet of lakes; reservoirs; rivers; permanent streams, marshes, or natural ponds; estuaries and commercial fish farm ponds, Increase the buffer zone to 450 feet when ultralow volume (ULV) application is made.

For aerial applications, the spray boom should be mounted on the aircraft so as to minimize drift caused by wing tip vortices. The minimum practical boom length should be used, and must not exceed 75% of wing span or rotor diameter.

Use the largest droplet size consistent with good pest control. Formation of very small droplets may be minimized by appropriate nozzle selection, by orientating nozzles away from the air stream as much as possible, and by avoiding excessive spray boom pressure.

Spray should be released at the lowest height consistent with pest control and flight safety. Applications more than 10 feet above the crop canopy should be avoided.

Make aerial or ground applications when the wind velocity favors on-target product deposition (approximately 3 to 10 mph). Do not apply when wind velocity exceeds 15 mph. Avoid applications when wind gusts approach 15 mph.

Risk of exposure to aquatic areas can be reduced by avoiding applications when wind direction is toward the aquatic area



Do not cultivate within 10 feet of the aquatic area so as to allow growth of a vegetative filter strip.

Low humidity and high temperatures increase the evaporation rate of spray drops and therefore the likelihood of increased spray drift to aquatic areas. Avoid spraying during conditions of low humidity and high temperature.

Do not make aerial or ground applications during temperature inversions. Inversions are characterized by stable air and increasing temperatures with height above the ground. Mist or fog may indicate the presence of an inversion in humid areas. The applicator may detect the presence of an inversion by producing smoke and observing a smoke layer near the ground surface.

#### **SPRAY TANK CLEANOUT**

Immediately following application of EsfenStar 8% EC, thoroughly clean all mixing and spray equipment. Flush the tank, pump, hoses, and boom with several changes of water after removing nozzle tips and screens (clean these parts separately). Take all necessary precautions when cleaning equipment. Do not clean near wells, water sources or desirable vegetation. Dispose of waste rinse water in accordance with local regulations.

**SPECIFIC USES**

**FIELD CROPS**

Crop	Insect	Application Rate		Acres treated per gal of EsfenStar 8% EC	Last Application (days to harvest)
		lb. ai/acre	fl. oz./acre		
Cord (field)*	Western Bean Cutworm	0.015-0.03	2.9-5.8	44-22	21
	Armyworm (True Armyworm)	0.03-0.05	5.8-9.6	22-13	
	Black Cutworm (except CA)				
	Chinch Bug				
	Corn Earworm				
	Corn Leaf Aphid				
	Corn Rootworm (adult control)				
	Cutworm				
	Flea Beetle				
	Grasshopper				
	Japanese beetle (adult) (except CA)				
	Oat Bird-Cherry Aphid				
	Southwestern Corn Borer				
	Stalk Borer				
	European Corn Borer	0.04-0.05	7.8-9.6	16-13	

Black Cutworm - EsfenStar 8% EC may be applied at 3.2 - 9.6 fl oz/acre (0.0165 - 0.05 lb ai/acre) for the control of black cutworm when applied at planting of corn (except CA).

Chinch Bug - Over the top sprays, as used for control of ear and stalk infesting corn pests, are not adequate for chinch bug control. It is very important that the spray be directed at the base of the plant through the use of drop nozzles or some other mechanism.

Corn Earworm - First application should be at or before silking. Repeat applications may be applied if economically damaging populations exist. Subsequent applications should be made at 3 - 5 day intervals until silking is completed.

Corn Leaf Aphid, Oat Bird-Cherry Aphid - For optimum results, direct the spray at the aphid population so as to achieve maximum coverage of the exposed insects. Aphids not contacted by the spray, such as in whorls and leaf axils, may not be adequately controlled.

Corn Rootworm (Adult) - Apply at the first sign of silk feeding. EsfenStar 8% EC may be tank-mixed with methyl parathion and applied on field corn where supplemental control of Adult Corn Rootworm is desired in conjunction with insects controlled by EsfenStar 8% EC when used alone. Refer to the EsfenStar 8% EC and methyl parathion labels for appropriate rates of the individual products for controlling the respective insects.

Cutworm - Applications for cutworm control may be applied before, during, or after planting as required to protect emerging or emerged corn seedlings.

European Corn Borer -  
 First brood: Spray while eggs are in the blackhead stage or before the larvae enter the whorl. Application by ground equipment is suggested. Good coverage of both upper and lower leaf surfaces is essential. This can be accomplished with drop nozzles over the row and on each side of the corn plant. Multiple applications may be required when egg laying is prolonged or where moderate to heavy populations are present. A higher rate is recommended for moderate to heavy populations. Proper coverage by ground equipment usually requires 20-30 gallons of carrier. Once larvae enter the whorl, foliar sprays will not provide adequate control.  
 Second brood: Make applications when sufficient egg masses are found. Spray when eggs are in the blackhead stage or starting to hatch. When egg laying is prolonged or a third generation is present, additional sprays may be required. A higher rate is recommended for moderate to heavy populations. Good coverage above, below, and in the ear zone is essential. This usually requires 2 - 3 gallons of carrier by air. If ground equipment is used, drop nozzles on each side of the plant will provide best coverage. EsfenStar 8% EC may be tank-mixed with methyl parathion and applied on field corn where supplemental control of European Corn Borer is desired in conjunction with insects controlled by EsfenStar 8% EC when used alone. Refer to the EsfenStar 8% EC and methyl parathion labels for appropriate rates of the individual products for controlling the respective insects.

Grasshopper - For control of first and second instar grasshopper nymphal stages a rate range of 3.9 to 5.8 fluid ounces of product per acre (0.02 - 0.03 lb ai/A) can be used. Correct timing of spray applications to the first and second instar nymphal stages and thorough coverage is critical to achieve optimum control. For grasshopper nymph stages larger than second instar, use EsfenStar 8% EC at use rates of 5.8 to 9.4 fluid ounces of product per acre (0.03 - 0.05 lb ai/A).

Southwestern Corn Borer - For moderate to heavy infestations, higher rates (0.036-0.05 lb ai per acre) are recommended.

Stalk Borer, Flea Beetle - Application must be made early in migration from grassy areas to corn, before borers enter the plant.

Western Bean Cutworm - Apply before larvae enter the ear.

\*Do not apply more than 0.25 lb. ai per acre per season.

Crop	Insect	Application Rate			Acres treated per gal of EsfenStar 8% EC	Last Application (days to harvest)
		lb. ai/acre	fl. oz./acre			
Cord (field) At Plant	Cutworm	0.0023 lbs. a.i. per 1,000 feet of row	0.45 fl. oz. per 1,000 feet of row			21
	<p>Apply as an in-furrow, T-band, or band treatment using a minimum 4" band. Use the table below to determine the pounds active ingredient and fluid ounces of EsfenStar 8% EC applied at 0.0023 lbs. ai per 1000 feet or row for various row spacings.</p> <p>In furrow Applications: Apply into the seed furrow through spray nozzles behind the planter furrow openers and in front of the press wheel.</p> <p>Banded Applications: Apply at planting as a 4-7 inch T-band sprayed across the open seed furrow between the furrow openers and the press wheels or as a band application behind the press wheel.</p> <p>Apply a minimum spray volume of 3 gallons per acre.</p> <p>Do not exceed 0.05 lbs. a.i. per acre per season as an at-plant application.</p> <p>Do not apply more than 0.25 pounds active ingredient per acre per season including at-plant plus foliar applications of EsfenStar 8% EC.</p>					
	Row Spacings (inches)	40"	38"	36"	30"	
	Linear Ft/A	13.068	13.756	14.520	17.424	
	EsfenStar 8% EC Lbs. ai/A	0.03	0.032	0.033	0.04	
	EsfenStar 8% EC Fl. oz/A	5.8	6.2	6.4	7.8	
Corn (Pop)	For specific insect control recommendations refer to Field Corn (above). Follow directions carefully.					1
	Multiple applications and/or shortened intervals between sprays must be used to insure proper insect control. Do not apply more than 0.5 lb a.i. per acre per season.					
Corn (Seed)	For specific insect control recommendations refer to Field Corn (above). Follow directions carefully.					1
	Multiple applications and/or shortened intervals between sprays must be used to insure proper insect control. Do not apply more than 0.25 lb a.i. per acre per season.					

Crop	Insect	Application Rate		Acres treated per gal of EsfenStar 8% EC	Last Application (days to harvest)
		lb. ai/acre	fl. oz./acre		
Cotton	Cotton Leaf Perforator	0.03	5.8	22	21
	Beet Armyworm* Black cutworm (except CA) Boll Weevil Cabbage Looper Cotton Aphid* Conan Bollworm Cotton Leafworm Cutworms Fleahoppers Grasshoppers Green Stink Bug (except CA) Leafhoppers Lygus Bugs Pink Bollworm Plant Bugs Saltmarsh Caterpillar Southern Green Stink Bug (except CA) Thrips (on seedling cotton) Tobacco Budworm Whitefly*	0.03-0.05	5.8-9.6	22-13	
	NOTE: For light infestations of the above insects	0.02	3.9	33	
<p>*Aids in control.            May be applied in water or nonvolatile vegetable oils.            When applying EsfenStar 8% EC in an oil carrier, apply a total spray volume of at least 1 qt. per acre.            When applying EsfenStar 8% EC in a water carrier, apply at least 1 gal. per acre by air (at least 3 gal per acre in Arizona and 5 gal per acre in California) or 4 gal per acre by ground.            Do not apply more than 0.5 lb ai per acre per season.            Do not graze livestock on treated fields or feed treated trash.            Black Cutworm - EsfenStar 8% EC may be applied at 3.2 - 9.6 fl oz/acre (0.0165 - 0.05 lb ai/acre) for the control of black cutworm when applied at planting of cotton (except CA).            Boll Weevil - To control Boll Weevil infestations, a 3 to 5 day interval between applications may be necessary.            Heliothis spp. - EsfenStar 8% EC can provide contact ovicidal effect on Heliothis spp. eggs when applied according to label directions for control of tobacco budworm; application should be timed to correspond with peak egg deposition to achieve maximum ovicidal effect.            Use on this pest stage (egg) is not registered in California.            Do not make more than a total of 10 synthetic pyrethroid applications (of one product or combination of products) to a cotton crop in one growing season.</p>					

Crop	Insect	Application Rate		Acres treated per gal of EsfenStar 8% EC	Last Application (days to harvest)
		lb. ai/acre	fl. oz./acre		
Peanuts	Corn Earworm Potato Leafhopper Red-necked Peanut Worm Velvetbean Caterpillar	0.015-0.03	2.9-5.8	44-22	21
	Beet Armyworm* Cutworms Granulate Cutworm Grasshoppers	0.03-0.05	5.8-9.6	22-13	
	Fall Armyworm* Lesser Cornstalk Borer*	0.05	9.6	13	
	*Aids in control. Do not feed or graze livestock on treated vines. Do not apply more than 0.15 lb a.i. per acre per season.				
Sorghum (Grain) Except CA	Sorghum Midge	0.015-0.03	2.9-5.8	44-22	21
	Black Cutworm Chinch Bugs Corn Earworm (headworm) Cutworms	0.03-0.05	5.8-9.6	22-13	
Do not apply more than 0.15 lb a.i. per acre per season. When applying in nonvolatile vegetable oils use a total spray volume of 1 or more qts. per acre. Black Cutworm - EsfenStar 8% EC may be applied at 3.2-9.6 fl. oz./acre (0.0165-0.05 lb. ai/acre) for the control of black cutworm when applied at planting of sorghum. Chinch Bug Control - For optimum results, spray should be diluted at base of plants.					
Soybean	Green Cloverworm Mexican Bean Beetle Potato Leafhopper Saltmarsh Caterpillar Velvetbean Caterpillar Woollybear Caterpillar	0.015-0.03	2.9-5.8	44-22	21
	Bean Leaf Beetle Beet Armyworm* Cabbage Looper Corn Earworm Cutworms Grasshoppers Green Stink Bug (except CA) Japanese Beetle (adult) Southern Green Stink Bug Soybean Aphid (except CA) Three-cornered Alfalfa Hopper	0.03-0.05	5.8-9.6	22-13	
Grasshopper - For control of first and second instar grasshopper nymphal stages a rate range of 3.9 to 5.8 fluid ounces of product per acre (0.02-0.03 lb. ai/A) can be used. Correct timing of spray applications to the first and second instar nymphal stages and thorough coverage is critical to achieve optimum control. For grasshopper nymph stages larger than second instar, use EsfenStar 8% EC at use rates of 5.8 to 9.6 fluid ounces of product per acre (0.03-0.05 lb. ai/A). Soybean Aphid - EsfenStar 8% EC provides control of soybean aphid, however under certain conditions such as rapid aphid population growth, or extremely high populations, a tank mixture may be considered. EsfenStar 8% EC can be tank mixed with other insecticides such as chlorpyrifos (e.g. "Lorsban") or methomyl (e.g. DuPont™ Lannate®) to achieve rapid knockdown or soybean aphid. Because Lannate® is a fast acting contact insecticide, best results follow direct spraying of the target insect. When preparing a tank					

restrictions, requirements and proper usage. Use sufficient water to obtain thorough, uniform coverage. For aerial application use a minimum of 2 gallons per acre, and for ground application use a minimum of 10 gallons per acre.

\*Aids in control.

When applying in nonvolatile vegetable oils, use a total spray volume of at least 1 qt.

Do not feed or graze livestock on treated fields.

Do not apply more than 0.2 lb ai per acre per season.

Crop	Insect	Application Rate			Acres treated per gal of EsfenStar 8% EC	Last Application (days to harvest)																							
		lb. ai/acre	fl. oz./acre																										
Sugar Beets	Beet Armyworm* Beet Webworm Cabbage Looper Cutworms Flea Beetle (except CA) Grasshoppers Leafhoppers Saltmarsh Caterpillar Sugar but Root Maggot (adult) (except CA)	0.03-0.05	5.8-9.6		22-13	21																							
	<p>Grasshopper - For control of first and second instar grasshopper nymphal stages a rate of 3.9 to 5.8 fluid ounces of product per acre (0.02 - 0.03 lb. ai/A) can be used. Correct timing of spray applications to the first and second instar nymphal stages and thorough coverage is critical to achieve optimum control. For grasshopper nymph stages larger than second instar, use EsfenStar 8% EC at use rates of 5.8 to 9.6 fluid ounces of product per acre (0.03 - 0.05 lb ai/A).</p> <p>*Aids in control. Do not apply more than 0.15 lb ai/acre per season. Apply with ground or air equipment using sufficient water to provide uniform coverage (minimum of 2 gal of water per acre).</p>																												
Sugar Beets At Plant	Cutworm	0.0023 lbs. ai per 1,000 ft of row	0.45 fl. oz. per 1,000 ft. of row			21																							
	<p>Apply as an in-furrow, T-band, or band treatment using a minimum 4" band. Use the table below to determine the pounds active ingredient and fluid ounces of EsfenStar 8% EC applied at 0.0023 lbs. a.i. per 1000 feet of row for various row spacings.</p> <p>In-Furrow Applications: Apply into the seed furrow through spray nozzles, behind the planter furrow openers and in front of the press wheel.</p> <p>Banded Applications: Apply at planting as a 4-7 inch T-band sprayed across the open seed furrow between the furrow openers and the press wheels or as a band application behind the press wheel.</p> <p>Apply a minimum spray volume of 3 gallons per acre. Do not exceed 0.05 lbs. a.i. per acre per season as an at-plant application. Do not apply more than 0.25 pounds active ingredient per acre per season including at-plant plus foliar applications of EsfenStar 8% EC.</p> <table border="1"> <tr> <td>Row Spacing (inches)</td> <td>40"</td> <td>38"</td> <td>36"</td> <td>30"</td> <td>22"</td> </tr> <tr> <td>Linear Ft/A</td> <td>13,068</td> <td>13,756</td> <td>14,520</td> <td>17,424</td> <td>23,760</td> </tr> <tr> <td>EsfenStar 8% EC Lbs.ai/A</td> <td>0.03</td> <td>0.032</td> <td>0.033</td> <td>0.04</td> <td>0.05</td> </tr> <tr> <td>EsfenStar 8% EC Fl oz/A</td> <td>5.8</td> <td>6.2</td> <td>6.4</td> <td>7.8</td> <td>9.6</td> </tr> </table>					Row Spacing (inches)	40"	38"	36"	30"	22"	Linear Ft/A	13,068	13,756	14,520	17,424	23,760	EsfenStar 8% EC Lbs.ai/A	0.03	0.032	0.033	0.04	0.05	EsfenStar 8% EC Fl oz/A	5.8	6.2	6.4	7.8	9.6
Row Spacing (inches)	40"	38"	36"	30"	22"																								
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EsfenStar 8% EC Fl oz/A	5.8	6.2	6.4	7.8	9.6																								
Sugarcane	Sugarcane Borer	0.03-0.05	5.8-9.6		22-13	21																							
	Do not apply more than 0.2 lb ai/acre per season.																												

15/31

Crop	Insect	Application Rate		Acres treated per gal of EsfenStar 8%	Last Application (days to harvest)
		lb. ai/acre	fl. oz./acre		
Sunflower	Sunflower Beetle (except CA)	0.0075-0.03	1.45-5.8	88-22	28
	Banded Sunflower Moth Beet Armyworm* Cutworms Grasshoppers Heliothis (complex) Leafhoppers Sunflower Maggot Sunflower Moth Sunflower Seed Weevil Sunflower Stem Weevil	0.03-0.05	5.8-9.6	22-13	
<p>Grasshopper - For control of first and second instar grasshopper nymphal stages a rate range of 3.9 to 5.8 fluid ounces of product per acre (0.02 - 0.03 lb ai/A) can be used. Correct timing of spray applications to the first and second instar nymphal stages and thorough coverage is critical to achieve optimum control.</p> <p>For grasshopper nymph stages larger than second instar, use EsfenStar 8% EC at use rates of 5.8 to 9.6 fluid ounces of product per acre (0.03 - 0.05 lb ai/A).</p> <p>*Aids in control.</p> <p>Do not apply more than 0.2 lb. ai/acre per season.</p>					

**FRUITS**

**DILUTE SPRAY:** Apply specified dosage per 100 gallons of water in a uniform spray applied to the point of drip with conventional ground equipment. Do not exceed maximum number of gallons per acre indicated.

**NOTE:** In order to apply the correct amount of EsfenStar 8% EC insecticide to your orchard you must know the number of gallons of water needed to spray one acre of your trees to the point of drip. If you do not already know this gallonage, you should conduct a test to determine it. If you do not know how to conduct such a test with your equipment, you should ask for assistance from your equipment dealer or State Extension specialist.

**CONCENTRATE SPRAY:** Apply specified dosage per acre in no less than 30 gals. of water per acre by ground equipment.

**FOR AERIAL APPLICATION IN TREE AND ORCHARD CROPS:** Use a minimum of 10 gallons of water per acre. When applying EsfenStar 8% EC by air, consult your Cooperative Extension Service for further application guidelines.

Crop	Insect	Application Rate			Acres treated per gal of EsfenStar 8%	Last Application (days to harvest)
		lb. ai/acre	fl. oz./acre	fl. oz./100 gal.		
Apples	Apple Aphid Apple Maggot Codling Moth Green Fruitworm Lesser Appleworm Mullein Plant Bug (except CA) Oblique Banded Leafroller Oriental Fruit Moth Periodical Cicada Plant Bugs (Tarnished Plant Bug, Stink Bugs) Plum Curculio	0.025-0.075	4.8-14.5	2.0-5.8	26-9	21

Red - Banded Leafroller Rosy Apple Aphid San Jose Scale (fruit infestations only) Tentiform Leaf Miner Tufted Apple Bud Moth Variegated Leafroller White Apple Leafhopper				
Apple Ermine Moth (ID, OR & WA only)			3.0	
Tufted Apple Bud Moth (overwintering) (MD, NC, N.J, PA, VA, WV only)	0.04-0.075	8.0-14.5		16-9
<p>Do not feed or graze livestock on treated orchard floors.                  Do not apply more than 0.525 lbs a.i. per acre per season. For dilute spray apply 200 - 600 gals per acre, but do not apply more than 14.5 fl. oz. of EsfenStar 8% EC per acre per treatment</p> <p>Apple Ermine Moth-Apply with 2 to 4 gallons of superior spray oil in 100 gallons of water; in a spray-to-wet application to insure thorough coverage of all stems and branches where Apple Ermine Moth hibernacula are found.</p> <p>When using on apple nursery stock, do not treat bundled plants since it is difficult to achieve a full coverage application which could result in less than complete control</p> <p>Make first application in the fall after 90% of leaf fall has occurred-usually after October 15. Make a second application 7 to 14 days later.</p> <p>Note: Overwintering larvae do not die until approximately 30 days after application.</p> <p>Plant Bug, Rosy Apple Aphid Control-Time of application is critical in achieving control. Use prebloom and post bloom spray timings recommended by State Extension Services.</p> <p>Tufted Apple Bud Moth (overwintering)--For use on apple for the control of overwintering larvae of the tufted apple bud moth with directed ground application to the apple orchard floor. Make one application of EsfenStar 8% EC at either pink stage of apple or at petal fall stage of apple. Use the lower rate on small larvae (pink stage of apple) and/or on lower populations. Use the higher rate on large larvae (petal fall stage of apple) and/or on moderate to high populations. Apply specified dosage per acre to the orchard floor in no less than 30 gals of water per acre by ground to obtain uniform coverage. Apply treatment in a band from trunk to drip line to allow coverage of areas where overwintering tufted apple bud moth are found.</p> <p>Beneficial Insects: Application of EsfenStar 8% EC to the groundcover at the pink stage of apple development may be toxic to overwintering <i>Stethorus punctum</i>. <i>S. punctum</i> is a coccinellid insect and the major predator of spider mites in the MD, NC, NJ, PA, VA and WV fruit growing areas. This predator overwinters in the same areas of the orchard groundcover as the tufted apple bud moth and moves into apple trees from mid-April through mid-May when maximum daily temperatures exceed 68°F. Emergence from the groundcover is 20-70% complete by the pink stage and 90-100% complete by petal fall on the apple cultivar Yorking.</p>				



Crop	Insect	Application Rate			Acres treated per gal of EsfenStar 8% EC	Last Application (days to harvest)
		lb. ai/acre	fl. oz./acre	fl. oz /100 gal.		
Blueberry (except CA)	Aphids (NJ only) Blueberry Spanworm Cherry Fruitworm* Cranberry Fruitworm Cranberry Weevil* Grasshoppers Japanese Beetle Leafhoppers Red Striped Fireworm*	0.025-0.05	4.8 9.6		26-13	14
	Blueberry Maggot Black Vine Weevil (adult control) Strawberry Root Weevil (adult control) (OR, WA only)	0.05	9.6		13	
<p>*Aids in control. Do not apply more than 0.2 lb ai/acre per season (38.4 fluid ounces of product per acre per season) Use of ground application is recommended; for ground application use a minimum of 50 gals. water per acre. Do not apply this product through any type of irrigation system. Note: EsfenStar 8% EC can act as a bee repellent, do not apply within 7 days of pollination. Apply as a pre-bloom or post-bloom spray only. Black vine weevil &amp; strawberry root weevil (adult control)(OR, WA only): Look for leaf notching beginning in late May to early June as the first sign of weevil feeding. Also check for adults on or just below the soil surface around the base of plants. Apply EsfenStar 8% EC within two to three weeks of first sign of infestation. Do not apply by air; apply by ground using a minimum of 50 gallons of water per acre. Direct spray to provide full coverage of foliage and soil area around base of plants. Best results are from applications made after dark when temperatures are warm and weevils are actively feeding. Root weevil, emerge over a several week period, make additional applications when signs of new feeding appear.</p>						

Crop	Insect	Application Rate			Acres treated per gal of EsfenStar 8% EC	Last Application (days to harvest)
		lb. ai/acre	fl. oz./acre	fl. oz./100 gal.		
Caneberries (blackberries, boysenberries, dewberries, loganberries, raspberries, youngberries, and varieties or these) (except CA)	Aphids Oblique Banded Leafroller Orange Tortrix	0.025-0.05	4.8-9.6		26-13	7
	Adult Root Weevils* (OR & WA only)	0.05	9.6		13	
<p>*Aids in control. Do not apply by air. Do not apply more than 0.15 lb ai/acre per season. Do not apply this product through any type of irrigation system. Note: EsfenStar 8% EC can act as a bee repellent, do not apply within 7 days of pollination. Apply as a pre-bloom or post-bloom spray only. Remove bees prior to application. For maximum safety to bees, apply EsfenStar 8% EC in the evening after sunset. Adult Root Weevils (OR, WA only): Look for leaf notching beginning in late May to early June as the first sign of weevil feeding. Also check for adults on or just below the soil surface around the base of plants. Apply EsfenStar 8% EC within two to three weeks of infestation. Apply by ground using a minimum of 50 gallons of water per acre. Direct spray to provide full coverage of foliage and soil area around base of plants. Best results are from applications made after dark when temperatures are warm and weevils are actively feeding. Root weevils emerge over a several week period, make additional applications when signs of new feeding appear. Oblique Banded Leafroller, Orange Tortrix and Aphids: Apply as a full coverage spray in a minimum of 50 gallons of water with ground equipment only. Apply no earlier than 12 days before harvest and no later than 7 days before harvest</p>						
Kiwifruit	Boxelder Bug (suppression only)	0.05	9.6		13	14
Spray in sufficient water for thorough coverage. A maximum of 7 applications is allowed per season (total of 0.35 lb ai/acre/season) with a minimum of 7 days between treatments.						
Pear	Codling Moth Green Fruitworm Leafrollers Pear Psylla Pear Slug Periodical Cicada Plum Curculio	0.025-0.075	4.8-14.5	2.0-5.8	26-9	28
	Do not apply more than 0.375 lbs. a.i. per acre per season. Do not apply more than 0.225 lb. a.i. per acre between bloom and harvest. Do not feed or graze livestock on treated orchard floors. For dilute spray apply 200-600 gals. per acre, but do not apply more than 14.5 fl. oz. of EsfenStar 8% EC per acre per treatment.					
Pear (Dormant)	Pear Psylla	0.05-0.1	9.6-19.2	7.3-12.8	13.2-6.6	28
	Apply during dormant to prebloom (white bud) stage only. Do not apply more than 0.2 lb. ai per acre per season. Do not graze orchard floor. For dilute spray apply 150-250 gals per acre but do not apply more than 19.2 fl. oz. of EsfenStar 8% EC per acre per treatment.					

Crop	Insect	Application Rate			Acres treated per gal of EsfenStar 8% EC	Last Application (days to harvest)
		lb. ai/acre	fl. oz./acre	fl. oz./100 gal.		
Stone Fruits (including apricots, cherries, nectarines, peaches, plums, prune plums)	American Plum Borer Black Cherry Aphid Cherry Fruit Fly Green Fruitworm Leafhoppers Leafrollers Lesser Peach Tree Borer Oriental Fruit Moth Peach Tree Borer Peach Twig Borer Periodical Cicada Plant Bugs (Tarnished Plant Bug, Stink Bugs) Plum Curculio Western Cherry Fruit Fly	0.025-0.075	4.8-14.5	2.0-5.8	26-9	14
	Peach Twig Borer (Dormant) (CA only)	0.04-0.075	8.0-14.5	3.1-5.8	16-5	
	Tufted Apple Bud Moth (overwintering) (Peach only) (MD, NC, NI, PA, VA and WV only)	0.04-0.075	8.0-14.5		16-9	
<p>Do not apply more than 0.375 lbs a.i. per acre per season with no more than 0.3 lbs. a.i. per acre per season between bloom and harvest. For dilute spray apply 200 - 400 gals per acre, but do not apply more than 14.5 fl. oz of EsfenStar 8% EC per acre per treatment. Do not graze livestock on vented orchard floors.</p> <p>Peach Tree Borer, American Plum Borer, Lesser Peach Tree Borer Control - Apply as directed bunk and scaffold limb spray. Thorough coverage of trunk and scaffold limbs is required.</p> <p>Peach Twig Borer (Dormant)--Make application with an EPA registered dormant oil; for specific recommendations on use of oil consult manufacturer's label. For best performance, ground application equipment is recommended.</p> <p>Peach Twig Borer, Plum Curculio, Oriental Fruit Moth, Cherry Fruit Fly, Western Cherry Fruit Fly, Leafrollers, Black Cherry Aphid, Periodical Cicada Control - Apply by ground sprayer to achieve thorough coverage of all aerial portions of the tree.</p> <p>Plant Bug Control - Time of application is critical in achieving control. Use prebloom and postbloom spray timings recommended by State Extension Services.</p> <p>Tufted Apple Bud Moth (overwintering)--For use on peach for the control of overwintering larvae of the tufted apple bud moth with directed ground application to the peach orchard floor. Make one application of EsfenStar 8% EC at either popcorn stage of peach or at shuck split stage of peach. Use the lower rate on small larvae (popcorn stage of peach) and/or on lower populations. Use the higher rate on larger larvae (shucksplit stage of peach) and/or on moderate to high populations.</p> <p>Apply specified dosage per acre to the orchard floor in no less than 30 gals of water per acre by ground to obtain uniform coverage. Apply treatment in a band from trunk to drip line to allow coverage of areas where overwintering tufted apple bud moth are found.</p> <p>Beneficial Insects: Application of EsfenStar 8% EC to the groundcover at the popcorn stage of peach development may be toxic to overwintering <i>Stethorus punctum</i>. <i>S. punctum</i> is a coccinellid insect and the major predator of spider mites in the MD, NC, NI, PA, VA and WV fruit growing areas. This predator overwinters in the same areas of the orchard groundcover as the tufted apple bud moth and moves into peach trees from mid-April through mid-May when maximum daily temperatures exceed 68°F. Emergence from the groundcover is 90-100% complete by shucksplit. Shucksplit is the preferred timing to minimize predator toxicity.</p>						

**TREE NUT CROPS**

**DILUTE SPRAY:** Apply specified dosage per 100 gallons of water in a uniform spray applied to the point of drip with conventional ground equipment. Do not exceed maximum number of gallons per acre indicated.

**NOTE:** In order to apply the correct amount of EsfenStar 8% EC insecticide to your orchard you must know the number of gallons of water needed to spray one acre of your trees at the point of drip. If you do not already know this gallonage, you should conduct a test to determine it. If you do not know how to conduct such a test with your equipment, you should ask for assistance from your equipment dealer or State Extension specialist.

**CONCENTRATE SPRAY:** Apply specified dosage per acre in no less than 30 gals. of water per acre. by ground equipment.

**FOR AERIAL APPLICATION IN TREE AND ORCHARD CROPS:** Use a minimum of 10 gallons of water per acre. When applying EsfenStar 8% EC by air, consult your Cooperative Extension Service for Further application Guidelines.

Crop	Insect	Application Rate			Acres treated per gal of EsfenStar 8% EC	Last Application (days to harvest)
		lb. ai/acre	fl. oz./acre	fl. oz /100 gal.		
Almonds	Navel Orangeworm Peach Twig Borer Peach Twig Borer (Dormant) (CA only)	0.05-0.1	9.6-19.2	7.3-12.8	13.2-6.6	21
	Do not apply more than 0.2 lb. a.i. per acre per season. Do not graze livestock on treated orchard floors. Peach Twig Borer (Dormant)--Make application with an EPA registered dormant oil; for specific recommendations on use of oil consult manufacturer's label. For best performance, ground application equipment is recommended.					
Filberts	Filbertworm Oblique Banded Leafroller	0.05-0.1	9.6-19.2	7.3-12.8	13.2-6.6	21
	Make first application after emergence of filbert worm moths in early summer. Do not apply a second treatment earlier than three weeks after the first. Do not apply more than 0.2 lb. a per acre per season. For dilute spray, apply 200 - 400 gals. per acre, but do not apply more than 19.2 fl. oz. of EsfenStar 8% EC per acre per treatment. Do not graze livestock on treated orchard floors.					
Pecans	Hickory Shuckworm Pecan Aphids Pecan Nut Casebearer Pecan Leaf Phylloxera Pecan Spittlebug Pecan Stem Phylloxera Pecan Weevil	0.025-0.075	4.8-14.5	2.0-5.8	26-9	21
	Do not feed or graze livestock on treated orchard floors. Do not apply more than 0.3 lbs. a.i. per acre per season. For dilute spray apply 200-600 gals. per acre, but do not apply more than 14.5 fl. oz. of EsfenStar 8% EC per acre per treatment. EsfenStar 8% EC may be tank-mixed with fungicides containing fentin hydroxide (triphenyltin hydroxide) such as "Super Tin". Refer to the EsfenStar 8% EC and fentin hydroxide (triphenyltin hydroxide) labels for appropriate rates of the individual products for controlling the respective pests. Phylloxera - Correct timing of spray applications is critical in achieving optimum control of leaf and stem phylloxera. Consult local spray recommendations for correct times of application.					
Walnuts	Codling Moth Navel Orangeworm Walnut Aphid Walnut Husk Ply	0.05-0.1	9.6-19.2	4.0	13-6	21
	Do not apply more than 0.2 lb. a.i. per acre per season. For dilute sprays, apply 200 - 400 gals per acre. Do not feed or graze livestock on treated crop floors.					

NOTE: Use of baits in Walnut Husk fly sprays is recommended where endorsed by local Agricultural Extension Service.

**VEGETABLE CROPS**

Crop	Insect	Application Rate		Acres treated per gal of EsfenStar 8% EC	Last Application (days to harvest)
		lb. ai/acre	fl. oz./acre		
Artichoke	Artichoke Plume Moth	0.03-0.05	5.8-9.6	22-13	1
	Do not apply more often than each 14 days. Apply no more than 0.15 lb. ai/acre between bud formation and harvest of an individual fruit. Apply in a minimum of 10 gallons per acre by air and 50 - 200 gallons per acre by ground (use sufficient water to obtain coverage without excessive runoff).				
Beans, Dry (Including adzuki bean, blackeyed pea, broad bean (dry), chickpea, cow pea, crowder pea, field bean, kidney bean, Lima bean (dry), mung bean, navy bean, pinto bean, southern pea, tepary bean) Peas, Dry Lentils	Leafhoppers (except CA) Mexican Bean Beetle Saltmarsh Caterpillar	0.015-0.03	2.9-5.8	44-22	21
	Beet Armyworm* Cabbage Looper Corn Earworm Corn Rootworm (Adults) Cowpea Curculio Cucumber Beetle Cutworms Grasshoppers Green Cloverworm Leafhoppers Painted Lady Butterfly (larvae) Pea Aphid Potato Leafhopper Soybean Aphid (except CA) Velvetbean Caterpillar Western Bean Cutworm	0.03-0.05	5.8-9.6	22-13	
	Pea Leaf Weevil (ID, OR & WA only) Pea Weevil (ID, OR & WA only)	0.025-0.05	4.8-9.6	26-13	
	<p>*Aids in control. Do not apply more than 0.2 lb ai. per acre per season. Do not feed or graze livestock on treated vines. Pea Weevil &amp; Pea Leaf Weevil (ID, OR &amp; WA) - Time of application is critical in achieving control of pea weevil. For optimum results, apply at bloom prior to detecting adult pea weevils. Once adult pea weevil populations reach a level of 2 or more adults per 25 sweeps, control may be reduced. Grasshopper - For control of first and second instar grasshopper nymphal stages a rate of 3.9 to 5.8 fluid ounces of product per acre (0.02 - 0.03 lb. ai/A) can be used. Correct timing of spray applications to the first and second instar nymphal stages and thorough coverage is critical to achieve optimum control. For grasshopper nymph stages larger than second instar, use EsfenStar 8% at use rates of 5.8 to 9.6 fluid ounces of product per acre (0.03 - 0.05 lb ai/A)</p>				

22/31

Crop	Insect	Application Rate		Acres treated per gal of EsfenStar 8% EC	Last Application (days to harvest)
		lb. ai/acre	fl. oz./acre		
Beans, Snap Also known as: (blue lake, bush, common, edible-podded, filet, flageolet, French, French horticultural, frijoles comunes, garden, green, haricot, haricot commun, Italian, judia comum, Kentucky wonder, magic, pole, romano, string, succulent, vainica, wax)	Leafhoppers (except CA) Mexican Bean Beetle Saltmarsh Caterpillar	0.015-0.03	2.9-5.8	44-22	3
	Beet Armyworm* Cabbage Looper Corn Earworm Corn Rootworm (adults) Cucumber Beetle Cucumber Beetle (adults) Cutworm (seedling spray) European Corn Borer Flea Beetle Grasshoppers Green Cloverworm Leafhopper Leafminer (Guam only) Pea Aphid Potato Leafhopper Soybean Aphid (except CA) Velvet Bean Caterpillar Western Bean Cutworm	0.03-0.05	5.8-9.6	22-13	
<p>*Aids in control. Do not apply more than 0.2 lb ai per acre per season. Do not allow livestock to graze treated bean fields. Do not harvest treated bean vines for livestock forage, fodder, or hay.</p>					
Broccoli, (including chinese broccoli) Cabbage, Cauliflower, Chinese Cabbage (tight headed varieties only, e.g. Napa cabbage)	Imported Cabbageworm	0.015-0.03	2.9-5.8	44-22	3
	Alfalfa Looper Beet Armyworm* Cabbage Looper Cutworm Flea Beetle Grasshoppers	0.03-0.05	5.8-9.6	22-13	
<p>*Aids in control. Do not apply more than 0.4 lbs. a.i. per acre per season</p>					

23/31

Crop	Insect	Application Rate		Acres treated per gal of EsfenStar 8% EC	Last Application (days to harvest)
		lb. ai/acre	fl. oz./acre		
Carrots	Aster Leafhopper Cutworms Leafhoppers	0.03-0.05	5.8-9.6	22-13	7
	Carrot Weevil	0.05	9.6	13	
<p>Do not apply more than 0.5 lb ai/acre per season.            For aerial application apply in a minimum of 5 gals. water per acre.            Thorough spray coverage of crown area is essential. Use of ground application is recommended.            Carrot Weevil - Begin treatment when weevils become active.</p>					
Collards	Alfalfa Looper Beet Armyworm* Cabbage Looper Cutworm Flea Beetle Grasshopper Imported Cabbageworm	0.03-0.05	5.8-9.6	22-13	7
	<p>* Aids in control.            Do not feed livestock on treated plant parts. Do not apply more than 0.2 lbs. a.i. per acre per season. For aerial application apply in a minimum of 5 gal water per acre.</p>				

Crop	Insect	Application Rate		Acres treated per gal of EsfenStar 8% EC	Last Application (days to harvest)
		lb. ai/acre	fl. oz./acre		
Cucumber, Melons, (cantaloupe, honeydew melons, muskmelon, watermelon), Pumpkin, Squash (summer, winter)	Cabbage Looper Corn Earworm Cucumber Beetle (adults) Cutworms (seedling spray) Grasshoppers Leafhoppers Pickleworm Plant Bugs (Lygus Bugs, Stink Bugs) Rindworms Squash Bug Squash Vine Borer	0.03-0.05	5.8-9.6	22-13	3
	Do not apply more than 0.25 lb ai/acre per season.				
Eggplant	Colorado Potato Beetle Corn Earworm European Corn Borer Flea Beetles Loopers	0.03-0.05	5.8-9.6	22-13	7
	Apply when insects are observed or when insect damage is observed. Repeat applications at 7 to 10 day intervals to achieve control. Do not apply more than 0.35 lbs. a.i. per acre per season.				
Kohlrabi	Cabbage Looper	0.03-0.05	5.8-9.6	22-13	3
	Do not apply more than 0.4 lbs. a.i. per acre per season.				
Lentils	See "Beans, Dry"				
Lettuce, Head AZ CA, CO, FL, NM & TX ONLY	Alfalfa Looper Beet Armyworm* Cabbage Looper Heliothis spp.	0.025-0.05	4.8-9.6	23-13	7
	* Aids in control. Do not apply more than 0.35 lbs. a.i. per acre per season.				
Mustard Greens	Cabbage Looper Imported Cabbageworm	0.05	9.6	13	7
	Do not apply more than 0.2 lbs a.i. per acre per season				



Crop	Insect	Application Rate		Acres treated per gal of EsfenStar 8% EC	Last Application (days to harvest)
		lb a./acre	fl. oz./acre		
Okra (FL only)	Cabbage Looper Corn Earworm Southern Armyworm	0.03-0.05	5.8-9.6	22-13	1
Peas, Dry	See "Beans, Dry"				
Peas Green	Green Cloverworm Pea Aphid	0.015-0.03	2.9-5.8	44-22	3
	Alfalfa Caterpillar Alfalfa Looper Armyworm Cabbage Looper Celery Looper Corn Earworm Cutworms Imported Cabbageworm	0.03-0.05	5.8-9.6	22-13	
	Pea Leaf Weevil (ID, OR & WA only) Pea Weevil (ID, OR & WA only)	0.025-0.05	4.8-9.6	26-13	
	Do not apply more than 0.1 lb 6/acre per season. Do not feed treated pea vines to livestock. Pea Weevil & Pea Leaf Weevil (ID, OR & WA only) - Time of application is critical in achieving control of pea weevil. For optimum results, apply at bloom prior to detecting adult pea weevils. Once adult pea weevil populations reach a level of 2 or more adults per 25 sweeps, control may be reduced.				
Pepper	Beet Armyworm* Colorado Potato Beetle Corn Earworm Cucumber Beetle (adults) European Corn Borer Flea Beetles Loopers Pepper Weevil* Southern Armyworm	0.03-0.05	5.8-9.6	22-13	7
	*Aids in control. Apply when insects are observed or when insect damage is observed. Repeat applications at 7 to 10 day intervals to achieve control. Do not apply more than 0.35 lbs a.i. per acre per season.				

26/31

Crop	Insect	Application Rate		Acres treated per gal of EsfenStar 8% EC	Last Application (days to harvest)
		lb. ai/acre	fl. oz./acre		
Potato	Leafhoppers (except CA) Potato Psyllid	0.015-0.03	2.9-5.8	44-22	7
	Potato Tuberworm	0.015-0.05	2.9-9.6	44-13	
	Beet Armyworm* Buckthorn Aphid Cabbage Looper Colorado Potato Beetle Cucumber Beetle (adult control) Cutworms European Corn Borer Flea beetles Grasshoppers Potato Aphid Potato Leafhopper Tarnished Plant Bug Western Yellow-Striped Armyworm	0.03-0.05	5.8-9.6	22-13	
	Colorado Potato Beetle (Long Island, NY only)	0.05	9.6	13	
	<p>Grasshopper - For control of first and second instar grasshopper nymphal stages a rate range of 3.9 to 5.8 fluid ounces of product per acre (0.02-0.03 lb. ai/A) can be used. Correct timing of spray applications to the First Sod second instar nymphs] stages and thorough coverage is critical to achieve optimum control.</p> <p>For grasshopper nymph stages larger than second instar, use EsfenStar 8% EC at use rates of 5.8 to 9.6 fluid ounces of product per acre (0.03 - 0.05 lb ai/A).</p> <p>Potato Tuberworm - For control of Potato Tuberworm apply EsfenStar 8% EC when tuberworm larvae and/or moth counts reach locally established treatment threshold populations. Repeat applications of effective insecticides may be needed to keep tuberworm larvae populations as low as possible prior to harvest in order to reduce the risk of tuber damage. Failure to adequately control tuberworm larvae prior to crop senescence or vine kill increases the risk of tuber damage.</p> <p>*Aids in control. Do not apply more than 0.35 lb. ai. per acre per season</p>				
Radishes	Armyworms Beetles	0.03-0.05	5.8-9.6	22-13	7
	Do not apply more than 0.1 lb. ai/acre per season.				

27/31

Crop	Insect	Application Rate		Acres treated per gal of EsfenStar 8% EC	Last Application (days to harvest)
		lb. ai/acre	fl. oz./acre		
Sweet Corn*	Western Bean Cutworm	0.015-0.03	2.9-5.8	44-22	1
	For additional information consult directions for use under field corn.				
	Armyworm Banded Cucumber Beetle Beet Armyworm* Chinch Bugs Corn Earworm Corn Leaf Aphid Corn Rootworms (adults) Cutworms European Corn Borer Fall Armyworm (except CA) 1st and 2nd instar Flea Beetles Grasshoppers Oat Bird-Cherry Aphid Sap Beetles (adults) Southwestern Corn Borer Stalk Borer Tarnished Plant Bug	0.03-0.05	5.8-9.6	22-13	
	Corn Silky (except CA)**	0.05	9.6	13	
	<p>*Aids in control  **Suppression only.  For Ear Protection - Begin applications either just before or at time of silking.  For additional information consult directions for use under field corn.  Corn Leaf Aphid &amp; Oat Bird-Cherry Aphid - For optimum results, direct the spray at the aphid population so as to achieve maximum coverage of the exposed insects. Aphids not contacted by the spray, such as in whorls and leaf folds, may not be adequately controlled.  Corn Silky (except CA) - Direct application to the ear zone to obtain thorough coverage of the corn silk.  Fall Armyworm (except CA) - 1st and 2<sup>nd</sup> instar fall armyworm only. Direct the application to the ear zone to obtain thorough coverage of the corn silk.</p>				
*Do not apply more than 0.3 lb a.i. per acre per season.					

28/31

Crop	Insect	Application Rate		Acres treated per gal of EsfenStar 8% EC	Last Application (days to harvest)
		lb. ai/acre	fl. oz./acre		
Tomato	Tobacco Hornworm Tomato Hornworm	0.015-0.03	2.9-5.8	44-22	1
	Beet Armyworm* Cabbage Looper Colorado Potato Beetle Cutworms Flea Beetle Grasshoppers Potato Aphid Southern Armyworm Tomato Fruitworm Tomato Pinworm Western Yellow-Striped Armyworm Whitefly	0.03-0.05	5.8-9.6	22-13	
	Vegetable Leafminer**	0.05	9.6	13	
	*Aids in control. **EsfenStar 8% EC is not recommended for use on the Vegetable Leafminer in Florida. Do not apply more than 0.5 lbs. per acre per season.				
Turnips	Armyworm Fleabeetle Imported Cabbageworm	0.03-0.05	5.8-9.6	22-13	7
	Do not apply more than 0.4 lbs ai per acre per season.				

29/31

**SPECIALTY USES**

Crop	Insect	Application Rate		
		High Volume Sprays		Low Volume Sprays lb ai/acre
		lb. ai/100 gal	fl. oz./100 gal	
Christmas tree plantings, Conifer plantations, Conifer seed orchards, Forest tree nurseries	Balsam Twig Aphid	0.03-0.05	5.8-9.6	0.03-0.05
	Balsam Woolly Adelgid			
	Cranberry Girdler (adult control)			
	European Pine Sawfly			
	Nantucket Pine Tip Moth and other Pine Tip Moths (except CA)			
	Northern Pine Weevil			
	Pales Weevil			
	Pine Chafer			
	Pine Conelet Bug			
	Pine Needle Midge			
	Pineleaf Chermid			
	Red Pine Sawfly			
	Redheaded Pine Sawfly			
	Spittlebugs			
	Spruce budworm			
Spray in sufficient gallonage to obtain good coverage of entire tree.				
Coneworm	9.6 fl oz/100 gals water for high volume sprayers.			
Seed Chalcid	52 fl oz/100 gals water for low volume sprayers.			
Seedbug	0.19 lb. ai/acre application in not less than 10 gals of water for aerial applications.			
<p>Apply first application within 1 week of female flower closure or peak pollen flight for Webbing Coneworm control. For other Coneworms and Seedbugs, apply first application within 30 days following female flower closure. Repeat application at intervals of 4 weeks but do not apply more than 1.6 lbs. ai per acre per year.</p> <p>For Seed Chalcid control, apply when all cones are pendant, and repeat at 1 - 2 week intervals for 2 or more sprays.</p> <p>Apply approximately 5 - 10 gals of the 9.6 fl oz/100 gal dilution per tree with high volume sprayers. With low volume sprayers apply 100 gals of the 52 fl oz/100 gal dilution per acre.</p> <p>Do not graze or harvest cover crop. Refer to Spray Recommendations and Precautions when applying to areas adjacent to water.</p>				

Crop	Insect	Application Rate		Acres treated per gal of EsfenStar 8% EC
		lb. ai/acre	fl. oz./acre	
Non-Cropland (excluding public land such as forests, parks, or recreational)	Grasshoppers	0.015-0.03	2.9-5.8	44-22
	Saltmarsh Caterpillar			
	Army Cutworms Armyworms Chinch Bugs	0.03-0.05	5.8-9.6	22-13
Spray non-cropland adjacent to tilled areas to control migrating insects (Grasshoppers, Armyworms) which are a threat to crops. Do not apply more than 0.5 lbs. active ingredient per acre per year. Do not feed treated crop to livestock. Refer to Spray Recommendations and Precautions when applying to areas adjacent to water.				

**STORAGE AND DISPOSAL**  
 Do not contaminate water, food, or feed by storage or disposal.  
**STORAGE:** Store in a secure, dry and temperate area. Store in original container. Keep container closed when not in use. Do not store new food or feed. Do not use or store around the home. Avoid contact with water. In case of spill or leak, soak up with sand, earth or synthetic absorbent (do not use alkaline absorbents) and dispose of wastes in compliance with local, State and Federal regulations.  
**PRODUCT DISPOSAL:** Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal Law. If these wastes cannot be disposed of by use according to label instructions contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.  
**CONTAINER DISPOSAL:** Triple rinse (or equivalent), then offer for recycling or reconditioning if container reuse is permitted. If container reuse is prohibited, puncture metal containers and dispose of in a sanitary landfill, or by other approved State and local procedures. Dispose of plastic containers in a sanitary landfill, or by incineration if allowed by State and local authorities. If burned, stay out of smoke.  
**Container Refilling and Disposal of Containers up to 250 gal:** This is a refillable container. If the container is to be refilled, do not rinse with any material or introduce any pesticide other than EsfenStar 8% EC. Reseal and return the container to any authorized refilling facility. If the container is not to be refilled, triple rinse (or equivalent) and offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by incineration, or by open burning, if allowed by state and local authorities. If burned, keep out of smoke.  
 For minor spills, leaks, etc., follow all precautions indicated on this label and clean up immediately. Take special care to avoid contamination of equipment and facilities during cleanup procedures and disposal of wastes.  
**Container Disposal for Bulk Containers:** When this container is empty, replace the cap and seal all openings that have been opened during use, and return the container to the point of purchase or to a designated location named at time of purchase of this product. The container must only be refilled with this pesticide product. **DO NOT REUSE THE CONTAINER FOR ANY OTHER PURPOSE.**

**CONDITIONS OF SALE AND LIMITATION OF WARRANTY AND LIABILITY**

**NOTICE: Read the entire Directions for Use and Conditions of Sale and Limitation of Warranty and Liability before buying and using this product. If the terms are not acceptable, return the product at once, unopened, and the purchase price will be refunded.**

The Directions for Use of this product must be followed carefully. It is impossible to eliminate all risks inherently associated with the use of this product. Crop injury, ineffectiveness or other unintended consequences may result because of such factors as manner of use or application, weather or crop conditions, presence of other materials or other influencing factors in the use of the product, which are beyond the control of LG Life Sciences, Ltd. or Seller. To the extent

31/31

consistent with applicable law, all such risks shall be assumed by Buyer and User, and Buyer and User agree to hold LG Life Sciences, Ltd and Seller harmless for any claims relating to such factors.

LG Life Sciences, Ltd. Warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated in the **Directions for Use**, subject to the inherent risks referred to above, when used in accordance with directions under normal use conditions. This warranty does not extend to the use of this product contrary to label instructions, or under abnormal conditions or under conditions not reasonably foreseeable to or beyond the control of the Seller or LG Life Sciences, Ltd. And Buyer and User assume the risk of any such use. To the extent permitted by law, LG Life Sciences, Ltd. **MAKES NO WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE NOR ANY OTHER EXPRESS OR IMPLIED WARRANTY EXCEPT AS STATED ABOVE.**

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