

SANDOZ CROP PROTECTION THURICIDE® 32B

**MICROBIAL INSECTICIDE CONCENTRATE
FOR CONTROL OF INSECTS IN FRUIT,
NUT, VEGETABLE AND FIELD CROPS.**

ACTIVE INGREDIENT:

Bacillus thuringiensis Variety Kurstaki, potency of 8,000
International Units (at least 12 million viable
spores) per milligram

INERT INGREDIENTS:

1.6%
98.4%
TOTAL 100.0%

* Equivalent to 8.0 billion International Units per quart.

**KEEP OUT OF REACH OF CHILDREN
CAUTION**

PRECAUTIONARY STATEMENTS
HAZARDS TO HUMANS:
AVOID INHALATION OR CONTACT WITH EYES OR OPEN WOUNDS
STORE IN A COOL PLACE

GROUND APPLICATION: Use recommended amount of THURICIDE 32B in a minimum of 5 to 50 gallons of water, depending on the type of crop and requirements of state regulations. Add a sticker, adhesive or deposit builder where heavy dew or rain is encountered.

GROUND APPLICATION, TREES: Use recommended amount of THURICIDE 32B in 100 gallons of water in high pressure, high gallonage, hydraulic sprayers. Wet foliage thoroughly with spray but not to the point of excessive runoff. For mist blowers use recommended amount in 10 gallons of water. To prevent washoff by rain add a sticker to the finished spray.

AERIAL APPLICATION: Use recommended amount of THURICIDE 32B in 5 to 20 gallons of water. A sticker should be added under conditions of heavy dew or rain.

RECOMMENDATIONS

Thorough coverage is essential when using THURICIDE® 32B Microbial Insecticide Concentrate.

PM 17 REG# 55947-62

DIRECTIONS FOR USE

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

Do not apply this product through any type of irrigation system.

See product use booklet attached to this container for further use directions.

STORAGE AND DISPOSAL

STORAGE: Store in a cool place. Activity may be impaired by storage at temperatures above 90°F. Do not contaminate water, food or feed by storage or disposal.

PESTICIDE: Wastes resulting from this product may be disposed of on site or at an approved waste disposal facility.

CONTAINER: Triple rinse (or equivalent) then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or incineration, or, if allowed by state and local authorities by burning. If burned, stay out of smoke. Reuse of thoroughly cleaned container is allowable.

GENERAL

Apply at first sign of infestation when worms are small and repeat at weekly intervals as needed to maintain control. THURICIDE 32B attacks the larval gut and must be eaten by the insect to be effective. Thorough underleaf coverage is, therefore, essential for best results. After eating THURICIDE 32B, worms stop feeding and die within 2-3 days. Since the active ingredient, *Bacillus thuringiensis*, is exempt from tolerance requirements, THURICIDE 32B may be applied up to the day of harvest.

MIXING

Always shake or stir THURICIDE 32B thoroughly before use. Pour recommended amount of THURICIDE 32B onto surface of water in a nearly filled spray tank. Maintain agitation. Use the higher rates against very heavy worm infestations, or where it is difficult to get good coverage due to rank foliage. Do not allow dilute sprays to stand in the tank for more than 72 hours. Combinations with chemical insecticides, fungicides, spreader-stickers, and stickers in the tank are generally not deleterious to THURICIDE 32B if the mix is used promptly.

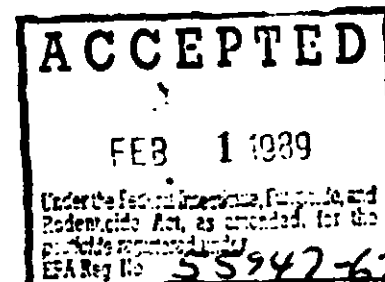
LIMITED WARRANTY AND LIABILITY

NOTICE: Read this Limited Warranty and Liability before buying or using this product. If terms are not acceptable, return it or use it unopened.

It is critical that this product be used and mixed only as specified on the label. The laws of a State may make some or all of this paragraph inapplicable or may give you rights in addition to your rights hereunder. Except to the extent prohibited by applicable law, the exclusive remedy of the user or buyer and the limit of liability of this Company or any other Seller for any and all losses, personal injuries or damages resulting from the use of this product, shall be the purchase price paid by the user or buyer for the quantity of product involved. Except to the extent prohibited by State law, there is no warranty, and this Company and other Sellers disclaim all liability for losses, personal injury or damages: (i) arising from any use of this product in a manner or for a purpose not recommended in its label directions, or from mixing this product before use with any substance except as recommended by the product's label, (ii) arising from handling or storage in violation of label instructions, (iii) for all indirect, special or consequential damages, (iv) when not reported to this Company within one year of discovery, and (v) arising from product not used within the label designated shelf life or four years from the date of purchase, whichever occurs first. THERE ARE NO IMPLIED WARRANTIES AND NO WARRANTIES OF MERCHANTABILITY OR FITNESS.

**NET CONTENTS: 1/2 GALLON
(1.89 L)**

EPA Reg. No. 55947-62
EPA Est. No. 55947-CA-2



32B

CONCENTRATE FOR CONTROL OF INSECTS IN FRUIT, NUT, VEGETABLE AND FIELD CROPS

ACTIVE INGREDIENT:

Spinosad 0.05% (0.05% spinosad, potency of 8,000 international units (at least 12 million viable spores) per milligram)

INERT INGREDIENTS:

Total 99.95%

* Equivalent to 8.0 billion international units per quart.

KEEP OUT OF REACH OF CHILDREN

CAUTION

PRECAUTIONARY STATEMENTS
HAZARDS TO HUMANS: AVOID INHALATION
OR CONTACT WITH EYES OR OPEN WOUNDS.

STORE IN A COOL PLACE

EPA Reg. No. 55947-62

EPA Est. No. 55947-CA-2

NET CONTENTS:

1/2 GALLON (1.89 L)

DIRECTIONS FOR USE OF TANK-MIX COMBINATIONS OF THURICIDE 32B AND ELCAR[®] INSECTICIDES (EPA REG. NO. 55947-62) IN THE SOUTHWEST ONLY.

Crop	Insecticide	Pest	Rate Per Acre
COTTON	THURICIDE 32B + ELCAR	Cotton bollworm	1/2-1 pt.
		Tobacco budworm	1/4-1/2 lb.

Use THURICIDE 32B in combination with ELCAR for increased larvicidal effect. Use the low rate combination for light infestations, and use the high rate combination for control of moderate infestations. Apply at first sign of egg laying or newly hatched worms, and repeat as long as egg deposition continues at 3-7 day intervals.

Crop	Pest	Rate Per Acre
COTTON	Cabbage Looper	1/2-1
	Velvetbean Caterpillar	1/2-1
PEANUTS	Cabbage Looper	1/2-3/4
	Velvetbean Caterpillar	1/2-3/4
POTATOES	Cabbage Looper	1/2-3/4
	Soybean Looper	1/2-3/4
SOYBEANS	Cabbage Looper, Green	1/2-3/4
	Cloverworm, Velvetbean Caterpillar	1/2-1
STORED SOYBEANS, GRAINS	Indian Meal Moth	1/2-1
	Almond Moth	1/2-1
SUGARBEETS	Cabbage Looper	1/2-1
	Onionworm	1/2-1
TOMATOES	Cabbage Looper	1/2-3/4
	Tobacco Budworm	1/2-3/4
TOMATOES	Cabbage Looper	1/2-3/4
	Tomato Pinworm	1/2-1
WATERMELONS	Ringworm Complex	1/2-3/4
	Grape Leaf Folder	1/2-1

Use THURICIDE 32B in combination with ELCAR for increased larvicidal effect. Use the low rate combination for light infestations, and use the high rate combination for control of moderate infestations. Apply at first sign of egg laying or newly hatched worms, and repeat as long as egg deposition continues at 3-7 day intervals.

Apply at first sign of egg laying or newly hatched worms, and repeat as long as egg deposition continues at 3-7 day intervals.

Crop	Insecticide	Pest	Rate Per Acre
COTTON	THURICIDE 32B + ELCAR	Tobacco budworm, Cotton bollworm	1/2-1
		Cotton bollworm	1/2-1

For the suppression of light to moderate infestations, apply at first sign of egg laying or newly hatched worms (1st and 2nd instar larvae). Reapply at 3-5 day intervals to sustain worm suppression or until adequate reduction of worm population is achieved. Use THURICIDE 32B under a pest management program that includes close scouting. If heavy worm populations occur, it may be necessary to apply an insecticide with rapid knock-down and good larvicidal activity as a replacement. Apply from 5-15 gallons total spray per acre with ground equipment and from 2-5 gallons total spray per acre with aerial equipment.

DIRECTIONS FOR USE OF TANK-MIX COMBINATIONS OF THURICIDE 32B AND CHLORANIPROFEN (FUNDAL[®] OR GALEXON[®] SP OR 4EC).

Crop	Insecticide	Pest	Rate Per Acre
COTTON	THURICIDE 32B + CHLORANIPROFEN (FUNDAL [®] OR GALEXON [®] SP OR 4EC)	Tobacco budworm, Cotton bollworm	1/4-1/2 pt.
		Cotton bollworm	1/4-1/2 lb.

Use THURICIDE 32B plus chloranipropfen for a combined ovicide/nericide effect. Use the low rates for suppression of light infestations, and the high rates for suppression of moderate infestations. Apply at first sign of egg laying or newly hatched worms. Reapply at 3-5 day intervals to sustain suppression, or until adequate worm reduction is achieved. Apply from 2-5 gallons total spray per acre with aerial equipment. Follow all restrictions, safety precautions and directions contained on the FUNDAL or GALEXON labels.

* Not registered for use in California.

Crop	Pest	Rate Per Acre
GRAPES	Onionworm Leafroller	1/4-3/4
	Cabbage Looper	1/2-1
MINT	Cabbage Looper	1/2-1
	Rough-Stemmed Cuckoo	1/2-1
STRAWBERRIES	Cabbage Looper	1/2-1
	Rough-Stemmed Cuckoo	1/2-1
SUGAR MAPLE	Spring & Fall Caterpillar	1/2-1
	Fall Webworm	1/2-1
PEACHES, NECTARINES	Tent Caterpillar	1/2-1
	Onionworm Leafroller	1/2-1
BANANAS (Mature)	Red-striped Caterpillar	1/2-1
	Tent Caterpillar	1/2-1
ORANGES	Onionworm Leafroller	1/2-1
	Banana Stem-borer	1/2-1
ORANGES	Fruit Tree Leafroller	1/2-1
	Orange Dog	1/2-1
ORANGES	Citrus Cuckoo	1/2-1
FILBERTS	Onionworm Leafroller	1/2-1
	Tent Caterpillar	1/2-1
PECANS	Red-striped Caterpillar	1/2-1
	Fall Webworm	1/2-1
WALNUTS	Tent Caterpillar	1/2-1
	Onionworm Leafroller	1/2-1
KWI	Onionworm Leafroller	1/2-1
	Fruit Tree Leafroller	1/2-1

Use THURICIDE 32B in combination with ELCAR for increased larvicidal effect. Use the low rate combination for light infestations, and use the high rate combination for control of moderate infestations. Apply at first sign of egg laying or newly hatched worms, and repeat as long as egg deposition continues at 3-7 day intervals.

10/20

DIRECTIONS FOR USE

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STORAGE AND DISPOSAL

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DISPOSAL

PESTICIDE

Wastes resulting from this product may be disposed of on site or at an approved waste disposal facility.

CONTAINER

Triple rinse for equivalent then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke. Reuse of thoroughly cleaned container is allowable.

GENERAL

Apply at first sign of infestation when worms are small and repeat at weekly intervals as needed to maintain control. THURICIDE® 328 attacks the larval gut and must be eaten by the insect to be effective. Thorough underside coverage is, therefore, essential for best results. After eating THURICIDE 328, worms stop feeding and die within 2-3 days. Since the active ingredient, *Bacillus thuringiensis*, is exempt from tolerance requirements, THURICIDE 328 may be applied up to the day of harvest.

MIXING

Always shake or stir THURICIDE 328 thoroughly before use. Pour recommended amount of THURICIDE 328 into surface of water in a nearby filled spray tank. Maintain agitation. Use the higher rates against very heavy worm infestations, or where it is difficult to get good coverage due to tank foliage. Do not allow dilute sprays to stand in the tank for more than 72 hours. Combinations with chemical insecticides, fungicides, spreader-stickers, and stickers in the tank are generally not deleterious to THURICIDE 328 if the mix is used promptly.

GROUND APPLICATION

Use recommended amount of THURICIDE 328 in a minimum of 5 to 50 gallons of water, depending on the type of crop and requirements of state regulations. Add a sticker, adhesive or deposit builder where heavy dew or rain is encountered.

GROUND APPLICATION, TREES

Use recommended amount of THURICIDE 328 in 100 gallons of water in high-pressure, high-gallage, hydraulic sprayers. Wet foliage thoroughly with spray but not to the point of excessive runoff. For mist blowers use recommended amount in 10 gallons of water. To prevent washoff by rain add a sticker to the finished spray.

AERIAL APPLICATION

Use recommended amount of THURICIDE 328 in 5 to 20 gallons of water. A sticker should be added under conditions of heavy dew or rain.

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RECOMMENDATIONS

Thorough coverage is essential when using THURICIDE 328 Microbial Insecticide Concentrate.

Crop	Pest	Rate, Per Acre
ALFALFA	Alfalfa caterpillar	1/2-1
ALMONDS ¹	Redrumped caterpillar	1/2-1
ALMONDS ¹ , CHERRIES ¹	Tart caterpillar	1/2-1
Apply when caterpillars are actively feeding (2nd-4th instar).		
APPLES ¹ , PEARS ¹	Redbanded leafroller	1/2-1
Apply when eggs or newly hatched larvae first appear. Continue applying as a part of the normal cover spray program until pest is adequately controlled.	Tufted apple budmoth	
	Vermont leafroller	
BROCCOLI, BRUSSELS SPROUTS, CABBAGE, CAULIFLOWER, COLLARDS, KALE, MUSTARD GREENS, TURNIP GREENS	Tart caterpillar	1/2-1
	Fruit tree leafroller	
	Gypsy moth	
BEANS, BEETS, CARROTS, CELERY, CHARD, CHINESE CABBAGE (Pai Tsai), COS LETTUCE, ENDIVE, ESCAROLE, GARLIC, KOKORAI, LENTILS, LETTUCE, ONIONS, PARSLEY, RADISHES, SPINACH, SQUASH	Diamondback moth	1/2-1
	Imported cabbage worm	1/2-1
	Green cloverworm	1/2-1
	Cabbage looper	1/2-1
	Cabbage looper	1/2-1

SHADE TREES, ORNAMENTALS & FOREST

Pest	Rate, per Acre	DIRECTIONS FOR USE
Spring and Fall	1/2-1	Apply when leaf expansion reaches 40%-50% of infestation warrants. If eggs hatch over a long period of time, or if reinfestation occurs, spray about 14 days after first application.
Carpetworm	1/2-1	
Elm Spanworm	1/2-1	
Tart Caterpillars	1/2-1	
Gypsy Moth	1-2	
Service Budworms	1-2	Apply when eggs have hatched and early instar larvae are feeding on exposed foliage. Also consider the opening of the bud cap to ensure foliage exposure.
Douglas Fir Tussock Moth	1/2-1	
Jack Pine Budworm	1/2-1	
Bogworm	1/2-1	
California Oak Moth	1/2-1	
Western Tussock Moth	1/2-1	Apply after eggs have hatched and early instar larvae are feeding on exposed foliage.
Fruit Tree Leafroller	1/2-1	
Minnow Webworm	1/2-1	
Redrumped Caterpillar	1/2-1	
Fall Webworm	1/2-1	

AERIAL APPLICATIONS, FOREST: Use the recommended amount of THURICIDE® 328 with water to obtain at least one half gallon of spray mix per acre. The addition of an evaporative retardant, such as malathion, Carbo 77's Insecticide Base, polyethylene glycol E-400, or a film-forming sticker to the spray mix, can improve spray deposition. Best results are obtained when THURICIDE 328 is applied to dry foliage with a calibrated aircraft capable of obtaining droplet sizes below 300 microns and preferably in the range of 50-150 microns.

STORED SOYBEANS, GRAINS

To control and prevent Indian meal moth and Almond moth infestations of stored soybeans and grains, prepare a spray mixture which includes one gallon of water for every 5 ounces of THURICIDE 328. The spray mixture may be applied to the top 4 inches of grain as it is being augered into storage (applying 0.5 pint of mixture per bushel in the grain stream), or by treating the surface of grain after it is in the bin. The table below can be used as a guide in determining the total amount of THURICIDE 328 needed according to the bin diameter or the number of bushels to be treated.

Bin Diameter (ft.)	Surface Area (sq. ft.)	Bushels (in 4 inch depth)	THURICIDE 328 (ozs.)
12	113	13	3 oz.
14	154	18	7 oz.
16	201	25	12 oz.
18	254	34	17 oz.
20	314	45	23 oz.
22	380	58	30 oz.
24	452	74	38 oz.
26	531	93	48 oz.
28	616	114	60 oz.
30	707	138	75 oz.

To insure thorough coverage when making applications to the grain surface after it is in the bin, apply spray mixture in three applications. Mix the grain with a scoop or rake to a depth of 4 inches after each application.

Stored grain may be treated anytime, but for best results, treat grain at the time it is placed into storage or shortly thereafter, or in the early spring prior to egg laying. Full season control is normally experienced. Re-treat only if reinfestation occurs.

For the protection of bagged grain, apply spray mixture to entire grain mass, and mix thoroughly prior to bagging. THURICIDE 328 at 3/4 oz. per 10 gallons of water will treat approximately 150 bushels.

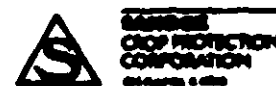
Treated grain may be used at any time after treatment.

GREENHOUSE APPLICATIONS

THURICIDE 328 may also be used in the greenhouse and on flowers at 1/4-1/2 oz. per 100 gallons of water for control of listed insects on crops on the package label.

- 1) To achieve adequate coverage of large plants or dense foliage, spray application of not less than 15 gal. is preferred.
- 2) Suppression only.
- 3) FUNDALE® 4EC (EPA Reg. No. 2139-100) Mar.-En Ag Prod., Inc.
- 4) FUNDALE® 5P (EPA Reg. No. 2139-98) Mar.-En Ag Prod., Inc.
- 5) GALECRON® 4EC (EPA Reg. No. 100-501-AA) Ciba-Geigy Corp.
- 6) GALECRON® 5P (EPA Reg. No. 100-501-AA) Ciba-Geigy Corp.

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SANDOZ CROP PROTECTION

THURICIDE®

32B



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FOR CONTROL OF INSECTS IN FRUIT,
NUT, VEGETABLE AND FIELD CROPS.

ACTIVE INGREDIENT:

Bacillus thuringiensis Variety *Kurstaki*, potency of 8,000
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TOTAL 100.0%

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CAUTION**

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DIRECTIONS FOR USE

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STORAGE AND DISPOSAL

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Apply at first
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MIXING

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AERIAL APPLICATION

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RECOMMENDATIONS

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Crop	Pest	Qts. Per Acre
ALFALFA	Alfalfa caterpillar	3
ALMONDS ¹	Redhumped caterpillar	2-3
ALMONDS ¹ CHERRIES ¹	Tent caterpillar	2-3
Apply when caterpillars are actively feeding (2nd-4th instar)		
APPLES ¹ PEARS ¹	Redbanded leafroller	2-3
Apply when eggs or newly hatched larvae first appear. Continue applying as a part of the normal cover spray program until pest is adequately controlled.	Tufted apple budmoth	
	Vinesap leafroller	
BROCCOLI, BRUSSELS SPROUTS, CABBAGE, CAULIFLOWER, COLLARDS, KALE, MUSTARD GREENS, TURNIP GREENS	Tent caterpillar	2-3
	Fruit tree leafroller	
	Gypsy moth	
BEANS, BEETS, CARROTS, CELERY, CHARD, CHINESE CABBAGE (Choy sum), COS LETTUCE, ENDIVE, ESCAROLE, GARLIC, KOMLRABI, LENTILS, LETTUCE, ONIONS, PARSLEY, RADISHES, SPINACH, SQUASH	Diamondback moth	4-5
	Imported cabbage worm	4-5
	Green cloverworm	2-3
	Cabbage looper	2-3
	Cabbage looper	

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SHADE TREES, ORNAMENTALS & FOREST

Pest	Qts. per Acre	DIRECTIONS FOR USE
Spring and Fall Caterworm	2-3	Apply when leaf expansion reaches 40%-50% as infestation warrants. If eggs hatch over a long period of time, or if reinfestation occurs, spray about 14 days after first application.
Elm Spanworm	2-3	
Tent Caterpillars	2-3	
Gypsy Moth	2-3	
Spruce Budworms	2-3	Apply when most larvae are 3rd-4th instar. Also consider the opening of the bud cap to ensure foliage exposure.
Douglas Fir Tussock Moth	2-3	
Lace Pine Budworm	2-3	
Bogworm	2-3	
California Oak Moth	2-3	Apply after eggs have hatched and early instar larvae are feeding on exposed foliage.
Western Tussock Moth	2-3	
Fruit Tree Leafroller	2-3	
Mimosa Webworm	2-3	
Redhumped Caterpillar	4-5	
Fall Webworm	4-5	

AERIAL APPLICATION, FOREST

Mix the recommended amount of THURICIDE® 328 with water to obtain at least one half gallon of spray mix per acre. The addition of an evaporation retardant, such as morasses, Carr's Insecticide Base, polyethylene glycol E-400, or a film-forming sticker to the spray mix can improve spray deposition. Best results are obtained when THURICIDE 328 is applied to dry foliage with a calibrated aircraft capable of obtaining droplet sizes below 300 microns and preferably in the range of 50-150 microns.

STORED SOYBEANS, GRAINS

To control and prevent Indian meal moth and Almond moth infestations of stored soybeans and grains, prepare a spray mixture which includes one gallon of water for every 6 ounces of THURICIDE 328. The spray mixture may be applied either by treating the top 4 inches of grain as it is being augered into storage, applying 0.6 pint of mixture per bushel in the grain stream, or by treating the surface of grain after it is in the bin. The table below can be used as a guide in determining the total amount of THURICIDE 328 needed according to the bin diameter or the number of bushels to be treated.

Bin Diameter ft.	Surface Area sq. ft.	Bushels (to 4 inch depth)	THURICIDE 328 ozs.
8	50	13	3 oz
12	113	28	7 oz
16	201	53	12 oz
20	314	84	17 oz
24	452	120	28 oz
28	615	163	36 oz
32	804	214	46 oz

To insure thorough coverage when making applications to the grain surface after it is in the bin, apply spray mixture in three applications. Mix the grain with a scoop or rake to a depth of 4 inches after each application.

Stored grain may be treated anytime, but for best results treat grain at the time it is placed into storage or shortly thereafter, or in the early spring prior to egg laying. Full season control is normally experienced. Re-treat only if reinfestation occurs.

For the protection of bagged grain, apply spray mixture to entire grain mass, and mix thoroughly prior to bagging. THURICIDE 328 at 3/4 oz. per 10 gallons of water will treat approximately 100 bushels.

Treated grain may be used at any time after treatment.

GREENHOUSE APPLICATION

THURICIDE 328 may also be used in the greenhouse and on flowers at 1/4-1/2 oz. per 20 gallons of water for control of listed insects on crops on this package.

- To achieve adequate coverage of large areas or dense foliage, pump application or pressure less than 75 gpa is preferred.
- Suppression only.
- FUNDAL® 4EC (EPA Reg. No. 2139-100) Nor. Am. Ag. Prod., Inc.
- FUNDAL® SP (EPA Reg. No. 2139-988) Nor. Am. Ag. Prod., Inc.
- GALECRON® 4EC (EPA Reg. No. 100-551-AAP) Ciba-Geigy Corp.
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