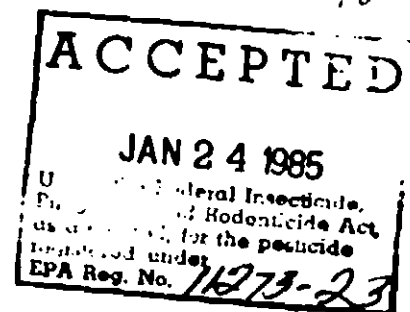




THURICIDE® 32B

Microbial Insecticide Concentrate

ACTIVE INGREDIENT:

Bacillus thuringiensis Berliner, potency of 8,000
international units (at least 12 million viable
spores) per milligram..... 1.6%

INERT INGREDIENTS: 98.4%
100.00

*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

ZOECON CORPORATION/A SANDOZ COMPANY
CROP PROTECTION DIVISION
Palo Alto, California 94304

Made in U.S.A.

NET CONTENTS:

EPA Est. No. 36299-CA-1
EPA Reg. No. 11273-23

DIRECTIONS FOR USE

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

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.

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 intervals as needed to maintain control. Thuricide 32B attacks and must be eaten by the insect to be effective. Thorough mixing is, therefore, essential for best results. After eating Thuricide stop feeding and die within 2-3 days. Since the active ingredient, thuringiensis, is exempt from tolerance requirements, Thuricide applied up to the day of harvest.

MIXING

Always shake or stir THURICIDE 32B thoroughly before use. For amount of THURICIDE 32B onto surface of water in a nearly filled tank. Maintain agitation. Use the higher rates against very heavy worm infestations, or where it is difficult to get good coverage due to foliage. Do not allow dilute sprays to stand in the tank for more than 4 hours. Combinations with chemical insecticides, fungicides, spreader-stickers, and stickers in the tank are generally not recommended. THURICIDE 32B if the mix is used promptly.

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.

WARRANTY AND CONDITIONS OF SALE

Zenon Corporation warrants that the chemical composition of this product conforms to the chemical description on the label and is reasonably fit for the purpose stated on the label when used in accordance with directions under normal conditions of use. Zenon makes no other warranty, express or implied, concerning the use of this product other than as indicated on the label. Buyer assumes all risks of use, storage or handling of this material not in strict accordance with directions given on the label.

RECOMMENDATIONS

Thorough cover essential when using Thuricide® 32B Microbial Insecticide Concentrate.

Crop	Pest	Qts. Per Acre
ALFALFA ALMONDS ¹ ALMONDS, CHERRIES ¹ (Apply when caterpillars are actively feeding (2nd-4th instar)).	Alfalfa caterpillar Redhumped caterpillar Tent caterpillar	1/8 1/2 - 1
APPLES, PEARS 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.	Redheaded leafroller Tufted apple budmoth Variegated leafroller Tent caterpillar Fruit tree leafroller Cypress moth	1/2 - 1
BROCCOLI, BRUSSELS SPROUTS, CABBAGE, CAULIFLOWER, COLLARDS, KALE, MUSTARD GREENS, TURNIP GREENS	Blueshell moth Imported cabbage worm Green cloverworm Cabbage looper	1/4 - 1/2 1/4 - 3/4 1/2 - 1
BENEFIT, BEETS, CARROTS, CELERY, CHARD, CHINESE CABBAGE (Choy sum), CHS LETTUCE, ENDIVE, ESCAROLE, GARLIC, KIDNEY BEANS, LENTILS, LETTUCE, ONIONS, PARSLEY, RADISHES, SPINACH, SQUASH	Cabbage looper	1/2 - 1
CUCUMBERS, MELONS Begin treatment when worms are small to avoid damage and scarring to the crop.	Cabbage looper	1/4 - 3/4
EGGPLANT, PEPPERS	Tomato hornworm Tomato fruitworm ² Cabbage looper	1/2 - 1
CHESTNUTS, BLUEBERRIES, CANSBERRIES (BLACKBERRIES, HOPBERRIES, RASPBERRIES) Apply by ground equipment only. Begin treatment as soon as possible after hatching and before larvae are protected by leaf folds.	Omnivorous leafroller	1/2 - 1
COTTON	Tobacco budworm 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 knockdown and good larvicidal activity as a replacement. Apply from 5-15 gallons total spray per acre with ground equipment and from 2-3 gallons total spray per acre with aerial equipment.		

4.54

Crop	Pest	Qts. Per Acre
SUGARBEETS	Cabbage looper Omnivorous leafroller	1/2 - 1
TObACCO	Cabbage looper Tobacco budworm Tobacco hornworm	1/2 - 3/4 1/4 - 3/4
TOmatoES	Cabbage looper Tomato hornworm Tomato fruitworm ²	1/2 - 3/4 1/4 - 3/4 1/2 - 1
WATERMELONS	Windworm complex	1/4 - 3/4
GRAPES	Grape leaf folder	1/2 - 1
Start treating as soon as possible after hatching and before larvae are protected by leaf folds. Apply by ground equipment in up to 200 gallons total spray per acre to obtain thorough coverage of leaf surfaces.		
GRAPES	Omnivorous leafroller	1/4 - 3/4
NIffT	Cabbage looper	1/2 - 1
STRAWBERRIES	Cabbage looper Rough-skinned cutworm	1/2 - 1
Use 20 gallons water minimum per acre when using ground equipment and 5 gallons water minimum per acre by aircraft.		
SUGAR MAPLE	Spring & Fall cankerworms Fall webworm Tent caterpillar Omnivorous leafroller	1/2 - 1
PEACHES, NECTARINES	Redhumped caterpillar Tent caterpillar Omnivorous leafroller	1/2 - 1
BANANAS (Rovell)	Banana skipper	1/2 - 1
Use calibrated ground equipment with adequate water to apply to point of runoff.		
ORANGES	Fruit tree leafroller Orange dog	1/2 - 1 1/4 - 1/2
ORANGES	Citrus cutworm	1/2 - 1
Use 50 gallons water minimum to 600 gallons maximum per acre when using ground equipment, and 10 gallons water minimum per acre by aircraft.		

Crop	Pest	Qts. Per Acre
PILBERTS ¹	Pilbert leafroller ^a Tent Caterpillar ^{aa}	1/2 - 1
^a Apply at 10% egg hatch ^{aa} Apply when caterpillars are actively feeding (2nd-4th instar)		
PECANS ¹	Redhumped caterpillar Fall webworm Tent caterpillar	1/2 - 1
WALNUTS ¹	Redhumped caterpillar Tent caterpillar Fall webworm Omnivorous leafroller	1/8 - 1/4 1/2 - 1
Use 100 gallons water minimum per acre when using ground equipment, and 10 gallons water minimum per acre by aircraft.		
RTWI	Omnivorous leafroller Fruitree leafroller Cabbage looper	1/2 - 1
Pest	Qts. Per Acre	Directions For Use
Spring and Fall cankerworms	1/2 - 1	Apply when leaf expansion reaches 40%-50% so infestation warrants. If eggs hatch over a long period of time or if reinfestation occurs, spray about 14 days after first application.
Elm spanworm	1/2 - 1	
Tent caterpillars	1/2 - 1	
Gypsy moth	1-2	
Spruce budworm	1-2	Apply when most larvae are 3rd-4th instar. Also consider the opening of the bud cap to ensure foliage exposure.
Begonia fir tussock moth	1/2 - 1	Apply after eggs have hatched and early instar larvae are feeding on exposed foliage.
Jack pine budworm	1/2 - 1	
Begonia	1/2 - 1	
California oak moth	1/2 - 1	
Western tussock moth	1/2 - 1	
Fruit tree leafroller	1/2 - 1	
Minnow webworm	1/2 - 1	
Redhumped caterpillar	1/4 - 3/4	
Fall webworm	1/4 - 1/2	
Aerial Application, Forest: Mix the recommended amount of Thuricide® 32B with water to obtain at least one half gallon of spray mix per acre. The addition of an evaporation retardant, such as molasses, Cargill'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 32B 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.		

DIRECTIONS FOR USE OF TANK-MIX COMBINATIONS OF THURICIDE 32B and CHLORDANFORM (FUNDAL³ OR GALECHON⁴ SP OR 4EC).

Crop	Insecticide	Pest	Rate Per Acre
COTTON	Thuricide 32B	Tobacco budworm	1/4 - 1/2 pt.
	+	Cotton bollworm	+
	chlordanform SP		1/8 - 1/4 lb.
	or		or
	chlordanform 4EC		1/4 - 1/2 pt.

Use Thuricide 32B plus chlordanform for a combined ovicide/larvicide effect. Use the low rates for suppression of light infestations, and the high rate for suppression of moderate infestations. Apply at first sign of egg laying or newly hatched worms. Respray 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 GALECHON labels.

DIRECTIONS FOR USE OF TANK-MIX COMBINATIONS OF THURICIDE 32B and ELCAR[®] INSECTICIDE (EPA Reg. No. 11273-17) IN THE SOUTHWEST ONLY.

Crop	Insecticide	Pest	Rate Per Acre
COTTON	Thuricide 32B	Cotton bollworm	1/2 - 1 pt.
	+		+
	ELCAR	Tobacco budworm	1/16 - 1/8 lb.

Use Thuricide 32B in combination with ELCAR for increased larvicide 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	Qts. Per Acre
COTTON	Cabbage looper	1/2 - 1
PEANUTS	Cabbage looper	1/4 - 3/4
	Velvetbean caterpillar	
	Podworms ²	1/2 - 1
POTATOES	Cabbage looper	1/4 - 3/4
SOYBEANS	Soybean looper	1/2 - 3/4
	Cabbage looper, Green cloverworm, Velvetbean caterpillar	1/4 - 3/4
	Podworms ²	1/2 - 1

Crop	Pest	Qts. Per Acre
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STORED SOYBEANS, GRAINS

**Indian meal moth
Almond moth**

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 32B. The spray mixture may be applied either by treating the top 4 inches of grain as it is being sugared 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 32B 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 32B Rate
8	50	13	3 oz.
12	113	30	7 oz.
16	201	53	12 oz.
20	314	84	17 oz.
24	452	120	26 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 32B at 3/4 qt. per 10 gallons of water will treat approximately 100 bushels.

Treated grain may be used at any time after treatment.

GREENHOUSE APPLICATION:

THURICIDE 32B may also be used in the greenhouse and on flowers at 1/4 - 1/2 qt. per 100 gallons of water for control of listed insects on crops on this package label.

- 1) To achieve adequate coverage of large trees or dense foliage, aerial application of not less than 15 gpa is preferred.
- 2) Suppression only
- 3) FUNDAL[®] 4EC (EPA Reg. No. 2139-100) Nor-Am Ag Prod., Inc.
FUNDAL[®] SP (EPA Reg. No. 2139-98) Nor-Am Ag Prod., Inc.
- 4) GALECHON[®] 4EC (EPA Reg. No. 100-551-AA) Ciba-Geigy Corp.
GALECHON[®] (EPA Reg. No. 100-554-AA) Ciba-Geigy Corp.

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