

US EPA ARCHIVE DOCUMENT



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

WASHINGTON, D.C. 20460

 23
 FEB 23 1983
MEMORANDUMOFFICE OF
PESTICIDES AND TOXIC SUBSTANCES

SUBJECT: Thiodicarb: Larvin 3.2 and UCLF-2 Experimental use application on field and sweet corn for 1983. 264-EUP-AG, 264-EUP-AU, 3G2782, 3H5375. Caswell #900AA.

TO: Jay Ellenberger, PM-12
Registration Division (TS-767C)

THRU: Christine Chaisson, Section Head
Toxicology Branch (TS-769C)

*Chad B. Anderson
for CFC 2/18/83*

This experimental use permit and the temporary tolerances were requested in an October 28, 1982 letter from J. S. (Steve) Lovell of Union Carbide Company. The EUP calls for the use of 6472 pounds of AI (thiodicarb) to be applied on 1970 acres in thirty states over a one year period beginning with the approval of this request.

Larvin 3.2 and UCLF-2 each contain 35.8% thiodicarb (3.2#/gal) and are to be applied at rates of 0.75#/acre to field corn and 0.6#/acre to sweet corn.

Requested tolerances include:

Pesticide Tolerances	
Field Corn	0.05 ppm
Sweet corn kernals and cob	1.5 ppm
Feed additive tolerances	
Field corn forage and fodder	60 ppm
Sweet corn cannery wastes	40 ppm

Recommendations

- 1) The EUP and tolerances can be toxicologically supported.
- 2) The Labeling can be approved with modifications discussed below.

Toxicological Bases.

A previous request for the use of Larvin 3.2 (and a similar formulation, Larvin 500) was approved by Toxicology Branch:

Memorandum by William Dykstra to Jay Ellenberger
Larvin: 264-EUP-AR, 264-EUP-AN; PP#2G2581, 2H5325;
Larvin in/on cotton and Soybeans CASWELL 900AA

which is attached to this memorandum (Appendum #1). Since the UCLF-2 formulation has a composition very similar to Larvin 3.2, the toxicology data for Larvin 3.2 can be used to support the use of UCLF-2 for this EUP. The inerts for all of these formulations have been cleared.

Labeling

Supplemental labeling for Larvin 3.2 (Appendix 2) and labeling for UCLF-2 (Appendix 3) were included with the present request. The UCLF-2 label is adequate, however the supplemental labeling for Larvin 3.2 is incomplete without the rest of the labeling. The signal word, the precautionary statements, symptoms of overdose, antidote statement, first aid, cooperators, etc. included in the UCLF-2 label and a previously approved EUP label for Larvin 3.2 for application to cotton and soybean (Appendix 4) should be included in the Larvin 3.2 labeling for the field and sweet corn applications.

Tolerances

The provisional ADI of 0.0015 mg/kg/day (Dykstra's memo to Ellenberger, March 9, 1982) was upgraded to a final ADI= 0.03 mg/kg/day by Dykstra (memo to Ellenberger, March 13, 1983), attached as Appendix 5, and is based on a 2-year chronic/ oncogenic rat feeding study NOEL=3.0 mg/kg/day.

The previous TMRC= 0.0023 mg/day consumed 0.13% of the ADI (Appendix 6). The requested tolerances for field and sweet corn would increase the the TMRC to 0.0352 mg/day or 1.96% of the ADI.

The requested feed additive tolerances can be toxicologically supported because no significant residues are expected in milk and milk products, meat and meat products, and poultry and poultry products from the use of these formulations on corn (Residue Chemistry Branch memorandum from Al Smith to Jay Ellenberger, January 21, 1981).

Stan Gross 2/17/83
Stanley B. Gross, Toxicologist
Toxicology Branch (TS-769C)
df 2/18/83



GRASS
2/15/83

Appendix 1

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

MEMORANDUM

MAR 9 1982

OFFICE OF
PESTICIDES AND TOXIC SUBSTANCES

DATE: March 4, 1982

SUBJECT: Larvin; ~~264-EUP-AR~~; ~~264-EUP-AN~~; PP#2G2581, 2H5325;
Larvin in/on cotton and Soybeans CASWELL #900AA

66 - Larvin 500
Larvin 32

FROM: William Dykstra, Toxicologist
Toxicology Branch/HED (TS-769)

WLD JDC
3/4/82

TO Jay Ellenberger (12)
Registration Division (TS-767)
and
Residue Chemistry Branch
Hazard Evaluation Division (TS-769)

file for EUP 3/6/82

Recommendation:

1. The temporary tolerances and EUP program can be toxicologically supported.

Review:

1. Section F

The petition proposes that the following Temporary Pesticide and Feed Additive tolerances be established for the combined residues of Thiodicarb, Dimethyl N,N'-[thiobis(methylimino)carbonyloxy]bis[ethanimidothioate], and its metabolite methomyl, N-[(methylcarbamoyl)oxy]thioacetimidate).

Pesticide Tolerances:

cottonseed 0.4 parts per million
soybeans (seed) 0.1 parts per million

Feed Additive Tolerances:

cottonseed hulls 0.8 parts per million
soybeans hulls 0.4 parts per million

2. Toxicity Data which support the EUP program and temporary tolerances.

- °Rat oral LD₅₀ = 325 mg/kg
- °Rat teratology: negative at 30 mg/kg/day; fetotoxic
NOEL = 3.0 mg/kg/day
- °Mouse teratology: negative at 200 mg/kg/day; fetotoxic
NOEL = 200 mg/kg/day
- °90-Day rat: ChE NOEL = 10 mg/kg/day; systemic NOEL =
3 mg/kg/day
- °6-Month dog: ChE NOEL = 15 mg/kg/day; systemic NOEL =
15 mg/kg/day
- °Acute delayed neurotoxicity: negative at 660 mg/kg

3. Toxicity data submitted with this petition.

- a. Preliminary report of the effects of Larvin (US 51762) on cholinesterase activity in a 28-day dietary inclusion study in rats (Busy Run Research Center; Project#81-03-18301; 11/10/81)

Groups of 10 male and 10 female Fischer 344 rats were fed dietary levels of 0, 1.0, 3.0, 10.0 and 30.0 mg/kg/day of Larvin in the diet for 28 days. Body weight and food consumption were measured weekly. Parameters measured at 7, 14 and 28 days included packed cell volume, total plasma protein, plasma and erythrocyte cholinesterase activity. Brain cholinesterase was determined after 28 days.

Results: Plasma and RBC cholinesterase was significantly decreased in male rats at the 30 mg/kg/day dosage level at 7 and 14 days. In female rats, RBC cholinesterase was significantly decreased at 7, 14 and 28 days. Plasma cholinesterase was significantly decreased in females at 14 days. Food consumption and body weight gain were significantly decreased at 30 and 10 mg/kg/day during the study in female rats.

Conclusion: The NOEL for cholinesterase inhibition is 10 mg/kg/day.

Classification: Supplementary Data

- (a) Only summarized results were provided.

4. Calculation of the PADI

The provisional ADI is based on the systemic NOEL of 3.0 mg/kg/day in the 90-day rat feeding study. A 2000 fold safety factor is used to calculate the PADI.

$$\text{PADI} = 3.0 \text{ mg/kg/day} \times \frac{1}{2000}$$

$$\text{PADI} = 0.0015 \text{ mg/kg/day}$$

The PMPI for a 60 kg person is 0.09 mg/day.

5. The temporary tolerances utilize 2.53% of the PADI.

Conclusions and Recommendations:

The EUP program and temporary tolerances can be toxicologically supported.

TS-769:th:TOX/HED:WDykstra:3-4-82:card 8

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PRODUCT BULLETIN



PERMITTEE:
UNION CARBIDE AGRICULTURAL PRODUCTS COMPANY, INC.
 T. W. ALEXANDER DRIVE
 P.O. BOX 12014
 RESEARCH TRIANGLE PARK, NC 27709

SUPPLEMENTAL LABELING FOR THE EXPERIMENTAL USE OF LARVIN 3.2 THIODICARB INSECTICIDE (EPA REG. NO. 264-) IN/ON FIELD CORN AND SWEET CORN.

FOR EXPERIMENTAL USE ONLY

For use only at an application site of a cooperator and in accordance with the terms and conditions of the Experimental Use Permit. All applicable directions, restrictions, and precautions on the EPA registered label are to be followed. This labeling must be in the possession the user at time of pesticide application.

SUGGESTIONS FOR EXPERIMENTAL USE

Application Requirements: Apply a minimum finished spray volume of 3 gallons per acre by air or 15 gallons per acre by ground equipment.

CROP	INSECT	DOSAGE PER ACRE		SPECIFIC DIRECTIONS
		Pounds Active	Fluid Ounces	
Field Corn	Armyworms	0.5	15.2	<u>Foliage, silk, and ear feeders:</u> Refer to general use directions on LARVIN 3.2 package. <u>Insects feeding in plant whorl:</u> For best results use sprays of 10 gallons of water or more per acre applied by ground equipment using solid or hollow cone nozzles directed into the plant whorl.
	(Including Fall, True, Southern, Beet, Yellowstriped, etc.)	to 1.0	to 30.4	
	European Corn Borer			
	Western Bean Cutworm			
	Corn earworm			
	Cutworms	0.5	15.2	<u>Postemergence rescue treatments only:</u> For best results apply as a broadcast spray when cutworms are actively feeding. If banding use a minimum width of 10 inches over the row. To determine the amount of chemical to use per acre divide the band width by the row width and multiply by the appropriate broadcast rate.
	(Including Black, etc.)	to 1.0	to 30.4	
Sweet Corn	Corn Earworm	0.5	15.2	<u>Insects attacking silks and ears:</u> Apply at 1-7 day intervals starting when silks first appear and continuing until silks begin to dry or infestation potential ceases. Follow local recommendations for proper timing.
	European Corn Borer	to 0.75	to 22.8	
	Armyworms			
	Western Bean Cutworm			
				<u>Whorl or foliage feeders:</u> Refer to general directions for use and specific directions under field corn.

EPA EXPERIMENTAL USE PERMIT NO. 264-EUP-
 SEE REVERSE SIDE FOR PRE-HARVEST AND GRAZING USE INFORMATION AND LIMITATIONS.

PRE-HARVEST AND GRAZING USE INFORMATION AND LIMITATIONS

To avoid illegal residues in or on:

FIELD CORN

Do not exceed 4.0 pounds of active ingredient (160 fluid ounces of LARVIN 3.2) per acre per season.

Do not harvest grain before 28 days after last application.

Do not feed treated green forage or ensilage before 7 days after the last application.

Do not feed fodder or stover before 28 days after the last application.

SWEET CORN

Do not exceed 7.5 pounds of active ingredient (300 fluid ounces of LARVIN 3.2) per acre per season.

Do not allow livestock to graze treated field.

Do not feed treated corn silage (green plant) or fodder to livestock.

Ears may be harvested on day of last application.

Processing waste may be fed or ensiled on day of last application.

Appendix 3

Net contents 2.5 gallons
(9.46 liters)

Front Panel

UCLF-2 Experimental Insecticide
Aqueous Flowable

ACTIVE INGREDIENT	Percent by Weight
Dimethyl N, N' thiobis (methylimino) carbonyloxy bis ethanimidothioate.....	34%
INERT INGREDIENTS.....	66%

CONTAINS 3.2 pounds active ingredient per U.S. gallon.

FOR EXPERIMENTAL USE ONLY

TO BE USED ONLY BY A PARTICIPANT OR COOPERATOR OF THE EPA APPROVED
EXPERIMENTAL USE PROGRAM.

KEEP OUT OF REACH OF CHILDREN

WARNING

MAY BE HARMFUL OR FATAL IF SWALLOWED OR INHALED. ANTIDOTE
IS ATROPINE SULFATE. SEE STATEMENT OF PRACTICAL TREATMENT
AND OTHER PRECAUTIONARY STATEMENTS ON LEFT PANEL. READ
THE ENTIRE LABEL BEFORE USING THIS PESTICIDE.

IN CASE OF EMERGENCY, TELEPHONE COLLECT (24 HOURS A DAY)
(304) 744-3487

UNION CARBIDE AGRICULTURAL PRODUCTS COMPANY, INC.
P.O. Box 12014
Research Triangle Park, North Carolina 27709

UCC No. _____

Made in U.S.A.

EPA Experimental Use Permit No. 264-EUP-
EPA Establishment No. 10352-GA-01

GENERAL INFORMATION

UCLF-2 Experimental Insecticide is an aqueous flowable formulation that readily disperses in water for spraying by ground or air equipment. Directions on this label are based on tests and field experience relating to effectiveness, impact on environment and residues remaining in food and feed. READ THE ENTIRE LABEL AND OBSERVE ALL LABEL DIRECTIONS AND PRECAUTIONS BEFORE USE.

DIRECTIONS FOR USE

NOTE: IT IS A VIOLATION OF FEDERAL LAW TO USE THIS PRODUCT IN A MANNER INCONSISTENT WITH ITS LABELING.

Workers may reenter treated field once spray deposits are dry on foliage.

ROTATIONAL CROP RESTRICTION: Leafy vegetables may be planted 12 months after the last application.

STORAGE AND DISPOSAL

STORAGE: Do not store in or around the home. Store unused product in a cool, dry locked area. Do not allow prolonged storage in areas where temperatures frequently exceed 115°F (46°C). Do not contaminate food, water or feed by storage or disposal. NEVER TRANSFER THIS PRODUCT TO ANOTHER CONTAINER FOR STORAGE.

PESTICIDE DISPOSAL: Unused pesticide, spray mixtures, or rinse water that cannot be applied as directed on label instructions must be disposed of according to applicable Federal, state or local procedures.

CONTAINER DISPOSAL: NEVER REUSE EMPTY CONTAINERS. Triple rinse (or equivalent) then dispose of in a sanitary landfill or by incineration if allowed by state or local authorities.

ACCIDENTS: In case of a major spill of UCLF-2 Insecticide;

TELEPHONE COLLECT (24 HOURS A DAY)
(304)744-3487.

In case of minor spills or leaks follow all precautions indicated above and cleanup immediately. Soak up with sand, earth or other suitable material and dispose of wastes, broken or empty containers in a landfill approved for pesticide use.

GENERAL DIRECTIONS

SPRAY PREPARATION: TO ASSURE A UNIFORM PRODUCT, AGITATE OR SHAKE ALL CONTAINERS OF UCLF-2 PRIOR TO USE. Remove oil, rust, scale, pesticide residues and other foreign matter from sprayer and strainer. Flush with clean water. Use 50 mesh or slotted strainer in spray system. To prepare for spraying, fill tank approximately one-half full of water. Add UCLF-2 Insecticide and mix thoroughly by mechanical or hydraulic agitation. Finish filling tank with water to desired volume and thoroughly mix. Do not store spray mixture for prolonged periods. If tank-mixes are to be used, UCLF-2 must be fully dispersed in water first, followed by the intended tank-mix material.

COMPATABILITY: Physical compatibility of UCLF-2 with other pesticides is not fully known. Before preparing tank-mix combinations, add a small amount of UCLF-2 to equal volume of water in a small container and then add the other pesticide. DO NOT USE MIXTURES THAT CURDLE, PRECIPITATE OR GREASE. DO NOT USE OR DILUTE WITH HIGHLY ALKALINE WATER OR ADDITIVES.

APPLICATION: Begin application when insect populations reach recognized economic threshold levels. Consult the Cooperative Extension Service, Professional Consultants or other qualified authorities to determine appropriate threshold levels for treatment in your area. Apply a minimum finished spray volume of 3 gallons per acre by air or 15 gallons per acre by ground for field and sweet corn. Repeat application as needed to maintain control. Use higher dosage rates for heavier infestations or larger larvae. Use lower rates for light to moderate infestations.

To clean the sprayer after use, drain and flush with water.

SUGGESTIONS FOR EXPERIMENTAL USE

CROP	INSECT	DOSAGE PER ACRE		SPECIFIC DIRECTIONS
		Pounds Active	Fluid Ounces	
Field Corn	Armyworms (Including Fall, True, Southern, Beet, Yellowstriped, etc.)	0.5 to 1.0	15.2 to 30.4	<u>Foliage, silk, and ear feeders:</u> Refer to general use directions. <u>Insects feeding in plant whorl:</u> For best results use sprays of 10 gallons or more per acre applied by ground equipment using solid or hollow cone nozzles directed into the plant whorl.
	European Corn Borer Western Bean Cutworm Corn earworm			
	Cutworms (Including Black, etc.)	0.5 to 1.0	15.2 to 30.4	<u>Postemergence rescue treatments only:</u> For best results apply as a broadcast spray when cutworms are actively feeding. If banding use a minimum width of 10 inches over the row. To determine the amount of chemical to use per acre divide the band width by the row width and multiply by the appropriate broadcast rate.
Sweet Corn	Corn Earworm European Corn Borer Armyworms Western Bean Cutworm	0.5 to 0.75	15.2 to 22.8	<u>Insects attacking silks and ears:</u> Apply at 1-7 day intervals starting when silks first appear and continuing until silks begin to dry or infestation potential ceases. Follow local recommendations for proper timing. <u>Whorl or foliage feeders:</u> Refer to general directions for use and specific directions under field corn.

PRE-HARVEST AND GRAZING USE INFORMATION AND LIMITATIONS

To avoid illegal residues in or on:

FIELD CORN

- Do not exceed 4.0 pounds of active ingredient (160 fluid ounces of UCLF-2) per acre per season.
- Do not harvest grain before 28 days after last application.
- Do not feed treated green forage or ensilage before 7 days after the last application.
- Do not feed fodder or stover before 28 days after the last application.

SWEET CORN

Do not exceed 7.5 pounds of active ingredient (300 fluid ounces of UCLF-2) per acre per season.

Do not allow livestock to graze treated field.

Do not feed treated corn silage (green plant) or fodder to livestock.

Ears may be harvested on day of last application.

Processing waste may be fed or ensiled on day of last application.

FIELD USE CONVERSION TABLE

DOSAGE PER ACRE		Acres treated per gallon UCLF-2
Pounds Active	Fluid Ounces	
0.25	10.0	12.8
0.33	13.2	9.7
0.40	16.0	8.0
0.45	18.0	7.1
0.50	20.0	6.4
0.55	22.0	5.9
0.60	24.0	5.3
0.65	26.0	4.9
0.70	28.0	4.6
0.75	30.0	4.2
0.90	36.0	3.6
1.00	40.0	3.2

1 U.S. Gallon Equals 128 Fluid Ounces

PRECAUTIONARY STATEMENTS

WARNING HAZARDS TO HUMANS AND DOMESTIC ANIMALS

May be harmful or fatal if swallowed. May be harmful if inhaled or absorbed through the skin. May be irritating to eyes and may cause mild skin sensitization. Do not take internally. Avoid contact with skin, eyes or clothing. Avoid breathing spray mist.

Wear long-sleeved clothing while using. Remove contaminated clothing daily; wash before reuse. Wash exposed skin thoroughly with soap and water after use and before eating or smoking. Discontinue use if allergic reaction occurs.

SIGNS AND SYMPTOMS OF OVEREXPOSURE:

Salivation, Watery eyes, Pinpoint eye pupils, Blurred vision, Muscle tremors, Difficult breathing, Excessive sweating, Abdominal cramps, Nausea, Vomiting, Diarrhea, Weakness, Headache. In severe cases, convulsions, unconsciousness and respiratory failure may occur.

ANTIDOTE STATEMENT

ATROPINE SULFATE IS HIGHLY EFFECTIVE AS AN ANTIDOTE. See NOTE TO PHYSICIAN below.

STATEMENT OF PRACTICAL TREATMENT

GENERAL

Contact a physician immediately in all cases of suspected poisoning. If breathing stops, start artificial respiration, establish an airway and provide oxygen. Make certain to remove all sources of continuing contamination. Remove clothing and wash skin and hair immediately with large amounts of water. Transport the patient to a physician or hospital immediately and SHOW A COPY OF THIS LABEL TO THE PHYSICIAN.

IF SWALLOWED: Drink 1 or 2 glasses of water and induce vomiting by touching back of throat with finger. Never give anything by mouth to an unconscious or convulsing person. Call a physician and follow General advice listed above.

IF IN EYES: Flush eyes with plenty of water. Get medical attention if irritation persists.

IF ON SKIN: Wash thoroughly with soap and water.

IF INHALED: Call a physician and follow General advice listed above.

NOTE TO PHYSICIAN

UCLF-2 is an oxime carbamate insecticide, which is a cholinesterase inhibitor. Overexposure to this substance may cause toxic signs and symptoms due to stimulation of the parasympathetic nervous system. These effects of overexposure are spontaneously and rapidly reversible.

Specific treatment consists of parenteral atropine sulfate. Caution should be maintained to prevent overatropinization. Mild cases may be given 1 to 2 mg intramuscularly every 10 minutes until full atropinization has been achieved and repeated thereafter whenever symptoms reappear. Severe cases should be given 2 to 4 mg intravenously every 10 minutes until fully atropinized, then intramuscularly every 30 to 60 minutes to maintain the effect for at least 12 hours. Dosages for children should be appropriately reduced. Complete recovery from overexposure is to be expected within 24 hours.

Narcotics and other sedatives should not be used. Further, drugs like 2-PAM (pyridine-2-aldoxime methiodide) are NOT recommended unless organophosphate intoxication is also suggested.

To aid in confirmation of a diagnosis, urine samples should be obtained within 24 hours of exposure and immediately frozen. Analyses will be arranged by Union Carbide Agricultural Products Company.

Consultation on therapy can be obtained at all hours by calling the Union Carbide emergency number : (304) 744-3487.

ENVIRONMENTAL HAZARDS

Avoid direct applications to lakes, streams and ponds. Do not apply when weather conditions favor drift from area treated. This product is toxic to bees exposed to direct treatment. Do not apply when bees are actively visiting the treatment area.

NOTICE TO THE BUYER

Purchase of this material does not confer any rights under patents governing this product or the use thereof in countries outside of the United States.

Appendix 34

Approved
31 Mar 82

Net Contents 1 Gallon
(3.78 liters)

Front Panel

**LARVIN.™ 3.2 Thiodicarb
Insecticide**

ACTIVE INGREDIENT	Percent by Weight
Dimethyl N, N' {thiobis ((methylimino) carbonyloxy)} bis {ethanimidothioate}	34%
INERT INGREDIENTS	66%

EPA Experimental Use Permit No. 264-EUP-60
EPA Establishment No. 264-MO-02

CONTAINS 3.2 pounds active per U.S. gallon.

FOR EXPERIMENTAL USE ONLY

TO BE USED ONLY BY A PARTICIPANT OR COOPERATOR OF
THE EPA APPROVED EXPERIMENTAL USE PROGRAM.

KEEP OUT OF REACH OF CHILDREN

WARNING

MAY BE HARMFUL OR FATAL IF SWALLOWED OR INHALED.
ANTIDOTE IS ATROPINE SULFATE. SEE ANTIDOTE STATE-
MENT, INFORMATION FOR PHYSICIAN AND OTHER DETAILED
WARNINGS ON LEFT PANEL. READ THE ENTIRE LABEL BEFORE
USING THIS PESTICIDE.

UNION CARBIDE AGRICULTURAL PRODUCTS COMPANY, INC.
P. O. Box 12014, Research Triangle Park, North Carolina 27709

LARVIN is the trademark of Union Carbide Corporation for
thiodicarb insecticide.

FOR EXPERIMENTAL USE ONLY IN THE FOLLOWING STATES

FOR COTTON: 1982 - Alabama, Arizona, Arkansas, California, Georgia, Louisiana, Mississippi, Missouri, Oklahoma, South Carolina, Texas

1983 - Same as 1982 plus North Carolina, New Mexico and Tennessee

FOR SOYBEANS: 1982 - Alabama, Georgia, Indiana, Iowa, Louisiana, Mississippi, North Carolina, South Carolina, Texas, Virginia

1983 - Alabama, Arkansas, Florida, Georgia, Illinois, Indiana, Iowa, Kentucky, Louisiana, Mississippi, Missouri, North Carolina, Ohio, Oklahoma, South Carolina, Tennessee, Texas, Virginia

This product must be used only in accordance with this label.

LARVIN 3.2 is an aqueous flowable product to be diluted with water for application by ground or air equipment.

To prepare for spraying, fill tank about one-half full of water. Add LARVIN 3.2 Insecticide according to use directions and mix thoroughly by mechanical or hydraulic agitation.

Apply when insects first appear. Repeat as needed, usually at 5 to 7 day intervals for most pests. Use sufficient water to obtain adequate and uniform coverage. Low rates are for small plants or early infestations. Higher rates are for larger plants or more established pest populations. For air application, up to five gallons of total spray per acre is suggested.

Physical compatibility of LARVIN 3.2 with other pesticides is not fully known but it has been used effectively with common insecticides and miticides. Before preparing tank-mix combinations, add a small amount of LARVIN 3.2 Insecticide to water and then add the other pesticide. DO NOT USE MIXTURES THAT CURDLE, PRECIPITATE OR GREASE. Unstable under highly alkaline conditions.

SUGGESTIONS FOR EXPERIMENTAL USE

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

CROP	INSECT	DOSAGE PER ACRE LARVIN 3.2		SUGGESTED TIMING & COMMENTS
		Fluid OUNCES	Pounds ACTIVE	
Cotton	Beet armyworm Cotton boll- worm Tobacco bud- worm Cabbage loopers Saltmarsh caterpillar Fall armyworm	12 to 36	0.3 to 0.9	Use lower rates for early infestations and newly hatched larvae. As worm pressure increases dosage should be increased from 18 to 24 ounces (0.45 to 0.6 pounds) per acre. Use maximum rate for emergency reduction of established worms. Good pest management practices are suggested.
	Cotton leaf- perforator Pink bollworm	24 to 36	0.6 to 0.9	Apply as insect infestations occur. Repeat as required.
Soybeans	Beet armyworm Corn earworm Green Clover- worm Velvetbean caterpillar Fall armyworm Yellow striped armyworm Tobacco bud- worm Mexican bean beetle	8 to 18	0.2 to 0.45	Apply when insects begin to reach economic damaging levels. Follow good pest management practices. As worm populations just begin to cause economic damage, use lowest rates. Repeat with this rate or increase, depending on infestation.

NOTE: TO AVOID ILLEGAL RESIDUES:

COTTON: Do not allow livestock to graze fields. Do not apply less than 28 days before harvest.

SOYBEANS: Do not feed forage or hay to livestock. Do not apply less than 60 days before harvest.

**OTHER:
CROPS** Corn may be planted 4 mos. after the last application. Leafy vegetables may be planted 12 mos. after the last application.

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SYMPTOMS OF OVEREXPOSURE

This product causes cholinergic effects with symptoms typical of cholinesterase inhibition, which may include one or more of the following:

Weakness	Nausea	Excessive Sweating
Blurred vision	Abdominal Cramps	Reduced Pulse
Headache	Pinpoint Eye Pupils	Muscle Tremors
Difficulty in Breathing	Ataxia	Abnormal Flow of Saliva

ANTIDOTE STATEMENT

ATROPINE IS AN ANTIDOTE. See information for Physician Below.

FIRST AID TREATMENT

CONTACT A PHYSICIAN IMMEDIATELY IN ALL CASES OF SUSPECTED POISONING. SHOW A COPY OF THIS LABEL TO THE PHYSICIAN.

In case of overexposure to SKIN, wash skin and hair thoroughly with soap and water.

For EYES, flush with water for 15 minutes.

If SWALLOWED, put finger in throat and induce vomiting; repeat until vomit is clear. Do not induce vomiting or give anything by mouth to an unconscious person.

If INHALED, remove from exposure and have patient lie down and keep quiet.

If patient is NOT BREATHING, start artificial respiration immediately.

INFORMATION FOR PHYSICIAN

This product contains Dimethyl N, N'-(thiobis((methylimino)carbonyloxy))bis(ethanimidothioate). It is a spontaneously reversible cholinesterase inhibitor causing parasympathetic nerve stimulation. Preferred treatment of poisoning in adults is atropine sulfate in 1.2 mg doses given intravenously every 10 to 12 minutes until patient is fully atropinized. Dosage for children is appropriately reduced. Atropinization should be maintained for 12 hours by intramuscular administration of atropine in lower doses given at appropriate time intervals. Do not administer opiates or cholinesterase inhibiting drugs. Artificial respiration or oxygen may be necessary. Observe patient continuously for at least 24 hours. Allow no further exposure to any cholinesterase inhibitors until cholinesterase level is normal by blood test.

PRECAUTIONARY STATEMENTS

HANDLING - Wear clean clothing daily. Wash thoroughly after handling and before eating or smoking. Pilots should not assist in handling or loading.

PROTECTION OF ENVIRONMENT - This product is moderately toxic to fish and wildlife. Keep away from ponds, lakes or streams. Do not contaminate bodies of water when cleaning spray equipment or disposing of waste. Do not apply where runoff is likely. Avoid direct application to foraging honeybees or bee hives. Apply late in evening or early morning where honeybees visit fields or orchards.

STORAGE AND DISPOSAL

Not for storage in or around the home. Rinse empty container thoroughly with water. Crush and bury in authorized site for pesticide containers.
NEVER REUSE CONTAINER. Store unused product in dry, locked area.
NEVER TRANSFER THIS PRODUCT TO ANOTHER CONTAINER FOR STORAGE.