

FILE COPY

Date Out EFB: DEC 7 1981

To: Product Manager 25 Ellenberger
TS-767

From Dr. Willa Garner *WJ*
Chief, Review Section No. 1
Environmental Fate Branch

Attached please find the environmental fate review of:

Reg./File No.: 464-448, 464-523

Chemical: chlorpyrifos

Type Product: Insecticide

Product Name: Lorsban

Company Name: Dow

Submission Purpose: Adding sunflowers to labels

ZBB Code: 3(c)(7)

ACTION CODE: 335

Date in: 10/28/81

EFB # 26, 27

Date Completed: DEC 7 1981

TAIS (level II)

Days

Deferrals To:

63

1

Ecological Effects Branch

Residue Chemistry Branch

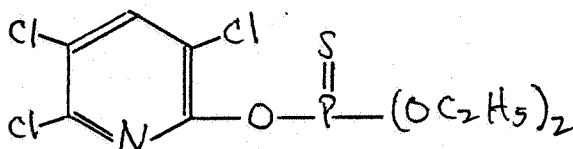
Toxicology Branch

1.0 Introduction

Chemical Name and Type Pesticide: Chlorpyrifos, 0,0,-diethyl 0-(3,5,6-trichloro-2-pyridyl) phosphorothioate, 40.7% ai, Insecticide.

Trade Name: LORSBAN 4E, LORSBAN 15G granular insecticide

Chemical Structure:



The registrant requests the addition of sunflower to the LORSBAN 4E and LORSBAN 15G labels. These formulations are currently registered on certain field, fruit, nut, and vegetable crops (LORSBAN 4E) and corn, peanuts, sugar beets, sweet potatoes, and vegetables (LORSBAN 15G).

2.0 Directions for Use

See attached pages.

3.0 Discussion of Data

No new environmental fate data submitted.

4.0 Recommendation

EFB concurs with the proposed addition of sunflower to the LORSBAN 4E and LORSBAN 15G labels, since no significant incremental risk should result from this use.

Herbert L. Manning

Herbert L. Manning, Ph.D.
Review Section #1
EFB/HED

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LORSBAN* 4E

INSECTICIDE

For Control of Various Insects Infesting Certain Field, Fruit, Nut, and Vegetable Crops

Complete Directions for Use, Use Precautions and Restrictions, Hazards and Other Important Information for the Proper Use, Handling, Storage and Disposal of this Product

EPA Reg. No. 444-448
EPA Est. 444-JK-1

*Trademark of THE DOW CHEMICAL COMPANY

M481
45378

THE DOW CHEMICAL COMPANY
AND ASSOCIATES
MIDLAND, MICHIGAN 48640, USA
MORGES, SWITZERLAND
HONG KONG
CORAL GABLES, FLORIDA 33134, USA
SARNIA, ONTARIO, CANADA
†Trademark of THE DOW CHEMICAL COMPANY

SPECIMEN LABEL
(BACK)
REDUCED TO 68%

READ ENTIRE LABEL BEFORE USING THIS PRODUCT

PRECAUCION AL USUARIO: Si usted no lee ingles, no use este producto hasta que la etiqueta le hay sido explicada ampliamente.
TRANSLATION: (TO THE USER: If you cannot read English, do not use this product until the label has been fully explained to you.)

In case of an emergency endangering life or property involving this product, call collect 817-436-4400.

ACTIVE INGREDIENTS:

Chlorpyrifos (O,O-diethyl O-(3,5,6-trichloro-2-pyridyl) phosphorothioate) 40.7%
Aromatic petroleum derivative solvent 22.8%
INERT INGREDIENTS 36.5%
Contains 4 pounds of chlorpyrifos per gallon.

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GRAIN SORGHUM: Use LORSBAN 4E to control infestations of the Sorghum midge by application as a broadcast, foliar spray at the rate of 1/2 pint per acre. Mix the specified dosage in enough water to ensure thorough coverage and apply using suitable aerial or ground spray equipment. Make the first application when 30 to 50 percent of the seed heads are in bloom and midge adults are present. A second and third treatment at 3-day intervals may be needed, but do not exceed 3 applications. To avoid phytotoxicity, do not treat plants that are under extreme heat and drought stress.

Restrictions: The treated crop is not to be used for forage, fodder, hay, or silage within 14 days after the last treatment. Do not treat sweet varieties of sorghum.

PEACHES, NECTARINES: Use LORSBAN 4E insecticide for the control of peach tree borers by application as a trunk spray before newly hatched borers enter the trees. Mix 3 quarts of LORSBAN 4E with 100 gallons of water and apply as a coarse, low-pressure spray to give uniform coverage of tree trunks. Thoroughly wet all bark areas from ground level to scaffold limbs. Do not allow spray to contact fruit. Consult your State Agricultural Experiment Station or Extension Service Specialist for proper time to treat in your area.

Restrictions: Make only one application per season. Do not apply within 14 days before harvest. Do not allow meat or any animal's to graze in or near orchards.

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PEANUTS: Use LORSBAN 4E for control of the following pests at the dosages indicated:

Lesser cornroot borer... 2 to 4 quarts per acre (as a directed spray on the base of the plants or on 8 to 10 inch wide bands);

Armyworms; corn earworms, cutworms, moths... 1 to 2 quarts per acre (as a broadcast, foliar spray using ground or aerial equipment when field counts indicate damaging insect populations are developing or present).

Mix the required dosage in enough water to ensure thorough coverage.

Restrictions: Do not make more than one application per season as a directed spray. Directed and foliar sprays should not exceed 8 pints of LORSBAN 4E per acre or 4 pounds of chlorpyrifos (active ingredient) per acre per season. Do not harvest within 21 days after treatment. Do not feed treated peanut forage or hay to meat or dairy animals.

SWEET POTATOES: Use LORSBAN 4E to control Colorado potato beetles, wireworms, and the sweet potato flea beetle by preplant application at the rate of 4 quarts per acre as a broadcast (overall) spray to the soil surface followed by incorporation. Mix the specified dosage with enough water to obtain uniform coverage of the treated area and apply as a coarse spray using suitable ground spray equipment. After application, incorporate the insecticide into the soil to a depth of 4 to 6 inches using a rotary hoe, disc cultivator, or other suitable incorporation equipment. Plant the crop in the usual manner as soon as possible after treatment.

Restrictions: Do not make more than one application per season.

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SUMMARY TABLE OF USES

CROP	PEST	APPROVED LABELING	PAGE
Corn: Field Popcorn Sweet Cane	Armyworms Bugs Corn earworms Cutworms Giant cutworms Lesser corn root borer Wireworms	All States	7
Cotton	Armyworms Cotton aphid Cotton fleahopper Plant bugs (Lygus, Mirids) Salt marsh caterpillar Thrips Belted larvae (Hemlock spp.) Belted larvae Pink bollworm Spider mites	All States	9
Peanuts	Armyworms Corn earworm Cutworms Lesser corn root borer Mice	All States	14
Sorghum	Sorghum midge	All States	13

CROP	PEST	APPROVED LABELING	PAGE
Sweet Potatoes	Flea beetles (Systema spp.) Sweet potato flea beetle Wireworms (Conoderus spp.)	All States	14
Tree Fruits: Apples	Ruby apple aphid San Jose scale Cutworms	All States	15
Pears	San Jose scale Cutworms	All States	15
Plums: Prunes	San Jose scale Meadow plum aphid Cutworms	All States	15
Almonds: Peaches: Nectarines	San Jose scale Peach twig borer Cutworms	All States	13, 15
Peaches: Nectarines	Peach tree borer	All States	13, 15

CROP -
Vegetables:
Broccoli
Brussels sprouts
Cauliflower
Cabbage
Cauliflower
Rutabaga

KEEP
PRE
HAZARD
MAY BE
ABSORBED

Do Not Touch
Skin or on
Spray Mi
State
If Swallow
petroleum so
If On Skin: In
the immediate
commercial
Wash Eyes: Pl
a physician.
NOTE: TO: PV
inhibitor. Tree
or animals.

PHY
Do Not U
In case
proper
AG
Do. M

TREE FRUITS:
dominant spray
insects on the

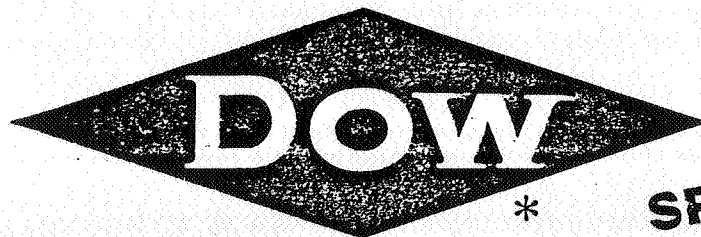
Crop
Apple

Pears

Plums,
Prunes

Almonds,
Peaches,
Nectarines

Take mix the
petroleum spr
gallons of wat
runoff using su
dosage of LOR
recommended
or Extension S
Restrictions: A
season. Do no
treated orchard
VEGETABLES:
the following c
Broccoli, Bru
sprouts, cabb
cauliflower...



SPECIMEN LABEL
REDUCED TO 40%

Lorsban 15G

**granular
insecticide**

- controls rootworm and cutworm
- does not affect seed germination

**For Control of Certain Insects Infesting Corn, Peanuts,
Sugar Beets, Sweet Potatoes and Vegetables**

ACTIVE INGREDIENT:
Chlorpyrifos (O,O-diethyl O-(3,5,6-trichloro-2-pyridyl) phosphorothioate) 15.0%
INERT INGREDIENTS: 85.0%
E.P.A. Registration No. 456-522
E.P.A. Est. 456-Mk-1

22.68 KG / 50 LB

KEEP OUT OF REACH OF CHILDREN

CAUTION

**MAY BE HARMFUL
IF SWALLOWED**

See Back Panel
For Other Important
Precautionary Statements

In case of an emergency
endangering life or property
involving this product, call collect:

517-636-4400

**AGRICULTURAL
CHEMICAL**

Do Not Ship or Store with Foods,
Feeds, Drugs or Clothing

•Trademark of THE DOW CHEMICAL COMPANY

86-1375 PRINTED IN U.S.A. IN MAY, 1981.

REPLACES SPECIMEN LABEL 86-1375 PRINTED IN MARCH, 1981.

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PRECAUCION AL USUARIO: Si usted no lee ingles, no use este producto hasta que la etiqueta le haya sido explicada ampliamente.
TRANSLATION: (TO THE USER: If you cannot read English, do not use this product until the label has been fully explained to you.)

KEEP OUT OF REACH OF CHILDREN

CAUTION

PRECAUTIONARY STATEMENTS

Hazards to Humans and Domestic Animals

MAY BE HARMFUL IF SWALLOWED
 Do Not Take Internally • Avoid Contact With Eyes, Skin, and Clothing • Wash Thoroughly After Handling
 Wash Contaminated Clothing Before Reuse

NOTE TO PHYSICIAN: Chlorpyrifos is a cholinesterase inhibitor. Treat symptomatically. Atropine is an antidote.

Environmental Hazards

This product is toxic to wildlife and fish. Use with care when applying in areas frequented by wildlife or adjacent to any body of water. Keep out of lakes, streams or ponds. Treated granules exposed on soil surface may be hazardous to birds and other wildlife. Cover or incorporate granules which are spilled during loading. Incorporate granules visible on the soil surface in the turn area.

DIRECTIONS FOR USE.

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

Field Corn, Popcorn, Sweet Corn (Band Treatment): Use LORSBAN 15G for control of the following pests at the dosages indicated:

Insect	Amount of LORSBAN 15G Per 1,000 Feet of Row
Northern Corn Rootworm	6 to 8 ounces
Southern Corn Rootworm	8 ounces
Western Corn Rootworm	8 to 12 ounces
Cutworms	8 to 16 ounces
Symphytans	8 to 16 ounces
Billbugs, Lesser Cornstalk Borer, Wireworms	8 to 16 ounces

Apply LORSBAN 15G granular insecticide at planting time for control of billbugs, corn rootworms, cutworms, lesser cornstalk borer, symphytans, and wireworms or postplant at time of cultivation for control of corn rootworms. For planting time treatment place the granules in a 6 to 7 inch wide band over the row behind the planter shoe in front of the press wheel and incorporate into the top 1 inch of soil using suitable equipment or devices. For postplant treatment apply the granules over the row and cultivate into the soil or subsoil both sides of the row and cultivate into the soil. Consult your State Agricultural Experiment Station or Extension Service specialist for proper time to treat in your area. Equivalent rates of LORSBAN 15G per acre for various row spacings are given in the accompanying table.

Amount of LORSBAN 15G Per 1,000 Feet of Row	Pounds of LORSBAN 15G Required Per Acre for Various Row Spacing
	40" 36" 32" 28" 24" 20"
6 ounces	5.0 5.25 5.5 5.75 6.0 6.5
7.5 ounces	6.25 6.5 6.75 7.0 7.25 7.5
8 ounces	6.5 7.0 7.25 7.5 7.75 8.25
12 ounces	10.0 10.5 11.0 11.5 12.0 13.0
15 ounces	12.5 13.2 13.8 14.4 15.0 16.2
18 ounces	15.0 15.5 16.0 16.5 17.0 18.5

NOTE (Billbug Control): Do not use in soils containing over 10% organic matter. (Cutworm Control): In some cases enough cutworms outside the treated band may survive to cause crop damage. If this situation occurs, it may be necessary to apply a rescue treatment to control the surviving worms. LORSBAN 15G insecticide is recommended for this purpose. Consult your State Agricultural Experiment Station or Extension Service specialist for further information concerning cutworm control in your area. (Wireworm Control): For best control, thoroughly incorporate the granules to a depth of 2 inches.

Field Corn, Popcorn, Sweet Corn (No-Till In-Furrow Treatment): Use LORSBAN 15G for control of the following pests at the dosages indicated:

Insect	Amount of LORSBAN 15G Per 1,000 Feet of Row
Cutworms, Seed-Corn Maggots	8 ounces
Billbugs, Wireworms	8 to 16 ounces

Apply LORSBAN 15G granular insecticide at planting time as a no-till in-furrow treatment. Direct the granules into the planter shoe with the seed or place the applicator tube directly behind the planter shoe so that the granules drop into the seed furrow and are covered with soil. Equivalent rates of LORSBAN 15G per acre for various row spacings are given in the accompanying table.

Field Corn, Popcorn, Sweet Corn (Broadcast Treatment): Use LORSBAN 15G as an aid to reduction of feeding damage by flea beetle larvae by preplant broadcast application at the rate of 13.5 pounds per acre, using equipment that will evenly distribute the granules over the treated area. After application, incorporate the granules into the soil to a depth of 4 to 6 inches using a rotary hoe, disc cultivator, or other suitable incorporation equipment. Plant the crop in the usual manner as soon as possible after treatment.

Restrictions: Do not make more than one application per season.

Peanuts: Use LORSBAN 15G for control of southern corn rootworm and lesser cornstalk borer. For southern corn rootworm control, use 7.5 to 15.0 ounces of LORSBAN 15G per 1000 linear feet of row by application in a 10 to 18 inch wide band over the fruiting zone just prior to or at pegging. Incorporate the granules into the top 1 to 2 inches of soil using a suitable cultivator. For lesser cornstalk borer control, apply only to irrigated peanuts by application at the rate of 7.5 to 15 ounces of LORSBAN 15G per 1000 linear feet of row just prior to pegging. Apply the granules in a 10 to 18 inch wide band over the fruiting zone and incorporate into the top 1 to 2 inches of soil, plant size permitting. Irrigate within 24 hours after treatment using a minimum of 2 acre inches of water.

Restrictions: Do not make more than one application per season. Do not harvest within 21 days after treatment. Do not feed treated peanut forage or hay to meat or dairy animals.

Sugar Beets: Use LORSBAN 15G to control larvae of the sugarbeet root maggot and cutworms by application as a row treatment at planting time of postemergence (up to the 2 to 4 true leaf stage of the plant). Apply the granules at the rate of 6.5 to 9 ounces per 1000 feet of row (equivalent to 10 to 13.5 pounds per acre based on a 22 inch row spacing) by placing in a 5 to 7 inch wide band over the drill row (at planting) or plants (postemergence). When used at planting, the granules may be applied either ahead of the planter shoe and the seed drilled in the center of the band or behind the planter over the drill row. Incorporate the granules to a depth of 1 to 2 inches with either method. For postemergence treatment incorporate the banded granules to a depth of 1/2 inch to 1 inch using a suitable cultivator. Apply LORSBAN 15G with equipment that will provide uniform distribution of the granules.

Restrictions: Do not make more than one application per year.

Sweet Potatoes: Use LORSBAN 15G to control wireworms (Conoderus), flea beetles (Systema), and sweetpotato beetle by application as a broadcast treatment prior to planting (preplant) at a rate of 13.5 pounds per acre using equipment that will evenly distribute the granules over the treated area. After application, incorporate the granules into the soil to a depth of 4 to 6 inches using a rotary hoe, disc cultivator, or other suitable incorporation equipment. Plant the crop in the usual manner as soon as possible after treatment. Do not make more than one application per season.

Vegetables: Use LORSBAN 15G to control root maggots infesting the following crops by application as a row treatment at planting time in accordance with the specific conditions.

Broccoli, Brussels sprouts, Cabbage, Cauliflower, Rutabagas: Use 5.4 to 10.7 ounces of LORSBAN 15G per 1000 linear feet of row by placing over the seed row in a 2 to 4 inch wide band ahead of the planter shoe or in front of the press wheel to achieve shallow incorporation.

Restrictions: Do not apply more than 15 pounds of LORSBAN 15G per acre. Do not use rutabaga tops for food or feed purposes. Do not make more than one application per season.

Radishes: Use 3.3 ounces of granules per 1000 linear feet of row by application in the seed furrow with the seed at planting time.

Restrictions: Do not apply more than 18.3 pounds of LORSBAN 15G per acre. Do not make more than one application per season.

STORAGE AND DISPOSAL

Prohibitions: Do not contaminate water, food, or feed by storage or disposal. Open dumping is prohibited.

Pesticide Disposal: Pesticide that cannot be used or chemically reprocessed should be disposed of in a landfill approved for pesticides or buried in a safe place away from water supplies.

Container Disposal: Dispose of in an incinerator or landfill approved for pesticide containers, or bury in a safe place.

General: Consult Federal, state, or local disposal authorities for approved alternative methods of pesticide container disposal.

NOTICE: Seller warrants that the product conforms to its chemical description and is reasonably fit for the purposes stated on the label when used in accordance with directions under normal conditions of use; but neither this warranty nor any other warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE, express or implied, extends to the use of this product contrary to label instructions, or under abnormal conditions, or under conditions not reasonably foreseeable to seller, and buyer assumes the risk of any such use.

U.S. Patent No. 3,244,586

GENERAL INSTRUCTIONS FOR EQUIPMENT CALIBRATION

Caution: The following chart lists suggested initial gauge settings for application of LORSBAN 15G insecticide with one hopper opening per row. Be sure to check the actual application rate under your operating conditions.

- Fill hopper.
- Attach a plastic bag to tube opening.
- Set your planter to the initial settings shown on chart.
- Measure off 1,000 row feet and drive your planter the pre-measured distance at your desired speed.

- Each bag should contain 6 to 8 ounces of granules depending on your desired rate.

NOTE:

Ounces (WT) of granules	Approx. ounces (volume)
6 oz. wt.	8 fl. oz. (1 cup)
8 oz. wt.	11 fl. oz.

- If the result is over or under the desired rate — adjust the settings and repeat the calibration.

LORSBAN 15G INSECTICIDE — CALIBRATION

Planter	Speed, mph									
	2	3	4	5	6	7	8	9	10	
	Application Rate, oz. per 1,000 row ft.									
	6	8	6	8	6	8	6	8	6	8
Gauge Setting										
Gandy ¹	11.5	13.6	14.4	16.7	16.7	19.7	18.8	22.8	21.0	24.8
John Deere ²	7	9	10	12	12	16	15	19	18	22
7,000 Max-Emerge										
John Deere ²	1/21	1/22	1/23	1/25	1/25	1/28	1/29	2/4	2/9	2/7
71 Flex-Planter										
Alko-Chalmers ³	6	8	6	8	6	8	6	8	6	8
70 Series										
Alko-Chalmers ³	1/18	1/25	1/24	1/51	1/50	1/73	1/70	2/05	1/90	2/28
78 & 79 Series										
Noble ¹ Inrow	4	6	6	8	8	10	11	13	12	14
Noble ¹ Inrid	6	7	8	10	10	12	13	16	15	19
International Harvester ⁴	1/18	1/29	1/24	1/51	1/50	1/73	1/70	2/05	1/90	2/28
Buffalo All-Flex ⁵	2 1/4	4	3	4 1/4	3 1/4	4 1/4	3 1/4	4 1/4	3 1/4	4 1/4
(Herschel Mtg.)										

¹ Gauge setting

² Gauge setting with range 1 & 2 — number shown is range/match.

³ Gauge setting is constant regardless of speed

⁴ Gauge setting shown with item gates & trial settings — number shown is gauge/dial

⁵ Number of turns, ops. on the adjustment nut.

THE DOW CHEMICAL COMPANY