

GASSER & DUNHAM

TELONE*

SOIL FUMIGANT

A Clean, Clear, Non-Clogging Liquid for Preplant Treatment
of Crop Lands to Control Plant Parasitic Nematodes and
Certain Other Soil Pests

ACTIVE INGREDIENTS

1,3-Dichloropentane and related chlorinated alkanes

INERT INGREDIENTS

EPA Registration No. 12612

DANGER

KEEP OUT OF REACH OF CHILDREN
Read Complete Precautions on Rear Panel

* Manufactured by The Dow Chemical Company

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TELONE* SOIL FUMIGANT

GENERAL INFORMATION

Use TELONE soil fumigant only as a preplanting soil treatment to control plant parasitic nematodes (root knot, meadow nematode), citrus cyst formers (golden sugar beet, soybean), burrowing ring, spiral sting pin, stubby root, dagger, and certain others, also to control wireworms and garden centipedes (symphylans). Fumigate land to be planted to the crops listed below by applying TELONE under the conditions, and at the rates recommended under DIRECTIONS FOR USE, DOSAGE AND USE RECOMMENDATIONS and USE PRECAUTIONS. Read the entire label before using TELONE.

Vegetable Crops

asparagus	cauliflower	horseradish	parsnips	shallots
beans	celery	kale	peas	spinach
beets	collards	kohlrabi	peppers	squash (summer)
blackeyed peas	corn	leeks	pimentos	squash (winter)
broccoli	cowpeas	lettuce	potatoes	sweet potatoes
brussels sprouts	cucumbers	melons	pumpkins	swiss chard
cabbage	egg plant	mustard greens	radishes	tomatoes
cantaloupe	endive	okra	rutabaga	turnips
carrots	garlic	onions	salsify	watermelons

Field Crops

alfalfa	flax	oats	sorghum
barley	grasses	pasture grass	soybeans
birdsfoot trefoil	hops	peanut	sugar beans
buckwheat	lespedeza	popcorn	sugarcane
clover	millet	rice	tobacco
corn	mint	rye	vetch
cotton		safflower	wheat

Citrus Fruit Tree Planting Sites:

grapefruit	kumquats	lemons	limes	oranges	tangerines	tangelos
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Deciduous Fruit and Nut Tree Planting Sites:

almonds	dates	olives	plums
apples	figs	peaches	pomegranates
apricots	filberts	pears	prunes
cashew nuts	hazelnuts	pecans	quince
cherries	hickory nuts	persimmons	walnuts
chestnut	nectarines	pineapple	

Bush and Vine Planting Sites:

blackberries	currants	huckleberries	youngberries
blueberries	dewberries	loganberries	
boysenberries	gooseberries	raspberries	
cranberries	grapes	strawberries	

Nursery Crops including floral plants, ornamentals, shrubs, and bushes, forest, shade, fruit and nut trees and vine and bramble fruits of all types.

DIRECTIONS FOR USE

WHEN TO TREAT: Apply TELONE either in the spring or fall, whenever soil type and conditions permit. For best results with annual crops, treat the soil each year. In northern states, late summer, or early fall treatment (before October 15) is best for land to be planted to early spring crops, especially transplanted crops such as celery, tomatoes, and nursery and orchard stock. Early fall treatment permits planting a fall cover crop. **Note:** Treat muck soils only in the early fall and plant as late as possible in the spring, treat fine textured (clay) soils only when they are near or at the wilting point. Do not use TELONE to treat any type of soil when it is cold and/or wet.

SOIL PREPARATION: TELONE gives best results when conditions permit rapid diffusion of the fumigant through the soil and the soil surface can be sealed to prevent excessive fumigant loss during the exposure period. The soil should be in good seed bed condition, free of clods and undecomposed plant material, moisture at about one-half of field capacity, and temperature between 40° and 80° F at the depth of injection. If undecomposed plant debris is present, it should be plowed down and allowed to decompose before applying TELONE. Tillage deeper than 12 inches is necessary for good fumigant penetration in soils where a hard or "plow" pan occurs at plow depth. Where deep tillage is used, the tillage equipment may often be modified to simultaneously apply the fumigant and thus avoid going over the field twice.

APPLICATION: TELONE may be applied either as an overall (broadcast) or row treatment, using suitable application equipment that will ensure placement of the fumigant at least 6 to 8 inches below the final soil surface. For overall application use either plowshare or chisel equipment with the chisels spaced 12 inches apart. When the fumigant is injected at a depth of 12 inches or more (deep tillage), the chisel spacing may be up to twice the application depth but should not exceed 30 inches. Application may be made in the same direction or at an angle to the direction of the planting row, whichever is most convenient. For row application, use chisel equipment with one chisel per row or two chisels spaced 12 inches apart to treat only the soil where the crop is to be planted. When one chisel per row is used, adjust the fumigant flow rate to distribute about 1 1/2 times more fumigant per chisel than is recommended for overall application. When two chisels are used per row, apply at the same flow rate per chisel as for overall. In both cases, the amount of fumigant required per acre will decrease as the distance between rows is increased and vice versa. At time of planting, avoid placing the seed row directly over the furrow left by the applicator chisel. When a single chisel is used per row, place the seed 3 to 4 inches to one side of the chisel furrow when two chisels are used, plant in the center of the area between the chisel furrows.

SEALING: Immediately after application, compact the soil surface to prevent excessive fumigant loss. After chisel application, use a roller, cultipacker, or similar sealing device. After

plow-share application, disk the land, then compact it by floating or rolling. Sealing after row application can be accomplished by the tractor wheel, by listing, or by bedding so that the fumigant will be 12 to 14 inches below the top of the bed. When fumigating listed rows, seal in the fumigant with ring rollers, press sealers, or by re-listing.

EXPOSURE PERIOD: After application and sealing, leave the soil undisturbed for 7 to 14 days. A longer exposure period will be required if the soil becomes excessively cold or wet during the exposure period.

AERATION AND PREPARATION OF SOIL BEFORE PLANTING: At the end of the exposure period allow the soil to aerate completely before planting the crop. Aeration is usually complete when the odor of TELONE is no longer evident. Under optimum soil and weather conditions, allow one week of aeration time for each 10 gallons of TELONE applied per acre. When TELONE is used for treating deep-rooted tree and shrub planting sites, a 3 to 6 months aeration period should be allowed. To hasten aeration, especially if heavy rains or low temperatures occur during the exposure period, work the soil to the depth of the treatment zone. After row treatment, use a knife-like chisel in the bed without turning the soil, thus reducing possible recontamination of the treated soil. To hasten aeration after overall treatment, plow or deep cultivate to the depth of the treatment zone. This is especially desirable in northern states after fall fumigation of muck soils.

DOSAGE AND USE RECOMMENDATIONS

to Control Nematodes, Symphylans¹ and Wireworms²

Crops (consult list of individual crops under General Information)	Type of Treatment	Soil Type	Dosage	
			Gallons Per Acre ³	Fl. Oz./1000 Ft. Row Per Chisel
Shallow-Rooted Plants: Field Crops, Floral Crops, Grasses and Turf, Small Fruits, Vegetables, Ornamentals	Row (42") ⁴	Mineral	6 to 8	62 to 82
		Muck or Peat	12 to 16	123 to 165
Strawberries	Overall (or Broadcast)	Mineral	12 to 20 ⁵	35 to 59
		Muck or Peat	32 ⁶ to 48	94 to 141
Sugar Beets, Root-Knot Nematode	Row (42")	Mineral	7	72
	Overall		15 to 20	44 to 59
Sugar Beet Nematode	Row (42")	Mineral	12	123
	Overall		15 to 25	44 to 73
Pineapple ⁷	Row	Mineral	30 to 60	-
Citrus - Florida ⁸	Overall	Mineral	40	118

Overall: Gallons Per Acre to Penetrate Various Depths

Nursery or Field ⁹	Soil Type	Depth			
		3 ft.	4 ft.	5 ft.	6 ft.
Citrus Fruit Trees	Sand	20	28	36	44
Deciduous Fruit Trees ⁴	Sandy Loam	36	40	48	64
Forest Trees	Silt Loam	56	68	84	100
Grapes	Clay Loam	72	92	112	136
Nut Trees					
Ornamentals (deep rooted)					

¹ Use the higher rates in heavier soil.
² For cyst forming nematodes increase dosage to 25 gallons per acre (73 fl. oz./1000 ft. row per chisel).
³ For muck soils containing less than 30% organic matter use 25 gallons per acre.
⁴ For Hawaii in pineapple, application may be made at time of or just before planting.
⁵ For burrowing nematode in citrus inject an 18-inch center, 12 inches deep. Keep free of plants susceptible to burrowing nematodes for 2 years before replanting to citrus.
⁶ Row treatment is not recommended for potatoes in irrigated areas of west and northwestern states.
⁷ Tree planting sites prepared by backhoeing may be treated by pouring 1 quart of TELONE into the hole during backfilling. For best results prepare and treat sites in the fall and plant in the spring.
⁸ Use TELONE as an aid in the control of bacterial canker and decline of peach trees by application as a preplant overall treatment of light (sandy) soils at the rate of 32 to 48 gallons per acre (94 to 141 fl. oz./1000 ft. row per chisel); preferably in the fall when the soil is warm (50-85 F at 6 inch depth) and moist. Inject the fumigant at a depth of 10 to 12 inches with chisels mounted on 12 inch centers. Follow directions for soil preparation, sealing, exposure, and aeration as specified elsewhere on this label.
⁹ NOTE: To control symphylans (garden centipedes) use only overall at 25 or more gallons per acre, and apply during late summer or early fall when the soil is warm. To control wireworms use the higher dosages recommended for nematodes in overall or broadcast treatments.

White Potatoes in Northwestern States: Use TELONE as a spring or preferably a fall treatment to control quackgrass and for suppression of the damaging effects of Verticillium wilt in fields to be planted to white potatoes. Apply as an overall treatment according to the following directions:

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Time of Treatment	Gallons per acre	Fl. Oz./1000 Ft. Row Per Chisel
Spring	20 to 30	59 to 88
Fall	30 to 40	88 to 118

Mint in Northwestern States: Use 70 gallons of TELONE per acre (206 fl. oz./1000 ft. row per chisel) as an overall treatment in the spring, or preferably in the fall, to aid in the reduction of the damaging effects of Verticillium wilt in disease infested land to be used for mint production. After treatment allow at least 7 to 8 weeks or until the odor of the fumigant has left the soil before planting. Consult local Agricultural Experiment Station authorities for the use of other practices such as flaming the stubble, weed control and cultural practices when using TELONE as an aid to reducing damage caused by Verticillium wilt.

USE PRECAUTIONS

Important - Note carefully: Fumigation may temporarily raise the level of ammonia nitrogen and soluble salts in the soil. This is most likely to occur when heavy rates of fertilizer and fumigant are applied to soils that are either cold, wet, acid, or high in organic matter. To avoid injury to plant roots, fertilize as indicated by soil tests made after fumigation. To avoid ammonia injury or nitrate starvation, or both, to crops on high organic soils do not use fertilizers containing ammonium salts and use only fertilizers containing nitrates, until after the crop is well established and the soil temperature is above 65° F.

Certain crops including cotton, sugarcane, and pineapple are tolerant to ammonia and the above rule does not apply to them. When using high rates of TELONE as required by certain state nursery regulations, liming of highly acid soils before fumigation may stimulate nitrification and reduce the possibility of ammonia toxicity. Certain nursery crops such as citrus seedlings, Cornus sp., Crataegus sp., spruce and vegetable crops such as cauliflower have shown evidence of phosphorus deficiency following fumigation. To avoid this possible effect, it is suggested that additional phosphate fertilizer be used on soils where experience indicates a deficiency may occur.

Attention: To avoid reinfestation of treated soil do not use irrigation water, transplants, tools, seed pieces, or crop remains that could carry soilborne pests from infested land. Clean equipment carefully before using.

Since TELONE soil fumigant is corrosive under certain conditions, flush all applicators with fuel oil or kerosene immediately after use. **DO NOT USE WATER.** Do not use containers, pumps, or other transfer equipment made of aluminum, magnesium or their alloys, as under certain conditions TELONE may be severely corrosive to such metals. Common protective equipment, such as rubber gloves and boots, etc., may be penetrated readily by this material. Polyethylene provides a good barrier. For field operations cover shoes and hands with polyethylene bags. Store TELONE in tightly closed containers in a cool place away from dwellings. In outside storage, store drums on their sides to avoid accumulation of rain water.

Do not allow contamination of seeds, plants, fertilizers, or other pesticide chemicals. Do not contaminate food, feedstuffs, or domestic water supplies.

To avoid injury to fish and other wildlife, do not spill or empty TELONE into streams, ponds, or other bodies of water.

Rinse equipment and containers and dispose of wastes by burying in non crop lands away from water supplies. Containers should be disposed of by punching holes in them and burying with wastes.

Use this product only as specified on this label.

DANGER

KEEP OUT OF REACH OF CHILDREN • HAZARDOUS LIQUID AND VAPOR • MAY BE FATAL IF INHALED, ABSORBED THROUGH SKIN OR SWALLOWED • CAUSES BURNS OF SKIN OR EYES

Do Not Get in Eyes, on Skin, or on Clothing. Wear Eye Protection Appropriate to the Circumstances. When Handling This Material Wash Thoroughly after Handling and Before Eating and Smoking. Wash Contaminated Clothing and Air Contaminated Shoes Thoroughly Before Reuse. Use Only with Adequate Ventilation. Do Not Breathe Vapor.

COMBUSTIBLE

DO NOT USE, POUR, SPILL, OR STORE NEAR HEAT OR OPEN FLAME

In case of contact, immediately remove contaminated clothing and shoes and wash skin with soap and plenty of water. For eyes, flush with flowing water for at least 15 minutes and get medical attention.

In case of spillage indoors have available an approved full face mask equipped with a fresh black canister meeting specifications of the U. S. Bureau of Mines for organic vapors, a full face self contained breathing apparatus, or full face air supplied respirator.

If inhaled, remove to fresh air. Use artificial respiration if breathing has stopped. Get immediate medical attention. Keep patient absolutely quiet.

If swallowed, call a doctor. Induce vomiting by giving an emetic such as 2 tablespoonfuls of table salt in a glass of warm water.

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.

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put nematode after sheet plants

Sites

TELONE SOIL FUMIGANT

POSAGE AND RECOMMENDATION

FOR THE CONTROL OF

SOIL-BORING INSECTS

AND NEMATODES

IN SOILS

AND FOLIAGE

OF PLANTS

AND VEGETATION

AND CROPS

AND GARDENS

AND HOUSES

AND SHEDS

AND BARNYARDS

AND OTHER PLACES

WHERE SOIL-BORING INSECTS AND NEMATODES ARE FOUND.