

Containers: Triple rinse or equivalent. Then offer for return to manufacturer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill or by other procedures approved by state and local authorities.

Notes: For minor spills, etc., follow all precautions indicated on this label and clean up immediately. Take special care to avoid contamination of equipment and facilities during cleanup and disposal of wastes. In the event of a major spill or accident, contact CIBA-GEIGY for assistance at 919-292-7100 day or night.

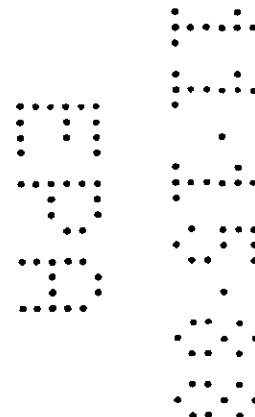
Agricultural Division
CIBA-GEIGY Corporation
Greensboro, North Carolina 27419

CIBA-GEIGY

CGA 11130

Revised June 15, 1988
November 4, 1988
Changed chem.
name back to
orig., deleted
mushrooms per
EPA comments.

(LABELS-D.4 - ST/DZNCNC/F3)



DEC 27 1988

Ms. Carolyn Pussey
Ciba-Geigy Corporation
P.O. Box 18300
Greensboro, NC 27419

Subject: Amendments - Revised draft manufacturing-use labels
indicating end-use patterns to be supported by data:
Add almonds, blueberries, Chinese cabbage (Bok choy),
Chinese mustard, Chinese radish, eggplant, sugarcane,
mushroom houses, and zucchini; Delete pinto beans,
soybeans, and white beans; Specify crops with permitted
aerial application, seed treatment, and greenhouse use;
Submit associated Technical Bulletin
Stabilized Diazinon MG-8 Insecticide
EPA Reg. No. 100-524
Stabilized Diazinon Concentrate No. 1
EPA Reg. No. 100-577
Your submission dated December 20, 1988

Dear Ms. Pussey:

The amendments referred to above, submitted in connection with registrations under the Federal Insecticide, Fungicide, and Rodenticide Act, are acceptable. The following revisions/corrections should be made before actual printing of the finished labels:

- 1) In the listing of acceptable end-use patterns, terrestrial food crops paragraph, make the following revisions:
 - a) As noted in the Agency's letter dated November 17, 1988, specify "(including aerial application)" after tomatoes and walnuts, if you intend to support that method of application for these crops, as you have indicated in previous correspondence.
 - b) As noted in the Agency's letter dated November 17, 1988, add "(including greenhouse)" after eggplant and zucchini.
- 2) In the listing of acceptable end-use patterns, "on the following animals" paragraph, add a comma between "cattle (non-lactating)" and "sheep".

- 3) The associated Technical Bulletin, as you are aware, was prepared some time ago (a copyright date of 1972 appears on the first page) and needs updating. Among other revisions, be sure to delete reference to the use as a nematocide or against forest insects, you may wish to include P.z.n.[®] as a trademark, the toxicology, metabolism, and degradation sections should reflect current study results (it is noted that there are no references to any potentially toxic impurities which may be present, as reported in the scientific literature), the current address and phone number should be given for emergency medical information, the listing of tolerances should be current up through the last issuance (Chinese radish), the crop listing should be revised to reflect only supported use patterns, the crop application rates should be revised to reflect the proposed new rates which will appear on your revised end-use labels to be submitted in February 1989, and the product availability listing should include your current products. The Agency is stamping the Technical Bulletin "Accepted with Comments" at this time, understanding that it will take longer to prepare and submit such revisions to the Technical Bulletin, especially the crop recommendations section, than to prepare the finished product labels with the revisions indicated in items 1 and 2 above.

Stamped copies of the labels and associated Technical Bulletin are enclosed for your records. Please submit five (5) copies of the finished labels (bearing the above-mentioned revisions), prior to release for shipment. When available (but no longer than 6 months), please submit five copies of a revised Technical Bulletin, which may be in draft form, for Agency review.

Sincerely yours,

George T. LaRocca
Product Manager (15)
Insecticide-Rodenticide Branch
Registration Division (TS-767)

CIBA-GEIGY
Stabilized Insecticide Concentrate No. 1

An Insecticide for Formulating Use Only

Active Ingredients:

Disinone: 1,1-dimethyl 0-(2-isopropyl-2-methyl-4-oxo-1-phenyl-5-phosphorothioate)	90.0%
Inert Ingredients	10.0%
Total:	100.0%

EPA Reg. No. 100-577

Gallon
U.S. Standard Measure

KEEP OUT OF REACH OF CHILDREN

WARNING

ACCEPTED
with COMMENTS
to EPA Letter Dated:

DEC 27 1988

Under the Federal Insecticide,
Fungicide, and Rodenticide Act
as amended, for the pesticide
registered under EPA Reg. No.

100 577

Precautionary Statements

Hazardous to Humans and Domestic Animals

WARNING

May be fatal if swallowed. May be absorbed through the skin. Do not breathe vapors or spray mist. Do not get in eyes, on skin, or on clothing. Wash thoroughly after handling and before eating or drinking. Avoid contamination of food and feed.

Statement of First Aid Treatment

If swallowed: Call a physician or Poison Control Center immediately. Drink a large quantity of water and induce vomiting by forcing back of throat with finger. Continue until vomit is clear. Do not induce vomiting or give anything by mouth if person is unconscious or having seizures.

If on skin: Immediately wash with soap and water. Remove contaminated clothing and launder before reuse. Call a physician or Poison Control Center if symptoms develop.

continued

If in eyes: Immediately flush eyes with plenty of water, and get medical attention.

If inhaled: Move to fresh air. If not breathing, apply artificial respiration and get medical attention immediately. Do not apply mouth-to-mouth respiration if expirations are shallow.

Toxicity: Physostigmine (Eserin) is a cholinesterase inhibitor. If symptoms of cholinesterase inhibition are present, atropine sulfate is antidotal. S-PAM is also antidotal and may be administered, but only in conjunction with atropine.

Environmental Hazards:

This product is highly toxic to fish and wildlife. Do not discharge effluent into lakes, streams, ponds, estuaries, bays, or public water unless this product is specifically identified and allowed in an NREB permit. Do not discharge effluent containing this product into sewer systems without previously notifying the sewer treatment plant authority. For guidance, contact your State Water Board or Regional Office of the Environmental Protection Agency.

DIRECTIONS FOR USE AND CONDITIONS OF SALE AND WARRANTY

IMPORTANT: Read the entire Directions for Use and Conditions of Sale and Warranty before using this product.

Conditions of Sale and Warranty

The Directions for Use of this product reflect the opinion of experts based on field use and tests. The directions are believed to be reliable and should be followed carefully. However, it is impossible to eliminate all risks inherently associated with use of this product. Crop injury, ineffective control, or other unintended consequences may result because of such factors as weather conditions, presence of other materials, or the manner of use or application all of which are beyond the control of CIBA-GEIGY or the seller. All such risks shall be assumed by the buyer.

CIBA-GEIGY warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes referred to in the Directions for Use, subject to the inherent risks referred to above. CIBA-GEIGY makes no other express or implied warranty of Fitness or Merchantability or any other express or implied warranty. In no case shall CIBA-GEIGY or the seller be liable for consequential, special, or indirect damages resulting from the use or handling of this product. CIBA-GEIGY and the seller offer this product to the buyer and user accept it, subject to the foregoing Conditions of Sale and Warranty, which may be modified only by agreement in writing signed by a duly authorized representative of CIBA-GEIGY.

No endorsement for this product other than formulation is intended or implied by the above Conditions of Sale and Warranty.

9 5 3

Directions for Use

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

This pesticide may be used only for the formulation of an insecticide.

Formulators using this product are responsible for obtaining EPA registration for their formulated products.

This Technical product may be formulated into end-use products for use:

a. on the following terrestrial food crops:

- almond (including aerial application), apple (including aerial application), apricot (including aerial application), banana, bean (succulent only) (including seed treatment), beet, blackberry, blueberry, boysenberry, broccoli, brussels sprouts, cabbage (including greenhouse), Chinese cabbage (leafy), cantaloupe (including greenhouse), carrot, cucumber, cauliflower (including greenhouse), celery, cherry (including aerial application), cole crops, collard, red kidney bean (seed), corn (including seed treatment) (including aerial application), cranberry, Crenshaw melon, currant (including greenhouse), dewberry, eggplant, eggplant, radish, grape, honeydew melon, leaf, kale, kiwifruit, lettuce (including aerial application), lima bean (succulent only), loganberry, melon, mushroom button, navel orange, mustard greens, Chinese mustard, nectarine (including aerial application), onion, parsley, parsnip, peach (including aerial application), pear (including aerial application), pea (succulent only) (including seed treatment), pepper, Persian melon, pineapple, plum (including aerial application), potato, prune (including aerial application), radish, Chinese radish, raspberry, rutabaga, snap bean, spinach, squash, strawberry, sugar beet, tangerine, summer squash (including greenhouse), sweet potato, Swiss chard, turnip, turnip (including top), walnut, watermelon (including greenhouse), and watermelon.

b. on terrestrial non-food crops including: ornamental plants and shrubs (including hanging baskets), flowers, fruit trees, shrubs, and waste land.

c. on ornamental plants (including greenhouse) and lawn (excluding turf grass and lawn).

d. on buildings, roofs, walls, floors, ceilings, and other structures (excluding dry cleaning).

and on the following animals:
cattle (non-lactating), sheep, cats, and dogs.

Chemical analysis of its residues

Refer to "Technical Bulletin - Diazinon Insecticide." Contact your CIBA-GEIGY Specialty Sales Representative or the CIBA-GEIGY Administration Department at (919) 241-1100 for a copy of this document.

Storage and handling

Do not use, pour, spill or store near heat or open flame. Do not contaminate water, food, or feed by storage or disposal or cleaning of equipment. Open dumping is prohibited.

Pesticide: Pesticide wastes are toxic. Improper disposal is a violation of federal law. If pesticide or equipment residues cannot be used according to formulation instructions or chemically reprocessed, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste Representative at the nearest EPA Regional Office for guidance.

Containers: Triple rinse or equivalent. Then offer for return to manufacturer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill or by other procedures approved by state and local authorities.

Notes: For minor spills, leaks, etc., follow all precautionary instructions indicated on this label and clean up immediately. Take special care to avoid contamination of equipment and facilities during cleanup and disposal of wastes. In the event of a major spill or accident, contact CIBA-GEIGY for assistance at (919) 241-1100 day or night.

Agricultural Division
CIBA-GEIGY Corporation
Greensboro, North Carolina 27414

CIBA-GEIGY

Approved for use on June 17, 1988
for EPA letter of 10/27/88
re: label to be supported.
The label is attached
separately. Refer to
Tech Bulletin number 100001
dated 1/1/88 for details.
and to contact the
personnel at CIBA-GEIGY.

CIBA-GEIGY
CIBA-GEIGY Corporation

DIAZINON* INSECTICIDE

ACCEPTED
with COMMENTS
to EPA Letter Dated:

DEC 27 1988

Diazinon is an insecticide and nematocide which was first synthesized in the laboratories of a R. Geigy S. A., Basle, Switzerland. Diazinon was released for experimental evaluation in the early 1950's and was tested under the code number G-2448J.

Early evaluations indicated that Diazinon gave outstanding residual control of flies and resistant cockroaches. After the initial activity of Diazinon was noted, widespread testing showed that this compound was very effective for control of many household and building insects and pests attacking plants and livestock. Diazinon has EPA label approval and directions for use on more than 75 food crops and 50 ornamental plants. In addition, Diazinon is registered for control of most household insects, ticks and fleas on sheep and goats, parasitic nematodes in turf and lawns,

Diazinon has a low to moderate toxicity and observations have shown that it is not persistent and when used according to label directions, does not pose a threat to the environment.

Research efforts are continuing in hopes of adding new uses to the current labels.

Consult the current Diazinon*, Sardex* and Spectracide* labels for specific use directions and additional information.

Chemical and Physical Properties

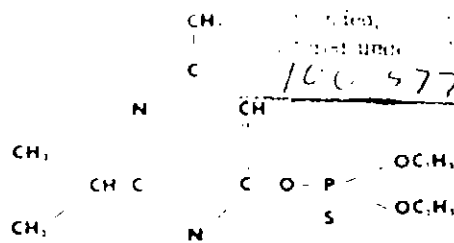
Trademark: Diazinon*, Gardlex*, Spectracide*

Gelgy experimental number: G-2448J

Entomology research number: 198-1

Active Ingredient: O,O'-diethyl O-(2-dimethylcarbamoyl)ethyl phosphorothioate

Chemical structure:



Molecular formula: C₁₂H₁₆N₂O₄P₁S₁

Molecular weight: 304.33

Boiling point: 83-84°C under 0.002 mm Hg

Physical description: Light amber to dark brown, viscous, waxy, non-crystalline solid.

Solubility: 4.5 g/100 ml water at 20°C. Soluble in acetone, ethyl acetate, and most organic solvents, alcohols, and kerosene.

Vapor pressure:

Temperature, °C	mm Hg
10	4.6 x 10 ⁻⁵
20	1.4 x 10 ⁻⁴
40	1.1 x 10 ⁻³
60	6.6 x 10 ⁻³
80	3.3 x 10 ⁻²

Stability: Commercial formulations undiluted have a 3 year minimum shelf life.

Toxicology

Acute toxicity

a. Technical Diazinon
Acute oral LD₅₀ (rats) = 300-400 mg/kg

b. Diazinon AG500
Acute oral LD₅₀ (albino rats) = 327 mg/kg

Acute dermal LD₅₀ (albino rats) = 3.1 mg/kg

Eye irritation (albino rabbits) — Moderately irritating (undiluted Diazinon AG500)

Insecticide
Primary skin irritation (albino rabbits) — Mildly irritating (undiluted Diazinon AG500)
Diazinon 4E
Diazinon 4F
Acute oral LD₅₀

(male albino rats) — 540 mg/kg
(female albino rats) — 217 mg/kg

Acute inhalation LC₅₀ (albino rabbits) — 27.2 mg/L air (four-hour exposure to 4% aqueous suspension)

Acute dermal LD₅₀ (albino rabbits) — 600 mg/kg

Eye irritation (albino rats) — Severely irritating (undiluted Diazinon 4E)

d. Diazinon 4S
Acute oral LD₅₀ (albino rats) — 735 mg/kg

Acute dermal LD₅₀ (albino rabbits) — 735 mg/kg

Eye irritation (albino rabbits) — Mildly irritating (undiluted Diazinon 4S)

Primary skin irritation (albino rabbits) — Mildly irritating (undiluted Diazinon 4S)

e. Diazinon 50W
Acute oral LD₅₀ (male albino rats) — 521 mg/kg
(female albino rats) — 224 mg/kg

Acute dermal LD₅₀ (albino rats) — 2,000 mg/kg

Dust inhalation, 25% (albino rats) — 2.1 mg/L air (one hour exposure)

Eye irritation (albino rabbits) — Moderately irritating (undiluted Diazinon 50W)

f. Diazinon 4G
Acute dermal LD₅₀ (albino rabbits) = 154 g/kg

Chronic toxicity studies

a. Two-year rat feeding study
10, 100, 1,000 ppm (100 ppm of a five ingredient of Diazinon 25W). There were no effects in any of the parameters examined except some inhibition of growth at the 1,000

study:

There were no malformations or adverse effects on reproduction.

c. 43-week oral administration to dogs:

4.3 - 5.3 mg/kg/day (in terms of active ingredient) of Diazinon 25W. There were no effects in any of the parameters examined except cholinesterase inhibition.

d. 106-week oral administration to monkeys: 5.0, 0.5, 0.05 mg/kg/day (in terms of active ingredient) of Diazinon 50W. There were no effects in any of the parameters examined except for cholinesterase inhibition at 5.0 mg/kg/day.

Toxicity to fish and wildlife

Species	LC50 ppm active ingredient	Exposure period
Mallard duck	90.0	5 days
Bobwhite quail	68.0	7 days
Rainbow trout	0.4	96 hours
Goldfish	9.0	96 hours
Bluegill sunfish	0.136	96 hours

Toxic symptoms which may be observed after accidental ingestion

Headache, giddiness, blurred vision, nervousness, weakness, cramps, diarrhea, discomfort in the chest, sweating, miosis, tearing, salivation, and other excessive respiratory tract secretion, vomiting, cyanosis, papilledema, uncontrollable muscle twitches, convulsions, coma, loss of reflexes, and loss of sphincter control.

Antidote

Atropine is antidotal providing it is used as soon as early poisoning symptoms appear and the dose of Diazinon is not too great. *It is important to give large doses of atropine, up to ten times the usual dosage.*

.....

I. In very severe cases, the order of treatment for adults should be as follows:

- a. Artificial respiration, if required, preferably by mechanical means.
- b. Atropine sulfate, 2 to 4 mg (1/30 to 1/15 grain) intravenously as soon as cyanosis is overcome. Repeat at 5 to 10-minute intervals until signs of atropinization appear (dry, flushed skin and tachycardia as high as 140 per minute).
- c. 2-PAM slowly (pyridine-2-aldoxime methochloride), intravenously, if the patient fails to re-

d. Lavage stomach.

e. Wash contaminated skin with soap and water.

f. In case of contact with eyes, flush with plenty of water for at least 15 minutes and get medical attention.

g. Symptomatic treatment.

II. In moderate or mild cases, proceed as follows:

a. Atropine sulfate, 1 to 2 mg (1/60 to 1/30 grain) if symptoms appear. If excessive secretions occur, keep the patient fully atropinized. Give atropine sulfate every hour up to 25 to 59 mg in a day.

b. Lavage stomach.

c. Wash contaminated skin with soap and water.

d. In case of contact with eyes, flush with plenty of water for at least 15 minutes and get medical attention.

e. Symptomatic treatment.

Note: Morphine, theophylline, aminophylline and large amounts of intravenous fluids as contraindicated. Atropine should not be given to a cyanotic patient until oxygenation has been restored by artificial respiration. Tranquilizers are seldom indicated and there is evidence that phenothiazine drugs increase mortality in experimental animals poisoned by organic phosphates.

FOR ADDITIONAL INFORMATION, contact the nearest Poison Control Center, or write to the Department of Industrial Medicine, CIBA-GEIGY Corporation, Ardsley, New York 10502; in case of emergencies, phone (day or night) 914-478-3131.

Residue Tolerances for Diazinon

The Environmental Protection Agency has set tolerances for residues of Diazinon on certain raw agricultural commodities as follows:

- 60.00 ppm grass (reduced to 40.00 ppm after 24 hours)
- 40.00 ppm alfalfa (fresh), clover (fresh), corn forage, peanut forage, pineapple forage
- 25.00 ppm bean forage, pea vines
- 10.00 ppm alfalfa hay, bean hay, clover hay, grass hay, pea vine hay,

1.00 ppm lespedeza, olives

0.75 ppm apples, apricots, beans (snap, includes pinto), beet roots, beet tops, blackberries, blueberries, boysenberries, broccoli, Brussels sprouts, cabbage, carrots, cauliflower, celery, cherries, citrus (grapefruit, lemons, limes, oranges, tangelos, tangerines, citrus citron, kumquats, and hybrids of these), collards, corn (kernels and cob with husks removed), cranberries, cucumbers, dandelions, dewberries, endive (escarole), figs, grapes, hops, kale, lettuce, lima beans, loganberries, melons, mustard greens, nectarines, onions, parsley, parsnips, peaches, peanuts, pears, peas with pods (determined on peas after removing any shell present when marketed), peppers, pineapples, plums (fresh prunes), radishes, raspberries, sorghum grain, spinach, strawberries, sugar beet roots, sugarcane, summer squash, Swiss chard, tomatoes, turnip roots, turnip tops, watercress, winter squash, cattle (meat, fat and meat by-products), sheep (meat, fat and meat by-products)

0.5 ppm almonds, filberts, pecans, walnuts

0.2 ppm bananas (of which not more than 0.1 ppm shall be present in the pulp after peel is removed), cottonseed

0.1 ppm cowpea forage, cowpeas, potatoes, soybean forage, soybeans, sweet potatoes

Animal and Plant Metabolism

The metabolism of Diazinon has been investigated by many researchers since this compound has such broad insecticidal value. The primary route of metabolism in animals is hydrolysis of the phosphorous ester bond yielding 2-isopropyl-6-methyl-4-hydroxy pyrimidine and oxidation at the primary and tertiary C-atom of the isopropyl side chain. Diazinon and its metabolites are rapidly excreted in urine and feces. Studies dealing with metabolic and residual fate of Diazinon in animals have shown that residues in fats and milk of cows and sheep are very short-lived, if at all present and are only found in trace amounts if present. Other tissues in the body are found to be free of resi-

dues. Urine is the main route of elimination of Diazinon.

The excretion balance, distribution in organs, and the structures and properties of main metabolites of Diazinon in the rat have been studied by Mucke et al. Practically complete elimination of Diazinon and its metabolites was observed to occur very rapidly. Half of the applied dose was excreted in 12 hours and the radiolabeled material could not be detected in the rats 2 days after application. Of the material excreted, 69 to 80% was in the urine and 18 to 20% was in the feces.

The absence of radioactive CO₂ in the expired air after application of ¹⁴C Diazinon proved that no cleavage of the pyrimidine ring took place. Dissipation curves of the isotope in the respective body organs following a ten day ¹⁴C Diazinon feeding period clearly excluded any accumulation of the insecticides or its metabolites in the essential organs of the rat. The oxygen analog, Diazoxon which is a labile and transient intermediate, was absent in extracts of urine and feces when checked with TLC procedures. Four metabolic fractions were found in the urine. Three metabolites representing approximately 70% of the radioactivity totally applied were identified in addition to trace amounts of unchanged Diazinon in the feces. Hydrolysis of the ester bond yielding 2-isopropyl-6-methyl-4-hydroxy-pyrimidine and oxidation of the primary and tertiary C-atom of the isopropyl side chain were found as the main degradation mechanisms. The two main metabolites no longer inhibit cholinesterase and their acute oral toxicities are less than one tenth of that of the parent compound. The relationships between the oxidation of the thiono sulfur, a toxication reaction, and the hydrolysis especially at the pyrimidinyl phosphorous bond, a detoxication reaction, were comparatively investigated in insects and mice by Krueger et. al. The enhanced selectivity in insects was attributed to high levels of Diazoxon whereas mice showed a much greater capacity to hydrolyze Diazinon and Diazoxon.

The decrease of insecticidal activity of Diazinon on plants appears to occur by two methods, namely, evaporation and hydrolysis of the ester. The resulting isopropyl-6-methyl-4-hy-

droxy-pyrimidine is degraded to more polar metabolites. The formation of biologically active metabolites during these degradation processes on plants is minimal if present. The half life of residues on plants is about 1-2 weeks. Eberle's and also Rall's work indicate that the only cholinesterase-inhibiting metabolite detectable at any time after Diazinon application to plants was Diazoxon at a maximum level of 0.004 ppm to 0.007 ppm. At harvest the fruits and vegetables tested all contained less than 0.002 ppm. Eberle concluded that the appearance and subsequent disappearance of traces of Diazoxon gives evidence that Diazinon is oxidized in plants to Diazoxon which in turn is rapidly altered to non-cholinesterase-inhibiting products because of its low hydrolytic stability. Another cholinesterase-inhibiting metabolite has been reportedly found in a trace amount in kale by Pardue et al. It has been tentatively identified as hydroxydiazinon (O,O-diethyl-O-(2'-hydroxy-2'-propyl-6-methyl-4-pyrimidinyl) phosphorothioate), a breakdown product which can be produced by UV irradiation of Diazinon. This compound has not been detected in residue analysis in our laboratories.

Chemical and Microbial Degradation

Studies with radiolabeled Diazinon in soils have shown that the primary degradation pathway of this insecticide is hydrolysis at the heterocyclic phosphate bond, followed by disruption of the cyclic moiety with subsequent formation of CO₂. No oxygen analog has been detected in soils and no toxic metabolites have been reported. The hydrolysis product, 2-isopropyl-6-methyl-4-hydroxy-pyrimidine, has been extracted from soil, but has a low mammalian toxicity and low cholinesterase inhibition ability according to Eberle et al.

The persistence of C¹⁴-labeled Diazinon has been determined in several different soil types. In a study by Getzin the disappearance rate of Diazinon was similar in four different soil types. One half of the original application was lost in 2 to 4 weeks and less than 8% remained after 20 weeks. Getzin also studied the persistence of Diazinon in autoclaved

and non-autoclaved silt loam at 3 temperatures, 4 soil moisture levels, and 4 pH levels. Diazinon degraded faster in non-autoclaved soils than in autoclaved soil; however, the difference observed was slight. The initial half-life of Diazinon was approximately 5 weeks in the non-autoclaved soil and 6 weeks in the autoclaved soil. A comparison of the residues remaining after 4 weeks showed that 80% of the total Diazinon loss was due to non-biological degradation. Diazinon degraded faster with increasing temperature, moisture, and acidity levels in both autoclaved and non-autoclaved soils.

Knutson et al studied the long range residue potential of Diazinon when used in a normal soil and foliar insect control program for irrigated corn. During the 4 year study no detectable residues of Diazinon were found after repeated applications when this silty clay loam soil was sampled 1.5 to 2.5 months after the annual soil treatments. Foliar applications were made at silking time and resulted in no detectable residue in the grain. The corn foliage at harvest contained 0.05 ppm or less Diazinon. Water samples from capped wells and surface water in the irrigation district were analyzed and contained no residues at the 0.1 ppb level indicating no vertical or lateral contamination of ground or surface water from repeated applications of Diazinon.

Various workers have investigated the role of soil microflora in the degradation of Diazinon. Getzin has reported that greater amounts of the hydrolysis products were recovered from sterilized than non-sterilized soil. Researchers generally report that soil microflora play an important role in the degradation of the breakdown products of Diazinon, but not in the degradation of the parent molecule. Harris has reported that 100 ppm of Diazinon in the soil did not have any pronounced effect on either the fungal or bacterial populations in the soil. Gunner and co-workers reported increases in the number of rhizosphere microflora and actinomycetes at various times during their experiment with Diazinon treated soil. Untreated soil in laboratory studies. They did not see any change in the numbers of fungi throughout the experiments.

Crops and Uses for which Diazinon² is Presently Registered

Consult the current labels for specific use directions and additional information.

Fruit and nut insects

	Rate/Application (Pounds Active)		
Almonds		Raspberry sawflies (<i>Monophadnoides geniculatus</i>)	½ per 100 gals.
Mites	½ - ¾ per 100 gals.	Raspberry fruitworms	½ per 100 gals.
Twig borers	½ - ¾ per 100 gals.	Dryberry mites (<i>Phyllocoptes gracilis</i>)	1 per 100 gals.
Parlatoria scales (<i>Parlatoria blanchardi</i>)	½ - ¾ per 100 gals.	Raspberry crown borers (<i>Bembecia marginata</i>)	2 per 100 gals.
San Jose scales (<i>Quadraspidiotus perniciosus</i>)	½ - ¾ per 100 gals.	Cherries	
Apples		Brown apricot scales	¾ per 100 gals.
Leafhoppers (<i>Empoasca</i> spp.)	½ per 100 gals.	San Jose scales (<i>Quadraspidiotus perniciosus</i>)	¾ per 100 gals.
San Jose scales (<i>Quadraspidiotus perniciosus</i>)	½ per 100 gals.	Black scales (<i>Saissetia oleae</i>)	¾ per 100 gals.
San Jose scale crawlers (<i>Quadraspidiotus perniciosus</i>)	½ per 100 gals.	Black cherry aphid eggs (<i>Myzus cerasi</i>)	¾ per 100 gals.
Forbes scale crawlers (<i>Quadraspidiotus forbesi</i>)	½ per 100 gals.	Brown mite eggs (<i>Bryobia rubrioculus</i>)	¾ per 100 gals.
European red mite eggs (<i>Panonychus ulmi</i>)	½ per 100 gals.	Eye-spotted bud moths (<i>Spilonota ocellana</i>)	½ per 100 gals.
Brown mite eggs (<i>Bryobia rubrioculus</i>)	½ per 100 gals.	Fruit-tree leaf rollers (<i>Archips argyrospilus</i>)	½ per 100 gals.
Eye-spotted bud moths (<i>Spilonota ocellana</i>)	½ per 100 gals.	Leafhoppers (<i>Empoasca</i> spp.)	½ per 100 gals.
Fruit tree leaf rollers (<i>Archips argyrospilus</i>)	½ per 100 gals.	Cherry fruit flies (<i>Rhagoletis cingulata</i>)	¼ - ½ per 100 gals.
Codling moths (<i>Laspeyresia pomonella</i>)	½ per 100 gals.	Black cherry aphids (<i>Myzus cerasi</i>)	½ per 100 gals.
Rosy apple aphids (<i>Dysaphis plantaginea</i>)	½ per 100 gals.	San Jose scale crawlers (<i>Quadraspidiotus perniciosus</i>)	½ per 100 gals.
Green apple aphids (<i>Aphis pomi</i>)	½ per 100 gals.	Cherry rust mites	¼ - ½ per 100 gals.
Woolly apple aphids (<i>Eriosoma lanigerum</i>)	½ per 100 gals.	Cranberries	
Apple maggots (<i>Rhagoletis pomonella</i>)	½ per 100 gals.	Blackheaded fireworms (<i>Rhopobota naevana</i>)	2 per A.
Mealybugs	½ per 100 gals.	Cranberry fruitworms (<i>Acrobasis vaccinii</i>)	3 per C.
Mites	½ per 100 gals.	Figs	
Apricots		Vinegar flies (<i>Drosophila</i> spp.)	½ per 100 gals.
San Jose scales (<i>Quadraspidiotus perniciosus</i>)	½ per 100 gals.	Dried fruit beetles (<i>Carpophilus hemipterus</i>)	½ per 100 gals.
Brown apricot scales	½ per 100 gals.	Filberts	
Walnut scales (<i>Quadraspidiotus juglansregiae</i>)	½ per 100 gals.	Filbert leaf rollers (<i>Archips rosana</i>)	1-2 per A.
Apricot mealybugs	½ per 100 gals.	Aphids	1-2 per A.
Aphids	½ per 100 gals.	Citrus fruits (grapefruit, lemons, limes, oranges, tangelos, tangerines, citrus citron, kumquats, and hybrids of these)	
Brown mites (<i>Bryobia rubrioculus</i>)	½ per 100 gals.	Citrus aphids	¼ - ½ per 100 gals.
Clover mites (<i>Bryobia praetiosa</i>)	½ per 100 gals.	Cottony-cushion scale crawlers (<i>Icerya purchasi</i>)	¼ - ½ per 100 gals.
Two-spotted spider mites (<i>Tetranychus urticae</i>)	½ per 100 gals.	Soft scale crawlers	¼ - ½ per 100 gals.
Olive scale crawlers (<i>Parlatoria oleae</i>)	½ per 100 gals.	Fruit-tree leaf rollers (<i>Archips argyrospilus</i>)	¼ - ½ per 100 gals.
San Jose scales (<i>Quadraspidiotus perniciosus</i>)	½ per 100 gals.	Citrus thrips (<i>Scirtothrips citri</i>)	½ per 100 gals.
Blueberries		Citrus snow scales (<i>Unaspis citri</i>)	½ - 1 per 100 gals.
Cranberry fruitworms (<i>Acrobasis vaccinii</i>)	½ per 100 gals.	Grapes	
Cherry fruitworms (<i>Gracillita packardii</i>)	½ per 100 gals.	Pacific spider mites (<i>Tetranychus pacificus</i>)	½ per 100 gals.
Blueberry maggots (<i>Rhagoletis inendax</i>)	½ per 100 gals.	Leafhoppers (<i>Empoasca</i> spp.)	½ per 100 gals.
Aphids	½ per 100 gals.	Grape berry moths (<i>Paralobesia viteana</i>)	½ per 100 gals.
Thrips	½ per 100 gals.	Grape leaf folders (<i>Desmia luneralis</i>)	½ per 100 gals.
Two-spotted mites (<i>Tetranychus urticae</i>)	½ per 100 gals.	Vinegar flies (<i>Drosophila</i> spp.)	3/16 per 100 gals.
Caneberries (i.e. blackberries, boysenberries, dewberries, loganberries, raspberries)		Olives	
Leafhoppers (<i>Empoasca</i> spp.)	½ per 100 gals.	Olive scales (<i>Parlatoria oleae</i>)	¾ - ½ per 100 gals.
Thrips	½ per 100 gals.	Peaches and nectarines	
Aphids	½ per 100 gals.	San Jose scales (<i>Quadraspidiotus perniciosus</i>)	½ per 100 gals.
Two-spotted mites (<i>Tetranychus urticae</i>)	½ per 100 gals.	Brown apricot scales	½ per 100 gals.
		Walnut scales (<i>Quadraspidiotus juglansregiae</i>)	½ per 100 gals.
		Apricot mealybugs	½ per 100 gals.
		Peach twig borers (<i>Anarsia lineatella</i>)	½ per 100 gals.

Parlatoria scales (<i>Parlatoria</i> spp.)	1/2 per 100 gals.
Aphids	1/2 per 100 gals.
Brown mites (<i>Bryobia rubrioculus</i>)	1/2 per 100 gals.
Clover mites (<i>Bryobia praetiosa</i>)	1/2 per 100 gals.
Two-spotted spider mites (<i>Tetranychus urticae</i>)	1/2 per 100 gals.
Olive scale crawlers (<i>Parlatoria oleae</i>)	1/4 per 100 gals.
San Jose scale crawlers (<i>Quadraspidiotus perniciosus</i>)	1/2 per 100 gals.
Oriental fruit moths (<i>Grapholitha molesta</i>)	1/2 per 100 gals.
Leafhoppers (<i>Empoasca</i> spp.)	1/2 per 100 gals.
White peach scale (<i>Pseudaulacaspis pentagona</i>)	3/4-1 per 100 gals.
Pears	
Rosy apple aphids (<i>Dysaphis plantaginea</i>)	1/2 per 100 gals.
Green apple aphids (<i>Aphis pomi</i>)	1/2 per 100 gals.
Woolly apple aphids (<i>Eriosoma lanigerum</i>)	1/2 per 100 gals.
Pear leaf blister mites (<i>Eriophyes pyri</i>)	1/2 per 100 gals.
San Jose scale crawlers (<i>Quadraspidiotus perniciosus</i>)	1/2 per 100 gals.
Forbes scale crawlers (<i>Quadraspidiotus torbesi</i>)	1/2 per 100 gals.
Pear psylla (<i>Psylla pyricola</i>)	1/4-1/2 per 100 gals.
Codling moths (<i>Laspeyresia pomonella</i>)	1/2 per 100 gals.
Aphids	1/2 per 100 gals.
Mites	1/2 per 100 gals.
Mealybugs	1/2 per 100 gals.
San Jose scales (<i>Quadraspidiotus perniciosus</i>)	1/2 per 100 gals.
Tentiform leaf miners	1/2 per 100 gals.
Forbes scales	1/2 per 100 gals.
Pecans	
Aphids	1-3 per A.
Mites	1-3 per A.
Pecan nut casebearers (<i>Acrobasis caryae</i>)	1-3 per A.
Walnut caterpillars (<i>Datana integerrima</i>)	1-3 per A.
Pineapple	
Pineapple scales (<i>Diaspis bromeliae</i>)	5 per A.
Pineapple mealybugs (<i>Dysmicoccus brevipes</i>)	2 per A.
Plums and prunes	
Peach twig borers (<i>Anarsia lineatella</i>)	1/2 per 100 gals.
Mealy plum aphid eggs (<i>Hyalopterus pruni</i>)	1/2 per 100 gals.
San Jose scales (<i>Quadraspidiotus perniciosus</i>)	1/2 per 100 gals.
Parlatoria scales (<i>Parlatoria</i> spp.)	1/2 per 100 gals.
Brown almond mites	1/2 per 100 gals.
Brown mites (<i>Bryobia rubrioculus</i>)	1/2 per 100 gals.
Clover mites (<i>Bryobia praetiosa</i>)	1/2 per 100 gals.
European red mites (<i>Panonychus ulmi</i>)	1/2 per 100 gals.
Leaf curl plum aphids	1/4-1/2 per 100 gals.
Mealy plum aphids	1/4-1/2 per 100 gals.
Thistle aphids (<i>Brachycaucus cardui</i>)	1/4-1/2 per 100 gals.
Strawberries	
Aphids	1/2 per 100 gals.
Two-spotted spider mites (<i>Tetranychus urticae</i>)	1/2 per 100 gals.
Cyclamen mites (<i>Steneotarsonemus pallidus</i>)	1 per 100 gals.
Mole crickets	1 per A.
Strawberry leaf rollers (<i>Ancylis comptana fragariae</i>)	3/8-1/2 per 100 gals.

Walnuts	
Aphids	1 per A.
Mites	1 per A.
Codling moths (<i>Laspeyresia pomonella</i>)	3 per A.
Scale crawlers	3 per A.
Walnut caterpillars (<i>Datana integerrima</i>)	3 per A.

Vegetable Foliar Insects

Beans (pole beans, snap beans, lima beans)	
Black bean aphids	1/2-3/4 per A.
Mexican bean beetles (<i>Epilachna varivestis</i>)	1/2-3/4 per A.
Leaf miners	1/2-3/4 per A.
Cucumber beetles (<i>Acalymma vittata</i> , <i>Diabrotica undecimpunctata</i> , <i>D. balteata</i>)	1/2-3/8 per A.
Beans (pinto)	
Lesser cornstalk borers	1-2 per A.
Lima beans	
Dipterous leaf miners	1/2 per A.
Leafhoppers (<i>Empoasca</i> spp.)	1/2 per A.
Mites	1/2 per A.
Broccoli, cabbage and cauliflower	
Aphids	1/4-1/2 per A.
Diamondback moths (<i>Plutella xylostella</i>)	1/4-1/2 per A.
Imported cabbageworms (<i>Pieris rapae</i>)	1/4-1/2 per A.
Brussels sprouts	
Aphids	1/2 per A.
Diamondback moths (<i>Plutella xylostella</i>)	1/2 per A.
Imported cabbageworms (<i>Pieris rapae</i>)	1/2 per A.
Carrots	
Aphids	1/2 per A.
Celery	
Aphids	1/2 per A.
Flea beetles (<i>Epitrix</i> spp. <i>Phyllotreta</i> spp. <i>Chaetocnema</i> spp.)	1/2 per A.
Dipterous leaf miners	1/4-1/2 per A.
Collards, kale, swiss chard and turnip tops	
Aphids	1/4-1/2 per A.
Imported cabbageworms (<i>Pieris rapae</i>)	1/4-1/2 per A.
Diamondback moths (<i>Plutella xylostella</i>)	1/4-1/2 per A.
Harlequin cabbage bugs (<i>Murgantia histrionica</i>)	1/4-1/2 per A.
Corn earworms (<i>Heliothis zea</i>)	1/4-1/2 per A.
Cucumbers	
Aphids	1/2 per A.
Serpentine leaf miners (<i>Liriomyza brassicae</i>)	1/2 per A.
Thrips	1/2 per A.
Lettuce and endive	
Aphids	1/4-1/2 per A.
Dipterous leaf miners	1/4-1/2 per A.
Melons and squash (cantaloupes, casabas, crenshaws, honeydew melons, musk-melons, persian melons, and hybrids of these; watermelons and their hybrids; summer and winter squash)	
Aphids	1/2-3/4 per A.
Leafhoppers (<i>Empoasca</i> spp.)	1/2-3/4 per A.
Mites	1/2-3/4 per A.

Serpentine leaf miners (<i>Liriomyza brassicae</i>)	1/4 - 1/2 per A.	Carrots	
Thrips	1/4 - 1/2 per A.	Carrot rust flies (<i>Psila rosae</i>)	2 per A.
Mushroom houses		Garden symphylans (<i>Scutigerella immaculata</i>)	10 per A.
Mushroom flies (<i>Phorids & Sciarids</i>)	2-4 per 50 gais.	Wireworms	3-4 per A.
Onions		Cantaloupes	
Onion thrips	1/2 per A.	Cutworms	2-4 per A.
Peas		Wireworms	3-4 per A.
Aphids	3/8 - 1/2 per A.	Cauliflower	
Leaf miners	3/8 - 1/2 per A.	Root maggots	2-3 per A.
Peppers		Cutworms	2-4 per A.
Aphids	1/4 per A.	Mole crickets (<i>Scapteriscus</i> spp.)	1 per A.
Serpentine leaf miners (<i>Liriomyza brassicae</i>)	1/4 per A.	Wireworms	3-4 per A.
Potatoes		Celery	
Aphids	1/4 - 3/8 per A.	Cutworms	2-4 per A.
Flea beetles (<i>Epitrix</i> spp. <i>Phyllotreta</i> spp. <i>Chaetocnema</i> spp.)	1/4 - 3/8 per A.	Wireworms	3-4 per A.
Dipterous leaf miners	1/4 - 3/8 per A.	Collards	
Banded cucumber beetles (<i>Diabrotica balteata</i>)	3/8 - 1/2 per A.	Cutworms	2-4 per A.
Leafhoppers (<i>Empoasca</i> spp.)	3/8 - 1/2 per A.	Mole crickets (<i>Scapteriscus</i> spp.)	1 per A.
Southern armyworms (<i>Spodoptera eridania</i>)	3/8 - 1/2 per A.	Wireworms	3-4 per A.
Radishes, parsnips and turnips		Cucumbers	
Aphids	1/4 - 1/2 per A.	Cutworms	2-4 per A.
Flea beetles (<i>Epitrix</i> spp. <i>Phyllotreta</i> spp. <i>Chaetocnema</i> spp.)	1/4 - 1/2 per A.	Wireworms	3-4 per A.
Dipterous leaf miners	1/4 - 1/2 per A.	Endive (escarole)	
Spinach and beets		Cutworms	2-4 per A.
Aphids	1/4 - 1/2 per A.	Mole crickets (<i>Scapteriscus</i> spp.)	1 per A.
Dipterous leaf miners	1/4 - 1/2 per A.	Wireworms	3-4 per A.
Sweet corn		Kale	
Corn earworms (<i>Heliothis zea</i>)	1-1 1/4 per A.	Cutworms	2-4 per A.
Tomatoes		Mole crickets (<i>Scapteriscus</i> spp.)	1 per A.
Aphids	1/4 per A.	Wireworms	3-4 per A.
Dipterous leaf miners	1/4 per A.	Lettuce	
Banded cucumber beetles (<i>Diabrotica balteata</i>)	3/8 - 1/2 per A.	Cutworms	2-4 per A.
Vinegar flies (<i>Drosophila</i> spp.)	1/4 - 3/8 per A.	Garden symphylans (<i>Scutigerella immaculata</i>)	10 per A.
Fall armyworms	3/8 - 1/2 per A.	Mole crickets (<i>Scapteriscus</i> spp.)	1 per A.
Southern armyworms (<i>Spodoptera eridania</i>)	3/8 - 1/2 per A.	Wireworms	3-4 per A.
Watercress (Hawaii only)		Lima beans	
Cyclamen mites (<i>Steneotarsonemus pallidus</i>)	1/2 per A.	Cutworms	2-4 per A.
		Wireworms	3-4 per A.
		Muskmelons	
		Cutworms	2-4 per A.
		Wireworms	3-4 per A.
		Mustard mole crickets	1 per A.
		Onions	
		Onion maggots (<i>Hylemya antiqua</i>)	2-4 per A.
		Parsley	
		Cutworms	2-4 per A.
		Wireworms	3-4 per A.
		Peas	
		Cutworms	2-4 per A.
		Garden symphylans (<i>Scutigerella immaculata</i>)	10 per A.
		Wireworms	3-4 per A.
		Peppers	
		Cutworms	2-4 per A.
		Mole crickets (<i>Scapteriscus</i> spp.)	1 per A.
		Wireworms	3-4 per A.

Vegetable Soil Insects

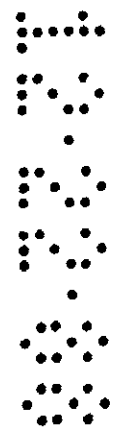
Broccoli, brussels sprouts	
Cutworms (surface & subterranean)	2-4 per A.
Mole crickets (<i>Scapteriscus</i> spp.)	1 per A.
Root maggots	3 per A.
Wireworms	3-4 per A.
Cabbage	
Cutworms	2-4 per A.
Garden symphylans (<i>Scutigerella immaculata</i>)	10 per A.
Mole crickets (<i>Scapteriscus</i> spp.)	1 per A.
Root maggots	2-3 per A.
Wireworms	3-4 per A.

Pole beans	
Garden symphytians (<i>Scutigereila immaculata</i>)	10 per A.
Potatoes	
Cutworms	2-4 per A.
Wireworms	3-6 per A.
Southern potato wireworms (<i>Conoderus falli</i>)	2-4 per A.
Radishes	
Garden symphytians (<i>Scutigereila immaculata</i>)	10 per A.
Root maggots	2 per 100 gals.
Mole crickets	1 per A.
Red Beets	
Garden symphytians (<i>Scutigereila immaculata</i>)	10 per A.
Snap beans	
Cutworms	2-4 per A.
Garden symphytians (<i>Scutigereila immaculata</i>)	10 per A.
Wireworms	3-4 per A.
Spinach	
Cutworms	2-4 per A.
Wireworms	3-4 per A.
Summer squash	
Cutworms	2-4 per A.
Wireworms	3-4 per A.
Sweet potatoes	
Wireworms	3-4 per A.
Swiss chard	
Cutworms	2-4 per A.
Wireworms	3-4 per A.
Tomatoes	
Cutworms	2-4 per A.
Garden symphytians (<i>Scutigereila immaculata</i>)	10 per A.
Wireworms	3-4 per A.
Mole crickets	1 per A.
Turnips	
Garden symphytians (<i>Scutigereila immaculata</i>)	10 per A.
Mole crickets (<i>Scapteriscus</i> spp.)	1 per A.
Watermelons	
Cutworms	2-4 per A.
Wireworms	3-4 per A.
Winter squash	
Cutworms	2-4 per A.
Wireworms	3-4 per A.

Field and Forage Insects

Alfalfa & clover	
Spotted alfalfa aphids (<i>Therioaphis maculata</i>)	3/8-1/2 per A.
Yellow clover aphids (<i>Therioaphis trifolii</i>)	3/8-1/2 per A.
Pea aphids (<i>Acyrtosiphon pisum</i>)	3/8-1/2 per A.
Leafhoppers	3/8-1/2 per A.
Plant bug nymphs	3/8-1/2 per A.
Mites	3/8-1/2 per A.
Grasshoppers	1/2 per A.
Cutworms (surface & subterranean)	2-4 per A.
Alfalfa weevil larvae (<i>Hypera postica</i>)	1-1 1/2 per A.
Striped ground crickets	1/2-1 per A.

Corn (field and sweet)	
Corn rootworm larvae (<i>Diabrotica</i> spp.)	1 1/4-2 1/2 oz. per 1000 linear ft.
Lesser cornstalk borers (<i>Elasmopalpus lignosellus</i>)	1 1/4-2 1/2 oz. per 1000 linear ft.
Seed corn maggots (<i>Hylemya platura</i>)	2-4 per A.
Cutworms (surface and subterranean)	2-4 per A.
Wireworms	3-4 per A.
Corn rootworm adults (<i>Diabrotica</i> spp.)	1/4-1/2 per A.
Corn leaf aphids (<i>Rhopalosiphum maidis</i>)	1/2-1 per A.
Grasshoppers	1/2 per A.
Sap beetles	1-1 1/4 per A.
European corn borers (<i>Ostrinia nubilalis</i>)	1-1 1/4 per A.
Fall armyworms (<i>Spodoptera frugiperda</i>)	1-2 per A.
Southwestern corn borers (<i>Diatraea grandiosella</i>)	1-2 per A.
Garden symphytians (<i>Scutigereila immaculata</i>)	10 per A.
Cotton	
Spider mites	1/2-1 per A.
Aphids	1/2-1 per A.
Leafhoppers	1/2-1 per A.
Lygus (<i>Lygus lineolaris</i>)	1/2-1 per A.
Cotton leafworms (<i>Alabama argillacea</i>)	1/2-1 per A.
Cotton leaf perforators (<i>Bucculatrix thurberiella</i>)	1/2-1 per A.
Cowpeas	
Cutworms (surface & subterranean)	2-4 per A.
Hops	
Aphids	1 per A.
Mites	1 per A.
Lespedeza	
Cutworms (surface and subterranean)	2-4 per A.
Peanuts	
Southern corn rootworms (<i>Diabrotica undecimpunctata howardi</i>)	4 per A.
Cutworms (surface and subterranean)	2 per A.
Lesser cornstalk borers (<i>Elasmopalpus lignosellus</i>)	2-3 per A.
Sorghum	
Lesser cornstalk borers (<i>Elasmopalpus lignosellus</i>)	1-2 per A.
Sorghum midge (<i>Contarinia sorghicola</i>)	1/4-1/2 per A.
Cutworms (surface and subterranean)	2-4 per A.
Mites	1/2 per A.
Greenhugs (<i>Schizaphis graminum</i>)	1/4-1/2 per A.
Soybeans	
Cutworms (surface and subterranean)	2-4 per A.
Lesser cornstalk borers (<i>Elasmopalpus lignosellus</i>)	1-2 per A.
Sugarbeets	
Sugarbeet root maggots (<i>Tetanops myopaeformis</i>)	1-2 per A.
Leafhoppers	3/8-1/2 per A.
Grasshoppers	1/2 per A.
Wireworms	3-4 per A.
Sugarcane	
Sugarcane borers (<i>Diatraea saccharalis</i>)	1.5-2.5 per A.
Aphids	1/4-1/2 per A.
Wireworms	4 per A.



Tobacco	
Aphids	1/2 - 3/4 per A.
Flea beetles (<i>Epitrix hirtipennis</i>)	1/2 - 3/4 per A.
Cutworms (surface and subterranean)	2-3 per A.
Green june beetle larvae (<i>Cotinis nitida</i>)	1/4 per 100 gals.
Mole crickets (<i>Scapteriscus</i> spp.)	1 per A.
Seed corn maggots (<i>Hylemya platura</i>)	1.5 per A.
Wireworms	2-3 per A.

Seed Treatment (planter-box)

Beans (lima, snap, white, and kidney)	
Seed corn maggots (<i>Hylemya platura</i>)	1/2 - 1 oz. per bu.
Corn	
Seed corn beetles	1 1/2 oz. per bu.
Seed corn maggots (<i>Hylemya platura</i>)	1/2 - 1 oz. per bu.
Peas	
Seed corn maggots (<i>Hylemya platura</i>)	1/2 - 1 oz. per bu.
Soybeans	
Seed corn maggots (<i>Hylemya platura</i>)	1/2 - 1 oz. per bu.

Range, Pasture, and Grassland Insects

Bermudagrass	
Thrips	1/2 per A.
Whiteflies	1/2 per A.
Grasshoppers	1/2 per A.
Rangeland, pasture, grass forage, ditch banks, roadsides, wasteland, noncrop areas, and barrier strips	
Grasshoppers	3/8 - 1/2 per A.

Livestock Insects

Sheep "ticks" (keds), lice	1/4 - 1/2 per 100 gals.
----------------------------	-------------------------

Ornamental Insects

On ornamentals such as arborvitae, azalea, birch, boxwood, camellia, carnation, chrysanthemum, douglas fir, elm, gladioli, hawthorn, holly, juniper, lilac, locust, maple, oak, pine, plum, poplar, rhododendron, rose, spruce, & willow	
Aphids	1/2 per 100 gals.
Bagworms (<i>Thyridopteryx ephemeraeformic</i>)	1/2 per 100 gals.
Carnation bud mites	1/2 per 100 gals.
Carnation shoot mites	1/2 per 100 gals.
Clover mites (<i>Bryobia praetiosa</i>)	1/2 per 100 gals.
Cyclamen mites (<i>Steneotarsonemus pallidus</i>)	1/2 per 100 gals.
Dipterous leaf miners	1/2 per 100 gals.
European pine shoot moths (<i>Pezomachus buoliana</i>)	1/2 per 100 gals.
European red mites (<i>Panonychus ulmi</i>)	1/2 per 100 gals.
Flea beetles	1/2 per 100 gals.
Holly bud moths (<i>Rhopobota naevana illicitoliana</i>)	1/2 per 100 gals.
Leafhoppers (<i>Empoasca</i> spp.)	1/2 per 100 gals.
Obscure root weevils (<i>Sciopithes obscurus</i>)	1/2 per 100 gals.
Omnivorous leaf liers (<i>Cnephasia longana</i>)	1/2 per 100 gals.
Privet mites (<i>Brevipalpus cbovatus</i>)	1/2 per 100 gals.

Scale crawlers: Cottony cushion scale (<i>Icerya purchasi</i>); Lecanium (<i>Lecanium corni</i>)	
Pine needle (<i>Phenacaspis aculeata</i>)	
San Jose (<i>Quadraspidiotus perniciosus</i>)	1/2 per 100 gals.
Soft scale	1/2 per 100 gals.
Thrips	1/2 per 100 gals.
Two-spotted mites (<i>Tetranychus urticae</i>)	1/2 per 100 gals.
Webworms	1/2 per 100 gals.
Whiteflies	1/2 per 100 gals.
Mimosa webworm	1/2 per 100 gals.
Apple-and-thorn skeletonizers (<i>Anthrenia bariana</i>)	1 1/2 per 100 gals.
Cotoneaster webworms (<i>Cremona cotoneaster</i>)	1 1/2 per 100 gals.
Fall webworms (<i>Hyphantria cunea</i>)	1 1/2 per 100 gals.
Hemlock cherms (<i>Chermes tsugae</i>)	1 1/2 per 100 gals.
Oak loopers	1 1/2 per 100 gals.
Oblique-banded leaf rollers (<i>Choristoneura rosaceana</i>)	1 1/2 per 100 gals.
Pear slugs (<i>Caliroa cerasi</i>)	1 1/2 per 100 gals.
Tent caterpillars (<i>Malacosoma</i> spp.)	1 1/2 per 100 gals.

Lawn Insects

Lawn chinch bugs (<i>Blissus leucocterus</i>)	1-3 oz. per 1000 sq. ft.
Ants	2 oz. per 1000 sq. ft.
Armyworms (<i>Pseudaletia unipuncta</i>)	2 oz. per 1000 sq. ft.
Clover mites (<i>Bryobia praetiosa</i>)	2 oz. per 1000 sq. ft.
Collembola (Springtails)	2 oz. per 1000 sq. ft.
Crickets	2 oz. per 1000 sq. ft.
Cutworms	2 oz. per 1000 sq. ft.
Digger wasps (<i>Sphecius speciosus</i>)	2 oz. per 1000 sq. ft.
Earwigs	2 oz. per 1000 sq. ft.
Frit flies (<i>Oscinella frit</i>)	2 oz. per 1000 sq. ft.
Lawn billbugs (<i>Sphenophorus</i> spp.)	2 oz. per 1000 sq. ft.
Sod webworms (lawn moths <i>Crambus</i> spp.)	2 oz. per 1000 sq. ft.
Sowbugs	2 oz. per 1000 sq. ft.
Bermuda mites (<i>Aceria cynodonensis</i>)	3/8 oz. per 1000 sq. ft.
Chiggers	5/8 oz. per 1000 sq. ft.
Fleas	5/8 oz. per 1000 sq. ft.
Leafhoppers (<i>Empoasca</i> spp.)	5/8 oz. per 1000 sq. ft.
Ticks	5/8 oz. per 1000 sq. ft.
Millipedes	4 oz. per 1000 sq. ft.
Rhodes-grass scales (<i>Antonina graminis</i>)	2 1/2 oz. per 1000 sq. ft.
Boxelder bugs (<i>Leptocoris trivittatus</i>)	3/8 - 1 1/4 oz. per 1000 sq. ft.

Forest Insects

Arkansas sawfly (Loblolly sawfly)	1/4 per A.
-----------------------------------	------------

Indoor Pests

Cockroaches	1/2 - 1% concentration
Ants	1/2 % concentration
Silverfish	1/2 % concentration
Carpet beetles	1/2 % concentration
Spiders	1/2 % concentration
Scorpions	1/2 % concentration
Saw-tooth or grain beetles	1/2 % concentration
Flour beetles	1/2 % concentration
Rice weevils	1/2 % concentration
Cigarette beetles	1/2 % concentration
Drugstore beetles	1/2 % concentration
Indian meal moths	1/2 % concentration
Brown dog ticks	1/2 % concentration