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EC89-1552 Insecticide Recommendations for Garden Vegetables

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Nebraska Cooperative Extension EC89-1552

Insecticide Recommendations for Garden Vegetables

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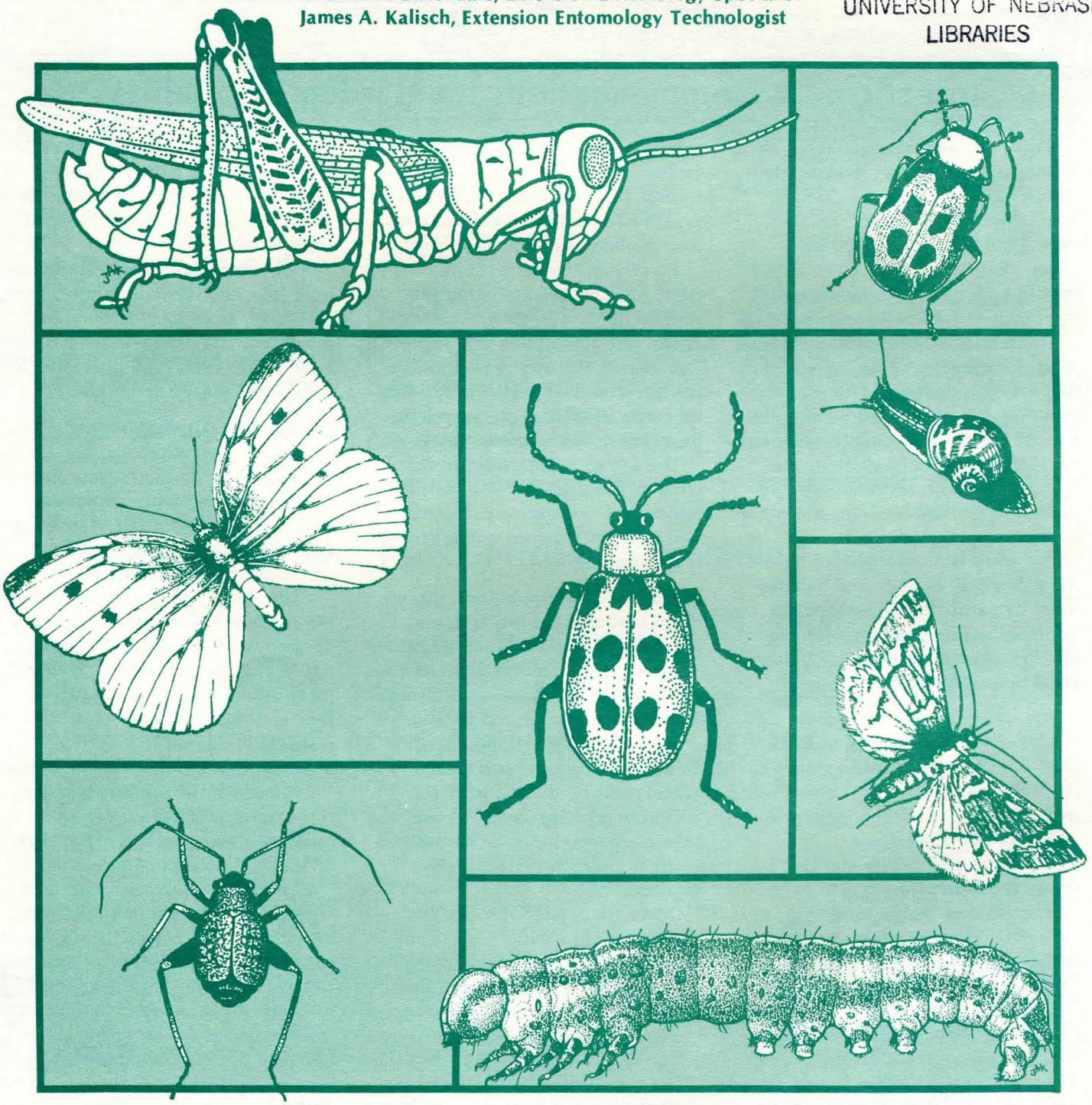

Issued in furtherance of Cooperative Extension work, Acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture. Leo E. Lucas, Director of Cooperative Extension, University of Nebraska, Institute of Agriculture and Natural Resources.

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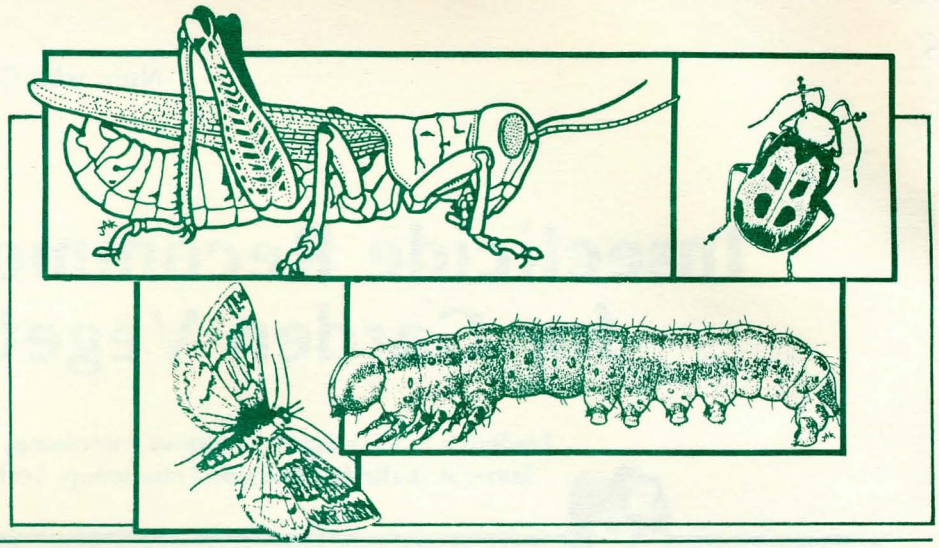
Insecticide recommendations in this guide are based on the University of Nebraska research results, data from neighboring universities, USDA recommendations, previous experiences and label registrations. The user of this information assumes all risks for personal injury or property damage.



Insecticide Recommendations for Garden Vegetables

There are several approaches to managing insect pests in Nebraska. These include the use of cultural practices, resistant plant varieties, biological control, and/or insecticides. Before making a treatment decision, all appropriate management strategies should be considered.

If insecticide use is indicated, consider the insecticide's efficiency against the target pest or pest combination, label restrictions, formulation of the pesticide, cost, safety to non-target species (including humans), environmental conditions at the time of application, and other factors.

For additional information on the identification, biology and management of garden pests, refer to the companion *Extension Circular, EC 89-1553, Insect Management Guide for Garden Vegetables.*

Use of insecticides: All insecticides are poisonous and must be used with caution. Always store them in their original containers out of the reach of children, pets and unauthorized individuals.

Skull and crossbones and the words **Danger/Poison** appear in red on the label of highly toxic materials. These products are not recommended for use by home gardeners.

Moderate and low toxicity pesticides are marked with the signal words **Warning** and **Caution,** respectively, and are available for home use. Pesticide labels provide necessary information about proper rates, uses, storage, handling, disposal, and treatment in case of accidental poisoning. **It is important that labels be read, understood and carefully followed when using any pesticide**

Be certain the correct amounts of pesticides are used, and the prescribed number of days elapse between last application and harvest. Remember, **the user is responsible for the effects of pesticide residues on crops and livestock, as well as pesticide drift and contamination.**

The use of trade names in this circular is not an endorsement by Nebraska Cooperative Extension. This publication does not supersede label information.

Insecticide Formulations: Insecticides available for use in home vegetable gardens include wettable powders, baits, emulsifiable concentrates, dusts, granules, aerosols and ready-to-use hand pump sprays.

Wettable powders and emulsifiable concentrates (liquid concentrates) must be diluted in water. Wettable powders generally are safer to plants, but may be difficult to apply through certain types of sprayers.

Dusts are applied directly to plants without dilution. An important disadvantage of dusts is that the majority of the product often is blown away by winds, leaving only a small amount remaining on treated surfaces.

Granules primarily are used for application to soil for control of soil insects. Aerosols formulated for direct spraying on plants must be used cautiously to avoid burning tender foliage. Hold the container at least 14 inches away and spray in short bursts.

Aerosols manufactured for household pest control should not be used on plants, as serious burning may result. For convenience, ready-to-use hand pump sprays are pre-mixed in disposable plastic spray bottles.

Container Disposal: Proper disposal of insecticide containers is important. Serious accidents have occurred when empty containers have not been disposed of in an appropriate manner. Suggested methods of disposal include:

Paper Bags: Be certain all contents are removed. Burn paper containers in open fields where such burning is not in violation of federal, state or local ordinances, or place in a refuse receptacle for removal and disposal in a landfill.

Metal, Glass, or Plastic Containers: Thoroughly rinse containers at least three times with water. The rinse material should be applied as part of the regular application.

Containers should be punctured, crushed, and buried in a landfill or 24 inches below the soil surface in a location that will not result in contamination of water, crops, people or animals. Place intact aerosol cans in the garbage for removal — **do not burn** because of the possibility of explosion.

Who to call:

The following telephone numbers are provided for your use in case of emergency:

Poison Center — Children's Memorial Hospital (Omaha)
(In Nebraska) (800) 642-9999
(Out-of-State) (800) 228-9515

CHEMTREC — Pesticide Emergency Network (800) 424-9300

EPA — Environmental Protection Agency
Lincoln, NE (402) 471-5080
Kansas City, KS (913) 236-2800

Nebraska Department of Environmental Control (DEC) (402) 471-2186

Nebraska State Patrol (402) 471-2406

Nebraska Department of Agriculture Bureau of Plant Industry (402) 471-2341

Nebraska Natural Resources Commission (402) 471-2081

Sprayed by Mistake? Gardens, particularly plantings of sweet corn, often are placed in or adjacent to crop fields that may be sprayed with an insecticide. The produce is safe to eat **if the insecticide is registered for use on the vegetable and the specified waiting period has elapsed.** We **do not** recommend using vegetables that have been treated with a pesticide not labeled for the vegetable in question.

If you have questions regarding accidental applications, determine the specific pesticide formulation used, the application rate, and time of spraying. Then, by checking the pesticide label and noting the specified preharvest interval (waiting period), an informed decision can be made concerning use of the crop.

Abbreviations: B — Bait; **D** — Dust; **E** or **EC** — Emulsifiable Concentrate; **G** — Granular; **RTU** — Ready To Use; **Tbl** — Tablespoon; **tsp** — Teaspoon; **WP** — Wettable Powder.

Important: Subscribe to the *Insect, Plant Disease, and Weed Science Newsletter* for the latest pest management recommendations, changes in pesticide registrations, and updates on the current status of insect pests.

Recommendations for Control of Vegetable Garden Pests

Crop and Insect	Insecticide	Amount to use per 1 gal. of water (or as indicated)	Waiting period between application and harvest, and other restrictions
Asparagus			
Asparagus Beetles	carbaryl 50% WP (Sevin)	2 Tbl	1 day
	malathion 50% EC	1 Tbl	1 day
	pyrethrins RTU	Spray thoroughly	No waiting period
	rotenone 1% D	Dust 1 lb/1000 sq ft	1 day
	rotenone 1% WP	6-8 Tbl/gal	1 day
Beans			
Aphids	diazinon 25% EC	2 tsp	7 days
	diazinon 4% D	Dust thoroughly	7 days
	insecticidal soaps (Safer, Attack)	Spray thoroughly	No waiting period
	malathion 50% EC	2 tsp	1 day
	pyrethrins RTU	Spray thoroughly	No waiting period

Crop and Insect	Insecticide	Amounts of use per 1 gal. of water (or as indicated)	Waiting period between application and harvest, and other restrictions
Bean Leaf Beetle	carbaryl 50% WP (Sevin)	2 Tbl	No waiting period
	carbaryl 5% D (Sevin)	Dust thoroughly	No waiting period
	diazinon 25% EC	2 tsp	7 days
	malathion 50% EC	1 Tbl	1 day
	pyrethrins RTU	Spray thoroughly	No waiting period
Leafhoppers	carbaryl 50% WP (Sevin)	2 Tbl	No waiting period
	carbaryl 5% D (Sevin)	Dust thoroughly	No waiting period
	diazinon 25% EC	2 tsp	7 days
	insecticidal soaps (Safer, Attack)	Spray thoroughly	No waiting period
	malathion 50% EC	1 Tbl	1 day
	pyrethrins RTU	Spray thoroughly	No waiting period
Caterpillars Loopers, Cutworms	*Bacillus thuringiensis* (Dipel, Thuricide)	See product label	No waiting period
	carbaryl 50% WP (Sevin)	2 Tbl	No waiting period
	carbaryl 5% D (Sevin)	Dust thoroughly	No waiting period
	diazinon 25% EC	2 tsp	7 days
Spider Mites	dimethoate 2E, (Cygon)	1 tsp	No waiting period
	dicofol 18% EC[1] (Kelthane)	See product label	See product label
Beets	(See Spinach)		
Cole Crops			
Aphids	diazinon 4% D	Dust thoroughly	7 days for cabbage, 5 days for broccoli and cauliflower
	diazinon 25% EC	2 tsp	(same as above)
	dimethoate 2E, (Cygon)	1 tsp	7 days for cabbage, broccoli and cauliflower, and 14 days for leafy types
	insecticidal soaps (Safer, Attack)	Spray thoroughly	No waiting period
	malathion 50% EC	2 tsp	3 days for broccoli, 7 days for all others
	pyrethrins RTU	Spray thoroughly	No waiting period
Cabbage Weevils	carbaryl 50% WP (Sevin)	2 Tbl	3 days for cabbage, broccoli, cauliflower, brussels sprouts and kohlrabi
	carbaryl 5% D (Sevin)	Dust thoroughly	(same as above)
	diazinon 25% EC	2 tsp	7 days for cabbage, 5 days for broccoli and cauliflower

Crop and Insect	Insecticide	Amounts of use per 1 gal. of water (or as indicated)	Waiting period between application and harvest, and other restrictions
Cabbageworms, Loopers	*Bacillus thuringiensis* (Dipel, Thuricide)	See product label	No waiting period
	carbaryl 50% WP (Sevin)	2 Tbl	3 days for cabbage, broccoli, cauliflower, Brussels sprouts and kohlrabi
	carbaryl 5% D (Sevin)	Dust thoroughly	(same as above)
	pyrethrins RTU	Spray thoroughly	No waiting period
	rotenone 1% D	Dust 1 lb/1000 sq ft	1 day
	rotenone 1% WP	6-8 Tbl/gal	1 day
Harlequin Bug	carbaryl 5% D (Sevin)	Dust throughtly	3 days for cabbage, broccoli, cauliflower, brussels sprouts and kohlrabi
	pyrethrins RTU	Spray thoroughly	No waiting period
Thrips	malathion 50% EC	1 Tbl	3 days for broccoli, 7 days for all others
	diazinon 25% EC	2 tsp	7 days, cabbage only
Cucumbers, Melons			
Aphids	diazinon 25% EC	2 tsp	7 days
	insecticidal soaps (Safer, Attack)	Spray thoroughly	No waiting period
	malathion 50% EC	2 tsp	1 day; spray only when leaves are dry
	pyrethrins RTU	Spray thoroughly	No waiting period
Cucumber Beetles	carbaryl 50% WP (Sevin)	2 Tbl	1 day; apply late in the day after blossoms have closed to avoid bee kill
	malathion 50% EC	4 tsp	1 day; spray only when leaves are dry
	pyrethrins RTU	Spray thoroughly	No waiting period
	rotenone 1% D	Dust 1 lb/1000 sq ft	1 day
	rotenone 1% WP	6-8 Tbl/gal	1 day
Eggplant			
Colorado Potato Beetle,	*Bacillus thuringiensis* (M-One, DiTera) [2]	See product label	No waiting period
	carbaryl 50% WP (Sevin)	2 Tbl	No waiting period
	carbaryl 5% D (Sevin)	Dust thoroughly	No waiting period
	pyrethrins RTU	Spray thoroughly	No waiting period
Flea Beetles	carbaryl 50% WP	2 Tbl	No waiting period
	carbaryl 5% D (Sevin)	Dust thoroughly	No waiting period
	pyrethrins RTU	Spray thoroughly	No waiting period

Crop and Insect	Insecticide	Amounts of use per 1 gal. of water (or as indicated)	Waiting period between application and harvest, and other restrictions
Leaf Lettuce			
Aphids	dimethoate 2E (Cygon)	2/3 tsp	14 days
	insecticidal soaps (Safer, Attack)	Spray thoroughly	No waiting period
	malathion 50% EC	2 tsp	14 days
	pyrethrins RTU	Spray thoroughly	No waiting period
Caterpillars, Loopers, Cutworms	*Bacillus thuringiensis* (Dipel, Thuricide)	See product label	No waiting period
	carbaryl 50% WP (Sevin)	2 Tbl	14 days
	carbaryl 5% D (Sevin)	Dust thoroughly	14 days
Leafhoppers, Garden Fleahopper, Plant Bugs	carbaryl 50% WP (Sevin)	2 Tbl	14 days
	carbaryl 5% D (Sevin)	Dust thoroughly	14 days
	dimethoate 2E (Cygon)	2/3 tsp	14 days
	insecticidal soaps (Safer, Attack)	Spray thoroughly	No waiting period
	malathion 50% EC	1 Tbl	14 days
	pyrethrins RTU	Spray thoroughly	No waiting period
Onions			
Onion Maggot	diazinon 25% EC	2 tsp	10 days
	diazinon 4% D	6 Tbl/100 row ft	Apply to furrow at planting time
	diazinon 5% G	4 oz/500 sq ft	Apply to furrow at planting time
Thrips	diazinon 25% EC	2 tsp	10 days
	malathion 50% EC	1 Tbl	3 days
Peas			
Aphids	diazinon 25% EC		1 day
	insecticidal soaps (Safer, Attack)	Spray thoroughly	No waiting period
	malathion 50% EC	2 tsp	3 days
	pyrethrins RTU	Spray thoroughly	No waiting period
Caterpillars, Loopers	*Bacillus thuringiensis* (Dipel, Thuricide)	See product label	No waiting period
	carbaryl 50% WP (Sevin)	2 Tbl	3 days
Garden Fleahopper, Thrips	diazinon 25% EC		1 day
	malathion 50% EC	1 Tbl	3 days
	pyrethrins RTU	Spray thoroughly	No waiting period
Peppers			
Aphids	diazinon 25% EC	2 tsp	5 days
	dimethoate 2E (Cygon)	1 tsp	No waiting period
	insecticidal soaps (Safer, Attack)	Spray thoroughly	No waiting period
	malathion 50% EC	2 tsp	3 days
	pyrethrins RTU	Spray thoroughly	No waiting period

Crop and Insect	Insecticide	Amounts of use per 1 gal. of water (or as indicated)	Waiting period between application and harvest, and other restrictions
Pepper Maggot	diazinon 25% EC	2 tsp	5 days
Spider Mites	dimethoate 2E (Cygon)	1 1/3 tsp	No waiting period
	dicofol 18% EC[1] (Kelthane)	See product label	See product label
Potatoes			
Aphids, Leafhoppers	dimethoate 2E (Cygon)	1 tsp	No waiting period
	malathion 50% EC	2 tsp (aphids) 1 Tbl (leafhoppers)	No waiting period
	pyrethrins RTU	Spray thoroughly	No waiting period
Colorado Potato Beetle	*Bacillus thuringiensis* (M-One, DiTera) [2]	See product label	No waiting period
	carbaryl 50% WP (Sevin)	2 Tbl	No waiting period
	carbaryl 5% D (Sevin)	Dust thoroughly	No waiting period
	pyrethrins RTU	Spray thoroughly	No waiting period
Flea Beetles	carbaryl 50% WP (Sevin)	2 Tbl	No waiting period
	carbaryl 5% D (Sevin)	Dust thoroughly	No waiting period
	pyrethrins RTU	Spray thoroughly	No waiting period
Spinach, Swiss Chard, Beets			
Flea Beetles	carbaryl 50% WP (Sevin)	2 Tbl	14 days
	pyrethrins RTU	Spray thoroughly	No waiting period
Leafminers	diazinon 25% EC	2 tsp	10 days
Squash, Pumpkins			
Cucumber Beetles	carbaryl 50% WP (Sevin)	2 Tbl	1 day; apply late in the day after blossoms have closed to avoid bee kill
	malathion 50% EC	4 tsp	1 day. Spray only when leaves are dry
	pyrethrins RTU	Spray thoroughly	No waiting period
	rotenone 1% D	Dust 1 lb/1000 sq ft	1 day
	rotenone 1% WP	6-8 Tbl/gal	1 day
Squash Bug	carbaryl 50% WP (Sevin)	2 Tbl	1 day; apply late in the day after blossoms have closed to avoid bee kill
	carbaryl 5% D (Sevin)	Dust thoroughly	1 day; apply late in the day after blossoms have closed to avoid bee kill
	endosulfan 4% D (Thiodan)	Dust thoroughly	No waiting period
	pyrethrins RTU	Spray thoroughly	No waiting period
Squash Vine Borer	*Bacillus thuringiensis* (Dipel, Thuricide)	See product label	No waiting period Larval control only
	endosulfan 4% D (Thiodan)	Dust thoroughly	No waiting period

Crop and Insect	Insecticide	Amounts of use per 1 gal. of water (or as indicated)	Waiting period between application and harvest, and other restrictions
Sweet Corn			
Armyworms, Corn Earworm	*Bacillus thuringiensis* (Dipel, Thuricide)	See product label	No waiting period
	carbaryl 50% WP (Sevin)	2 Tbl	1 day
	carbaryl 5% D (Sevin)	Dust thoroughly	1 day
European Corn Borer, Fall Armyworm	*Bacillus thuringiensis* (Dipel, Thuricide)	See product label	No waiting period
	carbaryl 50% WP (Sevin)	2 Tbl	1 day
	carbaryl 5% D (Sevin)	Dust thoroughly	1 day
	diazinon 5% G	6 oz/500 sq ft	No waiting period Apply granules to whorls
Tomatoes			
Aphids, Garden Fleahopper	diazinon 4% D	Dust thoroughly	3 days
	dimethoate 2E (Cygon)	1 tsp	7 days
	malathion 50% EC	2 tsp (aphids) 1 Tbl (garden fleahopper)	1 day
	pyrethrins RTU	Spray thoroughly	No waiting period
	insecticidal soaps (Safer, Attack)	Spray thoroughly	No waiting period
Tomato Fruitworm, Hornworms	*Bacillus thuringiensis* (Dipel, Thuricide)	See product label	No waiting period
	carbaryl 50% WP (Sevin)	2 Tbl	1 day
	carbaryl 5% D (Sevin)	Dust thoroughly	1 day
	pyrethrins RTU	Spray thoroughly	No waiting period
Spider Mites	dicofol 18% EC[1] (Kelthane)	See product label	See product label
	dimethoate 2E (Cygon)	1 1/3 tsp	7 days
	insecticidal soaps (Safer, Attack)	Spray thoroughly	No waiting period

[1] Not available until 1990

[2] Product not registered in Nebraska, but available soon

General Feeders

Since the pests listed below feed on a wide variety of vegetable crops, check the product label for a listing of specific target crops and corresponding pre-harvest intervals.

Insect	Recommended Insecticide	Amount to use per 1 gal. of water (or as indicated)	Comments, precautions, or other restrictions
Cutworms	carbaryl 5% B (Sevin)	1 lb/2,000 sq ft	Confine pets during application. Keep away from children. Treat soil surface only.
	diazinon 5% G	10 oz/500 sq ft	Pre-plant treatment. Mix into soil 2-3" (surface cutworms) or 3-6" (soil cutworms).
Grasshoppers	carbaryl 50% WP (Sevin)	2 Tbl	Avoid application when honeybees are active. Treat when grasshoppers are small.
	carbaryl 5% B (Sevin)	1 lb/2,000 sq ft	Confine pets during application. Keep away from children. Treat soil surface only.
	diazinon 25% EC	2 tsp	Treat when grasshoppers are small.
Seed-Feeding Insects (Wireworms, Seedcorn Maggot, Seedcorn Beetles)	diazinon 5% G	10 oz/500 sq ft	Pre-plant treatment; mix into soil 4-8 inches
Slugs and Snails	metaldehyde 3.25% B	1 lb/1,000 sq ft	Treat soil surface only; keep away from children and pets. Thoroughly water area to be treated.
Spider Mites	dicofol 18% EC[1] (Kelthane)	See product label	See product label
	dimethoate 2E (Cygon)	1 1/3 tsp	Treat foliage thoroughly. Repeat treatment in 7-10 days.
	insecticidal soaps (Safer, Attack.)	Spray thoroughly	Repeat treatment as necessary

[1] Not available until 1990