1988 Insect Pest Management Guide

COMMERCIAL VEGETABLE CROPS

Restricted-use insecticides are identified with an asterisk (*).
You must be certified as a pesticide applicator to use restricted-use pesticides.
See your county Extension adviser in agriculture for information.

COMMERCIAL VEGETABLE GARDENERS find it impossible to produce vegetables profitably unless they can control insects at maximum efficiency and minimum cost. Today's cook will not accept unsightly or wormy vegetables; not only are wormy fruits and vegetables unappetizing but the waste from trimming increases food costs. Thus the commercial grower must produce a quality product that is acceptable and safe to the consumer. Careful use of the right insecticides will make this possible.

Insect pest-management programs, which include the wise selection of cultural, mechanical, biological, and chemical methods, are suggested for the major insect pests of vegetable crops. Insecticides, though, are still the most efficient means of managing most insects.

This suggested insecticide guide has been prepared for use by Illinois commercial vegetable farmers; it is not for home gardeners, who should use only those insecticides that are extremely safe to handle, apply, and store. Furthermore, the commercial vegetable grower must use a wider variety of insecticides than the home gardener in order to obtain maximum insect control at the least cost.

In using insecticides, always read the label and carefully follow the instructions. Do not exceed maximum rates suggested; observe the interval between application and harvest, and apply the product only to crops for which use has been approved. Make a record of the product used, the trade name, the percentage content of the insecticide, the dilution, the rate of application per acre, and the dates of application.

Some of the insecticides suggested here can be poisonous to the applicator. In using them, the commercial grower is expected to use precautions to protect himself or herself, all workers, and any family members from undue or needless exposure.

In using this guide, always refer to the table on the next page, which lists the limitations and restrictions on use. These limitations apply to the vegetables as human food. If you use any portion of a vegetable for livestock food (tops, stalks, etc.), refer to product labels for instructions on the intervals required between application and feeding.

The chemical names used in these tables may be unfamiliar to you. These names are the common chemical names and as such are not capitalized. Trade names are capitalized. In the table of limitations the common names are listed first and trade names are listed in parentheses following the common name. Throughout the tables of suggestions, however, trade names are usually used. In case you have a question, refer to the table of limitations.

These suggestions are subject to change without notification during the growing season.

Check with your county Extension adviser if you are in doubt about the insecticide you plan to use. We will make announcements of label changes through newsletters and the news media to keep you up to date.

Requested label clearances for a few uses of insecticides, carriers, and solvents are uncertain for 1988, since many requests have not been officially cleared. Anticipating needed changes in labeling, we began modifying these suggested uses a few years ago.

Insecticides are being classified for *general use* or *restricted use* by the U.S. Environmental Protection Agency. Anyone who wishes to use an insecticide classified for restricted use must be certified as a private or commercial pesticide applicator by the Illinois Department of Agriculture. Contact your county Extension adviser in agriculture for details on this program.

A few insecticides have been classified at this time. More will be classified later.

Suggestions for the effective use of insecticides from a practical standpoint are based on available data. Soil textures, pH of the soil, rainfall, slope of the field, wind velocity at planting, method and accuracy of application, and other unpredictable factors affect efficiency.

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UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN COLLEGE OF AGRICULTURE COOPERATIVE EXTENSION SERVICE
In cooperation with ILLINOIS NATURAL HISTORY SURVEY CIRCULAR 897 (revised annually) November, 1987

LIMITATIONS FOR FIELD VEGETABLES IN DAYS BETWEEN APPLICATION AND HARVEST AND OTHER RESTRICTIONS ON USE OF INSECTICIDES IN ILLINOIS

(Blank spaces indicate that the material is not suggested for the specific use in Illinois)

Insecticide	Beans	Peas	Broccoli	Brussels sprouts	Cabbage	Cauliflower	Horseradish	Radish	Turnip	Onions	Eggplant	Peppers	Tomatoes
acephate (Orthene)	14	...	..	..	..	..	..	..	....	....	..	7	..
*Asana	..	3,A,B	..	3C	3C	3C	..	..	....	....	7D	7D	1E
Bacillus thuringiensis[2]	..	...	0	0	0	0	..	..	....	....	..	..	0
carbaryl (Sevin)	0	...	3	3	3	3	3	3	3, 14F	....	0	0	0
*carbofuran (Furadan)	..	...	..	..	..	..	..	..	....	....	..	21G	..
chlorpyrifos (Lorsban)	..	...	H	H	H	H	..	H	....	H, I	..	..	..
diazinon	..	...	5	..	7	5	..	10	10	10	..	..	1
dimethoate (Cygon)	0A	0A	7	..	3	7	..	..	14	....	..	0	7
*fonofos (Dyfonate)	..	...	H	..	H	H	..	..	....	H, I	..	..	..
*ethion	..	...	..	..	..	..	..	..	....	H	..	..	..
*fenvalerate (Pydrin)[3]	..	3A,C	3	..	3	3	..	..	....	....	..	..	1E
malathion	1	...	3	7	7	7	7	7	3	3	3	3	1
*methomyl (Lannate, Nudrin)	1	1, 5F	3	3	1	3	..	..	....	....	..	10	2
*mevinphos (Phosdrin)	..	...	1	3	1	3	..	..	3	....	..	..	..
*Monitor	..	...	21	21	35	28	..	..	....	....	..	..	..
naled (Dibrom)	..	...	1	1	1	1	..	..	4	....	..	..	..
*permethrin (Ambush, Pounce)	..	...	1J	1J	1J	1J	22	..	....	....	..	..	..
*phorate (Thimet)	C	...	..	..	..	..	..	..	....	....	..	..	..
rotenone	..	...	..	..	..	..	..	..	....	....	1	1	1
trichlorfon (Dylox)	..	...	..	21	21	21	..	..	28A	....	..	21	21

Insecticide	Potatoes	Collards	Kale	Lettuce	Spinach	Swiss chard	Sweet corn	Cucumbers[1]	Melons[1]	Pumpkins[1]	Squash[1] Winter	Squash[1] Summer
*Asana	7D	..	..	..	..	..	1E	3K	3K	3K	3K	3K
Bacillus thuringiensis[2]	..	0	0	0	0	..	..	..	..	..	..	..
carbaryl (Sevin)	0	14	14	14	14	14	0	0	0	0	0	0
*carbofuran (Furadan)	14J	..	..	..	..	..	7L,21F	C	C	C	C	C
chlorpyrifos (Lorsban)	..	..	..	..	..	..	35F, M	..	..	..	..	..
diazinon	..	10	10	10	10	12	H	7	3	..	3	7
dimethoate (Cygon)	0	14	14	14	14	14	..	..	3	..	..	..
*fonofos (Dyfonate)	..	..	..	..	..	..	H	..	..	..	..	..
*fenvalerate (Pydrin)[3]	7K	..	..	..	..	..	1E	..	3	3	3	3
malathion	0	7	7	14	7	7	5	1	1	3	1	1
*methomyl (Lannate, Nudrin)	6	..	..	10	7	..	0 (3F)	3	3	..	..	3
*mevinphos (Phosdrin)	..	3	3	2	4	..	..	..	..	..	..	..
*Mocap	..	..	..	..	..	..	H	..	..	..	..	..
naled (Dibrom)	..	4	4	1	1	1	..	..	..	..	..	..
*permethrin (Ambush, Pounce)	7K	..	..	..	..	..	1N	..	1J	1J	..	..
*phorate (Thimet)	H	..	..	..	..	..	C	..	..	..	..	..
*terbufos (Counter)	..	..	..	..	..	..	C	..	..	..	..	..
trichlorfon (Dylox)	..	28P	21	28P	..	..	..	..	..	3Q	..	..

* Use restricted to certified applicators only.
[1] Apply insecticides late in the day after the blossoms have closed to reduce bee kill.
[2] The trade names are Bactur, Dipel, Thuricide, and Sok Bt.
[3] Only root crops indicated on label can be planted following application. For all other root crops, wait 12 months before planting.

A. Do not use tops for feed or food.
B. Do not exceed 0.1 lb. a.i. per acre.
C. Do not exceed 0.4 lb. a.i. acre.
D. Do not exceed 0.35 lb. a.i. per acre.
E. Do not exceed 2 lb. a.i. per acre.
F. If tops or stover are to be used for feed.
G. Not more than twice per season..
H. Soil applications at planting time only.
I. Do not use on green onion crop.
J. Not more than 8 times per season.
K. Do not exceed 0.25 lb. a.i. per acre.
L. Not more than 4 applications per season.
M. Not more than once per season.
N. Not more than 6 applications per season.
P. Not after edible portions or heads begin to form.
Q. Not more than 3 times per season.

REENTRY INTERVALS FOR WORKER PROTECTION

Insecticide	Hours
azinphosmethyl (Guthion)	24
demeton (Systox)	48
ethion	24
parathion	48

Workers must wear protective clothing if they enter treated fields before the time intervals shown at the left. They must also wear protective clothing for all other insecticides applied if the spray has not dried or the dust has not settled.

ASPARAGUS

Insect	Time of attack	Insecticide	Pounds of active ingredient per acre	Placement	Timing of application
Asparagus beetles (NHE-49)	Early and mid-season on spears and ferns	Sevin[1] malathion[1]	1½ 1	Spears and ferns	As needed, not more often than every 3 days.
Cutworms (NHE-38)	Early and mid-season	*Ambush, Pounce	0.01-0.02	Spears	As needed.

* Use restricted to certified applicators only. [1] One-day restriction between last application and harvest.

BEANS

Insect	Time of attack	Insecticide	Pounds of active ingredient per acre	Placement	Timing of application
Seed maggots (NHE-27)	All season	diazinon 50% W.P.[1] Lorsban 25% W.P.[1]	3/5 oz./bu. 2 oz./bu.	Seed Seed	Treat seed no longer than 3 months before planting.
		*Thimet G	1½	Soilband	Place on either or both sides of row at planting but not in contact with seed.
Bean leaf beetles (NHE-67)	Early and late season	Sevin malathion	1 1	Foilage	When feeding first appears and weekly for 2 or 3 applications as needed.
Leafhoppers (NHE-22) and Plant bugs (NHE-68)	All season	Sevin Cygon malathion *Lannate, Nudrin	1 0.3 1 0.45	Foliage	Before plants become yellow and stunted. Repeat applications at weekly intervals as necessary.
		*Thimet G	1½	Soilband	As for seed maggot.
Mexican bean beetles	Midseason and late season	Sevin malathion	½ 1	Foliage	When occasional leaves show lacework feeding.
		*Thimet G	1½	Soilband	As for seed maggot.
Aphids (NHE-47)	All season	Cygon malathion	0.3 1	Foliage	Usually applied when a few aphids can be found on each plant, but before leaves begin to curl and deform.
		*Thimet G	1½	Soilband	As for seed maggot.
Blister beetles (NHE-72)	Midseason and late season	Sevin	1½	Foliage	As needed.
Corn earworms (NHE-33) Corn borers	Late season	Orthene Sevin *Lannate, Nudrin	⅔ 1½ 0.45	Foliage	As needed, but usually after August 20. Worms may be present before bloom.
Mites	Midseason and late season	Cygon	0.3	Foliage	As needed, but especially during drouthy periods particularly if carbaryl has been used on crops.
		*Thimet G	1½	Soilband	As for seed maggot.

* Use restricted to certified applicators only. [1] No restrictions when used as recommended.

PEAS

Insect	Time of attack	Insecticide	Pounds of active ingredient per acre	Placement	Timing of application
Caterpillars, including loopers	June	*Lannate, Nudrin *Asana *Pydrin	½-1 0.025-0.05 0.1	Foliage	Before harvest if worms are present.
Aphids	May-June	Cygon	⅓	Foliage	As needed.

* Use restricted to certified applicators only.

CABBAGE AND RELATED COLE CROPS

Insect	Time of attack	Insecticide	Pounds of active ingredient per acre	Placement	Timing of application
Cabbage maggots[1] (NHE-44)	All season	diazinon Dyfonate	3 2	Broadcast	Disk in just before planting. Use only for cabbage, cauliflower, and broccoli.
		diazinon G	1	Furrow	At time of planting; on turnips a drenching spray of 1 lb. diazinon should be applied 30 days following treatment.
		diazinon Lorsban Lorsban	4 oz. per 50 gal. transplant water 3 oz. 4E per 1,000 ft. of row 1 oz. 4E per 1,000 ft. of row	Furrow	6 fl. oz. transplant water per plant. Transplant drench to cabbage, broccoli, and cauliflower. Radishes only.
Aphids (NHE-47) Thrips (NHE-48)	All season	Cygon malathion *phosdrin *Monitor	0.3 1 ¼ 1	Foliage	When aphids appear, but before leaves begin to curl.
Cabbage loopers (NHE-45); diamond-back moth larvae; imported cabbage worms	All season	*Bacillus thuringiensis* *Pydrin *Asana *Lannate, Nudrin *Monitor *Ambush, Pounce	See rates on label 0.1-0.2 0.025-0.05 0.45-0.9 1 0.1-0.2	Foliage	When small worms first appear, and about every 5 to 7 days thereafter. Thorough spray coverage of foliage is important.
Cutworms	At planting	*Asana *Pydrin Dylox	0.025-0.05 0.1-0.2 1	Base of plants	As needed.
Flea beetles and leafhoppers	All season	Sevin *Asana *Pydrin	1½ 0.025-0.05 0.1-0.2	Foliage	As needed.

E.C. = Emulsion concentrate; W.P. = wettable powder.

* Use restricted to certified applicators only. [1]Maggots are resistant to diazinon in some areas of Illinois.

COLLARDS, KALE, LETTUCE, SPINACH, SWISS CHARD

Insect	Time of attack	Insecticide	Pounds of active ingredient per acre	Placement	Timing of application
Aphids (NHE-47)	All season	diazinon Cygon *Phosdrin Dibrom	½ 0.3 ¼ 1	Foliage	As needed.
Cutworms	On seedling plants	Dylox[1]	1	Base of plant and soil	When first damage appears.
Leafhoppers	All season	Sevin Cygon malathion	1½ 0.3 1	Foliage	When first leafhoppers appear, and as needed.
Caterpillars (NHE-45)	All season	*Bacillus thuringiensis* *Lannate, Nudrin[2] Dibrom	See rates on label 0.45 1	Foliage	When small worms first appear and every 5 to 7 days thereafter.
Leaf miners	All season	diazinon Cygon	½ 0.3	Foliage	When first miners are observed.
Flea beetles	All season	Sevin	1	Foliage	As needed.

* Use restricted to certified applicators only.

[1] Do not use on spinach or Swiss chard.
[2] Use limited to lettuce and spinach only.

CUCUMBERS AND OTHER VINE CROPS[1]

Insect	Time of attack	Insecticide	Pounds of active ingredient per acre	Placement	Timing of application
Striped and spotted cucumber beetles (NHE-46)	Seedling to mature plants	Sevin *Furadan G	1 2	Foliage Soil	When beetles first appear; as often as necessary thereafter. Apply Furadan at planting or transplanting.
Aphids (NHE-47)	All season	diazinon Cygon[2] malathion	½ 0.3 1	Foliage	When aphids become noticeable.
Squash bugs (NHE-51)	All season	*Ambush, Pounce[4] Dylox[3]	0.2 1	Foliage	Do not appy until first eggs are found hatching (about June 15 to July 15); controls only nymphs.
Leafhoppers	July-August	*Asana *Pydrin malathion Cygon[2] *Ambush, Pounce[4]	0.025-0.05 0.1-0.2 1 0.3 0.1-0.2	Foliage	As needed.
Squash vine borers	June-September	Sevin *Pydrin *Asana	1 0.1-0.2 0.025-0.05	Base of stem for 3 ft.	Weekly applications when vines begin to run—usually 5 applications.
Pickle worms	August-September	Sevin *Pydrin *Asana	1 0.1-0.2 0.025-0.05	Foliage	Weekly applications, beginning in late August.
Mites	July-September	Cygon	0.3	Foliage	As needed.
Cutworms (NHE-77)	April-June	Sevin *Asana *Pydrin *Ambush, Pounce[4]	2 0.05 0.2 0.1-0.2	Base of plants	As needed.

* Use restricted to certified applicators only.
[1] Spray vine crops with insecticide only late in the day after blossoms have closed to reduce bee kill. [2] Do not use Cygon on cucumbers.
[3] Pumpkin is the only vine crop for which Dylox can be used for squash bug control. [4] Pumpkin and cantaloupes only.

ONIONS

Insect	Time of attack	Insecticide	Pounds of active ingredient per acre	Placement	Timing of application
Onion maggots (NHE-50)	All season	diazinon W.P. *ethion W.P.	½-1 for 40-50 lb. of seed 1 for 40-50 lb. of seed	Seed	Seed treatment for set onions only. Use lighter dosage of diazinon on sandy, highly mineral soils.
		diazinon G *Dyfonate *ethion G Lorsban G	½-1 1 ½-2 1	Furrow	Use 1 lb. active ingredient per acre for rows 12″ apart; ¾ lb. for rows 18″ apart; ½ lb. for rows 24″ apart. Up to twice these amounts are needed for ethion on muck soils. Do not use Dyfonate, or Lorsban on green onions.
		diazinon	2	Broadcast	Preplanting; disk into upper 1 to 2 inches of soil. Supplement with foliage spray below.
		diazinon malathion	⅓ 1	Foliage	Supplemental to soil treatment. Make first application when first adult flies are seen; make another 1 week later. From then on only as necessary.
Thrips (NHE-48)	Midseason and late season	diazinon malathion	½ 1	Foliage	When injury first appears and every 10 days as necessary.

* Use restricted to certified applicators only.

PEPPERS

Insect	Time of attack	Insecticide	Pounds of active ingredient per acre	Placement	Timing of application
Aphids (NHE-47)	May-July	Cygon	0.3	Foliage	Only when aphids are present. Add to borer spray when it is being used.
		*Lannate, Nudrin	0.45		
		Orthene	½		
Corn borers	Late season	Sevin	2	Foliage and fruit	When fruit is present on plant. Apply every 5 days when borers are present.
		Orthene	1		
		*Furadan	2-3	Soilband to transplant	Make 2 applications; first, 3 weeks after transplant, second, 5 weeks later.
Flea beetles	Early season	*Asana	0.025-0.05	Foliage	When shiny, jumping beetles are present.
		Orthene	½		

* Use restricted to certified applicators only.

POTATOES

Insect	Time of attack	Insecticide	Pounds of active ingredient per acre	Placement	Timing of application
Flea beetles	May-July	Sevin	1	Foliage	When damage first appears on the leaves. Repeat as needed.
		*Furadan G	3	In furrow	Planting time.
		*Furadan F	1	Foliage	As needed.
		*Asana	0.025-0.05	Foliage	As needed.
		*Pydrin	0.1	Foliage	As needed.
		*Lannate, * Nudrin	0.45	Foliage	As needed.
		Ambush, * Pounce	0.1	Foliage	As needed.
Colorado potato beetles; cutworms; potato leafhoppers (NHE-22)	May-July	Sevin	2	Foliage	As needed.
		*Furadan G	3	In furrow	Planting time.
		*Furadan F	1	Foliage	As needed.
		Cygon	0.3	Foliage	As needed.
		*Asana	0.025-0.05	Foliage	As needed.
		*Pydrin	0.1	Foliage	As needed.
		*Ambush, Pounce	0.1	Foliage	As needed.
		*Thimet G	2-3	Soilband	Place on either or both sides of row at planting, but not in contact with seed. Use the lower rate on sandy soils, the heavier rate on heavy soils. Do not use on muck soils.
Aphids (NHE-47)	All season	Cygon	0.3	Foliage	As needed.
		*Lannate, Nudrin	0.45		
		*Thimet G	2-3	Soilband	Same as for leafhoppers.
Blister beetles (NHE-72)	All season	Sevin	1½	Foliage	As needed.
Wireworms (NHE-43) White grubs (NHE-23)	All season	*Thimet G	2-3	Soil	Preplanting, disk in; or use as soilband at planting.
Grasshoppers (NHE-74)	July-September	Sevin	¾	Foliage	As needed, control in fence rows, roadsides, ditch banks, etc., before migration.
		Cygon	0.3		

* Use restricted to certified applicators only.

SWEET CORN

Insect	Time of attack	Insecticide	Pounds of active ingredient per acre	Placement	Timing of application
Corn rootworm (NHE-26)	June-July	*Counter G *Dyfonate G *Furadan G Lorsban G *Mocap G *Thimet G	1 1 1 1 1 1	Furrow Row Furrow Row Row Row	Rootworm control may be needed if the field was in corn the previous year and was not sprayed.
Cutworms (NHE-38)	April-June	*Asana Lorsban 4E	0.025-0.05 1½	Base of plants Broadcast	When first damage appears.
Flea beetles (NHE-36)	April-July	Sevin[1] *Furadan G	1½ 1	Foliage Furrow	As necessary. At planting.
Japanese beetles (NHE-32)	July-September	Sevin[1]	1	Ear zone	As necessary.
First-generation corn borers	May-June	Sevin[1] *Pounce, Ambush	2 0.1-0.2	Foliage	If needed make first application in late whorl stage. Repeat in 5 to 7 days.
Second-generation corn borers	July-September	*Ambush, Pounce *Furadan[2]	0.1-0.2 0.5	Tassel Ear zone	*Processing corn:* Observe light traps for borer adults. When there are 50 or more trapped per night and 1500 or more heat units (base 50) have accumulated, spray at row tassel and every 5 to 7 days until 10 to 12 days of harvest. *Fresh market corn:* Apply first spray at row tassel and additional corn earworm treatments will control corn borers.
Corn earworm	June-September	*Lannate Nudrin *Ambush, Pounce *Pydrin *Asana	0.45 0.1-0.2 0.1-0.2 0.025-0.05	Ear zone	*Fresh market corn:* Treat at first silk and every 2 to 4 days for 4 to 6 applications. *Processing corn:* Observe pheromone traps, if more than 10 moths per night, apply a borer spray during early silking period and repeat if necessary.
Sap beetles (NHE-10) Picnic beetles	July-September	Sevin[1] diazinon malathion	2 1 1	Foliage	When adults first appear in field; usually between pollen-shedding and silk-drying.
Corn leaf aphids (NHE-29)	July-September	malathion	1	Foliage	As needed to produce attractive ears for fresh market.
Fall armyworms	July-September	*Lannate, Nudrin	0.45	Foliage	Apply to ear zone when whorl feeding is evident.

* Use restricted to certified applicators only.
[1] During pollen shed, apply Sevin as late in the day as possible (preferably after 4 p.m.) to reduce bee kill. [2] Corn borer control only.

TOMATOES AND EGGPLANT

Insect	Time of attack	Insecticide	Pounds of active ingredient per acre	Placement	Timing of application
Cutworms (NHE-77)	Early and midseason	Sevin *Asana *Pydrin Dylox	2 0.025-0.05 0.1-0.2 1	Base of plants or foliage	As needed.
Flea beetles	May-June	Sevin *Asana	2 0.025-0.05	Foliage	Apply every week as long as needed.
Aphids (NHE-47)	May-July	diazinon Cygon[1] malathion	½ 0.3 1	Foliage	As needed, but before leaves curl.

* Use restricted to certified applicators only. [1] Use cleared only on tomatoes.

Insect	Time of attack	Insecticide	Pounds of active ingredient per acre	Placement	Timing of application
Cabbage loopers	July-September	*Bacillus thuringiensis*	See rates on label	Foliage	When loopers are present.
		*Asana	0.025-0.05		
		*Pydrin	0.1-0.2		
		*Lannate, Nudrin	0.45-0.9		
Corn earworms Corn borers Hornworms	July-September	Sevin	2	Foliage	Add to weekly applications of fungicide sprays beginning at first fruit set when first small worms appear.
		*Asana	0.025-0.05		
		*Pydrin	0.1-0.2		
		*Lannate, Nudrin	0.45-0.9		
Mites	July-September	Cygon[1]	0.3	Foliage	As needed.
Blister beetles (NHE-72)	June-September	Sevin	1½	Foliage	As needed.
Fruit flies and picnic beetles	August-October	Sevin	2	Foliage	When flies or beetles first appear.
		diazinon	½		

* Use restricted to certified applicators only. [1] Use cleared only on tomatoes.

FOR ADDITIONAL INFORMATION

You can obtain the following circulars on insect control from the Office of Agricultural Publications, University of Illinois, 54 Mumford Hall, 1301 W. Gregory Drive, Urbana, Illinois 61801.

Circular 899, *1988 Insect Pest Management Guide — Field and Forage Crops*

Circular 900, *1988 Insect Pest Management Guide — Home, Yard, and Garden*

Circular 1076, *1988 Turfgrass Pest Control*

Leaflets describing the life history, biology, and habits of some of the insects mentioned can be obtained from the offices of county Extension advisers or by writing to Entomology Extension, 172 Natural Resources Building, 607 E. Peabody Drive, Champaign, Illinois 61820. These are indicated by an NHE number in the tables.

FOR YOUR PROTECTION

Always handle insecticides with respect. The persons most likely to suffer ill effects from insecticides are the applicator and his family. Accidents and careless, needless overexposure can be avoided. Here are a few easy rules that, if followed, will prevent most insecticide accidents:

1. Wear rubber gloves when handling insecticide concentrates.
2. Do not smoke while handling or using insecticides.
3. Keep your face turned to one side when opening insecticide containers.
4. Leave unused insecticides in their original containers with the labels on them.
5. Store insecticides out of reach of children, irresponsible persons, or animals — preferably in a locked cabinet.
6. Triple-rinse and bury or burn all empty insecticide containers or take them to an approved sanitary landfill.
7. Do not put the water-supply hose directly into the spray tank.
8. Do not blow out clogged nozzles or spray lines with your mouth.
9. Wash with soap and water exposed parts of body and clothes contaminated with insecticide.
10. Do not leave puddles of spray on impervious surfaces.
11. Do not apply insecticides to fish-bearing or other water supplies.
12. Do not apply insecticides, except in an emergency, to areas with abundant wildlife or to blossoming crops visited by bees. Avoid drift onto blossoming crops or onto bee hives.
13. Do not apply insecticides near dug wells or cisterns.
14. Do not spray when weather conditions favor drift.
15. Observe all precautions listed on the label.
16. To avoid bee kill, apply insecticides after bee activity has been completed for the day; use the least toxic materials. *Warn beekeepers that you are appying insecticides.*

Issued in furtherance of Cooperative Extension Work, Acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture. WILLIAM R. OSCHWALD, *Director,* Cooperative Extension Service, University of Illinois at Urbana-Champaign. The Illinois Coopeative Extension Service provides equal opportunities in programs and employment. 4500—10-87—68362—ESL