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FIELD CROP INSECT CONTROL GUIDE FOR NEBRASKA

Specialty Crops - Sugarbeets, Dry Beans, Sunflowers, Alfalfa Seed, Vetch, Potatoes, Onions

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Insect control suggestions in this guide are based on University of Nebraska test results, data from surrounding states, U.S.D.A. recommendations, previous experience and label registrations. Insect control is never perfect. These suggestions are designed to benefit Nebraska farmers when they need control programs. NebGuides and other publications containing additional information on identification, damage, and life cycles are listed under insect headings. They are available by mail order (Write - Bulletins, 104 ACB, University of Nebraska- Lincoln, NE 68583-0918) or from county extension offices.

Too often the choice of a pesticide is based primarily on its cost. However, several other factors should be considered in the decision, including efficacy for the particular pest or pest combination, formulation of the pesticide, label restrictions, safety to non-target species (including man) and environmental conditions present at the time of application.

In some instances trade names have been used in this circular. No endorsement is implied by the Nebraska Cooperative Extension Service and no discrimination is intended.

POLICY FOR MAKING PESTICIDE SUGGESTIONS

Because the pesticide label is subject to change, producers must be certain that each pesticide selected is currently labeled for its intended use. THE USER IS ALWAYS RESPONSIBLE FOR THE EFFECTS OF PESTICIDE RESIDUES ON HIS CROPS AND LIVESTOCK, AS WELL AS FOR PROBLEMS THAT MIGHT ARISE FROM DRIFT OR MOVEMENT OF THE PESTICIDE FROM HIS PROPERTY TO THAT OF OTHERS. Always read and carefully follow the instructions on the container label.

For further information, contact your local Extension Agent or Extension Entomologist.

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 Service, University of Nebraska, Institute of Agriculture and Natural Resources.

The Cooperative Extension Service provides information and educational programs to all people without regard to race, color, national origin, sex or handicap.

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IMPORTANT

Restrictions on pesticide useage are so lengthy it is not practical to list all of them in this circular. It is essential that labels be read and understood before purchasing or using any product to be certain that such use does not result in illegal application, danger to the user or to the environment, or in residues that exceed established tolerances.

To keep pace with changes in pesticide registrations and informed of the latest developments on crop pests, consider subscribing to the Plant Disease, Weed and Insect Newsletters. Full details and an order blank are given on the last page of this circular.

RESTRICTED USE

Several insecticides listed in this circular are classified RESTRICTED USE by the Environmental Protection Agency. Pesticides may be classified as Restricted Use based on their persistence, toxicity or potential environmental hazards. To purchase and use these materials, EPA certification is required. To obtain the necessary training, contact your local Extension Agent and request a listing of the dates and locations at which training is to be offered.

✋ Compounds listed in this circular and marked with a small circled hand are classified as Restricted Use. These compounds are: aldicarb (Temik), azinphos methyl (Guthion), carbofuran (Furadan 4F), demeton (Systox), disulfoton (DiSyston), endrin, fenvalerate (Pydrin), fonophos (Dyfonate 4E), methamidophos (Monitor 4), methidathion (Supracide), methomyl (Lannate, Nudrin), ethyl and methyl parathion, Penncap-M, and permethrin (Ambush, Pounce). Applications must be made by or under the direct supervision of a certified applicator. Other products may be classified Restricted Use in 1985.

TOXICITY 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, uninformed or irresponsible adults and livestock. It is essential that the label of every insecticide be studied and understood before use. Follow directions completely to avoid accidental poisoning and to prevent illegal residues.

The highly toxic insecticides in this publication are: aldicarb (Temik), azinphos methyl (Guthion), carbofuran (Furadan 4F), demeton (Systox), endosulfan (Thiodan), fonophos (Dyfonate 4E), methamidophos (Monitor 4), methidathion (Supracide), methomyl (Lannate, Nudrin), naled (Dibrom), ethyl and methyl parathion, phorate (Thimet), aad terbufos (Counter). Skull and crossbones and the word Poison appear in red on the label of highly toxic materials. Liquid formulations of these products are not recommended for farmer application.

Moderately toxic insecticides are: carbaryl (Sevin), carbofuran (Furadan 15G), chlorpyrifos (Lorsban), diazinon, dimethoate (Cygon), fenvalerate (Pydrin), lindane, malathion, methoxychlor, oxydemeton-methyl (Metasystox-R), permethrin (Ambush, Pounce), phosmet (Imidan), and trichlorfon (Dylox). They must be used with special care. Familiarize yourself with all warnings given on the label.

CHEMIGATION

The term "chemigation" refers to the injection and application of chemicals through irrigation systems. This method, while proven effective when compared with more conventional application techniques, requires proper equipment (including safety devices), an understanding of how to use it properly, and constant monitoring to ensure proper application, safety to others and to the environment. Proper equipment, procedures for calibration and other instructions for application through center pivot systems is provided in two Nebguides - G84-703 (Applying Insecticides Through Center Pivots) and G73-43 (Anti-Pollution Devices for Applying Chemicals Through Irrigation Systems, Revised August, 1984). Refer to product labels for specific instructions on handling and proper injection procedures, precautions and restrictions.

SOME SUGGESTED FIELD RE-ENTRY PERIODS

Some insecticides have minimum field re-entry times specified on the label. Certainly exposure is a function of the amount of the material deposited on foliage, intimacy or degree of contact with treated plants and time actually spent in the field. Amount of pesticide in a field depends on application rate, timing, and speed of breakdown as influenced by environmental conditions. The following are considered MINIMUM waiting periods for the products listed. DO NOT ENTER FIELDS AFTER TREATMENT UNTIL THE RE-ENTRY PERIOD HAS PASSED.

Thimet 20G - 7 days
ethyl parathion - 48 hrs.
methyl parathion - 48 hrs.
EPN 4EC, 5EC - 24 hrs.
MetaSystox-R - 48 hrs.
Cygon 400 - 48 hrs.
Diazinon AG500, 14G - None specified
Di-Syston 8EC - 24 hrs, 15G - 7 days
Pydrin 2.4 EC - when spray is dry
Lorsban 4E - when spray is dry.
15G -None specified.
Ethion EC - 24 hrs.
Dylox 80SP - 0 days
Pounce 3.2EC - when spray is dry
Dipel 10G - 0 days

Furadan 4F - 14 days, 15G - None on label
Penncap-M - when spray dries
Diazinon 14G - 48 hrs. (5 days in CA)
Dyfonate 20G, 4EC - None on labels
Sevin - all formulations, 0 days.
Comite 6.5 EC - 48 hrs.
Counter 15G - 7 days
Malathion EC - 0 days
Lannate 1.8L, 90SP - 24 hrs.
Imidan 50WP - None
Nudrin 1.8L, 90SP - 24 hrs.

SPRAYED BY MISTAKE?

Vegetable gardens, particularly plantings of sweet corn, are often placed in or adjacent to crop fields that are eventually sprayed with an insecticide. Is the produce then safe to eat? The answer--it is-- IF THE INSECTICIDE IS REGISTERED FOR USE ON THE VEGETABLE AND THE SPECIFIED WAITING PERIOD HAS ELAPSED. Many commonly used field crop insecticides are also labeled for some vegetable crops, but not for all of those commonly grown in Nebraska. Our policy is to recommend against anyone using vegetables that are treated with an unlabeled pesticide. It is up to the individual to evaluate the risks and to proceed. A few dollars worth of vegetables are not worth taking any chances, in our opinion. Remember too, that as an applicator of pesticides, it is illegal for you to allow insecticides to drift onto non-target areas adjacent to treated fields.

The following are some sample waiting periods on 5 garden vegetable crops for several insecticides often used on field crops in Nebraska. The list is not complete. You will need to check appropriate labels for any others. If you have any questions regarding accidental treatments, find out which specific pesticide formulation was used, the application rate, target insect and precise time of spraying. Then obtain a copy of the pesticide label and check its listed registrations before making a decision to use the produce.

Minimum Number of Days Between Application and Harvest For Some Selected Vegetables

Insecticide	Tomatoes	Peppers	Sweet Corn	Squash, Melons Cucumbers	Cole Crops
Parathion 8E (ethyl)	10	15	12	7-15	7-10
Furadan 4F	NR*	NR	7	NR	NR
Furadan 15G	NR	21	NR	**	NR
Sevin 80S	0	0	0	0	3-14
Cygon 400	7	0	NR	3	3-14
Pounce 3.2 EC	NR	3	1	NR	1
Lorsban 4E	NR	NR	35	30	NR
Thimet 20G	*	NR	*	NR	NR
Counter 15G	NR	NR	30	NR	NR
Pydrin 2.4 EC	1	NR	1	3	3
Diazinon AG500	1	5	0	3-7	5-7
Diazinon 14G	**	**	**	**	**
Dyfonate 4EC	NR	*	*	NR	*
Dyfonate 20G	NR	NR	30	NR	8
DiSyston 8EC	30	NR	28	NR	30-42
DiSyston 15G	30	NR	40	NR	30-42
Malathion EC	1-5	3	5	1-3	3-7
Imidan 50WP	NR	NR	NR	NR	NR
Penncap-M	15	NR	3	NR	21
MetaSystox-R	NR	**	7-21	7-14	3-7
Lannate 1.8L	1-2	10	0	3	1-3
Nudrin 1.8L	1	3	0	1-3	1-3

NR = Not Registered
* = Planting time application only
** = Registered, preharvest interval not indicated on label

TREATMENT GUIDELINES/ECONOMIC THRESHOLDS

These are intended to assist farmers, consultants and other agriculturists in making decisions regarding treatment of pests. They are intended to be interpreted as flexible guidelines, NOT AS RULES THAT APPLY TO EVERY SITUATION. Used conscientiously, they will be a great help in making treatment decisions. However, bear in mind that many variables affect your decision, including level of insects present in the field, anticipated price, relative effectiveness of controls, available equipment and cost and availability of various pesticides. Timing and accuracy of application, plus the effects of weather also determine the ultimate degree of control.

SUGARBEET INSECTS

Sugarbeets require a long growing season to develop maximum sugar content. During this period, they are subject to attack by insects, both above and below ground. Good production practices such as proper seed bed preparation, crop rotation, fertilization, clean crop culture and proper irrigation tend to minimize pest damage. Major insect pests of beets are the sugarbeet webworm, root maggots, armyworms, cutworms, and flea beetles.

INSECT CONTROL RECOMMENDATIONS FOR SUGARBEETS

Insect	Insecticide	Formulation or Rate AI/Acre	Restrictions
Aphids	malathion 57EC	1.0 lb	Wait 3 days if tops are to be used for feed.
	phorate (Thimet 20G)	4.5 oz of form./1000 ft/row (Minimum 20 inch row spacing).	Do not place granules in direct contact with seed. Wait 30 days before harvest. Do not feed tops or silage to dairy cattle. See label.
	parathion 4EC	0.5 lb	Wait 15 days before harvest.
	aldicarb (Temik 15G)	1.0-2.0 lb	Drill granules 1 to 3 in. below seed line. Granules can be placed in seed furrow if rate does not exceed 7 lb form. per acre. (at planting)

	✋ disulfoton (Disyston 8EC)	1.0 lb	Do not apply directly to seed. No more than 3 times /season. 30 day harvest restriction. Min. 21 day between appls. IMPORTANT! Read label (planting or sidedress).
	disulfoton (Disyston 15G)	6 oz form./ 1000 ft/row. (for any row spacing).	Do not apply directly to seed. Not more than 3 times/season. 30 day harvest restriction. Min. 21 days between app. IMPORTANT-read label!
	oxydemeton-methyl (Metasystox-R)	0.37-0.75 lb	Do not apply more than 6 times/season. Harvest restriction: 30 days either beets or beet tops for feed or forage.
	✋ methamidophos (Monitor 4)	0.5-1.0 lb	Wait 30 days.
Flea beetle adults	✋ parathion 4EC	0.5 lb	Wait 15 days.
Leafhoppers	diazinon 50W, AG500	0.5 lb	No restriction listed.
	✋ disulfoton (Disyston 8EC)	1.0 lb	Wait 30 days.
	oxydemeton-methyl (Metasystox-R)	0.75 lb	Wait 30 days.
	carbaryl (Sevin)	1.5 lb	Wait 14 days.
	naled (Dibrom)	1.0 lb	Wait 5 days.
	✋ aldicarb (Temik 15G)	2-3 lb	Drill granules 1-3 in. below seed line. Granules can be placed in seed furrow if rate does not exceed 7 pounds per acre (at planting).
	phorate (Thimet 20G)	4.5 oz. form. /1000 ft row any row spacing (Min. 20 in spacing.)	App. drilling/broadcast when seeding. Do not place granules in direct contact with seed. 30 day harvest restriction. Do not feed livestock tops.

Webworms	trichlorfon (Dylox 80SP, 4SL)	1.5 lb	Wait 14 days.
	carbaryl (Sevin 80WP)	1.5 lb	Wait 14 days
	parathion 4EC	0.5 lb	Wait 15 days.
	methomyl (Lannate, Nudrin)	0.5 lb	Wait 7 days. 30 days before grazing tops.
Soil Insects	diazinon 14G, AG500, 50W	3.0 lb	Broadcast on soil and immediately work into the upper 6 in.
	phorate (Thimet 20G)	1.0 lb	Apply in a band close to seed row, BUT NOT IN CONTACT WITH SEED at planting time.
Beet Root Maggot	phorate (Thimet 20G)	4.5 oz form./ 1000 ft row	Do not place in contact with seed. Apply at planting or postemergence.
	terbufos (Counter 15G)	4-8 oz form/ 1000 ft row (any row spacing.)	One appl./year, may be used at planting or postemergence.
	diazinon 14G	8 oz form./ 1000 ft row	Apply ahead of press wheel in a 5-7 inch band (at planting). Do not apply in direct contact with seed.
	diazinon 14G	6 oz form./ 1000 ft row	Apply as 5-7 in. band as postemergence treatment.
	fensolfothion (Dasanit 15G)	8 oz form./ 1000 ft row.	Apply in 4-6 inch band 1 inch above seed. Do not apply in direct contact with seed. On extremely narrow row spacings, do not place treated zones closer together than 6 inches.
	fonofos (Dyfonate 20G)	5 to 7.5 lb formulation/ acre.	Apply in 7 in band over row at planting. Lightly incorporate. Do not place in direct contact with seed.

	carbofuran (Furadan 15G)	9 oz form./ 1000/ft row.	7 in band over the row at planting.
	chlorpyrifos (Lorsban 15G)	4.5-9 oz form./1000 ft of row.	Apply planting treatment in front of press wheel. Incorporate postemergence treatment 1/2 in to 1 in. Do not make more than one appl.
	✋ aldicarb (Temik 15G)	1.5 - 2.1 lb	Apply granules in a 2-4 inch band over seed row. Immediately work into the soil or cover with soil OR, where furrow irrigation is employed drill granules 2 inches deep and 2 inches from seed row on water furrow side.
Grasshoppers	malathion 57EC	1.5 lb	Wait 3 days.
	malathion ULV 95%	0.5 lb	Wait 7 days.
	diazinon (AG500)	0.5 lb	Wait 7 days.
	carbaryl (Sevin)	1.5 lb	Wait 14 days.
	✋ parathion	0.5 lb	Wait 15 days.
Armyworms	carbaryl (Sevin)	1.5 lb	Wait 14 days.
	carbaryl (Sevin 5% bait)	2.0 lb	Wait 14 days.
	✋ parathion	0.5 lb	Wait 15 days.
Beet Armyworm	trichlorfon (Dylox)	1.0 lb	Wait 14 days.
	✋ methomyl (Lannate, Nudrin)	0.5 lb	Wait 7 days. 30 days before grazing tops.
	chlorpyrifos (Lorsban 4E)	0.5-1 lb	Wait 30 days. Apply only 8 pints total per season.
Cutworms	chlorpyrifos (Lorsban 15G)	6.5-9 oz form. /1000 ft of row.	Apply at planting as 5 inch band in front of press wheel. Incorporate postemergence treatment 1/2 inch to 1 inch. Only one application per year.

	trichlorfon (Dylox 80SP)	10 to 20 oz. formulation	Wait 14 days before harvest.
	chlorpyrifos (Lorsban 4E)	0.37 - 0.5 lb	Wait 30 days before harvest or grazing. Apply only 8 pt. total/season.
Symphylans & Wireworms	fonofos ✋(Dyfonate 4EC)	4 lb.	Broadcast prior to planting and incorporate.
	(Dyfonate 20G)	40 lb. formulation	Broadcast prior to planting and incorporate
	diazinon 14G	21-28 lb.of formulation	Apply prior to planting; incorporate at 4-8 in.
	diazinon AG500	3-4 lb.	Apply prior to planting; incorporate at 4-8 in.

✋ Restricted Use

DRY BEAN INSECTS

The dry bean growing area of Nebraska lies primarily in the Panhandle and in the southwest, where irrigation is essential for successful production. Major insect pests are the western bean cutworm and the Mexican bean beetle.

CONTROL RECOMMENDATIONS FOR DRY BEAN INSECTS

Insect	Insecticide	Rate AI/Acre or Formulation When Noted	Use Instructions and Restrictions
Aphids	phorate (Thimet 20G)	4.5-7 oz form. /1000 ft row	No direct contact with seed
	dimethoate (Cygon 400)	0.25-0.5 lb	Beans may be harvested on day of application. Do not feed treated vines.
	malathion 57EC	1.0 lb	Wait 1 day.
	diazinon (AG500)	0.5 lb	Wait 7 days.
	naled (Dibrom 60EC)	1.0 lb	Wait 4 days.
	✋ parathion 4EC	0.5 lb	Wait 15 days.

fenvalerate (Pydrin 2.4EC)	0.1-0.2 lb	Repeat as necessary. Pea aphid only. Do not exceed 0.8 lb AI/acre per season. Do not graze livestock on treated vines.
demeton (Systox 6E)	0.38-0.5 lb	Apply specified dosage by air or ground in sufficient water for coverage, but not less than 1 gallon per acre. Repeat as necessary but not more than 3 times per season nor within 30 days of harvest.
disulfoton (Disyston 8EC)	1.0 lb	Wait 60 days. 6 to 8 inch band and lightly incorporate. Avoid seed contact.
methyl parathion (Penncap-M)	0.5 lb	To avoid injury to bees, do not apply during the period from 7 days prior to first bloom through peak bloom. After this time, Penncap-M may be applied to beans as long as bees are not actively visiting the area. Do not apply within 15 days of harvest.
phorate (Thimet 20G)	4.5-7 oz of formulation/ 1000 ft row (minimum 30 in. spacing).	Distribute the granules evenly in the row to the side of the seed at planting. Do not place granules in direct contact with seed. Do not feed the foliage of treated beans within 60 days of treatment.
azinphos-methyl (Guthion 2S)	0.37-0.5 lb	Apply specified dosage per acre by air or ground equipment in sufficient water for complete coverage but not less than 1 gallon per acre. Do not apply to dry beans within 30 days of harvest. Do not exceed 4 applications/season. Do not or ensile treated forage.

Grasshoppers	dimethoate (Cygon 400)	0.25-0.5 lb	Beans may be harvested on day of application. Do not feed treated vines.
	✋ fenvalerate (Pydrin 2.4 EC)	0.1-0.2 lb	Repeat as necessary to maintain control. Do not exceed 0.8 lb AI/acre per season. Do not feed or graze livestock on treated vines. Wait 21 days.
Leafhoppers	dimethoate (Cygon 400)	0.25-0.5 lb	Beans may be harvested on day of application.
	✋ fenvalerate (Pydrin 2.4EC)	0.1-0.2 lb	Repeat as necessary to maintain control. Do not exceed 0.8 lb AI per acre per season. Do not feed or graze livestock on treated vines. Wait 21 days.
	carbaryl (Sevin 80S)	2.0 lb	No restrictions
	phorate (Thimet 20G)	4.5 - 7 oz form./1000 ft. row (min 30 in row)	Distribute granules evenly in row to side of seed at planting. Do not place in direct contact with seed. Do not feed foliage of treated beans within 60 days of treatment.
	malathion 57EC	1.0 lb	Wait 1 day
	✋ methyl parathion (Penncap-M)	0.5 lb	To avoid injury to bees, do not apply during the period from 7 days prior to first bloom through peak bloom. After this time, apply to beans as long as bees are not actively visiting area. Do not apply within 15 days of harvest.
Mexican bean beetle	PREPLANT - Treat if beetles were a problem the previous season.		
	disulfoton (Disyston 15G)	1.0 lb or 6 oz form/ 1000 ft row	Wait 60 days. Banded (light incorporation) or sidedress. Avoid seed contact.
	✋ disulfoton (Disyston 8)	1.0 lb	Wait 60 days. 6 to 8 inch band and lightly incorporate.

methyl parathion (Penncap-M)	0.5 lb	To avoid injury to bees, do not apply during the period from 7 days prior to first bloom through peak bloom. After this time, Penncap-M may be applied to beans as long as bees are not actively visiting the area. Do not apply within 15 days of harvest.
phorate (Thimet 20G)	4.5-9.4 oz form./1000 ft. row (min 30 in row)	Distribute granules evenly in row to the side of seed at planting. Do not place in direct contact with seed. Do not feed foliage of treated beans within 60 days of treatment.
aldicarb (Temik 15G)	1.0-2.0 lb	Drill granules 2-3 inches below seed line OR 2-3 inches to side of seed row and 2-3 inches deep.

FOLIAR - Treat if egg masses on undersides of leaves average 1 or more per 6 plants.

carbaryl (Sevin 80S)	0.5 lb	No restrictions
trichlorfon (Dylox 4LS)	1.0 lb	Wait 14 days
methomyl (Lannate, Nudrin)	0.5 lb	Wait 25 days
malathion 57 EC	0.5 lb	Wait 1 day
malathion ULV	0.5 lb	Wait 1 day.
azinphos-methyl (Guthion 2S)	0.5 lb	Apply specified dosage per acre by air or ground in sufficient water for complete coverage but not less than 1 gallon per acre. Repeat as necessary. Do not apply to dry beans within 30 days of harvest. Do not exceed 4 applications on dry beans. Do not feed or ensile treated forage.

	✋ fenvalerate (Pydrin 2.4EC)	0.05-0.1 lb	Repeat as necessary to maintain control. Do not exceed 0.8 lb AI/acre per season. Do not graze livestock on treated vines.
Western bean cutworm	carbaryl (Sevin 80S)	1.0 lb	No restrictions.
	✋ fenvalerate (Pydrin 2.4EC)	0.1-0.2 lb	Repeat as necessary to maintain control. Do not exceed 0.8 lb AI/acre per season. Do not feed or graze livestock on treated vines.
	trichlorfon (Dylox 80SP)	0.5-1.0 lb	Apply specified dosage per acre using sufficient water for complete coverage but not less than 1 gallon per acre. Repeat as necessary. Do not apply within 14 days of harvest.

✋ Restricted Use

SUNFLOWERS
(NebGuide G80-498)

The sunflower is attacked by a number of insect pests. The control of these pests sometimes requires an application of insecticides during sunflower bloom. Sunflower is highly attractive to bees. To avoid damage to pollinators, first scout fields to be sure an economic population of pests exists. If treatment is needed, warn all beekeepers within 2 miles of the intent to spray and allow time for hives to be covered or moved. Treat fields after 8:00 p.m. since bees usually have left the field by that time.

Sunflowers should be scouted for pests regularly to determine the need for treatment. Economic thresholds may vary depending on whether the sunflower is being grown for oil or seed (confectionary). Check labels for harvest and other use restrictions (listed at the end of this section).

SUNFLOWER HEAD MOTH

The sunflower (or sunflower head) moth Homoeosoma electellum (Hulst) is probably the most serious sunflower insect pest. The buff to gray colored moths are approximately 3/8" long with a 3/4" wing span. When at rest, the wings are rolled tightly against the body. Eggs are deposited among the florets on the face of the flower head. Eggs hatch within 40-72 hours and larvae begin to feed on florets and developing seeds. The majority of eggs are laid on the third day after the onset of bloom and up to 90% are laid within 7 days after onset of bloom. Controls must be

applied at early bloom (first ray flowers visible) for acceptable results. Controls are directed at the adult moths, to prevent egg laying. Scout and treat for the sunflower moth in the evening when moths are most active. Control if 1-2 adults are found per 5 plants.

REGISTERED FOR CONTROL OF SUNFLOWER HEAD MOTH
Rates are active ingredient per acre.
See Sunflower Insecticide Restrictions.

✋ carbofuran (Furadan 4F)..... 1.0 lb
chlorpyrifos (Lorsban 4E)..... 0.5 - 0.75 lb
endosulfan (Thiodan 50WP)..... 1.0 lb
✋ methidathion (Supracide 2E)..... 0.5 lb
✋ methyl parathion ..... 1.0 lb
✋ parathion 8E, 8F ..... 0.5-1.0 lb

✋ Restricted Use

SEED WEEVILS

Two species of seed weevils occur in Nebraska. One is reddish-brown and slightly over 1/8 inch in length. The other is grayish and about 1/4 inch in length. Both have prominent snouts. Adults lay eggs during late bloom in the newly developing seeds and the C-shaped, legless larvae feed in the seed. Control is directed at the adults to prevent egg laying. Treat if 10-12 adults are found per plant (oil) or 1-3 adults are found per plant (confectionary) at 85-100% bloom.

REGISTERED FOR CONTROL OF SEED WEEVILS
Rates are active ingredient per acre.
See Sunflower Insecticide Restrictions.

✋ carbofuran (Furadan 4F)..... 1.0 lb
chlorpyrifos (Lorsban 4E)..... 0.5-0.75 lb
✋ methidathion (Supracide 2E)..... 0.5 lb
✋ methyl parathion..... 1.0 lb

STEM WEEVIL

The stem weevil is about 3/16" long, grayish-brown with white dots on its wing covers. Adults are often found in the leaf axils. Eggs are laid in and larvae feed in the lower stalk, which may cause lodging. Control is primarily directed at the adult weevils. Treat if 2 adults are found per plant at the 14-leaf to early bud stage.

REGISTERED TO CONTROL STEM WEEVIL
Rates are active ingredient per acre
See Sunflower Insecticide Restrictions

carbaryl (Sevin 80S, XLR)..... 1.0-2.0 lb
✋ carbofuran (Furadan 4F)..... 1 lb
chlorpyrifos (Lorsban 4E)..... 0.5-0.75 lb
✋ methidathion (Supracide 2E)..... 0.5 lb
carbofuran (Furadan 15G).....8-16 oz. form./1000 linear feet of row. 7 inch band or infurrow. Apply at planting.

CUTWORMS

Control cutworms if over 20% of the plants are damaged and/or cut and cutworms are less than 3/4" long.

REGISTERED TO CONTROL CUTWORMS
Rates are active ingredient per acre.
See Sunflower Insecticide Restrictions.

carbaryl (Sevin 80S, XLR)..... 1.5 lb
chlorpyrifos (Lorsban 4E)..... 1.0-1.5 lb

Chlorpyrifos is also registered for preplant incorporation (Lorsban 4E) and planting time applications (Lorsban 15G) for control of cutworms.

SUNFLOWER BEETLE

The sunflower beetle is cream colored with 3 dark stripes on each wing cover. The head is reddish-brown. These 1/4-3/8 inch long beetles resemble Colorado potato beetles. The larvae are yellowish-green and hump-backed in appearance. These are early season pests with larvae appearing shortly after the adults. Control if 1-2 adults or 10-15 larvae are found per seedling.

REGISTERED TO CONTROL SUNFLOWER BEETLE
Rates are active ingredient per acre
See Sunflower Insecticide Restrictions.

carbaryl (Sevin 80S, XLR)..... 1.0-2.0 lb
carbofuran (Furadan 4F)..... 0.125-0.25 lb
chlorpyrifos (Lorsban 4E)..... 0.5-0.75 lb

Carbofuran (Furadan 15G) is also registered for a planting time application at 16 oz. form. per 1000 linear feet of row in a 7 inch band or infurrow.

GRASSHOPPERS

Control grasshoppers if 8 or more are found per square yard and/or 25% defoliation has occurred.

REGISTERED FOR CONTROL OF GRASSHOPPERS
Rates are active ingredient per acre.
See Sunflower Insecticide Restrictions.

carbaryl (Sevin 80S, XLR)..... 1.0-1.5 lb
carbofuran (Furadan 4F)..... 0.125-0.5 lb
chlorpyrifos (Lorsban 4E)..... 0.5 lb

Carbofuran (Furadan 15G) is also registered as a planting time treatment. Apply at 8-16 oz from./1000 ft. row in a 7 in. band or infurrow.

HEAD-CLIPPER WEEVIL

This 1/4 inch long, metallic black weevil is active for a short time in mid-to-late summer. Females girdle the stem just below the developing head. Eggs are laid in the head, which later falls to the ground. Control guidelines have not been established for this insect and no insecticides are specifically registered for its control.

SUNFLOWER INSECTICIDE RESTRICTIONS

Insecticide	Restrictions and Comments
carbaryl (Sevin 80S, XLR)	Do not apply within 60 days of harvest. Do not allow animals to graze in treated areas.
✋ carbofuran (Furadan 4F)	Do not apply within 18 days of harvest. Do not apply more than 4 times per season.
chlorpyrifos (Lorsban 4E)	Do not apply within 42 days of harvest. Do not allow livestock to graze in treated areas. Do not apply more than 4.5 lbs AI (9 pints formulation) per acre per season.
endosulfan (Thiodan 50WP)	No harvest restriction. Do not exceed 3 appl. Do not feed treated forage to livestock.
✋ methidathion (Supracide 2E)	Do not apply within 50 days of harvest. No more than 3 applications per season at least 7 days apart. Do not graze treated areas or feed treated forage to livestock.
✋ methyl parathion	Do not apply within 30 days of harvest. No more than 3 applications per season at least 5 days apart. Do not feed seeds to birds.
✋ parathion	Do not apply within 30 days of harvest. No more than 3 applications per season at least 5 days apart.

✋ Restricted Use

ALFALFA SEED INSECTS

Concerns of the seed producer differ from those of the farmer growing alfalfa for forage or hay. Several insects attack the flowers or seeds of alfalfa but do little harm to the vegetative parts. Insect counts are usually taken by the use of a sweep net. The sampling unit used in alfalfa seed fields is a series of five straight (90°) sweeps with a 15 inch diameter sweeping net. The net should be held and swung while walking so the lower half of the opening is drawn through the foliage. (Sweeping nets can be purchased from: Wards Natural Science Establishment, Inc., P.O. Box 1712, Rochester, NY or Carolina Biological Supply Co., Burlington, NC 27215 or Nasco Ag. Sciences and Technological Supply, Fort Atkinson, WI 53538.) Some insects are sampled by cutting stems with a knife, gently lifting them out of the foliage, and observing and counting the insects. Sample at least five different areas in each field, no closer than 30 feet from the field edge.

Protect Pollinators

Legumes in bloom are highly attractive to bees. To prevent bee losses and reduce the hazard, observe the following:

1. Select an insecticide of low toxicity to bees.

2. Never spray a crop in bloom unless it is absolutely necessary.

3. Spray during late evening hours (after 8PM) after the bees have left the fields for the day.

4. Notify local beekeepers with bee yards located within two miles of fields to be sprayed.

5. Do not dump unused sprays - they may become bee poisoning hazards. Honeybees collect water to cool the hive, frequently from puddles.

6. Sevin and Penncap-M are extremely hazardous to bees and are not recommended for use on alfalfa seed fields.

ALFALFA WEEVIL
(NebGuide G73-30)

Watch for the first sign of larval feeding in April and May. Larvae feed in the tips of alfalfa stems and early damage appears as tiny shotholes. Look for small, greenish or yellowish larvae, about 1/8" long, with dark brown heads and a white stripe down the middle of the back. The worms will grow to about 3/8" long. Treat if 35% or more of the tips are damaged.

REGISTERED FOR ALFALFA WEEVIL LARVAL CONTROL

Insecticide	Rate AI/Acre	Restrictions
azinphos methyl (Guthion 2S)	0.25-0.75 lb	Apply only once per cutting. See label for harvest restrictions.
carbofuran (Furadan 4F)	0.25-1.0 lb	Apply only to pure stands of alfalfa. Only 1 application/season. Do not move bees into treated areas within 7 days of treatment. See label for harvest restrictions.
chlorpyrifos (Lorsban 4E)	0.5-1.0 lb	Do not apply more than once/cutting. See label for harvest restrictions.
diazinon (AG500)	1.0 lb	Wait 10 days.
diazinon 10% plus methoxychlor 20% (Alfacide)	see label	Do not apply during bloom. Wait 7 days.

diazinon 0.8 lb plus methoxychlor 1.6 lb (Alfatox)	see label	Do not apply during bloom. Repeat if necessary. Wait 7 days before harvest.
malathion 57EC	1.25 lb	No time limitations.
✋ methomyl (Lannate, Nudrin)	0.9 lb	Wait 7 days. Do not apply to dormant or semi-dormant alfalfa when temp. is 50 ° F or lower. Do not apply when alfalfa is in bloom.
methoxychlor 25EC	1.5 lb	Wait 7 days.
phosmet (Imidan 50WP)	1.0 lb	Only 1 application per cutting. Do not graze or cut for 7 days.
✋ ethyl parathion 8EC	0.5 lb	Wait 15 days.
✋ methyl parathion 8EC	0.5 lb	Wait 15 days. Do not apply during bloom.
✋ methidathion (Supracide)	0.5-1.0 lb	Wait 10 days. One application per cutting.

✋ Restricted Use

LYGUS BUGS

Lygus bugs are major pests of alfalfa seed in most areas of the country. Both adults and nymphs feed on buds, flowers, and seeds. Adults are green or brown sucking bugs, about 3/16 inch long and about half as wide. There is a distinct triangle about 1/3 of the distance down the back. The young (called "nymphs") are tiny, aphid-like in appearance, and bluish-green in color. Nymphs can be distinguished from adults by the presence of wing pads instead of wings.

Lygus bugs do their greatest damage by feeding on alfalfa buds. Nymphal feeding is more destructive than that of adults. Alfalfa buds bleach, die, and drop 2 to 5 days after feeding. Bugs also feed on immature seeds, puncturing the pods and feeding on the seeds, causing them to turn brown and shrivel. Lygus bug feeding during blossoming causes flowers to drop, although not all flower drop is attributed to lygus bugs.

Economic levels of Lygus bugs for various growth stages are as follows (nymphs count as adults because of greater damage potential): prebloom - 2 per sweep, full bloom - 5 per sweep, postbloom - 8 per sweep. Prebloom sprays should be applied 7 to 14 days before pollinators appear.

REGISTERED FOR CONTROL OF LYGUS BUGS

Insecticide	Rate AI/Acre	Restrictions
dimethoate (Cygon 400)	0.5 lb	Prebloom only. Do not feed, graze, or harvest within 10 days of application. Use at least 7 days before bloom.
carbofuran (Furadan 4F)	1.0 lb	Prebloom only. One application per season. Do not harvest or graze within 28 days of application. Use at least 14 days before bloom.
endosulfan (Thiodan 3EC)	1.5 lb	Prebloom only. 21 days to harvest. Do not feed treated forage to meat or dairy animals. Use at least 7 days before bloom.
methidathion (Supracide 2EC)	0.5-1.0 lb	Prebloom only. Do not harvest or feed treated foliage within 10 days of application. Use at least 7 days before bloom.
trichlorfon (Dylox 80SP)	1.0-1.5 lb	Prebloom or bloom. Wait 7 days to harvest. Alkaline spray waters can reduce effectiveness. Increase acidity to pH 5.5 or 6.

Restricted Use

APHIDS

Spotted alfalfa aphids are small (1/16 inch long) pale yellow or grayish aphids with 4 to 6 rows of dark spots on the back. Spotted alfalfa aphids inject a toxin that kills leaves, causing them to drop. These aphids also produce large amounts of honeydew which supports the growth of a black sooty mold which covers leaves and lower portions of the stem. An average of one aphid per plant in seedling stands can kill the entire field. In older stands, treat when 20-30 aphids are found per stem. Since spotted alfalfa aphids are found on the lower portions of the plant, cut stems with a sharp knife and gently lift plants to count the aphids on the stem and undersides of leaves.

Pea aphids and blue alfalfa aphids are about 1/8 inch long and difficult to separate in the field. They range from yellowish to bluish-green. The blue alfalfa aphid has uniformly brown antennae and the pea aphid has a narrow dark band at the top of the third antennal segment. The blue alfalfa aphid is a more serious pest than the pea aphid. It injects a toxin causing stunting, shortened internodes, and a yellowing and crinkling of leaves. Heavy infestations of pea aphids cause plants to wilt. Normally, pea aphid populations must be 300 or more per sweep to justify controls. Blue alfalfa aphids can cause damage at lower levels. Apply prebloom materials at least 7 days before bloom to protect pollinators.

REGISTERED FOR CONTROL OF APHIDS

Insecticide	Rate AI/Acre	Restrictions
✋ disulfoton (Disyston LC)	1.0 lb	Prebloom. Do not apply within 14 days of harvest.
dimethoate (Cygon 400, DeFend)	0.5 lb	Prebloom only. Do not feed, graze, or harvest within 14 days of application.
chlorpyrifos (Lorsban 4E)	0.5 lb	Prebloom only. Do not cut or graze within 14 days of application. Do not make more than 4 applications per year.
diazinon	0.5 lb	Prebloom. Use at temperatrues of 60 F or higher. 7 day harvest restriction.
malathion 57EC	1.25 lb	Prebloom. Use at temp. of 60° F or higher. 7 day harvest restriction.
✋ methidathion (Supracide 2E)	0.5 lb	Prebloom. Do not harvest or feed treated foliage within 10 days of application.
oxydemeton methyl (Metasystox-R)	0.25 lb	Prebloom or bloom. Do not cut green crop for hay or forage or harvest within 21 days of treatment.

✋ Restricted Use

ALFALFA SEED CHALCID

The alfalfa seed chalcid is a small, jet black shiny wasp about 1/12 inch long. Eggs are laid in the spring and larvae develop within the seed. No chemical control program is available for the alfalfa seed chalcid. Destroy or burn chaff stacks and screenings early in the spring. Remove volunteer and waste area alfalfa plants since these act as a reservoir for the pest. Cultivation and irrigation in the fall will reduce overwintering chalcid populations.

GRASSHOPPERS

Dimethoate (Cygon, Defend) or carbofuran (Furadan 4F) sprays at prebloom will provide good control of grasshopper nymphs. See previous section on alfalfa forage for description of grasshoppers and damage.

VETCH

Insect management is important in producing vetch seed. Particular care must be taken so that beneficial pollinators are not damaged. Refer to guidelines given in the forage alfalfa section with regard to bee protection.

While several insects may attack the vetch crop, the pea aphid and vetch bruchid are probably the most important. Pea aphids are sucking insects which remove sap from stems and leaves. The vetch bruchid is a small beetle which deposits its eggs in vetch seed pods, the larvae feeding on the developing vetch seed.

REGISTERED FOR VETCH INSECT CONTROL

Insect	Insecticide	Rate AI/Acre	Restrictions
Pea Aphid	malathion 57EC	1.0-1.5 lb	Prebloom only.
	✋ parathion 4EC, 8E, 8F	0.25-0.5 lb	Wait 15 days before harvest.
Vetch Bruchid	malathion 57EC	1.0-1.5 lb	Prebloom only. 0 days before harvest. Temperatures 60 ° F or higher. Apply insecticides to kill adults before they lay eggs. This should be done as the first pods appear in the fields and harvest.
	✋ methyl parathion 4E	0.5 lb	Prebloom only.
Armyworms	✋ parathion 4EC, 8E, 8F	0.25-0.50 lb	Wait 15 days before harvest

✋ Restricted Use

POTATO INSECTS

Even a slight amount of feeding injury on vegetables, due to standards set by Federal and State authorities, can render them unmarketable. Therefore, insect losses on truck crops are high in proportion to the amount of plant consumed.

Soil Insects

FLEA BEETLES

Two species of flea beetles attack the potato tuber, either etching the surface or making small tunnels (referred to as "slivers") in the tuber.

REGISTERED FOR CONTROL OF FLEA BEETLES

Insecticide	Rate AI/Acre	Use & Restrictions
✋ aldicarb (Temik 15G)	14.5-23 oz form./ 1000 ft row	Apply at planting according to label directions. Do not harvest within 90 days. Furrow or band 2 lb in lighter soil, 3 lb in heavy soil.
phorate (Thimet 20G)	11.3-17.3 oz form./1000 ft row.	Band application at planting time or in furrow. Wait 90 days before row harvest. 2 lb sandy soils, 3 lb heavy soils.
disulfoton (Disyston 15)	15.0 to 23.0 oz form./1000 ft row	Band application at planting. Do not apply within 75 days of harvest. 2 lb sandy soil, 3 lb heavy soil.
carbofuran (Furadan 15G)	24 oz form. per 1000 ft row	Apply into bottom of furrow during planting.

✋ Restricted Use

WIREWORMS

Wireworms are difficult to control. Wireworm damage is most likely when planting potatoes after sod. Hard-bodied, slender brown larvae bore into the underground stem causing the young plants to wither and die. Tubers have long slender tunnels eaten into them.

REGISTERED FOR CONTROL OF WIREWORMS

Insecticide	Rate AI/Acre	Restrictions
phorate (Thimet 20G)	11.3-17.3 oz form./1000 ft row	Band application at planting. 2 lb sandy soil, 3 lb heavy soil.
✋ fonofos (Dyfonate 4E)	4.0 lb	Preplant broadcast application - incorporate into the top 3-4 inches by discing.
fonofos (Dyfonate 20G)	2.0 lb	Preplant broadcast application - incorporate into the top 3-4 inches by discing.
fensolfothion (Dasanit 15G)	5.0 lb	Preplant broadcast incorporate 3-4".
diazinon (AG500)	0.75 - 1.5 lb	Preplant broadcast application incorporate immediately into top 4-8 inches by disk or harrow

✋ Restricted Use

CUTWORMS

Cutworms affecting the potato crop include black, dingy, and dark-sided cutworms.

REGISTERED FOR CONTROL OF CUTWORMS

Insecticide	Rate AI/Acre	Restrictions
✋ methamidophos (Monitor 4)	0.75-1.0 lb	Do not apply latter than 14 days before harvest.
carbaryl (Sevin 80S)	2.0 lb	Apply to soil surface when pests first appear. Troublesome where soil cracking occurs. Use sufficient water to obtain uniform soil coverage.
✋ permethrin (Pounce 3.2EC)	0.1-0.2 lb	7 day harvest restriction. See label.
diazinon (AG500, 50W, 14G)	2 - 4 lb	35 day harvest restriction.
✋ fenvalerate (Pydrin 2.4EC)	0.1 - 0.2 lb	See label. Do not graze livestock

✋ Restricted Use

FOLIAR INSECTS ON POTATO

CONTROL RECOMMENDATIONS FOR FOLIAR INSECTS

Insect	Insecticide	Rate AI/Acre	Restrictions
Flea beetle adults	carbofuran (Furadan 4F)	0.5 - 1.0 lb	Do not apply within 14 days of harvest.
	azinphos-methyl (Guthion 2S)	0.75 lb	Keep field margin free of weeds. Apply with sufficient water for coverage. Do not apply within 7 days of harvest.
	methamidophos (Monitor 4)	0.75-1.0 lb	Apply in a 7-10 day preventive program or as necessary. Do not apply within 14 days of harvest.
	methyl parathion (Penncap-M)	0.5-1.0 lb	Do not apply within 5 days of harvest.
	permethrin (Pounce 3.2EC)	0.1-0.2 lb	7 day harvest restriction. No more than 12/season. Do not graze or feed.
	carbaryl (Sevin 80S)	1.0 lb	No restrictions
	endosulfan (Thiodan 50WP)	1.0 lb	Do not plant root crops other than carrots, potatoes, sugar beets, and sweet potatoes as follow-up crops.
	fenvalerate (Pydrin 2.4EC)	0.1-0.2 lb	Do not exceed 1.4 lb AI/acre/season. Do not graze livestock on treated vines.
	phosmet (Imidan 50WP)	1.0 lb	Do not apply within 7 days of harvest.
	permethrin (Ambush 2E & 25W)	0.05-0.2 lb	7 day harvest restriction.
Grasshoppers	dimethoate (Cygon 400)	0.5 lb	Apply to hoppers in field margins before they move into fields. Potatoes may be harvested on day of application.
	carbaryl (Sevin 80S)	1.5 lb	No restrictions

Potato Psyllid	carbaryl (Sevin 80WP)	2.0 lb	No restrictions
	endosulfan (Thiodan 50WP)	1.0 lb	Do not plant root crops other than carrots, potatoes, sugarbeets and sweet potatoes as follow-up crops.
	disulfoton (Disyston 8,15G)	2.0 -3.0 lb	Do not apply within 75 days of harvest.
	fenvalerate (Pydrin 2.4EC)	0.05-0.1 lb	Do not graze livestock on treated vines. Do not exceed 1.4 lb AI/acre/season.
	permethrin (Ambush 2E & 25W)	0.05-0.2 lb	7 day harvest restriction.
Aphids: Green Peach Potato Buckthorn	dimethoate (Cygon 400)	0.5 lb	Apply control when 5 or more aphids are caught in traps.
	methamidophos (Monitor 4)	1.0 lb	Monitor - hazardous to bees & parasites. Do not graze livestock. Do not exceed 1.4 lbs AI/acre/season.
	fenvalerate (Pydrin 2.4EC)	0.1-0.2 lb	Do not graze livestock on treated vines.
	permethrin (Ambush 2E & 25W)	0.05-0.2 lb	7 day harvest restriction
	diazinon (Ag500, 50W)	0.25-0.375 lb	35 day harvest restriction
Leafhoppers	carbaryl (Sevin 80S)	1.5 lb	No restrictions
	phosmet (Imidan 50WP)	2.0 lb	Do not apply within 7 days of harvest.
	fenvalerate (Pydrin 2.4EC)	0.1-0.2 lb	Do not graze livestock on treated vines.
	diazinon (AG500)	0.357-0.5 lb	35 day harvest restriction.
	methyl parathion (Penncap-M)	0.5-1.0 lb	Do not apply within 14 days of harvest.

	carbofuran (Furadan 4F)	0.5-1.0 lb	14 day harvest restriction. No more than 8/season.
	dimethoate (Cygon 400)	0.5 lb	No restrictions.
	permethrin (Ambush)	0.05-0.2 lb	7 day harvest restriction
	permethrin (Pounce 3.2EC)	0.1-0.2 lb	7 day harvest restriction. Do not graze.
Colorado Potato Beetle	carbaryl (Sevin 80S)	1.0 lb	No restrictions
	fenvalerate (Pydrin 2.4EC)	0.05-0.1 lb	Do not graze livestock.
	methamidophos (Monitor 4)	0.75-1.0 lb	Do not graze livestock.
	phorate (Thimet 20G)	17.3 oz form. /1000 ft row.	90 day harvest restriction.
	phosmet (Imidan 50WP)	1.0 lb	7 day harvest restriction.
	endosulfan (Thiodan 50WP)	1.0 lb	Do not plant root crops other than carrots, potatoes, sugarbeets, or sweet potatoes as follow-up crops.
	permethrin (Ambush 2E & 25W)	0.05-0.2 lb	7 day harvest restriction.
	(Pounce 3.2EC)	0.1-0.2 lb	7 day harvest restriction. Do not graze livestock.
	diazinon (AG500, 50W)	0.25-0.375 lb	35 day harvest restriction.

Armyworm	carbaryl (Sevin 80S)	2.0 lb	Apply to nearby vegetation before they
	✋ fenvalerate (Pydrin 2.4Ec)		See label. Do not graze livestock.
	✋ methamidophos (Monitor 4)	0.75 -1.0 lb	Do not graze livestock.
European Corn Borer	✋ azinphos-methyl (Guthion 50WP)	0.5 lb	Occurs in eastern 2/3 of Nebraska. Do not apply within 7 days of harvest.
	carbofuran (Furadan 15G)	1.5 lb/1000 ft. row.	Apply direct in seed furrow during planting.
	✋ carbofuran (Furadan 4F)	0.5 -1.0 lb	14 day harvest restriction.
	carbaryl (Sevin 80S)	2.0 lb	No restrictions
	✋ permethrin (Pounce 3.2EC)	0.1-0.2 lb	7 day harvest restriction. Do not graze.
	✋ methyl parathion (Penncap-M)	0.5-1.0 lb	Do not apply within 14 days of harvest.
	✋ fenvalerate (Pydrin 2.4EC)	0.1 -0.2 lb	See label. Do not graze.
	✋ methamidophos (Monitor 4)	0.75 - 1.0 lb	Do not graze livestock.

✋ Restricted Use

ONIONS
(NebGuide G76-304)

Onion acreage in Nebraska fluctuates from year to year. A trend toward increased acres is noted when year to year comparisons are made. The main insect pests of onions in Nebraska are the onion maggot and thrips. In addition to the chemical controls listed below, crop rotation will aid in onion maggot management.

REGISTERED FOR CONTROL OF ONION INSECTS

Insect	Insecticide	Rate AI/Acre or Formulation When Noted	Use Instructions and Restrictions
Onion maggot	diazinon 14G	14-28 lb formulation	Broadcast prior to planting and incorporate 3-4 inches.
	diazinon 50W	21 lb formulation	Apply in sufficient water to drench seed furrow at planting.
	diazinon AG500	1.0 lb	Apply in sufficient water to drench seed furrow at planting.
Onion maggot Adults	malathion 57EC	2.5 to 3 pt. of formulation	Wait 3 days to harvest. Begin spraying when flies first appear and repeat every 10 to 14 days.
Thrips	diazinon 50W	0.5 lb	Wait 10 days to harvest.
	diazinon AG500	0.5 lb	Wait 10 days to harvest.
	✋ azinphos-methyl (Guthion 2S)	0.5-0.75 lb	Apply specified dosage per acre, by air or ground equipment, in sufficient water to give complete coverage, but not less than 1 gallon per acre. Do not apply more than 3 times per season, nor within 28 days of harvest of dry onions, or 7 days of harvest of green onions.
	malathion 57EC	0.93 lb	Wait 3 days.
	✋ methomyl (Lannate, Nudrin)	0.45 lb	Add wetting agent. Wait 7 days dry, 28 days green.
	✋ methyl parathion (Penncap-M)	0.5 lb	Do not apply when onions are blooming to avoid injury to bees. Do not apply within 15 days of harvest.

✋ Restricted Use

CONTAINER DISPOSAL

Proper disposal of insecticide containers is very important. Serious accidents have occurred when "empty" containers have not been disposed of safely. Suggested methods of disposal are:

Paper Bags: Be certain that all contents have been emptied into applicators or tanks. Burn paper containers, not to exceed 50 pounds, in open fields where: 1) regard is given to wind direction in relation to people, domestic animals, and water supplies, 2) where such burning is not in violation of Federal, State or local ordinances, and 3) provisions are made to avoid contamination of surface water.

Metal, Glass, or Plastic Containers: Thoroughly rinse containers at least 3 times with water and dump rinse material into tanks to be used with regular applications. Recycle 5 gallon or larger metal drums where possible after complete decontamination. Containers that cannot be recycled 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, man, or animals.

Abbreviations

AI/A - Active Ingredient Per Acre
EC - Emulsifiable Concentrate
WP - Wettable Powder
G - Granular
LC - Liquid Concentrate
L - Liquid
Form. - Formulation
SP - Soluble Powder
S - Soluble
LS - Liquid Solution
lb - Pound
oz - Ounce
F - Flowable

Restricted Use (applicators must have EPA certification)

Metric Conversion Table

English	*Multiply by*	*Metric*
Foot (ft)	0.254	Meter (m)
Acre (A)	0.4	Hectare (ha)
Mile (mi)	1.6	Kilometer (km)
Fluid Ounce (fl oz)	29.57	Milliliter (ml)
Pint (pt)	0.473	Liter (l)
Quart (qt)	0.946	Liter (l)
Gallon (gal)	3.784	Liter (l)

1985

PLANT DISEASE, WEED AND INSECT INFORMATION

Plant Pathology, Weed Science, and Insect newletters have been combined into one mailing package by the Nebraska Cooperative Extension Service. Because plant diseases, insect infestations and weeds are often closely related, you receive timely information on all three of these areas. A minimum of 24 issues of the newsletter packet will be produced and mailed during the season starting in March, 1985.

The main thrust of the packet will be on crops, but will also include advisories on lawn and garden problems as warranted.

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