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STUDY THE LABEL

STUDY THE LABEL

INSECT CONTROL RECOMMENDATIONS FOR ORNAMENTAL PLANTS AND LAWNS

NEBRASKA

Compiled by Extension Entomologists

University of Nebraska
College of Agriculture and Home Economics
Lincoln, Nebraska

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Insect control recommendations in this guide are based on research results of central states universities, U.S.D.A. recommendations, and label registrations. Weather, type and thoroughness of application, time of application, and other conditions will vary and may affect the degree of control. Suggestions contained herein are designed to benefit when control programs are needed. Recommendations are subject to withdrawal or change at any time.

In some instances trade names have been used to simplify recommendations. No endorsement is implied by the Nebraska Cooperative Agricultural Extension Service, and no discrimination is intended.

EXTENSION SERVICE, UNIVERSITY OF NEBRASKA
COLLEGE OF AGRICULTURE AND HOME ECONOMICS AND
U. S. DEPARTMENT OF AGRICULTURE COOPERATING
E. F. FROLIK, DEAN E. W. JANIKE, DIRECTOR

PRECAUTIONS: Insecticides are useful and effective when used properly to protect plants from destructive insects. All of them are poisonous to some degree and must be handled, used, and stored with care and proper safety precautions. Labels provide necessary information about safe use, storing, handling, and treatment of accidental poisoning. It is very important that labels be studied before using any pesticide. In case of accidental poisoning a physician should be contacted immediately, and the patient taken to the nearest hospital for treatment and observation. The Nebraska Master Poison Center is located at the Childrens Memorial Hospital, Omaha, Nebraska. The telephone number is 553-5400, area code 402. Physicians can obtain latest treatment information from this center.

FORMULATIONS: Insecticides are available as solutions, wettable powders, emulsion concentrates, dusts, and granules.

Solutions are intended for household use and must never be applied to plants. Oil in the solution will damage or kill living plants.

Wettable powders are suspended in water before spraying. The wettable powders are safer on plants than emulsion concentrates as there is no oil. Wettable powders will leave a more visible deposit.

Emulsifiable concentrates are mixed with water before spraying. They are more resistant to washing off, and normally will provide longer residual deposits. Xylene is the safest solvent on most plants.

Dusts are not as effective as sprays for control of insects attacking ornamental plants. Dusts do not adhere to leaves and wash off readily. More frequent applications are usually required.

Spreader-stickers added to wettable powder sprays will help distribute the deposit of insecticide, and cause it to adhere to the foliage longer. Several commercial spreader-stickers are available. Use them according to the directions on the container. Too much may cause excessive run-off of the spray.

INSECTICIDES TOXIC TO PLANTS: Some insecticides may cause chemical injury to plants. Malathion emulsifiable concentrate should not be used on cannarti junipers. Sevin will severely injure Boston ivy. DDT applications or drift to privet hedge must be avoided. Dormant oil may injure hard maples. Emulsifiable concentrates used in excess may cause some damage to new growth or tender plants. Labels must be studied to determine if the contents will cause injury to specific plants. Wettable powders are less likely to "burn" foliage than are emulsifiable concentrates.

SYSTEMIC INSECTICIDES: Systemic insecticides are chemicals that will be absorbed through the leaves or roots and translocated throughout the plants making the entire plant poisonous to insects. They are used primarily for sucking insects such as aphids, mites, leafhoppers, and scales. The two available to the home gardener are Cygon (dimethoate), an emulsifiable concentrate, and Di-Syston (Scope) as a 2% granular form. Cygon is absorbed through the leaves, Di-Syston is used in the soil and taken up through the roots. Di-Syston is a highly toxic material to animals and must be used with extreme caution. Both materials have limitations as to the variety of plants they can be used on. The lists of plants not injured by these products are on the labels. Do not use them on any other variety.

EQUIPMENT: For spraying small trees and ornamentals, most of the commercially available compressed air sprayers are satisfactory. Attachments on the end of garden hoses can be used for application of emulsifiable concentrates, but are not generally satisfactory for wettable powders.

Large trees require mist blowers or hydraulic sprayers for efficient coverage. The amounts listed for 100 gallons of water in this guide are intended for hydraulic spraying. A five or six percent DDT or methoxychlor emulsion is suggested for mist blower to control leaf feeders such as cankerworms and leaf beetles. Sprays containing 5% Sevin prepared from "4-flowable" or "85 sprayable" can also be used in mist blowers. For control of sucking insects such as aphids, scales, and leafhoppers with mist blowers a lower concentration and a higher volume of application would be necessary.

MIXING INSECTICIDES: Insecticides should not be mixed unless you are certain the mixture is safe and serves a purpose. Some mixtures may result in a spray that is more toxic than either alone. For control of both sucking and chewing insects the following mixtures are suggested:

<u>MATERIAL</u>	<u>AMOUNT TO 1 GALLON WATER</u>
METHOXYCHLOR 50% WP	2 level tablespoons
or	
SEVIN 50% WP	2 level tablespoons
or	
DDT 50% WP	2 level tablespoons
PLUS	
MALATHION 25% WP	2 level tablespoons
or	
DIAZINON 25% WP	2 level tablespoons

ABBREVIATIONS: Abbreviations used in this circular are:

- WP wettable powder
- EC emulsifiable concentrate
- Pts. pints
- Lbs. pounds
- Tbls. tablespoons
- Tea. teaspoons
- Gal. gallons

HOST	INSECT	INSECTICIDE	AMOUNT TO 100 GAL. WATER	AMOUNT TO 1 GAL. WATER	WHEN TO APPLY
ASH	Borers	DDT 25% EC	1 Gal.	3 Tbl.	Spray trunk and lower branches 3 times beginning May 1 at 3 week intervals.
		Dieldrin 18% EC	1 Gal.	3 Tbl.	
	Leaf feeders	Sevin 50% WP	2 Lbs.	2 Tbl.	
		DDT 50% WP	2 Lbs.	2 Tbl.	
BIRCH	Borers	Methoxychlor 50% WP	3 Lbs.	3 Tbl.	Spray trunks and branches in mid- May, early June, and late June.
		DDT 50% WP	6 Lbs.	6 Tbl.	
	Oyster shell scale	Dieldrin 50% WP	3 Lbs.	3 Tbl.	
		Same as for cherry			
BOX- ELDER	Boxelder bugs	Sevin 50% WP	4 Lbs.	4 Tbl.	
		Chlordane 45% EC	2 Qts.	1 Tbl.	
		Dieldrin 18% EC	3 Qts.	2 Tbl.	
CEDAR (Juniper)	Bagworms	Sevin 50% WP	3 Lbs.	3 Tbl.	Control in June. Add spreader.
		Arsenate of lead	6 Lbs.	3 Tbl.	
	Spider mites	Aramite 15% WP	2 Lbs.	1 Tbl.	
		Dimite 25% EC	2 Pts.	2 Tea.	
		Chlorobenzilate 25% EC	2 Pts.	2 Tea.	
		Kelthane 18% EC	2 Pts.	2 Tea.	
		Tedion 25% WP	2 Lbs.	1 Tbl.	
		Diazinon 25% EC	2 Pts.	2 Tea.	
	Webworms	Malathion 25% WP	2 Lbs.	2 Tbl.	
		Diazinon 25% EC	2 Pts.	2 Tea.	
CRAB	Borers	Same as for Ash			

HOST	INSECT	INSECTICIDE	AMOUNT TO 100 GAL. WATER	AMOUNT TO 1 GAL. WATER	WHEN TO APPLY
CHERRY	Aphids	Malathion 57% EC	2 Pts.	2 Tea.	Apply when eggs hatch, about June 1, and repeat in 7 to 10 days.
		Diazinon 25% EC	2 Pts.	2 Tea.	
	Oyster shell scale	DDT 50% WP	2 Lbs.	2 Tbl.	
		Sevin 50% WP	2 Lbs.	2 Tbl.	
		Malathion 57% EC	2 Pts.	2 Tea.	
	Leaf- hoppers	DDT 50% WP	2 Lbs.	2 Tbl.	
Sevin 50% WP		2 Lbs.	2 Tbl.		
Malathion 57% EC		2 Pts.	2 Tea.		
ELM	European elm scale	Sevin 50% WP	2 Lbs.	2 Tbl.	Spray when eggs begin to hatch, usually early July. Repeat in 10 days.
		DDT 50% WP	2 Lbs.	2 Tbl.	
		Diazinon, 25% EC	2 Pts.	2 Tea.	
		Malathion 57% EC	2 Pts.	2 Tea.	
	Canker worm	Same as for scale			In early spring when infestations are first observed.
	Elm leaf beetle	Same as for scale			
	Aphids	Same as for cherry			
	Leaf- hoppers	Same as for cherry			
	Bark beetles	DDT 25% EC	8 Gal. for hydraulic sprayers		Before April 1
Methoxychlor 25%		100 Gal. for mist blowers			

HOST	INSECT	INSECTICIDE	AMOUNT TO 100 GAL. WATER	AMOUNT TO 1 GAL. WATER	WHEN TO APPLY
HACK- BERRY	Nipple gall	Sevin 50% WP Cygon 46% EC Diazinon 25% EC	2 Lbs. 1 Qt. 1 Qt.	2 Tbl. 2 Tea. 2 Tea.	As leaf buds show green. Repeat in 10 days.
	Witches broom	Lime-sulfur	11 Gal.		
LILAC	Borers	DDT 25% EC Dieldrin 18% EC	1 Gal. 1 Gal.	3 Tbl. 3 Tbl.	Spray canes in mid May. Repeat every 3 weeks for 3 appli- cations.
	Oyster shell scale	Same as for cherry			
LINDEN	Lacebugs	DDT 50% WP	2 Lbs.	2 Tbl.	When leaves show injury.
	Leaf- hoppers	Same as for lacebugs			
	Aphids	Same as for cherry			
HONEY LOCUST	Pod gall midge	Sevin 50% WP DDT 50% WP	2 Lbs. 2 Lbs.	2 Tbl. 2 Tbl.	Apply in April
	Mimosa webworm	Cygon 46% EC Sevin 50% WP	1 Qt. 2 Lbs.	2 Tea. 2 Tbl.	
	Borers	Same as ash			About July 1

HOST	INSECT	INSECTICIDE	AMOUNT TO 100 GAL. WATER	AMOUNT TO 1 GAL. WATER	WHEN TO APPLY
BLACK LOCUST	Borers	Same as ash			When goldenrod is in full bloom.
MAPLE	Bladder galls	Lime-sulfur	11 Gal.		Dormant spring. Do not allow on paint. As buds swell in spring.
		Malathion 57% EC	3 Pts.	3 Tea.	
	Aphids	Same as for crab			
	Cottony Maple Scale	Same as for Pine Needle scale			
OAK	Borers	Same as for ash			
	May Beetles	DDT 50% WP	2 Lbs.	2 Tbl.	When injury noted.
		Sevin 50% WP	2 Lbs.	2 Tbl.	
	Kermes scale	Malathion 57%	2 Pts.	2 Tea.	At egg hatch in June. Repeat twice 10 days apart.
PINE	Tip moth	DDT 50% WP Sevin 50% WP	2 Lbs. 2 Lbs.	2 Tbl. 2 Tbl.	Apply to tips first week of May and first week of June.
	Bagworms	Same as for cedar			
	Spider mites	Same as for cedar			

HOST	INSECT	INSECTICIDE	AMOUNT TO 100 GAL. WATER	AMOUNT TO 1 GAL. WATER	WHEN TO APPLY
PINE (con't)	Needle scale	Malathion 57% Sevin 50% WP	2 Pts. 2 Lbs.	2 Tea. 2 Tbl.	In June when eggs hatch. Repeat in 10 days.
POPLAR AND COTTON- WOOD	Borers	DDT 25% EC Dieldrin 18% EC	1 Gal. 1 Gal.	2 Tbl. 2 Tbl.	In June, and repeat in 20 days.
	Leaf- beetles	Same as for May beetles on Oak.			
	Scales	Same as for Cherry			
RED- BUD	Leaf- hoppers	DDT 50% WP Sevin 50% WP	2 Lbs. 2 Lbs.	2 Tbl. 2 Tbl.	When infestations are causing bleaching of leaves.
	Lace- bugs	Same as for leafhoppers			
	Leaf- folder	Same as for leafhoppers			
SPRUCE	Needle miner	Diazinon 25% EC	3 Pts.	1 Tbl.	When damage is observed.
	Spider mites	Same as for cedar			
	Bagworms	Same as for cedar			
	Pine needle scale	Same as for pine			
SYCA- MORE	Lacebugs	Same as for linden			
WALNUT	Cater- pillars	DDT 50% WP	2 Lbs.	2 Tbl.	In June when webs first appear

HOST	INSECT	INSECTICIDE	AMOUNT TO 100 GAL. WATER	AMOUNT TO 1 GAL. WATER	WHEN TO APPLY
WILLOW	Scale	Same as for cherry			
	Aphids	Same as for cherry			
ANNUALS AND PERENNIALS					
	Aphids	Same as for cherry			
	Chewing insects (general)	DDT 50% WP Sevin 50% WP	2 Lbs. 2 Lbs.	2 Tbl. 2 Tbl.	
	Cutworms	Chlordane 5% dust			Work in- to soil around plants, or use 5 lbs. to 1,000 Sq.Ft. before planting.
	Leaf- hoppers	DDT 5% dust DDT 50% WP Sevin 50% WP Dibrom 64% EC Malathion 57% EC	 2 Lbs. 2 Lbs. 1 Pt. 3 Pts.	 2 Tbl. 2 Tbl. 1 Tea. 3 Tea.	Spray or dust under- sides of leaves.
	Leaf- rollers	Same as for leafhoppers			
	Plant bugs	Same as for leafhoppers			
	Spider mites	Same as for cedar			
	Thrips	Same as for chewing insects			
	Rose slugs	Same as for chewing insects			
	Slugs	Metaldehyde baits Zectran 25% WP Sevin 50% WP	 3 Lbs. 3 Lbs.	 9 Tbl. 3 Tbl.	Apply 1 Gal. Spray/ 150 sq. ft.

INSECT	MATERIAL	AMOUNT TO 1000 SQUARE FEET	APPLICATION
LAWNS			
Sod webworms	DDT 10% G	1 1/2 Lbs.	Apply with fertilizer spreader.
	DDT 25% EC	1 Pt.	Apply in 5 gallons water as a spray.
	Diazinon 2% G	6 Lbs.	Apply with fertilizer spreader.
	Diazinon 25% EC	1/2 Pt.	Apply in 5 gallons water as a spray.
	Sevin 50% WP	2 Cups	Apply in 10 - 15 gallons water.
	Dieldrin 5% G	2 Lbs.	Apply with fertilizer spreader.
White grubs	Aldrin 20% G	1 - 2 Lbs.	Apply with fertilizer spreader.
	Dieldrin 5% G	2 Lbs.	Water into soil thoroughly.
	Heptachlor 20% G	1 - 2 Lbs.	
Cutworms and armyworms	DDT 25% EC	1 Pt.	Apply in 5 gallons water.
	Sevin 50% WP	2 Cups	Apply in 15 gallons water.
	Chlordane 45% EC	1/2 Pt.	Apply in 5 gallons water.
Ants	Chlordane 45% EC		2 tablespoons to 1 gallon of water. Spray hills thoroughly.
Leafhoppers	DDT 25% EC	3 Oz.	Apply in 5 gallons water.
	Malathion 57% EC	1 Oz.	Apply in 5 gallons water.
	Diazinon 25% EC	1 Oz.	Apply in 5 gallons water.
Fleas	Sevin 50% WP	2 Cups	Apply in 15 gallons water.
	Malathion 57%	5 Tbl.	Apply in 15 gallons water.
Chiggers	Malathion 57%	5 Tbl.	Apply in 5 gallons water.
	Diazinon 25% EC	5 Tbl.	Apply in 5 gallons water.
	Chlordane 45% EC	1 Pt.	Apply in 5 gallons water.
	Toxaphene 45% EC	1 Pt.	Mix with 5 gallons of water and apply at the rate of 3 quarts of mixed spray to 100 Sq. Ft.
	Lindane 20% EC	1/2 Cup	

INSECT	MATERIAL	AMOUNT TO 1000 SQUARE FEET	APPLICATION
LAWNS (con't)			
Millipedes	Seven 50% WP	8 Oz.	Apply in 25 gallons water.
	Zectran 22% EC	10 Oz.	Apply in 15 gallons water.
	Zectran 25% WP	15 Oz.	
	Malathion 4% D		Apply to infested areas.
Wasps	DDT 10% D		Apply liberally to burrows.
	Chlordane 5% D		
Clover mites	Chlorobenzilate 25% EC	2 Tea. per 1 Gal. Water	Spray lawn adjacent to buildings and 10 feet into lawn in early September.
	Kelthane 18% EC	2 Tea. per 1 Gal. Water	
	Diazinon 25% EC	2 Tea. per 1 Gal. Water	
	Dimite 25% EC	2 Tea. per 1 Gal. Water	
	Malathion 57% EC	1 Tbl. per 1 Gal. Water	