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1968 CHEMICAL SUGGESTIONS FOR COMMUNITY FLY AND MOSQUITO CONTROL PROGRAMS IN NEBRASKA

Lloyd W. Andersen, Robert E. Roselle, David L. Keith
Extension Entomologists

"Chemical Suggestions for Community Pest Control Programs in Nebraska" has been prepared by University of Nebraska Extension Entomologists, Department of Entomology and the Environmental Health Services to aid communities in mosquito and fly control programs. These suggestions are based on the latest information available from the U.S.D.A., U.S. Public Health Service, research results of State Universities and label registrations.

Suggested chemicals in this publication are subject to change or withdrawal at any time.

Caution: All insecticides are poisonous and must be used with caution. This is especially true of concentrates before dilution. All precautions on the labels should be studied carefully and followed.

Fly Control

The basic tenet of controlling flies is sanitation. Any chemical measure, to fulfill its objective, must be preceded by adequate sanitation efforts to reduce or eliminate fly breeding sources.

Residual Sprays for Adult Fly Control

Insecticide	For 50 gallons of finished spray use:	Remarks
Dimethoate (Cygon) 2E (23.4%)	2 gallons	Remove dairy animals, calves under 1 month, poultry and pigs during spraying.
Diazinon 50 WP	8 pounds	
4 E	1 gallon	Do not use near livestock.

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

Insecticide	For 50 gallons of finished spray use:	Remarks
Fenthion (Baytex SC)	1 - 1.5 gallons	Not registered for use in dairies, poultry houses or food processing plants.
Malathion 57EC	3 gallons	
Korlan (Ronnel) 25EC	2 gallons	

A good "rule of thumb" to follow when applying residual insecticides is to spray the surface until the material begins to run off the area.

Larval Control

Insecticide	Amount	Remarks
Dimethoate (Cygon) 2E (23.4%)	$\frac{1}{2}$ pt. per 1.4 gal. water	Avoid contamination of feed or water and drift of spray on animals.
Malathion 57EC	5 oz. per 3 gal. water	
Diazinon 50 WP	2 oz. per 5 gal. water	Apply to poultry droppings only if poultry are on wire mesh.

Apply 7 to 14 gallons per 1000 sq. feet as a coarse spray. Repeat as necessary, usually in 7 to 10 days.

Mosquito Control

Community mosquito control can be divided into five categories:

1. Permanent elimination of breeding areas.
2. Temporary elimination of breeding areas.
3. Chemical treatment against mosquito larvae.
4. Chemical treatment against mosquito adults.
5. Repellents.

Permanent elimination of breeding sites may be achieved by filling or draining waterholes and low areas where rain and surface water collects.

Temporary elimination of breeding sites is achieved through drainage of surface waters and irrigation runoff waters so they will not create additional mosquito breeding areas.

Mosquito Larval Control

The most economical method of mosquito control, other than the elimination of breeding areas, is larval control. A small amount of insecticide placed in a body of water containing mosquito larvae will bring about effective control.

Insecticide	Amount Per Acre	Remarks
Abate (4 lb. per gal.)	$\frac{1}{2}$ - $1\frac{1}{2}$ fl. oz.	Apply as a uniform spray in sufficient water for good coverage.
Abate (1% granules)	5 - 10 pounds	May be applied as spot treatments to catch basins and similar areas where mosquitoes may breed.
Malathion 57EC	3/4 pint	
Fenthion (Baytex 46% SC)	$1\frac{1}{2}$ fluid oz.	Apply as a uniform spray in sufficient water or oil to obtain uniform coverage, or per $1\frac{1}{2}$ gal. water or oil for localized applications.
Fenthion (Baytex 1% granules)	5 - 20 pounds	Use higher rate when water is deeper than 1 foot.

Adult Mosquito Control

When extensive breeding sites are located adjacent to or near communities, successful adult control is difficult to achieve. Adult control should be supplemented by the elimination of breeding sites and larval control. The success of chemical treatments depends on the thoroughness of application and weather conditions. Apply sprays to grass, shrubbery, trees, weeds, buildings, or other places where mosquitoes rest during the day.

Residual Spray Application

Insecticide	Amount	Remarks
Fenthion (Baytex 46% SC)	2 - 4 oz. per gal. water	Apply to 500 sq. ft. to runoff in localized areas.
Malathion 57EC	3 gal. to 100 gal. water	
Methoxychlor 50 WP	24 pounds to 50 gal. water	

Outdoor Space Spraying

Outdoor space treatments, when properly timed and applied, can temporarily reduce adult mosquito populations. Apply with mist blowers or thermal fogging equipment in areas that have annoying mosquito populations.

Mist Blowers

Insecticide	Amount	Remarks
Malathion 57EC	6 percent emulsion (4 - 8 oz. per gal.)	Apply as a mist from dusk to dawn. Dispense at rate of 7 to 25 gal. per mile at a vehicle speed of 5 mph.
Fenthion (Baytex 46% SC)	$\frac{1}{2}$ to 1.5 oz. per gal.	
Naled (Dibrom 8)	1 gal. to 100 gal. water	

Thermal aerosols or "fogs" may be used effectively in the environmental control of adult mosquitoes when effective insecticides and correct application techniques are used. Use foggers only when windspeed is 2 - 5 mph., in late evenings or early morning hours.

Insecticide	Amount	Remarks
Fenthion (Baytex 81%)	1 gal. to 100 gal. No. 2 Diesel	Fogs are applied at the rate of 40 gal. per hour from a vehicle moving at 5 mph.
Malathion 95	2.5 gal. to 100 gal. No. 2 Diesel	
Malathion 50 oil conc.	5 gal. to 100 gal. No. 2 Diesel	
Naled (Dibrom 14)	3.1 qts. to 99 gal. No. 2 Diesel	
Dichlorvos (Vapona 90%)	1 pt. to 16 gal. No. 2 Diesel	
Dichlorvos (Vapona 4EC)	1 qt. to 12.5 gal. water	

Some of these products are available in combinations, with other knock-down agents.

Aerial Spraying for Mosquito Control

Nebraska always faces a severe mosquito outbreak following excessive rains and floods. Mosquitoes will be especially numerous after floodwaters subside. Aerial application of insecticides is one of the most effective and fastest methods of controlling adults and larvae. Selection of material and application of the right amount per acre is important. The following materials are cleared for use for area control of mosquito adults:

Material	Pounds Active Ingredient Per Acre
Pyrethrins (o.25% pyrethrins plus 2% piperonyl butoxide)....	0.01 pound pyrethrins
Malathion.....	0.1 to 0.5
Naled (Dibrom).....	0.1 to 0.25
Carbaryl (Sevin).....	0.25 to 0.5
DDT.....	0.2
Dichlorvos (Vapona).....	0.05 to 0.1
Fenthion (Baytex).....	0.05 to 0.1
Lindane.....	0.1 to 0.2

If DDT or lindane are used, they must be used only in situations where there is no danger to fish, or drift to feed or food crops. The residual activity of these two products will be slightly longer than others listed.

Malathion, Dibrom, and pyrethrins can be used to control adult mosquitoes on pastures, forage areas, and rangelands...The others cannot be used in these situations, or where they might drift into pastures, or crops, or in areas with livestock present.

Do not spray or allow insecticide to drift to fish bearing waters, regardless of the material used. If control of larvae is necessary near or in streams, ponds, and lakes that are used for fishing, the least hazardous material is Abate.

For larval control, use one of the following:

	Amount per acre
Malathion 57% EC.....	3/4 pt. in water or oil
Abate 4E.....	$\frac{1}{2}$ to $1\frac{1}{2}$ fluid ounces in water

Abate is more toxic to mosquito larvae than malathion, and is relatively non-toxic to fish at levels required for mosquito control. It breaks down rapidly after application, but the high initial kill may suppress adult emergence for 10 to 14 days.

Guidelines for the Spray Operator

I. Know the material being applied and read and understand the label directions on the pesticide container for preparing and applying it.

II. Avoid prolonged exposure to the spray and wear protective clothing and headgear. Special care should be exercised to prevent skin contamination and inhalation when handling insecticide concentrates (use impermeable aprons and respirators).

III. Avoid contamination of foods or drinking water of man and animals.

IV. When pesticide contamination of the body occurs, wash the affected area quickly and thoroughly with soap and water. Wash routinely after each spraying. If accidental contamination occurs contact your doctor immediately, who then in turn can contact the nearest Poison Control Center.

Nebraska Master Poison Control Center (Omaha)..... AC 402 - 553-5400
Denver Poison Control Center (Denver)..... AC 303 - 204-6969

V. Keep spray equipment clean and in good working condition.

VI. Store pesticides in their own original labeled containers out of the reach of children and animals.

VII. Dispose of empty containers safely (bury under two feet of soil), flush insecticidal equipment into areas where contamination will not affect crops, ornamentals, wildlife or man.

VIII. Know the emergency measures for treatment of accidental poisoning.