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John B. Campbell
University of Nebraska - Lincoln, jcampbell1@unl.edu

NebGuide

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Mosquito Control Guide

John B. Campbell
Extension Entomologist

The annoying bite of the mosquito not only interferes with human work and leisure time but may also transmit encephalitis. Persistent mosquito attacks on cattle can cause weight loss and force cattle out of river pastures. *Aedes vexans, Aedes dorsalis, Aedes nigromaculis, Psorophora signipennis* (occurring throughout the season), *Culex tarsalis* and *Culiseta inornata* (occurring relatively late in the season) are the most abundant species in Nebraska.

Life Cycle

Water is necessary for mosquito breeding. In irrigated or flooded areas, they develop in drainage and seepage water. In non-irrigated areas, they develop during rainy periods in most water impounded areas.

Female mosquitoes lay eggs on water or in moist areas. The eggs of most species hatch within 2 or 3 days, although some species require a drying period and thus remain dormant for some time.

The larvae (wigglers) feed on bits of organic matter in the water. Most species come to the surface of the water periodically to obtain air through an elongated tube. The larval stage lasts about a week.

The pupae are comma-shaped (tumblers) with an enlarged head region. The pupal stage generally lasts only 2 or 3 days before changing to the adult stage.

Control

Eliminating mosquito breeding areas is the first step in a mosquito control program. Drain or empty containers of standing water. Fill or drain water holding areas around stock handling facilities. If there are moist areas, standing water, pools, marshes or catch basins that cannot be eliminated, examine these areas at weekly intervals for mosquito larvae. Use a white pan or cup to dip out water as larvae can be easily seen against the white background. If larvae are present, apply one of the following insecticides:

Insecticide	*Amount/Acre Water*	*Restrictions*
Abate (temephos)		
4 EC*	0.5 to 1.5 fl. oz.** Mix with water or diesel oil from uniform distribution.	Do not apply to water containing fish. Do not use on forage or pasture.
2% Granulated	2.5 to 5 lbs.*	Do not apply to water containing fish. Do not use on crops, forage or pasture.
Altosid (methoprene)		
SR-10	3 to 4 fl. oz.**	Apply to second through fourth instar larvae.
Briquet	1/100 sq. ft. of water	Apply to second through fourth instar larvae.
Baytex (fenthion)		
Liquid Concentrate	2/3 fl. oz. Mix with water or diesel oil for uniform distribution.	Do not apply to water containing fish. Treatment interval - 3 wks.
4 EC	1.5 to 3 fl. oz.** Mix with water or diesel oil for uniform distribution.	Do not apply to water containing fish. Treatment interval - 3 wks.
Dursban (chlorpyrifos)		
2 or 4 EC	0.4 to 1.6 fl. oz. Mix with water or diesel oil for uniform distribution.	Do not use in water containing fish or crustaceans.
Flit MLO or Fuel oil	3 gallons.	

* EC = emulsifiable concentrate.
** Use higher rates in water with heavy vegetative cover or high in organic matter.

Use biological control methods when standard insecticide resistance has developed in mosquito species. There has been little evidence that resistance has occurred in Nebraska; but if insecticide resistance were to develop, the following bacterial agents (*Bacillus thuringensis* var. *israeliensis*) would provide mosquito control:

Product	*Amount/Acre Water*
Bactimos	2 oz/30 gal water
Teknar	1/2 to 1 pint* Mix with water for uniform distribution.
Vertobac	1/4 to 2 lb* Mix with water for uniform distribution.

*Use higher rates in water with heavy vegetative cover or high in organic matter.

Adult mosquito control is the least efficient practice. Individual homeowners can, however, apply residual sprays to adult mosquito resting areas which include open barns and sheds, weeds, grass, trees and shrubbery around premises for a short duration knockdown effect. These residual insecticides include:

Insecticide	*Rates & Mixture*	*Restrictions*
Baytex (fenthion)	46.0% EC - 4 fl oz/gal water; 1 gal/ 500 sq ft surface. Apply to point of runoff.	Do not contaminate food or water for animal or human consumption.
Diazinon	4 EC - 2.5 fl oz/gal water; 1 gal/1,000 sq ft surface. Apply to point of runoff.	Do not contaminate food or water for animal or human consumption.
Dimethoate (Cygon)	43.5% EC - 2.5 fl oz/gal water; 1 gal/ 1,000 sq ft surface. Apply to point of runoff.	Do not contaminate food or water for animal or human consumption.
Malathion	57% EC - 2.25 fl oz/gal water; 1 gal/ 1,000 sq ft surface. Apply to point of runoff.	Do not contaminate food or water for animal or human consumption.

Mosquito Abatement Districts as well as federal, state, county or city governments can use mist blowers, foggers (hot and ULV) or aircraft for adult mosquito control. Insecticides used as area sprays include malathion, naled (Dibrom), fenthion (Baytex), dichlorvos (Vapona), and chlorpyrifos (Dursban).

Metric Conversion Table

English	*Multiply By*	*Metric*
Square foot (sq ft)	0.09	Square meter (m^2)
Acre (A)	0.4	Hectare (ha)
Pound (lb)	0.45	Kilogram (kg)
Tablespoon (Tbl)	15	Milliliter (ml)
Fluid ounce (fl oz)	30	Milliliter (ml)
Pint (pt)	0.47	Liter (l)
Gallon (gal)	3.8	Liter (l)

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