

Preventing Disease Transmission in Livestock and Poultry

VECTORS: MOSQUITOES



Mosquitoes can spread diseases to animals and people. Control programs should focus on decreasing their numbers to reduce the risk of disease spread to you and your animals.

Efforts to control ticks on your farm can help protect your animals.

THE MOSQUITO LIFE CYCLE

Mosquitoes are members of the Family Culicidae. There are about 200 different species of mosquitoes in the United States.

Each has specific habitats, exhibit unique behaviors, and bite different species of animals. Common mosquito species that transmit diseases to people and animals are *Anopheles*, *Aedes*, and *Culex*.

Mosquitoes develop through 4 life stages: egg, larva (“wigglers”), nymph, and adult. The entire cycle can take as little as four days or as long as one month, depending on species and temperature.

All mosquitoes must have water for their life cycle. Some species lay single eggs on damp soil that is later flooded by water. Others lay an egg raft on the surface of water.

Most eggs hatch within 48 hours. Both the larvae and pupae live in the water, where they feed on organic matter. Only adult mosquitoes transmit diseases to animals.

Diseases of animals that are transmitted by mosquitoes include Eastern equine encephalitis, Western equine encephalitis, Venezuelan equine encephalitis, Japanese encephalitis, West Nile virus and fowl pox.

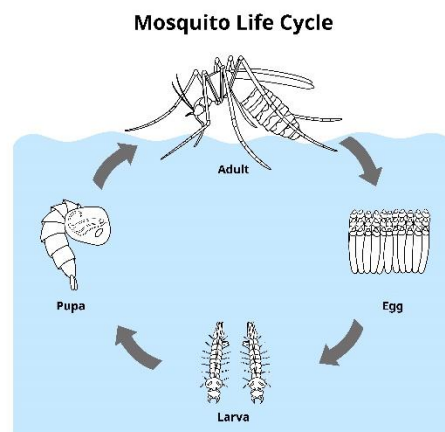


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MOSQUITO CONTROL ON THE FARM

The elimination of mosquitoes on the farm is not likely. However, various prevention and control measures can reduce exposure of your animals and prevent disease spread.

Mosquito control measures should focus on three key areas: exclusion, source reduction, and control of adults.

Exclusion

Limiting livestock and poultry exposure to mosquitoes can decrease disease transmission risks. Keep animals indoors, especially during peak activity times (e.g., dawn and dusk) to minimize exposure.

Use screens on barn windows and keep them in good repair.



Photo from Glenda Dvorak, CFSPH, Iowa State University

Source Reduction

Source reduction involves the elimination of potential insect breeding areas and life stage habitats. Since mosquitoes require water for development, disrupting, reducing or removing these areas can decrease mosquito populations. This is the one of the best ways to control mosquitoes since these areas can be easily managed.

Control Mosquito Egg- Laying Sites

Mosquitoes lay eggs in areas of standing water. The best way to control mosquitoes is by preventing such habitats on your operation.

- Add drainage holes to structures and containers that may trap water (buckets, barrels, old tires).
- Change or circulate the water in stock tanks, pet bowls and bird baths at least once a week.
- Drain tarps or covers that may collect rainwater after a storm (i.e. silage covers).
- Pick up and properly dispose of all trash, especially anything that could hold water.
- Grade areas where road ruts, potholes and hoofprints exist (e.g., around stock tanks, ponds).
- Fill tree holes with sand, mortar or place drainage holes to prevent standing water.
- Clean roof gutters to prevent them from becoming clogged and holding water.
- Keep weeds and other vegetation mowed and trimmed to minimize shelter for adult mosquitoes.
- Stock ponds with mosquito-eating fish.



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Control of Mosquito Larvae (“wigglers”)

- Disrupt water sources (e.g., aerators) to reduce or eliminate mosquito larvae.
- The use of larvicides is a consideration, but should only be used as a supplemental measure.
 - Check with your local extension office or department of agriculture to determine which pesticides are approved for use in your area.
 - Use only larvicides approved for use in your area.
 - Do not apply pesticides to moving water (i.e. streams, rivers). Many chemicals are highly toxic to aquatic life.
 - Always read and follow all label directions



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- Non-chemical pesticides may be an option to control mosquito larvae.
 - ***Bacillus thuringiensis israelensis* (Bti)**
[pronounced ba-SILL-us--THUR-in-GEE-en- sus--IZ-ral-EN-sus]
 - Bti is a naturally occurring bacterium found in soils. It contains spores that produce toxins that specifically target and only affect the larvae of the mosquitoes (as well as blackflies and fungus gnats).
 - Products are available in various forms. Bti granules can be spread over an area of pasture that is floodprone. Bti donuts or “dunks” can be used to treat stock tanks and ponds.
 - Methoprene products can be used to treat areas that collect water. These include barrels, old tires, or flower pots. Some are labeled for stock tanks.

Control of Adult Mosquitoes

Controlling adult mosquitoes often involves the use of insecticides. Insecticides generally use small chemical droplets that drift through the air and contact adult mosquitoes to kill them. Many products are available. Products commonly contain pyrethrin or malathion. Sometimes special equipment is needed.

This approach for controlling mosquitoes is generally less effective long-term (compared to reducing the source), but may provide a short-term solution. The use of pesticides should only be a supplemental approach for controlling mosquitoes.

- Contact your local extension office or department of agriculture to determine which pesticides are approved for use in your area.
- Use proper precautions when handling or applying products; some are harmful to animals or people.
- Product labels should be read for proper use and any safety issues to animals or people.
- Talk with your local extension agent or a pest control company for assistance in developing a mosquito management plan.

It is a violation of state and federal law to use an insecticide in any manner that differs from the product label. Use only according to label directions to avoid environmental damage, and animal or human injury.

PERSONAL PROTECTION

- Avoid being outdoors during prime mosquito biting times (dusk, dawn).
- Wear long pants and long sleeves to cover skin.
- Use EPA-approved insect repellants containing DEET, picaridin or oil of lemon-eucalyptus
 - [NOTE: DEET can be toxic to pets]
- Keep screens on windows and doors in good repair.

FOR MORE INFORMATION

[Managing Mosquitoes on the Farm](#). University of California, Division of Agriculture and Natural Resources

[BTI for Mosquito Control](#). United States Environmental Protection Agency

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