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Michigan State University
Cooperative Extension Service
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Controlling Insects and Mites ON SWINE

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WARNINGS AND INFORMATION

Pest control in livestock requires year-round management. Livestock are never free of insects and mites.

Pests can lower meat and milk production and make animals more susceptible to disease. Further injury occurs when animals rub against fences, barbed wire, etc., to relieve itching. Improperly used pesticides can injure humans and animals or result in harmful and illegal residues in meat and milk.

Pest control clearly requires that you take the following precautions:

1. Use only the suggested dosages; measure carefully.
2. Do not apply chemicals closer to slaughter than the days given in this bulletin.
3. Read labels before using, and follow all instructions on labels.
4. Provide ventilation while using pesticides.
5. Prevent drift to adjacent cropland, yards, woodlots, lakes or ponds. Some materials may kill fish or wildlife.
6. Avoid treatment when animals are sick (especially in winter), overheated or stressed (shipping, dehorning, castration, recent weaning).
7. Use dust if possible instead of spray on sick or weak animals in winter, or spray on warm day. If sprayed indoors, turn out immediately to dry. Avoid undue exposure of animals to mists and vapors. Do not apply material directly on animals unless directions permit. Read label.
8. Avoid contamination of feed and water.
9. Do not breathe any form of insecticide. Use face masks.
10. If you spill any form of insecticide on the skin, wash immediately with soap and water.



11. Do not add chemical to old dipping water. Start with fresh water to avoid poisoning animals and excess residues in meat.

12. Keep meat and milk away from contaminating chemical.

13. Do not spread treated manure on vegetable cropland unless specific materials are approved. Read label.

14. Do not contaminate feed, mangers, watering cups, milking equipment, milk, wells, ponds or streams with pesticides.

15. Store pesticides in the original, plainly labeled containers, safely locked away from livestock, pets, and children.

16. Provide ventilation during the use of all materials.

FLY CONTROL IN BARN AND BARNYARDS

For best results, use a combination of formulations such as baits, residual sprays, larvicides, barn atomizers, etc., during the fly season. Act promptly. Treat as fly populations begin to build-up. Treat regularly.

SANITATION

- Clean out pens as frequently as possible.
- Spread manure thinly outdoors to kill fly eggs and larvae by drying.

—Get rid of silage seepage areas, wet litter, manure stacks, wet hay or straw and other organic matter.

—Provide proper drainage in barnyards.

SPRAYS

Barn surfaces vary in how much spray can be applied to them. Smooth surfaces take less, rough ones more. Follow instructions for each insecticide. NOTE: Use no more gallons of spray than given in the tables to 1,000 square feet.

Add one of the insecticides to water as indicated in Table 1.

BAITS

Apply baits to clean concrete or wherever flies gather. Baits can be used alone, but should be used in conjunction with wall and ceiling sprays.

Use one of the following:

DRY BAIT — 1% ronnel (Korlan) or dichlorvos; or 1% trichlorfon (Dipterex, Dylox, Neguvon); or 3½% malathion; or ½% naled (Dibrom). Follow manufacturers' label directions. Do not use Diazinon in dairy barns or milkrooms.

WET BAIT — (1) Add ½ pint of a malathion 57% EC plus 1 cup of sugar syrup to 2½ gallons of water; or 2 ounces of Diazinon 50% WP plus 1 pound of sugar in 5 gallons of water. Apply with a sprinkling can or other suitable equipment. (2) Use 1/10% trichlorfon (Dipterex, Dylox, Neguvon); or 1/10% dichlorvos; or 2% ronnel (Korlan) liquid bait. Follow label directions carefully. Do not use Diazinon in dairy barns or milkrooms.

Warnings — Do not apply where animals can slip and fall. Keep away from children.

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Table 1. — INSECTICIDE MATERIALS FOR SPRAY APPLICATION IN BARN.

Chemical	Amount per 1,000 sq. ft.	Comments and Warnings
Dimethoate, 1% in water spray.	1 gal.	Mix 1 gal. of 23.4% EC in 25 gal. of water. Apply thoroughly as a surface spray to interior and exterior surfaces. Remove animals before spraying. Do not contaminate milk or milking equipment.
Fenthion (Baytex), 1.25% in water spray.	2 gals.	Mix 1 quart of 93% LC in 25 gals. of water. Apply thoroughly to walls, ceilings, etc. Do not apply directly to animals. Do not use as a space spray. Do not contaminate milk or milking equipment.
Malathion, 1% in water spray.	1 to 2 gals.	Mix 8 lbs. of 25% WP or 2 quarts of 57% EC in 25 gals. of water. Apply thoroughly to walls, ceilings, etc. Do not contaminate milk or milking equipment.
Ronnel (Korlan), 1% in water spray.	1 gal.	Mix 1 gal. 24% EC in 25 gals. of water. Apply to walls, ceilings, etc. Do not contaminate milk or milking equipment.
Diazinon, ½% in water spray.	1 to 2 gals.	Mix 2 lbs. of 50% WP in 25 gals. of water. Apply thoroughly to walls, ceilings and other areas where flies congregate. Do not use in dairy barns, milkrooms or poultry houses. Do not contaminate food, feed, or water.
Ravap (23% Rabon and 5.3% dichlorvos) 1% in water spray.	1 gal.	Mix 1 gal. Ravap in 25 gals. water. Apply to walls, ceilings, etc. of beef and dairy barns, livestock sheds, calf and hog barns and other farm buildings. Do not contaminate milk or milking equipment.

FLY MAGGOTS IN MANURE

Treat manure piles with one of the following mixed in 25 gallons of water:

Dimethoate — 1 gallon emulsion containing 2 pounds chemical per gallon.

Malathion — 3 pints emulsion containing 5 pounds chemical per gallon or 8 pounds 25% wettable powder.

Rabon — 4 pounds 50% wettable powder.

Ronnel (Korlan) — 1 gallon emulsion containing 2 pounds active ingredient per gallon.

Diazinon — 10 ounces of 50% wettable powder. Wet the surface of the manure. It is not necessary to soak it. Repeat as needed.

Warnings: — Do not apply dimethoate, malathion, ronnel or Rabon to livestock unless the package label or Michigan State University literature gives instructions to do so. Do not apply chemically treated manure to vegetable cropland unless specific materials are approved.

SPRAYS FOR FEED LOTS

Removal of manure from feedlots is a must. For sprays around fences, over manure piles and inside walls of loafing pens, use Rabon or ronnel as given for treating inside walls and ceilings of barns.

Warnings: — Do not spray animals directly with these materials unless other sections of this bulletin give approval. Avoid treating livestock-resting areas. Keep these clean and well bedded.

SPRAY FOR OUTSIDE BARN

Use dimethoate, malathion, ronnel, or Fenthion as given for treating inside walls and ceilings. Follow all label instructions for use outside dairy barns. Do not apply to water and feed crops. Do not use Diazinon in dairy barns or milkrooms.

SPACE OR AEROSOL SPRAYS

Space sprays or aerosols containing 0.1% pyrethrins and 1% piperonyl butoxide (½ fluid ounce per 1,000 cubic feet) give satisfactory knock-down and kill of flies. A 1% dichlorvos (Vapona) or naled (Dibrom) insecticide applied as a fog or mist is effective. One pint of a 1% solution will treat 8,000 cubic feet (40 x 20 x 10). Do not use this fogging solution in areas where animals have received a direct application within the previous 8 hours. Avoid contamination of milk and milk utensils. Daily use of atomizers or foggers is necessary when they are used alone. Read the label for mixing instructions.

SWINE PESTS

Hog Louse — is dull gray-brown, ¼ inch long. It pierces the hide, removing blood through tubelike mouth parts.

In cold weather colonies are found mainly inside legs and ears, in skin folds of neck. But any part of the animal's body which offers protection may harbor the pest.

Eggs are laid throughout winter, attached to hairs close to skin. In winter, eggs take about 2 to 3 weeks to

hatch; immature stage lasts 2 weeks. Immature stages and adults live entirely on the animals, except when they fall off accidentally.

Sarcoptic Mange or Itch Mite — is caused by a small (1/50 inch long) white or yellow mite that bores into the hide. An animal having sarcoptic mange is unthrifty; hide is rough and scaly; hair stands erect; and it rubs against objects such as fence posts and corners of buildings.

Areas around eyes, ears, along back and neck are most often affected and may be inflamed, scabby and covered with pimples. The problem usually occurs in fall, winter and spring.

Mange mites bore into skin. Slender winding tunnels of nearly 1 inch in length occur throughout the infested part of the body. Eggs are laid in the tunnels and hatch in 3 to 10 days. Mites can complete a generation (brood) in 2 weeks.

Sarcoptic mange is highly contagious. The mites and their eggs can live in bedding and other places for weeks without food, making infestation or reinfestation of healthy animals easy. Report all mange infestations to the State Veterinarian's Office.

Abbreviations in this bulletin:

WP	means Wettable Powder
EC	means Emulsifiable Concentrate, or Emulsion
LC	means Liquid Concentrate
SC	means Suspension Concentrate
D	means Dust
Tbsp.	means tablespoon
tsp.	means teaspoons

Table 2. — INSECT AND MITE CONTROL PROGRAM FOR SWINE

Pest	Material and Formulation	Min. Days from Last Appl. to Slaughter	Amount per Animal or Area, if Appropriate	Comments
LICE	coumaphos (Co-Ral), ¼ % in water spray.	0	Depends on animal size and hair coat.	Mix 2 lbs. of Co-Ral 25% WP in 25 gals. of water. Repeat as necessary. Spray thoroughly and apply for complete wetting to run-off.
	coumaphos (Co-Ral), 1% dust in Shaker can.	0	1 oz. per	<i>Direct application</i> — Apply uniformly to shoulders and back. Repeat as necessary but not more often than every 10 days.
		0	2 oz. per 30 sq. ft. of fresh dry bedding.	<i>Bedding treatment</i> — Apply to CLEAN, FRESH bedding.
	Ciovap EC (10% Ciodrin and 2.5% dichlorvos), ¼ % in water spray.	0	Depends on animal size and hair coat.	Mix 2½ pints Ciovap EC in 16 gals. of water. Spray animals thoroughly. Repeat as necessary but not more often than once in 7 days.
	Ciodrin, 3% dust (Use as bought.)	0	1 to 2 oz. per animal.	Apply thoroughly, especially around neck and ears. Repeat in 3 to 4 weeks if necessary.
	Korlan 5% granules	0	½ lb. per 100 sq. ft. of area.	One application will control hog lice when animals use bedding regularly.
	lindane, 1% dust. (Use as bought.)	30	Depends on animal size and hair coat.	Do not dust animals less than 3 months old. Do not treat sows within 2 weeks of farrowing or for at least 3 weeks thereafter.
	lindane, 0.06% in water.	30	Depends on animal size and hair coat.	Mix 3 pints of lindane 20% EC, or 2 lbs. of lindane 25% WP per 100 gals. of water. Do not expose animals under 6 months of age. Use hog oiler for breeder stock only.
	malathion, ½ % in water spray.	0	Depends on animal size and hair coat.	Mix 1 quart malathion 57% EC, or 4 lbs. malathion 25% WP per 25 gals. of water. Repeat application, if needed. Do not use on animals under one month old. Spray thoroughly.
	malathion, 4% or 5% dust. (Use as bought.)	0	Depends on animal size and hair coat.	Apply thoroughly to animals. Pens should also be dusted. Repeat only as needed. Pigs less than 1 month old: use ¼ to ½ tablespoon.
	methoxychlor, ½ % in water spray.	0	Depends on animal size and hair coat.	Mix 1 quart of methoxychlor 24% EC in 12.5 gals. of water. Spray thoroughly to wet animals.
	ronnel (Korlan), ¼ % in water spray.	0	Depends on animal size and hair coat.	Mix 1 quart Korlan 24% EC per 25 gals. of water. Do not apply more frequently than once every 2 weeks. Spray thoroughly to wet animals.
	toxaphene, ½ % in water spray.	28	Depends on animal size and hair coat.	Mix 2½ quarts of toxaphene 59% EC per 100 gals. of water. Repeat application after 2 to 3 weeks, if desired. Do not use on animals less than 3 months old. Spray thoroughly.
SARCOPTIC MANGE	fenthion (tiguvon), 8% pour-on.	14	½ fl. oz. per 100 lbs. body weight.	Pour the correct amount of solution along the backline, starting just behind the ears and continuing to the rump. READ THE LABEL.
	lindane, 0.03 to 0.06% in water.	30	Depends on animal size and hair coat.	Mix 1¼ to 2½ pints of lindane 20% EC (1½ lbs. lindane per gal.) in 100 gals. of water. Treat thoroughly and repeat in 14 to 21 days if necessary. May be applied as a spray or a dip.
		60	-----	Applied as a dip.
malathion, 0.6% in water spray.	0	Depends on animal size and hair coat.	Mix 1 gal. malathion 57% EC in 100 gals. of water. Spray thoroughly to cover entire body. Repeat in 10 days if necessary. Keep animals out of sun and wind for several hours after treatment.	
STABLE, HORSE, HORN FLIES (See page 4)	Ciovap EC (10% Ciodrin and 2.5% dichlorvos), ½ % in water spray.	0	Same as for Lice.	
FLEAS	methoxychlor, ½ % in water spray.	0	Same as for Lice.	

ADDITIONAL SWINE PEST DESCRIPTIONS

HORN FLY

Horn Fly — grayish-black, half the size of house fly; sucking mouth parts. Feed primarily on withers, around horns, along back. In hot weather or rain, may move to belly; on cool nights may cluster between hind legs. Eggs laid in fresh manure; hatch in about 20 hours; maggots grow for about 5 days before pupating; 5-days later adults emerge.

Note: Back rubbers used with year-round control will help control

horn flies, possibly other pests. Place back rubbers so as to force animals to use them — near feed supplements, water or along fenced run where animals must pass.

FACE FLY

Face Flies — resembles house flies, but darker, larger. Females have a grayish-green abdomen; hard to tell from house flies. Male abdomen has black line down center; eyes almost

touch. Males not found on animals. Female feeds around eyes, lips, in and around nostrils, and may aid spread of eye diseases. Larvae feed in fresh cow dung.

STABLE FLY

Stable Fly — ¼ in. long, grayish, seven rounded dark spots on top of abdomen; piercing and sucking beak. Lays eggs in manure, decaying vegetation. When not on animal, rests in

shade on wooden posts, trees, buildings. Prefers active animals, ears and legs.

HORSE FLY, DEER FLY

Horse and Deer Fly — ¼ to 1 in. long; usually brown with brilliantly colored eyes. Smaller kinds have brown-banded wings. Females feed on blood. Maggots live in mud at bottom of shallow lakes, ponds and swamps.

POISON INFORMATION CENTER

DETROIT

Detroit City Health Department
1151 Taylor Avenue 48202
(313) TR2-1540

POISON TREATMENT CENTERS (Information and Treatment)

ADRIAN

Emma L. Bixby Hospital
818 Riverside Ave. 49221
(313) 263-2412

ANN ARBOR

University Hospital
1405 E. Ann Street 48104
(313) 764-5102

BATTLE CREEK

Community Hospital
200 Tomkins St. 49016
(616) 963-5521

BAY CITY

Bay Medical Center
100 15th Street 48706
(517) 893-5511

BERRIEN CENTER

Berrien General Hospital
Dean's Hill Road 49102
(616) 471-7761

COLDWATER

Community Health Center
of Branch County
274 E. Chicago Street 49036
(517) 278-7361

DETROIT

Children's Hospital of Michigan
3901 Beaubien 48201
(313) 494-5711

Mount Carmel Mercy Hospital
6071 W. Outer Drive
(313) 864-5400 ext. 417 or 864-5536

ELOISE

Wayne County General Hospital
30712 Michigan Avenue 48132
(313) 722-3748 8 a.m.-11 p.m.
274-3000 11 p.m.-8 a.m.

FLINT

Hurley Hospital
6th Ave. & Begole 48502
(313) 232-1161 ext. 220

GRAND RAPIDS

Blodgett Memorial Hospital
1840 Wealthy, S.E. 49506
(616) 774-7740

Butterworth Hospital
100 Michigan, N.E. 49503
(616) 774-1774

St. Mary's Hospital
201 Lafayette, S.E. 49503
(616) 774-6789

Grand Rapids Osteopathic Hospital
1919 Boston St., S.E.
(616) 452-5151

HANCOCK

St. Joseph's Hospital
200 Michigan Avenue 49930
(906) 482-1122

HOLLAND

Holland City Hospital
602 Michigan Avenue 49423
(616) 396-4661

JACKSON

W. A. Foote Memorial Hospital
205 N. East Street 49201
(517) 783-2771

KALAMAZOO

Borgess Hospital
1521 Gull Road 49001
(616) 383-4815

Bronson Methodist Hospital
252 E. Lovell Street 49006
(616) 383-6338 — 383-6386

LANSING

St. Lawrence Hospital
1210 W. Saginaw Street 48914
(517) 372-3610 ext. 305

MARQUETTE

Marquette General Hospital
425 W. Fisher Street 49855
(906) 228-9440 ext. 416

MIDLAND

Midland Hospital
4005 Orchard Drive 48640
(517) 835-6771 ext. 308 or 328

MONROE

Mercy-Memorial Hospital Corp.
700 Stewart Road 48161
(313) 241-6509

PETOSKEY

Little Traverse Hospital
416 Connable 49770
(616) 347-7373 ext. 251

PONTIAC

St. Joseph Mercy Hospital
900 Woodward Avenue 48053
(313) 858-3000

PORT HURON

Port Huron Hospital
1001 Kearney St. 48060
(313) 982-8511

SAGINAW

Saginaw General Hospital
1447 N. Harrison Road 48602
(517) 753-3411

TRAVERSE CITY

Munson Medical Center
Sixth Street 49684
(616) 947-6140 ext. 280