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), overwatered or stressed (shipping, dehorning, castration, recent weaning).
7. Use dust if possible instead of spray. 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.

FLY CONTROL IN BARNS 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.

SPRAINS

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 BAITS — 1% rotenone (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 BAITS — (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% rotenone (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.

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

<table>
<thead>
<tr>
<th>Chemical</th>
<th>Amount per 1,000 sq. ft.</th>
<th>Comments and Warnings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimethoate, 1% in water spray.</td>
<td>1 gal.</td>
<td>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.</td>
</tr>
<tr>
<td>Fenthion (Baytex), 1.25% in water spray.</td>
<td>2 gals.</td>
<td>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.</td>
</tr>
<tr>
<td>Malathion, 1% in water spray.</td>
<td>1 to 2 gals.</td>
<td>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.</td>
</tr>
<tr>
<td>Ronnel (Korlan), 1% in water spray.</td>
<td>1 gal.</td>
<td>Mix 1 gal. 24% EC in 25 gals. of water. Apply to walls, ceilings, etc. Do not contaminate milk or milking equipment.</td>
</tr>
<tr>
<td>Diazinon, 1% in water spray.</td>
<td>1 to 2 gals.</td>
<td>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.</td>
</tr>
<tr>
<td>Ravap (23% Rabon and 5.3% dichlorvos)</td>
<td>1 gal.</td>
<td>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.</td>
</tr>
</tbody>
</table>

Romel (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 Ravap 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 Ravap 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 BARNs

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 AEROSAL 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.

BLOOD SUCKING FOOT LICE

It is about 1/12 inch long and dark-gray or bluish in color. The blood-sucking body louse injures sheep mainly by sucking blood.

SHEEP, GOAT PESTS

LICE

All stages of the biting louse, the blood sucking body louse and the foot louse live on the animals. Eggs are attached to the hairs, but can hatch even after being dislodged from the animals for several weeks. Immature and adult lice can survive for a week off the host.

BITING OR RED CHEWING LOUSE

It is 1/20 inch long with a light brown body. The head is reddish and broadly rounded in front. Each segment of the abdomen has one row of hairs running across it. It crawls about chewing wool fibers and skin scales, causing irritation to the animal and damage to the wool.

BLOOD SUCKING BODY LICE

This pest infests the entire body and face next to the skin, often clustering in large groups. It closely resembles the blood-sucking foot louse, but is more slender, and head is twice as long as broad. It is up to 1/12 inch long and dark-gray or bluish in color. The blood-sucking body louse injures sheep mainly by sucking blood.
change from maggots to the adults in winter.

**FLEECE WORMS**

These worms may be one or more of several fly maggots, but usually the green and bluebottle flies (blow flies) are responsible. The maggots have blunt tails and pointed heads. They live in matted and soiled wool. They often occur in open wounds.

**MITES**

**SHEEP SCAB OR SCABIES**

This trouble is caused by a mite. It is white or yellowish and very small barely visible to the unaided eye. 

- It pierces the skin with very sharp mouth parts, causing inflammation and itching. Scabs form over the mites where blood and serum ooze from the wounds.
- Sheep infested with scabless are subject to State and Federal quarantine. Consequently, all known or suspected sheep must be reported to the State Veterinarian’s Office. When reporting, you may ask the help of your county agricultural agent, your local veterinarian, or the Animal Husbandry Department, Michigan State University, East Lansing, Michigan.

**Table 2. — INSECT AND MITE CONTROL PROGRAM FOR SHEEP AND GOATS**

<table>
<thead>
<tr>
<th>Pest</th>
<th>Material and Formulation</th>
<th>Min. Days from Last Appl. to Slaughter</th>
<th>Amount per Animal or Area, if Appropriate</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>LICE</td>
<td><strong>Ciodrin</strong> (10%) &amp; <strong>dichlorvos</strong> (2.5%) in water spray.</td>
<td>0</td>
<td>Depends on size of animal and length of wool or hair.</td>
<td>Same as for Ticks (keds). Use Diazinon on sheep only.</td>
</tr>
<tr>
<td>SCAB (SCABIES)</td>
<td><strong>Ciodrin</strong> (10%) &amp; <strong>dichlorvos</strong> (2.5%) in water spray.</td>
<td>0</td>
<td>Depends on size of animal and length of wool or hair.</td>
<td>Mix 2½ pints of Ciodrin EC in 16 gals. of water. Spray animals thoroughly. Repeat as necessary but not more often than once in 7 days. READ THE LABEL.</td>
</tr>
<tr>
<td>Ticks (Keds), HORNS FLYES</td>
<td><strong>Ciodrin</strong> (Co-Ral), ¼% in water spray.</td>
<td>15</td>
<td>Mix 4 lbs. Co-Ral 25% WP for ticks or 2 lbs. Co-Ral 25% WP for horn flies in 100 gals. of water. Do not treat animals less than 3 months old. Spray thoroughly. READ THE LABEL.</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Ciodrin</strong> (Co-Ral), 2.5% dust, (Use as bought.)</td>
<td>15</td>
<td>1 to 2 oz. per sheep. Dust treatment recommended in cold weather. Follow label directions. Use a hand duster. READ THE LABEL.</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Diazinon</strong> (Sheep only), 0.06% in water spray.</td>
<td>14</td>
<td>Use about 1 quart per animal. Mix 1 lb. diazinon 50% WP per 100 gals. of water. Spray thoroughly. Use low pressure sprayer. Do not use for horn fly control. READ THE LABEL.</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Diazinon</strong> (Sheep only), 2% dust.</td>
<td>14</td>
<td>1½ oz. per animal. Dust treatment recommended in cold weather. Follow label directions. Use a hand duster. READ THE LABEL.</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Lindane</strong> (Sheep only), 2% dust.</td>
<td>30</td>
<td>Mix 1 quart of lindane 20% EC, or use 2 lbs. of lindane 25% WP in 100 gals. of water. A second spray application 2 to 3 weeks later may be necessary. Spray thoroughly. Do not use lindane on dairy goats.</td>
<td></td>
</tr>
</tbody>
</table>

**General warning:** Do not use oil-base emulsion on sheep; oil types tend to stain the wool and do not penetrate it as well as others.

**Warning:** None of the materials suggested in this bulletin for control of keds, lice, stable fly and fleas may be used for scabies unless approved by the State of Michigan 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
- %, or %% means reportable or a reportable disease subject to State and Federal quarantine and control operations must be notified to the State Veterinarian’s Office, Michigan State University, East Lansing, Michigan.
Table 2. — INSECT AND MITE CONTROL PROGRAM FOR SHEEP AND GOATS — continued

<table>
<thead>
<tr>
<th>Pest</th>
<th>Material and Formulation</th>
<th>Min. Days from Last Appl. to Slaughter</th>
<th>Amount per Animal or Area, if Appropriate</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>TIKS (Keds), HORNE FLIES (Continued)</td>
<td>malathion, ½% in water spray</td>
<td>0 to 4 quarts after shearing.</td>
<td>Mix 1 gal. of malathion 57% EC or 16 lbs. of malathion 25% WP per 100 gals. of water. Repeat application after 2 or 3 weeks, if needed. Spray thoroughly. Do not use for horn fly control. Do not apply to milk goats. READ THE LABEL.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ronnel (Korlan), ¼% in water spray</td>
<td>28 1 quart.</td>
<td>Mix 1 gal. of Korlan 24% EC in 100 gals. of water. Do not apply more frequently than once every 2 weeks.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>toxaphene, ¼% in water spray</td>
<td>28 Depends on animal size and wool or hair length.</td>
<td>Mix 3 quarts of 60% emulsifiable toxaphene in 100 gals. of water. May also be used in a dip. Hold the animal in the vat at least 30 seconds and completely immerse twice. Keep the dipping solution clean. Do not use on dairy goats.</td>
<td></td>
</tr>
<tr>
<td>FACE FLY</td>
<td>pyrethrin oil solution 0.1% plus 1.0% synergist.</td>
<td>0 1 to 2 fl. oz.</td>
<td>Apply daily as a mist (in the morning). Do not wet hair or skin. Apply to head, neck and front legs.</td>
<td></td>
</tr>
<tr>
<td>WOOL MAGGOTS (Fleece worms)</td>
<td>coumaphos (Co-Ral), ¼% in water spray</td>
<td>15 Depends on animal size and wool or hair coat.</td>
<td>Mix 8 lbs. of Co-Ral 25% WP per 100 gals. of water. Spray thoroughly.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>coumaphos (Co-Ral), 0.5% dust. (Use as bought.)</td>
<td>15 1 to 2 oz. per sheep.</td>
<td>Dust treatment. Follow label directions. Use a hand duster.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ronnel (Korlan), ¼% in water spray</td>
<td>28 Depends on animal size and wool or hair coat.</td>
<td>Mix 2 gals. of Korlan 24% EC per 100 gals. of water. Repeat if necessary but not more often than once every 2 weeks. Spray thoroughly.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>toxaphene, ½% in water spray</td>
<td></td>
<td>Same as for Ticks (keds). Apply as a spray or as a dip.</td>
<td></td>
</tr>
</tbody>
</table>

WARNING: Avoid dumping dipping vat or spray solutions into or near ponds, wells, or streams. Malpractices have resulted in large fish kills and severe fines to the offender.

POISON INFORMATION CENTER

DETROIT
Detroit City Health Department
1151 Trabue Avenue 48206
(313) 832-540

ANN ARBOR
University Hospital
1410 E. Ann Street 48104
(313) 764-5502

BATTLE CREEK
Community Hospital
200 Torkins St. 49010
(616) 963-3502

BAY CITY
Bay Medical Center
100 13th Street 48706
(987) 881-4511

BERrien REN
Berrien General Hospital
10505 Royal Drive 49020
(616) 477-7777

COLDWATER
Community Health Center of Branch County
274 E. Chicago Street 49036
(616) 278-7881

DetroI
Children's Hospital of Michigan
3901 Beal Avenue 48201
(313) 468-5771
Mount Carmel Mercy Hospital
607 W. Outer Drive
(313) 864-5400 ext. 417 or 864-5536

ELOISE
Wayne County General Hospital
30722 Michigan Avenue 48132
(313) 725-2128 ext. 111 p.m. to 9 a.m.
(313) 274-9900 11 a.m. to 9 p.m.

FLINT
Hurley Hospital
6th Ave. & Buena 48582
(313) 224-1120 ext. 320

GRAND RAPIDS
Blodgett Memorial Hospital
2400 W. Sherman 49509
(616) 744-1100
Bettendorf Hospital
100 Michigan, M. 49503
(616) 734-1242
St. Mary's Hospital
201 Laketrue, I. 49503
(616) 774-6966
Grand Rapids Orthopedic Hospital
1929 Boston Rd., S.F.
(616) 452-5561

HANCOCK
St. Joseph's Hospital
200 Michigan Avenue 49030
(810) 482-1122

HOLLAND
Hollander Community Hospital
600 Michigan Avenue 49423
(616) 886-4941

JACKSON
W. A. Ford Memorial Hospital
205 N. East Street 49201
(517) 731-2771

KALAMAZOO
Borgess Hospital
3211 Grafton Road 49001
(616) 333-8300
dermot Methodist Hospital
322 S. Lowell Street 49006
(616) 332-6363 — 333-6363

LANSING
St. Lawrence Hospital
1014 W. Saginaw Street 48904
(517) 273-2930 ext. 205

MARQUETTE
Marquette General Hospital
425 W. Fisher Street 49855
(906) 228-6300 ext. 416

MIDLAND
Meadow Hospital
400 Office Drive 48640
(989) 835-6771 ext. 308 or 328

MONROE
Mercy Memorial Hospital Corp.
720 New Castle Road 48161
(313) 241-6509

PETOSKEY
Little Traverse Hospital
106 Cass St. 49770
(989) 327-7272 ext. 211

PONTIAC
St. Joseph Mercy Hospital
900 Woodward Avenue 48023
(313) 988-3000

PORT HURON
Port Huron Hospital
1000 Kentucky St. 48060
(810) 982-4551

PORT HURON
Port Huron Memorial Hospital
560 Lauter Road 48060
(810) 982-4551

SAGINAW
Saginaw General Hospital
140 N. Harrison Road 48602
(517) 751-3411

TRAVERSE CITY
Mission Medical Center
2225 Mission Drive 49684
(616) 327-6688 ext. 280

Comments

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(Information and Treatment)

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