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Insect Control on Beef Cattle

Cooperative Extension South Dakota State University

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Insect Control on Beef Cattle
Recommendations for insect control in this fact sheet are for beef cattle only. Many of the insecticides cited herein cannot be used on dairy cattle.

In controlling external parasites on beef cattle, a rancher must use extreme care in selecting the proper insecticide. Follow the directions exactly as they are printed on the label. Do not apply a spray mixture that is too concentrated nor apply too much to each animal. Young calves and sick animals are especially susceptible to overdoses of some insecticide preparations. On the other hand, make sure the spray is mixed at recommended concentration; incomplete control may make it necessary to repeat treatment. Use preparations that are registered and formulated especially for livestock use.

Check and follow the required waiting period between treatment and slaughter. If these waiting periods aren’t observed, tolerance levels may be exceeded making carcasses subject to government seizure. Financial loss to the rancher in this case could be considerable.

Types of Application

Sprayer Treatments

Power sprayers are a popular and effective method of applying insecticides to animals and around the yards and buildings. Power sprayers that deliver 200 to 400 pounds per square inch are recommended. Sprayers that develop 100 pounds or less often do not effect complete control because animals may not get wetted completely. This is especially true in the colder months of the year when the animals have heavy hair coats.

Walk-through sprayers with multiple nozzles are effective when used with a chute. Exact dosage per animal is difficult to regulate when walk-through sprayers are used.

Many sprayer machines can be adapted for farm cropland use by adding a boom. This allows the machinery to be used more, which helps offset the original cost of the machine.

Pour-On Treatments

The pour-on method of applying systemic insecticide for control of livestock pests has proven very effective, especially in control of cattle grub. Systemic insecticide mixtures are poured down the midline of the backs of the animals. The insecticide is then absorbed through the skin and enters the bloodstream of the animal. Insect pests feeding on the animal are killed by the systemic action of the insecticide. The pour-on method has the advantage of ease of application and requires little time or special equipment.

Feed Additives and Feed Mixtures

Special feed mixtures using mineral or salt containing systemic insecticides which can be fed to livestock are effective controls for some pests. When the animals do not get the proper amounts of the feed additive either incomplete control of the pest or symptoms of toxicity could result.

Back Rubber Treatments

Back rubbers are a simple and effective method of controlling insects in a herd, especially the biting flies. Back rubbers are available commercially or they can be made from a cable or wire, posts, and burlap wrappings. Winter use of back rubbers is valuable in prevention of reinfestation by cattle lice after fall spraying. Place back rubbers near watering areas, salt licks, or loafing areas so cattle have an opportunity to use them regularly.

Dipping Vat Treatments

The dipping method assures excellent insect control because complete coverage of the animals is assured. Disadvantages are that dipping vats are expensive to charge and insecticide concentration is doubtful once a number of cattle have been treated. Since dipping vats are immobile, cattle must be accessible at a central location.
## Recommended Chemicals and Their Use

<table>
<thead>
<tr>
<th>Pest</th>
<th>Insecticide</th>
<th>Dosage</th>
<th>Minimum days from last application to slaughter</th>
<th>Where and when to apply</th>
<th>Safety instructions, directions, notes, remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>CATTLE GRUBS</td>
<td>Coumaphos</td>
<td>0.25%-0.50%</td>
<td>0</td>
<td>Penetrating spray for thorough coverage or Backline treatment just after heel fly activity has ceased</td>
<td>Do not treat animals less than three months old or within 10 days of shipping, weaning, or exposure to contagious and infectious diseases.</td>
</tr>
<tr>
<td></td>
<td>Spray (Co-Ral)</td>
<td>Ready mixed pour-on</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>famphur</td>
<td>0.22%**</td>
<td>21</td>
<td>Prepared feed mix 0.22% 10-day treatment for grubs 30-day treatment for grubs and sucking lice</td>
<td>Feed to beef cattle, heifers or dry cows only. Feed at rate of ½ lb. per 100 lbs. body weight for 10 days for grubs. Feed ¼ lb. per 100 lbs. body weight for 30 days for grubs and lice. Do not use after Nov. 1.</td>
</tr>
<tr>
<td></td>
<td>(Famix)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ronnel</td>
<td>Feed mix as labeled</td>
<td>60</td>
<td>Orally in feed for seven days</td>
<td>Animals should have access to water before and after treatment.</td>
</tr>
<tr>
<td></td>
<td>Trolene FM</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ruene 25E</td>
<td>As labeled. 1 oz./100 lbs. body wt. but no more than 8 ozs. per animal</td>
<td>28</td>
<td>Backline treatment after heel fly activity has ceased</td>
<td>Do not treat sick animals. Do not treat after Nov. 1.</td>
</tr>
<tr>
<td></td>
<td>Neguvon</td>
<td>Spray</td>
<td>14</td>
<td>Backline treatment after heel fly activity has ceased</td>
<td>Do not spray dairy animals.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ready-mixed pour-on</td>
<td>21</td>
<td></td>
<td>Use no more than 4 ozs./animal. Do not treat dairy animals.</td>
</tr>
<tr>
<td></td>
<td>famphur</td>
<td>13.2% ready mixed pour-on 1 oz. per 200 lbs. body weight—as directed on the label</td>
<td>35</td>
<td></td>
<td>Use on beef cattle, dry dairy cows or heifers. Pour on directed amount from shoulders to tailhead. Do not use within 21 days of calving. Do not use on calves under three months old or animals stressed from dehorning, castration, illness, or overexcitement.</td>
</tr>
<tr>
<td></td>
<td>(Warbex)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CATTLE LICE</td>
<td>Ciodrin</td>
<td>1.0% in oil</td>
<td>0</td>
<td>Saturate backrubber with 1 gal./20 ft. of cable or apply with automatic backrubber.</td>
<td>Do not use on animals under six months of age.</td>
</tr>
<tr>
<td></td>
<td>Lindane</td>
<td>0.2% in oil</td>
<td>30</td>
<td>Saturate backrubber with 1 gal./20 ft. of cable or apply with automatic backrubber.</td>
<td>Do not use on animals under six months of age.</td>
</tr>
<tr>
<td></td>
<td>Malathion</td>
<td>1-2% in oil</td>
<td>—</td>
<td>Saturate backrubber with 1 gal./20 ft. of cable or apply with automatic backrubber.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Methoxychlor</td>
<td>3-5% in oil</td>
<td>—</td>
<td>Saturate backrubber with 1 gal./20 ft. of cable or apply with automatic backrubber.</td>
<td></td>
</tr>
</tbody>
</table>

**Typical concentration—other concentrations available but are calculated to give animal proper dosage over treating period.**
<table>
<thead>
<tr>
<th>Pest (cont.)</th>
<th>Insecticide</th>
<th>Dosage</th>
<th>Minimum days from last application to slaughter</th>
<th>Where and when to apply</th>
<th>Safety instructions, directions, notes, remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>CATTLE LICE</td>
<td>Toxaphene</td>
<td>5% in oil</td>
<td>28</td>
<td>Saturate backrubber with 1 gal./20 ft. of cable or apply with automatic backrubbers.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Korlan</td>
<td>1% in oil</td>
<td>14</td>
<td>Saturate backrubber with 1 gal./20 ft. of cable or apply with automatic backrubbers.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ciodrin</td>
<td>0.5-1.0% spray</td>
<td>Sprays</td>
<td>0</td>
<td>1-2 pts./animal</td>
</tr>
<tr>
<td></td>
<td>Coumaphos (Co-Ral)</td>
<td>8 lbs. 25% W.P. in 100 gals. of water</td>
<td>0</td>
<td>Spray entire animal</td>
<td>Use no more than 1 gal./animal.</td>
</tr>
<tr>
<td></td>
<td>Delnav (Dioxathion)</td>
<td>2 qts. 30% E.C./100 gals. of water</td>
<td>Sprays</td>
<td>Spray entire animal</td>
<td>Do not reapply within 2 weeks. Do not use on animals under three months of age.</td>
</tr>
<tr>
<td></td>
<td>Lindane</td>
<td>1 lb. of 25% W.P./100 gals. of water</td>
<td>30</td>
<td>Spray entire animal</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Malathion</td>
<td>16 lbs. 25% W.P./100 gals. of water</td>
<td>—</td>
<td>Spray entire animal</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Methoxychlor</td>
<td>8 lbs. of 50% W.P./100 gals. of water</td>
<td>—</td>
<td>Spray entire animal</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Carbaryl (Sevin)</td>
<td>8 lbs. of 50% W.P./100 gals. of water</td>
<td>—</td>
<td>Spray entire animal</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ronnel (Korlan)</td>
<td>16 lbs. of 25% W.P./100 gals. of water</td>
<td>56</td>
<td>Spray entire animal</td>
<td>Dilute only with water. Do not apply more than once every two weeks.</td>
</tr>
<tr>
<td></td>
<td>Rotenone</td>
<td>1-2 lbs. of 5% W.P./100 gals. of water</td>
<td>—</td>
<td>Spray entire animal</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Toxaphene</td>
<td>8 lbs. of 50% W.P./100 gals. of water</td>
<td>28</td>
<td>Spray entire animal</td>
<td></td>
</tr>
</tbody>
</table>

**Sprays and Backrubbers—Same as CATTLE LICE above**

**For control of sucking lice**

Special Note: May be used for lice after Nov. 1 if cattle have previous treatment for grubs. If cattle have not been previously treated for grubs do not use as feed program after Nov. 1.

See 30-day treating regimen under cattle grub.

**Sprays and Backrubbers—Same as CATTLE LICE above**

**ULV Malathion**

Apply by aircraft at a rate of six to eight ounces per acre. Apply over major loafing areas and herd. Do not apply over dairy cattle. See ULV malathion.

**Ciodrin**

% oil solution 0

**Ciodrin-DDVP**

Combination product 0

Use as labeled.
## RECOMMENDED CHEMICALS AND THEIR USE

<table>
<thead>
<tr>
<th>Pest</th>
<th>Insecticide (Dosage)</th>
<th>Minimum days from last application to slaughter</th>
<th>Where and when to apply</th>
<th>Safety instructions, directions, notes, remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>DDVP</td>
<td>1% oil solution</td>
<td>0</td>
<td></td>
<td>Mist spray with hand or automatic spray equipment at the rate of 1-2 fluid oz./animal per day.</td>
</tr>
<tr>
<td></td>
<td><strong>Residual Spray—See Stable Fly Control</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>STABLE FLY</td>
<td>(Sanitation)</td>
<td></td>
<td>Barns, yards, old straw stack butts.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>—See Cattle Lice Control above for animal application</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(Residual controls applied to premises)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cygon (Dimethoate)</td>
<td>4 gals. 25% E.C. / 100 gals. water</td>
<td>Barn walls, fences, etc.</td>
<td>Residual surface application. Do not contaminate feed or drinking water. Use only with adequate ventilation.</td>
<td></td>
</tr>
<tr>
<td>Korlan</td>
<td>2 qts. 24%, E.C. / (24 E) / 25 gals. water</td>
<td>Barn walls, fences, etc.</td>
<td>Residual surface application. Do not contaminate feed or drinking water. Use only with adequate ventilation.</td>
<td></td>
</tr>
<tr>
<td>Rabon</td>
<td>1 gal./2 lbs. E.C. in 25 gals. of water</td>
<td>Barn walls, ceilings, fences, etc.</td>
<td>Residual surface application. Do not contaminate feed or drinking water. Use only with adequate ventilation.</td>
<td></td>
</tr>
<tr>
<td>Diazinon</td>
<td>2 lbs. of 50% W.P. / 25 gals. water</td>
<td>Barn walls, fences, etc.</td>
<td>Residual surface application. Do not contaminate feed or drinking water. Use only with adequate ventilation.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(Baits) Materials listed above as well as DDVP, Dipterex, and others may be used in baits. Follow directions on the labels.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FACE FLY</td>
<td>Ciodrin 1% oil solution</td>
<td>0</td>
<td></td>
<td>Mist spray with hand or automatic spray equipment at the rate of 1-2 fluid oz./animal /day.</td>
</tr>
<tr>
<td></td>
<td>DDVP 1% oil solution</td>
<td>0</td>
<td></td>
<td>Mist spray with hand or automatic spray equipment at the rate of 1-2 fluid oz./animal /day.</td>
</tr>
<tr>
<td></td>
<td>(Backrubbers using the above fly control chemical will aid in reducing face fly problems on beef cattle). See ULV malathion.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SPINOSE</td>
<td>Coumaphos (Co-RAL) 0.5% spray or 5% dust</td>
<td>0</td>
<td>In ears</td>
<td>Use small hand sprayer—low pressure. Do not overdose. Do not injure ear.</td>
</tr>
<tr>
<td>EAR TICK</td>
<td>Lindane 0.75% in-Xylene-Pine oil mix or 3.5% in special aerosol as labeled</td>
<td>In and around ear</td>
<td></td>
<td>Use spring bottom oil can with soft rubber-tip. Do not injure the ear. Do not apply over ½ oz. / animal.</td>
</tr>
<tr>
<td>SCREWWORM &amp; Maggots</td>
<td>Smear E.Q. 335 as labeled or Smear 62 as labeled</td>
<td>Apply to wound</td>
<td>Repeat until wounds heal.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Co-RAL 0.25% spray or 5.0% dust</td>
<td>0</td>
<td>Apply to wound</td>
<td></td>
</tr>
</tbody>
</table>
CATTLE LICE

Cattle lice are widely distributed in the United States and are a major pest of cattle in South Dakota. Cattle generally are infested with lice throughout the year but they become numerous during colder weather when the animals' hair coats become heavier and the animals are crowded together.

Sucking lice (blue lice) feed on blood by piercing the skin of cattle. Besides being a source of constant irritation, blood sucking lice can cause a general debilitation through loss of blood. Heavy untreated infestations of cattle lice have been known to cause anemic conditions in cattle.

Female lice attach their eggs to hairs of the host animals, the eggs hatch in 8 to 13 days. The young resemble the adults except they are smaller attaining full size in 2 to 3 weeks. The life cycle requires about one month.

Biting lice (red lice) do not feed on blood but bite and feed on the skin. They cause considerable irritation and the cattle rub excessively seeking relief. In cases of heavy infestation it is common to see animals with large irritated areas of skin with the hair worn off giving the cattle a very unthrifty appearance. The life cycle of the biting louse is quite similar to that of the sucking louse, with each generation requiring about 4 weeks for completion.

FLIES

Horn flies, stable flies, houseflies, face flies, horse flies, and deer flies are all found on or around cattle during the warm months of the year. These insects feed on and annoy cattle to the extent that considerable reduction in weight gains result.

Horn Fly

Horn flies are small gray-black flies that are often found by the hundreds on the back, horn, withers, and bellies of cattle during the summer months. Horn flies have piercing-sucking mouth parts and feed on the blood of animals, taking one or two blood meals per day. The flies spend the majority of their time on the animal, leaving it only to lay eggs. The female must lay her eggs in freshly voided manure. The eggs hatch in 1 to 5 days; the maggots feed for 3 to 5 days in the manure before pupating in the ground. Adult flies emerge from the pupal cases after 6 to 8 days, completing the life cycle. The average length of a single generation is 14 days.

Stable Fly

Stable flies are larger than the horn flies and are also blood sucking flies. They feed chiefly over the sides, back, and legs of the animal. Adult flies take a blood meal once a day, remaining on the animal long enough to feed. The remainder of the day they rest on nearby objects such as fences, walls, or in barns. Because stable flies spend a short time on the animals, treatment of animals does not afford completely satisfactory control unless good sanitation practices are also followed.
The life cycle of the stable fly is similar to that of the horn fly with one exception. While the horn fly must have fresh manure in which to breed, the stable fly prefers moist straw, moist feed, or manure mixed with straw. Barnyard refuse should be spread onto fields where it will dry quickly. Use of proper insecticides on the animals plus application of approved residual spray to premises where flies are known to rest, combined with disposal of decaying refuse will provide good control of this pest.

**Houseflies**

Houseflies will be found in and around all farm buildings. These flies cannot pierce the skin of animals to suck blood; but are a particularly annoying pest especially around dairy herds and establishments. Their life cycle is similar to the two previously mentioned flies; except that house flies breed in practically any type of decaying organic matter as long as it is moist. For this reason, sanitation is a most important aspect of housefly control.

**Face Flies**

Face flies are another non-blood sucking species. They resemble houseflies except the face flies are a little more robust. As the name implies, the flies feed on the moist mucous membranes around the eyes, nose, and mouth of animals. They may also be found on other parts of the body feeding on moist saliva or wounds from heavy horn or stable fly feeding. Face flies feed on cattle when they are in strong sunlight; when cattle enter shade or buildings the flies leave the animals. When the cattle move into the sunlight the flies move to the cattle and begin feeding.

Female face flies lay their eggs in fresh cow manure. After a life cycle similar to that of the horn fly another generation follows. The principle overwintering stage of the horn flies, houseflies, and stable flies is the pupal stage. Face flies overwinter in the adult stage in sheltered areas especially attics of dwellings. For this reason face flies often are a household pest in houses during the winter months.

**AERIAL SPRAYING PASTURED CATTLE FOR FLIES**

A relatively new technique has been developed utilizing aerial applications of ultra low volume Malathion to control horn and face flies and mosquitoes. Ultra low volume Malathion is applied undiluted from an airplane adapted for ultra low volume application. Many aerial applicators in South Dakota now have their aircraft converted to ultra low volume application.

Cattle should be first sprayed during the season when the flies reach economic levels. A usual criterion is 50 horn flies per side and/or five face flies per face on an adult animal. Initiate first spraying when fly counts reach the above population levels. Repeat sprayings as needed thereafter, usually 14 to 21 days, depending on environmental conditions. Repeat sprayings will usually number four to six applications during the summer season, depending on seasonal conditions.

Spraying should be done over the animals and major loafing areas; avoid water holes, dams, or water courses containing fish. Avoid spraying cars since the ultra low volume Malathion concentrate will permanently spot the finish of cars of certain manufacture. Do not spray dairy cattle in the above manner; however pastures may be sprayed and the dairy cattle turned out later as soon as the spray job is finished.