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Insect Control on Beef Cattle

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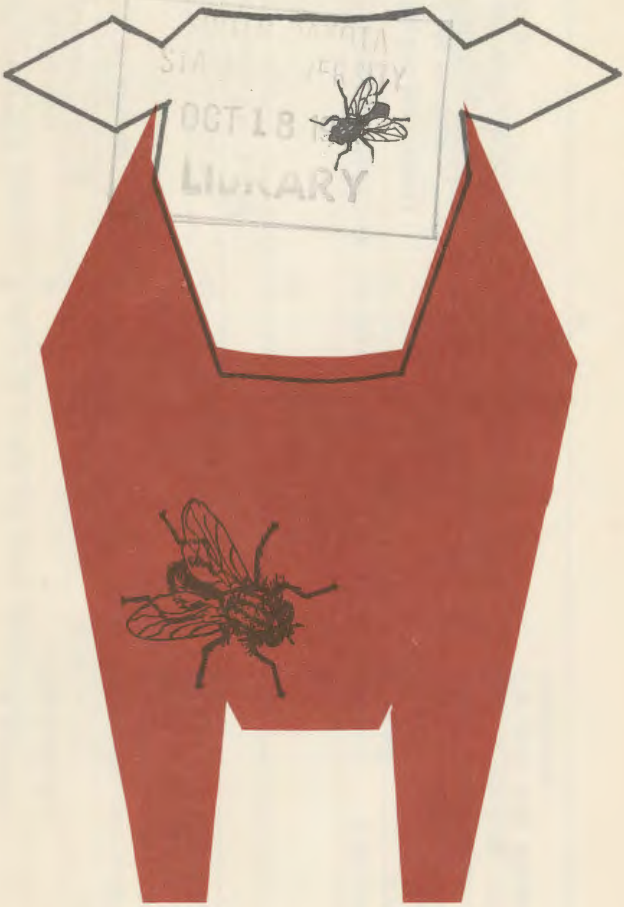

COOPERATIVE EXTENSION SERVICE
SOUTH DAKOTA STATE UNIVERSITY
UNITED STATES DEPARTMENT OF AGRICULTURE

FS 363

Insect Control on Beef Cattle

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Recommendations for insect control in this fact sheet are for beef cattle. 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 accesible at a central location.

RECOMMENDED CHEMICALS AND THEIR USE

Pest	Insecticide	Dosage	Minimum days from last application to slaughter	Where and when to apply	Safety instructions, directions, notes, remarks
CATTLE GRUBS	Coumaphos Spray (Co-Ral)	0.25%-0.50%	0	Penetrating spray for thorough coverage or Backline treatment just after heel fly activity has ceased	Do not treat animals less than three months old or within 10 days of shipping, weaning, or exposure to contagious and infectious diseases.
		Ready mixed pour-on			
	Ronnel-Trolene FM	Feed mix as labeled	60	Orally in feed for seven days	Animals should have access to water before and after treatment.
	Ruelene 25E	As labeled. 1 oz./ 100 lbs. body wt. but no more than 8 ozs. per animal	28	Backline treatment after heel fly activity has ceased	Do not treat sick animals. Do not treat after Dec. 1.
	Neguvon	Spray	14		Do not spray dairy animals.
		Ready-mixed pour-on	21	Backline treatment after heel fly activity has ceased	Use no more than 4 ozs./ animal. Do not treat dairy animals.
			Backrubbers		
CATTLE LICE	Ciodrin	1.0% in oil	0	Saturate backrubber with 1 gal./20 ft. of cable or apply with automatic backrubber.	Do not use on animals under six months of age.
	DDT	5% in oil	—	Saturate backrubber with 1 gal./20 ft. of cable or apply with automatic backrubbers.	
	Lindane	0.2% in oil	30	Saturate backrubber with 1 gal./20 ft. of cable or apply with automatic backrubbers.	Do not use on animals under six months of age.
	Malathion	1-2% in oil	—	Saturate backrubber with 1 gal./20 ft. of cable or apply with automatic backrubbers.	
	Methoxychlor	3-5% in oil	—	Saturate backrubber with 1 gal./20 ft. of cable or apply with automatic backrubbers.	
	Toxaphene	5% in oil	28	Saturate backrubber with 1 gal./20 ft. of cable or apply with automatic backrubbers.	
			Sprays		
	Ciodrin	0.5-1.0% spray	0	1-2 pts./animal	Do not apply more than once a week except as a mist spray.
	Coumaphos (Co-Ral)	8 lbs. 25% W.P. in 100 gals. of water	0	Spray entire animal	Use no more than 1 gal./ animal.
CATTLE LICE (cont.)	Delnav (Dioxathion)	2 qts. 30% E.C./ 100 gals. of water	—	Spray entire animal.	Do not reapply within 2 weeks. Do not use on animals under three months of age.

RECOMMENDED CHEMICALS AND THEIR USE

Pest	Insecticide	Dosage	Minimum days from last application to slaughter	Where and when to apply	Safety instructions, directions, notes, remarks
	Lindane	1 lb. of 25% W.P /100 gals. of water	30	Spray entire animal.	
	Korlan	1% in oil	14	Saturate backrubber with 1 gal./20 ft. of cable or apply with automatic backrubbers.	
			Sprays		
	Malathion	16 lbs. 25% W.P. /100 gals. water	—	Spray entire animal.	
	Methoxychlor	8 lbs. of 50% W.P. /100 gals. water	—	Spray entire animal.	
	Carbaryl (Sevin)	8 lbs. of 50% W.P. /100 gals. water	—	Spray entire animal.	
	Ronnel (Korlan)	16 lbs. of 25% W.P./100 gals. water	56	Spray entire animal.	Dilute only with water. Do not apply more than once every two weeks.
	Rotenone	1-2 lbs. of 5% W.P./100 gals. water	—	Spray entire animal.	
	Toxaphene	8 lbs. of 50% W.P. /100 gals. water	28	Spray entire animal.	
(FLY CONTROL) FACE FLY HORN FLY HOUSE FLY HORSE FLY MOSQUITO	Coumaphos (Co-Ral) Delnav (Dioxathion) Malathion Methoxychlor Ronnel (Korlan) Toxaphene Synergised Pyrethrins (as labeled)	**Sprays and buckrubbers**—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 fact sheet on ULV malathion.			
	Ciodrin	2% oil solution	0		Use as labeled.
	Ciodrin-DDVP	Combination product	0		Use as labeled.
	DDVP	1% oil solution	0		Mist spray with hand or automatic spray equipment at the rate of 1-2 fluid oz./animal per day.
	Residual Spray—See Stable Fly Control				
STABLE FLY	(Sanitation)			Barns, yards, old straw stack butts.	
	(Chemical)—See Cattle Lice Control above for animal application				
	(Residual controls applied to premises)				
	Ciodrin	2 qts. emulsion containing 2 lbs./ gal. in 25 gals. of water		Barn walls, fences, etc.	Residual surface application. Do not contaminate feed or drinking water. Use only with adequate ventilation.

RECOMMENDED CHEMICALS AND THEIR USE

Pest	Insecticide	Dosage	Minimum days from last application to slaughter	Where and when to apply	Safety instructions, directions, notes, remarks
	Cygon (Dimethoate)	4 gals. 25% E.C./ 100 gals. water		Barn walls, fences, etc.	Residual surface application. Do not contaminate feed or drinking water. Use only with adequate ventilation.
STABLE FLY	DDT	4 lbs. of 50% W.P. /10 gals water 2 gals of 50% E.C. /25 gals. water	—	Barn walls, fences, etc.	Residual surface application. Do not contaminate feed or drinking water. Use only with adequate ventilation.
	Diazinon	2 lbs. of 50% W.P. /25 gals. water	—	Barn walls, fences, etc.	Residual surface application. Do not contaminate feed or drinking water. Use only with adequate ventilation.
	Dibrom	2 pts. of 3.6 lbs. E.C. to 40 gals. of water	—	Barn walls, fences, etc.	Residual surface application. Do not contaminate feed or drinking water. Use only with adequate ventilation.
	(Baits)	Materials listed above as well as DDVP, Dipterex, Bomyl-500 and others may be used in baits. Follow directions on the labels.			
FACE FLY	Ciodrin	1% oil solution	0	—	Mist spray with hand or automatic spray equipment at the rate of 1-2 fluid oz./animal /day.
	DDVP	1% oil solution	0	—	Mist spray with hand or automatic spray equipment at the rate of 1-2 fluid oz./animal /day.
	(Backrubbers using the above fly control chemical will aid in reducing face fly problems on beef cattle)				
SPINOSE EAR TICK	Coumaphos (Co-RAL)	0.5% spray or 5% dust	0	In ears	Use small hand sprayer—low pressure. Do not overdose. Do not injure ear.
	Lindane	0.75% in-Xylene-Pine oil mix or 3.5% in special aerosol as labeled	30 30	In and around ear	Use spring bottom oil can with soft rubber-tip. Do not injure the ear. Do not apply over ½ oz. / animal.
SCREWWORM & BLOW-FLY MAGGOTS	Smear E.Q. 335 Smear 62 Korlan Smear	As labeled	—	Apply to wound	Repeat until wounds heal.
	Co-RAL	0.25% spray or 5.0% dust	0	Apply to wound	

COMMON INSECT PESTS OF CATTLE

Cattle Grubs

Cattle grub losses are estimated at $300 million to the beef industry annually. These losses occur through: (1) damage to meat necessitating trimming away the choice parts of the carcasses, (2) loss of weight caused by cattle running to escape adult flies, (3) perforations in the hides caused by the grubs.

Description of Heel Flies

Two species of heel flies infest cattle in South Dakota. The adult flies are about the size of a worker honey bee. The bodies of these flies are covered with transverse bands of yellow or orange hairs. The thorax has four longitudinal shiny bands. The legs are covered with black and orange hairs.

Adult heel flies are strong fliers and ovipositing females are very persistent in their egg-laying habits. Female heel flies become active during the first warm days of spring seeking cattle upon which to deposit eggs. It is at this time that cattle begin to react in a characteristic manner, running wildly about the pastures, standing in buildings, open shade, or up to their bellies in water ponds or streams.

Life Cycles

The life cycles of these two fly species are similar. In the spring the adults lay their eggs on the cattle by attaching them to the hairs of the hind leg, flanks, or sides. The fly of the southern species attaches the eggs in rows of 4 to 10 eggs per hair; while the northern bomb fly lays its eggs singly. The eggs hatch in three days to a week, the young larvae crawl down the hair and burrow into the skin in the hair follicles. The young grubs develop and migrate through the body of the animal for several months. The common southern grub localizes in the connective tissue of the esophagus, while the young northern grub localizes in the connective tissue in the spinal canal. Both species then move to the sub-dermal position of the back and make a hole in the skin of the back. The grubs continue to grow and form the familiar cysts or "warbles" along the back of the animals. After about a month, each grub emerges through the hole in the skin of the back, drops to the ground, and forms the pupal stage. Later, during the first warm days of spring, the adult flies emerge, mate, and the female seeks cattle upon which to deposit her eggs. There is only one generation per year.

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 grey-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.

Horse Flies and Others

Horse flies, deer flies, and mosquitoes breed either in water or moist areas bordering water. They have a tendency to become troublesome in these areas. Otherwise they are not a major pest of cattle in pastures. Back rubbers placed in the vicinity of these breeding areas are a great help in alleviating these pests.

Blowflies and Screw Worms

Blowflies (blue-bottle flies) are often a serious pest in open wounds on range animals. Female blowflies are attracted to open wounds where they lay masses of eggs. As the eggs hatch, the maggots burrow into the wound to feed and develop. Heavily infested wounds may eventually result in the death of the animal.

Screw worms which are primary wound-infesting maggots are especially serious when they become established in the state. Screw worms are not native to South Dakota and the northern states but are found in Southern Texas, Arizona and New Mexico. Occasionally, screw worms are accidentally introduced from the southern states in infested livestock, which often results in a serious outbreak of screw worms in the area.

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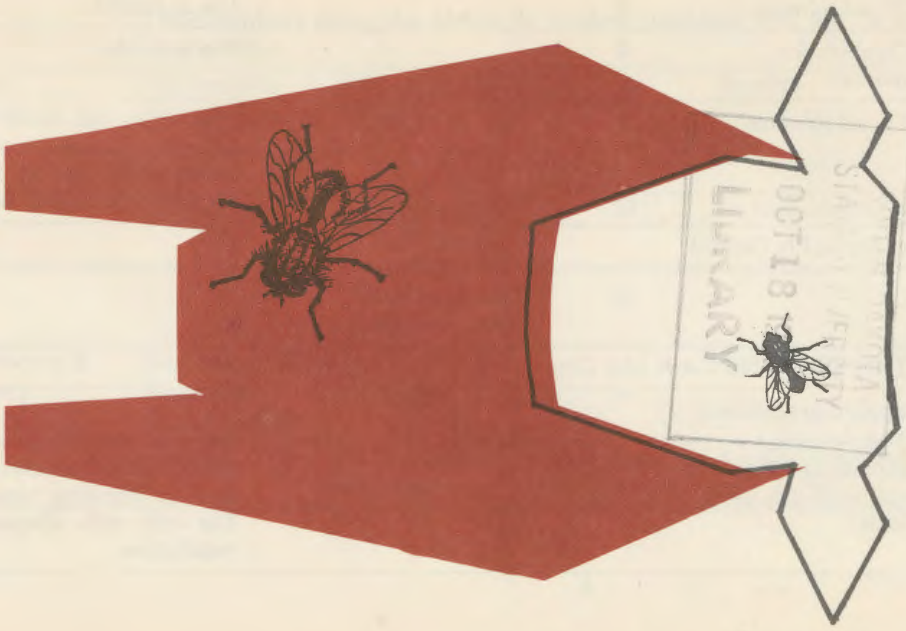

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