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John B. Campbell

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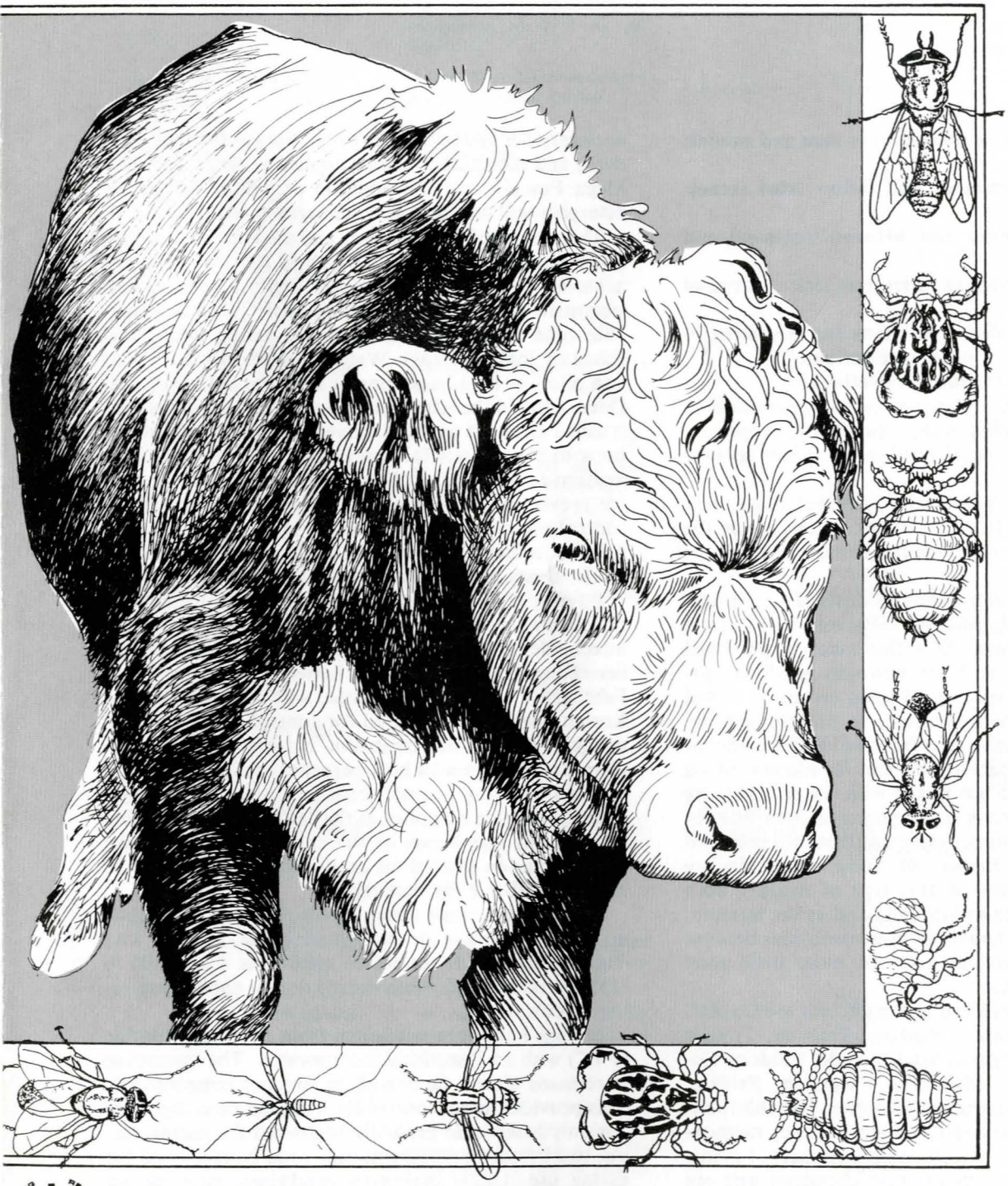
Insect Control Guide for Beef Cattle in Nebraska



EXTENSION WORK IN "AGRICULTURE, HOME ECONOMICS AND SUBJECTS RELATING THERETO,"
THE COOPERATIVE EXTENSION SERVICE, INSTITUTE OF AGRICULTURE AND NATURAL RESOURCES,
UNIVERSITY OF NEBRASKA-LINCOLN, COOPERATING WITH THE COUNTIES AND THE U.S. DEPARTMENT OF AGRICULTURE
LEO E. LUCAS, DIRECTOR

Insect Control Guide for Beef Cattle in Nebraska

John B. Campbell
District Extension Specialist (Entomology)

Precautions:

All insecticides may be poisonous to man and animals if not used correctly.

Always read, understand, and follow label recommendations.

Observe the minimum time between treatment and slaughter.

Observe label restrictions in treating sick or stressed animals.

Note and follow label restrictions for treatment in conjunction with use of other medications.

Never use crop insecticides on livestock.

The chemicals listed in this publication are considered safe when used according to label directions. Proper use should not result in illegal residues or injury to beef animals.

Label Information: Preparation, amount to use, how to use, and special instructions or restrictions are on the label. Read and understand the label before opening the container.

Insecticide formulations include dusts (D), wettable powders (WP), soluble powders (SP), solutions (S) and emulsifiable concentrates (EC). Dusts may be preferred during cold weather and are normally used as purchased. Wettable or soluble powders are to be mixed with water. Agitation is necessary to prevent settling. Emulsifiable concentrates may be mixed with furnace or diesel fuel or special back-rubber oils for use in rubbing devices. Solutions are not mixed with water. They are used as light mist sprays or as prepared pour-ons for cattle grub or lice control. Some solutions are prepared for mixing with back-rubber oils. Some insecticides are mixed (Ciovap, Ravap). In this type of mixture both products are registered individually and as the mixture. Livestock producers should not mix insecticides because the combination insecticide may be more toxic than either insecticide alone.

Systemic insecticides listed in this circular are Co-Ral, Korlan, Neguvon, Prolate, Ruelene, Tiguvon, Trolene and Warbex. Organic phosphates include: Ciodrin, Co-Ral, Delnav, Korlan, Malathion, Neguvon, Prolate, Ruelene, Tiguvon, Trolene and Warbex. The chlorinated hydrocarbon insecticides include lindane, methoxychlor, and toxaphene. Pyrethrins are extracts of plants or synthetic reproductions of these chemicals and are called botanical insecticides. Phenothiazine is an organic phenol-compound.

Sprays can be used for flies, lice, ticks, mosquitoes, and cattle grubs. For best results for cattle grub control, a spray pressure of 300 p.s.i. (2.068 Mega Pascal) should be used to insure drenching to the skin—necessary for systemic absorption. Sprays for flies, lice, ticks, and mosquitoes can be applied at 40 p.s.i. (0.276 Mega Pascal); and the addition of a little household detergent will aid insecticide adherence to the haircoat.

The success of back-rubbers and dust bags depends to some extent on placement. The best fly control can be achieved by forced-use of oilers or dust bags as self-treatment devices, located where cattle spend considerable time (near salt, feeding or watering areas, and shade or loafing areas). Watering areas can be fenced and oilers or dust bags hung at entrance and exit gates. Oilers should be charged and caked-dust should be crushed at about weekly intervals. Dust bags should be hung so they do not face prevailing winds, reducing the amount of wasted dust. Dust bags or oilers may be used for prevention of cattle lice. They are not effective as a control measure since it takes about a month's use to cause a decline of high lice populations to non-economic levels. Dusts may be hand-applied with shakers.

Pour-ons, systemic insecticides absorbed through the skin, were developed for control of cattle grubs. These insecticides are also effective in reducing populations of lice. They should not be used between November 1 and February 1 on Nebraska cattle, with the exception of Korlan 2 which is registered for control of lice and will not kill grubs. The treatment cut-off date was implemented to prevent a host-parasite reaction (a reaction to dead or dying grubs) which can occur when a systemic insecticide is applied as the cattle grub is migrating through the esophagus or the spinal canal. Nebraska cattle should be treated for grubs between September 15 and November 1 for best results.

Spot-ons are small doses of concentrated insecticide applied by syringe or calibrated pistol in cc's, i.e., Tiguvon 20% A.I. should be applied at 4 cc's/300 lb (135 kg) body weight with the maximum application being 20 cc's.

Eartags have been developed from polyvinyl chloride (PVC) with an insecticide incorporated. The insecticide is released slowly (activated by air and temperature). This provides insect control for a limited time. Rabon is the only insecticide presently registered for eartag use, but two synthetic pyrethrins may soon be registered for eartag use. Under Nebraska conditions, new eartags may have to be applied before the end of the fly season.

The feed additives Famphur (Warbex) and Trolene (ronnel) can be used for grub control. Each is available at two or more rates and the feeding time and withdrawal time before slaughter varies with the rate. Altosid, Co-Ral, phenothiazine, Rabon, and Ronnel

can also be used as feed additives for face and/or horn fly control. The insecticide passes through the animal, and enough active material is deposited in the manure to be toxic to developing fly larvae. Variability of intake may prevent complete fly control via this method, especially areas with high salt content vegetation or in cow-calf herds because calves do not eat enough of the mix.

Dips were one of the earliest methods of treating cattle for external insect parasites. Hydraulic cage vats are now used in many feedlots for grub and lice control, and open run-through vats can be found on some ranches. If a large number of animals are treated each year, dipping may be the cheapest method of treatment. Once the vat is charged, the same material may be used over several months to treat a large number of cattle. Care should be taken to insure agitation of the material to prevent settling. Samples should be taken for analysis at frequent intervals and before adding insecticide to insure proper insecticide rates.

	Warbex (famphur)	Vapona (dichlorvos)	Trolene (ronnel)	Toxaphene	Tiguvon (fenthion)	Ruelene (crufomate)	Rabon (stirofos)	Pyrethrin	Prolate GX-118 (Imidan)	Phenothiazine	Neguvon (trichlorfon)	Methoxychlor	Malathion	Lindane	Korlan (ronnel)	Delnav (dioxathion)	Co-Ral (coumaphos)	Ciodrin (crotoxyphos)	Altosid (methoprene)
Cattle grub																			
dip						X			X								X		
feed additive	X		X																
pour-on/spot-on	X				X	X			X		X						X		
spray						X			X		X						X		
Cattle lice																			
back rubber				X	X	X		X			X	X	X	X		X	X	X	
dip				X		X			X			X	X	X	X	X	X		
dust bag							X	X	X			X		X			X	X	
pour-on/spot-on	X				X	X					X				X		X		
spray		X		X			X				X	X	X	X	X	X	X	X	X
Face fly																			
back rubber				X	X	X		X					X	X	X	X	X	X	
dust bag							X	X	X			X	X				X	X	
ear tag							X												
feed additive							X			X					X		X		
spray		X		X			X					X		X	X	X	X	X	
Horn fly																			
back rubber				X	X	X		X					X	X	X	X	X	X	
dust bag							X	X	X			X	X				X	X	
ear tag							X												
feed additive							X			X					X		X		X
spray		X		X			X				X	X	X	X	X	X	X	X	
Mosquitoes																			
spray		X		X			X					X		X	X	X	X	X	
Stable fly																			
spray		X		X			X					X		X	X	X	X	X	
Ticks																			
dip				X		X			X					X	X	X	X		
ear tag							X												
spray		X		X			X				X	X	X	X	X	X	X	X	

NOTE: Some insecticides are mixed.
Example: Ciovap = Ciodrin + Vapona
Ravap = Rabon + Vapona
M & M = Methoxychlor + Malathion

LIVESTOCK INSECTICIDE RESTRICTIONS

Insecticide	Dosage	Limitations
Altosid (methoprene)	Feed additive 4-8 oz (113-225 g)/ 100 lb (45 kg) body weight/month.	Feed in salt or mineral block.
Ciodrin (crotoxyphos)	Spray 0.1-0.25% (in water)	1 gal (3.8 l) 0.25% or 2 gal (7.6 l) 0.1%/cow. Treatment interval-7 days.
	0.5% (in water)	1-2 qt (0.95-1.9 l)/cow (less for calves). Treatment inverval-7 days. Do not contaminate feed or water.
	1% (in water)	1-2 pt (0.47-0.95 l)/cow (less for calves). Treatment interval-7 days. Do not contaminate feed or water.
	2% (in water)	1-2 fl oz (30-60 ml)/animal. Treatment interval-daily. Do not contaminate feed or water.
	1% (in oil)	2 fl oz (60 ml)/animal daily or 3.5 fl oz (105 ml)/animal. Two applications at 14-day intervals.
	Back rubber 1% (in oil)	No limitations.
	Dust 3%	1-2 tablespoons (14-28 g)/animal on poll, back and sides. Treatment interval-14 days. Hand or power dusters. Apply thoroughly for louse control. Treatment interval-3-4 weeks, if needed. Do not treat calves under 6 months old.
	Dust bags 3%	No limitations.
Co-Ral (coumaphos)	Spray 0.03-0.5% (in water)	No limitations.
	Dip 0.25% (in water)	No limitations.
	Back rubber 1% (in oil)	No limitations.
	Dust 1%	2 oz (56 g)/animal over head, neck, shoulder, back and tailhead. Treatment interval-as necessary. 4 z (112 g)/animal.
	5%	Treatment interval-7 days. Apply in ears and head area for spinose ear tick.
	Dust bag 5%	No limitations.
	Feed additive 1.2 mg AI/kg body weight/day	Add to daily ration.
Delnav (dioxathion)	Spray 0.15% (in water)	Treatment interval-14 days.
	0.6% (in water)	1 qt (0.95 l) on back and shoulder.
	Dip 0.15□ (in water)	Treatment-slaughter interval-30 days. Do not dip calves under 3 months old. Treatment interval-14 days.
	Back rubber 1.5%	No limitations.
Dursban M-44 (chlorpyrifos)	43.2% solution	2cc/100 lb (45 kg) body weight with maximum 16 cc for cattle lice. See label for other limitations.
Korlan (ronnel)	Spray 0.25% (in water)	Treatment interval-14 days.
	0.5% (in water)	Treatment-slaughter interval-7 days. Treatment interval-14 days.
	0.75% (in water)	Treatment-slaughter interval-14 days. Treatment interval-14 days.
	Feed additive 6□ (mineral feed mix)	0.9g/100 lb (45 kg) body weight /day. Mixed with daily feed ration. Feed 7 days. Use as only source of ronnel medication.
	Back rubber 1% (in oil)	No limitations.
	Pour-on 5% (in water)	Apply 1 fl oz (30 ml)/100 lb (45 kg) body wieght for cattle lice.
Lindane	Spray 0.03-0.06% (in water)	Treat calves only at the 0.03% level. Treatment-slaughter interval-30 days.
	0.012% (in water)	Treatment-slaughter interval-30 days.
	0.075% (in water)	For use under supervision of veterinary quarantine official.
	Back rubber 0.2% (in oil)	Formulated with other ingredients. Treatment-slaughter interval-30 days. Do not treat calves under 6 months old.
	Dust bag 1%	Applied with other ingredients. Treatment-slaughter interval-30 days.
Malathion	Spray or Dip 1.25% (in water)	No limitations.
	Back rubber 2% (in oil)	No limitations.
	Dust 6%	No limitations.

Insecticide	Dosage	Limitations
Methoxychlor	Spray 1% (in water)	2 qt (1.9 l)/cow. Less for calves.
	0.5% (in oil)	2.5 fl oz (75 ml)/cow. Do not wet skin—mist spray. Treatment interval-21 days or daily application of 2 fl oz (60 ml)/cow.
	6% (in oil)	0.3 to 0.5 ml, 2-3 times daily by automatic treadle sprayer.
	Dip 1%	No limitations.
	Dust 50%	Thorough application. Work dust into hair.
	Dust bags 10%	No limitations.
Neguvon (trichlorfon)	Spray 1% (in water)	Do not treat calves less than 3 months old. Treatment-slaughter interval-14 days.
	Pour-on 8% solution	15 ml/100 lb (45 kg) body weight. Treatment-slaughter interval-21 days.
Phenothiazine	Feed additive 0.25 g/100 lb (45 kg) body weight	Feed in salt or mineral supplement. Treatment interval-daily.
Prolate GX-118 (Imidan)	Spray 0.25%	1 gal (3.8 l)/cow. Treatment-slaughter interval-21 days.
	Dust bags 5%	Treatment-slaughter interval-21 days.
	Pour-on 4% (in water)	1 fl oz (30 ml)/100 lb (45 kg) body weight. Limit 8 fl oz (240 ml)/animal. Treatment-slaughter interval-21 days.
Pyrethrin	Spray 1.12% (in oil)	Automatic or self-actuated sprayer. 2 ml/animal, 2-3 times daily.
	0.5% (in oil)	10 ml/animal daily by automatic treadle sprayer or spray.
	Spray or Back rubber 0.1% (in oil)	2 fl oz (60 ml)/animal, 2-3 times weekly. Apply 1 fl oz (30 ml)/animal on face for face fly or use in back rubber.
Rabon (stirofos)	Spray 0.35% (in water)	1/2-1 gal (1.9-3.8 l)/animal.
	Dust 3%	No limitations.
	Back rubber 1% (in oil)	No limitations.
	Ear tag 13.7%	No limitations.
	Feed additive 97.3%	70 mg/100 lb (45 kg) body weight/day.
Ruelene	Spray 0.375% (in water)	Do not haul in poorly ventilated trucks within 24 hrs. of treatment. Do not treat sick animals. Do not treat animals within 10 days of shipping, weaning or disease exposure. Do not treat animals stressed from dehorning, over-exertion, castration or excitement. Treatment interval-21 days. Treatment-slaughter interval-7 days.
	Dip 0.25% (in water)	Do not treat sick animals. Do not treat animals within 10 days of shipping, weaning or disease exposure. Do not treat animals stressed from dehorning, over-exertion, castration or excitement. Treatment interval-31 days. Treatment-slaughter interval-7 days.
	Pour-on 8.3% (in water)	1 part insecticide to 3 parts water. 1 fl oz (30 ml)/100 kg (45 kg) body weight. Other limitations same as for 0.375% spray.
	9.4% solution	1 fl oz (30 ml)/100 lb (45 kg) body weight. 8 oz (240 ml) limit. Treatment interval-21 days. Treatment-slaughter interval-7 days.
Tiguvon (fenthion)	Spray 0.225% (in water)	1 application/season. Treatment-slaughter interval-45 days.
	0.051% (in water)	No more than 2 applications/season. Treatment-slaughter interval-45 days.
	Pour-on 3% (organic solvent)	15 ml/100 lb (45 kg) body weight. Treatment-slaughter interval-35 days.
	7.6% (mixed 1 part to 8 parts water)	1 oz (30 ml)/100 lb (45 kg) body weight. Treatment-slaughter interval-35 days.
	Spot-on 20%	4 cc/300 lb (135 kg) body weight. Maximum 20 cc. Treatment-slaughter interval 21 days.
	Back rubber 1% (in oil)	No limitations.

Insecticide	Dosage	Limitations
Toxaphene	Spray or Dip 0.6% (in water)	Treatment-slaughter interval-28 days.
	Dust 5%	Thorough treatment. Treatment-slaughter interval-28 days.
	Back rubber 8% (in oil)	Treatment-slaughter interval-28 days.
	Spot-on 5% (in oil)	Apply sparingly by brush or sponge to wet tips of hair. Do not soak hide.
	Smear or Liquid 2%	Spot treatment for ear tick.
Trolene (ronnel)	Feed additive 0.26%	Feed with grain or protein supplement. 5 oz (140 g)/100 lb (45 kg) body weight daily for 14 days. Treatment-slaughter interval-10 days. Use as only soce of ronnel medication.
Vapona (dochlorvos)	Spray 1% (in water)	No limitations.
Warbex (famphur)	Feed additive 2.5 mg/kg body weight	Mix with feed to furnish 100 mg/100 lb (45 kg) body weight per day for 30 days. Feed 14 g/100 lb (45 kg) body weight or mix containing 48 lb (21.6 kg) famphur premix/ton (907.19 kg) supplement for 30 days. Treatment-slaughter interval-4 days.
	5 mg/kg body weight	Mix with feed to furnish 225 mg/100 lb (45 kg) body weight or a mix containing 48 lb (21.6 kg) famphur premix/ton (907.19 kg) supplement for 10 days. Treatment-slaughter interval-4 days.
	Pour-on 12.5% solution	1 oz (30 ml)/200 lb (90 kg) body weight. Limit 4 oz (120 ml). Do not repeat treatment. Treatment-slaughter interval-35 days.

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