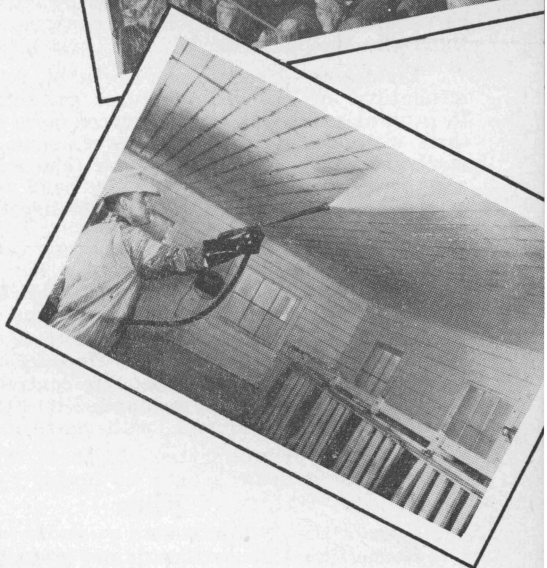
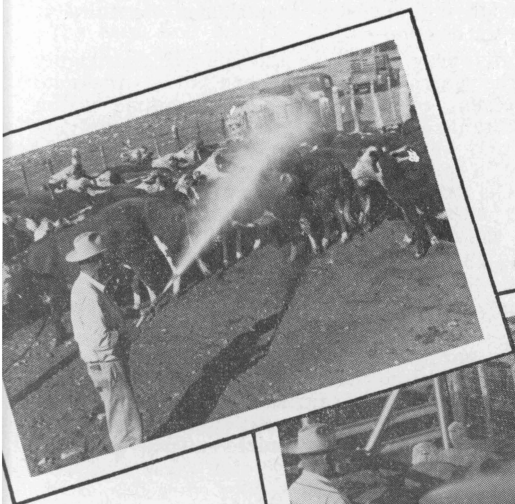


# **Guide for Controlling External Parasites of Livestock and Poultry**



**TEXAS AGRICULTURAL EXTENSION SERVICE**  
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# Guide for Controlling External Parasites of Livestock and Poultry in Texas-1955

External parasites of livestock and poultry are a constant menace. They lower production of meat, milk and eggs by sucking blood from the animals, transmit diseases and cause loss in energy from annoyance. Organic insecticides will control the major external parasites. There is little excuse for allowing them to exist.

## How to Spray

Always weigh and measure insecticides carefully to insure the correct dosage.

Use enough spray to cover the animal thoroughly especially for the control of ticks, lice and mites. Adequate spraying equipment consisting of a high-volume piston pump with a suitable agitator must be used when applying sprays made from wettable powders. The sprayer should be operated at a pressure of at least 200 pounds per square inch. The use of coarse spray nozzles is desirable. Guns equipped with several types of nozzles are useful and are worth the extra expense.

Sprays give adequate control of external parasites and are preferred to dips. Some insecticide formulations have been used successfully as dips, but others have been unsatisfactory.

Inexpensive garden sprayers or similar equipment can be used to control parasites on a small number of animals. Hand sprayers with agitators are necessary for applying wettable powders. These types of sprayers are quite useful in spraying smaller animals, such as hogs.

## Insecticide Formulations

**Wettable powders**—Formulations of wettable powders are considered safer to use than emulsions. All organic insecticides are toxic to warm-blooded animals and should be handled with caution. Exact dosages recommended in the Table should be used.

**Emulsions**—If emulsions are used, follow the recommendations of the manufacturer printed on the label. In general, emulsions are considered more toxic to animals than wettable powders. However, some emulsions are marketed which are no more toxic than wettable powders, and are satisfactory for use in hand sprayers. Only emulsions manufactured for use on livestock are recommended.

## Amount of Mixed Spray to Use

To obtain good fly control, from 1 to 2 quarts of spray per animal is sufficient. One gallon of spray per animal is required to give adequate control of ticks, mites and lice. Sprays should be applied in such a manner as to wet all of the animal, with particular attention to folds in the skin.

## Flies

**House flies**—House flies do not bite animals but cause considerable annoyance when present in large numbers. They may also spread diseases and eggs of internal parasites.

Chemical control must be supplemented with the prevention of fly breeding to obtain adequate control. Manure should be spread thinly in fields so that fly eggs and larvae will be killed by drying and heat. If manure is stored in compost piles, the material added each day should be sprinkled with equal quantities of calcium cyanamid and superphosphate (1 pound of mixture to each bushel of manure) scattered over the surface. The addition of water will spread the chemicals more thoroughly and thus give better control of fly larvae.

Poultry manure in cage laying houses may be treated with 2½ percent malathion, 2½ percent DDT or 0.5 percent lindane emulsion sprays as needed for fly larvae control. Sugar baits containing 1 or 2 percent malathion, or 1 percent Diazinon or 1 percent Dipterex may be used in cage laying houses for adult fly control.

In dairy barns sugar baits containing malathion and Dipterex may be used to supplement residual sprays for house fly control.

Spray all barns, except dairy barns, with 5 percent DDT, 3 to 5 percent chlordane, 2½ percent malathion or 0.5 percent Diazinon.

**For controlling house flies on dairy cattle**, a water spray containing 0.1 percent pyrethrin and 1 percent piperonyl butoxide should be applied at the rate of one quart per animal. This spray also is effective for a few hours if applied as a mist using about 1 ounce per animal. If an oil spray containing these toxicants is used, it should also be applied as a mist using only 1 ounce per animal twice a day.

Spray dairy barns with 5 percent methoxychlor, 0.3 to 0.5 percent lindane or 2½ percent malathion.

**Stable flies**—Stable flies are blood suckers and they irritate the animals. Loss in flesh and reduction of milk flow may be severe. These flies breed in mixtures of manure and decaying litter around barns. Disposal of manure and litter should be handled as indicated for house flies.

Insecticides cannot completely control stable flies. It is necessary that the breeding areas be eliminated. Areas where flies are found resting should be sprayed as for house fly control.

**Stable flies on dairy cattle** can be controlled by a spray containing pyrethrin and piperonyl butoxide as recommended for house flies. A spray containing 0.5 percent methoxychlor applied once or twice a week to the legs, belly and lower part of the sides of the animals will help to control stable flies. If the animals' backs are covered with the spray, horn flies also will be controlled.

**Horn flies**—Horn flies alone cost the producer from 20 to 30 pounds of beef per animal each year. These flies breed in fresh manure. They may be controlled with sprays recommended in the Table.

**Horse flies and deer flies**—Horse flies and deer flies are vicious biters and cause livestock to lose weight. These flies may carry anaplasmosis, anthrax and other diseases. Most insecticides have proved ineffective for the control of horse flies. An effective spray consists of a mixture of 0.1 percent pyrethrin and 1 percent piperonyl butoxide applied several times a week. The animals' bodies should be covered with a fine mist, but not necessarily wet. Keep

animals out of low bottoms near breeding areas during the breeding season.

**Screw-worm flies**—Female screw-worm flies are attracted to fresh wounds where they deposit their eggs. The screw-worms feed on the flesh and may kill animals if the wounds are not treated.

EQ 335 screw-worm smear in which lindane is the toxicant is recommended for screw-worm control. Wounds should be treated weekly with this smear to prevent damage.

**Black blow fly**—Wool maggots attack sheep but do not cause death directly. However, secondary infections may follow wool maggots. They appear around the rump in urine-soaked wool and near wounds. (See Table for sprays to control wool maggots.)

**Heel flies**—Cattle grubs are immature forms of heel flies. Cattle often are seen in the spring running from heel flies or standing in water to protect themselves from the flies that are trying to lay their eggs. The grubs hatch from eggs laid usually below the hock and bore into the flesh. They spend several months tunneling in the animal's body. The grubs move up to the back in the fall and winter to complete their development.

The first treatment (see Table) for grubs should be given in the fall when they first appear in the backs of animals.

## Lice

Several species of lice attack cattle. Some of the species are blood suckers and one species is a biting-louse. Cattle infested with lice have a rough, coarse appearance and do not gain properly. Lice usually are more abundant during the winter and spring when the hair is long. The best time to treat cattle for lice is in the fall. A thorough application of spray is essential.

The hog louse is a blood-sucking parasite. The lice transfer from one animal to another when they come in close contact.

Several species of lice attack sheep and goats. Sheep and goats infested with lice will bite and pull wool which encourages infestations of screw-worms.

Poultry are attacked by several species of biting lice that irritate and cause loss of weight, egg production and even death.

## Mites

Mange mites burrow into the skin, producing tunnels in which the eggs are deposited. Scab mites deposit their eggs at the base of hairs or on the skin and produce scabs. Both kinds of mites are prevalent on animals throughout the State.

The chicken mite and tropical rat mite are intermittent feeders, usually remaining on the host only a short time. The tropical fowl mite and the northern fowl mite usually spend their entire life cycle on the host.

Depluming mites burrow into skin of chickens and cause irritation around the base of the feathers. These mites may be controlled by dipping the chickens in a mixture containing 2 ounces sulfur and 1 ounce soap in 1 gallon of water. Wet the feathers to the skin. Use this same mixture to control the northern fowl mite on the birds or apply 4 percent malathion dust to the litter at the rate of 1 pound to 50 square feet of floor space. The northern fowl mite and the tropical fowl mite also may

be controlled by dusting the birds with 325 mesh dusting sulfur.

Chiggers are often a serious pest of chickens raised on the range. For control, treat the infested area with 2 pounds actual toxaphene or chlordane or 0.25 pound actual lindane per acre as a spray or dust. Since these materials are toxic, birds should be removed from the treated area for at least 3 days.

## Ticks

Several species of ticks attack animals. The **lone star tick** occurs principally in wooded or brush areas. The **Gulf Coast tick** generally is found within a 150-mile range of the Gulf Coast. The adults attack livestock around the ears, poll and top of neck. The **spinose ear tick** is found in dry areas. These ticks attack deep within the ears of livestock. This immature tick is picked up by animals around mineral boxes, feed troughs or watering troughs. To eliminate these breeding areas, move the mineral boxes and troughs periodically and spray the infested areas with creosote or a mixture of one-half crankcase oil and one-half kerosene. (See Table for sprays to control ticks.) The **fowl tick** (blue bug) injures poultry by sucking blood, causing loss in weight, lowered egg production and blemishes which greatly reduce the market value.

## Fleas

Several species of fleas attack poultry and household pets. Since the immature stages of the insect are spent in the soil, fleas often become a nuisance in garages and on the lawn around the home. They may serve as intermediate hosts for certain internal parasites of household pets and may spread disease.

Malathion has proved to be highly effective for flea control in areas where resistance to the chlorinated hydrocarbons has developed. Dogs should be dusted thoroughly with 4 percent malathion dust or dipped in 0.5 percent malathion water solution. To control fleas on the lawn and in garages, use a 2½ percent malathion spray or 4 percent malathion dust. See the Table for use of malathion on poultry. At the present time only pyrethrum and rotenone preparations are recommended on cats.

## Caution

Most of the organic insecticides are toxic to livestock and poultry and should be handled with caution. Since there are few accurate methods for determining the concentration of insecticides in a dipping vat, **spraying is preferred**. Most of the **organic insecticides** are especially toxic to young animals. **Lindane, gamma BHC, toxaphene or chlordane** should be used only at the concentrations recommended. (See remarks in Table.)

Use only the insecticides recommended in the Table for the control of external parasites on dairy cattle and milk goats.

Poultry are especially susceptible to insecticide poisoning. Sprays should be applied when birds are not in the houses.

**Do not use excessive amounts of insecticides.** Do not let insecticidal sprays get on feed, feed containers or in drinking water. All precautions suggested on the manufacturer's label should be strictly followed. **Only formulations sold for livestock should be used on animals.**



# CONTROL PROGRAM

Parasites	Treatment	Remarks
<b>BEEF CATTLE</b>		
1. Cattle grubs	1. 7½ lb. of derris or cubé containing 5% rotenone per 100 gal. of water as a spray. OR 7½ lb. of derris or cubé containing 5% rotenone plus 10 lb. wettable sulphur per 100 gal. of water as a dip. OR 1 lb. of derris or cubé containing 5% rotenone to 2 lb. of heavy nonalkaline dust diluent, OR a prepared dust containing 1.67% rotenone.	1. Treat at 30-day intervals as long as necessary, starting when grubs first make a hole through the skin on the animal's back. A minimum of 3 oz. of dust mixture should be worked thoroughly into the hair on the back of the animal. If spray is used, the spray machine should develop at least 200 lb. of pressure. If dip is used, try a long-handled brush with stiff bristles to scrub the animal's back as it swims through the vat.
2. Lice	2. 0.5% DDT, OR 0.5% toxaphene, OR 0.5% methoxychlor, OR 0.5% TDE, OR 0.03% lindane, OR 0.03% gamma BHC, OR 0.006% rotenone as a spray or dip, OR 0.025% pyrethrin, OR 0.5% chlordane <sup>1</sup> as a spray.	2. Two applications at 2-week intervals of the spray or dip as recommended for cattle grubs will control lice. Two applications may be needed at 2-week intervals if pyrethrin, OR rotenone, OR lindane, OR gamma BHC is used. One application of the other materials is usually sufficient.
3. Horn flies	3. 0.5% DDT, OR 0.5% toxaphene, OR 0.5% methoxychlor, OR 0.5% TDE as a spray or dip, OR 0.5% chlordane <sup>1</sup> as a spray.	3. An application of any of these materials will give protection for 3 weeks or longer.
4. Screw-worms	4. EQ 335 Screw-worm Remedy	4. Lindane is the toxic agent in smear EQ 335 and should not be used in excessive amounts on calves under 2 weeks old.
5. Ticks	5. 0.5% toxaphene, OR 0.5% DDT + 0.03% lindane, OR gamma BHC, OR 0.5% toxaphene + 0.03% lindane, OR gamma BHC as a spray or dip, OR 0.5% chlordane <sup>1</sup> as a spray.	5. An application will give protection for 2 to 3 weeks. To control ear ticks, the ears should be flushed out at low pressure to avoid injury to the ear. Repeat applications when needed.
6. Mange and scab mites	6. 0.06% lindane, OR 0.06% gamma BHC as a spray or dip, OR 2% polysulphides of lime-sulphur, OR .05-.07% nicotine as a dip.	6. Lindane or gamma BHC should not be used on animals under 1 month of age or animals in poor condition. Lime-sulphur and nicotine should be used at a temperature of from 95 to 105° F.

## DAIRY CATTLE

1. Cattle grubs	1. Same as beef cattle.	
2. Lice	2. 0.5% methoxychlor as a spray.	2. One application of methoxychlor is usually sufficient.
3. Horn flies	3. 0.5% methoxychlor as a spray. (See text for additional information on fly control.)	3. One application will usually give protection for 3 weeks or longer.
4. Screw-worms	4. Same as beef cattle.	
5. Ticks	5. 1% rotenone, OR 0.1% pyrethrin.	5. Thorough and repeated applications are necessary to reduce tick populations.
6. Mange and scab mites	6. 0.06% lindane as a spray, OR 2% polysulphides of lime-sulphur, OR 0.05-.07% nicotine as a dip.	6. Same as beef cattle.

## SHEEP AND GOATS

1. Nose fly or sheep bot	1. Use pine tar repellents.	1. To prevent infestation, smear nostrils at weekly intervals with pine tar when flies are active.
2. Lice	2. 0.25% toxaphene, OR 0.25% DDT, OR 0.25% methoxychlor, OR 0.25% TDE, OR 0.25% chlordane <sup>1</sup> , OR 0.03% lindane, OR 0.03% gamma BHC as a dip.	2. If animals are sprayed, the concentration should be double that recommended for dipping. Use same insecticides on milk goats that are recommended for dairy cows.
3. Screw-worms	3. Same as for beef cattle.	
4. Fleece worms or wool maggots	4. EQ 335 screw-worm remedy diluted 1 part to 9 parts of water, OR 0.5% toxaphene, OR 0.5% chlordane <sup>1</sup> as a spray.	
5. Sheep tick or "ked"	5. Same as for sheep and goat lice, OR 8 oz. of derris or cubé containing 5% rotenone to 100 gal. water as a spray, OR 1½% dieldrin dust.	
6. Ticks	6. Same as for beef cattle.	6. On milk goats use same insecticides and concentrations that are recommended for dairy cattle.
7. Mange and scab mites	7. 0.06% lindane, OR 0.06% gamma BHC, OR 1.5% polysulphides of lime-sulphur, OR 0.05-0.07% nicotine as a dip.	7. Same as for beef and dairy cattle.

## SWINE

1. Lice	1. 0.5% DDT, OR 0.5% chlordane <sup>1</sup> , OR 0.5% toxaphene, OR 0.5% TDE, OR 0.5% methoxychlor, OR 0.06% lindane, OR 0.06% gamma BHC.	1. Sows with suckling pigs or young pigs should not be sprayed with the recommended concentrations until weaning time.
2. Sarcoptic mange mite	2. 0.125% lindane, OR 0.125% gamma BHC, OR 0.25% chlordane <sup>1</sup> .	2. In severe cases of mange it may be necessary to make a second application in 10 to 15 days.
3. Demodectic mange mite	3. Same as sarcoptic mange mite.	3. Demodectic mange is more difficult to control but is not common in Texas.

## POULTRY

1. Lice	1. 1% lindane perch paint, OR spray inside of house with 0.5% lindane, OR dust litter with 4% malathion, OR 1 part of sodium fluoride mixed with 2 parts of a diluent dusted into feathers.	1. One pt. of perch paint will treat 150 linear feet of perch. Use 2 lb. of malathion dust per 100 sq. ft. of floor space.
2. Fleas	2. 5% DDT, OR 5% chlordane, OR 5% methoxychlor, OR 4% malathion as a dust, OR 5% DDT, OR 2% chlordane, OR 2½% malathion as a spray on floors of infested house or grounds.	2. When the heads of the birds are severely infested they may be treated with 5% DDT dust. Care should be exercised not to spray or dust the feed troughs, water troughs or the birds.
3. House flies	3. Spray poultry house with 5% DDT, OR 3% chlordane, OR 0.5% lindane, OR 2½% malathion. (See text)	3. Care should be exercised not to spray the feed troughs, water troughs, or the birds.
4. Fowl ticks (blue bugs)	4. 0.5% chlordane, OR 0.5% lindane, OR 0.5% toxaphene as a spray in houses and roosting places.	4. All cracks and crevices in the poultry house, as well as the trees and fence posts where poultry roost, should be thoroughly treated.
5. Chicken mite and tropical rat mite	5. 2½% DDT, OR 0.5% lindane as a spray, OR 1% lindane perch paint.	5. Avoid spray in feed or water troughs and on birds.
6. Scaly-leg mite	6. Dip scaly part of legs in kerosene, OR crude petroleum, OR in a 0.06% lindane solution.	6. Two or 3 treatments at 2-week intervals may be necessary for control. Do not wet legs above where the feathers start.

<sup>1</sup>Chlordane should not be used for more than 3 or 4 applications during one season due to its accumulation in the fat tissues of animals. Chlordane is not recommended for dipping.

# DILUTION CHART FOR MIXING SPRAYS

Amount of Concentrate To Add to Water for Desired Spray

Percent Concentrate	2½%		0.5%		0.25%		0.125%		0.06%		0.03%	
	100 gal.	5 gal.	100 gal.	5 gal.	100 gal.	5 gal.	100 gal.	5 gal.	100 gal.	5 gal.	100 gal.	5 gal.
12 WP <sup>1</sup>			34.5 lb.	1.5 lb.	17.4 lb.	0.8 lb.	8⅔ lb.	.43 lb.	4 lb.	3 oz.	2 lb.	1.5 oz.
25 WP <sup>1</sup>			16.7 lb.	0.8 lb.	8.3 lb.	0.4 lb.	4 lb.	0.2 lb.	2 lb.	1.5 oz.	1 lb.	¾ oz.
25 EC <sup>2</sup>	10 gal.	2 qt.	2 gal.	¾ pt.	1 gal.	0.8 cup	2 qt.	6½ tbsp.	2 pt.	3 tbsp.	1 pt.	4½ tsp.
40 WP <sup>1</sup>			10.5 lb.	0.5 lb.	5¼ lb.	¼ lb.						
40 EC <sup>2</sup>			10 pt.	1 cup	5 pt.	½ cup						
50 WP <sup>1</sup>			8.3 lb.	0.4 lb.	4.1 lb.	0.2 lb.						
50 EC <sup>2</sup>	5 gal.	1 qt.	1 gal.	0.8 cup	2 qt.	6½ tbsp.						

<sup>1</sup>WP = wettable powder

gal. = gallon  
qt. = quart

pt. = pint  
tbsp. = tablespoon

tsp. = teaspoon  
cup = teacup

oz. = ounce

Example: To mix 5 gallons of a 0.06 percent spray from a 25 percent wettable powder, use 1.5 ounces of the 25 percent wettable powder in 5 gallons of water.