



# Beef Cattle Handbook



BCH-3800

Product of Extension Beef Cattle Resource Committee  
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## Self-treatment Devices for Horn Fly, Face Fly, and Lice Control on Beef Cattle

Carl D. Patrick, Texas A&M University, Amarillo, Texas

Self-treatment devices, when properly used, are a more efficient means of controlling horn flies, face flies and lice, than hand application of sprays, dusts or pour-ons. There are several advantages to using self-treatment methods:

1. Animals treat themselves, reducing human labor and animal stress.
2. Insecticides applied on an as-needed basis.
3. If flies or lice become resistant to one insecticide, another insecticide can be substituted.

### Pests

#### Horn Fly

This blood-sucking fly reproduces in fresh manure from early spring to late fall. There may be 10 or more horn fly generations per year, depending upon weather conditions and the region of the U.S. Thousands of flies may infest a single animal, causing extreme nervousness and energy loss. Adult flies stay on the animal almost continuously (except for egg laying) and may feed 20 or more short periods each day.

The horn fly population usually peaks in late spring, and again in late summer or early fall. Hot, dry conditions, along with dung beetle activity and fly parasitism and predation, may naturally reduce horn fly numbers during mid-summer in some areas.

#### Face Fly

Like horn flies, face flies reproduce in fresh, undisturbed cow dung during spring, summer, and fall. Each genera-

tion requires from three to four weeks to develop. They are pests of cattle and horses throughout the United States, except for several southern states and parts of the Rocky Mountain and Great Basin regions. Face flies do not suck blood, but their feeding on lachrymal fluid (tears) and mucus around the eyes and nostrils of cattle cause annoyance. Their microscopic rasping mouth parts cause lesions in tender tissues around the eyes. The irritation causes tears to flow from the eyes, thus providing more food for the flies. The lesions made by the fly are also routes of entry for pinkeye (bovine keratoconjunctivitis) bacteria, which are mechanically carried by the face flies.

#### Lice

Three species of sucking lice, and one species of biting lice infest cattle. Populations of lice build up rapidly with the onset of cool weather, and peak in late winter. Because cattle tend to bunch up more in cold weather, uncontrolled lice can easily spread from animal to animal and quickly infest an entire herd.

### Economic Injury

Scientific evidence shows that horn flies and lice can cause economic losses, both directly in reduced meat or milk production, and indirectly in extra feed consumption. Annoyance and irritation also interfere with the animals' feeding and resting times, reducing animal efficiency. Tear-soaked cheeks caused by face fly feeding activity is perceived by cattle buyers as a precursor to pinkeye, so animals with runny eyes are discounted if sold in that condition. Animals with pinkeye grow less

rapidly and, if infected in both eyes, may actually lose a great deal of weight.

Heart rates, respiratory rates and urinary output increase when animals are exposed to 150-225 horn flies per head. Direct effects are often difficult to document; however, research has shown that calves treated for horn flies increased in weight 11-14 percent more than non-treated calves. These weight increases translated into a return ranging from \$2.16-\$8.38 for every \$1.00 invested for fly control. Treatment is economically justified when fly populations reach 100-250 per head.

Louse infestations irritate animals, causing them to scratch and rub on fences, trees or anything else available. This activity causes bare skin areas, bruises and lacerations. Heavy infestations of lice often stunt, and in rare cases kill, young calves and may predispose cattle to respiratory diseases such as pneumonia. Feedlot cattle having a high level of nutrition are usually not subject to severe infestations of lice. Pasture or range cattle are more likely to have severe louse infestations because of poorer herd health caused by lower quality nutrition. Studies indicate that controlling heavy infestations (10 or more lice per square inch of body surface) improves average daily gain by 0.2-0.4 pounds.

### **Self-Treatment Devices**

Older animals, i.e., brood cows, tend to use free-choice back rubbers or dust bags more frequently than do stockers or yearling heifers. Therefore, forced use is even more important to achieve satisfactory fly and louse control on young stock.

Self-treatment devices charged with well-chosen insecticides are best suited for control of horn flies. They usually reduce the number of face flies on animals but may or may not control them sufficiently to reduce eye damage. Back rubbers and dust bags provide less than excellent control of lice, but will nearly always prevent extreme infestations of lice that cause serious health problems.

### **Back Rubber (Free-Choice)**

The simplest oil-type rubber consists of a chain, cable or two or three strands of barbed wire twisted together to form a support for some absorbent material. The chain, cable or twisted wire is then wrapped with several layers of this material (burlap sacks) and the unit is suspended between posts or trees several feet apart. The burlap is periodically moistened with an insecticide-oil solution. Inexpensive manufactured back rubber/oiler units are widely available. The unit should be installed near where animals rest or take water, salt or mineral. Satisfactory horn fly control can be achieved with the back rubber, if it is properly installed and maintained. Each end of a back rubber should be anchored to a post or tree about 4 feet above the ground and allowed to sag to about 18 inches above the ground at mid-point. There should be about 20 feet of back rubber for every 50-60 animals in the herd. Each back rubber should be recharged every 2-4 weeks with an approved insecticide-oil formulation. For

best results, cattle must contact the device every 2-3 days. However, with no provisions for forced use, consistently good horn fly and/or louse control cannot be assured.

Face fly control with back rubbers is enhanced by the use of mops or other dangling extensions from the main unit. A commercial line of such elements includes Face Flyps® which are flat strips of wick-like material and Fly Bullets® which are absorbent cylinders two feet long by five inches wide.

### **Back Rubber (Forced-Use)**

Installing back rubbers in locations where cattle must pass under them (forced-use) to access water, salt or minerals produces more consistent fly and louse control than free-choice back rubbers. Install each back rubber as described above.

If it is not possible to install multiple back rubber units surrounding water, feed or mineral sources, a single unit may be installed in a gateway, gap or chute between these sources and pasture.

### **Tox-O-Wik™**

Tox-O-Wik™ is a commercially manufactured back rubber type of applicator that employs 1-3 six-foot-long applicators attached to a single upright pole and extended to one or all three legs of the stand. Absorbent material is enclosed by four chains that run lengthwise and are held in position by rings. Insecticide which is contained in a small tank near the top of the applicator is fed by wicking action to the absorbent material below.

### **Dust Bags**

Commercially manufactured, ready-to-hang dust bags containing insecticide dust are available. These bags may be encased or partially covered with vinyl or polyethylene to protect them from moisture, and may be installed without a shelter. Dust bags are more convenient than "cable type" back rubbers since they require less servicing and maintenance.

Dust bags can be used singly or in pairs, either free-choice or forced-use. If dust bags are suspended in pairs, they should be placed about 5 inches apart and hung so that the bottoms of the bags hang about 18-24 inches below the withers of the largest animals in the herd. Two dust bags are usually required for every 50-60 animals. Free-choice dust bags should be suspended in areas frequented by animals. Only limited fly control can be expected, since not all animals will use the bag. Dust bags control horn flies, face flies and lice best when animals are forced to use them.

For range cattle, dust bags can be installed in cross fences where cattle move from pastures to water, salt and/or mineral supplies. Water, feed, salt or mineral sites also can be "paneled off" leaving one or more gaps in which dust bags can be suspended. With this arrangement all animals get two or more dust treatments per visit.

Bags can be suspended on swing-away arms so that

intermittent treatments can be applied. This reduces the probability that insecticide resistance will develop and makes dust or bag replacement more convenient. Dust bag treatment normally costs between 20-60 cents per head per month, depending on insecticide costs, frequency of use and other factors.

### **Alternative Dust Applicators**

The Pestube™ and Doctor Scratch™ are examples of other types of commercial dust self-application systems. A one percent coumaphos (Co-Ral®) dust is dispensed onto cattle from one or two hard plastic tubes attached to a wooden or metal post device. Plastic valves in the bottom of each tube dispense the dust onto the animals. The height of the tube is determined by the general size of the animals being treated. A single tube is suggested for every 50-60 animals in the herd. Best results are obtained when the device is placed in an area where animals rest or congregate.

The Dustacator™ is another type of commercial dust self-application device. It also dispenses insecticidal dust, but from a skirt or dust bags hung around the perimeter of a salt and mineral feeder. Cattle thrusting their heads under the skirt to reach the salt or minerals cause dust to be dispensed onto their heads, necks and withers. Twenty-five pounds of dust will service 50 cows and calves for up to six weeks.

### **Self-Activating Sprayers**

Several cattle-activated sprayers (e.g. The Protector™, Cullor Automatic Sprayer Feeder™, Dr. Scratch Mister Model 2000™) are commercially available as self-treatment devices, that spray insecticide on the back and face of an animal, as it attempts to obtain mineral or salt. The pumps on these self-activating sprayers run off the power of a 12 volt battery. On some of the sprayers, the battery is kept charged by solar panels. Maintenance of the activating device, battery and pump has been a problem on some of these units.

### **Ear Tags**

A wide variety of insecticide impregnated ear tags have been labeled for use on beef cattle. Ear tags are not self applied, but once having been applied the insecticide in them is self-applied over a period of many weeks. Ear

tags, when used at the labeled rate, can provide 2-5 months of satisfactory horn fly control. Currently labeled ear tags contain either a pyrethroid, an organophosphate or a pyrethroid/organophosphate/ synergist chemical mixture. Pyrethroid ear tags have induced widespread horn fly resistance. Producers should alternate insecticide ear tags from different chemical families, through time, to help keep resistance to pyrethroids from increasing and to help prevent resistance to organophosphates. Management strategies for pyrethroid resistant horn flies vary to a limited degree from state to state. Contact your local county Extension agent to learn what is suggested for your area.

Two pyrethroid ear tags per animal, especially of some of the newer pyrethroids, provide better face fly control than can be achieved by any other feasible method. There will be less satisfactory face fly control in years when organophosphate tags are used in an ear tag rotation system.

### **Insecticides for Charging Self-Treatment Devices**

Several insecticides are registered for use in dust bags or on back rubbers. Liquid insecticides for back rubbers can be purchased as ready-to-use oil solutions or as emulsifiable concentrates to be mixed with No. 2 diesel, kerosene or light mineral oil. Do not use lubricating oils to dilute insecticides for back rubber application. Dusts can be purchased in ready-to-use bags or in refill packages.

Certain insecticides are approved for self-treatment on both beef and dairy animals, others are approved for use only on beef cattle. It is a violation of state and federal law to use a pesticide inconsistently with product labeling. When purchasing an insecticide, make certain that the label directions clearly recommend the application to be employed. Use only according to directions to avoid meat or milk residue hazards or animal injury. Do not contaminate feed or water with insecticides.

As with the selection of insecticidal ear tags, the insecticides used in back rubbers or dust bags should be rotated from time to time to minimize insecticide resistance in the flies—providing that an effective material is available in each of two different chemical families. For additional information and current insecticide recommendations, contact your local county Extension agent.

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