



PHARO CATTLE COMPANY

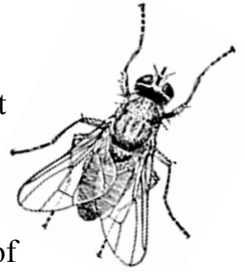
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The Dreaded Horn Fly...

Although horn flies are no more than 3/16 of an inch in length, they are the most economically damaging external parasite of cattle in North America. They cost the industry an estimated \$800 million each year in lowered weight gains. Horn flies live on the animal, sucking a blood meal every hour or so through their needle-like mouthparts. They tend to cluster around the horn bases or on the shoulders and backs of cattle. Most will move to the animal's underside during the heat of the day. The flies will fly up in a swarm when disturbed but will immediately return to the animal. I've heard of infestations as high as 10,000 flies per animal, but it is rare to see infestations of over 800 flies per animal. Most experts believe fewer than 200 flies per animal will not result in measurable economic loss.



The female horn fly has a lifespan of 25 to 30 days. She can deposit over 600 eggs in fresh cattle droppings in her lifetime. In hot weather, it only takes 10 to 20 days for an egg to develop into a mature fly. This rapid life cycle and the number of eggs explains the rapid buildup of fly numbers in early summer. Horn fly numbers generally reach a peak in early summer and then decline during hot, dry weather because the manure dries before many of the flies complete their larval stage of development. A second peak usually occurs in late August and September as temperatures cool and moisture increases. During this period, a portion of the pupae population will go into an overwintering phase of the life cycle. Horn fly breeding, however, will continue until a freeze kills the adult horn flies.

Chemical Control. The most common way to control horn flies is through the use of chemical insecticides. This includes the use of insecticide-impregnated ear tags, dust bags, oilers, sprays, pour-ons, spot-ons, feed additives and boluses. Some cattlemen spend thousands of dollars on chemical fly control. In addition to cost, I can think of three more negative consequences of controlling horn flies with chemicals.

First, it has been scientifically documented that routine fly control has created flies that are resistant to many (perhaps all) of our available insecticides. For example, when we first used ear tags that were impregnated with insecticide we got great fly control, but in just a few years the same tags delivered almost no control. This problem can be minimized by not using the same chemical every year and by not exposing flies to low levels of insecticide for an extended period of time.

Second, chemical fly control has had a devastating effect on dung beetles and other beneficial insects and organisms. There are literally hundreds of insects and microbial organisms that play a major role in the breakdown of manure and other organic matter. Productive rangeland starts with healthy soil, which is dependent upon the insects and microbial organisms that reside in it. Our repeated short-term, chemical control of the dreaded horn fly and other parasites has had a long-term, negative effect on the health and productivity of our rangeland.

Third, through the continual use of insecticides we have created large populations of cattle that have very little natural resistance to flies and other external parasites. Before the widespread use of insecticides, cattle with very low resistance to these pests were unable to compete with cattle that had more resistance. Consequently, their inferior genes were not passed on to the next generation. The widespread use of chemical insecticides has made it possible for inferior animals to survive and reproduce. Therefore, we've inadvertently created inferior cattle — while creating superior flies.

What are Our Options? There must be a better way to deal with the dreaded horn fly. In the article below, I discuss the concept of selecting and breeding cattle for genetic resistance to horn flies and other parasites.



~ Kit Pharo

Genetics — The Key to Horn Fly Resistance...



I have always believed many of the problems we encounter in the cow-calf business have a genetic factor. Genetic selection, though quite slow, can provide a long-term solution to many of our problems. Horn flies are no exception. It doesn't take a genius to see that some cows have a fraction of the horn flies that other cows have. For one reason or another, they have a genetic resistance to the dreaded horn fly. Dayton Steelman, an entomologist at the University of Arkansas, believes the heritability for fly resistance is 58% (very high). With this in mind, I believe this is a trait seedstock producers should be monitoring and selecting for. Unfortunately, most seedstock producers are very quick to use high levels of chemicals to control problems like this.

Dayton Steelman has studied horn flies and their effect on beef cattle for over fifteen years. His research has led him to the following conclusions:

1. Some breeds, such as Brahman, are much more resistant to horn flies. They have three times the number of hairs per unit of surface area than do most British and Continental breeds.
2. Within the same breed, certain individuals are much more resistant to horn flies than others.
3. Smaller framed animals have significantly fewer flies than larger framed animals within the same breed. Cattle of the same breed seem to be born with approximately the same numbers of hairs per unit of surface area. When you enlarge the frame size, you stretch those hairs over a larger area. The bigger the animal, the greater the distance between hairs.
4. Every hair follicle has two sebaceous glands that secrete a substance that reflects sunlight (heat) and provides a natural resistance to insects. The more hairs, the more secretion. Cattle that have a very slick and shiny summer hair coat seldom have much in the way of fly problems.
5. Horn flies have an anti-coagulate factor in their saliva that prevents blood clotting while they are feeding. Some beef animals have a higher level of a natural chemical called thrombin that works to counteract the fly's anti-coagulate. Simply by selecting for animals that have a higher level of thrombin in their blood, we can effectively select for horn fly resistance.
6. Bulls, because of their testosterone, will typically have two to four times more flies than cows.

Bred-in parasite resistance is another area in which Pharo Cattle Company has assumed the leadership position. We want to continue to be "Different for all the Right Reasons". We have evaluated and scored hair coat for many years. We started evaluating and scoring our bulls for fly resistance in 2007. There seems to be a good high correlation between hair coat score and fly resistance score.

~ ***Kit Pharo***