

Making War on Flies

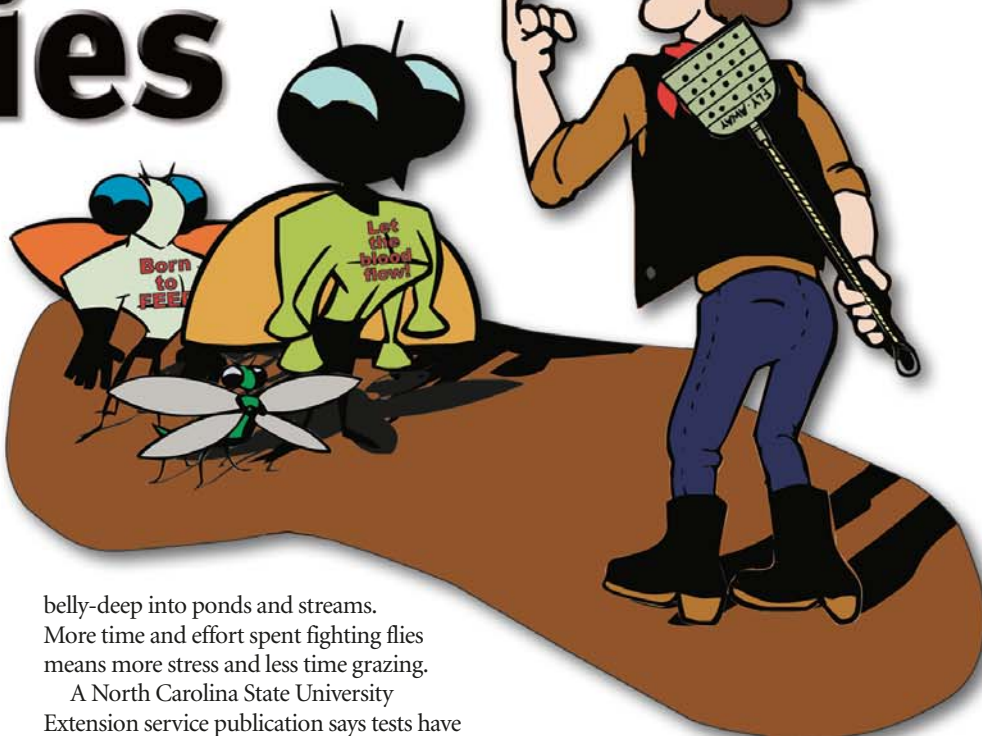
Without fighting back, flies can cost cattle producers millions.

by Troy Smith

It's a war that's been waged by generations of cattle producers. They face staggering odds — an adversary of countless number. Even with their arsenal of technologically advanced weapons, producers struggle to hold the enemy at bay. The war is never decisively won. After seasonal lulls in the action, a reinforced foe advances again, wave after wave.

It's a war against flies — those armies of tiny pests that plague cattle and frustrate producers. Flies adhere to that ancient rule of war, "To the victor go the spoils." Surrendering to their attack means suffering loss of production and potential profit.

Flies rob producers of hundreds of millions of dollars each year. They cause blood loss and spread disease, but the biggest cost probably stems from the aggravation they inflict upon cattle. Due to the onslaught, cattle expend tremendous amounts of energy while seeking relief. They stomp their feet, swish their tails, hunt for shade or wade



belly-deep into ponds and streams. More time and effort spent fighting flies means more stress and less time grazing.

A North Carolina State University Extension service publication says tests have shown how fly infestations may reduce average daily gain (ADG) in summer-grazed yearling steers by 12%-15%, or as much as 30 pounds (lb.) during the grazing season. The annoyance, irritation and blood loss caused by flies can lower milk production in mother cows, thus reducing calf weaning weights by 12-14 lb. A report from The Samuel Roberts Noble Foundation Inc., Ardmore, Okla., goes further, saying flies can reduce summer stocker gains by 50-70 lb., while calf weaning weights may be lowered by as much as 20 lb.

Throughout history, many battles were won through superior numbers. In this war, flies will always have that advantage. Producers must rely on tactics.

Know thy enemy

Horn flies and face flies compose this war's axis of evil. Horn flies are most significant because they are "out for blood" and spend nearly all of their adult lives on cattle. They are commonly seen on an animal's back, clustered along the midline, but may move to the sides and belly as temperatures increase. Armed with piercing and sucking mouthparts, each horn fly takes 20-30 meals each day, feeding on blood and tissue fluids. They are considered weak fliers, but are known to travel 2 or 3 miles — sometimes farther if aided by a stiff breeze. Females lay their eggs in fresh cow manure, where they hatch into larvae. The life cycle is completed in eight to 45 days. By late summer, however, larvae may not develop beyond the pupal stage and will not emerge as adults until the following spring.

Face flies also lay eggs in fresh manure, but, unlike horn flies, they are nonbiting bugs that feed on secretions from the eyes and muzzles of cattle. They cause irritation and weeping from an animal's eyes, which

Considerations for choosing a fly control program

While developing a fly control program suited to their operations, producers should evaluate methods and products on the basis of cost, convenience and efficacy. Some factors to consider include:

- ▶ Young cattle should receive more attention than older cattle. Because they are growing, reduction in weight gain among young animals has a direct effect on income to the operation.
- ▶ Young cattle are more susceptible to pinkeye.
- ▶ Fly tags are convenient, but are not without drawbacks. Horn flies developed resistance to the original pyrethroid tags. Flies have been slower to develop resistance to new-generation pyrethroids and organophosphate-impregnated tags. Tags featuring a combination of pyrethroid and organophosphate often are effective against resistant flies.
- ▶ The use of two fly tags (one in each ear) extends control by only 10-14 days.
- ▶ Dust bags, oilers, face mops and other "self-medicators" can be very effective because they provide for long-term, high concentrations of insecticide on cattle.
- ▶ Forced use of self-medicators assures that all cattle receive treatment.

Source: Adapted from "Summer Fly Control on Cattle" by W. Dee Whittier, Extension Veterinarian, Virginia-Maryland Regional College of Veterinary Medicine, Virginia Tech.

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attracts more face flies and increases irritation and opportunity for infection. They are also believed to spread the bacteria that cause pinkeye. Face flies spend only about 10% of their time on cattle and the remainder of the time resting on trees, bushes and fence posts.

Weapons at hand

There are numerous choices of fly control products, including chemical sprays, pour-ons, rubs and dust bags. Ear tags impregnated with insecticide have become very popular. Oral larvicides delivered through mineral, feed additives or boluses

also are available. Any of these methods and products may be effective, depending on a producer's situation. However, fly populations can develop resistance to chemicals used in some of these products. Battle-hardened producers use them strategically.

Sprays generally provide quick knockdown of flies and some residual effect for two to six weeks, depending on the incidence of rain that will wash off the chemical. Multiple applications usually are necessary for optimum results. Sprays often work well when used in combination with other control methods.

Pour-ons applied down the animal's back also may provide good knockdown as an initial treatment, but have their limitations. Systemic products (such as ivermectin), where the active ingredient actually enters the animal's bloodstream, are effective against blood-feeding horn flies, but not for face flies. Residual effects of pour-ons are generally limited to a month or so and must be repeated or used with another control method.

Rubs treated with insecticide in an oil base can be used as a stand-alone control measure, provided they are recharged regularly. This may be necessary every two to four weeks or following any significant rainfall. Dust bags containing insecticide powder can be similarly effective. However, during conditions of high humidity, powder may become caked and not be released when cattle rub against the bag. Neither rubs nor dust bags offer fly control if cattle do not use them. The best control results from forced use, by hanging either type of device in a gate through which cattle must pass routinely to reach water or salt.

In recent years, fly control ear tags have gained popularity because of their convenience. The tags are impregnated with a pyrethroid, an organophosphate or a combination of these two classes of insecticide, which is released slowly. Tags can be effective as the sole fly control method for up to five months. For maximum control, most recommendations call for application of a tag in each ear.

Ideally, producers should apply the tags in late spring or early summer. Cattle can tolerate a few flies early in the season, but tags should be applied before the fly population peaks. Do it too early in the spring, however, and tags are likely to lose their efficacy before the end of fly season.

Feed-through larvicides involve compounds that are fed to cattle, through a ration or in their mineral, to kill fly larvae as they hatch in manure. They are only effective when individual animals consume

Practical pasture fly control

What's the most practical program for controlling bothersome flies on pasture cattle? Montana State University entomologist Greg Johnson says there isn't one. That is, there is no *one* best way to control flies.

"In Montana, and other places I suspect, the insecticide ear tags were very popular. They're certainly the most convenient, if you can apply them in the spring and not worry about flies anymore," Johnson says. "But now, the tags are viewed with mixed feelings. Some of them don't work very well. Some that do work pretty well are pretty expensive."

The problem with tags that aren't working up to snuff is resistance to the associated insecticides. When pyrethroid-impregnated ear tags first came into use, Johnson says, many producers reported good results for a few years. But, horn flies in particular developed resistance quite rapidly.

"While they cost more, tags with newer pyrethroid chemistry or pyrethroid combined with an organophosphate work better. They work better, provided the producer is on a program," Johnson emphasizes. "Tags with the same chemistry should not be used in successive years. Producers should develop a program to alternate the types of insecticide tags used."

Time of application makes a difference. For example, producers who calve fairly early in the spring may be ready to brand and work their calves in April. From the standpoint of convenience, that may be a good time to apply fly control, too. But, on northern ranges like

Montana, flies seldom become a problem until a month or two later. And, the efficacy of tags applied early may be spent by September, well before the fly season ends.

"A lot of producers are going to apply tags when they're ready to turn out in the spring. That seems practical," Johnson says. "But applying tags too early means they may not have much late-season fly control."

Johnson believes more producers are returning to the use of oilers, backrubs and dust bags. Manufacturers offer a variety of prefabricated devices, but still popular, and quite economical, is a homemade rub fashioned from a length of heavy chain wrapped in burlap and suspended between a couple of big posts.

Treated with any of several commercial insecticides, oilers and rubs can provide 75%-80% control of horn flies and face flies. That's adequate, Johnson says, and insecticide dusts can provide a similar level of control. The issue with these devices is maintenance. Rubs and dust bags have to be checked frequently and recharged as needed. Bulls can be hard on them, making repair or replacement necessary.

"Producers often place rubs and dust bags in a loafing area, and some cattle do not use them," Johnson adds. "They work best in a forced-use situation, hung over the entry to a fenced area around a water tank, for example, where cattle have to come in contact and learn to use them."

Johnson says oral larvicides and insect control regulators really do what they are supposed to do, passing through the animal and killing or preventing development of fly larvae. The challenge in a pasture situation, however, is getting each individual animal to consume adequate amounts on a regular basis. There also is the problem of reinfestation by flies from a neighboring herd.

Johnson calls the insecticides used in sprays and pour-ons effective, but short-lived. They usually have to be applied repeatedly for lasting control of flies. Gathering and bunching up cattle for spraying is stressful, and in operations involving large numbers of cattle spread across large areas of land or when corrals or facilities are unavailable, it may not be practical.

"Producers have to decide what will be cost-effective for their individual operations, in terms of time and labor, cost of products, and expected results," Johnson states. "I know ranchers who have chosen not to do anything. In my opinion, that's not a good management decision. Flies — especially horn flies — can take a serious economic toll."



proper amounts of the active ingredient.

Also available are bolus products containing insect growth regulator (IGR) compounds that are released into the manure and prevent larvae from reaching maturity. Oral larvicides and IGR products will not control migrating adult flies. If a producer uses one of these products, but a neighbor isn't practicing fly control, flies can still be a problem.

Fighting resistance

Entomologists, veterinarians and Extension specialists warn against using tags impregnated with the same insecticide during successive years. It is best if the tags used one year contain a type of insecticide that is different from the type contained in tags used the previous year. The experts also advise producers to remove the tags in the fall. Tags left in place longer continue to provide low-level exposure to insecticide, which can contribute to resistance in local fly populations. Flies that survive the winter — particularly face flies — are likely to be resistant, as are their offspring. The type of insecticide used for rubs or dust bags should be rotated, too.

In some situations, producers may want to launch multiple attacks on flies, such as using

sprays, dusts or pour-ons in the early part of the fly season, then using fly control ear tags for the remainder of the season. Some producers choose to reinforce the use of ear tags by occasionally spraying cattle, too.

An integrated approach can work, but intelligence sources differ in their recommendations for insecticide selection. Some say early-season applications should involve a class of insecticide that is different from that used in the ear tag. Others say the best way to keep flies from developing resistance is to use only one type of insecticide, during any given year, regardless of application method. The following year, all products used should contain a similar type of insecticide, but one different from that used during the previous year. Producers are advised to consult their veterinarians or Extension entomologists for help in creating an effective fly control program that minimizes insecticide resistance among flies.

Special forces, covert operations

Other fly control strategies that may be suited to some situations include biological control and fly traps. Biological control involves bringing in a mercenary force of predator wasps that feed on fly larvae. Growing numbers of confinement feeding

operations are using predator wasps successfully, thereby reducing the need for chemical controls.

The idea for walk-through fly traps dates back to the 1930s and the work of a U.S. Department of Agriculture (USDA) entomologist. The traps did not catch on, but concern about horn fly resistance to some insecticides has some people taking another look. The traps are small covered structures placed such that cattle must walk through them on a regular basis. Pieces of canvas, carpet or similar material are hung inside so that cattle brush against them to dislodge clinging flies. Because flies are attracted to light, they will fly toward the screened sides of the trap. The animal exits the trap with fewer flies, and most dislodged flies cannot escape the trap.

Certainly not all fly control measures are practical, or even applicable, for all beef cattle operations. Regardless of what programs they choose to implement, producers are wise to monitor results, or the lack thereof. If the current battle plan isn't working, it is time to regroup and launch a new offensive action. This is war, and surrender is not an option.

