

Cattle Business in Mississippi – June/July 2018

“Stocker Cents” article

Flies: small pests, big problems

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Horn flies are little bugs that can cause big trouble for beef producers. Wet and mild conditions this spring make for ideal breeding conditions for horn flies, and as temperatures rose in May, they showed up quickly in full force. Often it seems like a daunting task to start a fly control program at the peak of fly season, and indeed this may be too late to make an impact. Planning fly control early is an important management practice.

Although the horn fly is a relatively small pest, it can eat a big hole in an operation's profits. Previous estimates have production losses estimated over \$730 million for the beef industry. These production losses come from a variety of factors, such as blood loss, toxicity, and diseases. Growing calves and lactating cows are often hit hardest, and see the greatest losses from horn flies. Average daily gains in stocker cattle have been estimated to be reduced by over 13% with high infestations of horn flies. Ultimately, these losses add up to reduced profits, and with the large losses in mind prevention strategies become a decision important to the bottom line.

The life cycle of the horn fly is important to understand. The horn fly is a blood feeder that lives on back, belly, and legs of the host. The life cycle begins when the female fly leaves the host animal for only a few seconds to lay eggs in fresh manure. The eggs then hatch in 1 to 2 days into larvae. The larvae will feed and grow in the manure for 3 to 5 days, before change into pupae in the manure or soil for 6 to 8 days. The adult fly will then emerge and begin feeding on the nearest host animal. Although the life of the female fly is only 2 to 4 weeks, she spends day and night feeding on blood from the host animal. Flies feed for 10 to 25 minutes at a time, and may feed up to 40 times per day. Fly control methods target the life cycle of the fly at various stages.

Horn flies survive cold winter conditions by remaining dormant in the pupae phase in the soil. When average daily temperature conditions reach 65°F for at least 2 weeks, adult flies will begin to emerge. Fly season typically reaches its peak in early summer when conditions are hot and dry.

There are many options available for fly control, and the best method may vary from one producer to the next. Many factors should be considered when choosing which method will work best for an operation. While price is often the first factor considered, effectiveness, ease of use, and reapplication rates must also be considered. When considering the value of control, it is important to consider threshold fly levels. There are two threshold levels to consider, the threshold where treatment is required and the economic threshold, or the number of horn flies per animal at which value of damage is equal to the cost of control. These two thresholds differ greatly. Fifty flies are typically the level where treatment is considered required, whereas the economic threshold is 200 flies per cow. The economic threshold is the point at which the cost of treatment falls below the estimated production loss.

Fly control options take on a variety of forms, including self-application devices, pour-ons, ear tags, and feed through. Within each of these classes, there are a wide range of choices available

with differing insecticides, costs, and effectiveness associated with each. It is first important to understand the major differences associated with each form.

A popular method of fly control involves feed through products. With this method, an insecticide designed to prevent larvae from reaching maturity is mixed into a feed or mineral source for the cattle to consume, and typically works best if it is fed before the adult flies begin to emerge. It is recommended to begin feeding these products at least 30 days before the projected last frost, and through 30 days after the first frost of the fall. The major benefits of the feed through option are attributed to its application method. Since the fly control is present in the feed or mineral cattle are already consuming, there is little extra labor or stress involved for the cattle. Some disadvantages of this option include an effect of consumption, the product is not effective if cattle do not consume it in adequate amounts, and fly transfer, if cattle are near other animals not treated for flies, and it is possible that adult flies will transfer to the treated herd. It is important to remember that these feed through products reduce fly counts by interrupting the life cycle of the fly, not by killing adult flies. Therefore, if these supplements are fed after adult flies are established, it may initially need to be used in conjunction with a product that will kill the adult flies.

Self-application devices are typically either back rubs or dust bags. Each device is treated, or “charged”, with an insecticide diluted in oil, and placed in a high traffic area of the pasture. There are several benefits to these types of systems. The majority of these benefits are associated with self-treatment, in that cattle experience little stress and there are minimal labor inputs involved in the application process. However, the disadvantages associated with these devices are also associated with their self-treatment nature. A non-uniform treatment may be observed, and some animals may refuse to pass through these devices and would therefore be untreated. Also there is the question of when to recharge these devices.

Fly tags, or ear tags impregnated with an insecticide, are another option for fly control. The tags are typically recommended to be placed 2 per animal, with the recommendation to re-tag when fly counts begin to rise at a rapid rate. Benefits of this option include a relative ease of use, and low labor and stress when incorporated into routine working times. One major disadvantage is that resistance can develop with improper use, which occurs when the type of insecticide in the tags are not rotated. Many companies provide producers with a recommended insecticide rotation if using tags as a primary fly control option to aid in reducing resistance. For producers without access to a good set of working facilities, this method may not be an option. Note that it is very important that tags be removed after they lose their effectiveness. Not removing these tags may lead to increased resistance to insecticides.

Pour-on or spray-on insecticides are another popular option for fly control. These products require direct application, and many are labeled to treat both internal and external parasites. There are several benefits to using this application technique. First, the direct application assures that every animal is treated. When used properly, sprays and pour-ons are highly effective, and offer the ability to combine fly control with internal parasite treatment. The disadvantages of using sprays and pour-on treatments are an increased stress on animals due to the application process, and also may not be an option for producers who do not have access to an area to pen and/or work cattle. Many pour-on dewormers also offer the added benefit of fly control, however, it is important that this is not the only form of fly control used during the season. If a topical approach is the preferred method, control will need to be augmented during the season as fly counts may increase. As also noted with fly tags, resistance may be a problem if insecticides are not properly rotated, and one insecticide is used continuously.

Biologicals and other non-chemical alternatives are also becoming more popular as a form of fly control. Biologicals include several species of parasitic wasps, which attack the immature stages of flies. Stable flies and house flies are the fly types impacted by biologicals, and these are most commonly found in confinement operations such as feedlots and dairies. Due to the extensive nature of pasture based systems, and horn flies being the primary fly of concern, biologicals may not be the best alternative. Traps may offer an alternative to chemical use in high traffic areas such as feed rooms or near working facilities. It is very important to carefully read the instructions on each product to find the one that best fits your needs.

With so many options available for fly control, and so many different products available within each option, the task of choosing the right method for your operation may seem daunting. It is important to consider the labor involved and inputs needed for each method, and choose the method which best suits your operation. With any method chosen, it is also important to remember to rotate the active ingredients in your chosen method, to prevent flies from developing a resistance to a particular insecticide and decreasing its effectiveness. Lastly, remember that the benefits seen when cattle are treated for horn flies when fly loads have reached a critical level will far outweigh the costs associated with that control. For more information about beef cattle production, contact an office of the Mississippi State University Extension Service, and visit extension.msstate.edu/beef.