Hay feeding and stable flies

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The onset of spring is upon us and we are coming out of a long cold winter. Well with cold weather brings more hay feeding and as most of you all know we have to feed hay to supplement our animals nutrition. However, a major drawback to supplementing our animals with hay is that we usually try to get the hay to the animals in the same location whether it is in a feeder or unrolling a bale in the same location. This is all done fairly efficiently with the use of truck bed bale loaders or even a tractor with a spike. Well with efficiency comes some unintended consequences and one of those consequences is the residue of wasted hay left over. This residue is what brings us to the bug issue especially in cow/calf systems.

The residue left over from hay feeding provides stable flies an ideal habitat for their immature stages to develop and emerge as adults. Well you might be thinking what kind of problems does a stable fly cause. A study in Nebraska demonstrated that grazing steers exposed to stable flies for an extended period weighed an average of **37 lbs less** than steers that were protected by repeated insecticide treatments (Campbell, et al. 2001).

Stable flies are common on cattle in Oklahoma from May through September and generally peak populations occur around late May and early June. These flies irritate the animals by biting the lower portion of the body or legs of the animal. Animals usually will stomp their feet, bunch into corners or in large groups to try to avoid the painful bites. Another typical behavior of animals that are being attacked by stable flies is that they will stand in water that comes to just over the hocks of the animal essentially protecting their legs from the biting flies. Usually animals will exhibit this behavior even with normal temperatures that are not excessively hot which is when you would normally see this behavior exhibited.

Hay feeding sites provide ideal habitats for the stable fly and it has been demonstrated in Kansas that a typical round bale feeding site could provide approximately 58,000 stable flies per week (Talley unpublished data). When researchers characterized the hay feeding sites in relation to larval development they determined that the concentration of manure was the limiting factor for successful stable fly development (Talley et al. 2009). What they determined was the concentration of animals seemed to contribute more to stable fly development at these hay feeding sites than the amount of wasted hay. They also demonstrated that even when you have a hay saving feeder, such as those known as cone feeders where the bale does not rest on the ground but rather is suspended, did not influence the number of stable flies emerging from these hay feeding sites. However, they did determine that when unrolling a bale over a new location every time no stable flies developed in the wasted hay residues. As a producer you might be wondering what the effects of unrolling a bale at a new location would have on the native forages. Well these researchers went a step further to demonstrate that there were no detrimental effects to native forages at these sites of hay feeding. So essentially unrolling hay bales at a new location every time did not provide any stable flies and did not affect the native forages (Talley et al. unpublished).

So you might be thinking this is all well and good but I have already feed hay in feeders all winter and now you are telling me I am about to have a stable fly problem. Not exactly, one of the interesting things about stable flies is that the particular stages that are developing in these hay substrates are fairly

immobile in relation to the adults. In fact, one of the best control methods you could employ is to either clean up the hay feeding site before late May or disturb by dragging some kind of implement through the hay feeding site. Why does this work? Well essentially it does two things: 1.) it kills the larvae and pupae by mere physical damage, and 2.) it allows the substrate to dry out quicker which inhibits larval development.

In general stable flies can cause both irritation to the animal (literally) and to a producer (economically). Always remember that when considering how to control a pest one should always think about an integrated approach. Usually an integrated approach is one that applies the most economical, environmental, and logical method of controlling the pest.

Points to Consider:

- Clean up the hay before flies become a problem
- Consider modifying your hay feeding technique in the winter to avoid stable fly problems in the spring and summer
- If clean out is not an option consider disturbing the hay feeding site in a manner that allows the site to dry out

Figure 1: Stable fly pupae at a hay feeding site within a cow/calf pasture

Figure 2: Adult stable fly