Dairy E-News

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Dairy Farm Added to the Arkansas Discovery Farms Program

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The word continues to spread about the Arkansas Discovery Farm Program. This agricultural community directed and supported program strives to achieve environmental and agricultural sustainability for farming in Arkansas through monitoring, demonstration and research. A fundamental and critical aspect of the Discovery Farm Program is the partnership between public and private sectors, as well as the agricultural and natural resource communities. These partnerships are essential to program delivery efficiency, mutual ownership and credibility. The Discovery Farm Program and these partnerships help coordinate conservation program delivery from multiple levels of government, ranging from local county-based programs to federal financial incentive programs. Many of the partners are represented in Stakeholder and Technical Advisory committees.

The Stakeholder Committee is comprised of members of agricultural, nongovernmental and rural entities within Arkansas. This committee oversees program operation to ensure that it is addressing the needs of Arkansas farmers in a proactive manner. This committee also aids in securing funds to ensure the Discovery Farms' goals are met.

The Technical Advisory Committee is comprised of members of state and federal organization and agencies involved with agriculture in Arkansas. This committee oversees the monitoring, research and outreach methods used, in order to ensure the accuracy of information obtained through the program. This committee also serves as a "watchdog" for emerging issues that could confront Arkansas farmers.

Other partners that have provided financial support to date are Arkansas Farm Bureau, Arkansas Rice Promotion Board, Arkansas Soybean Promotion Board, Arkansas Corn and Grain Sorghum Board, Monsanto, Arkansas Natural Resources Commission, Walton Family Foundation and Natural Resources Conservation Service via the Mississippi River Basin Healthy Watersheds Initiative (MRBI) and National Water Quality Initiative (NWQI). This funding allowed us to purchase and operate equipment for some of our current farms.

Documenting environmental impacts of Arkansas farming systems, as well as evaluating the cost-effectiveness of alternative practices, will bridge a knowledge gap that now keeps farmers, natural resource managers and decision-makers from confidently taking effective actions that ensure economic and environmental sustainability. This program, and formation of strong partnerships, has the potential to affect millions of agricultural acres across the state. Program results will also give us the confidence that we are doing our part to maintain safe and affordable food supplies, while protecting our natural resources for future generations of Arkansans.

The 12 farms in the statewide program (Figure 1) represent rice, corn, soybean, beef, poultry, and dairy farms across the state.

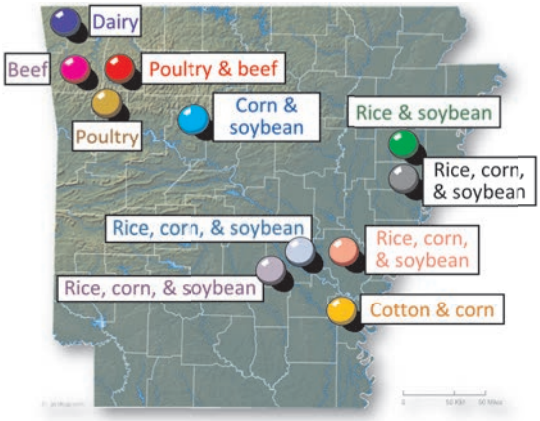

Figure 1. Arkansas Discovery Farms. Additional information can be found at http://discoveryfarms.uark.edu/

The Haak Dairy Farm, a recent addition to the program, is a newly constructed dairy operation milking approximately 140 cows. The farm plans to establish legumes into the pastures in an attempt to decrease nitrogen fertilizer needs. A history of poultry litter land applications should meet phosphorus fertility needs for a while. How long will depend on future crop and fertility management. UA Division of Agriculture personnel will assist in the development of the farm plan.

Currently, pastures are a mix of rye and wheat over bermudagrass. The farm plan is to divide farm pastures into 11 paddocks and rotationally graze them. The centrally located milking center and planned travel patterns will be used to minimize cattle walking distance to the milking center. The long-term plan is to adopt a rotational grazing plan with collaboration from NRCS. This rotational grazing plan will include necessary waterers.

We will monitor soil nutrient status and soil health with ongoing farm management over a period of five years to determine the long-term benefits of rotational grazing on soil productivity.

In a parallel set of actions, the amount of fresh water used in cleaning the milking center will be monitored. Wash water samples from various locations in the Milk Center Wash Water Treatment System will be analyzed periodically. In addition, soil sampling will be used to track any nutrient trends in the vegetated portion of the Milk Center Wash Water Treatment System.

Additional information on the Arkansas Discovery Farms can be found at http://discoveryfarms.uark.edu/.

Tolfenpro Insecticide Ear Tag Voluntarily Recalled

Kelly M. Loftin, Extension Entomologist

As you probably know, Bayer Animal Health voluntarily recalled its new Tolfenpro insecticide ear tag earlier this year. Bayer recalled the tag based on early reports of eye irritation in some cattle. At this time, Bayer is investigating potential causes of the eye irritation. Currently, it is unknown when the Tolfenpro ear tag will reenter the market. For more information about the recall, go to http://www.bayerlivestock.com/show.aspx/voluntary-recall-tolfenpro.

Close-up of horn flies on wither of bull.

The Tolfenpro insecticide ear tag represented a new class of insecticide to enter the ear tag market. It contains tolfenpyrad, which is in the pyrazole insecticide class. This tag would have provided a new insecticide class to use in insecticide ear tag rotation. With the recent recall, we are now back to three insecticide classes – organophosphates, pyrethroids and macrocyclic lactones. For more information on insecticide-impregnated ear tags and other insecticides for horn fly control on beef cattle, go to the *2016 Insecticide Recommendations for Arkansas* (MP 144) at http://www.uaex.edu/publications/pdf/mp144/b-animals-beef-cattle.pdf.

When using insecticide-impregnated ear tags, always remember to rotate insecticide classes from year to year and delay application until the horn fly population approaches the threshold of 100 flies per animal (for beef cattle 200 per animal). Ear tags should always be removed when the population declines in the fall or when the efficacy fails. Other methods, such as forced-use self-treatment devices (dust bags and back rubbers), pour-on insecticides, passive traps and, in some cases, insecticide growth regulators and larvicides, will provide effective horn fly control. For more information on controlling horn flies on cattle, go to *Controlling Horn Flies on Cattle* at http://www.uaex.edu/publications/PDF/FSA-7031.pdf.

BAYER

Tolfenpro® Insecticide Ear Tag Recall

What Is Happening with Tolfenpro® Insecticide Ear Tag?
Out of an abundance of caution, Bayer Animal Health is initiating a voluntary product recall for Tolfenpro Insecticide Ear Tags. As a distributor or seller of Tolfenpro, Bayer has provided some answers for questions you may encounter from your customers or clients during this recall. Please contact your local Bayer sales representative for more detailed information.

Q: Why is Tolfenpro being recalled?
A: Bayer has decided to voluntarily issue a recall of Tolfenpro based on early reports of some cattle experiencing eye irritation that may be linked to the product. We understand the livelihoods of ranchers depend on the health and safety of cattle. Bayer made the choice to issue the voluntary recall and take appropriate corrective measures.

Summer, Bugs and Anaplasmosis

Heidi Ward, D.V.M., Ph.D., Assistant Professor and Veterinarian

The summer of 2016 will provide extra problems for dairy cattle due to the very mild winter with abundant moisture. Simply put, the bugs are going to be out and about with a vengeance. Not only are biting flies and ticks pesky and unsightly, but they also transmit disease – most notably anaplasmosis.

What is Anaplasmosis?

Anaplasmosis is a disease that is caused by bacteria called *Anaplasma marginale*. This type of bacteria cannot live outside an animal cell host, which is why it is considered a parasitic disease. The term 'marginale' is actually descriptive, because this bacteria attaches to the outside or margin of red blood cells. When this bacteria rapidly divides and spreads to other red blood cells, the animal's immune system takes notice and starts to destroy the bacteria along with the red blood cells. As a result, the animal loses blood and becomes very sensitive to stress, especially heat stress. Cattle with anaplasmosis must be handled very carefully or they can suddenly die from shock.

How is Anaplasmosis different from other bacterial diseases?

Infectious diseases in cattle usually affect calves that have an immature immune system. Not anaplasmosis. This disease rarely causes problems in calves; instead, this is a disease of adult cattle. It is the mature immune system of adult cattle that attacks the bacteria, along with the red blood cells.

How do cattle get infected?

The bacteria develop in and are spread by ticks, which is why the disease is at its worst in late summer and fall. Cattle become infected primarily by tick bites, but biting flies can also pass bacteria from the blood of one animal to another. Basically, the more bacteria transmitted through an insect bite, the more likelihood of disease. Another way of transmission from animal to animal is through contaminated injection needles or surgery equipment.

How is the disease diagnosed?

This disease can be tricky. When cattle are first infected and the bacteria are in low numbers, there are no symptoms. It is when the bacteria rapidly multiply that symptoms appear: decreased appetite, weakness and decreased milk production. On examination, the animal will have a fever (> 104°) and pale mucous membranes. In advanced stages of the disease, when the immune system is destroying large numbers of red blood cells, the cow will rapidly lose weight, have yellow mucous membranes and become constipated. At this point, there is a real risk of death. A veterinarian can diagnose the disease by the symptoms alone, but confirmation by PCR of a blood sample is the only way to be sure.

How is the disease prevented?

Insect control is crucial. Dairy cattle are constantly exposed to flies. Simply put, decreasing the number of biting flies in the herd will decrease the spread of the parasite. Unfortunately, there is no way to guarantee the cattle will not contract the bacteria from an insect bite. To keep the bacteria at low numbers, producers have a couple of choices: they can either vaccinate cows with the *anaplasma* vaccine or treat with medicated feed. Either way, these choices will not clear the bacteria from the animal. In fact, it is very difficult to completely clear an animal of this particular bacteria with antibiotics due to its unique cell wall. The goal is to keep the bacteria at low enough numbers as to not stimulate the immune system. Unfortunately, the blood of treated animals will still contain the bacteria, so they are considered infective. It is a good practice to always consider animal blood to be infective to other animals, which is the strongest argument for using fresh needles between animals when giving injections.

Is it better to vaccinate or treat with an antibiotic?

In general, it is always a good choice to vaccinate if a vaccine is available for reliable prevention of disease. The *anaplasma* vaccine has had a strange 20-year history, but it will be available as a commercial vaccine later this year through University Products, L.L.C., a company started by the vaccine developer, Dr. Gene Luther from Louisiana State University. Meanwhile, the vaccine is available to veterinarians as an "experimental vaccine" through Dr. Luther's laboratory at www.anaplasmosisvaccine.com. Another pro-vaccine argument is that antibiotics in feed will be restricted starting January 2017. The Food and Drug Administration Veterinary Feed Directive (VFD) mandates veterinary oversight of medically important antibiotics. As of 2017, the purchase of medicated feed containing medically important antibiotics will require a VFD order (a prescription-like document) from a veterinarian. For more information on the VFD, go to www.fda.gov and search "veterinary feed directive".

Face Flies, Two Years in a Row?

Kelly M. Loftin, Extension Entomologist

We are seeing face flies, *Musca autumnalis*, on cattle and horses in north Arkansas and at levels requiring control. Normally, in Arkansas, face flies will not reach the abundance to cause economic concerns every year. So far this year, the population is on par with what we experienced in 2015. Face fly abundance can spike as early as late May or June or as late as early August.

In general, face flies are more of a concern in the northern half of Arkansas. When face fly abundance is high, grazing may be disrupted, resulting in weight and milk production losses. In addition, they can be mechanical vectors of *Moraxella bovis*, a principal cause of pinkeye, and are implicated in the transmission of the eyeworm *(Thelazia* sp.) in cattle.

Face flies are found primarily on the face, neck and head of cattle and horses. Face flies are not blood feeders. Instead of feeding on blood, they use their sponging mouthparts to feed on mucous secretions found around the eyes, nose, mouth and wounds.

Almost all face flies found on an animal are female. The protein-rich mucous secretions provide the female fly with necessary nutrients to produce eggs. Male face flies primarily feed on nectar. Only about 4 percent of the face fly population is on the animal at any given time.

Face flies feeding on eye secretions around the eyes of a calf. Photo by Clemson University CES.

In appearance, face flies are very similar to house flies except about 20 percent larger. Adult activity begins in early spring and ends in late autumn.

Face flies only lay eggs in fresh cattle manure. Eggs hatch and maggots develop in the manure pat. It takes about two to three weeks for a newly deposited egg to become an adult fly.

Face flies survive winter as adults in protected areas such as barns, outbuildings, lofts and attics. During winter months, face flies can become household pests as they become active during brief warmups. During the winter of 2015-2016, face flies were observed in several structures and households in north Arkansas.

If an average of 10 flies per face are present, economic loss can occur. When monitoring face flies, count the number of flies on the faces of 10 to 15 animals. If average number per animal begins to approach 10 flies per face, treatment is warranted.

> When face fly abundance is high, grazing may be disrupted, resulting in weight and milk production losses.

Face flies are difficult to control for three reasons. First, they are primarily found on the animal's face, which is an area that is difficult to treat. Second, only a very small percentage of the population is found on the host at any given time. Last, face flies are intermittent feeders, spending very little time on the animal.

With this in mind and when using traditional insecticides, frequent application is often necessary. In the northeastern U.S., dairy producers may install automated face misters/sprayers at the milking barn exit to apply pyrethrins and sometimes pyrethroid insecticides to the cow's face. Fortunately for us, our populations do not normally reach this extreme abundance.

In terms of self-treatment control devices, forced-use back rubbers equipped with fly flips charged with a pyrethroid such as permethrin or an organophosphate such as coumaphos are effective. Paired dust bags will also provide control when hung properly. Some of the insecticide-impregnated ear tags for cattle an provide control while others only reduce the population. Generally, and when applied to both ears, ear tags containing pyrethroids are more effective on face flies than organophosphates or macrocyclic lactones.

Because face flies only develop in cattle manure, feed-through larvicides/IGRs (insect growth regulators) such as ClariFly®, JustiFLY ® and others will prevent new flies from emerging. However, close proximity to untreated herds and the longer flight range of face flies may result in less than adequate control. Products registered for use against insect pests of cattle are listed in the *2016 Insecticide Recommendations for Arkansas* (http://www.uaex.edu/publications/mp-144.aspx).