Ag Insights

From the Desks of Your Northwest Area Ag Specialists

Oklahoma Cooperative Extension Service - Division of Agricultural Sciences and Natural Resources - Oklahoma State University

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Horn Fly Control, Deworming, and Implants Used in Joint Study to Improve Heifer Performance

Dana Zook, NW Area Livestock Specialist

Horn flies are considered the most detrimental external parasite to cattle in pasture based grazing systems. Economic losses begin to occur when fly populations reach 200 insects per animal, and populations can easily exceed this level without measures of control. Producers may notice a variety of flies on grazing cattle, however horn flies are the most prominent. According to a recent Kansas State article from the 2017 Cattlemen's day report, horn flies rob U.S. beef producers of an estimated $1 billion annually. Stress of horn flies on cows reduces milk production leading to potential decreases in calf weight gain of up to 1.5 pounds per week.

A recent joint trial by Kansas State and Oklahoma State tested the efficacy of horn fly control and worming partnered with implants on grass pastured stockers to measure benefits of performance. The objective was to compare a commercially injectable insecticide to an insecticidal ear tag for parasite control. In addition, they also tested the impact of weight performance on stockers when these control technologies were used in combination with implants versus no implants.

In this study, crossbred stocker heifers were enrolled in one of three different treatment groups: 1.) one insecticide ear tag per animal (Corathon, Bayer Animal Health); 2.) LongRange injectable administered at 1 mL/110 lb. body weight (Eprinomectin, Merial Limited); and 3.) Untreated control. Within each of these three treatment groups, an equal number of animals were randomly give either: 1.) a Ralgro implant; 2.) a Revalor-G implant; or 3.) no implant. Animals were weighed and fecal samples were collected from animals on days 0 and 90. Fly counts began two weeks after trial initiation and continued for 10 weeks.

After 10 weeks, heifers treated with LongRange had less than 300 total flies per animal and internal parasite fecal egg counts were effectively controlled. At the same time, both Control and Corathon tagged cattle had greater than 500 flies per animal. As you can see, all treatment groups had fly counts above the threshold level, however, the effectiveness of LongRange for horn fly control is surprising. LongRange has been primarily used for internal parasite control in the past, although it is labeled to control external parasites as well. Corathon tags are only labeled for external parasite control. These results are encouraging as the dual benefit of LongRange in this trial may provide producers with more options for horn fly control in the future.

The other aspect of the trial tested was the difference in weight gain due to implant and parasite control. Cattle receiving a horn fly control and implants gained better than those who received

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no fly control and no implant. Specifically, stockers given the combination of LongRange and Revalor-G implant had the greatest daily gain (1.60 lbs.) compared to cattle receiving no fly control and no implant (1.23 lbs.) This method of "stacking technologies" has proven successful; enhancing weight gain while controlling both internal and external parasites. The results of this trial provide a potential win-win for producers looking to be more efficient in their production system. The full research report of this trial can be found at the following link: http://www.asi.k-state.edu/research-and-extension/beef/research-and-extension/2017CattlemensDay-2-24-2017.pdf

Marek's Disease in Backyard Chickens

Barry Whitworth, DVM

Area Food/Animal Quality and Health, Specialist for Eastern Oklahoma

Raising chickens in the backyard has become very popular in Oklahoma. Some people desire a better understanding of how their food is produced. Others like the rewarding experience of going out in the backyard and gathering eggs. However, many backyard producers may not be aware of a disease that might threaten their chickens. According to Dr. Keith Bailey, director of the Oklahoma Animal Disease Diagnostic Laboratory (OADDL), Marek's disease (MD) was the most common disease diagnosed in chickens submitted to the lab for necropsy in 2015-2016.

The first report of the disease was in 1907 by József Marek hence the name Marek's disease. Since that initial discovery, the disease has been found worldwide and is a major problem with chicken production. Marek's disease is caused by a highly contagious herpes virus called alphaherpesverinae. The virus has the ability to invade the body and survive without being destroyed by the immune system. The virus infects certain white blood cells causing a few of the cells to become cancerous. These cells can infiltrate internal organs (kidneys, liver, gonads, and proventriculus), peripheral nerves, skin, and muscles.

Transmission of the virus occurs by direct and indirect contact between chickens. The virus replicates in the feather follicles and is shed into the environment in the dander from the chickens. This dander contaminates the facilities and remains infectious for several months. Chickens become infected by inhaling the virus. Once the virus is in the flock, it spreads rapidly from bird to bird even if the chickens are vaccinated. The virus may also be spread by people or equipment that has been contaminated with chicken litter. Darkling beetles and mealworms may carry the virus, too. Transmission of the virus from hen to chick through eggs is highly unlikely since the virus should not be able to survive the temperature and humidity levels required to incubate eggs.

Once the virus enters the flock, the number of birds that actually show signs of being sick will vary depending on the vaccination status of the flock. Nonvacciánted flocks may have up to 60% of the chickens become sick. Sickness in vaccinated flocks will usually be less than 5%. The number of sick birds that die may reach 100%. It should be noted that no treatment exist and infected birds should be culled.

Marek's disease can be categorized into four clinical syndromes: neural form, visceral form, cutaneous form, and ocular form. A chicken may have more than one form of the disease.

1. Neural form: These chickens experience paralysis, incoordination, and breathing difficulties. The paralysis usually involves only one leg or wing. They usually die from starvation or are trampled to death if not removed from the flock.
2. Visceral form: These chickens show nonspecific signs such as weight loss, paleness, anorexia, and diarrhea. When necropsied, these birds will have tumors in the internal organs.
3. Ocular form: These chickens experience blindness. The iris may turn gray and is referred to as "gray eye". Their pupils do not respond to light properly.

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4. Cutaneous (Skin) form: These chickens experience enlarged feather follicles. The follicles turn brownish in color and may scab over.

Prevention of the disease should start with a good biosecurity plan. Producers wanting more information about a biosecurity plan should visit http://healthybirds.aphis.usda.gov. Vaccination will not prevent birds from becoming infected, but it will prevent the birds from getting sick. Chicks should be vaccinated at one day of age or in ovum prior to hatching. New chicks should be kept isolated from older birds. The area where the chicks are to be housed should be clean and sanitized. Producers may want to look for certain lines of chickens more resistant to the disease. It is well known that some lines are more resistant than others. Incorporating all of these strategies should help reduce the chance of having problems with Marek's disease.

Raising backyard chickens can be very rewarding. However, it can be very disheartening to have an illness such as Marek's disease wiped out a flock. A producer should do all they can to prevent this and any other disease. Producer that would like more information about Marek's disease should visit with their local veterinarian or local county extension educator.

Choosing a Breeding Program

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Breeding season is drawing near and producers need to consider ways to optimize beef production. Getting cows bred in a timely manner is critical. Open cows negatively impact profitability, so producers need to use breeding programs that increase the percentage of their cows that get bred. One may choose to breed their cows via natural service or through the use of artificial insemination (AI). Breeding cows via natural service has traditionally been the least expensive choice. The decision to breed cows via natural service or via AI involves trade-offs and economic comparisons.

There is a cost to implementing estrus synchronization and AI protocols. Management needs will change with the use of AI protocols. The producer will need to pay a technician for the breeding, may need additional help to work cattle, and will spend more time managing the breeding program. Furthermore, having adequate working facilities and equipment is important since cows will be worked several times. If only the cost per pregnancy is considered, AI systems generally do not compete well with natural service. However, the use of these management techniques allow the producer to improve their herd genetics by the selection of highly proven sires without the overhead cost of using natural-service sires. This can help producers achieve more rapid genetic progress and access to value-added markets. In addition, research has shown that using these technologies can shorten the breeding and calving seasons, increasing the number of early births resulting in older and heavier calves at weaning and possible economic benefits.

A 2010 Kansas State University study used computer simulation models to compare costs of natural service breeding with several estrus synchronization and AI systems and to identify important factors in determining the differences in expected economic returns between systems. These researchers modeled three herd sizes (30, 100, and 300 head), three cow to bull ratios (20, 30, and 40), and seven estrus synchronization and AI protocols (3 heat detection only systems, 2 combination heat detection and cleanup timed AI systems, and 2 fixed-time AI systems). In each model, the breeding season consisted of one synchronization and AI period, followed by a natural-service period. These simulation models showed that as herd size increased, AI was more likely to have lower costs than natural service. In addition, the models showed that the AI systems were more cost effective at lower cow-to-bull ratios. The frequency of lower breeding costs for AI than natural service for cow to-bull ratios of 20, 30, and 40 was 63, 46, and 14%, respectively.

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These simulation models showed that genetic value premiums and semen cost were consistently included in the top 3 factors that determined expected economic differences between natural service and AI systems across herd sizes and cow-to-bull ratios. The increased value of the AI-sired calves based on genetic strengths of AI sires and semen costs were the most important variables at higher cow-to-bull ratios and larger herd sizes. Whereas, the most important factor when the cow-to-bull ratio was low was the variability in bull purchase price. Higher bull purchase prices resulted in AI systems becoming more economically competitive since as the bull price increased, the cost of natural service increased. These researchers concluded that estrus synchronization and AI were economically advantageous compared with natural service when a sufficient genetic value premium could be obtained from AI-sired calves.

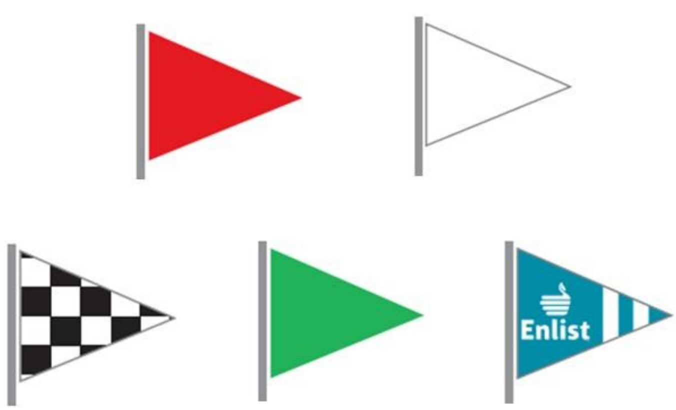
A 2007-08 USDA survey of U.S. beef cow operations (2,872 cow/calf operations from 24 states) found that only 7.6 and 7.9% of these operations utilized AI or estrous synchronization as a reproductive management tool, respectively. Two of the primary reasons that these operations did not use AI were “labor/time” concerns and “too difficult/complicated” to implement estrous synchronization protocols (37.7 and 16% of operations, respectively). However, during the past decade estrus synchronization and fixed-timed AI (FTAI) protocols have been developed that that eliminate detecting estrus and yield satisfactory pregnancy rates. A recent University of Nebraska study suggested that one can reduce the labor/time and expense of an AI program by utilizing FTAI as compared to an estrus detection protocol followed by AI. In this study, pregnancy rates did not differ between AI protocols.

In conclusion, in choosing a breeding program (natural service vs. AI), a produce must consider trade-offs with each program and evaluate the economics of each program. The right breeding program for each individual operation will vary. Select the program that best fits your operation’s resources and goals.

Color-code Your Cotton Fields!

Tracy Beedy, Panhandle Area Agronomy Specialist

The "Flag the Technology" field marking system is increasingly important as cotton acreage increases across Oklahoma. This program of marking fields with colored flags was begun by Dr. Bob Scott of the University of Arkansas to avoid mistakes in herbicide application. As use of herbicide-tolerant varieties of cotton increase, the possibility of misapplication of herbicides increases, as the Enlist and Xtend technologies may be planted adjacent to each other and to conventional cotton varieties. Safeguard your fields with inexpensive colored flags at all entry points to signal tolerance (or lack of tolerance) to popular herbicides. Flags should be at least 11" by 17" for maximum visibility and should be posted on a 6' fiberglass pole.



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A red flag indicates a conventional variety with no herbicide technology traits. A red-flagged field is susceptible to all of the herbicides discussed here. A white flag signifies tolerance to glyphosate. Cotton fields with Xtend® technology should be marked with a black and white checked flag that indicates tolerance to dicamba and glyphosate, as well as a green flag that indicates tolerance to glufosinate, or Liberty®. Cotton fields with Enlist® technology should be posted with a teal and white striped flag to indicate tolerance to 2,4-D, FOP, and glyphosate herbicides, as well as a green flag to signify tolerance to glufosinate.

These two popular technologies are not equivalent! Enlist® technology cotton will be damaged or killed by dicamba and Xtend® technology cotton will be injured or killed by 2,4-D! Some wheat, sorghum, soybean, and rice varieties are tolerant to selected ALS herbicides, and are marked with yellow flags. A mobile phone app, "Flag the Technology" has been developed by Texas A&M AgriLife Extension Service to explain and demonstrate the use of the field marking system. In Texas, the app may be linked to the Texas Crop Registry or "Hit the Target" to register the locations of specific fields. The "Flag the Technology" system is an inexpensive way to avoid expensive mistakes!

Soybean Production Following Wheat and Grazeout

Trent T. Milacek, NW Area Ag Econ Specialist

As wheat harvest approaches and grazeout cattle are sold, many producers are looking to the next step. Some will consider a summer crop as an option to utilize land resources and increase farm revenues. Soybeans have gained the attention of producers across the U.S. due to the possibility of higher returns compared to more traditional crops like corn and milo.

Soybean marketing is a difficult task. Variable yields and fluctuating prices can turn a good idea into an unprofitable enterprise. In January of 2017, beans traded to the $10.80 level before beginning to slide. Prices have stabilized in April near $9.45. Harvest-time basis bids are currently -75 to -60 cents at Enid terminals, bringing the cash price to $8.70-$8.85 per bushel.

Last year soybeans were bid near $9.25 per bushel in April. If prices fail to increase, producers will need to be more diligent about minimizing expenses. The cost to produce soybeans will include the burndown herbicide, seed, rent, phosphorus fertilizer, planting and harvest costs. Excluding planting and harvesting, those costs could total $125. Herbicide programs and fertility requirements will change this number significantly on a producer basis. To cover $125, producers will need to raise 15 bushels per acre. Some producers may consider custom planting and harvesting if they do not own the required equipment to produce soybeans. Those costs could climb above $50 per acre depending on the custom applicator. All costs included, a yield above 20 bushels per acre will be required to breakeven.

Without price protection, a producer is exposed to market risk. A good South American crop and expectations of more acres in the U.S. will weigh on prices through the summer. Cash contracts on soybeans may be risky if bushels cannot be produced. Futures hedges at current levels will only slightly allow for a breakeven price, if a good crop is produced. If a producer considers using put options, they will secure a price somewhere below breakeven while leaving their upside open.

The 4-year average yield from 2012-2015 in the north-central district of Oklahoma is 17 bushels per acre. Given adequate rains, it will be possible to breakeven. However, in a dry year it will be difficult. Recent moisture will give plants a good start but careful attention to weed and insect infestations will be required. Every bushel of soybeans is worth $8.70 whereas a bushel of wheat is worth $3.60. Protecting yield is very important to the success of this crop.

If you would like more information on budgeting or growing soybeans, please contact your local county extension educator. Enterprise budgeting software is available to producers so that individual costs and production goals can be used. This will assist producers in adopting new enterprises on their operations.

Starting Off Right with Milo

Josh Bushong, NW Area Agronomy Specialist

As with any crop, getting started off right can often mean the difference between raising a successful crop or coming up a little short of expectations. Producers started planting grain sorghum last month, but due to weather and planting conditions, some have yet to plant. In order to get the crop off to a good start, producers will need to determine when they are going to plant, which hybrid to plant, how to plant it, fertility recommendations, and how to economically control pests.

There are three main planting periods for grain sorghum in Oklahoma. These are early season (April 15 to May 1), full season (June 1 to June 25), and double-crop (from wheat harvest to July 11). Early season hybrids should be planted once soil temperatures stabilize above 65°F. OSU data has shown great yield potential benefits when planting in April. Planting in the month of May is often discouraged to avoid peak summer heat during flowering. Early season hybrids are typically harvested in late August to early September. Full season hybrids are typically harvested from mid-October to mid-November. Double-crop hybrids are typically harvested in November.

Hybrid selection is more important than ever. Besides the obvious selection factors like yield potential and maturity, sugarcane aphid (SCA) tolerance has become one of the top selection factors over the past three years. National, regional, and state level grain sorghum variety trials are documenting and reporting which hybrids show SCA tolerance. These hybrids are not truly resistant in the sense that SCA can still infest these fields. These hybrids don't completely eliminate the issue, but these hybrids tolerate the SCA and yields are not reduced to the extent of non-tolerant SCA hybrids. SCA can still be found in these hybrids, but often don't multiply as fast. Insecticides should be applied when SCA reach economic thresholds regardless of hybrid used.

Sorghum can be seeded with either a planter or grain drill. Row crop planters on 30" row spacings are often preferred. If utilizing a grain drill, many producers find it easier to control plant populations when closing off every other row. Some of the newer hybrids often perform better when plant populations are thick enough to prevent the need for plants to develop tillers. A planting population of about 45,000 seeds per acre is recommended.

Fertility management can easily limit yield potential if not managed correctly. Obtaining a soil sample will help assist in proper nitrogen, phosphorus, and potassium recommendations. Sorghum performs best between a soil pH of 5.5 to 7.0 and needs about 1.2 pounds of nitrogen per bushel of yield.

In order to protect yield potential, proper pest management and timing is needed. Treating seed with a seed safener, such as Concept or Screen, is needed to prevent crop injury from herbicides containing metolachlor or S-metolachlor (i.e. Bicept and Dual). Utilizing pre-emergent grass controlling herbicides in combination with Atrizine is often needed. New for this year, DuPont and Advanta may have some hybrids available with the Inzen technology trait. This trait will allow the use of the herbicide Zest in crop, which will provide control of grassy weeds such as johnsongrass and crabgrass.

As mentioned earlier, SCA control can still be an issue. Planting early with a tolerant hybrid will reduce the risk of needing an insecticide applied, or at least maybe get by with one application of the insecticide Silvanto Prime or Transform WG instead of multiple applications. Economic thresholds for SCA are 20% plants infested with a SCA colony at the pre-boot and boot growth stage and 30% after the heading stage. After the crop gets past the dough stage, SCA will not likely reduce yield but the honeydew produced can still cause harvest issue.

Planting is often referred to as "the most important pass" with many crops and grain sorghum is no exception. Take action now to get the right hybrid planted on time into a weed free seedbed with proper soil fertility and the rest of the crop year will go much more smoothly. A nice thick even stand will assist in preventing weed emergence by reaching canopy closure faster, create a higher tolerance to pest infestations, and provide a more even maturity at harvest.

Save the Date!

State Ag In-Service

Stillwater, OK

May 24th - 25th

See Attachment for Details

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