EXTENSION

Ag Insights

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Choosing the Best Wheat Variety

Josh Bushong, West Area Extension Crops Specialist

Harvested wheat acres are down and now the remaining crop still in the field will have a risk of sprouted kernels. One of the concerns I have been talking to farmers about this summer has been seed wheat prospects this fall. These concerns have mostly been about availability, seed quality, and costs. Overall, there should still be plenty of options available but certain varieties could be harder to find. The first step is usually choosing a variety or varieties best suited for the farming operation.

The number one seeded wheat variety in Oklahoma the past two years was Doublestop CL+. Even though it's a Clearfield traited variety, many farmers choose it for the other agronomic traits and never planned to apply the herbicide Beyond. Gallagher has been a top variety this decade mostly because it was another robust variety suitable for grazing. Smith's Gold took a close second this past season, which is understandable since it's a good replacement for Gallagher for longer spring grazing, better nitrogen use efficiency, greenbug tolerance, and stripe rust tolerance.

Choosing a variety can be a challenge as there are upwards of 100 different varieties to select from. Discussions with your Extension educator, agronomist, and seed dealer can help narrow down the list. A great resource is wheat.okstate.edu to find current research reports.

When growing wheat for forage one of the easiest ways to get more tonnage is to plant early. Research conducted from OSU has shown that more forage is produced the earlier we plant. Some trials show that sowing wheat the first week of September yielded about twice as much fall forage as a mid-late September planting date. When sowing wheat this early we can sacrifice some grain potential and some pest issues can occur.

These pests include many viruses, root rots, foliar diseases, hessian flies, wheat curl mites, wireworms, army cutworms, and weeds. Some aid can be made through the use of seed treatments that include an insecticide and/or a fungicide. These seed treatments can reduce root/foot rots, bunt, smut, leaf rust, powdery mildew, hessian fly as well as reduce aphids that can transmit barely yellow dwarf virus. When selecting a seed treatment be cautious of grazing restrictions, which can range from 0-45 days depending on product used.

Mite-transmitted diseases (wheat streak mosaic, high plains disease, or Triticum mosaic) can greatly reduce spring forage and grain production when an early fall infection occurs. The best management practice would be to prevent a “Green Bridge” prior to sowing the wheat. A minimum of two weeks of nothing green (including corn, sorghums, volunteer wheat and other grassy weeds) is needed to allow the wheat curl mite to starve out prior to wheat seeding. The wheat curl mite still might vector these viruses when invading from neighboring fields, but the viruses will cause less of an impact due to a later infection.

The next easiest way to increase fall forage would be to increase your seeding rates. Several field trials have shown that fall forage will increase with increasing seeding rates up to five bushels to the acre. Fall forage can be increased with higher seeding rates, but the economics start to become a little less favorable after a rate of two bushels to the acre due to seed costs. Increasing seeding rates as the planting season progresses can also assist in producing more forage due to less tiller development, but increasing seeding rates hardly ever makes up for lost forage potential compared to sowing earlier.

Managing soil fertility starts with a soil sample. Acidic soils can limit forage production as much as anything else. The only solution to fix acidic soils is to apply lime, but variety selection and banding phosphorus fertilizer in-furrow can help offset the loss in forage production. Banding fertilizer with our grain drills is more efficient and economical because it is placed right with the seed and rates can be greatly reduced.

To find out more about variety selection and how to produce decent wheat pasture economically visit your local OSU Extension office.

Heat Impacts on Reproduction

Dana Zook, West Area Extension Livestock Specialist

Oklahoma summer has arrived! Triple digit heat and high humidity have affected most of the state making it crucial to think about livestock wellbeing. This week I decided to look at how heat impacts fertility and reproduction within our beef herds.

Heat stress affects beef reproduction in two ways; 1.) through behavior as cattle attempt to reduce their heat load and 2.) through altered hormone balance and reduced fertility. Let's look at behavior first. Like humans who run for the air conditioning when it gets hot, cattle also do anything to reduce their heat load, often altering normal behavior. This includes reducing all factors of feed consumption, traveling, grazing, and breeding. Altered behavior alone will negatively affect breeding because cattle may be stressed, and their focus is to cool off.

Heat stress can throw off the normal cycle of reproduction simply with the increase in the stress hormone, cortisol. Increased cortisol in turn reduces the reproductive hormone estradiol which is important in estrus or "heat". This reduction causes a shortened estrus period. In artificial insemination (AI) systems where visual heat detection is used, reductions in this hormone make it difficult to detect standing heat.

At a cellular level, researchers in Brazil suggest that oocytes (immature egg prior to fertilization) in cows under heat stress can be damaged several months before ovulation (when the egg is ready for fertilization). At the University of Florida, a study suggests heat stress (107°F & 94°F in this study) can cause embryonic damage through the first day after fertilization. By day 3, embryos became resistant to heat stress.

Bulls are also impacted by heat. Ideal sperm production occurs below typical body temperature (100.4-103.1°F) and bulls are structured to thermoregulate by increasing or decreasing the distance of the testis from the body depending on outside temperature. During the summer, it's possible that temperatures rise above a bull's ability to thermoregulate. Temperatures above this threshold could cause the production of lower quality sperm which may decrease bull fertility.

So, what reductions can beef producers expect during periods of extreme heat? The University of Nebraska has a good rule of thumb that in normal years, for each 1°F that temperatures are above normal, conception rates tend to be reduced about 1 percent. What is normal for Oklahoma? – Well, that's a great question that I will leave to the Mesonet folks. Check out your local site at Mesonet.org.

It's nearly 100% impossible to control the weather, but producers can implement several forms of management to minimize heat stress and help reduce long term effects on the cow herd.

- Always provide a clean, cool source of drinking water. A good rule of thumb is that every 10 degrees above 65°F requires an additional 1 gallon of water per animal. Water need will depend on body weight, breed, and production phase

(dry vs. lactating). For example, a 1300 pound lactating cow will need three additional gallons of water on a 90 degree vs. a 65 degree day.

- Intensive grazing or dry lot production systems must ensure that number of water sources, volume, and rate of fill of water tanks is adequate during the hottest periods.
- Avoid handling cattle during periods of extreme heat. If cattle must be moved or worked, accomplish this by 8AM.
- Provide shade for cattle when possible.
- Control biting flies. All flies cause stress and biting flies significantly increase heat stress. Cattle impacted by flies are also more likely to bunch which increases heat load.

Sustainable Internal Parasite Control in Cattle

Dr. Rosslyn Biggs, DVM & Dr. John Gilliam, DVM
OSU College of Veterinary Medicine

Parasites represent a major challenge to livestock production throughout the world. Internal parasites cause a variety of clinical signs, including weight loss, diarrhea, and death. Other, less obvious parasitic signs, (often referred to as subclinical signs), significantly impact producers. The subclinical signs may include things like decreased weaning weights and lower rates of reproduction.

Although the use of anthelmintic products, commonly called dewormers, has limited the incidence of clinical disease in cattle, the subclinical impact and subsequent economic loss continue to impact the industry. The widespread use of anthelmintics has also raised concerns about the development of parasite resistance leading to loss of product effectiveness.

To address parasite resistance and maintain product efficacy, sustainable parasite control programs must be developed. Effective programs are built upon knowledge of parasite life cycles, sound grazing strategies, and proper product use. It's important to note that sustainable parasite control aims to suppress parasite population below the threshold for economic loss, not completely eliminate parasite populations.

Researchers at Oklahoma State University are currently investigating Oklahoma cattle herds for parasite resistance. A recent study by Drs. John Gilliam, Jared Taylor, and Ruth Scimeca of the OSU College of Veterinary Medicine evaluating Oklahoma beef cattle herds provided evidence that internal parasite resistance is indeed present in the state.

Beginning in 2020, beef cow-calf producers submitted fecal samples for fecal egg count reduction tests (FECRT). Seventeen herds participated and all major classes of dewormers were represented. Anthelmintic administration practices were not controlled, and producers were encouraged to follow their standard procedures. Fecal egg counts (FEC) were determined using the Wisconsin method with a limit of detection of one egg per gram (EPG). Three herds were excluded from the final analysis as the FEC in those groups were too low.

Of the sixteen groups of cattle included in the final analysis, 13 exhibited resistance based on the average of individual FECRT. Based on the results of this small survey, anthelmintic resistance appears to be widespread in beef cow-calf herds in Oklahoma.

Currently the OSU beef cattle extension and veterinary teams are continuing work in this area. Drs. John Gilliam, Dave Lalman, Paul Beck, and Rosslyn Biggs are conducting a larger survey of Oklahoma herds to determine parasite resistance to different dewormers. Recruitment of beef cattle producers is ongoing and interested herds can contact their extension county agricultural educator, area extension livestock specialist, or Dr. Rosslyn Biggs, rosslyn.biggs@okstate.edu for more information on the sign-up.

The current study plans to collect data from at least 50 different groups of cattle dispersed around the state. Samples can be collected from now through first killing frost (generally early November) and then again through spring and summer 2024. Fecal samples will be collected from twenty to thirty animals within the same stage of production. For example, classes of cattle may be mature cows, weaned calves, or replacement heifers. Good handling facilities must be available for safe restraint of all animals and personnel collecting the samples.

The first collection occurs at initial processing/deworming or within seven days prior to that initial processing/deworming. The second collection occurs ten to seventeen days post-deworming. Samples will be shipped to the laboratory for evaluation and results provided at no cost to participants. Multiple classes of cattle from the same operation

can be included in the research study if different anthelmintic products are used. Animals must not have been treated with an anthelmintic product within 60 days of initial sampling.

Anthelmintic resistance is a growing concern in many species and OSU researchers hope to evaluate levels of resistance in Oklahoma beef cattle herds through ongoing studies. Producers and veterinarians are encouraged to participate and reach out with questions. This research is important for the cattle industry in developing parasite management strategies that preserve the effectiveness of dewormers while maintaining cattle production levels for the future.

Extension Experience – Insights into Oklahoma Agriculture

The West Area Extension Staff would like to announce the creation of our new podcast *Extension Experience.* The *Extension Experience* podcast is brought to you by Josh Bushong and Dana Zook. Each week they provide perspective on Agriculture topics and offer insight from our experience working with Extension Educators and Producers across Oklahoma.

The *Extension Experience* podcast is available on Spotify, Google Podcasts, and Apple Podcast platforms. You can also access the episodes on spotlight, http://spotlight.okstate.edu/experience/podcast/

We hope you consider listening to *Extension Experience*.

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