



### **Crop Updates**

**Josh Bushong, Area Extension Agronomy Specialist**

Wheat sowing has started to come to a halt for most in northcentral Oklahoma. After following good to excessive moisture conditions in mid-August and minimum to no rainfall events through September and most of October, planting conditions were extremely dry on top. Some wheat producers continued to dust in their crops despite not receiving a significant rain in over a month. Thankfully moisture came just before Halloween and grain drills started rolling again.

Dusting in a wheat crop certainly comes with a risk. If the seed imbibes enough water to germinate, hopefully there is enough moisture near the root zone to continue growth. A common practice to dusting in wheat is to keep the seed shallow. This practice is thought to be favorable because once a significant rain event occurs the seedlings can emerge faster. On the other hand, sowing a little deeper than an inch provides slightly warmer soil temperatures which could also hasten emergence as well as improve winter hardiness.

I took Canopeo readings with my smartphone in a field near Hennessey to compare emergence of two planting depths. This free app developed by OSU estimates green canopy cover from a picture. The wheat was sown on Oct. 10<sup>th</sup> and the canopy cover readings were taken on Oct. 18<sup>th</sup>. Where the wheat was sown at about an inch and a half the stand was thicker and already developing a second leaf and the wheat sown at an inch was barely at spiking. The canopy readings were 0.86% on deeper seeded and 0.23% on the shallower seeded, which was over 3.5 times as much difference. Lack of shallow soil moisture was the issue in this case.

While driving around the region mid-October, I have noticed that overall the prospects for decent fall wheat pasture were fading. Early sown wheat fields seem to have decent stands, but the reigns were been pulled back on growth. Wheat sown late September and into early October showed stands that very greatly. Some stands are great, but I would say a slight majority have a thin and uneven stand to some extent. Fortunately, this scenario will have less of an impact for a grain-only production system.

Thankfully wheat pasture has improved in November after receiving some moisture and temperatures staying warmer than average. Ideally grazing shouldn't be initiated until six inches of leaf growth to allow the wheat to reach optimal fall tonnage before

dormancy. If grazing is started too early, then the wheat plants won't produce as much fall forage and the potential for uprooting of plants can become more of an issue.

Research from OSU has shown that in dual-purpose wheat systems it is best to achieve at least 53% green canopy cover before dormancy. This can be measured with the previously mentioned Canopeo app. Producers can seek assistance from an OSU Extension educator to get readings if they prefer. This research also concluded that having at least 63% canopy cover in the spring at the time of grazing termination also maximized grain yield potential. Adjusting stocking rates accordingly is going to be paramount this year to preserve grain yield potential.

Luckily, insects and diseases have overwhelmingly been a non-issue this fall. There may have been some isolated incidents early in the planting season, but I haven't heard of any recent reports. Mite transmitted viruses are still a concern, especially out west, and aphids could potentially be found as well. Due to the drought conditions in October, late weeds flushes have been delayed, but bromes, mustards, bindweed, and marehail should still be scouted for since fall applications can provide better herbicide efficacy.

## **Mineral Supplementation of Stocker Cattle on Wheat Pasture**

**Britt Hicks, Ph.D., Area Extension Livestock Specialist**

Grazing stocker cattle on winter wheat during the fall and winter months can provide cost-effective gains. Wheat pasture is succulent, palatable and nutritious. However, wheat pasture is typically low in calcium, marginal to sufficient in phosphorus and magnesium, and contains excess potassium for 400 to 600 lb stocker calves. It is also typically low in the trace minerals, copper and zinc. Due to these deficiencies, mineral supplementation on wheat pasture is highly recommended. Calcium is the macro-mineral of primary concern in most wheat pasture-grazing situations.

Two conditions which may occur with grazing of wheat pasture are wheat pasture poisoning (grass tetany) and frothy bloat. Wheat pasture poisoning is a complex metabolic disorder of cows grazing on wheat pasture. It occurs most frequently in mature cows that are in the latter stages of pregnancy or are nursing calves, and that have been grazing wheat pasture for 60 days or more. It results from a dietary deficiency of magnesium or from the presence of some factor in the diet which reduces absorption and/or utilization of magnesium. Studies have shown that high levels of potassium and/or nitrogen in the forage result in impaired magnesium uptake by the plant and/or utilization by the animal. Forage dry matter that contains less than 0.2% magnesium and more than 3% potassium and 4% nitrogen (25% CP) is likely to cause grass tetany. Since wheat pasture is typically high in nitrogen and potassium, magnesium utilization is reduced. Research suggests that a potassium level of 3 to 3.5% reduces magnesium absorption by about 30 to 35%. Cows with wheat pasture

poisoning have low blood concentrations of both calcium and magnesium. While a similar, tetany-like condition occurs in stocker cattle, the incidence is extremely low.

Frothy bloat is a major cause of death in stocker cattle grazing wheat pasture and occurs as a result of the entrapment of gases in ruminal fluid froth and/or foam. It is generally thought that frothy bloat is caused by soluble proteins. Soluble proteins contribute to froth or foam formation in the rumen that entraps fermentation gases in the rumen. The chemical composition of wheat forage changes with environmental growing conditions, stage of wheat plant growth or maturity, soil fertility level, etc.; and, therefore, affects the degree or likelihood that a stable ruminal foam will be formed and bloat will occur when wheat is grazed. Oklahoma research has shown that bloat on wheat pasture is more prevalent when plants are low in dry matter and total fiber (neutral detergent fiber, NDF). Thus, bloat is more common when the wheat is actively growing in the fall and spring. Stockers grazing the more fibrous, less succulent wheat forage may secrete more saliva. This saliva may have an anti-foaming effect and thus reduce the incidence of bloat.

Poloxalene is the only product labeled for bloat prevention. It reduces the surface tension of the gas-trapping froth in the rumen. The froth then forms much larger gas bubbles, permitting the normal release of gas; hence, reducing the danger of bloat. Feeding monensin can also help reduce bloat. Although monensin (Rumensin®) is not a true bloat preventive compound like poloxalene, studies have shown that it does decrease the incidence and severity of wheat pasture bloat.

The perception exist in the field that a high-magnesium mineral fed to wheat pasture stockers will reduce bloat. However, there is no evidence to support the suggestion that supplemental magnesium will decrease the incidence and/or severity of bloat of stocker cattle on wheat pasture. There may be a relationship between ruminal motility (and the ability of stocker cattle to eructate gases) and the calcium status of the cattle. Research has shown that ruminal and gut motility is greatly compromised by subclinical deficiencies of calcium.

All of the information presented above indicates that calcium is the mineral of primary concern when developing a wheat pasture mineral program. It is generally recommended that stocker calves on wheat pasture be fed a mineral containing 15 to 20% calcium. Phosphorus may be of some concern but a level of less than 5% is adequate. A low concentration of magnesium may be desirable (~2%) even though the incidence of grass tetany in stocker cattle is extremely low.

Research at the USDA Southern Great Plains Range Research Station (Woodward, OK) showed that stocker cattle grazing wheat pasture fed a non-medicated mineral gained 0.51 lb/day more in the fall grazing season and 0.57 lb/day more during the spring graze-out period compared to non-supplemented cattle. In addition, OSU research at the Marshall Wheat Pasture Research Unit has shown that stockers grazing wheat

pasture fed a non-medicated gained ~0.25 lb/day more than stockers not fed supplemental mineral. Adding an ionophore (monensin) to the mineral increased gains by about another 0.20 lb/day. These data illustrate that stocker calves grazing small grain pastures will respond efficiently to mineral supplements and monensin. Consider using these tools in your management program.

Note: Two ionophores (monensin and lasalocid) are available for wheat pasture stocker cattle. Both, if delivered at the proper dosage, increase weight gains of growing cattle on wheat pasture by 0.18 to 0.24 lb/day more than that of the carrier supplement and improve the economics of supplementation programs.

## **Ag Perspective from Utah**

### **Dana Zook, Extension Area Livestock Specialist**

I recently went on a hiking trip with my husband to the desert near Green River, Utah. We explored this area for 3 days, slept in a tent, saw approximately seven people, and had zero cell service – it was glorious. So instead of my typical educational article, this month I thought I would let you in on one of the Zook Adventures of 2020 with a little agriculture dabbled in.

Utah is one of our favorite places to visit and we decided our third trip would be to an area called the San Rafael Swell which is in the lesser known area north of Canyonlands National park. One of our favorite parts about Utah is the slot canyons and this area did not disappoint. It's hard to describe hiking in a slot that is 3 feet wide and 300 feet deep. The hiking is more climbing through the slot, but the challenge is so fun. Take my word for it that the pictures are fantastic.

Another highlight of our trip was viewing some ancient rock art. Utah is rich in pictographs and we hadn't been able to view anything like this on previous trips. This hike took us down 500 feet in elevation into an area called Horseshoe canyon. Here we got to view 4 sets of paintings made by people who dwelled in the area thousands of years ago. This rock art included the Great Gallery, one of the best-preserved sites of its kind in North America.

Our trip couldn't have been complete without a little misinterpretation of the map. We didn't necessarily get lost but let's just say our intended destination for the day wasn't as clear as previously expected. In our defense, general maps are available for the area, but the real details come from books and blogs where people track their hikes and report what they see. It wasn't a huge loss, but we did have to descend back down the 700-foot rock formation of the Swell. In these situations, I have found it's important to focus on the view rather than your how badly your knees hurt from the descent. I always say that going down can be just as challenging as the trip up.

All these experiences led to a wonderful trip and reprieve from the day-to-day. Some readers may wonder why we enjoy hiking in the desert. Rocks, sand and sagebrush – what is there to love? My personal experience hiking for 30 miles with 30 pounds on my back in the pouring rain of Arkansas has made me a lover of the desert – but that’s another story for another day. Honestly, the desert fascinates me from the agriculture perspective. Most of the areas we have visited in Utah are operated by the Bureau of Land Management (BLM). In fact, 75% of Utah is owned and managed by the state or federal government in one way or another. Many of the areas we have hiked are very desolate but are still grazed with cattle or sheep. As a livestock specialist, it’s amazing to me how well cattle subsist in areas with so little vegetation. The cattle we saw on our recent trip were grazing very thin stands of some sort of sagebrush and a little grass but still seemed to be in decent body condition. I assume stocking rates are very low to correspond with 8-10 inches of annual rainfall. I would also bet one of the most important things for cattle producers in that area is the selection of livestock able to handle the extreme environment.

No matter the area we visit, it’s interesting to see ag in a different scale. As a family that has always been focused on agriculture, we can’t help but notice and discuss things we see from our perspective. One thing we notice is that even though the landscape changes, the people are generally the same. Every ag producer, big or small, puts their boots on, one foot at a time each morning pondering the to-do list for the day.

## Avoiding Deer Vehicle Collisions

**Dwayne Elmore, Ph.D., Extension Wildlife Specialist**

During October-December, male deer (bucks) are actively searching for females (does) that are in estrus. This breeding season (called the rut) typically peaks in mid-November. The bucks often move with reckless abandon and chase does across roadways. While this can happen anytime during the day, it is especially likely from sunset through the early hours after sunrise. Deer vehicle collisions are common during this rut period.

A deer vehicle collision typically results in the death of the deer and damage to the vehicle. Unfortunately, it can also cause injury to the motorist. There are several things that motorists can do to reduce the likelihood of collision. First, minimize driving during the period from sunset to sunrise when deer are more active and when visibility is reduced. Also, slow down, especially during those lowlight periods. Be particularly vigilant in places where deer are likely to be such as where the road crosses a stream or where dense vegetation is near the road. At night, watch for eye shine along the road to alert you to deer presence. If you see deer on the side of the road, slow down and anticipate them crossing. If deer do enter the roadway, apply brakes steadily and try to reduce your speed in a controlled deceleration before impact. Do not swerve your vehicle as you are likely to lose control or hit another vehicle. If you hit a deer, pull over when it is safe to do so. When pulling over, get as far off the road as possible and put your hazard lights on. Ensure that your vehicle is safe to continue driving. If you see that the deer carcass is on the road, call law enforcement so that someone can come remove the obstacle so that other drivers do not hit it. Do not try to remove the carcass yourself unless it is safe to do so as you are likely to be hit by oncoming traffic (especially at night). If the deer is wounded, call law enforcement or the local wildlife officer who can euthanize the deer (<https://www.wildlifedepartment.com/law/game-warden-directory>).



*White-tailed deer dramatically increase movements as the rut approaches. The rut also increases distractions for deer. This increased movement and decreased vigilance means that motorists need to be aware of deer crossing roadways.*

## Thinning Forests for Wildlife, Livestock, and Aesthetics

Dwayne Elmore, Ph.D., Extension Wildlife Specialist

Most private forest land in Oklahoma has a dense overstory (often >80%) that prevents sunlight from reaching the ground during much of the year. Many landowners are interested in thinning their forest to achieve wildlife, livestock, and/or aesthetic objectives. Decreasing canopy cover to <60% results in a dramatic herbaceous, vine, and shrub response in the understory which can increase the carrying capacity for white-tailed deer and wild turkey. Further reducing the canopy cover <40% can increase bobwhite numbers and increase native warm season grasses for cattle forage. While prescribed fire alone can be used to open the overstory, it can take many years to achieve. Using a herbicide application with individual tree selection to make the initial thinning can speed up the process and allows the retention of desirable trees and removal of undesirable trees depending on the specific objectives. Prescribed fire can then be used as needed to maintain the appropriate structure and composition.

There are several methods that can be used to thin forests, but hack and spray or girdle and spray is often the simplest and most desirable. This is especially true for non-commercial timber that is larger diameter and has thick bark. The hack and spray or girdle and spray method can be used any time of the year except for during spring sap flow (March-early May). Fall is an excellent time to use to use these techniques due to cooler weather and lack of ticks. The only downsides are that tree identification and estimating canopy cover are more difficult once leaves drop.

For most tree species in Oklahoma, the herbicide imazapyr is very effective for hack and spray. If using imazapyr, you will need a spray bottle and a hatchet. Choose a hatchet with a longer handle that is weight forward as this will make work easier. Apply one hack mark for every 3" DBH (diameter at breast height) of tree. The hack marks should penetrate the outer bark and just into the inner bark (cambium). Then, apply 1 milliliter (usually 1-2 sprays from most spray bottles) of a solution with 75% herbicide product (apx 28% active ingredient) and 25% water. Hacks should be at a downward angle (about 45°) to form a cup that can hold the herbicide solution. After making the hack, open the hack wound slightly and spray the herbicide solution into the wound to allow for herbicide to enter the cambium. Then remove the hatchet. Do not overspray to the point that herbicide runs down the bark to the soil as imazapyr is soil active. Use chemical gloves and eye protection as imazapyr is caustic and can cause eye injury. If using this method, you will get it on your face, so eyewear is a must.

Imazapyr is not effective for hackberry/sugarberry (*Celtis* genus) and is less effective at killing legumes such as redbud and locust. If you wish to control these species of trees, you can mix the herbicides triclopyr and imazapyr (50% triclopyr, 50% imazapyr). For these tree species that are not susceptible to imazapyr, you will need to be completely girdle the tree with a chainsaw or the hatchet marks need to overlap. Fill the entire

wound (entire diameter of the tree) with the herbicide solution. A triclopyr solution can also be used alone. This solution should be 50% herbicide product (apx 44% active ingredient) and 50% water. Apply the solution to the entirety of girdle or the overlapping hatchet wounds. Only use the amine formulation of triclopyr whether mixed with imazapyr or used alone (look at chemistry description on front page of chemical label for the word amine, or triethylamine salt). Many triclopyr products are the ester formulation which is not as effective for hack and spray or girdle and spray.

If you are only removing smaller diameter (<6" diameter at base) thin-barked tree species (e.g. tree-of-heaven, maple, locust, privet, sweetgum, willow, and ash), a basal bark application of herbicide can be used. A backpack sprayer will be needed as this method requires a lot of solution for each tree but you do not need to wound the tree with a hatchet or chainsaw. For basal bark, the entirety of the stem must be coated with the herbicide solution. It is recommended to spray from the base of the stem (at ground level) up apx 12" and fully coat the entire circumference of the stem. Leaving an unsprayed portion of the stem will reduce effectiveness. For this method, use the ester formulation (look at chemistry description on front page of chemical label for the word ester) of triclopyr. The recommended herbicide solution is 25% herbicide product (apx 60% active ingredient) and 75% oil. The oil acts as a surfactant preventing the herbicide from running down the stem and allowing time to penetrate the outer bark (this is why this method only works on small thin barked stems). Diesel or kerosene can be used in place of crop oil.



*Hack and spray is an easy method to thin forest overstory and remove undesirable trees. The increased sunlight stimulates many valuable understory plants that wildlife and livestock use.*



## Extension Experience – Insights into Oklahoma Agriculture

The Northwest 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, Trent Milacek, 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/>.

We hope you consider listening to Extension Experience.



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INSIGHTS INTO OKLAHOMA AGRICULTURE

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