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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Leasing Land for Wildlife and Recreation

Trent Milacek, NW Area Ag Economics Specialist, OCES

Producers in Oklahoma have access to an abundant resource that is both valuable for rental income and allows them to continue using the land for farming practices. Hunting leases provide another revenue source while ensuring natural resources are managed and protected.

Hunting leases are a form of recreational leasing. Producers are encouraged to read the OSU factsheet NREM-5032 for detailed information on developing and marketing a hunting lease. The factsheet can be found at the following web address: http://factsheets.okstate.edu/documents/nrem-5032-lease-hunting-opportunities-for-oklahoma-landowners/

A good hunting lease outlines appropriate use of the land and facilities so that the lessor and lessee are aware of each party's expectations. Native wildlife are publicly owned, so hunting leases only grant access and use of the property in which these resources can be pursued. A "hunting lease" only grants the lessee the right to make specific and limited use of the property. Therefore, this lease is more easily revoked if the need arises.

There is no "standard" hunting lease. Multiple-year leases are less common than one-year leases. Multiple-year leases may be more attractive to organizations or groups and could be more valuable to lessees looking for consistency. One-year leases are flexible for landowners if they are unsure of their future intentions or if they want to change the use of the land in the future.

Reducing liability to landowners when leasing land for hunting is a serious consideration. From NREM-5032, "Oklahoma's recreational use statute and Oklahoma Limitation of Liability for Farming and Ranching Act may offer protection from liability for landowners when guests use their property without fees, when lessees pay less than $10 per acre, or when the lessees and guests sign a properly executed liability waiver." Landowners should consult an attorney for assistance with preparing lease documents in order to insure they are properly protected.

Consulting the aforementioned factsheet will give producers and idea of how to price their hunting lease. Once a landowner is ready to lease they will also need to advertise. There are many free and paid websites dedicated to this task. An example of a free option can be found at the following web address: http://www.noble.org/apps/weblistings/wildlifelease

Hunting leases can be a good way to gain revenue from agricultural land. Hunting leases can help reduce trespassing, vandalism and theft due to increased activity through the presence of

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lessees. However, landowners will need to consult an attorney when developing a lease and must work with lessees throughout the lease. Landowners may also lose some use of their land as is necessary for lessees to utilize the land. If these potential positives outweigh the negatives, both parties can benefit. For more information or to obtain a copy of the factsheet NREM-5032, please contact your local county extension educator.

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 stock-

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er 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.

Chlorotic Wheat

Josh Bushong, NW Area Extension Agronomy Specialist

Why is my wheat turning yellow, halted growth, or just looking puny? Many fields, especially further out west, have these symptoms of stress on their wheat. Most of the fields with yellowing wheat have been a result a possibly three issues: lack of nitrogen, lack of oxygen, or toxicity to nitrous oxide.

Producers that have applied a majority of this crop's nitrogen preplant might not be as far ahead as they once thought. Following gracious amounts of rainfall combined with warm soils might have been an ideal scenario in which a significant portion of the preplant applied nitrogen has left the system and no longer available to this year's crop.

It is hard to determine exactly, but a significant portion of the anhydrous ammonia has already been converted to nitrate. Once in the plant available nitrate form, nitrogen can leave the system much more easily. Two major pathways for nitrate to leave the system would be from leaching and denitrification. Since nitrate is negatively charged, just like soil, it becomes mobile and can be leached out. Meaning it can be moved by water flowing through the soil profile. It might move deeper into the subsoil out of reach from plant roots, or hit a limiting layer in the soil and be deposited down slope often out terraces.

Denitrification is a natural soil microbial process where nitrate is reduced, converted to gaseous forms of nitrogen, and no longer plant available. This process often occurs in warm, wet soils with an abundance of nitrate. Due to waterlogged soils, a variety of bacteria no longer have access to oxygen for respiration so the bacteria takes an oxygen from nitrate. Once nitrate is converted to gaseous forms of nitrogen like nitrite, nitric oxide, and nitrous oxide (N_2O) it can be lost to the atmosphere. N_2O is toxic to plants and can cause the wheat to turn yellow.

OSU Precision Nutrient Specialist, Dr. Brian Arnall, has estimated that as much as 20 to 50% of the anhydrous applied preplant could already be lost. Amounts depend on how early the anhydrous was applied, how much rainfall has been received, and soil

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texture and slope.

The early heavy rains and several overcast days this fall has caused the wheat to show these symptoms more than typical. The yellow wheat has been caused by a lack of plant available nitrogen (from being lost or stunted roots), lack of soil oxygen (limiting root and plant growth), and/or toxicity from N_2O (leaf burn). Most of the wheat will eventually try to grow out of it, but forage production has been greatly reduced. Acidic soils, soil texture, and shallow soils can amplify these symptoms and issues.

To insure adequate fall pasture wheat needs more nitrogen near planting. Conversely,

This is a great year to apply nitrogen rich (N-Rich) strips in every field to monitor nitrogen deficiencies throughout the growing season, either visually or with a handheld greenseeker sensor. Every OSU Extension office has access to simple push spreaders and handheld sensors if wheat producers are interested in trying N-Rich strips this year.

If wheat pasture is needed, additional nitrogen may need to be applied this fall or early winter. Recent trials at OSU indicate that for grain only wheat production it is much more economical and efficient if a majority of the nitrogen is delayed until spring. These trials show that topdress applications made at or near first hollow stem or jointing can maximize grain yield and protein with a single in season application.

Benefits to Feeding Ionophores to Stocker Calves this Winter

Dana Zook, Area Livestock Specialist, Enid

Ample moisture and favorable temperatures have made for a stellar start for wheat pastures this fall. Timely planting earlier this fall should provide enough forage for calves to be turned out in the next 30 days. To maximize gain on calves this fall and winter, producers may reach into their stocker operator's toolbox for a proven technology called an ionophore.

You may ask, what is on ionophore? Ionophores are feed additives utilized to reduce the incidence of coccidiosis, bloat and acidosis in all ages of cattle. In doing so, cattle weight gain is higher and they are more efficient. Fed in very small amounts, ionophores are supplied to the animal within supplements, cubes, pellets, loose mineral, and pressed mineral blocks. Some commercially available ionophores include monensin (Rumensin®), and lasalocid (Bovatec®).

Ionophores improve efficiency by allowing the rumen and its fermentation processes to operate on a more effective level. The rumen is filled with billions of microbes that play different rolls in ruminal fermentation. Ionophores select against the specific microbes that negatively affect fermentation processes and utilization of feedstuffs. By decreasing microbes that reduce effective fermentation, more efficient types of microbes proliferate in the rumen. This allows the animal to more efficiently utilize feed sources. Researchers have also proven that ionophores decrease waste production (methane and ammonia) from rumen fermentation processes.

As many producers well know, one of the greatest risks to cattle on small grains pasture is the incidence of bloat. The inclusion of monensin has been shown to not only improve daily gains and supplement conversion, but has also decrease the incidence and severity of bloat in cattle grazing small grains pasture.

Offering an ionophore in a free choice mineral is likely the most commonly utilized delivery method due to convenience. Oklahoma State beef research teams have conducted a great deal of research on ionophore containing free choice mineral supplementation and its effects on efficiency and weight gain of stocker calves. An experiment conducted by OSU researchers in 2006 studied the effect of mineral supplementation with or without monensin on growth performance of wheat pasture stocker cattle. Within this study, steers consuming only free-choice mineral without monensin gained 0.27 pounds more than those cattle receiving no mineral. Gains were further improved 0.24 pounds daily by adding monensin to the free choice mineral mixture. In this instance, over a grazing period of 100 days, providing mineral boosted gains 27 pounds compared to cattle who received no mineral. In addition, the monensin containing mineral would provide an additional 24 pounds of weight gain over the use of mineral without monensin.

Free-choice supplements reduce labor and equipment costs associated with daily feeding but some producers may prefer to hand feed supplements, allowing a closer observation of animals and intake. A supplementation program for cattle on small grains pasture that has been studied thoroughly by OSU researchers is the Oklahoma Green Gold Program. This program recommends providing a monensin-containing energy supplement to calves on winter pasture at a feeding rate of 2 pounds per day or 4 pounds on alternating days. This supplement should be comprised of 80 to 90% energy feed sources such as corn, milo, wheat midds, or soybean hulls and a mineral package balanced to meet requirements of cattle on small grains pasture. In addition, monensin should be included at 1620 g/ton or at a concentration of 90-100 mg per pound (as-fed) to improve supplement conversion and daily gain.

One particular OSU study testing this supplementation program, found that steers receiving the monensin-containing energy supplement gained 0.25 pounds per steer per day more than those cattle consuming a only a free choice mineral without monensin. These results speak strongly to the inclusion of ionophores in mineral or supplements for cattle on small grains pasture. Costs of mineral containing monensin can be high (~$1200/ton) and supplements can be expensive depending on the year. However, if producers break down the cost of consumption on a per head basis, costs are low. Based on a consumption rate of 0.15 - 0.20 pounds per day, costs are approximately $0.20 per animal each day. Improved daily gains of 0.20 – 0.40 pounds at the current cattle price constitutes adding ionophore containing mineral or supplement to winter grazing programs.

At the current value of calves, producers should be aware of the various tools available to maximize gain of cattle on small grain winter pastures in addition to controlling risks associated with bloat and other digestive issues.

What Can (and *Can't*) Be Deducted from your Mineral Royalty Payments?

Wade Brorsen and Shannon L. Ferrell, Agricultural Economics

In 2014, the Oklahoma Supreme Court heard the case of *Pummill v. Hancock Exloration, LLC* (341 P. 3d 69 (OKLA. 2014), *affirming after remand* 419 P. 3d 1268 (OKLA. CIV. APP. 2018)). After the court's decision, the case was sent back to the trial court for further consideration, and the trial court ruled in favor of the mineral interest owners on their claim that the oil and gas production company had withheld costs from the owners that were not authorized under the owners' leases. The recent affirmation of the trial court's decision by the Oklahoma Court of Civil Appeals has highlighted once again the challenge faced by both mineral owners and oil and gas companies in correctly calculating what oil and gas production costs can and cannot be withheld ("deducted") from payments to royalty owners.

The Court of Civil Appeals opinion emphasized principles about royalty deductions going back to the *Mittelstaedt* case (*Mittelstaedt v. Santa Fe Minerals, Inc.*, 954 P.2d 1203 (OKLA. 1998)), noting "As a general rule, the lessee may not deduct from royalty payments the costs of gathering, transportation, compression, dehydration, or blending if those costs are required to create a marketable product, unless the lease provides otherwise." (*Pummill*, 419 P.3d at 1275). The *Pummill* court also noted "*Mittelstaedt* made clear that a lessee has the burden of proving the elements required to charge post-production expenses against royalty owners' interests, including that a marketable product exists." *Pummill,* 419 P.3d at 1276.

How can a mineral owner know what costs are being deducted from their royalty payments? The Oklahoma Production Revenue Standards Act (52 OKLA. STAT. §§ 570.1 – 570.15) sets a number of requirements for the payment of oil and gas royalties to mineral owners. Importantly, the Act specifically requires a statement be included with a royalty payment (commonly called a "check stub") that includes, among other information, "a specific listing of the amount and purpose of any other deductions from the proceeds attributed to such payment due to the owner upon request by owner" (52 OKLA. STAT. § 570.12(A)(10)).

The best way to manage what costs of production may and may not be deducted from a royalty payment are before the lease is signed, with a clear statement about cost deductions included in the lease. One potential issue to consider is requesting a "gross proceeds" lease as opposed to a "net proceeds lease." Always have prospective mineral leases reviewed by an Oklahoma-licensed attorney with significant experience in oil and gas matters.

But what if you have already entered a lease, and have concerns that deductions are being taken from your royalty payments that are not allowed by the terms of your lease? Once again, the help of an Oklahoma-licensed attorney with significant oil and gas expertise will be critical. Review the lease along with all available documentation about your royalty payments with the help of your attorney. Under the Production Revenue Standards Act, additional information may be requested about the costs being deducted from royalty payments; your attorney can also help you formulate the request for this information and follow up on it if needed. Also, check your lease to see what (if anything) the lease says about your rights to audit the oil and gas producer's records to verify the correctness of payments.

For more information about understanding oil and gas leases, you can contact your County Extension office, or check out the Extension Handbook "Petroleum Production on Agricultural Lands in Oklahoma" at the link below:

http://agecon.okstate.edu/extension/files/Petroleum%20Production%20on%20Agricultural%20Lands%20in%20Oklahoma.pdf