TIMELY TOPICS

OSU EXTENSION - NORTHEAST DISTRICT
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Histomoniasis (Blackhead)

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

A question sometimes asked by backyard poultry enthusiasts is "Can turkeys and chickens be raised in the same area?" A simple answer is that many backyard poultry producers do; however, many poultry experts would caution poultry producers about comingling these two species. The reason for this is a small protozoan parasite called *Histomonas meleagridis*.

H. meleagridis is a flagellated ameboid protozoan. The survival of this protozoan is dependent on *Heterakis gallinarum*, commonly referred to as the cecal worm of poultry. The cecal worms eat the protozoans. Once inside the cecal worm, the female cecal worm incorporates the protozoan in her eggs. The contaminated cecal worm eggs are shed in the bird's droppings. At this time, *H. meleagridis* can be transmitted to domestic birds by ingestion of the contaminated cecal worm eggs or intermediated host (earthworms) that has ingested the contaminated eggs. Also, the protozoan can be transmitted directly from one bird to another bird. Unless protected in the cecal worm eggs or earthworms, *H. meleagridis* only survives a short period of time in the environment.

Several different species of birds (turkeys, chickens, ducks, geese, game birds, zoo birds) have been infected with *H. meleagridis*. Turkeys are considered the most susceptible with high morbidity and mortality rates. Young turkeys seem more susceptible than older turkeys. Blackhead can be rapid with birds appearing healthy in the morning and sick and/or dead by the afternoon. This makes control difficult. Chickens are easily infected but unlike turkeys, they have a milder form of the disease. Although not as deadly as in turkeys, production losses can be substantial with chickens. The difference between the severity of disease between turkeys and chickens may be explained by the turkey's poor immune response compared to chickens. Lastly, some studies indicate that the development of disease is dependent on the presence of bacteria (*Clostridium perfringens*, *Escherichia coli*) or other microorganisms such as coccidia (*Eimeria tenella*).

Once a bird is infected with *H. meleagridis*, the protozoan penetrates the intestinal cecal wall of the bird. They will multiply and enter the bloodstream. Eventually, the protozoans infect the liver. The protozoans can be found in other tissues as well. Clinical signs will develop in one to two weeks.

Infected turkeys will display clinical signs such as yellow stained feces, anorexia, drooping wings, drowsiness, and problems walking. Eventually, turkeys will become emaciated. Studies have found sickness rates greater than 80% and death rates up to 100% in turkeys. As mentioned earlier, chickens tend to have milder forms of the disease; however, mortality rates around 30% have occurred.

Diagnosis of blackhead disease should be based on laboratory testing; however, poultry producers can make a presumptive diagnosis based on clinical signs, morbidity/mortality rates, and viewing the internal tissues. The primary internal lesions seen are in the ceca and liver. The cecal lesions are thick cecal walls with a cheesy like core and inflamed surfaces with an occasional ulcerated area. The liver will have circular dead depressed areas surrounded by red raised areas (bulls-eye-like lesions).

All previous approved drugs used to treat/prevent/control blackhead disease have been banned by the United States Food and Drug Administration. Several different prevention and control practices have been suggested with few being thoroughly researched. One key is to start with healthy chicks and turkey poults. Studies have shown that beginning with high quality young reduces issues with blackhead disease. Some recommended practices by poultry experts are confirming the diagnosis of blackhead disease, maintain a proper environmental (wet moist conditions favor the development of the protozoan), control coccidiosis, control internal parasites (cecal worm) through deworming, do not comingle chickens and turkeys, and follow biosecurity protocols. Development of resistant genetic lines of birds has the potential to reduce the incidence of the disease. Several different natural treatments/preventions (essential oils, oregano, garlic, rosemary, etc.) have shown promise in laboratory conditions, but have not been researched in the field situations.

Fortunately, blackhead disease has not been found to be a major cause of death in backyard poultry operations; however, backyard poultry enthusiast should be careful when commingling turkeys and chickens. If a producer would like more information about blackhead disease, they should contact their local veterinarian and/or their local Oklahoma State University Cooperative County Extension Agriculture Educator.

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Hay Buying Season is Upon Us

Scott Clawson, Area Ag Economics Specialist

The Wild West is how I have referred to the hay markets many times. Unlike many of our other crop and livestock markets, there is not a standard grading system to measure quality across grass hays. Even our unit of measure for quantity has flaws. Cows do not require nutrients by bales, they require nutrients by pounds. Every 4x5 bale is not the same in weight or nutrients. Altogether, there are a few key points to discern before purchasing hay this year.

Bales or pounds?

Jason Banta at Texas A&M AgriLife Extension has a publication called *Bale Weight: How Important Is It?* This does a great job of illustrating the variation in how much hay is in a bale. It illustrates that there can be almost a 300-pound difference in weight on bales that measure 5x5. For context, if we need to put 40 pounds of hay in front of the cow for her to consume the 30 pounds a day (adjusting for waste), then this 300-pound discrepancy between a more dense and less dense bale would feed a cow hay for a week.

Bale width, ft	Bale diameter, ft	Bale density, lb/ft³	Bale weight, lb
5	5	9.53	935
5	5	10.09	990
5	5	10.65	1,045
5	5	11.21	1,100
5	5	11.77	1,155
5	5	12.33	1,210

Banta, Jason. *Bale Weight: How Important Is It?* Texas AgriLife Extension, https://agrilifeextension.tamu.edu/library/ranching/bale-weight-how-important-is-it/ accessed 6/1/22.

Expanding on this, let's consider only an 80-pound difference in bale weight due to density. If we feed 200 bales over the winter that leaves us with a difference of 16,000 pounds of hay between the more and less dense bales. That would roughly equate to either 16 bales of hay or 10 days of hay for 40 cows.

Bale dimensions can make a difference…

Round bale transactions are usually based on bale width and height. Ignoring the density differences from above, the actual difference in volume of hay between a 4x5, 4x6, or 5x6 bale can be stark. The table illustrates the potential difference in the amount of hay per bale assuming all other components are the same. While these prices are just estimated, the grass hay prices are usually structured in a manner that offers some degree of discount to the larger bales. Even if we can find some discounts feeding bigger bales, will our equipment line up handle the bigger bales without putting excessive wear and tear on equipment? If so, we will find cost advantages running less trips in and out of our feeding areas.

Bale Measurements		Volume	Estimated	
Width	Diameter	(cu. Ft.)	Bale Price	Cost/ cu. ft.
4	5	78.54	$ 45.00	$ 0.57
4	6	113.10	$ 55.00	$ 0.49
5	6	141.37	$ 65.00	$ 0.46

The Solution

The solution is to buy based on weight, not width and length. This will require changes to the norms of how hay transactions take place in northeast Oklahoma. Purchasing hay by weight is more common dealing in alfalfa and big squares. Moving to weight-based transactions and adding hay quality testing would illicit changes in our production, feeding and supplementation systems. This would provide information first and foremost for producers and purchasers. Additional information can provide financial incentives for all types of hay production. For example, if I am wintering dry spring calving cows in adequate condition, I may not have much incentive to buy grass hay over 9% crude protein. But if I am developing replacement heifers or growing a set of steers, I may be willing to identify and pay a premium for hay that tests higher. For more information on getting your hay tested or what hay is a good fit for your cows, contact your local OSU Extension Office.

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Banta, Jason. *Bale Weight: How Important Is It?* Texas AgriLife Extension, https://agrilifeextension.tamu.edu/library/ranching/bale-weight-how-important-is-it/ accessed 6/1/22.

TIMELY TOPICS

OSU EXTENSION - NORTHEAST DISTRICT

June 2022 – Volume 42 – Issue 6

Nutrition – Keep it on Your Mind

Earl H. Ward, Area Livestock Specialist

As a nutritionist I can't help but think about some sort of nutrition every day. Whether I am concerned about maintaining my own extremely high body condition score, worried about the nutrition level of our first-calf heifers, my son's show sheep, or even the baby chicks we have, nutrition is always on my mind. Even now, I am thinking of the forage quality in the grass that will soon be hay. Of course, many of us wait until we have enough grass available to make it worth while to cut it, but are we sacrificing some quality? There is a tradeoff for quantity and quality when it comes to producing hay for beef cows.

OSU Factsheet "Bermudagrass Pasture Management" PSS-2591 says that "As a general rule of thumb, bermudagrass should be harvested every 4 to 5 weeks to optimize forage yield and forage nutritive value." Table 1 shows the influence of nitrogen fertilization and maturity of the plant at harvest on bermudagrass CP. This data shows that as the plant grows and matures, which results in more quantity, the quality is dropping quickly as we move from 4 weeks to 8 weeks of growth. It also shows that by applying nitrogen fertilizer that it will increase the CP value of the forage, which is true because the CP of the forage is simply the measurement of nitrogen multiplied by 6.25. So, nitrogen fertility has been proven to increase quantity as well as quality.

Table 1.		
N fertilizer rate (lb N/acre)	**Maturity**	**Estimated CP**
0	4 Weeks	7%
0	6 Weeks	6%
0	8 Weeks	5%
50	4 Weeks	9%
50	6 Weeks	7%
50	8 Weeks	5%
100	4 Weeks	12%
100	6 Weeks	9%
100	8 Weeks	7%
Sourced from OSU Extension PSS - 2591		

Many producers are stuck between a rock and a hard place this year with the input costs of forage production. The nutritionist in me is saying to fertilize and cut it early, but I have restrictions, financial restrictions. First off, I don't have enough money rattling around in my pockets to buy the fertilizer required per my soil test. Next, I don't have enough money to afford to pay the custom baler to come two or three times a year for the small acreage that I have. Custom balers either must wait until there is enough forage to justify their costs, or they have to increase the price per bale to offset costs. That's the rock, the hard place is that I now must wait until there is enough forage to maximize the number bales per acre while sacrificing forage quality, which will increase my supplementation costs this winter.

Although I do encourage producers to work towards having a higher quality forage source to minimize supplementation, I caution producers to not go overboard and try to maximize quality. A lactating 1200-pound cow requires about 10% CP ration if she is eating 30 lbs per day. With that said, it is not logical to work hard and spend money to work towards a hay that is much higher in CP. Any forage over 10% CP is most likely over supplying nutrients and should be limit fed if possible.

Each producer needs to study hard on what is best for their operation this year. Yes, fertilizer prices are high, but could you spend money on fertilizer and save money on supplementation? Or do you think that you can find a supplement cheap enough to offset the lower forage quality? Consult with your OSU Extension Educator for help in thinking through your options.

Farm Management Tools – Urban Agriculture

Brent Ladd, Extension Assistant

The e-Farm Management website provides information for producers seeking to strengthen their farm financial management skills. This site includes videos, publications, and software tools for farmers and ranchers. Producers will find resources covering a variety of financial, production, marketing, and risk management topics.

One available resource is the Considerations for Urban Agriculture video. In this video, viewers learn about state and local rules and regulations related to urban agriculture. It provides reputable sources to learn about regulations to consider when practicing urban agriculture. Lastly, the video discusses potential changes that could impact urban agriculture.

To find this video and additional resources on grain urban agriculture, go to: https://extension.okstate.edu/programs/farm-management-and-finance/e-farm-management-training/other-tools-and-trainings/index.html.

More information on this and other farm management topics may be found three ways: 1) contact your nearest Extension Educator 2) visit the e-farm management website (https://extension.okstate.edu/programs/farm-management-and-finance/e-farm-management-training/index.html) or 3) visit the OSU Ag Econ YouTube Channel (https://www.youtube.com/user/OkStateAgEcon).

EXTENSION

Value of Gain Calculation

OK Weighted Average Report 5/27/22

Weight	$/lb	Value/hd	Added lb.	Added $	$/lb Added
314	$ 2.0415	$ 641.03			
377	$ 1.9249	$ 725.69	63	$ 84.66	$ 1.34
424	$ 1.9513	$ 827.35	47	$ 101.66	$ 2.16
476	$ 1.8589	$ 884.84	52	$ 57.49	$ 1.11
527	$ 1.8031	$ 950.23	51	$ 65.40	$ 1.28
572	$ 1.7661	$ 1,010.21	45	$ 59.98	$ 1.33
622	$ 1.6635	$ 1,034.70	50	$ 24.49	$ 0.49
670	$ 1.6519	$ 1,106.77	48	$ 72.08	$ 1.50
725	$ 1.5402	$ 1,116.65	55	$ 9.87	$ 0.18
778	$ 1.5148	$ 1,178.51	53	$ 61.87	$ 1.17
825	$ 1.4825	$ 1,223.06	47	$ 44.55	$ 0.95
921	$ 1.4026	$ 1,291.79	96	$ 68.73	$ 0.72

Long Stocker Run		**Short Stocker Run**		**Heavy Stocker Run**	
Starting		*Starting*		*Starting*	
314	$ 641.03	314	$ 641.03	622	$ 1,034.70
Ending		*Ending*		*Ending*	
921	$ 1,291.79	527	$ 950.23	921	$ 1,291.79
Total Gain	*Δ Value*	*Total Gain*	*Δ Value*	*Total Gain*	*Δ Value*
607	$ 650.76	213	$ 309.20	299	$ 257.10
VOG		*VOG*		*VOG*	
$ 1.07		$ 1.45		$ 0.86	

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Horticulture Tips
June 2022

Oklahoma Cooperative Extension Service
Division of Agricultural Sciences and Natural Resources
Department of Horticulture & Landscape Architecture
Oklahoma State University

GARDEN TIPS FOR JUNE

David Hillock, Consumer Horticulturist

General Landscape

- Find someone to water plants in the house and garden while on vacation. Harvesting vegetables and mowing the lawn are a must and imply that someone is home.
- Mulch ornamentals, vegetables, and annuals to reduce soil crusting, and to regulate temperatures and moisture during hot summer months. Mulching will reduce about 70 percent of the summer yard maintenance.
- Remain alert for insect damage. Add spider mite to the list. Foliage of most plants becomes pale and speckled; juniper foliage turns a pale yellowish color. Shake a branch over white paper and watch for tiny specks that crawl. Watch for first generation fall webworm. (EPP-7306)

Turfgrass

- Fertilize warm-season grasses at 0.5 to 1 lb. N per 1,000 square feet. Do not fertilize fescue and other cool-season grasses during the summer.
- Dollar spot disease of lawns can first become visible in mid-May. Make certain fertilizer applications have been adequate before applying a fungicide. (EPP-7658)
- Seeding of warm-season grasses should be completed by the end of June (through July for improved varieties such as Monaco and Yukon) to reduce winterkill losses. (HLA-6419)
- Brown patch disease of cool-season grasses can be a problem. (HLA-6420)
- White grubs will soon be emerging as adult June Beetles. Watch for high populations that can indicate potential damage from later life cycle stages as grubs in the summer.

Fruit and Nut

- Renovate overgrown strawberry beds after the last harvest. Start by setting your lawnmower on its highest setting and mow off the foliage. Next thin crowns 12-24 inches apart. Apply recommended fertilizer, preemergence herbicide if needed and keep watered. (HLA-6214)

Trees and Shrubs

- Vigorous, unwanted limbs should be removed or shortened on new trees. Watch for forks in the main trunk and remove the least desirable trunk as soon as it is noticed. (HLA-6415)
- Pine needle disease treatments are needed again in mid-June.
- Remove tree wraps during the summer to avoid potential disease and insect buildup.

- Softwood cuttings from new growth of many shrubs will root if propagated in a moist shady spot.
- Protect trees from lawnmowers and weed eaters by mulching or using protective aerated covers.

Flowers

- Pinch back leggy annuals to encourage new growth. Fertilize and water appropriately.
- Feed established mums and other perennials.
- When picking fresh roses or removing faded ones, cut back to a leaflet facing the outside of the bush to encourage open growth and air circulation.
- Stake tall perennials before toppling winds arise.

Hydrangeas

Casey Hentges, Oklahoma Gardening Host
Bailey Lockhart, Project Coordinator

Hydrangeas have been around for a long time in gardens, but some people still find they are unable to grow them in their garden. While there may be certain hydrangeas that need a more specific environment, there will be one that will work for you.

Hydrangea macrophylla, also known as bigleaf hydrangea, is probably the most well-known and often desired. Many of them have the recognizable mophead flower that can range from pink to blue, which is influenced by the soil pH. Even if you purchase a blue hydrangea *macrophylla* and plant it in the ground, it may bloom pink later in the season. Don't think you accidently picked the wrong plant. Most often in Oklahoma soils you will find the lilac to pink range in flowers which are a result of slightly acid to alkaline soils. To get the blue hydrangea, you need to have a highly acidic soil. You can plant these alongside your azaleas or blueberries where you have amended the soil or try growing them in a container where it is easier to adjust the pH. Adding aluminum sulfate will make the flowers bluer and adding lime will make them more pink. Amendments should always be based on a recent soil test analysis. The soil needs to be amended typically in late fall or early spring well in advance of the flowering period. The white *macrophylla* will always be white regardless of the soil pH. *Macrophylla'*s like rich, moist, yet well-drained soil in part shade. Planting them on the north side of a building will help keep them protected from the scorching summer sun.

Pruning hydrangeas is often a concern since some bloom on old wood, or last year's growth, and some bloom on new wood, or this current season's growth. Generally speaking, *macrophylla'*s bloom on old growth, which means if the vegetation dies back to the ground, you have also lost your flower buds. However, there are some newer cultivars that bloom on both old and new wood. A few repeat bloomers to look for are 'Fusion Glow' and 'Nantucket Blue'.

Hydrangea serrata is another species and are very similar to *macrophylla*'s. It actually used to be classified as the same variety; however, they are now recognized as their own species. Just like *macrophylla*s, they too typically bloom on old wood and like rich, moist, well-drained soil in part shade. The main difference between the two is *serrata* tends to be smaller in size and may

have a bit more cold hardiness due to being native to the mountains of Japan. Additionally, *serrata* also has reblooming cultivars available even if you do lose last year's growth. When we think of *macrophylla*s as having the large mophead flowers, *serrata* has a flower structure referred to as a lacecap, that is, flat and has an outside ring of florets.

Hydrangea paniculate offers a completely different flower structure. The species implies it has a conical, pointy, panicle of flowers. It is a popular species and one of the best hydrangeas to grow because it is more cold hardy; all the way up to zone 3 and it blooms on new wood. So, you don't have to worry about it dying back in the winter and can remove any old stems in the late winter to make room for the new growth and flowers. It is also tolerant of air pollution, so it does well in urban locations.

Now, all of these hydrangeas are native to Japan and other parts of Asia. We do, however, have a few species native to the United States. *Hydrangea arborescens*, or smooth hydrangea, is found along rocky slopes, ravines, and streambeds from New York to Florida and west into Oklahoma. These are hardy from zone 3 to 9. Like the prior mentioned species, it also likes moist, well-drained soil with part shade. However, *arborescens* is a bit more tolerant of other soils and can handle a bit more sun if irrigated well. Best of all, they bloom on new wood, so you don't have to worry about losing those flower buds in the cold. Like the *paniculate*, it comes in a range of shades from white to dark pink. 'Annabelle' hydrangea is a type of *arborescens* that was discovered growing in the wild near Anna, Illinois. It has much larger flowers than the species up to 12" in diameter.

Finally, *Hydrangea quercifolia*, is another native hydrangea. The species name, *quercifolia,* refers to the foliage that looks like *Quercus*, which is the genus for Oak. The large lobed foliage resembles oak leaves and really sets it apart from the other mentioned hydrangeas. *Quercifolia* is hardy between zones 5 and 9. This species blooms on old wood, so you may want to protect it in the colder zones to help prevent losing branches which produce next seasons blooms. Pruning is best for this species right after it flowers, because it will be done blooming for the season. The oakleaf hydrangea not only offers large panicles of flowers that range from white, to lime, to pink, but it also offers a nice display of burgundy fall foliage. Later in the winter, the exfoliating cinnamon color bark of the branches is revealed. While many of them can be quite large in the landscape reaching 8 feet tall, there are a few cultivars on the market that will stay around 3-4 feet tall, Ruby Slippers for example.

This is just a brief introduction to hydrangeas, and all of them appreciate rich, moist, well-drained soil in part shade. If you are after the old-fashion blue hydrangea, look for *macrophylla*. In Oklahoma, keep in mind that probably means you will need to lower your pH to achieve the blue color. While some species only bloom on old wood, there are many new reblooming cultivars being released that bloom on both old and new wood. Finally, if you are looking for a hydrangea that is more of a sure bet, look at *paniculate, arborescens* or *quercifolia,* with the latter two being native to the U.S.

https://www.youtube.com/watch?v=lnI9Iz475qk

Pruning and Staking Tomatoes

David Hillock

Every gardener has his or her own method for pruning tomatoes and, an opinion on whether or not tomato plants require pruning. Staking tomatoes helps manage disease problems by increasing air circulation in the leaf canopy and reducing contact with the soil. A structured training system can also make tomatoes easier to harvest. Pruning can help boost yields, by exposing more of the leaf canopy to full sun and reducing competition between suckers and the developing fruit.

Several different tomato training systems exist; the type of support to be used depends on tomato growth habit. Tomatoes can be divided into two types, determinate and indeterminate. The determinate varieties have short to medium vine lengths. Plants are heavily branched, and growth stops when they start flowering. Every branch tends to end up with a flower cluster. Determinate varieties are not heavily pruned as most of the fruit is produced on the branches. Indeterminate varieties continue to grow and produce leaves as well flowers throughout the growing season. Pruning methods will depend on the type of support system used.

The three most common training systems for tomatoes are stake-and-weave, trellis, and cage. All three of these techniques can be used with indeterminate tomato varieties, but only cages and stake-and-weave are used with determinate varieties.

Trellised tomatoes are the most heavily pruned. A trellis system consists of sturdy posts anchored in the ground about 20 feet apart. The top of the posts should be set so the tops stand six feet or more above ground level. Stretch a piece of wire between the tops of the posts. Then attach a length of sturdy twine or string above each plant in the row. Tie the twine to the base of each plant and wrap plants around the twine as they grow or tie them to the twine with plastic ties. You can train one or two stems per plant, using a separate cord for each stem. Plants are pruned back to these main shoots, with 2 to 4 side shoots along the main stem.

When we prune tomatoes, we remove small side shoots from the main stem. This reduces competition between vegetative growth and the fruit. Pruned plants produce larger and an earlier fruit as most of the plant energy is channeled into the fruit. Prune shoots when they are four inches long. It can be more difficult to remove larger shoots and you are more likely to damage the plant when removing large shoots. Remove a sucker by grasping it between your thumb and second finger and bending it to the side until it breaks. It is advisable to do this early in the day when the plant is still crisp. Do not cut suckers with a knife or pruners as this can lead to spread of diseases. Limit the branches of indeterminate varieties to two to three fruit producing branches by selecting the main stem, the sucker that develops immediately below the first flower cluster, and another sucker below that. Remove all other suckers, and periodically remove additional suckers that develop on the selected branches. The stake-and-weave method is commonly used with determinate tomato varieties, but also works with indeterminate tomatoes. Staking plants requires metal or wooden stakes.

The wooden stakes need to be at least one inch square for support. You can also use rebar or t-posts as stakes. Determinate varieties require three to four feet long stakes and indeterminate

varieties require stakes that are five to six feet long. Set a stake between every other plant. Lines of twine are strung between stakes on either side of the plants to provide support. Twine must be resistant to weather and stretching and have sufficient "grip" to wrap tightly around stakes. String the first line 8-10 inches above the ground by securing the twine to an end stake and wrapping the twine around each stake until the row is completed. Loop around this end stake and complete the stringing on the other side of the plant row. Run the next row of twine 6-8 inches above the first row before plants begin to fall over. Prune plants back to keep them contained within the stake and weave system and from crowding one another. Remove the lowest branches, as these are most likely to become infected by soil-borne diseases.

Caging is a support system that requires less work than staking or trellising but provides similar benefits in protecting plants from contact with the soil. Caged plants may not produce ripe tomatoes as early as staked or trellised plants, but the fruits they produce are less likely to suffer from cracking or sunburn. It will be necessary to lift branches and direct them upwards through the cage. Again, prune the lowest branches to reduce disease.

It is important to decide on type of support before setting plants in the garden. Plants grown on a trellis system can be planted closer together than those grown in cages or staked. Check your plants regularly to continue training them to the support system and prune as needed.

Turfgrass Species for Oklahoma Lawns

David Hillock

The geographic location of Oklahoma permits turfgrass species popular in the north, south, east, and west environments of the United States to be grown somewhere in the state. However, high temperatures and limited rainfall during the summer limit the success of the cool-season turfgrass species to shaded areas and sites with irrigation systems. Relatively low temperatures during the winter prohibit the success of many warm-season (grows in the summer, dormant in the winter) turfgrass species.

Successful turfgrass management begins with the selection of a turfgrass species adapted to the wide fluctuations in temperature and moisture found in the state. It also involves the selection of a turfgrass suited to your personal need(s) (a show place, a neighborhood sports field, an average lawn, or cover to protect the soil from erosion), and a turfgrass species suited to any physical or environmental limitations of the planting site such as shade, no supplemental water, or poor soil conditions.

Early summer is the best time to establish warm-season grasses so we will focus on those in this article. Cool-season turfgrasses like tall fescue and Kentucky bluegrass should be established in the fall.

Bermudagrass (*Cynodon* spp.) – Bermudagrass is an aggressive, warm-season turfgrass species that spreads rapidly by above-ground (stolons) and below-ground (rhizomes) stems. It is the best-adapted turfgrass for full-sun areas in Oklahoma due to its excellent heat and drought tolerance

during the summer and its sufficient winter hardiness. Many cultivars are available for different situations.

Buffalograss (*Buchloe dactyloides*) – Buffalograss is a warm-season, sod-forming, native prairie grass that spreads by stolons. It has a fine texture and a grayish-green color. It has excellent tolerance for the heat, drought, and cold conditions found in Oklahoma. Buffalograss is best suited to full-sun sites in areas of Oklahoma receiving 12 to 25 inches of rainfall per year.

It grows best on heavy-textured soils and has some tolerance of alkaline soils. Buffalograss is the best choice for unirrigated lawns and general turf areas of western Oklahoma. It produces numerous seed heads which may distract from the general appearance of the turf.

Zoysiagrass (*Zoysia* spp.) – Zoysiagrass is a fine to medium-textured warm-season turfgrass that spreads by stolons and rhizomes. Its winter hardiness and its ability to grow under light shade are its desirable features. Its slow establishment rate is its greatest liability. Zoysiagrass requires more frequent watering to prevent wilting than bermudagrass but has lower annual fertilizer requirements. Zoysiagrass should only be utilized for lawns when a top-quality and high-maintenance turf is desired. El Toro and Meyer zoysiagrass (Z-52) are available as sod in appreciable quantities in Oklahoma. Well adapted seeded cultivars available from internet sources include Compadre and Zenith.

St. Augustinegrass (*Stenotaphrum scundatum*) – St. Augustinegrass is a medium to coarse-textured, warm-season turfgrass that spreads by stolons. It is suited to southern Texas but is enjoying increasing use in southeastern Oklahoma and south central Oklahoma on sheltered sites. St. Augustinegrass produces a quality lawn on full sun to lightly shaded sites. However, it requires more frequent watering than bermudagrass.

For more information on these grasses, how to establish them, and how to manage them see our fact sheets HLA-6418 – Selecting a Lawn Grass for Oklahoma, HLA-6419 – Establishing a Lawn in Oklahoma, and HLA-6420 – Lawn Management in Oklahoma

Mow at the Right Height

David Hillock

Too frequently we see lawns that have been mowed as close as possible to give the grass that putting green appearance. Though it is nice and neat looking, it may not be the healthiest thing for your turfgrass. But raising cutting heights beyond optimum can bring on its own set of problems. Each species has an optimum cutting height for different seasons and under particular circumstances such as shade.

The warm-season turfgrasses are cut slightly higher in the fall to provide insulation for low temperatures. When they are growing during the summer, they are cut lower to promote lateral spread and a “tight” turf. Cutting turfgrasses below their recommended height will discourage deep rooting. Cutting too low may cause the turf to thin, because it is less able to withstand heavy traffic and environmental stresses such as low soil moisture and extreme temperatures.

Cutting newer hybrid bermudagrasses above their recommended height may produce a stemmy turf, characterized by leaves being produced near the end of upright stems. This kind of turf is prone to scalping. Turfgrasses grown under shady conditions should always be maintained at a slightly higher cut to increase leaf area to compensate for lower light levels.

Mowing height of commonly grown turfgrasses in Oklahoma. *Some exceptions will occasionally apply!

Turfgrass	*Mowing height - inches*	
Warm-season	*April-August*	*September-March*
Bermudagrass	0.5-0.75	1.0-1.25
Tahoma 31 Tifway Tifway II Tifgreen Patriot Latitude 36 Northbridge		
Astro Cheyenne Jackpot Mirage U-3 Sahara Sundevil Wrangler Yuma Riviera Yukon	0.5-2.5	1.5-3.0
Buffalograss & St. Augustinegrass	1.5-3.0	2.0-3.0
Zoysiagrasses		
Fine dense types	0.5-1.5	0.5-1.5
Coarse open types	0.5-1.5	1.0-2.5
Cool-season	*June-mid Sept.*	*mid Sept.-May*
Kentucky bluegrass	2.5-3.0	2.0-2.5
Perennial ryegrass	2.5-3.0	2.0-2.5
Tall fescue	2.5-3.0	2.0-2.5

Deadheading!

David Hillock

“Deadheading” is a term often heard amidst the conversations of gardeners across the country. One not familiar with the term may be somewhat startled by such a word. However, it simply means to remove old, faded, spent blooms from your plants by pinching or cutting them off. By deadheading your flowers, new blooms are encouraged, and the blooming period of many plants can often be extended.

Remove old blossoms by cutting or pinching back to just above a leaf node on the stem below the flower. If the stem of the plant is somewhat woody and tough, then pruners or a pair of sharp scissors may be used. Soft herbaceous plants can be pinched by hand. When I worked as a gardener in Utah, we used a good old pair of sheep sheers to cut back the hundreds of petunias and other annual flowers we were growing. Petunias respond well to a good haircut about early to mid-July. Many of the newer varieties on the market are self-dead-heading and may not need trimming. But, if necessary, cut them back about half way, give them a shot of fertilizer and watch them bloom like crazy the rest of the summer. Other plants that respond well to deadheading include ageratum, geranium, marigold, and zinnia. Many perennials can also be enjoyed longer by deadheading, which can extend their bloom period.