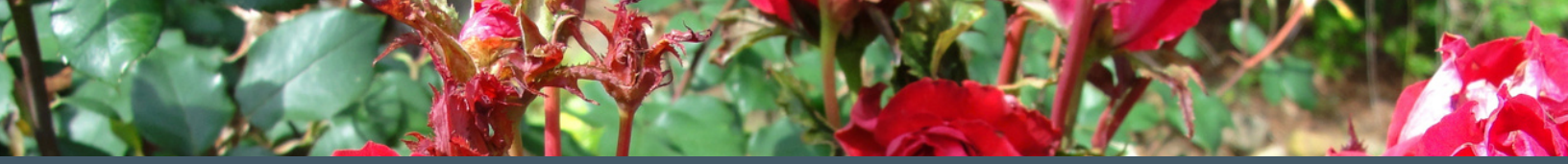
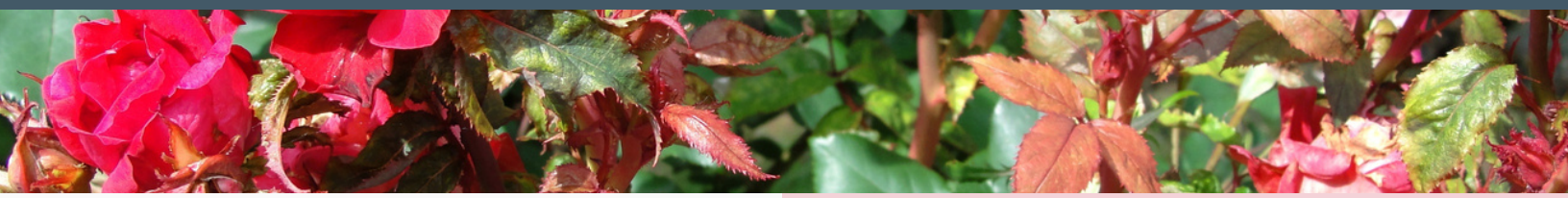


AGRICULTURE & HORTICULTURE

April 2024

The Official monthly newsletter of the Texas A&M AgriLife Extension Service of Smith County



Clint Perkins
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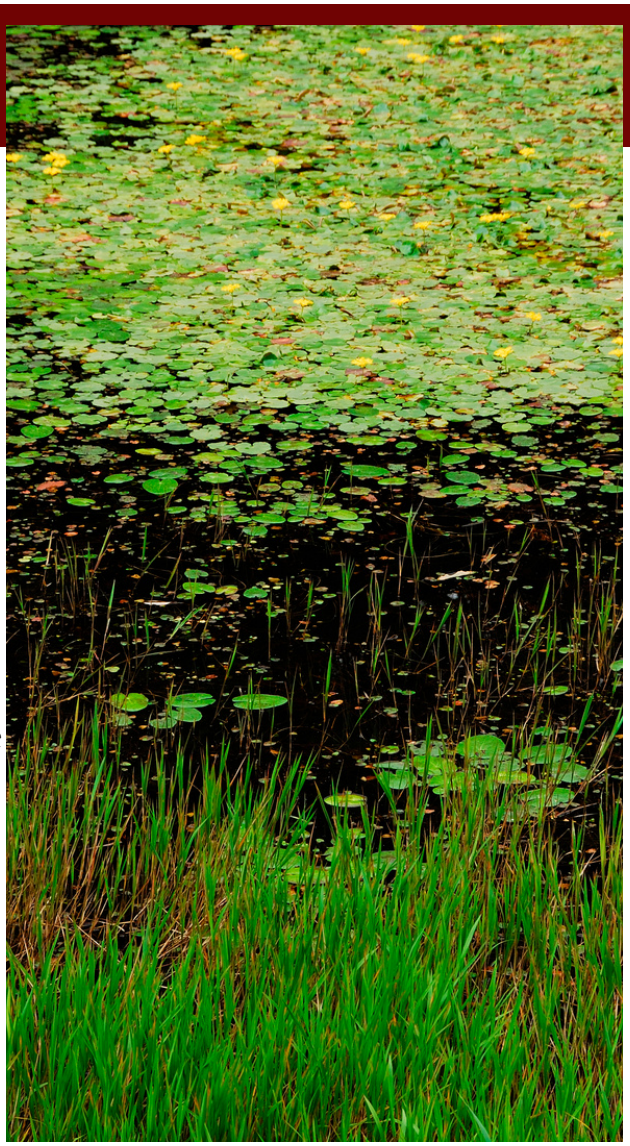
April Topics:

AQUATIC WEEDS

Written By: Clint Perkins

Common Aquatic Plants of Texas



Texas waters grow hundreds of species of aquatic plants. Many of these are desirable; however, undesirable aquatic plants can be a major problem for pond and lake owners because they are detrimental to pond management and fishing. Correct identification is essential if control measures are to be successful. A great website to visit to identify aquatic weeds and weed control recommendations is aquaplant.tamu.edu

Plants are grouped according to their growth habits. They are:

1. **Algae**- Includes three types: microscopic plants (plankton) responsible for the green color in fertile water; filamentous algae; and branched algae that resemble flowering plants but do not flower or produce seeds.
2. **Submersed plants other than algae**- Includes plants growing mainly beneath the water surface. Occasionally some leaves or other plant parts may float but normally only the seed heads extend above the surface.
3. **Floating plants**- Includes those plants which grow and float freely on the surface and those plants rooted in the mud on the pond bottom, but with most leaves floating on the surface.
4. **Emersed plants**- Includes all shoreline, marginal and shallow water plants which have leaves or parts extending above the water surface

Next, we will try to describe the most common plants within each group.

Algae - as mentioned there are 3 types and two of these cause problems.

Filamentous algae or pond scum is the most common problem that we hear about. It usually begins growing near the bottom or edges of a pond and later floats to the surface. At this time it resembles a mass of wet wool or bright green hay. Another type is the branched algae. Chara or Muskgrass is the most common of this type. It has a musky (skunk-like) odor and a "crunchy" type feel. No part of it extends above the surface. The last type of algae is actually a benefit to ponds. This is the small single-celled plants or phytoplankton that provide the food and oxygen for fish. As with anything, too much of the phytoplankton can cause a fish kill through oxygen depletion. This generally occurs in over-fertile ponds when the weather begins to warm up.

AQUATIC WEEDS

Written By: Clint Perkins

Submersed plants - There are several species of submersed plants that bother and annoy pond owners. Bushy pondweed is the most common. It resembles bermudagrass but grows under the water. Coontail is another common aquatic weed that people bring in. The branches are forked repeatedly and the leaves are whorled. Another common submersed plant is Pondweed. Pondweed is characterized by alternate leaves with flowers and fruits in spikes or heads. Remember, submersed weeds are among the most difficult to control.

Floating plants - This group includes the true floating plants with roots that feed from water rather than from soil, and plants which are rooted in soil but have mainly floating leaves. Duckweed is the most common one that we deal with. It is a small floating plant, green in color and about ½ inch across with two to four leaves. Mosquito fern is another aquatic weed that has given area producers a problem. It is very similar to Duckweed except that it is red in color. Both Duckweed and Mosquito fern can be removed mechanically with a rake or net. There are also options for chemical control as well.

Emersed plants- These include plants like Cattail, Bulrush, Rush, Water Primrose, and Alligatorweed.

Please refer to the aquaplant.tamu.edu website for weed control options. As with all pesticides, use according to labels and at recommended rates. Some of the recommended pesticides have some restrictions, so read the label completely before using. Use of a pesticide for which it is not labeled is against the law! For more information, please contact Clint Perkins with the Smith County Extension Office located at 1517 West Front Street, Tyler Texas 75702 or call 903-590-2980

It's time to start a vegetable garden

Written by: Greg Grant

Time of planting is super critical. There are basically three kinds of vegetable crops you can grow: winter (cool-season) plants, spring and fall (mild-season) plants, and summer (hot-season) plants. The time to plant spring vegetable gardens with mild-temperature loving plants like beans, cucumbers, peppers, squash, and tomatoes is almost here. These plants are generally planted between mid-March and early-April here, after all danger of frost.

For each growing season, sit down with a paper and pencil and plot out what you intend to grow. We can grow crops year-round here and certainly should. Make a winter list, a spring list, a summer list, and a fall list. When one crop is finished, pull it up and put in the next season's plants. Many novice gardeners think spring is the only vegetable-producing time we have—not so. And for heaven's sake if you only grow a garden during the spring, don't let it grow up in weeds when you stop gardening in the summer. This just ensures that you will have weeds forever. It's better to keep it covered with mulch or at least weed free when not in production. If you don't garden during the summer, plant a cover crop of southern peas or sweet potatoes that can take the heat. The same goes for the winter. At least cover the ground with cereal rye, mustard, or turnips instead of letting it grow up in weeds or have your precious soil wash away in a flood instead.

Be very wary viewing social media or looking at packets on a seed racket. I can assure you the seed companies have never posted or printed a seed pack with an ugly picture that says, "This won't grow in Texas." Unfortunately, not all crops and all varieties will grow here. Also be very mindful of the season. Just because you see strawberry plants for sale doesn't mean it's time to plant them (we plant those in the fall here). Get a good Texas gardening calendar each year that shows the proper planting times and be faithful to them. Our Texas A&M University horticulturists spent many years figuring out what would grow here and when to plant it. Don't waste that valuable information. To view our East Texas planting calendar visit smith.agrilife.org, scroll down to "Sign up for Email Updates," and click on "Horticulture Mailing List-Greg Grant." You can also order a 2024 Planning Guide and Calendar from texasgardener.com.

And finally, please learn to identify a sunny location. Do not confuse direct sun (when a beam of light shines directly on you) with full sun (a full day's worth of direct sun from the time it rises in the morning until it sets in the evening). All vegetables need full sun, or at the least eight direct hours of it. As my mentor, Dr. Jerry Parsons, always said, "If you can't sunbathe there, you can't grow a vegetable garden, there." Many folks in Texas like to work in the shade, but if you are working in the shade in a vegetable garden you've made a big mistake, and your production will suffer immensely.

PINE BEETLES

WRITTEN BY: ANTHONY BROWN

Smith County is one of the only few counties in East Texas that contains one or more rangelands within the county. The western part of Smith County is mainly part of the Post Oak Savannah, and the eastern part is more in the Pinewoods region of the county. There are several varieties of pine trees that thrive in the East Texas area, but they all have one predator in common that is also known as the “silent killer”. The pine beetle, a tiny yet formidable adversary, has been wreaking havoc on pine trees across the region, leaving a trail of destruction in its path. The pine beetle, also known as the southern pine beetle (Dendroctonus frontalis), is a native insect species that plays a crucial role in forest ecosystems. However, under certain conditions, such as drought or stress, pine beetles can undergo population explosions, leading to widespread infestations and significant damage to pine stands. With the last two summer droughts we experienced, an increase in the number of cases in East Texas has seen an uptick. In East Texas, where pine forests dominate the landscape, these infestations pose a substantial threat to the vitality and sustainability of the ecosystem.

The impact of pine beetle infestations on East Texas pine trees is profound and multifaceted. Infested trees exhibit characteristic signs of distress, including yellowing or browning of foliage, pitch tubes on the bark, and the presence of boring dust around entry holes. As beetles’ tunnel beneath the bark to lay their eggs and feed on inner tissues, they disrupt the tree’s nutrient and water transport systems, ultimately leading to wilting, dieback, and mortality. Left unchecked, pine beetle infestations can decimate entire stands of pine trees, causing irreparable ecological and economic harm. The consequences of pine beetle infestations extend far beyond the forest canopy, impacting both the environment and the economy of East Texas. Ecologically, the loss of pine trees disrupts habitat structures and biodiversity, affecting numerous species of wildlife that rely on pines for food and shelter. Economically, the forestry sector, which plays a vital role in the region's economy, suffers losses in timber production and revenue due to diminished tree health and marketable wood quality. Additionally, the aesthetic and recreational value of forested landscapes diminishes as the once-thriving stands of pines succumb to beetle infestations.

Combatting pine beetle infestations requires the steward to be very hands on and integrates proactive management practices and community engagement. One key strategy involves monitoring pine stands for early signs of infestation, such as fading foliage or pitch tubes, and promptly taking action to mitigate the spread of beetles. This may involve the targeted removal and disposal of infested trees to prevent further infestation of adjacent stands. Additionally, implementing silvicultural practices, such as thinning and prescribed burning, can improve stand resilience and reduce beetle habitat suitability. Engaging the community in efforts to combat pine beetle infestations is crucial for achieving long-term success in forest health and sustainability.

PINE BEETLES

WRITTEN BY: ANTHONY BROWN

Educational outreach initiatives, such as workshops, field days, and extension programs, provide valuable opportunities for stakeholders to learn about pine beetle biology, detection methods, and management strategies. By fostering a sense of shared responsibility and collaboration among landowners, foresters, and conservationists, East Texas communities can work together to protect their forests and preserve the natural heritage of the region.

As East Texas continues to experience abnormal weather conditions, and the challenges posed by pine beetle infestations, there is cause for optimism amidst the adversity. Through proactive monitoring, effective management practices, and community engagement, strides can be made in safeguarding the health and resilience of pine forests across the region. By embracing a holistic approach to forest stewardship and conservation, East Texans can confront the pine beetle menace and ensure that the majestic pines that define their landscape endure for generations to come. Be sure to contact your local County Extension Agent or your local Forest Service to see if you are having an infestation on your property.

There will be a forestry production and management workshop here at the Smith County Extension Building (Cotton Belt Building) on April 12, 2024, starting at 9:00am. We hope to see you there!

RWFM-PU-372 10/2021

Photo by Karol D from Pexels

UNDERSTANDING NATIVE PERENNIAL GRASS GROWTH

Morgan L. Treadwell[1] and Rebecca D. Burson[2]

INTRODUCTION

Adapted to grazing and fire, grasses are like no other plant group. Although varying greatly in size, from the giant bamboos of the Asian rain forests and tropics to the tiny hairgrasses of the deserts, all grasses have similar arrangements of leaves, stems (culms), flowers, and roots. No other plant family is more widely useful, and no grass is a parasite on another plant— they all survive and grow on their own with sunlight converted to energy through photosynthesis (Fig. 1). For example: Bamboo shoots are a food item and the hard, woody stems are an important building material. Likewise, straw bundles are used for roofing and in mats, or can be scattered for bedding. Pasture grasses provide forage resources for countless herds of domestic animals and wildlife. Grain crops like rice, wild rice, wheat, corn, barley, oats, grain sorghums, rye, and millet are all grasses. Sugarcane (*Saccharum officinarum*) is a perennial grass that is not only cultivated for sugar but also as a bio-fuel. Giant reed (*Arundo donax*) is used to make reeds for musical instruments. Turf grasses cover playgrounds, home lawns, and athletic fields. Landscaping with grasses has become fashionable. Humans cannot live without them.

This manuscript will offer a new approach to understanding how native grasses grow—specifically the reproductive and growth methods of native perennial grasses and how that can help improve management decisions. Although experienced range managers can determine plant composition and forage density by just looking across a pasture, underground plant components are often overlooked. However, these underground plant structures are responsible for what occurs above ground and provides much of the science applied to grassland management.

Figure 1. Fuzzy, white seedheads and reddish stems of Little Bluestem (*Schizachyrium scoparium*) shining in the fall. *Photo taken in Taylor County, Texas*

GRASS MORPHOLOGY

The physical traits of grasses allow them to carry out a variety of biological processes and aid in their ability to survive. Although differences may exist between species in form and function of specific morphological parts, all grasses share the same basic anatomy. Understanding these parts and the roles they serve in plant development can help range managers make key management decisions based on the inventory of perennial grasses present on the land during any growth season.

Starting at the cellular level, all grasses possess columns of cells bundled together that facilitate the movement of water and minerals upward from the roots to stems

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and leaves—including the movement of food downward to the roots of grasses. These columns are known as "vascular bundles," with the cross-section resembling a miniature Halloween mask (Fig. 2). There are two big eyes (vessels) for water movement and multiple opening mouths (sieve tubes) for food. The outer layer of each bundle consists of thick-walled cells (fibers) that strengthen the bundle and make it tough for the grazing animal to consume. Cellulose is a major component of these plant cell walls and cannot be digested equally by all animal species. Monogastrics, or organisms (including humans) that possess only a simple, single stomach, lack the digestive enzymes and gut bacteria to digest cellulose.

However, grazing animals are mostly classified as ruminants. Ruminant mammals have a complex digestive system comprised of multi-chambered stomachs, including a sophisticated rumen compartment containing microbes that can break down cellulose for digestion and absorption by the animal. Examples of ruminants include: cattle, sheep, goats, and deer.

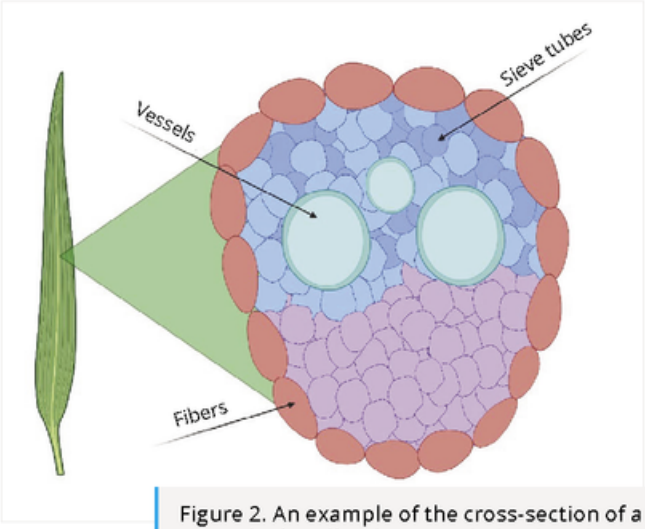


Figure 2. An example of the cross-section of a vascular bundle. *Photo created using BioRender.com*

All grasses also have leaves that consist of a sheath and a blade. The sheath surrounds the stem and protects a bud (i.e., growing point) at its base at a node (joint) where the leaf emerges. Blades lay flat for sun exposure, allowing them to carry out photosynthesis (or incurved/inrolled to reduce the loss of moisture). Grasses can have many variations among the junction (collar) between the sheath and the blade (Fig. 3). These characteristics—such as ear-like extensions of the ligule and hairs—are often helpful in plant identification.

Similarly, grass texture can be used to distinguish different plant species. Like other plants, grasses take up silicon in their roots and deposit it in their tissues

Figure 3. A close-up view of hairs on the collar between the blade and sheath of Tumble windmill grass (*Chloris verticillata*).

as small particles called "phytoliths." Phytoliths are distinctive enough to identify the plants that made them. Silicon is also used in leaf surface spines and gives various grasses a scratchy texture (Fig. 4). Grazing animal's throats have evolved to handle these spines, which prevents them from being a choking hazard when swallowed.

Grasses rely on vegetative structures called "buds" and "nodes" for plant growth. Unlike woody plants, grasses cannot initiate secondary growth where actively growing tissue (cambium) increases plant thickness through the addition of cell layers. However, they can utilize a form of growth at the nodes to upright a plant laid over by wind or water. Leaves have some ability for slight extension when clipped off by grazing or by fire, but the most effective recovery mechanism a grass species has is the emergence of a bud at the highest node—which expands into a new stem. Dormant buds, usually present at the base of each stem, can be initiated to replenish active bud sources.

Figure 4. Silicon deposits create fine hairs (or surface spines), which contributes to grass texture.

POLLINATION

The most obvious morphological plant structure used for identification is the seedhead (or "inflorescence"). The inflorescence directly influences pollen transfer and seed development in the grass plant.

All grasses are designed for wind pollination by producing an abundance of pollen in exposed dangling anthers (male) and a feathery stigmatic surface (female) to catch it (Fig. 5). Each silk, or the feathery stigmatic surface, is attached to a developing kernel (i.e., ovary containing ovule), where an egg awaits the arrival of sperm cells produced by the pollen. Grasses can be monoecious or diecious. Monoecious plants contain male and female parts on the same plant, while diecious plants have male and female structures located on separate plants. Both monoecious and diecious grasses can cross-pollinate with each other to enhance the reproductive efficiency. The transport of pollen to neighboring plants is facilitated by modes of action, such as wind or bees. Corn is an exaggerated example of this process. The tassels (i.e., male anthers) produce pollen up high and at a different time on the plant. When silks (i.e., female feathery, stigmatic surfaces) below on the same plant are not receptive, it encourages cross-pollination between neighbors (Figs. 6 and 7).

SEEDS

Grass seeds are botanically designated as a fruit because the grain (caryopsis) consists of tissue layers equivalent to the peel of a banana. The seed develops in a structure called a "spikelet," which varies between plants in the length, width, thickness, and hairiness of their scale-like coverings and decorations. These differences are depended upon for identification of individual grass species.

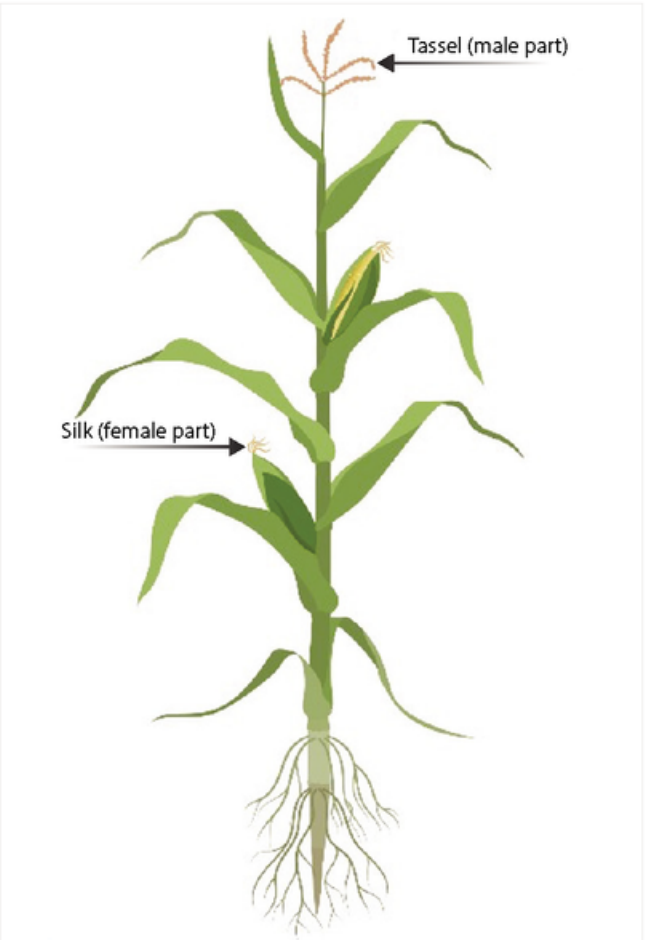


Figure 5. A diagram of a corn tiller illustrating monoecious male and female reproductive parts, which is designed for wind pollination on the grass plant.
Photo created using BioRender.com

Likewise, the inflorescence in which the spikelets are arranged is also critical for identification (Fig. 8). Flower parts, which are so prominent and recognizable in many other plant families, appear in grasses as minute bumps or flaps at the base of the ovule and may serve only to expand and open the spikelet for pollination.

An advantage of grass seeds include their genetic variability and ability to travel long distances. However, their disadvantage is that it has an increased mortality in relation to vegetative buds, making perennial grasses more difficult to establish by seeding. Consequently, establishment of perennial grass from seed has been more heavily researched than establishment by vegetative buds.

NEW GRASS GROWTH

A functional understanding of the plant underground processes and components has not progressed as rapidly as knowledge of above ground plant structure

Figure 6. A close-up view of dangling anthers of Eastern gamagrass (*Tripsacum dactyloides*), which is a distant relative of corn.

Figure 7. A close-up view of silks of Eastern gamagrass (*Tripsacum dactyloides*), which is a distant relative of corn.

Figure 8. Inflorescence of vine mesquite (*Panicum obtusum*) with purple stigmas peeking out before its seeds ripen.

dynamics. In fact, internet search logs for scientific research revealed 21,000 hits on establishment by seed, compared to 13,000 on establishment from buds. Current research has shown that perennial grasses reproduce by vegetative processes through asexual reproduction. Seed contribution to maintain an established grassland is less than 1 percent of the total reproductive effort—contradicting earlier range science research, which suggested that seed head formation was necessary for perennial grass reproduction. Consequently, many range grazing and burning management plans, especially within federal agencies, were established based upon former ideologies in the field of range science. The development of new strategies based upon vegetative properties of perennial grasses is crucial to the ability of landowners to optimize forage quality and quantity.

THE BUD BANK

Plant components within a few inches below the soil surface play a major role in maintaining reproduction and density of every native grass species because vegetative buds at or beneath the soil surface are responsible for most perennial grass reproduction. Collectively, buds that exist on a single grass plant are called the bud bank. Research findings from Benson et al. (2004) shows that more than 99 percent of new tillers are produced from this bud bank. Through evolution, bud banks developed in the soil to facilitate regrowth after top growth is destroyed by fire, grazing, or drought (Fig. 9). Ott and Harnett (2012 and 2015) showed how variability between bud banks relates to differences in plant photosynthetic pathways and growth forms, such as bunch grasses versus rhizomatous plants.

Vegetative buds are produced by meristematic tissue existing in each junction of a leaf and a stem (also called tiller). In plants, meristem is the area of tissue from which new growths are formed. Vegetative bud functions are very complex. Research continues to undercover more information on their function in perennial grass growth processes and how these processes differ among perennial grass species. From a practical management standpoint, knowledge of how bud numbers and characteristics differ between grass species can allow managers to apply techniques to facilitate healthy rangelands based upon the grass inventory at hand.

Bud banks contain three different types of vegetative buds: active, dormant, and dead. Active buds are resources for reproduction, but require an environmental event such as rain, fire, or grazing to initiate tiller growth. These buds will begin tiller growth within a period as short as 24 hours after receiving an

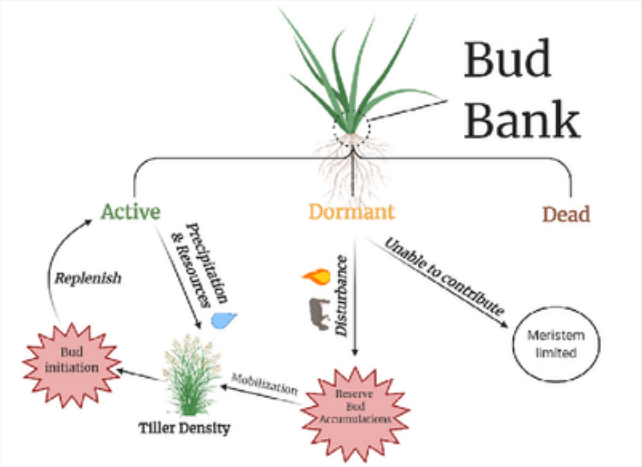


Figure 9. Depiction of vegetative bud types within the bud bank and their subsequent contribution to tiller density. *Created using: BioRender.com*

environmental stimulation. The new tillers grow new buds to replenish the bud bank.

Dormant buds perform like a savings account by becoming an active bud depository when initiated by a disturbance such as fire or grazing. A second impulse mobilizes them to produce tillers and enter the bud replenishment cycle. Dormant buds can live 6 to 10 years or even longer.

Dead buds do not contain meristem—and as a result, can never be activated. If a plant has too many dead buds it becomes meristem limited. When too many plants are meristem limited, the particular species disappears from the plant community. Disappearance may be temporary or permanent depending upon management decisions.

Perennial grasses can be produce by both buds and seed, although more than 99 percent of new tiller growth comes from the bud bank. Seed life spans are short-lived and do not extend beyond 1 year. However, buds are long-lived and have a potential life that may exceed 5 years. Since bud life varies among grass species, current research efforts are focused on determining which species have the longer living buds. Vegetative buds respond quickly to environmental changes like rain, fire, and grazing.

Examination of the bud bank provides an indication of future plant community composition.

Research has revealed differences in bud banks between cool-season and warm-season grasses. Cool season grasses typically have a smaller bud bank with a short-lived bud life of 1 to 2 years. Their bud banks are almost entirely depleted during the growing season and are sensitive to variable environmental conditions. Because of these bud bank characteristics, cool-season grasses are prone to disappear from the plant community when environmental conditions are unfavorable for plant growth.

Warm-season grasses have an extensive dormant bud bank, making their buds multi-aged, and therefore enabling them to be long-lived. These capabilities allow warm-season grasses to respond quickly and positively to rainfall. In addition, warm-season grasses are more resilient through dry periods than cool-season grass species.

APPLICATION OF BUD BANK KNOWLEDGE TO GRASS MANAGEMENT

Quantifying and describing bud bank densities for dominant grasses will greatly improve the ability of range managers to apply appropriate management strategies. For example: Bud banks of various perennial grasses are affected differently by the season in which natural or prescribed burns occur, fire intervals and grazing timing, duration, and intensity. Employing techniques that maximize bud bank densities is paramount for maintaining healthy native grass populations, plant diversity, and plant community resiliency.

Table 1 shows data that is currently available on bud characteristics and densities of some dominant grasses. This information illustrates how bud banks influence the above ground growth habits of the listed grasses. For instance, King Ranch bluestem (KR bluestem) is a prolific invader, easily forms monocultures, and is often found in areas where it is not wanted. Examination of its bud bank, which contains a maximum of 22 buds with a minimum of 12, offers a partial explanation for this behavior.

Research shows that any type of disturbance will activate this plentiful bud supply to develop new tillers. The expansive size of KR bluestem's bud bank and its capability to activate buds provides a plausible reason for the plant's aggressive behavior.

Blue grama possesses a smaller, tightly clustered bud zone. With a maximum of six buds and a minimum of four buds on each plant, this grass is not as competitive as KR bluestem. Figures 10 and 11 illustrate blue grama's dense buds, which contain many leaf scars.

Understanding how native grasses grow—specifically the reproductive and growth methods of native perennial grasses—builds upon the landowner's above ground knowledge of native grass production and plant community composition. This foundational information will assist in making the best management decisions, such as prescribed fire, timing of grazing, and the grazing

duration to reset nutrient cycles simulating bud growth and development. Making informed management decisions, which incorporates the bud bank and below ground dynamics, is the first step in ensuring enhanced soil health, functioning nutrient cycles, and optimized forage production during variable climate fluctuations.

REFERENCES

Treadwell, M. L., D. Burson & R. Q. Landers, Jr. 2021. Popular Perennial Grasses of the Edwards Plateau. Texas A&M AgriLife Extension Publication. ERM-054.

Hiers, Q. A.*, M. L. Treadwell, M. B. Dickinson, K. L. Kavanagh, A. G. Lodge, H. D. Starns, D. R. Tolleson, D. Twidwell, C. L. Wonkka & W. E. Rogers. 2020. Grass bud bank responses to fire in a semi-arid savanna system. Ecology and Evolution. ECE-2020-09-01358.

Ott, J. P. & D. C. Hartnett. 2012. Contrasting bud bank dynamics of two co-occurring grasses in tallgrass prairie: implications for grassland dynamics. Plant Ecology 213:1437-1448.

Ott, J. P. & D. C. Hartnett. 2014. Bud bank dynamics and clonal growth strategy in the rhizomatous grass, *Pascopyrum smithii*. Plant Ecology 216:395-405.

Russell, M. L., L. T. Vermeire, A. C. Ganguli & J. R. Hendrickson. 2018. Fire Return Interval and Season of Fire Alter Bud Banks. Rangeland Ecology and Management. *https://doi.org/10.1016/j.rama.2018.12.003*.

Russell, M. L., L. T. Vermeire, A. C. Ganguli & J. R. Hendrickson. 2017. Phenology of perennial native grass below-ground axillary buds in the northern-mixed grass prairie. American Journal of Botany 104:915-923.

Russell, M. L., L. T. Vermeire, A. C. Ganguli & J. R. Hendrickson. 2015. Season of fire manipulates bud bank dynamics in northern mixed-grass prairie. Plant Ecology 216:835-846.

Russell, M. L. & L. T. Vermeire. 2014. Fire and nitrogen alter axillary bud number and activity in purple threeawn. Rangeland Ecology and Management 68:65-70.

Russell, M. L., L. T. Vermeire, N. A. Dufek & D. J. Strong. 2012. Fire, defoliation, and presence of native grasses alter *Aristida purpurea* biomass, tiller, and axillary bud production. Rangeland Ecology and Management 66:290-296.

Figure 10. An enlarged example of meristematic potential of future growth for blue grama.

Figure 11. A blue grama tiller showing the longevity and number of buds on a single grass tiller.

Table 1. Vegetative bud characteristics of some major grasses*			
Species	General Notes on Bud Zone Appearance	Max. No. of Buds	Min. No. of Buds
Blue grama	Tightly clustered bud zone Large over-wintering bud bank Dense buds Many leaf scars	6	4
Buffalograss	Short Fragile buds	5	2
Hairy grama	Short and clustered rhizomes Lots of budding from rhizomes	3	1
Hall panicum	Very short Hairy rhizomes	4	2
Kleingrass	Lots of above ground auxiliary buds	13	7
KR bluestem	Lots of above ground auxiliary buds	22	12
Little bluestem	Tightly clustered above ground axillary buds Leaf scars	12	6
Purple threeawn	Buds form up to first node	8	3
Sand dropseed	Large Elongated basal buds Minimal reserves	8	2
Sideoats grama	Tightly clustered axillary and basal buds Big reserve pool	16	4
Silver bluestem	Hairy nodes Higher branching due to buds up to 3 or 4 nodes	8	5
Texas wintergrass	Meristem limited Small over-wintering bud bank Small buds Limited dormant buds	4	1
Western wheatgrass	Large buds spaced far apart Large over-wintering bud bank Mimics warm-season grass below ground Rapid activation from bud bank Rapid tillering	12	4

*Adapted from: ***https://agrilife.org/howgrassesgrow.*** This data may also be found at: ***https://agrilife.org/howgrassesgrow/.*** As more data is collected on the listed plants, as well as others, it will become a reliable aid in determining appropriate range management strategies.

THINGS TO DO IN APRIL

Plant Care

- Lightly prune or thin spring-blooming shrubs after they flower
- Deadhead faded flowers from roses
- Divide summer and fall blooming perennials
- Plant containerized trees and shrubs (fall is best however)
- Mulch vegetable and flower beds to hold moisture, keep the soil cooler, discourage weeds, and improve soil
- Continue planting the vegetable garden with warm season crops such as beans, corn, cucumbers, peppers, squash, tomatoes. Add cages for tomatoes and cucumbers. Be sure they are getting plenty of sun.
- Plant summer and fall blooming annuals and perennials to add interest and color to your garden beds.
- Cutback dying foliage on oxblood lilies and spider lilies.
- Cut back freeze damaged shrubs and tropicals to green tissue where buds are sprouting.
- Cut back dormant perennials to the ground before the sprout.

Fertilize

- Fertilize azaleas and camellias after they have finished blooming with azalea/camellia/gardenia fertilizer, 21-0-0, or cottonseed meal.
- Apply lawn fertilizer such as 15-5-10, 18-6-12, or 28-3-12 to evergreen shrubs, shade trees, and fruit and nut trees around the drip line.
- Feed lawns based on a soil test or with a 3:1:2 fertilizer such as 15-5-10 or a premium/professional type like 28-3-12 which contains slow- release nitrogen and micronutrients. Weed and Feed fertilizers aren't very effective and aren't recommended.

Pests

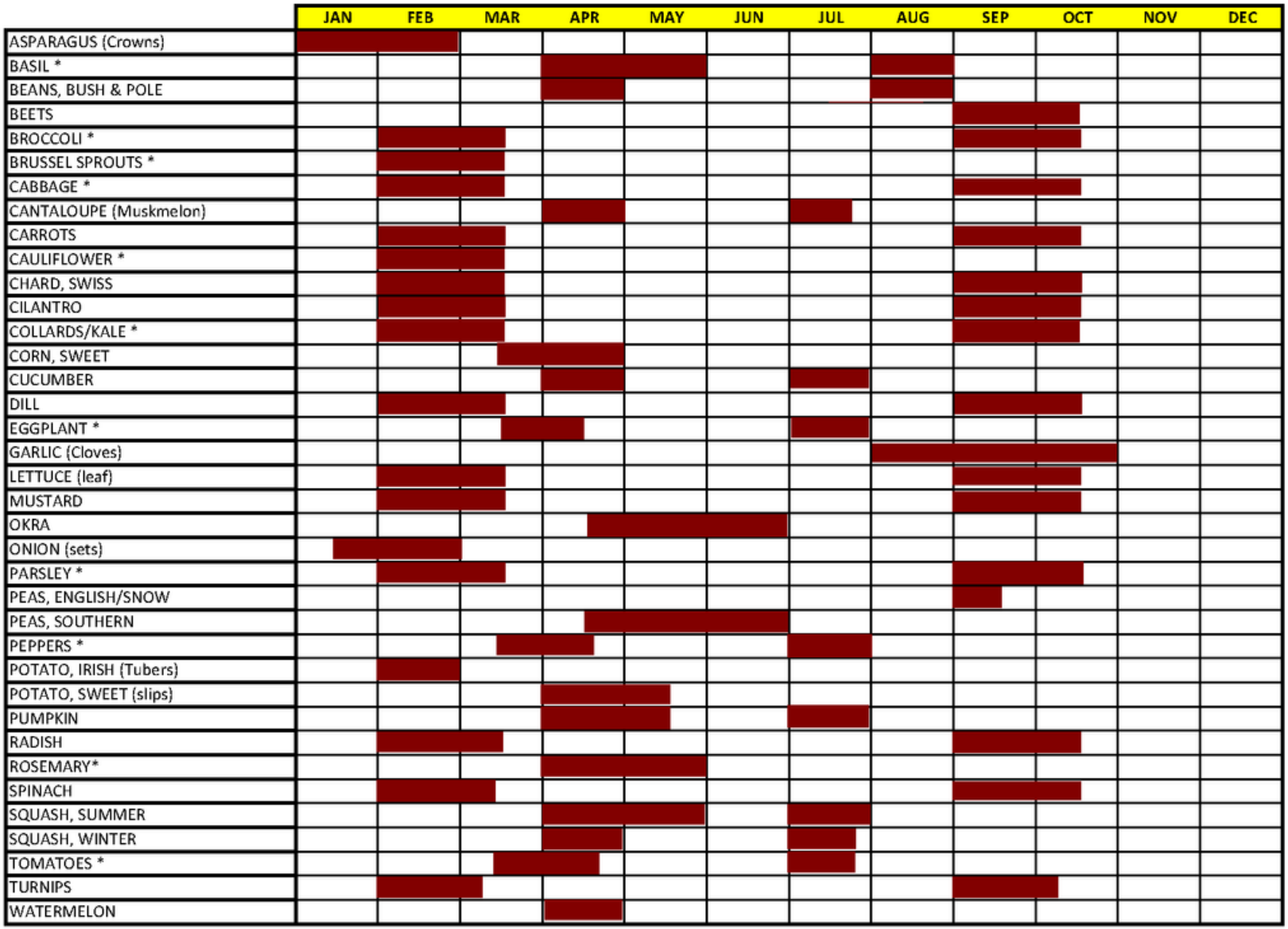
- Check crapemyrtles for bark scale and treat with a systemic insecticide before they set flower buds to protect pollinators.
- Watch for brown patch (large patch) on St. Augustine grass and avoid irrigating until June, July, and August.

Odds and Ends

- Clean bird baths and bird feeders to prepare for our flying friends.
- Put up hummingbird feeders if not done already.
- Clean out used nests in bluebird boxes to get ready for second brood.
- Repot houseplants and container plants on patio/deck and add slow-release fertilizer like Osmocote.

Vegetable Garden Planting Guide

for the East Texas Area



* = TRANSPLANTS

Plant seed unless otherwise noted

By: Greg Grant, Smith County Extension Agent- August 2021

Helpful Resources

Horticulture

East Texas Gardening with Keith Hansen: easttexasgardening.com
Facebook Page: *facebook.com/easttexasgardening*
Greg Grant 's Blog: *arborgate.com/greg-ramblings*
Facebook Page: *facebook.com/ggrantgardens*
Neil Sperry's Web Site: *neilsperry.com*
Facebook Page: *facebook.com/NeilSperryTexas*
Plant Answers: *plantanswers.com*
Texas Gardener Magazine: *texasgardener.com*
Facebook Page: *facebook.com/texasgardenermagazine*

Agriculture

Ranch TV: *https//ranchtv.org*
Facebook Page: *facebook.com/ranchtv/*
Texas A&M Wildlife and Fisheries Extension: *https://wfsc.tamu.edu*
Videos: *https://www.youtube.com/user/WFSCAgriLife*
Facebook Page: *facebook.com/wfscextension/*
Texas A&M Natural Resources Instiute: *https//nri.tamu.edu*
Facebook Page: *facebook.com/tamuNRI/*
Wild Pig Resources and Videos:*http://feralhogs.tamu.edu*

University Based

Texas A&M Aggie Horticulture: *aggie-horticulture.tamu.edu*
Facebook Page: *facebook.com/aggiehorticulture*
Integrated Pest Management: *ipm.tamu.edu*
Insect Answers and Information: *citybugs.tamu.edu*
Disease Diagnostic Laboratory: *plantclinic.tamu.edu*
Turf and Grass Care: *aggieturf.tamu.edu*
Texas A&M Forestry Service: *tfsweb@tamu.edu*
Soil Testing Information: *Soiltesting.tamu.edu*

Gardens

SFA Garden in Nocogdoches: *sfagardens.sfasu.edu*
The Garden at Texas A&M: *gardens.tamu.edu*

Henderson County Beef Cattle Committee

2024 Cow-Calf Clinic

Thursday, April 4th

Registration: 5:30 PM

Program 6:00 PM

TVCC Ranch 9760 CR 1205 Athens, TX

$30/person

Dinner provided by Heritage Land Bank

To RSVP call the Extension office at 903.675.6130

1 General CEU

Herbicide Updates- Weed Identification and Control

Clint Perkins, CEA Ag/NR Smith County

-

Farm to Table- Finishing Out Cattle

Larry Tiner, HLR Beef Shop

-

Calf Care- Banding vs. Castration, Vaccinations and Weaning Practices

Dr. Doug Richardson, Henderson County Veterinarian

To obtain CEU credit you must present your current TDA license at time of registration. At the conclusion of the program you will receive a certificate for your personal record.

Texas A&M AgriLife Extension Service
100 E. Tyler St Courthouse 3rd Floor Suite 303
Athens, TX 75751
903–675–6130

TEXAS A&M AGRILIFE EXTENSION

TMCA SPRING WORKSHOP

April 9-10, 2024

Tyler, Texas

Register for meeting at www.TexasMosquito.org

The workshop is scheduled to take place at the

Hilton Garden Inn

220 East Grande Blvd

Tyler, TX 75703.

Free CEU Course Available to TMCA Members

Non-members will be charged a fee of $100.

Group Room Rates $119/night

Please make room reservations DIRECTLY with hotel by calling **903-509-1166** or using Hilton Group Reservation Link

https://group.hiltongardeninn.com/7m5185

by March 19, 2024

Reference group name:

TEXAS MOSQUITO CONTROL ASSOCIATION

Valid Overnight Dates for group rate are 4/9-10.

Overton Center Beef & Forage Field Day

Thursday, April 11th

1710 FM 3053 Overton, TX 75684

Come learn more about the research that is being done at the Texas A&M Research & Extension Center at Overton. Hear from Research Leaders & Extension Specialists.

8:00 AM Registration

8:30 AM Introductions- Current soil, forage, and beef research being conducted

9:30 AM Break

10:00 AM Weed control in Forages (1 IPM CEU)
Dr. Vanessa Corriher-Olson, Forage Extension Specialist

11:00 AM Environmental Benefits of Grazing Management Strategies (1 GEN CEU)
Dr. Jacquelyn Prestegaard, Extension Livestock Sustainability Specialist

Noon Lunch- Will Be Provided

1- 2 & 2:30-3:30

Concurrent Field Sessions

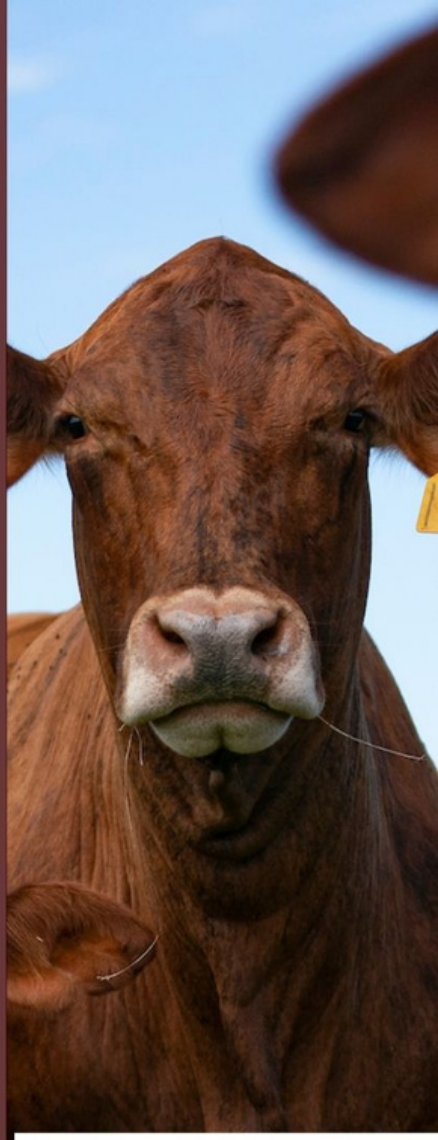
Beef Research Field Session

Production Efficiencies in Cow-Calf Operations with current technologies (Pregnancy check methods, testing for diseases and parasites)

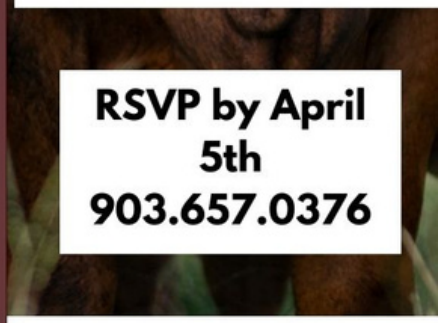
Forage Research Field Session

Winter Pasture Options for East Texas

Forage Management Strategies for Year-Long Stocking Systems



2 CEU Credits (1 IPM & 1 General)



RSVP by April 5th 903.657.0376

TEXAS A&M AGRILIFE EXTENSION

TEXAS A&M AGRILIFE RESEARCH

UPPER SABINE CATTLEMAN'S CONFERENCE

GABRIEL RANCH
8575 FM 1255- GRAND SALINE, TX 75140
FRIDAY—APRIL 12, 2024
8:00-3:15 P.M.

TEXAS A&M AGRILIFE EXTENSION

$30 Per Person

2 CEU's
1 IPM
1 Gen.

8:00A.M. **Registration & Breakfast**
Courtesy of Austin Bank

9:00 A.M. **Forage Insect Pest Control**
Dr. Vanessa Corriher-Olson—Professor and Extension Forage Specialist

10:00 A.M. **Break**

10:15 A.M. **Selection of Bulls and What Buyers Need to Look For**
Dr. Ron Gill—Professor and Extension Livestock Specialist

11:15 A.M. **Forage Establishment & Management to Reduce Weed Pressure**
Dr. Vanessa Corriher-Olson—Professor and Extension Forage Specialist

12:15 P.M. ***Lunch*** *- Courtesy of our Sponsors*
TSCRA Theft Prevention*—Mr. Larry Hand, Special Ranger*

1:15 P.M. **Your Beef Checkoff Dollars At Work**
Texas Beef Council

2:15 P.M **Phenotypes: Where We've Been, We Are, & We're Going**
Dr. Ron Gill—Professor and Extension Livestock Specialist

GABRIEL Ranch

CORTEVA agriscience

POTTS FEED STORE

LSB

NORTHEAST TEXAS FARMERS CO-OP

Austin Bank

ROZELL SPRAYER MANUFACTURING CO.

BEEF LOVING TEXANS TEXAS BEEF COUNCIL

SPONSORED BY TEXAS A&M AGRILIFE EXTENSION SERVICE -
Van Zandt, Rains, and Kaufman

Please RSVP to your respective Texas A&M AgriLife Extension Service County Office by **March 31** in order to guarantee lunch.

Rains: 903-473- 4580, **Kaufman:** 469-376-4520 **Van Zandt:** 903-567-4149

Forestry Management & Production Workshop

FRIDAY, APRIL 12, 2024

REGISTRATION AT 8:30 AM
PROGRAM: 9:00 AM TO 12:00 PM

Cotton Belt Building
1517 W Front St, Ste 116A, Tyler,Texas 75702
PROGRAM IS FREE
Coffee and Donuts !

DR. ELLIOTT WASHINGTON,
EXTENSION PROGRAM SPECIALISTS

- **Sustainable Forestry Land Retention Program**
- **Best Tree Management Practices**
- **Understanding and applying for carbon credits**
- **Current Timber Market Update**

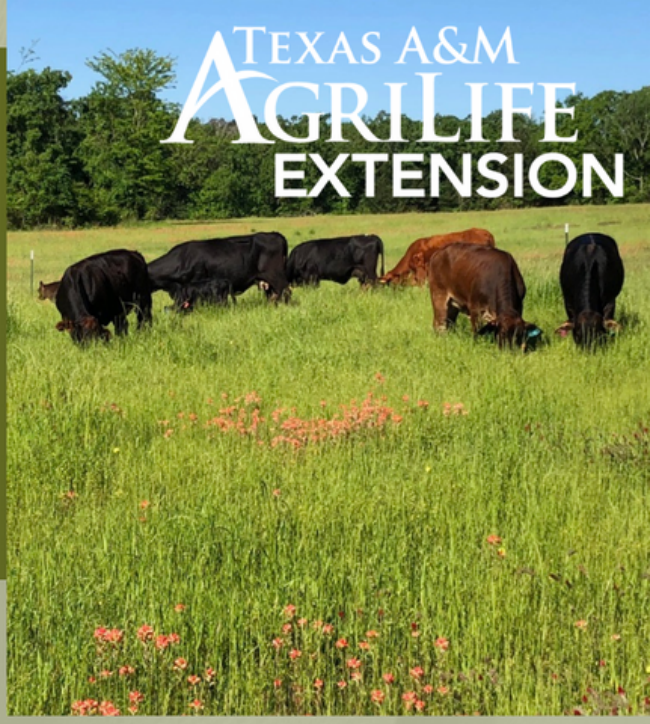
ERIC WANNLUND,
STAFF FORESTER TEXAS A&M FOREST SERVICE

- **Texas Climate Smart Initiative (new financial incentive program)**
- **Understanding the 1-D-1 Timber Valuation Form**
- **Forest Management Plan Development and Helpful tips**

PVAMU extension COLLEGE OF AGRICULTURE, FOOD, AND NATURAL RESOURCES | agnr AGRICULTURE AND NATURAL RESOURCES | TEXAS A&M FOREST SERVICE

TRI COUNTY BEEF & FORAGE

Friday April 19th
Cherokee County Expo
611 SE Loop 456 | Jacksonville



8am
Registration

8:30am
Herd Bull Health & Management
Dr. George Perry
Research Professor - Beef Cattle Reproductive Physiology

9:30 Break

10am
Feral Hog Control & The Newly Approved Toxicant (1 Laws & Regs)
Darren Rozell
Rozell Sprayer Manufacturing

11am
Armyworm & Grasshopper Control (1 IPM)
Dr. Vanessa Corriher-Olsen
Associate Professor & Forage Extension Specialist

12pm Lunch

1pm External Parasite Control of Beef Cattle (1 IPM)
Lee Dudley, Panola CEA-Ag/NR

2pm Adjourn

3 CEU Hours for Current TDA Private Applicator License Holders

RSVP April 15
903.683.5416

Cost $10

EAST TEXAS SEED COMPANY

SSB TX

LSB INDUSTRIES

ROZELL SPRAYER MANUFACTURING CO.
CUSTOM MADE SPRAYERS • REPAIRS

HERITAGE LAND BANK
We Have a Unique Perspective – Yours

Persons with disabilities needing accommodations for effective participation in the event should contact Cherokee County AgriLife Extension office at least a week in advance of the event to request mobility, visual, hearing or other assistance.

Mid-Sabine Cattlemen Conference

April 26, 2024

Carthage Civic Center
(Conference Room)
1702 South Adams St.
Carthage, TX 75633

TEXAS A&M AGRILIFE EXTENSION

Program Cost $20

Pre-Register by April 22, 2024

To the Panola, Harrison County AgriLife Extension Offices

Panola - (903)693-0380

Harrison - (903)935-8413

8:30 a.m. *Registration & checkout vendors*

9:00 a.m. ***IPM Strategies for Growing Warm Season Forages***
Dr. Vanesa Corriher-Olson
AgriLife Extension Forage Specialist

10:00 a.m. ***Picolinic Acid Training*** *(Course # 0922427)*
Rob Brooks - Envu Range & Pasture Specialist

11:00 a.m. ***Weed Identification and Control Options***
Clint Perkins - County Extension Agent Smith County

12:00 p.m. *Lunch - Sponsored by* ***Heritage Land Bank***

1:00 p.m. ***Weed Identification Quiz and Review***

2:00 p.m. ***Feral Hog Stewardship Training***
Darren Rozell - Owner operator
Rozell Sprayer Manufacturing Co.

4 CEUs

1 General

1 IPM

1 Picolinic Acid Chemistry Training

1 Laws & Regs (Pending TDA Approval)

Program Vendors:

East Texas Seed Co.

El Dorado Fertilizer

Red River Specialties

Rozell Sprayer Manufacturing

Thompson Feed

Heritage Land Bank

TEXAS A&M AGRILIFE EXTENSION

UPPER NECHES PESTICIDE CONFERENCE

FIRST UNITED METHODIST CHURCH
204 HWY 31 WEST CHANDLER, TEXAS 75758
FRIDAY MAY 10, 2024

PENDING TDA APPROVAL

5 CEU'S

2 IPM

2 GENERAL

1 LAW & REGS

$ 30.00 per person

8:00 am	**Registration**
8:45 am	**Welcome - Spencer Sims, CEA - AG/NR, Henderson County**
8:50 am	**Herbicide Updates** - Mr. Darren Rozell, Rozell Sprayer & Manufacturing - Tyler
9:50 am	**Break**
10:00 am	**Fire Ants in Pasture and Control Methods Using IPM Strategies**- Ms. Janet Hurley, Extension Program Specialist- IPM, Texas A&M AgriLife Extension Service
11:00 am	**Pest & Predator Control in Pastures & Hay Fields Using IPM Strategies -** Mr. Lee Dudley, CEA -AG, Panola County
12:00 pm	**Lunch**
1:00 pm	**Review of Herbicide Research Trials for Pasture & Hay Fields-** Mr. Clint Perkins, CEA- AG, Smith County
2:00 pm	**Reading & Understanding the Pesticide Label -** Mrs. Shaniqua Davis, CEA - AG, Gregg County
3:00 pm	**Adjourn**

Please RSVP to Henderson County office at (903) 675- 6130 by 5/08/2024 to guarantee lunch

Individuals with disabilities who require an auxiliary aid, service, or accommodation in order to participate in this activity are encouraged to contact the Henderson County Extension office at 903-675-6130 for assistance by May 6, 2024. Educational programs of the Texas A&M AgriLife Extension Service are open to all people without regard to race, color, religion, sex, national origin, age, disability, genetic information or veteran status. The Texas A&M University System, U.S. Department of Agriculture, and the County Commissioners Courts of Texas Cooperating.

PRIVATE APPLICATOR TRAINING

Friday, May 10, 2024
First United Methodist Church
204 W State Hwy 31W
Chandler, TX 75758
8:30 am to 12:00 pm

An opportunity to obtain the required training for Private Applicators. ***Training only, testing will not be offered during this training.*** The Texas Department of Agriculture no longer offers paper exams. ***Testing procedures will be explained during the training.***

Training is required for all Private Applicators. Study materials are available for purchase for $50 including the Private Applicator General Manual, the Texas Department of Agriculture's Laws and Regulations Manual, and all the handouts/worksheets needed for this training. These materials can be purchased ahead of the class for review or the day of the training. A $10 Registration fee will be charged for a total of $60.00 for this training course. **Cash, Credit Card, or check** made payable to the Livestock and Forage Committee.

Contact:
*To register for Training and/or to purchase study materials call
(903) 590-2980

Anyone needing special assistance at an Extension program should contact the Texas A&M AgriLife Extension Office at (903) 590-2980 at least one week prior to the program or event.

FRUIT GRAFTING & BUDDING WORKSHOP

Friday, April 5, 2024 * 9AM to 3PM

Gold Hall * 101 Elm Street * Hallsville TX 75650

REGISTRATION FEE: $50 - Lunch Included!

SPACE IS LIMITED TO 30 PARTICIPANTS!

Register via QR Code

This hands-on workshop will provide a thorough understanding of the art & science behind several propagation techniques. Training will include detailed demonstrations & hands-on practice.

Propagation Techniques: Cleft & Bark Graft, T-Bud, Chip-Bud, Four-Flap Graft & More!

Dr. Tim Hartmann
Extension Specialist and Assistant Professor
Texas A&M AgriLife Extension Service

ATTENDEES WILL TAKE HOME GRAFTED FRUIT TREES!

PARTICIPANTS SHOULD BRING THEIR OWN PRUNERS & GRAFTING KNIFES.

Questions?
Gregg County AgriLife Extension (903) 236-8429
Harrison County AgriLife Extension (903) 935-8413

TEXAS A&M AGRILIFE EXTENSION

TEXAS A&M AGRILIFE EXTENSION

YOU ARE CORDIALLY INVITED

BACKYARD CHICKEN SEMINAR SERIES

Weekly Virtual Seminar on Topics Related to BackYard Poutlry

STARTS MARCH 18TH THEN DAILY

11AM-12NOON

EGG GRADER TRAINING CERTIFICATION SEPARATE AND STARTS 4/16 11AM-12NOON

Register for Backyard Workshop
@ https://tinyurl.com/2s28hew2

Register for Egg Grader Training
@ https://tinyurl.com/3vxbukxs

Contact Gregory.Archer@ag.tamu.edu with questions

CHICKEN BASICS

3/18 INTRO, HOUSING, LIGHTING

3/19 BREEDS AND NUTRITION

3/20 SELLING EGGS AND POULTRY AND FOOD SAFETY

3/21 HEALTH AND DISEASE

3/22 CHICKENS, YOUR GARDEN, AND THE ENVIRONMENT

EGG GRADER TRAINING

4/16 EGG COMPOSITION AND BIOLOGY

4/17 EGG MICROBIOLOGY AND FOOD SAFETY

4**/18** INTERIOR EGG QUALITY AND DEFECTS

4**/19** USDA GRADING STANDARDS

2024 Library Lecture Series

Sponsored by the Smith County Master Gardeners Association

A series of five programs designed to educate the community in all things gardening. The lectures are held the third Friday of each month, January through May, beginning at noon in the Taylor Auditorium of the Tyler Public Library.

1/19 Growing the Longview Arboretum: The Good, The Bad & The Muddy
Steve Chamblee, Executive Director, Longview Arboretum, brings a fast-paced behind-the scenes look at the development of the Arboretum from a pipe dream to a beautiful garden.

2/16 Things I Wish I Had Learned Sooner
Baxter Williams, Master Rosarian, American Rose Society, gives a light-hearted look at both the right information about rose horticulture against the historical lore that has been passed down.

3/15 Texas Superstar
Lynette Sewell, Master Gardener, will discuss the Texas Superstar program in which every effort is made to ensure that highlighted plants will perform well for Texas consumers.

4/19 Tried & True, New & Different, Plants to Try to Find and Use in Your Garden , **Keith Hansen, former Extension Horticulture Agent in Smith County**, will help us discover plants that may not be familiar to us, or , maybe they are.

5/17 Bloom Where you are Planted - Make Your Garden Fit Your Life
David Gary, Master Gardener, gives an inspiring presentation that serious gardening is possible despite physical limitations.

TEXAS A&M AGRILIFE EXTENSION

TEXAS MASTER GARDENER TEXAS A&M AGRILIFE EXTENSION Smith County

TEXAS MASTER GARDENER
TEXAS A&M AGRILIFE EXTENSION
Smith County

Smith County Master Gardener Association

2024 Home Garden Tour

Join us
for our 2024 tour
featuring
five unique and inspirational gardens
all located within the City of Tyler

Saturday, May 18th
9:00 am - 3:00 pm Rain or Shine
Tour tickets are $15* per person in advance online
$20* per person day of the tour
and may be purchased at any garden location

Not all gardens are wheelchair accessible
Under 12 free, sorry no strollers, pets or unsupervised children in the gardens

903-590-2994

TEXAS A&M AGRILIFE EXTENSION

txmg.org/smith/event/2024-home-garden-tour

**Proceeds benefit Smith County Master Gardener Association Scholorships and Educational Projects*

Smith County Master Gardeners are volunteer educators certified and coordinated by the Texas A&M AgriLife Extension Service