

# AG & NATURAL RESOURCES

Connecting Texas Farmers & Ranchers with  
 Texas A&M AgriLife Extension

## Winter Rangeland in West Texas

Luke Hendryx - Ag and Natural Resource Agent, Brewster-Jeff Davis Counties

The recent winter storms have served as a strong reminder that West Texas is in the heart of the winter season. Winter brings about a variety of issues that effect rangeland conditions in this part of the State, and careful planning, observation, and management are all needed to successfully maintain rangelands for safe and efficient grazing.



Woolly Loco - *Astragalus mollissimus* Torr.

A key component of effectively managing range conditions throughout the winter grazing season is making a pre-winter inventory of pasture conditions. Unlike other parts of the state, feeding hay in the pasture is not advised, or feasible in Far West Texas, so it is imperative that an assessment of available forage is made at the end of the growing season so that a supplemental feeding plan can be developed. One of the most common supplemental feeding strategies utilized are Range Cubes, which is commonly called cake. Ensuring that livestock receive adequate protein from supplemental winter feeding also allows producers to minimize the strain on rangelands during the winter months. With most of the rainfall in West Texas coming with summer monsoons, range conditions often don't improve with the spring like other parts of Texas.

One major rangeland factor to consider, especially during late winter and early spring, is the emergence of toxic weeds. The limited moisture that West Texas receives during the winter and spring often lead to a spring green-up that mostly consists of various forbs, many of which can be toxic to livestock such as such as Loco weed, Garbancillo, Mustard weed, Pigweed, African Rue, Silver Leaf nightshade and others.



Garbancillo - *Astragalus wootonii*

With dry rangeland conditions, these toxic weeds take very little moisture to emerge, and their lush green appearance is enticing to livestock that are not on an adequate maintenance program. One way to help protect livestock from weed toxicity is to check areas surrounding water troughs and feed grounds for toxic plants. These high traffic areas tend to have more bare ground, which provides an excellent environment for the propagation of weeds. Green weeds that are in close proximity to these heavily frequented areas appear as low hanging fruit to livestock during dry conditions and increase the chance of ingestion and subsequent poisoning.

While widespread control of these toxic weeds across the vast West Texas landscape is difficult, a few simple range management strategies including, supplemental feeding, proper range management conditions, along with mechanical and chemical control of poisonous plant species when possible, can go a long way in preventing livestock loss.

## In this Issue:

Winter Rangeland in  
 West Texas

PAGE 01

Tips for a Thriving Pecan  
 Crop in Far West Texas

PAGE 02

Texas Bighorn Sheep

PAGE 03

How to Plant a Garden

PAGE 04

Grazing Mistakes - Risk  
 Associated with Rangeland  
 Health and Sustainability

PAGE 05

Water Wells

PAGE 06

Cotton

PAGE 08

Sheep and Goats Facing  
 Drought in West Texas

PAGE 09

Breakthrough in Human  
 Medicine Could Help  
 Produce More Beef

PAGE 10

Path to the Plate: Making  
 the Connection between  
 Agriculture and Health

PAGE 12



## Tips for a Thriving Pecan Crop in Far West Texas

Peyton Keifer - Ag and Natural Resources Agent, Pecos County

**What to expect:** Pecan trees can grow up to reach 100 feet in height, but to produce a healthy nut it does take a bit of patience since it can take up to five to ten years for a Pecan tree to produce a pecan. Once the tree has borne its first fruit, they will continue to produce nuts for a long time if they are properly taken care of.

**Location:** a key factor to consider before planting your pecan tree is the proper location. Pecan trees need a lot of room to grow as they can meet excessive heights with an expansive canopy. When planting a pecan tree, you will want to choose a spot that does not have any draining issues. Pecan trees have a long taproot which can become diseased or rot if the soil is continuously wet or soggy. For this reason, planting your pecan tree on a hilltop is ideal.



**Planting Your pecan:** For best results you would want to plant your pecan far away from other structures such as your house, barn and powerlines. If you plan to plant multiple pecan trees whether, it be an orchard or home you will want to plant each pecan tree 60 feet apart this gives each tree the opportunity to grow and thrive. This also gives them space to reduce in pests.

**Growing a Pecan:** Pecan trees need regular care to survive and thrive. Fertilize often. Your tree will grow faster and stronger if you fertilize the ground around the tree. For best results sprinkle nitrogen-based fertilizer every few months. During the growing season while the tree is still young you both fertilizer and zinc sulfate to help with nut production. Be sure to not fertilize after June.

**Water:** Pecans are wonderful native trees but can use a bit of help to produce in a larger quality crop. Young Trees will need at least 7-10 gallons of water per week, and older trees will need an annual precipitation of 50 inches. A significant irrigation is needed for larger trees since West Texas annual rainfall is very low. Adequate moisture is needed all through the growing season in order to produce a full-size nut.

**Protect from pests:** Pecan trees may attract various species of phylloxera, tiny, aphidlike pests that can destroy your crop. The trees are also attacked by mites, aphids, pecan nut casebearer and most other pecan pests. All these pests can be managed by spraying with carbaryl at bud break, repeated several more times during the season. You can also release lady bugs in the area that will eat the aphids.

**Prune well:** pruning your trees will allow extra airflow, which will prevent disease. Pruning will also help your pecan tree to grow faster, stronger, and healthier.



## Desert Bighorn Sheep in Texas

BY: ZACH SCHAEFER - AG AND NATURAL RESOURCES AGENT, CULBERSON COUNTY

The plight of desert bighorn sheep in Texas is an interesting one, providing a lesson in both history and conservation. Desert bighorn sheep are a subspecies of bighorn sheep (*Ovis canadensis*) with the scientific name of *Ovis canadensis nelsoni*. Desert bighorn sheep etch out a niche, as the name implies, in the desert regions of the American Southwest. The elevated heights and rugged mountain terrain are their preferred habitat. Their diet is made up largely of browse and is supplemented with forbs based on seasonal availability (“Diets of Bighorns,” 2020). Desert bighorn sheep can be identified by their chocolate brown fur with white fur around the muzzle, rump, and belly. Rams have large-curved horns, while ewes have short horns with only slight curvature (“Desert Bighorn Sheep,” 2015).

Not unlike other game animals that have encountered obstacles throughout history, desert bighorn sheep have seen their fair share of troubles, especially in the state of Texas. In the 1880’s there was an estimated population of 1500 desert bighorn sheep in the Trans-Pecos Region. In the mid to late-20th century, the future of desert bighorn sheep in this state appeared bleak at best. The population had decayed exponentially and by the 1960’s, the population of desert bighorn sheep in Texas had completely disappeared. This is due to the combination of overhunting and competition with other domesticated livestock in the Trans-Pecos.

However, where one chapter ends another one begins. In the early 1970’s, Texas State Parks and Wildlife (TPWD) began with restocking efforts to reintroduce desert bighorn sheep in the state of Texas. According to a publication from TPWD, “The Sierra Diablo Mountains population, in Culberson and Hudspeth counties, is a result of two successful releases of pen-raised bighorn sheep, consisting of 4 rams and 3 ewes in June 1973, and 3 rams and 4 ewes in January 1979. This herd grew to an estimated 100 head in early 1989.” (“Desert Bighorn Sheep,” 2015). The effort to reintroduce desert bighorn sheep has continued to expand over several counties in Far West Texas including Brewster, Jeff Davis, and Presidio Counties.

In 2021, the population of desert bighorn sheep were at an estimated 1500 in the Trans-Pecos (Roe, 2021). Current population numbers present the evidence of a remarkable feat, taking into consideration that there were 0 bighorn sheep in the state roughly 60 years ago. Even more impressive, the current population matches that of the earliest documented numbers from the 1880’s. This success can be attributed to several different factors: the utilization of technology (helicopter surveying), collaboration (strengthened relationships between government entities and landowners), and regulated hunting (by TPWD permit only).

The conservation effort to manage and support the growth of desert bighorn sheep population in Texas is not only important for desert bighorn sheep but provides testimony for conservation endeavors in their entirety. Froylan Hernandez, TPWD bighorn sheep program leader says, “They [bighorn sheep] will continue to be present in the future. It is a success story, but we can’t let our guard down. If we do, we’ll go back a few steps.”



### Sources:

Desert Bighorn Sheep. (n.d.). Retrieved February 7, 2022, from [https://tpwd.texas.gov/landwater/land/habitats/trans\\_pecos/big\\_game/desertbighornsheep/](https://tpwd.texas.gov/landwater/land/habitats/trans_pecos/big_game/desertbighornsheep/)  
Diets of Bighorns. Borderlands Research Institute. (2020, October 27). Retrieved February 7, 2022, from <https://bri.sulross.edu/big-game/diets-of-bighorns/>  
U.S. Department of the Interior. (2015). Desert Bighorn Sheep. U.S.National Parks Service. Retrieved February 7, 2022, from <https://www.nps.gov/articles/desert-bighorn-sheep.htm>  
Roe, R. (2021). West Texas Icons. Texas Parks & Wildlife Magazine. Retrieved February 7, 2022, from [https://tpwmagazine.com/archive/2021/jan/ed\\_1\\_icons/index.phtml](https://tpwmagazine.com/archive/2021/jan/ed_1_icons/index.phtml)

# How to Plant a Garden

By: Joseph Masabni

This is an excerpt from this article available in AgriLife Virtual Library

Planting the home vegetable garden is one of the most enjoyable phases of gardening. Planting is easy, so everyone can participate. Everyone enjoys watching a seed they planted sprout and begin to grow. To be successful, some equipment and supplies are needed. Make sure you have them on hand before planting time.

## Seeds

Purchasing seeds early gives you time to order varieties that might not be available locally. Consult the individual Easy Gardening crop publications for recommended varieties. Most seed companies will send a catalog of vegetable types and varieties on request.

Refer to your garden plan to see how much of each vegetable to plant. Do not order more seed than needed for the spring and fall gardening seasons. While most seeds can be held over for use the following year if properly stored, it is usually best to get new seeds at least every 2 years.

Before planting last year's seeds, test their germination by placing 10 or 20 seeds between two layers of paper towel. Place the towel in a bowl or plate and keep it moist for a few days. Then count the number of seeds that sprout. If one-half or fewer of the seeds sprout, purchase new seeds (Fig. 1).

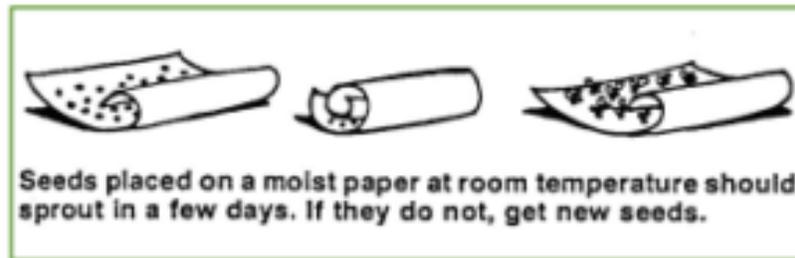


Figure 1. Seeds for Germination

Many crops do better if they are started indoors and then transplanted into the garden. It is always best to use transplants when growing broccoli, cauliflower, pepper, eggplant and tomato. Home gardeners can grow their own transplants or purchase them. If you decide to purchase transplants, select good quality, healthy plants that are free of insects and diseases.

Harden home-grown transplants before planting them in the garden. About 10 days before transplanting, treat plants in the following manner:

- Reduce watering but do not allow plants to wilt.
- Gradually expose plants to garden conditions by placing them outside in a protected spot.
- Do not fertilize before transplanting.

Purchased transplants may be well hardened at the time of purchase. The nurseryman can answer this question. Do not over-harden plants, as this will stunt them.

## Equipment

The planting equipment you will need depends on the size of the garden. In large gardens a hand planter or garden tractor may be useful. In most home gardens a hoe, rake, hand trowel, string, stakes and labels are sufficient.

# Grazing Mistakes Risk Associated with Rangeland Health and Sustainability



BY: ALLAN MCGINTY, PROFESSOR AND EXTENSION RANGE SPECIALIST

## Introduction

Texas rangelands are a multiple use natural resource. From rangelands meat and fiber are produced, most of the wildlife in the state are found, and the majority of the water used by our cities, agriculture and industry is captured for storage in lakes or underground aquifers. Also, rangelands provide recreational opportunities such as hiking, off road recreational vehicle use, birding, camping, etc. as well as providing aesthetic beauty to the landscape. The health and sustainability of Texas rangelands are important to every citizen of this state.

## What is Healthy Rangeland?

Healthy rangelands as compared to unhealthy rangelands usually have a greater diversity of plant and animal species. Plant communities are dominated by perennial plants as compared to annuals. Healthy rangelands have minimum erosion, because the soil surface has sufficient plant cover to protect it from the impact of raindrops. This plant cover also serves to slow the movement of water across the soil surface, resulting in greater water infiltration rates as compared to unhealthy rangelands. Healthy rangelands produce a greater and more dependable quantity of herbaceous forage for use by livestock and wildlife. And most importantly, healthy rangelands ecological processes, including the hydrologic cycle, nutrient cycle and energy flow are all functioning, supporting healthy biotic populations and communities.

## What are the Risks of Unhealthy Rangelands?

Unhealthy rangelands have accelerated loss of soil through excessive water or wind erosion. This soil loss increases sedimentation of streams, rivers and above ground aquifers, reducing their storage capacity and life. Unhealthy rangelands also have reduced recharge of underground aquifers due to lower infiltration rates. Soil loss from accelerated erosion reduces the volume of soil available for storage of water and thus the production potential for livestock and wildlife. Unhealthy rangelands have less diverse populations of animals and plants which reduces the ecosystems resilience to adverse conditions. Unhealthy rangelands generally produce less forage for livestock. Unhealthy rangeland have reduced habitat value, essential as cover and food for wildlife. Unhealthy rangelands function poorly or are have completely dysfunctional basic ecological processes required to sustain the ecosystem over time. In many cases, mis-management resulting in unhealthy rangelands is irreversible.

## How Do I Monitor for these Warning Signs?

Monitoring rangelands are important because it improves the owner/managers ability to make proper and timely decisions. Rangelands are very complex. Any given pasture may be composed of several different range sites, each with different plant communities. Each plant community has its own mix of grass, forb and woody plant species. This mix of species changes over time due to the impact of weather, seasons, brush and weed management, and grazing pressure by livestock and wildlife. Any monitoring system should key on changes in this plant community and any observable symptoms of accelerated erosion. The owner/manager must monitor these changes to insure 1)management is not causing damage to soil, water quality and the rangeland resource base, and 2) that past decisions are producing expected results.

Rangelands can be monitored using a variety of methods. Some of the more common techniques include vegetation sampling, excluding small areas from grazing or photo points. The latter method is one of the easiest to use by most individuals. By comparing photographs and detailed notes for the exact same location over time, change and current rangeland health can be observed and documented. The photographs, notes and interpretations serve as a permanent record for each location and situation. These observations and photographic record are necessary to establish the cause for changes in resource conditions. Photo points provide a means of monitoring rangeland health with a minimum of input in terms of time and expense.



When comparing photographs for a specific photo point over time, look for changes in the amount of forage, brush, weeds, bare ground, litter and evidence of erosion; for changes in the types of plants found in the photographs (plot); and for the absence or presence of specific plants. Records, i.e. grazing use, brush management and rainfall will be invaluable in interpreting these photographs. For detailed information on how to set up and interpret photo points to monitor range health obtain publication L-5216 "Range Monitoring with Photo Points" from the local county Extension agent or through the Internet (<http://texaserc.tamu.edu/catalog/topics/Rangelands.html>).

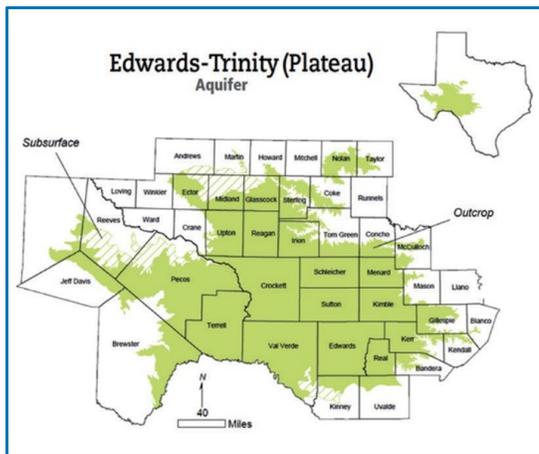
- o Risk Management Series
- o Weed & Brush Mistakes

# Water Wells

DAWSON OWENS - AG AND NATURAL RESOURCES AGENT, CROCKETT COUNTY

This is an excerpt from Texas A&M AgriLife Extension publication Protect Your Water Well and the Edwards-Trinity Aquifer, by Meredith Allen, Drew Gholson, and Diane Boellstorff.

The Edwards-Trinity Aquifer underlies 30 counties of the Texas Edwards Plateau and extends over 500 feet deep. (Fig 1.) Many Texas landowners and cities depend on this high-quality, usually abundant source of groundwater.



The aquifer is mostly a karst formation; a landscape with large spaces and holes that can transmit large amounts of water quickly. The Edwards-Trinity Aquifer formed when underground limestone dissolved, leaving behind caverns, conduits, and large springs. The aquifer contains caves, sinkholes, sinking streams, and highly productive (easily replenished) water wells. Because water flows readily through porous limestone structures, they allow water to seep underground and replenish (recharge) the aquifer quickly. However, karst topography is also more likely to allow contaminants to enter and spread throughout an aquifer.

To help keep the water from the aquifer clean and safe, water wells must be built and maintained according to state regulations. If you own a well, groundwater protection is doubly important. You are the manager of your own water system; it is your responsibility to protect your water supply.

Karstic topography can easily carry water for miles. Although this high rate of productivity can benefit private well owners, it also means that contaminants can flow quickly over a large area. Recharge can influence water quality dramatically. Depending how deep the water circulates, it can remain in the Edwards-Trinity Aquifer for a few hours or days to many years. These characteristics of karst aquifers make them especially vulnerable to contaminants where water wells are not built or maintained properly.

Texas has set strict requirements for well siting and construction as well as the submission of well completion reports. (Fig. 2) The construction and licensing requirements are administered through the Texas Department of Licensing and Regulation ([www.tdlr.texas.gov/](http://www.tdlr.texas.gov/)). The State has set limits on how close a well can be to potential sources of contamination. Wells must comply with not only state regulations, but also incorporated city ordinances and local groundwater conservation district (GCD) rules.

The well-head must be at least:

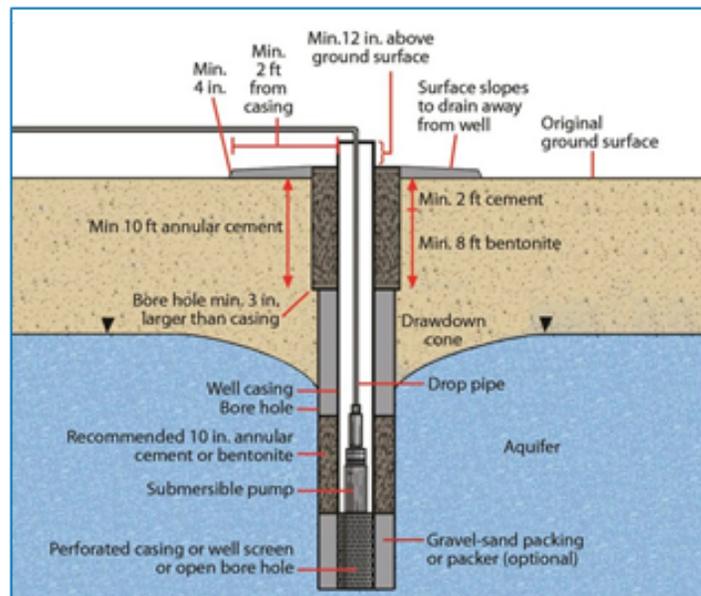
- 50 feet from any water-tight septic tank or liquid-waste collection facility
- 50 feet from any neighboring property line
- 100 feet from any existing or proposed septic system drain field or leach field or dry litter poultry facility
- 150 feet from any shelter or yard for pets or livestock, feed storage facility, and pesticide or fertilizer storage facility



If possible, a new well must not be built in areas that are vulnerable to flooding. It must also be sealed properly to prevent contaminants on the ground surface from seeping down and polluting the aquifer.

If a licensed well driller installed your well after 1983, it probably complies with current Texas regulations on wellhead construction. The well must have at least 10 feet of sealed well casing, which is a tubular structure that maintains and protects the well opening, pull cable, and electrical wires in the well shaft, or borehole. The casing must extend at least 1 foot above the ground surface.

You can further protect your well water from pollution by extending the casing to the top of the water table and by sealing the entire annular space, which is the space between the casing and the borehole wall. Although the extra casing will increase construction costs, it will also provide better protection for the aquifer.



Above ground, a 4-inch-thick concrete pad must extend at least 2 feet in all horizontal directions to protect the well casing. The casing should extend at least 1 foot above the ground surface or 1 foot above any known flood level. This configuration protects the well from floodwater or ponded water and reduces the risk of contaminants seeping into the aquifer around the well casing. If you are unsure that your well meets these standards, ask the local Groundwater Conservation District to inspect it.

In addition to making sure that the well was completed and maintained properly, you need to safely store materials that can contaminate groundwater. Common contaminants include animal manure, waste from septic systems, pesticides, fuels, and fertilizers.

Abandoned and deteriorated wells can channel contaminants to groundwater and nearby active wells. An abandoned well is one that is not in use and not capped properly. Abandoned wells can also be a hazard to human and animal life.

Proper construction and maintenance of water wells is critical to protecting our vital groundwater resources in Texas.



# Cotton

BRAD EASTERLING - EXTENSION AGENT, IPM, GLASSCOCK, REAGAN & UPTON COUNTIES

With current high prices and the shortage of products, producers need to start planning their herbicide program now if they have not already done so. The availability of our most commonly used herbicides, glyphosate and glufosinate, are extremely tight at this time and most likely will not get any better. The high cost of these products will also play a part in how much of these products will be put out this season.

For particularly weedy fields consideration should be made towards putting out a yellow herbicide. Thorough incorporation is a must whether with tillage or with rain/irrigation with the pendimethalin and S-metalachlor products.

If a producer has enough glyphosate/glufosinate for one application it may be wiser to use it as an early-post tank mixed with a residual rather than a burndown. Burndown options still exist and although the prices are increasing, are still affordable. Gramoxone has become a more popular burndown product for the past couple of years now, with many producers applying it in conjunction with diuron. Other options include Aim EC, FirstShot SG, Caparol 4L, Cotoran, Dual Magnum, Warrant, Staple, Prowl H2O, 2,4-D, and dicamba among others. Keep in mind both pre-plant intervals, and plant-back restrictions. These products need to be put out anywhere from the day of to three months prior to planting and with the current dry conditions that we are in if we run into a crop failure situation you may find yourself limited on what you are able to come back with after failing your cotton. As always, be sure to read the labels.



For a post-emerge application you can use your glyphosate and/or glufosinate and a residual such as Enlist One, Enlist Duo, Xtendimax, Engenia, or Tavium depending on the technology that you may be using. Other products that can be used instead of or in addition to include: Dual Magnum, Warrant, Outlook, Staple, and Prowl H2O. Keep in mind that these residuals will need to be “activated” in order to go to work and control your emerging weeds.

Layby options or post-directed would include Caparol 4L, diuron, Reflex/Sinister, Zidua, Anthem Flex, and Fierce. This becomes a rescue treatment in many situations and with our current cost of chemicals may be cost prohibitive for most producers. However; the alternative would be to grow a field full of seed that you will have to contend with for the next couple of growing seasons or perhaps even longer.



Of course tillage is still one of if not the most important tool in our tool box for weed control. Cultivation will generally get the majority of your weeds, especially in the middles, and when all else fails, hoes are still quite effective.

Everyone will have to sharpen their pencil extra sharp with the increased cost of herbicides. Unfortunately that is only one of the many inputs that has increased significantly over the past year. Add to this the current moisture situation and it may be a difficult road this summer, but not necessarily an impossible one.

# Sheep and Goats Facing Drought in West Texas

KALIE GILLESPIE - AG AND NATURAL RESOURCES, WARD COUNTY

If you've looked out a window into any rangeland it would be hard to tell the temperature. It could be 10 degrees or 110 degrees. Cool season grasses hardly came up this fall and winter and the warm season grasses are still dormant. This situation has been predicted to persist through the spring which for producers is especially difficult. During times like these producers typically have two options, to feed through the drought or to cull kids and lambs and breeding females that have slowed down on producing viable offspring.

Feeding through the drought can cause a large inflation in hay and supplements. In this year's case we are looking at a high supplementation rate. If the weather and range persists, we are going to be looking into a higher "supplementation" rate of just about their whole diet. This would change some operations massively by making them a dry lot situation. Fortunately taking this route the high market prices of sheep and goats have allowed for some return on investments even in this case. Culling the heard has been acceptable to the rise of market value. Thankfully around this time 4-H kids are looking for sheep and goats to go to State Fair of Texas.

Many ranchers that have successfully managed their operations through droughts have said that the best decisions are made early. This can be a difficult thing and although it may not work out the way it was planned it is better than letting the decision being made in a too little too late situation. Drought is something we will always have to deal out here, nevertheless with resilience and good watch on the weather producers can persevere. With the decisions you face you are guided with wisdom and your sheep and goat operations will thrive and continue to be sustainable for generations to come.





# Breakthrough In Human Medicine Could Help Produce More Beef

REBEKAH MULLEN - ASSISTANT COUNTY AGENT, GLASSCOCK COUNTY

A Texas A&M researcher is applying revolutionary advances to potentially improve beef cattle reproductive efficiency. By Kay Ledbetter, Texas A&M AgriLife Communications

A recent research breakthrough in human medicine could help a Texas A&M Department of Animal Science researcher find a way to increase beef production to help meet the demands of global population growth. Bos indicus cattle breeds are important to global beef production due to their adaptability to tropical and sub-tropical climates, including those found in Texas and other southern U.S. states. But a big challenge or disadvantage for Bos indicus, or Brahman, cattle is that their overall reproductive performance is inferior to that of Bos taurus cattle breeds such as Angus and Hereford, which predominate in the Midwest and Northern states. Dr. Rodolfo Cardoso, assistant professor and reproductive physiologist in the Department of Animal Science of the College of Agriculture and Life Sciences, is leading a four-year project funded by a \$500,000 grant from the U.S. Department of Agriculture National Institute of Food and Agriculture. Among the collaborators are Gary Williams, Texas A&M AgriLife Research professor emeritus, and graduate students Viviana Garza and Sarah West. Cardoso said revolutionary advances in neuroendocrine research have defined the mechanisms controlling the secretion of gonadotropin-releasing hormone, GnRH. The new insights, he believes, can help his team determine neuroendocrine differences between Bos taurus and Bos indicus genotypes of cattle and use that to enhance reproductive efficiency in Bos indicus-influenced cattle. “Very recently, there was an important breakthrough on the understanding of how the secretion of GnRH is regulated in rodents and primates,” he said. “Our preliminary research suggests that similar mechanisms are also important in cattle and could explain the differences in reproductive performance between Bos taurus and Bos indicus animals. “If confirmed, those findings can have practical implications to reproductive management of Bos indicus cattle. In human medicine, several pharmacological strategies to improve fertility in women have already been developed based on these novel findings.”

## Calving Timing Matters

As many as 70% of the world’s cattle are raised in tropical and sub-tropical regions, and approximately 30% of U.S. beef herds have some Bos indicus influence, particularly in the southern and southeastern regions. One major challenge is that Bos indicus and Bos indicus-influenced cattle reach puberty markedly later than Bos taurus breeds. That late puberty essentially means one less calf in a cow’s lifetime and also presents challenges when breeders try to synchronize estrus cycles for the annual breeding season. Cardoso said typically Bos taurus heifers reach puberty at 10-12 months, whereas Bos indicus heifers often won’t reach puberty until 15-17 months. “That five-month delay makes them not reach puberty in time for their first breeding season, and so they have to wait another whole year to be bred and have their first calf,” Cardoso said. With more than 4 million replacement beef heifers entering the U.S. cow herd annually, the difference between having a calf when the heifer is two versus three years old can make a big difference in beef production. In Texas and Florida, less than 50% of beef heifers reach the goal of calving at two years old due to the Bos indicus influence. Cardoso said heifers that calve for the first time at two years of age produce approximately 300 more pounds of weaned calf weight in their lifetime, or a \$500 difference, compared to heifers that calve at three years of age. This project will utilize the recent discoveries to determine whether distinct differences observed in reproductive function in Bos indicus and Bos taurus breeds can be attributed to functional differences in the brain area that controls the secretion of the GnRH hormone.



## Breakthrough In Human Medicine Could Help Produce More Beef cont.

REBEKAH MULLEN - ASSISTANT COUNTY AGENT, GLASSCOCK COUNTY

### Predetermined Breeding Seasons Are Key To Efficiency

A predetermined breeding season typically lasts between 45 to 90 days and allows for more efficient management of a beef cattle operation, Cardoso said. “You can have a very uniform calf crop, which makes it much easier to manage those calves — vaccinate and do all the health protocols at the same time,” he said. “You can wean and sell the calves at the same time because you have a uniform group, so it makes management much, much more efficient in a cow-calf operation. It also allows for culling of animals that are not efficient.” In addition to better understanding the cattle’s reproductive function, Cardoso said, a second goal from a pharmacological strategy is to develop synchronization protocols for artificial insemination tailored to *Bos indicus* heifers. Most protocols currently used in the U.S. were developed specifically for the *Bos taurus* breeds. “These *Bos indicus* heifers already have, at 12-14 months of age, the skeletal size and maturity required to support a safe and healthy pregnancy,” he said. “There’s no question about that. They’re just not cycling yet. We don’t want to induce these heifers to reach what we call precocious puberty (puberty before 10 months of age). That’s not desirable, and that’s not what we’re trying to accomplish here.” A key benefit, Cardoso said, of synchronizing the breeding season more efficiently is being able to use artificial insemination more in *Bos indicus*-influenced cattle. “Artificial insemination is the most powerful tool we have available to improve genetics in beef cattle herds,” he said. “Artificial insemination is a way that a beef cattle producer can, over time, start improving the genetics of the herd.” But currently, breeders’ ability to synchronize estrus of *Bos indicus*-influenced animals for artificial insemination is not optimal, Cardoso said. “We hope by the end of this four-year project we will have a very good understanding about the neuroendocrine differences between *Bos taurus* and *Bos indicus*-influenced heifers,” he said. “And, more importantly, we think at that point we’ll have some good strategies to pharmacologically control the estrus cycle in *Bos indicus*-influenced heifers.”



## Path to the Plate: Making the Connection Between Agriculture and Health

ABIGAIL PRITCHARD - FCH AGENT, ECTOR AND MIDLAND COUNTIES

We are well into the new year, but it is never too late to make a fresh start and it can certainly be beneficial to our physical & emotional wellbeing if we do. This article sites the DASH diet and provides a tasty recipe for oven baked fries. My personal favorite is sweet potato, but the regular are tasty if you prefer!

### Healthy Eating for a Happy Heart

When stress hits hard like it has during the pandemic, many of us eat more, and less-than-healthy comfort foods may be the treats we reach for first. But an unhealthy response to stress can be hard on your body, especially your heart. That's why it's smart - at the top of the New Year, or anytime - to try to eat more foods that nourish. It'll make your heart happier, and maybe trim your waistline, too.

Don't know where to start? Let the National Heart, Lung, and Blood Institute (NHLBI) help.

"We have many recipes for healthy and really tasty dishes, plus an award-winning eating plan called Dietary Approaches to Stop Hypertension, or DASH for short," said Charlotte Pratt, Ph.D., M.S., R.D., a nutrition expert at NHLBI. For years, the DASH eating plan has ranked among the U.S. News & World Reports' best diets for healthy living and heart health. It's secret, said Pratt: "Eating nutrient-dense foods and meals that are lower in sodium and saturated fat, rich in fruits, vegetables, low-fat dairy, and legumes."

Some of the recipes NHLBI has developed to support the plan feature healthy versions of comfort foods, such as oven-baked french fries, chicken chile stew, and sweet potato custard. The recipes are easy to make and family-friendly. They include traditional African American, American Indian/Alaska Native, Vietnamese, Latino, and Filipino dishes. You can find these recipes, along with tips about safe cooking, what to stock in your kitchen, and food shopping at [healthyeating.nhlbi.nih.gov](https://healthyeating.nhlbi.nih.gov).

"The DASH eating plan is scientifically proven to lower your blood pressure and cholesterol levels," said Pratt. And NHLBI research shows that increasing your physical activity and watching your calories while following DASH will also help you lose weight.

DASH requires no special foods, and it helps you set daily and weekly nutritional goals using these simple guides:

- Eat vegetables, fruits and whole grains,
- Include fat-free or low-fat dairy products, fish, poultry, beans, nuts and vegetable oils,
- Limit foods that are high in saturated fat, such as fatty meats, full-fat dairy foods and tropical oils such as coconut, palm kernel and palm oils; and
- Limit sugar sweetened drinks and desserts.

Source: National Heart, Lung, and Blood Institute 1





To make it easier to follow the DASH for life, these tips can help:

- Change gradually. Add one more serving of vegetables a day. Read nutrition labels to choose the food lowest in saturated fat, sodium or salt and added sugar.
- Vary foods high in proteins. Try a mix of lean cuts of meat. Remove the skin from chicken. Eat fish once or twice a week. Eat two or more meals without meat each week.
- Select healthy, tasty snacks. Have a piece of fruit, a few unsalted snacks such as rice cakes, fat-free or low-fat yogurt or raw vegetables with a low-fat dip.
- Find substitutes. Try whole-wheat bread or brown rice instead of white bread or white rice. Try beans or seeds such as flax or sunflower seeds, if you're allergic to nuts.
- Follow the [U.S. Dietary Guidelines recommendations](#).

Combining healthy eating habits with other self-care activities can help you reduce stress and take care of your heart. Top of the list: move more throughout the day, get 7 to 8 hours of sleep, and try relaxation exercises such as meditation or yoga. If you smoke, try quitting, and develop a strong social support system to help keep you motivated. Learn more about DASH, heart health, and more at [www.nhlbi.nih.gov](http://www.nhlbi.nih.gov).

## Delicious Oven-Baked French Fries

Baking instead of frying these potatoes reduces the fat while keeping them crispy.  
 Prep time: 10 minutes. Cook Time: 35 minutes. Makes 5 Servings. Serving size: 1 cup.

### Ingredients

- |   |                          |
|---|--------------------------|
| -4 large potatoes (2lbs.) (regular or sweet potatoes) | -1/4 tsp salt            |
| -8 C ice water  | -1 tsp white pepper      |
| -1tsp garlic powder                                   | -1/4 tsp allspice        |
| -1 tsp onion powder                                   | -1 tsp hot pepper flakes |
|   | -1 Tbsp vegetable oil    |



### Directions

1. Scrub potatoes and cut them into long 1/2-inch strips. Place the strips in the ice water, cover and chill for 1 hour or longer.
2. Remove potato strips and dry them thoroughly. Preheat oven to 475°F.
3. Place garlic powder, onion powder, salt, white pepper, allspice and pepper flakes in a plastic bag. Toss the potato strips in the spice mixture.
4. Put the potato strips in a shallow baking pan and brush them with oil.
5. Cover the baking pan with aluminum foil and bake at 475°F for 15 minutes.
6. Remove the foil and continue baking, uncovered, for an additional 15 to 20 minutes or until golden brown. Turn fries occasionally to brown on all sides.

Source: National Heart, Lung, and Blood Institute

