



**TEXAS A&M AGRILIFE EXTENSION - FRIO COUNTY**

# **FRIO COUNTY AGRICULTURE & NATURAL RESOURCES NEWSLETTER**

## **Dear Agricultural Producers:**

We are pleased to be able to provide you with information contained in this newsletter. The Frio County Agriculture & Natural Resources Newsletter is a Bi-Monthly newsletter beginning August 2022. Best efforts have been made to include Agriculture & Natural Resources information that should be of interest to you and helpful in the management of your agricultural operations. A wide variety of educational publications are available upon request or by accessing the Texas A&M AgriLife Extension website at [www.agrilifeextension.tamu.edu](http://www.agrilifeextension.tamu.edu). Our office hours are from 8:00 a.m.- 12:00 p.m. and 1:00 p.m.-5:00 p.m., (Monday-Friday). It is recommended that office visits be scheduled in advance or by appointment as there will be times that I'm not in the office.

You are encouraged to read this newsletter and keep informed of all on-going agricultural events and activities. Try to do your best to attend Extension educational programs, workshops, etc., throughout the year as they are sponsored by your local Extension committees for your educational benefit. We would like to acknowledge the Extension Agricultural Specialists and cooperators including: The Cattleman, TSCRA, The Peanut Grower, AgriLife Today, Aggie Horticulture, and the Texas A&M Beef Cattle Browsing, who contributed and provided the educational information for this educational newsletter. For any further questions regarding your agricultural operation, please contact the Frio County Extension Office (830) 334-0099, located at 400 S. Pecan St. Pearsall, Texas, or e-mail [brianna.gonzales@ag.tamu.edu](mailto:brianna.gonzales@ag.tamu.edu). Visit the Frio County AgriLife Extension website at <https://frio.agrilife.org>.



Sincerely,

**Brianna G. Gonzales**  
**County Extension Agent- Agriculture & Natural Resources**  
**Frio County**

# TEXAS A&M AGRILIFE EXTENSION

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## **Helpful Texas A&M AgriLife Extension Service Websites:**

- [agrilifeextension.tamu.edu](http://agrilifeextension.tamu.edu)
- [wateruniversity.tamu.edu](http://wateruniversity.tamu.edu)
- [aggie-horticulture.tamu.edu](http://aggie-horticulture.tamu.edu)
- [livestockvetento.tamu.edu](http://livestockvetento.tamu.edu)
- [fireant.tamu.edu](http://fireant.tamu.edu)
- [texashelp.tamu.edu](http://texashelp.tamu.edu)
- [SouthTexasRangelands.tamu.edu](http://SouthTexasRangelands.tamu.edu)



# BQA TIP



## **FIGHTING THE BATTLE WITH FLIES?**

- **Horn flies create challenges for both cattle welfare and your bottom line. When looking for a solution to combat horn flies, look for this ingredient: piperonyl butoxide. It's a synergist included in some pyrethroid formulations that inhibits the breakdown of the active ingredient, improving product effectiveness.**
- **Consider selecting pour-on pyrethroid products that contain piperonyl butoxide for improved fly control. If a pyrethroid is used in a spray or rub, consider adding piperonyl butoxide to the mix. Searching for piperonyl butoxide online will result in only a few product options, so make sure the product label states it can be used on livestock**

***For more information please visit: <https://tscra.org/>***

# MONTHLY GARDEN CHECKLIST



## ADVICE FROM EXTENSION EXPERTS - AGGIE HORTICULTURE

TEXAS A&M AGRILIFE EXTENSION  
SERVICE

**-Sustaining adequate moisture in the garden and landscape is the #1 priority for late summer and fall. Check out this garden checklist from our Aggie Horticulture experts!**

### **WATER & MOISTURE**

- **A Water trees and shrubs by giving them at least one inch of water per week, delivered slowly, around the plants as far out as the "dripline" extends. It has been a tremendously hot and dry summer and many plants are hurting and some appear to be dying. All we can do is water the best we can and pray for rain!!**

### **DIVIDING PERENNIALS**

- **Divide spring-flowering perennials such as irises, shasta daisies, gaillardias, cannas, day lilies, violets, lirioppe, and ajuga. Reset divisions into well prepared soil with generous amounts of organic material worked into the top 8-10 inches. Water in thoroughly.**

### **PREPARING BEDS**

- **Preparing the beds for spring-flowering bulbs as soon as possible. It is important to cultivate the soil and add generous amounts of organic matter to improve the water drainage. Bulbs will rot without proper drainage.**

### **FLOWER PLANTING**

- **Flower plantings at this time can provide landscape color for three seasons in central, east, and south Texas. Annuals set out early enough will bloom as soon as Thanksgiving, and frequently last until Memorial Day. Annuals that should soon be available in nurseries and garden shops include petunias, calendulas, and pansies.**

**Learn more: <http://aggie-horticulture.tamu.edu/>**

TEXAS A&M  
**AGGIE**  
EXTENSION



# Cotton gene-editing project paves a new path for plant protection

Texas A&M AgriLife, USDA, Cotton Incorporated project exemplifies the power of public-private collaborations

**DECADES OF COLLABORATIVE RESEARCH AND SCIENTIFIC ADVANCEMENTS HAVE HELPED TEXAS COTTON BE THE ECONOMIC AND INDUSTRIAL FORCE IT IS TODAY. TEXAS COTTON PRODUCTION REPRESENTS A \$2.4 BILLION CONTRIBUTION TO THE STATE'S GROSS DOMESTIC PRODUCT. FROM 2019 TO 2021, TEXAS COTTON PRODUCERS AVERAGED 6.2 MILLION BALES OF COTTON ON 4.6 MILLION HARVESTED ACRES, GENERATING \$2.1 BILLION IN PRODUCTION VALUE. THE TEXAS COTTON INDUSTRY SUPPORTS MORE THAN 40,000 JOBS STATEWIDE AND \$1.55 BILLION IN ANNUAL LABOR INCOME.**

Texas A&M AgriLife has a long-standing track record of teaming up with the cotton industry and federal agencies to solve some of the most pressing issues facing this important part of the Texas economy. A cotton-related project in the Texas A&M Department of Entomology illustrates this collaborative approach.

Scientists in the department received a matching grant of almost \$150,000 from both the U.S. Department of Agriculture National Institute of Food and Agriculture, NIFA, and the Cotton Board, a commodity group that represents thousands of growers around Texas and the U.S.

The three-year project, Modifying Terpene Biosynthesis in Cotton to Enhance Insect Resistance Using a Transgene-free CRISPR/CAS9 Approach, has received \$294,000 to research novel pest management tools for cotton production. If successful, these advances could ultimately provide positive cost-benefit results that ripple through the economy and environment.

## **Critical seed funding from Cotton Incorporated**

The NIFA project initiated by Greg Sword, Ph.D., Texas A&M AgriLife Research scientist, Regents Professor and Charles R. Parencia Endowed Chair in the Department of Entomology, will focus on enhancing cotton plant resistance to insect pests.

The goal is to essentially silence genes in cotton that produce monoterpenes, chemicals that produce an odor pest insects home in on, Sword said. By removing odors that pests associate with a good place to feed and reproduce, scientists believe they can reduce infestations, which will in turn reduce pesticide use and improve profitability.

Sword is collaborating with Anjel Helms, Ph.D., a chemical ecologist and assistant professor in the Department of Entomology; Michael Thomson, Ph.D., AgriLife Research geneticist in the Department of Soil and Crop Sciences and the Crop Genome Editing Laboratory; and graduate student Mason Clark.

This research team is working on a project that was “seeded” by Cotton Incorporated, the industry’s not-for-profit company that supports research, marketing and promotion of cotton and cotton products.

The seed money allowed the AgriLife Research team to create a graduate position for Clark and produce preliminary data that laid the foundation for the NIFA grant proposal, Sword said. In addition, the terpene research is part of larger and parallel projects that began with direct support from Cotton Incorporated.

***[Learn more: agrilifetoday.tamu.edu](http://agrilifetoday.tamu.edu)***



# Cotton gene-editing project paves a new path for plant protection

Texas A&M AgriLife, USDA, Cotton Incorporated project exemplifies the power of public-private collaborations (CONTINUED)

“Cotton Incorporated’s support has been absolutely critical to jumpstart the project from the beginning,” he said. “From a scientific standpoint, industry support and collaboration are vital to project success, whether that’s leveraging money for research or identifying, focusing on and solving a problem, which actually helps producers.”

## **Industry collaborations strengthen the impact**

Research like Sword’s is augmented and sometimes directly funded by commodity groups representing producers and related industries.

Jeffrey W. Savell, Ph.D., vice chancellor and dean for Agriculture and Life Sciences, said collaborative projects help research dollars make the greatest impact for producers. Texas A&M AgriLife’s relationships with commodity groups that represent producers can jumpstart groundbreaking work and help established programs maintain forward momentum.

“Cotton Incorporated is one of our long-time partners, and that collaboration has made an enormous impact on individuals, farming operations, communities and the state,” Savell said. “This project is just one example of how we can do more by engaging with the producers we serve.”

## **The Cotton Board’s long-term research invests in full range of production**

Bill Gillon, president and CEO of the Cotton Board, said projects supported by the Cotton Board and Cotton Incorporated have run the gamut of production, including reducing plant water demands, increasing pest and disease resistance, and improving seed and fiber quality.

## **Industry buy-in creates positive change in society**

Research to improve a plant’s ability to tolerate or resist pest insects and diseases via breeding programs is nothing new, especially for a publicly funded land-grant university research project, Sword said. However, editing genomes in plants and pest insects is a relatively new but rapidly advancing methodology.

Cotton research continues to improve how the crop is grown. (Texas A&M AgriLife photo by Laura McKenzie)

Sequencing genomes of interest and using the gene-editing tool CRISPR have become increasingly viable ways to identify and influence plant or animal characteristics.

However, using gene-editing technology to remove a characteristic to make plants more resistant to pests is novel, Sword said. The research could be the genesis for a giant leap in new methodologies designed to protect plants from insects and other threats.

“This grant project is a good example of how cotton producers, the gins and other elements of their industry effectively tax themselves to fund campaigns and research that adds value to what they produce,” he said. “It also shows the motivation from a public dollar perspective to invest in research focused on providing pest control methods that reduce chemical use.”

Sword’s gene-editing project aims to expose and exploit simple but key ecological interactions between plants and insects that could help protect the plant.

“Insects are perpetually evolving resistance to whatever we throw at them,” Sword said. “So, it’s important that our tools continue to evolve. That can only be accomplished through a committed and concentrated effort that is steered by land-grant institutions, the scientists and producers.”



# 'Diesel nut' development brings Texas A&M AgriLife, Chevron together

Collaboration will utilize peanuts to potentially develop feedstock for lower-carbon fuel production

*Peanut oil powered the world's first diesel engine when it was premiered by Rudolf Diesel at the World Exposition in Paris in 1900. Now, a collaboration between Chevron and Texas A&M AgriLife is reviving the use of peanuts as a renewable feedstock for diesel fuel with a lower carbon intensity.*

Carbon intensity is the energy expended to produce a product, including production inputs such as water, pesticide and fertilizer, and how much net carbon that process adds to the atmosphere. Lower carbon intensity is important in developing sustainable agricultural practices.

The five-year, multi-million-dollar project will be led by John Cason, Ph.D., a Texas A&M AgriLife Research peanut breeder at Stephenville. Development of the "diesel nut" will be multi-pronged and will include estimating economic feasibility, advancing existing high-oil peanut germplasm and developing new, low-input peanut lines for the renewable diesel industry.

Co-leaders on the project are Luis Ribera, Ph.D., Texas A&M AgriLife Extension Service economist and director of Texas A&M's Center for North American Studies, Bryan-College Station; Bill McCutchen, Ph.D., center director for Texas A&M AgriLife Research and Extension Center, Stephenville; and David Baltensperger, Ph.D., head of the Texas A&M Department of Soil and Crop Sciences.

Cliff Lamb, Ph.D., director of AgriLife Research, Bryan-College Station, said this collaboration with Chevron gives AgriLife Research scientists a chance to develop peanuts that have a greater oil content and are better adapted to dryer climate ultimately creating a more resilient agricultural system.

"We hope these new peanut varieties will offer producers a profitable dryland or limited irrigation crop option," Lamb said. "What makes this project truly exciting is that it takes the entire agricultural value chain into account, using cutting-edge research to create an abundant, affordable and high-quality product that works to protect natural resources, improve health and support economies in Texas and beyond. We appreciate the support of this work by Chevron."

Chevron is building the capacity to produce 100,000 barrels a day of renewable fuels in its manufacturing system by 2030. Securing a reliable source of lower lifecycle carbon intensity renewable feedstocks is a priority for the company.

"Chevron is thrilled to team with Texas A&M AgriLife to work to develop the next generation of renewable fuel feedstocks," said Michelle Young, renewables program manager for Chevron Downstream Technology and Services. "This collaboration has the potential to deliver high-quality oil to produce renewable fuels while providing peanut farmers in the U.S. with another way to maximize the value of their operations."

"The Texas Peanut Producers Board is excited to support the 'diesel nut' project and views it as one more tool for farmers in Texas," said Shelly Nutt, Texas Peanut Producers Board executive director.

"Peanut farmers have long realized the value of using peanuts not only as a cash crop, but also as a crop that adds nutrients to the soil, creating a sustainable production system," Nutt said. "With the success of this project, farmers could add a low-input, high-yielding 'diesel nut' with the ability to grow on marginal land or with limited water availability, into their rotation program and would not be competing with the high-quality, edible peanut market the board has worked so hard to achieve."

## **Increasing oil content in 'diesel nut' peanut varieties**

Currently, food-grade peanut varieties have an oil content of approximately 48%. However, several high-oil breeding lines have around 55-60% oil content. With those yields, "diesel nut" peanuts could yield as much as 350 gallons of oil per acre, compared to soybeans' current oil yields of approximately 25-50 gallons per acre.

# 'Diesel nut' development brings Texas A&M AgriLife, Chevron together (continued)

AgriLife Research peanut breeders, including Michael Baring, Bryan-College Station; Charles Simpson, Ph.D., Stephenville; and Mark Burow, Ph.D., Lubbock, began working on high-oil breeding lines 15 years ago. Cason said four of those most promising lines were selected to begin studying the agronomics and yields.

"We also are developing new crosses and screening Texas A&M AgriLife germplasm, including the wild germplasm collection maintained by Simpson," Cason said. "Our breeders are searching for germplasm with even higher oil content to develop the most elite cultivars that will also perform in dryland conditions and produce the highest oil content."

## **Producing 'diesel nut' varieties in non-irrigated areas**

Cason and team see possibilities to bring peanut production back to non-irrigated, rain-fed areas utilizing this high-oil germplasm. They will breed into these lines the qualities of improved disease and drought tolerance as well as continuing to increase oil content.

He said major advances in disease resistance have already been made in food-grade peanut varieties, such as resistance to nematodes from wild species, Sclerotinia blight and tomato spotted wilt virus. These traits can now be incorporated into the "diesel nut" lines to create a robust renewable fuel feedstock.

"With our edible breeding lines, we've also been looking at drought tolerance, but not on any of the lines producing higher oil," Cason said. "Now we've pulled everything out and started planting in Vernon and Stephenville and will grow some under dryland and irrigation. We are treating this year as kind of a pilot year."

West Texas begins the peanut-planting season in late April and early May, while in South Texas, peanuts are planted as late as June 25. Harvest begins in October and is done by Thanksgiving.

A peanut crop usually needs 27 inches of moisture from irrigation and rain. This typically produces about 5,000 pounds per acre of high-quality peanuts. In contrast, the drought-tolerant research at Lubbock studying peanut production with only 7-12 inches of rain produced about 2,800 pounds of edible peanuts per acre in 2020.

"One thing that will help the 'diesel nut' succeed is that when you don't irrigate a peanut, you run the risk of aflatoxin, which can be devastating to food-grade peanuts," Cason said. "But that won't matter when the crop is being crushed for biofuel, so regardless of how much moisture, if the grower can grow something, they can market it."

The goal now is to adapt "diesel nut" lines to new growing regions across Texas and the U.S. where the crop can perform under limited irrigation and dryland production. This, coupled with the development of best management practices for crop production systems and the logistics of harvest, transport and storage will be necessary to rapidly advance the production of renewable diesel feedstocks.

## **Other 'diesel nut' project components**

A large contingent of Texas A&M AgriLife personnel will be working on the project, including agronomists, breeders, plant microbiologists, crop physiologists, biochemists, soil scientists, economists and crop modelers in College Station and at multiple Texas A&M AgriLife Research and Extension Centers in key peanut production areas of the Rolling Plains, South Plains and South Texas.

While Cason and the breeding team are developing breeding lines, Ribera will lead the development of risk-based, comprehensive enterprise budgets focused on the peanuts' oil yield, reliability and viability as a renewable diesel feedstock. With that objective, Ribera's team will include modelers who will assess transportation, shelling and crushing infrastructure as well as regulatory constraints to come up with the baseline carbon intensity. "When considering a renewable fuel source, every energy input into the production and processing of the peanuts until the fuel reaches the pumps will be important to determining the carbon intensity," said Baltensperger. "We look at energy in for energy out and which is most carbon considerate. We want the carbon intensity baseline to be as low as possible if we are to optimize peanuts where it still makes sense to produce oil for fuel."

McCutchen said this project could bring peanut production back to areas that previously grew the crop but ran out of water. The agronomic side of the project will concentrate on peanut lines that can be grown on marginal lands and still give high per-acre vegetable oil yields.

- **The team of cropping system specialists will also develop cropping systems that optimize growth, harvest and yield for "diesel nuts." They will evaluate conservation tillage, as research in peanut-producing regions of Texas has shown that soil organic carbon increased by combining conservation tillage with cover crops.**
- **Rotational systems, cover crops, tillage and fertilizer practices will be evaluated under dryland and limited irrigation to create a cropping system with the lowest possible carbon footprint. High-throughput greenhouse assays will be used to find novel endophytes, which will be important for promoting drought tolerance and overall plant health.**
- **When enough information is available and advances are made, Emi Kimura, Ph.D., AgriLife Extension state peanut specialist, Vernon, will lead the outreach to inform producers about the research outcomes.**

"The end goal of this project is the commercialization of elite high-oil varieties that producers can plant and oil that Chevron can use," said Carl Muntean, director of Texas A&M AgriLife Corporate Engagement and Research Support.



# TEXAS A&M AGRI LIFE EXTENSION



## TEXAS A&M AGRILIFE EXTENSION DISASTER ASSESSMENT RECOVERY DISTRICT 12 NORTH

### **NATIONAL PREPAREDNESS AND FARM SAFETY MONTH**

September marks National Preparedness month, the goal is to raise awareness about the importance of preparing for disasters and emergencies. This is an opportunity for individuals to work on revitalizing County Office Disaster Plans, as well as working on Home and Ranch Disaster Plans. Contact Richie Griffin at [r-griffin@tamu.edu](mailto:r-griffin@tamu.edu)

### **UPCOMING TRAININGS**

September brings several training opportunities for Municipalities, Counties, and Extension Agents, please go by [preparingtexas.org](http://preparingtexas.org), to check out the training schedule, for opportunities to further your skill set in disaster education. Link below provides schedule for upcoming trainings:

<https://www.preparingtexas.org/Schedule.aspx>

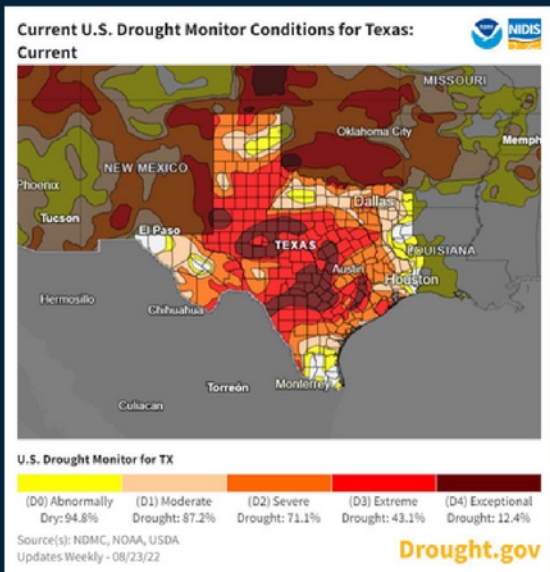


# Drought Monitor

Texas drought situation continues to improve for most of the State.

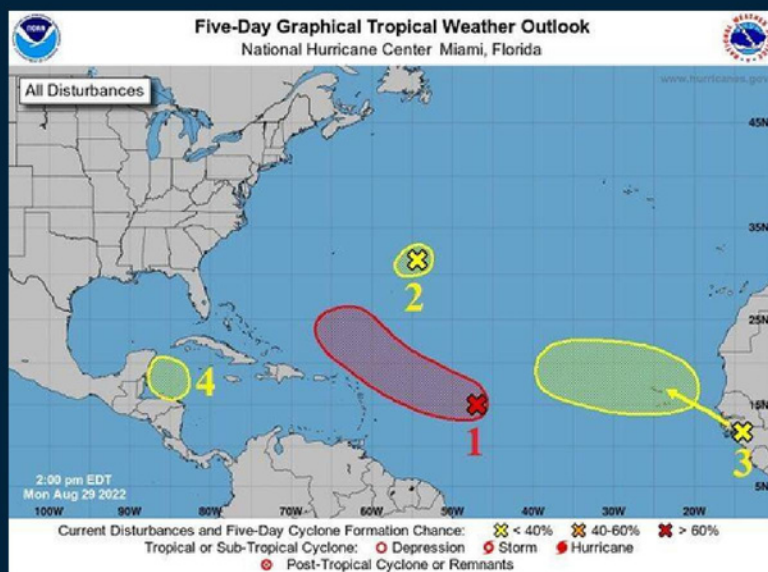
Stay up to date on your local county situation by monitoring:

[www.drought.gov/states/Texas](http://www.drought.gov/states/Texas)



# Tropical Weather Outlook

Let's not become complacent, although it has been a relatively quiet hurricane season there is still time left for a major hurricane to occur. This is a current snapshot of activity in the tropics. Please stay up to date on Gulf conditions.



# Basic Emergency Supply Kits

## Food For Thought:

**"Go Kits" are not only vital during hurricane season, as we transition to winter remember to keep your "Go Kits" ready. Often we are concerned about getting all the necessities for the family, but forget to plan accordingly for our pets and livestock.**

**Take time during the month to work on personal Emergency Supply Kits for your home/family/and farm and ranch if applicable.**

**For More Information:**  
**Richard D Griffin**  
DAR Agent  
District 12  
(830)876-8030  
[R-Griffin@tamu.edu](mailto:R-Griffin@tamu.edu)

## Basic Emergency Supply Kit

### Recommended Items

- Water and non-perishable food for several days
- Extra cell phone battery or solar charger
- Battery-powered or hand crank radio that can receive NOAA Weather Radio tone alerts and extra batteries
- Flashlight and extra batteries
- First aid kit
- Whistle to signal for help
- Dust mask, to help filter contaminated air and plastic sheeting and duct tape to shelter-in-place
- Moist towelettes, garbage bags and plastic ties for personal sanitation
- Non-sparking wrench or pliers to turn off utilities
- Can opener (if kit contains canned food)
- Complete change of clothing including a long sleeved shirt, long pants and sturdy shoes.

### Additional Items to Consider

- Prescription medications and glasses
- Infant formula and diapers
- Pet food, water and supplies for your pet
- Important family documents such as copies of insurance policies, identification and bank account records in a portable waterproof container
- Itemized list of household items to include manufacture and cost (Consider a video recording which can be reviewed)
- Fire Extinguisher
- Matches in a waterproof container
- Feminine supplies, personal hygiene items and hand sanitizer
- Mess kits, Paper cups, plates and disposable utensils, paper towels

**Disasters can strike at anytime! BE READY!**

Texas A&M AgriLife Extension is an equal opportunity employer and program provider. Texas A&M AgriLife Extension provides equal opportunities in its programs and employment to all persons, regardless of race, color, sex, religion, national origin, disability, age, genetic information, veteran status, sexual orientation, or gender identity. The Texas A&M University System, U.S. Department of Agriculture, and the County Commissioners Courts of Texas Cooperating.

# 2022 South Texas Peanut Growers Association Annual Tour



**Date:** Thursday, September 22, 2022

**Time:** 8:30 AM (Registration)

**Place:** Frio County Conference Room  
410 S. Pecan Street - Pearsall, Texas

**Registration Fee:** \$10.00 (*cash only*)

The tour will begin at 9:00 AM. Topics to be covered include: Peanut breeding lines, variety trials, & insecticide trials.

Three (3) continuing education units (CEU's) will be given towards your Private Pesticide Applicator License.

Lunch will be served at 12:30 PM in the Frio County Conference Room.

**Please RSVP by Wednesday, September 21, 2022** with **Brianna Gonzales**, Frio County Extension Agent at 830-334-0099 or **Dale Rankin**, Atascosa County Extension Agent at 830-569-0034.

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# How well is your **WELL?**



## **PRIVATE WATER WELL SCREENING**

*(Private water wells should be tested annually)*

**When:** Wednesday, October 12, 2022

**Where:** Frio County AgriLife Extension Office  
400 S. Pecan St. Pearsall, Texas

**Cost:** \$15.00 per sample  
**(Please bring samples in by 9:00 AM)**

### **Water Screening Results**

Friday, October 14, 2022 / After 4:00 PM

For More Info Contact: Brianna Gonzales at 830-334-0099

*(Samples screened for: Bacteria, Nitrates, Salinity, & Hydrocarbons)*

***\*For more information please contact:***  
**Brianna Gonzales-Frio County Extension Agent, at**  
**(830) 334-0099 or [brianna.gonzales@ag.tamu.edu](mailto:brianna.gonzales@ag.tamu.edu).**

**TEXAS A&M**  
**AGRILIFE**  
**EXTENSION**

***For more information contact your local  
County Extension Office at:***

**Texas A&M AgriLife Extension Service- Frio County**

400 S. Pecan St.  
Pearsall, Tx 78061

**Office-** (830) 334-0099 **Fax-** (830) 334-2752

**County website-** <https://frio.agrilife.org/>

**Facebook-**Frio County Texas A&M AgriLife Extension



***Brianna Gonzales-Frio County Extension Agent, at  
(830) 334-0099 or [brianna.gonzales@ag.tamu.edu](mailto:brianna.gonzales@ag.tamu.edu).***