



## Extension Education in Jim Wells County

Making a difference  
2009

Improving Lives.  
Improving Texas.

AgriLife Extension has been dedicated to serving Texans for nearly a century. The agency was established in 1915 under the Smith-Lever Act to deliver university knowledge and agricultural research findings directly to the people. AgriLife Extension programs have continued ever since to address the emerging issues of the day, serving diverse rural and urban populations across the state.

Through a well-organized network of program specialists, professional educators, and some 98,000 trained volunteers, the Texas AgriLife Extension Service delivers practical research-based knowledge to Texans in all 254 counties. Our expertise and educational outreach pertain to the food and fiber industry, natural resources, family and consumer sciences, nutrition and health, and community economic development. Among those served are the hundreds of thousands of young people who benefit annually from AgriLife Extension's 4-H and youth development programs.

Texans turn to AgriLife Extension for solutions. Its agents and specialists respond not only with answers, but also with resources and services that result in a significant return on investment to boost the Texas economy. The agency custom-designs its programs to each region of the state, relying on residents for input and for help with program delivery.

These are just a few highlights of AgriLife Extension's impacts on Jim Wells County and its people:

## **Jim Wells County – Summary of Educational Contacts**

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## Range Management - Prescribed Burning

**By: Rogelio Mercado**  
**County Extension Agent-Agriculture**  
**Jim Wells County**

### Relevance

Fire is an important management tool used by agricultural land owners and managers to help reduce excessive range fuels, suppress unwanted brush species and to stimulate new forage production for livestock consumption. However, south Texas experiences sporadic rainfall events and drought conditions which make conducting a prescribed burn difficult to achieve with minimal risk and safety considerations. Wildfires started from unintentional sources can be destructive and devastating to any community and should be avoided at all cost.

Since 1995, approximately two out of three years Jim Wells County and surrounding areas have experienced below normal rainfall amounts or abnormal rainfall distribution. Due to these drought conditions, beef cattle producers have been forced to reduce their cow herd population, consequently reducing grazing pressure on our rangelands and increasing the amount of fuel available when rainfall events do occur. Land fragmentation and urbanization of our rural areas compound the problem and increase the risk of wildfire damage as well.

Rainfall events in 2008 and into the start of this year have created a strong need to implement fire to manage excessive range fuels and to rid brush piles created by agricultural land clearing. However, significant rainfall has not occurred in the county since August of 2008. Consequently, Jim Wells County Commissioners Court implemented a burn ban order which created a halt to all outdoor burning starting in early December.

Much confusion existed on the ability for Commissioners Courts to permit or exempt activities which involve the proper use of fire during a burn ban ordinance. However, various agricultural producers who had filed prescribed burn plans with the U.S.D.A. Natural Resource Conservation Service were seeking approval to implement their plans in December 2008 thru February 2009.

To address this issue, Commissioners Court sought the advise of U.S.D.A. Natural Resource Conservation Service and Texas AgriLife Extension Service personnel in Jim Wells County.





## Response

District Conservationist, Bruce Healy and County Extension Agent, Rogelio Mercado met twice with Commissioners Court in January 2009. Healy and Mercado recruited the assistance of Dr. Lynne Drawe, Retired Manager of the Welder Wildlife Refuge and member of the State Burn Board and Dr. Wayne Hanselka, Professor and Extension Range Specialist to meet with the court. Drs. Drawe and Hanselka discussed fire ecology, the importance of prescribed burns and reviewed the courts ability to approve exemptions which allow agricultural producers to implement a prescribed burn during a burn ban. Healy also reviewed the use of burn plans to help educate and prepare land owners on the requirements and procedures to implement a prescribed burn.

The court agreed to allow exemptions to the burn ban for producers who would participate in a seminar discussing proper safety procedures for conducting a prescribed burn and also who obtained an approved burn plan thru the USDA Natural Resource Conservation Service. The court instructed Healy and Mercado to coordinate such an event.

On February 2, 2009, a Prescribed Burn Workshop was held at the Jim Wells County Fairgrounds. The event was well attended with over 150 land owners and managers participating in the program. This educational program was sponsored by the Jim Wells County Commissioners Court, U.S.D.A. Natural Resource Conservation Service, the Jim Wells County Soil and Water Conservation District and Texas AgriLife Extension Service in Jim Wells County. The topics discussed included Fire Ecology, Rules and Regulations Regarding Prescribed Burns, Planning a Prescribed Burn, Fire Equipment and Safety, Implementation of Firing Techniques and Financial Assistance Available thru the 2008 Farm Bill. A demonstration burn planned for that afternoon was not implemented due to hazardous wind conditions. However, an equipment demonstration was conducted to show safety and operating techniques.

## Results

A retrospective post evaluation was conducted at the end of the program on February 2<sup>nd</sup>. One hundred and two (102) evaluations were collected. Ten questions were asked concerning the participants' knowledge before and after the workshop on the effects of fire, the importance of planning, safety issues, techniques and practices, importance of weather, etc. There was an increase in knowledge in all of the 10 categories ranging from 42.4% to 64.8%. The overall increase in knowledge averaged 49.7%. Knowledge concerning planning, fire effects, and the role of agencies increased the most. 100% of the participants said that they could make better decisions as a result of attending this workshop. Participants represented over 1,568,044 acres in south Texas. The distribution of ranch sizes represented is as follows: 0 - 50 acres (7%), 51 - 500 acres (31%), 501 - 3000 acres (31%), 3001 - 10,000 acres (20%), 10,001 - 100,000 acres (8%), and 100,000 acres or more (3%). Overall, 30% of the participants categorized themselves as novices, 33% with some experience, 30% with a fair amount of experience, and only 1% said they were very experienced in prescribed burning.



On February 9, 2009, Commissioners Court recognized the success of the program and voted to continue with their ongoing burn ban with exemptions allowing land owners to conduct prescribed burns on rangelands and also to burn brush piles created from the clearing of agricultural land.

Due to the time frame and hazardous wind conditions during the month of February, only two prescribed burns were conducted by workshop participants. A total of 1,465 acres were burned during these two events. However, various producers are now in the process of preparing for summer burns if weather permits. Several land owners were also able to successfully burn and rid their land of brush piles created from the clearing of agricultural land.

Much publicity was received at the local (media) and state levels concerning the success of this educational effort. Due to the confusion which existed among courts concerning burn ban exemptions, the Texas Department of Agriculture recently coordinated a committee which drafted a template for county courts to use and cited the use of educational programs to teach producers safety and firing techniques and the implementation of an approved written burn plan as part of the pre-requisites to burn. During the committee meetings, examples of the exemptions and educational efforts conducted in Jim Wells County were shared to help note what was being done address this issue. This template, "County Burn Ban Orders to Include Prescribed Burn Criteria," was distributed to all the commissioners courts in the state of Texas and will facilitate the landowners' ability to continue the use of fire as an effective range management tool.

## RECOGNITION

On October 26, 2009, representatives of the Texas Association of Counties (TAC) Leadership Foundation, presented Jim Wells County with their prestigious Best Practices Award for their continued effort in assisting agricultural producers and educating them in conducting safe and effective fires. Jim Wells County was presented their Best Practice award by Victor Uvalle, TAC field services representative and Marc Hamlin, Immediate Past President and National Association of Counties Board Member. A video clip produced by TAC was shown that highlighted the reason for the workshop and included interviews with Mercado, Judge Arnoldo Saenz and Healy.

Mercado and Healy both recognized the Jim Wells Commissioners Court, who were instrumental in the workshop being held and setting the standard for other counties. Mercado also recognized the workshop speakers including Dr. Wayne Hanselka, retired Extension Range Specialist with Texas





AgriLife Extension Service; Dr. Lynne Drawe, Member of the Texas State Burn Board; Tim Reinke and Jason Hohlt, NRCS range specialists; and Vivian Garcia, NRCS zone range specialist. Melissa Blair, NRCS Zone Public Affairs Specialist, was also recognized for helping promote the workshop.



## Water Quality – Nitrate, Salinity Arsenic and Fecal Coliform in Ground and Surface Water

By: **Rogelio Mercado**  
**County Extension Agent-Ag.**  
**Jim Wells County**

### Relevance

It is important to periodically screen or test water wells for the presence of fecal coliform, total nitrate-nitrogen concentrations, arsenic and salinity. Bacteria and nitrates are the two most common contaminants found in private water wells and can serve as an indication of contamination to the groundwater supply by septic systems, livestock waste or the use of fertilizers. Such contaminations are harmful to individual and public health. High concentrations of salinity in water can injure plants if used for irrigation and animals if used as a source of drinking water.

Fecal coliform bacteria are bacteria present in the intestinal tract of warm-blooded animals and can be found in their wastes. The presence of fecal coliform bacteria can indicate the presence of harmful pathogens that cause diseases such as intestinal infections, dysentery, hepatitis, typhoid fever, cholera and other illnesses.

Nitrate is a combination of nitrogen and oxygen. This ion is one part nitrogen and three parts oxygen ( $\text{NO}_3$ ). Consumption of groundwater with nitrate-nitrogen concentrations greater than 10 ppm is considered a health risk by the US-EPA. High levels of nitrates can be transformed to nitrite ( $\text{NO}_2$ ) in the digestive system. The nitrite oxidizes iron hemoglobin of red blood cells to form methemoglobin, which lacks the oxygen-carrying ability of hemoglobin. This creates the condition known as methemoglobinemia (sometimes called “blue baby syndrome”), in which blood lacks the ability to carry sufficient oxygen to the individual body cells. At extreme levels, methemoglobinemia can result in convulsions and death. Infants, under 6 months of age, pregnant women, nursing mothers, elderly people or individuals with a depressed immune system are most susceptible to this condition.

Salinity is an indication of the amount of salts dissolved in water. Salts in water influence the taste of water, can damage soils, cause salt burn in plants and at high enough levels can be toxic to plants and harmful to animals. Determining and knowing the concentration of total dissolved salts (TDS) in water enables the users of the water to better manage the use of their water for human consumption, livestock watering and/or irrigation. The US-EPA has set a secondary drinking water standard of 500 ppm for TDS. For livestock, TDS readings less than 3,000 ppm would pose little risk. Waters with TDS readings above 3,000 ppm should not be used to supply drinking water for lactating livestock and waters above 7,000 ppm should not be used for any livestock at all. For irrigation purposes, waters with TDS levels below 175 ppm are safe, 175 to 525 ppm will damage salinity sensitive plants, 525 to 1,400 ppm damage to low salinity tolerant plants, 1,400 to 2,100 damage to plants with high tolerance to salinity, and 2,100 ppm are considered unsuitable for irrigation purposes.



## Response

On April 6-8, 2009, 107 water samples were collected and screened for the presence of fecal coliform bacteria, nitrates, arsenic and salinity. To determine the presence or absence of fecal coliform bacteria, 100 milliliters (ml) of each water sample were filtered through a special filter designed to trap bacteria on the filter's surface. Once a sample was filtered, the filter was placed in a petri dish containing fecal coliform bacteria media and placed in an incubator for a minimum of 18 hours. The media is designed to promote the growth of any fecal coliform bacteria that may be present in the water samples. Samples were incubated at 112° F. After the incubation period was complete, samples were removed and visually scanned for fecal coliform colonies. These colonies appear as blue raised bumps on the filter paper. The number of individual samples with fecal coliform colonies was recorded, the total samples with fecal coliform contamination were determined, and the percentage of fecal coliform contamination calculated. All results are reported in the Results and Discussion section of this report.

Nitrate-nitrogen concentrations for each well sample were determined using a colorimetric-based analysis. First samples were exposed to a nitrate-test strip and the reaction allowed to occur for one minute. The resulting color change of the reactant paper was compared to a nitrate concentration chart and the concentration of the sample recorded. If the sample concentration was greater than 5 ppm nitrate-nitrogen, the sample was further analyzed. This analysis was conducted by collecting two 25 ml sub-samples from each water sample and preparing the samples for nitrate-nitrogen concentration determination. To one of the 25 ml sub-samples a pre-measured, cadmium-based nitrate reactant was added. The other 25 ml sub-sample was left alone. The sub-sample with the nitrate reactant was swirled and allowed to react with the nitrate reactant for five minutes. If nitrate was present in the sub-sample, it would change from a clear color to a golden to brownish color depending on the nitrate concentration in the sub-sample. After the conclusion of the reaction time period, samples were analyzed for nitrate-nitrogen concentration using a spectrophotometer. The spectrophotometer works by comparing the amount of light absorbed by the color change between the sub-sample without the nitrate reactant added to that of the sub-sample with the nitrate reactant. Light is first passed through the sub-sample with no reactant in order to establish a sample with a nitrate concentration of zero. Next, light is passed through the sub-sample with the reactant present and a nitrate reading taken. This number represents the concentration of nitrate-nitrogen present in the water sample in ppm. This number was recorded for each sample. All nitrate-nitrogen concentration results were totaled and an average nitrate-nitrogen concentration for all water samples was determined.

Salinity concentrations were determined by use of a conductivity meter. Readings for each water sample submitted were taken and recorded in mS/cm. (milliSeimens per centimeter). This mS reading was converted to ppm. All salinity concentration results were totaled and an average salinity concentration for all water samples for the samples determined. All results are reported in the Results and Discussion section of this report.





## Results

A total of 107 water samples were submitted by 78 cooperators and screened for bacteria, nitrates, arsenic and salinity during this program. A total of 107 water samples were screened for bacteria, nitrates and salinity. The presence of fecal coliform bacteria was found in 16 (15%) of these samples. The average nitrate concentration for all samples screened was 3.74 ppm with only four samples testing 10 ppm or more (10–50 ppm). Seventy-nine (79) samples were tested for the presence of arsenic. Thirteen samples tested positive with an average of 3.92 ppb and a range of 1-14 ppb. The average salinity of all the samples was 937 ppm with a range of 20-2875 ppm.

Cooperators submitting water samples were provided with educational materials interpreting results of their water samples. Major emphasis was placed on wells testing positive for fecal coliform bacteria and those cooperators received additional information on shock chlorination of their water wells. A sample phone interview of these participants revealed that 100% of them had followed the recommendations and treated their wells. These individuals will be encouraged to test their wells again in 2010 and evaluate changes in the presence of fecal coliform in their water. The 2010 Water Screening Workshop is scheduled for April 28-30, 2010.



## Master Memory

**By: Nora Acevedo**  
**County Extension Agent-FCS**  
**Jim Wells County**

## Relevance

Senior citizens continue to be an important component of every community. As healthy individuals, they can contribute to the workforce as employees, to the community as volunteers or to their families as support in various capacities. However, as aging occurs, complications with physical and mental health begin to show. These complications can limit their capacity to accomplish their tasks and become less productive. Fortunately, physical and mental exercise can assist the elderly in improving their physical and mental health.

## Response

Texas AgriLife Extension Service in Jim Wells County conducted a series of educational program designed to enhance the mental health of the elderly. Twenty four senior citizens participated in this three week program. The sessions taught included the following topics:

- Am I Losing My Mind
- Memory Strategies
- Nutrition and Memory Functions
- Medications and Memory Functions
- Medical Conditions and Memory Functions
- Exercise for the Body and Mind
- Fall Prevention for Older Adults

## Results

The training sessions were a success with 24 individuals participating in the six learning sessions. Individuals were polled to determine their level of learning and adoption of techniques to improve their memory. Ninety six (96%) percent of the individuals indicated that they have used one or more of the techniques taught on how to remember names and numbers. The technique most commonly used to remember numbers was to write them down. Twenty eight (28%) indicated that they no longer depend on their cell phones to remember telephone numbers. Forty two (42%) of the individuals indicated that they were using crossword puzzles to help them keep their minds sharp. One hundred (100%) of the individuals felt they had learned something new and that they felt better about their memory and recollection. Fifty (50%) percent of the individuals also indicated that they had shared the information they had learned with family members, friends and neighbors.



## 4-H Leadership and Volunteer Development

**By: Barbie Wymore**  
**County Extension Agent-4H&YD**  
**Jim Wells County**

### Relevance

Youth leadership is a fundamental component of the Texas 4-H and Youth Development program. Youth learn and serve through leadership to develop valuable knowledge, attitudes, skills, and behaviors. Providing learning opportunities as well as application opportunities supports the continued development of these valuable skills to youth that lead the 4-H program at the local and county level.

### Response

Texas AgriLife Extension Service in Jim Wells County provided leadership trainings and activities for 4-H youth to learn and develop their leadership skills. Trainings were conducted on parliamentary procedure, teamwork, team building, public speaking, and leader responsibilities. Youth were encouraged to improve their leadership skills by taking advantage of the many opportunities to participate in events at the club, county, and district level.

The many leadership opportunities and trainings provided to youth were:

- District Council Meeting - 1/17/09
- County Council Meeting - 1/26/09
- County Council Meeting - 3/30/09
- County Council Meeting - 5/30/09
- Leadership and Recreation Camp - 6/17/09
- District Leadership Lab - 6/22/09
- District Election Convention - 7/9/09
- Tri-County Club Officer Training - 8/17/09
- County Council Meeting - 8/31/09
- County Council Meeting - 9/28/09
- County Council Meeting - 11/30/09

### Results

A post evaluation survey was conducted of the Jim Wells County 4-H Council. 16 County Council members responded to the survey. Results are summarized in the table that follows.



Question	Yes Response	No Response
Has serving on Jim Wells County 4-H Council increased your leadership skills?	15	1
Has serving on the Jim Wells County 4-H Council increased your self-confidence?	15	1
As a Jim Wells County 4-H Council member, do you enjoy working in groups to share ideas and work towards a common goal?	16	0
Has serving on the Jim Wells County 4-H increased your public speaking skills?	14	2
As a member of the Jim Wells County 4-H Council, do you feel you are learning skills you will use later in life?	16	0

- ★ 94% of youth felt that their leadership skills have increased by serving on county council.
- ★ 94% of youth felt their self-confidence has increased by serving on county council.
- ★ 100% of member enjoy working in groups to share ideas and work towards a common goal.
- ★ 88% of youth felt their public speaking skills had increased due to membership on county council.
- ★ 100% of youth felt that they were learning skill that they would use later in life by serving on county council.

Individual Comments from youth:

- ♥ "I like the fact how it's a team effort and we help others."
- ♥ "I love the way we decide as a group."
- ♥ "I like how everyone gets to share ideas."
- ♥ "I like working with other people."
- ♥ "Helps all of us interact and become closer."
- ♥ "I love 4-H."
- ♥ "That everyone has a chance to speak up."
- ♥ "I like how the county council is a family and how much my communication skills have increased."



## **Future Plans**

The 4-H and Youth Development program in Jim Wells County will continue to provide leadership opportunities and trainings for youth so that they may develop their leadership skills to the fullest.



## Healthy and Fit

**By: Barbie Wymore**  
**County Extension Agent—4H&YD**  
**Jim Wells County**

## Relevance

Childhood overweight is a serious health concern for children and adolescents. A NHANES survey found that 13.9% of children, 6-11 years of age, are overweight. Another survey found that 80% of children who were overweight at ages 10-15 years of age were obese as adults at age 25. Lifestyle modifications including the adoption of improved food selection can improve health and may help to reverse the trend of childhood overweight.

Being overweight increases a person's risk of multiple health related problems including: heart disease, stroke, high blood pressure, type 2 diabetes, certain cancers, and other serious medical conditions. These health related problems have direct impact on the healthcare system. This includes health care costs, such as medicines, hospital stays, and lost wages due to illness and death.

## Response

To address these issues, I contacted the principal at Palito Blanco Elementary School to bring the "Get It - Healthy and Fit" program to their school. The Better Living for Texans Program Assistant, Sylvia Gonzalez, and I went the school once a month and presented an educational lesson. Youth from grades Pre-K thru 3<sup>rd</sup> received the monthly lesson on Healthy Snackin' and foods and nutrition (172 youth). The lessons that were taught were:

My Pyramid Lesson - 1/14/09 - The My Pyramid lesson focused on introducing students to the My Pyramid system and illustrating what a serving size is within each food group. There was discussion on how the nutrients effect our bodies and contribute to good health. Students made a healthy snack recipe of tortilla roll-ups.

Vary Your Veggies and Focus on Fruits - 2/18/09 - The Vary Your Veggies and Focus on Fruits lesson focused on the fruits and vegetables food groups of the My Pyramid and getting adequate number of servings per day. Students learned about proper food handling and washing their hands, as well as fruits and vegetables prior to eating. Students made a healthy snack of ambrosia fruit salad.

Power Up with Exercise - 3/4/09 - The Power Up with Exercise lesson focused on getting active and exercising at least 60 minutes per day and limiting their screen time. Students made a healthy snack of smoothie recipe.

Fun with Food Facts Lesson - 4/15/09 - The Fun with Food Facts lesson focused on learning to read food labels and fun and unusual facts about food. Students made a healthy snack of homemade pimiento cheese.



## Results

A pre test was administered by teachers before the program began in January 2009 to 3<sup>rd</sup> grade students. The same survey was administered to students following the last day of the program. 22 students in 2 classrooms completed both pre and post test surveys. On the pre test surveys in classroom #1, students missed an average of 6 questions. On the post test surveys in classroom #1, students missed an average of 4 questions. In classroom #2 on the pre test surveys, students missed an average of 5 questions. In classroom #2 on the post test surveys, students missed an average of 3 questions.

Based on pre and post test surveys, students increased their knowledge of foods and nutrition and getting healthy by 20%. This number seems low; however, as important as this issue is, any and all knowledge gained will help students get healthier.

## Future Plans

Nutrition lessons will continue at Palito Blanco Elementary School for the 2009-2010 school year. Students and teachers are very receptive to the lessons.

# Texas AgriLife Extension Service Jim Wells County County

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