



Extension Education in Jim Wells County

Making a Difference 2010

*Improving Lives.
Improving Texas.*

The Texas AgriLife Extension Service 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. 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 professional educators and more than 100,000 trained volunteers, Extension 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 Extension's 4-H and youth development programs.

Texans turn to 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. Here are just a few highlights of Extension's impacts on this county and its people:

Jim Wells County

Water Quality – Outcome Summary

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 (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 (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

Planning and Publicity: Extension Agents in Jim Wells, Duval, Jim Hogg, Brooks and Live Oak Counties teamed up to coordinate a Multi-County Water Screening Workshop and Water Quality Awareness Program for well owners in their respective counties. In April, agents developed a news release and distributed to clientele and local media to inform well owners on the importance of screening water samples and testing wells for contaminants. Clientele were also informed of the upcoming water screening workshop and instructed on how to collect and submit water samples. Each agent targeted approximately 50 individual well owners to promote this program to.

Screening Workshop: On April 28, 2010, 78 water samples were collected from 57 cooperators and screened for the presence of fecal coliform bacteria, nitrates, arsenic and salinity. Mr. John Smith, Extension Program Specialist with the Texas A&M University Soil and Crop Sciences Department provided supplies and technical assistance in screening the water samples.

Seminar: After the workshop was conducted, a summary of the results was presented to six well owners from the area, including a reporter from the Alice Echo News. The presentation also included information on Well Head Protection, Correcting Problems in Contaminated Wells, and Rain Water Harvesting. The event was highlighted in the Alice Echo News which has a distribution of over 7,000 copies in the area.

Result Demonstration Report and Educational Materials: In September, a result demonstration report was developed discussing the results of the water screening workshop and the procedures used to test for contaminants. Each cooperator received a copy of the report along with their individual results. Cooperators also received printed information on how to shock chlorinate wells in order to reduce and prevent bacterial contamination.

Evaluation: On September 17, 2010, water samples from five wells in Jim Wells County which had tested positive for fecal coliform were re-tested to determine improvements in water quality based on the treatment strategies provided to the well owners.

Interpretation: The Jim Wells County Leadership Advisory Board Met on September 29, 2010. Board members received information on this program and discussed ways to expand and improve educational efforts in water quality.

Results

A total of 78 water samples were submitted by 57 cooperators from the five county area and screened for bacteria, nitrates, arsenic and salinity during this program. All of the water samples were screened for bacteria, nitrates and salinity. Only 36 samples were screened for arsenic. The presence of fecal coliform bacteria was found in 16 (20.5%) of these samples. The average nitrate concentration for all samples screened was 3.73 ppm with only four samples testing 10 ppm or more (10–50 ppm). Six samples tested positive for arsenic but only one indicated a high level at 30 ppb. The average salinity of all the samples was 811 ppm with a range of 395-2095 ppm. Individual well owners with high level of contaminants were alerted to those problems and provided with information on how to correct them or to simply avoid use of that water.

A follow-up testing of five wells in Jim Wells County which had tested positive for fecal coliform indicated positive change in the quality of the water obtained from these wells. Four (80%) out of the five wells had been treated (shock chlorination) and tested negative for any bacteria. The fifth well had not been treated and remained positive. That well owner has since treated the well.

The 2011 Water Screening Workshop is scheduled for May 3-5, 2011.

Making a Difference 2010

Outcome Program Summary

Plan Name: 2010 Jim Wells County Ag Literacy

Barbie Wymore, County Extension Agent, 4-H & Youth, Jim Wells County

Relevance:

As today's youth are further removed from farming and ranching, many do not understand the importance of agriculture and how it impacts their daily lives. Many young people believe that milk and food comes from "HEB" or the grocery store without thinking further as to where the food is actually produced.

Response:

To address the agriculture awareness issue, an ag literacy task force was formed of county extension agents (Rogelio Mercado, CEA-AG, Nora Acevedo, CEA-FCS, Sylvia Gonzalez, BLT Program Assistant, and myself), farm bureau board of directors, members of the Soil and Water Conservation Board, and a representative from the Natural Resource Conservation Service. The task force began working on "Ag Fair." The group met in January and held "Ag Fair" in May.

The event was a two-day event, targeting 4th grade students from Jim Wells and Duval counties. 807 students participated in 7 educational stations. The first session was the mobile dairy classroom and was 30-45 minutes in length. Students then rotated to 6 15 minutes sessions. Youth were exposed to various aspects of the agricultural industry including: dairy, grains, cotton, wildlife, water conservation, beef by-products, lamb production, and wetlands. Resource materials and the Food and Fiber curriculum was provided to the teachers 2 weeks prior to "Ag Fair" for continued learning on agriculture. Other material that was included in packets taken to the schools were: program information, schedule of events, a list of donors and sponsors, speakers, and pre and post tests for students, and teacher evaluations.

Jim Wells County 4-H members were recruited and trained to serve as group leaders. As group leaders, 4-H'ers met their classes as they got off the buses, directed them to their sessions, gave the classes a brief explanation of the 4-H program, and answered any questions the classes may have had.

Community and industry leaders were recruited to conduct the educational presentations.

Results:

137 students completed pre and post test evaluations and 34 teachers submitted teacher evaluations of the event. When evaluating students responses on the pre-test, students missed an average of 6 of the 11 questions. When evaluating student responses on the post-tests, students missed an average of 4 of the 11 questions. Questions that were asked of the students related to the 6 learning sessions the students participated in. Therefore, students increased their knowledge of agriculture by 34%.

34 teachers submitted teacher evaluations. The teachers ranked the learning sessions on a scale of 1 (poor) to 5 (great).

- 34 teachers rated the mobile dairy classroom as a 4 or 5
- 27 teachers rated the cotton and feed grains as a 4 or 5
- 34 teachers rated the wetlands as a 4 or 5
- 34 teachers rated the wildlife as a 5
- 28 teachers rated the water conservation as a 4 or 5
- 26 teachers rated the beef-by products as a 4 or 5
- 32 teachers rated the lamb production as a 4 or 5
- 25 teachers rated the nutrition and Texas Produce as a 4 or 5

Some of the comments from the teachers were:

“The program was very informational and all our kids enjoyed it.”

“We love attending “Ag Fair.” The boys and girls love it! Everything is well organized.

“We always enjoy the Ag Fair each year. It is well organized and very educational.

“Wildlife station visuals and presenters were enthusiastic and well liked, kids were very interested.”

“This is one of the best field trips to take. It creates awareness for agriculture.”

“Great to see the process of milking the cow.”

“Students were enthusiastic about wildlife.”

“Wow! Students had never seen a lamb being sheared before, the presenter in the session was awesome.”

“Great to see shearing of wool and its many uses.”

Future Plans:

The Jim Wells County “Ag Fair” is scheduled for May of 2011.

Outcome Program Summary

Plan Name: 2010 Jim Wells County Patriotism Through Preparedness: Make a Plan, Take a Stand

Barbie Wymore, County Extension Agent, 4-H and Youth, Jim Wells County

Relevance:

Since September 11, 2001, much has changed in our world, nation, state, and community. We have become more aware of both the human and material devastation that can be caused by unexpected disasters, whether they are caused by nature, by accident or by terrorist attacks. Every family and community needs to take steps to prepare for a possible disaster. Locally, Jim Wells County and the Coastal Bend have faced disasters such as hurricanes and flooding that have raised the level of need.

Response:

To better understand emergency preparedness, I studied the Patriotism Through Preparedness curriculum provided by Texas AgriLife Extension Service and reviewed materials provided by the Jim Wells County Safety Office.

The curriculum Patriotism Through Preparedness curriculum helps families prepare for the unexpected. There are 6 lessons with the curriculum: Overview, Be Ready, Be Steady, Stock Up, Listen Up, and Sit Tight. The overview lesson teaches students about what a disaster is and the difference types of disasters. The Be Ready lesson teaches students the steps in making a plan, why a disaster plan is needed, and helped students create a disaster plan. The Be Steady lesson teaches students to understand stress and how to cope with stress through relaxation techniques. The Stock Up lesson teaches students to identify the supplies necessary for survival during a disaster, such as 1 gallon of water per person per day or a 3 day supply of non-perishable food. The Listen Up lesson teaches students to identify reliable sources in their community for information to help them stay safe during a disaster. The Sit Tight lesson teaches students what it means to shelter in place and how to build a shelter in place to protect themselves.

I taught the Patriotism Through Preparedness program at Premont Elementary School for 4th grade students during the month of October, 2010. The students had homework assignments that required them to have discussions with their parents at home on emergency preparedness. I prepared parent letters that were sent home with the students at the end of each lesson to inform the parents on what was discussed during the lesson.

Results:

The program was implemented to 4th grade students at Premont Elementary School. 14 pre and post test evaluations were collected. The data collected shows students had a:

- 14.3% change in knowledge of what a disaster is
- 14.3% change in knowledge that disasters can cause emotional stress
- 14.3% change in knowledge of how much water should be stored per person in a disaster supply kit
- 14.3% change in knowledge of what emergency equipment needs to be stored in a disaster supply kit
- 14.3% change in knowledge of what first aid items needs to be stored in a disaster supply kit
- 14.3% change in knowledge of what entertainment items can be stored in a disaster supply kit
- 13.7% change in knowledge of how much food needs to be stored per person in a disaster supply kit
- 7.1% increase of communication between students and family in planning for an emergency
- 7.1% increase of communication and planning between students and family for a disaster by making a disaster supply kit
- 6.6% increase of communication between students and family about what to do in case of an emergency

Future Plans:

The Patriotism Through Preparedness curriculum will continue to be used in curriculum enrichment programs in Jim Wells County.



The Brush Country Water Screening Workshop includes private water well owners from Jim Wells, Duval, Jim Hogg and Brooks Counties. Water samples are tested for nitrates, salinity, arsenic and fecal coliform. Youth are involved in the screening process and have an opportunity to learn the importance of water quality and relate to careers in this program area.



The Jim Wells County Ag Fair is an annual event which teaches area 4th grade students about food and fiber production, wildlife management and protection of our environment and natural resources. Texas Farm Bureau and USDA Natural Resources Conservation Service are collaborators for this event. Over 800 youth and their teachers participate in this program annually.



Patriotism Thru Preparedness is a school curriculum program which teaches youth how to prepare and respond to natural disasters and emergency situations. 4th grade students from Premont participated in this program this year and increased their knowledge about disasters, emergency contacts, emergency preparedness and family communication.

Texas AgriLife Extension Service

Jim Wells County

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