AgriLIFE EXTENSION
Texas A&M System

Extension Education in Jim Wells County

Making a Difference 2011

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 – Summary of Educational Contact

	# of Sessions	Goal 1	Goal 2	Goal 3	Total
Total All Contacts	313	1,387.75	6,260.00	10,169.25	17,817.00
Contacts By Faculty					
Faculty	185	1,073.75	1,298.00	1,998.25	4,370.00
Faculty & Volunteer	77	0.75	1,276.00	1,887.25	3,164.00
Total Group Methods	262	1,074.50	2,574.00	3,885.50	7,534.00
Individual Methods	--	228.25	1,274.00	4,276.75	5,779.00
Materials Distributed	--	0.00	0.00	0.00	0.00
Total Contacts	262	1,302.75	3,848.00	8,162.25	13,313.00
Contacts By Volunteer					
Group Methods	51	0.00	12.00	1,222.00	1,234.00
Individual Methods	--	0.00	1,200.00	245.00	1,445.00
Materials Distributed	--	0.00	0.00	0.00	0.00
Total Contacts	51	0.00	1,212.00	1,467.00	2,679.00
Newsletters/Announcements Contacts					
Marketing/Promotion	--	85.00	0.00	540.00	625.00
Educational Methods	--	0.00	1,200.00	0.00	1,200.00
Total Contacts	--	85.00	1,200.00	540.00	1,825.00

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 met-hemoglobin, which lacks the oxygen-carrying ability of hemoglobin. This creates the condition known as met-hemoglobinemia (sometimes called “blue baby syndrome”), in which blood lacks the ability to carry sufficient oxygen to the individual body cells. At extreme levels, met-hemoglobinemia 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 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 serving Jim Wells, Duval, Jim Hogg, Brooks, Kleberg, Kenedy 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. Agents involved members of local water utilities (San Diego and Alice) to participate in a planning

meeting as well. 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 May 3, 2011, 73 water samples were collected from 51 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. Agents assisted in conducting the water screening and improved their knowledge in water testing procedures.

Seminar: After the workshop was conducted, a summary of the results was presented to by Mr. John Smith. Agents were also trained on Well Head Protection, Correcting Problems in Contaminated Wells, and Rain Water Harvesting. The information presented assisted agents in interpreting results to their individual clients and providing them with assistance in correcting contamination problems.

Result Demonstration Report and Educational Materials: In October, 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. Also in October, an exhibit on Water Quality was developed and displayed during the 2011 Jim Wells County Fair. Approximately 12,000 people participate during this annual event.

Evaluation: On October 5, 2011, water samples from four 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: In December, Extension Agents will provide the information gathered from the 2011 Water Screening Workshop to elected officials and other county stakeholders during their annual interpretation events.

RESULTS

A total of 73 water samples were submitted by 51 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 30 samples were screened for arsenic. The presence of fecal coliform bacteria was found in 15 (20.5%) of these samples. The average nitrate concentration for all samples screened was 4.48 ppm with only six samples testing 11 ppm or more (11–20 ppm). Remarkably, no samples tested positive for arsenic which may be attributed to the lack of rainfall in the previous seven months. The average salinity of all the samples was 713 ppm with a range of 30-2080 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 four 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 owner could not be contacted to obtain a sample.

Agents are currently seeking funding alternatives to purchase sampling kits to provide screening services to their clients on a year-round basis. This service can enhance clientele participation and awareness in addressing water quality issues in their home.

Plan Name: 2011 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, 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. 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 4 20 minutes sessions. Youth were exposed to various aspects of the agricultural industry including: field crops and commodities; environmental and natural resources; wildlife; and livestock and poultry. 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:
86 students completed pre and post test evaluations and 21 teachers submitted teacher evaluations of the event. When evaluating students responses on the pre-test, students missed an average of 7 of the 11 questions. When evaluating student responses on the post-tests, students missed an average of 5 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 18%.

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

- 21 teachers rated the mobile dairy classroom as a 4 or 5
- 20 teachers rated the field crops and commodities as a 4 or 5
- 20 teachers rated the environmental and natural resources as a 4 or 5
- 21 teachers rated the wildlife as a 4 or 5
- 19 teachers rated the livestock and poultry as a 4 or 5

Some of the comments from the teachers were:

"It was very good and interesting since some of the students have never seen a cow being milked. Also the different kinds of cows there are."

"The speaker kept the students intrigued and interested. Lucy was great!"

"Students enjoy the live exhibits."

"There was a lot of useful information concerning corn & cotton. Many misconceptions were clarified!"

"The kids love the water shed model! Much more informative about soil types this year. It would be neat to have sand, silt and day soil samples for them to touch."

"The kids loved all, but especially this one! Great points about "balance" and importance of not killing snakes, etc. Also the physical features of predators vs. preys caught their attention."

"I enjoyed the new set up. The kids loved being able to get closer to the livestock & poultry."

" You may want to add in info how seeds sprout in the cotton, wheat, milo since that would reinforce what students learn at school for plant life cycle and photosynthesis. You could also add the water cycle in and maybe more jobs that relate to the farming, ranching, wildlife industries."

"Such a well planned/ well run program! Congrats on another great year!"

Future Plans:

The Jim Wells County "Ag Fair" is scheduled for May of 2012.

Plan Name: 2011 Jim Wells County 4-H Food Challenge

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

Relevance:
The 4-H Food Challenge is a grass-roots effort developed by County Extension Agents to address the need for a new, "highly-charged" foods experience. Modeled after such competitions as the Food Network's Iron Chef, the 4-H Food Challenge allows teams of three to five 4-H members to create a dish using a predetermined set of ingredients. From these ingredients, 4-H members must identify, prepare and then present information related to the preparation process, nutritional value, serving size and cost of the dish. Throughout this process, 4-H members are applying the knowledge and skills gained through participation in the 4-H foods and nutrition project, demonstrating their culinary and food safety skills, and continuing to learn about making healthier food choices. The specific objectives of the 4-H Food Challenge are:

- ✔Provide opportunities for participants to exhibit their knowledge and skills when preparing and presenting a dish
- ✔Provide opportunities for participants to learn from other team members
- ✔Promote teamwork.
- ✔Give participants opportunities for public speaking.
- ✔Provide leadership opportunities.
- ✔Give 4-H members the opportunity to participate in a new, exciting competitive event.

Response:

The goal of implementing the 4-H Food Challenge was to give youth and volunteers a new opportunity for increasing knowledge related to foods and nutrition, My Plate, and being able to apply the knowledge and skills gained through project experiences. In Jim Wells County, the activity was introduced during 4-H Lock-Ins, summer camps, and a foods and nutrition workshop.

Results:
As a result of participating in the 4-H Food Challenge, 23 participants completed the retrospective post survey: The data collected showed:

- ✔78% of the 4-H'ers increased their understanding of My Pyramid following Food Challenge.
- ✔87% of the 4-'ers increased their knowledge of food nutrients and their functions following Food Challenge.
- ✔56% of the 4-H'ers increased their understanding of the importance of food safety.
- ✔34% of the 4-H'ers increased their understanding of kitchen safety following Food Challenge.
- ✔70% of the 4-H'ers increase their knowledge of the purpose of different cooking methods.
- ✔61% of the 4-H'ers increased their knowledge of how to plan and prepare a recipe.
- ✔70% of the 4-H'ers increased their knowledge of how to alter a recipe according to dietary needs.
- ✔57% of 4-H'ers stated they have altered a recipe according to dietary needs based on what I have learned.

- ✔74% of 4-H'ers stated they have made healthier food choices based on what they have learned.
- ✔83% of 4-H'ers stated they have changed the way they have handled and prepared food based on what they have learned.
- ✔78% of the 4-'ers stated they feel more comfortable with speaking with others because of their participation in the food challenge.
- ✔74% of the 4-H'ers stated they are more comfortable working in a team because they have participated in food challenge.
- ✔78% of the 4-H'ers stated they will be more comfortable with serving in a leadership role because they have participated in the food challenge.
- ✔70% of the 4-H'ers stated they are more willing to listen to others because they have participated in the food challenge.
- ✔70% of the 4-H'ers stated they are going to do a better job of following through on obligations because they have participated in food challenge.

Future Plans:
The future of the Jim Wells County 4-H Food Challenge activity is bright. There will continue to be workshops, clinics, and camps hosted to increase the 4-H'ers knowledge of preparing and presenting a dish.

Community Economic Development

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Jim Wells County Ag Fair teaches area 4th grade students about Food and Fiber Production, Environmental Stewardship and Wildlife Resource Management.

The Brush Country Water Screening Workshop involves well owners from six south Texas counties. Water samples are screened for nitrates, salinity, arsenic and bacteria.

Food Challenge participants learn about food preparation, nutrition and presentation. Public speaking skills become important as they discuss their food choices with the judges.

Texas AgriLife Extension Service
Jim Wells County

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