

2012 Annual Progress Report



Agricultural Science Center at Tucumcari
6502 Quay Road AM.5
Tucumcari, NM 88401-9661

NOTICE TO USERS OF THIS REPORT

This report has been prepared to aid Science Center staff in analyzing results of the various research projects from the past year and to record data for future reference. These are not formal Agricultural Experiment Station Report research results.

Information in this report represents only one year's research. The reader is cautioned against drawing conclusions or making recommendations as a result of data in this report. In many instances, data represents only one of several years results that will constitute the final formal report. It should be pointed out, that staff members have made every effort to check the accuracy of the data presented.

This report was not prepared as a formal release. None of the data are authorized for release or publication, without the written prior approval of the New Mexico Agricultural Experiment Station.



Dr. David Thompson, Associate Dean and
Director Agricultural Experiment Station

2012

ANNUAL PROGRESS REPORT

New Mexico State University
Agricultural Science Center at Tucumcari
6502 Quay Road AM.5
Tucumcari, NM 88401-9661

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Acknowledgements

Several individuals and companies donated products and services to the Agricultural Science Center at Tucumcari during 2012. Appreciation is expressed to the following persons and organizations for their contributions.

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Nelson Irrigation Corporation – Daniel Spare Farmington, NM	Nozzles for the Center Pivot
Pioneer Hi-Bred Int'l – William McClure Lincoln, NM	Corn and Soybean Seed
R & P Farms – Robert Lopez Tucumcari, NM	Use of trailer for Field Day
Syngenta – Brent Besler Brownwood, TX	Soybean Seed
Tucumcari Federal Savings & Loan – Bobby Alarcon Tucumcari, NM	Field Day Meal
Tucumcari Feed Yard – Dan Estrada & Mark Whetten Tucumcari, NM	Hay for Field Day Hay Wagon Tour
Tucumcari General Insurance – C.J. Wiegel Tucumcari, NM	Field Day Meal
Tucumcari Chamber of Commerce – Patsy Gresham Tucumcari, NM	Bottled Water for Field Day
Tucumcari Ranch Supply – Jimmy & Stella Watson Tucumcari, NM	Field Day Meal
Watkins Products – Kathleen Box Tucumcari, NM	Field Day Meal
Wells Fargo Bank – Cindy Lingle Tucumcari, NM	Field Day Meal
Wilbur-Ellis – Randy Cain Tucumcari, NM	Field Day Meal and 5 Gallons of Brimstone fertilizer
Young Insurance Agency – Larry Young Tucumcari, NM	Field Day Meal

Introduction

The New Mexico State University Agricultural Science Center at Tatum is located on U.S. Highway 54 three miles northeast of Tatum and Interstate 40, Exit 333. The center consists of 464 acres, with 170.9 acres having Arch Hurley Conservancy District water rights. In operation since 1912, the center is New Mexico State University's oldest continuously operating off-campus research facility. Home of the annual Tatum Bull Test, which helps producers improve their beef herds, the center's mission also includes developing forage and grazing systems for irrigated lands in the western USA and the evaluation of crops and cropping systems for local adaptation. Prior to conducting research in irrigated agriculture, the center evaluated dryland cropping systems and trees for windbreak and farmstead plantings. The tree research led to the establishment of over 50 species of trees and shrubs on the center grounds, making it an oasis of trees in a sea of native grassland.

Outreach Events, Productivity and Activities

This year, 2012, was significant in the history of the Agricultural Science Center. First, there was a celebration of 100 years of continuous service in conjunction with New Mexico's Centennial Celebration. Second, an opportunity arose to continue or begin irrigated research projects that had been on hold due to long-term drought and the lack of a consistent supply of irrigation water. The availability of a secure source of irrigation water after several years of planning, also will allow the center to initiate an additional research focus. And finally, there was a changing of the guard.

These and other activities hosted or participated in by the staff at the Agricultural Science Center at Tatum are described in this publication along with the ongoing projects.

Bull Performance Testing

The 51st Annual Tatum Bull Test ended with the Performance Tested Bull Sale at the center on March 16, 2012. The 54 bulls completing the test gained an average of 3.96 pounds per day and represented three breeds (Angus, Charolais, and Hereford) entered by 10 cooperators. The 52nd Annual Tatum Bull Test began on November 12, 2012, with the delivery of 51 bulls representing those same three breeds entered by 6 cooperators. The test will conclude with the Annual Performance Tested Bull Sale on Saturday, March 16, 2013. Information on the bull testing program is available from the NMSU Cooperative Extension Service's Bull Session publication, on the Internet (<http://aces.nmsu.edu/beefperformancetest>), and from Dr. Manny Encinas.

Field Day

The center hosted its Annual Field Day on August 2, 2012. The program included dinner catered by Del's Restaurant, a celebration of the center's centennial anniversary with presentations by 96-year-old homesteader (at about age 3) and long-time Quay County resident Horace Wood and by Rex Kirksey about the history of Quay County and the Agricultural Science Center at Tatum, a field tour including presentations and a ribbon-cutting ceremony for the sprinkler irrigation system using recycled municipal wastewater from the City of Tatum (cover photo). After the tour, there was a recognition of Rex Kirksey's retirement after 31 years as Superintendent of the center (32 years actually with NMSU; see the article on 31 and photo on the cover). Presentations on the field tour were made by Dr. Tessa Grasswitz regarding the pollinator plant study (described in the article on page 26 and cover photo), the historical benefit of agricultural research by Leonard Lauriault, beneficial use of treated wastewater by Dr. John Mexal, and the center's wastewater reuse project by Dr. Dave Thompson, which was followed by the ribbon-cutting. A pre-program presentation was made by Dr. John Wenzel about the NM-ALIRT Program. Dinner was sponsored by the Southwest Border Food Safety and Defense Center and the remainder of the program was sponsored by the local businesses listed on page ii. The entire program was also listed as an official New Mexico Centennial Event entitled, "Basking in the Past and Looking to the Future."

Other Public Programs

In addition to the Field Day, the center hosted an Earth Day community service project on April 19th for members of Tucumcari High School Class of 2012. The center also remained open for tours of the Eastern New Mexico Outdoor Arboretum. More details about these activities are given elsewhere in this report.

On Saturday, May 12th, the center held a daylong Beekeeping/Beneficial Insect Workshop with presentations on basic beekeeping by Les Crowder and a discussion of beneficial pollinating insects with tour of a planting of selected plant species to attract pollinators led by Dr. Tessa Grasswitz. The pollinator insect attracting project is described in a separate article beginning on page 26 of this publication.

On September 28th, the center hosted a Farm Day event for the Tucumcari Elementary School fourth and fifth grades. Due to the threat of inclement weather, presentations were made in the Bull Test Sale Barn and included recycling by Veronica Sandy, City of Tucumcari; indigenous trees and basic plant science by Bob Bruce, local nurseryman; and a history of the Agricultural Science Center and a comparison of crops grown in 1912 and 2012 by Leonard Lauriault. The event, described in a Quay County Sun article on page 4 of the October 3rd edition, was funded by a grant from NMSU's Provost to celebrate New Mexico's Statehood Centennial and the sesquicentennial of the Morrill Act of 1862, also known as the Land Grant College Act. This national legislation provided an opportunity for public education, the Leading Object of which was training in agricultural and mechanical arts. The Morrill Act became the basis for the Agricultural Experiment Station, established in 1887 by the Hatch Act, and the Cooperative Extension Service, established by the Smith Lever Act in 1914.

Quay County Cotton Boll Weevil Control District

The Agricultural Science Center at Tucumcari continued to assist the Quay County Cotton Boll Weevil Control District with its activities in 2012. The only cotton planted in Quay County in 2012 was at the center and that did not emerge due to lack timely availability of irrigation water. Consequently, although Tom Dominguez, Quay County Cooperative Extension Service Agent for Agriculture, stood ready to scout based on the expressed desire of the New Mexico Department of Agriculture, a scouting program was not initiated in 2012. Activities were limited to maintaining an active organization so as to maintain a record of boll weevil activity in the area, in preparation for future cotton production in the area.

Emerald Ash Borer Trapping

The Agricultural Science Center at Tucumcari served as a trapping location with a single trap installed in the Arizona Ash in the center lawn by Zak Montoya, USDA – APHIS – PPQ, in Albuquerque. Symptoms of infestation described in the literature provided were not observed. Otherwise, no other results were available before the publication of this report.

Advisory Committee

The Advisory Committee to the Agricultural Science Center at Tucumcari met twice in 2012. Minutes of each meeting are available upon request at the center's office.

For the regular meeting on March 7th, after an update by Rex Kirksey about his retirement status, Dr. David Thompson, Associate Dean and Director of the Agricultural Experiment Station, commented about the budget, after which a discussion was held about the future of the center in regard to Rex Kirksey's retirement and the pending availability of treated wastewater for irrigation. The committee's membership roster also was updated. Research updates were presented as handouts only.

The second Advisory Committee meeting was held on November 27th to develop a legislative initiative to enhance the programs of the center by adding faculty and staff and increasing operations, in addition to Capital Outlay requests for equipment and to build a multipurpose building. The Committee agreed to pursue the enhancement over three years, or until all requests were met, beginning with Capital Outlay requests in 2013 and support of NMSU's initiative to increase funding for the Agricultural Experiment Station that includes adding a faculty position at the center. The legislative initiative is presented beginning on page 28.

Personnel and Facilities

After exactly 32 years with New Mexico State University (almost 31 years a Superintendent of the Agricultural Science Center at Tucumcari), Rex Kirksey retired as of June 30, 2012 (see the article on page 31).

A list of temporary employees at the center in 2012 is shown below:

<u>Name</u>	<u>Job Title</u>	<u>Dates of Employment</u>
Maria Apodaca	Custodian	1/1/2012 – 12/31/2012
Larry Marshall	Laborer	9/18/2012–12/31/2012
Joseph Schallert	Laborer	05/29/2012–08/08/2012

Several College of Agricultural, Consumer and Environmental Sciences personnel from other locations worked cooperatively with staff at the Tucumcari center in 2012. These individuals included: Sangu Angadi, Jamshid Ashigh, Jane Breen-Pierce, Scott Bundy, Owen Burney, Shad Cox, Tom Dominguez, David DuBois, Manny Encinias, Robert Flynn, Jeanne Gleason, Ryan Goss, Tessa Grasswitz, Kulbhushan Grover, Steve Guldán, Robert Hagevoort, Mike Hubbert, John Idowu, Bernd Leinauer, Clint Loest, Steve Loring, Mark Marsalis, John Mexal, Audry Olmsted, Mick O'Neill, Curtis Owen, Tom Place, Gino Picchioni, Naveen Puppala, Ian Ray, Ted Sammis, Aaron Scott, Eric Scholljegerdes, Brian Schutte, Manoj Shukla, Sergio Soto-Navarro, Carol Sutherland, Steve Thomas, Dave Thompson, April Ulery, Adrian Unc, Dawn VanLeeuwen, Frank Ward, and Shengrui Yao.

Individuals from outside the NMSU College of Agricultural, Consumer and Environmental Sciences, who worked cooperatively with center staff in 2011 were: Leonel Avendaño-Reyes (Instituto de Ciencias Agrícolas, Universidad Autónoma de Baja California, México), Muhammad Ayub (Department of Agronomy, University of Agriculture, Faisalabad, Pakistan), Brent Bean (Texas AgriLife Extension, Amarillo), Glen Haubold (NMSU, OFS Engineering Department), David Calderon-Mendoza, Instituto de Ciencias Agrícolas, Universidad Autónoma de Baja California, México), Francisco Contreras-Govea, David Dreesen (NRCS Los Lunas Plant Materials Center), Christina Fleming (Tucumcari Public Schools), Tony Gable (Tucumcari Custom Feeders), Thomas Garcia (Quay County Sun), Tonya Hodges (Tucumcari Public Schools), Muhammad Ibrahim (D.G. Khan Sub Campus, University of Agriculture, Faisalabad, Pakistan), Jennifer Kleeschulte (Missouri Botanical Garden, Saint Louis), Francisco Loya-Olguín (Instituto de Ciencias Agrícolas, Universidad Autónoma de Baja California, México), Stefano Macolino (Dept. of Environmental Agronomy and Crop Production, University of Padova, Legnaro, Padova, Italy), José Gustavo Torres Martínez (SENASICA, Mexico), Jerry Michels (TX AgriLife Research and Extension Center – Amarillo), Aaron Miller (USDA, APHIS, Abilene, TX), Zak Montoya (USDA – APHIS – PPQ), Larry Moore (Quay County Roads), Russell Nuti (USDA ARS National Peanut Research Lab), Doug Powers (City of Tucumcari, along with the entire City Commission), Joe Ramirez (City of Tucumcari Wastewater Treatment Facility), Filippo Rimi (Dept. of Environmental Agronomy and Crop Production, University of Padova, Legnaro, Padova, Italy), G. Ray Smith (Texas AgriLife Research, Overton), Alejandro Suárez (INIFAP, Sonora, Mexico), Luis Tamayo (INIFAP, Sonora, Mexico), Asif Tanveer (Department of Agronomy, University of Agriculture, Faisalabad, Pakistan), Gustavo Torres (SENASICA, Mexico), Calvin Trostle (Texas AgriLife Extension, Lubbock), Rafael Villa-Angulo Instituto de Ingeniería, Universidad Autónoma de Baja California, México), Muhammad Yaseen (Institute of Soil and Environmental Sciences, University of Agriculture, Faisalabad, Pakistan), and Umberto Ziliotto (Dept. of Environmental Agronomy and Crop Production, University of Padova, Legnaro, Padova, Italy).

Buildings, Grounds, and Facilities

In 2012, fiber optic Internet and telephone service connections were made to the office and residence through ENMR-Plateau Telecommunications and telephone service through CenturyLink was discontinued. The fiber optics cable was extended to the Tucumcari Custom Feedyard to the east of the center upon completion of a Right of Entry agreement that was followed by an As-built Easement.

With initiation in 2011 of a 20-year contract for NMSU to purchase 300 acre-feet per year of treated municipal wastewater for \$9000 plus operations and maintenance costs for delivery, construction began and was completed in 2012 for a system funded by the New Mexico Water Trust Board through a grant to the city to deliver water from the city's municipal wastewater treatment facility to the Agricultural Science Center to be recycled through irrigation through the existing 35.3-acre center pivot irrigation system with additional valves for expansion. A description of the project and map are included in the article about the legislative initiative (see page 28). In addition to the pipeline, funds were available to install two more center pivot irrigation systems, a 18-acre unit in the field on the west side of the driveway at US 54 and a 29.5-acre sprinkler in the eastern third of the north farm area, and a pipeline to the north farm area. The New Mexico Environment Department permit (DP-1769) to apply the water at the center was approved in 2012 as well. The wastewater delivery system was tested on August 1st and a ribbon-cutting was held in conjunction with the Field Day on August 2nd. Because more work was needed after testing the system, it was not demonstrated at the Field Day. The first delivery of water for irrigation took place on August 21st. More information about water delivery is given in the Irrigation Water section below. Still pending at the end of 2012 was installation of a sign facing US 54 acknowledging the project. A presentation about the wastewater project was made to Senator Tom Udall on October 15th and Senator Jeff Bingaman toured the project on November 1st.

During construction of the wastewater pipeline, which was installed within 25 feet of the septic tank that served all buildings at the center, the tank itself was crushed. Due to changes in the state code regarding septic systems since that tank was installed in the 1980's, New Mexico Risk Management determined that the system needed to be upgraded. RBM, Inc., Logan, NM, was selected to perform the repairs at a cost of \$29,471.32. The upgrade entailed installing four belowground tanks, with an expanded leach field to the southwest of the original tank and leach field, and additional cleanouts throughout the lawn.

On April 25th, the center was visited by engineering staff from NMSU's Office of Facilities and Services to evaluate buildings. A copy of their report is available at the center office. The gist of that document is that there are significant needs for the office, lab, conference building, and residence; significant structural needs for the shop that, by verbal statement of one of the engineers, would probably cost more than replacing the building; and demolition of the horse barn. Replacement of the shop as a multipurpose building to also be used for larger public gatherings is described in an article beginning on page 28 about a legislative initiative over three years developed by the Advisory Committee that also includes enhancement of the center with new faculty, staff, operating funds, and equipment.

For the Earth Day community service project on April 19th, the Tucumcari High School Seniors cleaned out and mulched the flower bed in front of the office; removed the dead boxwoods next to the parking area in front of the office and established a flower bed in that area; removed dead material from the pollinator project; picked up trash along both sides of the center's road frontage on US 54 with a demonstration on recycling; and helped plant the smoketree mentioned below as part of the arboretum.

The Eastern New Mexico Outdoor Arboretum at the Agricultural Science Center at Tucumcari was enhanced with the planting of a baldcypress and a Chinese pistache in the area northeast of the residence garage to replace the dawn redwood and Colorado blue spruce that had perished during summer 2011. An Italian cypress that had survived severe damage by the hard freeze in February 2011 was moved from north of the Conference Building to that area as well, but did not survive the transplanting. The other Italian north of the Conference Building did not recover from the hard freeze and perished in 2012. Two more Empress tree seedlings were acquired for transplanting, but, as in 2011, neither survived damping off while being grown to a larger size for transplanting. A larger, more mature specimen may be tried in 2013. The chestnut oak southwest of the office that had perished shortly after transplanting was replaced in 2012 and the replacement is performing much better. Most of the boxwoods in front of the office did not survive the winter of 2011-2012. A single survivor was moved to the shrub area southwest of the office during the Earth Day service project, but it did not survive. The area where those had originally been planted was converted to a flowerbed as part of the Earth Day service project. Also as part of the Earth Day service project, a smoketree was planted just to the north of the existing smoketree in the center lawn. Later in 2012, the boxelder in that lawn area was removed having perished earlier in the spring, probably due to the hard freeze in 2011. Finally, the seedless mulberry north of the lab was removed and replaced with a chiltalpa.

Other alterations and improvements to the grounds and facilities included: tinting two windows on the west side of the residence (at no cost to the center), removing portion of the concrete irrigation ditch in the front field that crossed the pivot installed as part of the wastewater recycling project (this concrete was given to the Arch Hurley Conservancy District to use as riprap), replacing steps to the front of the trailer house with a porch having steps, painting windows and trim on the ground floor of the conference building, installing fencing and water infrastructure for pasture studies at the north farm and west pivot, and removing dead evergreen trees in the northwest corner of the weather yard field.

A firewood cutting agreement was developed in 2012 to help the center clean up trees that had perished due to long-term drought. Under the terms of the agreement, interested parties would receive firewood for removing brush from trees that were felled by center staff. In 2012, a tree that had fallen along the fence in the front pasture (southeast corner of the center along US 54) was removed under a permit. Additionally, one tree was removed that had been sacrificed while boring under the Arch Hurley Conservancy District canal during the pipeline construction to the southwest field along US 54.

Irrigation Water

The annual Arch Hurley Conservancy District assessment for 2012 was \$10.00 per water right acre, but no irrigation water was available from the district in 2012. Consequently, the center retained a credit of \$435.86 for pre-paid water from previous years.

As mentioned above, the first delivery of treated wastewater from the City of Tucumcari Wastewater Treatment Facility for irrigation took place on August 21, 2012. There was no interruption in delivery after that and a total of 51.7 acre-feet were applied in 2012 from that system through the three center pivots.

Sustainability and Environmental Stewardship

Continuing with sustainability through recycling in 2012, staff at the Agricultural Science Center at Tucumcari recycled 87.8 lb plastic; 81.4 lb tin cans; 94 lb aluminum cans; 53.2 lb glass; 19 ink or toner cartridges; 11 salvaged CPUs, two printers, two monitors, 2 televisions, and one other appliance, all non-functional; and 1066.0 lb paper and other fiber products. Purchased paper totaled 249 lb for 2012. A recycling presentation/demonstration was a component of the Earth Day service project as the trash picked up along the highway was sorted for recyclable materials by the students. Trash pick-ups are done by center staff several times throughout the year on both sides of the half mile of road frontage along US 54. Also as mentioned, a presentation on recycling also was made to the Tucumcari Elementary School fourth and fifth graders on September 28th.

Productivity

Peer Reviewed Journal Articles

Lauriault, L. M., Marsalis, M. A., VanLeeuwen, D. M. (2012). Planting date affects rainfed sorghum forage yields in semiarid, subtropical environments. *Forage and Grazinglands* (Online). <http://www.plantmanagementnetwork.org/sub/fg/research/2012/sorghum/sorghum.pdf>.

Rimi, F., Macolino, S., Leinauer, B., Lauriault, L. M., Zilio, U. (2012). Fall dormancy and harvest stage effects on alfalfa nutritive value in a subtropical climate. *Agronomy Journal*, 104, 415-422.

Conference Proceedings and Abstracts

Lauriault, L. M. (2012). Abstract - Strategies for N transfer from alfalfa to wheat. Proceedings of the Western Society of Crop Science Annual Meeting, Pullman, WA. CSSA, Madison, WI.

Experiment Station Publications

Lauriault, L. M., Ray, I., Pierce, C., Flynn, R. P., O'Neill, M. K., Owen, C., Place, T., Idowu, O. J. (2012). The 2012 New Mexico alfalfa variety test report. Las Cruces, NM: Agricultural Experiment Station and Cooperative Extension Service, New Mexico State University. http://aces.nmsu.edu/pubs/variety_trials/AlfalfaVar2012.pdf.

Lauriault, L. M., Marsalis, M. A., Angadi, S., Contreras-Govea, F., Dreesen, D. R., VanLeeuwen, D. M. (2012) Research Report 774, A screening for biofuel feedstock quality of perennial warm-season grasses in semiarid subtropical environments. Las Cruces, NM: Agricultural Experiment Station and

Cooperative Extension Service, New Mexico State University.

http://aces.nmsu.edu/pubs/research/livestock_range/RR774.

Lauriault, L. M., Kirksey, R. E., et al. (2012). In L.M. Lauriault (Ed.), 2011 Annual progress report. Las Cruces, NM: Agricultural Experiment Station and Cooperative Extension Service, New Mexico State University. <http://tucumcarisc.nmsu.edu/documents/annual-report-2011.pdf>.

Marsalis, M. A., Kirksey, R. E., Contreras-Govea, F., Flynn, R. P., O'Neill, M. K., Lauriault, L. M., Place, M. (2012). New Mexico 2011 corn and sorghum performance tests. Las Cruces, NM: Agricultural Experiment Station and Cooperative Extension Service, New Mexico State University. http://aces.nmsu.edu/pubs/variety_trials/11CornSorghumRpt.pdf.

Extension Publications

Marsalis, M. A., Hagevoort, G. R., Lauriault, L. M. (2012). Circular 665, Silage crop nutritive value in New Mexico and West Texas. Las Cruces, NM: Agricultural Experiment Station and Cooperative Extension Service, New Mexico State University. http://aces.nmsu.edu/pubs/_circulars/CR665.pdf.

Lauriault, L. M., Marsalis, M. A., Ashigh, J. (2012). Guide A-336, Managing Roundup Ready and conventional alfalfa in nearby fields in New Mexico. Las Cruces, NM: Agricultural Experiment Station and Cooperative Extension Service, New Mexico State University. http://aces.nmsu.edu/pubs/_a/A336.pdf.

Lauriault, L. M., Marsalis, M. A., Ashigh, J. (2012). Guide A-337, Recommendations for Roundup Ready alfalfa weed management and stand removal in New Mexico. Las Cruces, NM: Agricultural Experiment Station and Cooperative Extension Service, New Mexico State University. http://aces.nmsu.edu/pubs/_a/A337.pdf.

Marsalis, M. A., Lauriault, L. M. (2012). Internet marketing of hay. In Mark Marsalis (Ed.), Alfalfa Market News (4th ed., vol. 11). Las Cruces, NM: Agricultural Experiment Station and Cooperative Extension Service, New Mexico State University. <http://aces.nmsu.edu/pubs/haymarketreports/docs/2012/Sep%132012.pdf>.

Marsalis, M. A., Lauriault, L. M., Trostle, C. (2012). Guide A-417, Millets for forage and grain in New Mexico and West Texas. Las Cruces, NM: Agricultural Experiment Station and Cooperative Extension Service, New Mexico State University.

Lauriault, L. M., Marsalis, M. A. (2012). The centennial history of alfalfa in New Mexico. In Mark Marsalis (Ed.), Alfalfa Market News (2nd ed., vol. 11). Las Cruces, NM: Agricultural Experiment Station and Cooperative Extension Service, New Mexico State University. <http://aces.nmsu.edu/pubs/haymarketreports/docs/2012/Jun%082012.pdf>.

Sutherland, C. A., Lauriault, L. M. (2012). Circular 659, Whitefringed beetle in New Mexico alfalfa. Las Cruces, NM: Agricultural Experiment Station and Cooperative Extension Service, New Mexico State University. http://aces.nmsu.edu/pubs/_circulars/CR659.pdf.

Press Releases and Newspaper Articles

Garcia, T. (2012). Interviewed L.M. Lauriault for: Farm Day highlights recycling. Quay County Sun (October 3, 2012), page 4.

Olmsted, A. (2012). Interviewed R.E. Kirksey for: Kirksey ready to take on new career. NMSU Press Release, Online: <http://newscenter.nmsu.edu/story/96/> (August 1, 2012).

Olmsted, A. (2012). Interviewed L.M. Lauriault for: NMSU's Tucumcari science center to celebrate centennial at field day, Aug. 2. NMSU Press Release (July 23, 2012).

Garcia, T. (2012). Interviewed L.M. Lauriault for: City, researchers collaborate on wastewater project. Quay County Sun (July 18, 2012), page 3.

Other Publications

Lauriault, L. M. (2012). What I learned at the ASA-CSSA-SSSA meetings in Cincinnati. Self-published email, (July 20, 2012).

Lauriault, L. M. (2012). What I learned at the joint meeting of the Western Wheat Workers, WERA-99, and Western Society of Crop Science. Self-published email, (October 30, 2012).

Lauriault, L. M., Grasswitz, T. R., Dreesen, D. R. (2012). Evaluation of selected plant species for attracting pollinators and other beneficial insects In Jean Foster (Ed.) Newsletter of the Soil and Water Conservation Society - New Mexico Chapter, (2nd ed., vol. 9, pp. 2-4). Albuquerque, NM.

Presentation at Academic Conferences

Lauriault, L. M. (2012). Strategies for N transfer from alfalfa to wheat. Joint Annual Meeting of the Western Society of Crop Science, Western Wheat Workers, and WERA-99, Western Society of Crop Science, Western Wheat Workers, and WERA-99, Pullman, WA (July 13, 2012).

Presentations at Public Conferences or Meetings

- Lauriault, L. M. (2012). Roundup Ready Alfalfa. Pesticide Applicators Workshop, NMSU Cooperative Extension Service, Tucumcari, NM (December 14, 2012).
- Lauriault, L. M. (2012). Update on the activities and future of NMSU's Agricultural Science Center. Rotary Club Luncheon, Tucumcari Rotary Club, Tucumcari, NM (November 15, 2012).
- Lauriault, L. M. (2012). Alfalfa production. San Miguel and Mora County Ag Day, NMSU Cooperative Extension Service/Tierra Montes SWCD, Las Vegas, NM (November 14, 2012).
- Lauriault, L. M. (2012). What was grown in 1912 compared to what we grow today. Elementary School Centennial Celebration, NMSU Provost's Office and Agricultural Science Center at Tucumcari, Agricultural Science Center, Tucumcari, NM (September 28, 2012).
- Lauriault, L. M. (2012). Alfalfa varieties and production. Field Day, NMSU Sustainable Agriculture Science Center, Alcalde, NM (August 15, 2012).
- Lauriault, L. M. (2012). The historical value of agricultural research. Field Day, NMSU Agricultural Science Center, Tucumcari, NM (August 2, 2012).
- Lauriault, L. M. (2012). Welcome and Announcements. Field Day, NMSU Agricultural Science Center, Tucumcari, NM (August 2, 2012).
- Lauriault, L. M. (2012). Field Day at NMSU's Agricultural Science Center at Tucumcari. KTNM Morning Show, KTNM Radio Station, Tucumcari, NM (July 31, 2012).
- Lauriault, L. M. (2012). Alfalfa production for higher elevations of Northcentral New Mexico. Alfalfa and Record Keeping Workshop, NMSU Cooperative Extension Service, Eight Northern Pueblos, Ohkay Owingeh, NM (June 26, 2012).
- Lauriault, L. M. (2012). Native and non-native species for improved pastures to attract wildlife. Minimum Till & Wildlife Workshop, NRCS/NMSU Cooperative Extension Service, Ladder Ranch Farm, near Hillsboro, NM (April 26, 2012).
- Lauriault, L. M. (2012). Alfalfa production for higher elevations of Northcentral New Mexico. Alfalfa and Record Keeping Workshop, NMSU Cooperative Extension Service, San Felipe Pueblo, NM (March 22, 2012).
- Lauriault, L. M. (2012). Crop rotation with alfalfa Sunflower. Introduction Workshop, NMSU Cooperative Extension Service, Pena Blanca/Cochiti Pueblo, NM (February 16, 2012).
- Trostle, C. L. (Presenter), Lauriault, L. M. (2012). Common concerns of alfalfa production in West Texas and New Mexico. Southwest Hay & Forage Conference, New Mexico Hay Association, Ruidoso, NM (January 26, 2012).

Professional Development Activities and Other Meetings Attended Not Previously Mentioned

Leonard Lauriault

- Conference Attendance, Joint Annual Meeting, American Society of Agronomy, Crop Science Society of America, Soil Science Society of America, Cincinnati, OH, (October 21, 2012 - October 24, 2012).
- Conference Attendance, Canadian River Riparian Restoration Project Workshop, Canadian River Riparian Restoration Project, NMDA, NM CES, RITF, and El Llano Estacado RC&D, Tucumcari and northeastern NM (October 11, 2012 - October 12, 2012).
- Continuing Education, Alfalfa pest management/selecting the right variety, Western Farm Press, <http://www.pentonag.com/swalfalfa> (July 27, 2012).
- Conference Attendance, Joint Annual Meeting, Western Society of Crop Science/Western Wheat Workers/WERG-97, Pullman, WA (July 11, 2012 - July 13, 2012).
- Continuing Education, Safety training - Tractor safety, NMSU Agricultural Science Center, Tucumcari, NM, USA (March 20, 2012).
- Continuing Education, Southwest Hay and Forage Conference, New Mexico Hay Association, Ruidoso, NM (January 26, 2012 - January 27, 2012).

Continuing Education, Safety training - Using power tools in the workplace, NMSU Agricultural Science Center, Tucumcari, NM (January 9, 2012).

Jason Box

Continuing Education. Amarillo Farm and Ranch Show. Amarillo, TX (November 29, 2012).
Conference Attendance, Canadian River Riparian Restoration Project Workshop, Canadian River Riparian Restoration Project, NMDA, NM CES, RITF, and El Llano Estacado RC&D, Tucumcari and northeastern NM (October 11, 2012 - October 12, 2012).
Continuing Education. High Plains Scout School. Lubbock, TX (June 1, 2012).
Continuing Education. daylong Beekeeping/Beneficial Insect Workshop. Tucumcari, NM (May 12, 2012).
Continuing Education. NM AgExpo. Portales, NM (February 21, 2012).
Continuing Education. Pesticide CEU Training. Tucumcari, NM (January 26, 2012).
Continuing Education. Crop Production Workshop. Farwell, TX (January 5, 2012).

Grant and Contracts:

Recycling treated municipal wastewater for subsurface irrigation of established home landscape, Sponsoring New Mexico Soil and Water Conservation Commission, \$26,610.15, Not Funded.
Invasiveness of selected Brassicaceae plants on wastewater-treated rangelands in New Mexico: Is sodium a causal element? NMAES Rangeland Ecosystem Program, \$29,811.00 Funded.
Centennial crop demonstration garden, NMSU Provost Centennial Celebration Program, \$2,500.00, Funded.
Fee-based alfalfa variety testing, Multiple seed companies, \$11,700.00, Funded.
Fee-based cotton performance evaluations, Multiple seed companies, \$2,875.00, Funded, all but \$375 was refunded due to a failed planting.
Fee-based sorghum grain and forage performance evaluations, Multiple seed companies, \$3,050.00, Funded, all refunded because the tests were not planted.

Memberships:

Leonard Lauriault

- American Society of Agronomy
- Crop Science Society of America (Branch Leadership Council)
- Western Society of Crop Science (Past President)
- American Forage and Grassland Council (Certified Forage and Grassland Professional)
- New Mexico Hay Association (Ex-officio Director)

Other Activities:

Leonard Lauriault

- Responded to approximately 75 miscellaneous questions from New Mexico residents, including NMSU NRCS, and FSA personnel, as well as residents and extension personnel in other states.
- Coordinated statewide alfalfa variety testing program.
- Managed the Eastern New Mexico Outdoor Arboretum at the Agricultural Science Center at Tucumcari.
- Continued program to distribute forage nitrate toxicity screening test kits to all interested AES and CES personnel in New Mexico.
- Canadian River Soil and Water Conservation District: Attended and participated in monthly meetings whenever possible as an interested party; Supervised maintenance and handled reservations for two seed drills and a tree-planter owned by the District for use by producers.
- Reviewed manuscripts for: Agronomy Journal (3); Crop Science (5); Field Crops Research (1); Grass and Forage Science (4).
- University of Agriculture, Faisalabad, Pakistan, Served as external reviewer of Ph.D. thesis for Muhammad Shehzad.

- Oregon State University Department of Crop and Soil Science, Reviewed Stephen Machado dossier regarding promotion from Associate Professor to Professor.
- Mexican researchers, Assisted with collection of bindweed mites for importation into Mexico, Tucumcari, NM (October 31, 2012).
- USDA - FSA and NRCS Local Working Group, Discussant, Tucumcari, NM (October 2, 2012).
- University of Wisconsin, Assisted graduate student Emily Rude with collection of switchgrass germplasm, Tucumcari, NM (August 28, 2012).
- Began serving as Interim Superintendent of the Agricultural Science Center (July 1, 2012).
- Missouri Botanical Garden, Transported and released bindweed mites to the Garden, Saint Louis, MO (June 16, 2012).
- Hosted Earth Day Service Project. Tucumcari High School Class of 2012 (April 19, 2012).

Jason Box

- Arch Hurley Conservancy District: Attended and participated in monthly meetings whenever possible as an interested party.
- Presented Safety training - Tractor safety, NMSU Agricultural Science Center, Tucumcari, NM, USA (March 20, 2012).
- Presented Safety training - Using power tools in the workplace, NMSU Agricultural Science Center, Tucumcari, NM (January 9, 2012).

Certifications for All Professional Staff:

- American Forage and Grassland Council, Certified Forage and Grassland Professional (through December 31, 2013; Leonard Lauriault only).
- First Detector Certification, National Plant Diagnostic Network (trained June 14, 2011; Jason Box only).
- Public Pesticide Applicator's License (through December 31, 2012).
- Private Pesticide Applicator's License for Rodent Control (through December 31, 2012).
- NMSU Assurance of Actual Training, IACUC (through December 2012).
- Worker Protection Standard, Pesticide Handlers (earliest expiration December 2012).

Annual Weather Summary

The first documented weather observations in the Tucumcari area were from a weather station near the Tucumcari Post Office. That station was operational from December 1904 through February 1913. The Agricultural Science Center at Tucumcari began recording daily precipitation in January 1912. Air temperatures were first recorded on May 26 of that year. The weather station at the center has remained in continuous operation since its establishment in 1912. An updated historical summary of weather observations at the Agricultural Science Center at Tucumcari was published as an Agricultural Experiment Station Research Report in early 2003. This report contains summary information relative to weather conditions at the center through 2002. The report is available from the Agricultural Science Center office or online at: http://aces.nmsu.edu/pubs/research/weather_climate/RR751.pdf.

In addition to the precipitation and weather records, the center has maintained records on wind movement since 1918. Above ground pan evaporation has been measured since 1953. Maximum and minimum soil temperatures, at a four-inch depth, have been recorded since 1977. Maximum and minimum water temperatures in the evaporation pan were first recorded in 1981.

Total precipitation for 2012 was 6.53 inches, 9.28 inches less than the long-term average of 15.81 inches (Table 1). There were no above average amounts of precipitation recorded in 2012. Record high and low amounts of precipitation, by month, are shown in Table 2. No precipitation records were set in 2012, although it had the second lowest total annual precipitation after 1934, which had only 6.13 inches. April through September 2012 precipitation (5.34 inches) was tied with 2000 as the third lowest on record after 1934 (4.65 inches) and 1951 (4.96 inches).

The mean maximum temperature for 2012 was 78°F which exceeded the long-term average by 5°F (Table 3) and broke the previous record of 77 °F, set in 1977. Mean monthly maximum temperatures were above normal for the months of January, March, April, May, June, July, August, September, November and December. Mean minimum temperature for 2012 was 47°F, which is 3°F higher than the long-term average of 44°F and the warmest on record followed by 2000 and 1934, both at 46 °F. Mean monthly minimum temperatures were above normal for the months of January, February, March, April, May, June, July, August, September, November and December. The mean annual temperature for 2012 was 62°F which is 4°F above the long-term average and a record high exceeding 61°F observed for 1934 and 1977.

The lowest recorded temperature in 2012 of 9°F was recorded on December 10th. The highest temperature, 108°F, was recorded on June 28th. Highest and lowest recorded temperatures and mean temperature extremes are shown in Table 4. Record highs were recorded on January 1st (71°F), April 25th (95°F), April 26th (97°F), April 27th (94°F), June 19th (106°F), August 12th (107°F), September 23rd (96°F), and December 2nd (77°F). There were no record lows were recorded. Tied record highs were: April 1st. (90°F), May 5th (95°F), June 10th (102°F), June 20th (105°F), June 28th (108 °F), August 2nd (105°F), and on August 4th (105°F).

The last spring temperature of 32°F in 2012 was recorded on April 4th. (Table 5). The first temperature of 32°F in fall was recorded on October 27th. Normal last spring and first fall freeze dates are March 29th and October 7th, respectively. The 2012 growing season was 207 days, 15 days longer than the long-term average of 192 days. The longest and shortest growing seasons on record are 222 and 136 days, which were recorded in 1989 and 1945, respectively.

The last snowfall in spring was recorded on February 7th. The first snowfall in winter 2012 was recorded on December 10th. Total snowfall in 2012 was 3.6 inches. The last snowfall in spring has occurred as late as May 18th in 1935 and 1980. The first snowfall in winter has been recorded as early as October 8th, in 1970. Summaries

of pan evaporation and wind run at the center are shown in Table 6. Records were recorded in 2012 for those observations as well.

Table 1. Summary of monthly precipitation amounts (inches) recorded at the NMSU Agricultural Science Center at Tucumcari, 1905-2012.

Month	2012	2011	2010	2009	2008	Average
January	0.00	0.00	0.99	0.00	0.02	0.37
February	0.22	0.39	0.96	0.68	0.03	0.48
March	0.09	0.73	1.27	0.91	0.21	0.77
April	0.18	0.10	0.63	0.66	0.78	1.14
May	1.51	0.03	0.30	1.08	2.50	1.98
June	0.93	0.18	1.26	0.63	2.04	1.92
July	0.33	1.42	3.93	2.30	5.64	2.68
August	0.97	1.21	2.42	2.81	3.61	2.78
September	1.42	2.71	0.93	0.25	0.58	1.55
October	0.38	0.81	0.94	1.71	2.91	1.29
November	0.00	0.01	0.12	0.25	0.09	0.70
December	0.50	1.81	0.27	0.56	0.22	0.64
Total	6.53	9.40	14.02	11.84	18.63	16.30

Table 2. Highest and lowest monthly precipitation amounts recorded at the NMSU Agricultural Science Center at Tucumcari 1905-2012.

Month	Maximum (inches)	Year	Minimum (inches)	Year
January	1.68	1999	0.00	2012
February	2.40	1912	0.00	2000
March	3.69	1919	0.00	1966
April	4.89	1997	0.00	1996
May	8.72	1921	0.00	1927
June	6.39	1919	0.00	1947
July	11.28	1950	0.24	1987
August	8.38	1933	0.12	1951
September	7.23	1941	0.00	1948
October	7.51	1923	0.00	1975
November	4.00	1905	0.00	2012
December	4.27	1959	0.00	1976
April - September Growing Season	25.70	1919	4.65	1934
Annual	34.96	1941	6.13	1934

Note: Where minimum records are shared by more than one year, only the most recent year is listed.

Table 3. Summary of mean monthly temperatures at the NMSU Agricultural Science Center at Tucumcari, 1905-2012.

Date	2012	2011	2010	2009	2008	Average 1905-2012
.....Mean Maximum Temperature (°F).....						
January	60	57	57	59	53	53
February	57	55	46	66	61	57
March	71	70	62	69	67	64
April	81	77	75	73	75	73
May	86	84	78	83	82	81
June	98	99	97	92	97	91
July	97	101	93	95	95	93
August	96	100	94	94	90	91 *
September	88	86	92	84	84	85 *
October	75	77	78	71	75	75 **
November	70	64	65	68	66	62 **
December	58	45	60	47	55	53 *
Annual	78	76	75	75	75	73 **
.....Mean Minimum Temperature (°F).....						
January	28	22	22	24	23	24
February	29	23	23	31	28	27
March	39	35	34	36	34	33
April	48	42	45	41	40	42
May	55	47	49	52	50	51
June	65	64	66	60	62	60
July	69	68	67	65	64	65
August	66	67	65	63	62	63
September	57	55	60	54	54	56
October	44	41	47	40	43	44 *
November	36	32	32	37	34	33 *
December	27	24	31	20	26	25
Annual	47	43	45	44	43	44
.....Mean Temperature (°F).....						
January	44	39	39	42	39	38
February	43	39	35	49	45	42
March	55	53	48	53	51	49
April	64	60	60	57	56	57
May	70	65	63	68	66	66
June	82	81	82	76	79	75
July	83	85	80	80	80	79
August	81	84	79	79	75	77 *
September	72	70	76	69	69	70 *
October	59	59	63	55	59	59 **
November	53	48	49	53	50	47 **
December	43	35	45	34	40	39
Annual	62	60	60	60	59	58 *

Note: *Indicates 1 year of missing data

**Indicates 2 years of missing data

Some records from previous years have been corrected

Table 4. Highest and lowest recorded temperatures (°F) and mean temperatures (°F), by month, at the NMSU Agricultural Science Center at Tucumcari, 1905-2012.

Month	Record Extremes (1913-2012)				Mean Extremes (1905-2012)			
	Highest		Lowest		Highest		Lowest	
	Temp	Year	Temp	Year	Max	Year	Min	Year
January	80	1974	-22	1963	62	2006	12	1963
February	83	2002	-16	1933	67	1976	17	1929
March	92	1989	-3	1948	75	1974	24	1965
April	97	2012	12	1920	81	2012	37	1983
May	103	2000	25	1917	90	1996	46	1983
June	109	1990	37	1919	99	2011	55	1983
July	107	2011	52	1995	101	2011	61	1967
August	108	2007	49	1988	100	2011	57	1965
September	104	1995	30	1970	92	2010	51	2006
October	97	2000	12	1993	82	1979	39	2009
November	90	2006	-2	1976	71	1999	26	1929
December	82	1980	-18	1918	66	1980	17	1983
Annual					78	2012	41	1963

Note: Where records are shared by more than one year, only the most recent year is listed.

Table 5. Summary of last spring and first fall temperature of 32°F and 28°F and growing season at the NMSU Agricultural Science Center at Tucumcari 1913-2012.

	2012	2011	2010	2009	2008	Average 1913- 2012	Record Extremes			
							Earliest	Year	Latest	Year
32°F or less										
Last in Spring	4-Apr	2-May	8-Apr	18-Apr	27-Apr	29-Mar	24-Mar	1943	15-May	1945
First in Fall	27-Oct	18-Oct	28-Oct	2-Oct	23-Oct	7-Oct	17-Sep	1965	19-Nov	1989
Growing Season (Days)	207	169	203	167	185	192	136	1945	222	1989
28°F or less (Killing Frost)										
Last in Spring	4-Apr	2-May	25-Mar	18-Apr	19-Mar	4-Apr	6-Mar	1935	6-May	1917
First in Fall	27-Oct	18-Oct	2-Nov	11-Oct	6-Nov	17-Oct	8-Oct	1970	27-Nov	2001*
Number of Killing Frost Free Days	206	169	217	176	188	211	169	1917	256	2001

*Also in 1965 & 1923

Table 6. Summary of pan evaporation (inches) and wind run (average miles per hour) at the NMSU Agricultural Science Center at Tucumcari, 1918-2012.

Month	Pan Evaporation				Wind Run	
	2012		1953 - 2012		2012	1918-2012
	Total	Daily Average	Monthly Average	Daily Average	Daily Average	Daily Average
inches.....				mph	mph
April	12.89	0.42	10.70	0.36	5.4	5.4
May	15.93	0.51	12.47	0.40	5.2	4.8
June	18.67	0.62	13.90	0.46	5.2	4.5
July	17.33	0.55	13.44	0.43	4.6	3.7
August	14.95	0.48	11.54	0.37	3.7	3.3
September	11.71	0.39	9.22	0.31	3.7	3.6
	91.48	0.50	71.27	0.39	4.61	4.22

Operational Revenues and Expenditures

The Agricultural Science Center at Tucumcari received \$65,556.00 in operational funds in FY 2011-2012 (Table 1). An additional \$29,529.00 was received from the 2005 SB190. Carry-over funds from the previous year totaled \$131,955.00. This includes \$2,500.00 from the NMSU Centennial Projects Fund.

The center billed itself \$13,078.00 for vehicle and equipment use based on established mileage rates and hourly charges for vehicles, tractors, and other equipment.

The alfalfa variety testing program generated \$11,900.00, the sorghum variety test generated \$3,050.00, and the cotton variety test generated \$2,500.00 in FY 2011-2012.

The center's operational expenditures in fiscal year 2011-2012 totaled \$152,756.00 (Table 1). The largest expenditure was Case IH Maxxum 140 tractor (\$71,271.70). Although Tractor/Vehicle Use shows up in the expenditure category of Table 1, it is a revenue source for the Tractor/Vehicle Index (101507). Equipment Repair & Maintenance in the amount of \$12,742.00 was the second largest expenditure of 2011-2012 (Table 1). This includes parts to repair the 3 point Tye drill (\$1,093.58), repairs to the leased Case IH tractor (\$5,322.58) and parts to repair the Giddings machine (\$1,889.06).

Expenditures for Non-office Supplies totaled \$3,348.00 in FY 2011-2012, which was \$1,548.00 less than the previous year. Total for chemicals purchased is \$5,492.00 which includes \$1,349.00 was spent for herbicides, \$2,985.00 for fertilizer, \$28.00 for insecticides, \$509.00 for pest control supplies, and \$676.00 for other concentrates.

Major purchases during the 2011-2012 Fiscal Year include a Case IH Maxxum 140 tractor (\$71,271.70), desk for the front office (\$2,033.14), HP Compaq 6200 Pro MT Computer with a 23" monitor (\$842.23), and two used plows (\$1,000.00) (Table 2). Additionally, the \$2,050.00 annual irrigation water assessment fee was paid to Arch Hurley Conservancy District. A new tool box was purchased for the shop (\$621.00) and more trees were purchased for the Outdoor Arboretum (Chatalpa, Baldcypress, Chinese Pistache, and a Smoketree) totaling \$770.00.

Table 1. NMSU Agricultural Science Center at Tucumanari, Approximate Expenditures by Index and Account Codes FY 2011-2012

Item	Admin Plan 101226	Station Sales 101206	Forage Mgmt. 107977	Managing Change 101392	Clayton Pastures 101510	Tractor/ Vehicle 101507	Renewal & Replacement 107346	2005 Appropriation 109601	Field Day 902395	Irrigation 113455	Hail Damage 113834	Centennial Grant 120125	Grand Total
REVENUE													
Beginning Balance	46,673	22,803	10,383	8,500	4,031	35,139	10,028	29,529	996	7,609	48,849	2,500	227,042
Sales/Fees Generated		17,856											17,856
Salaries/Wages Pool													0
Vehicle/Tractor Usage						19,752							19,752
Transfer of Funds													0
Budget Expense Pool													0
TOTAL REVENUES	46,673	40,659	10,383	8,500	4,031	54,891	10,028	29,529	996	7,609	48,849	2,500	264,649
EXPENDITURES													
Personnel													0
Temporary Salary	3,741			(8,622)				48					-4,836
Fringes	706			(2,771)									-2,074
TRAVEL	1,895	964	2,749	479		78		707					6,871
SUPPLIES													
Local Seminar	200							149					349
Automotive Supplies						368							368
Tires & Batteries						1,007		33					1,040
Fuels & Lubricants	47					8,283							8,330
Tractor/Hvy Equip. Supplies						406		656					1,062
Office Supplies	1,392		839					122					2,353
Computer Supplies	1,183		121	547				920					2,770
Non Office Supplies	1,131	357	1,049	422		56			330	3			3,348
Pest Control Supplies	60												60
Irrigation Supplies	79							421		27			526
Lab Supplies													0
Cleaning/Janitorial Supplies	209												209
Safety Supplies	71							72					143
Feed/Seed/Grain		2,470										111	2,581
Other Concentrate		876											876
Herbicide		1,343						6					1,349
Insecticide	28												28
Fertilizer		2,039	675	209				63					2,985
Business Meals/Food Items	171	104											275
Dues/Fees/Taxes	245		953	129				2,651					3,974
Books/Publications						187							187
Furn/Office Equip<=\$5000	90	2,754	1,000					842					4,686
Small Tools<=\$1000	699					31		433					1,163
Bl'dg. Repair & Maint Parts	428							231					659
Electrical Supplies	47							87					134
Plumbing Supplies	59							96					154
Scientific Equipment													0
Heating/Cooling Supplies								105					105
Equip. Repair/Maintenance	323					10,392		1,916		111			12,742
Painting Supplies	90												90
Veh. Repair/Maint. Parts						218							218
Miscellaneous													0
TOTAL SUPPLIES & MATERIALS	12,892	10,707	7,385	(7,942)	0	21,026	0	9,556	330	142	0	111	52,527

Table 1. (continued) NMSU Agricultural Science Center at Tucuman, Approximate Expenditures by Index and Account Codes, FY 2011-2012

Item	Admin Plan 101226	Station Sales 101206	Forage Mgmt. 107977	Managing Change 101392	Clayton Pastures 101510	Tractor/ Vehicle 101507	Renewal & Replacement 107346	2005 Appropriation 109601	Field Day 902395	Irrigation 113455	Hall Damage 113834	Centennial Grant 120125	Grand Total
SERVICES												0	
Postage	463		64			89							616
Telephone	2,736		116										2,854
Cellular Expense	2,105												2,105
Internet	467		144										611
Printing/Reproduction	30												30
Rental	181	1											182
Repair/Maint. Bldg							157						157
Repair/Maint. Equipment	403								243				576
Utilities - Electric	4,503								268				4,789
Utilities - Fuel	1,060												1,060
Trash Hauling	493												493
Landscaping													0
Advertising													0
Magazine Subscriptions	28												28
Sales Tax													0
Prof/Contract Services	119												119
Lab Analysis		13	1,499										1,511
Farm/Ranch Services		6	33			401							442
Tractor/Vehicle Usage	9,957		846	322			1,952						13,078
Irrigation Services													0
Freight	8						11		8				27
UPS/FedEx	35		78										113
Computer Software			110	77									187
TOTAL SERVICES	22,588	20	2,892	399	0	422	0	2,119	0	517	0	0	28,957
Equip. & Capital Outlay													0
Furn/Equip>\$1000	10,983			17,723		14,538	10,028	18,000					71,272
TOTAL EQUIP. & CAP. OUTLAY	10,983	0	0	17,723	0	14,538	10,028	18,000	0	0	0	0	71,272
TOTAL EXPENSES	46,463	10,726	10,277	8,500	0	35,986	10,028	29,676	330	659	0	111	152,756
ENDING BALANCE	210	29,933	106	0	4,031	18,905	0	-147	666	6,951	48,849	2,389	111,893

Table 2. Listing of major purchases paid for during FY 2011-2012, NMSU Agricultural Science Center at Tucumcari.

Date Purchased	Item Description	Index	Amount
11/1/2011	Parts to repair the 3-point Tye drill	101507	\$1,093.58
1/9/2012	HP Compaq 6200 Pro MT computer with a 23 inch monitor	109601	\$842.23
1/24/2012	Mayline (Brighton Collection) Desk for the front office	101206	\$2,033.14
2/27/2012	Repairs to the leased Case IH tractor	101507	\$5,322.58
2/17/2012	Parts for the Giddings machine	109601	\$1,889.06
2/27/2012	Tool box for the shop	101206	\$621.00
3/30/2012	Arch Hurley Annual Assessment fee	109601	\$2,050.79
4/27/2012	New Case IH Maxxum 140 Tractor	107346	10,028.00
		101392	17,722.90
		109601	18,000.00
		101226	10,983.29
		101507	<u>14,537.51</u>
			\$71,271.70
4/5/2012	Trees for Outdoor Arboretum	117137	\$770.00
5/25/2012	Two used plows	117137	<u>\$1,000.00</u>
	Total		\$86,894.08

Alfalfa Variety Testing in the Tucumcari Irrigation Project

Investigator(s):

L.M. Lauriault¹, P.L. Cooksey¹, J. Box¹, C. Henson¹, J. Jennings¹, and S. Jennings¹

¹New Mexico State University, Agricultural Science Center at Tucumcari, NM 88401

Objective(s):

To evaluate the local performance of alfalfa varieties submitted by proprietors.

Method(s):

There were no ongoing alfalfa variety tests in 2012 due to unavailability of irrigation water since 2010. With the availability of treated wastewater for irrigation in 2012, a standard alfalfa variety test and a Roundup Ready® variety test, each with 19 entries, were planted September 26, 2012 in the field fronting US 54 (Tables 1 and 2). The test area (Redona fine sandy loam) was conventionally tilled and formed into a flat seedbed for sprinkler irrigation. Plots were sown using a disk drill fitted with a seed-metering cone at 20 lb inoculated seed/acre in a Randomized Complete Block design with 4 replications set up for nearest neighbor analysis. Plots are 5 ft x 30 ft of which the center 5 ft x 16 ft will be harvested for yield five to six times from 2013 through 2015 after 14-ft borders are swathed and baled. A 14-ft border was planted between the outermost pivot track and the south edge of each test. There also is a 15 ft border near the center of the studies to facilitate equipment turning during harvesting. Irrigations were applied weekly at 0.5 inch per application to promote establishment. Fertilizer (19 lb N + 62 lb P/ac) was applied after the three trifoliolate stage. The Roundup Ready® test was treated with Roundup PowerMax® (1 qt/ac in a 2% solution) December 18th to destroy alfalfa plants not carrying the Roundup Ready® trait and for broad spectrum weed control.

Results:

No data was collected in 2012 to allow for establishment.

Reports giving results from statewide testing in 2012 and previous years are available at the New Mexico State University College of Agricultural, Consumer and Environmental Sciences' Publications and Videos Variety Test Reports webpage (http://aces.nmsu.edu/pubs/variety_trials/welcome.html#alfalfa) as well as from the Agricultural Science Center at Tucumcari and county Cooperative Extension Service offices.

Table 1. Tucumcari 2012 Standard Alfalfa Variety Trial drilled September 26, 2012.

6422Q	Integra8400	54V03	56S82
HybriForce2400	55Q27	Wilson	WL454HQ.RR
55Q27	DonaAna	55Q27	54V03
BluejayHR	56S82	NMCommon	Bluejay2
Roadrunner	NMCommon	HybriForce2400	55Q27
Malone	Mallard	Meadowlark	6422Q
54QR04	Wilson	Mallard	Mallard
56S82	54QR04	54QR04	Roadrunner
AfricanCommon	Bluejay2	NuMexBillMelton	Integra8400
Integra8400	WL454HQ.RR	BluejayHR	Wilson
Border	Border	Border	Border
Border	Border	Border	Border
Border	Border	Border	Border
WL454HQ.RR	Meadowlark	WL454HQ.RR	HybriForce2400
NMCommon	AfricanCommon	Malone	54QR04
NuMexBillMelton	BluejayHR	6422Q	Meadowlark
Meadowlark	6422Q	Bluejay2	DonaAna
54V03	NuMexBillMelton	AfricanCommon	NuMexBillMelton
DonaAna	Roadrunner	DonaAna	Malone
Wilson	54V03	Integra8400	AfricanCommon
Bluejay2	HybriForce2400	56S82	NMCommon
Mallard	Malone	Roadrunner	BluejayHR

The left of this page is west and the Roundup Ready® AVT is to the east of this study.

Table 2. Tucumcari 2012 Roundup Ready Alfalfa Variety Trial drilled September 26, 2012.

R78T823	R57A136	R66BX320	R66BX311
R66BX320	R65BD277	R78T823	54QR04
R65BD277	RR57K337	R57OK217	R57OK216
R86X214	R66BX320	R77T729	R65BD278
R65BD279	R57OK216	R65BD277	48W203
R57W213	R57OK217	54QR04	R58HG236
RR57K337	R65BD279	R57A136	R66BX320
R57A136	48W203	R65BD279	R57K138
R66BX312	R78T823	R58HG236	R57A136
R57K138	R86X214	R57K138	R57W213
Border	Border	Border	Border
Border	Border	Border	Border
Border	Border	Border	Border
R77T729	R57W213	RR57K337	R78T823
R66BX311	R66BX312	48W203	54V03
R57OK216	54QR04	R66BX311	R86X214
54V03	R65BD278	R86X214	R57OK217
48W203	R57K138	R65BD278	R66BX312
R57OK217	R66BX311	54V03	R65BD277
54QR04	54V03	R57W213	R65BD279
R58HG236	R58HG236	R57OK216	R77T729
R65BD278	R77T729	R66BX312	RR57K337

The left of this page is west and the standard AVT is to the west of this study.

Cotton Performance Evaluations in the Tukumcari Irrigation Project

Investigators

L.M. Lauriault¹, J. Zhang², J. Idowu³, P.L. Cooksey¹, J. Box¹, C. Henson¹, J. Jennings¹, and S. Jennings¹

¹New Mexico State University, Agricultural Science Center at Tukumcari, NM 88401

²New Mexico State University, Department of Plant and Environmental Sciences, Las Cruces, NM 88003

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Objective(s):

To evaluate the local performance of cultivars submitted by proprietors and NMSU's cotton breeding program.

Method(s):

With the prospect of availability of treated wastewater for irrigation in 2012 and good soil moisture at planting on June 11, 2012, two cotton performance evaluations were planted in the field fronting US 54 (Redona fine sandy loam). One test was a standard Roundup Ready® cotton variety test with 18 entries planted in two rows 30 inches apart and the other study was a non-Roundup Ready® test including 8 entries combined from NMSU's cotton breeding program and glandless varieties planted in four 30-inch rows. Fertilizer (62 lb N + 39 lb P/ac) was preplant incorporated based on soil test recommendations. Plots were planted using a 2-row John Deere flex-planter with a seed-metering cone on each planting unit into a conventionally tilled flat seedbed for sprinkler irrigation. The seeding rate was 5 seed/ft in a Randomized Complete Block design with 4 replications. Pre-emergent herbicide (Me-Too-Lachlor, 1 pt/ac) was applied on June 15th. Plots were 40 ft long with the intention of rototilling an 8.5 ft alley between plots to facilitate harvesting.

Results:

Although soil moisture was good at planting, there was little subsequent precipitation to sustain moisture for crop emergence and delivery of the treated wastewater was delayed until late August. Additionally, the soil crusted further inhibiting uniform emergence. Consequently, most plots had no plants at all and the study was sweep-plowed on July 27, 2012, to destroy existing plants and set aside any need to maintain insect traps for scouting.

Variation in Precipitation During the Growing Season at the Agricultural Science Center at Tucumcari

Investigator(s):

L.M. Lauriault¹, P.L. Cooksey¹, J. Box¹, C. Henson¹, J. Jennings¹, and S. Jennings¹

¹New Mexico State University, Agricultural Science Center at Tucumcari, NM 88401

Objective(s):

To evaluate variation in precipitation at multiple locations at the Agricultural Science Center at Tucumcari.

Method(s):

Precipitation was measured at three locations distributed throughout the Agricultural Science Center property (Figure 1). Location 1 was the National Weather Service station (ASC). Location 2 was just east of the northern plot area (Plots – E), where most of the small plot research had been conducted in the past and Location 3 was at the western end of that plot area (Plots – W). Precipitation was collected and measured at each location using an 8-inch US Weather Bureau Non-Recording Rain and Snow Gage.

Precipitation events were measured daily at approximately 8 am at ASC. At the other locations it was measured Monday through Friday at approximately 8 am or as soon after precipitation had ended and roads were passable. It was always measured at approximately 8 am on Monday. Consequently, weekly total precipitation for each location was tallied as of Monday morning. Data were collected from the week preceding April 4th until October 29 in 2012.

Weekly and season total precipitation data from each location were averaged and a standard deviation was generated to illustrate variation between the locations and differences in variation across locations within weeks and for the season total. The standard deviation also was divided by the weekly or total average and converted to a percent ($100 \times \text{standard deviation} / \text{mean}$, percentage of variation) to compare standard deviations associated with low or high precipitation weeks.

Results and Discussion:

Precipitation throughout 2012 was well below average (see Table 1 on page 12). Weekly and season total precipitation for April through October 2012 and their statistics (mean and standard deviation) are presented in Table 1 of this article. Weekly total precipitation ranged from 0.00 inches across all locations for several weeks to 1.35 inches at Plots - E during the week preceding October 1st. As in recent years, precipitation gradients were not consistent within weeks, but the season averages and totals were nearly equal among locations, which also was consistent with 2009 through 2011, but not previous years (Table 1). Excluding weeks with no precipitation, weekly variation between locations ranged from 0.006 inches to 0.223. The maximum in the range was greater than 2011 (0.147 inches), but more consistent to 2010 when the maximum was 0.275 inches.

The percentage of variation ($100 \times \text{standard deviation} / \text{mean}$) continues to be equal for season mean weekly precipitation and for season total precipitation indicating the value of using this statistic to compare the standard deviations of large and small means (Table 1). The standard deviation as a percent of the mean for specific weeks ranged from 0 to 173%, as it has since 2009, and there appeared to be little correlation between this value and precipitation amounts (Table 1).

The majority of small plot research was moved to another field in 2012. Consequently, the area formerly designated as the northern plot area will henceforth be called the north farm. During winter 2012-2013, rain gages at the north farm will be moved as part of a rearrangement of the field to accommodate land preparation and grazing.

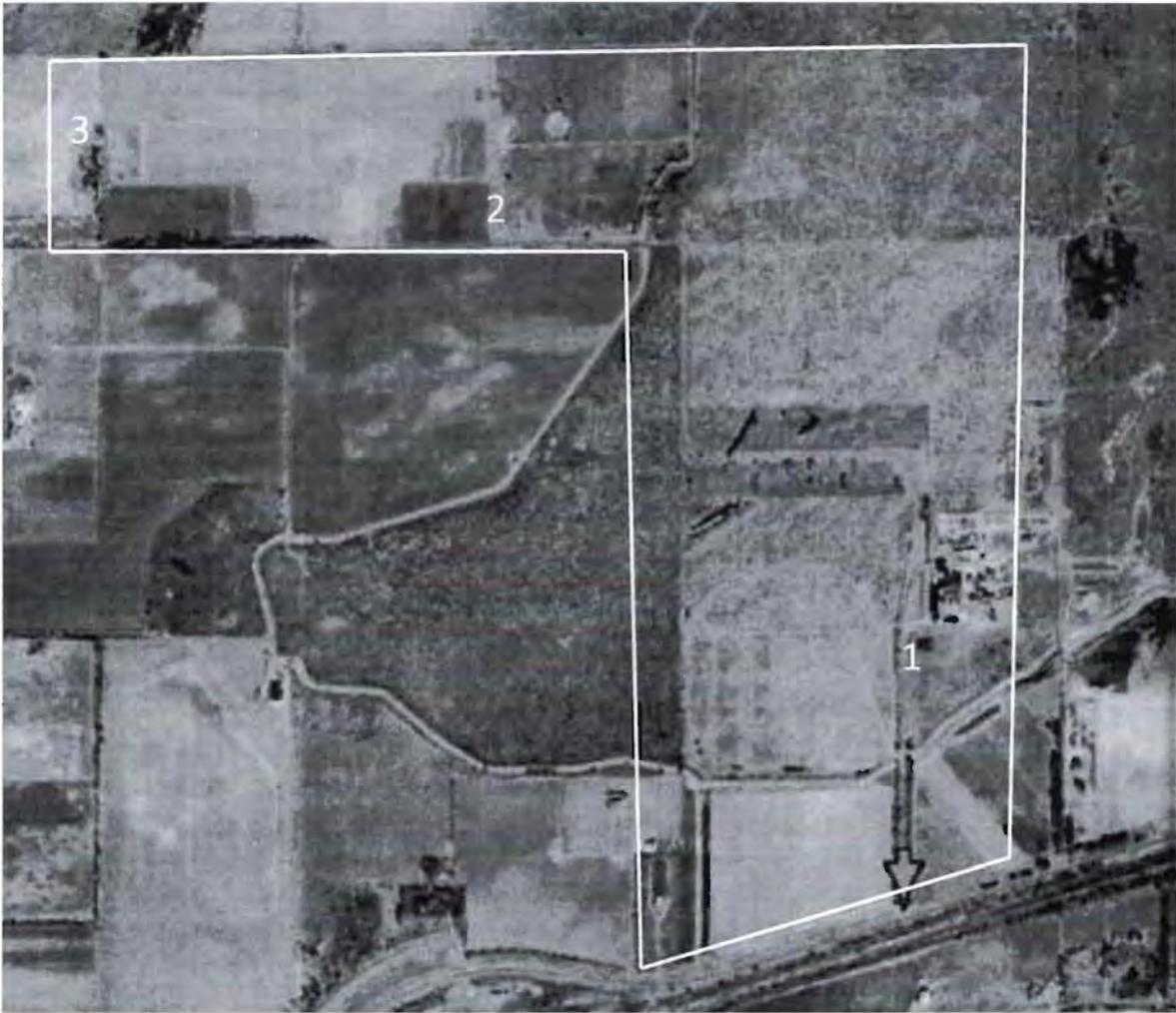


Figure 1. Locations of precipitation gages at the Agricultural Science Center at Tucumcari (1 inch = $\sim\frac{1}{4}$ mile). Location 1 was the National Weather Service station, south of the office building. Location 2 was just east of the northern plot area, where most of the small plot research had been conducted in the past and Location 3 was at the western end of that plot area.

Table 1. Precipitation at three locations at the Agricultural Science Center at Tucumcari from April through October 2012.

Year	Week	ASC ¹	Plots - E	Plots - W	Mean	Std. Dev.	100*Std. Dev./Mean ²
2012	2-Apr	0.00	0.00	0.00			
2012	9-Apr	0.04	0.00	0.00	0.01	0.023	173
2012	16-Apr	0.06	0.04	0.04	0.05	0.012	25
2012	23-Apr	0.00	0.00	0.00			
2012	30-Apr	0.10	0.10	0.05	0.08	0.029	35
2012	7-May	0.00	0.00	0.00			
2012	14-May	0.70	0.69	0.78	0.72	0.049	7
2012	21-May	0.03	0.00	0.00	0.01	0.017	173
2012	28-May	0.78	0.98	1.00	0.92	0.122	13
2012	4-Jun	0.02	0.00	0.00	0.01	0.012	173
2012	11-Jun	0.28	0.35	0.25	0.29	0.051	17
2012	18-Jun	0.63	0.80	0.73	0.72	0.085	12
2012	25-Jun	0.00	0.00	0.00			
2012	2-Jul	0.08	0.00	0.01	0.03	0.044	145
2012	9-Jul	0.21	0.20	0.19	0.20	0.010	5
2012	16-Jul	0.02	0.02	0.00	0.01	0.012	87
2012	23-Jul	0.00	0.00	0.00			
2012	30-Jul	0.01	0.01	0.00	0.01	0.006	87
2012	6-Aug	0.28	0.27	0.33	0.29	0.032	11
2012	13-Aug	0.01	0.00	0.00	0.00	0.006	173
2012	20-Aug	0.47	0.19	0.21	0.29	0.156	54
2012	27-Aug	0.21	0.17	0.26	0.21	0.045	21
2012	3-Sep	0.00	0.00	0.00			
2012	10-Sep	0.23	0.24	0.28	0.25	0.026	11
2012	17-Sep	0.26	0.22	0.25	0.24	0.021	9
2012	24-Sep	0.00	0.00	0.00			
2012	1-Oct	0.93	1.35	1.27	1.18	0.223	19
2012	8-Oct	0.00	0.00	0.00			
2012	15-Oct	0.38	0.41	0.53	0.44	0.079	18
2012	22-Oct	0.00	0.00	0.00			
2012	29-Oct	0.00	0.00	0.00			
2012	Average	0.18	0.19	0.20	0.19	0.007	4
2012	Total	5.73	6.04	6.18	5.98	0.230	4

¹ASC, Plots – E, and Plots – W signify the National Weather Service station, south of the office building; just east of the northern plot area, where most of the small plot research has historically been conducted; and the western end of that plot area, respectively.

²Percentage of variation. This calculation can be used as a method for comparing standard deviations associated with low or high precipitation weeks.

Evaluation of Selected Plant Species for Attracting Pollinators and Other Beneficial Insects

Investigator(s):

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¹New Mexico State University, Agricultural Science Center at Los Lunas, NM 87301

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Background and objectives:

In recent years, domesticated honeybee populations have suffered severe declines in many parts of the world - a phenomenon known as Colony Collapse Disorder, which is thought to be due to a complex combination of habitat loss, pathogens, exposure to insecticides, and other stresses. The decline in honeybee populations has stimulated increasing interest in providing habitat for both domesticated (hive) bees and for the native wild bees that can help provide pollination services in the absence of honeybees. Funding for on-farm pollinator plantings is now available under the cost-share programs administered by the NRCS (e.g. the EQIP programs for both organic and conventional producers to increase beneficial predator populations for integrated pest management and cover crops). However, until recently, advice on suitable plants has been limited to broad-based regional guides, with little information on the best choices for New Mexico. The aim of this project is to provide better guidance to farmers and growers by testing a range of (mostly native) plants for their ability to attract and sustain pollinators and other beneficial insects under a range of NM conditions.

The project began in 2010, with the planting of more than 100 species at the NMSU Agricultural Science Center/NRCS Plant Materials Center at Los Lunas. Additional funding was subsequently obtained from the Western IPM Center to expand the study to 3 other sites: the NMSU Agricultural Science Centers at Farmington and Tucumcari and at a community garden in Chaparral, NM.

Methods:

Details of the original planting at Tucumcari, including species descriptions, are given in the 2011 Annual Report of the Agricultural Science Center at Tucumcari (<http://tucumcarisc.nmsu.edu/documents/annual-report-2011.pdf>). Several species did not survive or reseed as anticipated, possibly because the seed fell on the weed fabric and did not contact the soil. Consequently, an additional 25 species were transplanted in June 2012 from seedlings raised in Los Lunas. Those are described in Table 1. Notes on plant establishment and size were taken approximately once a month throughout the 2012 growing season. Insect collections were also made on each plant assessment date in 2012.

Results:

The plantings at Tucumcari have provided data on plant survival, flowering phenology and associated insects, and as such will help refine and expand the NRCS's preliminary recommendations for pollinator plantings in New Mexico.

The insect collections are still being processed, but those from Tucumcari include several taxa not previously recorded at the other project sites, including species of *Svastra*, *Tetraloniella*, *Xylocopa*, and *Dieunomia*.

Table 1. Species transplanted at Tucumcari to attract pollinator insects in 2012 to replace species that did not survive from a 2011 transplanting.

Common	Species	USDA Symbol	Native status†	Life cycle
Blue Mountain prairie clover	<i>Dalea ornata</i> (Majestic)	DAOR2	NV	Perennial
Blue Mountain prairie clover	<i>Dalea ornata</i> (Spectrum)	DAOR2	NV	Perennial
Bush vetchling	<i>Lathyrus eucosmus</i>	LAEU	NM	Perennial
Caraway	<i>Carum carvi</i>	CACA19	Non-native	Biennial
Common selfheal	<i>Prunella vulgaris</i>	PRVU	TX	Perennial
Cumin	<i>Cuminum cyminum</i>	CUCY	Non-native	Annual
Dharming woodyaster	<i>Xylorhiza venusta</i>	XYVE	CO	Perennial
French sorrel	<i>Rumex scutatus</i>	RUSC8	Non-native	Perennial
Garden lovage	<i>Levisticum officinale</i>	LEOF	Non-native	Perennial
Giant coreopsis	<i>Coreopsis gigantea</i>	COGI	CA	Perennial
Hamburg turnip-rooted parsley	<i>Petroselinum crispum</i> var. <i>tuberosum</i>	PECR2	Non-native	Biennial
Hyssop	<i>Hyssopus officinalis</i>	HYOF	Non-native	Perennial
Lemmon's marigold	<i>Tagetes lemmonii</i>	TALE	AZ	Perennial
Lesser calamint	<i>Calamintha nepeta</i>	CANE17	Non-native	Perennial
Musk mallow	<i>Malva moschata</i>	MAMO	Non-native	Perennial
Palmer's penstemon	<i>Penstemon palmeri</i>	PEPA8	NM	Perennial
Panamint daisy	<i>Enceliopsis covillei</i>	ENCO	CA	Perennial
Raceme catnip	<i>Nepeta racemosa</i>	NEMU	Non-native	Perennial
Rocky Mountain penstemon	<i>Penstemon strictus</i>	PEST2	NM	Perennial
Roman chamomile	<i>Chamaemelum nobile</i>	CHNO3	Non-native	Perennial
Russian sage	<i>Perovskia atriplicifolia</i>	PEAT10	Non-native	Perennial
Southern globethistle	<i>Echinops ritro</i> ssp. <i>ruthenicus</i>	ECRIR	Non-native	Perennial
Trans-Pecos giant hyssop	<i>Agastache breviflora</i>	AGBR	NM	Perennial
Western yarrow	<i>Achillea millefolium</i> var. <i>occidentalis</i>	ACMIO	Non-native	Perennial
Yellow trumpetbush	<i>Tecoma stans</i>	TEST	NM	Perennial

†AZ, CA, CO, NM, NV, and TX signify Arizona, California, Colorado, New Mexico, Nevada, and Texas, respectively. Non-native indicates that the species is not native to North America.

Legislative Initiative for the Enhancement of Programs at the Agricultural Science Center at Tucumcari

Investigator(s):

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¹New Mexico State University, Agricultural Science Center at Tucumcari, NM 88401

Background

In the American southwest, as in many arid and semi-arid regions, water is becoming increasingly scarce and planners are considering all sources that might be available for use. Interest is increasing in the possibilities of recycling treated municipal wastewater for agricultural irrigation.

The City of Tucumcari Wastewater Treatment Facility (WWTF) has improved its processes and is producing Class 1B treated wastewater. These changes and an additional \$1.75 million New Mexico Water Trust Board grant and loan created an opportunity to recycle wastewater from the Tucumcari WWTF for research related to agricultural irrigation and for other purposes.

New Mexico State University's (NMSU) 470-acre Agricultural Science Center (ASC) at Tucumcari has been in continuous operation since 1912 and is located approximately 2.5 miles east of the Tucumcari WWTF (the figure). The Advisory Committee to the ASC at Tucumcari encouraged NMSU Administration and of Regents to pursue the opportunity, leading to a 20-year contract with the City of Tucumcari for the purchase of 300 acre-feet per year of recycled wastewater. In conjunction with this purchase, the City has used the New Mexico Water Trust Board grant and loan to construct a pipeline and pumping station to provide the recycled municipal wastewater to the ASC Tucumcari and other potential users and installed two center pivot irrigation systems (blue circles in the figure), increasing sprinkler irrigation capacity from 35 to 82 acres with two additional valves for future expansion (green x's in the figure).



Figure 1. Locations of Tucumcari Wastewater Treatment Facility, its current discharge system, and the recycled wastewater line developed to New Mexico State University's Agricultural Science Center at Tucumcari.

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Through this win-win collaboration, NMSU obtained a much needed year-around supply of water for agricultural research, the City can reduce its contribution to the contamination of the Canadian River watershed, producers in New Mexico and other semiarid regions will receive improved research capabilities from ASC Tucumcari regarding the use of recycled treated municipal wastewater, and local economies will benefit from agricultural production by secondary users.

Eighty-nine percent of the agricultural land in New Mexico is classified as rangeland. Rangelands have been the backbone of New Mexico agriculture for more than a century. Beef cattle and calves and sheep, which are primarily grown on rangelands, approached \$1 billion in annual cash receipts for New Mexico before the current drought. Producers and researchers alike share concerns about the sustained productivity of rangelands. In many cases, extended periods of drought and continuous grazing have contributed to the alteration of rangelands, such that the productivity of large areas is suppressed, undesirable plant species have invaded and are outcompeting native vegetation for water, and erosion has increased.

In the past decade there has been a shift in farm sizes throughout New Mexico such that many landholders operate with less than 20 acres, especially in close proximity to urban centers, but also in rural areas, including the area served by ASC Tukumcari. These landholders are interested in producing maximum yields of food for local consumption and exportation to urban centers with minimal input. Many of these landowners are new to agriculture and desire information about innovative production practices that are applicable to their situation.

The NMSU College of Agricultural, Consumer and Environmental Sciences provides ongoing support to agricultural producers in New Mexico. Active research programs exist at the Agricultural Science Center at Tukumcari, and at other locations across New Mexico. Extension Service personnel are found in every county, and a statewide network of researchers and Extension specialists lends support to local and statewide efforts. However, many of the research needs of agricultural producers remain unmet and an enhancement of the research and Extension programs at ASC Tukumcari would provide information to assist producers of all sizes, including those around the state's urban centers.

Upgraded equipment and facilities also are needed to support the research program at ASC Tukumcari. Particularly, for facilities, the building currently used for a shop is 100 years old this year with adobe walls that are in a state of disrepair that NMSU engineers feel is not manageable. In addition to being used for equipment maintenance, this building is used for larger public gatherings (75-150 attendees), such as field days when weather does not permit outside activities.

The Initiative

To fully utilize the recycled treated municipal wastewater as a research tool and conduct research and Extension programs to address reduction in water resources for agricultural production, deterioration of rangelands, and the needs of small landholders, the Advisory Committee to the Agricultural Science Center at Tukumcari has identified Irrigation/Limited Water Resource Management, Range Ecology and Improvement, and Production Options for Small Landholders as priority needs for the Tukumcari area. Each of these faculty responsibilities will also address statewide needs but additional funding for salaries, support staff, and operations will be necessary to bring about the program enhancement. Brief descriptions of the requested faculty positions are as follows:

Irrigation Soil-Plant-Water Quality Relationships

The faculty member will conduct a research and Extension program related to plant stresses and soil and environmental impacts when using quality-impaired water sources for agricultural irrigation in semiarid regions, including recycled treated municipal wastewater. Other projects related to regional agricultural production will be conducted as needed, particularly, toward reduced irrigation and rainfed systems as well as precision agriculture.

Range Improvement, Restoration, and Riparian Issues

Although a significant component of activity will be on cooperator land, this faculty member will establish a research and Extension program based from the Agricultural Science Center at Tukumcari related to grazing systems, range and pasture improvement, invasive species control, and riparian restoration in semi-arid watersheds.

Small Landholders Horticulturalist

This faculty member will develop a research and Extension emphasis to assist small landholders in maximizing productivity of horticultural crops with limited resources, particularly limited irrigation capacity.

This enhancement initiative requests recurring funds for the creation of three faculty positions at the Agricultural Science Center at Tukumcari, along with accompanying support personnel, and essential operational funds as well as Capital Outlay funding to purchase equipment and construct a multipurpose facility for larger public gatherings. The Advisory Committee to ASC Tukumcari agreed to pursue a 3-year initiative to secure legislative funding.

Program Enhancement Needs and Time Line for Funding

2013 Legislative Session:

1. Request Capital Outlay funding for the following items:

Shop/multipurpose building (including a separate septic system for ADA restrooms for which NMED approval will be required)	\$1,000,000
Self-contained fuel tank system	\$ 10,000
Tele-handler forklift	\$ 75,000
50hp tractor w/GPS	\$ 50,000
Irrigation system and infrastructure	\$ 120,000
Limb chipper	\$ 10,000
Total request for 2013	\$1,265,000

2. Support the initiative among their associates statewide to increase recurring AES funding by \$500K to add positions at four off-campus facilities, hoping to have two positions placed at Tucumcari, namely, a faculty member to address water related issues from dryland cropping through full irrigation, including usage of recycled wastewater, and a faculty member to work on rangeland and riparian issues. While the majority of the members considered the water position to be more critical, they also felt that the rangeland/riparian position was of sufficient importance that it also needs to be filled as soon as possible.

2014 Legislative Session:

1. Request capital outlay funding to purchase equipment items not funded in 2013 as well as additional equipment (amount to be determined) and faculty start-up dollars (\$450,000).
2. Request recurring funds for program enhancement to include the rangeland/riparian position (\$100,000 for salary and benefits, if not filled in 2013) and a horticulturalist (\$100,000) to work on small farms/limited input projects.
3. Request recurring funding for support staff for all faculty and additional farm labor (\$210,000 salary and benefits).
4. Request recurring funding for operations totaling about \$150K/year.

2015 Legislative Session:

1. Request capital outlay funding to purchase equipment items not funded previously funded and additional equipment (amount to be determined).
2. Request recurring funds for program enhancement not previously funded.

A Tribute to Rex E. Kirksey upon Retirement

Investigator(s):

L.M. Lauriault¹, P.L. Cooksey¹, J. Box¹, C. Henson¹, J. Jennings¹, and S. Jennings¹

¹New Mexico State University, Agricultural Science Center at Tucumcari, NM 88401

Rex Kirksey was with New Mexico State University from July 1, 1980, until June 30, 2012. He began his career with the University as an Extension agricultural economist program coordinator based at the Agricultural Science Center at Tucumcari and became the center's superintendent in August 1981, serving in that capacity for approximately 30 years and 11 months – the longest tenure of any superintendent as Bob Burnham served from early 1922 until March 16, 1951 (at most 29 years and 2.5 months), and David Williams served from March 16, 1951 until July 31, 1981 (30 years 4.5 months). Rex's accomplishments are recorded in the Annual Reports of the Agricultural Science Center at Tucumcari, which are available for most years at the center.

Because of his distinguished career, Rex was recognized on the floor of the United States Senate by New Mexico's US Senators Tom Udall and Jeff Bingaman. The text of that proclamation is below:

TRIBUTE TO REX E. KIRKSEY

Mr. UDALL. Mr. President, I, on behalf of my colleague Senator BINGAMAN and myself, wish to recognize Rex E. Kirksey on the occasion of his retirement, following a distinguished career serving the agricultural community in our home State of New Mexico and elsewhere.

Mr. Kirksey has dedicated 32 years of his life working for New Mexico State University to improve agricultural outreach and to facilitate vital research. As the Superintendent of the NMSU Agricultural Science Center in Tucumcari, New Mexico, Mr. Kirksey oversaw research programs focusing on developing forage and grazing systems for irrigated lands in New Mexico and the western United States.

In 2003, he took on additional responsibilities as Superintendent of the Agricultural Science Center in Clovis, New Mexico. Under his leadership, that institution emerged as the State's leading off-campus center with nationally and internationally recognized programs in agronomy, dairy management, peanut breeding, and crop stress physiology.

During his tenure at New Mexico State University, Mr. Kirksey authored many professional publications, including peer reviewed journal articles, proceedings papers, research reports and bulletins, progress reports and published abstracts, and an extensive range of business reports and correspondence. He has also given numerous presentations to industry and peer groups.

In addition to his work domestically, Mr. Kirksey has been involved with the Afghanistan Water, Agriculture, and Technology Transfer (AWATT) project—a partnership with USAID and New Mexico State University. This project aims to improve the community and farm-level management of the supply and demand of irrigation water resources for increased agricultural productivity and food security in Afghanistan. He also has worked with the Botswana Sustainable Agriculture Initiative, an international consortium with a goal to develop an integrated, sustainable agricultural system. The Botswana Initiative will assist both small and large farms to employ conservation agriculture practices to increase fresh water availability, grow more nutritious food, build agricultural infrastructure, create more agricultural jobs, and stimulate enterprise creation in rural areas.

Mr. Kirksey's leadership and expertise has made a difference in the lives of so many people in our Nation, as well as other parts of the world. Senator BINGAMAN and I thank Mr. Kirksey for his commitment and dedication to the people of New Mexico and to our agricultural communities. We would also like to thank his wife Cyndie and their three children for always supporting Rex in his endeavors. Thanks to his work and the work of our land-grant institutions, farmers and ranchers across the country have access to the resources they need to help ensure our country's future competitiveness in an increasingly global economy.

We wish Mr. Kirksey continued success, and a most happy retirement.

NMSU Faculty/Staff Spotlight – Kirksey ready to take on new career

Rex Kirksey retired from his position as the superintendent of the Agricultural Science Center at Clovis and the Agricultural Science Center at Tucumcari in June.

When Rex Kirksey first applied for a position as a NMSU agricultural economist program coordinator in Tucumcari, he never imagined how far it would take him.

"I applied for the job thinking I would take it until something better came along," he said. "It only lasted 32 years then I finally decided it was time to do something different."

That "something different" came in the form of an offer to take over First Title Services, Inc. in Tucumcari.

Kirksey saw this as an opportunity to return to an original career passion and in June, retired as the superintendent of the Agricultural Science Center at Clovis and the Agricultural Science Center at Tucumcari.

Running First Title Services brings Kirksey back to an interest he gained while working for the Federal Land Bank after he earned his bachelor's degree at NMSU, where he worked with mortgages and land titles.

Kirksey said he was more than ready to take a step back to allow fresh blood and fresh ideas into the two centers.

That is not to say he won't miss working with his colleagues and conducting research, in particular helping local producers. The involvement in international development in Afghanistan and Botswana was rewarding and Kirksey wishes he could continue more of those efforts.

"Working with these two projects helped me realize how fortunate we are and how much we as Americans still have to offer other countries in terms of farming knowledge and agricultural research," he said.

Kirksey is excited to see projects move forward at the centers, in particular a collaboration with the City of Tucumcari that will bring treated wastewater to the science center, opening up many new avenues of research opportunities.

"I'm optimistic, encouraged about the future of both stations and I hope I created an opportunity for them to springboard to bigger and better things," he said.

Looking back at his 32 years at NMSU, Kirksey said what he most loved to do was work with students and young people to help them broaden their knowledge of agriculture, and then watch them go on to further their education and find jobs in agriculture or other areas that contribute to society.



"Seeing them out in the industry now and influencing national, international agricultural production, is of significance to me," he said.

He added he will also miss helping area producers stay in business through guidance and education – especially during these trying agricultural times.

Along with taking on First Title Services, Kirksey's personal life is keeping him busy as well. His youngest daughter is getting married in October and his son and daughter-in-law are expecting their first child this month. Kirksey also has another daughter who just graduated from NMSU and is pursuing a career in nursing.

"In many regards, NMSU takes lots of knocks for not being a perfect place to work," Kirksey said. "We all wish salaries were higher; and at times, we wish administration was more responsive. Looking back over the 32 years, there is nothing I would change about it. I'm happy and proud to have been an NMSU alumni and NMSU employee. I would do it all again. It was the best times of my life so far."

Written by Audry Olmsted, August 1, 2012 (<http://newscenter.nmsu.edu/work/story/96/>)

To commemorate his retirement and the Centennial Celebration of the Agricultural Science Center and New Mexico's statehood, the Advisory Committee of the Agricultural Science Center and friends presented Rex with an engraved Parker Duofold Centennial Black and Gold fine point fountain pen.