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Conversion Table for English and Metric (SI) Units

The following conversion table is provided as an aid for those who may wish to convert data appearing in this report from English (U.S.) units to Metric (SI) units, or vice versa. (Calculations are approximations only.)

To convert English to Metric, multiply by	English (U.S.) units	Metric (SI) units	To convert Metric to English, multiply by
2.540	inches (in)	centimeters (cm)	0.394
0.305	feet (ft)	meters (m)	3.281
1.609	miles (miles)	kilometers (km)	0.621
0.093	square feet (ft ²)	square meters (m ²)	10.764
2.590	square miles (mile ²)	square kilometers (km ²)	0.386
0.405	acres (ac)	hectares (ha)	2.471
28.350	ounces (oz)	grams (g)	0.035
29.574	fluid ounces (fl oz)	milliliters (mL)	0.034
3.785	gallons (gal)	liters (L)	0.264
0.454	pounds (lbs)	kilograms (kg)	2.205
907.185	ton (2000 lbs) (t)	kilograms (kg)	0.001
0.907	ton (2000 lbs) (t)	metric tonnes (t) or Megagrams (Mg)	1.102
1.000	parts per million (ppm)	ppm (mg/kg)	1.000
1.121	pounds/acre (lbs/ac)	kilograms/hectare (kg/ha)	0.892
2.240	tons/acre (t/ac)	Megagrams/hectare (Mg/ha)	0.446
16.018	pounds per cubic feet (lbs/ft ³)	kilograms per cubic meter (kg/m ³)	0.062
0.070	cubic feet/acre (ft ³ /ac)	cubic meters/hectare (m ³ /ha)	14.291
73.078	ounces/acre (oz/ac)	milliliters/hectare (mL/ha)	0.014
62.710	bushels/acre (corn: 56# bu)	kilograms/hectare (kg/ha)	0.016
67.190	bushels/acre (wheat: 60# bu)	kilograms/hectare (kg/ha)	0.015
125.535	Cwt/acre (100 wt)	kilograms/hectare (kg/ha)	0.008
0.042	Langleys (Ly)	Megajoules (MJ)/m ²	23.900
(°F-32)÷1.8	Fahrenheit (°F)	Celsius (°C)	(°C x 1.8) + 32

For additional helpful English-Metric conversions, see: <https://www.extension.iastate.edu/agdm/wholefarm/html/c6-80.html> and <https://www.nrcs.usda.gov/wps/portal/nrcs/detailfull/null/?cid=stelprdb1043619>

A photograph of a garden with green bell peppers and carrots. The image is split vertically. The left side shows a close-up of several bright green bell peppers hanging from a plant. The right side shows two large, orange carrots with green leafy tops. The background is filled with various green leaves and stems of other plants.

Executive Summary

Since 1957, many types of crops have been researched on the 204-acre farm including alfalfa, corn, sorghum, grapes (wine and table), pasture grasses, chile, and other vegetables, turfgrass, native plants, and fruit trees. Significant improvements in species and variety selection, plant and water management, and integrated pest control have resulted from the multi-faceted programming at the Los Lunas station. Research and Extension programs address the needs of not only the small-acreage farmers located on the 50,000+ irrigated acres of the Middle Rio Grande Valley but also the urban gardeners and homeowners in the largest urban region of the state, reaching thousands of people each year.



Meeting The Needs Of New Mexico

The Agricultural Experiment Station (AES) system is the research arm of New Mexico State University's (NMSU) College of Agricultural, Consumer, and Environmental Sciences (ACES), consisting of scientists on the main campus and at agricultural science centers (ASCs) throughout New Mexico. The 12 ASCs support fundamental and applied research under New Mexico's varied environmental conditions to meet the agricultural and natural resource management needs of communities in every part of the state. ASCs consist of two types: 1) facilities without resident faculty, which serve as research support field laboratories for campus-based faculty, and 2) off-campus facilities with faculty stationed at the centers that also serve, in part, as research support field laboratories for campus-based faculty.

The background of the page is a photograph of a vast agricultural field. The foreground and middle ground are filled with rows of vibrant green plants, likely a type of vegetable or grain. The field extends towards a line of trees in the distance. The sky above is a clear, bright blue with a few wispy white clouds. The overall scene is bright and healthy, representing agricultural productivity.

Mission

The mission of the Agricultural Science Center at Los Lunas is to conduct research and Extension programs on various crops and plant-based systems important to New Mexicans in the Middle Rio Grande Valley (MRGV) and throughout New Mexico. Through a cooperative agreement with the USDA-NRCS Los Lunas Plant Materials Center (PMC), the ASC-Los Lunas and PMC work together to solve agricultural and conservation issues.

Agricultural Science Center at Los Lunas

The ASC–Los Lunas works together with the USDA Natural Resources Conservation Service (NRCS) Los Lunas Plant Materials Center to solve agricultural and conservation/reclamation issues statewide.

In the late 1990s, the research efforts of the ASC-LL began to shift as stakeholder needs for information on diversified crops increased.

Established in 1957, initial research efforts were placed on forage and vegetable crops. Research expanded to include different crops including alfalfa, corn, sorghum, grapes (wine and table), pasture grasses, chile and other vegetables, turfgrass, native plants, and fruit trees. The multi-faceted programming at the ASC has produced significant improvements in species and variety selection, plant and water management, and integrated pest management (IPM). Programs address the needs of small-acreage farmers located on the 50,000+ irrigated acres of the MRGV, and the urban gardeners in the largest urban region of the state, reaching thousands of people each year.

Agricultural Experiment Station

What Is the Agricultural Experiment Station?

NMSU's Agricultural Experiment Station is the principal research unit of the College of Agricultural, Consumer and Environmental Sciences. All research faculty in the college have appointments in the Agricultural Experiment Station.

Mission

The Agricultural Experiment Station is not a physical site, but rather a system of scientists who work on facilities on the main campus in Las Cruces and at 12 agricultural science and research centers located throughout the state. The Agricultural Experiment Station system also interacts with other university research units and various state and federal agencies to provide opportunities for research that will benefit the citizens of New Mexico.

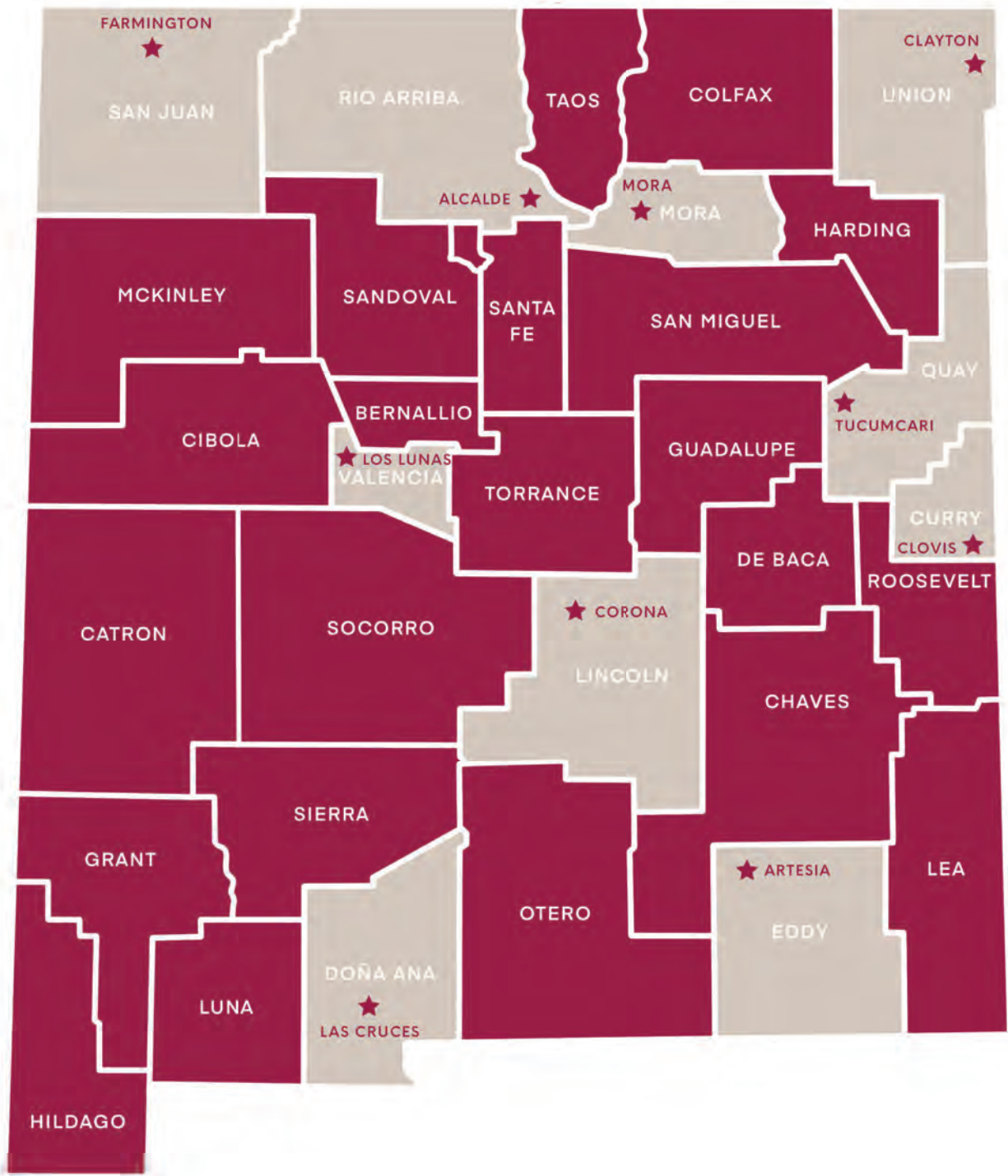
The Agricultural Experiment Station supports research designed to:

- Enhance agricultural profitability.
- Stimulate economic development using natural resources.
- Improve the quality, safety and reliability of food and fiber products.
- Sustain and protect the environment with ecologically sound practices.
- Manage and protect natural resources.
- Improve the quality of life for the people of New Mexico.

AES Research Focus includes, but is not limited to:

Agricultural water use efficiency, endangered/ sensitive species management, cattle genetics to improve grazing, improve forage quality, range management improved crop selection, soil-borne disease prevention, food safety and nutrition, product development and value-added agricultural products, medicinal plant uses, and water quality and treatment.

NMSU Agricultural Experiment Station



★ Station Locations

NMSU ASC at Los Lunas Weather

The weather station at the Agricultural Science Center at Los Lunas has remained in continuous operation since its establishment in July 1957. Weather observations at the Agricultural Science Center at Los Lunas from 1958 – 2020 can be accessed online at: <https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?nm5150>. Observations included here are average, maximum, and minimum air temperature and precipitation, from 2016-2020 (5-yr), and long-term averages (1958-2020); Tables 1 and 2. Pan evaporation and wind speed information is presented for 2020 only (Table 3).



Total precipitation for 2020 was 6.25 inches, 1.94" less than the long-term average of 8.19 inches (Table 1). Above-average precipitation was recorded in February, March, July, and September. The greatest amount of precipitation falling within 24 hours (0.59 inches) was measured on February 11, 2020.

Table 1. Summary of average monthly precipitation amounts (inches) recorded at the NMSU Agricultural Science Center at Los Lunas, 1958-2020.

Month	2020	2019	2018	2017	2016	Average
January	0.23	0.56	0.00	1.43	0.19	0.48
February	0.93	0.41	0.37	0.94	0.50	0.63
March	0.75	0.33	0.12	0.16	0.00	0.27
April	0.38	1.46	0.00	0.87	0.97	0.74
May	0.19	0.40	0.09	0.42	0.50	0.32
June	0.30	0.53	1.36	0.05	0.72	0.59
July	1.28	1.13	1.19	0.60	0.75	0.99
August	0.15	0.44	0.62	3.12	0.50	0.97
September	1.10	0.53	0.89	1.71	0.68	0.98
October	0.62	0.64	2.26	1.11	0.70	1.07
November	0.06	2.36	0.11	0.00	1.46	0.80
December	0.25	0.33	0.48	0.00	0.70	0.35
Total	6.25	9.12	7.51	10.41	7.67	8.19

Table 2. Summary of mean monthly temperatures at the NMSU Agricultural Science Center at Los Lunas, 1958-2020.

Date	2020	2019	2018	2017	2016	Average
..... Mean Maximum Temperature (°F)						
January	52	49	56	54	52	53
February	57	55	62	63	64	60
March	67	67	67	74	72	69
April	75	73	78	75	74	75
May	87	77	86	82	81	83
June	92	89	94	96	97	94
July	95	96	93	97	99	96
August	96	95	92	91	91	93
September	86	88	88	88	88	88
October	78	73	71	77	82	76
November	66	59	60	69	65	64
December	51	51	51	57	54	53
Annual	75	73	75	77	77	76
..... Mean Minimum Temperature (°F)						
January	19	16	11	21	17	17
February	23	22	21	25	20	22
March	34	32	26	30	29	30
April	38	39	36	35	35	37
May	49	43	47	44	43	45
June	54	54	57	55	57	55
July	63	63	63	61	60	62
August	60	60	58	57	56	58
September	48	54	49	48	49	50
October	35	34	40	34	37	36
November	30	26	20	26	29	26
December	16	22	15	13	20	17
Annual	39	39	37	37	38	38
..... Mean Temperature (°F)						
January	36	32	33	37	34	34
February	40	38	42	44	42	41
March	51	49	47	52	51	50
April	57	56	57	55	54	56
May	68	60	67	63	62	64
June	73	72	76	76	77	75
July	79	79	78	79	80	79
August	78	78	75	74	73	76
September	67	71	68	68	68	68
October	57	53	56	56	60	56
November	48	42	40	47	47	45
December	33	37	33	35	37	35
Annual	57	56	56	57	57	57

The lowest temperature in 2020 was recorded on February 5 (7°F).

The highest temperature for the year, 105°F, was recorded on July 12. May, August, October, and November exhibited higher mean maximum temperatures than the long-term averages.

The mean minimum temperature was 39°F (1 degree above long-term ave), and the mean annual temperature for 2020 was 57°F (Table 2). Mean temperatures were equal to or higher than long-term averages, with the exception of February, June, July, September, and December for all 12 months.

The last spring temperature of below 32°F in 2020 was recorded on April 16 (28°F). The first temperature of less than 32°F in fall was recorded on October 27 (21°F). Average last spring and first fall freeze dates are April 17 and October 26, respectively. The 2020 growing season was 194 days, which is equal to the long-term average.

Total snowfall in 2020 was 7.00 inches, with four events in January, February, and October. The last snowfall was recorded on October 28.

Table 3. Summary of pan evaporation (inches) and wind run (average miles per hour) at the NMSU Agricultural Science Center at Los Lunas, 2020.

Month	Pan Evaporation		Wind Speed
	2020		
	Total	Daily Average	Daily Average
inches.....		mph
April*		4.3	
May		10.7	
June		11.2	
July		10.7	
August		9.9	
September		6.3	
October		4.6	
Season total/average		57.7	
* April = Apr 17-30 only			

Agricultural Science Center at Los Lunas

Faculty and Staff

Faculty

Mark Marsalis, Ph.D.
***Superintendent,
Extension Forage
Specialist***

William "Gill" Giese, Ph.D.
*Extension Viticulturist
Specialist*

Amanda Skidmore, Ph.D.
*Extension Integrated Pest
Management Specialist*

Marisa Thompson, Ph.D.
*Extension Horticulture
Specialist*

Office, Technical and Field Staff

Michael "Tom" Place
Farm Manager

Dennis Price
Facilities Coordinator

Cathy Casaus
Fiscal Assistant

Candace Sabazar
Administrative Assistant

Charles Havlik, M.S.
Senior Research Assistant

Miranda Kersten
Sr. Program Specialist

Jose Gonzalez
Laborer - Sr.

Carl Mendoza
Laborer-Sr.

Jolene Wulf
Laborer - Sr.

Students, Temporary and Seasonal Employees

Ge Zhang, Ph.D
Postdoc

Kathryn Moody
M.S. Graduate Student

Estaban Jaramillo
Seasonal Laborer

Mellene Pablo
Seasonal Laborer

Tyra Trumble
Seasonal Laborer

Patrick Torres
Extension Intern

Advisory Board Members

1. Eugene Abeita
2. Dan Kloss
3. Matthew Aragon
4. Mike Lundmark
5. Karen Barela
6. Mathew Chavez
7. Bryan Suhr
8. Mike Conant
9. Lin Yeskie
10. Harvey Crowley
11. Zena Kinne

Cooperators/Collaborators

1. ADAMA Inc., Amaro, Lescombes and Noisy Water wineries
2. Albuquerque- Bio Park
3. AZ Cooperative Extension Service
4. BASF
5. Bridgestone Americas Inc.
6. Colorado State University
7. Curry Chile & Seed Co.
8. Double-A Nursery
9. Duarte Nursery
10. Guar Resources, TX
11. Jicarilla Nation
12. Lescombes Vineyard
13. National Grape Research Alliance
14. NM Chile Association
15. NM Chile Commission
16. NM Cooperative Extension Service
17. NM Farmer's Markets
18. NMSU Alcalde Center
19. NMSU Artesia Center
20. NMSU Clovis Center
21. NMSU Fabian Garcia Center
22. NMSU Farmington Center
23. NMSU Leyendecker Center
24. NMSU Mora Center
25. NMSU Tucumcari Center
26. Olam Foods
27. Pueblo Santa Ana and Tamaya Resort Inc.
28. Santa Ana Pueblo
29. Stahmann's Inc.
30. University of Arizona
31. USDA NRCS
32. Whole Foods Market, Durango CO, and Farmington
33. Wine Cartel Inc. (winery consultants, Mr. Michael Dominguez), Mr. Michael Leonardelli, climatologist

Ag Science Center at Los Lunas

Fiscal Year: **2020**
 Fiscal Period: **30-Jun-20**

Department	Acct Type	Account Index Desc	Revenue YTD	Expense Budget	Expense YTD	et Balance Available	Fund Balance Dr/(Cr)
Ag Science Ctr at Los Lunas	IPIPE IN NEW MEXICO: URBAN CROP PES	IPIPE IN NEW MEXICO URBAN CROP PEST		\$51,500.48	\$38,007.15	\$13,493.33	
Ag Science Ctr at Los Lunas	IPM EDUCATION & OUTREACH IN NM COMM	DELIVERING IPM EDUCATION & OUTREACH		\$396,294.24	\$138,979.86	\$257,314.38	
		Total Restricted Funds		\$447,794.72	\$176,987.01	\$270,807.71	
Ag Science Ctr at Los Lunas	OVERHEAD TRANSFERS	START-UP A. BENNETT	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Ag Science Ctr at Los Lunas	SALES & SERVICE	PMC LOS LUNAS SALES	\$0.00	\$5,000.00	\$0.00	\$5,000.00	(\$15,335.69)
Ag Science Ctr at Los Lunas	SALES & SERVICE	LOS LUNAS ASC SALES	\$53,261.50	\$10,000.00	\$32,899.97	(\$22,899.97)	(\$41,156.53)
		Total Sales and Service Funds	\$53,261.50	\$15,000.00	\$32,899.97	(\$17,899.97)	(\$56,492.22)
							* See note
Ag Science Ctr at Los Lunas	STATE APPROPRIATIONS	ASC-LOS LUNAS SALARY		\$349,014.07	\$365,801.45	(\$16,787.38)	
Ag Science Ctr at Los Lunas	STATE APPROPRIATIONS	LOS LUNAS ADMIN		\$53,148.00	\$49,423.35	\$3,724.65	
Ag Science Ctr at Los Lunas	STATE APPROPRIATIONS	FORAGE MANAGEMENT FOR NM		\$35,000.00	\$16,589.56	\$18,410.44	
		Total State Appropriated Funds		\$437,162.07	\$431,814.36	\$5,347.71	

Note: " () " In the Fund Balance column indicates a positive number

AES RESEARCH

NMSU's Agricultural Experiment Station research publications provide information to help improve production techniques and efficiencies for farmers, ranchers, dairies, and other agricultural producers.



Forestry



Agronomy



Dairy



Weather and Climate



Horticulture



Task Force Reports



Livestock and Range



Water



Economics

FORAGE RESEARCH & EXTENSION PROGRAM NMSU

AGRICULTURAL SCIENCE CENTER AT LOS LUNAS STATEWIDE

Investigators: Dr. Mark Marsalis, Extension Forage Specialist, Extension Plant Sciences Dept.

PROGRAM DESCRIPTION

Forage crops comprise the greatest amount of cropland acres in New Mexico, and their overall value in the state is second to none. Many species of forages are grown in the vastly diverse climates of New Mexico and are harvested in many forms to be used to feed a wide array of livestock. New Mexico is home to over 1.3 million cattle and calves, 320,000 dairy cows, 90,000 sheep, 20,000 goats, and more than 75,000 horses. Forages constitute a large proportion of the livestock diet, and high-quality feed is necessary for meat and milk production and optimal animal performance. Water resources used for irrigation are declining in much of the Southwest. Many of New Mexico's forage production systems are not sustainable and new, alternative crops and cropping systems must be developed to maximize water-use for farmers to maintain a level of productivity necessary for continued feed and food supply. New drought-tolerant alfalfa varieties and crop management schemes are being utilized at NMSU to improve water-use efficiency and extend water resources. Additionally, sorghum is a water-conserving crop that has potential as an alternative to traditional corn grown for silage, and teff grass is a popular and profitable water-saving hay crop. Extension and research programs involving alfalfa hay and silage crop management, lowering inputs, marketing, and variety selection are necessary for all areas of NM so that continuous crop improvement information can be supplied to growers, beef operations, dairies, and horse owners. This program seeks to address all of these crop and animal-based needs on the small to medium-sized farms in the Middle Rio Grande Valley and throughout New Mexico. Extension programming and research results are extended to growers, extension agents, landowners, industry, and resource managers through conferences, talks, publications both printed and online, websites, field research, and demonstrations.

PEST MANAGEMENT IN (E.G., WEEDS AND INSECTS) 12 INTEGRATED PEST MANAGEMENT RESEARCH & EXTENSION PROGRAMS; NMSU AGRICULTURAL SCIENCE CENTER AT LOS LUNAS AND STATEWIDE

Investigators: Dr. Amanda Skidmore, Extension IPM Specialist, Extension Plant Sciences Dpt.

PROGRAM DESCRIPTION

My program focuses on research projects and extension/outreach focusing on the development of integrated pest management practices (IPM) and their adoption by New Mexico stakeholders. IPM focuses on holistic management practices to manage pests through preventative, cultural, mechanical, and biological practices to reduce chemical inputs and increase sustainability. Extension programs are focused on small farms and urban agriculture, but we contribute as needed and collaborate with programs seeking to manage pests in rangeland, urban structures, animal production facilities, specialty cropping systems, etc. Extension programs are tailored to stakeholder needs, often focusing on adult education. Research focuses on developing and testing IPM principles within the state, particularly focusing on stakeholder concerns.

NMSU VITICULTURE PROGRAM

Investigators: Dr. Gill Giese, Extension Viticulture Specialist

PROGRAM DESCRIPTION

Wine and grapes have enriched New Mexico's economy and culture since the days of Spanish settlers and missionaries over 400 years ago. Grapes are produced throughout the state, and the distribution, sales, and consumption of wine in New Mexico benefits many sectors of the state's economy. The grape and wine industry generate approximately \$876 million in total economic activity. This value-added product preserves agricultural land, provides jobs, attracts tourists, generates taxes, and enhances the quality of life. In 2017, the industry paid nearly \$51.6 million in state and local taxes and \$55.4 million in federal taxes for a total of \$106.9 million. The industry also generates approximately \$4.4 million in federal consumption taxes and \$22.2 million in state consumption taxes which include excise and sales taxes. NMSU's viticulture program integrates grower suggested and supported applied research to inform and empower my extension and outreach efforts in close cooperation with the state's winegrower/marketing association (NM Wine).

HORTICULTURE RESEARCH & EXTENSION PROGRAM; NMSU AGRICULTURAL SCIENCE CENTER AT LOS LUNAS AND STATEWIDE

Investigators: Dr. Marisa Thompson, Extension Horticulture Specialist EXTENSION Extension Guide

PROGRAM DESCRIPTION

“Integrated Pest Management Strategies for Common Insect Pests of Trees in New Mexico Guide H-174” was published in December with co-authors A. Bennett, M. Kersten, and M. Thompson. “IPM Strategies for Common Garden Insect Pests of New Mexico” was submitted in November and co-authored by A. Freeman, M. Kersten, A. Skidmore, and M. Thompson. Southwest Yard & Garden - The weekly gardening column entitled “Southwest Yard & Garden” is printed in newspapers across the state, including in the following cities and towns: Albuquerque, Las Cruces, Silver City, Deming, Lordsburg, Santa Rosa, Farmington, Moriarty, Artesia, Roswell, Hobbs, Alamogordo, Grants, and Ruidoso. Total in-print circulation is over 400,000, weekly. Additionally, it is featured in magazines, newsletters, e-blasts, and shared on social media platforms, including the NMSU Desert Blooms blog (<http://nmsudesertblooms.blogspot.com/>) and the column archives (<https://aces.nmsu.edu/ces/yard/archives/>).

CHILE BREEDING AND CULTIVAR DEVELOPMENT; NMSU AGRICULTURAL SCIENCE CENTER AT LOS LUNAS

Investigators: Dr. Stephanie Walker, Associate Professor and Extension Vegetable Specialist; Dr. Brad Tonnessen, Program Coordinator

PROGRAM DESCRIPTION

Chile contributes to the historical foundation of New Mexico as its signature crop and has been cultivated in New Mexico's Rio Grande Valley for four centuries. Today, chile is one of New Mexico's most valuable vegetables with a value of over 41 million dollars with 7,700 acres harvested in 2015. The harvested acres consist of several different cultivars, New Mexican pod-type green chile, cayenne peppers, and New Mexican pod-type red chile and paprika. New Mexican pod-type green chile is harvested at full size, but when physiologically mature for fresh market, frozen, and or processed products. Cayenne peppers are harvested at a mature red growth stage and are processed into hot sauces. While, New Mexican pod-type red chile and paprika are harvested when red, but partially dried on the plant. Harvested red chile is further dehydrated and either sold as dried whole pods, flakes or powder. Paprika, a non-pungent red chile, is processed for its high concentration of red pigments (extractable color) used as a food coloring additive. The demand for fresh market chile and chile products is rising throughout the U.S., yet production challenges have threatened the long-term stability of New Mexico's chile crops. Production challenges include disease susceptibility, labor shortages, cost of production, sustainable yields, water availability, and climate change. The development of improved cultivars that are adapted to growing local conditions is critical for increased competitiveness. New cultivars must be developed that have improved yield, flavor, and key quality attributes.

GUAR PLANTING STUDIES

Investigators: Dr. John Idowu, NMSU Extension Agronomist

Studying varieties and fertilizer rates on guar.

JUJUBE FRUIT TREE STUDIES

Investigators: Dr. Shengrui Yao, Fruit Specialist at the Alcalde ASC

Studying the adaptation, performance, and fruit quality of jujube cultivars in the MRGV.

WEED CONTROL IN ALFALFA PRODUCTION

Investigators: Dr. Leslie Beck, NMSU Extension Weed Specialist

Investigating different chemical control options for tough perennial weeds in alfalfa.

WEED CONTROL IN CHILE PRODUCTION

Investigators: Dr. Brian Schutte, NMSU weed scientist

Investigating different chemical weed control options in chile fields.

ADVANCING CHILE MECHANIZATION AND CULTIVAR IMPROVEMENT THROUGH COLLABORATIVE BREEDING RESEARCH

Investigators: Stephanie Walker, Bradley Tonnessen, Charles Havlik, Franchesca Ortega

PROJECT OVERVIEW

Using traditional breeding methods to develop NM-type green chile cultivars efficient for a mechanized harvest system.

NM PROBLEM ADDRESSED BY RESEARCH

Labor constraints are forcing green chile farmers out of the market. This project hopes to maintain and reverse acreage losses by aiding in the adoption of a mechanized process for the state's green chile harvest.

RESEARCH IMPACTS (ACTUAL OR POTENTIAL)

Assist in the lowering of costs to farmers to be competitive in the global and local chile markets.

ASSOCIATED LONG-TERM PROGRAM OF RESEARCH (HATCH)

Support for S. Walker salary and NMSU ASCs.

FUNDING AMOUNT/ SOURCE/ DURATION

\$192,000/YR (NMCA); \$10,000/\$12,000 (NMCC) / NM Chile Association, NM; Chile Commission, NMSU AES / 2 years

COLLABORATIONS

Leyendecker PSRC, Fabian Garcia ASC, Los Lunas ASC/ Vegetable Extension/ Curry Chile & Seed Co., NM Chile Association, NM Chile Commission

BREEDING PEPPER FOR MECHANICAL HARVESTING

Investigators: Stephanie Walker, Bradley Tonnessen, Franchesca Ortega

PROJECT OVERVIEW

The project seeks to identify and breed for a trait that is important for green chile mechanical harvesting: easy destemming. Primarily, this trait will be identified and bred for using marker assisted selection.

NM PROBLEM ADDRESSED BY RESEARCH

Part of the larger goal of developing New Mexico chile lines which are amenable to mechanical harvest. The easy destemming trait will reduce the processing time of chile coming out of the field post-harvesting.

RESEARCH IMPACTS (ACTUAL OR POTENTIAL)

Evaluate efficacy of newly-developed marker; Reduce breeding time for crucial cultivars.

ASSOCIATED LONG-TERM PROGRAM OF RESEARCH (HATCH)

Support for S. Walker salary and NMSU ASCs.

FUNDING AMOUNT/ SOURCE/ DURATION

\$133,695 / Sub-award from UC Davis / 3 years

COLLABORATIONS

Leyendecker PSRC, Fabian Garcia ASC, Los Lunas ASC/ UC Davis, Dr. Allen Van Deynze, PI/ Vegetable Extension

IMPROVING TRAITS OF HERITAGE NM 6-4 VARIETY

Investigators: Stephanie Walker, Brad Tonnessen, Jolene Wulf, Charles Havlik

PROJECT OVERVIEW

Pod size and plant yield is to be improved in the variety that is favored by farmers and consumers.

NM PROBLEM ADDRESSED BY RESEARCH

Traditional NM green chile varieties are being phased out by higher yielding, less tasteful varieties not preferred for fresh market.

RESEARCH IMPACTS (ACTUAL OR POTENTIAL)

Increase desirability of NM-type heritage chile for farmers in New Mexico.

ASSOCIATED LONG-TERM PROGRAM OF RESEARCH (HATCH)

Support for S. Walker salary and NMSU ASCs.

FUNDING AMOUNT/ SOURCE/ DURATION

\$192,000/ YR (NMCA) \$10,000/ \$12,000 (NMCC) / NM Chile Association, NM Chile Commission, NMSU AES / 2 years

COLLABORATIONS

Leyendecker PSRC/ Vegetable Extension/ NM Chile Association, NM Chile Commission

IMPROVING PIGMENTATION IN RED CHILE TYPE VARIETIES

Investigators: Stephanie Walker, Brad Tonnessen, Franchesca Ortega

PROJECT OVERVIEW

Using traditional breeding methods to develop a red chile variety that produces high amounts of pigment for post-processing industry demands.

NM PROBLEM ADDRESSED BY RESEARCH

Higher pigmentation is preferred for the red chile industry. There is a call for varieties with higher levels.

RESEARCH IMPACTS (ACTUAL OR POTENTIAL)

Increasing the profitability and value of red chile grown in NM.

ASSOCIATED LONG-TERM PROGRAM OF RESEARCH (HATCH)

Support for S. Walker salary and NMSU ASCs.

FUNDING AMOUNT/ SOURCE/ DURATION

\$192,000/ YR (NMCA) \$10,000/ \$12,000 (NMCC) / NM Chile Association, NM Chile Commission, NMSU AES / 2 years

COLLABORATIONS

Leyendecker PSRC/ Vegetable Extension/ NM Chile Association, NM Chile Commission

JUJUBE CULTIVAR TRIAL AT LOS LUNAS

Investigators: Shengrui Yao, Robert Heyduck, Gill Giese, Denis Price, Tom Place and Chuck Havlik

PROJECT OVERVIEW

Jujube cultivar trials were established at NMSU Alcalde, Los Lunas and Leyendecker Centers. Those long-term trials will provide accurate information for growers in each region. Details are in the word file.

NM PROBLEM ADDRESSED BY RESEARCH

Most fruit growers in New Mexico are frustrated with the last frost issues which made the crop unreliable. Jujubes are a good alternative fruit crop with a reliable yield each year. Jujubes also grow and produce well from Alcalde all the way to Las Cruces. Those jujube cultivar trials provide accurate information for local growers.

RESEARCH IMPACTS (ACTUAL OR POTENTIAL)

The limited choices of commercially available cultivars to the jujube industry will be greatly expanded with the NMSU jujube project. We have preliminarily recommended 15-18 fresh eating/drying and multipurpose jujube cultivars for different regions and will continue to finalize the recommendation as more data are collected. Those cultivars will give growers nationwide more choices with extended maturation dates and achieve a \$1-2 premium per pound. The jujube acreage nationwide will increase significantly on expectation.

ASSOCIATED LONG-TERM PROGRAM OF RESEARCH (HATCH)

Sustainable Fruit Production in Northern New Mexico, Accession Number: 1008597, Project Number: NMYao-15H

FUNDING AMOUNT/ SOURCE/ DURATION

\$22,735 / USDA Speciality Crop Block Grant through NMDA / 9/30/2018-9/29/2021

COLLABORATIONS

NMSU Alcalde and Leyendecker Centers/ The PI, Shengrui Yao has split appointment of 51% research and 49% Extension

BIOFUMIGATION STRATEGIES FOR SUPPRESSING WEEDS AND DISEASES IN CHILE PEPPER

Investigators: Brian Schutte & Soum Sanogo & John Idowu

PROJECT OVERVIEW

The general objectives for this project are to collaborate with farmers to develop biological tactics that simultaneously target weeds and soil-borne diseases that inhibit sustainable production of chile peppers in New Mexico. Specifically, we are evaluating two candidate pest management tactics: (1) biofumigation with Brassicaceae cover crops, and (2) biofumigation with Brassicaceae seed pomace, which is commonly referred to as “mustard seed meal” and abbreviated “MSM.”

NM PROBLEM ADDRESSED BY RESEARCH

Sustainable Production of High Value Vegetable Crops in New Mexico

RESEARCH IMPACTS (ACTUAL OR POTENTIAL)

By developing a biological technique for reducing weeds and disease in chile pepper, this study will make chile production more profitable for chile farmers in New Mexico. The tactics developed in this study do not use synthetic pesticides, and thus, are applicable to both organic and conventional crop production. Further, the tactics include cover crops that improve soil health, thereby contributing to farmer and regional efforts for soil conservation.

FUNDING AMOUNT/ SOURCE/ DURATION

\$131,459 / USDA Western SARE / April 2018-Sept 2021

COLLABORATIONS

USDA NRCS/ John Idowu

ENSURING SAFE AND SUSTAINABLE USE OF A NEW SOIL-APPLIED HERBICIDE FOR CHILE PEPPER

Investigators: Brian Schutte

PROJECT OVERVIEW

Recent research indicated that post-directed applications of flumioxazin can reduce hand hoeing in chile pepper. The objectives for this project are: (1) determine if post-direct, row middle applications of flumioxazin result in chile fruits with residues greater than the U.S. federal tolerance for flumioxazin on non-bell peppers, and (2) conduct and evaluate an education outreach program that teaches strategies for improving the efficacy and safety of soil-applied herbicides for chile in New Mexico.

NM PROBLEM ADDRESSED BY RESEARCH

Sustainable Production of High Value Vegetable Crops in New Mexico

RESEARCH IMPACTS (ACTUAL OR POTENTIAL)

By developing and teaching effective weed control technologies that are less expensive than hand hoeing, this project will improve the economic sustainability of chile farms in New Mexico.

FUNDING AMOUNT/ SOURCE/ DURATION

\$36,177 / USDA Specialty Crop Block Grant / September 2018-September 2021

COLLABORATIONS

Leyendecker Plant Science Research Center

DEVELOPING PRACTICAL METHODS FOR REDUCING HAND HOEING REQUIREMENTS IN CHILE

Investigators: Brian Schutte, Erik Lehnhoff

PROJECT OVERVIEW

The goal of this project is to develop two methods for reducing hand hoeing expenses in chile. We are testing a new use for the chile-registered herbicide 'pendimethalin' and a mustard cover crop for weed control in chile pepper. We expect that mustard cover crops in combination with pre-emergence herbicides will eliminate in-row weeds and greatly reduce hand hoeing requirements during early stages of chile production.

NM PROBLEM ADDRESSED BY RESEARCH

Sustainable Production of High Value Vegetable Crops in New Mexico

RESEARCH IMPACTS (ACTUAL OR POTENTIAL)

By reducing reliance on hand hoeing, this project will make chile production more profitable for farmers. Tactics developed in this study include cover crops that improve soil health, thereby contributing to farmer and regional efforts for soil conservation.

FUNDING AMOUNT/ SOURCE/ DURATION

\$61,390 / New Mexico Chile Association / July 2019 - June 2021

COLLABORATIONS

Leyendecker Plant Science Research Center

SHARPEN HERBICIDE FOR CONTROL OF PLANTAIN AND BINDWEED IN ALFALFA

Investigators: Leslie Beck (PI), Mark Marsalis, Leonard Lauriault

PROJECT OVERVIEW

Conducted using privately-owned land and cattle to evaluate the effect of grazing on field bindweed competition with desirable pasture species.

NM PROBLEM ADDRESSED BY RESEARCH

Field bindweed and plantain are difficult to control common weeds that greatly reduce competition by desirable plants and, therefore, alfalfa productivity; however, it is not known how effective new herbicide chemistries (i.e., saflufenacil) will control these weeds in alfalfa compared to traditional labeled herbicides.

RESEARCH IMPACTS (ACTUAL OR POTENTIAL)

Reclaiming alfalfa land to reduce growth of weed species has the potential to increase hay productivity, economic benefit, and agricultural sustainability. Alfalfa is New Mexico's #1 cash crop and sustains the state's dairy, beef, and horse industries.

ASSOCIATED LONG-TERM PROGRAM OF RESEARCH (HATCH)

Non-Hatch; Long-term weed control efforts in forage crops in New Mexico, particularly tough-to-control perennial weeds.

FUNDING AMOUNT/ SOURCE/ DURATION

\$38,277 / NAFA-USAFRI-Alfalfa Checkoff / 2020 to 2022

COLLABORATIONS

Los Lunas ASC, On-Farm Cooperator / Leslie Beck, Leonard Lauriault / BASF

STATEWIDE ALFALFA VARIETY TESTING

Investigators: Mark Marsalis

PROJECT OVERVIEW

As part of a statewide program coordinated from the Tucumcari ASC, 15 entries were planted locally in 2018 to be harvested multiple times each year through 2023.

NM PROBLEM ADDRESSED BY RESEARCH

Alfalfa is New Mexico's #1 Cash Field Crop. Producers need information to select the best variety for their circumstances.

RESEARCH IMPACTS (ACTUAL OR POTENTIAL)

Crop variety testing is an important statewide program in New Mexico. Crops tested include alfalfa, corn, sorghum, wheat, and cotton. University variety trials have shown that there is an average 25% higher yield associated with improved varieties, which translates into as much as \$115M additional annual earnings statewide if superior crop varieties are selected over the trial mean.

ASSOCIATED LONG-TERM PROGRAM OF RESEARCH (HATCH)

Exploring Crop and Water-Conserving Alternatives for Sustaining the Forage Industries of New Mexico

FUNDING AMOUNT/ SOURCE/ DURATION

\$3,500 / Company entry fees / 2019 to 2022

COLLABORATIONS

Leyendecker, Artesia, Los Lunas, Farmington / Ian Ray, Robert Flynn, Leonard Lauriault, Koffi Djaman

COOL-SEASON PERENNIAL GRASS VARIETY TESTING

Investigators: Mark Marsalis

PROJECT OVERVIEW

As part of a program coordinated from Los Lunas, 14 entries of tall fescue and 12 entries of orchardgrass were planted locally in 2017 to be harvested multiple times each year through 2020.

NM PROBLEM ADDRESSED BY RESEARCH

Cool-season perennial grasses are the predominant grasses used for irrigated pasture in New Mexico. Producers need information to select the best species and variety for their circumstances.

RESEARCH IMPACTS (ACTUAL OR POTENTIAL)

Non-traditional hay crops such as tall fescue are not broadly utilized in New Mexico as hay crops. Growers can capitalize on livestock feed markets seeking non-alfalfa hay sources (e.g., horses). Demand for these grass hays has been high in recent years. Potential returns of \$35-50/ton (fescue) more than other conventional hay crops are possible due to the high value nature of the grass hay and market demand. Research at NMSU has shown high yields of tall fescue (6-8 tons/ac). In many cases, comparable returns per acre as alfalfa can be achieved with similar or less overall water used.

ASSOCIATED LONG-TERM PROGRAM OF RESEARCH (HATCH)

Exploring Crop and Water-Conserving Alternatives for Sustaining the Forage Industries of New Mexico

FUNDING AMOUNT/ SOURCE/ DURATION

\$4,550 / Company entry fees / 2017 to 2020

COLLABORATIONS

Los Lunas / Leonard Lauriault

CORN FORAGE PERFORMANCE EVALUATION

Investigators: Mark Marsalis

PROJECT OVERVIEW

As part of a statewide program coordinated from Los Lunas ASC, 12 entries were planted locally in 2020, harvested, and analyzed for yield and quality.

NM PROBLEM ADDRESSED BY RESEARCH

Corn is a high value grain and silage crop for New Mexico. Growers need information to select the best variety for their circumstances.

RESEARCH IMPACTS (ACTUAL OR POTENTIAL)

Crop variety testing is an important statewide program in New Mexico. Crops tested include alfalfa, corn, sorghum, wheat, and cotton. University variety trials have shown that there is an average 25% higher yield associated with improved varieties, which translates into as much as \$115M additional annual earnings statewide if superior crop varieties are selected over the trial mean.

ASSOCIATED LONG-TERM PROGRAM OF RESEARCH (HATCH)

Exploring Crop and Water-Conserving Alternatives for Sustaining the Forage Industries of New Mexico

FUNDING AMOUNT/ SOURCE/ DURATION

\$2,100 / Company entry fees / 2020

COLLABORATIONS

Artesia, Clovis, Los Lunas, Farmington, Tucumcari / Robert Flynn, Leonard Lauriault, Koffi Djaman, Abdel Mesbah

SMOTHER CROPS FOR IMPROVING LAND PRODUCTIVITY AND FORAGE OPPORTUNITIES

Investigators: Mark Marsalis, Richard Strait

PROJECT OVERVIEW

Investigate various smother crop options (e.g., cowpea, corns, sorghums, millet, sunflower) alone or in combination for improving soil health parameters and forage production capability on sandy soils.

NM PROBLEM ADDRESSED BY RESEARCH

New Mexico soils are largely depleted of organic matter and nutrients necessary for sustainable and profitable crop production. Smother crops have the ability to improve overall soil health, and can be utilized for forage purposes.

RESEARCH IMPACTS (ACTUAL OR POTENTIAL)

Finding a crop that provides a balance of soil-improving qualities and adequate forage yield and quality can maximize soil health efforts in the state, while giving producers an acceptable alternative for profitability.

ASSOCIATED LONG-TERM PROGRAM OF RESEARCH (HATCH)

Exploring Crop and Water-Conserving Alternatives for Sustaining the Forage Industries of New Mexico

FUNDING DURATION

2020

COLLABORATIONS

Los Lunas ASC / USDA-NRCS Plant Materials Center

PASTURE DEMONSTRATION ON TRIBAL LANDS

Investigators: Mark Marsalis, Jesse LeFevre, other CES agents TBD

PROJECT OVERVIEW

Investigation of various species of improved and native grasses potentially adapted to the northern 2/3 of New Mexico, for improving grazing and haying systems.

NM PROBLEM ADDRESSED BY RESEARCH

The most appropriate pasture grass species have yet to be researched for adaptability, yield, and forage quality in northern New Mexico. Educational programs targeting irrigated forage production is lacking on Tribal lands.

RESEARCH IMPACTS (ACTUAL OR POTENTIAL)

Finding forage crops that improve the yield and quality of grazing pastures in northern New Mexico (especially Native American tribal lands) will positively impact the livelihoods of producers on small- to medium-sized operations, thereby sustaining these communities.

ASSOCIATED LONG-TERM PROGRAM OF RESEARCH (HATCH)

Exploring Crop and Water-Conserving Alternatives for Sustaining the Forage Industries of New Mexico

FUNDING AMOUNT/ SOURCE/ DURATION

\$174,986 / USDA-NCRS-NM / 2020 to 2023

COLLABORATIONS

Los Lunas ASC / USDA-NRCS Plant Materials Center / Jesse LeFevre (Jicarilla CES), other tribal CES TBD / Jicarilla Nation, other tribal entities TBD

OBTAINING ECOSYSTEM SERVICES FROM COVER CROPS WITH LIMITED IRRIGATION WATER

Investigators: Lehnhoff, EA, Schutte, B, Pietrasiak, N, Idowu, J

PROJECT OVERVIEW

Cover crops can be valuable for improving soil quality, reducing fertilizer requirements, reducing weed and disease pressure, and increasing crop yields. However, cover crops require irrigation and water is scarce in New Mexico. We are testing reduced irrigation impacts of cover crop growth and related ecosystem services.

NM PROBLEM ADDRESSED BY RESEARCH

Improving soil quality, reducing irrigation requirements and increasing crop yields.

RESEARCH IMPACTS (ACTUAL OR POTENTIAL)

Cover crops can be grown with only two irrigations and still provide adequate ecosystem services. They improve soil structure, reducing erosion by wind and water. Legume cover crops can reduce nitrogen requirements by ~\$9 per acre. Cover crops reduce weed seedling numbers in the spring and may obviate the need for pre-plant herbicides. Yields of sweet corn may be increased by 5% following cover crops.

FUNDING AMOUNT/ SOURCE/ DURATION

\$150,000 / USDA Agriculture and Food Research Initiative / 3 years

EFFECT OF NITROGEN AND PHOSPHORUS FETILIZATION ON GROWTH OF GUAR (*CYAMOPSIS TETRAGONOLOBA*)

Investigators: Dr. John Idowu

PROJECT OVERVIEW

Guar is a legume that is promising in New Mexico. Guar gum, which is used in oil and gas industry during hydraulic fracturing is a product of guar seeds. Guar gum is a billion-dollar market in the United States, with most of the guar gum imported from abroad. Fortunately, guar crop grows very well in New Mexico, the production of which can enhance income for farmers.

NM PROBLEM ADDRESSED BY RESEARCH

Optimization of guar productivity for seed yield is necessary in New Mexico across different agroecosystems. Research activities are needed to finetune cultivar selection and different cultural practices, so that farmers in New Mexico will have the information needed to produce guar and reap maximum economic benefits.

RESEARCH IMPACTS (ACTUAL OR POTENTIAL)

Guar is a very low water-demanding crop compared to other cultural crops grown in New Mexico. By producing guar, the bioeconomy of New Mexico will be enhanced through this industrial crop and the reduced use of irrigation water for crop production.

ASSOCIATED LONG-TERM PROGRAM OF RESEARCH (HATCH)

Impacts of Reduced Tillage and Organic Amendments on Soil Quality and Crop Performance in Irrigated Arid Farming Systems

FUNDING AMOUNT/ SOURCE/ DURATION

\$2,897,647 / USDA/ NIFA / 2017 to 2022

COLLABORATIONS

Los Lunas Ag. Science Center, Leyendecker Plant Sci. Center, Tucumcari Ag. Science Center, Clovis Ag. Sci. Center / University of Arizona, Colorado State University / NM Cooperative Extension Service, AZ Cooperative Extension Service / Guar Resources, TX, Bridgestone Americas Inc.

WINE GRAPE, HYBRIDS AND ROOTSTOCK VARIETY TESTING

Investigators: Gill Giese

PROJECT OVERVIEW

Part of a statewide effort with approximately 50 cultivars, rootstocks and hybrids from 9 countries, in addition to breeding lines from the University of Arkansas that are being evaluated for suitability to New Mexico's unique edaphic and climatic growing conditions.

NM PROBLEM ADDRESSED BY RESEARCH

New Mexico winegrowers need proven information on various varieties they can confidently select for their individual sites and production goals, given the wide variety of wine styles available to them and various consumer demands.

RESEARCH IMPACTS (ACTUAL OR POTENTIAL)

Over 50 million dollars are generated annually by wine sales in New Mexico. Providing fact and evidence-based information to winegrowers about variety performance provides them with opportunity for sustainable production both environmentally and economically. Successful local wine production can add to state's tax revenue. Adapted varieties help avoid costly expenses associated with the wrong or inadequate variety selection.

ASSOCIATED LONG-TERM PROGRAM OF RESEARCH (HATCH)

Discover, develop and deliver wine grape cultivars and management solutions for New Mexico wine industry

FUNDING SOURCE/ DURATION

Hatch / 2018 to 2023

COLLABORATIONS

Fabian Garcia, Farmington and Alcalde / Kevin Lombard, Shengrui Yao, Daniel Goodrich / National Grape Research Alliance

FIELD EVALUATION AND MARKETABILITY OF 15 TABLE GRAPE VARIETIES FOR NEW MEXICO

Investigators: Gill Giese

PROJECT OVERVIEW

Part of a statewide effort with 15 cultivars evaluated for suitability to New Mexico's unique edaphic and climatic growing conditions, coupled with ongoing testing of each and in comparison to current market standard cultivars in various retail market venues in order to gauge and quantify consumer acceptance of NM locally produced table grapes.

NM PROBLEM ADDRESSED BY RESEARCH

New table grape varieties offer production advantages of cold hardiness, cluster architecture, phylloxera tolerance, and staggered ripening/timing in addition to improved and consumer preferred taste/aroma and texture berry compositional characteristics. Information on relatively new and viable table grape varieties for New Mexico is limited. Farmers and home gardeners need reliable identification of suitable varieties for local conditions. This project will accomplish evaluation trials at three sites with substantially different climates and soils that represent a substantial portion of New Mexico growing environments.

RESEARCH IMPACTS (ACTUAL OR POTENTIAL)

This project will provide commercial producers and home gardeners with the necessary information to select cultivars better suited to the wide range of NM environments. With three experimental sites, the study will account for a substantial degree of existing diversity of NM growing conditions.

ASSOCIATED LONG-TERM PROGRAM OF RESEARCH (HATCH)

Table grapes offer a potential economic outlet for NM commercial grape producers, provide small and local market farmers an avenue of diversification and income enhancement, and can increase the healthfulness of local diets, especially in regards to increasing the consumption of fresh fruit by children aged 6 to 12.

FUNDING AMOUNT/ SOURCE/ DURATION

\$52,818 / New Mexico Department of Agriculture, and Specialty Crop Research Initiative / 2019 to 2023

COLLABORATIONS

Farmington, Alcalde / Kevin Lombard, Shengrui Yao / Duarte Nursery, Whole Foods Market, Durango CO and Farmington NM Farmer's Markets, Double A Nursery, Santa Ana Pueblo

LA BAJADA SITE EVALUATION

Investigators: Gill Giese

PROJECT OVERVIEW

Evaluate the viability of county land south of Santa Fe for feasibility as a vineyard site.

NM PROBLEM ADDRESSED BY RESEARCH

The land has no specific climatic and soil information necessary for vineyard establishment

RESEARCH IMPACTS (ACTUAL OR POTENTIAL)

This project will provide a report site suitability and budget amount requirement and projections for a successful wine grape vineyard.

ASSOCIATED LONG-TERM PROGRAM OF RESEARCH (HATCH)

Santa Fe County has gifted land and wishes to establish a vineyard/winery incubator with educational (work force development) and economic development as a goal

FUNDING AMOUNT/ SOURCE/ DURATION

\$9,500 / County of Santa Fe / 2020 to 2021

COLLABORATIONS

Wine Cartel Inc. (winery consultants, Mr. Michael Dominguez), Mr. Michael Leonardelli, climatologist

VINEYARD WATER USE FOR SPARKLING WINE AND SITE EVALUATION

Investigators: Gill Giese

PROJECT OVERVIEW

1) Establish minimum water needed to produce sparkling wine from 3 cultivars and 2) evaluate the viability of Pueblo land adjacent to golf course on Tamaya Resort.

NM PROBLEM ADDRESSED BY RESEARCH

The amount of water needed for sparkling wine is not known in New Mexico. Each site should be evaluated for number of frost-free days and available growing degree days.

RESEARCH IMPACTS (ACTUAL OR POTENTIAL)

This project will quantify how much water and when best to apply it during the growing season in order to maximize production of sparkling wine grapes.

ASSOCIATED LONG-TERM PROGRAM OF RESEARCH (HATCH)

This project will address the especially unique situation of water applied during the dormant season, when there is little to no moisture available to New Mexico vineyards if they are dependent on a water district or traditional acequia. Grapevines can benefit from water applied prior to budburst in the spring.

FUNDING AMOUNT/ SOURCE/ DURATION

Hatch / 2021 to 2021

COLLABORATIONS

Pueblo Santa Ana and Tamaya Resort Inc.

NEMATOCIDE EVALUATION TRIAL

Investigators: Gill Giese, Jacki Beacham

PROJECT OVERVIEW

Part of multi-vineyard site trial of commercial nematicides versus an untreated control for management of rootknot nematode and impact on berry on composition and yield

NM PROBLEM ADDRESSED BY RESEARCH

Root knot nematodes can infest and reduce grape yields and eventually kill vines. This project will help winegrowers mitigate damage from RKN and be better informed as to damaging levels of RKN.

RESEARCH IMPACTS (ACTUAL OR POTENTIAL)

This project will evaluate and quantify performance of two commercially available nematicides in New Mexico and compare them to "doing nothing" via an untreated control.

ASSOCIATED LONG-TERM PROGRAM OF RESEARCH (HATCH)

This project will establish some biology of the RKN impact on grapes in New Mexico: periods of greatest incidence, distribution, threshold levels of RKN and impact on berry composition i.e. titratable acidity, soluble solids and pH

FUNDING AMOUNT/ SOURCE/ DURATION

Administered by research scientist, Jacki Beacham / ADAMA, Inc. / 2020 to 2021

COLLABORATIONS

ADAMA Inc., Amaro, Lescombes and Noisy Water wineries

VINEYARD MULCH TRIAL

Investigators: Gill Giese, Marisa Thompson

PROJECT OVERVIEW

Mulching with readily available (wood chip mulch) and potential waste products (pecan shells) offers a use of "waste materials" and a method to control weeds, moderate soil moisture and temperature and possibly increase soil organic matter in vineyards and other perennial fruit crops grown in New Mexico

NM PROBLEM ADDRESSED BY RESEARCH

Herbicides do not perform under NM conditions for under trellis weed control and many producers seek 'organic' methods of weed control. Mulch layers offer conservation of applied irrigation water.

RESEARCH IMPACTS (ACTUAL OR POTENTIAL)

This project will compare the impact and possibly cost effective use of mulch in NM vineyards

ASSOCIATED LONG-TERM PROGRAM OF RESEARCH (HATCH)

This project will establish positive impacts of mulch on soil health under the unique scenario of New Mexico vineyards and establish mulch effects on vineyard performance and winegrape composition.

FUNDING AMOUNT/ SOURCE/ DURATION

Hatch / 2020 to 2023

COLLABORATIONS

Stahmann's Inc.

NATIVE HABITAT ENHANCEMENT FOR IPM IN NEW MEXICO VINEYARDS

Investigators: Gill Giese, Miranda Kersten

PROJECT OVERVIEW

This project is part of a statewide effort and will build on SARE's previous projects with the addition of regionally applicable information to establish and enhance habitat for pollinators and natural enemies of insect pests in vineyards and other agricultural sites.

NM PROBLEM ADDRESSED BY RESEARCH

New Mexico's pollinator population is one of the most diverse in the United States. It has with over 1,000 species of native bees and over 350 species of butterflies. However, pollinator populations are in decline, threatened by habitat loss, chemical use, and pressure from pests and diseases. Cover crops can provide a way to increase the habitat resources needed for the conservation of these species. Although grapes do not require pollination to thrive, creating a system that supports cover crops and provides a diverse agro-eco systems is important for increasing sustainability.

RESEARCH IMPACTS (ACTUAL OR POTENTIAL)

Vegetative cover of otherwise bare soil increases soil health, water quality, mitigates erosion and run-off, supports yields and quality, and can optimize vine performance, and fruit quality with minimal yield reduction. Cover crops contribute to soil conservation and carbon sequestration. Native habitat restoration through cover crops improves soil health, offers potential carbon sequestration, provides habitat for beneficial insects, reduces erosion, suppresses weeds, lowers soil surface temperatures, and enhances the water infiltration and holding capacity of the soil. Cover crops can provide and enhance habitat for natural enemies, which can provide natural pest suppression.

ASSOCIATED LONG-TERM PROGRAM OF RESEARCH (HATCH)

This project will demonstrate how to increase native habitat to encourage stewardship of natural resources and introduce sustainable methods to reduce the need for pesticides for weed and pest control. Vegetative cover of otherwise bare soil increases soil health, water quality, mitigates erosion and run-off, support yields and quality and can optimize vine performance, and fruit quality with minimal yield reduction. (1-5). Cover crops contribute to soil conservation and carbon sequestration, and are considered to be important for mitigating impacts of climate change. Native habitat restoration through cover crops improves soil health, offers potential carbon sequestration, provides habitat for beneficial insects, reduces erosion, suppresses weeds, lowers soil surface temperatures, and enhances the water infiltration and holding capacity of the soil(3). Cover crops can provide and enhance habitat for natural enemies, which can provide natural pest suppression

FUNDING AMOUNT/ SOURCE/ DURATION

Potentially: \$90,912 (pending grant approval) / Western SARE / 2021 to 2023

COLLABORATIONS

Fabian Garcia, and Farmington / Amanda Skidmore, Kevin Lombard, Danel Goodrich, John Garlisch / Lescombes Vineyard, Albuquerque- Bio Park, Pueblo Santa Ana

Activities



Due to the COVID-19 pandemic, many events were canceled or rearranged to be offered virtually. The list below does not reflect a typical year of events at the Los Lunas ASC; however, captures some of the virtual events that were hosted.

- Virtual Chile Field Day - August 26, 2020
- Desert Blooms Gardening Workshop: Looking Ahead to Spring - December 14, 2020
- Desert Blooms Ready - Set - GROW Workshop Series - Offered throughout the year with various gardening focuses
- Researchers from the Los Lunas ASC assisted in hosting a Pesticide Training Webinar Series throughout 2020, in conjunction with on-campus NMSU faculty and other ASC researchers
- Pruning Fruit Trees for Sustainable Production - October 29, 2020
- Ask me Anything: NM Pollinator and Beneficial Insect Expert Roundtable - July 28, 2020
- Supporting Pollinators & Beneficial Insects Webinar Series - June 2020





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