



RESILIENCE IN NEW MEXICO AGRICULTURE

Opportunities, Challenges and Realities for New Mexico's Farming and Ranching Future

BACKGROUND REPORT

- Key facts on New Mexico's agriculture industry
- Results from 2016 regional forums
- Prepared for the 2017 collective impact task force on resilience in New Mexico agriculture

BACKBONE ORGANIZATIONS

New Mexico First
New Mexico State University

FUNDERS

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INTRODUCTION

Food and agriculture is a core industry of New Mexico. It is vital to any resident who cares about individual health, viable rural and tribal communities, or regional economic strength and security. The industry benefits from many diverse stakeholders who share a common goal: to support an agriculture sector with staying power in New Mexico. Such a food system can serve the needs of all residents in our state – but only if it is truly resilient.

Agriculture in New Mexico faces unprecedented challenges to the health of the industry. We have an aging population of farmers and ranchers, increasing pressure on water and other natural resources, rising costs for land, energy, equipment and other production needs, unsustainable farmer and rancher incomes, and complex regulations. Incremental approaches are not sufficient to address the systemic challenges facing agriculture in our state.

This report is part of the *Resilience in New Mexico Agriculture* project. “Resilience” is commonly understood as an ability to recover from and adapt to setbacks. Drawing on that definition, this project calls for a statewide plan that empowers industry stakeholders to withstand new challenges and grow stronger in spite of them. All too often, food and agricultural policy is formed only in reaction to crisis and competition. This project asks stakeholders to instead prepare proactively for solving industry-wide problems.

This report presents feedback collected from hundreds of stakeholders (see details below) along with background information on the issues those stakeholders prioritized. The big picture is this: a resilient New Mexico agriculture system will require a strong export-oriented commodity sector, robust family farms and ranches of all sizes and locally grown food to meet the growing consumer demand in the state. It will take a diverse network of farmers, ranchers, processors, distributors, market organizers, industry funders, educators, researchers, government supporters and consumers to support an industry capable of adapting to new challenges and advancing new opportunities.

In order for New Mexico agriculture to remain resilient for years and generations to come, the state must:

- Create common ground regarding food and agriculture policies
- Advance economic growth and stability for communities
- Address fundamental water and land use challenges
- Support young people pursuing careers in agriculture
- Promote agriculture’s contributions to health-related solutions for consumers and communities

This report provides a starting point for collective efforts to address these critical issues.

Why a Collective Impact Approach?

The intent of the *Resilience in New Mexico Agriculture* initiative is to ensure the agriculture and food industry remains strong, serves all New Mexicans and has the built-in resiliency needed to adapt to emerging conditions. The challenges are not isolated, and the solutions are not embodied within a single group or organization.

A “collective impact” model serves this project’s intentions. This approach – used across the nation on many different community and economic issues – unites stakeholders from different sectors toward solving common obstacles, and can result in large-scale changes and long-term resiliency.¹

This collective impact project includes three main activities:

- 1) Regional stakeholder forums to provide foundational information (already completed)
- 2) A task force to develop a statewide resilience plan with proposed actionable reforms (which this report will inform)
- 3) Agriculture-related organizations, farmers and ranchers to use that plan to forge pragmatic paths forward

¹ (Kania & Mark, Winter 2011)

This Report

The first phase of the *Resilience in New Mexico Agriculture* project concentrated on collecting information from rural, tribal and urban stakeholders via 13 regional meetings (see Appendix B). Over 600 stakeholders attended these meetings and voiced views regarding positive and negative industry trends. They also prioritized challenges and solutions they believed were important to address in the next five to 10 years in order to maintain and strengthen New Mexico's agriculture industry.

This report illustrates key challenges these stakeholders prioritized. The chapters reflect the general areas stakeholders cited as needing reform (see Appendix D). The positive trends and more specific stakeholder concerns are outlined in their respective chapters. Background information is supplied to inform the areas of concern.

The primary purpose of this report is to provide a starting point for the *Resilience in New Mexico Agriculture* task force's work. (See Appendix A for details on the project timeline.) **This report identifies priorities of New Mexico's agriculture industry, as determined by stakeholders who took part in the regional meetings, while providing the facts to inform the top concerns.** The input and information of the report should provide the scope and focus for the statewide resilience plan.

The report also draws on industry research from New Mexico State University (NMSU), the New Mexico Department of Agriculture (NMDA), and the United States Department of Agriculture (USDA). Data are used to validate and illustrate the trends and challenges the stakeholders offered. Authors also drew from published reports, newspaper and journal articles, interviews and online resources. Footnotes provide short-references to complete citations in the bibliography. Additional information was collected by NMSU from New Mexico youth through surveys (see Appendix C) and from members of the agriculture supply chain through interviews.

Additional data supporting this report will be compiled and published in a companion data book authored by NMSU Cooperative Extension Service. The report is scheduled for completion in spring 2017. Both the data book as well as this report may be accessed online from New Mexico First (<http://nmfirst.org/>) or NMSU Cooperative Extension (<http://extension.nmsu.edu/>).

Sponsors

We gratefully acknowledge the following sponsors who support this initiative:

- Thornburg Foundation
- New Mexico Department of Agriculture
- W. K. Kellogg Foundation
- McCune Charitable Foundation
- Santa Fe Community Foundation

Organizers

New Mexico First engages people in important issues facing their state or community. The nonprofit public policy organization offers unique town halls and forums that bring together people to develop their best ideas for policymakers and the public. New Mexico First also produces nonpartisan public policy reports on critical issues facing the state. These reports – primarily on the economy, education, healthcare and natural resources– are available at nmfirst.org. Our state's two U.S. Senators – Tom Udall and Martin Heinrich – serve as New Mexico First's honorary co-chairs. The organization was co-founded in 1986 by retired Senators Jeff Bingaman and Pete Domenici.

New Mexico State University-Cooperative Extension Service provides the people of New Mexico with practical, research-based knowledge and programs to improve their quality of life. Thanks to Extension, the discoveries of university faculty reach a third of New Mexico's nearly two million residents through informal education programs in each of the state's 33 counties. The organization's base programs include: agriculture and natural resources, consumer and family issues, youth development, and community economic development. Additional information is available online:

<http://aces.nmsu.edu/discovernmsuextension>.

Contributors to the Report

A team of researchers and reviewers contributed to this report. It was prepared by New Mexico First staff members Kelsey Rader, Charlotte Pollard and Heather Balas. Significant research support was provided by NMSU faculty members Michael Patrick, David Kraenzel, Don Blayney, and students Jonas Moya and Carlos Silva.

REVIEWERS

Special thanks goes to the following committed New Mexicans for sharing their time and expertise in reviewing this report.

- Jon Boren, NMSU Cooperative Extension Service
- Micaela Fischer, Thornburg Foundation
- Anthony Parra, New Mexico Department of Agriculture

Chapter 1

PAST, PRESENT AND FUTURE

New Mexico's Agriculture Heritage

Agriculture has been part of the landscape now known as New Mexico for thousands of years. Over New Mexico's long agricultural history, there have been many influences and transitions. As described by Longino Bustillos, "American Indian, Spanish explorers and Anglo pioneers all played key roles in shaping what you see in our state's agriculture today."² The Mogollon pueblo people were the first farmers. Even then, there were relatively few areas suitable for agriculture, and erratic rainfall presented difficulties. As the pueblo people adopted farming, they relied on the "three sisters" of corn, beans, and squash. These crops serve as the basis for inter-cropping systems still used around the world.

When Don Juan de Oñate settled in Ohkay Owingeh in 1598, the Spanish explorers brought with them sheep, cattle, pigs and horses. They also brought the seeds of fruits and vegetables not previously seen in this part of the world. Manzanas (apples), albaricoques (apricots) and sandías (watermelons) are now part of the unique cuisine of the Land of Enchantment. These settlers also introduced the plow and new irrigation methods. It is believed that the Tlaxcalteca Indians from Mexico, who came with Oñate, laid out the oldest acequia on the Chama River in what is now the community of Chamita, New Mexico.³

"American Indians, Spanish explorers and Anglo pioneers all played key roles in shaping what you see in our state's agriculture today."

-- Longino Bustillos, NMSU

By the end of the Mexican-American War in 1848, New Mexico was a self-sufficient agrarian community, with most people residing in small villages.⁴ The arrival of railroads in 1879 brought several waves of Anglo farmers and ranchers to the region. New Mexico now shares the frontier flavor with a legacy of cattle drives and cowboys brought by these settlers.⁵

The state's culture, geography and climate have shaped a diverse agriculture industry. Our production is a blend of New World corn, pecans, beans and chile, and Old World wheat, dairy, beef and apples. Hay, sheep and cotton, among several other crops, have also had a large influence on the state's heritage. The traditional methods of dry farming and acequia irrigation are blended with new methods of satellite-controlled irrigation and internet marketing. Despite these many changes, the ethic of land stewardship remains a major part of New Mexican farming and ranching.

Small Town Traditions

*The residents of Cuba, NM hold on to their traditions. Ranching has been part of John Hernandez's family for six generations. His family owned a store, a ranch and a sawmill to make ends meet. The sawmill is gone, but local businesses like these are important to rural communities. Agriculture is also part of the fabric of this community. When Jill Mumford wanted to help community members live healthier lives, she and friends created a community garden. Everything for the project, from the land to bales of hay was donated. Starting with three garden beds, there are now 36.*⁶

² (Bustillos, 2014)

³ (Estevan Arellano)

⁴ (McNamee & Beck, 2015)

⁵ (McNamee & Beck, 2015)

⁶ (Montoya, 2016)

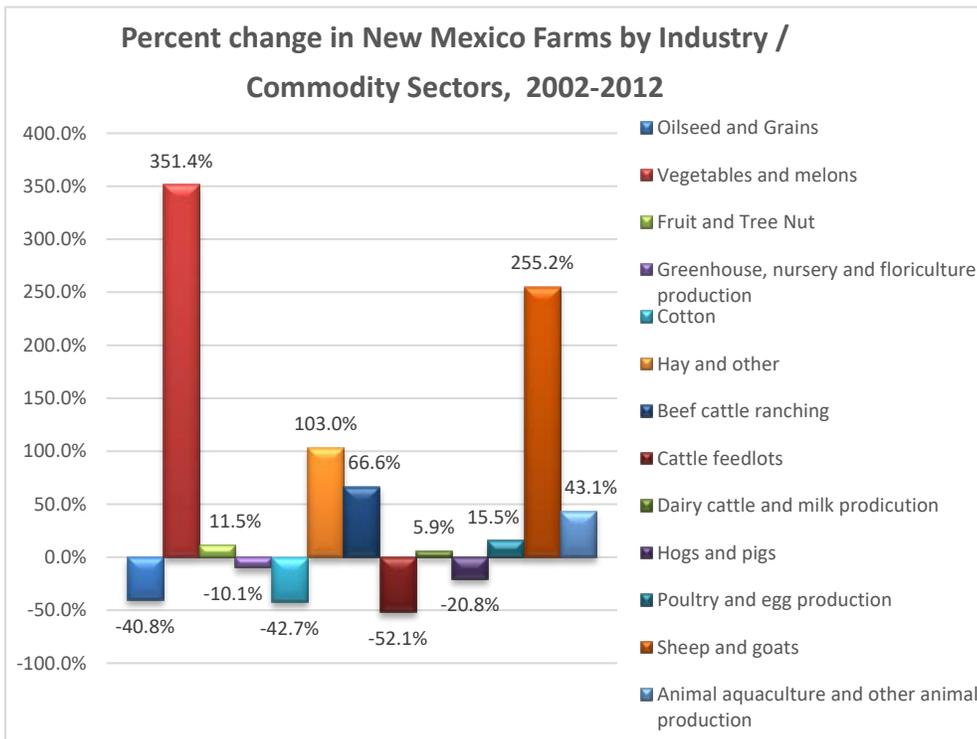
Agriculture in New Mexico Today

Agriculture in New Mexico has evolved into a multi-billion dollar industry, and it remains a significant economic driver in all parts of the state. In every region except the state’s Northwest and Metro regions, the total impact from agriculture ranks in the top five industry sectors. The eastern regions of New Mexico collectively account for 83 percent of the total agricultural impact in the state.⁷

New Mexico has approximately 25,000 farms, a 63 percent increase between 2002 and 2014 (the last year for which data is available).⁸ However, the size of farms, as measured by acres, decreased by 41 percent between 2002 and 2012, which could be attributed to the retirement of farmers and ranchers, the sell-off of farmland, or the diversion of farmland to other uses.⁹ New Mexico farms and ranches are largely family operated, and over half are considered small – generating less than \$250,000 in annual sales.¹⁰

As of 2012, New Mexico’s top commodity sectors in agriculture included cattle and calves, dairy products, hay, pecans, chile and onions. Collectively these sectors accounted for 86 percent of total agriculture revenues in 2012.¹¹ The following chart illustrates the percentage change in farming and ranching operations according to their commodity or industry sector. Major increases can be seen in vegetables/melons (351 percent), sheep/goat (255 percent) and hay (103 percent). Sectors that decreased include cattle feedlots (52 percent), cotton (43 percent) and oilseed/grain (41 percent).¹²

Other notable increases in the industry involve farms and ranches selling goods directly to individuals. The number of New Mexico farms selling directly to individuals rose 70 percent from 2002 to 2012.¹³



Source: USDA

Another increase was in the total market value of agriculture products sold between 2002 and 2012. Market value (the price a commodity would bring) increased by approximately one third – illustrating in part the productivity of New Mexican farms.¹⁴

As shown by the accompanying chart, significant growth occurred in the value of animal aquaculture and other animal production, oilseed and grains, and fruit and tree nuts. Decreases occurred in cattle feedlots, poultry and egg production, as well as sheep and goat raising.¹⁵

⁷ (Diemer, Crawford, & Patrick, December 2014) (“Total Impact” includes direct, indirect and induced impacts)

⁸ (USDA National Agriculture Statistics Service; New Mexico Department of Agriculture, 2014)

⁹ (USDA Census of Agriculture, National Agricultural Statistics Service, 2014) Note: This estimate may not be as representative of actual sell off over time, instead may be reflective of increased census efforts.

¹⁰ (Diemer, Crawford, & Patrick, December 2014)

¹¹ (Diemer, Crawford, & Patrick, December 2014)

¹² (USDA Census of Agriculture, National Agricultural Statistics Service, 2014)

¹³ (USDA, 2012)

¹⁴ (USDA, 2015)

¹⁵ (USDA Census of Agriculture, National Agricultural Statistics Service, 2014)

New Mexico's Agricultural Future

A truly resilient agriculture industry and food system is New Mexico's goal. A diverse group of stakeholders are becoming more aware of their similar challenges, needs, opportunities and approaches. Using this awareness to coordinate and embrace new and existing opportunities may be critical for the industry's wellbeing.

Opportunities for growth in the agriculture industry exist in the food processing sector. New Mexico is below average in its number of food processing businesses in comparison to national statistics, and investments in this sector could result in added value to production, as well as more jobs and income to the state.¹⁶

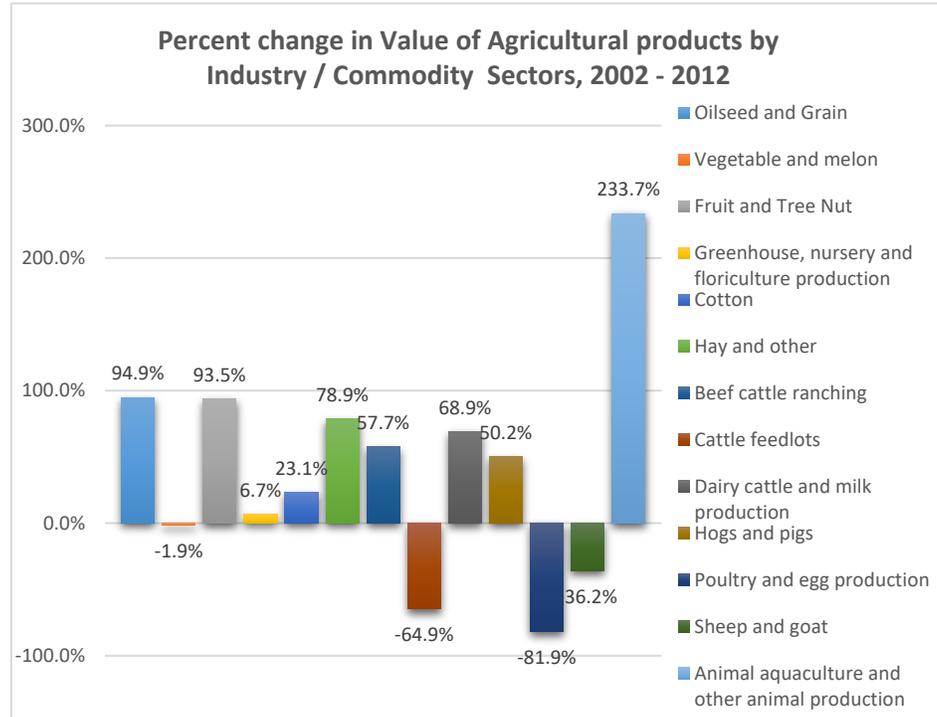
Another opportunity exists to increase sales by meeting consumer demand for locally grown and produced agriculture products. A 2010 economic analysis predicted that, if consumers purchased 15 percent more food from local farmers and ranchers, over \$375 million in farm income would be generated, creating a total impact of \$725 million annually for New Mexico communities.¹⁷

Another overarching issue was recognizing the value of rural communities beyond their economic contributions. Stakeholders believed deeply in the cultural value of agriculture, and its contribution as a source of rural vitality and family unity.

Overall, the regional meetings identified some essential activities to sustain New Mexico's agricultural future:

- Conserve and enhance natural resources
- Stabilize costs and revenue to sustain a viable living wage
- Transition effectively to the new generation of farmers and ranchers
- Satisfy evolving consumer demands for food and agricultural products
- Expand market opportunities
- Garner public and policymaker support

These efforts must span across product sectors and operation size, even while the industry faces uncertain climate and volatile economic patterns. The following chapters outline and illustrate these challenges. It is the responsibility of stakeholders and policymakers to chart a course the state's agricultural future can take to achieve the resiliency of an industry crucial to the well-being of all New Mexicans.



Source: USDA

¹⁶ (Diemer, Crawford, & Patrick, December 2014)

¹⁷ (Diemer, Crawford, & Patrick, December 2014)

Chapter 2

LAND AND WATER

Overview

With an expansive 77.8 million acres of land, New Mexico is the fifth largest state in the nation. Despite its vastness, availability of affordable land and clean, abundant water remains a challenge. Land and water are key ingredients for the success of any farm or ranch, and access to these precious resources emerged as a top priority in almost all of the regional stakeholder meetings. Water issues were the number one priority in 10 of the 13 meetings.

Sustainable conservation and the right to productive use of land and water are two major policy considerations for resource management. Ideally, these two concerns should be balanced. For example, farmers and ranchers have a right to utilize land and water, but some believe this use should be tempered at times to preserve resource health and availability.

Water is considered the lifeblood of any agricultural operation, particularly in arid and semi-arid areas like New Mexico. Many people believe that New Mexico suffers from inadequate, or at minimum inconsistent, water planning funding, long-term plans for future water shortages, and a general lack of awareness of predicted future declines in water availability. Experts generally agree that new technologies will be needed to determine how farmers and other water users can sustain current operations and conserve water.

“There’s an inherent tension between making money and caring for landscapes that support that livelihood. Sometimes the land suffers. Sometimes creatures do. Yet I’ve seen firsthand how ranching can enhance conservation.”

-- Laura Jean Schneider, Triangle P Cattle Company, Mescalero Apache Reservation

The New Mexico agriculture industry also struggles to access private water rights that are affordable and can adequately sustain operations. Until resolved, uncertainty regarding water availability was seen by farmers and ranchers as a major disincentive to making future plans and investments. Management under federal statutes governing water and obligations under Interstate Water Compacts also increase demands on New Mexico’s water.

Land ownership and administration concerns reveal some of the tensions between the federal government and state sovereignty, as well as the strain imposed by increasing urbanization. The role of the federal government in owning and managing multiple uses on large tracts of land in the western states is a long-standing controversy. In 2012, the federal government owned almost 27 million acres, or about 35 percent of the total acreage in New Mexico.¹⁸ Federal land agencies must balance land use among energy development, recreation, grazing and conservation. This multiple use management can result in limiting agricultural access to that land.

Some stakeholders in the regional meetings noticed a growing awareness of the interconnections of water, land and food within a balanced environment. Further, stakeholders in practically every discussion highly prioritized natural resources management and its importance to agriculture. Accordingly, this chapter addresses the following major concerns impacting land and water – agriculture’s two most vital resources:

- Decreased water supply
- Increased competition and limited water planning
- Water rights regulations
- Federal regulations impacting water use
- Watersheds
- Soil health
- Increased land diversion
- Grazing on federal lands

¹⁸ (Vincent, Hanson, & Bjelopera, 2014)

Water

Water is undoubtedly a resource on which the livelihood of all farmers and ranchers depend. In a recent op-ed, Jeff Witte articulated how agricultural water use contributes to communities: “farmers and ranchers take water – a substance that begins with zero calories, zero protein, zero fiber—and make it nutritious.”¹⁹ Stakeholders at 11 of the 13 regional meetings noted that community members today seem to have a better understanding than in previous years about water use and need for water conservation. They suggested that new technology is available to understand and prepare for changes in climate, as well as to improve water mapping, monitoring and management.

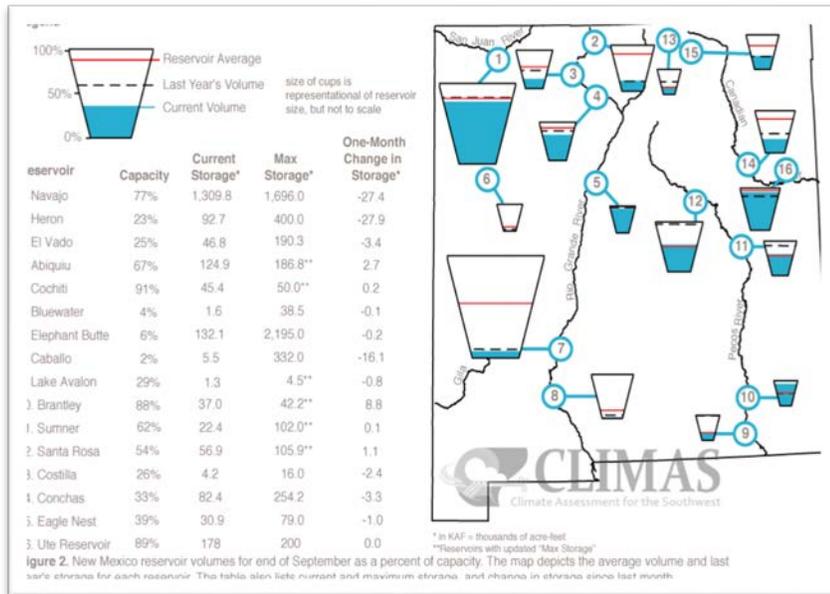
More farmers are adopting alternative water irrigation technology (e.g., drip irrigation in locations where this approach is appropriate). Other water conservation improvements stakeholders mentioned include water harvesting methods and self-filtration systems for water collection.

DECREASED WATER SUPPLY

All water in New Mexico comes from precipitation, but we categorize and manage our water sources as either groundwater or surface water. Surface water is water in above-ground rivers, lakes etc., and its flow is often controlled with dams and reservoirs. Groundwater is located in underground aquifers, which are geological formations that hold and carry water.

Throughout the state, water availability is on the decline, and stakeholders at 12 of the 13 regional meetings expressed their concerns over this decline. As shown by the accompanying figure, almost all New Mexico’s reservoirs, the source of

much of our surface water, are below average capacity.



Source: CLIMAS, The University of Arizona

The most current data from October 2016 shows the state’s combined water reservoir storage is the lowest in 15 years.²⁰ In all aquifers reported to the U.S. Geological survey, long-term water levels have dropped. Decreasing precipitation levels and recurring droughts are partly to blame. These conditions create uncertainty, inhibit farmer, rancher and processor investments, and can result in more fallow land or land moving out of agricultural production for good.

Conservation has been identified by stakeholders as a means to ease pressure on an increasingly limited water supply. Conservation methods that sustainably prevent water losses include:

- Conversion from water-intensive crops to low-water crops (e.g., sorghum)
- Improved water infrastructure (irrigation distribution system)
- Tracking and metering water usage

New sources of water may also be sought in order to fulfill immediate needs. Stakeholders and water policy experts have called for investments in economically viable ways of using brackish water. Changes in water storage practices, including capture and storage of storm water, either for use or to recharge aquifers, could also provide relief.

Facing a future of increased water scarcity, stakeholders were aware that reliance on past and current water use practices is not an option. Changing conditions ensure that the ways water is used must evolve if the state wants to sustain an

¹⁹ (Goetz, 2015)

²⁰ (New Mexico First, 2014)

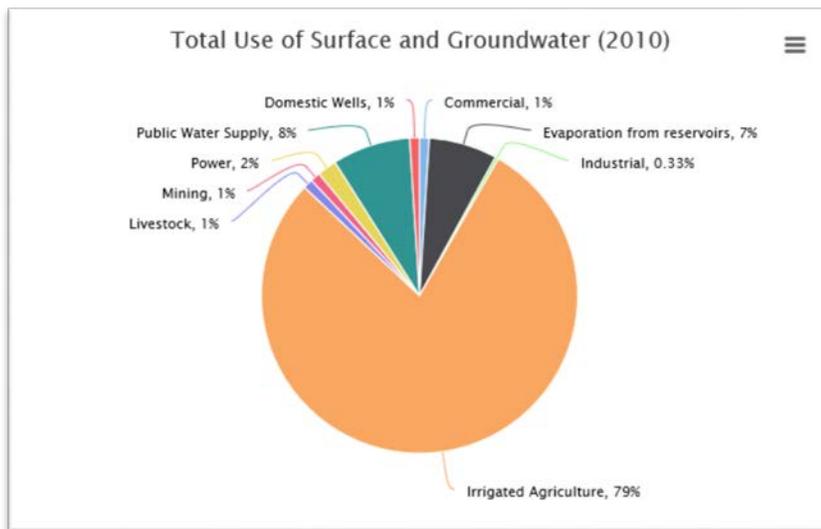
agricultural industry. Stakeholders noted water-saving technology, as well as building awareness and providing economic incentives for efficient water use may be tools to assist agriculture's transition into the future.

INCREASED COMPETITION AND LIMITED WATER PLANNING

Water access was a concern in 11 of the 13 regional meetings. Competition for water supply creates friction among agriculture, municipalities, industries and the environment. For example, municipalities and counties purchase land and water rights, and divert them from agriculture to urban development. These water rights purchases then diminish the value of the affected agricultural land.

Conflicts among urban dwellers, agriculturists and environmentalists regarding the use of water from rivers (e.g., Gila, San Juan, Rio Grande) also delay decisions and investments. These tensions often increase in years when water is scarce. As a major water user, agriculturists can find themselves in the middle of these water-use conflicts. Irrigated agriculture accounts for 79 percent of total surface and groundwater use as of 2010, as illustrated by the accompanying figure.²¹

Acequias, a feature of New Mexico history, illustrate the importance of preserving and supporting the diversity of New Mexican water users. Acequias are centuries-old water delivery systems, introduced by the Spanish, and are integral to



Source: New Mexico Office of the State Engineer

some farming cultures of New Mexico. Advocates for acequias point out that the systems are not only beneficial to their surrounding ecosystems, but are imperative to the history of the communities that rely on them.²²

Water planning is the final major obstacle for water usage. In 11 of the 13 regional meetings, people voiced concern about the lack of state funding for water planning and management, thus leaving the agriculture industry vulnerable.

Water planning in New Mexico is primarily conducted through a state-level plan, as well as 16 regional plans. These plans address water supply and demand, water quality and legal issues, and are used to

assess if the region is 'living within its means' in regards to water. The Interstate Stream Commission has been working in recent years with community members to update these plans.²³

A lack of adequate water and drought management planning could impact the water available for agriculture use. Water planning, monitoring and management efforts in the state could help alleviate the pressure on water availability and investment backed expectations. Stakeholders felt that water planning systems could be improved in the following ways:

- Increased funding
- Complete groundwater and aquifer mapping
- Adopting long-term, systematic, coordinated approach
- Developing state drought and water retention plans
- Using the state water plan to address state and federal policies that impact producers

Stakeholders also proposed impartial research and education to increase public awareness of water issues in general.

²¹ (New Mexico Office of the State Engineer)

²² (Rivera, 1998)

²³ (New Mexico First, 2014)

WATER RIGHTS REGULATION

New Mexico water law is historically based. Pueblo Indians used water centuries before statehood, and have an “early priority” date to their water rights. That precedent informed New Mexico's application of “prior appropriation” laws, developed from 1800's western mining practices. This system remains the legal framework for New Mexican water law.

Under prior appropriation, water rights are afforded to those who can demonstrate an application of water to beneficial use. However, this system favors users who demonstrated their use before others (“First in time first in right”). “Senior” water users enjoy the right to use their allocation of water before “junior” users can access theirs.²⁴

The prior appropriation system brings both benefits and complications. Senior water rights holders are able to ensure their investment-backed operations can reasonably rely on the water supply provided for in their right. Proponents also cite that this legal framework allows for the creation of water markets that incentivizes water users to address allocation issues.²⁵ However, other users find that prior appropriation prioritizes individual water rights, rather than water access for the larger population or the environment. Additionally, junior water users can often find themselves at odds with senior users, especially in times of shortage.²⁶

The Office of State Engineer (OSE) is the state agency that administers the supervision, measurement, appropriation and distribution of all surface and groundwater in New Mexico. To receive a ground or surface water right, a person must apply for a water permit with OSE. Permits are issued if the OSE determines that: water is applied to beneficial use, water is available to provide for the requested amount, and the permitted right will not impair existing rights, be detrimental to the public welfare, or be contrary to water conservation.²⁷

The state also recognizes “pre-1907” rights. This year is significant as it was the year in which the New Mexico territorial legislature passed the code of water law, codifying the water permitting process. Pre-1907 rights must either undergo a validity study, or go through the adjudication process in order to be legally recognized. Adjudications are legal proceedings that define, establish and formalize a water right claim.²⁸

The complex regulatory system governing water and its use has been a source of confusion and frustration for many farmers and ranchers. Stakeholders identified state regulation of water as a concern in 11 of the 13 regional meetings. The slow-moving adjudication process has discouraged agricultural investments.²⁹ Multiple interpretations of the “use it or lose it” rule, or the need to demonstrate continued use of water to avoid forfeiture or abandonment of a right, is seen by some to be a disincentive to water conservation.

“I often tell people that farmers and ranchers take water – a substance that begins with zero calories, zero protein, zero fiber—and make it nutritious.”

– Jeff Witte,
New Mexico Department of Agriculture

To address these issues, stakeholders suggested both improved education on existing water regulations and reform efforts to improve future regulations. Participants at the regional meetings also recommended dissemination of clarified information on existing legal options for water right leasing and purchases.

FEDERAL REGULATIONS IMPACTING WATER USE

Many stakeholders throughout the state believe some federal regulations have a detrimental impact on producers and rural communities. The federal statutes mentioned most often were the Endangered Species Act and the Clean Water Act (i.e., current rules concerning the definition of “waters of the United States”).

Under the Endangered Species Act, a species listed as threatened or endangered is protected, and both private and public actions that may harm or “take” the listed species are punishable by law. Protections placed over listed species can inhibit

²⁴ (New Mexico First, 2014)

²⁵ (Family Farm Alliance, 2015)

²⁶ (New Mexico First, 2014)

²⁷ (Utton Transboundary Resource Center)

²⁸ (Utton Transboundary Resource Center)

²⁹ (New Mexico First, 2014)

water withdrawals from rivers, development of land or other agriculture related activities.³⁰ (A 2014 New Mexico First town hall proposed increased collaboration between industry, agriculture and environmental interests to work protect habitat voluntarily, thus preventing new species from being added to the list.)

The Clean Water Act regulates water quality and the discharge of pollutants into the waters of the United States.³¹ The definition of “waters of the United States,” for purposes of regulation under the Clean Water Act, was recently clarified in a new rule by the EPA, which took effect in August 2015.³² The new rule resulted in an expansion of waters regulated by the Clean Water Act, including water bodies that some farmers and ranchers use for drainage and irrigation.³³

Both federal statutes, due in part to their impact on agriculture, are the subjects of numerous and ongoing litigation and lobbying efforts. Stakeholders recommended improved communication, advance planning and collaboration with the Environmental Protection Agency and U.S. Fish and Wildlife Service. Participation in federal rule making processes may offer another means of impacting agency decision-making.

Conservation Collaborations

The Bureau of Land Management operation in New Mexico is considered a national leader in collaborative partnerships, bringing together federal and state agencies, local communities, ranchers, soil and water conservation districts, the energy industry, and nonprofit conservation groups to restore landscapes and wildlife habitats. To date more than three million acres of impaired habitat have been treated. The focus has been on controlling invasive brush species, improving riparian habitat, reducing woodland encroachment, and reclaiming abandoned oil and gas well pads. The results are more desirable vegetative species, in turn, benefiting the watershed by stabilizing soil and ultimately increasing forb, grass and favorable shrub production which increases and improves habitat for a variety of wildlife.³⁴

WATERSHEDS

Stakeholders in six of the 13 regional meetings mentioned water quality as a concern for producers in their area. At the intersection of soil health and water quality are watersheds. Watersheds are natural land features drained by a river system, or a body of water bounded by mountains or ridges of high land.³⁵ Watersheds provide drinking water, water for agriculture, industry, and recreation, as well as habitat for plants and animals.

The health of watersheds and their ability to fill and drain downstream is also an indicator of soil health. Healthy watersheds are essential for the following:³⁶

- Soil’s ability to capture, store and release moisture
- The hydrologic cycle
- The nutrient cycle
- Energy flow
- Support for healthy biotic populations

Watersheds are vital to providing healthy water and soil, but are dependent on a number of factors. Forest fires, stream flow levels, pollution and storm runoff patterns all impact the water and soil quality born from watersheds.³⁷ Catastrophic forest fires and flooding have created long-term challenges for water quality due to suspended sediment, especially on southern pueblo lands. Pollution from the mining, oil and energy industries has also impacted water quality.

Grazing can impact watershed sustainability both positively and negatively. Experts note that grazing reduces plant cover and volume, which can be beneficial for water retention but detrimental for soil protection. Additionally, grazing can assist

³⁰ (U.S. Environmental Protection Agency)

³¹ (U.S. Environmental Protection Agency)

³² (U.S. Environmental Protection Agency)

³³ (agnetwest.com, 2016)

³⁴ (U.S. Department of the Interior, Bureau of Land Management)

³⁵ (Ciudad Water and Soil Conservation District)

³⁶ (U.S. Department of the Interior, Bureau of Land Management, Fiscal Year 2013) (Global Development Research Center)

³⁷ (U.S. Environmental Protection Agency)

nutrient cycling which can enhance or maintain soil fertility. However, nutrients and pathogens from livestock waste can also pollute watersheds, and put municipal water users at risk of illness.³⁸

To ensure water quality is protected, stakeholders suggested more public awareness and education, as well as accessible water quality data. Promoting policies that protect water quality was also seen as a high priority. Some stakeholders called for watershed restoration, including forest tree-thinning and healthy flow connections between waterways.

Healthy Rangeland Management

Nancy Ranney, of Ranney Ranch in Corona, NM has implemented many shifts in her family's ranch, from a typical cow/calf operation to producing beef certified by the American Grassfed Association, from a monocrop of blue gamma grass rangeland to a resilient variety of native grasses, and from free-range grazing to planned, rotational grazing. The entire herd grazes on a pasture at one time spending a day in the smallest, and three weeks in the largest. Each of the 32 pastures are rested for a minimum of nine months a year. Twelve years after the transition, they have counted 45 species of grasses without planting seeds or irrigating. This diversity of grasses, including cool-season grasses which extend the grazing season, provide a wider range of nutrients for the cattle, promote a diversity of soil microorganisms, and are more resilient to the stress of drought. Carbon in the soil at the ranch increased by at least 25 percent. For every one percent increase, the soil can hold an additional 60,000 gallons of water per acre. Some of this water re-enters the water table and about 70 percent goes into the aquifer. More water retention also means cooler soil—critical in a dry climate.³⁹

Land Use and Soil Health

As farmers and ranchers face rising costs of water, chemicals, fuel and transportation, some are adopting different land management practices (e.g., more drought resistant crops, seed exchanges, less fertilizer, insecticide and pesticide use). Changed New Mexico land management practices include:⁴⁰

- 30 percent decrease in New Mexico acreage on which commercial fertilizers and conditioners were used since 2007
- Decline in chemical use to control insects (37 percent) and crop disease (21 percent) since 2007

Participation in conservation programs sponsored by the federal government is a strategy used by some farmers and producers. These programs work to address a number of conservation issues including:⁴¹

- Protecting drinking water
- Reducing soil erosion
- Preserving wildlife habitat
- Restoring forests and wetlands
- Aiding producer land damaged by natural disaster

The Conservation Reserve, overseen by the USDA's Farm Service Agency provides an annual rent payment in exchange for removing environmentally sensitive land from agricultural production and planting species that will improve environmental quality. The acreage of New Mexico farms enrolled in federal conservation programs since 2002 has consistently remained approximately one percent of the total state farm acres, while the average rental payment has risen 19 percent.⁴² This data implies that while enrollment in programs is consistent, payments to farmers and ranchers are higher.

Stakeholders in 12 of the 13 regional meetings also pointed to improved methods of land rehabilitation and restoration, as well as regenerative agriculture practices that maintain healthy soil and rangeland. New research, technology and production methods have also led to improved soil fertility and more conservative water use.

Some practices and technologies deployed to address soil health and water conservation include:

³⁸ (Wood, 2001)

³⁹ (Madison, 2015)

⁴⁰ (USDA Census of Agriculture, National Agricultural Statistics Service, 2014)

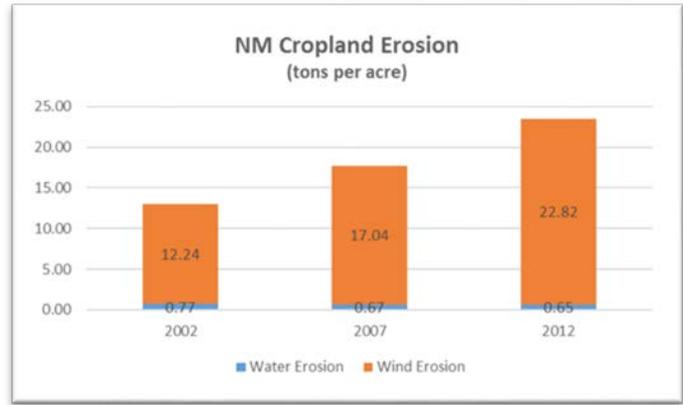
⁴¹ (USDA Farm Service Agency)

⁴² (USDA Farm Service Agency)

- Rotational grazing
- Dryland farming
- Organic farming and ranching
- Planting high-value perennial crops (i.e. alfalfa, kale)
- Soil biology research
- Drip irrigation systems
- Crop rotation

SOIL HEALTH AND EROSION

Stakeholders in eight of the 13 regional meetings were concerned that land available for agriculture production was also affected by declining soil health and topsoil loss. They reported that some land had been harmed from overgrazing, invasive species, producer practices that increase soil salinity, and the use of chemical fertilizers and pesticides. Land degradation due to drought, soil compaction and erosion was also an issue of concern.



Source: USDA

Soil erosion causes a loss of topsoil, the layer of soil that is richest in both organic matter and nutrient value. As illustrated by the accompanying figure, overall soil erosion on New Mexico cropland increased by 80 percent since 2002.⁴³ Such erosion can occur because of wind, rain or drought.

Typical climate conditions in an arid or semi-arid environment like New Mexico leaves the state's topsoil particularly vulnerable. Stakeholders in the regional meetings noted several strategies for addressing soil health including:

- Practices to improve soil health and the production quality of land (i.e., cover crops, low- or no-till farming, green manure, development of organic matter)
- Integrated methods for land planning that fit the ecology of the area (i.e., proper grazing techniques, seasonal extension, density clustering, dryland farming)
- Continuing and extending efforts to eliminate invasive plants that deplete water supply
- Supporting research of best practices to support the land

There are pros and cons to each of these ideas, which potentially warrant additional research by the Agricultural Resilience Task Force. “There’s an inherent tension between making money and caring for landscapes that support that livelihood,” wrote Laura Jean Schnieder, in her essay *Is Ranching a Form of Conservation?* “Sometimes the land suffers. Sometimes creatures do. Yet I’ve seen firsthand how ranching can enhance conservation.”⁴⁴

INCREASED LAND DIVERSION

Stakeholders in 11 of the 13 regional meetings listed the loss of productive agriculture land as a concern. The growth and expansion of urban areas has led to the conversion of agriculture land to residential use. This reassignment of land is also occurring on tribal lands where there is uncertainty over the ownership of unused family fields. Industries, such as oil and energy, are purchasing agricultural land and water to convert to their use as well.

Prime rural land, or land that retains the best physical and chemical characteristics for producing crops, decreased by 33 percent between 1982 and 2012 in New Mexico. Meanwhile developed land, land generally dedicated to residential, industrial, commercial or transportation uses, increased by 86 percent in the same time frame.⁴⁵

This change reflects a trend in the seven states comprising the Rocky Mountain West, which estimates conversion of 11 percent of all prime ranchland to residential development or other non-farm/ranch use by 2020. These lands are concentrated in mountain valleys and mixed grassland areas that surround major mountain ranges. In New Mexico, Colfax and Rio Arriba counties are listed in the top 25 counties at risk of losing ranchland.⁴⁶

Stakeholders at the regional meetings suggested a range of options to protect agricultural lands:

⁴³ (USDA, 2015)

⁴⁴ (Schneider, 2015)

⁴⁵ (American Farmland Trust) (Using estimates from the USDA Natural Resources Conservation Service 2012 National Resources Inventory)

⁴⁶ (American Farmland Trust)

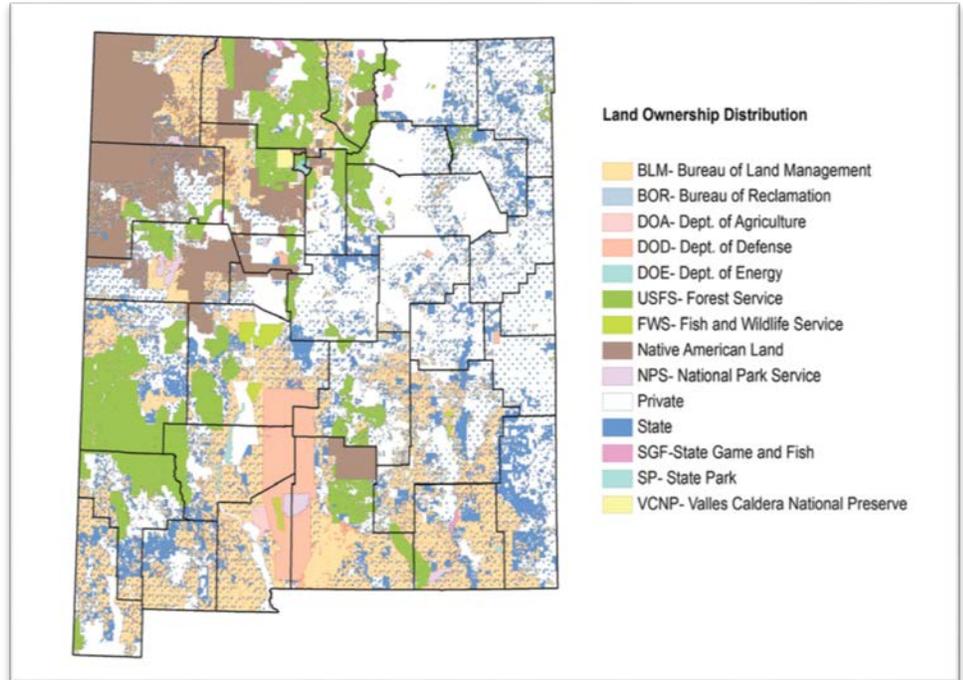
- Increasing the profitability of ranching by supporting local food systems
- Using public finance efforts to keep rangeland in production
- Participating in conservation easement programs (either purchase agreements or land trusts)
- Developing land-use succession plans for tribal communities to ensure tribal land remains agricultural
- Creating local or county zoning regulations to protect food production
- Including agriculture stakeholders in local land use planning and zoning committees

There are pros and cons to these ideas; their advancement would require further consideration by the Agricultural Resilience Task Force.

GRAZING ON FEDERAL LANDS

Stakeholders at the regional meetings identified issues with the impact of federal land management on farmers’ and ranchers’ ability to graze on federal lands. Leasing federal lands for livestock grazing has been a longstanding activity in New Mexico, but the historical nature of grazing on federal lands is changing.

In order to graze on federal lands, ranchers receive grazing permits that grant ranchers permission to graze on an “allotment,” or a designated area generally consisting of federal rangeland. Permits also stipulate the number of livestock and season of use allowed for each allotment.⁴⁷



Source: University of New Mexico 2011

In recent decades several factors have impacted federal grazing. Some federal statutes require management of federal lands to support multiple uses (i.e., mining, grazing, recreation, research, timber, environmental health).⁴⁸ In the interest of supporting all these different uses, grazing may be limited. Additionally, federal designation of lands as wilderness areas, wilderness study areas and national monuments can result in closure of allotments. Compliance with federal statutes such as the Endangered Species Act and National Environmental Policy Act can also inhibit grazing on public lands.⁴⁹

Most people agree that protecting the environment is essential. At the same time, many ranchers depend financially on grazing permits. When these agreements are reduced or restricted, ranchers can incur financial losses. They often use grazing allotments as collateral for loans, so their ability to obtain loans or make payments can be affected.⁵⁰

Stakeholders recommended improved communication, advance planning and collaboration with BLM and U.S. Forest Service. Participation in federal rulemaking processes may provide an additional means of impacting federal grazing decision making.

⁴⁷ (U.S. Dept. of the Interior, Bureau of Land Management)

⁴⁸ (Squillace, 2014)

⁴⁹ (Reese, 2005)

⁵⁰ (Johnson, 2016)

Chapter 3

FARMERS & RANCHERS

Overview

A resilient agricultural sector unquestionably relies on people who raise the food and communities that support them. The work of continuing the state's legacy of agricultural traditions and knowledge must come from the hardworking people already in this industry, as well as the next generation of farmers and ranchers. Attracting and keeping the next generation's interest in agricultural careers was prioritized as a top challenge in 12 of the 13 regional meetings. Support for new producers and providing effective youth education were seen by stakeholders as critical to filling the workforce gap as aging farmers and ranchers retire.

National data suggests the rate of farmer and rancher retirement could very well out-pace the rate of new entrants into the industry.⁵¹ A depth of knowledge, skill and experience will be lost unless current farmers can effectively transition their operations to successors. The USDA estimates the nation will need 100,000 new producers over the next decade. If that goal is not reached, the industry will become even more consolidated, and our food supply more reliant on imports.⁵²

Sustaining the agricultural workforce also relies on the overall health of rural communities and the size of their populations. New Mexico is unquestionably rural, with over three-fourths of counties classified as rural (26 out of 33). However, only 33 percent of New Mexicans actually live in non-urban areas.⁵³ The population of rural communities has been relatively stable in recent years, but its actual percentage of the total state population has declined.⁵⁴ This migration from rural to urban areas not only affects the agriculture industry, but also the economic resiliency of small communities in general. Similar trends exist in tribal communities, with less than 50 percent of New Mexico's Native American population working and living on tribal lands.⁵⁵

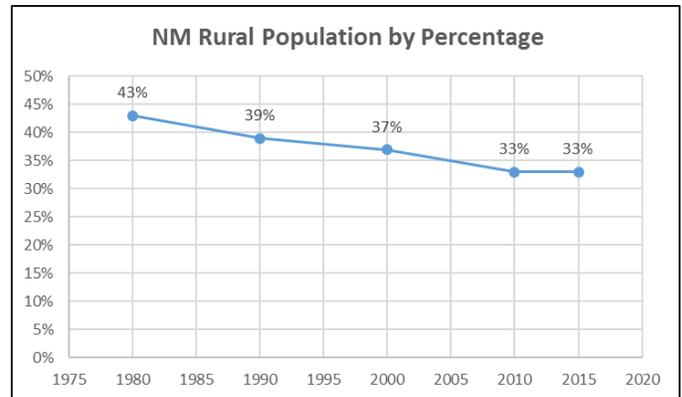
Because every regional meeting identified concerns facing future and current farmers and ranchers, this chapter focuses on the entire professional pipeline of producers:

- Agricultural education for youth
- Young and beginning producers
- Financial barriers for start-up operations

Youth Education and Interests

Stakeholders in 10 of 13 regional meetings reported an increase in youth interest in agriculture. In addition, youth surveys collected in 2016 by NMSU Cooperative Extension Service at county fairs and public meetings show that many young people value a lifestyle that builds strong family and community ties (see chart below). Others enjoy the independence of the occupation and seeing the results of their own efforts. Some young people reported liking the science aspect of agriculture. Others are savvy and enthusiastic about the technology associated with the industry.⁵⁶

According to stakeholders in the regional meetings, some young people are increasingly interested in organic and small-scale food production. Youth interest in healthy food and natural production has been influenced by school gardens, social



Source: New Mexico First

⁵¹ (USDA Census of Agriculture, National Agricultural Statistics Service, 2014)

⁵² (Lindsey, 2016)

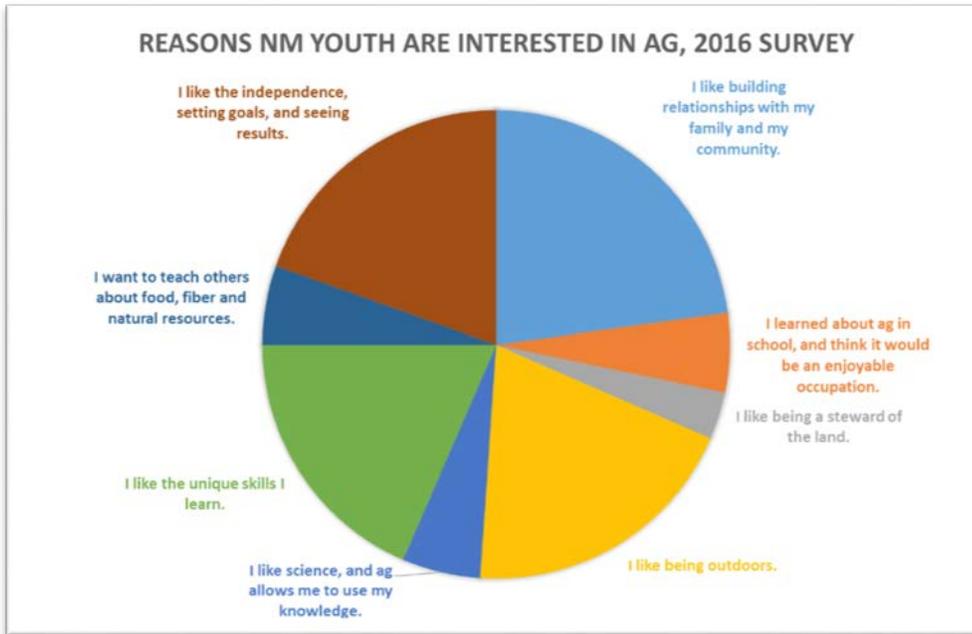
⁵³ (USDA Economic Research Service, 2014)

⁵⁴ (New Mexico First, 2016)

⁵⁵ (Williams, 2013) (U.S. Department of Interior, 2013)

⁵⁶ (New Mexico State University, 2016)

media and mentorship programs. Similarly, tribal stakeholders report that elders are increasingly involved in showing youth how to garden and eat healthily.



Source: NMSU Extension Service

Some stakeholders attributed grant funding for school and summer programs as part of the stimulus for youth participation and excitement about the industry. Longstanding established programs like 4-H and Future Farmers of America (“FFA”) remain key players as well.

K-12 AGRICULTURAL EDUCATION

Youth agricultural education in New Mexico is provided on a number of platforms. Historically, 4-H and FFA have been the premier organizations for cultivating

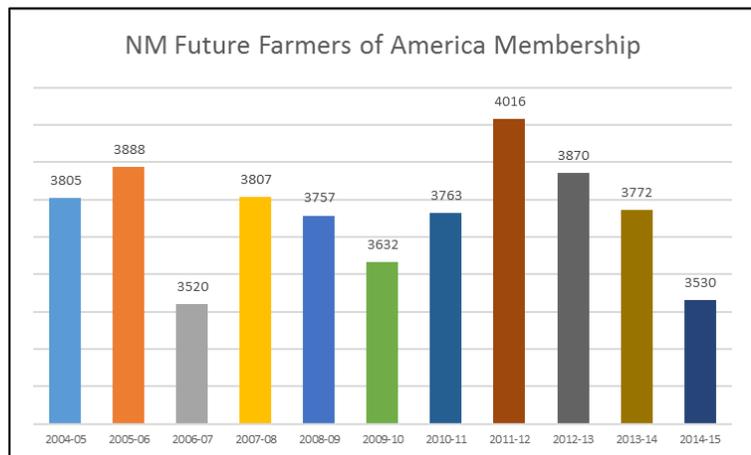
the next generation of farmers and ranchers. Both formed in the early 1920s, these two organizations offer educational opportunities in science and agriculture while promoting youth leadership skills.

The 4-H youth development program (administered by in our state by NMSU’s Cooperative Extension Service), gives students opportunities in environmental education, community service and current issues. There are more than 60,000 youth and 11,000 volunteers involved in New Mexico 4-H clubs.⁵⁷ A main goal of the New Mexico FFA is to prepare youth for careers in the global agriculture industry, which encompasses business, technology and production farming. This work starts in middle school and continues through college.

Agricultural education in primary and secondary schools is also offered throughout New Mexico. The state’s Public Education Department recognizes agriculture as a career cluster and lists 29 agriculture education courses in its approved curriculum. The courses incorporate:⁵⁸

- Classroom and laboratory instruction
- Supervised occupational experience
- Participation in leadership development activities provided through FFA

While these activities remain underway in education, concerns remain. Stakeholders in ten of the 13 regional meetings were concerned that venues for training youth who are interested in agriculture are decreasing. Communities members reported that many public schools have de-emphasized or eliminated vocational agriculture and home economic programs.



Source: New Mexico Future Farmers of America

⁵⁷ (4-H, n.d.)

⁵⁸ (New Mexico Public Education Department, n.d.)

Although New Mexico FFA is a foundational cornerstone of youth agricultural education, membership has gradually declined over the last five years (as seen in the graph above). That said, there remained a total of 3,530 members in the 2014-15 academic year.⁵⁹

To respond to the declining number of youth agricultural education venues, and the need to engage youth in agriculture, stakeholders recommended a variety models such as:

- School mentorship programs that pair students with retired farmers or ranchers
- Giving school credit for practical experience on a farm
- Allowing juvenile offenders to complete their community service on farms

Future Farmers of America Ambassador

Kassie Waller of Clovis, NM, a student of Eastern New Mexico University, is one of 22 college students in the nation to serve as a FFA Ambassador. She speaks about the importance of agriculture to groups that range from preschoolers to adults. “We’re all wearing clothes. Those clothes were made from plants grown by farmers,” said Waller in a Clovis News Tribune article. “Sometimes we go and sit down and eat a meal, and we don’t remember the hard work that went into making that meal.” Waller is majoring in agricultural sciences at ENMU with an emphasis in communication; she plans to go into public relations for an agriculture company.⁶⁰

K-12 FOOD AND NUTRITION EDUCATION

There are also a variety of other school-based and informal education programs for agriculture, food and nutrition topics. These organizations typically specialize in offering experiential or vocational training in agriculture. Some New Mexico examples include:

- New Mexico Agriculture in the Classroom (AITC), which in 2013 provided professional development workshops for 771 teachers and in-class presentations to 13,000 students⁶¹
- Cooking with Kids (Pre-K through Grade 7)
- John Hopkins Center for American Indian Health (ages 5-18 years in tribal communities)
- Farm to school programs

Stakeholders urged increased funding for other school-based and informal education programs about agriculture and food or nutrition topics. Stakeholder felt the need for funding was especially important since these projects often offer experiential and vocational learning students need.

New Mexico Youth Ranch Management Camp

The New Mexico Youth Ranch Management Camp program aims to get younger individuals into ranching or stay in the field of agriculture by giving them hands-on education. The program provides participants, who range from ages 15-19, the big picture of what it takes to make a ranch succeed by integrating the topics of beef production, marketing and economics, range management, natural resources and wildlife, forestry and financial planning. The camp is organized and operated by a large committee of cooperative extension specialists and county agents, industry organizations and individuals from the agriculture industry.⁶²

⁵⁹ (New Mexico Agricultural Department Future Farmers of America Association, n.d.)

⁶⁰ (Boswell, 2015)

⁶¹ (Crawford-Garrett, 2015)

⁶² (Scott, 2016)

COLLEGE

Roughly a quarter of farmers now earn college degrees, but more graduates in agricultural related fields may be needed to supply the workforce.⁶³ It was found that close to 60,000 jobs should be available in food, agriculture, natural resources and environmental fields each year for the next five years. All of these jobs require undergraduate or higher degrees. Estimates predict there will be two positions in these fields for every qualified graduate.⁶⁴

The problem is magnified by a number of issues, including a perception that agriculture is not a growing field and the location of some of these jobs in smaller cities and rural areas where the population is not as diverse as major cities.⁶⁵ A report from the USDA indicates that some 20,000 agriculture jobs go unfilled every year.⁶⁶

For college opportunities, the following New Mexico schools offer agriculture-related degrees and programs:

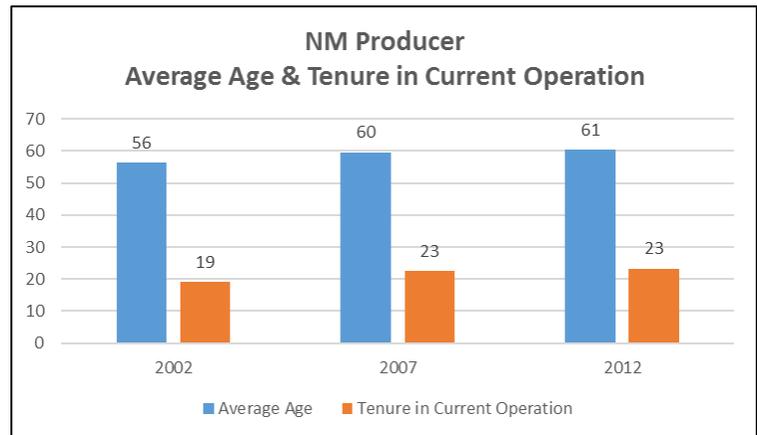
- New Mexico State University: College of Agricultural, Consumer and Environmental Sciences department offers undergraduate and graduate degrees
- Eastern New Mexico University: Agriculture Associate of Arts degree
- University of New Mexico: Sustainability Studies Program as well as multiple degree programs in water, land and science fields
- Western New Mexico University and New Mexico Tech: several programs related to resiliency of the industry (water, environment, wildlife, nutrition, engineering, landscape, sustainability, and various plant/animal science programs)

Some stakeholders proposed increasing collaborative efforts with higher education institutions and community colleges to increase youth interest in agriculture.

Young and Beginning Producers

New Mexico has seen increases in the numbers of young producers in recent years. Young producers are defined by USDA as under age 35. Nationally, the number of young farmers in the U.S. increased two percent between 2007 and 2012.⁶⁷ This contrasts to New Mexico, where young farmers and ranchers rose by 42 percent between 2007 and 2012.⁶⁸

In addition to young growers, some New Mexico communities have seen an increase in “beginning producers” of all ages. Beginning producers are defined as have been farming or ranching for 10 years or less. Beginning farmer and rancher numbers have increased in New Mexico by 15 percent over the past decade.⁶⁹ These growers may include extended family members of existing farmers and ranchers, women, returning veterans and retirees.⁷⁰ Some tribal members are also returning to the native traditions of land stewardship and food production.



Source: USDA

Although there have been recent gains in the numbers of young farmers and ranchers in New Mexico, stakeholders in all 13 regional meetings indicated that the need for more producers is critical. Nationally, the total number of farmers declined from over 6 million in 1910 to just over 2 million in 2011. The USDA expects that one-quarter (500,000) of all farmers will

⁶³ (Ortiz)

⁶⁴ (USDA, 2015)

⁶⁵ (Runyon, 2015)

⁶⁶ (Hayes, 2016)

⁶⁷ (Erbentraut, 2016) (USDA, 2014)

⁶⁸ (USDA, 2007) (USDA, 2012)

⁶⁹ (American Farmland Trust)

⁷⁰ (USDA, 2012)

retire in the next 20 years.⁷¹ Between 2007 and 2012, the number of farm operators in the U.S. dropped by 90,000, while the number of young farmers increased by only 1,200.⁷² As seen in the accompanying chart, in New Mexico, the average age of primary agricultural operators (i.e., full-time occupation is farming) is 61 years.⁷³ Only three percent are under the age of 35, and thus considered young producers.

OBSTACLES FACING YOUNG AND BEGINNING PRODUCERS

As the current generation of producers retire, young and beginning producers find it more difficult to remain in or return to the industry. This creates a gap threatening the resiliency of New Mexico's agriculture industry, rural communities and local food supply. The barriers to entry for the next generation are high. Among the biggest obstacle for beginning farmers are:

- Lack of access to capital and credit⁷⁴
- Land access, including costs and finding viable agricultural land
- Access to water and irrigated land
- Student loan debt, which prevents young and beginning farmers from expanding their business or pursuing farming due to the perception that a farming income will not be enough to pay off student loans.⁷⁵

Many young farmers (78 percent) did not grow up on a farm and did not inherit land.⁷⁶ This creates difficulties for obtaining loans, land or water rights. Many established farms have senior water rights. This leaves many first generation farmers with junior rights. Irrigated farmland has a higher cost, making it difficult to afford. Additionally, only a profitable operation can afford irrigation improvements to conserve water.⁷⁷

Those young farmers and ranchers who inherit land also have difficulty expanding or upgrading an existing operation. Challenges often occur when land parcels have been divided among family members for generations, and are now too small to support a viable farming or ranching operation. Lack of adequate estate planning contributes to this problem.

For all young and beginning producers, the cost of land presents a considerable challenge. The average cost of agricultural land increased 31 percent between 2011 and 2015, and the average cost of a 95-horsepower tractor increased from \$62,000 in 2005 to \$107,970 in 2015 (74 percent increase).⁷⁸ The start-up costs for land, equipment and infrastructure make it difficult for new producers to sustain their operations and compete with established producers. The USDA National Resource Conservation Service offers federal cost-sharing programs; however many of these programs are geared toward large operations (i.e., over 100 acres), and the processing time to receive funds can be a barrier to a beginning farmer.⁷⁹

Specific programs geared toward assisting young and beginning farmers follow:

- New Mexico Land Link connects existing farm and ranch operators and landowners with new and aspiring farmers through listings of land, land seekers, mentorships, internships and jobs. The organization also facilitates farm and ranch transition through tenure arrangements, sales or lease agreements as well as connections to conservation easement and agriculture trust opportunities.⁸⁰
- Tax credit programs exist for established farmers who help young and beginning farmers and ranchers.⁸¹
- Land trusts and conservation easement programs protect farmland by stipulating that it must be kept in agricultural use or sold to a working farmer to ensure the land remains accessible to the next generation of farmers.⁸²
- Student loan forgiveness plans exist for some young farmers and ranchers.

⁷¹ (National Young Farmer's Coalition, 2011)

⁷² (Lindsey, 2016)

⁷³ (USDA Census of Agriculture)

⁷⁴ (National Young Farmer's Coalition, 2011)

⁷⁵ (Berman, 2015)

⁷⁶ (National Young Farmer's Coalition, 2011)

⁷⁷ (Reguzzoni, 2016)

⁷⁸ (Fifield, 2016)

⁷⁹ (Reguzzoni, 2016)

⁸⁰ (NM Landlink n.d.)

⁸¹ (Fifield, 2016)

⁸² (Fifield, 2016)

Stakeholders gave the following suggestions to improve support for young and beginning producers:

- Strengthen ongoing young producer lending programs.
- Promote educational opportunities such as resource fairs and field tours to share information, provide assistance in applying for financial resources, and give suggestions on best business practices.
- Invest in technology-based agricultural resources for young and beginning farmers and ranchers.
- Connect returning veterans with agriculture opportunities, as they are another group of potential young and beginning farmers and ranchers.

Additional suggestions were raised for tribal communities in particular. Tribal stakeholders encouraged NMSU and federal agencies to provide in-person technical assistance on grant-writing, communicate more broadly regarding available grants, and provide workshops specific to the needs of native youth and adults. Stakeholders also believed tribes and pueblos should improve communication and sharing of ideas amongst themselves, as well as provide mentors who are unique to each group's culture and traditions.

Southern Pueblo Beginning Farmer and Rancher Program

New Mexico State University, partnering with the Institute of American Indian Art, works with beginning producers from the southern pueblos to improve their agricultural operations while maintaining their tribal agricultural traditions. Individuals with less than 10 years of farming or ranching experience participate in workshops on horticulture, animal husbandry and agricultural economics, as well as good business practices. The training also provides information on accessing loans and financial aid programs. "This training helped me have a profitable alfalfa operation on my 12 acres," said Leonard Bird of Santa Domingo Pueblo. "I have begun an apple orchard that I hope my community members will see, and then become interested in turning their land back to agricultural production." Each participant receives one-on-one assistance to help ensure farm operations improve.⁸³

⁸³ (Moorman, Pueblos Struggling with Aging Ag Sectors, 2016)

Chapter 4

ECONOMICS AND SUPPLY CHAINS

Overview

In all 13 regional meetings, stakeholders voiced concerns about the economics of the agricultural industry. The issue was identified as a top priority in nine meetings. Like most industries, the health of the agricultural economy is vital to supporting the viability of all its stakeholders.

As of 2012, agriculture and food processing accounted for \$10.6 billion of New Mexico’s gross state product, over 50,000 jobs, and nine percent of the state’s economy. The direct contribution of the agriculture industry to New Mexico’s economy includes the value of products sold, the jobs and employee compensation it supports, and the local and state taxes it generates.⁸⁴ As of 2012, the industry generated \$1.47 billion in employee compensation, \$23 million in personal income taxes, \$40 million in corporate income taxes and \$460 million in business taxes.⁸⁵



The illustration above presents the agricultural supply chain from start to finish. This structure underlies the past, current and future agricultural economy in New Mexico and around the nation. Supply chains are institutionalized commercial arrangements that connect producers, processors, aggregators, marketers and distributors with the ultimate purpose of moving products to consumers. A well-functioning agricultural supply chain can add value to agricultural products or services, ultimately resulting in economic growth.⁸⁶

Although agriculture impacts New Mexico’s economy in a major way, farmers and ranchers still struggle. Finding the best ways to make a living wage and run a business, while also fostering growth in the agricultural supply chain, were challenges identified by stakeholders in the regional meetings. Specific trends warranting attention included:

- Costs facing agricultural operations
- Industry expansion and progress
- Regulatory barriers
- New Mexico brand interest and local production

Costs Facing Agricultural Operations

For a New Mexico farmer or rancher, the cost of doing business and the return on investments are daily challenges. Several stakeholders noted similar constraints: access to land, labor and capital for upgrading and expansion. These constraints also limit new agricultural startups, especially near urban areas where real estate prices are higher. These costs will be further addressed later in this chapter, but the most basic economic challenge is earning enough to support one’s self and family.

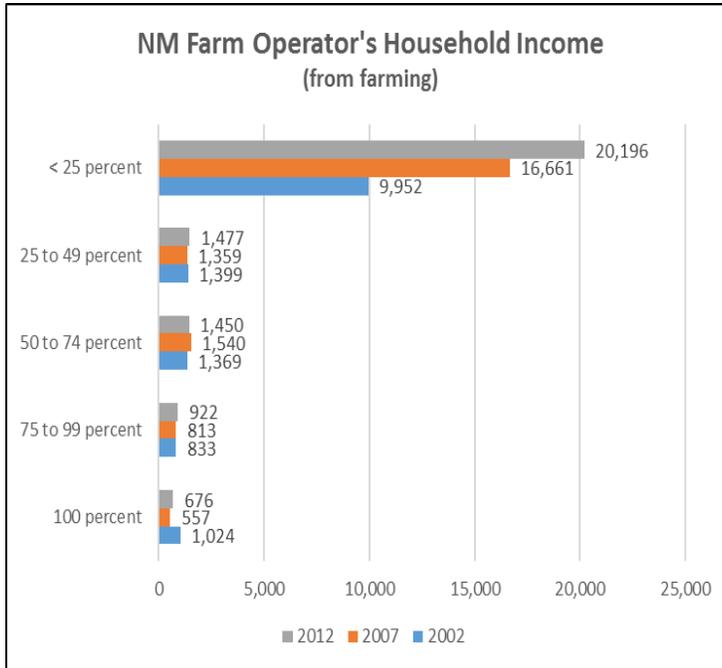
⁸⁴ (Diemer, Crawford, & Patrick, December 2014)

⁸⁵ (Diemer, Crawford, & Patrick, December 2014)

⁸⁶ (van Roekel, Kopicki, J.E. Broekmans, & Boselie)

ECONOMIC CONDITION OF FARMERS AND RANCHERS

New Mexico growers make about \$35,000 less annually than the average U.S. farmer. As shown by the accompanying graph, the majority of New Mexico farmers (82 percent) derive less than 25 percent of their household income from sales of agricultural products and government payments. Many consistently incur a net loss from agricultural activities and thus depend on off-farm income to cover living expenses.⁸⁷



Source: USDA

Other measures of financial stability present concerns as well. Farm net cash income is a short-term measure of cash flow, a very important indicator of farm stability.⁸⁸ Net cash income for New Mexico farmers and ranchers decreased by 36 percent from 2007 to 2012.

Another important gauge of economic well-being for all U.S. farmers and ranchers is the number of operations with net gains versus net losses. Net losses occur when expenses exceed the amount of income produced in a given amount of time, while net gains occur when revenue exceeds a business' expenses. The number of farms with net gains has lagged behind those with net losses.

From 2002 to 2012, the number of farms in the U.S. with net losses increased from 1,134,879 to 1,136,858 (0.2 percent increase). The change in New Mexico was much more dramatic, from 9,284 to 16,842 (81.4 percent). The average number of U.S. farms with net gains actually declined 2.2 percent over the same time period. In New Mexico the change was both positive and relatively dramatic, up by just under 33 percent.

The gain or loss position of farm and ranch operations is a complex issue and will likely remain a significant challenge in the future.⁸⁹

One factor that influences farm and ranch economic instability is the fact that growers do not earn a lot from the foods they raise. For every dollar consumers spend on food, about 10 cents go to the farmer (see below illustration). Other factors brought up at the regional meetings contributing to financial hardships include:

- Increases in production expenses (i.e. feed, rent, chemicals, utilities, fuel and fertilizer)
- For ranchers, the rising expense of grazing fees
- Increasing property taxes
- Variable weather patterns
- Rising costs for transportation and infrastructure

In addition, stakeholders in all 13 regional meetings mentioned that land costs continue to be a significant barrier to farming and ranching. Diversion and restriction of agriculture land has led to higher land prices for existing producers who want to expand as well as for young and beginning producers who want to expand or start a new operation.

⁸⁷ (USDA Census of Agriculture, National Agricultural Statistics Service, 2014)

⁸⁸ Net cash income is the gross cash income less all cash expenses such as feed, seed, fertilizer, property taxes, interest on debt, wages, and land rent.

⁸⁹ (USDA Census of Agriculture, National Agricultural Statistics Service, 2014)



Source: USDA Economic Research Service

Already laboring to cover expenses, the agricultural industry also strives to provide consumers with an affordable product. In the last decade, the percentage of household income Americans spend on food has remained about the same, and it is considerably less than in previous decades. Families in 1960 spent roughly 17 percent of household income on food, compared with families today who spend around 10 percent.⁹⁰ Despite this data, stakeholders in the regional meetings indicated that consumers continue to expect lower and lower food prices.

ACCESS TO CAPITAL

Farmers and ranchers across New Mexico struggle with credit and lending, including state and federal regulations associated with such

financing. This matter came up at each regional meeting. Furthermore, stakeholders reported increased competition for limited funding (e.g., loans and grants). Similar to the struggles facing young and beginning producers (see Chapter 3), access to capital remains a challenge for many established farmers and ranchers.⁹¹

There are currently three major government-affiliated lenders of farm loans operating in New Mexico:

- The Farm Credit System
- The USDA Farm Service Agency
- The federal Commodity Credit Corporation

There are several types of loans available from USDA, each designed for a specific need (i.e., to purchase or enlarge a farm, fund operating expenses, or replace essential property after a natural disaster).⁹² Some loans provide interim financing for producers to meet cash flow needs, so that commodities can be stored when harvest market prices are low and then sold later when prices are more favorable.

By 2015, total outstanding Farm Credit agricultural loans in New Mexico increased nine percent over 2014 and 12 percent over 2013. The increase was due to new loans, loan advances with existing customers, and draws on lines of credit. Farm Credit loans are concentrated in counties where cattle and dairy production is predominant.⁹³

Generally, few farmers in New Mexico are utilizing loan services from Farm Service Agency (“FSA”) and Commodity Credit Corporation (“CCC”). As of September 2015, there were 305 outstanding loans in New Mexico in the FSA loan portfolio (0.8 percent of total loans) representing \$35,582,000 (0.6 percent of total loan amount).⁹⁴ The number of New Mexico farms utilizing CCC loans decreased by 85 percent over the last decade. In 2012 these programs were used by only 22 farms, less than one-tenth of one percent of total farms in the state.⁹⁵

⁹⁰ (USDA Economic Research Service, 2016)

⁹¹ (National Young Farmer’s Coalition, 2011)

⁹² (USDA Farm Service Agency)

⁹³ (Farm Credit New Mexico, 2015)

⁹⁴ (USDA Farm Service Agency, September 30, 2015)

⁹⁵ (USDA Census of Agriculture, National Agricultural Statistics Service, 2014)

The USDA Farm Service Agency offers loans to all farmers, but several issues with lending have been reported. For example, the maximum amount for a direct farm ownership loan from FSA is \$300,000, which is not an adequate amount in many real estate markets for the purchase price of a farm. Additionally, for land transactions, FSA loans can take up to 30 days to qualify and up to a year to receive funds. This delay can cause farmers, especially beginning farmers, to lose out on buying opportunities if a seller is not willing to wait for an FSA loan approval.⁹⁶

An alternative funding innovation some small farmers are trying is online crowdfunding. Crowdfunding is the practice of funding a project by raising the cost from a large number of people – recently popularized by a number of internet crowdfunding platforms.⁹⁷ Instead of seeking bank loans, small farmers are raising money through crowdfunding campaigns on platforms like Barnraiser. Currently, 40 percent of the campaigns posted on Barnraiser’s platform are farm-related and generate an average of \$12,000 per project. Barnraiser provides funding platforms and advertises businesses both nationally and in New Mexico.⁹⁸

Food Business Incubator and Commercial Kitchen

*The Northern New Mexico Food Hub’s Sostenga Kitchen is a business incubator for new food startups in Española, New Mexico. The kitchen is available to farmers and artisan food producers. Siete del Norte Community Development Corporation mentors these entrepreneurs and helps them distribute their products. The project is a collaboration involving governmental agencies, for-profit businesses and nonprofits to support the value-added agriculture activities of small farmers throughout the region. The project was able to capitalize on the opportunity to use a former auto dealership owned by the city to house the kitchen and packaging equipment. The facility also includes space for training activities and a community center.*⁹⁹

LOANS ON TRIBAL LANDS

Loans on tribal communities have often been difficult to obtain because tribal trust land cannot be used as collateral for a mortgage.¹⁰⁰ Individual tribal allotments may be used to secure mortgage loans, although liens are subject to approval from the Bureau of Indian Affairs. Using individual allotments as collateral has proven difficult, because title ownership to these lands is often highly fractionated – meaning there are many, and sometimes unknown, owners of a single parcel. The 2014 Farm Bill has expanded the availability of farm loans for Native American tribes and members to purchase tribal lands with multiple owners to continue or convert to farming and ranching use. The new rules should allow increased ability for tribes and individuals to start or expand farming and ranching operations.¹⁰¹

LABOR

The challenge of recruiting reliable employees to work in the agriculture industry was voiced by stakeholders in eight of the 13 regional meetings; it was a top priority in two. In New Mexico, the agriculture industry employs only 1.4 percent of the New Mexico workforce. Between 2009 and 2014, the agriculture industry gained 578 jobs for a five percent increase, the fifth largest gain of all New Mexico industries in that time period. However, according to the New Mexico Department of Workforce Solutions, agriculture employment is forecasted to decrease by almost six percent by 2022.¹⁰²

Agriculture employment includes crop, livestock and nursery workers, as well as supervisors and managers. Farm and ranch workers can include family members, contract specialists (such as veterinarians), as well as migrant farmworkers. The number of New Mexico farms with hired farmworkers grew by about 28 percent from 2002 to 2012 to just over 5,400

⁹⁶ (National Young Farmer’s Coalition, 2011)

⁹⁷ (Prive, 2012)

⁹⁸ (Schatz, 2016)

⁹⁹ (Metcalf, 2015)

¹⁰⁰ (1st Tribal Lending, 2016)

¹⁰¹ (USDA, 2015)

¹⁰² (New Mexico Department of Workforce Solutions, 2016)

farms, while the total number of farmworkers declined by five percent to almost 22,000. There was a notable decline in the “seasonal” (< 150 days) category of just over 12 percent, while the “full-time” category increased by seven percent.¹⁰³

Migrant workers and their legal ability to work on U.S. farms also impacts employee availability in some places. Since 2001, the share of hired crop farmworker not legally authorized to work in the U.S. has fluctuated around 50 percent. The U.S. Department of Homeland Security H-2A visa program allows employers to bring foreign guest workers into the country to fill temporary agricultural jobs.¹⁰⁴ However, workers in the H-2A program comprise only a small percentage of the nation’s agricultural workers, and New Mexico has a relatively modest number of H-2A workers (500-1000) compared to other southwestern states.¹⁰⁵

To address some of these issues, stakeholders suggested reforms in technology and volunteer recruitment to compensate for labor shortages. Additionally, stakeholders proposed support for intern programs and increased funding to continue worker education and retain labor.

Some producers in the regional meetings perceived that regulations interfere with operator return on investments and on expansion needs. The regulations mentioned most often are worker minimum wage and worker’s compensation insurance.

The New Mexico minimum wage has been \$7.50 per hour since 2009, although some cities such as Las Cruces, Albuquerque and Santa Fe raised it.¹⁰⁶ There are, however, several exemptions for agricultural workers listed in the New Mexico Minimum Wage Act.¹⁰⁷ Farmworkers employed on small farms are also exempt from both the minimum wage and overtime pay provisions of the federal Fair Labor Standards Act.¹⁰⁸

Another concern, which was clarified after the regional meetings, was a June 2016 New Mexico Supreme Court ruling on worker’s compensation for farm and ranch laborers. The ruling confirmed that denying worker’s compensation to farm and ranch laborers is unconstitutional.¹⁰⁹ (Previously, agricultural employers were permitted to opt out of worker’s compensation.) Opponents of this ruling worry that requiring workers’ compensation for farm and ranch laborers creates another cost for agricultural operators, especially those already struggling with price fluctuations in their markets.¹¹⁰ Proponents argue that the ruling supports farm laborers who are often considered at risk due to the dangerous and unpredictable nature of farm and ranch work, and are often unable to afford private health insurance.¹¹¹

These types of challenges are not unique to New Mexico. Hired farmworkers continue to be one of the most economically disadvantaged groups in the United States. According to the USDA Farm Labor survey, the real average hourly earnings of non-supervisory farm laborers has been between \$10.50 and \$10.80 since 2007. The average number of hours worked per week in New Mexico and Arizona was 47.4 hours.¹¹² In New Mexico, the mean annual wage of the farming, fishing and forestry occupation category is \$21,940, ranking it 21 in earnings of the 23 occupation categories tracked by the New Mexico Department of Labor.¹¹³

Industry Expansion

CATTLE PROCESSING

The lack of cattle processing facilities in the state is an issue for many New Mexico ranchers, regardless of their size. Over 95 percent of cattle in the U.S. were processed in large-scale plants (100,000 head or greater capacity) in 2015. The number of small federally inspected plants (10,000 head or less) has fallen significantly in recent years to 565 in 2015. As of January 2016, there were 12 (five federally inspected) livestock slaughter facilities in New Mexico, down from 17 in 2015.¹¹⁴

¹⁰³ (USDA Census of Agriculture, National Agricultural Statistics Service, 2014)

¹⁰⁴ (U.S. Department of Homeland Security)

¹⁰⁵ (Newman, 2011)

¹⁰⁶ (Ballotpedia) (Goldsmith, 2016)

¹⁰⁷ (New Mexico Department of Workforce Solutions Labor Relations Division)

¹⁰⁸ (U.S. Department of Labor)

¹⁰⁹ (Moore, 2016)

¹¹⁰ (Hawkes, 2016)

¹¹¹ (New Mexico Center on Law and Poverty, 2016)

¹¹² (USDA NASS, 2016)

¹¹³ (New Mexico Department of Workforce Solutions, 2016)

¹¹⁴ (USDA, 2016)

A take-away point here is that New Mexico ranchers, many of whom are in remote areas, must drive long distances and pay high processing costs to sell their meat products in national or local markets.¹¹⁵ For example, if a local restaurant wants to serve beef that was raised in New Mexico, the product was probably shipped out-of-state for slaughter and processing and then transported back to New Mexico for sale. Higher costs and environmental impacts associated with transportation of meat products come into play. Stakeholders suggested increased funding and regulatory support to improve and further develop meat processing plants in New Mexico.

Mid-scale Farm Exports Statewide

Paul Cross, owner of Charybda Farms and Chef's Edition plants in Arroyo Hondo, got his start in farmers' markets and is now a wholesaler of vegetables, microgreens, and plants. Using two greenhouses running entirely off water catchment, the farm sold 31,000 plants in 2015. They typically have contracts for everything before the cuttings are planted. The farm has grown from small-scale to exclusively export and has contracts with Whole Foods Market and other national distributors like Sysco. The company exports from Taos to food stores throughout New Mexico.¹¹⁶

ADVANCES IN INDUSTRY TECHNOLOGY AND METHODS

Stakeholders in 12 of the 13 regional meetings valued advances in technology and methods available to them. People reported that better technology is helping the industry be cleaner, safer and more efficient. For example, using improved tractors, harvesters and other precision equipment, many farmers reduce their production time and short-term variable costs. More advanced geographic information systems contribute to more sustainable economics for producers. Farmers and ranchers also have easier access to information on best practices through smart-phone apps and the internet. Now more than ever, producers can tap essential information including competitive data and performance analysis.

In addition to technological advances, there are also changes in methods used by farmers. Stakeholders reported a trend toward more crop varieties on farms and farm diversification. Drought resistant plants, aquaculture, hydroponics, greenhouse growing and seed exchanges are some other examples.

Advances in research has also helped farmers produce higher yields per acre. For example, cover cropping, the practice of seeding fields between harvests, keeps topsoil in place, adds carbon to the soil, retains water, and helps the beneficial microbes, fungus, bacteria and worms thrive. One large-scale commodity producer saw a difference in soil quality within three years after adopting cover cropping. Another producer estimated a \$244,000 net economic benefit annually or more than \$69 an acre.¹¹⁷

In 2015, investments in U.S. agriculture technology startups nearly doubled from \$2.36 billion in 2014 to a record \$4.6 billion. For example:¹¹⁸

- Robotics technologies, including crop-scouting drones and autonomous farm machines for data analysis and precision farm, grew by 237 percent.
- Precision agriculture software companies raised capital on the expectations that more farmers will increase use of data science to increase yields and lower costs.
- Soil and crop technology companies raised \$168 million to address concerns about climate change, sustainable farming and soil health.

¹¹⁵ (USDA Economic Research Service, 2015)

¹¹⁶ (Hooks, 2016)

¹¹⁷ (Strom, 2016)

¹¹⁸ (Young, 2015)

Local Food Cooperative

The La Montañita Cooperative was established in 1976 and now operates in three communities in New Mexico: Albuquerque, Gallup and Santa Fe. The Co-op carries over 1,100 local products from over 400 producers, more than any other grocery stores in New Mexico. It supplies fresh, local food to 17,000 families each year. The La Montañita fund is a member-funded, micro-lending program designed to grow the local food system and strengthen the economy. The fund supports farms, ranches, value-added producers, and other food system endeavors. The cooperative uses a value chain philosophy to ensure their businesses support economic, environmental, and community strength.¹¹⁹

EXPANDING MARKETS

Stakeholders in nine of the 13 regional meetings expressed a concern regarding market access for their products, and the issue was identified as a top priority in five meetings. The agriculture industry in New Mexico competes in local, domestic and global markets, selling and buying produce and other products that can make our lives comfortable and healthy. The challenges are similar to those experienced by people in other industries: listening to what customers want, gaining access to markets that generate fair prices for both sellers and buyers, getting products to market in a timely and cost-effective way, and taking advantage of expansion opportunities.

In some markets, there have been gains for New Mexico. Export markets have been increasing. Total agricultural exports from New Mexico rose by 133 percent between 2000 and 2015. Animal exports rose 106 percent and plant exports increased by 155 percent in the same timeframe.¹²⁰

Stakeholders also noticed an increase in programs to open new institutional markets for local farmers, especially farm to school programs. Specifically, stakeholders reported recurring state funds for schools to buy local food, as well as federal programs such as the National School Lunch Program and the USDA Farm to School Grant Program.¹²¹ There is also more institutional support from hospitals for procuring local produce.¹²² In addition, grant funding exists from the USDA and NMDA to develop new markets, or expand existing ones. These dollars may be used in New Mexico for both specialty crops and general agricultural commodities.¹²³

Although improving, the sustainability of viable private and institutional markets (e.g., schools, hospitals, prisons, institutional cafeterias, casinos, restaurants, retail stores) was still a concern to producers. Producers reported that consumer demand for local produce seems to be growing, but small and mid-sized farmers and ranchers lack access to consistent markets. Research from NMSU indicated a need to work with local growers to help meet buyer demands, volume, quality and distribution, especially in institutional markets.¹²⁴

Stakeholders in five of the 13 regional meetings also mentioned increased competition due to international trade agreements negotiated by the federal government. Stakeholders, particularly from the tribes and southern areas, believed many trade policies hamper the ability of New Mexico producers to compete effectively. Assessing the impact of imports is difficult due to data limitations. Research shows that imports can cause a loss of economic activity to the United States, however imports allow retailers to meet consumer demands and also support jobs in the data processing, financial, legal, management, administrative, marketing, and transportation sectors.¹²⁵

¹¹⁹ (La Montañita Cooperative)

¹²⁰ (USDA Economic Research Service, 2016)

¹²¹ (National School Lunch Program, n.d.) The National School Lunch Program is a federally assisted meal program operating in public and nonprofit private schools and residential child care institutions. It provides nutritionally balanced, low-cost or free lunches to children each school day.

¹²² (Sinovic, 2016)

¹²³ (New Mexico Department of Agriculture, 2016)

¹²⁴ (Moorman, New Mexico Small Farmers See Benefits from Local Food Trends, 2015)

¹²⁵ (USDA Economic Research Service, 2014)

To address trade issues, stakeholder suggestions centered around increased public and policymaker education on these matters, as well as global markets and their economic impacts. Stakeholders also felt that increased assessments of trade policy impacts and regulatory support for farmers and ranchers were needed.

ORGANIC PRODUCE

Organic produce is one of the fastest growing retail grocer categories. According to the Organic Trade Association, which represents the supply chain from producers to retailers, sales of organic food in the United States has increased from \$11 billion in 2004 to \$43.3 billion in 2015 (five percent of total food sales).¹²⁶ Many large, chain grocery stores are selling more organic produce, and some grocery chains specialize in organic foods. For example, Costco wants to expand its organic offerings, and is establishing major contracts with organic farmers and ranchers to meet this new demand.¹²⁷

After slipping in 2012, New Mexico organic agriculture sales have rebounded and increased by 153 percent.¹²⁸ Greenhouse production of vegetables, herbs and other plants has the potential to extend the growing season, and therefore strengthen local sales year-round.

While demand may be up, supply is not. Declines occurred in recent years in the organic farming and ranching sectors. New Mexico is home to 144 certified organic producers, a decrease from 215 organic farms in 2011. This decline comes on the heels of a prior growth period between 2004 and 2010.¹²⁹

AGGREGATION AND PROCESSING

Stakeholders at four of the thirteen regional meetings believed there is a lack of state investment in expanding the agriculture industry, particularly resources for the aggregation and processing segments of the supply chain. Expansion of the aggregator and processor capacity is both a challenge and opportunity for future resiliency in agriculture.

Currently, New Mexico is a net exporter of agriculture products that are grown here but processed out-of-state; over 97 percent of New Mexico's agricultural products leave the state.¹³⁰ After being processed, those goods come back as retail food items, which earns money for the grocer but has a negative impact if the goal is to promote value-added industry within New Mexico. Stakeholders said infrastructure needs include produce storage, cold storage facilities, certified inspectors, commercial kitchens, food processing facilities and more flexible transportation, especially for meat and grain products.

More than 90 percent of the food New Mexicans consume comes from out-of-state sources that amount to more than \$4 billion in import costs.¹³¹ Stakeholders indicated that investments in aggregation might help address this issue. Aggregators collect crops, livestock and dairy from large numbers of small-scale farmers and ranchers, and then sell them to large buyers or individual consumers. Aggregators may also provide services such as processing, sorting, drying, transport and storage.¹³² Examples include produce mills, food co-ops and food hubs.¹³³

Stakeholders offered several suggestions on improving the aggregation sector:

- Use cooperative business models to cut and distribute costs for processing and aggregation.
- Fund small-scale infrastructure development and technology related to processing.
- In tribal communities, apply for funding to improve transportation of agriculture products.

¹²⁶ (PR Newswire, 2016)

¹²⁷ (Tu, 2016)

¹²⁸ (USDA National Agriculture Statistics Service; New Mexico Department of Agriculture, 2014)

¹²⁹ (New Mexico Department of Workforce Solutions, 2014)

¹³⁰ (Diemer, Crawford, & Patrick, December 2014)

¹³¹ (Finance New Mexico, 2016) (Diemer, Crawford, & Patrick, December 2014)

¹³² (Ag Tech)

¹³³ (National Sustainable Agriculture Coalition, 2014)

Regulation and Taxation

In each regional meeting, stakeholders also voiced concerns about government regulations and policies that have a “one size fits all” approach, regardless of location or scale of operation. These policies were seen as holding back innovation, technology transfer and developing viable markets for some products. People also voiced suggestions about tax reforms to ease financial burdens facing farming and ranching operations.

TAXES

Stakeholders in six of 13 meetings identified taxes as a major issue affecting the agricultural industry. Stakeholders attending the regional meetings called for federal and state tax reform in general, but more specifically to simplify and reform tax regulations to ensure consistency and that agricultural land stays affordable for agriculture use.

Several producers voiced concerns about federal inheritance and estate tax rules. They were concerned these taxes may require large estates to be carved up into smaller parcels, impairing their ability for agricultural production. They believed an exemption from federal inheritance and estate taxes would help keep agricultural estates viable for food production, and enable heirs to better afford agriculture operations. However, some laws are already in place addressing these concerns. In New Mexico, there is no state inheritance or estate tax, and there is an exemption from federal inheritance tax for estates valued at less than \$5,450,000.¹³⁴

Some producers also wanted to see a review and possible adjustment of the state’s gross receipts tax (GRT) requirements, especially on certain tools and equipment necessary for food and fiber production. Some also suggested GRT reforms on hunting and fishing income on farm and ranch properties. It should be noted that there are already some agricultural exemptions from GRT, including receipts, or total amount of money received, from selling livestock and from persons feeding or pasturing livestock. Exemptions also apply to some receipts received by growers, producers and trappers from selling live poultry, unprocessed agricultural products, and hides or pelts.¹³⁵

GOVERNMENT SUBSIDY AND ASSISTANCE PROGRAMS

Stakeholders in five of the 13 regional meetings voiced concerns over government subsidies and grants to agricultural operations. Stakeholders voiced frustrations about how decisions are made regarding which organizations receive funds, how much is received, and the perceived cumbersome regulations surrounding subsidies and grants.

Government subsidies play a significant role in the viability of farming and ranching operations. Subsidies are generally defined as funds provided by the government to ensure that prices within an industry stay competitive. Subsidies vary enormously in crops and industry types. The goal of some subsidy programs is to adjust production supply to meet consumer demand, thereby creating a stable price for products. Farm subsidies can take a variety of forms:¹³⁶

- Direct payments to producers and owners
- Price supports through government purchases and storage, or regulations that set minimum prices
- Low-cost loans, crop insurance, marketing and promotion support
- Strategies that encourage exports or inhibit imports
- Aid for agricultural research and development, promotion, and industry infrastructure

The national controversy stems from the amount of funds apparently benefiting a small number of large corporations who produce a range of staple commodities in only a few states. For example, between 2002 and 2011, the USDA Farm Service Agency spent \$13 billion on approximately 23,000 transactions with contractors. The top four contractors employed by the agency during this period were:¹³⁷

1. Archer Daniels Midland Company (\$1.9 billion)
2. Cal Western Packaging Corporation (\$952 million)
3. Cargill Incorporated (\$757 million)
4. Bunge Limited (\$738 million)

¹³⁴ (Internal Revenue Service, 2016)

¹³⁵ (New Mexico Taxation and Revenue Department, 2016)

¹³⁶ (Sumner)

¹³⁷ (AllGov)

In 2016, the USDA pledged \$34 million to promote or directly support local food organizations. Successful grant recipients believe these funds foster innovation and enable crucial projects. However, many applicants find the application process bureaucratic. Some of the grant programs require matching funds and extensive reporting obligations, which favor applicants from mid-sized and large nonprofits. Funding is also restricted to either single year or one-time, multi-year projects, which makes it difficult for some nonprofits in small communities to sustain projects. Critics also point out that \$34 million for local food is a very small percentage of USDA's overall 2016 budget of \$156 billion.¹³⁸

Stakeholders offered a few suggestions regarding subsidies and grants:

- Promoting government transparency
- Increased collaboration amongst federal and state agencies
- Allowing for more state and local government control and input
- Appropriate and clearer communication between agencies and stakeholders
- Utilizing nonprofits and the NMSU Cooperative Extension Service to educate producers on industry regulations and requirements

New Mexico Brand Interest and Local Production

INTEREST IN NEW MEXICO BRANDS

Stakeholders at the regional meetings commented on a growing appreciation of foods that are tied to New Mexico's heritage. There seems to be a high degree of pride in these foods from New Mexico residents, as well as demand from out-of-state consumers. The following products were noted as gaining recognition and popularity:

- New Mexico red and green chile
- Mesilla pecans
- Tucumcari Mountain Cheese
- Various craft beers and wines

This popularity has helped establish regional and national markets emphasizing these specialty food products. According to the New Mexico Tourism Department, travel is linked to consumer appreciation for authentic products. The state tourism marketing campaign is now offering a "New Mexico True" mark of certification to use in marketing local agricultural products.¹³⁹

These efforts to promote and verify New Mexico agricultural products are similar to the legislative efforts on behalf of New Mexico chile.¹⁴⁰ Signed into law in 2013, the New Mexico Chile Advertising Act made it illegal in the state to knowingly sell, advertise, label or describe chile or chile products as New Mexican, unless they were in fact grown in the state.¹⁴¹ Growers can certify their crop as authentic New Mexico chile, and restaurants can post signage that they serve the official product.

INCREASED INTEREST IN LOCAL PRODUCTS AND LOCAL PRODUCTION

Stakeholders from all 13 regional meetings reported a growing interest in buying food products that are locally grown. This trend benefits small and mid-sized producers, especially those that can take advantage of direct sales to consumers through farmers' markets, cooperatives, mobile markets, roadside stands, pick-your-own farms, community supported agriculture and online food ordering.¹⁴² Some examples of the products are listed in the previous section above.

At 8 of the 13 meetings, stakeholders identified the gaining momentum of local, small-scale, sustainable farming. Some of these local producers, stakeholders reported, utilize environmentally friendly and natural methods. Stakeholders also reported increased collaboration regarding practices and products to make small-scale operations more marketable. These trends toward more localized production may be in line with the larger, nationwide local food movement.¹⁴³

¹³⁸ (Penniman, 2015)

¹³⁹ (Krasnow)

¹⁴⁰ (Santos, 2013) (KOAT, 2013)

¹⁴¹ (New Mexico Department of Agriculture)

¹⁴² (MoGro Mobile Grocery) A New Mexico example of a mobile market was MoGro, a nonprofit mobile grocery store operating out of a 50ft refrigerated truck that traveled to rural and often economically distressed areas to provide a fresh and affordable local produce.

¹⁴³ (Brain, 2012)

In regional meetings, stakeholders mentioned that many small local farmers and community gardeners were also adding value to their produce by creating a variety of products such as jams, juices and bakery products. These stakeholders saw an increase in demand for these products. Some communities such as Roswell, Las Cruces, Albuquerque, Silver City, Taos, Farmington and Tucumcari saw this trend as an economic development opportunity and are supporting these new food processors.

Tucumcari Mountain Cheese

Tucumcari Mountain Cheese began cheese-making operations in 1995, choosing feta cheese as its primary product. The company struggled starting out. Without enough capital to start a high volume plant, no apparent markets and low financing, the future of the company was uncertain. However, seeking out and securing national quality buyers has allowed Tucumcari Mountain Cheese to grow. The company now produces 100,000 pounds of feta a week, making it one of the largest cheese producers in the Southwest. Tucumcari Mountain Cheese also created 6,000 jobs in Tucumcari, and placed in international competitions in 2008.¹⁴⁴

FOOD AND SEED SOVEREIGNTY

Although the localization movement has had positive impacts for some New Mexicans, tribal communities in particular, voiced concerns regarding indigenous food cultivation and seed sovereignty. This was indicated as a top priority in two of the 13 meetings – Laguna and Crownpoint - both on tribal lands. People voiced the need to protect traditional ecological knowledge of indigenous peoples and to recognize the sustainable system design (e.g., heritage seeds, permaculture) that is embedded in indigenous traditions.

Stakeholders from these communities reported more internal efforts to retain cultural values by merging old and new practices for producing food. They also reported increased tribal leadership support for local food access, and with it better support for small and mid-sized farmers. These stakeholders suggested increased education about native seeds, and improved collaboration with tribal seed banks.

¹⁴⁴ (Jorgensen, 2010)

Chapter 5:

COMMUNICATION & COLLABORATION

Overview

Public perception influences any industry, and agriculture is no exception. During the regional meetings, stakeholders expressed concerns about how the industry is perceived, fearing that false or partial information can lead to misguided policies or practical challenges. Public education and perception were identified as top priorities in 10 of the 13 meetings. Stakeholders felt that youth, consumers, advocates and policymakers were often misinformed about the industry and were unaware of the industry's contribution to the state's economy and to society. They believed there is a need for more effective outreach to consumers, advocates and policymakers to build collaborative relationships and strengthen the industry. Just as external outreach was a priority in the regional meetings, so too was internal communication and collaboration within the industry.

In response to those stakeholder concerns, this chapter addresses:

- Consumer and policymaker awareness
- Public impressions
- Collaboration among industry and government partners

Consumer and Policymaker Awareness

Stakeholders in all 13 meetings reported that consumers seem to show increased understanding over past years about where food comes from. This awareness includes more emphasis on a healthy diet and a growing interest in local food systems. Recent USDA data show that schools with strong farm to school programs see more students purchasing school breakfast and lunch, more students eating healthier foods at school, and fewer students throwing food away.¹⁴⁵

Stakeholders also believed that more consumers were seeing the connection between food and health issues, and there seems to be more planning and coordination among local food, education and health advocates. Tribal health professionals, and programs like Fresh Rx (connecting people with diet-related illnesses with incentives to purchase fresh fruit and vegetables at their local farmer's markets) educate community members about the connection between local food and health.¹⁴⁶ In both rural and tribal communities, there is increased support from national programs trying to build community awareness regarding local foods, nutrition education and health awareness.

Although there is a growing understanding about some aspects of food systems, stakeholders in the regional meetings believed there was a need for consumers to be more informed about the resources that go into producing the food and fiber they use. Participants in 11 of the 13 regional meetings also reported that the public and policymakers have a limited awareness of the financial structure of farms and ranches.

There are a number of nonprofits that work to educate food consumers in New Mexico. Many focus their attention on children in urban areas, but some also focus on youth and families. Some organizations include:

- The Southwest Organizing Project has a program that strives to opens a dialogue about hunger and where food comes from. The program draws on indigenous Pueblo and Chicano cultural perspectives, and it focuses attention on good stewardship of land and water.¹⁴⁷
- The La Semilla Food Center operates in southern New Mexico and builds food awareness through an education program that also provides food access through the organization's community farm.¹⁴⁸

¹⁴⁵ (Floyd, 2015)

¹⁴⁶ (New Mexico Farmers Markets)

¹⁴⁷ (Thompson, 2016)

¹⁴⁸ (Food Tank, 2015)

Public Impressions

Stakeholders in 12 of the 13 regional meetings perceived at least some levels of increased public support for agriculture and rural communities that rely on the industry. Some stakeholders saw more interest by policymakers and professionals from the government, nonprofit, education and health sectors. The New Mexico State University Cooperative Extension Service was seen as playing an important role through their research, education and outreach to rural communities.

NEGATIVE PUBLIC PERCEPTIONS

Stakeholders in 11 of the 13 regional meetings perceived a media bias and public misperception about the roles of agricultural and food industries, especially regarding production and management practices (i.e., water use, erosion, pesticides, antibiotic use in livestock operations, genetically modified foods). Different stakeholders voiced contrasting positions on these matters. As noted previously, some people were concerned about chemical use or genetically modified organisms (GMOs). Others pointed to these very items as examples of public misperceptions or biased media coverage.

Many meeting participants believed various advocacy groups criticize the industry, sometimes without the science to back up their claims. They also felt media coverage of agriculture issues tended to focus on negative rather than positive events. Some stakeholders also acknowledged that, as agriculturalists, they may mishandle their response to negative or uninformed comments.

One suggestion to address public perceptions was a well-coordinated public relations campaign targeting both youth and adults. Objectives of such a campaign would be to promote the importance of the industry, correct misconceptions about industry practices, and illustrate the industry's stewardship role. Stakeholders also prioritized expanding opportunities to educate the public using a cross-sector approach (e.g., Story Corps or TED talk program on multi-generation farming and ranching families). Increasing and promoting public events and programs such as agriculture days and tours, home and garden expos and activities at farmers' markets to provide information regarding the industry was another proposal.

Stakeholders also urged improved policymaker awareness of agricultural issues. They believed efforts should target local, state and federal levels and should include meetings or dinners at farms and ranches to familiarize policymakers with industry issues. They also called for more meetings with policymakers to discuss perceived negative or unintended impacts of some legislation and regulations.

Collaboration Among Industry and Government Partners

Improved education needs are not limited to just those outside the industry. There are a large number of agriculture boards, commissions, task force groups, trade associations and nonprofit groups that work to educate consumers and influence policymakers regarding policy issues impacting New Mexico's agricultural and food industries. Some stakeholders believed that the lack of communication and cooperation between those groups contributes to misinformation among the general public on various policy issues.

Stakeholders in 12 of the 13 regional meetings acknowledged the need for improved communication and cooperative efforts among local, state and federal agencies and other institutions to support the agriculture industry in:

- Research
- Training on best practices
- Funding the development of new technologies and markets

Tribal stakeholders valued these same items. They reported more access to resources and technical assistance than in previous years. Tribal and nontribal producers valued the broad range of advocates (e.g., nonprofits, trade associations, universities) working to provide increased access to funding, training, distribution, aggregation and market opportunities.

CONCLUSION

To conclude, this report presents a wide range of issues – identified by stakeholders throughout New Mexico – that warrant collaboration, future work and potential reform. Addressing these issues will require spectacular cooperation. This coordination must occur within the agricultural industry, among state, tribal and federal governments, as well as with organizations specializing in environmental issues, economic development and other related fields. Some efforts will be statewide, some regional, others local.

That is a tall order. There currently exists a lack of cohesion within the industry, according to participants in eight of the 13 regional meetings. Participants pointed to fragmentation within the industry – particularly between large, medium and small operations. They also described strain between different types of producers (ranchers versus farmers, organic versus conventional, dairies versus other land-users). And, tension exists with those outside the industry – including environmentalists, animal rights groups, consumer advocates and urban water users – who were seen as not understanding the realities of being a modern day farmer or rancher.

“Agriculture is our wisest pursuit...and cultivators of the earth are the most valuable citizen.”

– Thomas Jefferson, Farmer & U.S. President, Charlottesville, Virginia

There is no clear-cut answer to these challenges, but it is apparent that education and cooperation are key strategies. Stakeholders asked for more coordination that gives fair attention to the many diverse groups. They also called for a statewide strategic planning process, which this report informs. The next step in that process is the drafting of a strategic plan by the Agricultural Resilience Task Force. This report lays the foundation for their work.

Bottom line: the *Resilience in New Mexico Agriculture* collective impact project creates momentum and optimism for aligning efforts and sparking a vibrant, cooperative, environmentally sound and economically profitable agricultural industry that provides healthy foods for New Mexicans and people throughout the nation.

APPENDICES

Appendix A: Project Flowchart and Timeline

September – April 2015-2016	<p>Phase One: Build Support/Collect Stakeholder Information</p> <ul style="list-style-type: none"> • Survey Regional Fair Participants • Convene Regional Stakeholder Meetings¹⁴⁹ • Interview/Survey Additional Stakeholders
May – August 2016	<p>Phase Two: Research/Develop Background Report</p> <ul style="list-style-type: none"> • Analyze Data from Surveys, Meetings, & Interviews • Conduct Industry Research
September – August 2016-2017	<p>Phase Three: Develop Resilience Plan</p> <ul style="list-style-type: none"> • Recruit Task Force Members¹⁵⁰ • Convene Task Force Meetings • Draft Resilience Plan
August – September 2017	<p>Phase Four: Elicit Feedback on Resilience Plan</p> <ul style="list-style-type: none"> • Conduct Stakeholder Group Listening Sessions¹⁵¹ • Refine Resilience Plan
October – December 2017	<p>Phase Five: Publicize Resilience Plan</p> <ul style="list-style-type: none"> • Distribute Plan¹⁵² • Advocate for recommendations • Secure funding
On-going	<p>Phase Six: Implement Resilience Plan Strategies</p> <ul style="list-style-type: none"> • Establish Steering Committee, Working Groups and Backbone Organizations • Measure progress and adapt plan strategies

¹⁴⁹ A broad and diverse group of stakeholders from all industry segments will be invited to participate.

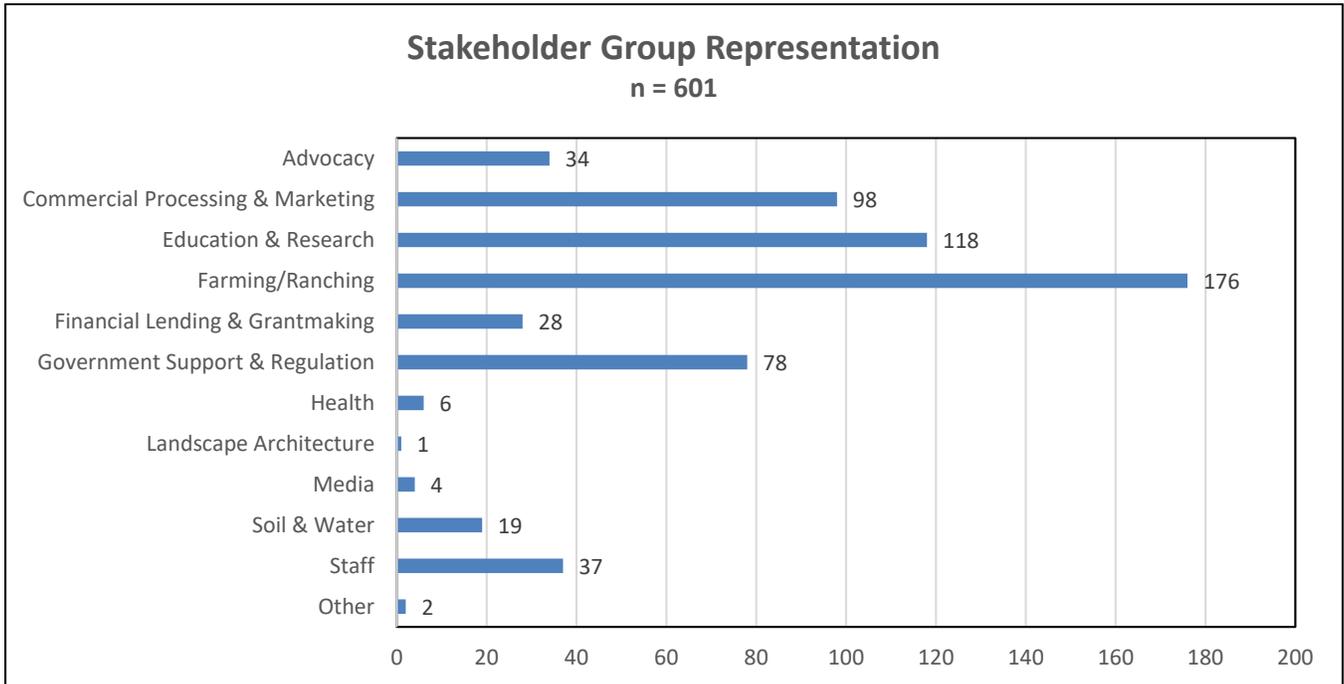
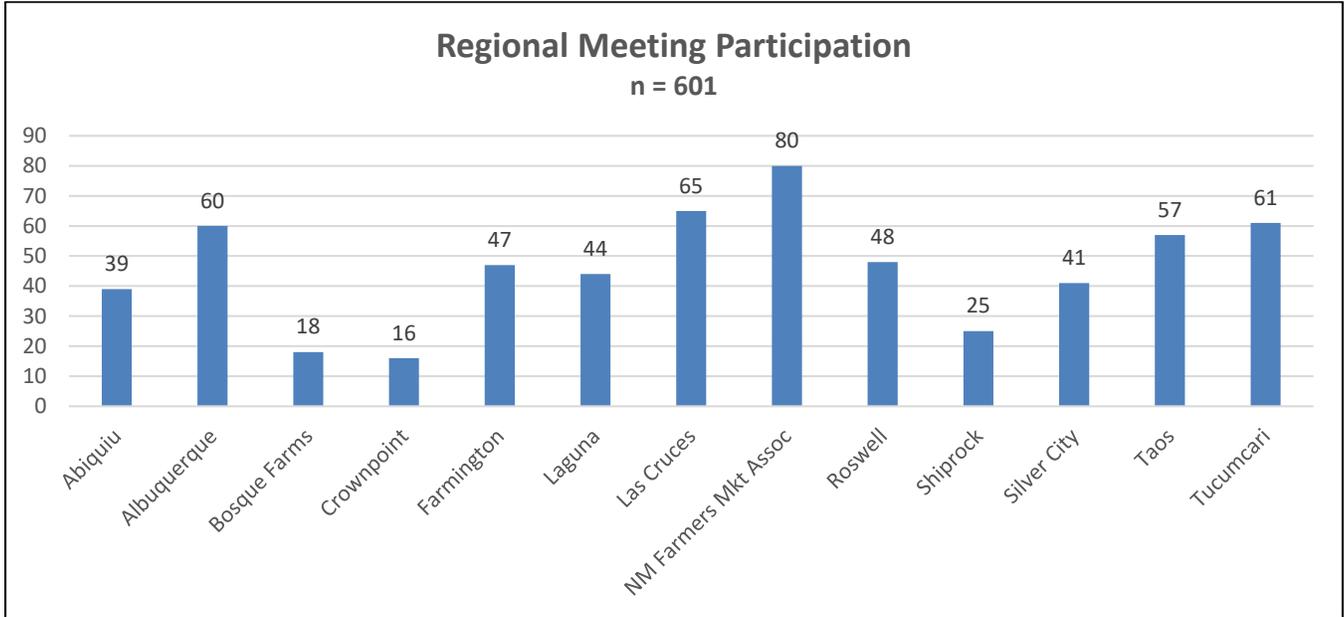
¹⁵⁰ Approximately 30-40 stakeholder representatives from all industry segments will be invited to participate.

¹⁵¹ Meetings with representatives from state agencies, educational institutions, and industry associations will be conducted to elicit feedback on the resiliency plan strategies and to learn the extent to which any strategies are already being implemented and managed. Webinars will be scheduled with other stakeholders to listen to their feedback regarding the plan strategies.

¹⁵² Distribute plan broadly to individual and organizational stakeholders, general public, media, government agencies, state legislators, tribal governments, congressional delegation, etc.

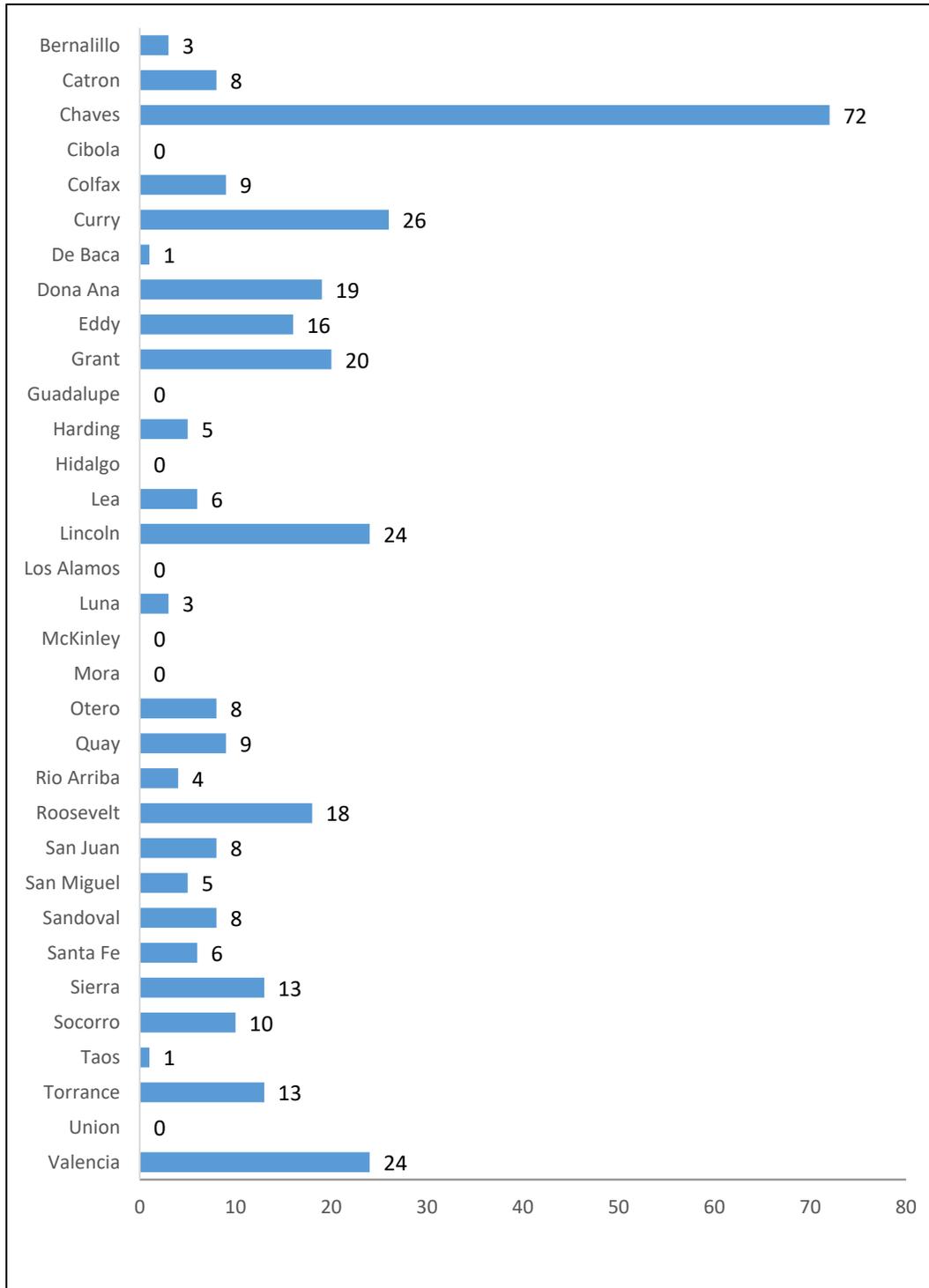
Appendix B: Regional Meetings

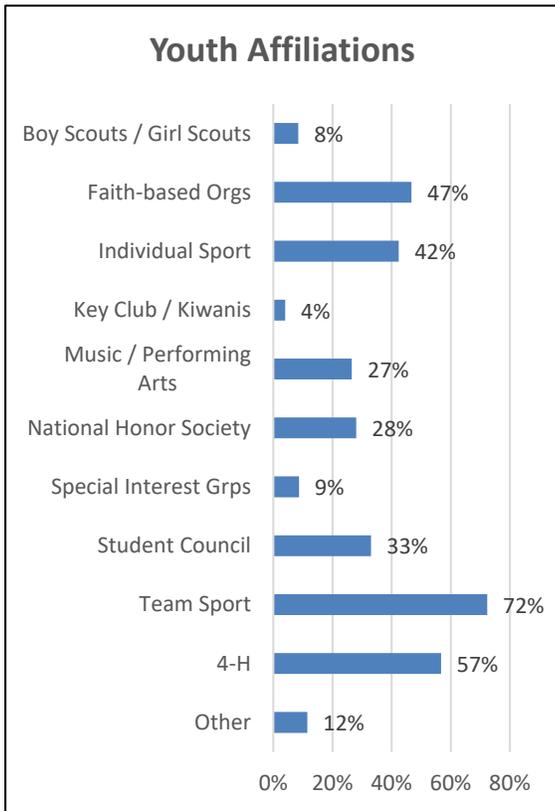
The 13 regional meetings included representation from all New Mexico counties except for Los Alamos county. The regional meetings included participants from both rural and tribal communities with the most highly attended meetings taking place in Albuquerque, Las Cruces, Taos and Tucumcari.



Appendix C: Youth Survey

The youth survey was given to students ages 12 to 19 with representing approximately the same number of female and male students. Approximately two-thirds of students were Caucasian, close to 30 percent were Hispanic, one percent Native American and seven percent mixed race/ethnicity.





Appendix D: Top Priority Results from Regional Meetings

Top Priorities	Number of Meetings Where Issue was Identified as a Top Priority
Water	13
The Next Generation of Producers	12
Public Perception (Outreach and Communications)	10
Government Regulations and Policies	9
Economics (profitability funding)	9
Production (improvements, technology, infrastructure diversity, small scale, supply/demand)	8
Land	6
Stakeholder and Leadership Cohesion	6
Markets (supply chain, local, niche, technical assistance, season extension)	5
Industry Education	3
Workforce	2
Food and Seed Sovereignty	2
Rural Community Vitality	1
Climate Change	1
Food Waste	1
Political Will	1

Appendix E: Top Priorities in Tribal Stakeholder Meetings

Priorities	Crownpoint	Laguna	Shiprock
Water	1	1	1
Producers & Succession	0	1	1
Public Perception	1	0	0
Economics	1	1	1
Production	0	1	1
Land	0	0	1
Food & Seed Sovereignty	1	1	0
Markets	1	1	0
Total	5	6	5

Source: New Mexico First

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