



College of Agricultural, Consumer and Environmental Sciences

Department of Agricultural Economics and Agricultural Business Profile
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Recent Research Findings

- **Pecan demand has grown significantly in international markets, but domestic demand, as measured by per capita consumption, has remained relatively flat.** Increasing domestic demand can help maintain pecan prices and profitability. Our research has explored factors influencing domestic pecan consumption. Results from a panel survey with participants located throughout the U.S. found that consumers are interested in pecans with higher antioxidant levels. Specifically, participants preferred pecans that were higher in antioxidants as a result of increased pruning compared to pecans that were higher in antioxidants as a result of zinc fertilization.
- **A recent survey of regional craft brewers suggests that brewers are interested in locally produced malt and hops, but only if these products are competitive with national and international products** in terms of price, quality, and consistency. Supplying the Southwest (Arizona, New Mexico, and Texas) with locally produced malt and hops would require more than 19,000 acres, potentially offering New Mexico farmers additional crops in their crop rotations.
- **Ongoing work in NMSU’s Agricultural Experiment Station system has developed innovations in water resources systems analysis (WRSA) to identify resilient adaptation measures for controlling the economic and ecological costs of climate stress.** Using the example of North America’s Rio Grande, Gila, and Canadian Basins, results of a WRSA show considerable reductions in economic and ecological costs of adapting to climate stress through development of backstop technologies such as solar desalination and additional reservoir storage.
- **Researchers found that water storage capacity development can lead to a higher-valued portfolio of irrigation production systems** as well as more sustained and higher-valued farm livelihoods. Results show increases in regional farm income of 30%, in which some sub-regions secure income gains exceeding 900% compared to base levels. Additional storage is most economically productive when institutional and technical constraints facing irrigated agriculture are dissolved.
- **NMSU agribusiness researchers examine water-conserving technologies and policies.** Researchers assist water-scarce communities to improve efficiency and adapt to changing conditions through better management. Technologies include precision application of center-pivot irrigation systems, performance of drip irrigation in commercial agricultural systems, and balancing environmental and inter-state compact needs in managing water resources.

Mission Statement

The 21st century presents many challenges and opportunities concerning our agricultural, natural, and human resources. Our mission is to enhance the well-being of the citizens of New Mexico, the nation, and the world through the cornerstones of teaching, research, and Extension programs.



ACES Pillars for Economic and Community Development

Food and Fiber Production and Marketing

Water Use and Conservation

Family Development and Health of New Mexicans

Environmental Stewardship

Foundational Education and Training

New Mexico State University



Recent Research Findings (cont.)

- **NMSU agribusiness faculty and students use RioGEM—a hydro-economic model of the Upper Rio Grande watershed—to examine sustainable water futures.** The model simulates spatial and temporal characteristics of water supplies and demands, and investigates economic impacts and policy changes to guide New Mexico’s water resource plans.
- **NMSU agribusiness faculty use watershed data to measure and identify regional water resource vulnerability.** Data and developed indicators help water planners assess relative regional vulnerability and sensitivity to drought, climate changes, economic and population changes, and sensitive ecological systems.
- **NMSU agribusiness faculty, in collaboration with a team of NMSU, UNM, and NM Tech researchers, investigate the role of water in closely knit rural Hispanic communities in Northern New Mexico.** Water in these communities forms an integral balance that contributes to local economic development, ecosystem sustainability, and cultural traditions. The research shows evidence of hydrologic linkages between surface water and groundwater in irrigated river valleys and watersheds. Local communities use the information to assess climate- and water-related risks, and discover opportunities to build adaptive capacity.
- **Results from one study indicate that perceived yield risks present a barrier to a producer’s decision to implement conservation practices.** As such, policies that reduce these risks or provide information in situations where perceived risk is higher than actual risk may increase adoption. Another study indicates that producers’ land-use decisions are influenced more by long-term climate trends than by short-term variability. This has two important implications: First, it suggests that farmers adapt cropping decisions to underlying trends and thus reduce risks associated with reacting to short-term variability. However, it also suggests that farmer adaptation may proceed at a pace slower than would be “optimal.” Thus, policies to incentivize adaptations—e.g., transitions to drought-tolerant crops—may be warranted.

- **Food insecurity is one of the complex challenges faced by humanity.** It has multiple dimensions and may manifest in many ways, including obesity, malnutrition, starvation, chronic hunger, wasting, and stunting. In 2016, more than 12% of U.S. households were food insecure. The department’s research focuses on factors affecting individual’s access to food and its impact on diet quality and health. Diet-related health problems such as diabetes affect more than 25.8 million Americans, and an additional 79 million are classified as pre-diabetic. Diabetes-induced health complications include blindness, non-traumatic lower-limb amputation, and kidney failure. The total annual cost of diabetes is estimated to be more than \$174 billion.

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Faculty and Expertise

- **Ram Acharya**, Associate Professor, agricultural marketing, food security, trade
- **Brian Hurd**, Professor, water use, environmental economics
- **Jay Lillywhite**, Professor, agribusiness management, marketing and finance
- **Steven Ramsey**, Assistant Professor, production, natural resources, environmental economics
- **John Townsend**, College Professor, agribusiness management, marketing, risk management
- **Frank Ward**, Professor, water use, water resource policy

Collaborative Partners

- U.S. Bureau of Reclamation
- New Mexico Acequia Association
- New Mexico Chile Association
- New Mexico Department of Agriculture
- Hispanic-American Institute, Inc.
- Elephant Butte Irrigation District
- New Mexico Interstate Stream Commission
- New Mexico State Engineer
- U.S. Geological Survey
- Various private agricultural stakeholders
- USDA-ERS
- USDA-ARS

The College of Agricultural, Consumer and Environmental Sciences is an engine for economic and community development in New Mexico, improving the lives of New Mexicans through academic, research, and Extension programs. New Mexico State University is an affirmative action/equal opportunity employer and educator. NMSU and the U.S. Department of Agriculture cooperating.