

RESEARCH UPDATE

Oklahoma State University • Department of Agricultural Economics • 2017 Issue



Have We Surpassed the Ideal?
Cow Size and Profit Margin

Water Conservation in Oklahoma
Researchers Help OKC Answer Questions Surrounding Municipal Water

Connecting the Disconnected
Addressing “Digital Divides” in Society



DEPARTMENT OF

Agricultural
Economics

From the Department Head



Welcome to the current issue of our departmental research update. The research program in the Department of Agricultural Economics aims to provide practical, empirical knowledge that will increase the efficiency and productivity of Oklahoma agriculture and rural communities as well as

improve the well-being of Oklahomans. Our faculty members address a vast array of topics. We intend for these research results to serve producers, ranchers, policymakers, emerging and existing businesses, and the public. Research projects are determined by faculty members after reviewing current research efforts in our profession. We utilize input from peers, clientele, collaborators, extension educators, and funding agencies to determine the topics and directions of specific research projects.

Featured topics in this issue range from cattle production systems to water conservation to the rural digital divide. All of these topics impact the quality of life for Oklahoma residents. We also list 45 peer-reviewed articles published by our faculty members over the past year. We provide a listing of graduate student dissertations and theses completed over the past year. Finally, we provide a listing of all active experiment station (Hatch) research projects developed by faculty members. These “Hatch” Research Projects provide the foundation for research efforts of faculty members with an experiment station appointment. We hope you enjoy this issue.

A handwritten signature in black ink that reads "Mike Woods".

ABOUT THE COVER

Andrea Murray, of Kingfisher, OK utilizes broadband to access a database of pedigree and performance information when evaluating her Gelbvieh cow herd. Mobile access to the internet has enabled many rural farmers, ranchers and small business owners to “mobilize” their offices. Read more about broadband and what it can do for our rural communities on page eight.

DEPARTMENT HEAD

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Cow Size and Profit Margins... Have We Surpassed The Ideal?

It goes without saying that advancements in technology over the past few decades have increased the efficiency and productivity of most every industry. The U.S. beef cattle industry is no stranger to this phenomenon. Expected Progeny Differences (EPDs) are an example of how cattlemen across the country have used technology to better predict the phenotype of future calf crops. Complex statistical models were initially developed utilizing all known data on individual animals to create a number based system used by breed associations to help breeders compare the traits of different animals.

Recently, EPDs have been modified to incorporate results from genomic testing, making genetics even more predictable. EPDs help cattlemen predict things like calving ease, birth weight, weaning weight, and much, much more. This technology has allowed cattlemen to more accurately select for what most believe to be ideal – heavy weaning calves with adequate frame and abundant muscling.

Researchers

Professor, and Neustadt Chair holder, Eric DeVuyst specializes in production economics. His main interests include cattle genetic testing and production systems.

Issues

Mature cow weight has increased substantially over the past few decades. From 1975 to 2009, the U.S. has seen an increase from an average of 1,050 pounds to 1,350 pounds, which is nearly a 29% increase. Bigger cows wean heavier calves. However, the question is: are the premiums from heavier calves worth the extra expense of their mother's upkeep?

Objective

Many animal science and agricultural economics researchers believe the U.S. has exceeded the most economic cow weight. The objective of this study was simple; identify the most economically ideal cow weight for the U.S. cattleman.

Project

Data from three agricultural experiment stations, two located in Oklahoma and one in Arkansas, were used in this study. By looking at the data from different sets of both spring calving and fall calving Angus and Brangus cows run on either native range or Bermuda grass pasture, the researchers were able to create a simulator to calculate a direct profit function based on the revenues and expenses for cows with mature weights between 950 and 1,800 pounds. A grid search was then used to find the most profitable cow size based on the cow's entire lifespan.

Over 10,000 different rations were calculated to simulate the intake requirements of each cow size for each month of her entire life. Every ration is dependent on the cow's breed, stage of gestation and lactation, as well as the time of year. The researchers also implemented a probability model to account for the possibility of a cow getting culled at an earlier stage in life.

Results

In every scenario, regardless of breed, forage type, and other factors, lighter weighing cows were more profitable. Researchers found that by running smaller framed cows cattlemen are allowed to utilize a higher stocking rate and therefore wean more pounds per acre.

Impact

With high land costs, production expenses, and market volatility, sustaining profitability means improving efficiency—getting more from the same resource base. This research helps cow-calf operators recognize the need to improve pounds weaned per acre when retaining heifers and selecting bulls. With relatively new EPD information available, producers are better equipped to make retention and mating decisions that can rapidly improve profits.

Source of Funding

Oklahoma State University Agricultural Experiment Station



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Water Conservation

Is it not ironic how some of the most basic concepts become so complicated? Conservation is simply the act of using less. However, it has become one of the most controversial topics of current time. Many people take the supply of water for granted. Water may not always be available when it is needed; in the right quantity, in the case of drought; or quality, in the case of algae blooms.

Water is a very essential, yet underrated resource. Water availability drives crop choices, yield predictions, grain prices, and even food costs. According to the Oklahoma Cooperative Extension Service, “The era of abundant and free water has passed in Oklahoma.”

Researchers

Tracy Boyer is an associate professor in agricultural economics, specializing in natural resources, at Oklahoma State University (OSU).

Justin Moss is an associate professor, and Huffine Endowed Professor of Turfgrass Science, for OSU’s Department of Horticulture and Landscape Architecture.

Monika Ghimire is a post-doctoral fellow who received both her M.S. and Ph.D. in agricultural economics at OSU. Ghimire focuses on natural resource economics and consumer behavior.

Issues

Like its diverse landscape, Oklahoma is known for its variable weather patterns. From 2011-2014, regions of Oklahoma experienced prolonged periods of drought. These times proved stressful on various Oklahoma municipal water supplies due to the additional demand. Proving this topic’s relevance even further, one of the top four most requested fact sheets on the Oklahoma State Water Center’s website has been a water rate pricing fact sheet. Municipalities have struggled to find the most effective way to price water to encourage conservation.

Objectives

The main objective of this research was to gain an understanding of Oklahoma City’s consumers’ willingness to adopt water conservation technologies, estimate the factors affecting household demand for water, and to expand the Oklahoma City Water Utility Trust’s conservation education program.

Project

In January of 2013, the Oklahoma City Utilities Trust

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Conservation in Oklahoma

turned to Boyer and Moss for answers. Researchers used actual household consumption data, county assessors' data of house market value and characteristics, as well as data from a questionnaire on the factors affecting customers' willingness to adopt water conservation technologies, and how municipal water pricing affects demand.

Additional research looked at consumers' views on water reuse technologies and which groups would be most willing to utilize reuse water in the face of drought.

Results

A lack of awareness about practical water conservation policy was identified. This unawareness has prevented the development and progress of efficient management plans to aid in helping customers to conserve water during drought. Many factors affecting consumer adoption of water conservation practices were recognized including age, education, income level, and homeowner status. The study also showed that increases in traditional, volumetric pricing had little effect on demand. However, when a block-rate-pricing program was implemented price increases induced lower demand, yet still covered the cost to supply water.

A second project looked at how commercial customers viewed water conservation resources. To researchers' dismay, neither higher summer consumption during severe drought, nor the perception of prolonged drought increased the use of outdoor water conservation measures such as soil moisture sensors and smart irrigation timers by commercial customers. Adoption at any level was low for both indoor (32.75%) and outdoor (30.98%) conservation measures. For commercial customers, researchers concluded the water bill is such a small portion of their overall expenses that water conservation is not a top priority.

Impact

These studies have helped the Oklahoma City Utilities Trust update their water pricing to an effective block-rate-pricing structure. The study also helped to expand its water conservation education program where employees' main responsibilities are to target homeowners as well as commercial users with educational information to prepare for future drought situations.

Publications

Boyer, T.A., Hopkins, M. and Moss, J.Q. 2016. "Public Acceptance and Willingness to Pay for Water Reuse: A Case Study for Oklahoma" Chapter 3.1.1. in J.R. Ziolkowska, J.M. Peterson, editors. *Competition for Water Resources: Experiences and Management Approaches in the US and Europe*. Elsevier: Cambridge, MA.

Boyer, T.A., Jayasekera, D.H., Moss, J.Q. 2016. *An Assessment of Oklahoma City Commercial Businesses' Willingness to Adopt Irrigation Water Conservation Methods*. HortTechnology, Vol. 26(6).

Boyer, T.A., Kanza, P., Ghimire, M. and Moss, J.Q. 2015. *Household Adoption of Water Conservation and Resilience Under Drought: The Case of Oklahoma City Water Economics and Policy*. Water Economics and Policy. Vol 1. No.2. <http://www.worldscientific.com/loi/wep>

Boyer, T.A., Sanders, L.D., Stoecker, A., and Ferrell, S. 2015. *Municipal Water Conservation in Oklahoma: Background, Issues and, Options*. Oklahoma Cooperative Extension Service, AGEC-1055. Oklahoma State University

Boyer, T.A., Sanders, L.D., Adams, D.C., Boyer, C.N. and Smolen, M.D. 2015 "Water Rate Structure: A Tool for Water Conservation in Oklahoma." Oklahoma Cooperative Extension Service, AGEC-1017. Oklahoma State University. Available at <http://osufacts.okstate.edu>

Ghimire, M., Boyer, T.A., Chung, C. and Moss, J.Q. 2015. *Estimation of Residential Water Demand under Uniform Volumetric Water Pricing*. 10: 1061. J. of Water Resource Planning and Management. [http://ascelibrary.org/doi/abs/10.1061/\(ASCE\)WR.1943-5452.0000580](http://ascelibrary.org/doi/abs/10.1061/(ASCE)WR.1943-5452.0000580)

Moss, J.Q., Haase, J.E., Vogel, J.R., Boyer, T.A. and Martin D.L. 2013. *Simple lawn irrigation measurement training for Master Gardeners and homeowners*. Journal of Extension. 51(3) Article 3RIB7. Available at: <http://www.joe.org/joe/2013june/rb7.php>.

Moss, J., Haase, J.E., Martin, D.L., Vogel, J.R. and Boyer, T.A. *Simple Irrigation Audit for Home Lawns in Oklahoma*. Oklahoma Cooperative Extension Service HLA- 6610. August 2011. Available at <http://pods.dasnr.okstate.edu/docushar>

Sources of Funding

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Oklahoma City Utilities Trust

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CONNECTING THE DISCONNECTED

Addressing “Digital Divides” Across Society

The internet has woven its way into many aspects of everyday life: checking the weather, finding news, looking for jobs, and interacting socially are all things that most people now do online. However, some members of society are not taking advantage of these opportunities. These well-known gaps or “Digital Divides” exist between a number of different groups – for example, between rural and urban residents; or between low-income and high-income households. This lack of internet use can have major implications – potentially leaving many people behind, given the wide array of information and opportunities to which the internet opens doors.

Brian Whitacre and fellow researchers began to explore what broadband internet means for our communities, especially rural America. Whitacre said,

“Being able to connect to the internet is crucial for many rural Americans. It allows them to buy goods and services that may not be available locally; market their own goods and services to a much larger area; connect remotely with health services that previously required several hours’ worth of driving; and even telecommute.”

Researchers

Brian Whitacre is a professor and extension economist in agricultural economics at Oklahoma State University. His research and extension programs primarily focus on information and communications technology, rural development and rural health. Other researchers on this project include: Sharon Stover, a regents professor in communications at the University of Texas; Roberto Gallardo, an associate extension professor at Mississippi State University; and Colin Rhinesmith, an assistant professor in the School of Library and Information Science at Simmons College in Boston, Massachusetts.

Issues

Rural areas struggle from both a lack of broadband supply (fewer companies providing high-speed internet connections) and lower demand (fewer residents adopting it). So many rural communities fail to use the internet to its full potential, even when the infrastructure is available. This research aims to quantify the economic importance of broadband in our rural areas – and explore whether it is simple availability or adoption that drives the relationship. If adoption is more important,

extension efforts could be developed to promote adoption by the disconnected (including rural, low-income, and senior citizens).

Objectives

Two main objectives drove this study. The first objective was to quantify and identify the main economic benefits of broadband for rural communities. The second objective was to find innovative ways to get people to adopt and use broadband in rural communities.

Project

Researchers began by gathering economic and demographic data from all over the country to understand differences in rural broadband availability and adoption. Their idea was to look at rural communities before broadband was ever available – say, around the year 2000 – and try to predict which places would have high levels of broadband access / adoption by 2010. They then compared economic outcomes between places where the predictions came true and those where they did not. This “matching” technique tries to estimate the impact that broadband can have by comparing similar communities that only differ in terms of their broadband attributes.

Results

The data showed that there was a 10% broadband use gap in 2015 with 74% of urban households and 64% of rural households using broadband internet. The results from the study’s “matching” analysis showed that rural broadband adoption (not just availability) creates higher income growth and leads to lower levels of unemployment. They also found that rural areas with higher levels of broadband adoption have seen larger increases in the number of businesses, which create a greater number of available jobs to the community. A separate study suggests that broadband in rural areas also promotes higher civic engagement. People who utilize broadband are more involved within their communities and more aware of widespread issues outside of their communities.

The data also showed that simply providing the basic infrastructure might not be enough to create economic growth. Rural communities may require education and

instruction to effectively adopt the technology.

Impact

This study highlights the importance of broadband and the associated benefits of its use in rural America. Most government programs focused on rural broadband have emphasized providing infrastructure (the supply side), but the results here suggest that more focus should be given to the demand side – that is, in encouraging broadband adoption.

Future Research

The next step of this study is focusing directly on increasing the adoption of broadband. Whitacre and his team are currently studying the impact of free broadband internet made available to communities through their public libraries. This program will allow families to “check out” a mobile hot-spot device to take home and connect to their mobile phones, laptops and tablets. Another new project entails providing free mobile devices to low-income high school students. This data will give researchers important insight into how broadband is being used when it’s made available to people who may otherwise not have access.

Publications

Sharon Strover, Brian Whitacre, Colin Rhinesmith, and Alexis Schrubbe. “At the Edges of the National Digital Platform: Rural Library Hotspot Lending Programs.” D-Lib Magazine 23: 5-6 (May 2017).

Brian Whitacre and Jacob Manlove*. 2016. “Broadband and Civic Engagement in Rural Areas: What Matters?” Community Development 47(5): 700-717.

Brian Whitacre, Sharon Strover, and Roberto Gallardo. 2015. “How Much Does Broadband Infrastructure Matter? Decomposing the Rural – Urban Adoption Gap with the Help of the National Broadband Map.” Government Information Quarterly 32(3): 261-269.

Brian Whitacre, Roberto Gallardo, and Sharon Strover. 2014a. “Broadband’s Contribution to Economic Growth in Rural Areas: Moving towards a Causal Relationship.” Telecommunications Policy 38(11): 1011-1023.

Brian Whitacre, Roberto Gallardo, and Sharon Strover. 2014b. “Does Rural Broadband Impact Jobs and Income? Evidence from Spatial and First-Differenced Regressions.” The Annals of Regional Science 53(3): 649-670.

Sources of Funding

IMLS: Institute of Museum and Library Services

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2016 PUBLICATIONS

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Economics

AN ASSESSMENT OF OKLAHOMA CITY COMMERCIAL BUSINESSES' WILLINGNESS TO ADOPT IRRIGATION WATER CONSERVATION METHODS

Authors: Tracy Boyer, D. Harshanee Jayasekera, Justin Moss

Source: Hort Technology, 26(6)

Subject: Environment & Horticulture

Keywords: urban landscape, outdoor irrigation, commercial water conservation, willingness to pay

AN INTEGRATION OF GIS AND SIMULATION MODELS FOR A COST BENEFIT ANALYSIS OF IRRIGATION DEVELOPMENT.

Authors: Monika Ghimire, Art Stoecker, Tracy Boyer, Jeffrey Vitale

Source: Sustainable Agriculture Research, 5(4)

Keywords: geographic information system, simulation model, net present value, irrigation system

BIG DATA CONSIDERATIONS FOR RURAL PROPERTY PROFESSIONALS

Authors: Terry Griffin, Tyler Mark, Shannon Ferrell, Todd Janzen, Gregg Ibendahl, J. Bennett, Jacob Maurer, A Shanoyan

Source: Journal of the American Society of Farm Managers and Rural Appraisers, 2016

Subject: Ag Law & Taxation, Production Economics

BROADBAND AND CIVIC ENGAGEMENT IN RURAL AREAS: WHAT MATTERS?

Authors: Brian Whitacre, Jacob Manlove

Source: Community Development

Subject: Community & Rural Development

Keywords: civic engagement, broadband, community anchor institutions

BROADBAND UN-ADOPTERS

Authors: Brian Whitacre, Colin Rhinesmith

Source: Telecommunications Policy, 40(1): 1-13

Subject: Community & Rural Development

Keywords: household broadband adoption, broadband un-adopters, multinomial logit, FCC broadband lifeline program

CHANGING OPTIMAL NITROGEN LEVELS IN COTTON

Authors: Frederic Ouedraogo, Wade Brorsen, Brian Arnall

Source: The Journal of Cotton Science, 20:18-25

Subject: Production Economics

Keywords: cotton, nitrogen

CHOOSING FOR OTHERS

Authors: Stephan Marette, Jayson Lusk, Bailey Norwood

Source: Applied Economics

Subject: Other & Policy

CONCEPTUAL DESIGN OF A BIOFEEDSTOCK SUPPLY CHAIN MODEL FOR EASTERN REDCEDAR

Authors: Collin Craige, Michael Buser, R. Scott Frazier, S. Hiziroglu, Rodney Holcomb, R.L Huhnke

Source: Computers and Electronics in Agriculture, 121

Subject: Agribusiness & Environment

CONSUMERS' SHARES OF PREFERENCES FOR TURFGRASS ATTRIBUTES USING A DISCREET CHOICE EXPERIMENT AND THE BEST-WORST METHOD

Authors: Monika Ghimire, Tracy Boyer, Chanjin Chung, Moss Justin

Source: HortScience

Subject: Horticulture

DISTRIBUTIONAL EFFECTS OF CROP INSURANCE SUBSIDIES

Authors: Jayson Lusk

Source: Applied Economic Perspectives and Policy

Subject: Policy

Keywords: farm policy, crop insurance

DISTRIBUTIONAL IMPACTS OF FAT TAXES AND THIN SUBSIDIES

Authors: Laurent Muller, A Lacroix, Jayson Lusk, Bernard Ruffieux

Source: Economic Journal

Subject: Policy

Keywords: fat tax, policy, experimental economics, inequality

DO INCENTIVES PROGRAMS CAUSE GROWTH? THE CASE OF THE OKLAHOMA QUALITY JOBS PROGRAM AND COMMUNITY-LEVEL ECONOMIC GROWTH

Authors: Brian Whitacre, Dave Shideler, Randi Williams

Source: Economic Development Quarterly, 30(1): 62-74

Subject: Community & Rural Development

Keywords: tax incentives, economic development, average treatment effect, quality jobs program

DOES BROADBAND MATTER FOR RURAL ENTREPRENEURS OR CREATIVE CLASS EMPLOYEES?

Authors: Kelsey Conley, Brian Whitacre

Source: The Review of Regional Studies , 46(2): 171-190

Subject: Community & Rural Development

Keywords: broadband, rural, entrepreneurship, spatial regression, creative class

ECONOMIC ASSESSMENT OF ZONOTIC DISEASES: AN ILLUSTRATIVE STUDY OF RIFT VALLEY FEVER IN THE UNITED STATES

Authors: Dustin Pendell, Jayson Lusk, Thomas Marsh, Keith Coble, Sara Szmania

Source: Transboundary & Emerging Diseases

Subject: Other & Policy

EFFECT OF LOCATION VARIABLES ON FEEDER CALF BASIS AT OKLAHOMA AUCTIONS

Authors: Mallory Shannon, Eric DeVuyst, Kellie Raper, Derrell Peel, Gant Mourer

Source: Eric DeVuyst, Journal of Agricultural and Resource Economics 41(3):393-405.

Subject: Marketing & Production Economics

Keywords: feeder cattle basis, location variables

ELICITATION FORMAT AND THE WTA/WTP GAP: A STUDY OF CLIMATE NEUTRAL FOODS

Authors: Andreas Drichoutis, Jayson Lusk, V Pappaz

Source: Food Policy, Vol. 61

Subject: Marketing

ENHANCING FOOD SAFETY, PRODUCT QUALITY, AND VALUE-ADDED IN FOOD SUPPLY CHAINS USING WHOLE-CHAIN TRACEABILITY

Authors: Brian Adam, Michael Buser, Rodney B. Holcomb, Blayne Mayfield, Johnson Thomas, Philip Crandall, Corliss OBryan, Steven Ricke, Dar Knipe, Richard Knipe

Source: International Food and Agribusiness Management Review, 19:191-214

Subject: Agribusiness & Marketing

Keywords: whole-chain traceability, beef supply chain, food safety

ESTIMATING A MODEL OF SPORT SHING TRIP EXPENDITURES USING A QUASI-MAXIMUM LIKELIHOOD APPROACH

Authors: Richard Melstrom

Source: Tourism Economics

Subject: Environment

EVOLVING ROLE OF THE USDA IN THE FOOD AND AGRICULTURAL ECONOMY

Authors: Jayson Lusk

Source: Mercatus Research

Subject: Policy

FARM FINANCE THEME OVERVIEW: ARE THE GOOD TIMES REALLY OVER?

Authors: Damona Doye

Source: Choices

Subject: Agribusiness

Keywords: farm finance

FINANCING ALTERNATIVES FOR BEGINNING COW/CALF PRODUCERS

Authors: Damona Doye, Roger Sahs

Source: Journal of the National Association of County Agricultural Agents

Subject: Agribusiness

Keywords: beef, cash flow, financing, loans, beginning farmer, beginning rancher

FORECASTING PERFORMANCE OF TIMES SERIES MODELS FOR KOREAN GINSENG

Authors: Seonwoong Kim, B. Yoon, Wade Brorsen

Source: Korean Journal of Agricultural Management and Policy, 43(2):287-304, (In Korean)

Subject: Marketing

Keywords: forecasting, ginseng

HOW MEAT DEMAND ELASTICITIES VARY WITH PRICE, INCOME, AND PRODUCT CATEGORY

Authors: Jayson Lusk, Glynn Tonsor

Source: Applied Economic Perspectives and Policy

Subject: Agribusiness & Marketing, Policy

Keywords: beef, pork, chicken, consumer, demand, survey

IMPACTS OF INCREASED CORN ETHANOL PRODUCTION ON PRICE ASYMMETRY AND MARKET LINKAGES IN FED CATTLE MARKETS

Authors: Sungill Han, Chanjin Chung, Prasanna Surathkal

Source: Agribusiness: An International Journal

Subject: Agribusiness & Marketing

LAND REQUIREMENTS, FEEDSTOCK HAUL DISTANCE, AND EXPECTED PROFIT RESPONSE TO LAND USE RESTRICTIONS FOR SWITCHGRASS PRODUCTION.

Authors: Amadou Gouzaye, Francis Epplin

Source: Energy Economics , 58:59-66.

Subject: Production Economics

Keywords: biofuel, biorefinery, cellulosic, ethanol, EPIC land capability class, marginal land switchgrass

LEGAL ISSUES ON THE FARM DATA FRONTIER, PART I: MANAGING FIRST-DEGREE RELATIONSHIPS IN FARM DATA TRANSFERS

Authors: Shannon Ferrell

Source: Drake Journal of Agricultural Law, Volume 21

MANAGING LATE-SEASON FOLIAR NITROGEN FERTILIZATION TO INCREASE GRAIN PROTEIN FOR WINTER WHEAT.

Authors: Curtis D. Dick, Nathanael M. Thompson, Francis Epplin, Brian Arnall

Source: Agronomy Journal , 108-6:2329-2338.

Subject: Production Economics

Keywords: hard red winter wheat protein economics low salt controlled release nitrogen

MEASURING OLIGOPSONY POWER IN THE U.S. CATTLE PROCUREMENT MARKET: PACKER CONCENTRATION, CATTLE CYCLE, AND SEASONALITY

Authors: Inbae Ji, Chanjin Chung, Jungmin Lee

Source: Agribusiness: An International Journal

Subject: Agribusiness & Marketing

MEASURING THE RELATIONSHIP BETWEEN SPORTFISHING TRIP EXPENDITURES AND ANGLERS' SPECIES PREFERENCES

Authors: James Long, Richard Melstrom

Source: North American Journal of Fisheries Management

Subject: Environment

MODELING UPSTREAM AND DOWNSTREAM MARKET POWER IN BILATERAL OLIGOPOLY

Authors: Seongjin Park, Chanjin Chung, Kellie Raper

Source: Applied Economics

Subject: Agribusiness & Marketing

NEURAL ACTIVATIONS CORRELATE WITH FOOD-PRODUCT VALUATIONS DERIVED FROM AN ECONOMIC MODEL OF DECISION TIME

Authors: John Crespi, Jayson Lusk, JBC Cherry, Laura Martin, Brandon McFadden, Amanda Bruce

Source: American Journal of Agricultural Economics

Subject: Agribusiness, Marketing, Quantitative Methods

Keywords: fMRI, brain scan, milk, technology, WTP

PATTERNS OF FRONTIER DEVELOPMENT: A DYNAMIC MODEL OF RESOURCE EXTRACTION IN THE BRAZILIAN AMAZON

Authors: Richard Melstrom, Luke Jones, Jill Caviglia-Harris

Source: Environment & Development Economics

Subject: Environment

PERMANENT SHOCKS AND FORECASTING WITH MOVING AVERAGES

Authors: Yoonsuk Lee, Wade Brorsen

Source: Applied Economics, 49(12):1213-1225

Subject: Marketing & Quantitative Methods

Keywords: basis, forecasting, grain

PROVEN STRATEGIES TO MAXIMIZE PROFITS TO COW-CALF PRODUCERS

Authors: Damona Doye, Eric DeVuyst, David Lalman, Kellie Raper

Source: Journal of the National Association of County Agricultural Agents

Subject: Production Economics

PUTTING THE CHICKEN BEFORE THE EGG PRICE: AN EX POST ANALYSIS OF CALIFORNIA'S BATTERY CAGE BAN

Authors: Trey Malone, Jayson Lusk

Source: Journal of Agricultural and Resource Economics, 41

Subject: Agribusiness, Policy, Production Economics

RESTRICTING SECOND-GENERATION ENERGY CROP PRODUCTION TO MARGINAL LAND.

Authors: Amadou Gouzaye, Francis Epplin

Source: BioEnergy Research , 9:257-269

Subject: Production Economics

Keywords: biorefinery EPIC land capability class marginal land switchgrass

SOME VEGETARIANS SPEND LESS MONEY ON FOOD, OTHERS DON'T

Authors: Bailey Norwood, Jayson Lusk

Source: Ecological Economics, 130

Subject: Agribusiness & Marketing

THE RAINFALL INDEX ANNUAL FORAGE PILOT PROGRAM AS A RISK MANAGEMENT TOOL FOR COOL SEASON FORAGE

Authors: Joshua G. Maples, Wade Brorsen, J. T. Biermacher

Source: Journal of Agricultural and Applied Economics, 48(1):29-51

Subject: Production Economics

Keywords: crop insurance, wheat pasture

THE ROLE OF BELIEFS IN PURCHASING PROCESS OF FUNCTIONAL FOODS

Authors: Gioachinno Pappalardo, Jayson Lusk

Source: Food Quality and Preference, Vol 53

Subject: Agribusiness

THE ROLE OF WIRELESS BROADBAND CONNECTIVITY FOR BIG DATA AND AGRICULTURE IN THE U.S. AND AUSTRALIA

Authors: Tyler Mark, Terry Griffin, Brian Whitacre

Source: International Food and Agribusiness Management Review, 19 (A): 43-56

Subject: Community & Rural Development

Keywords: broadband, agriculture, big data

THE VEIL OF EXPERIMENTAL CURRENCY UNITS

Authors: Andreas Drichoutis, Jayson Lusk, Rudy Nayga

Source: Journal of the Economic Science Association

Subject: Other & Quantitative Methods

USING GENETIC TESTING TO IMPROVE FED CATTLE MARKETING DECISIONS

Authors: Nathan Thompson, Eric DeVuyst, Wade Brorsen, Jayson Lusk

Source: Journal of Agricultural and Resource Economics, 41(2):286-306

Subject: Marketing & Production Economics

Keywords: beef, livestock, genetics

VALUE OF PARSIMONIOUS NUTRITIONAL INFORMATION IN A FRAMED FIELD EXPERIMENT

Authors: Jo Jisung, Jayson Lusk, Laurent Muller

Source: Food Policy, 63

Subject: Agribusiness, Marketing, Policy

WEB-BASED DEPLOYMENT OF SINGLE-FACTOR BIOFEEDSTOCK SUPPLY CHAIN SENSITIVITY ANALYSIS USING MONTE CARLO SIMULATION

Authors: Collin Craige, Michael Buser, R. Scott Frazier, S. Hiziroglu, Rodney Holcomb, R.L. Huhnke

Source: Transactions of the American Society of Agricultural and Biosystems Engineers, Vol. 59, No. 6 pp.1555-1561

Subject: Agribusiness & Environment

WHAT CONSUMERS DON'T KNOW ABOUT GM FOOD AND HOW THAT AFFECTS BELIEFS

Authors: Brandon McFadden, Jayson Lusk

Source: Federation of American Societies for Experimental Biology (FASEB) Journal, Vol. 30

Subject: Agribusiness & Policy

GRADUATE PROGRAM

Doctor of Philosophy | Master of Science
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The Department of Agricultural Economics has a long tradition of being one of the best departments in the U.S. working on the most relevant and applied issues in agricultural and food industries. Students completing degrees have excelled throughout the world in teaching, research, extension, government service, and business. The department has an environment conducive to considerable interaction among students and faculty.



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**Agricultural
Economics**

BEEF MANAGEMENT AND MARKETING, AND CATTLE BUYER ASSESSMENT OF THE VALUE OF SELLER REPUTATION

Author: Amy Boline; Advisor: Dr. Kellie Raper
Graduation Date: Spring 2016
Degree: M.S.

2014 FARM BILL COMMODITY PROGRAM AND THE CROP INSURANCE CHOICE INTERACTIONS

Author: Jason Bradley; Advisor: Dr. Rodney Jones
Graduation: Spring 2016
Degree: M.S.

DECLINING WATER CONDITIONS AND RECREATION DEMAND AT OKLAHOMA RESERVOIRS

Author: Brannon Daniels; Advisor: Dr. Dave Shideler
Graduation: Spring 2016
Degree: M.Ag.

TURF-GRASS SOD PRODUCER PREFERENCES FOR CERTIFICATION AND ROYALTY FEE STRUCTURES, AND OKLAHOMA CITY COMMERCIAL BUSINESSES' WILLINGNESS TO PARTICIPATE IN OUTDOOR IRRIGATION WATER CONSERVATION PROGRAMS

Author: Harshanee Jayasekera; Advisor: Dr. Tracy Boyer
Graduation: Spring 2016
Degree: M.S.

THE INFLUENCE OF OIL AND NATURAL GAS ON LOCAL SALES AND USE TAX RECEIPTS: EVIDENCE FROM OKLAHOMA PANEL DATA

Author: Dylan Johnston; Advisor: Dr. Brian Whitacre
Graduation: Spring 2016
Degree: M.S.

ESTIMATING WILLINGNESS-TO-PAY FOR BROADBAND ATTRIBUTES AMONG LOW-INCOME CONSUMERS: RESULTS FROM THE FCC LIFELINE PILOT PROJECTS

Author: Hyun Ji Lee; Advisor: Dr. Brian Whitacre
Graduation: Spring 2016
Degree: M.S.

PRICE DETERMINANTS OF BRED COWS SOLD IN OKLAHOMA AUCTIONS

Author: James Mitchell; Advisor: Dr. Derrell Peel
Graduation: Spring 2016
Degree: M.S.

ALTERNATIVES TO METHYL BROMIDE FUMIGATION FOR INSECT CONTROL IN RICE PROCESSING FACILITIES: AN ECONOMIC OPTIMIZATION

Author: Li Niu; Advisor: Dr. Brian Adam
Graduation: Spring 2016
Degree: M.S.

CONSERVATION ADOPTION PREFERENCES, DETERMINANTS OF CONSERVATION PROGRAM ENROLLMENT AND CONSERVATION ADOPTION IN OKLAHOMA'S FORT COBB RESERVOIR WATERSHED

Author: Ben Tong; Advisor: Dr. Tracy Boyer
Graduation: Spring 2016
Degree: M.S.

THE IMPACT OF FOODBORNE ILLNESS OUTBREAKS ON PRICE TRANSMISSION, U.S. PRICE LINKAGES IN THE INTERNATIONAL WHEAT MARKET, AND SPATIAL PRICE DYNAMICS IN THE U.S. VEGETABLE SECTOR

Author: Samantha Durborow; Advisor: Dr. Shida Henneberry

Graduation: Summer 2016

Degree: Ph.D.

AN EXPERIMENT ON THE DIVERGENCE IN CONSUMER AND VOTING BEHAVIOR WITH APPLICATION TO CAGE VS. CAGE-FREE EGGS

Author: Andrew Paul; Advisor: Dr. Jayson Lusk

Graduation: Summer 2016

Degree: M.S.

THE ECONOMIC POTENTIAL OF UNMANNED AIRCRAFT IN AGRICULTURAL AND RURAL ELECTRIC COOPERATIVES

Author: Justin Turner; Advisor: Dr. Philip Kenkel

Graduation: Summer 2016

Degree: M.S.

PROFIT MAXIMIZING SELECTION OF MANAGEMENT PRACTICES FOR WILLOW CREEK TO MEET SEDIMENT AND PHOSPHOROUS ABATEMENT TARGETS

Author: Mason Halcomb; Advisor: Dr. Art Stoecker

Graduation: Fall 2016

Degree: M.S.

VALUE OF PARSIMONIOUS NUTRITIONAL INFORMATION IN A FRAMED FIELD EXPERIMENT, PREDICTING FOOD PRICES USING DATA FROM CONSUMER SURVEY AND SEARCH, AND CONSUMER-ORIENTED FOODS CLUSTER USING CROSS-NATIONAL DATA

Author: Jisung Jo; Advisor: Dr. Jayson Lusk

Graduation: Fall 2016

Degree: Ph.D.

RAINFALL FORAGE INSURANCE, STEAK SIZE, AND TIME SERIES MODELING OF CASH AND FUTURES PRICES

Author: Josh Maples; Advisor: Dr. Wade Brorsen

Graduation: Fall 2016

Degree: Ph.D.

ECONOMICS OF IRRIGATED CROP CHOICES USING CENTER PIVOT WITH LIMITED GROUNDWATER IN OKLAHOMA PANHANDLE

Author: Karthik Ramaswamy; Advisor: Dr. Art Stoecker

Graduation: Fall 2016

Degree: M.S.

DETERMINING THE IMPACTS OF CATTLE ORIGIN AND OWNERSHIP CHARACTERISTICS ON FEEDLOT PERFORMANCE AND ECONOMIC RETURNS

Author: Anna Stehle; Advisor: Dr. Derrell Peel

Graduation: Fall 2016

Degree: M.S.

VERTICAL PRICE ADJUSTMENTS IN THE U.S. BEEF INDUSTRY

Author: Prasanna Surathkal; Advisor: Dr. Chanjin Chung

Graduation: Fall 2016

Degree: M.S.

MARKETING AND DELIVERY OF QUALITY GRAINS AND BIOPROCESS COPRODUCTS

Consumers are increasingly demanding high-quality, safe wholesome foods. At the same time, environmental and safety restrictions have reduced the availability of certain chemicals to control insects. As biological and chemical scientists and entomologists are developing alternative methods of insect control, there is a need for economic analysis and optimization to identify the most cost-effective of these alternatives so that increases in food costs can be minimized. (2879)

Sponsor: Oklahoma Agricultural Experiment Station

PI/PD: Brian Adam

IMPROVING THE EFFICIENCY OF AGRICULTURAL DECISIONS

Agricultural producers are faced with many decisions regarding new and existing technology.

These producers can make more efficient decisions when they are provided with more accurate information.

The proposed research would help provide this information. A variety of applied topics will be addressed such as forecasting fertilizer prices, DNA testing of livestock, precision sensing fertilizer recommendations, design of forage crop insurance for wheat pasture, likely effects of mandatory price reporting for livestock, and calculating settlement prices for calendar spread options. (2939)

Sponsor: Oklahoma Agricultural Experiment Station

PI/PD: Wade Brorsen

ECONOMIC IMPACTS OF MARKET POWER AND CHECKOFF PROGRAM

The project is expected to provide economic analyses of market power and checkoff programs in food and agricultural industries. Specifically, the project will develop generalized and flexible models for market conduct in food and agricultural industries. The newly developed models will be used for the analyses of bilateral market power between retailers and processors for various agricultural and food markets. The project also will focus on determining the relationship between auction and traditional new empirical industrial organization (NEIO) models of market power. (2941)

Sponsor: Oklahoma Agricultural Experiment Station

PI/PD: Chanjin Chung

PROVIDING INFORMATION AND DECISION SUPPORT TOOLS TO INCREASE THE EFFECTIVENESS OF TRADITIONAL AND NON-TRADITIONAL COOPERATIVES

The goal of this project is to increase the efficiency and profitability of agricultural cooperatives.

This goal will be accomplished through a wide range of activities including survey research, case study research and the development of decision aids and best management practices. Many of these activities will focus on financial choices which are an integral part of the profit distribution and equity structure which is unique to the cooperative firm. Because these firms are owned and controlled by agricultural producers, this research will benefit Oklahoma farmers and ranchers. (2942)

Sponsor: Oklahoma Agricultural Experiment Station

PI/PD: Phil Kenkel

THE ECONOMICS OF MARKET RELATIONSHIPS AND VALUE ENHANCEMENT IN LIVESTOCK AND AGRICULTURE

The market landscape in agriculture is constantly changing, whether induced by market forces, policy changes, technological innovation, or weather. Participants in the food system must navigate that changing landscape along with the management and marketing challenges that it presents. Changes in market structure and evolution in the nature of market relationships can lead to more cost-efficient production and stronger marketing channels. This research provides economic analysis of these change catalysts, of potential responses to the associated challenges and opportunities, and of associated supply chain behavior. Particular emphasis is placed on value enhancement in the livestock industry and implications for Oklahoma livestock producers and processors. (2943)

Sponsor: Oklahoma Agricultural Experiment Station

PI/PD: Kellie Raper

SELECTION AND LOCATION OF COST EFFECTIVE MANAGEMENT PRACTICES IN OKLAHOMA WATERSHEDS

This proposed research will focus on selecting and locating the most cost effective best management practices (BMPs) to reduce sediment and nutrient loading in selected Oklahoma watersheds. Mathematical optimization techniques such as nonlinear and genetic programming will be used to control watershed and instream simulation models to determine the most effective combination on land surface and instream BMPs to reduce sediment and nutrient loading from individual watersheds. Studies in other watersheds have shown that cost effective selection of BMPs can reduce the cost of given sediment and nutrient reductions by as much as 60 percent when compared to conventional targeting. (2944)

Sponsor: Oklahoma Agricultural Experiment Station

PI/PD: Art Stoecker

RURAL COMMUNITY ECONOMIC RESILIENCE IN THE FACE OF CHANGING FOOD SYSTEMS, MINING AND CLIMATE VARIABILITY

The proposed research will explore the concept of economic resiliency in the context of three trends facing Oklahoma communities: changing food systems, oil and gas development, and climate variability. The research will identify how rural Oklahoma communities will be impacted by these three trends. In particular, the research will focus on how various forms of capital, using the Community Capitals framework, contribute or detract from local economic resilience.

This will enable the researcher to identify policies and tools for local and state decision makers to build economic resiliency in rural Oklahoma. (2947)

Sponsor: Oklahoma Agricultural Experiment Station

PI/PD: Dave Shideler

ECONOMIC AND ENVIRONMENTAL IMPACTS OF OKLAHOMA AGRICULTURAL PRODUCTION AND AGRICULTURAL TECHNOLOGY

Although it is difficult to conduct a fully comprehensive evaluation of any emerging agricultural production system, the state-of-the-practice analysis tools have demonstrated their utility in providing producers, researchers, and decision makers with beneficial information on the impacts of new agricultural technology. Future research will provide even more the basis for initiating comprehensive analysis, particularly as more seamless integration between economic and environmental analysis is achieved (Plucknett et al.; Hildebrand; McConnell and Dillon).

(2948)

Sponsor: Oklahoma Agricultural Experiment Station

PI/PD: Jeff Vitale

ECONOMICS OF OKLAHOMA AGRICULTURAL PRODUCTION SYSTEMS

The goal of this project is provide economic analyses of alternative production systems in the U.S. Southern Plains. Agricultural producers are confronted with new production, marketing, and financing methods/technologies. Often these new tools are promoted by parties with a vested financial interested. This project will assess the economic feasibility (i.e., cash flow considerations) and advisability (i.e., economic profitability) of alternative agricultural production practices and where applicable marketing and financial considerations. (2974)

Sponsor: Oklahoma Agricultural Experiment Station

PI/PD: Eric DeVuyst

COSTS, BENEFITS, AND RISKS OF ALTERNATIVE INSECT MANAGEMENT STRATEGIES IN FOOD PROCESSING AND GRAIN STORAGE FACILITIES

Consumers desire wholesome, insect-free foods. Meanwhile, because of consumer preferences and regulations insecticide options are increasingly limited. In order to improve the ability of food providers to respond to these

conflicting challenges, costs benefits, and risks of alternative insect control methods, including integrated pest management approaches, will be estimated. The focus is on grain storage and food processing facilities. Especially in the food processing industry, limited economic analysis of insect control has been published, especially analysis that considers the risks of alternative strategies. Partial budgeting and economic engineering will be used to analyze costs. (2977)

Sponsor: Oklahoma Agricultural Experiment Station

PI/PD: Brian Adam

THE ECONOMICS OF WATER USE, RECREATION AND WILDLIFE MANAGEMENT IN OKLAHOMA

This project measures the economic value and economic impacts of water and wildlife in Oklahoma. There is a critical need for economic information about natural resources, which provide essential inputs into local and regional markets, and directly affect individuals' wellbeing. To date, however, little socioeconomic data has been collected on water uses and wildlife management in Oklahoma, and hence the value of these resources and the effect that conservation and management can have on that value. This project is conducting several surveys to measure demand for water and wildlife resources. Summary data and analysis will be presented to resource managers through reports, and important findings will be published in peer-reviewed journals. (2997)

Sponsor: Oklahoma Agricultural Experiment Station

PI/PD: Richard Melstrom

CONSUMER PREFERENCES FOR MEAT QUALITY ATTRIBUTES AND LIVESTOCK PRODUCTION PRACTICES

Criticism of animal agriculture is growing. The negative publicity is multifaceted and ranges from concerns about animal welfare, health impacts, food safety, climate change, environmental impacts, water usage, and food security. The concerns are also beginning to be reflected in public policy. This research will focus on several questions. How much impact has this publicity had on demand for meat, dairy, and eggs? Which aspects of meat consumption are most troubling to consumers? How will industry responses affect consumer demand for meat, dairy, and eggs in the future? These questions are important given the economic size of the poultry and livestock sector, and the impact of meat, dairy, and eggs in the American diet. (2998)

Sponsor: Oklahoma Agricultural Experiment Station

PI/PD: Jayson Lusk

OKLAHOMA CROP AND LIVESTOCK PRODUCTION SYSTEMS ECONOMICS

The project has several overarching objectives relative to Oklahoma crop and livestock production systems. One is to determine the economic and institutional feasibility, producer impacts, with respect to expected net return, production and financial risk, and rate of return on resources, of alternative crop and livestock production systems relative to conventional systems. A second objective is to determine environmental tradeoffs between alternative and contemporary crop and livestock production systems. (3028)

Sponsor: Oklahoma Agricultural Experiment Station

PI/PD: Francis Epplin

EVALUATION OF PRICE AND PRODUCTION RISK MANAGEMENT WITH CHANGING MARKETS AND POLICIES FACED BY PRODUCERS IN OKLAHOMA AND THE SOUTHERN PLAINS

Risks in agriculture are not uncommon. However, markets, prices, advanced technologies and data collection have altered the landscape of agricultural risks. While available tools offer the ability to reduce these, they all bring about very complex strategies and inter-related outcomes. This project attempts to quantify the changing risk landscape and evaluate strategies, both old and new, to combat price and production risks. Additionally, the relationship across the portfolio of risk mitigation protocols for decision makers will be considered and measured both for specific and highly targeted risks as well as broader whole farm prescriptions related to risk management. (3029)

Sponsor: Oklahoma Agricultural Experiment Station

PI/PD: John Michael Riley

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