

# RESEARCH UPDATE

Oklahoma State University • Department of Agricultural Economics • 2016 Issue

**Impacts of the Wind Energy Industry  
on Oklahoma**

**Our Passion. Our Profession.**

Is passion leading young veterinarians down  
the most optimal career path?

**Oklahoma Beef Management Practices  
The Bottom Line**

**Anaerobic Digesters:**

A potential solution to environmental and  
social issues related to livestock waste.



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 create 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 wind energy research to the study of returns on a degree in veterinary medicine to Oklahoma beef management practices. All of these topics impact the quality of life for Oklahoma residents. We also provide results of a research project analyzing the economic feasibility of anaerobic digesters and covered lagoons on swine production. We list 37 peer reviewed articles published by our faculty members over the past year. Finally, we provide a listing of graduate student dissertations and theses completed over the past year.

We hope you enjoy this issue.

## About the Cover:

Cattle take cover from the sun in the shadow of a wind turbine in Kingfisher County. Read more about Oklahoma wind energy on page 4.

*Photo by Sarah Carter.*

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Dr. Mike Woods

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# Impacts of the Wind Energy Industry on Oklahoma

Oklahoma currently has 4,000 megawatts of utility-scale wind energy capacity installed with still more capacity being added this year. With one of the nation's largest wind resource potentials and an increasingly robust electrical transmission grid, Oklahoma stands ready to be one of the nation's leading producers of wind-generated electrical power. Oklahoma now produces roughly 17 percent of its power from wind, compared to the U. S. average of 6.5 percent (which includes all renewable sources other than hydroelectric power). Estimates are that the wind industry has created more than 1,600 direct, full-time jobs in the state.

## Researchers

Dr. Shannon Ferrell, Associate Professor in the agricultural economics department headed the research effort. He was assisted by Joshua Conaway, a former agricultural economics student, who is now a second-year law student at the University of Oklahoma's College of Law.

Ferrell also received assistance from individuals at the Oklahoma State Energy Office, the Center for Local Government Technology, The County Extension Program at OSU, and county officers in several Oklahoma counties.

## Issues

Although Oklahoma's wind energy industry has grown steadily over the past 12 years into the fourth-largest installed wind power capacity state in the nation, research into the industry's impacts has been limited. Studies have been limited to the estimated number of jobs created and estimated royalty payments to Oklahoma landowners. However, no research had previously been done on the impacts of wind energy on land use and ad valorem taxes, nor the savings to taxpayers from utilities using wind energy. Never before had there been a large-scale, comprehensive mapping project to determine the spatial impact (total land used) of wind energy projects across the state of Oklahoma (and based on this research, anywhere else).

Other benefits from conducting the research included establishing exact locations for the wind energy projects,

the actual spacing of the wind turbines, as well as how wind energy systems have effected other land uses within the projects. Including the impacts on oil and gas production, the agricultural industry, and "setback issues" with other facilities such as hospitals, airports, and schools had not been studied.

## Objective

The Objective of this research was to study the issues discussed above and others to provide a comprehensive report on the impact of the wind energy industry in Oklahoma.

## Project

The first step in conducting the research was to determine the location of all Oklahoma's utility-scale wind energy projects. Approximate locations were provided from the State Energy Office (Oklahoma Department of Commerce) and Oklahoma Cooperative Extension Service. Next, a Google Earth Pro software package was used to locate the wind farms, then trace and measure over 2,100 wind energy system components.

In addition to the spatial impacts, the researchers studied ad valorem tax impacts using information from the Oklahoma Tax Commission, the Oklahoma Corporation Commission, the County Assessors Association, and the counties where projects are located. Other information and assistance came from wind energy project developers. Estimates from the U.S. Department of Energy Office of Energy Efficiency Renewable Energy 2013 Wind Technologies Market Report were also used.

## Results

The report resulting from this research provides information detailing the history, growth, and impacts of the wind energy industry in Oklahoma. It provides data that up to this point had never been compiled or studied, including realizations that the land impact from wind energy production is far less—only one sixth—than what was estimated by the American Wind Energy Association, and that wind energy is growing into a vital contributor to Oklahoma's economy and strong future.

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## Impact

The information in the report resulting from this research represents an unprecedented collection of data about the Oklahoma wind energy industry, which helps to inform the citizens of Oklahoma, alleviate misconceptions, and provide incentives for future growth. The data provides evidence that the wind energy industry has made important contributions to the state and will likely make even greater contributions in the future. These contributions include a significant impact on the tax base of affected counties, which means increased revenues for school districts and the Career Tech system. Also, the benefits of using wind power for energy, including saving ratepayers billions of dollars, are considerable.

Oklahoma now has a comprehensive map of wind energy project locations, which will be helpful in future research, planning, and forecasting.

The observations collected through the mapping project also show wind development poses few or no barriers to agricultural or petroleum uses of the same property. In addition, problems with setbacks of wind turbines from facilities such as hospitals, airports, and schools are considered highly unlikely.

## Publications/Presentations

A complete copy of the final report, Wind Energy Industry Impacts in Oklahoma can be accessed on the State Chamber of Oklahoma website: [http://www.okstatechamber.com/sites/www.okstatechamber.com/files/RevisedReport\\_WindStudy9\\_3\\_15.pdf](http://www.okstatechamber.com/sites/www.okstatechamber.com/files/RevisedReport_WindStudy9_3_15.pdf)

## Source of Funding

This research was funded by a State Chamber of Oklahoma Research Foundation research contract.

# Our Passion. Our Profession.

Is passion leading young veterinarians down the most optimal career path?

**A**nimal agriculture is far different than it was twenty-five years ago. Many changes including production practices, consumer perspective, and policy have transposed the face of the industry, as well as the role of the modern veterinarian. This 'role change' encouraged the Economics Division at the American Veterinary Medical Association (AVMA) to investigate the economic opportunities this revolution has created within the profession.



## Researcher

Dr. Rodney Holcomb is a professor in the OSU Department of Agricultural Economics and holds the Charles B. Browning Endowed Professorship in Food Science.

## Issues

Changes in policies such as the Food Safety Modernization Act (FSMA), the Global Food Safety Initiative (GFSI), and the consumer's demand for transparency throughout the industry has created the need for more testing and regulation to ensure animal health and food safety compliance. With this, the demand for veterinarians within the government and regulatory sector has grown tremendously. Today, veterinary students leave school with a debt of approximately \$135,000 and a starting salary, on average, of \$67,000. What drives these students to make the career choices they do, and more importantly, what is the best career option for the modern day veterinarian?

## Objectives

This project is multi-faceted and diverse. Given this diversity, several objectives were set. Many aspects of the industry were inspected such as, the average return on investment (ROI) for a degree in Veterinary Medicine (DVM), as well as causes in differences between the starting salaries of veterinarians, (characteristics such as students, school, and area of practice they choose to enter). Causes for difference in earning potential over the course of a veterinarian's career were also identified. The question of whether or not it's better to be an employee or an owner of a private practice was investigated. Differences in income by location and concentration of competition were also examined. The big question of the project: "Is AVMA's tagline, 'Our passion. Our profession.' creating the foundation for the problem?" Is passion overriding economic rationale and preventing veterinarians from having a successful career in the profession?

## Project

The AVMA has collected data for several decades through surveys of graduates. These summary statistics are useful, however they do not tell the whole story. Two years ago, a new survey was designed to gather the missing information. The new survey compared school, salary, and type of practice. Data were gathered from veterinarians that had been in the field for 1, 5, 10, and 25 years. This allowed Holcomb and his fellow researchers to map income growth by school and choice of profession.

## Results

There are definite differences in earning potential by type of practice. The highest earning potential proved to be the private sector (veterinarians employed in private firms conducting research or providing on-site veterinary services to large corporate owned feedlots, dairies, etc). The most consistent career option with an above average starting salary is in the regulatory sector, working within a packing house or some other government regulated type of business. The least income potential was found to be that of equine specialists. Extra expense coupled with less demand and lower starting salaries that are needed to gain the desired experience and reputation, leaves horse lovers last. Few differences were found between graduates of each veterinary school. No premium was found for attending one school versus another. The AVMA accreditation creates an even playing field because each school must teach the same curriculum in the same way.

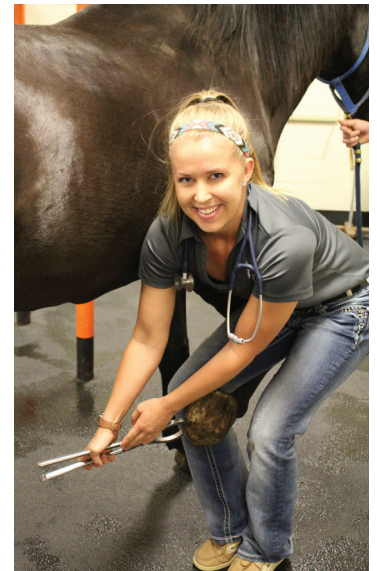
## Impact

The goal of the research is to help students going into veterinary school explore the best career options. Holcomb says, “The biggest impact will be a better understanding of ways to expand income and understand career opportunities.” This will enable vet students to maximize the ROI on their DVM, or in other words, get the ‘biggest bang for their buck’ by choosing to follow the most beneficial career path.

## Presentations

Neill, C., and R.B. Holcomb. “Where Should All of the Veterinarians Go? An Examination of Supply and Cross-Sector Effects in the Veterinary Medicine Industry.” Selected paper presented at the 2016 Southern Agricultural Economics Association meetings in San Antonio, TX, on February 8, 2016.

Neill, C., and R.B. Holcomb. “Factors Affecting Veterinarian Employability and Underemployment, Perceptions Towards Professional Capabilities, and Personal/Professional Well-Being.” Presented at the American Veterinary Medical Association (AVMA) Economic Summit on October 21, 2015 in Chicago, IL.



*An OSU, 4th year vet student checks the feet of a bay gelding.*

Some of this material was also published in the AVMA Report on Veterinary Markets – March 2016.

## Publications Submitted for Review

Neill, C., R.B. Holcomb, and B.W. Brorsen. “Starting on the Right Foot: Does School Choice Impact Veterinarian Starting Salaries?”

Neill, C., R.B. Holcomb, K. Raper, and B. Whitacre. “Effects of Spatial Density on Veterinarian Income: Where Are All of the Veterinarians?”

White, A., C. Neill, and R.B. Holcomb. “Does it Pay to Go to School? The Returns to a Veterinary Degree.”

## Source of Funding

The American Veterinary Medical Association is funding this research.

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# Oklahoma Beef Management Practices

## *The Bottom Line*

**T**here are many simple, proven management practices that add value to calf crops. Practices can be categorized into four groups, including basic, preconditioning, marketing, and record keeping practices. Basic practices include the low-cost pre-weaning calf health management practices of castration, dehorning, and deworming. Preconditioning practices consist of 45-day weaning, respiratory vaccinations and feed bunk training. Marketing practices include implants, antibiotic-free production, as well as age and source verification. The decision to implement an individual marketing practice is typically made with the intention to market calves to specific programs or buyers to capture market premiums. The fourth category is record keeping, which includes recording calves' birth dates, keeping medical treatment records, and documenting individual calf identification. While record keeping practices may not directly impact market value individually, they often define the level of success that the operation can expect to achieve. This research outlines which Oklahoma producers are utilizing these practices and why other producers are opting out.

### **Researcher**

The Oklahoma State University (OSU) Department of Agricultural Economics partnered with the OSU Department of Animal Science to develop the Oklahoma Beef Management and Marketing survey. The OSU Department of Agricultural Economics lead investigator on this project is Dr. Kellie Raper.

### **Issues**

Oklahoma is ranked second among states for beef cattle production in the United States, with a total of 1.95 million head. Volatile market prices force producers to review their program and search for methods to add consistent value to their calf crop. The Oklahoma Quality Beef Network (OQBN), a joint effort between

the Oklahoma Cooperative Extension Service and the Oklahoma Cattlemen's Association, strives to provide producers with education and tools to enhance access to value-added programs. The lack of implementation of recommended production practices in Oklahoma is higher than one would expect. Between trying to improve the bottom line and increased animal welfare pressure from activists and consumers alike, it is of utmost importance for extension services as well as producers to identify constraints and develop methods to increase the adoption rates of recommended practices.

### **Objectives**

The purpose of this research is to examine which producers are utilizing recommended practices and why other producers are choosing not to use them.

Another objective of this research is to pinpoint what extension can do to encourage the producer to adopt recommended practices, and what the best education method is to teach the producers the skills and knowledge they need to implement these practices in their programs.

### **Project**

The first survey asking Oklahoma cattle producers about their production practices was administered in 2010. The National Ag Statistics Service (Oklahoma office) drew a sample of producers from the entire state and received 1,300 responses. Another survey is scheduled to be released in late 2016. The new survey is very similar to the original, however it has been updated to cover several new concerns, like the new Veterinary Feed Directive (VFD) policy that goes into effect starting January 1, 2017. The goal is to keep this research ongoing, distributing surveys every five years to create benchmarks so progress can be tracked. This research will also give insight as to what other research may need to be conducted in the future.



## Results

Throughout the twelve different recommended practices producers were asked about, six types of constraints were found to be most common among the non-adopters: technical education, doubt, management, marketing education, market access, and finance.

Technical education was number one for every recommended practice. Under this constraint category, producers indicated that although they might be familiar with the practice, they were unsure of how to implement it in their programs.

The second most common answer was uncertainty. These producers believe that there is no value added, or the premium is not high enough to cover the added cost. Under this category producers also expressed the opinion they have never utilized the practice in the past and have always done “OK” without the practice.

The third most common constraint proved to be management. Producers said that too much labor is required, they don't have enough calves to bother, or their buyers do it themselves so they don't need to waste their time.

A major concern for producers that have already adopted these practices is marketing education. Although they utilize these practices, they do not know how to market their calves to capture a premium.

## Impact

The results of this research will enable the Oklahoma Cooperative Extension Service to help producers overcome perceived constraints and realize financial opportunities to better their programs and the quality of their calf crop. This will improve the quality of life for the producer and enhance the industry as a whole,

as well as improve the economy of the state.

## Publications Submitted for Review

Schumacher, Stephanie, Derrell S. Peel, and Kellie Curry Raper.

“Demographic

Influences on Non-

Adoption of Recommended Management Practices in Beef Cattle.” In publication review.

Doye, Damona, Eric DeVuyst, David Lalman, and Kellie Raper. “Proven Strategies to Maximize Profits to Cow-Calf Producers.” *Journal of the NACAA* 9(1). June 2016.

Raper, Kellie Curry, Amy Boline, and Derrell Peel. “No Bull – Castrating Calves Can Improve Your Bottom Line.” *Master Cattleman Quarterly*, Oklahoma Cooperative Extension Service, Volume 29, December 2015.

Raper, Kellie Curry and Gant Mourer. “Low Hanging Fruit: Adding Value With Basic Feeder Calf Management Practices.” *Master Cattleman Quarterly*, Oklahoma Cooperative Extension Service, Volume 27, June 2015.

## Source of Funding

The Oklahoma State University Agricultural Experiment Station, the Oklahoma Cooperative Extension Service, and the joint efforts of the OSU Department of Agricultural Economics and the OSU Department of Animal Science are providing the funding for this research.

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**A**n increasing population requires more food and more intensive agricultural operations. As animal production facilities become larger and more concentrated, the risk of environmental and social problems increases. Environmental degradation from nutrient pollution, specifically phosphorus, consistently ranks as one of the top water quality issues in the U.S. In addition to water quality impairments, the livestock industry in the U.S. is often blamed for atmospheric environmental problems, including the discharge of methane (a potent greenhouse gas) into the atmosphere. Also, the production of livestock requires human and fossil fuel energy.

### Researcher

Cortney Cowley is a 2015 Ph.D. graduate of the agricultural economics department. Her Ph.D. dissertation, “Economic and Political Considerations for

Anaerobic Digestion Technology Adoption on Animal Feed Operations,” was selected for the Outstanding Ph.D. Dissertation Award at the recent Southern Agricultural Economics Association annual meeting. Cowley is now an agricultural economist in the Regional Affairs Department at the Omaha Branch of the Federal Reserve Bank of Kansas City. She conducts research on issues related to farm economy, agricultural finance, and natural resources, and contributes to several of the bank’s publications.

### Issues

Anaerobic digestion, a series of biological processes in which microorganisms break down biodegradable material in the absence of oxygen, could help solve the potential environmental problems of the livestock industry such as nutrient pollution in water bodies and the discharge of greenhouse gases into the atmosphere.

*The anaerobic digester that is utilized at the OSU Swine Unit.*



# Anaerobic Digesters:

These systems reduce greenhouse gas emissions while turning waste products into energy. In an anaerobic digester, microorganisms digest manure to produce biogas, which is mostly methane. While environmentally beneficial, limited economic feasibility has prevented the digesters from being widely adopted.

Most previous research on the economics of anaerobic digestion systems has been limited to site-specific case studies in the dairy industry. Past economic research is available on the application of these technologies with dairy farms. Farms have a choice between different systems, but limited information is available as to which systems are more feasible for swine.

### Objectives

The objectives of this research were 1) to determine the economic feasibility of anaerobic digesters and covered lagoons on swine operations, 2) to determine how government policies, co-product prices, peer group influence, farm characteristics, and farmer beliefs affect the decision to adopt anaerobic digesters, and 3) to develop a production function, a fixed cost function, and a variable cost function for methane production in an anaerobic digester.

### Project

A survey instrument was used to collect primary data for this study. The survey was distributed, with the help of the U.S. Department of Agriculture (USDA) National Agricultural Statistics Service (NASS), to all swine and dairy producers known to have anaerobic digesters, plus a random sample of producers who did not have digesters. Operators that currently use anaerobic digestion technology on their farms were asked to answer a survey including questions on physical parameters and digester design and economic considerations. Survey participants were asked to share cost, revenue, and production data from their anaerobic digester. Qualtrics Survey Software was used to create and administer the survey online, and a paper version of the survey was also sent in an attempt to generate additional responses.

Then capital budgeting, contingent valuation, willingness-to-accept, and econometric methods were applied to data collected from the nationwide survey of dairy and swine producers. Net present values were calculated to determine the economic feasibility of anaerobic digesters and covered lagoons under different co-product and policy scenarios. Farm size and type



A potential solution to environmental and social issues related to livestock waste.

were important variables for economic feasibility and for predicting the likelihood of adoption.

## Results

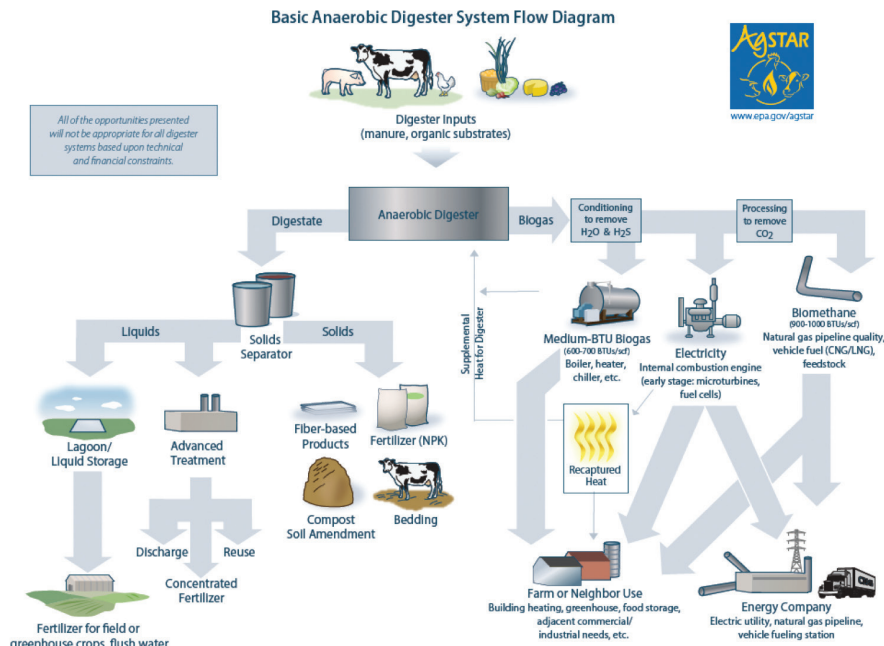
Results indicate that for swine farms, lower cost, passive systems, such as covered lagoons, could be a more promising investment than anaerobic digesters when government grants and carbon trading are not available. Low-rate systems (such as plug flow and complete mix digesters) with higher capital costs were determined to be more economically feasible on dairy farms because of their increased productivity. While the environmental benefits of anaerobic digesters are important for predicting whether or not a producer will consider the technology for manure management, lower capital costs, co-product marketing, or government grants would be required to achieve more widespread adoption.

## Impact

Wade Brorsen, Cowley's advisor, states "Cortney's research has considerable real world interest. Anaerobic digesters can generate energy and reduce pollution at the same time. She is the first to conduct a nationwide survey. Her estimates are based on producers' actual experiences rather than expert opinions or the experience of one or two operators as has been done in past research. Her work is consistent with our land-grant mission by doing work that matters and communicating her results to key decision makers."

## Publications and Presentations

Cortney Cowley, Economic and Political Considerations for Anaerobic Digestion Technology Adoption on Animal Feed Operations, doctoral dissertation, Oklahoma State University, Stillwater, Oklahoma, 2015.  
 Cowley, C., B.W. Brorsen, and D. Hamilton. 2014. "Economic Feasibility of Anaerobic Digesters with Swine Operations." U.S. EPA AgSTAR State Partnership Program Webinar, June.



Cowley, C. 2014. "Economic and Political Considerations for Anaerobic Digestion Technology Adoption on Animal Feeding Operations." U.S. EPA AgSTAR State Partnership Program Webinar, April.  
 Cowley, C., and B.W. Brorsen. 2015. "Anaerobic Digester Production and Cost Functions." Selected paper. Agricultural and Applied Economics

Association annual meeting, July 26-28, San Francisco, CA.

Cowley, C., and B.W. Brorsen. 2014. "The Effects of Policies and Farmer Characteristics on the Adoption of Anaerobic Digesters in the United States." Selected paper, Western Agricultural Economics Association annual meeting, Colorado Springs, CO.

Cowley, C., B.W. Brorsen, and D. Hamilton. 2014. "Economic Feasibility of Anaerobic Digesters with Swine Operations." Selected paper, Agricultural and Applied Economics Association annual meeting. Minneapolis, MN.

## Sources of Funding

Funding for the research was provided by the A.J. and Susan Jacques Chair, Oklahoma Agricultural Experiment Station, and the National Institute for Food and Agriculture.

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# *PUBLICATIONS*



DEPARTMENT OF

Agricultural  
Economics

### **A CALIBRATED AUCTION-CONJOINT EXPERIMENT TO ELICIT CONSUMER PREFERENCES FOR SUSTAINABLE FARMING**

Authors: J Avitia, M Costa-Font, JM Gil, Jayson Lusk

Source: Food Quality and Preference

Date: 41(2015):1-11, 2015

Subject: Environment, Marketing, Policy

### **AGRICULTURAL LAND AND THE SMALL PARCEL PREMIUM PUZZLE**

Authors: Wade Brorsen, Damona Doye, K.B. Neal

Source: Land Economics, August. 91(3):572-585

Date: 2015

### **AIRING YOUR DIRTY LAUNDRY: A QUICK MARKETABLE POLLUTION PERMITS GAME FOR THE CLASSROOM**

Authors: Jill Caviglia-Harris, Max Melstrom

Source: Journal of Economic Education

Date: 2015

Subject: Environment, Other

### **AN FMRI INVESTIGATION OF CONSUMER CHOICE REGARDING CONTROVERSIAL FOOD TECHNOLOGIES**

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

Source: Food Quality and Preference, 40A(2015):209-220

Date: 2015

Subject: Agribusiness

### **ANALYSIS ON COST EFFICIENCY OF KOREAN FARMERS WITH DEA AND TOBIT MODEL**

Authors: Cheol-hi Lee, Chanjin Chung, Chil-Goo Choi

Source: Journal of the Korean Society of International Agriculture

Date: 2015

Subject: Agribusiness, Production Economics

### **BIOMASS YIELD ENHANCEMENT REQUIRED FOR A REPLACEMENT SWITCHGRASS VARIETY**

Authors: Choolwe Haankuku, Francis Epplin

Source: Agronomy Journal, 107-1:287-297

Date: 2015

Subject: Agribusiness

### **CAN NEURAL ACTIVATION IN DORSOLATERAL PREFRONTAL CORTEX PREDICT RESPONSIVENESS TO INFORMATION? AN APPLICATION TO EGG PRODUCTION SYSTEMS AND PROPOSITION 2 ADVERTISING**

Authors: Brandon McFadden, Jayson Lusk, et. al.

Source: PLoS ONE, 10(2015), e0125243

Date: 2015

Subject: Agribusiness, Policy

## **COGNITIVE BIASES IN THE ASSIMILATION OF SCIENTIFIC INFORMATION ON GLOBAL WARMING AND GENETICALLY MODIFIED FOOD**

Authors: Brandon McFadden, Jayson Lusk

Source: Food Police, 54(2015):35-43

Date: 2015

Subject: Agribusiness, Marketing, Policy

Keywords: GMO, Climate Change, Global Warming, Bayesian Updating, Behavioral Economics

## **CROSS HEDGING WINTER CANOLA**

Authors: Joshua G. Maples, Wade Brorsen

Source: Journal of Agricultural and Applied Economics, 47:462-481

Date: 2015

Subject: Agribusiness, Marketing, Quantitative Methods

Keywords: Cross hedge, Encompassing Test, Futures Market, Hedging Effectiveness, Hedge Ratio, Overlapping Data, Winter Canola

## **CYCLICAL HARVESTING IN A FISHERY WITH BYCATCH**

Authors: Max Melstrom

Source: Resource and Energy Economics

Date: 2015

Subject: Environment

## **ECONOMIC ASSESSMENT OF FMDV RELEASES FROM THE NATIONAL BIO AND AGRO DEFENSE FACILITY**

Authors: Dustin Pendell, Jayson Lusk, et. al.

Source: PLoS ONE, 10(2015): e0129124

Date: 2015

Subject: Policy, Production Economics

Keywords: Foot and Mouth Disease

## **ELECTRONIC MEDICAL RECORD ADOPTION IN OKLAHOMA PRACTICES: RURAL-URBAN DIFFERENCES AND THE ROLE OF BROADBAND AVAILABILITY**

Authors: Brian Whitacre, Randi Williams

Source: The Journal of Rural Health, 31(1): 47-57

Date: 2015

Subject: Community & Rural Development

Keywords: Electronic Medical Records, Broadband, Rural, Technology, Health Care

## **ESTIMATION OF RESIDENTIAL WATER DEMAND UNDER UNIFORM VOLUMETRIC WATER PRICING**

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

Source: Journal of Water Resources Planning and Management, 10

Date: 2015

Subject: Environment

Keywords: Elasticity, Instrumental Variable, Uniform Volumetric Pricing, Water Demand

### **FRAMING A PUBLIC ISSUE FOR EXTENSION: CHALLENGES IN OIL AND GAS ACTIVITY**

Authors: Gina Peek, Larry Klumpp, Dave Shideler, Shannon Ferrell, Chad Penn, Todd Halihan

Source: Journal of Extension

Date: 2015

Subject: Community & Rural Development, Policy

Keywords: Hydraulic Fracturing, Public Issue Education, Oil, Gas

### **HOW MUCH DOES BROADBAND INFRASTRUCTURE MATTER? DECOMPOSING THE RURAL-URBAN ADOPTION GAP WITH THE HELP OF THE NATIONAL BROADBAND MAP**

Authors: Brian Whitacre, Sharon Stover, Roberto Gallardo

Source: Government Information Quarterly 32(3): 261-269

Date: 2015

Subject: Community & Rural Development

Keywords: Broadband Adoption, Rural Broadband Infrastructure

### **INDUSTRIAL SUGAR BEETS TO BIOFUEL: FIELD TO FUEL PRODUCTION SYSTEM AND COST ESTIMATES**

Authors: Choolwe Haankuku, Francis Epplin, Vijaya Gopal Kakani

Source: Biomass and Bioenergy, 80:267-277.

Date: 2015

Subject: Production Economics

Keywords: Breakeven Price, Biorefinery, Canola, Energy, Beets, Ethanol, Industrial Beets, Beta Vulgaris

### **INTENTIONS OF YOUNG FARMERS CLUB (YFC) MEMBERS TO PURSUE CAREER PREPARATION IN AGRICULTURE: THE CASE OF UGANDA**

Authors: Stephen Mukembo, Craig Edwards, Jon Ramsey, Shida Henneberry

Source: Journal of Agricultural Education, 56(3), 16-34

Date: 2015

Subject: Community & Rural Development

Keywords: Agricultural Clubs, Career Preparation, Females Post-secondary Education

### **JOURNAL RANKINGS IN AGRICULTURAL AND ENVIRONMENTAL ECONOMICS**

Authors: Dan Rigby, Michael Burton, Jayson Lusk

Source: American Journal of Agricultural Economics, 97(2015):490-509

Date: 2015

Subject: Other, Quantitative Methods

### **MEASURING SCHUMPETERIAN ACTIVITY USING A COMPOSITE INDICATOR**

Authors: John Mann, Dave Shideler

Source: Journal of Entrepreneurship and Public Policy, 4(1), pgs 57-84

Date: 2015

Subject: Community & Rural Development

Keywords: Entrepreneurship, Schumpeter Measurement



## **MODELING SKEWNESS WITH THE LINEAR STOCHASTIC PLATEAU MODEL TO DETERMINE OPTIMAL NITROGEN RATES**

Authors: Chris N. Boyer, Wade Brorsen, Emmanuel Tumusiime

Source: *Agricultural Economics*, 46: 1-10

Date: 2015

Subject: Production Economics, Quantitative Methods

Keywords: Cotton, Linear Response, Stochastic Plateau, Nitrogen Skewness, Skew, Normal, Wheat, Cotton, Nitrogen, Yield

## **MODELING THE IMPACT OF DISTANCE BETWEEN OFFICES AND BORROWERS ON AGRICULTURAL LOAN VOLUME**

Authors: Taylor Witte, Eric DeVuyst, Brian Whitacre, Rodney Jones

Source: *Agriculture Finance Review*, 75(4): 484-498

Date: 2015

Keywords: Agricultural Credit, Farm Credit Services, Loan Volume

## **NEUROFUNCTIONAL CORRELATES OF ETHICAL, FOOD-RELATED DECISION-MAKING**

Authors: JBC Cherry, Jayson Lusk, et. al.

Source: *PLoS ONE*, 10(2015), e0120541

Date: 2015

Subject: Marketing

## **NONLINEAR RESERVOIR OPTIMIZATION MODEL WITH STOCHASTIC INFLOWS: A CASE STUDY OF LAKE TENKILLER**

Authors: Deepayan Debnath, Tracy Boyer, Art Stoecker, Larry Sanders

Source: *J. of Water Resources Planning and Management*

Date: 2015

Keywords: Water Value, Stochastic optimization, Lake Tenkiller, Recreational, Hydropower

## **PUBLIC LIBRARIES AND RESIDENTIAL BROADBAND ADOPTION: DO MORE COMPUTERS LEAD TO HIGHER RATES?**

Authors: Brian Whitacre, Colin Rhinesmith

Source: *Government Information Quarterly*, 32(2): 164-171

Date: 2015

Subject: Community & Rural Development

Keywords: Public Libraries, Broadband, Computers

## **RURAL EMR ADOPTION RATES OVERTAKE THOSE IN URBAN AREAS**

Authors: Brian Whitacre

Source: *Journal of the American Medical Informatics Association*, 22(2): 399-408

Date: 2015

Subject: Community & Rural Development

Keywords: Electronic Medical Records, Adoption, Nonlinear Decomposition, Health Information Technology

### **SWITCHGRASS PROCUREMENT STRATEGIES FOR MANAGING YIELD VARIABILITY: ESTIMATING THE COST-EFFICIENT D (DOWNTIME COST) L (LAND TO LEASE) FRONTIER**

Authors: Deepayan Debnath, Francis Epplin, Art Stoecker

Source: Biomass and Bioenergy, 77:110-122.

Date: 2015

Subject: Production Economics

Keywords: Biorefinery, Biophysical Model, DL Frontier, Land Lease, Switchgrass, Storage

### **TECHNICAL NOTE: A METHOD FOR ASSIGNING ANIMALS TO TREATMENT GROUPS WITH UNEQUAL COUNT PER GROUP THAT EQUALIZES MEAN ANIMAL WEIGHT AMONG GROUPS**

Authors: Francis Epplin, Choolwe Haankuku, Gerald Horn

Source: Journal of Animal Science, 93:4575-4579.

Date: 2015

Subject: Production Economics

Keywords: Steers, Heteroskedastic Mixed Integer Programming, Pasture Allotment

### **THE BEHAVIORAL AND NEUROECONOMICS OF FOOD AND BRAND DECISIONS**

Authors: Amanda Bruce, John Crespi, Jayson Lusk

Source: Journal of Agricultural and Food Industrial Organization, 13(2015)1-4

Date: 2015

Subject: Agribusiness, Marketing, Policy, Quantitative Methods

### **THE ESTIMATED EX ANTE ECONOMIC IMPACT OF BT COWPEA IN NIGER, BENIN AND NORTHERN NIGERIA**

Authors: Sika Gbegbelegbe, Jess Lowenberg-DeBoer, R Adeoti, Jayson Lusk, O Coulibaly

Source: Agricultural Economics, 46(2015):563-577

Date: 2015

Subject: Agribusiness, Marketing, Policy

Keywords: GMO, Cowpea, Development

### **THE INABILITY AND UNDESIRABILITY OF LOCAL CROPLANDS TO MEET FOOD DEMAND**

Authors: Pierre Desrochers, Jayson Lusk

Source: Frontiers in Ecology and the Environment, 13(2015):409-410

Date: 2015

Subject: Policy

Keywords: Local Food

### **THE OIL AND GAS BOOM: BASIC INFORMATION ABOUT OIL AND GAS ACTIVITIES FOR EXTENSION PROFESSIONALS**

Authors: Gina Peek, Chad Penn, Larry Sanders, Dave Shideler, Shannon Ferrell

Source: Journal of Extension

Date: 2015

Subject: Community & Rural Development, Policy

Keywords: Oil, Gas, Hydraulic Fracturing

## **VALUING A HISTORIC SITE WITH MULTIPLE VISITOR TYPES AND MISSING SURVEY DATA**

Authors: Max Melstrom

Source: Journal of Cultural Heritage

Date: 2015

Subject: Environment, Other

## **VALUING RECREATIONAL FISHING QUALITY AT RIVERS AND STREAMS**

Authors: Max Melstrom, Frank Lupi, Peter Esselman, R. Jan Stevenson

Source: Water Resources Research

Date: 2015

Subject: Environment

## **VALUING THE SEED OF AN IMPROVED SWITCHGRASS VARIETY**

Authors: Amadou Gouzaye, Francis Epplin, Yanqi Wu

Source: Crop Science, 55:1574-1584.

Date: 2015

Subject: Production Economics

Keywords: Switchgrass, Seed Value of Crop Variety

## **WHAT ARE THE CONSEQUENCES OF THE EQUINE SLAUGHTER BAN ON HORSE PRICES?**

Authors: Mallory Vestal, Jayson Lusk, Stephen Cooper, Clem Ward

Source: Journal of Agricultural and Applied Economics, 47(2015):27-46

Date: 2015

Subject: Marketing, Policy

## **WHICH BIOTECH FOODS ARE MOST ACCEPTABLE TO THE PUBLIC?**

Authors: Jayson Lusk, Brandon McFadden, Bradley Rickard

Source: Biotechnology Journal, 10(2015):13-16

Date: 2015

Subject: Agribusiness, Marketing, Policy

Keywords: GMO

## **YIELD AND QUALITY GRADE OUTCOME DISTRIBUTIONS CONDITIONED ON MOLECULAR BREEDING VALUES FOR COMMERCIAL BEEF CATTLE**

Authors: Nathanael M. Thompson, Eric DeVuyst, Wade Brorsen, Jayson Lusk

Source: Journal of Animal Science, 93:2045-2055

Date: 2015

Subject: Marketing, Production Economics

Keywords: Beef, Carcass, Cattle, DNA, Feedlot, Genetics, Carcass



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Author: Courtney Acton; Advisor: Dr. Eric DeVuyst  
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Author: Aaron Ates; Advisor: Dr. Lusk  
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Author: Curtis Dick; Advisor: Dr. Epplin  
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Author: Lance Gagelman; Advisor: Dr. Norwood  
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Author: Monika Ghimire; Advisor: Dr. Boyer  
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Author: Amadou Gouzaye; Advisor: Dr. Epplin  
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Author: Choolwe Haankuku; Advisor: Dr. Epplin  
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Author: Leon Hounnou; Advisor: Dr. Stoecker  
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### **CROSS HEDGING CANOLA, FORECASTING UREA PRICE, AND EFFECTS OF SOCIAL PRESSURE ON ORGANIC FOOD PURCHASES**

Author: Seon-Wong Kim; Advisor: Dr. Brorsen  
Graduation Date: Fall 2015  
Degree: Ph.D.

### **INFLUENCE OF LOCATION CHARACTERISTICS ON SALE PRICES AT OKLAHOMA FEEDER CATTLE AUCTIONS**

Author: Shannon Mallory; Advisor: Dr. Eric DeVuyst  
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Degree: M.S.

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Author: Frederic Ouedraogo; Advisor: Dr. Brorsen  
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