

RESEARCH UPDATE

Oklahoma State University • Department of Agricultural Economics • 2015 Issue



DEPARTMENT OF

Agricultural
Economics

Agricultural Cooperatives
Profit Distribution Alternatives for
Agricultural Cooperatives

Agritourism
Making Money with Agritourism

Pest Management
Pest Management in
Processing Facilities

From the Department Head's Desk

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 specific research priorities.

Featured topics in this issue range from profit distribution for agricultural cooperatives, to agritourism opportunities for farms and ranches, to pest management issues in processing facilities to generic advertising impacts. All of these topics impact profitability in agriculture. We also provide any update on current and future research activities of the department including local food business models and watershed conservation. Finally, we list 51 peer reviewed articles published by our faculty members over the past year and we list the 2014 graduate student dissertations and theses completed. Please check out our media list and follow us on our various social media outlets.



We hope you enjoy this issue.

Mike D. Woods

4 Agricultural Cooperatives
Profit Distribution Alternatives for
Agricultural Cooperatives

6 Agritourism
Making Money with Agritourism

8 Generic Advertising
Optimal Generic Advertising
Considering Non-competitive
Behavior and the Impact Factor

10 Pest Management
Pest Management in Processing Facilities

12 Update on Last Issue's "Future Research"
Local Food Business Models and Watershed
Conservation

15 Student Research
Agricultural Economics Student Interns at
National Science Foundation

17 Journal Articles
2014 Journal Articles from the Department
of Agricultural Economics

24 Dissertations and Theses
2014 Graduate Student Dissertations and
Theses

About the Cover:

Susan Bergen of Peach Crest Farms in Stratford, Oklahoma, displays peaches for sale. Read more about agritourism businesses on page 6 and about local food business models on page 12.

Photo courtesy of Oklahoma State University.



4



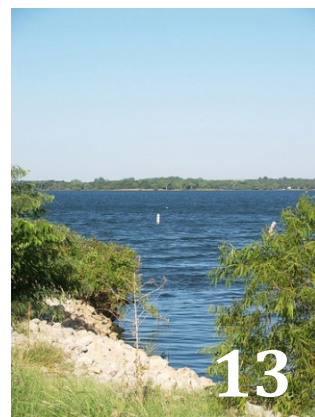
8



6



8



13



12



10



PROFIT DISTRIBUTION ALTERNATIVES FOR

Agricultural Cooperatives

Cooperatives are unique because they distribute profits to their members in proportion to the volume of business the members conduct with the firm. This distribution is referred to as a patronage refund or patronage distribution and is a fundamental cooperative principle. This structure differs from that of investor-owned firms where profits are distributed in proportion to ownership. The cooperative profit distribution structure creates a number of unique features of the cooperative firm, including methods of acquiring equity capital; means of providing patronage refunds distributions to patrons; and the tax treatment of patronage refund allocations.

Researcher

Phil Kenkel, OSU Department of Agricultural Economics Regents Professor and Bill Fitzwater Cooperative Endowed Chair, has been conducting this research as part of his study regarding the shift by many agricultural cooperatives to retain equity as unallocated equity instead of the traditional qualified retained patronage distribution.

Issues

Agricultural cooperatives, like other cooperative firms, have many methods to choose from when determining how they distribute and retain profits. These choices impact the cooperative's solvency, liquidity, and cash flow and each patron's cash flow and realized return from the cooperative. Taxation at both the firm and the

patron level further complicates the situation.

In recent years, the availability of the Domestic Production Activities Deduction has impacted the profit distribution of many agricultural cooperatives. The DPAD, also commonly referred to as the Section 199 Deduction, was introduced into US tax law as part of the American Jobs Creation Act of 2004. In addition to traditional manufacturing activities, the DPAD applies to producers who manufacture, produce, grow, or extract agricultural or horticultural products. Cooperatives who market agricultural or horticultural products for their patrons can elect to show the deduction at the cooperative level.

The tax treatment of farmer cooperatives is described in Subchapter T of the Internal Revenue code that was enacted in 1962. Subchapter T specifies the tax treatment of patronage refund allocations by cooperative firms. Patronage refunds distributions, which are based on how much business the member conducted with the cooperative during the fiscal year, may be either cash refunds or non-cash funds (allocated retained refunds). Subchapter T also specifies that patronage refunds may be either "qualified" or "nonqualified". Qualified allocations are given to the patron with documentation complying with the Subchapter T code. The patron agrees to include the entire amount of the qualified distribution in the taxable income for the current fiscal year. The cooperative can then exclude the amount from their

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taxable income.

While cooperative CEOs and boards of directors appear to be astute in analyzing the tax and cash flow implications of profit distribution alternatives, whether they understand the impacts on the members' returns from the cooperative is not clear.

Objective

The objective of this research is to exam the impacts of various profit distribution alternatives on cooperative members' returns from the cooperative while maintaining the cooperative's required cash flow. The research also examines the extent to which cooperative managers and board members understand the implications of their profit distribution decisions.

Project

For this project, a six-year time series of financial data obtained from 10 Oklahoma farm supply and grain marketing cooperatives was used to create a 30-year time series of pro-forma financial statements for each cooperative. The long-term series is necessary to model revolving equity (the equity shares that are issued in cooperatives' profit retention strategies).

Results

Marketing and supply cooperatives must retain profits to fund infrastructure and to revolve previously issued equity. Historically, these firms have retained funds by distributing qualified retained patronage. The results of this research suggest that nonqualified retained patronage provides a higher patron return relative to qualified retained patronage. (In a retained patronage distribution, the patronage earnings are placed in a patron's equity account, and the funds are retained by the cooperative to fund infrastructure and operations. Under a nonqualified retained patronage distribution, the patron does not include the distribution in their taxable income, and the cooperative does not exclude the distributed earnings from its taxable income.)

The results also indicate that nonqualified retained patronage results in a higher patron Internal Rate of Return relative to retaining profits as unallocated equity. Those results hold at both high and low tax rates and with or without the use of the DPAD.

Historically, cooperative members have had a somewhat negative or at best an ambiguous attitude toward their retained patronage equity. Part of this perception may be due to the historical choice to issue qualified retained patronage, which is taxable to the members in the distribution year. Nonqualified distributions could improve the member perception of cooperative equity because it matches the timing of the tax obligation with

the timing of the cash flow. The cooperative receives a tax deduction in the year in which the equity is redeemed, which reduces the redemption budget. This research suggests that nonqualified distributions, in addition to improving the perception of cooperative equity, could also maximize the members' returns.

The research indicates cooperatives and their members would be better off if the cooperative distributed the patronage as stock in a form that is not taxable to the member until it is redeemed for cash. Cooperatives have a tax credit available to them making the change much more practical at this point in time. It is the same tax credit that has facilitated retaining funds as unallocated equity, so the two issues are inter-related.

Impact

This research provides useful conclusions for cooperative managers and boards of directors when making decisions about methods of patronage distributions.

After protecting the cooperative's cash flow needs, boards are interested in distributing profits to patrons in the most beneficial form. Research on profit distribution alternatives could improve their decisions.

Publications/Presentations

A journal article, "Profit Distribution Alternatives for Agricultural Cooperatives," is currently being finalized for publication in the Journal of Cooperatives.

"The Impact of Unallocated Equity on Agricultural Cooperatives", was an Invited Paper prepared for Farm Credit Council Coordinating Committee, September, 2014.

A presentation on "Exploring Non-Qualified and Unallocated Equity" was given at the 17th annual Farmer Cooperatives Conference in Minneapolis, MN November 2014.

A presentation on "Managing Profit Distribution" was given at the Oklahoma Ag Group Council CEO and Board Retreat in Branson, MO, July 2014.

Source of Funding

This research was funded through the Bill Fitzwater Cooperative Endowed Chair. 



Making Money with Agritourism

Residents of both rural and urban communities are increasingly looking for opportunities to experience the outdoors and agricultural heritage. This demand presents farms, ranches, and rural communities with new economic opportunities. Agritourism can be an alternative source of revenue for existing farms and ranches, and a promising enterprise for non-farm, rural residents. Agritourism also provides an important public service, by educating people about agriculture, food production, and natural resources.

Overall, agritourism is an important part of the state's economy. With about 400 agritourism operations in the state and several thousand visitors per year to the average business, there are more than two million agritourism visits per year. This translates into millions of dollars in business revenue, and millions more in non-local dollars through spending at gas stations, restaurants, and gift shops by agritourism visitors.

Researchers

The OSU Department of Agricultural Economics partnered with the Oklahoma Department of Agriculture, Food, and Forestry to launch the Oklahoma Agritourism Producers Survey. The OSU Department of Agricultural Economics researchers on this project were Richard T. Melstrom, assistant professor; and

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Cassandra Murphy, graduate student. The ODAFF specialist working with the OSU team was Jamie Cummings, agritourism program administrator.

Issues

Agritourism encompasses a variety of activities and farm/ranch experiences. Common agritourism activities include, but are not limited to, farm and ranch stays, farm tours, birding tours, farmers markets, fee-hunting, horseback riding, corn mazes, specialty crops and products, you-pick operations, and wineries.

A question the researchers wanted to focus on was, What is driving the income of the businesses that host these activities? Most agritourism businesses make less than \$10,000 from their visitor activities.

Objective

The purpose of the agritourism producers survey was to gather data about agritourism businesses in Oklahoma. The researchers used the data to learn about the business factors influencing agritourism revenues.

Project

A questionnaire was mailed in January 2015 to 291 businesses. The business list included all agritourism operations registered with ODAFF, except those identified as farmers markets. By March, 183 businesses had responded to the survey, resulting in a 63 percent response rate.

Results

The data showed that revenues from agritourism increase a few percent each year the business has been open and it increases with the population size of the county in which the business is located.

There is a strong relationship between revenues and distance to a major metro area. Specifically, for

every mile closer a business is to either Oklahoma City or Tulsa, expected annual revenue goes up by several hundred dollars, holding other business characteristics constant. This means by locating your business ten miles closer to the city it could mean attracting hundreds more visitors and thousands of additional dollars in revenue.

Impact


Agritourism is becoming more common in Oklahoma. By tapping into the market for tourism and catering to visitors, agritourism businesses can help to diversify rural economies. However, a business needs to turn a profit.

Although the research shows entrepreneur's revenues tend to increase overtime, this is no guarantee every business can be profitable. In fact, many businesses report in the survey that they are currently unprofitable. Among those who are profitable, the data shows they are in the black within five years.

Furthermore, although a rural setting is an important (if not necessary) feature of agritourism activities, it is clear that agritourism businesses located near Oklahoma City and Tulsa are more successful than other businesses. Locating within easy driving distance from a large number of potential visitors is important to the success of many agritourism ventures.

Publications/Presentations

Melstrom, R., Murphy, C., & Cummings, J. (2015). Agritourism in Oklahoma. Oklahoma Cooperative Extension Service Fact Sheet in Preparation.

Murphy, C, & Melstrom, R. (2015). Know your customers: Oklahoma agritourism visitor characteristics and opinions about a new liability law. Oklahoma Cooperative Extension Service Fact Sheet, AGEC-1053. 

Generic Advertising

Considering Non-competitive Behavior and the Impact Factor

Agricultural producers invest more than \$750 million annually into self-financed “checkoff” programs designed to increase demand, prices, and profits to farmers for various commodities. A commodity checkoff program collects funds through a checkoff mechanism, sometimes called checkoff dollars, from producers of a particular agricultural commodity and uses these funds to promote and do research on that particular commodity. The organizations must promote their commodity in a generic way, without reference to a particular producer. Checkoff programs attempt to improve the market position of the commodity by expanding markets, increasing demand, and developing new uses and markets.

These checkoff programs have a long history dating back to the late 1800s with the creation of state-level voluntary programs to promote farm commodities. Since the mid-1980s, many state-level checkoff programs have been expanded to federally-legislated mandatory programs. In these mandated programs, producers pay a specified amount of money that is assessed either per unit or on value. For example, the Dairy Management, Inc. checkoff mandates all dairy farmers to pay fifteen cents per hundredweight of all milk marketed. The National Pork Board checkoff program specifies a mandatory assessment rate of 0.40 percent of sales value.

Researchers

The researchers on this project are Chanjin Chung, OSU Department of Agricultural Economics Professor and Breedlove Professor, and professors Young Sook Eom and Byung Woo Yang of Chon-buk National University in Korea.

Issues

The specified checkoff assessment rates raise several important questions, particularly related to how they are determined and whether they can generate profit-maximizing advertising expenditures. Some producer groups are concerned the current assessment is too small to produce significant advertising effects for their industry and it is probably not profit maximizing.

Although the advertising programs such as “Milk Does a Body Good,” the “got milk?” campaign; “Pork. The

Other White Meat;” and “Beef: It’s What’s For Dinner” have long been regarded as successful, the mandated checkoff assessment rates have been questioned as to whether they are profit maximizing for producer groups, particularly in an environment where retailers and processor are increasingly imperfectly competitive and concentrated.

Several studies have examined the optimal conditions of advertising programs in both economics and agricultural economics literature. However, most analyses to date of generic advertising have assumed competitive markets with a few exceptions. No other studies have accounted for the retailer’s potential market power separately from the processor’s market power in deriving the optimal conditions of advertising intensity. Recent studies on the retailer-processor relationship have found that retailers exercise a larger influence in food distribution than do processors.

Another important issue in determining the optimal advertising intensity is considering the import sector. Although importers pay the same amount of assessment as domestic producers and sit on the boards for many checkoff programs, most previous studies have not accounted for the potential effect of importer behavior or imperfect competition.

Objective

The objective of this study is to derive an optimal advertising intensity formula for generic advertising that considers both bilateral imperfect competition between processors and retailers and the supply of imported goods. It also examines the impact of these unique derivative features on optimal advertising intensity, advertising expenditures, and checkoff assessment rates.

Project

The first step was to develop an optimal advertising intensity formula to examine the impact of bilateral market power and import supply on the optimal advertising intensity. Then comparative analyses were conducted on the formula, and a market equilibrium model that consists of retail demand, processor and import supply, and farm supply equations was developed. Finally, the model was applied to the U.S.

beef industry to obtain optimal advertising intensity, advertising expenditure, and assessment rate, and the results were compared to previous approaches that did not consider bilateral imperfect competition and the import sector.

Unlike many previous studies, the retailing and processing sectors were modeled separately and the processors' interaction effect with retailers was considered in deriving the optimal advertising rule. To be consistent with generic advertising programs in the US and many other countries, this study allows advertising decisions to be tied to industry sales and determined internally. For most checkoff programs, boards make decisions on the level of advertising expenditures based on estimated funds to be collected, but effective advertising programs induce changes in industry sales that affect the collected checkoff funds and, in turn, the money available for advertising.

Results

Comparing simulated estimates from alternative procedures shows that giving full consideration to retailer-processor bilateral market power lowers the optimal values of assessment rates, advertising expenditures, and advertising intensity for checkoff boards. This study also finds that considering importers increases the optimal values. Therefore, simulation results indicate that ignoring the import sector in optimal generic advertising modeling underestimates the optimal values of assessment rates, advertising expenditures, and advertising intensity, while ignoring the bilateral market power between processors and retailers overestimates these values.

Impact

The results of this study provide checkoff boards in the US with information that could improve the effectiveness of their assessment mandates and in turn could maximize profits for their producer groups.



Samples of "Beef: It's What's For Dinner" and "got milk?" campaign advertisements.

Publications

Chung, Chanjin., Young Sook Eom, and Byung Woo Yang. "Optimal Generic Advertising under Bilateral Imperfect Competition between Processors and Retailers." *Agribusiness: An International Journal* 30 (4)(2014)

Chung, Chanjin and Emilio Tostao. "Effects of Horizontal Consolidation under Bilateral Imperfect Competition between Processors and Retailers." *Applied Economics*, 44(2012)

Chung, Chanjin, Todd M. Schmit, Diansheng Dong, and Harry M. Kaiser. "Economic Evaluation of Category Management of Dairy Cases in Grocery Stores." *Agribusiness: An International Journal* 23(4) (2007).

Schmit, Todd M., Chanjin Chung, and Harry M. Kaiser, "The Dairy Case Management Program: Does It Mooove More Milk?" *CHOICES* 21(2) (2006).

Norwood, F. Bailey, Chris Winn, Chanjin Chung, and Clement Ward. "Surveying the Feasibility of a Voluntary Beef Checkoff." *Journal of Agricultural and Resource Economics* 31(1) (2006).


Chung, Chanjin, Diansheng Dong, Todd M. Schmit, Harry M. Kaiser, and Brian M. Gould. "Estimation of Price Elasticities from Cross-Sectional Data." *Agribusiness: An International Journal* 21(4)(2005).

Dong, Diansheng, Chanjin Chung, and Harry M. Kaiser. "Modeling Milk Purchasing Behavior with a Panel Data Double-Hurdle Model" *Applied Economics* 36 (8) (2004).

Chung, Chanjin and Harry M. Kaiser. "Distribution of Generic Advertising Benefits Across Participating Firms." *American Journal of Agricultural Economics* (August 2000).

Chung, Chanjin and Harry M. Kaiser. "Do Farmers Get An Equal Bang for Their Buck from Generic Advertising Programs? A Theoretical and Empirical Analysis." *Journal of Agricultural and Resource Economics* (July 2000).

Source of Funding

This research was supported by the Oklahoma State University Agricultural Experiment Station. 

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Consumers do not want insects in their food, so insect control is a key concern for handlers of grain and grain-based products during storage, processing, and packing. A very important method of insect control in processing facilities is a structural fumigation.

However, structural fumigations are expensive, and overuse of them can lead to more rapid evolution of insect resistance to the fumigants. While consumers do not like insects in food, they are also increasingly interested in reduced use of pesticides. Food producers and processors face a challenge to effectively control insects with judicious use of chemicals.

Issues

A manager of a food processing facility faces the dilemma of postponing a treatment—such as fumigation—in order to reduce pesticide use and save money risks allowing insect population to grow too large, causing damage to the product as well as increasing the cost of trying to control the insects later. Estimating these costs is difficult because insect populations and potential damage are difficult to predict, and although the probabilities of catastrophic costs from insects (e.g. food recalls) are low, the costs are high.

Conversely, fumigating too early may allow the remaining insect population to rebound sufficiently making another expensive fumigation necessary.

Managers need economic guidelines to make insect control decisions that fully consider treatment costs, effectiveness, and costs of failing to control insects.

The best time to fumigate depends heavily on how fast the insect population is growing, which in turn depends heavily on temperature and humidity, as well as cleanliness in the facility.

Researchers

OSU Department of Agricultural Economics researchers include Brian Adam, professor; Suling Duan, Ph.D. graduate associate; and Li Niu, M.S. graduate assistant.

Objective

The primary objective of this research is to determine the optimal timing of fumigation with sulfuryl fluoride in a flour mill.

Methods

The method of this research was to estimate the value of a real option. An option on a futures contract has “intrinsic value” (the profit that would be gained from exercising it now) and time value (because there is some probability that before the option expires its intrinsic value will increase). A real option is similar, meaning there is time value in waiting to fumigate, because waiting to fumigate postpones the costs of fumigating and waiting also postpones the costs of

fumigating later when the insect population has begun to grow again. Not considering this time value might lead to the manager fumigating too often.

One way to estimate time value is to estimate the value of a real option using methods similar to those used to estimate the value of financial options. Then, the time value is the value of the option minus the intrinsic value of the option. When there is no more time value (value in waiting to fumigate), the manager should fumigate, and not wait any longer. Estimating the option also gives the manager a dollar value for fumigating now, versus waiting to fumigate, versus not fumigating at all, and also provides a dollar value of the risk the manager faces with each choice.

A key part of estimating the option value, and the risk of waiting to fumigate, is to use a model developed by entomologists to predict insect growth in a processing facility under varying temperature and humidity.

Results

Testing the model showed for one year of weather data, the optimal time to wait to fumigate was 238 days after the previous fumigation, when the option value reached zero. This was a longer waiting time than if the manager had not considered the time value of waiting.

Impact

If the results of this model can be validated over more years of weather data, the model can help managers evaluate the dollar value consequences of their choices. Fully considering the time value of waiting to fumigate might reduce the frequency of fumigations. This would reduce both pesticide use and insect control costs.

Earlier results from this project were presented in 2015 extension meetings with industry practitioners. These and other updated results will be presented as they become available and in extension meetings

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tentatively scheduled for 2017.


Publications/Presentations

Duan, S. & Adam, B. (2015). Economically optimal timing of insect control in food processing facilities: An option approach. Poster Presentation at the Agricultural and Applied Economics Association/ Western Agricultural Economics Association annual meetings, San Francisco, CA, July 26-28.

Funding

"Alternatives to Methyl Bromide for Effective Integrated Pest Management in Rice Mills," USDA-NIFA Methyl Bromide Transition, 9/1/2014-8/31/2017, PIs McKay, Arthur, Campbell, Adam, Wilson, Yang, and Reagan.

"Evaluation of New Strategies and Tactics to Manage Insect Pests in Mills," USDA-NIFA-ICGP-004257, 9/1/2013-8/31/2016. PIs Kun Yan Zhu, Bhadriraju Subramanyam, Frank Arthur, James Campbell, Brian Adam, and Ducatte.

"Integrated Pest Management Programs to Reduce Reliance on Methyl Bromide Fumigation in Rice Mills." USDA/NIFA Integrated Programs, 9/1/2011-8/31/2014 (extended to 7/31/2015). PIs McKay, Arthur, Campbell, Adam, Wilson, Yang, and Reagan. 



Sampling Rice.

UPDATE ON LAST ISSUE

Local Food Business Models

Local food systems form the nexus between rising concern over the consumption of fresh fruit and vegetables and a renewed interest in place-based development. Many communities view local food systems as an opportunity to build their local economy and enhance the quality of life in their communities. Despite the growth and popularity of this segment of agriculture, several policy questions remain about the size and scope of the impact these systems have locally.

Researchers

Representatives from both Oklahoma State University and Colorado State University are working on this research. The OSU Department of Agricultural Economics researchers are Dave Shideler, associate professor and extension economist, and Merritt Taylor, professor.

Issues

In response to growing public interest in regionally focused food systems, is an increase of business models. It is timely to consider the best practices and new business models for growing sales into these markets, and to benchmark business measures to guide enterprises.

As some of the growth in regional food systems is anchored in the idea of increasing the share of food dollars retained by farmers, if not their allied business associates and communities, it is important to better understand how different models address those goals.

Objective

The primary objective is to build on previous research data, findings, and benchmarks to create typologies of business models within the local/regional food system.

Project

We create representative categories of businesses engaged in local food systems and estimate financial benchmarks for each category. These benchmarks will aid small- and mid-sized farmers and ranchers in evaluating their business' performance and give guidance to researchers studying how local food systems contribute to local economies.

Results

While the project is still underway, the primary results will consist of the identified business models used in

local food systems and the corresponding financial benchmarks; these tools will facilitate the discussion of managerial choices, trade off, and policy programs focused on strengthening this sector.

Impact

A generalized typology of marketing choices and the associated advantages and disadvantages will assist small- and medium-sized farmers respond to their own desire to grow or respond to future innovations in their local economy. A secondary impact is to inform policy makers and lenders about the information needs of small- and medium-sized farmers to make prudent decisions.

Future Research

The following are future plans for this research:

- Map the regional food system landscape using secondary data, case studies, and directories developed by key players.
- Develop a meta-analysis that allows one to consider how key operational, market, and financial benchmarks may vary across these typologies as defined by key characteristic.
- Reconsider typology, once more is known about how the business models vary and influence their surrounding economies.
- Estimate enterprise expenditure patterns by category and locality for use in economic impact multiplier analysis to facilitate policy and public investment discussions.

Publications/Presentations

Bauman, A., Thilmany, D., Joblonski, B., & Shideler, D. (2015). An overview of emerging business models in the local foods landscape. Cornell Extension, Smart Marketing Newsletter. Retrieved from <http://agribusiness.dyson.cornell.edu/SmartMarketing/>.

Bauman, A., Jablonski, B., Daniels, B., Angelo, B., Shideler, D., Thilmany, D., & Taylor, M. (2014). An evolving classification scheme of local food business models. Poster Presented at Community, Local and Regional Food Systems eXtension Community of Practice Annual Conference, Cleveland, OH, Sept. 29 to October 1, 2014.

Angelo, B., Jablonski, B. and Thilmany, D. (2015). Justifying the need for a typology and best practices of benchmarks. Presented at the National Value Added

'S "FUTURE RESEARCH"

Conference, Austin, TX, May 2015. 

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Water Conservation and Soil Adoption in a Highly Erosive Watershed: The Case of Ft. Cobb and Southwest Oklahoma

Fort Cobb Reservoir is a reservoir located in Caddo County in southwestern Oklahoma that was constructed in 1958. It impounds the waters of Cobb (Pond) Creek, Willow Creek, and Lake Creek. The lake covers approximately 4,000 acres of water and 45 miles of shoreline.

The reservoir is important both as a source of agricultural and municipal water and a location for recreational activity. Years of drought have reduced water levels by several feet.

Researchers

OSU Department of Agricultural Economics associate professors Tracy A. Boyer and Art Stoecker, professor Larry Sanders, assistant professor Max Melstrom, research assistant Benjamin Tong, and research associate Solmaz Rasoulzadeh Gharibdousti are members of a team of researchers who are studying the best strategies for safeguarding water supplies in Oklahoma and the Midwest.

This project also includes researchers from the OSU Department of Biosystems and Agricultural Engineering, and the USDA-Agricultural Research Center Grazing Lands Research Station in El Reno.

Issues

Water supplies can be used for drinking water, recreation, and irrigation. Excess sediment can get into reservoirs and cause them to decline or fill up, shortening their life spans or projected capacity.

While studies now show as much as 80 percent of the sediment load entering streams in some watersheds is coming from stream banks, attempts to control sediment loads have often focused almost exclusively on implementing upland practices.

Researchers believe that expanding this approach and considering the most effective combination of upland, in-stream and riparian (streams, streambanks, and wetlands adjacent to streams) erosion strategies to reduce sediment loads can more effectively control the amount of sediment inflow.

Research has been done east of the Mississippi and in the western part of the US, but not much has been done in the Midwest. For this project, the research is focusing on the Fort Cobb Reservoir in southwest Oklahoma.

Objective

The objective of the overall research is to study the best or most cost effective ways to protect water supplies in Oklahoma and the Midwest. Researchers hope to provide a framework and tools for other watersheds in these areas to use to prevent sediment from getting into the streams and reservoirs.

Agricultural Economics Team Members

The agricultural economics project members' objectives are to examine the costs associated with different strategies on surface lands and in stream banks and to survey landowners, watershed managers, government officials, and other stakeholders on the potential determining factors for adopting the practices.

Project

As part of the total project, the research team is aerially surveying the watershed's stream banks, working with landowners to evaluate the strength of stream banks within the watershed, and modeling the impact of erosion on surface areas and in-stream erosion to reduce sediment loads entering the Fort Cobb Reservoir.

Agricultural Economics Team Members

The agricultural economics team members are conducting surveys with landowners and conservation managers to determine how these individuals manage conservation of soil and water that impacts watersheds. They also want to determine what type of information is required to improve the understanding of landowners and operators who may choose to adopt, or be encouraged to adopt, in-stream, streambank, or riparian conservation/management practices.

They have also conducted a survey of recreational users of the reservoir regarding activities and preferences related to water levels for recreational use.

Results

Conservation/Management Practices Survey

A survey of landowners and other stakeholders conducted in the fall of 2014 shows the following results:

- Experienced and more highly educated farmers are more likely to enroll in soil and water conservation programs.
- The greater the proportion of household income the farmers derive from farming, the lower the participation level.
- Younger farmers are less diversified and less experienced with conservation.
- Farmers from larger farms are more likely to enroll in conservation programs.
- In terms of the number of practices adopted over time, farming experience, gender, education, and a positive attitude about conservation increase the number of practices.
- Operators on rented land with conservation stipulations in the contract are more likely to have adopted more practices than those without any provisions in their contracts.

Recreational Use Survey

Questions regarding monthly visitation were used to measure the impact of water levels, rainfall, wind speed, and air temperature fluctuations on recreation demand. No evidence was found that rainfall or wind speed affect monthly visitation, but strong evidence shows that air temperature affects demand, even after controlling for seasonality in visits. The results indicate a visit is worth \$60 on average and rising temperatures increase visitation, except in the hottest months.

The travel cost method is employed to estimate the non-consumptive use value of a moderately-sized reservoir in the south central US.

Impact

Effective conservation practices have a direct impact on water clarity and other characteristics of water systems and the users of those systems. Overall, the results of this project can provide strategies to reduce sediment loads that can be applied to other watersheds in Oklahoma and the Midwest, improving water quality and usage.

The results from the agricultural economics team members surveys can provide landowners, watershed

managers, government officials, and other stakeholders information to improve the efficiency of resources in watersheds. They also offer several insights into the recreational use of reservoirs by combining information on valuation, visitation, and time-varying site quality.

Publications/Presentations

Presentations Made:

Boyer, T., Melstrom, Max, Sanders, L. and Lee, Kangil, "The Impact of Water Level and Climate Variation on Recreation Demand at Fort Cobb Reservoir." Oklahoma Clean Lakes and Watershed Conference, Stillwater, OK April 9, 2015.


Boyer, T., Tong, Ben, Sanders, L., "Landowner Adoption of Water and Soil Conservation in a Highly Erosive Watershed: The Case of Ft. Cobb Oklahoma Clean Lakes and Watershed Conference, Stillwater, OK April 9, 2015.

Boyer, Tracy, Tong, Ben, and Sanders, Larry. "Water Conservation and Soil Adoption in a Highly Erosive Watershed: The Case of Ft. Cobb and SW Oklahoma" AERE session at Midwest Economics Association Meeting, Minneapolis, MN. March 27-29, 2015.

Extension:

Sander, L., Boyer, T. and Tong, Ben, "Water Conservation and Soil Adoption in a Highly Erosive Watershed: Determinants of Farmers Decisionmaking." DASNR Extension Inservice May 28, 2015.

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STUDENT RESEARCH

Agricultural Economics Student Interns at National Science Foundation



THE NATIONAL SCIENCE FOUNDATION WHERE DISCOVERIES BEGIN



One challenge of working in a STEM field can be finding financial support for research. A major source of this funding is the National Science Foundation (NSF), which offers literally hundreds of opportunities for scientists at all levels of their educations and careers. As the only federal agency that supports all fields of science and engineering, the NSF offers awards in a truly all-encompassing range of fields.

Created by Congress in 1950 as an independent federal agency to promote the progress of science, the NSF now manages a \$7.3 billion budget and issues about 11,000 new awards each year, with an average duration of three years per award. The foundation supports individuals and research centers alike to advance the frontiers of scientific knowledge.

The NSF identifies and funds work at the frontiers of science and engineering through a rigorous and objective merit-review system. It extends grants not only to students and educators but also to small businesses owners and veterans — if you are interested in a STEM field, you just may be eligible for an award.

But while one path to funding is through pre-budgeted awards, the foundation also creates opportunity for scientists, engineers, teachers, and students of all backgrounds to pursue their precise interests without needing to tailor them for a specific grant. At any time, people are welcome to send in unsolicited proposals for research and education projects, in any existing or emerging field.



COLE BOWERS
CHEROKEE
NATION

INTERN
DIVISION OF
BIOLOGICAL
INFRASTRUCTURE
(DBI) IN THE
DIRECTORATE
FOR BIOLOGICAL
SCIENCES (BIO)
AT THE NATIONAL
SCIENCE
FOUNDATION

Although the NSF itself does not run any research centers, it is the source of 24 percent of federally funded research at colleges and universities and offers many of its own positions as well. Oklahoma State University student Cole Bowers started interning at the NSF in the summer of 2014 through the Washington Internships for Native Students (WINS) program at American University, where he took classes briefly, and has returned this spring for a different internship.

Bowers, who is getting his degree in agricultural economics and international marketing, is currently using databases and social media to gather information about the career paths of those awarded postdoctoral grants and the general success and progress of their studies — hardly the “getting coffee and making copies” experience many interns dread. “I have gained a lot of skills,” he says. “While I always knew my

way around a computer I had never data-mined before this summer. I was able to pick it up quickly with help from my supervisor.”

It has been an immersive experience and shown him how dedicated the NSF is to assisting minorities in STEM fields. “As a tribal citizen,” says Bowers, “my ultimate career goal is to represent my tribe and underrepresented minorities alike through the work I conduct at either a federal agency or a nonprofit organization.”

His work at the foundation has given him a chance to see firsthand what NSF funding can mean to Native American students. This past summer, Bowers traveled to Flagstaff, Ariz., to conduct a site visit at Research Experiences for Undergraduates (REU) programs. His time in Flagstaff reinforced for Bowers just how much value he could offer to an organization like the NSF, and vice versa. “The Native American students I met on that

trip were so grateful for the NSF’s interest in their research,” he explains. “Every one of the students is highly intelligent but may have never been able to conduct their experiments at a higher level without the help of the NSF. Seeing this firsthand really gave me a better understanding of how much the NSF cares about underrepresented minorities.”

In addition to opportunities like Bowers’ to work with the NSF itself, REU programs demonstrate the foundation’s dedication to promoting STEM careers and diversity. “The NSF creates new career paths for many underrepresented minorities through minority postdoc research grants and REU programs,” Bowers says. “It is very rewarding to see the amount of time that the NSF puts into giving Native American students a chance to succeed in their respective research fields.”

— Abigail Ortlieb

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ADJUVANTS AFFECT DUCKWEED (LEMNA MINOR) CONTROL WITH PELARGONIC ACID

Authors: C.L. III Webber, James Shrefler, Merritt Taylor

Source: Journal of Agricultural Science, Vol. 6, No. 12

Date: 2014

AN EVOLVING CLASSIFICATION OF LOCAL FOOD BUSINESS MODELS

Authors: Dave Shideler, Thilmany Dawn, Merritt Taylor, Angelo Blake

Source: eCoP Publication

Date: 2014

AN EXPERIMENTAL APPROACH TO VALUING INFORMATION

Authors: Tyler Klain, Jayson Lusk, Glynn Tonsor, Ted Schroeder

Source: Agricultural Economics, 45(2014):635-648

Date: 2014

Subject: Marketing, Policy

Keywords: MCOOL, beef, pork, country of origin labeling

ARE SUGAR-SWEETENED BEVERAGE TAXES A COST-EFFECTIVE MEANS OF REDUCING WEIGHT?

Authors: Jayson Lusk

Source: Canadian Journal of Diabetes

Date: 38(2014):9-10, 2014

Subject: Policy

Keywords: fat tax, obesity

ARE YOU SMART ENOUGH TO KNOW WHAT TO EAT: A CRITIQUE OF BEHAVIORAL ECONOMICS AS JUSTIFICATION FOR REGULATION

Authors: Jayson Lusk

Source: European Review of Agricultural Economics, 41(2014):355-373

Date: 2014

Subject: Agribusiness, Marketing, Policy

BROADBANDS CONTRIBUTION TO ECONOMIC GROWTH IN RURAL AREAS: MOVING TOWARDS A CAUSAL RELATIONSHIP

Authors: Brian Whitacre, Roberto Gallardo, Sharon Stover

Source: Telecommunications Policy, 38(11): 1011-1023

Date: 2014

Subject: Community & Rural Development

Keywords: rural, broadband, economic growth, average treatment effects

COMMON-VALUE AUCTION VERSUS POSTED PRICE SELLING: AN AGENT-BASED MODEL APPROACH

Authors: Chris N. Boyer, Wade Brorsen, Tong Zhang

Source: Journal of Economic Interaction and Coordination, 9:129-149

Date: 2014

Subject: Marketing, Quantitative Methods

Keywords: agent-based model, auctions

CONSUMER ACCEPTANCE OF CONTROVERSIAL FOOD TECHNOLOGIES: CAUSES AND ROOT CONTROVERSIES

Authors: Jayson Lusk, Jutta Roosen, A Bieberstein

Source: Annual Review of Resource Economics, 6(2014):381-405

Date: 2014

Subject: Agribusiness, Marketing, Policy

CONSUMER BRAIN RESPONSES TO CONTROVERSIAL FOOD TECHNOLOGIES AND PRICE

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

Source: Journal of Neuroscience, Psychology, and Economics, 7(2014):164-173

Date: 2014

Subject: Agribusiness

COST TO PRODUCE AND DELIVER CELLULOSIC FEEDSTOCK TO A BIOREFINERY: SWITCHGRASS AND FORAGE SORGHUM

Authors: Andrew Griffith , Mohua Haque, Francis Epplin

Source: Applied Energy , 127:44-54.

Date: 2014

Subject: Agribusiness

Keywords: costs, Just-in-time, logistics, forage sorghum, integer programming, switchgrass

CROP DIVERSITY ON TRADITIONAL GREAT PLAINS WHEAT FARMS

Authors: Pilja Vitale, Francis Epplin, Kris Giles, Norman Elliott, Paul Burgener, Sean Keenan

Source: Journal of the American Society of Farm Managers and Rural Appraisers , 77:145-159

Date: 2014

Subject: Agribusiness

DISCOUNTING THE DISTANT FUTURE: AN EXPERIMENTAL INVESTIGATION

Authors: T Grijalva, Jayson Lusk, Douglass Shaw

Source: Environmental and Resource Economics, 59(2014):39-63

Date: 2014

Subject: Environment, Other, Quantitative Methods

Keywords: discount rate, experiment, climate change

DISTINGUISHING BELIEFS FROM PREFERENCES IN FOOD CHOICE

Authors: Jayson Lusk, Ted Schroeder, Glynn Tonsor

Source: European Review of Agricultural Economics, 41(2014):627-655

Date: 2014

Subject: Agribusiness, Marketing, Policy

DO BROADBAND ADOPTION RATES IMPACT A COMMUNITY'S HEALTH?

Authors: Brian Whitacre, Lara Brooks

Source: Behaviour and Information Technology, 33(7), pp. 767-779

Date: 2014

Subject: Community & Rural Development

Keywords: broadband, internet, health outcomes, first-difference

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EVIDENCE FROM SPATIAL AND FIRST-DIFFERENCED REGRESSIONS**

Authors: Brian Whitacre, Roberto Gallardo, Sharon Strover

Source: Annals of Regional Science, 53(3): 649-670

Date: 2014

Subject: Community & Rural Development

Keywords: broadband, rural, first-difference, spatial models

ECONOMIC ACTIVITY ANALYSES: THE NEED FOR CONSENSUS

Authors: Dylan J. Kirk, Kevin P. Allen, Dave Shideler

Source: Journal of Extension, June

Date: 2014

Subject: Community & Rural Development

Keywords: economic impact contribution

**ECONOMIC RISK ANALYSIS MODEL FOR BOVINE DIARRHEA VIRUS BIOSECURITY
IN COW-CALF HERDS**

Authors: Rebecca Smith, Michael Sanderson, Rodney Jones, Yapo NGuessan, Davis Renter, RoberLarson, Brad White

Source: Preventative Veterinary Medicine, Vol. 113, issue 4

Date: 2014

Subject: Unknown

Keywords: risk-analysis, modeling, bovine viral diarrhea virus, beef, economics

**ECONOMICS OF FOLIAR FUNGICIDES FOR HARD RED WINTER WHEAT IN THE SOUTHERN GREAT
PLAINS**

Authors: Nathanael M. Thompson, Francis Epplin, Jeff Edwards, B. Hunger

Source: Crop Protection, 59:1-6.

Date: 2014

Subject: Agribusiness, Production Economics

Keywords: Foliar disease, fungicide, stochastic dominance, wheat

**FORAGE SORGHUM RESPONSE TO NITROGEN FERTILIZATION AND ESTIMATION OF PRODUCTION
COST**

Authors: Choolwe Haankuku, Francis Epplin, Vijaya Gopal Kakani

Source: Agronomy Journal , 106-5:1659-1666.

Date: 2014

Subject: Production Economics

HOW CONNECTED ARE OUR FARMS?

Authors: Brian Whitacre, Tyler Mark, Terry Griffin

Source: Choices, 29 (3)

Date: 2014

Subject: Community & Rural Development

Keywords: broadband, connectivity, precision ag

**HOW SPECIALIZED IS TOO SPECIALIZED? OUTMIGRATION AND INDUSTRY DIVERSIFICATION
IN NONMETROPOLITAN COUNTIES ACROSS AMERICA**

Authors: Ashley Poston, Brian Whitacre

Source: Journal of Economics, 40(2): 37-63

Date: 2014

Subject: Community & Rural Development

Keywords: outmigration, specialization, rural, average treatment effects

IDENTIFYING SYSTEMATIC JUMP RISK IN FUTURES

Authors: Sijesh Aravindhakshan, Wade Brorsen

Source: Review of Futures Markets

Date: 2014

Subject: Marketing, Quantitative Methods

Keywords: diffusion-jump, futures markets, risk tail dependence

IMPACT OF ENVIRONMENTAL VALUES ON THE BREAKEVEN PRICE OF SWITCHGRASS

Authors: D Deepayan, Art Stoecker, Francis Epplin

Source: Biomass and Bioenergy, 70:184-195

Date: 2014

Subject: Environment

Keywords: agricultural runoff, farm-gate breakeven price, Soil organic carbon (SOC), switchgrass, Environmental Policy Integrated Climate (EPIC) model

IMPLICATIONS OF A RESERVE PRICE IN AN AGENT-BASED COMMON VALUE AUCTION

Authors: Chris N. Boyer, Wade Brorsen

Source: Computational Economics, 43:33-51

Date: 2014

Subject: Marketing, Quantitative Methods

Keywords: agent-based model, auction

INSECTICIDE AND FUNGICIDE WHEAT SEED TREATMENT IMPROVES WHEAT GRAIN YIELDS IN THE U.S. SOUTHERN PLAINS

Authors: Eric DeVuyst, J Edwards, B. Hunger, Lance Weaver

Source: Crop Management, 13:.. doi:10.2134/CM-2013-0039-RS

Date: 2014

INTERSPECIES MANAGEMENT AND LAND USE STRATEGIES TO PROTECT ENDANGERED SPECIES

Authors: Max Melstrom, Richard Horan

Source: Environmental and Resource Economics

Date: 2014

Subject: Environment

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Authors: Andreas Drichoutis, Jayson Lusk

Source: PLoS ONE, 9(2014)e102269

Date: 2014

Subject: Other, Quantitative Methods

LONG-TERM ECONOMIC IMPACTS OF USDA WATER AND SEWER INVESTMENTS IN OKLAHOMA

Authors: Ivica Janeski, Brian Whitacre

Source: Journal of Agricultural and Applied Economics, 46 (1), 21-39

Date: 2014

Subject: Community & Rural Development

Keywords: public water infrastructure, economic growth, rural development, average treatment effects

MANAGING APPARENT COMPETITION BETWEEN THE FERAL PIGS AND NATIVE FOXES OF SANTA CRUZ ISLAND

Authors: Max Melstrom

Source: Ecological Economics

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Subject: Environment

MANAGING SPATIAL AND TEMPORAL SWITCHGRASS BIOMASS YIELD VARIABILITY.

Authors: Deepayan Debnath, Francis Epplin, Art Stoecker

Source: BioEnergy Research , 7-3:946-957.

Date: 2014

Subject: Agribusiness

Keywords: Biorefinery, EPIC, Land lease, Storage, Switchgrass Yield variability

MARGINAL COST OF DELIVERING SWITCHGRASS FEEDSTOCK ANDPRODUCING CELLULOSIC ETHANOL AT MULTIPLE BIOREFINERIES

Authors: Mohua Haque, Francis Epplin, J. T. Biermacher, Rodney Holcomb, Philip Kenkel

Source: Biomass and Bioenergy , 66:308-319.

Date: 2014

Subject: Agribusiness, Other

Keywords: breakeven ethanol price, cellulosic cost to deliver feedstock, mathematical programming, switchgrass

NET RETURNS FROM FEEDING CULL BEEF COWS: THE INFLUENCE OF BEGINNING BODY CONDITION SCORE

Authors: Zakou Amadou, Kellie Raper, J. T. Biermacher, Billy Cook, Clem Ward

Source: Journal of Agricultural and Applied Economics, Volume 46(1):139-155

Date: 2014

Subject: Marketing, Production Economics

Keywords: cull cows, retention, value added, body condition score, cow calf marketing

ONLINE VS. FACE-TO-FACE: STUDENT'S PREFERENCES FOR COLLEGE COURSE ATTRIBUTES

Authors: J.T. Mann, Shida Henneberry

Source: J. of Agricultural & Applied Economics, 46:1, pp:1-19

Date: 2014

Subject: Unknown

Keywords: college course attributes, conditional logit model, distance learning, online course design, students' preferences, undergraduate students, web 2.0 technology, willingness to pay

OPTIMAL GENERIC ADVERTISING UNDER BILATERAL IMPERFECT COMPETITION BETWEEN PROCESSORS AND RETAILERS

Authors: Chanjin Chung, Young Sook Eom, Byung Woo Yang

Source: Agribusiness: An International Journal

Date: 2014

Subject: Marketing

Keywords: optimal advertising, market power

PREDICTING STATE-WIDE VOTES ON BALLOT INITIATIVES TO BAN BATTERY CAGES AND GESTATION CRATES

Authors: Katie Smithson, Max Corbin, Jayson Lusk, Bailey Norwood

Source: Journal of Agricultural and Applied Economics

Date: 46(2014):107-124, 2014

Subject: Policy

REDUCING SELF-SELECTION BIAS IN FEEDER CATTLE PREMIUM ESTIMATES USING MATCHED SAMPLING

Authors: Brian Whitacre, Eric DeVuyst, Derrell Peel, Kellie Raper

Source: Journal of Agricultural and Resource Economics, 46: 125-138

Date: 2014

Subject: Production Economics

ROBUST RELATION BETWEEN TEMPORAL DISCOUNTING RATES AND BODY MASS

Authors: DP Jarmolowicz, JBC Cherry, DD Reed, JM Bruce, John Crespi, Jayson Lusk, Amanda Bruce

Source: Appetite, 78(2014):63-67

Date: 2014

Subject: Other

Keywords: obesity, time discounting

THE ECONOMIC VALUE TO SMOKERS OF GRAPHIC WARNING LABELS ON CIGARETTES: EVIDENCE FROM COMBINING MARKET AND EXPERIMENTAL AUCTIONS DATA

Authors: Matt Rousu, Stephan Marette, J Thrasher, Jayson Lusk

Source: Journal of Economic Behavior and Organization, 108(2014):123-134

Date: 2014

Subject: Marketing, Policy

THE EFFECT OF CALORIE LABELS ON CALORIC INTAKE AND RESTAURANT REVENUE: EVIDENCE FROM TWO FULL SERVICE RESTAURANTS

Authors: Brenna Ellison, Jayson Lusk, David Davis

Source: Journal of Agricultural and Applied Economics, 46(2014):139-155

Date: 2014

Subject: Agribusiness, Marketing, Policy

Keywords: calories, labeling, menu, restaurant

THE IMPACT OF RESTAURANT CALORIE LABELS ON FOOD CHOICE: RESULTS FROM A FIELD EXPERIMENT

Authors: Brenna Ellison, Jayson Lusk, David Davis

Source: Economic Inquiry, 52(2014):666-681

Date: 2014

Subject: Agribusiness, Marketing, Policy

THE LIKELIHOOD OF POSITIVE RETURNS FROM VALUE-ADDED CALF MANAGEMENT PRACTICES

Authors: Brian Williams, Eric DeVuyst, Derrell Peel, Kellie Raper

Source: Journal of Agricultural and Applied Economics, Volume 46(1):125-138

Date: 2014

Subject: Marketing, Production Economics

Keywords: value-added, management practices, feeder calves, marketing

THE PATERNALIST MEETS HIS MATCH

Authors: Jayson Lusk, Bailey Norwood, Stephan Marette

Source: Applied Economic Perspectives and Policy, 26(2014):61-108

Date: 2014

Subject: Policy

Keywords: Not available

THE SIGNALING EFFECT OF MANDATORY LABELS ON GENETICALLY ENGINEERED FOOD

Authors: Marco Costanigro, Jayson Lusk

Source: Food Policy

Date: 49(2014):259-267, 2014

Subject: Agribusiness, Marketing, Policy

Keywords: GMOs, labeling, biotechnology

UNDERSTANDING NONQUALIFIED DISTRIBUTIONS

Authors: Philip Kenkel, David Barton, Mike Boland

Source: The Cooperative Accountant

Date: 2014

USDA QUALITY GRADES MAY MISLEAD CONSUMERS

Authors: Eric DeVuyst, Megan Devuyst, Jayson Lusk

Source: Journal of Animal Science, 92(2014):3142-3148

Date: 2014

Subject: Agribusiness, Marketing, Policy

USING SEQUENTIAL POST-DIRECTED APPLICATIONS OF PELARGONIC ACID

Authors: C.L. III Webber, Merritt Taylor, James Shrefler

Source: HortTech, 24(1)

Date: 2014

Subject: Other, Production Economics

VALUE OF GENETIC INFORMATION FOR MANAGEMENT AND SELECTION OF FEEDLOT CATTLE

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

Source: Journal of Agricultural and Resource Economics, 39:139-155

Date: 2014

Subject: Production Economics

Keywords: cattle, DNA, feedlot

VALUING HISTORIC BATTLEFIELDS: AN APPLICATION OF THE TRAVEL COST METHOD TO THREE AMERICAN CIVIL WAR BATTLEFIELDS

Authors: Max Melstrom

Source: Journal of Cultural Economics

Date: 2014

VERTICAL INTEGRATION IN WEST AFRICA'S COTTON INDUSTRY: ARE PARASTATALS A SECOND BEST SOLUTION?

Authors: Emmanuel Tumusiime, Wade Brorsen, Jeffrey Vitale

Source: Agricultural Economics, 45(November):129-143

Date: 2014

Subject: International Trade and Development, Marketing, Policy

Keywords: cotton, principal-agent, West Africa

WEED CONTROL IN SWEET BELL PEPPER USING SEQUENTIAL POSTDIRECTED APPLICATIONS OF PALARGONIC ACID

Authors: C.L. III Webber, Merritt Taylor, James Shrefler

Source: Horttechnology, 24(6)

Date: 2014

Subject: Horticulture

YIELD AND NUTRIENT CONCENTRATION RESPONSE TO SWITCHGRASS BIOMASS HARVEST DATE

Authors: Amadou Gouzaye, Francis Epplin, Yanqi Wu, Shiva Makaju

Source: Agronomy Journal, 106-3:63-72

Date: 2014

Subject: Agribusiness, Production Economics

Keywords: switchgrass, nutrient translocation

2014 Graduate Student Dissertations & Theses

UNIVERSITY RESEARCH PRODUCTIVITY: DETERMINANTS OF UNIVERSITY TECHNOLOGY TRANSFER PRODUCTION

Author: Justin Anderson; Advisor: Dr. Tilley

Graduation Date: Spring 2014; Degree: M.S.

THREE ESSAYS: SWITCHGRASS YIELD PREDICTION; BIOMASS HARVESTING COOPERATIVE; AND OKLAHOMA GRAIN INFRASTRUCTURE REPLACEMENT

Author: Arjun Basnet; Advisor: Dr. Kenkel

Graduation Date: Spring 2014; Degree: Ph.D.

ECONOMIC BENEFITS OF DIFFERENT INSTITUTIONAL STRUCTURES ON THE COTTON SECTOR IN WEST AND CENTRAL AFRICA: EVIDENCE FROM BURKINA FASO

Author: Vasco Langa; Advisor: Dr. Vitale

Graduation Date: Spring 2014; Degree: M.S.

THREE ESSAYS EXAMINING THE EFFECTS OF INFORMATION ON CONSUMER RESPONSE TO CONTEMPORARY AGRICULTURAL PRODUCTION

Author: Brandon McFadden; Advisor: Dr. Lusk

Graduation Date: Spring 2014; Degree: Ph.D.

EFFECT OF INFORMATION DISPLAYS ON CAGE-FREE AND ORGANIC EGG SALES: EVIDENCE FROM TWO FIELD EXPERIMENTS

Author: Katie Smithson; Advisor: Dr. Lusk

Graduation Date: Spring 2014; Degree: M.S.

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

Author: Randi Williams; Advisor: Dr. Whitacre

Graduation Date: Spring 2014; Degree: M.S.

DETERMINANTS OF HYBRID MAIZE ADOPTION IN KENYA

Author: Yu Wang; Advisor: Dr. Vitale

Graduation Date: Summer 2014; Degree: M.S.

SPATIAL PRICE EFFICIENCY IN THE UREA MARKET

Author: Zhepeng Hu; Advisor: Dr. Brorsen

Graduation Date: Summer 2014; Degree: M.S.

EFFECTS OF FOOD PROGRAMS ON CHILDREN'S FOOD INSECURITY: A SIMULTANEOUS EQUATION MODEL

Author: Zhiming Qiu; Advisor: Dr. Chung

Graduation Date: Summer 2014; Degree: M.S.

THE VALUE OF GENETIC INFORMATION IN A WHOLE-CHAIN TRACEABILITY SYSTEM FOR BEEF

Author: Candi Ge; Advisor: Dr. Adam

Graduation Date: Summer 2014; Degree: M.S.

INSECT CONTROL WITHOUT FAILURE, IS IT POSSIBLE? FINDING INSECT-CONTROL STRATEGIES THAT ARE ROBUST TO VARYING WEATHER CONDITIONS AND INSECT IMMIGRATION RATES

Author: Suling Duan; Advisor: Dr. Adam

Graduation Date: Summer 2014; Degree: M.S.

A CRITICAL ANALYSIS OF CROP PRODUCTION, YIELD RESPONSE TO FERTILIZER AND RAINFALL, YIELD VARIABILITY FACTORS AND THEIR INFLUENCE ON FOOD SECURITY EFFORTS OF ETHIOPIA

Author: Temesgen Helsabo; Advisor: Dr. Stoecker

Graduation Date: Summer 2014; Degree: M.S.

WILL CATTLE PRODUCERS BE WILLING TO ADOPT ELECTRONIC CATTLE MONITORING SYSTEMS?

Author: Lori Allmon; Advisor: Dr. Tilley

Graduation Date: Fall 2014; Degree: M.S.

WHICH AGRICULTURAL SECTORS BENEFIT FROM THE LOW-CARBOHYDRATE DIET MOVEMENT: A SURVEY OF CONSUMER PERCEPTIONS OF HEALTHY FOOD SUBSTITUTES ON A LOW-CARBOHYDRATE DIET

Author: Brianna Domnick; Advisor: Dr. Campiche

Graduation Date: Fall 2014; Degree: M.S.

U.S. IMPORT DEMAND FOR RICE UTILIZING ROTTERDAM AND AIDS MODELS

Author: Mana-anya Iemsam-arng; Advisor: Dr. Henneberry

Graduation Date: Fall 2014; Degree: M.S.

VALUING THE COOPERATIVE FIRM BASED ON DISCOUNTED CASH FLOWS

Author: Jana Walker; Advisor: Dr. Kenkel

Graduation Date: Fall 2014; Degree: M.S.

RESTRICTIONS IN THE SNAP PROGRAM AND CONSUMPTION OUTCOMES

Author: Amanda Weaver; Advisor: Dr. Lusk

Graduation Date: Fall 2014; Degree: Ph.D.

DETERMINING THE IMPACT OF A NEW FARM CREDIT BRANCH IN EAST CENTRAL OKLAHOMA

Author: Tayler Witte; Advisor: Dr. DeVuyst

Graduation Date: Fall 2014; Degree: M.S.

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 Lusk | www.jaysonlusk.com
 Norwood | www.fbaileynorwood.com
 Shideler | Oklahoma Extension Development Resources | www.okextdevres.blogspot.com

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 Quick Tips | Quarterly Newsletter | www.agecon.okstate.edu/quicken/newsletter.asp
 Wheat Scoops Column | Southwest Farm Press | www.southwestfarmpress.com/author/kim-anderson

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