



Master Cattleman Quarterly

Oklahoma State University

Know the Value of Your Hay

Roger Sahs, Assistant Extension Specialist

Many ranching operations produce more forage during the growing season, particularly during spring and early summer, than their livestock can efficiently utilize during this time period. Those conditions have persisted this summer. Unfortunately some of the hay cut this growing season has been either rained on or was past optimum maturity when it was finally cut. This can result in a loss of forage nutrients and dry matter yield. And while a winter hay feeding program is common practice, it can also be expensive as it frequently represents one of the largest components of annual cow costs.

Knowing the quality of your hay and the cost of alternative feed sources is an excellent way to manage costs and provide adequate nutrition at the same time. The hay type and quantity fed will depend on livestock nutrient requirements and the forage quality consumed. Sampling forage is as easy as asking your local county Extension Educator for help with sampling techniques and equipment. For more information on how to collect a forage sample, see OSU Facts PSS-2589 Collecting Forage Samples for Analysis.

After about two weeks, the results will be emailed to your county educator and they can help you figure out what the analysis means to you and your operation. The three basic factors to know from a nutrition standpoint are dry matter (DM), crude protein (CP) and total digestible nutrient content (TDN). These values and the characteristics of and the number of animals to be fed serve as an important first step in building a practical supplementation plan. For more information, see OSU Facts PSS-2117 Forage Quality Interpretations.

The next step is to know the economic value of the hay based on its nutrient composition. Estimating Hay Value Based on Chemical Analysis is a spreadsheet tool that can provide a quick way to determine the nutritional value in hay of various qualities. It is available to download for free at beefextension.com (via the Cow/calf or Stocker Cattle Calculators links). The value of the base hay and an alternative hay source are calculated by computing the pounds and value of both the replacement TDN source (for example, corn) and the CP replacement source (for example, cottonseed meal) necessary to replace the pounds of TDN and CP in a ton of hay. Because a producer generally has more flexibility in addressing either energy or crude protein deficiencies when using supplements as opposed to using hay, the replacement cost estimates of CP and TDN presents a practical economic comparison between two forage alternatives. A bale weight conversion facilitates calculation of hay value per bale. The protein cost per pound of the base and alternative hay specified is also shown in graphical form. The results can be useful in buying, selling or utilizing various types of hay.

In summary, it is important to know the quality of hay and the relative cost of alternative feed sources as poor quality hay is rarely a bargain. This knowledge is available for less than \$20 per sample plus the time to use a management decision tool. It's all a smart investment that can save or make big money in meeting the health and nutritional needs of your herd. For more information, visit beefextension.com or contact your local County Extension office.

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Feeder Cattle Price Seasonality

Derrell S. Peel, Extension Livestock Marketing Specialist

Cattle tend to have pronounced seasonal patterns of prices during the year. These patterns vary for different classes of cattle. Cow-calf producers will be most concerned with the seasonal patterns for calves, in particular, prices in the fall when the biggest percentage of calves are marketed. Figure 1 shows the seasonal patterns for steers and heifers at 475 and 575 pounds. The chart shows how monthly prices compare to an annual average index equal to 1 or 100 percent. As shown in Figure 1, the price patterns for steers and heifers are quite consistent across typical calf weights.

The seasonal patterns for steers over 650 pounds (heifers over 600 pounds) are very different from the calf seasonal patterns (Figure 2).

Oklahoma calf prices tend to peak seasonally in March and reach a seasonal low in October. Typically, calf prices vary from an index of 1.04-1.05 or about 4 to 5 percent above the annual average in March to October lows with an average index of about 0.94 or 6 percent below the annual average price. For example, in a situation where the

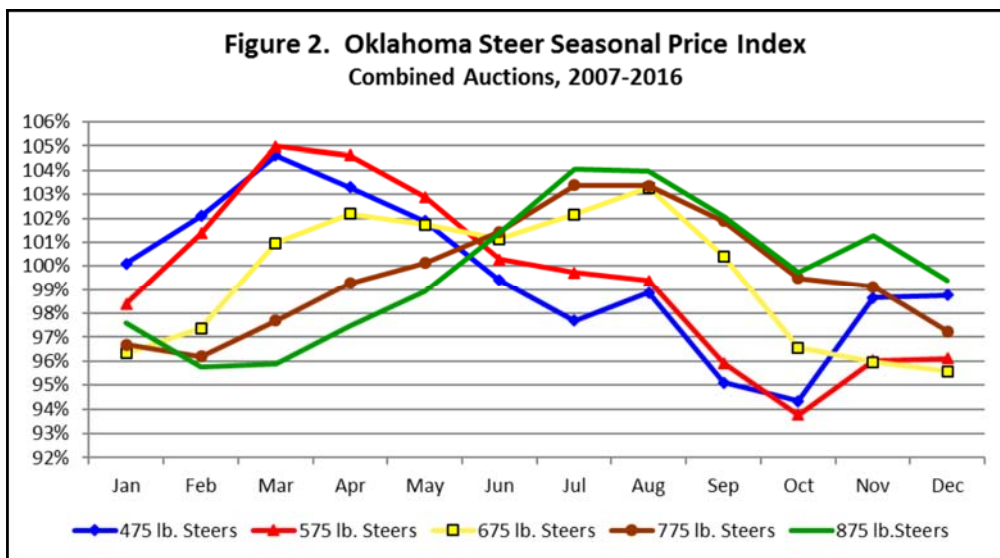
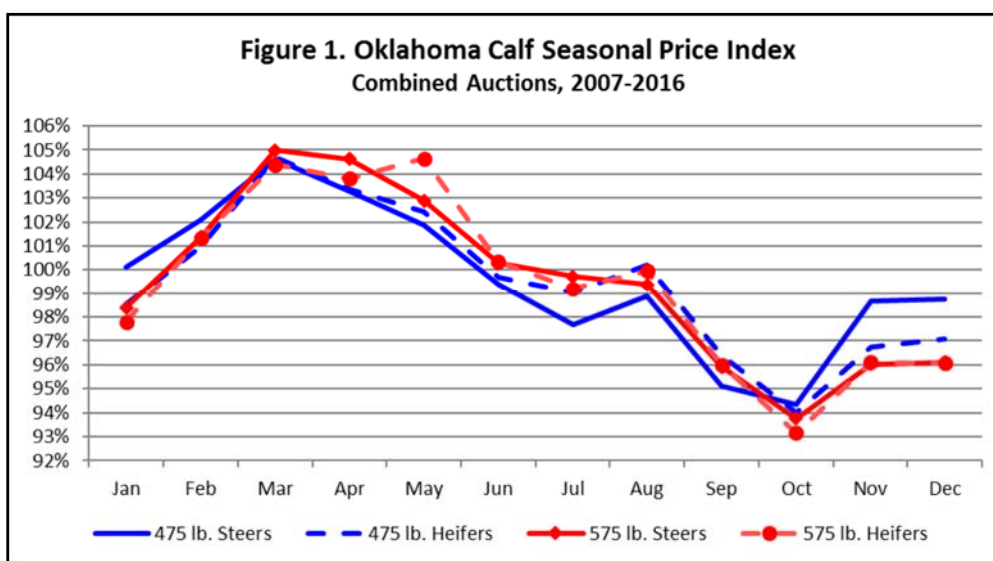
annual average price of 500 pound steers is \$150/cwt., seasonal prices would be expected to vary from roughly \$157/cwt. in March to an October low of \$141/cwt.

Seasonal price patterns are strong and quite reliable but are subject to a variety of other influences. The example above assumes that markets are stable and flat. If markets are generally trending up or down seasonal patterns can be muted or exaggerated. In Oklahoma, calf prices in the fall

can be quite volatile due to variation in fall and winter grazing prospects. In years with lots of wheat pasture and favorable winter grazing prospects, increased demand for stockers may offset the larger supply of calves marketed in the fall run, thereby limiting or even erasing seasonal price declines.

Recent calf prices can be used in conjunction with the seasonal price index to provide a forecast of future prices. Many spring calves will be weaned and marketed in October and producers would like to

have an expectation of prices at weaning. The August 2017 average price of 475 pound steers (Med/Large, number 1)



Feeder Cattle Price Seasonality (cont.)

in Oklahoma was \$171.56/cwt. The seasonal price pattern suggests that calf prices typically drop about 4.6 percent from August to October leading to a projected October price of \$163.70/cwt.

Knowledge of the different seasonal price patterns in Figure 2 is important for producers considering retained

ownership of calves beyond weaning. The economic returns for adding weight in a post-weaning stocker or back-grounding program will depend, in part, on the selling price of heavier feeder animals. The selling price will depend on the amount of weight gain and the rate of gain which determine the final weight and timing of feeder cattle sales.

What Consumers Need to Know about the Use of Antibiotics in Food Animal Production

Cheryl S. DeVuyst, Professor, and Eric A DeVuyst, Professor and Jean and Patsy Neustadt Chair

When reading the headlines of many press articles, you might get the impression that U.S. meat, poultry, and dairy products are routinely contaminated with antibiotics. The truth is that many of these headlines are misleading. For example, the U.S. Food and Drug Administration recently conducted a study of antibiotic contamination in milk from dairy cows. The study targeted producers that had a past failed residue test in meat from their cull cows (cows no longer producing milk, so are sold for meat) in comparison to a group of producers without a history of a failed residue test. The result showed that 99.22 percent of the combined samples had no residues. However, after the FDA released the results, headlines contained misleading information implying that almost 1 percent of U.S. milk supplies were tainted with antibiotics. The problem is that the FDA targeted farms with a history of non-compliance, so it was not a random sample. In short, non-compliant farms were over-represented in the study (about 50 percent of the samples), meaning actual percentage of milk produced with residues is far lower than the study's 0.78 percent rate. The complete study can be found at <http://www.fda.gov/downloads/AnimalVeterinary/GuidanceComplianceEnforcement/ComplianceEnforcement/UCM435759.pdf>.

The goal here is to provide answers to common questions regarding the use of antibiotics in animal agriculture. The focus is on why antibiotics are used in meat animal production and the potential to contribute to antibiotic-resistant bacterial infections in humans.

1. Why do farmers use antibiotics in livestock production?

First, antibiotics are used to prevent, treat and control

bacterial infections in livestock. Just like humans, animals can contract infections, such as pneumonia. Antibiotics are used to humanely and economically treat and prevent these diseases. While often portrayed as cruel and uncaring by some in the media, the vast majority of livestock producers are very concerned about the welfare of animals under their care. Leaving sick animals to suffer from infections that are easily treated with antibiotics is cruel and inhumane. In addition to their humanity, farmers stay in business and feed their own families by earning profits through livestock and milk production. Unhealthy animals are unprofitable, can infect other animals in the herd and may die. In short, it is in farmers' best interest to provide appropriate veterinary care for sick and injured animals.

Secondly, antibiotics can increase animal performance. By using antibiotics, farmers can produce more meat with less feed input. Some antibiotics change the colony of bacteria in the rumen (one of four stomachs in cattle) to produce more of the compounds needed by cattle for growth. Some are used prophylactically to prevent diseases that are very difficult to control once the animal is infected. Importantly, the antibiotics used to increase production (a class of products referred to as "ionophores") are not used to treat people, nor do they leave residues in meat if properly used. Antibiotics used to treat diseases in humans can no longer be used in livestock to improve production—they are strictly used for the prevention, control and treatment of disease.

The full fact sheet may be found at: <http://factsheets.okstate.edu/documents/agec-1067-what-consumers-need-to-know-about-the-use-of-antibiotics-in-food-animal-production/>

Disaster Losses and Related Tax Rules- Factsheet Excerpt

JC Hobbs, Extension Specialist, Farm Taxation

The dollar value of property losses due to fires, floods, tornadoes, earthquakes, lightning, freezes, etc. can be substantial. Federal income tax regulations often provide relief by allowing deductions for losses of both business-use and personal-use property. This article describes losses to property and how to reconstruct business records to document a loss. A full text version can be found at: <http://pods.dasnr.okstate.edu/docushare/dsweb/Get/Document-10773/AGEC-1066web.pdf>

To determine the extent of a loss, the owner of the property will need to compare the property's condition immediately before and after the event to determine the extent of the loss and whether the amount of the losses may be deductible against taxable income. If the damaged property was insured, there may be the possibility of a taxable gain if the insurance reimbursement is greater than the amount of the deductible loss.

Farm and Business-Use Property

A farm operator can deduct casualty losses that occur in the business of farming. For a loss to be deductible, a taxpayer must show proof that a casualty occurred. A record must be kept containing a description of the casualty (fire, tornado, etc.) and when it occurred, plus proof that the loss was a direct result of the event. In addition, the taxpayer must have ownership of or be liable for the damage to the property. If the property was insured, there is a need to provide information that there is the possibility for reimbursement for all or part of the loss. The following information describes and discusses the damage or destruction of various types of property, both farm business-use and personal-use property. The loss of business-use property is presented first followed by loss of personal-use property.

Example: Fences

A fire that was a result of an accident burns your pasture and all the fences are destroyed. The fences were completely depreciated and therefore had a zero tax basis. You decide to replace the perimeter fences; you will not have a deductible loss since the tax basis of the fences is zero. The total costs of the fences you replace are depreciable subject to current depreciation rules. The loss of future income

from grazing the pasture is not allowed as a deduction. Should you qualify for cost sharing to replace the fencing, the amount of the cost sharing is not taxable, but it will reduce the depreciable basis in the new fence. Here, you do not get a tax deduction, but you also do not have to include the cost share payment in income.

Example: Raised Livestock for Sale

All the costs of raising livestock are deducted as operating expenses on Schedule F: Profit or Loss from Farming, and therefore they will have a zero tax basis. Since the cost of raising an animal is deductible on Schedule F, there is no cost basis for the animal and there is no deductible loss. All the costs of raising the animal are deducted. The future income from these animals is not allowed as a deductible loss even though their value typically increases as they grow.

Record Reconstruction Tips

The reconstruction of records is not an impossible task, but will require time and effort. Much of the following discussion comes directly from IRS Publication 2194, Disaster Resource Guide. It contains the IRS prescribed methods that can be used to reconstruct records.

Reconstructing records after a disaster will likely be essential for tax purposes, getting federal assistance, or insurance reimbursement. Historical records that you need to prove your loss may have been damaged or destroyed in a casualty. The following tips are designed to help reconstruct your records to prove loss of business property.

Business Records

- To reconstruct supply inventories, get copies of invoices from suppliers. Whenever possible, the invoices should date back at least one calendar year.
- For income items, get copies of bank statements. The deposits should closely reflect what the sales were for any given time period.
- Obtain copies of last year's federal, state, and local tax returns including sales tax reports, payroll tax returns and business licenses (from city or county). These will reflect gross sales for a given time period.

Disaster Losses and Related Tax Rules- Factsheet Excerpt (cont.)

- For furniture and fixtures, it will likely be helpful to sketch an outline of the inside and outside of the business location. Then start to fill in the details of the sketches, such as where were various equipment and other stored items located.
- If you purchased an existing business, go back to the broker for a copy of the purchase agreement. This should detail what was acquired.
- If the building was constructed for you, contact the contractor for building plans or the county/city planning commissions for copies of any plans.

Due to the complex nature of the casualty loss rules, it is important to work closely with your tax advisor. A trained tax professional can assist by making sure that you properly document your losses and take advantage of all

the potential income tax benefits to reduce the adverse economic impact of the casualty. In addition, special rules apply to federally declared disaster area losses and your tax professional can help explain these rules help you take advantage of them.

The Internal Revenue Service (IRS) has a variety of publications available to assist property owners who experience disasters. A list of these publications as well as additional examples for personal, farm and business-use property, reconstructing personal residence, vehicle/machinery and personal-use property records, as well as additional information on IRS assistance can be found in the complete article. The link is: <http://pods.dasnr.okstate.edu/docushare/dsweb/Get/Document-10773/AGEC-1066web.pdf>

Bovine Respiratory Disease Complex

Barry Whitworth, DVM, Area Food Animal Quality and Health Specialist for Eastern Oklahoma

Bovine respiratory disease complex (BRDC) or syndrome (BRDS) commonly referred to as pneumonia or “shipping fever” is a multifactorial disease primarily affecting young cattle. According to Dr. W. Mark Hilton with Elanco Animal Health, BRD is the number one disease of stocker, backgrounder, and feedlot cattle. The USDA National Animal Health Monitoring System indicates that it is the most common illness in cattle placed in feedlots, and the incidence has increased from 10.3% in 1994 to 16.2% in 2011. With more cow-calf producers being asked to wean and/or precondition their calves before selling them, a review of the disease might be helpful.

BRD develops as a result of interaction between environmental factors and pathogens. Environmental factors such as parasites, dust, weather, weaning, castration, dehorning, crowding, transportation, poor ventilation, and commingling stress the calves’ immune system. Compromising the immune system allows viral and bacterial pathogens to invade the respiratory system. Viruses such as Infectious Bovine Rhinotracheitis (IBR), Bovine Viral Diarrhea (BVD), Parainfluenza Type-3 (PI3), and Bovine

Respiratory Syncytial Virus (BRSV) can decrease the bodies’ defense mechanisms by physically damaging the respiratory tract or in the case of BVD comprising the immune system. The combination of these factors allow for the seeding of bacteria into the lungs. Common bacteria involved in BRD are *Mannheimia haemolytica*, *Pasteurella multocida*, *Histophilus somni*, and *Mycoplasma* species.

At some point in this process, the body has an immune reaction to combat the disease. This is the time when clinical signs of disease begin to be seen. Typical clinical signs are fever, coughing, ocular discharge, nasal discharge, breathing difficulties, reluctance to eat, and reluctance to move. These signs maybe difficult to observe in the early stage of the illness but normally become more severe as the disease progresses.

If the disease is diagnosed early, then treatment with most antibiotics will be successful. However, a delay in diagnosis and treatment will result in more complications and failures. Dr. Dee Griffin, DVM, MS, West Texas A&M University, uses the acronym DART to teach producers how to detect the early signs of pneumonia. DART

Bovine Respiratory Disease Complex (cont.)

stands for depression, appetite, respiration, and temperature. Normal cattle are alert and stay with the group. Mildly depressed cattle have droopy ears and head but are easily stimulated. Moderate depressed cattle have droopy ears and head, act listless, and are sore. Severely depressed cattle are weak and close to dying. Cattle should have aggressive eating behavior. Cattle that are reluctant to eat are ill. Respiration rate should be 10 to 30 breaths per minute. No noise should be heard on inspiration or expiration. Open mouth breathing is abnormal. Cattle temperature needs to be taken in the morning. A temperature above 103.5 degrees Fahrenheit is abnormal. The key to early detection is knowing normal cattle behavior and recognizing the first hint of abnormal signs.

Treatment of BRD normally involves the use of an antibiotic and sometimes other medications such as non-steroidal anti-inflammatories, vitamins, and minerals. A proper veterinary client patient relationship (VCPR) is required for the purchase of prescription medication so a good relationship with a veterinarian is essential.

Preventing BRD is much better than treating the illness. A good prevention program includes proper cow management, vaccinations, biosecurity, and a low stress environment. Prevention starts with making sure that the cow is in good condition before and after calving. Cows that are in good body condition, that are on a good nutrition program, and that have been properly vaccinated should have high quality colostrum. Calves that do not get enough colostrum at birth are more likely to have problems with illness early in life as well as when they get to the feedlot (Wittum).

A successful vaccination program to prevent BRD requires using proper vaccines and using them at the proper time. A vaccine that includes the common pathogens (IBR, BVD, PI3, BRSV, *M. haemolytica*, *P. multocida*) involved

in BRD is essential. If the vaccine is given at the wrong time, the calf may not have a proper immune response and not be protected. A producer should contact their veterinarian to design a vaccination schedule for their operation.

Proper sanitation and keeping a closed herd will limit exposing calves to infectious agents. This includes making sure that feed bunks and water troughs are kept clean. Equipment used in treatment or surgery should be disinfected after each use, and any purchased cattle need to be quarantined for 30 days before entering the herd. Also, it would be a good idea to test new herd additions for persistent infection (PI) of BVD.

Reducing stress will increase performance and reduce sickness in cattle. It is less stressful when procedures like castration and dehorning are performed by sixty days of age. Fence line weaning is also less stressful on calves. This type of weaning will increase weight gains and reduce sickness (Boyles). Using low stress tactics for handling livestock will also improve cattle performance.

Bovine respiratory disease will continue to be a major problem in the cattle industry. This is why education and proper management will help to reduce the incidence of BRD and its' losses.

USDA 2010. Beef 2007-08, Prevalence and Control of Bovine Viral Diarrhea Virus on U.S. Cow-calf Operations, 2007-08

T.E. Wittum and L.J. Perino, "Passive Immune Status at Postpartum Hour 24 and Long-Term Health and Performance of Calves", American Journal of Veterinary Research, 56(9) 1995; pp. 1149-1154

S.L. Boyles, S.C. Loerch and G.D. Lowe, "Effects of Weaning Management Strategies on Performance and Health of Calves during Feedlot Receiving", The Professional Animal Scientist, 23:637

New and Updated Spreadsheets

- Stocker Data File, 2017.
 - OSU Income Statement Tool, 2017
 - OSU Balance Sheet Tool, 2017
 - OSU Cash Flow Planning Tool, 2017
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Keeping Weaned Calves This Fall

Earl H. Ward, NE Area Livestock Specialist

Summer time is quickly escaping us and fall is knocking at the door. Producers with spring calving herds will soon be thinking of weaning and marketing their calves. Some producers may then ask themselves if they should hold onto those calves or sell them at weaning. The answer is dependent upon what it will cost to keep those calves and the projected sale price in the future.

Assuming that the markets do not make any drastic moves in the upcoming months, does it look like the markets support a move in calf weight? The Oklahoma weighted average prices reported on August 25, 2017 that 532 pound calves (medium and large 1&2) were sold at \$147.00/cwt (\$782.04/head) and 779 pound calves sold for \$137.50/cwt (\$1071.13/head). That is a move of 247 pounds and \$289.09 (\$1.17 per pound of gain). Therefore, there is money to be made there as long as a producer can put that gain on cheaper than \$1.17 per pound.

Now what would it cost to put that gain on? Realistically a producer would be looking at approximately 100 days of feeding and shooting for an average daily gain (ADG) of 2.5 pounds per day. Let's assume we have an average forage that tested 8% crude protein (CP) and 57% total digestible nutrients (TDN) and a 600 pound calf is eating 13.5lbs. of dry matter of this forage. This same calf has a daily requirement of 1.95 lbs. of CP and 10.8 lbs. of TDN to support a 2.5 lbs. ADG. A daily consumption of 13.5 lbs. of forage will provide 1.08 lbs. of CP and 7.69 lbs. of TDN leaving a deficit of 0.87 lbs. of CP and 3.11 lbs. of TDN. Now this deficit can be rectified with several

different supplements but let's look at two, dried distillers grains (DDGs, \$140/ton) and alfalfa (\$120/ton). To meet the shortfall of nutrients we would need to supplement this calf with 3.75 lbs. of DDGs or 6.1 lbs. of alfalfa. If we compare the financial impact of these supplements the DDGs would cost us \$0.30/day and the alfalfa would cost us approximately \$0.37/day. This gives the DDGs an economic advantage using these numbers. The standing forage the calves are consuming has an economical value as well, so compared to hay it would cost approximately \$35 for a 1200 pound round bale. Therefore the forage would cost us about \$0.46/day with total daily cost of forage and DDGs of \$0.76. This \$0.76 cost should give us 2.5 lbs. of daily gain. Resulting in \$0.304 per pound of gain.

Earlier we determined that if the markets hold out, we achieve our targeted gains, and we can avoid any health disaster and death loss, we can receive a \$1.17 for every additional pound of gain and we then calculated that it cost as approximately \$0.31 to put that pound on. This leaves an enticing incentive of \$0.86/lbs. or \$212.42 per head. So as producers are thinking about weaning their spring calves perhaps they may need to consider the option of retaining those calves. The blessing of rain, cooler weather, and green grass this year has several producers with more grass that they have ever seen this time of year and perhaps this year gives those producers the opportunity of grazing that excess forage while putting pounds on their calves.

“I was so afraid to go out west to my aunt's ranch. But the only choice my mother gave me was to go for two weeks or all summer. I wound up staying all summer. And that's where I learned about cattle. I could relate to their behavior, their fears.” *Temple Grandin*

Rural Economic Outlook Conference

The 2017 Rural Outlook Economic Conference will be held Friday, October 20, at the ConocoPhillips OSU Alumni Center. An excellent lineup of speakers will focus on rural economy and agriculture.

- Economic Outlook: Courtney Cowley, Kansas City Federal Reserve Bank, Omaha Branch
- U.S. Farm Policy: Tweak or Trash?: Pat Westhoff, University of Missouri, Food and Agricultural Policy Research Institute.
- How Increased Dependence on Trade Impacts the Farm Economy: Luis Ribera, Texas A&M University.

Outlook Panel:

- Rapid Fire Outlook Panel: Agricultural Finance

Topics, Damona Doye, OSU Regents Professor and Rainbolt Chair of Agricultural Finance and Rodney Jones, Farm Credit Chair.

- Grain Markets, Kim Anderson, OSU Agricultural Economics Professor Emeritus.
- Livestock Markets, Derrell Peel, OSU Agricultural Economics Charles Breedlove Professor.

Registration is \$50 before October 14 and \$70 at the door. This includes breakfast, lunch and breaks. To register online with credit card (<http://orangehub.okstate.edu>), choose Agricultural Economics store. For more information or to register with check contact kareta.casey@okstate.edu (405-744-9836).

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