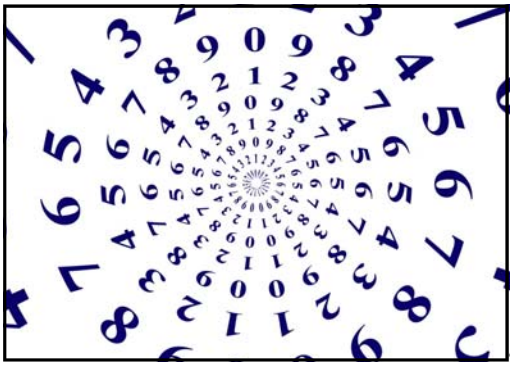
Master Cattleman Quarterly

Oklahoma State University

Know Your Numbers to Boost Profitability

Derrell S. Peel, Oklahoma State University Extension Livestock Marketing Specialist

Profitability for cow-calf production, as in all businesses, is determined as the difference between revenues and costs. Cow-calf revenue largely consists of market price for calves and the number of calves available for sale. In general, producers have much more opportunity to manage and control the number of calves compared to market prices. The weaning percentage (number of calves weaned per cow exposed to bulls in the previous breeding season) captures the overall productivity of the operation and is a broad measure of success of cow-calf production. Assessing the level of overall productivity and monitoring trends is critical to recognizing potential problems in production and identifying areas for improvement. It is important to disaggregate weaning percentage into order to focus on specific issues or areas to which management can be targeted.



Working backwards from weaning percentage, the next step is to look at calving percentage (number of live calves born per cow exposed to bulls). Calving percentage measures the overall reproductive success of the operation. The difference between calving percentage and weaning percentage captures calf death loss. Is the death loss at an acceptable level? Is it increasing over time? What are the causes of calf death loss? Calf death loss could be the result of disease or predators or other factors that can potentially be managed to reduce pre-weaning calf losses.

Calving percentage should be compared to pregnancy percentage (number of cows pregnant per cow exposed to bulls) to evaluate successful pregnancies. This highlights that value of pregnancy testing and identifying open cows that are not contributing to productivity of the herd. Differences between pregnancy percentage and calving percentage can be an important indicator of disease problems that are causing abortions. These may go unnoticed and can be a particularly insidious loss of productivity. There are a number of diseases that can cause abortion but may not be easily recognized with clinical symptoms. Identifying late pregnancies may also indicate disease or reproductive problems that rob productivity.

Pregnancy percentage is an important measure of herd reproductive performance. Low pregnancy rates could indicate issues on the bull side. Bulls should be getting breeding soundness exams to know they can get the job done. Or low pregnancy rate can indicate cow problems that cause failure to breed or late pregnancies. A complex set of herd health, nutritional and genetic factors could be contributing to poor pregnancy rates. It will take some effort to further narrow down the root causes but identifying low pregnancy rates as a problem is a critical first step.

Knowing and monitoring these numbers over time is crucial to being able to assess whether the operation is moving forward or backward. More importantly, these measures provide a framework to identify the most limiting factors and areas that can be improved with management focus. Improvements in other areas will have little or no impact on productivity until the most limiting factors are addressed. It is important to question all of these numbers and not just accept them as normal for the operation. A given level of any of these measures may reflect an underlying and ongoing disease or problem that has been affecting the operation for some time…perhaps for years.

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In this issue:

Oklahoma's Agricultural Land Market Levels Off

Roger Sahs, Oklahoma State University Extension Specialist

The latest trends and patterns in Oklahoma's agricultural real estate landscape have been updated through 2016 and can be found at http://agecon.okstate.edu/oklandvalues/ Statewide statistics, regional comparisons, and county summaries are presented in chart and tabular form (see chart example on page 3). Cropland and pasture tracts are defined as having 85%+ cropland and pasture utilization respectively. The Farm Credit Associations of Oklahoma provided information on 1070 sales tracts that were considered representative of the 2016 agricultural land market. This provides a perspective into the characteristics of recent sales as well as benchmark indicators for studying trends over time.

After several years of sizable percentage growth, the average value for all agricultural real estate stabilized last year and rose only 0.2%. Performance levels by region varied with the largest percentage increases centered in the eastern areas of the state where acreages contain a larger proportion of grazing land. Western areas of Oklahoma did not fare so well since losses in cropland weighed on the market.

Pasture values grew at a very modest pace in 2016. After a 5.1% increase in 2015, the pastureland slowed down to a 1.7% growth last year. While sustained herd expansion and favorable pasture conditions did promote a healthy demand for ranchland in most areas of the state, lower returns in the cow-calf sector diminished buyer interest. With more expectations of the same, pastureland values are likely to see further downward adjustments for the remainder of this year.

The value of cropland in Oklahoma dropped 3.7% in 2016, the first loss measured in this study since 2009. After several years of spirited bidding, a new commodity price plateau was emerging in the minds of market participants during 2016, and it was evitable that this mind-set would factor into a weaker demand for cropland. The persistent and widespread deterioration in farm income in the grains complex has become problematic and the ability to cash flow has become a major challenge for many crop producers. With the slump in prices expected to continue, it would appear that cropland values have peaked and further corrections appear likely in 2017.

Although crop and cattle prices have declined relative to recent years, several factors have played a positive role on agricultural real estate values in Oklahoma. Despite an increase in financial stress, many producers still have sound balance sheets and interest rates remain very reasonable for those who seek debt financing. Income from recreational interests continues to provide support in many areas of the state. As a result, land values will likely experience an orderly adjustment as opposed to a period of severe asset devaluation which occurred in the 1980s.

In conclusion, commodity prices and resulting farm income, interest rates, and the financial health of prospective buyers will all determine land trends in 2017 and beyond. Oklahoma's farmland real estate appears to have peaked for the foreseeable future and will likely trend lower as the market finds a new equilibrium.

Other sources of land value information can be found at:

Agricultural Land Values, National Agricultural Statistics Service, USDA. http://usda.mannlib.cornell.edu/MannUsda/viewDocumentInfo.do?documentID=1446

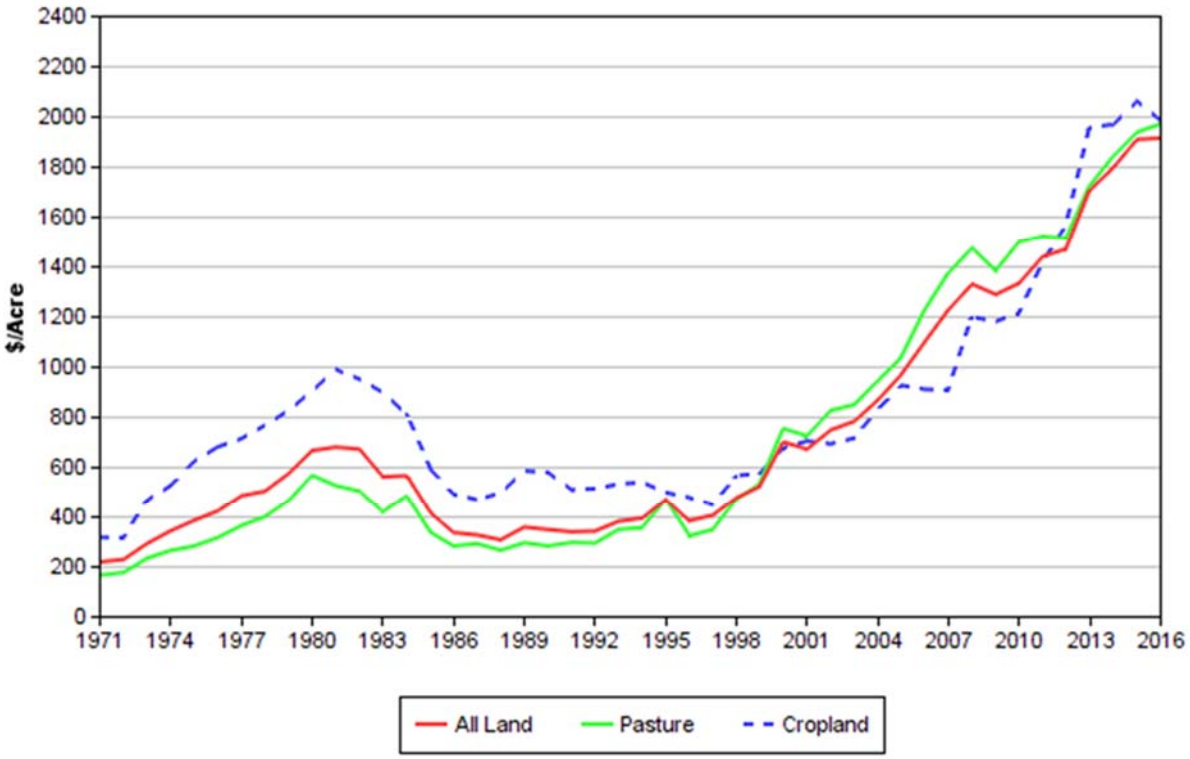
Survey of Tenth District Agricultural Credit Conditions, Federal Reserve Bank of Kansas City. https://www.kansascityfed.org/research/agriculture

My grandfather used to say that once in your life you need a doctor, a lawyer, a policeman and a preacher, but every day, three times a day, you need a farmer." -

Brenda Schoeppe

Oklahoma's Agricultural Land Market Levels Off (cont.)

Oklahoma Agricultural Land Values
Tracts >= 40 Acres Selling up to $3,000/ac. through 2007 and $6,000/ac. since 2008
Annual Average



For the Record…

Kellie Raper, Livestock Marketing Economist, Agricultural Economics

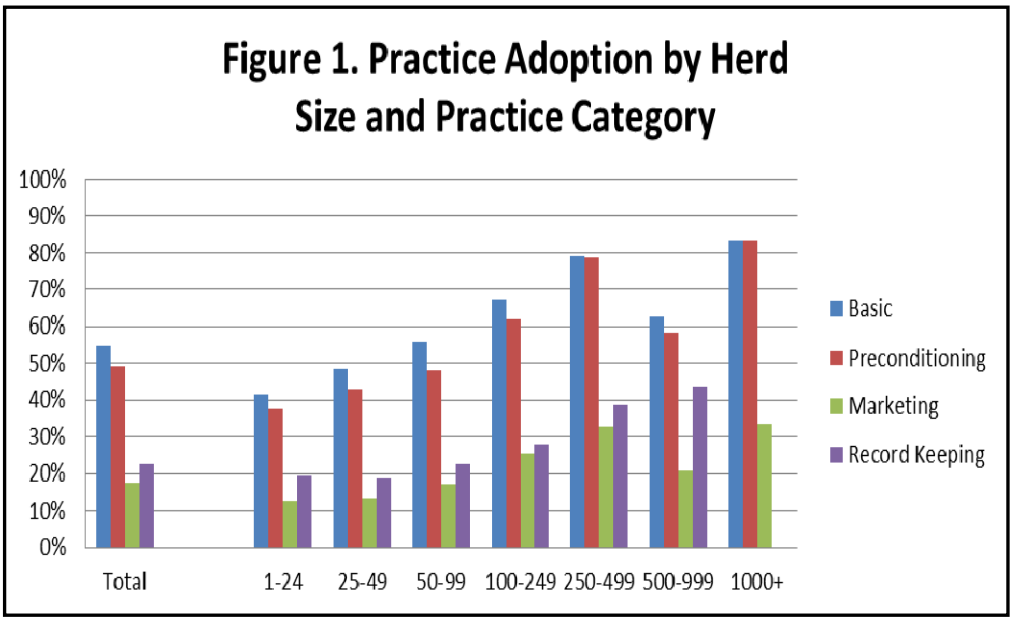
The long-term sustainability of beef operations depends on being efficient and profitable. To that end, a good set of production and management records can enhance decision making by providing production benchmarks and documenting management changes. In another article in this newsletter, Dr. Derrell Peel discusses some important measures of herd productivity for cow/calf operators to track. This article discusses some other important herd records, including specific records on vaccinations and general medical records.

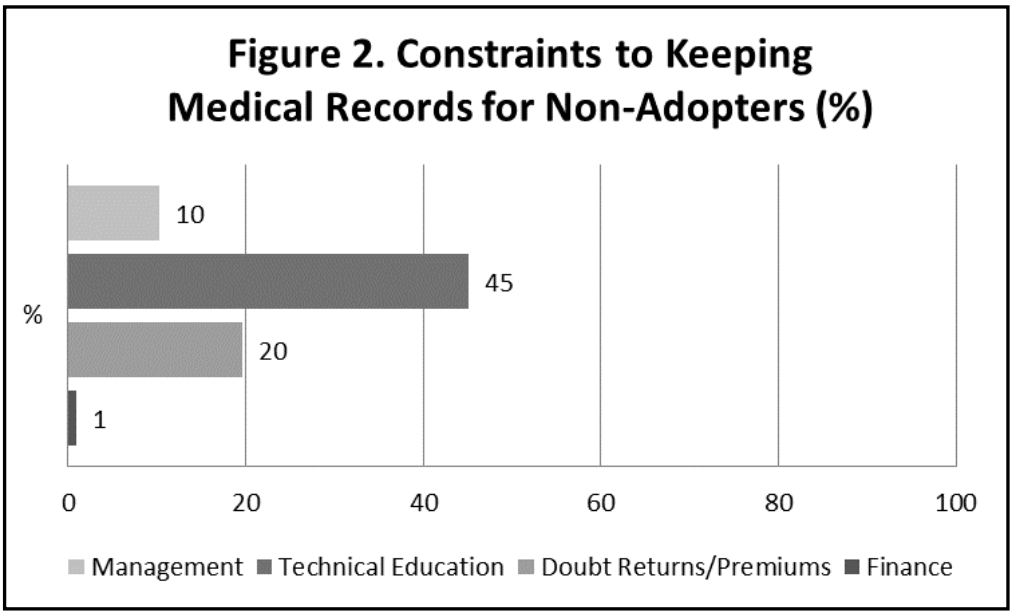
Nationally, data show that the majority (83.3 percent) of beef producers keep some form of records, with more than 90 percent of operations with 100 or more cows keeping them (USDA-APHIS). Extension personnel regularly promote the importance of specific management practices to producers, including record keeping, to improve cow-calf decision making and – ultimately - profitability, Management practices typically promoted for the cow-calf phase of beef production are those that positively affect health and performance in subsequent phases of production, that document information such as age, origin, feed ingredients, or medical treatments for use in herd management decisions, or that meet needs for specific marketing strategies. Recommended record-keeping practices generally include financial, production and herd health records.

The 2010 Oklahoma Beef Management and Marketing (OBMM) survey asked producers about record-keeping

For the Record… (cont.)

practices related to calf health. As a whole, record-keeping rates as reported by Oklahoma producers were relatively low. Figure 1 shows that adoption rates for record keeping practices, including vaccination records, other medical records, calf birth dates, and individual calf identification, across herd sizes are universally low compared to adoption of basic production (castration, dehorning, deworming) and preconditioning (bunk training, vaccination protocol, 45 day weaning) practices. Marketing practices are those implemented specifically for a defined marketing program (e.g. age and source verification or no antibiotic use) and, as expected, they have relatively low adoption rates. The survey results suggest that the percentage of Oklahoma producers keeping records increases with herd size, though the information is valuable to herds of any size.



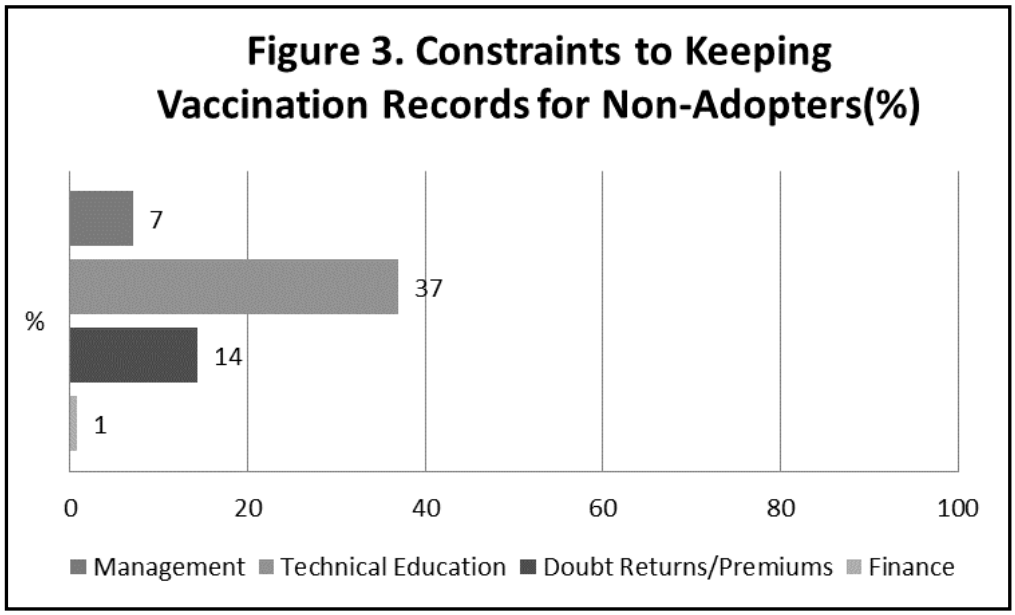


The ability to examine the impact of calf health management practices is dependent on good records, including vaccination and medical records. Medical treatment records involve documenting dates, products and types of medical treatments administered to animals, number of animals treated, and the person who administered treatment. Ideally, records are also linked to a specific animal. These health records can aid in tracking the effectiveness of specific treatment protocols or vaccination types across the herd, in addition to documenting treatment frequency for specific animals – all useful information for both short term and long term herd management strategies. What worked? What didn't? Were treatments more frequent this year than in past years? Although it is difficult to assign a particular value to record keeping, its contribution to management is an important one.

In looking at specific types of record keeping, on average, only 21% of cow/calf producers who responded to the survey reported keeping medical treatment records for the herd, though that number bumps up to 40% for larger

For the Record…(cont.)

herds. Nearly 35% of producers surveyed reported vaccinating calves, but only 26% of producers reported keeping records of those vaccinations. While vaccination records may not seem important if not used directly in marketing (e.g., preconditioning programs), they can be valuable to future management decision-making. If calves are vaccinated, recording is a minor additional step.



Why don't producers keep medical and vaccination records? The two most cited reasons in the OBMM survey were doubts about the economic value of those records and uncertainty about how to go about it. It can be a bit time consuming, but it is a critical task. So grab a notebook or a computer and get started!

You've probably noticed that economists like to assign value to action (or inaction) whenever possible. Though it is difficult to assign a specific value to record keeping, it makes an important contribution to your operation. Your record keeping system can be simple or quite detailed. What useful information are you missing out on that might improve decision making – and ultimately the bottom line? As I was reminded today by a young innovative producer, "You can't manage what you don't measure."

David Lalman, Brent Ladd, and Damona Doye. "Cow-Calf Production Record Software." Oklahoma Cooperative Extension Service Current Report, CR-3279. August 2015. Available at http://pods.dasnr.okstate.edu/docushare/dsweb/Get/Document-1926/CR-3279web.pdf.

USDA APHIS. "Record-keeping Practices on U.S. Beef Cow-calf Operations." https://www.aphis.usda.gov/animal_health/nahms/beefcowcalf/downloads/beef0708/Beef0708_is_RecordKpg.pdf. March 2011.

A Heads Up…2017 Oklahoma Beef Management and Marketing Survey Coming This Fall

Researchers at Oklahoma State University will launch a repeat of the 2010 Oklahoma Beef Management and Marketing Survey targeted to Oklahoma cow/calf operators. This survey facilitates gathering important information about producer choices regarding both management practices and marketing decisions. This information serves as a benchmark and also helps inform us on how to better serve you through extension programming. If you happen to receive the survey, we appreciate your willingness to complete it. Thank You!

Bovine Tuberculosis

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

In 1917, Congress appropriated the money to begin the State-Federal Cooperative Bovine Tuberculosis Eradication Program. The program was started to reduce the number of human tuberculosis cases that were the result of being infected with bovine tuberculosis (bTB). Most human cases were caused by humans consuming unpasteurized dairy products. Although the number of cases of tuberculosis in cattle have been greatly reduced over the past 100 years, the disease has not been eradicated from the United States. New cases continue to be found in cattle and on occasion in other animals. White-tailed deer have been problem in the state of Michigan. Just in the past few months, Indiana found positive cases in cattle and deer. South Dakota is the latest state to find cattle with the disease. New Mexico and Texas are dealing with herds infected with tuberculosis. These few infections indicate a need for producers to remain vigilant in keeping tuberculosis out of their herds.

Bovine tuberculosis is caused by *Mycobacterium bovis*. This bacteria is contagious to other animals and humans. The bacteria survives in moist warm environments for long periods of time. The organism can be found in exhaled air, saliva, feces, and milk. Rarely, the bacteria is found in semen, urine, vaginal, and uterine discharges from infected cattle. The organism is found more often in dairy breeds than beef breeds. This is due to dairy cattle being kept in close confinement. Most cattle get the bacteria from other infected cattle. In rare circumstances, people infected with the bacteria may infect cattle. In the northern portion of the Lower Peninsula in Michigan, the bacteria is well established in the white-tailed deer population. These deer have infected cattle. Most cattle will inhale the bacteria or ingest it. Calves are easily infected from ingesting colostrum and milk from an infected cow.

Tuberculosis in cattle usually progresses over a long period of time, however, it can be fast and progress quickly. Clinical signs of cattle infected with *M. bovis* depend on the location and severity of the infection. Early in the disease, cattle display very few or no signs of sickness. Common clinical signs seen in cattle are emaciation, weakness, anorexia, and fluctuating fever. The lymph nodes will enlarge. In the final stages of the respiratory form of the disease, cattle will have bronchopneumonia which results in a moist cough, labored breathing, and an increased heart rate. If the digestive system is infected, the cattle may have diarrhea or be constipated. In the end, most cattle will be extremely thin and have severe respiratory problems.

Diagnosing tuberculosis in cattle based on clinical signs can be difficult. Most cattle are found at routine inspections at slaughter facilities. They are also found when conducting surveillance test in infected areas and when state regulations require testing the animals before entering the state. When a veterinarian test for the disease in cattle, they will do a tuberculin test. The veterinarian will inject the tuberculin intradermally. Any swelling at the injection site indicates a positive reaction. Since tuberculosis is a reportable disease, any positive test would be reported to the state and/or federal veterinarians. The state and/or federal veterinarians would confirm the test with additional tests. In most positive cases, the cattle are sent to slaughter. In some rare cases, the state and federal authorities may allow the cattle to remain quarantined to the premises.

Since treatment of the disease is difficult and expensive, and no vaccine is available, prevention is the key to controlling the disease. Preventing the introduction of tuberculosis into the cattle herd begins with biosecurity. The ideal situation is to maintain a closed herd. If this is not possible, ranchers should purchase replacement bulls, cows, and heifers from a reputable seed stock source. When purchasing cattle from states with bovine tuberculosis, producers should consider TB testing the cattle prior to entering their ranch.

White-tailed deer in Oklahoma have never been found to have bovine tuberculosis. Even knowing that fact, cattle should not be allowed to have contact with white-tailed deer. One way to prevent this contact is prohibit the feeding of deer on their ranch. Researchers at Michigan State University have proven that the organism will survive on

Bovine Tuberculosis (cont.)

salt blocks, so producers may need to cover mineral and/or salt feeders at night.

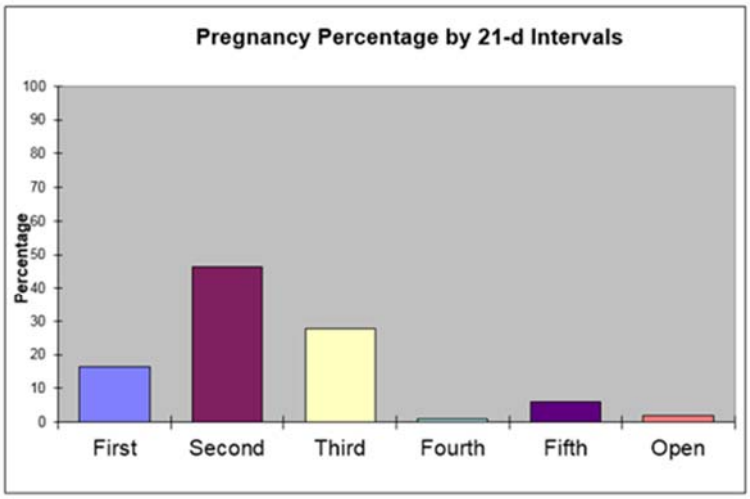
Bovine tuberculosis occurs rarely in cattle but producers should be aware the problem does exist. They should do everything possible to keep the disease out of their herds. If a producer would like more information on the disease, they should contact their local extension educator or their local veterinarian.

Tracking Calving Distribution

Scott Clawson, NE Area Ag Economics Specialist

Do we, as cow-calf producers, spend more time focused on calving season or breeding season? The most likely answer is calving season and for good reason. But after the bulls are kicked out for the breeding season we still have some work to do. Conception rates are always paramount. The percentage of cows that we get settled during the breeding season is closely tied to profit. There is a second step that is of high importance as well. It is the calving distribution. Simply put, this looks at when in the calving season (early. middle, late, etc.) are the calves being born.

The "why" this is important is well documented. In short, early born calves yield better performance in growth, reproduction and carcass traits. The Cow Herd Appraisal Performance Software (CHAPS) is a data set for beef producers in North Dakota housed at the NDSU Dickinson Research Center. It provides us with some benchmark data to look towards. This data set for 2010-2014 shows 62.7% of the calf crop coming in the first 21 days and 87.3% coming in the first 42 days.



This is an example of one of the output graphs from the Pregnancy Histogram tool. This calving distribution of this particular set of cows needs to be addressed.

Tracking calving distribution is helpful in many regards. One reason to look at calving distribution is because reproductive traits are lowly heritable and using this information can help select replacements. Over time this will promote the reproductive efficiency of the herd. In addition, the increase of weaning weights would provide a financial benefit to cow/calf opera- tors. The Kansas State University Veterinary Health Center has a great spreadsheet to monitor potential calving distribution at the time of preg checking. Palpation will need to be used to estimate the point in gestation to use the spreadsheet. The spreadsheet can be found and downloaded at http://www.vet.k-state.edu/vhc/services/livestock-services/production-medicine/index.html

Select Pregnancy Histograms – 510 from the list of tools.

As our markets continue to be volatile and margins fluctuate, getting the most from every investment we make is important. Tracking and making improvements to the calving distribution of the cow herd can improve our pounds weaned and the reproductive efficiency of the entire herd. Improvements in these two areas can pay dividends for producers in the future.

Statewide Women in Ag and Small Business Conference, Aug 3-4

Sara Siems, Extension Assistant Risk Management Education

The Oklahoma Cooperative Extension Service along with USDA's Risk Management Agency is pleased to announce the annual conference for women in agriculture and small business scheduled for August 3-4 at the Moore Norman Technical Center in Oklahoma City. The 2-day conference offers a variety of sessions to assist participants in successfully managing risk for their families, farms and/or business. Over 25 concurrent sessions are offered from four tracks — agriculture, alternative enterprises, business and finance, and beginning farmer — with participants able to choose whatever session is of most value to them. Registration is $50 per person and includes breakfast, lunch and refreshments for both days.

The conference also features a Made in Oklahoma mini-mall and exhibits on the available resources to help people be more successful in their farming or small business efforts. Anyone with an interest in agriculture or small business should consider attending this event — it really has something for everyone.

For more information visit http:// okwomeninagandsmallbusiness.com/ or contact Sara Siems at 405- 744-9826 or sara.siems@okstate.edu.

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