



Master Cattleman Quarterly

Oklahoma State University

OQBN Vac-45 Calves See Steady Premiums in 2019

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As producers have come to expect, Oklahoma Quality Beef Network premiums were strong and steady for Fall 2019, relative to recent years. Just over 4,700 head were certified through OQBN, with approximately 3,700 of those calves selling through OQBN sponsored sales. Premiums for the 2019 fall sales averaged \$11.93 per hundredweight, comparable to the 5-year average of \$12.59 per hundredweight. Data was collected on 17,144 head across 14 sales in the state. OQBN lots totaled 440 of the 1774 lots collected.

Figure 1 illustrates 2019 OQBN premiums by weight class and by gender. OQBN premiums averaged \$12.89/cwt above non preconditioned calves at the same sales. The reported premiums are calculated as a weighted average and do not reflect differences attributable to lot size, breed, hide, color, sex, fleshiness, frame size or muscling. It is noteworthy to point out that 89% of OQBN calves sell at weights from 400-800 pounds. Practically speaking, this means that premiums reported for calves under 400 pounds

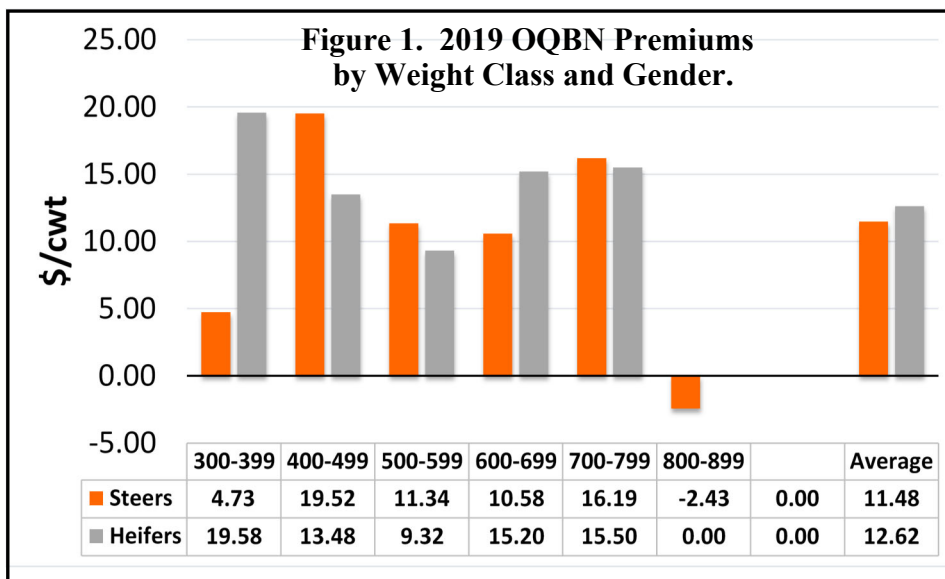
and for calves 800 pounds or heavier are based on a relatively small sample and may be a less reliable measure than premiums reported for calves in the other weight groups. Premiums for calves ranging from 400-800 pounds were strong, with most ranging from approximately \$10/cwt to \$15/cwt. As has been typical in past years, steer premiums were highest for 4-weight calves, indicating the value of lessening the risk of illness for lighter weight calves. Heifer premiums were strongest for 6- and 7-weight heifers.

For more information on OQBN, including program information, sale dates, weaning and management protocols, go to the OQBN Website (<http://oqbn.okstate.edu/>). OQBN's website also includes additional educational information related to beef calf production in general that you may find useful, even if the VAC-45 program is not a good fit for your operation. You can also like OQBN's Facebook page and visit Oklahoma State University's Beef Extension website (<http://www.beef.okstate.edu>) for information on management recommendations and more.

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Oklahoma Farm and Ranch Custom Rate Update

Roger Sahs, Extension Specialist

The costs associated with owning and operating farm machinery is a major expense for many farming operations. Rather than owning the required equipment, some farm operators rely on hiring others to perform certain field operations. Likewise, certain producers perform custom work for others as a means of spreading the fixed costs associated with machinery ownership over more acres, thus reducing their unit costs. Because of this, information regarding custom rates for various field operations is of interest to both those hiring work done as well as those performing the custom work.

The OSU Agricultural Economics Department in cooperation with the USDA-NASS, Oklahoma Field Office, surveyed Oklahoma agricultural producers and custom operators during the fall of 2019 to determine rates charged for various farm and ranch operations. The results are published in Current Report-205, "Oklahoma Farm and Ranch Custom Rates, 2019-2020" The publication is available online and is mobile friendly at <https://extension.okstate.edu/fact-sheets/>

Along with statewide averages, median values are also reported for western and eastern Oklahoma where sufficient responses were returned. While the reliability of the survey results improves as the number of responses increase, the information presented in the publication should only be used as a guide. The market for custom work usually does not cover all costs as some custom operators charge only for fuel and labor and rates tend to be lower between relatives and neighbors. However, reported rates are a good place to start for discussion as fair rates should be negotiated.

In general, rates continue to increase despite relatively the low fuel price environment we've experienced over the past several

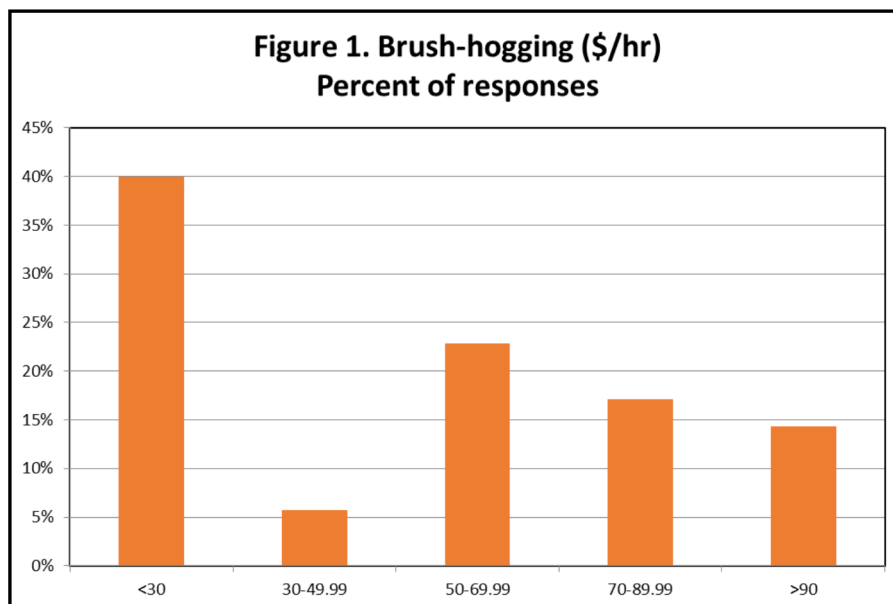
years. Higher labor costs as well as machinery repair and ownership costs contribute to higher rates. Ownership costs are a direct function of the purchase cost of a new machine. Repair and ownership costs have increased 6 to 7 percent over the past two years depending on the machine. These costs account for about 70 percent of the total cost of performing custom operations depending on the value of the primary machine and the performance rate.

Reported custom rates can be quite variable. For example, a distribution of 35 responses for brush -hogging is shown in Figure 1. The average rate was \$48.40 per hour and the median value was \$50. Forty percent reported a custom rate less than \$30 per hour, 6 percent reported a rate between \$30 and \$50 per hour, 23 percent reported a rate between \$50 and \$70 per hour, 17 percent reported a rate between \$70 and \$90 per hour, and 14 percent of the respondents reported a custom rate greater than \$90 per hour. Rates for a variety of other field operations, machinery rental, and miscellaneous livestock activities are reported in the publication.

Machinery costs are rather substantial and control of them is important. For example, when factoring a change in fuel costs, a rule of thumb is that a price hike of \$0.50 per gallon generally adds 5 percent to total machinery costs. Operators are encouraged to record actual expenses since they tend to under-estimate the full cost of ownership and operation of machinery. Given this information, they

can use the worksheet in the publication to help decide whether to buy or lease machinery and equipment or custom hire work done.

If you have questions, ask your Area Agricultural Economics Specialist or contact Roger Sahs at roger.sahs@okstate.edu for additional information.



Improving AI Conception Rates

David Lalman, Oklahoma State University, david.lalman@okstate.edu

It is time to begin thinking about this year's breeding program for spring-calving herds. The use of artificial insemination (AI) is gradually increasing in our industry due, in part, to improved synchronization systems, improved AI pregnancy rates, and improved genetics available.

Current recommended estrus synchronization protocols for beef cows can be found at <https://beefrepro.unl.edu/resources.html>. Protocols recommended for cows must be implemented a minimum of 10 days prior to the first planned artificial insemination (AI) date. Recommended protocols for heifers require anywhere from 7 to 36 days implementation prior to the first planned AI date.

An excellent review by Perry and Smith (2018; <http://www.appliedreprostrategies.com/2018/proceedings/August-29th/1-Foundation%20Principles/Perry-General-considerations-for-implementing-an-artificial-insemination-program-or-other-reproductive-technologies.pdf>) describes the current state of knowledge related to many different factors influencing success of synchronization and artificial insemination systems.

Consult your veterinarian about timing and product selection related to vaccination of cows prior to implementing an artificial insemination program. There is growing evidence that modified live products administered within about 45 days prior to insemination may reduce success rate.

If cattle must be moved to a different location after AI, they should be transported within 4 days. One experiment documented decreased pregnancy loss when heifers were transported 1 to 4 days after insemination compared to later transportation. In the Southern Great Plains (SGP) region, heat stress is possible during mid to late-spring, especially during times of high humidity. Therefore, care must be taken to avoid compounding transportation stress

with heat stress. In situations where animals will not be in transit for more than an hour, transportation during early daylight hours is advisable. Longer trips may require pre-dawn or nighttime transportation.

Fewer females show signs of estrus during heat stress. For this reason, AI programs in the SGP region planned for mid to late-spring may benefit from using a timed AI protocol rather than estrus detection.

Substantial evidence suggests that radical changes in diet and activity around the time of AI can reduce conception rates. In general, a consistent, slightly positive plain of nutrition combined with minimal change in activity during the AI and post-AI period facilitates AI success. This presents a special challenge because in many production systems in this region, forage green-up occurs at about the same time as the start of the breeding season. In seedstock operations, cattle are commonly moved to larger pastures or rangeland from a smaller pasture or drylot where they were being fed purchased and harvested feeds and (or) where they were more accessible for the synchronization and AI program. In those situations, daily travel distance (activity) and diet quality is likely to change. Managers should consider strategies to minimize sudden changes and certainly to avoid periods of rapid weight loss, such as is common upon turnout on "washy" early-spring forage.

Similarly, it is advisable to adapt breeding bulls to pasture conditions prior to turnout with cows. Don't forget to schedule breeding soundness exams with your veterinarian.

Artificial insemination still requires considerable planning, labor and expense. However, as an industry, we are gradually getting better and better at improving AI systems. Perhaps some of these ideas will be helpful to you as you implement your program this spring.

Some Amazing Facts About Cows

- Cows have no upper front teeth. They press their sharp bottom teeth against the top hard palate of their mouth to cut blades of grass.
- Cows have an acute sense of smell and can detect odors up to six miles away.
- A cow will chew for up to eight hours a day
- Cows move their jaws about 40,000 times a day.
- Cows spend about 10 hours a day lying down.
- The hamburger debuted at the 1904 World's Fair in St. Louis

Targeting Performance Goals for Preconditioning Calves

Paul Beck, OSU Animal Science Department

Preconditioning calves can provide opportunities for adding value to the calves we produce. Premiums for calves in the Oklahoma Beef Quality Network were between \$11 and \$12 per hundredweight last year, but along with these premiums the added weight gain during the preconditioning period is extremely valuable. The value of gain last fall for non-preconditioned calves sold in early October at 430 pounds versus calves sold at 550 in early November was \$0.84/pound, so bodyweight added to calves during preconditioning can add to the profitability of the program...if cost of gain is kept below the value of the gain (\$0.84/ pound).

Cattle that are considered to be fleshy (BCS 7 or greater) can receive discounts of up to \$20/hundredweight. Excessively fat or fleshy calves will be discounted because of reduced potential for gain. Overly thin cattle may (or may not) receive premiums because of the possibility of compensatory gains, but these premiums are never enough to make up for the reduced pounds of sale weight. Moderate flesh (body condition score of 4 or 5) should be the targeted condition at marketing. Body fat accretion rate occurs at different rates depending on the animal's frame score, sex, post-weaning backgrounding gains, and growth promoting technologies used (for instance, implants and beta agonists). The percentage body fat is consistent for animals at the same stage of

maturity, or at the same percentage of their expected weight at 28% body fat (or low Choice quality grade). In other words, Body composition of cattle with different Frame Scores or different genders is different even when the body weight is the same. Implanted medium frame steers would have a lower percentage body fat at any given weight than a non-implanted heifer. Fleshy cattle with condition scores of 7, 8, and 9 have 26, 30, and 34% body fat, respectively, which are close to the target body fat content of finished cattle ready for slaughter.

Table 1 shows the predicted gains and fat accretion of steers and heifers with differing mature size. A medium frame heifer finishes at a lower bodyweight than a steers, so bodyweight gain has more fat than a steer of the same frame size or larger frame cattle. Thus, these medium frame heifers could be fed to gain 2 pounds per day without getting too fleshy and being discounted. If these heifers are fed for 2.5 pounds per day they would reach over 19% bodyfat and likely receive discounts for excess flesh. Whereas, a large frame steer or heifer could be fed to gain 2.5 pounds per day without becoming excessively fat.

Below in Table 2 are some common diets that could be used for preconditioning calves and the potential gain for each. It is difficult to develop nutrition programs based on low quality hay that promote gains over 2

	MF Heifer		MF Steer		LF Heifer		LF Steer	
Mature body-weight	1100		1200		1180		1280	
Beginning weight	400		440		480		520	
Gain, lb/day	1.0	2.0	1.0	2.0	1.5	2.5	1.5	2.5
Total gain, lbs	60	120	60	120	90	150	90	150
Beginning body fat, %	13.6	13.6	13.6	13.6	13.6	13.6	13.6	13.6
Body fat in gain, %	5.9	26.7	3.3	23.7	13.5	34.8	11.9	31.8
Ending body fat, %	12.6	16.6	12.3	15.8	13.6	18.6	13.3	17.7
Ending BCS	3.3	4.4	3.3	4.2	3.6	5.0	3.5	4.7

Targeting Performance Goals for Preconditioning Calves (cont.)

pounds per day. For growing calves, better hay quality reduces the required supplementation rate and increases the potential performance of the calves.

Table 2. Rations for supplementation of preconditioning growing calves fed free-choice hay in dry lot.			
	Level of Performance		
	1.0 lbs/day	1.5 lbs/day	2.0 lbs/day
Grass hay (10% CP and 56% TDN)			
Supplementation rate, lbs/day	1.2	3.75	6.1
Supplement composition, % as -fed basis			
Cottonseed meal	33.3	20.0	21.4
Soybean hulls	33.4	40.0	39.3
Cracked Corn	33.3	40.0	39.3
Salt/mineral mix	Free Choice Complete Mineral	Free choice salt only	Free choice salt only
Grass Hay (7% CP 52% TDN)			
Supplementation rate, lbs/day	2.7	4.9	7.4
Supplement composition, % as -fed basis			
Cottonseed meal	29.6	26.5	27.0
Soybean hulls	33.4	36.7	36.5
DDGS	37.0	36.8	36.5
Salt/mineral mix	Free Choice Complete Mineral	Free Choice Complete Mineral	Free Choice Complete Mineral

Cattleman’s To Do List for Spring

Earl H. Ward, Area Livestock Specialist

It seems time flies by faster and faster. Days zip by and we tend to get behind on things that need our attention. As the spring of 2020 is quickly approaching there are several items on our to-do list that cattle producers need to address. Below are just a few things that a producer does not need to neglect this spring

Herd Health – There are several areas of production that are extremely important that a beef producer must focus on, but I would have to say that herd health would top that list. Work with your veterinarian to develop a vaccination protocol that is customized for your herd, including cows, heifers, bulls, and calves. A proper vaccination protocol is not an investment to reduce costs, but to prevent production loss. If a producer vaccinates his 100 cows

properly, he could be spending up to \$1,000 annually on vaccinations. If he chooses not to vaccinate he saves \$1,000 annually, but what did he give up? Merck Veterinary Manual states that Bovine Viral Diarrhea (BVD) was the most commonly diagnosed virus in bovine abortion cases. How many pregnancies did he lose to BVD? How many calves did he lose to blackleg? Let’s assume that by vaccinating his cows, his pregnancy rates increased only 2% and he saved one calf from blackleg. This would result in three additional calves to sell at weaning. This could result into an extra 1,650 lbs. of calf (550 lbs./head) to sell at \$1.60/lbs. resulting in an additional \$2,640 of income.

Putting together a vaccination schedule and perhaps putting that schedule on the calendar will help producers in

Cattleman's To Do List for Spring (cont.)

planning for a healthy, productive cow herd.

Nutrition – Here in eastern Oklahoma many of our producers are solely relying on grazing warm season grasses. However, from January through March there are very little nutrients available in standing warm season forages. Granted almost every producer is currently providing hay and supplement, but this time of year is a huge stress on an animal's energy stores. Whether you calve in the fall or the spring, right now is a critical time to maintain body condition. Producers should be encouraged to work with your OSU Extension Educator to try and develop a forage and supplementation plan.

Let us not also forget about the fall born calves that will be weaned this spring. It is beneficial to have those calves already bunk broke and eating prior to weaning to ensure a smooth transition from the cow to calf independence. Good nutrition is a key component to a strong immune system.

Calving – Begin planning for this spring's calving season. Make sure you have the proper tools available to assist in an emergency. Having a halter and rope, long-sleeve OB gloves, buckets and bottles of wash water, calf puller, OB chains and handles that have been cleaned, iodine for the calf's navel, syringes and needles, electrolytes, colostrum, and lights are several items that are recommended to have in a calving kit.

Also prepare ahead of time with a proper place for the cows to give birth. A muddy lot is a not the best place for a cow to calve, and with all the rain we have received this year we have an overabundance of muddy spots. Plan on moving your cows to a drier pasture, in a dry barn, or possibly roll out bedding for them to find a dry place to lay.

Remember that every live calf is essential your operation's profit margin.

Records – During this busy time in the spring, the last thing that producers do not need to neglect are their records. Keeping track of the financial aspects of operations seem to be a priority, but producers need to also keep production records as well. Producers should write down any and all the information they can. Producers are encouraged to keep record of individual calf birth dates, number of cows exposed to the bulls, number of cows that get pregnant, calf weaning weight, cow's body condition score, and any other observations the producer needs to write down. Notes such as a difficult birth, calf size/weight, or the cow's temperament. The importance of these records will be displayed when it comes time to evaluating the individual cow's performance and determining her future in the herd. These records will also assist the producer in determining the areas of improvement that they might need to make. As Dr. Temple Grandin says "you can't manage what you don't measure."

As this winter turns to spring, make sure that your to-do list does not catch you by surprise and you leave things abandoned. This article only addresses a few of the areas that a cattle producer must be concerned about. Therefore, take time to sit down and create your own to-do list for your herd and get it written on the calendar so that the tasks are planned and have a purpose. If you need assistance with your cattle operation, contact your county's OSU Extension office.

Theileria orientalis genotype Ikeda: An Emerging Cattle Disease?

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

Theileria orientalis genotype Ikeda is a hemoprotozoan. A hemoprotozoan affects red blood cells and leukocytes. *T. orientalis* genotype Ikeda has been associated with severe bovine disease in Japan, New Zealand, and Australia (Watts, Playford, & Hickey, 2016). In August of 2017, the protozoan was found associated with illness and death in cattle at ranch in Virginia (Oakes et al., 2019).

These cattle displayed clinical signs of weakness and anemia. A preliminary diagnosis of anaplasmosis was given. Blood samples taken from the animals were tested for *Anaplasma*, *Babesia*, and *Leptospira*. Results from the test revealed that the cattle were all negative; however, a blood protozoan was detected. This protozoan was identified as *T. orientalis* genotype Ikeda (Oakes et. al, 2019). Since

Theileria orientalis genotype Ikeda: An Emerging Cattle Disease? (cont)

this original herd outbreak, other herds of cattle in Virginia and West Virginia have been found to be infected with the organism.

In Australia, the Asian longhorn tick (*Haemaphysalis longicornis*) has been identified as a possible vector of *T. orientalis* genotype Ikeda (Hammer, Emery, Bogema, & Jenkins, 2015). In 2017, the United States Department of Agriculture's National Veterinary Services Laboratories (NSVL) confirmed the presence of *Haemaphysalis longicornis* which is commonly referred to as the Asian longhorn tick or bush tick. In an effort to understand how the tick got to the United States, USDA officials discovered that the tick had been found in West Virginia in 2010. The tick has been confirmed to be in Arkansas, Connecticut, Delaware, Kentucky, Maryland, New Jersey, New York, North Carolina, Pennsylvania, Tennessee, Virginia, and West Virginia (USDA, 2020). Some evidence exists for other possible insect vectors for *T. orientalis* genotype Ikeda. Needle transfer is another possible route of transmission of the organism (Watts, Playford, & Hickey, 2016).

If the Asian longhorn tick is ever found in Oklahoma, Dr. Justin Talley, Oklahoma State University Extension livestock entomologist, believes the tick will live east of I-35. The tick will likely be found in vegetation that is high in humidity in areas such as woods, brush, or tall grass. Ticks are usually found where large numbers of wildlife congregate such as a deer trail. Dr. Justin Talley and Dr. Bruce Noden have written an excellent fact sheet about the longhorn tick. The fact sheet can be found at <http://entopl.okstate.edu/pddl/2018/PA%2017-16.pdf>.

Cattle infected and sick with *T. orientalis* genotype Ikeda will have clinical signs of fever, weakness, anorexic, and exercise intolerance. If cattle are forced to move, they may stagger and gasp for air. If stressed too much, the cattle may collapse and die. When examining cattle, the gums, eyes, or vaginal mucosa may appear white or yellow in color. Reproductive losses including stillbirths and late term abortions may be seen as well as reduction in milk production (Spickler, 2019). Since *Anaplasma marginale* and *T. orientalis* genotype Ikeda both display similar clinical signs, one difference that has been noted in the two diseases is *A. marginale* infected cattle usually display aggression and *T. orientalis* genotype Ikeda do not. Still, a laboratory test would have to be performed to differentiate

the two diseases.

In other countries, therapies have been developed to treat this organism. Unfortunately, no approved treatments are available in the United States. Also, there are no vaccines for this disease. The best defense to this disease is to control ticks. This usually requires a combination of insecticide treatments and pasture rotation to avoid areas such as woods and brushy areas where ticks live.

Theileria orientalis genotype Ikeda is not likely to arrive in Oklahoma anytime soon, and in reality, may never become a major problem in Oklahoma or the United States. However, producers need to keep in mind that the natural progression of cattle in the United States is east to west and south to north. Oklahoma is unique in the fact that large numbers of cattle move from the southeast United States to graze on grass and wheat in our state. From there, the cattle go to the feedyards. The tick and organism could easily be transported to Oklahoma on a load of stockers headed for grazing or to a feedlot. If a producer would like more information on *T. orientalis* genotype Ikeda, they should contact their local veterinarian or Oklahoma State University Extension Educator or visit the Center for Disease Control and Prevention at https://wwwnc.cdc.gov/eid/article/25/9/19-0088_article.

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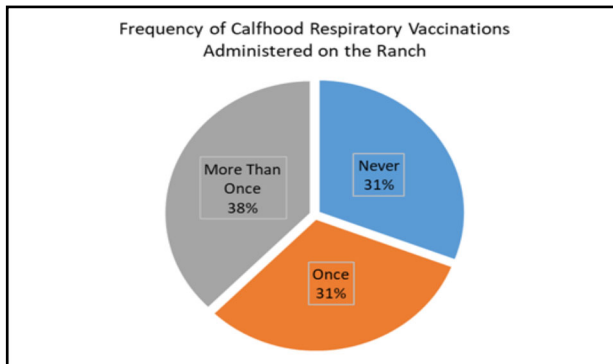
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Calling the Shots...Part 1

Kellie Curry Raper, OSU Extension Livestock Marketing Specialist

Administration of respiratory vaccinations to calves on the ranch has been shown to improve animal health and performance as animals move through the system. Here is a quick look at what Oklahoma producers reported regarding the frequency of those vaccinations on the ranch. More to come in the next issue...



Source: 2017-2018 Oklahoma Beef Management and Marketing Survey

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