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## EXTENSION

**Thinking about OQBN this fall?  
Evaluate Vaccine Requirements Now!  
Dana Zook, West Area Extension Livestock Specialist  
Enid OK**

As a person that was raised in the Ag industry, I understand that no matter what is going on in the world around us, agriculture continues. Calves will be born and crops will be planted. The grass will grow and cows will be moved to new pastures. Yes, agriculture is definitely affected by the recent climate due to COVID-19 but we have weathered storms like this in the past. In a climate that seems to be out of control, there are some things that we can control. One thing that may be worth your consideration is a vaccination protocol for calves that meets the requirements of a preconditioning program.

As an OSU Extension Area Livestock Specialist, much of my time in the fall is spent working with participating producers of the Oklahoma Beef Quality Network (OQBN). The OQBN and others programs like it are designed to aid cattle producers in making preconditioning decisions and capturing value of preconditioned calves at market.

This past fall, the OQBN premium over calves marketed with no preconditioning was \$11.93 per cwt. This average includes steers and heifers for all weight classes. Over all weight classes, individual premiums for steers was \$11.48 per cwt. and \$12.62 per cwt. for heifers. Individual sale summaries can be found at [oqbn.okstate.edu](http://oqbn.okstate.edu); look on the left hand side for “OQBN Sale Results”.

To participate in the OQBN, calves must be: 1.) home raised and weaned a minimum of 45 days, 2.) castrated and healed, 3.) dehorned and healed, 4.) tagged with a program compliant ear tag, and 5.) vaccinated according to one of three vaccination protocols. A detailed vaccine protocol is listed at [oqbn.okstate.edu](http://oqbn.okstate.edu); look on the left hand side for “OQBN Vac-45” and select “OQBN Health Protocol” from the list in the center. In addition, starting in fall 2020, all producers selling OQBN cattle must be beef quality assurance (BQA) trained. All of these requirements will be verified by an Oklahoma Cooperative Extension Educator a few weeks prior to the designated sale.

During past verification visits, I have run into situations where vaccine requirements have not been met. A number of these vaccine errors have to do with modified-live verses a killed respiratory vaccination. In most situations, I am happy to work with producers because keeping vaccines straight can be challenging. However, an additional

last minute trip through the chute to correct a vaccine blunder adds stress and is not without cost.

While we publically provide our requirements to vaccine dealers and vets, there are too many preconditioning programs for each retailer to keep track of the details of each one. Do yourself a favor and review the requirements with your vet so that you can be sure you are purchasing the correct products. Also, after spring vaccinations, be sure to save those boxes or record the serial number of the vaccines; this is also a step some producers miss. Producers who take time in the spring to plan their vaccination protocols for the program will save money (and time!) in the fall.

I invite you to visit the OQBN website at [oqbn.okstate.edu](http://oqbn.okstate.edu) for a complete list of the requirements, the latest premium reports, and more helpful information. Oklahoma Cooperative Extension Ag Educators are well versed in this program, so if you have questions, give them a call. Be safe over the next month and remember that your County Oklahoma Cooperative Extension Office is here to continue to help you with your questions, even if it is over the phone.

### **When is the Best Time (Age) to Castrate Bull Calves? Britt Hicks, Ph.D., West Area Extension Livestock Specialist Goodwell, OK**

Beef Quality Assurance Guidelines recommend that bull calves that are not herd sire prospects be castrated as early in life as possible (preferably, between birth and four months of age). Some cattlemen believe that delayed castration improves growth in nursing calves due to a “testosterone effect” in intact bull calves. However, bull calves do not have significantly high levels of testosterone until they reach about 8 to 9 months of age. In addition, several studies suggest that there is no lifetime performance advantage to waiting to castrate calves until weaning. In fact, most research show that late castration (at weaning) decreases feedlot arrival gains and increases morbidity (sickness).

In a 2003, Kansas State University research determined the effect of castration age and growth implants (Synovex C) on weaning and preconditioning weights. Calves were early castrated at 90 days of age with no implant, early castrated and implanted, or late castrated at weaning (226 days of age). Steers that were early castrated and implanted had weaning weights similar to those of bull calves, and both of these groups weighed 15 lb more than the early castrated non-implanted steers. However, 28 days after weaning the early castrated implanted steers weighed 20 lb more than the early castrated non-implanted or late castrated steers. These results indicate that early castration paired with growth promoting implants may yield more total pounds than either early or late castration alone when using a backgrounding program.

In a 2006 Oklahoma State University study, 2 to 3 month old bull calves were left intact or were castrated (surgically or banded) and all calves were implanted with Ralgro. At weaning (7 to 8 months), intact bulls were castrated (banded) and all calves were re-implanted with Ralgro. Weaning weights did not differ between intact bulls and

castrated bulls. However, during a 50-day period following weaning bulls that were castrated at weaning gained 11.3% slower (0.12 lb/day less) than bulls that had been castrated at 2 to 3 months of age.

In 2011, University of Florida research investigated whether timing of castration in nursing calves affected calf performance and weaning weight. In this study, calves were either surgically castrated early (average age of 36 days) or late (average age of 131 days). Actual weaning weight (456 vs. 452 lb) and adjusted 205-day weaning weight (512 vs. 504 lb) were all similar between early and late castrate treatments, respectively. These researchers concluded that this data indicates that producers have some degree of flexibility in determining when to implement castration. The data also showed that castration at or near birth did not have a detrimental effect on calf performance or weaning weight.

In 2015, joint research between the University of Arkansas and West Texas A&M University (WTAMU) evaluated the effect of castration timing (near birth or at weaning) on lifetime growth performance and carcass quality of beef calves. In this study, calves were surgically castrated near birth or at weaning. All calves were weaned at day 214 of the study to undergo a 56-day weaning period. After this weaning phase, the calves were shipped 480 miles to the WTAMU Nance Ranch and grazed on native grass and sorghum-Sudan grass for a 111-day backgrounding period until entry into the adjacent WTAMU Research Feedlot. The calves were fed a common feedlot ration throughout the finishing period (average length of 128 days) and harvested at a commercial processing plant.

These researchers reported that there was no difference in weaning weight between the bulls left intact or the non-implanted steers castrated near birth. However, during the 56 day weaning period, calves castrated near birth gained 10.3% faster than calves castrated at weaning (2.25 vs. 2.04 lb/day). Summer grazing and feedlot finishing performance and carcass measurements did not differ between treatments. These researchers concluded that the results of this study indicate that castration procedures should be performed as early in life as possible to minimize performance loss.

Research conducted at the University of California, Davis (2017) assessed the effect of age on healing and pain sensitivity after surgical castration of beef calves. In this study, beef calves were surgically castrated at 3 days of age (range of 0 to 8 days) or 73 days of age (range of 69 to 80 days). The results of this study showed that calves castrated soon after birth experienced more tissue swelling and showed more signs of pain, but their incisions healed sooner (39 vs. 61 days) and their weight gain 77 days after castration was greater (1.54 vs. 0.66 lb/day), when compared to animals castrated around 73 days of age.

Research from Nebraska (2005) has shown that as age of castration increases, weight loss resulting from the procedure increases (Figure 1). In addition, reviews of marketing data show that bull calves marketed through conventional channels have historically suffered a price discount of ~5% compared to steer calves (~\$6.00 to \$11.00/cwt discounts) since surgical castration of calves after arrival at a feedlot decreases daily gains and increases morbidity.

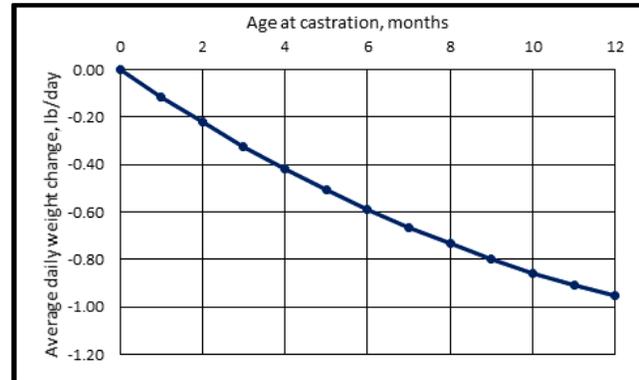


Figure 1. Average daily weight change of calves castrated by elastic band and surgical castration for the first 30 days post-castration. Adapted from Bretschneider. 2005.

Collectively, these studies suggest that there is no lifetime performance advantage to waiting to castrate calves until weaning, but there is a high probability of receiving lower prices when marketing intact calves through conventional channels. When considering how age at castration affects animal welfare, the consensus is that the younger the calf is at time of castration, the less impact castration has on its welfare and performance.

## Rabies in Farm Animals

**Barry Whitworth, DVM**  
**Area Food/Animal Quality and Health Specialist**  
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In 2019 the state of Oklahoma had 23 confirmed cases of rabies. The majority of the cases were found in skunks, but 2 of the cases were in cattle. When most people think of rabies, they have visions of a foaming at the mouth, snarling, aggressive dog that attacks everything in sight. However, in farm animals, this is not always the case. Many veterinarians at some time in their career probably receive a phone call that goes something like this. “Doc, I found this cow away from the herd yesterday. I got her to the lot. She seems a little depressed. She kept straining like she was constipated. She was having trouble swallowing and was a little bloated. My neighbor and I opened her mouth, but we could not find anything. We both ran our arms down her throat, but we could not find anything. I need you come out and take a look at her.” Unfortunately, many producers have been exposed to rabies because they do not recognize that this animal was infected with the “dumb” form of rabies. Not all animals with rabies have the “furious” form of the disease.

Rabies is a virus in the genus *Lyssavirus* in the family *Rhabdoviridae*. The virus does not survive in the environment for very long. Most disinfectants will kill the virus. The disease is fatal to animals and humans. On very rare occasions, people have survived the disease. In experiments, animals have survived the disease. Surviving rabies may occur in wild animals as well. Domestic animals are infected with the virus from wildlife

reservoirs. In Oklahoma, the most common reservoir is the skunk. In the world, the estimation is that 50,000 to 60,000 people die each year of the disease. The few people that die of the disease in the United States are usually unaware that they have been exposed to the virus.

In order to be infected with the virus, an animal must come in contact with the saliva from a rabid animal. This normally occurs from a bite wound. The virus may gain entry by saliva coming in contact with a mucous membrane or a break in the skin. Aerosol transmission has been reported in laboratories and bat caves, but this is very rare. Once in the body, the virus replicates in the muscle tissue. Next, the virus enters the peripheral nerves and will be transported to the spinal cord and to the brain. Once in the brain, the virus will enter the systemic circulation which includes the salivary glands. The timeline for all this to take place is variable. It depends on how much virus is initially transmitted to the animal and the location of the bite wound. If a large number of viruses are transmitted, the incubation time will be shorter. If the bite wound is close to the head, it will take less time for the virus to get to the brain. If the bite wound is on the foot, it may take several months for the virus to get to the brain.

The furious form of the disease is the most recognized by people. The animals with this form will be restless, wander, vocalize, drool, and attack anything in sight. These animals are not afraid of anything. Nocturnal animals with rabies are often seen in the day. They will have convulsion in the late stages of the disease. They usually die in 4 to 8 days after showing clinical signs.

The paralytic (dumb) form of the disease is a progressive paralysis. The throat becomes paralyzed and the animal cannot swallow or vocalize normally. Cattle might have a high-pitched bellow or attempt to bellow with no sound being produced. Due to the progressive paralysis, rumination will cease which may result in bloat. They also may appear to be straining to urinate or defecate. These animals will have problems walking and will become recumbent. This form is often mistaken for a digestive problem. Some producers may think the animal is aborting or has a urinary problem. These animals usually die in 2 to 6 days from respiratory failure.

When an animal has neurological signs, rabies should be suspected. Producers should avoid contact with the animal and contact their local veterinarian. If the veterinarian diagnosis rabies, the brain will need to be submitted to a laboratory to confirm the diagnosis.

Animals that are suspected of having rabies are not treated. The danger that the animal poses to humans is not worth the risk of treatment. Also, the disease is almost always fatal.

Rabies can be prevented by vaccination and by preventing unnecessary exposure of domestic animals to wildlife. All pets should be vaccinated. Obviously, vaccinating a large herd or flock of animals would not be cost effective. However, animals that are in constant contact with humans such as show animals or horses should be vaccinated. If a producer has a family milk cow, she would be a good candidate for vaccination. Preventing contact with wildlife is difficult but paying close attention to sanitation should discourage wildlife from entering areas where animals are kept.

Rabid animals are dangerous. If animals have the furious form, they may attack and injure producers. Animals with the dumb form of the disease can infect unsuspecting producers. Anytime an animal is suspected of having rabies a veterinarian should be contacted. As stated earlier, most people who die of rabies in the US are not even aware that they have been exposed. For more information on rabies, please visit with your local veterinarian or Oklahoma State University County Extension Educator.

## **COVID-19 and Its Effect on the Oklahoma Cattle Producers** **Trent T. Milacek, West Area Ag Econ Specialist** **Enid, OK**

The cattle industry is facing a giant hurdle in 2020 with uncertainties in trade and consumer demand surrounding the COVID-19 virus. Feeder cattle and Live cattle contracts are tumbling as large numbers of feeders are marketed off of wheat pasture in a worst-case timing for area wheat pasture livestock producers. At the same time, boxed beef and retail beef prices are increasing due to a bottleneck in the supply chain and preemptive stockpiling of goods in case of a long-term quarantine.

Producers who currently have feeder cattle weighing over 750lbs. will suffer the greatest price decline. Feedlots were already near capacity before this market shock and now the rest of the industry has to be cognizant of the current hurdles they are facing. When markets are locked limit up or down, it is difficult to hedge cattle and cash prices are forced to weaken. Remember that there must be two people with different beliefs on which direction a market is going in order to hedge.

Keeping cattle through grazeout is an option some producers are exploring. For those that did not hedge their cattle in the fall, it appears to be the only option in order to recapture some lost price. The downside to this is that there is no guarantee of when prices will improve. The day will come that those animals will be too big for feedlots and the basis on those animals will plummet, dragging the overall bid with it.

Retained ownership through the feedlot is another option for producers, but they must consider more risks. The uncertainty of feeding cattle is perhaps the main reason cattle prices have fallen so far. Consider that the loss on the stocker budget is already realized, will you be more competitive sending cattle to the feedlot? Instead of feeding cattle, can you use your talents as a stocker producer to buy back younger animals to run on grass? Play to your strengths as a manager during uncertain times.

These are not great opportunities and there are not many good answers. Few economists will even guess as to when this might correct itself, but consider solutions that will help you if it lasts through the rest of this year. When buying cattle always consider hedging. If a profit can be locked in consider put options or Livestock Risk Protection insurance as you can still take advantage of prices going up while locking in a floor.

If you use a straight futures hedge to price protect cattle, you can always purchase call options to take advantage of a runaway increasing market. With so many options in hedging, you are never stuck in a trade, you may just not capture the entire run.

There will be many lessons learned from this as cattle prices have fallen nearly 30% this year. In the future, the industry must move away from swinging for homeruns to ensure that the team gets consistent base hits. The markets are changing and producers must always be defensive in order to remain in business over the long-run. Things will get better, but 2020 will not end how we hoped.

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**Private Applicator Testing and Wheat Updates**  
**Josh Bushong, West Area Extension Agronomy Specialist**  
**Enid, OK**

The Oklahoma Department of Agriculture, Food, and Forestry (ODAFF) has approved a temporary exception for take-home exams for those needing to become a Private Applicator. Since the first of the year, all pesticide applicators needing to become certified are required to use the third party testing company PSI Exams. Due to the closure of testing facilities, private applicators can acquire a take-home test packet.

OSU recommends private applicators contact OSU University Mailing directly to order the new test packet. This is best done by calling 405-744-9037. The second option would be to contact your local Oklahoma Cooperative Extension Services (OCES) office. This is because many OCES offices are at reduced capacity, closed to the public, or have yet to receive any new test packets.

Once again, these packets are only going to be temporarily available until PSI Exam locations allow in-person testing again. If you acquire a new test packet, it is advised to promptly submit the answer sheet, application sheet, and payment to ODAFF to ensure no overlap once regular testing resumes again.

All other exams still require appointments, cancelations, and rescheduling to be made via the PSI website ([psiexams.com](http://psiexams.com)) or the reservation phone number (1-800-733-9267). Appointments cannot be made or rescheduled at the testing centers. Reservations must be rescheduled or canceled two days before the testing date or the applicator will forfeit their exam fees. If the testing location cancels your test session, they will email the person.

As far as a wheat update, the crop was been growing rapidly in the region. I have had several reports of yellow wheat. The causes this spring have been very site specific. A few

have had herbicide injury, specifically an application of a group 2 herbicide (such as Finesse or Powerflex). This rarely occurs, but can be due to the crop experiencing another stress when metabolizing the herbicide. These stresses include heavy rainfall, wide temp fluctuations, disease or insect damage, low fertility, or even tank mixes with liquid fertilizer solutions. The crop should recover with favorable growing conditions.

Other causes for yellowing wheat include lack of fertility or heavy rainfall. Nitrogen deficiencies cause older leaves to yellow and sulfur causes newer leaves to yellow. It is recommended to dig up some plants, as I have found many fields that lacked a good root system. If nitrogen is available down lower, new root growth might be able to still reach it. Recent work at OSU has shown that topdressing can still recover lost yield when applied up to Feekes growth stage 8, last leaf visible out of the sheath.

As far as wheat diseases, there has been reports in the region of multiple “leaf spotter” diseases. These include tan spot, septoria tritici blotch, and stagonospora nodorum blotch. These typically are found in the lower canopy and can result in loss or yellowing of leaves. Tan spot in particular is often found in heavy residue on no-till fields. There are a few reports of stripe rust being found, but in isolated areas. So far, very little leaf rust has been found but is predicted to spread as more moisture comes and temperatures increase. Leaf rust needs free moisture on the leaf for 6 hours and warm temperature in order to infect the leaf.

I am currently being asked if fungicide applications are warranted for the leaf spotting diseases and if applications should be delayed to wait on full emergence of the flag leaf. There are some variety differences on susceptibility. Varieties like Joe, Chrome, Wizard, Garrison, and Ruby Lee typically provide more tolerance to tan spot. These diseases typically stay low in the canopy, but I did observe last year where they moved up to the flag leaf. It will be more economical to postpone fungicide applications to better protect the flagleaf for a longer duration, as long as these other diseases stay low in the canopy.

Some fungicides are systemic (move around plant after application) and some are systemic but only move to new growth in the plant. A product containing Tebuconazole typically protects the plant for 2 weeks and partial protection the third week. It can also protect the flagleaf even if it has not emerged yet. So depending on disease pressure from the leaf spotters and growth stage of the wheat it will depend on when an economical fungicide application should be applied. Application of a product with longer residual is often more expensive, but if it prevents a second fungicide application it could prove to be more economical.

Contact your local OCES office for more information.