

# Extension Cattle Call

## Stanly County Livestock Market- Norwood

February 2018

To receive this publication regularly contact your local agent and ask to be added to the mailing list!

Find your local agent:

Samantha Foster  
Stanly County  
704-983-3987

Vacant  
Anson County  
704-694-2915

Vacant  
Union County  
704-283-3801

Morgan Watts  
Rowan County  
704-216-8970

Jamie Warner  
Montgomery County  
910-576-6011

Vacant  
Cabarrus County  
704-920-3310

### Sizing Up Your Heifers, Knowing When They Are Ready to Breed

*Phil Rucker, Livestock Agent, Yadkin and Davie*

Developing heifers from weaning to breeding involves a substantial investment. If the heifers fail to breed or conceive late in the breeding season, much of the cost associated with developing them will not be recovered. You must start with heifers that have the potential to be productive replacement cows. Knowing when your heifers are ready to be bred is a pivotal step that can set the stage for success or failure.

When developing heifers, obtain and utilize as much accurate information as you can. Use visual appraisal to assess correct structure and the growth potential of the heifer to reach puberty. Utilize genetics, EDPs and other information to assess the reproductive potential of the heifer. Most producers focus on age and weight to determine when to breed heifers. Heifers will not conceive unless they reach puberty and have begun showing estrus. Weight and age play a major role in the onset of puberty but so do nutrition, health, breed, genetics and more.

For maximum fertility and reproductive performance, heifers must have had at least one estrus before the beginning of the breeding season, and preferably cycling consistently. A 20% increase in conception rates was observed in heifers bred at their third estrus compared to heifers bred on their first (pubertal) estrus. This means heifers need to be cycling at least 45 days before the breeding season for maximum early conception.

One of the largest factors that regulates puberty in the heifer is weight. The old rule of thumb was breed when the heifer was 65% of her mature weight for maximum pregnancy rate. New research shows that acceptable pregnancy rates can be achieved at 52 – 58% of mature weight. If you want your heifers to calve at 2 years of age, they need to conceive at about 15 months. Manage your heifers so they can hit the target weight by 15 months of age.

With a lighter target weight (52 - 58%), pregnancy rate might be reduced some, so breeding additional heifers may be needed to maintain herd size. Higher target weights (60-65%) are appropriate when maximum pregnancy rates are desired and feed cost is less of a concern.

Determine the needed gain from weaning until breeding season begins and develop a ration to meet your heifers' needs. Monitor the heifers' weight and body condition during development to achieve the target weight and a body condition score of 5 – 6 at the start of breeding season.

Consult with your local veterinarian for the optimum vaccination and parasite control program for your situation. A Reproductive Tract Score that includes a pelvic measure needs to be performed by a qualified veterinarian. Reproductive tract scores (1=infantile to 5=mature and cycling) taken 50 to 60 days prior to breeding can be used to assess physiological maturity. This will help you determine when the heifer might reach puberty and estimate how large a calf she can naturally birth.

Heifers should be gaining weight 60 days before and during the breeding season. Regardless of target weight at breeding, heifers should continue to grow post breeding and achieve a target of 85% of mature weight and a body condition of 5.5 to 6 at first calving.

Knowing the best times to breed your heifers is usually a win-win situation. We ask a lot from our heifers; grow fast, be reproductively sound, reach puberty early, conceive early, keep growing, have a live calf, raise it and breed back. Take a look at all you ask from her and the resources/management you have on hand. Then make a realistic plan that will allow her to perform.....

*continued on back*



*Heifers cont.*

as expected with the resources available. Knowing when to breed them is not much good if a plan nor resources are available to help them reach their potential. It takes all the key parts to make this play out in our favor. Properly developed heifers are generally more fertile and will increase the economics of your operation.

## **Why Even Give a Vaccine? Modified-Live Vs. Killed Vaccines – Which Is Better?**

*Glenn Detweiler, Livestock Agent, Catawba and Lincoln*

First we need a short review of how a vaccine works in the body. With any vaccine, the trick is to have a strain of organisms mimic their disease-causing cousins closely enough that the animal's "active" immune system will be ready to recognize the disease-causing pathogen. Then when infection enters the body, it will either be interrupted before the disease occurs or the severity of the resulting disease will be reduced. Note that vaccines can't prevent infection. The offending pathogen must get inside the body to come under fire from the vaccine-stimulated "active" immune system. There is an "innate" immune system in the body also. Like a firewall in an apartment complex, the body has "innate" firewalls to prevent infection. For example, bacteria that cause pneumonia must first overcome the mucous and cilia lining in the upper airways of the lungs. Then they must get past the defense cells in the lower airways and finally penetrate the respiratory tract membranes. If the bacteria are not able to break through all of this, infection is prevented and vaccine-stimulated immunity will not be necessary. For example, compare the mucosa and cilia "innate" immune system to a firewall in an apartment complex and the sprinkler system to the vaccine-stimulated "active" immune system. Since the apartment complex firewall keeps the fire out of the next section of apartments, the next section's sprinkler system will not be activated. If the fire breaches the firewall, the sprinklers will be activated to fight the fire. When the innate immune system breaks, the active immune system begins fighting the pathogens. When we give a vaccine, the body builds antigens to fight that disease. It is like giving a blueprint of a sprinkler system to the plumber for installation in the building. So asking, "**Why even give a vaccine?**" is like asking, "Why even build a sprinkler system?" When we don't give a vaccine it is like not providing a blue print for a sprinkler system and not installing sprinklers. For certain diseases, animals have no "innate" immune system (firewall), so to protect our livestock we really need to give a vaccine. For example, veterinarians always recommend (and in many cases **require**) Blackleg vaccine in all cattle, even when animals are kept on the same farm. The reason for this is within 48 hours of observable symptoms of Blackleg almost all animals are dead. Blackleg spores live in the soil in all of North Carolina. Since researchers have not found a way to eradicate it, a producer's only wise option is to vaccinate.

Another question, "**Which is best ... Modified-live vaccine (MLV) or killed vaccines?"** is a common one. First let's review these two terms. A live vaccine contains bacteria or a virus that has been modified (MLV). This means they've lost their disease-causing ability (attenuated) or are administered by a route that prevents them from causing clinical disease, although the bacteria or virus is still alive. Killed vaccines are just what the name says – a solution of bacteria or virus which was attenuated (lost their disease-causing ability) but also resulted in bacteria or virus death. MLV and killed vaccine (two types of blueprints for a sprinkler system in the building analogy) have their individual advantages and disadvantages. Some positive attributes of MLV vaccines include: 1) A strong, long-lasting immune response that is achieved with fewer doses, 2) Virus vaccines' ability to quickly stimulate antiviral protection, 3) A minimum occurrence of allergic reactions. Some positive attributes of killed vaccines include: 1) Greater stability in storage, and 2) The unlikelihood of containing traces of contaminating vaccine. Another important thing the producer must remember, since this is occurring at a microscopic level, vaccinations need to be tested in the field where stress is an everyday occurrence. Ultimate determination of a vaccine's merits comes from controlled tests conducted under field conditions similar to the production setting. Evaluating a vaccine's effectiveness is very difficult because so many management factors can overwhelm a vaccine's effect. Therefore, specific vaccine recommendations should be made by a veterinarian familiar with the disease problems they typically experience on farms in the surrounding community. Also, to assist in choosing the correct vaccine, veterinarians must be familiar with a farmer's operation, type of cattle, and management style. The choice to vaccinate will ultimately depend on the targeted pathogen as well as the nature of the relationship between the animal, pathogen, vaccine, and management style. The bottom line for the builder in the apartment complex example is, "Did the builder provide the plumber the money and blueprint to install a sprinkler system that will prevent a fire from spreading throughout the whole building?" The bottom line for vaccinations to work is, "Did the producer provide his animals a low stress and healthy environment at vaccination time, so their bodies can produce the antibodies necessary to fight off the disease?" A very good article in Beef Magazine, written by Gerald Stokka & Louis Perino, gives a review of the MLV vs. killed vaccine. The Cooperative Extension Service brings you researched information. backed by our land grant universities: A&T Greensboro and NCSU.