



Sunflower Supreme Gazette

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Nutrition for heifers post breeding

Jaymelynn Farney, Assistant Professor, Beef Systems Specialist, Kansas State University

So you have gone through all the effort of getting heifers bred, now it time for them to ðgestateð into generating a calf next year. A word of caution, don't forget your bred heifer when she first gets placed on lush, growing summer grass, especially if you have bred her in a dry-lot situation. Now, you might be wondering why I am even mentioning anything about post-breeding nutrition on your heifers because good green grass should be the best thing to offer your heifers from a nutritional standpoint. **HOWEVER**, that lush grass can potentially limit dry matter intake which could potentially lead to a short energy deficiency. Perry and others in 2009, found that heifers when first moving onto lush green grass lost nearly 3 pounds per day.

So how important is that short-term energy deficiency in regards to heifer pregnancy rate?

To answer this Lake and others investigated abrupt changes in heifer diets immediately following breeding. These researchers had heifers in Wyoming and Purdue University. The researchers feed all heifers pre-breeding to ~125% of maintenance requirements which equaled an average daily gain of 1.4 pounds/day (Wyoming heifers) and 2.10 pounds/day (Purdue heifers). The heifers were synchronized and artificially inseminated (AI). Following breeding the heifers were split into 3 different post-breeding diets. The three diets included a **GAIN** treatment (125% of maintenance), **MAINTAIN** (100% maintenance), and **LOSE** (80% of maintenance). As would be expected, the heifers in the **GAIN** treatment kept gaining weight, those in **MAINTAIN** stayed about the same weight, and those in the **LOSE** treatment lost weight. Based on the post-breeding rations, the heifers on the **GAIN**

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Update for Sunflower Supreme Members

Jaymelynn Farney, Assistant Professor, Beef Systems Specialist, Kansas State University

Breeding season for spring-calving producers is currently going on, and I wanted to cover a couple of things for your success in the Sunflower Supreme program to-date.

Completed at this point:

- Bangs vaccination
- Weaning and Booster Vaccination Sheet (#2)
- Affidavit of Ownership for Purchased Heifers (can be found online at sunflowersupreme.org under the documents tab)
- BVD-PI test (make sure to turn in the official sheet with individual heifer numbers and the test result)
- Pre-breeding sheets and identification of the heifers that are being enrolled in the Sunflower Supreme program. Also, the \$2.50/head enrollment fee should be turned in with

the paperwork.

- Make sure your sires meet the EPD and ACCURACY requirements. Also, please have your agent print or save a copy of the bulls EPDs so that we have them for the sale catalog. This will become the bulls ðofficialð EPDs for the year.
- **REMEMBER:** If using AI, make sure to wait 14 days after AI before turning out your clean-up sire. The total length of the breeding season is only 60 days!!!

Once these have been completed you can turn the information in to your local extension office. Questions can be addressed to your local extension office or to Jaymelynn at jkj@ksu.edu or (620) 421-4826 ext. 17.

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“Diet transitions will help with heifer and bull reproduction”

POST

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treatment had significantly more heifers confirmed pregnant to AI than to both **MAIN-TAIN** and **LOSE**. Overall, the researchers were proving the point that heifers still need to be gaining weight after breeding, so it is important to make sure they have the opportunity to do so.

The results from that study make sense when you think about the physiology and maturation process of developing replacement heifers. We have found that heifers need to weight ~55-65% of mature body weight at breeding and by the time the calve need to be ~85% of their mature weight. Since a heifer can't make that change without gaining weight, purposefully keeping a heifer from gaining weight and growing post-breeding can have a negative impact on their reproduction.

Since it was found that heifers that do not gain weight post-breeding could influence pregnancy rates, the next question, is *“How long of a nutrient restriction can impact pregnancy rate?”*. To answer this question researchers at the University of Minnesota and South Dakota State University looked at the impact of diet on embryo quality. The researchers in this study fed their heifers pre-breeding to a targeted average daily gain of 1.5 pounds/day. All the heifers were synchronized and timed AI. Immediately following timed AI, the heifers at each location were split into two post-breeding diets (**GAIN** or **LOSE**). On day 6 of embryo development the embryos were flushed from the cows in a non-surgical method and evaluated for quality. The researchers found that the heifers that were on the **GAIN** diet post-breeding had significantly higher quality embryos, more total cells, and a greater number of live cells. In most measures of embryo development, a 6 day nutrient restriction resulted in retardation of embryonic development, which might be responsible for reduced pregnancy rates.

We have already stated that heifers transitioning to a lush, green grass could lose up to 3 pounds/day in the first week, which might lead to negative impacts on embryo quality and maturity within that first 6 days, which might reduce pregnancy rates, so now, *“What do I do to off-set that issue?”*. One thing that Perry and others found was that when they supplemented heifers post-AI with dried distillers grains, pregnancy rates were not negatively impacted. The researchers in this study fed 5 pounds/head/day for 42 days after AI.

After the initial large decrease in gain when transitioning to grass, in the next 20 days the heifers are back into a positive energy balance as evidenced by a positive average daily gain of ~1.65 pounds/day. Possible management strategies to mitigate this reduction in weight during the important first week post-AI include: (1) allow heifers to adapt to grazing before AI ~ 30 days before breeding, or (2) maintain consistent heifer performance pre- and post-breeding.

The final nutritional component to address includes, *“Can I get my heifers too fat by over-feeding and cause reproductive issues?”*. The answer to this question is YES! Several researchers have found that excessive body condition negatively impacted reproductive efficiency, increased the amount of assistance needed at time of parturition, and post-calving those *“over-conditioned”* heifers lost more body fat and took longer to re-breed than heifers that were at the ideal body condition score of a 6.

TAKE HOME MESSAGE:

- ◆ Without question, abrupt nutrition changes can impact reproductive function.
- ◆ Insufficient nutrition compromises general reproductive efficiency
- ◆ Transition diets of heifers, don't make abrupt dietary changes
- ◆ Provide additional dry matter when first placing pregnant heifers on lush green grass, post-breeding so that energy is not restricted immediately following breeding
- ◆ **DON'T** overfeed because excessively obese heifers have issues with breeding and calving and potentially costs too much

Remember to turn in your paperwork to your County Extension Agent....

Don't forget the other half of the breeding equation = BULLS

Jaymelynn Farney, Assistant Professor, Beef Systems Specialist, Kansas State University

Don't let your bull nutrition be overlooked and cause problems in your herd. At this point in the bull's life, he has been through the growing and development stage, and is now ready to work. Some things you can do to help your bull be successful with his mission is to make sure he is in adequate body condition prior to turnout and closely monitor him as he works. You should also be willing and able to supplement the bull outside of the heifers/cows if need be.

Pre-Breeding Nutrition:

The ideal bull that is ready to work is one that is a body condition score of 5.5-6.5 on a 9-point scale. Over-conditioned yearling bulls can be a problem for your operation and they need to get into appropriate working shape before turning out. Ideally, starting to make diet changes for bulls needs to occur 30 to 60 days prior to turn-out which often times the yearling bull needs to be gaining 1.5 to 2.0 pounds per day. You don't want to abruptly change diets on your bulls in that time frame, so a slow, steady diet transition is important. It takes 60 days for the sperm to mature, so causing stress can impact portions of your breeding season due to alterations in quality of sperm.

One management idea to help your bulls transition into their work and consuming the grass that they will be turned-out with the heifers, is ~67 days before breeding season put your bulls on the grass where they will be working. As was evidenced from the heifer article, that first 7 days of transitioning to a lush, green grass can have negative impacts on gain and growth. This stress could be enough that it impacts spermatogenesis. If you start doing the math, if you potentially put a stress of the bulls 67 days before breeding and sperm takes 60 days to mature, then your bull should have high quality sperm within 6 days of the start of your breeding season. If the nutritional deficiency lasts for the full 7 days (days 61-67 pre-breeding) then on the first day of the breeding season your bull will have his first day of quality, stress-free sperm.

Breeding Season Nutrition:

Your bulls are basically on the same plane of nutrition as your heifers, but are working

harder than the heifers so bulls often lose 100 - 200 pounds during the breeding season. Assessing the bull's body condition through the season will allow you to determine if you need to supplement your bull extra. This is one option to potentially maintain the productive life of your bull. Another thing is if your bull is too thin towards the end of the breeding season, you can remove him from the pasture and replace with another bull. This can become expensive and overall it might be more economical to supplement your bull to keep him at the appropriate body condition. Bulls that are too thin while breeding are less active and don't cover as many cows, thus potentially leading to reductions in breeding success.

Stocking number for bulls is dependent on multiple things such as age, size, condition, fertility, and libido. Typically, veterinarians recommend for a young bull that he cover the same number of head as his age in months. For example, an 18 month old should be placed with 18 cows or heifers. When using a multi-sire pasture try and make all bulls similar in age and size to minimize potential in-fighting and young bulls can't compete as well with older bulls.

Observation of bulls and heifers is very important for the success of your breeding program. You need to observe your bulls breeding behavior and libido to ensure they are servicing and settling cows. Also, observe the cyclicity of your heifers and cows. Those that keep coming into heat might indicate an issue with your bull, or a possible health or nutrition issue. Identifying this problem while in the breeding season, can help you overcome the issue and still be able to mitigate the issues.



Example BCS 6 bull ready for turnout

“Make sure your bull is in adequate body condition prior to turnout and be willing to supplement him above and beyond heifers”



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Anaplasmosis prevention in Beef Herds

Keith Martin, Wildcat District Livestock Specialist, Labette County Office

Anaplasmosis can be a costly disease to beef cattle producers. Anaplasmosis is caused by a blood-borne organism that destroys red blood cells and causes severe anemia, weakness, fever, lack of appetite, depression, lower milk production, jaundice, abortion and sometimes death. Adult cattle are more susceptible to infection than calves and generally the disease is more fatal to cattle over three years of age. Animals that recover from infection usually remain sources of infection for other cattle for the remainder of their lives.

A transfer of blood must occur for anaplasmosis to spread from a carrier animal to a susceptible animal. Ticks, horse flies, stable flies and mosquitoes are the most common vectors for spreading the disease in cattle. Humans can also be a mechanical vector through the use of equipment (needles, scalpels, tattoo equipment, dehorers, etc) that is contaminated with anaplasmosis infected blood on susceptible animals.

Treatment of infected animals is difficult due to the fact that many of the clinical symptoms of anaplasmosis may not occur until the animal is in the acute stage of the disease.

As with most diseases Benjamin Franklin's statement, "An ounce of prevention is worth a pound of cure" is most applicable. Reducing vector transmission is the most practical way to reduce problems with anaplasmosis. De-

veloping a prevention plan with your veterinarian which contains some or all of the following elements can be helpful in reducing losses from anaplasmosis.

1. Absolute control of all insect vectors is neither practical or possible. However, avoiding grazing in areas that harbor large populations of ticks during certain times of the year as well as treating with insecticides when economic thresholds are reached can be helpful in reducing incidence of the disease.
2. Follow strict sanitation procedures anytime vaccinations or surgery are performed.
3. Consider testing herd to identify carrier animals. Either remove from herd or develop a treatment plan with your veterinarian to clear carrier animals.
4. Feed Chlorotetracycline (CTC) daily during the vector season to prevent transmission to susceptible animals. The labeled prevention rate is 0.5 milligram per pound weight daily. It is important to monitor mineral and feed intake so that the correct rate is fed daily.

*Knowledge
for Life*

Update

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Thinking Ahead:

Pregnancy Check #1: Remember that the first pregnancy diagnosis needs to occur ~90 days after the start of the breeding season. This means that all heifers will have a fetus that is between the ages of 30 - 90 days, which most veterinarians say is the easiest to determine fetal age. Now would be a good time to start talking to your veterinarian to determine the method of pregnancy diagnosis that they are the most comfortable with. Just a reminder, for this first pregnancy diagnosis, we need to be able to estimate fetal age so

that estimated calving date is able to be determined. Whatever method is chosen for pregnancy diagnosis, make sure that estimated calving date is able to be identified. That being said, if you are wanting to utilize the blood pregnancy detection method, please contact Jaymelynn Farney prior to use of this method because this does not determine age...the test only determines if the animal is pregnant or not! Two great articles about the methods for pregnancy diagnosis will be included in the next issue of the Sunflower Supreme Gazette.

The purpose of this program is to provide cattle producers "best management" guidelines for replacement heifers and provide educational opportunities for improvements in revenue, reproductive success, and longevity within their cattle operation.

Program is a joint effort between K-State Research and Extension and the Kansas Department of Agriculture