

Making Cows Out of Heifers

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DEVELOP YOUR HEIFERS FOR THE FUTURE

The replacement heifer is a mixed blessing for most cow-calf operators. On the one hand, she represents future profitability and genetic improvement of the cow herd; thus her selection and development are of paramount importance to the continued success of any cow herd.

On the other hand, the replacement heifer is an inconvenience at best. Her smaller size and higher nutritional requirements dictate she be raised and managed separately from the rest of the herd; yet the fact that she is essentially non-productive for the first two years of her life makes her easy prey for mismanagement. Nevertheless, proper growth and development of the replacement female from birth until she produces her first calf are of critical importance for her to become a highly productive part of the cow herd.

WHY IS PROPER HEIFER MANAGEMENT PROFITABLE?

1. *Reduced breeding costs.* Stringent culling eliminates poor replacement prospects prior to investing time, labor and expense into breeding these heifers. Over the years, pre-breeding soundness exams at Heartland Cattle Company have resulted in an average 3 to 9% culling rate prior to breeding. Reasons for culling have included small pelvic area, infantile reproductive tracts and/or various functional soundness problems. When these poor replacement prospects are identified prior to breeding, it allows the rancher to merchandise them in a more timely manner, thus improving cash flow and reducing total carrying costs.
2. *Increased conception rates.* Only early born, efficient gaining heifers should be kept as replacement prospects. In addition, a pre-breeding soundness exam can help identify those heifers that are the most likely to conceive. These advantages, combined with proper nutritional development, result in higher first service conception rates and pregnancy rates. Historical data from Kansas State University and Heartland Cattle Company indicate proper heifer selection and development increase pregnancy rate by an average of 8% across herds and location.
3. *Heavier calves at weaning.* Estrus synchronization results in an earlier average conception date within a defined breeding season. This translates into older, heavier and more uniform calves at weaning. In addition, the use of high accuracy expected

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progeny difference (**EPD**) sires can result in calves with superior genetics for gain efficiency. *Please keep in mind that calves with superior growth genetics are not necessarily excessively large framed cattle.* The key is to identify moderate framed cattle with superior growth traits that still have the ability to reach puberty at an early age.

4. *More uniform calf crop.* The use of high accuracy EPD sires results in a calf crop with uniform genetics for growth, frame, muscle, etc. This leads to increased quality and predictability of steer and heifer progeny and makes retained ownership and grid marketing at harvest viable options.
5. *Decreased bull costs.* With the incorporation of an artificial insemination (**AI**) program, fewer bulls will be purchased and maintained by cow-calf producers. Supporting data from Colorado State University indicates the use of AI can result in savings when compared to natural service breeding programs.
6. *Less calving difficulty.* AI sires with high accuracy EPD's for calving ease result in less calving difficulty, fewer calf losses, heifers which breed back earlier and increased productivity of replacement heifers. Data collected from Kansas State University and Heartland Cattle Company indicate an average improvement in weaned calf crop of 7% and an average improvement in rebreeding for the second calf of 8% when heifers are placed in a program with proper nutritional development along with estrus synchronization and AI.
7. *Decreased labor at calving.* Heifers that undergo estrus synchronization will calve in a shorter period of time. This decreases the labor requirement at calving and increases the amount of time that could be devoted to other enterprises. More importantly, a concentrated calving season simplifies subsequent nutrition and health programs for the rancher.

HOW CAN I ACHIEVE THESE GOALS?

The ideal heifer program has two components, (1) *identifying the right heifer calves and* (2) *the developmental program.* Once you have a genetically superior, healthy heifer calf on the ground, don't assume your work is over. Quite the contrary! In fact, the future success of your operation depends heavily on how you develop that heifer calf over the next two years. By following proper heifer development procedures, producers have a better chance of incorporating a female into their herd that will be productive for years to come. Research conducted at Heartland Cattle Company shows a successful program revolves around the following points:

1. Heifers should mature at 1100-1300 lbs, depending on available feed resources. The key is to match weight with appropriate frame. Be careful when selecting for lighter weight cattle going into hostile feed resource areas that you are not inadvertently selecting for hard-keeping, inefficient cattle. For example, a heifer that will mature at 1100-1150 lbs should be in the "high four" frame score category. A frame score

“six” heifer that matures at 1100-1150 lbs is simply a narrow, light muscled, hard fleshing female.

2. Heifers should be moderate framed. Data from Heartland Cattle Company shows that medium framed heifers, within a biological type, have the highest fertility year in and year out. Taller, larger framed heifers have a longer growth curve and tend to reach puberty later.
3. Color is a personal preference, but it is also an important perception when trying to establish a uniform cow herd. Our preference is a solid black or red bodied heifer. A white or mottled face is acceptable if there is pigment around the eye for reducing the incidence of pink eye.
4. Don't forget the advantages of hybrid vigor! A planned crossbreeding program will return big dividends in the form of improved fertility and growth. The key here is to develop a *closely controlled plan and stick to it* so that consistency and uniformity are not sacrificed.
5. Heifers should have genetic merit for maternal ability, growth and carcass traits.
 - a. *Maternal traits.* Select for a high quality udder and plentiful milk production; however, milk production should not be so high that it interferes with fertility within a particular feed resource environment. In addition, females should show natural protective behavior toward their calves without being overly aggressive when managed in their natural environment.
 - b. *Growth traits.* Females should be able to produce moderate framed, fast gaining, and easy fleshing heifer calves for replacements. Feedyard progeny should mature at 1,100 to 1,350 lbs, with the ability to gain weight rapidly at minimal dry matter conversion rates. Exceptional cattle (depending on age and condition) can gain up to five lbs per day and convert feed to gain at a rate of five to one.
 - c. *Carcass traits.* Females should consistently produce calves that can be harvested by 13 to 14 months of age with Choice, Yield Grade 1 to 2 carcasses. Carcasses should be between 700-850 lbs and loin eye area (an estimator of red meat yield) should range from 12.0 to 14.5 square inches.
6. Heifers should have a calm disposition. This results in better fertility, weight gain and meat quality. This also means less wear-and-tear on facilities and ranchers!
7. Heifers should have a permanent identification so genetic merit and production ability can be measured.
8. Heifers should be structurally sound and have functionally sound eyes, teeth, jaw, and udder.
9. Heifers should be fully vaccinated on a timely schedule. Research published by Heartland Cattle Company shows proper preconditioning programs can effectively

reduce treatment rates by as much as 20%. Also, it is extremely important that heifer calves are officially calfhood vaccinated (**OCV**) for brucellosis prior to ten months of age. After ten months of age, they run the risk of showing a positive titer for brucellosis as a young cow.

10. Biosecurity issues cannot be ignored. High-risk cattle associated with Persistently Infected Bovine Viral Diarrhea (**PIBVD**), Johnne's and Listeriosis should be eliminated and appropriate testing procedures implemented where necessary.
11. Heifers should undergo a reproductive soundness exam 35 to 45 days prior to breeding, including a reproductive tract score, body condition score, pelvic measurements, body weight and functional soundness evaluation. When considering pelvic measurements, a conservative view is encouraged. Because we find there are differences between technicians and instruments when measuring pelvic area, we prefer to use these measurements only to sift out the obvious problems and bottom-end cattle. These measurements are also useful in identifying and tracking sire lines that might produce potential pelvic area problems in their daughters.
12. Heifers should be fed at a controlled rate to weigh 715-845 lbs (65% of their mature body weight) when they are first bred. Optimum gain and breeding weight will vary according to body condition and estimated mature weight.
13. Body condition score should be 5.75 to 6.00 at time of first breeding.
14. Heifers should be synchronized to breed at 13 to 14 months of age.
15. Heifers should be bred artificially to prove n calving ease sires at least 21 days ahead of the mature cow herd. This gives the producer at least one extra cycle to rebreed heifers and still keep them on a timely calving schedule. Additionally, this enables the producer to devote all attention to first calf heifers if they calve before the mature cow herd.
16. At least 70% of all heifers should conceive by artificial insemination, on the first service, to a high accuracy EPD, multiple trait sire.
17. Heifers should be pregnancy tested at 45 to 90 days post-breeding so that open heifers can be identified early for feeding and harvest.
18. Heifers should be maintained on a nutritional developmental program so they will achieve 85% of their mature body weight by the time they calve the first time.
19. Heifers should calve unassisted at 22-23 months of age.

20. Heifers should develop into a cow that will consistently rebreed on minimal inputs within a 365-day calving interval over a productive lifetime of *at least* seven years.

SHOULD I CONSIDER "PROFESSIONAL HEIFER DEVELOPMENT"?

Since Heartland Cattle Company originated *Professional Heifer Development* in 1990, the concept has become a recognized sector of the beef cattle industry. Since its inception, there have been countless articles written on the concept of professional heifer development and many people have attempted to establish similar programs. While this has been a positive move in the cattle industry, it has also led to confusion on the part of many producers as to whether they should consider professional heifer development in their own beef cattle enterprise.

When evaluating the need for professional heifer development, it is imperative that a rancher takes the following into account:

1. *The opportunity value of his labor, feed resources and facilities.*
2. *Value per dollar spent.*
3. *Accountability of the heifer development program in question.*

To properly evaluate these points, it might be helpful for a rancher to ask the following questions:

1. Do I have the labor force, technical expertise, and facilities necessary to handle a heifer development and breeding program?
2. Do I have the time to devote to a heifer development program or would it be more profitable for me to devote my time elsewhere? (i.e. spring farming, an off-farm job etc.)
3. Do I have enough heifers to make it economically feasible for me to devote my time, labor and facilities to developing and breeding heifers, or would it be to my advantage to forward contract professionally developed, bred heifers with known genetics?
4. Should I consider becoming a specialized terminal producer, sending all of my calves (heifers and steers) into feeding programs and then buying professionally developed bred heifers with the proper maternal genetics? Would this concept allow me to more efficiently market my entire calf crop, reduce my labor requirements, and increase my overall profitability?
5. Would it be more profitable for me to increase my mature cow herd numbers rather than devote grass resources to developing replacement heifers?

6. Should I develop my replacement heifers elsewhere so I can devote my best feed resources to my two- and three-year-old cows in an effort to improve total cow herd management?
7. Should I consider using my crop ground differently? (i.e. plant cash crops with a higher opportunity value as compared to planting crops which will be used to feed replacement heifers?)
8. What is the long-term comparative cost of buying replacement heifers from a sale barn with no known information behind them as opposed to purchasing professionally developed heifers with known genetics?
9. If I do commit to a heifer development program, will it be managed in such a way that I am assured of AI pregnancies versus clean-up bull pregnancies?
10. Does the heifer development program under consideration have any legitimate history of success and can it document reproductive performance? Can the program offer multiple references?
11. How much could I improve profitability by calving estrus synchronized heifers bred to high accuracy EPD bulls in terms of increased conception rate, earlier calving date, less calving difficulty, more uniform and predictable genetics and reduced bull requirements?