

# Replacement Heifer Development Steps

Dr. Mark A. McCann

Extension Animal Scientist, VA Tech

Few management items exert a greater influence on the productivity of your beef cattle herd over time more than replacement heifer selection and development. Many cattlemen's best and worst memories are related to the success or failures of their replacement heifers. While research has suggested there are many different ways to be both successful and economical, there are some basic principles and practices which will increase the odds for success.

## Principles

- 1) Heifers represent the future of your herd and the fruits of your genetic progress.
- 2) Breeding as virgin heifers is always more successful than as lactating two yr olds.
- 3) All cattlemen do not need to retain and develop their own heifers.

## Practices

### Decisions

- Many small-scale and part-time cow-calf operations are not well equipped to add an additional management group that needs to be maintained separate from the mature herd. Co-mingling developing heifers or lactating 2-year olds with the mature cow herd can only make targeted management practices or supplementation more difficult or impossible. In these situations, the purchase of bred cows could be the wise solution.
- Large scale farms with several diverse enterprises can also be challenged if the timing of breeding or calving heifers conflict with planting, harvest or other farm enterprises. Additional labor could be needed to accomplish the diversity of tasks. Taking advantage of estrus synchronization and AI can minimize the amount of time, but it also raises the importance and expertise of labor during these important periods.
- Finally, cattlemen who are trying to make large improvements in their cow herd genetics many times can make faster progress by purchasing superior replacement heifers as compared to improving their genetics by selection alone.

### Selection

- Any replacement heifer which is retained should be a genetic improvement over the cow herd. Emphasis should be on sire choice and the selection pressure applied. Typically, the top 30-50% of heifer calves should be retained to keep herd size constant.
- In the absence of records, heavier weights are important criteria since it indirectly selects for earlier born and faster growth.
- Functional traits such as disposition, structure and size should also play a role in the selection process.

### Management

- If identified, do not implant heifers that will be retained as replacements.
- Crossbreeding will decrease age at puberty.
- Reproductive tract scores (RTS) and pelvic area measures can be used as screening indicators of sexual maturity and pelvic area relative to body weight or size.
- Consult your local veterinarian for recommended vaccinations and schedule.

### Development

- Post weaning nutrition programs should focus on ADG which will get heifers to ~65% of their expected mature weight 20-30d before onset of breeding mature cows. Daily gains of 1.0-1.5 lb/d will work.
  - Average hay and 1% of body weight in supplement~ 1.5lb/d
  - Good quality stockpiled fescue ~ 1.0-1.2 lb/d
  - The higher gain level should be the target for operations using an AI program
  - Research from Kansas and Oklahoma suggest that slower (<1.0lb/d) then accelerated rates of gain ( $\geq 2$  lb/d) were just as effective in % heifers achieving puberty. This slow then fast approach also reduced dry matter inputs, total feed costs and resulted in heifers cycling earlier.
  - Research from Nebraska and Montana reports satisfactory success and cost savings when less than the 65% of mature weight is the target (55-60%). Increasing the breeding season from 45 to 60 days provided similar pregnancy rates for restricted vs conventional feeding programs.
  - The addition of monensin or bovatec to development rations or mineral mixes will enhance daily gain and the onset of puberty.

### Breeding

- All service sires should be in the most desirable 40% for birth weight (BW) and breed average for WW, YW and milk EPD's.
- Keep breeding season short (<45 days) and begin 20-30 days before the cow herd.
  - Calving season management is compressed
  - Maximizes the head start in calving date compared to the mature cows
  - Replacement heifers are excellent candidates for AI and many different synchronization programs will work effectively
- Pregnancy check ASAP after breeding (40-45 d).
  - Increases market options for heifers which did not work in your system
    - Can be sold or retained as stocker heifers and placed on feed
    - Can be bred for other operations or as recipients

### Post-Breeding

- Post-breeding daily gain should be ~.8 lb/d.
- Good rule of thumb is that heifers should calve at about 85% of their mature weight and a condition score of 6.