

Ultrasounding Heifers

Producers, experts weigh in on how ultrasound can best be used in selecting replacement heifers.

by Troy Smith

Among cow-calf producers who routinely retain home-raised heifers as herd replacements the process often stirs mixed emotions. On the one hand, it's fun to watch heifer calves develop, consider their parentage, and compare their performance. It's fun to narrow your picks from the most promising candidates. It can make you anxious. After all, those replacement heifers represent a significant contribution to the genetic improvement of the cow herd. At least, they should.

On the other hand, keeping heifers can be a nuisance. It's inconvenient from a management standpoint. Replacement heifers have to be managed separately from the cow herd. Their nutritional requirements are different, so developing replacements to breeding age and beyond is relatively costly. They're essentially nonproductive for the first two years of their lives. First-calf heifers may display a higher incidence of calving difficulty. And, after calving, some heifers won't breed back in a timely fashion. Some may die or be injured. For whatever reason a heifer falls out of the program, her failure can raise the average cost of those that remain.

No, we're not building an argument favoring the purchase of bred heifers or young cows over raising replacements. The point is that replacement females have to stay in the herd and maintain their productivity to be profitable. But profitability also hinges on production of a desirable yearly coupon — a calf deemed valuable in the marketplace. So whether you raise replacement females or buy them, the reasons why they were chosen for breeding do matter.

Ultrasound selection

The fine-tuning of replacement heifer selection criteria is a never-ending process for conscientious herd managers. From the available tools, many seedstock breeders have



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adopted ultrasound evaluation of breeding heifer candidates for carcass traits including marbling, ribeye area and fat thickness. At Danciger's Tybar Ranch, Carbondale, Colo., applying ultrasound to heifer selection represents a twist on an old-time saying: "What's good for the gander is good for the goose." In other words, the Angus seedstock operation's late founder, David Danciger, believed scrutinizing sires for carcass merit was not quite good enough.

"David wanted to use all practical tools that would benefit our customers, including

carcass and ultrasound EPDs (expected progeny differences). Quite a few of our customers retain ownership and market high-quality beef," says ranch manager Mark Nieslanik. "We need to select for positive carcass traits, in the sires we use, but also in the females we retain."

However, Nieslanik says careful attention to customer needs also means that selection for carcass merit must be kept in perspective. With a majority of their commercial customers managing herds at high elevation, selection for resistance to pulmonary hypertensive heart disease (also called brisket disease, high-mountain disease or high-altitude disease) is a priority. With that in mind, replacement females are evaluated

► **Above:** "We believe in ultrasounding heifers, not only as a final keep-cull selection tool, but perhaps just as importantly to nearly double the ultrasound data from your calf crop," Nichols states. "That increases the accuracy (of EPDs) for young herd sires and adds to the accuracy of dams which may not have been ultrasounded."

for reproductive soundness, calving ease and growth traits. From there, selection is narrowed through consideration of carcass traits.

At R.A. Brown Ranch, Throckmorton, Texas, ultrasound evaluation is applied to selection of females retained for herds representing multiple breeds. Scanning of Angus replacement candidates began with heifers born in 1998. Manager Donnell Brown says the practice aids more rapid improvement in carcass merit. It's been particularly useful in evaluation of progeny resulting from embryo transfer (ET).

"Because the Angus Association adjusts carcass EPDs according to how animals scan, they offer a better representation of genetic merit than numbers based on parentage alone," Brown offers.

Multi-trait selection

But Brown also stresses the importance of multi-trait selection. He calls reproduction most important, with growth and calving ease tied for second and third place. Cattle have to function in the ranch environment and perform efficiently. Replacements have to be judged first on their ability to meet goals for those economically important traits before consideration of carcass merit.

"But carcass merit can tip the scale for heifers that might be on the bubble," Brown adds. "Suppose a heifer looks good for fertility and growth traits, but she's borderline for calving ease. Good carcass data probably makes her worth keeping."

Few breeders have used ultrasound to evaluate replacement females as long as Nichols Farms of Bridgewater, Iowa. It's been a regular practice since Iowa State University (ISU) utilized the Nichols herd to validate ultrasound research conducted from 1988 to 1992. Owner Dave Nichols also serves on the board of directors of the National Centralized Ultrasound Processing Laboratory (the CUP Lab), in Ames Iowa. The Nichols Farms crew includes a full-time ultrasound technician.

Replacement heifer candidates are scanned at about 13 months of age, just prior to breeding, when they are as near as possible to the age and weight of market steers. Nichols wants to evaluate heifers at a time that most closely mirrors the time of industry marketing decisions.

It's doubtful, Nichols says, that very many seedstock breeders would ignore individual phenotypic data such as birth weights or weaning weights. Scanning heifers adds to each animal's phenotypic data. Without it, a breeder must make selection decisions on pedigree-based EPDs only.

Herd sire evaluation

"We believe in ultrasounding heifers, not only as a final keep-cull selection tool, but perhaps just as importantly to nearly double the ultrasound data from your calf crop," Nichols states. "That increases the accuracy (of EPDs) for young herd sires and adds to the accuracy of dams which may not have been ultrasounded. By scanning heifers as well as steers you almost double the amount of ultrasound data on a produce-of-dam record."

Costing in the neighborhood of \$10 to \$15 per head, scanning heifers isn't cheap. It's enough to make some breeders balk, and especially commercial operators. Diagonal, Iowa, cattleman and ultrasound technician Craig Hays says application of the technology by commercial producers has been sporadic. He fears many commercial producers are unsure about what the data means and how it should be used. In Hays' opinion, there's a need for more education.

"The best way to apply ultrasound data is as a culling tool, not cherry-picking heifers with impressive numbers," Hays advises. "Reproduction still is most economically relevant, followed by growth traits. When you have chosen heifers that

meet your criteria for those traits, you can use ultrasound information to cull a little harder — taking another five or 10% off the bottom."

Auburn University geneticist and Extension specialist Lisa Kriese-Anderson agrees that carcass ultrasound data should be used only after other criteria are set. She also reminds producers that cull-keep decisions should not be based on actual ultrasound measurements. Rather, decisions should be based on how individual heifers rank within their contemporary group.

"Too many people get wrapped up in actual measurements. Comparison within contemporary groups is what matters," Kriese-Anderson states. "Actual ultrasound measurements are raw data; no different than weaning weights. They aren't comparable across different production environments. Purebred breeders should work from EPDs, and commercial producers should work from contemporary group ratios.

"You have to set goals and use the information properly to make any progress," she continues. "Otherwise, you're wasting your time and money."

