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Miss. Premium Replacement Heifer Program: Custom Heifer Development for Mississippi Beef Cattle Producers

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Selection and development of beef heifers, to replace culled cows or increase herd numbers, impacts the economics of a cow-calf operation through genetics and longevity. Improved genetics can enhance growth performance and carcass value, while eventual longevity of the heifer as a mature cow is influenced by reproductive success during the first breeding season.

With these concepts in mind, the “Miss. Premium Replacement Heifer Program” was initiated as a way for Mississippi beef cattle producers to have their heifers economically developed in a way that will ensure their longevity in the cow herd.

The initial year of the program recently concluded at Broke-T Farms in Philadelphia, MS. Broke-T is a family owned and operated beef cattle and poultry operation. The owner/operator is Johnny Thompson, an experienced cattlemen and graduate of Mississippi State University where he earned his B.S. and M.S. in Poultry Science.

In the initial round of the program, 65 heifers were consigned and delivered in late November. On arrival, the heifers received booster vaccinations (modified live) for reparatory diseases and an initial vaccination for *Campylobacter fetus* (Vibrio) and leptospirosis (Lepto). They also received a Vibrio/Lepto booster prior to breeding. It is important to vaccinate against Vibrio and Lepto to prevent early abortions and delayed conception. Weights were also recorded at delivery and used as a baseline to calculate average daily gain (ADG).

Nutritional management was based on a total mixed ration of ryegrass baleage, corn gluten, dried distillers grain, soy hulls, peanut skins and a complete mineral mix. The heifers were kept in grass traps with adequate bunk space, shade and shelter. The original goal for this program was to maintain an ADG of roughly 1.5 pounds. Due to hybrid vigor, exceptional performance of the consigned heifers and excellent management, the actual ADG was more than 2 pounds.

Pelvic area measurements and reproductive tract scores were taken in mid January. Pelvic area measurements are simply an indication of the size of the birth canal. The width and height of the pelvis are measured, using a specially designed caliper, at the narrowest point. Those distances are multiplied together to estimate the pelvic area in square centimeters. Originally, this measurement was related back to the age and weight of the heifer through a series of calculations to determine the maximum size calf that heifer could calve without assistance. Now, the most common use for pelvic area measurements is to set a cutoff and cull the heifers that do not meet or exceed it. For

instance, the cutoff value for “Miss. Premium” heifers is 150 cm² when measured at 12 months of age and roughly 800 pounds.

Reproductive tract scores are an estimation of the sexual maturity of each heifer. The technician palpates the uterus for size and tone and the ovaries for structures that would indicate they have reached puberty. The scores range from 1 to 5 with a score of 1 indicating that the heifer has not begun to mature and a score of 5 indicating that the heifer is displaying normal estrous cycles. The practical use of reproductive tract scoring is to cull heifers below a score of 3 and keep heifers with a score of 3, 4 or 5. If estrous synchronization with Melengesterol acetate (MGA) or a controlled intervaginal drug releasing (CIDR®) device will not be used, culling heifers that score a 3 might also improve overall pregnancy rates. Four of the original 65 consigned heifers were culled for pelvic area or other reasons. None were culled for reproductive tract score.

Estrous synchronization for this project began in mid February with CIDR® application and injection of Cysterelin® (GnRH). Seven days later, the CIDR® was removed and an injection of Lutalyse® (Prostaglandin) was given. Each heifer was artificially inseminated (AI), to a bull the consigner chose, 12 hours after the first display of standing heat. They were put with a clean-up bull 10 days after insemination. For this particular group of heifers, 8 did not show standing heat and received another injection of Lutalyse® ten days after the first. One heifer responded to that injection and the others were put with the clean-up bull without having been artificially inseminated.

Pregnancy was diagnosed, by ultrasound, 30 days after AI. Normally, pregnancy would be diagnosed at least 30 days after the bull is removed. These heifers were checked earlier for accuracy in determining the difference between AI and bull bred and will be re-checked before they are returned to the consigner. The single-service AI conception rate for this group was 79.6% (43/54). The heifers will be returned to their farm of origin 50 days after the latest diagnosed pregnancy to avoid pregnancy loss from shipping stress.

Overall evaluation of the first round of the Miss. Premium Replacement Heifer Program is that it was extremely successful and a winning proposition for both Broke T Farms and the consigner. The most cited benefits for the consigner were that having his heifers custom developed on a different farm reduced his overall costs per bred heifer returned and freed up land and time to focus on breeding the cow herd and managing the calf crop.

Broke T Farms will be accepting heifer development consignments twice per year. As with any other program facilitated through the Mississippi State University Extension Service, feel free to contact your local office, Area Livestock Specialist or State Beef Cattle Specialists for more information.