

PREPPING FEEDING & MANAGING WAGYU REPLACEMENT HEIFERS

By Dr. Jimmy Horner

One of the major challenges on many Wagyu farms is the successful development of replacement heifers with adequate size and acceptable milk yield potential. Though there is an abundance of information from a variety of sources regarding nutritional management of heifers for many beef and dairy breeds, there is very limited information on this subject available for Wagyu producers.

I arrived at the conclusion years ago that a Wagyu heifer and her physiological needs are unlike most any other beef breed and are much more comparable to those of a dairy heifer. Thankfully, this revelation dove-tailed into my own personal experience with feeding dairy heifers since the ripe old age of ten.

Exactly what makes a Wagyu heifer so different from other beef heifers? For starters they: 1) are phenotypically different being smaller and more feminine with a finer-boned, sharper, and more angular appearance (see photo comparison below); 2) usually attain sexual maturity at an earlier age; 3) are a breed known for easy calving; and 4) are a breed with room for improvement in maternal traits, especially milking ability. Wagyu producers can benefit by incorporating these unique aspects into designing their replacement heifer programs and setting growth targets, etc. If this is done, most of the general



Japanese Black Wagyu Heifer
Photo Courtesy of Lone Mountain Wagyu



Angus Heifer
Photo Courtesy of Coyote Acres Ranch

guidelines for other breeds and for commercial beef heifers are of limited value.

In general, Wagyu heifers should be bred by 14-15 months at a breeding weight of 650-750 lbs or at 65-70% of their expected mature weight. Some are now promoting that beef heifers be bred at 55% of their expected mature weight, and while most Wagyu heifers could certainly be candidates for this approach from their attaining puberty at such a young age and being a breed known for small calves, the 65% mature weight guideline at breeding is

still recommended due to the need for maximum milk yield potential after calving.

We are also aware of some producers choosing to delay breeding Wagyu heifers until 30 months of age and sometimes even as old as three years of age. However, this delayed approach to breeding virgin heifers is not only expensive but also significantly shortens their lifetime productivity resulting in up to one less calf. I do understand this approach in attempting to maximize milk yield and calf size and health, but I would rather see an emphasis on genetic potential for milk in a producer's breeding program combined with a high plane of nutrition for both dam and calf post-calving instead.

Though sexual maturity of heifers is highly related to interactions between age, weight, and breed type; plane of nutrition remains the single largest determinant of the age at onset of puberty. Wagyu are inherently an early-maturing breed compared to most other beef breeds with an average age at puberty of 9-10 months and some females beginning to cycle as early as 6 months of age. Though plane of nutrition is the major determinant of when a heifer begins cycling, care must be taken in not overfeeding heifers prior to puberty.

Excessive energy intake beyond needs for structural growth in heifers may limit mammary development. This is due to the infiltration of fat cells

Peak and Average Milk Production for Common Beef Breeds

Breed	Peak milk lbs/day	Average milk lbs/day
Angus	20.7	14.9
Charolais	21.6	15.1
Hereford	18.7	12.5
Limousin	20.9	14.1
Simmental	24.1	16.8
Avg.	21.2	14.7

Source: Meat Animal Research Center.

Wagyu Cows	15.5	10.7
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Source: Shingu, H. et al., 2002; Shimada, K. et al. 1988.

into the udder instead of milk-secreting cells thereby limiting future milk production. Moderate condition and weight gain targets of 1.5-1.75 lbs per head daily prior to puberty are preferred in Wagyu replacement heifers in order to attain desired weights at breeding with adequate frames yet avoiding the potential for impeding future milk yield. The amount of energy fed to heifers along with weight gain targets may be increased after puberty while still avoiding overly-conditioned heifers and the array of issues associated with over conditioning.

While over conditioning heifers must be avoided, nothing can overcome the negative effects of poor nutrition either. More and more research is teaching us that how well a heifer is fed not only affects her but also her developing embryo and calf. Now we also know that a heifer's nutrition status can even affect her offspring's future productivity as a parent for up to at least two generations as well. Bottom line is nothing can take the place of good nutrition in a replacement heifer program, but Wagyu producers must exercise some degree of restraint on the amount of energy fed and the associated weight gain targets prior to puberty to ensure optimal milk yield potential in cows.

I mentioned earlier that Wagyu heifers feed much more similarly to dairy heifers than beef heifers. This is one of the first revelations I arrived at while learning about this wonderful breed. Wagyu calves and heifers actually feed very much like Jersey heifers

shopping around for a calf starter (pre-weaned) or a grower (post-weaned) in their local area, a high protein (18-22% CP) dairy calf starter or 14-16% CP heifer grower is much preferred over a lower protein beef feed.

Over the years we have also discovered that the Wagyu breed closely parallels the Jersey breed in the manner in which trace mineral and fat-soluble vitamins are metabolized. Minimum requirements

for these nutrients tend to be as much as 25-50% higher in Wagyu cattle than those needed in conventional beef rations. Researchers have documented that the Jersey breed is inherently less efficient than other cattle breeds in being able to mobilize several trace minerals from their livers such as copper, zinc, and manganese when needed. Wagyu cattle appear to struggle with this same issue. As a result, it is a good practice to increase these compounds in Wagyu diets incorporating highly bio-available sources such as chelated trace minerals in formulations.

Monitoring growth with periodic

with comparable nutritional requirements. This means Wagyu heifers require more dietary protein than indicated in standard National Research Council (NRC) beef heifer nutritional requirement guidelines and levels found in most commercial beef feeds. So, if a Wagyu producer is

weighing is a must to ensure heifers are growing properly. Every herd should consider establishing a plan with growth targets for their heifers as well. We typically suggest a calf's birth weight should be doubled by two months of age with heifers at 55-60% of mature weight at onset of puberty, 65-70% of mature weight at breeding, and 85% of mature weight at calving. Obviously, mature weights may vary among herds depending on genetics and feeding programs. Weighing a representative group of cows in moderate body condition that have had three or more calves can be used to determine the average mature weight in your herd.

Though immediate and short-term effects on calf health have been known for some time, longer-term effects on growth, reproductive efficiency, milk production, etc. have come to the forefront in recent years. The 5 C's of

- **Colostrum**-1st 12 hours critical, provide all calves from fullblood or high percentage 1st calf heifers with colostrum replacer, vaccinate dam for E. coli pre-calving
- **Calories**-focus on milk yield of dam via both genetics & nutrition, offer high quality creep/starter within 1st 3 days, early weaning = higher quality & heavier marbled carcasses
- **Cleanliness**-clean, comfortable & dry calving conditions, good sanitation, fresh feed & water
- **Comfort**-stress impacts efficiency, growth, reproduction & carcass quality more than any other single factor. Post-weaning stress must be minimized. Wagyu more sensitive to stress than European breeds.
- **Consistency**-Most challenging of the 5 C's. Japanese farms tend to be more uniform and consistent than U.S. farms. Best U.S farms more consistent than other operations.

a healthy start---- Colostrum, Calories, Cleanliness, Comfort, and Consistency cannot be emphasized enough.

Everything that is done in a successful Wagyu replacement heifer program should lead to the ultimate goal of a well-grown, healthy herd replacement ready to calve at an optimum age and size to maximize her productive life. Undoubtedly, it takes a considerable investment of time and capital to raise Wagyu replacement heifers, but fortunately, we're involved with a breed that has an innate potential ability to return that investment to owners several times over. 🌱