

# Replacement Heifer Target Weights

## Are You Meeting These Biological Targets?

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Replacement heifer nutrition is tremendously important as it directly affects a heifer's lifetime reproduction, longevity, productivity and profitability in your herd. In dry years with limited forage supplies, heifer nutrition is a high priority area needing extra attention to minimize potential long-term impacts for your herd. Likewise, in years where precipitation affects harvest timing and/or hay quality it also requires extra attention.

For heifers to successfully enter the herd they need to grow enough to reach puberty and breed by 13-15 months of age to then calve at 2 years of age, and annually after that. Puberty is related to weight and age, rather than just age (or more correctly, it is related to physiological maturity based on a percentage of mature weight rather than chronological age). As a result, targeted nutrition is vital in ensuring your replacement heifers are ready to breed and conceive in time to calve at 2 years of age. Nutrition during their development also carries over to the heifer's ability to provide adequate milk to raise good calves in subsequent years. Both inadequate nutrition and over-conditioning can impact heifer productivity and reproductive performance, thereby affecting overall profitability.

### **Inadequate nutrition results in:**

- More open heifers, leading to lower revenues from fewer calves to sell due to retaining extra animals to meet replacement needs. It also increases costs such as feed and other variable expenses.
- Smaller cows at first calving, increasing potential for calving issues/losses as well as reduced milk production when the young cow must divert nutrients to her own growth instead of the growth of her calf.
- Lower milk production, leading to smaller calves and less revenue.
- Fewer first-calvers being successfully rebred, requiring more replacements and increasing costs.

These effects may be less pronounced as the cow ages, but will continue for a few years. Even with improved nutrition after those first two years of development, the production and reproduction of those disadvantaged heifers does not catch up when considering their lifetime productivity and longevity.

### **On the other hand, putting too much weight on your heifers too quickly (also known as over-conditioning) at any time prior to puberty results in:**

- Impaired development of their mammary tissues reducing overall milk production, leading to smaller weaned calves and decreased revenues for the life of that cow.
- Increased incidence of calving difficulties, leading to fewer live calves and increased costs.
- Wasted feed by overfeeding, increasing costs.

Compensatory gain is when an animal has a faster than normal rate of gain following a period of feed restriction. While the strategy of compensatory gain can improve feed efficiency with animals destined to be slaughtered,

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because it may result in more fat deposition at similar target weights, it does not work reliably for the development of replacement breeding animals. A moderate rate of growth throughout a heifer's first 15 months provides more reliable economic benefits over the long-term.

## How can you know if your heifer nutrition program has been working, or if you should make some changes? In addition to the target weights discussed in this article, here are some other initial indicators\* to look at:

- Calving season length (time period between first calf to last calf born)?
- How many replacement heifers are you retaining every year as a percentage of your cow number?
- What percentage of replacement heifers were overwintered and confirmed pregnant this fall?
- What percentage of first-calvers are pregnant this fall and due to calve early in your calving season?
- What percentage of second-calvers are pregnant this fall and are due to calve early in your calving season?
- Have your heifers and young cows been meeting their predetermined target weights prior to breeding?

\* Note: These questions/indicators will be covered in more detail in future articles.

The target heifer breeding weights that you should consider in your herd's nutrition and winter feed supply are outlined in the more recent versions of the "*Nutrient Requirements of Beef Cattle*" published by the National Academies of Sciences, Engineering, Medicine (formerly known as NRC).

These targets vary somewhat by breed but are directly related to your mature cows' average weights. For dairy and dual-purpose breeds, it is 55% of the cows' mature weight. For most beef (*Bos taurus*) breeds it is 60%, and for the *Bos indicus* (Brahman, etc.) breeds it is 65% of the mature cows' average weights.

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The following table provides a summary of the (rounded) target breeding weights for beef cattle of different mature weights. It also includes some hypothetical weaning weights and uses 205 days to heifer breeding so that the optimum Average Daily Gain (ADG) can be calculated.

For example, for a 1000 lbs mature cow, the target breeding weight for the replacement heifer will be 620 lbs.

- 620 lbs target breeding weight – 400 lbs weaning weight = 220 lbs needed to gain
- If she was weaned **October 27, 2024** and you would like her to breed by **May 20, 2025**, there will be 205 days for her to gain 220 lbs.
- Target Average Daily Gain (ADG) = 220 lbs gain needed / 205 days = 1.1 lbs/day

You can insert your own replacement heifer "Average Weaning Weight" and "Days to Breeding" (*the blue numbers in the following table*) and calculate the total weight gain and ADG that are needed to reach your herd's target breeding weight. Calculating the Target ADG for your heifers will help you with balancing the replacement heifer rations and help determine if feed purchases are necessary.

Target Weight Milestones for Optimal Reproduction in Replacement Females						
<b>Average Mature Cow Weight (lbs)</b>	<b>1000</b>	<b>1100</b>	<b>1200</b>	<b>1300</b>	<b>1400</b>	<b>1500</b>
<b>Target Calving Weight for 2nd Calvers (lbs)</b>	920	1010	1100	1200	1290	1380
<b>Target Calving Weight for Bred Heifers (lbs)</b>	800	880	960	1040	1120	1200
<b>Target Breeding Weight for Replacement Heifers (lbs)</b>	<b>620</b>	<b>680</b>	<b>740</b>	<b>810</b>	<b>870</b>	<b>930</b>

<i>Calculate the gain you need to get your calves to breeding weight.</i>						
<b>Weaning Weight (lbs) of Selected Heifer Calves</b>	400	440	480	520	560	600
<b>Weight Gain Needed (lbs)</b>	220	240	260	290	310	330
<b>Days to Breeding</b>	205	205	205	205	205	205
<b>Target Average. Daily Gain</b>	<b>1.1</b>	<b>1.2</b>	<b>1.3</b>	<b>1.4</b>	<b>1.5</b>	<b>1.6</b>

Source: *Nutrient Requirements of Beef Cattle: Seventh Revised Edition: Update 2000* | The National Academies Press

For those who attend the BC Livestock Drought Workshops, the copy of the “Hay Requirements and Inventory Balance Calc 2024.xls” worksheet that you receive(d) will automatically calculate the numbers for your herd when you input the relevant information from your herd.

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### One-on-one support access

If you have questions and would like to follow-up with one of the Livestock Drought Management consultants for an individual appointment, please contact via one of the following to book a virtual appointment. When calling, please indicate whether you would like to talk about animal nutrition, forage management or economics/business decisions so that the administrator can best direct your request.

**Phone:** 250-573-3611

**Toll-free:** 1-877-688-2333

**Email:** [drought@cattlemen.bc.ca](mailto:drought@cattlemen.bc.ca)

(Please note: these contact options will connect you with the BC Cattlemen's Association; however, appointment options are available to all livestock producers across BC and are not limited to cattle.)