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CALF SUCCESS

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Feeding whole milk to calves: Is this option right for you?

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Whole milk can be an excellent source of nutrition for calves if managed correctly. Some of the most common questions we receive from producers using a whole milk program are: How much whole milk can I feed my calves? When and how should I be weaning my calves? And what can I expect in terms of calf performance? Outlined below are some tips and tricks for implementing a successful whole milk program, along with guidelines on feeding programs and expected calf performance.

Whole milk ≠ Milk replacer: First of all, it is important to remember that whole milk and milk replacers are ***different***, both in their nutrient composition and expected performance. Whole milk typically runs higher in both protein (≈ 25.4%) and fat (≈ 30.8%) and can vary load-to-load, whereas milk replacer is usually purchased with lower protein and fat percentages and with its components staying consistent across bags and pallets. Performance and growth differences between whole milk and milk replacers are expected due to these differing protein-fat ratios. Early structural growth is typically seen when feeding a milk replacer, whereas early body mass growth — in the form of extra body fat deposition — is usually seen when feeding whole milk.

Milk quality: Pasteurize if you can! When fed unpasteurized, whole milk can transfer disease and inoculate calves with high levels of pathogenic bacteria, *Mycoplasma*, Johne's disease and/or bovine leukosis, among others. Pasteurizing whole milk minimizes bacterial count, making it much a safer and effective liquid feed source for calves when managed correctly. Visit this link for more on the pros and cons of feeding pasteurized milk to calves.

Make gradual feeding changes: Calves can consume up to 3 gallons (or 12 quarts) of milk per day; however, milk intakes must be gradually increased over a period of 1 to 2 weeks or more before reaching this maximum volume. A greater milk intake will reduce starter intake; therefore, a minimum of a 2-week step-down weaning period is required to 1) minimize stress when weaning calves off of high-volume feeding programs and 2) allow calves enough time to ramp up their starter intake in order to boost their rumen development during the weaning process.

Delayed weaning: Typically, the weaning times of conventionally fed calves falls between 6 to 8 weeks of age, but weaning can be delayed to 12 or more weeks of age to allow for maximum volume of whole milk feeding, a longer adjustment to starter feed and more time to promote healthy rumen development. As always, a high-quality and highly palatable calf starter like Elite 18 is crucial to stimulate starter intakes and early rumen development.

Acidification/preserving whole milk: Acidifying whole milk with citric acid, propionic acid or Acid-Pak 4-Way 2X or preserving it with potassium sorbate or sodium benzoate can be effective management strategies to reduce bacterial growth in whole milk if pasteurization and/or refrigeration are not possible. By lowering the pH of the milk, we allow for an increase in its shelf life and component stability. Regardless, if whole milk cannot be pasteurized before feeding, it should be pasteurized immediately after harvest and refrigerated for no longer than 1 to 3 days before feeding in order to keep the bacterial load down. A reference on acidified whole milk is available from Penn State.

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Optimizing growth: As mentioned, feeding 3 or more gallons of whole milk per day to calves requires at least a 2-week step-down weaning period, starting at roughly 9 to 10 weeks of age, to promote starter intake, increase rumen development and minimize weaning stress. Another important point to note when feeding high volumes of whole milk is that the Energy Allowable Gain is heightened due to the high fat content of whole milk. In this case, a shortage in the Protein Allowable Gain can reduce a calf's growth potential. Therefore, producers should consider mixing in a protein balancer (such as Milk Primer™) to restore the protein-to-fat ratio in whole milk and to ensure a consistent, dependable nutrient supply to calves. Whole milk is variable load-to-load in its vitamin and trace mineral content; as a result, supplementing whole milk with an essential vitamin and trace mineral pack (such as Milk Enhance™) helps guarantee that calves will be provided with the nutrients needed to support both growth and immunity. Another important point to note is that these low-inclusion whole milk additive products can be medicated to provide both coccidiosis control and fly control to cover your calves through weaning.

Whole milk program example: Accelerated step-up step-down, 11-week program

	Days 1–7	Days 8–14	Days 15–63	Days 64–70	Days 71–77	Day 78	Total (Days 1–78)
Gallons per day (as fed)	2.0 gal/d	2.5 gal/d	3.0 gal/d	1.5 gal/d	0.5 gal/d	Weaned	192.5 gal
Pounds per day (as fed)	17.2 lbs./d	21.5 lbs./d	25.8 lbs./d	12.9 lbs./d	4.3 lbs./d	---	1,649.9 lbs.
Protein Allowable Gain	1.82 lbs./d*	2.35 lbs./d*	2.88 lbs./d*	1.28 lbs./d	0.75 lb./d	----	2.39
Energy Allowable Gain	1.94 lbs./d	2.60 lbs./d	3.23 lbs./d	1.22 lbs./d	0.4 lb./d	----	2.61

To note:

- Assumed whole milk at 12.5% solids, 25.4% protein, 30.8% fat
- Assumed 1 gallon of whole milk weighs 8.6 lbs.
- Protein and Energy Allowable Gain estimates do not factor in the calf starter intake
- *Adding a protein balancer will optimize growth by closing the gap between protein and energy allowable gains
- **Expected calf starter intake = 120–140 lbs. through 78 days**
- **Expected ADG** (including calf starter intake) **= 2.81 lbs./head/day**
- ***The above is an example of an accelerated, high-end feeding program. Decreasing feeding rates will allow for earlier weaning.***

Please do not hesitate to reach out to your Hubbard Feeds representative, Bruce Ziegler (507-225-2512) or Ellan Dufour (507-229-0518) if you have questions or would like additional support with setting up your whole milk feeding program.

Some content adapted from "Feeding Unpasteurized Milk to the Dairy Herd" by Matt Akins and Liz Binversie (University of Wisconsin-Madison), John Goeser (Rock River Laboratory) and "Feeding Salable Milk to Youngstock: Tips, Tricks, and Formulation Advice" by Matthew Sellers and Elizabeth Marvel (Milk Specialties Global).