

Background calves in Wisconsin, when the grass is not green.

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Backgrounding feeder cattle typically includes taking light weight calves (350 to 550 pounds) and growing them to 700 to 900 pounds. The calves are then either sold as yearlings or transitioned onto a finishing diet. The feedstuffs used in backgrounding are lower cost materials that the farmer can add value to by marketing through the weight gained by the calf rather than as feed. Pasture is often used as the primary feed source for backgrounding during the summer and commonly referred to as grazing stocker calves. However, harvested feeds such as corn silage, hay, grain, and grain processing co-product feeds can also be successfully used to background calves in confinement operations. Targeted daily gains for backgrounding calves are usually between 1.5 and 2.5 pounds per day with the goal to add frame and muscle, but not fat (finish) to the calf. This fact sheet will address considerations for farmers who are considering backgrounding when pasture is not available.

Some reasons to consider backgrounding calves include, but are not limited to:

- Farm is well-suited to producing forages
- Producers possesses livestock husbandry skills that can add value to discounted feeder calves
- Ability to organize large, uniform groups of feeder cattle for marketing
- Access to low-cost feedstuffs, which can add weight with low costs of gain
- Enjoy working with cattle, but do not have the time or labor for breeding cattle operation
- Desire to receive returns for some labor in winter
- Add value to calf crop through retained ownership
- Less time invested in backgrounding verses finishing cattle
- Backgrounding fits facilities better than other beef cattle enterprises

Profit and loss often vary greatly between farms that choose to background calves. In addition to purchase and sale price, feed costs and calf health have significant impacts on the profitability of the venture. Careful planning and management are necessary for successful backgrounding operations. The length of time that calves are backgrounded will vary from operation to operation depending on purchase weight, feed supply, and other available resources. It is important to pencil out different options to ensure conditions favor a reasonable return for management and labor.

There are a number of factors producers need to consider when deciding if they should background calves. At the

top of the list is evaluating economics specific to that farm compared to other uses of the available resources on the farm. Other important factors to consider are matching existing and available resources to backgrounding. Resources to be considered should include available feedstuffs, feeding equipment, housing facilities, and labor (both availability and skills for the task).

Receiving

A critical part of a successful backgrounding program is managing calves to get them off to the best possible start. Research shows that most beef-breed feeder calves sold through traditional channels have not received any proactive health management and were weaned the day the calves are marketed. Even when cattle are vaccinated and weaned prior to marketing little of this information is documented and shared at sale time. Most Holstein feeders, which are 400 pounds or bigger, should be considered weaned, but research at feeder sales shows most are sold without any indication of a health protocol having been implemented (Halfman, Lehmkuhler, and Cox, 2009). These calves are considered high risk upon arrival at their new home, but there are strategies a producer can implement to reduce stress and the risk of sickness.

Table 1. Feeder calf traits observed at Wisconsin feeder sales

Trait	% of lots exhibiting trait
1 dose of vaccine	21.5
Vaccinated and boosted	7.5
Weaned (beef observation only)	5.3
Over conditioned	1.8
Thin (green)	8.6
Excessively thin	1.9

*Halfman, Lehmkuhler, and Cox, 2009

The first priority when the calves arrive should be to get them to eat and drink water. Clean, fresh water is a must for calves upon arrival. Some calves have not seen or drunk from an automatic waterer or water trough nor have they eaten from a bunk. Some strategies to make this transition easier are to use trainer animals or make sure water and feed bunks are on the perimeter of the pen or lot. The behavior of newly weaned calves is to typically walk the perimeter fence, therefore having food and water along the perimeter can aid its discover by the calf.

During the first two weeks of arrival, the receiving diet should be both palatable and contain high concentrations of energy, protein, vitamins, and minerals in order to allow for proper animal health. Ideally the ration would be similar to what the calves were eating prior to arrival, but that is generally not known. The best feed to have available to them on arrival is long stemmed reasonably soft grass hay, because hay will keep the rumen functionally properly, especially if calves have not had access to feed for more than 12 hours. Grass hay is also generally palatable and can be easily seen in a bunk. Generally, fermented feeds are not recommended at receiving unless you know for certain that the calves have been eating fermented feed at their last home. Once the calves appetites have recovered and they are eating the long stemmed hay, they can be transitioned onto other feeds such as grain and fermented feeds (silage and high moisture grains). Fermented feeds, silages, and high moisture grains can be economical and used successfully, once calf intake is adequate. These feedstuffs are often lower cost from a harvest and storage standpoint than dried feeds.

Feed transitions should be done gradually in order to provide time for the rumen microbes to adjust to the new feeds in the rations and not result in calves going off feed. Transitioning feeds is where the art of feeding cattle meets the science of feeding cattle. Each group of calves may respond differently to transitioning onto different rations. Some groups may transition in a little as 7 days, while others may take two weeks or more. Monitoring intakes, calf behavior, and calf health is important during this time period. The first 20 days is typically the most critical time and when a majority of sickness outbreaks occur. This can vary depending on level of immunity prior to arrival, stress, and feed intake of the calves.

Rations and Feedstuffs

Rations for the calves can be comprised of a wide variety of feedstuffs. The key consideration is the ration provide adequate intake of energy, protein, vitamins and minerals. Typically medium to lower quality forages make up the largest percentage of a backgrounding ration. These forages are often supplemented with grain, grain processing by-products or other supplements to provide sufficient energy for a targeted growth rate. Farmers should do their homework and compare the costs as well as estimate costs per pound of gain with available feedstuffs in order to find a least-cost ration. Feed

prices change constantly and rations may need to be adjusted periodically to keep cost of gain as low as possible without negatively impacting performance.

Health Management

Farmers should consult their veterinarians prior to purchasing calves to have a general health protocol in place. Often this includes a vaccination program to be implemented early in the backgrounding program. In recent years, many feedyards and backgrounders have observed vaccines are more effective if given a few days after arrival compared to vaccines given on day of arrival. Once the calves have settled into their new environment, rehydrated, and eating, this reduces the stress and results in improved response to vaccines. A good health program can increase returns to the cattle owner. First, improved health status of the calves can result in lower treatment costs, less mortality, and greater performance. Second, cattle could obtain premiums when sold, if calves have been through a documented quality vaccination and health program.

The use of growth implants during the backgrounding period can improve feed efficiency and cost of gain. Implants, however, will not overcome inadequate nutrition, poor health, or bad management. Because cattle are not consuming high-energy diets in a backgrounding program as compared to a finishing diet, a low potency implant is recommended and implanted should be delayed until calves have adequate intake of energy. The improvement in weight gain and feed efficiency will pay for the cost of the implants, but improvements in backgrounding calves will not be as great as implants used with a finishing diet. The use of implants will exclude these calves from being marketed as natural.

Facilities and Housing

Overall success of a backgrounding operation includes facilities suitable for housing the calves. Critical areas for consideration are adequate bunk space sized so the calves can reach the feed of use, access to water, reasonable protection from the weather, and sufficient bedded resting space. Bunk and water space are critical at initial receiving, especially regarding recently co-mingled calves, to make sure all calves, including the timid ones, have unrestricted access to feed and water. If space is limited the timid calves will be pushed away from the feed by

Table 2. Recommended lot, barn, and feeder/bunk space per calf

Lot Space	Square Feet	Barn Space	Square Feet
Unpaved mound	150-300	Barn with lot	15-20
Mound space	20-25	Barn without lot	20-25
Unpaved lot without mound	300-600	Paved lot	40-50
Feeder Space	Inches per calf	Feeder Space	Inches per calf
Once per day feeding	18-22	Self-feeder grain	3-4
Twice a day feeding	9-11	Self-feeder forage	9-10

the more aggressive calves and therefore, calves should have continuous access to feed from arrival until they get settled. Providing calves with adequately bedded, resting areas and at a minimum a wind break, will go a long way to keeping them healthy and performing well. If more enclosed shelters will be used, the structure should have sufficient ventilation to provide calves with plenty of fresh air. One of the worst places to house calves is in an old, poorly ventilated, and dark dairy barn, because, there is often inadequate air exchange due to poor ventilation. In Tables 2 and 3 are recommended minimum spaces per head and bunk requirements for calves ranging in size from 400 to 800 pounds from Midwest Plan Service MWPS-6 Beef Housing and Equipment Handbook.

Table 3. Recommended bunk requirements

Bunk design	Space requirements
Throat height	18" maximum
Bunk depth	8" maximum
Width (eat from both sides)	36"

Enterprise Budgets

Two enterprise budgets have been calculated using current (January 2010) feed prices. The use of specific feed products for these budgets is not meant to endorse or suggest these are the only feedstuffs, programs, or products to use or consider. Farmers need to frequently evaluate potential feedstuffs and products as prices are not static.

Table 4. Feed costs, purchase price, and other assumptions used for example enterprise budgets

Expense	Cost per unit
High moisture corn*	\$2.80/bu
Hay	\$60/ton
Dried distillers grains	\$128/ton
Corn gluten feed	\$165/ton
Corn silage	\$30/ton
Yardage	\$0.40 per head per day
Death loss	2%
Purchase Price	Actual Oct. 09
Sale Price	March 09 Futures with \$20/cwt discount on Holsteins

*Deducted \$0.30/bu of opportunity cost for drying cost over dry corn.

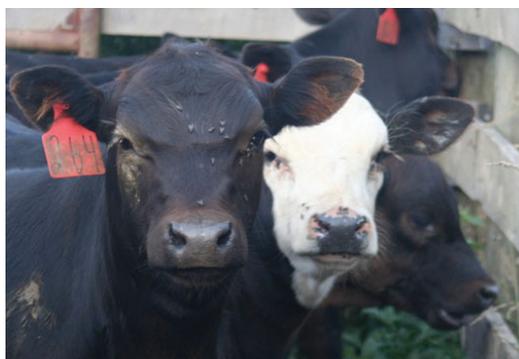
Example 1

Holstein calves were purchased at 400 pounds and backgrounded on high moisture shell corn, mid-bloom hay, and dried distillers grains. The calves are expected to be fed for 143 days to a weight of 700 pounds. The cattle will be fed an ionophore and given a low potency estradiol implant. The ration on a dry matter basis will be 40% hay, 50% high moisture

corn, and 10% dried distillers grains. The calves are expected to gain 2.1 pounds of per day, and consume 6.2 lbs of feed dry matter to 1 lb of live weight gain, (also referred to as feed:gain or F:G).

Table 5. Example 1 budget

Purchase price (400 lb @ \$70/cwt)	\$280.00
Feed cost	\$92.66
Vet/med	\$15.00
Supplies & misc	\$15.00
Interest	\$9.19
Yardage (143 days)	\$57.14
Total Cost	\$468.99
Revenue (700 lb @ \$70/cwt)	\$490.00
Net	\$21.01



Example 2

Crossbred beef calves were purchased at 450 pounds. Calves will be fed corn silage, average hay and distillers grains for 150 days to a weight of 750 pounds. The calves will be fed ionophores in the ration. The ration, on a dry matter basis, is 70% corn silage, 15% hay and 15% distillers grains. The calves are expected to gain 2.0 pounds of gain per day, and a 6.8 pound of feed per pound of gain.

Table 6. Example 2 budget

Purchase price (450 lb @ \$95/cwt)	\$427.50
Feed cost	\$114.32
Vet/med	\$15.00
Supplies & misc	\$15.00
Interest	\$14.55
Yardage (150 days)	\$60.00
Total Cost	\$636.37
Revenue (750 lb @ \$90/cwt)	\$675.00
Net	\$28.63

Farmers should work through enterprise budgets using current prices, and estimates to determine what will work best for their situation. A number of spreadsheets for examining enterprise budgets and rations are available at the UW Extension Beef

Information page at <http://fyi.uwex.edu/wbic/> under the tab of Resources.

Marketing

To help maximize value of the calves at sale time, at the end of backgrounding, producers should manage the calves in order to avoid traits, which reduce the value. Important considerations include: calves are reasonably clean; not over-conditioned (fleshy) or excessively underconditioned (thin); dewormed; dehorned; castrated (if males); and vaccinated. A backgrounding program can be used to add value to unweaned, discounted feeder calves by dehorning, castrating, and vaccinating. If possible sellers can sort cattle in uniform lots of frame size, weight, color, and sex, which are desired by feedlots. Producers can use the USDA Standards for Grades of Feeder Cattle as a reference for sorting. In addition, adding weight with a low cost of gain can add value.

Summary

Backgrounding feeder calves may be an advantageous for adding value to home-grown forages or low-cost purchased feeds. Producers, who implement good husbandry skills and have proper facilities, possess another important key to success. Prices and market conditions are not static so it

is important for producers to carefully examine rations and enterprise budgets with current values and with their actual costs to determine what is best for their situation.

Resources

Factors Effecting Wisconsin Feeder Calf Prices at a Local Livestock Market, (Halfman, Lehmkuhler and Cox), http://www.joe.org/joe/2009december/pdf/JOE_v47_6rb7.pdf

How Profitable is Backgrounding Cattle <http://www.econ.iastate.edu/faculty/Lawrence/ Acrobat/Backgrounding%20Cattle.pdf>

Systems for Backgrounding Beef Cattle <http://www.ag.ndsu.edu/pubs/ansci/beef/as1151w.htm>

Profit Tip: Calf Finishing Versus Backgrounding and Yearling Finishing Systems <http://beef.unl.edu/stories/200809123.shtml>

US Standards for Grades of Feeder Cattle. <http://www.ams.usda.gov/AMSV1.0/getfile?dDocName=STELDEV3066980>

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