



# Backgrounding Calves

Experts offer tips for handling calves  
from the time they are weaned until they go on a finishing diet.

by Heather Smith Thomas

**S**ome ranchers hold calves over as yearlings to sell later, and some buy light calves in the spring to put on grass and grow to a larger weight. Some put weaned calves in a confinement program, and feed them a growing ration until they are ready to go to a finishing facility. Ron Gill, professor and extension livestock specialist at Texas A&M University, says the term “backgrounding” covers a broad spectrum that includes preconditioning after weaning.

“Preconditioning is from weaning until 30 to 45 days (sometimes 60) postweaning. Backgrounding is putting those calves on a grower ration until they reach 750 to 900 pounds. Most producers in the South don’t do much backgrounding by that definition because we can graze year-round and call that a stocker program,” he says.

Terry Klopfenstein, professor emeritus at the University of Nebraska, has done several research studies on backgrounding calves.

“Cow-calf production is similar everywhere in the U.S.,” he says. “Most of the cows are grazing, and most calves are weaned at about 7 months of age, and in most cases the cows are calving once a year. There are different climates and different types of forage, but many similarities.

“The same is true on the finishing side,” he continues. “At feedlots across the country, cattle are fed a high-concentrate diet to put more fat/weight on that frame that grew after the calf was weaned. But backgrounding (from the time the calf leaves mom until he goes on the finishing diet) is the phase that varies most.”

It can be vastly different from region to region and from one operation to another, depending on climate and what’s available to feed calves.

“At the feedyard segment, research is working on nutrition, health, management, etc. People on the cow-calf side are looking at

nutrition, reproduction, etc. There is less emphasis on backgrounding studies, yet this phase is the most complicated and, in some ways, needs the most attention. For example, the Nebraska Cattlemen’s organization has a cow-calf council and a feedlot council, but doesn’t have a backgrounding council,” Klopfenstein says.

## Preconditioning

If a producer retains calves long enough to get them past weaning stress to receive a premium for weaned, preconditioned calves when sold or retains ownership through harvest, it’s important to get calves transitioned as smoothly as possible to minimize health problems. How a person weans calves can make a big difference in future health and performance.

“If producers can use two-stage weaning (with nose flaps), which many smaller operators can readily do, this is the least



PHOTOS BY KASEY BROWN

► In the backgrounding phase, a person has to match the program — the type of cattle and its goals — to whatever the resources are, Terry Klopfenstein says. Thus, in many ways, it is more complicated than either cow-calf or feedlot. Availability and price may vary, even from year to year, on what you can feed these calves in your situation.

stressful way to wean — for both the calves and cows,” says Gill. “Next best is fenceline weaning. You can keep the cows and calves on pasture and a fence between them.”

Gill advises not processing the calves or cows on weaning day. Preweaning vaccinations should already be given to keep cows and calves as quiet and calm as possible when placed across the fence from one another.

With fenceline or corral weaning, he recommends spending time with the calves in the corrals or pastures.

“This not only gets them accustomed to seeing people, but it’s also distracting,” Gill says. “Calves are curious about the person and not just focusing on Mom across the fence or worrying about where she is.”

The producer becomes a surrogate mom, and calves start looking to him or her for comfort. It calms the calves a lot more quickly, he says, adding that it requires minimal effort.

“You just have to allocate a little time every day to do it,” Gill says.

“After a minimum of 21 days in a low-stress preconditioning system — where you can work with those calves and get them on feed — you can probably turn them back out on pasture if you have good grass,” he advises. “It works best if you can go 45 days before you move them and stress them again, but it depends on your situation and their stress level. If you are selling them or moving them to different pasture, or putting groups of weaned calves together, we recommend 45 days.” That allows time to give both vaccinations and for the calves to establish immunity.

### Receiving calves

It pays to work with calves, walking

## HERD HEALTH

### Inventory control

Backgrounding and stocker cattle provide inventory control for the beef industry to help spread out marketing and harvest.

“About 80% of calves are born in the spring, but we don’t need 80% of the finished beef cattle coming out of the feedlot at the same time,” says Texas A&M University Professor and Extension Livestock Specialist Ron Gill. It needs to be more evenly distributed through the year.

The different types of stocker and backgrounding programs with some calves growing faster or slower, depending on the program, and ready to go into the feedlot at different times help spread that out into a 365-day window, says Gill.

“This period in the calf’s life is definitely the staging factor for our industry,” says Terry Klopfenstein, professor emeritus at the University of Nebraska. “The feedlot end is hauling cattle to the slaughter plant every working day, so the feedlots need a supply that can be finishing all through the year. The feedlot itself can affect this timing a little, but once they put those calves on feed, it’s usually a certain number of days. The backgrounding phase is what truly determines how ready they are and when.”

through them quietly when you get them in for weaning or receive a new load of purchased calves.

“They are panicked and looking for guidance,” says Gill. “You give them something to focus on and can stop all the walking and bawling if you understand this process. You can get them to stop pacing the fence and work for you.”

The late Bud Williams taught ranchers and feedlot employees how to “settle” calves upon arrival at a new place or feedyard. Many of those lessons are available on the website <http://stockmanship.com>.

“It takes a little time, but pays big dividends in less sickness, reduction of pull rates, etc.,” says Gill. “We don’t have research data, but we have a lot of observational and personal experience. I used to own a preconditioning facility, and when we started acclimating calves upon arrival, health problems and death losses dropped dramatically.”

If calves are calm when they get off the truck and go through the acclimation process immediately, they perform well, Gill says. Take

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the time to get them relaxed so they walk by a handler instead of running and are able to be stopped. Calves start eating with little difficulty when they are calm enough to think about things instead of just reacting to their environment.

Gill adds that consumption, average daily gain, etc., was much higher in acclimated calves. With most calves that get sick, it is because they're not eating or drinking enough. Interaction calms them enough that they will eat and drink, and allows the immune system to function better.

"Often, people process calves the first day they come in. This adds additional stress, and if the calf has a compromised immune system, some of those vaccines will actually depress immunity," explains Gill. "This is why I like to wait a day or two, until we get them calmed down and they are not so flighty. This gives more chance for the vaccines to become effective in that first round of shots."

Many people worry about injections involved in preconditioning — no matter whether they are vaccinations or antibiotics.

"We need to shift that focus more to handling and management," says Gill. "Vaccinations and antibiotics are important tools, but if we don't manage those calves properly, those tools don't have a chance to be as effective."

### Adding frame

After weaning, most calves in the South, for instance, go back to grass for a stocker program where they are put on high-quality forage. The goal is to grow frame, not put on finish, Gill says.

In the Midwest and upper Midwest, calves may be placed in a confinement

backgrounding program. Their diet would be high in roughage, with added soluble carbohydrates such as wheat midds, soybean hulls, distillers' grains and/or other byproduct feeds to balance the ration.

"It won't be high in starch because you are not trying to get them fat at this point," he explains. "You are trying to get them to grow more frame."

Backgrounding can be done in feedlot settings, though it's normally cheaper to keep them on grass from a cost-of-gain standpoint. It depends on whether you have grass available and the cost of byproduct feeds or harvested forages. There are many different strategies, Gill says.

"In our area, if the cost of gain outside the feedyard is less than inside, people keep calves on grass as long as they can. If not, or if they don't have enough high-quality forage, they'll go straight to the yard. Once you get them weaned, you have a lot of flexibility on what you can do with them, but it can be a challenge to determine the best option. It comes down to cost of gain, which includes medicine costs, etc. If you don't have them preconditioned, going into backgrounding or straight to a feedyard is risky," he explains.

Klopfenstein says it's important to take advantage of the resources in a region or local area.

"Certain kinds of byproducts might be utilized. Grazing situations are great, and if a person is in Texas, Oklahoma or Kansas, grazing wheat pasture is the norm. I've looked at rental rates for wheat pasture and this is an economical way to background cattle, but it limits you to a certain time of year," he says.

Summer grazing on grass is also limited to certain times.

"Here in Nebraska we have two really good resources; one is corn residue that can be grazed and the other is distillers' grains that are a great supplement with corn residue. The distillers' grains are relatively inexpensive because we have the ethanol plants here," says Klopfenstein.

In the backgrounding phase, a person has to match the program — the type of cattle and its goals — to whatever the resources are, he says. Thus, in many ways, it is more complicated than either cow-calf or feedlot. Availability and price may vary, even from year to year, on what you can feed these calves in your situation.

"In Nebraska we had such a hot feeder-calf market and the cow-calf segment has been so profitable that our grass rental has become very high. Grazing is no longer the least-expensive option. We have an experiment going right now to compare feeding weaned calves harvested crop residue and distillers' grains in the feedlot versus grazing grass," he says.

### Winter-cereal backgrounding

Lisa Surber, livestock nutritionist for WestFeeds in Bozeman, Mont., says backgrounding is a means of economically adding value to calves and increasing profit by using an inexpensive feed, such as homegrown grains and forages, to increase weight prior to entering a feedlot.

"Backgrounding allows retained ownership of calves past weaning when prices may be higher and allows lightweight or later-born calves to add weight before marketing," she says. "A backgrounding program allows for skeletal and muscle development, and adds a higher potential for compensatory gain."

Surber has been involved in a variety of research programs, including cereal forage

## Genetics and health

"Starting with your own calves, you generally have some predictability in performance," says Ron Gill, Texas A&M University professor and extension livestock specialist. "If you are buying calves and commingling them, predictability goes down. A person must be very cautious when looking at the cost side. Many people overspend for what they perceive to be good quality. That is dangerous unless you know what the health of those cattle will be. For instance, Tom Brink bought high-quality genetics, but their health didn't hold up. If you overspend for high-quality calves, there is no way you can come out ahead."

People who are producing high-quality genetics need to make sure those cattle will stay healthy.

"We seem to have more health issues in the high-performance cattle because they have so much nutrient demand for growth. They may not have enough additional nutrient intake to fuel both the immune system and all that growth," Gill says. "This goes back to genetics, and there are some cattle that just don't have the ability to respond as readily to build antibodies to disease challenges. This is another frontier we need to explore and ... find

the bloodlines that have the ability to respond to vaccines, etc."

Often, crossbred calves do better health-wise and also outperform straightbred calves, Gill says. "We saw this in Simmental cattle years ago when we brought that breed to this country. Half-bloods were great. Three-quarter Simmentals started having some health issues, and fullbloods had a lot of health issues.

"This was a genetic factor; the purebreds didn't have as strong an immune system," he continues. It's similar in every breed, including Angus; the purebreds are not as hardy as crossbred cattle that have more genetic diversity.

"That's a component of heterosis that we don't always consider. We may not get any more performance carcass-wise than we would with a quality purebred animal, but the crossbreds definitely stay healthier," Gill contends. "Carcass, growth, health, etc., all have to be looked at. Cattle that might not have the genetics to build a sufficient immune system to withstand a high disease challenge may require a very different management process to prevent the breakdown of their disease defense systems."



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development, beef cattle feedlot and backgrounding.

“Homegrown forages and cereal forages provide an excellent option to capitalize on developing alternative cropping systems that will provide added value through backgrounding cattle,” she says.

In the mid-2000s, Montana State University, along with researchers at North Dakota State University in Hettinger, conducted a series of backgrounding experiments utilizing spring cereals along with an experimental forage winter wheat variety now called Willow Creek, she explained.

Based on these data, Willow Creek winter wheat and other winter cereal forages appeared to be very competitive with barley and other spring cereals in backgrounding rations. With the gains documented in backgrounding trials at more than 2.5 pounds (lb.) per day, researchers realized that cereal forages can provide an excellent source of feed for backgrounding rations, says Surber.

In several northern states, across most of Montana and in some areas of the Dakotas, winter cereals consistently produce more forage than spring-seeded crops.

“Winter cereals can be planted in the fall and harvested earlier, which can add diversity into a crop rotation in terms of weed-control options and water-use efficiency,” she explains. “Again, this adds value to crops through cattle.”

Many feed companies market a variety of feeds/supplements that can complement

homegrown feeds in backgrounding rations.

“Calf starters and grower pellets are highly palatable to get young cattle going to the bunk and on feed quickly. Some pelleted feeds can be a complete package with added protein, energy, vitamins and minerals needed for optimal gains. They are designed to match a variety of feeds, feeding systems and cattle-feeding programs,” says Surber.

Many feed companies have a nutrition team to help manage a successful feeding program. They can evaluate feeds, balance rations, provide feeding guidelines, and make on-site visits.

### Developing your own system

Jim MacDonald, associate professor in animal science at the University of Nebraska, says each backgrounding program is unique, depending on facilities, location, feed availability, etc.

“The key is trying to develop a program that optimizes the resources that are already available on a certain operation,” he says. “Questions I asked in my research program were when to feed and what to feed. When is the best time to invest in additional feed inputs, and what type of feed inputs are the best investment?”

Often the first limiting nutrient is protein.

“Depending on forage quality, the type of protein that limits calf growth is amino acids absorbed in the small intestine. We call this bypass protein, or rumen undegradable protein, or undegradable intake protein (UIP). It has several names, but one of the supplemental inputs that is

## Importance of health

“The biggest value of preconditioning, stocker and backgrounding programs is to establish good health so that when we do put calves on feed, they perform predictably,” says Ron Gill, Texas A&M University professor and extension livestock specialist. “This is a critical phase of our industry that needs more focus on how we manage it, because if calves get sick, they never perform up to their genetic potential. Illness will decrease performance and quality grade, and increase the cost of gain. Yield grade may go up a little because they never get as fat, but the grade difference may end up costing about \$90 per head.”

It’s definitely worth spending some time at the front end to keep these calves healthy and prevent problems, he says. “Everyone is cost-conscious during the backgrounding and stocker phase, but sometimes we don’t put emphasis on getting them started out right. At \$90 a head, a person could afford to put some effort into preventing that loss.”

Unless you are tracking those losses, you’ll never see them, Gill says, but they are there. Research by Tom Brink, who collected data on thousands of cattle, produced an almost identical cost to that discovered in Texas A&M’s Ranch to Rail program back in the 1990s — around \$90 per head lost for every calf that gets sick.

“Every place we’ve looked at this, it’s somewhere around \$80 to \$100 per head loss. The industry also suffers some death loss, and a feedlot budgets for a 2% to 3% death loss. In Tom Brink’s data set, it actually averages about 4% to 5%. He has seen everything from zero to 30% death loss,” says Gill.

needed in most backgrounding programs is some form of protein that gets amino acids into the small intestine,” he explains.

Protein tends to be fairly expensive, especially bypass protein sources. In MacDonald’s research program, it has been difficult to find a more economical feed resource to provide both energy and bypass protein that meets the needs of the calf than distillers’ grains. Producers wonder if they can use corn, especially if they grow it or can easily get it. They also wonder if they can add some degradable rumen-available protein to corn.

MacDonald’s team did that a couple years ago in a study, and it was quite clear that some gain was given up when corn or corn with supplemental protein like urea was used, compared to distillers’ grains, says MacDonald.

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“Other protein sources that can be utilized include corn gluten meal and Soypass® (typically used in the dairy industry), but these are all much more expensive per unit of protein and per unit of energy than distillers’ grains. Distillers’ grains work very well in a backgrounding program because their energy value is approximately 130% the energy value of corn, and they also bring in the right type of protein that bypasses the rumen,” he explains.

When you feed a starch source, like corn, he warns of negative effects on fiber digestion because the rumen microbes change. For most backgrounding programs, most cattlemen use a forage resource, so reducing the digestibility of fiber may not be beneficial.

Start with the forage resource and build the ration from there.

“We’ve also looked at when to feed supplemental protein and energy sources. You have to be aware of compensatory gain in any backgrounding program. If you are investing money in a supplement program, but those calves would have overcome any difference in body weight that you have created by providing additional supplement, you haven’t made any money,” he grants.

MacDonald’s studies focused on a long-yearling program, which took fall-weaned calves through the winter in a backgrounding program, then to a summer grazing program before going into a feedlot. Supplementation programs were focused on both winter and

summer feeding. When provided additional supplement, calves clearly gained more, he says.

Calves do require supplement on low-quality forage during winter, whether it’s dormant range grass or corn residue. In this situation we have to provide supplement or they may actually lose weight, says MacDonald.

The team compared a low level of supplement that was targeted to gain less than 1 lb. per day to supplement targeted to gain 1.5-2 lb. per day during the winter, like that of cattlemen who supplement with high-quality alfalfa hay.

“The calves that only gain about a pound per day will compensate when they graze

grass in the summer, and gain more. Then when they go into the feedlot, we may see what I call reverse compensation in the calves that were given the greater amount of supplement during winter. They gain less during the summer but then turn around and gain more when they hit the finishing ration in the feedlot,” he says.

When computed, targeting the optimal 1.5-2 lb. of gain during the winter period resulted in a \$50 to \$60 advantage per head through the whole system if ownership is retained. He suggested that if a person were trying to maximize profits retaining ownership on calves, distillers’ grain would be the first choice of supplementation, if it’s available. However, alfalfa is not a bad choice if that’s more readily available, because it supplies some protein, though some will bypass the rumen. The amount is key, he says.

“That may be different if the calves will be going directly into a feedlot at that point, but if they are going to grass, bringing them up from a pound to 2 pounds per day seems to be very beneficial,” he emphasizes.

With grass prices increasing substantially during the past five years, supplementation can save some grass usage, thus allowing cattlemen to more efficiently use their pastures. MacDonald explains that if you can use supplement to manage more cattle on the same amount of grass, then the economics support the decision. If cattlemen only account for the value of the gain, the economics don’t look as strong.

“The cattle that were not supplemented would probably compensate about 80% in the feedlot. So, if you make up a 100-pound difference by supplementing in summer, the ones that were not supplemented will make

up 80 pounds of that difference by the time they are finished,” he explains.

“It has to fit your own situation. In my experience with most summer-yearling stocker programs, producers are not very interested in summer supplementation. They don’t want to add labor during summer, because they have a lot of other things going on. The data suggest that if you can [manage] more animals on the same amount of grass, however, then you can make it pay. A pound of distillers’ grains will displace about 0.6 to 0.75 pounds of grass. We can now predict what the forage displacement rate is during the summer,” MacDonald concludes.



**Editor’s Note:** Heather Smith Thomas is a cattlemaster and freelance writer from Salmon, Idaho.