# Think Early

## *Why the grass may be greener on the other side of the early-weaning fence.*

*by* **MIRANDA REIMAN**

It's the first day of November on the Plains, and two spring-calving cows stand across the fence from one another. The first is thin, has her calf in tow and consumes more forage than the other cow, now dry, whose calf was weaned months ago. That other cow has regained body condition and is ready for whatever the winter has in store.

This snapshot of early weaning makes an apt beginning for an exploration of why producers may consider early weaning. Research points to advantages for the cow, calf and rangeland in making even a 60-day tweak in the production calendar.

Although 205-day weaning is an industry standard, animal scientists say many ranchers choose weaning dates based on factors not related to their cattle and stick with them out of habit. Finding what's really optimum means evaluating both economics and feasibility, individually. That process starts with having all the facts.

"I don't think there's any magical age when you wean calves. We need to be more creative when we think about these management practices," says Dan Faulkner, Illinois Extension beef specialist. "We need to get less locked into 205 days and look at low-cost systems to produce quality beef. Every set of resources is unique; there is no one size fits all."

Steve Loerch, animal scientist at the Ohio State University (OSU), acknowledges that the ideal weaning date is "a moving target."

"Forage resources and cow condition should be key factors in decision-making," he says, noting it's almost universally advised in drought situations.

### Calves ready

At four weeks of age, calves have nearly all the rumen bacteria they need for protein, lactate and starch digestion, says K.C. Olson, Kansas State University (K-State) animal scientist.

"Rumenal development is a self-fulfilling prophecy. There's no timeline that has to elapse," he says. "It's a function of the opportunities to eat. If young calves have an opportunity to consume feed, the rumen develops very quickly."

By 12 weeks, animals in a K-State study had fully functional digestive systems capable of using both milk and forage. In another trial, researchers tracking intake in monthly intervals from birth to weaning found that, even without a special diet, they were consuming nearly equal amounts of milk and forage after two months.

"The calf is biologically ready to make a go of it on its own by 60 days of age," Olson says. "The experience from the calf's perspective is very much the same, regardless of when it's weaned." (See "Weaning early and doing it right.")

In other words, stress from maternal separation, new confinement systems and nutrient delivery will be similar at any age. But if anything, early-weaned calves have the upper hand, Loerch says.

"Six to eight months, from an immune competency standpoint, is the absolute worst time to wean," he said in a presentation at the 2005 American Society of Animal Science Midwest Section meeting. "Antibodies from colostrum in the first day of life provide maternal protection for up to five months."

After nine months, calves have developed a more rugged immune system that can handle most challenges, Loerch added. But weaning very young calves is no more difficult than weaning those older ones.

"It really does not take a heightened level of management to early wean," Olson says. "The calves are very nearly physiologically the same. There's just the size difference; they're shorter." Although many producers assume early-weaned calves are lighter, a summary of 19 experiments that compared performance of the two groups at 200 days of age says otherwise.

"Early-weaned calves fed concentrate diets in confinement will have body weights equal to or greater than those of calves weaned at conventional ages," Olson says. If weaned before 100 days, calves may produce

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### Weaning early and doing it right

Calves are going to undergo stress when they're weaned, whether it's at 60 days or 6 months.

"The experience from the calf's perspective is very much the same. It's not going to know how to behave," says K.C. Olson, Kansas State University animal scientist. Producers can help the calf figure things out and adjust.

First, place a temporary length of feedbunk perpendicular to the usual fenceline arrangement.

"Calves naturally circle the perimeter of the pen to see what's what," he says. "They can walk right on by the feedbunk without ever recognizing what's inside or how to access it. By placing that feedbunk directly in their path of travel, they'll have to address what's inside."

Water consumption, in tandem with feed intake, is the biggest key to keeping calves healthy through the weaning process, Olson says. He suggests offering water in a way that mimics the animals' previous situation for the first few days.

"I like to put an open-top stock tank perpendicular to the fenceline," he says. Olson also likes to wire up the float in the automatic waterer, enough that it overflows and creates a trail across the pen.

"Oftentimes that'll be enough for the calves to scent the water and follow it back to the source," he says. "Meanwhile, if they're a little reluctant to try the automatic structure, they've got the open-top tank."

Think about size. These tricks work on any age calf, but producers who wean early might need to revisit their facilities to accommodate the shorter animals.

"Sometimes early-weaned calves have trouble physically reaching into the bunks and reaching into watering devices," Olson says. Building up the apron of the pen or the watering area might allow them to access feed and water more comfortably.

A related tip from Illinois can safeguard health. Dan Faulkner, Extension beef specialist, says vaccinating prior to and at weaning is important for all calves, but the early-weaned group should get one extra set of shots.

"There's probably good colostral immunity in very young calves, so we don't seem to get a real good vaccine response," he says. "It's really critical to booster those cattle at 6 months, so we don't get a wreck in the feedyard."

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lighter carcasses, but at 125 days or older, there is little difference in eventual carcass weight when compared to older animals.

Regardless of calf age, a consensus says getting the most out of this scenario includes feeding a high-energy ration upon weaning.

"If we want a calf depositing marbling, we need to have them gaining more than their maximum protein or muscle gain," Faulkner says. The calf must take in higher levels of energy.

That means a gain of around 2 to 2.5 pounds (lb.) per day for most frame sizes and calf types, he says.

When scientists from OSU tracked calves placed on a predominantly grain diet after early weaning, the groups averaged more than 90% Choice and 55% *Certified Angus Beef*® (CAB®).

"Early weaning and putting them on a higher grain diet is just more days on that diet. They're set up for maximum propionate production throughout their life," says OSU animal scientist Francis Fluharty. Propionate is the rumen end product that leads to more glucose and subsequently more marbling.

Illinois work shows, as long as the calves are weaned on a high-grain diet and kept on a high plane of nutrition, they'll continue to lay down intramuscular fat in the feedlot.

After that high-grain start, there are options. "We fed diets with no starch, no corn, and as long as our cattle gained well, the marbling developed," Faulkner says. "We had turned on the switch to get those calves started on a high-quality path."

However, weaning and dropping back to low gains will have lasting effects. Another study took heifers started on high-energy diets and then placed them on low-quality fescue where they gained barely more than 0.5 lb. per day.

"It really decreased the rate of marbling," Faulkner says. "Once those cattle went into the feedlot, they never did marble well again. You can certainly lose that advantage if they go back on a low rate of gain on grass."

Calves are very efficient in general, but the younger they are, the bigger the advantage.

"Efficiency is almost linear with days of weaning — the less they've eaten forage, the more efficient they are all the way through," Faulkner says. "They're converting at less than 3-to-1 (pounds of feed to pounds of gain) up until about 700 pounds. It's a whole lot cheaper to feed the calf than it is to feed the cow in many of those lactating situations."

And so the female bonus is born.

### The female bonus

"The real payday for early weaning, from the cow standpoint, is that you get to preserve body condition that would otherwise be lost," Olson says.

Loerch adds, "This is especially critical for heifers in their first lactation. If you get the calf off of them early, they make it through the winter in better condition and are more likely to breed back while nursing that second calf."

As forage quality starts to decrease in most production systems in the fall, lactating cows generally give up weight. Nebraska research says between August and late November, one body condition score (BCS) disappears.

"For us in the (Kansas) Flint Hills, we lose more like 0.2 to 0.3 BCS units for every two weeks, so it only takes us 60 days to lose an entire body condition score," Olson says. "That's because our fall forage quality is significantly lower. The amount of harvested feed that has to go into that cow — hay and purchased concentrate — is far more than what you'd have to put into a cow that weaned her calf 60 days earlier."

But feeding well is a much safer bet than letting cows slide into calving season in suboptimal condition, he says.

"Any lady who's had a baby recognizes that parturition is one of the most difficult things you can go through. It takes a lot of strength and stamina," Olson says. "Calving in poor body condition increases the incidence of dystocia, calf death and morbidity. She's also going to return to estrus later and has a greatly reduced chance of getting rebred."

This strategy, in tandem with a later calving date, could make the best use of grass resources.

"Early weaning is one of those tricks that we can use to harmonize animal requirements with nutrient delivery by our native forages," he says. "If we can make times of peak nutrient demand, like peak lactation, coincide with peak forage quality, we can extend our grazing season, both in terms of quality and availability."

Faulkner encourages producers in his area to calve later.

"A lot of people chase weaning weight by calving earlier and earlier in the year so calves are older at weaning, but they feed those cows a lot of harvested feed in the winter, and it's not very economical."

### Protecting the range

That varies by region, but everywhere, saving grass is good for overgrazed pastures. A North Dakota study shows a 27% decrease in forage disappearance in the fall for early-weaned herds.

"One of the biggest issues we have with the condition of our rangeland has to do with how heavy we stock and how long we leave livestock out there," says Pat Johnson, South Dakota State University range scientist. "If we look at the pounds of forage that didn't get grazed with dry cows compared to those with calves, we can certainly correlate that to the number of days we can extend the growing season, or the number of animals we can carry."

Olson says studies and calculated estimates point to a savings of about 30 lb. of grazeable forage for every three days that calf is weaned ahead of the 205-day standard.

"I think that's bankable," he says. Producers can use this range reserve to graze later in the season, increase herd size or improve pastures.

Faulkner works with producers who stock to the lowest level of production their cool-season forage will support, and they've been able to carry 30% more cows.

"They can run more units on their fixed resources," he says.

"At least in part, it's an allocation question," Johnson says. "I can think of a whole variety of people who would get their best value out of it in different ways."

Early weaning has long been recognized as an effective drought strategy, but Johnson says it's a way to proactively head off any grazing shortfall.

"If your animals slick off all the available forage during one year, and then spring comes and the moisture doesn't come with it, you don't have any standing materials for those animals," she says. "You are absolutely dependent on what grows."

Ceasing lactation earlier will reduce a cow's requirements and lessen the stress on the rangeland.

"At first glance it may look like a waste, but it's got value even if your animals don't use it directly," Johnson says.

Aside from having more grass, pasture health is a big incentive.

"In a situation where it's pretty close-cropped, if we pulled calves out and didn't do anything different, we would have a bit more standing material to catch some of that snow that blows right on by," she explains. "If we have it grazed pretty short, then we don't have the opportunity to trap that snow and get that moisture into the soil."

Less pressure could allow for a "better class" of plants and contribute to long-term improvements.

"Ranchers are not given credit for that mind-set, but when you talk to them, the majority are not interested in beating their property to death," Johnson says.

Of course, producers have to balance environmental goals with animal care, time and energy — and profitability. When the choice is peering from over the other side of the fence in November, early weaning seems to make sense. Ahead of that, it takes preparation and careful study that could make it a significant cost-cutting strategy.

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