Healthy Calf, Healthy Profit

Preconditioning calves is a good idea no matter what, but in a retained ownership scenario there are some caveats.

Story & photos by
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K.C. Olson, cow-calf nutrition specialist at Kansas State University (K-State), has always been a big advocate for optimizing return on outlay. For him that means making sure that every dollar a calf producer invests in his animals is realized with a profit at point of sale.

He also believes that the research and Extension community has done an excellent job of providing producers with the tools needed to improve product value and return on money invested, but those same researchers and Extension staff have been less successful in persuading beef producers to modify their marketing strategies to take full economic advantage of those same tools.

"We have been really good at the land-grant universities in teaching producers how to add value to their calf crop in terms of investing in genetics and health programs," Olson says. "But we have been less effective in telling them how to capture the value of those investments."

As an example of how land-grant universities provide the tools needed to add value to a calf crop, Olson cites a series of studies conducted by K-State evaluating weaning times and duration in relation to weight gain and health of calves.

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>
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Olson and his colleagues evaluated both summer and fall weaning.

"We found the optimum time to wean changes, depending on what season those calves are weaned in," he says, adding that in the summer-weaned group, the later the calves were weaned, the heavier they were when compared to earlier-weaned calves.

He speculates that taking calves off their dams while the nutritional value of the grazing forage remains high represents a step down — from very high-quality milk and forage to a weaning yard feed that is a less effective contributor to weight gain. "Both diets were of high quality, but those on a weaning diet didn't consume as much as we'd like," Olson notes.

Conversely, in the group of calves weaned in the fall, those calves taken off their dams earlier showed better weight gains than those that remained on their mothers for a longer period of time.

"As the quality of the forage drops, calves that continue to suckle their mothers during this later period aren't getting much milk because their mothers aren't getting much nutrition and their growth rate slows way down," he explains.

Olson says an example of the inability to convince beef producers of the relevancy of their study findings to the return on an animal can be found in the reluctance of producers to retain ownership of their calves after weaning in spite of research confirming the financial benefits of extended ownership.

Above: The greatest expression of quality genetics in harvested animal performance occurs after weaning, says beef researcher K.C. Olson.

"It is a fact that in order to capture the full value in health and genetics, a producer must retain ownership of his calves for some length of time postweaning," Olson says.

Best return on investment

For Olson, one of the best reasons to retain ownership of calves after weaning is that research has shown that the greatest expression of quality genetics in harvest-animal performance occurs after weaning.

"The profit margin on a grower calf — that is between 500 and 750 pounds (lb.) of body weight in a grow yard — can be roughly twice that of a fresh calf," Olson says. "The guy who has made an investment in growth genetics and a vaccination program will cash in on the majority of that value during the relatively short postweaning growing period."

This information is particularly relevant to calf producers from Kansas and adjacent High Plains states. Olson notes that these ranchers are more likely to have made serious commitments to genetics and vaccination programs and generally have more invested in their animals than those who ship their calves into Kansas from the South and East.

"Typically, cattle that come into our High Plains feedyards from points eastward and southward are from small-herd producers with less management behind them," he says. "In all likelihood they are still going to have their testicles, and they won't have a comprehensive vaccination program applied to them."

He adds that rather than being primary revenue producers for their owners, as they are for most High Plains producers, these shipped calves may be byproducts of land ownership.

With more time and money invested in their product, High Plains calf producers are faced with three options:

1. Sell their calves after weaning.
2. Retain ownership through the postweaning growing period (approximately 60 days after the shipping date).
3. Retain ownership through to harvest.

One study conducted by Olson and his colleagues at K-State and Mississippi State University offers insight into the production implications of each option to the High Plains producer. Concerned about the logic and fairness of applying a single set of preconditioning criteria to all cattle entering the production system, Olson decided to evaluate the effectiveness of the recommended 30- to 60-day, on-ranch weaning period in relation to local calf producers.

He says he has no objections to the other requirements: on-ranch vaccinations for respiratory and clostridia diseases and an assurance that calves are familiar with consuming dry feed from a bunk and water from an automatic delivery device. But requiring weaning timelines of two to three months for local cattle seems excessive to Olson.

"That is the part of preconditioning that is very expensive and very management-intensive," he says. "I have looked at the 60 to 90 days of weaning with some skepticism, knowing that by default these criteria are designed to accommodate high-risk cattle, most of which are shipped in from the South and the East."

He adds that the animals from the High Plains, for the most part, are likely to have been managed better and are not likely to fall into the high-risk category.

Study was revealing

To evaluate the effectiveness of the recommended 30- to 60-day, on-ranch, fall-weaning period for calves aged 160 to 220 days in relation to local calf producers, Olson stratified 433 Angus calves by age. These were then assigned randomly to one of five weaning dates that corresponded to the length of time between separation from the dam and shipment to an auction market. The weaning periods selected for the study were 60, 45, 30, 15 or 0 days.

All calves in the study were vaccinated against common diseases 14 days before weaning and again on the day of weaning. On the predetermined shipping dates,

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Calves that suckle into fall are likely to enter the feedlot at a lighter weight and finish later than earlier-weaned animals, say K-State researchers.

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calves were transported three hours to an auction market and held for 12 hours. Calves were then transported one hour to a feedlot. All calves were fed common pre- and post-shipping diets *ad libitum*.

Olson and his research team observed that average daily gain (ADG) on calves during the 60 days prior to shipping tended to increase linearly with longer weaning periods. Calf body weight at shipping tended to increase linearly with successively longer weaning periods, as did calf body weight 30 and 60 days after shipping. In contrast, the ADG was similar between treatments from Day 1 to Day 30 and Day 31 to Day 60 after feedlot arrival.

The incidence of undifferentiated fever during the 60 days after shipping was greater for calves weaned 0 days than those weaned 60, 45, 30 or 15 days.

For Olson, the evidence was clear.

"The High Plains producer who calves in the spring and weans in the fall can expect an equal health response if the calf is weaned for 60, 45, 30 or 15 days," he says. "In other words, we don't need to wean any longer than 15 days before shipping to get optimal health performance during the first 60 days on feed."

In contrast, Olson's team did detect a correlation between the length of the weaning period and weight gain.

"From a weight gain standpoint, the longer that animal is weaned — between 0 and 60 days — the heavier that animal is going to be at the traditional marketing time," Olson says. "So we can add value to that calf by keeping him on the ranch of origin and increasing his body weight."

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"I found it curious that in the first 60 days in the feedyard all of our treatments maintained their relative rank in body weight from the time they shipped to the time they were on feed for 60 days," he says. "In other words, as our weaning period lengthened, the animals got heavier and those heavier animals retained that advantage, almost to the pound, all the way through the 60 days on feed."

Where's the money?

Olson says he feels the study did provide the High Plains calf producer some valuable information to take to the bank. How it is applied, he says, will depend on individual marketing goals.

If the producer wants to retain calf ownership to harvest, Olson recommends a full weaning term.

"This study shows us if a producer is involved in a retained ownership program and the calves are weaned for 60 days, he is going to have an animal that is heavier at the time of sale and an

animal that retains its body weight not just through the first 60 days on feed but all the way through the finishing period," Olson says. "That animal is going to finish earlier than animals that are weaned for shorter periods of time."

Olson adds that if the scenario is changed to an abbreviated retained ownership period, the weaning strategy is different. "For a shorter retained ownership interval, say 60 days from maternal separation, the major benefit in that situation is going to be in health performance," he says. "There is little value for these ranch-fresh calves, in terms of health performance, to be weaned beyond 15 days."

Bigger animals, less risk

One study that supports the premise that, in most situations, the more weight a calf can gain on the ranch of origin the less health risk it will face in the feedlot, is one that looks at the effect of receiving weight on predicted days to onset of respiratory disease in feedlot steers.

John Wagner, animal sciences professor and general manager of the Colorado State University (CSU) Southeast Research Center, participated in the study.

"It has been a long-standing industry assumption that heavier animals going into the feedlot have fewer health problems," Wagner says, noting it was expected that the results of that portion of the study would fall in line with that premise.

The data for the study was collected from 1,551 crossbred steers shipped from western Nebraska to southeast Colorado. Steers were weighed during initial processing and housed in pens until identified as sick by feedlot personnel. Sick animals were treated according to approved protocols and assigned to sick pens until time of recovery.

Upon analysis of the collected data it was determined by the research team that the receiving weight had significant effect on predicted days to onset of respiratory disease in feedlot steers. It was calculated that as receiving weight increased 0.33 ± 0.142 kg, the predicted days to onset of respiratory disease was expected to increase by one day.

For Wagner and his fellow researchers, the results of the study indicated that heavier cattle were less susceptible to bovine respiratory disease due to processing stress than calves that enter feedlots at lighter weights.

A K-State study confirms that ranch-of-origin weaning yard duration should be linked to marketing strategy.