

USDA study shows benefits of weaning calves early

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Beef producers, when hit with drought, have limited forage for cows to eat. The result is usually reduced calf growth and reduced weights at weaning. ARS scientists confirmed that early weaning is a beneficial production alternative for beef producers when forage is limited. Credit: Stephen Ausmus

At the beginning of 2013, cattle ranchers in the Northern Plains were

among U.S. agricultural producers still feeling the lingering effects of the sweltering 2012 drought, the worst in half a century.

Beef cow numbers were at the lowest in 50 years as U.S. [beef producers](#)—severely affected by extended drought—tried to recover from some of the driest months on record.

Across the Northern and Southern Plains, beef producers hit the hardest by drought are threatened by limited forage resources for cows, which restricts calf growth, resulting in lighter calf weaning weights. In addition, drought can decrease cow body weight and condition and weaken [immune functions](#) that may affect overall health and reproductive performance.

For decades, scientists at the Agricultural Research Service's Fort Keogh Livestock and Range Research Laboratory (LARRL) in Miles City, Montana, have studied management options that minimize the effects of severe drought on rangeland [livestock production](#). Recently, LARRL animal scientists Richard Waterman, a rangeland nutritionist, and Thomas Geary, a reproductive physiologist, teamed with local ranchers and collaborators at Montana State University (MSU) and the American Simmental Association in Bozeman, Montana, to evaluate early weaning of beef calves and its impact on cow, heifer, and steer performance.

"When a calf is weaned early, all nutrients that normally go to milk production for the calf can be retained by the mother—helping to increase or sustain her body weight and condition," Waterman says.

"And proper handling of early-weaned calves can result in greater weight gain than if they had remained with their mothers, especially during drought."

Tallying the benefits

Scientists confirmed that weaning a calf earlier than normal potentially offers a beneficial production alternative for beef producers when forage is limited.

"With the calf removed, the cow needs less forage to address her needs, which is especially important during drought," Waterman says.

"Another issue with drought is the inability to grow enough summer and winter forage for cattle," says rancher and collaborator Dean Peterson, who volunteered his cow/calf herd in Judith Gap, Montana, for the project. "We used to run 500 cows, but now we run 400, because it's about maximizing the efficiency of the forage. We suffered an initial loss of income, but we're doing a better job at taking care of the land and cattle, and our operation is sustainable for the long term."

Research was conducted using calves from both Judith Gap and LARRL. Some calves were weaned early, at 80 days of age, while others were weaned at the more traditional age of 215 days. Cows that weaned a calf early weighed more and were in better body condition at the start of winter. Consequently, the amount of harvested feedstuffs required for cows to maintain satisfactory body weights and condition throughout winter was reduced.

"We learned a lot," Peterson says. "The research confirmed that early weaning is profitable. If you wean calves early, you have fewer problems and can better control the production environment."

"Early weaning during severe droughts will reduce economic losses that would occur when selling lightweight calves," Waterman says. "In order to achieve an economic benefit, a 20-percent increase in [reproductive performance](#) in the cow herd would need to be realized, because early-weaned calves must go on feed much sooner."

Outcomes of the research also demonstrated that early weaning increases the probability of heifers becoming pregnant on time in the following breeding season, Waterman says.

"The nice response was in body weight, especially with those 2-year-olds nursing for the first time," he says. "It takes a cow 5 years to reach her mature body weight. When young cows have their calves removed early, the demands of lactation cease—allowing the cow to focus her resources on body condition and growth. If a cow goes into winter in better condition, maintains that condition, and calves with better condition the next year, she will be much more likely to remain in the herd until maturity."

The objective is to preserve body condition of the cow at a time when forages are limited, says John Paterson, a former MSU animal science professor and Extension Service beef cattle specialist. "We don't want cows to get thin or pull body condition down, because they're lactating, which requires a lot of feed. The way you save that feed is to stop lactation by getting the calf weaned earlier."

Steering in the right direction

Additional findings showed that early-weaned steers reached maturity sooner than traditionally weaned steers when weight gain, feedlot performance, and carcass traits were measured. Steers had a higher rate of growth between the time of early weaning and the time of normal weaning.

Early-weaned steers typically had poorer USDA yield grades, revealing the importance of identifying them before they enter the feedlot, Waterman says. While producers who market cattle using a quality grid will benefit from having a higher quality carcass going into market, research indicates that management of early-weaned calves can directly

affect how they are graded at harvest.

"Carcasses of early-weaned steers may be too fat and receive less-desirable USDA yield grades compared to those of traditionally weaned calves of similar genetics and age when harvested together," Waterman says. "If early-weaned steers are identified before entering the feedlot and harvested at an earlier age, producers have the opportunity to market them at more desirable yield grades with increased quality premiums for those carcasses."

Partnering with the University of Illinois, scientists confirmed this strategy by using ultrasound to measure carcass characteristics. Early-weaned steers were then harvested at a younger age than traditionally weaned animals to maximize their carcass value.

"This research involved cattle that were on Montana ranches, so it was the real deal," Paterson says. "When you wean earlier and get those cattle into the feedlot, the quality and yield are very nice. A lot of ranchers have figured that out, because it's an economic issue as much as anything else."

Peterson is among those ranchers. "We went far enough into the study to get the benefits on the other end," he says. "We had better cattle with early weaning because it helped our quality too. And because we retained ownership of all our steers and heifers until slaughter, we were able to realize those premiums. We had better carcasses when we weaned earlier."

"Early Weaning: A Good Bet for Beef Producers in Drought-Stricken Areas" was published in the August 2013 issue of *Agricultural Research* magazine.

More information: www.ars.usda.gov/is/AR/archive/aug13/

Provided by Agricultural Research Service

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