



Precision for Modern Cattle

Lessons from crop farming help in cattle backgrounding.

by **MIRANDA REIMAN**, *Certified Angus Beef LLC*

Backgrounding today's cattle on yesterday's "prescription" can mean missed profit opportunities.

"We can map to hit whatever target anybody wants us to hit," says Robbi Pritchard, South Dakota State University animal scientist. "All we need to do is manage our stage of growth, oversee the implant, get the correct intake — and we start at ranch time."

Ranches have differentiated their calves over the years, so it's time to look at what each set of cattle needs

before putting them in a routine program.

Kelly Bruns, University of Nebraska West Central Research and Extension director, worked with Pritchard and his team to study the ideal.

"Rather than have one common backgrounding diet for all of the calves that come in, can I strategically, or as Pritchard calls it, 'precision' background them to maximize my outputs?" Bruns asks.

That's the question brought on by an evolution in genetics and management.

1. Breeding seasons are tighter. "We no longer need

time to get the skeleton to grow. We no longer need time for things to average out," Pritchard says. "Time solved a lot of problems with feeder cattle, but with quality-managed cattle today, we don't have to fiddle around with that time."

2. Growth genetics are the norm. When Pritchard started out decades ago, "very profitable" calves converted feed to gain at a ratio of 8.5-to-1 pounds (lb.).

"Growth potential is greater. The rules have changed," he says. "Some [calves] are coming out of 1,600-pound cows. They probably don't need any implants. The DNA for size is there. We use implants to fill in for a lack of DNA."

3. Marbling genetics have improved. "In the old days, bigger meant older. I had to let that frame grow. In the old days to get quality grade, they had to be older," Pritchard says. "It used to be an adage that calf-feds

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— Robbi Pritchard

couldn't grade. That doesn't exist anymore."

Getting there

The first step is deciding to modify the growing program. That begs a question: "How?"

Evaluate end goals and define targets for quality grade and size, the animal scientists say.

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Table 1: Backgrounding ADG and carcass traits at YG 3.25

Target ADG	2.0 lb.	2.5 lb.	3.0 lb.	SEM
Rib fat, in.	0.54	0.55	0.55	0.016
Dressing %	63.4	63.6	62.9	0.19
HCW, lb.	856 ^c	846 ^b	821 ^a	5.0
Marbling ¹	554 ^b	587 ^a	578 ^{a,b}	8.1

Source: Pritchard, Taylor and Bruns, unpublished 2014.

¹Slight^c=400. Small^b=500.

where you change what they'll weigh when they hit yield grade (YG) 4. That's the window."

Smaller to moderate-frame cattle need a more aggressive implanting program than the larger frames. It's also important to consider final marketing method and quality grade potential, Bruns says.

"If we choose to use an implant, are we matching the correct level of the implant — such as low, medium or high potency — to what their rate of gain is?" he asks. "Going back to all our previous marbling work, if we use too high potency of an implant and don't match it up with a high enough caloric diet, we will impede marbling."

If implanted too aggressively, large-frame cattle have more risk of being heavyweight discounts in the packing plant.

"Once you put implants in that large-frame, high-growth kind of DNA, now all [of] a sudden you have a 10,000 hp nitro-burning car. Grow them too slowly during backgrounding and they flame out. It's not a good thing, and it is usually the cattle



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that get blamed," Pritchard says.

Outcomes are not all set on Day 1.

"Even genetics in the same pool can change carcass weight by how we background them," Bruns says.

Researchers looked at targeted daily gains for backgrounding from 2 to 2.5 and 3 lb. The cattle finished on the same diet, for a similar number of days, to a consistent 0.5 inch of backfat.

"The slower they grow during backgrounding, the more they eat during finishing," Pritchard says, noting the 2-lb.-per-day group finished with a 4.09-

lb. average daily gain (ADG), compared to the fastest-growing backgrounders at 3.58 lb. The middle group (2.5 lb.) only gave up a little in finishing to hit 3.9 lb. ADG.

"All of this manipulation was happening during the backgrounding phase. That's the trick," he says.

Hot carcass weight was highest, at 856 lb., for the slowest-growing group in backgrounding, and then fell linearly to 846 lb. and 821 lb. for those cattle pushed hardest earlier (see Table 1).

Marbling score, however, peaked at 587 on a 1,000-point scale with the middle rate of backgrounding, while the 3-lb. daily gainers in that phase slipped back to a 578-point marbling score.

"We were putting too much flesh on them for the rates that they can accumulate intramuscular adipose during backgrounding. We got into the finishing phase with too much flesh on the steers," Pritchard says.

Bruns adds, "We met their genetic potential to maximize their marbling development, and the rest just spills over into backfat."

Another important consideration is diet: Grazing wheat or feeding low-quality forage would be more suitable for commodity cattle.

"They're a very cost-effective way to background cattle, but it's not the way you want to go if you're going to need a premium carcass," Pritchard says. The 5- to 8-month window is most critical. "If I rough them too much during



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backgrounding, I'm going to give up the marbling. I'll get a bunch of carcass weight, but I won't get the marbling."

As a general rule, early weaning is better for large-framed cattle, and creep feeding "fits best just to fill in the nutritional gaps," he says.

Precision ag isn't new, but precision backgrounding might be a change.

"If you're a corn farmer in your other life, you're perfectly comfortable with that precision ag," Pritchard says. "We can go that way in the cattle business and make big strides. Today the genetics are better; they're going to help us a lot. Our growth

enhancement tools are better, and we know a lot more about them."

It just might be time for a new prescription.

Editor's Note: *Miranda Reiman is producer communications director for Certified Angus Beef LLC.*