Yield Grade Opportunities Detailed

System accounts for no more than 40% of red meat yield variation.

*by **Steve Suther**, Certified Angus Beef LLC*

When anyone thinks about beef grading, USDA quality grades such as Prime, Choice and Select likely come to mind. Quality grades have been in effect for nearly a century, but yield grades have been required in the United States for more than 50 years.

While research continues to prove how well quality grades work, the same can't be said for yield grades. To be fair, quality grading has been updated regularly, while today's yield grade (YG) system is exactly the same as what went into effect in 1965.

West Texas A&M University animal scientist Ty Lawrence explained the issues at this summer's Feeding Quality Forums (FQF) in Grand Island, Neb., and Amarillo, Texas. He authored a research paper on the topic this fall entitled, "Beef Yield Grading: History, Issues and Opportunities." The full paper is available online at *www.cabpartners.com/news/ research.php.*

Lawrence told the 200 FQF attendees that numerous studies have cast doubts on the reliability of the YG system, finding weak to only moderate correlations between yield grade and all of the carcass measurements it was intended to predict, so that those measurements could predict red meat yield.

"We're trying to predict a predictor of a predictor," he said, noting it all started with the 1960-published data on 17 independent variables on 162 "representative" cattle processed in the 1950s.

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► **"We apply that estimate to carcasses that weigh beyond the inference of which [the system] was designed, and we have ignored the opportunity to develop new yield estimates afforded by camera grading,"** said West Texas A&M University's Ty Lawrence. **"Leadership within the beef community must decide if the status quo is acceptable, or if improvement is warranted."**

late 1970s, they learned that if you sold half of a large pen of cattle to Packer A and the other half to Packer B, you would get two different results," he said. "Grading was a human, subjective determination."

The nation that had long since put a man on the moon wanted better. In fact, Lawrence said NASA was asked for help, but the Agriculture Research Service soon turned to Kansas State University's more focused expertise "in 1980, to estimate red meat yield using a camera."

Published data proves the "very rudimentary camera" worked. Regardless, for the next decade, the industry "took a left turn toward nuclear magnetic resonance, near-infrared imaging," the animal scientist said.

More promising technology allowed for a return to video image analysis in the 1990s, as grid marketing emerged amid inconsistent grading by humans. Empathy led them to resist imposing discounts while more readily granting premiums.

"Now you take a picture of a ribeye, convert that to red and white pixels, and

you're counting pixels," Lawrence said. "This technology gained approval [in 2009] for measuring ribeye area, yield grade, marbling score and back fat thickness." It cannot measure the kidney, pelvic and heart fat (KPH, part of the YG equation), so the system accounts for that with a constant or algorithm.

"Now you can take a pen of 500 cattle, sell half to Packer A and half to Packer B, and if they're both using the camera, you're going to get the same answer," he said.

Still, trying "to predict a predictor of a predictor" without accounting for thin meats, brisket or trimmings, using data on 162 carcasses from the mostly Hereford cattle of 60 years ago that ranged from 350 to 900 pounds presents inescapable challenges. It accounts for just 40% of the variation in red meat yield for today's average fed cattle, and 0% for Holsteins.

The non-linear stair steps for premiums and discounts represent another major flaw in the system, Lawrence said. When the camera calls one carcass a YG 3.99 and the next a YG 4.00, the grid may suddenly impose a $15-per-hundredweight discount.

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"We apply that estimate to carcasses that weigh beyond the inference of which [the system] was designed, and we have ignored the opportunity to develop new yield estimates afforded by camera grading," Lawrence summarized. "Leadership within the beef community must decide if the status quo is acceptable, or if improvement is warranted."

The Feeding Quality Forums were co-sponsored by Micronutrients, *Feedlot* magazine, Zoetis, Roto-mix and Certified Angus Beef LLC (CAB). To view presentations and summary information, visit *www.feedingqualityforum.com.*

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