By Dr. Susan Markusa

YOU JUDGE THE HEIFERS!

Can you spot the genomics at work?

As cattlemen, we take pride in our ability to visually judge, select and breed cattle that work in our ranch environment.

Often a good group of cattle is judged by its similarities and not its differences, so that's one visual criteria for selection.

With good reason, we also tend to focus on traits that are measurable such as growth (birth, weaning and yearling weights), performance (average daily gain), reproduction and conformation. We have learned these are economically important traits that we have a lot of control over.

But there are other traits of economic importance that aren't so easily judged as they are difficult or expensive to measure, and less within our control. These include input traits such as feed intake with resulting feed efficiency, and carcass traits like marbling and ribeye area which require a different method of evaluation, preferably one that is reliable, quick, easy and cheap.

This is where genetic evaluation enters the picture. It has enabled us to take a look under the hide of our cattle so that we might better predict their performance and that of their offspring. Using genomic technology in crossbred cattle is relatively new, but has the potential to provide producers with more information earlier in the life of an animal where genetic merit scores (EPDs) would otherwise not be available (www.beefgenomicprediction.ca).

The gains from improved selections through genetic evaluation also have the potential to benefit more than just your own bottom line. For example, research has established feed-efficient cattle emit less methane and produce less manure than inefficient cattle and ultimately cost

Continued on page 22

TAG #447

Tag #447
Sept. 30, 2016, wt. 1,030 lbs.
Birthdate: Apr. 28, 2015
190-d weaning weight: 515 lbs.
Start test weight: 781 lbs.
End test weight: 875 lbs.
ADG on test: 1.65 lbs./d (0.75 kg/d)

Notes:

TAG #412

Tag #412
Sept. 30, 2016, wt. 995 lbs.
Birthdate: Apr. 28, 2015
190-d weaning weight: 510 lbs.
Start test weight: 759 lbs.
End test weight: 864 lbs.
ADG on test: 1.85 lbs./d (0.84 kg/d)

Notes:

Continued from page 20

less to feed. So the overall benefit of a widespread shift to genomic-aided selection might well be a greener and more competitive beef industry.

Genomics can also be used to optimize heterosis by accurately predicting breed composition to influence mating decisions. Using this approach of genomic mate selection also adds value by avoiding both inbreeding and recessive genetic defects in the herd.

In order to demonstrate the impact of genomics the Alberta Beef & Forage Grazing Centre and Lakeland College turned to the new Student Managed Farm (powered by New Holland) livestock unit at the college in Vermilion, Alta., to conduct a long-term study on a herd of 50 Angus crossbred females that had been selected on traditional visual appraisal, herd reputation and performance records.

The students will manage the study with the assistance of instructor Geoff Brown and myself.

The heifers had DNA samples taken and analyzed by Delta Genomics and those results were translated into molecular breeding values with economic weights assigned for each trait under the direction of Dr. John Crowley, a geneticist at the University of Alberta and research director of the Canadian Beef Breeds Council.

The heifers were then put on a 75-day feed efficiency test using GrowSafe feeders to determine their residual feed intake (RFI) and then ranked on all this information (visual, performance data, molecular breeding values and resulting economic value).

Does all that extra data and information help us select better cattle? That is what the students plan to find out. But we, and *Canadian Cattlemen* magazine, thought you might like to try your hand at judging the results for yourself.

We have selected four heifers to follow over the length of this trial. So let's get started: step one is for you to rank these heifers from top to bottom based on visual and basic performance data.

In the next issue we'll have some additional data to further refine your rankings.

Dr. Susan Markus is a livestock research scientist with Alberta Agriculture and Forestry in Stettler, Alta.

TAG #134

Tag #134
Sept. 30, 2016, wt. 1,060 lbs.
Birthdate Apr. 28, 2015
190-d weaning weight: 561 lbs.
Start test weight: 857 lbs.
End test weight: 949 lbs.
ADG on test: 1.63 lbs./d (0.74 kg/d)

Notes:

TAG #109

Tag #109
Sept 30, 2016, wt. 1,095 lbs.
Birthdate: Apr. 28, 2015
190-d weaning weight: 504 lbs.
Start test weight: 839 lbs.
End test weight: 932 lbs.
ADG on test: 1.63 lbs./d (0.74 kg/d)

Notes: