Marbled Grass-fed Beef

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MIRINZ Industry Workshop
20th October 2009
How can we increase profitability of beef in New Zealand?

Volume vs Value
Value

• Getting paid more for what we produce!

• But will you get paid more for doing exactly the same thing, and selling it to exactly the same people?

Creating higher value beef products

• Focus on quality (as measured by the consumer)

• Can technologies assist in this?
  – Plant technologies – improved nutrition
  – Animal technologies – more predictable outcomes
High Value markets

• “Natural” beef markets
  • Low chemical use
  • Grass-fed – now a niche segment in US market
  • “Organic” markets

• Marbled beef markets
  • Focus on eating quality
  • Japan and Korea (+ emerging China???)
  • Multi-segmented within these markets
Grass-fed marbled beef?

• Combine attributes of both high value markets

• Beef that is:
  • Grass-fed (ie. not intensively fed grain-based diets).
  • Lightly marbled (lower marbling than grain-fed).
  • White fat.
  • Cost-competitive (with grain-feeding).
  • Natural image
  • Environmentally friendly (no intensive feeding systems)
  • Animal welfare friendly (consumer perception)
Producing grass-fed marbled beef?

Crucial factors are matching cattle genetics with diet to express marbling

1. Diet
   - Can we construct energy-dense finishing systems to fatten cattle at a rate approaching feedlot systems?

2. Cattle genotype
   - Cattle genotype is a crucial factor in marbling – need to put right genotype (breed, individual animals) on right finishing system.

Production systems - reliable, high compliance to specifications

   - Accurately identify suitable cattle
   - Put them on the right growth path
   - Construct finishing systems which are reliable
   - Putting these systems together to produce quality beef outcomes.
DNA technology – identifying genetic potential

- Marbling
- Growth rate
- Fat colour
- Fertility
- Meat Quality (tenderness, colour stability, etc)
- Disease resistance
  - FE
- Parasite resistance
- Etc.
Putting the right cattle onto optimal systems

DNA sire selection = genetic improvement

Bull breeder → Commercial breeder

Calf Drafting = Predicting Performance

• Genotype – SNP technologies
• Early life growth performance
• Previous performance of supplier
• Epigenetics ??

High energy finishing

Minimum cost finishing

Higher value markets

Other markets

EID & Database systems
Proof of concept

Jeff Farm Mean Live Weight

Mean live weight (kg)

Date

22/12/08, 19/01/09, 10/02/09, 03/03/09, 24/03/09, 15/04/09, 05/05/09, 21/05/09, 16/06/09

Angus/Jersey

Marbling score

numbers

1.0, 1.2, 1.4, 1.6, 1.8, 2.0, 2.2, 2.4, 2.6, 2.8

Jeff farm

Marbling score

numbers

1.0, 1.2, 1.4, 1.6, 1.8, 2.0, 2.2, 2.4, 2.6, 2.8, 3.0, 3.2, 3.4

AxJ

Jeff Farm
Next Steps

• Can we do better (with better starting cattle)?

• Can achieve similar outcomes with other genotypes?
  • Angus x Kiwi-cross (DNA test for breed + individual profile)
  • Angus heifers with high marbling genetics.

• How can we construct a commercial system around lightly marbled grass-fed beef?

• Can we deal with fat colour issues?

• Can we supply under a seasonal grass growth pattern?

• How long does finishing period have to be?