Beef Improvement Group
EAAP Copenhagen – 28th August 2014

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Beef Improvement Group
Current UK (EU) Industry

• Highest global cost of production
• Why?
• Supported by high subsidy payments
• Led to proliferation of inefficient breeds and systems
• Fragmented supply chains
• Winter housing of cattle – high cost
The Challenges

- Minimise variable costs
- Control fixed costs
- Increase output
- Feed inputs
- Herd replacement
- Veterinary
- Labour per cow
- Winter housing
- Kgs of calf wt weaned per cow mated
- Maximise carcass value

Optimise costs/output balance to maximise profit
Research Support

- Breeding programme design
- Genetic evaluation
- Breed Improvement - organise breeding strategies within breed to optimise terminal sire and maternal traits simultaneously
- Measure residual feed intake (RFI)
- Measure meat eating quality
- Future – genomics?
BREEDING PROGRAMME DESIGN

STABILISER

• 4 – breed composite
• Designed at MARC, Nebraska, US by Keith Gregory & Larry Cundiff
• 50% British native 50% maternal Continental breeds
• Maximise profits from cow/calf operations and feedlot performance

Without government subsidy support
Stabiliser Breeding Programme

• First UK calves born 1999
• 8,000 Signet recorded cows in 64 herds
• 24,400 females on BCMS database
• BIG manages breeding programme and markets all pure Stabiliser genetics
• 450 + farmers using Stabiliser genetics
• All herd sires selected on EBVs
• New bloodlines regularly imported from USA
Stabiliser Breeding Pyramid

Nucleus Herds

Bulls Heifers & Semen

Production Herds

Heifers

Steers & Heifers

Bulls

Breeding Replacements

Morrisons Givendale Prime

Morrisons Yearling Beef
GENETIC EVALUATION
Multi-trait BLUP Model

- Calving ease – gestation – birth weight
- Growth – 200 & 400 day growth
- Muscle & fat depths
- 200 day milk
- Age at first calving
- Scrotal circumference
- Calving Interval
- Longevity
- Cow Mature Weight (maintenance cost)
BREED IMPROVEMENT
Central Performance Testing
How we accessed research to help with breeding programme

- Visited USDA MARC in 1997
- Utilized UK Signet Breeding Services to lead research into BLUP evaluations
- Utilized geneticists at SRUC to design programme to optimize genetic gain for maternal & terminal sire traits simultaneously
- Continue to develop new production EBVs with Signet & SRUC
Financial Gains Per 100 Cows

Increase Output
- Reduced calving interval from 18 to 9 wks
  Plus 12% more calves reared = 5,300kg extra
calf weight at weaning @£2.10  111
- Heifers calve at 2 years (12% replacement)  90

Savings
- Reduce Replacement rate from 20% to 12%  12
- Feed, vet and labour  170
  383

Total gains £383 per cow = £38,300 per 100 cows
RESIDUAL FEED INTAKE

North America
GrowSafe Calgary
BIG Residual Feed Intake Project
5 year project testing >1000 Stabilisers

Consortium Partners

- BIG – lead applicant & project manager
- JSR – provide infra-structure & labour
- SAC – data collection & genetic evaluation
- Keenan – feed analysis & ration formulation

Contributing Organisations

  Morrisons/Woodheads
  Eblex/Signet

Funded by Technology Strategy Board (£1.2m)
Project Aims

• Identify sire lines which are more efficient at converting feed into saleable meat
• Select more efficient breeding females
• Promote the uptake of more efficient breeding stock
• Reduce greenhouse gas emissions
• Improve profitability for producers
Typical RFI Distribution Values

Batch 7 NFE (78 Stabiliser bulls) - Graph showing distribution of NFE (kg DMI/d) for Low NFE, Mid NFE, and High NFE categories among 78 stabiliser bulls.
## Results of 78 Stabiliser Bulls

<table>
<thead>
<tr>
<th>metric</th>
<th>Low RFI</th>
<th>Mid RFI</th>
<th>High RFI</th>
</tr>
</thead>
<tbody>
<tr>
<td>DLWG (kg/d)</td>
<td>1.54</td>
<td>1.64</td>
<td>1.63</td>
</tr>
<tr>
<td>Mean LW(^{0.75}) (kg)</td>
<td>103</td>
<td>102</td>
<td>106</td>
</tr>
<tr>
<td>Fat depth (mm)</td>
<td>5.0</td>
<td>4.6</td>
<td>5.0</td>
</tr>
<tr>
<td>DMI (kg/d)</td>
<td>9.4</td>
<td>10.1</td>
<td>11.1</td>
</tr>
<tr>
<td>FCR (kg DMI:LWG)</td>
<td>6.2</td>
<td>6.3</td>
<td>7.0</td>
</tr>
<tr>
<td>RFI (kg/d)</td>
<td>-0.68</td>
<td>0.02</td>
<td>+0.66</td>
</tr>
</tbody>
</table>

Cost deviation
- £10
- 0
+£14

£ per 12 weeks on test centre @ feed cost of £165/t DM

Low 1/3 RFI bulls consumed 17% less feed, had 13% better FCR and cost £24 less to feed than high 1/3 bulls.
Meat Quality
JSR Food Quality Centre

Measures
• Shear Force
• Mirinz Compression
• Bite Force
• Rank samples for tenderness
SUPPLY CHAIN DEVELOPMENT
BIG/Morrisons Plc Partnership

- Develop supply chain model
- Steers, bulls & heifers
- Improve production efficiencies
- Benefits from feed-back of carcase data
- Secure a strong supply chain for consistent high eating quality beef
- Rewards to producers for true carcase value
The BIG Production Model

- Disciplined breeding programme
- Defined production blueprint
- Optimising performance & costs
- To maximise profits
- Consistent high eating quality beef

Unique in the UK industry
Innovation

- Identify methods to improve production efficiency & profitability
- Research robust solutions to solve practical problems
- Select reliable academic/industry partners
- Secure adequate funding
- Always work hard to deliver planned milestones and outcomes
Thank you