# 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

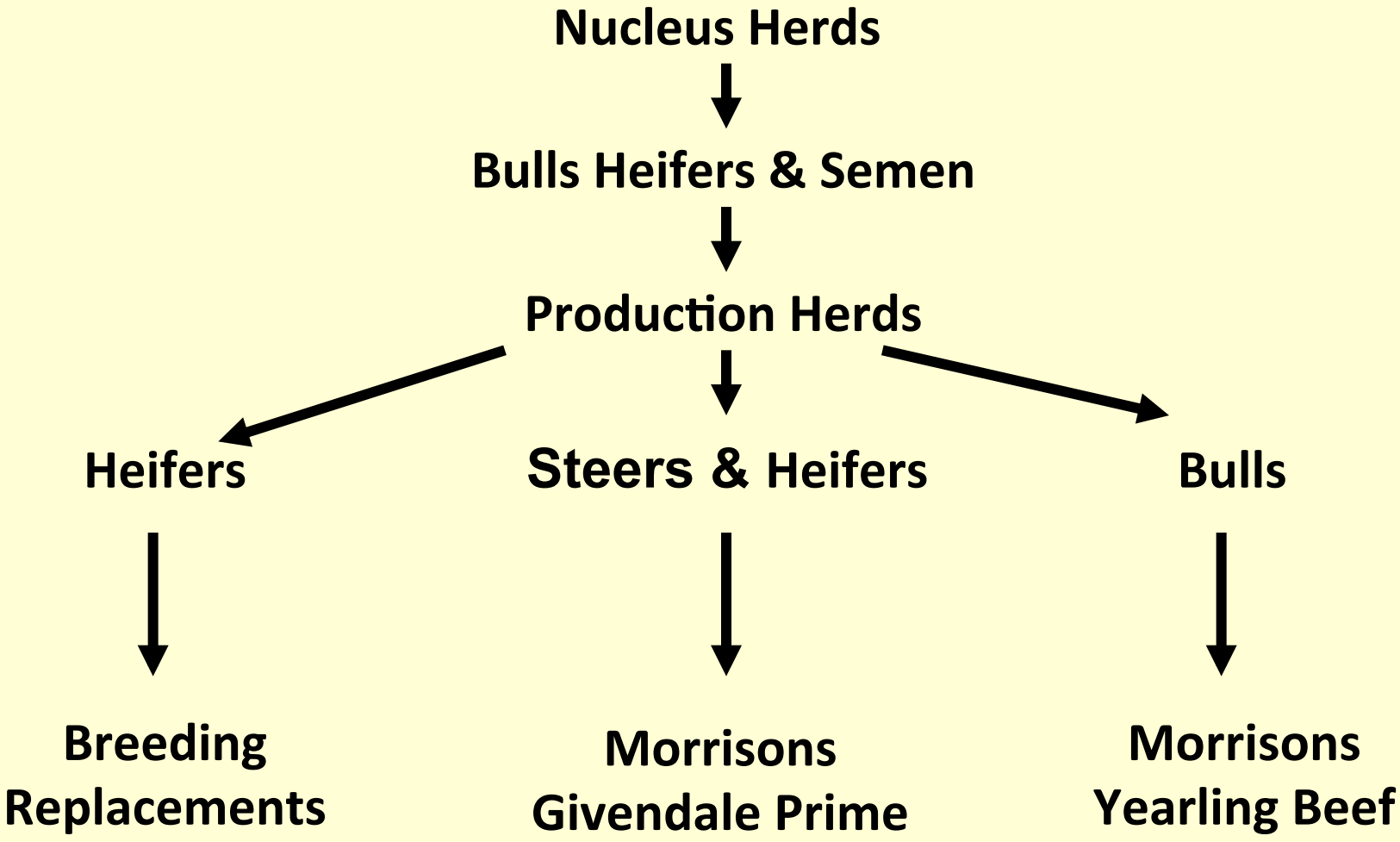
- 4 – breed composite
- Designed at MARC, Nebraska, US by Keith Gregory & Larry Cundiff
- 50% British native 50% maternal Continental breeds
- Maximise profits from cow/calf operations and feedlot performance

**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



# 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**

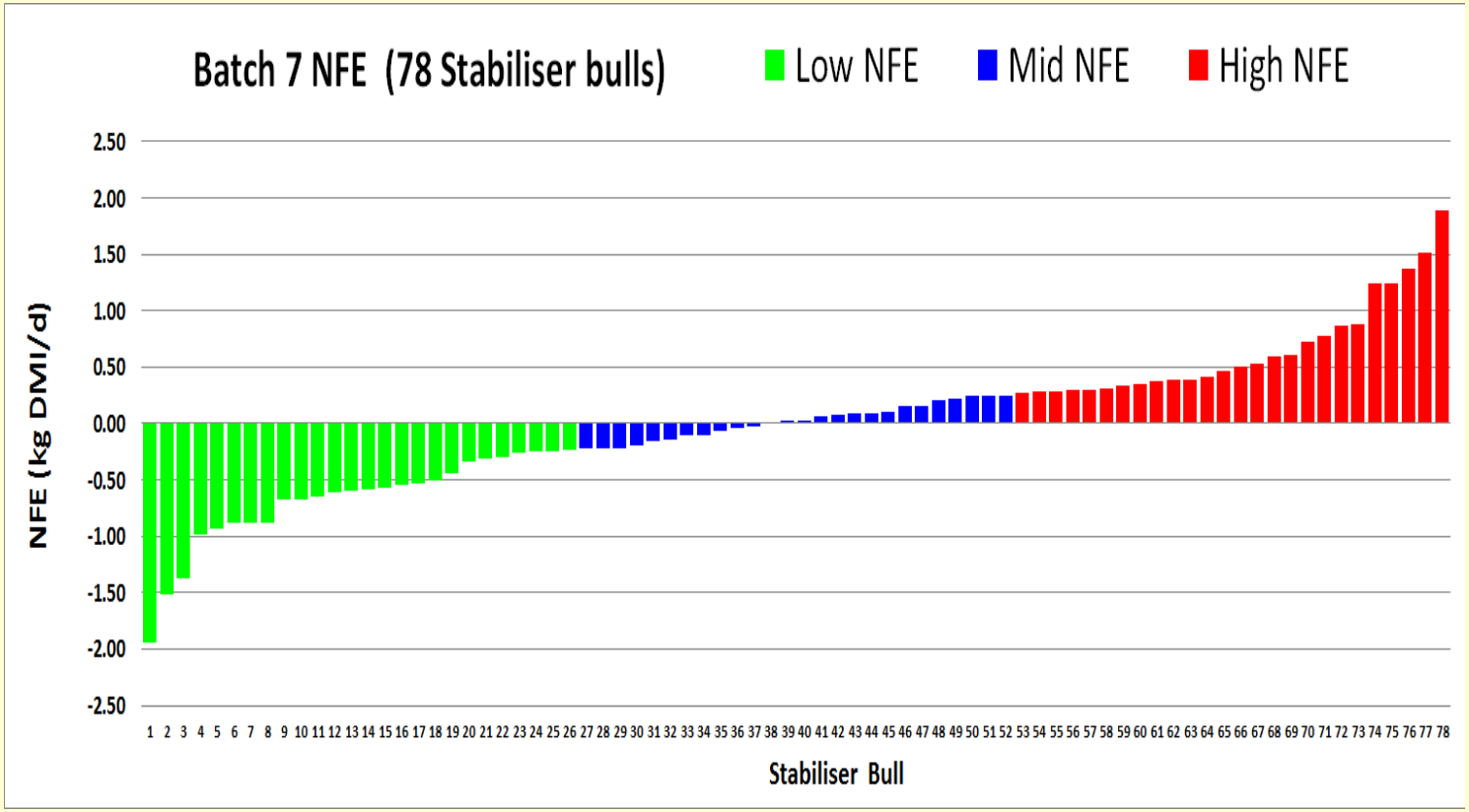
Morrisons/Woodheads
Eblex/Signet

**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



# Results of 78 Stabiliser Bulls

| | Low RFI | Mid RFI | High RFI |
|---|---|---|---|
| • DLWG (kg/d) | 1.54 | 1.64 | 1.63 |
| • Mean $LW^{0.75}$ (kg) | 103 | 102 | 106 |
| • Fat depth (mm) | 5.0 | 4.6 | 5.0 |
| • DMI (kg/d) | 9.4 | 10.1 | 11.1 |
| • FCR (kg DMI:LWG) | 6.2 | 6.3 | 7.0 |
| • RFI (kg/d) | -0.68 | 0.02 | +0.66 |
| 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