Squaring the Bovine Circle
- An Irish Perspective

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Session: Supporting Circular Economy: how does it affect the Breeding Goals?
Overview

• Current Irish Bovine herd statistics
• Defining the Circle
• Climate and Environment and impact of breeding goals
• New initiatives on the horizon
• Summary
Irish Bovine population stats

Dairy cows: 1.5m

Suckler cows: 0.95m

Suckler >=10 cows, dairy >=20 cows
Seasonal system: 85% cows calve in the Spring
Defining the circle

- Dairy farm
- Suckler farm
- Bull breeder farm
- Calf to beef farm

Nationally:
- Beef exports €2.5 bn
- Dairy Exports €4 bn

Government

- Biodiversity
- Consumer
- Other Citizens

Teagasc

ICBF

Agri sector

- Revenue
- Costs of Production
- Animal Welfare
- Regulation
- Environment
Climate and the Environment

- Current Narrative
- National Mitigation Strategy
- Dairy Breeding Goals
- Suckler Beef Breeding Goals
Climate Bill going to mean a decade of pain for Irish agriculture

The Climate Action Bill, due to be published by the government on Tuesday, is going to place a whole new set of legally binding constraints on Irish farming, writes Lorcan Allen.

Mainstream agriculture under intense scrutiny as regards GHG emissions (32% of national total)

- Climate and Environment issues are here to stay
Potential mitigation strategies
Teagasc Marginal Abatement Cost Curve for Irish Agriculture (MACC)

Dairy Breeding Goals

Table 1. Change in performance of the national dairy herd (2010-2019).

<table>
<thead>
<tr>
<th>Year</th>
<th>Milk (l/cow)</th>
<th>Fat%</th>
<th>Protein%</th>
<th>F+P kg/cow</th>
<th>6 week calving rate%</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>4,966</td>
<td>3.85%</td>
<td>3.37%</td>
<td>359</td>
<td>52%</td>
</tr>
<tr>
<td>2019</td>
<td>5,446</td>
<td>4.17%</td>
<td>3.53%</td>
<td>419</td>
<td>65%</td>
</tr>
</tbody>
</table>

Each €10 increase in EBI ↓ 24.9 kg CO\text{2} equivalents less per lactation
Fertility and Longevity are key drivers of reduced emissions intensity

Shalloo et al. 2021 (preliminarily presented at Irish Grassland Conference 2020)
Suckler Beef Breeding Goals

SCWS scheme
- Ancestry
- Phenotypes
- Welfare

BDGP scheme
- Genotyping
- Phenotypes
- Genetic improvement
- Environment

BEEP scheme
- Cow weights
- Calf weights
- Efficiency
- Environment

Fig 1. Genetic Trends for Replacement & Terminal Index, based on 1st Calving Suckler Beef Females.

Each €10 increase in Replacement Index ↓ Enteric methane EI by 0.09 kg CO$_2$e kg/meat/cow/year
Each €10 increase in Terminal Index ↓ Enteric methane EI by 0.21 kg CO$_2$e kg/meat/cow/year

New initiatives

• Accelerating current genetic gain

• New Traits
Accelerating existing genetic progress

• Increasing AI usage and sire recording
  ➢ Dairy sired calves: 73% AI sired, 17% unrecorded sire
  ➢ Beef x dairy calves: 26% AI sired, 40% unrecorded sire
  ➢ Suckler calves: 19% AI sired, 24% unrecorded sire

• Increased milk recording
  ➢ 55% of cows currently recorded

• Increased liveweight recording
  ➢ Dairy cows: < 10%
  ➢ Beef cows: 35%
  ➢ Country wide technician service

• Harmonisation of bio-economic models across dairy and beef

• DNA based calf registration pilot

Enhanced training populations
New Traits

**Dairy Beef Index**

**ICBF.com**

**Breeding High Quality Beef Cattle from the Dairy Herd**

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**New Traits**

- **New Traits**
  - **Age at Slaughter EBVs**
  - **New Health Trait EBVs**
  - **Trained Panel MEQ EBVs**

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**Test EBVs Phase**

- Age at Slaughter EBVs

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**Data Gathering Phase**

- Direct Measures $\text{CH}_4$, $\text{CO}_2$

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**Routine EBVs Phase**

- New Health Trait EBVs

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**Trained Panel MEQ EBVs**

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**Indoor**

**At Pasture**

Potential 17% increase in Mitigation by including directly in profit indexes.
Summary

• Important to think about the larger circle
  ➢ Sector level to national level and beyond

• Climate and the Environment is the biggest challenge

• Broad breeding goals are delivering GHG mitigation
  ➢ Need to accelerate with better selection accuracy and new traits

• Large opportunities to collaborate across many disciplines