Update of Economic Values

Paul Crosson
Animal & Grassland Research and Innovation Centre, Teagasc, Grange
ICBF Industry Meeting, Portlaoise. 22 May 2015
Objective

- To put a value on gains in farm productivity

✓ Level of improvement in productivity

To assign economic values to the breeding traits that affect profitability so that breeding indexes can accurately reflect economic gains made on farms
# Updates since last review

## Prices

<table>
<thead>
<tr>
<th></th>
<th>2012</th>
<th>2015</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean R3 steer price (€/kg)</td>
<td>3.78</td>
<td>4.00</td>
<td>FAPRI</td>
</tr>
<tr>
<td>Labour – general (€/hr)</td>
<td>18.51</td>
<td>11.29</td>
<td>JLC</td>
</tr>
<tr>
<td>Labour – stockmanship (€/hr)</td>
<td>18.51</td>
<td>18.51</td>
<td>FRS</td>
</tr>
<tr>
<td>Concentrate (€/t)</td>
<td>255</td>
<td>300</td>
<td>FAPRI</td>
</tr>
<tr>
<td>CAN (€/t)</td>
<td>306</td>
<td>260</td>
<td>FAPRI</td>
</tr>
<tr>
<td>GDP deflator</td>
<td>18%</td>
<td>21%</td>
<td>FAPRI</td>
</tr>
</tbody>
</table>

## Model (Grange Beef Systems Model)

<table>
<thead>
<tr>
<th></th>
<th>2012</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean calving date</td>
<td>3 March</td>
<td>12 March</td>
</tr>
<tr>
<td>Cow live weight (kg)</td>
<td>610</td>
<td>670</td>
</tr>
<tr>
<td>Replacement heifer (€)</td>
<td>2038</td>
<td>1796</td>
</tr>
<tr>
<td>Stocking rate (LU/ha)</td>
<td>2.75</td>
<td>2.60</td>
</tr>
</tbody>
</table>
Baseline System

- Calving/Turnout: 12 March
- Weaning/Housing: Oct/Nov; 312 kg

- Heifer Finishing: 20 mo; 320 kg
- Steer Finishing: 24 mo; 405 kg

- 40 ha
- 63 cows
- €225/ha

The Irish Agriculture and Food Development Authority
Output traits

1. Weight for age (kg carcass weight)

2. Maternal weaning weight (milk effect)
Output traits

1. Weight for age (kg carcass weight) = €4.03/kg carcass

2. Maternal weaning weight (milk effect)
Maternal Weaning Weight

Example for 50 kg heavier calf

Extra Calf Value
= 50 kg x €2.94
= €147

Economic Value of maternal weaning weight = (147 – 20) / 50 = €2.53/kg
Production cost traits

1. Progeny intake
2. Cow mature weight
   • Heifer intake
   • Cow intake
   • Cull value
3. Gestation length
4. Calving difficulty
Progeny Intake

Extra feed costs for heavier animals

8.5 c/kg X 63%

17.5 c/kg X 28%

37.5 c/kg X 9%

Average annual feed cost = 13 c/kg

i.e. each extra kg of feed required by cattle costs 13 c
Production cost traits

1. Progeny intake  
   €0.13/kg DM

2. Cow mature weight
   • Heifer intake
   • Cow intake
   • Cull value

3. Gestation length

4. Calving difficulty
Cow & Heifer Intake EVs

- **Cow Intake EV**: €114/t DM
- **Heifer Intake EV**: €134/t DM

![Pie charts showing the breakdown of feeding sources for cows and heifers]

- **Cows**: 71% Grass, 27% Grass silage, 2% Concentrates
- **Heifers**: 61% Grass, 31% Grass silage, 8% Concentrates

*The Irish Agriculture and Food Development Authority*
Production cost traits

1. Progeny intake = -€0.13

2. Cow mature weight
   - Heifer intake (per kg DM) = -€0.276
   - Cow intake (per kg DM) = -€0.100
   - Cull value (per kg carcass) = €3.15

3. Gestation length

4. Calving difficulty
- Fewer days until breeding - higher replacement rate
- Less grazed grass, more grass silage
- Lighter weanlings – lower carcass weights (but less feed)
- Economic Value = €2.25 per day change in GL
Calving difficulty

• Direct calving difficulty
  Level of difficulty because of the characteristics of the calf
  (body shape and size, etc.)

• Maternal calving difficulty
  Level of difficulty because of the characteristics of the cow
  giving birth (pelvic size, calving ability, etc.)

• Both assessed along a continuum from no assistance to caesarean
Direct calving difficulty

-€4.65 per % change

-€2.26 per % change

The Irish Agriculture and Food Development Authority
Fertility traits

1. Survival

2. Calving interval

3. Age at first calving
Cow survival

16% replacement rate

- Fewer progeny for slaughter

25% replacement rate

- More heifers calving = more labour
- But: more cull cows

Economic value = €4.02 per head per % change

The Irish Agriculture and Food Development Authority
Calving Interval

- Less grazed grass, more grass silage
- Lighter weanlings – lower carcass weights (but less feed)
- Economic Value = €2.31 per day change in Calving Interval
Age at First Calving

24 mo vs 36 mo

Economic value = €1.61 per day change in AFC
Other traits

- Docility (days off work + injury cost)
  - Cow €34.00 to €35.06 per unit change in docility score
  - Calf €18.40 to €18.92 per unit change in docility score

- Disbudding (crate + labour + anaesthetic)
  - €7.95 to €8.28 per polled progeny

- HE/AA premium
  - Industry data - number receiving premium increased from 10% to 75%
  - €6.30 to €31.71 per progeny from HE/AA sires
Revised EVs

The Irish Agriculture and Food Development Authority
Thank you