Cow’s Own Worth (COW)
synergising data to provide a new tool to aid in culling decisions in seasonal dairy herds

Speaker: Margaret Kelleher
Donagh Berry, Peter Amer, Andrew Cromie, Philip Owens and Ross Evans

mmkelleher@icbf.com
Cow’s Own Worth (COW)

Designed to represent more closely the future phenotypic performance of dairy females

A new system to rank females on predicted profit potential

- Spring-calving system
- EBI – Economic Breeding Index (national breeding index)
- Centralised database
- Reward data recording herds with an added value service
Question – who would you cull??????

EBI €200

EBI €100
Question – who would you cull??????

EBI €200
Parity 5

EBI €100
Parity 2
Question – who would you cull??????

EBI €200
Parity 5
Calved April

EBI €100
Parity 2
Calved Feb
Question – who would you cull??????
Cow’s Own Worth (COW)

Genetics effects

Age of cow

Crossbreeding effects

Calving date

Individual effects

EBV

Heterosis

Permanent Environment

Calving Date

Age
Expected profit from:

Current Lactation
- Milk
- Health
- Management
- Maintenance
- Fertility (calving date)

Future Lactations
- Milk
- Health
- Beef
- Calving
- Management
- Maintenance
- Fertility
- Descendants

Net Culling Cost
- Cull cow value
- Replacement cost

+ predictions on fertility, survival and SCC performance

Cow’s Own Worth
Current lactation profit

- Genetics effects
- Crossbreeding effects
- Individual effects

Actual calving date
- Age of cow
- Calving date

Current milk price

Costs per calving month MDSM

Current Lactation
- Milk
- Health
- Management
- Maintenance
- Fertility (calving date)
Future lactations profit

- Genetics effects
  - Age of cow
- Crossbreeding effects
  - Calving date
- Individual effects
  - Individual

Future Lactations
- Milk
- Health
- Beef
- Calving
- Management
- Maintenance

Future milk price MDSM
Future lactations profit

EBI times
Cumulative Discounted Expression

Future Lactations

- Descendants
Future lactations profit

Actual calving date
- Feb
- Mar
- Apr
- May

Next calving date
- Feb
- Mar
- Apr
- May

Genetic effects
- EBV
- Heterosis

Future Lactations
- Fertility
  + predictions on fertility, survival and SCC performance
## Future fertility performance

### Transition matrices

<table>
<thead>
<tr>
<th></th>
<th>Jan</th>
<th>Feb</th>
<th>Mar</th>
<th>Apr</th>
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### Best Genetics

### Worst Genetics
# Future fertility performance

## Transition matrices

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</thead>
<tbody>
<tr>
<td><strong>Proportion</strong></td>
<td>0.14</td>
<td>0.53</td>
<td>0.22</td>
<td>0.08</td>
<td>0.03</td>
</tr>
<tr>
<td><strong>Cost (€)</strong></td>
<td>0.00</td>
<td>0.00</td>
<td>-151.00</td>
<td>-210.00</td>
<td>-437.00</td>
</tr>
<tr>
<td><strong>∑Cost (€)</strong></td>
<td></td>
<td></td>
<td>-63.13</td>
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</thead>
<tbody>
<tr>
<td><strong>Proportion</strong></td>
<td>0.13</td>
<td>0.39</td>
<td>0.25</td>
<td>0.15</td>
<td>0.07</td>
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<tr>
<td><strong>Cost (€)</strong></td>
<td>0.00</td>
<td>0.00</td>
<td>-151.00</td>
<td>-210.00</td>
<td>-437.00</td>
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<tr>
<td><strong>∑Cost (€)</strong></td>
<td></td>
<td></td>
<td>-99.84</td>
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Difference of €36.71
Net culling cost

Cull value

Long term replacement requirement

Replacement cost

Salvage value + Genetics_{CWT}

Net Culling Cost

- Cull cow value
- Replacement cost
### Results: Milk production

€360 more value per cow per lactation for cows in top 25% versus bottom 25%

<table>
<thead>
<tr>
<th>Group</th>
<th>Milk (kg) COW</th>
<th>Fat (g/100g) COW</th>
<th>Protein (g/100g) COW</th>
<th>Milk (kg) EBI</th>
<th>Fat (g/100g) EBI</th>
<th>Protein (g/100g) EBI</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Best</strong></td>
<td>6965 (6.17)</td>
<td>4.07 (0.003)</td>
<td>3.57 (0.001)</td>
<td>6674 (6.32)</td>
<td>4.11 (0.003)</td>
<td>3.57 (0.003)</td>
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<tr>
<td><strong>Good</strong></td>
<td>6695 (6.45)</td>
<td>4.03 (0.003)</td>
<td>3.52 (0.001)</td>
<td>6580 (6.38)</td>
<td>4.04 (0.003)</td>
<td>3.52 (0.003)</td>
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<tr>
<td><strong>Poor</strong></td>
<td>6512 (6.18)</td>
<td>4.01 (0.003)</td>
<td>3.49 (0.001)</td>
<td>6530 (6.27)</td>
<td>4.00 (0.003)</td>
<td>3.49 (0.003)</td>
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<tr>
<td><strong>Worst</strong></td>
<td>6164 (6.08)</td>
<td>3.97 (0.003)</td>
<td>3.44 (0.001)</td>
<td>6467 (6.24)</td>
<td>3.93 (0.003)</td>
<td>3.44 (0.003)</td>
</tr>
</tbody>
</table>
1. COW was able to identify cows performing well within my herd.

2. COW was able to identify cows for culling within my herd.

3. I would use the COW to help inform my culling decisions if it were to become a routine service from ICBF.

4. I found the report easy to read.

5. The summary tables were useful to highlight specific areas of production (EG: Top 10 and bottom 10 on COW, Top 10 and bottom 10 on milk solids, High SCC cows).

6. The colour coding of the top 10% and bottom 10% on important traits useful.

7. My milk recording information has more value now that I can receive a COW report.

8. I would like the COW to be generated for my herd from now on.

9. I would recommend the national extension of the COW to all dairy milk recording herds in 2017.
Profile development 2017

- Development underway
- Pilot phase scheduled July
- Farmers testing screens and accuracy of COW rank
- Potential to encourage more data recording with data completeness dash bars
Current data recording

- Data Recording currently in your Herd
- Young Stock Recording
- Dairy EBI
- Beef Euro-Star
- Health
- Fertility
- Sires
- Calving Survey
- Genotyped Females

Health Events 2017
- 571 Negative
- 0 Positive
- 0 Inconclusive

Dry-off Events
- 18 of 233 Cows Dried Off

AI / Natural Serves 2017
- 261 Animals Served
- 276 Serves

Scanning 2017
- 0 Animals Scanned
- 0% Empty

Marked for Culling
- 0 Animals
Conclusions

- Complimentary to the EBI (national breeding index)
- Added value service
- Prospects to improve herd profitability
- Multiple sources of data available
- Live system
- Maximise COW accuracy by;
  - Recording **MORE** data
  - Recording **ACCURATE** data
- Pilot phase of on-line service July 2017
- Commercial roll-out September pending results of pilot phase