To Invest or not to invest?
That is the question.

O’Leary, N., Ahrend, A., McDonagh, A, O’Brien, B. and Shalloo, L.
Overview

1. Large potential
2. Early adopter risk - Period of uncertainty
3. How to advise farmers? – The problem to be addressed
4. Practical & flexible way of dealing with imperfect information
1. Does it work?
2. How quickly will it depreciate?
3. Will a farmer actually use it? (adherence factor)
4. If used, will it have impact? Dutch study 2008 – 2013
Decision making with imperfect information

1. Frame the decision appropriately

2. Acknowledge limits of known information

3. Limit scope where judgement is required

4. Easy to use tool
Precision Dairy Cost Benefit Tool (PDCBT)

Inputs
- Costs of tool
- Desired Return On Interest

Factors included
- Economic associations
  - technical measure -> profit

Output
- Likely technical improvement required to achieve expected return
Precision Dairy Cost Benefit Tool (PDCBT) – 5/6 tabs

1. Home Page
2. Start Page
3. Choose Tool
   4. Oestrus Detection Costs
   5. Oestrus Detection Benefits
   6. Other Improvement
5. Custom Benefit Required
6. SCC Improvement
4. Custom Tool Costs
<table>
<thead>
<tr>
<th>Your farm's details</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1  Number of cows</td>
<td>99</td>
</tr>
<tr>
<td>2  Hectares (grazing platform)</td>
<td>40</td>
</tr>
<tr>
<td>3  Milk Solids (kgs) Sold / Cow</td>
<td>377</td>
</tr>
</tbody>
</table>

Input your data into green boxes

Choose Technology Type

The Irish Agriculture and Food Development Authority
Select from the options provided or enter custom tool details

Custom Tool

Oestrous detection

Coming soon
Calf feeder
Grass measurement tools
Automatic Milking System
Calving sensor
Heat detection other
Body condition scorer
<table>
<thead>
<tr>
<th>Capital Costs</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Per cow spend</td>
<td>€145.00</td>
</tr>
<tr>
<td>Per herd spend (e.g base stations)</td>
<td>€550.00</td>
</tr>
<tr>
<td>Total capital spend</td>
<td>€14,905.00</td>
</tr>
<tr>
<td>Years till capital depreciated</td>
<td>7</td>
</tr>
<tr>
<td><strong>Annualised depreciation costs</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>€2,129.29</td>
</tr>
<tr>
<td><strong>Operating costs</strong></td>
<td></td>
</tr>
<tr>
<td>Annual subscription / service fee</td>
<td>€500.00</td>
</tr>
<tr>
<td>Labour cost / hour</td>
<td>€15.00</td>
</tr>
<tr>
<td>Change in hours required /year (+/-)</td>
<td>160</td>
</tr>
<tr>
<td>Annual maintenance / repair costs</td>
<td>€250.00</td>
</tr>
<tr>
<td><strong>Total operating costs</strong></td>
<td>€3,150.00</td>
</tr>
<tr>
<td><strong>Total annual costs (excluding finance)</strong></td>
<td>€5,279.29</td>
</tr>
</tbody>
</table>
In this tab you can see the improvement in fertility required to achieve your required Return on Investment

<p>| | |</p>
<table>
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<tr>
<td><strong>Total capital investment</strong></td>
<td>€14,905.00</td>
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<td><strong>Total annual cost excluding finance</strong></td>
<td>€5,279.29</td>
</tr>
<tr>
<td><strong>Return on investment required</strong></td>
<td>20%</td>
</tr>
<tr>
<td><strong>Annual Return Required (after costs)</strong></td>
<td>€2,981.00</td>
</tr>
</tbody>
</table>

**The annual improvement (increase in income / reduction in costs) required to achieve ROI is** €8,260.29

1% improvement in 6 week preg % / cow* €8.22

A 1% improvement for your herd is €813.78

The technical improvement required to achieve ROI is a 10% improvement in 6 week pregnant rate

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Benefits

1. Quick & Intuitive
2. Focuses on results required
3. Disseminates economics
4. Can improve use of limited capital / increase adoption
5. Benefit to farmers, advisers and vendors
Next steps

1. Trialling
2. Web based interface?
3. Additional technology pre-sets Collect more baseline data (2018 NFS)

Questions?