Using extension to progress genetic improvement on Irish dairy farms

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Teagasc
Introduction

• Background

• Applying extension to EBI adoption

• Results
## Trends in milk production and replacement rate on farm net profit for 14 spring-calving dairy herds

<table>
<thead>
<tr>
<th>Year</th>
<th>Milk</th>
<th>Replacement</th>
<th>Profit</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yield (kg)</td>
<td>Sales (€,000’s)</td>
<td>Rate (%)</td>
</tr>
<tr>
<td>1990</td>
<td>5,033</td>
<td>126</td>
<td>16%</td>
</tr>
<tr>
<td>1993</td>
<td>5,307</td>
<td>136</td>
<td>21%</td>
</tr>
<tr>
<td>1997</td>
<td>5,629</td>
<td>145</td>
<td>25%</td>
</tr>
<tr>
<td>2000</td>
<td>5,609</td>
<td>148</td>
<td>26%</td>
</tr>
<tr>
<td>2003</td>
<td>5,638</td>
<td>150</td>
<td>27%</td>
</tr>
<tr>
<td>Change</td>
<td>605</td>
<td>24</td>
<td>11%</td>
</tr>
</tbody>
</table>

Adapted from Evans et al. 2006
The 5 step adoption process

Step 1: Knowledge
Step 2: Persuasion
Step 3: Decision
Step 4: Implementation
Step 5: Confirmation
Step 1 - Knowledge
Step 1 - Knowledge

Step 2 - Persuasion

Step 3 - Decision

The Irish Agriculture and Food Development Authority
Step 1 - Knowledge

Step 2 - Persuasion

Step 3 - Decision

Step 4 - Implementation
Step 1 - Knowledge

Step 2 - Persuasion

Step 3 - Decision

Step 4 – Implementation

Step 5 - Confirmation

The Irish Agriculture and Food Development Authority
Intrinsic factors that made EBI adoption easier

Simple to communicate
“Select sires from the Active Bull List”

Advantage to the user
“High EBI cows are more profitable”

Compatible
Very compatible to existing AI users

Trialable
Easy to experiment with a different AI sire

Observable
Top vs Bottom EBI cow reports made EBI observable
Innovation drove further improvement

<table>
<thead>
<tr>
<th></th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Genomic AI sires</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EBI (€)</td>
<td>€179</td>
<td>€211</td>
<td>€218</td>
</tr>
<tr>
<td>% of total AI used</td>
<td>34%</td>
<td>40%</td>
<td>47%</td>
</tr>
<tr>
<td><strong>Daughter proven sires</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EBI (€)</td>
<td>€126</td>
<td>€151</td>
<td>€148</td>
</tr>
<tr>
<td>% of total AI used</td>
<td>66%</td>
<td>60%</td>
<td>53%</td>
</tr>
<tr>
<td><strong>Weighted EBI of all AI sires used</strong></td>
<td>€144</td>
<td>€175</td>
<td>€181</td>
</tr>
</tbody>
</table>
EBI of replacement heifer calves by year of birth

- €16
- €28
- €30
Genetic change in Milk and Fertility by year of birth

The Irish Agriculture and Food Development Authority