New Developments in grassland to make grazing management easier

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New challenges for the dairy sector are also new opportunities for grassland based systems.

1970: Less grazing

“Industrial” intensification (high inputs)
- High price of milk
- Convenience of managing cows indoors
- Nutritional constraints of HGM cows
- Increased herd size

1990

1990: New opportunities for grazing

“Ecological” innovations (low inputs)

2010

- Reducing environmental harm
- Fall / instability of milk prices
- Increase of energy and fertilizer prices
- Supporting and Regulating services
- Consumers preference / natural practices
Key challenges to grassland in Europe

- Permanent and temporary grassland - 33% and 6% of total utilised Agricultural Area (UAA)
- Permanent Grasslands - 57 million ha EU (27) and 10 million ha (Temporary)
- 78 million livestock units of grazing livestock (82% cattle/cows, 14 small ruminants, 4% horses)
- Netherlands (3.12), Belgium (3.17), Denmark (2.66) and Ireland (1.4) – highest stocking densities
Grassland Challenge – Improve Production and utilisation

Profit/Dairy Ha - Kg DM Utilised/Ha

$y = 0.2673x - 1255.5$

$R^2 = 0.5556$

The Irish Agriculture and Food Development Authority
### Grass – its value as a Feed

<table>
<thead>
<tr>
<th></th>
<th>Total costs (€/t UDM)</th>
<th>No land cost (€/t UDM)</th>
<th>€/1000 UFL</th>
<th>Relative to grass</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PRG 2.5 LU/ha</strong></td>
<td>75</td>
<td>42</td>
<td>73</td>
<td>1.00</td>
</tr>
<tr>
<td>(80% utilised)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>PRG 2 LU/ha</strong></td>
<td>78</td>
<td>40</td>
<td>76</td>
<td>1.04</td>
</tr>
<tr>
<td>(75% utilised)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>PRG 1.65 LU/ha</strong></td>
<td>104</td>
<td>47</td>
<td>107</td>
<td>1.47</td>
</tr>
<tr>
<td>(60% utilised)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>First cut silage</strong></td>
<td>185</td>
<td>156</td>
<td>230</td>
<td>3.15</td>
</tr>
<tr>
<td>(6.0 t DM/ha)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Purchased Barley</strong></td>
<td>188</td>
<td>-</td>
<td>162</td>
<td>2.22</td>
</tr>
</tbody>
</table>

Source: Finneran (2010)  
UDM - Utilisable Dry Matter  
The Irish Agriculture and Food Development Authority
If you fail to plan – you are planning to fail –
Benjamin Franklin

Applying Grassland Measurement provides the route to success in Grazing Management

Grazing Management is based on controlling grass demand and growth
New Grassland Developments

Grass Measurement Database New Techniques

Benchmark Grassland performance

New Clover focus
Grazing measurement & management

Increasing Grazing Utilisation

Perennial ryegrass/white clover pasture

Grazing infrastructure
Web based grassland management
PastureBase Ireland

- Decision support tool – Front end
- Grassland data base – back end
- Data capture by farmer
- Grassland Measurement – visual assessment or plate meter
### Farm Name: Starview

**Cover Date:** 12/07/2016

#### Estimations

<table>
<thead>
<tr>
<th>Paddock</th>
<th>Area</th>
<th>Herbage</th>
<th>Paddock Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>17</td>
<td>1.27</td>
<td>1000</td>
<td>Grass</td>
</tr>
<tr>
<td>18</td>
<td>1.27</td>
<td>1000</td>
<td>Grass</td>
</tr>
<tr>
<td>19</td>
<td>1.27</td>
<td>900</td>
<td>Grass</td>
</tr>
<tr>
<td>20</td>
<td>1.27</td>
<td>900</td>
<td>Grass</td>
</tr>
<tr>
<td>21</td>
<td>1.33</td>
<td>100</td>
<td>Grass</td>
</tr>
<tr>
<td>22</td>
<td>1.17</td>
<td>100</td>
<td>Grass</td>
</tr>
<tr>
<td>23</td>
<td>1.39</td>
<td>100</td>
<td>Grass</td>
</tr>
<tr>
<td>24</td>
<td>1.54</td>
<td>1100</td>
<td>Grass</td>
</tr>
<tr>
<td>25</td>
<td>1.07</td>
<td>1100</td>
<td>Grass</td>
</tr>
<tr>
<td>26</td>
<td>0.33</td>
<td>1100</td>
<td>Grass</td>
</tr>
<tr>
<td>27</td>
<td>1.57</td>
<td>1200</td>
<td>Grass</td>
</tr>
<tr>
<td>28</td>
<td>1.57</td>
<td>1200</td>
<td>Grass</td>
</tr>
</tbody>
</table>

#### Management Decisions

- **No. of Cows:** 215
- **Residual Height (cm):** 4.0
- **Grass Allocation /Cow (kg DM/cow):** 17.0
- **Dry Matter %:** 18.0
- **Rotation Length (days):** 19
- **Concentrate Fed (kg/cow):** 0.0
- **Silage Fed (kg DM/cow):** 0.0
- **Total Livestock (Other):** 0

#### Report Calculations

- **Farm Cover (kg DM/ha):** 760
- **Farm Cover (kg DM/LU):** 165
- **Grass Allocation LU (kg DM/LU):** 17.0
- **Total Livestock LU:** 215.0
- **Stocking Rate (LU/ha):** 4.60
- **Growth Rate (kg/ha/day):** 105
- **Farm Demand (kg DM/ha/day):** 78
- **Target pre-grazing yield (kg DM/ha):** 1486

- **Allow edit of Target pre-grazing yield (kg DM/ha):**
- **Show View Options:***
### Using the Spring Rotation Planner

**Example SRP for a 40 ha dairy farm with 100 dairy cows**

<table>
<thead>
<tr>
<th>Week</th>
<th>Rotation (days)</th>
<th>Daily area (ha/day)</th>
<th>Total area grazed by week end (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st to 7th Feb</td>
<td>100</td>
<td>0.4</td>
<td>7</td>
</tr>
<tr>
<td>15th to 21st Feb</td>
<td>82</td>
<td>0.49</td>
<td>23</td>
</tr>
<tr>
<td>22nd to 28th Feb</td>
<td>73</td>
<td>0.55</td>
<td>33</td>
</tr>
<tr>
<td>8th to 14th Mar</td>
<td>56</td>
<td>0.72</td>
<td>56</td>
</tr>
<tr>
<td>22nd to 28th Mar</td>
<td>38</td>
<td>1.06</td>
<td>90</td>
</tr>
<tr>
<td>29th Mar to 4th Apr</td>
<td>29</td>
<td>1.38</td>
<td>114</td>
</tr>
</tbody>
</table>

**Spring Rotation Plan**

- **Actual Area Grazed %**
- **Target Area Grazed %**

![Graph showing the Actual Area Grazed % and Target Area Grazed % over time.](image)
Number of grazing achieved and its association with total grazing DM production

\[ y = 1385.9x + 1811.2 \]

\[ R^2 = 0.7302 \]
Benchmarking Weekly, Annual Production

Kg DM/day


14.0 – 13.8 - 12.2 t DM/ha

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Grazing measurement & management

Increasing Grazing Utilisation

Perennial ryegrass/white clover pasture

Grazing infrastructure

The Irish Agriculture and Food Development Authority
Grazing infrastructure – setting the farm up

Use a back fence
Grazing measurement & management

Increasing Grazing Utilisation

Perennial ryegrass/white clover pasture

Grazing infrastructure
Requirements of the ideal grazing sward

Grass DM Production (t DM/ha) 16-18
Energy level (UFL) >1
Organic matter digestibility (%) 82-86
CP (g/kg DM) 170-200
NDF (g kg/DM) 350-450
Dry matter (g kg DM) 150-210
Green leaf mass (%) >80
Easily Grazable/high utilisation
Grass intake mid season (kg DM/cow) 17-19
Sward persistency (years) 7 - 10
Milk Production results 2013-2015


+ 40 kg MS/cow

Milk solids yield (kg/cow/day)

Week

16-Feb 16-Mar 13-Apr 11-May 08-Jun 06-Jul 03-Aug 31-Aug 28-Sep 26-Oct

Grass only 250 kg N/ha

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Summary and Conclusions

- Success in grassland management is dependant on the farmers attitude to utilising the feed
- Grassland utilisation is a key predictor of profit
- Grassland Measurement needs to be integrated to management
- Grass is different to other feeds, it requires focussed management, adoption of new IT will assist this
- The adoption of Grazing technology – will assist the improved management and utilisation of pasture