Grass growth variability – what can we improve?

Dr Michael O’Donovan
Animal and Grassland Innovation Centre, Teagasc, Moorepark
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Irish Grassland Characteristics

- Irish grasslands characterised by high pasture productivity potential, low variability in seasonal supply and quality
- Home produced feed and sustainable (Farm to Fork 2030)
- Inconsistent product prices (2020) and rising costs (Inputs, Labour)
- Increased grazed grass decreases cost
- Cost of alternative feeds:
  - Grazed grass: 7.6 c/kg DM
  - Grass silage: 18.0-20.0 c/kg DM
  - Concentrates: 29.0 c/kg DM
  - Forage crops: 17.0 - 19.5 c/kg DM
Talk Outline

- Recent weather challenges
- Pasturebase Ireland
- Drought impacts
- MoSt grass growth prediction model
- Improvements to make
Annualised Rainfall per Decade - Moorepark

\[ y = 7.7159x + 986.44 \]

\[ R^2 = 0.1916 \]
Monthly rainfall per Decade in Moorepark 1950-2019
## Recent Weather challenges

<table>
<thead>
<tr>
<th>Date</th>
<th>Weather Event</th>
<th>Impacts</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>May/June 2020</td>
<td>Low Rainfall</td>
<td>Restricted growth in <strong>Eastern counties</strong> – supplementation intervention required for a number of weeks</td>
<td>Eastern counties</td>
</tr>
<tr>
<td>June – August 2018</td>
<td>Low rainfall, high daily temperatures</td>
<td>Subdued grass growth for 6 weeks across country, no second cut silage harvested. Herds supplemented &gt;60% of diet with concentrate and silage etc. Major feed cost, little animal response</td>
<td>Nationwide</td>
</tr>
<tr>
<td>March/April 2018</td>
<td>Storm Emma-Snow and lower temperatures</td>
<td>Two weeks low/no growth and storm damage effects. Subdued spring grass growth and grazing utilisation</td>
<td>Nationwide</td>
</tr>
<tr>
<td>September-October 2017</td>
<td>Excessive September rainfall Storm Ophelia</td>
<td>Housing of livestock, constrained harvesting of silage, low winter feed availability in Northwest and Midlands</td>
<td>Nationwide</td>
</tr>
<tr>
<td>March 2013</td>
<td>Cold wet Spring</td>
<td>Delayed growth, continued housing, reduced fodder supplies from previous autumn</td>
<td>Nationwide</td>
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<tr>
<td>Autumn 2012</td>
<td>Wet Autumn</td>
<td>Early housing, reduced grazing days, fodder shortage</td>
<td>Nationwide</td>
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<td>May 2009</td>
<td>High rainfall May</td>
<td>Very poor grazing conditions, delayed first cut silage and reduced DM production for remainder of the year</td>
<td>Nationwide</td>
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The graph shows the kg DM/ha/day from January to December for the years 2018, 2019, and 2020. The data peaks in June and decreases towards December.
Dairy Farm grass DM Production (2013-2020)

- 6.4 t DM/ha - 2018
- 7.8 t DM/ha
- 8.0 t DM/ha - 2019

Grazing: 2013 - 2020
Silage: 2013 - 2020
Grass DM Production distribution of PastureBase Ireland farms 2017, 2018 & 2019

2019

2018

2017

Proportion of population

Climate Change Workshop
Farm Environments – not the same

• Enterprise driven
• Management
• Climate
• Soil types
• Soil fertility
• Sward species
• Outcomes

2019
## Drought effects (2018) on National farm survey farms relative to 2017 and 2019

<table>
<thead>
<tr>
<th></th>
<th>2017</th>
<th>2018</th>
<th>2019*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concentrate costs (c/litre)</td>
<td>4.95</td>
<td>6.98</td>
<td>5.8</td>
</tr>
<tr>
<td>Concentrate usage (cow)</td>
<td>1030</td>
<td>1353</td>
<td>1138</td>
</tr>
<tr>
<td>Pasture and Forage costs (c/litre)</td>
<td>4.21</td>
<td>5.15</td>
<td>4.76</td>
</tr>
<tr>
<td>Grazing days</td>
<td>234</td>
<td>229</td>
<td>235</td>
</tr>
<tr>
<td>Milk Produced (l/ha)</td>
<td>11,225</td>
<td>11,293</td>
<td>11,969</td>
</tr>
<tr>
<td>Total costs(c/lit)</td>
<td>22.9</td>
<td>26.8</td>
<td>24.94</td>
</tr>
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2018 - €16,000K cost to 40 ha Farm

Source: NFS  * Preliminary data
2018 Drought Cost Implications

- €400/ha added feed cost in 2018 – €16,000 on 40Ha farm – **there was no added performance from this extra feed inclusion**

- Lower stocked farms had higher feed costs (why) – not focussed enough on grass?

- Residual feed costs – building surplus silage carried into 2019
Overview of the Moorepark St Gilles (MoSt) Grass Growth model

Management:
- Fertilisation
- Grazing
- Cutting
MoSt Grass growth model
Weekly Grass growth prediction

On the left: counties map showing current grass growth rates over the last week.

On the right: counties map showing predicted grass growth over the next 7 days from farms involved in Elodie Ruelle’s MoSt grass growth model (55 farms).

Predicted Growth Rate:
Ballyhaise 76 kg DM/ha
South Wexford 55 kg DM/ha
Athenry 52 kg DM/ha
Clonakilty 72 kg DM/ha
Teagasc are now supplying grass growth figures to RTE for the Farming Weather Forecast which is broadcast every Sunday. On the left is weather presenter Jean Byrne showing the latest growth figures from PastureBase Ireland.
MoSt Model - what can we do now

- Building awareness – locally and nationally
- Forecasting – making data driven decisions
- Farmers now using the model outputs in grassland decisions
- Continually improve and ensure the end user is getting decisive, decision making feedback
- Machine learning and benchmark decisions
Summary

- No grass growing year is similar – National awareness
- Grass growth require continuous tracking
- Grass the central feed to the livestock systems
- Farm self sufficiency, completely overlooked until there is a SUPPLY issue
- Conserved feed surplus on all farms (400kg DM per LU – 6 weeks)
- PBI – active grass measurement (continued promotion)
- MoSt grass growth prediction (Nationally)
- Annual Fodder budget calculator (PBI – on line system available to all farmers)
- Better equipped to react earlier to grass supply changes