Grass varieties: New management protocols for Irish Recommended List trials.

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• History and Background
• Protocol changes:
  Sowning date
  Number of cuts
• Results to date
• Future challenges
Why do we evaluate varieties?

Legal Requirements, EU and National.

To sell a named variety, it must be certified and included on a National List, or in an EU common catalogue of listed varieties.

To be on a National list, a candidate variety must:

- Show Value for Cultivation and Use (VCU)
  - agronomic performance; and,
- Be Distinct, Uniform, and Stable (DUS),
  - intellectual property rights.
Influence of Environment

- Economically viable varieties of grass in Ireland must express wide adaptation over the whole country.
- Varieties must also perform over an extended period of time.
- As Genotype by Environment interactions do occur, we evaluate varieties across a range of locations and years to estimate their true genetic merit.
Summary of plots tested

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<th>Pre 2010</th>
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<td>Gen. Purpose</td>
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<td>Years Harvested</td>
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<td>Replications</td>
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<td>Number of cuts</td>
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<td>Locations:</td>
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<td>INTER</td>
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<td>Varieties:</td>
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Origin and Yield of PRG in Ireland 2004-2010

5 sowing years (10 ‘harvest years’)
315 varieties (12,600 plots)
May sowing of trial plots

- Plough, (land-leveller), rotavate, (roll), sow, roll.
- Wider ‘window of opportunity’.
- Better soil conditions
- Better weather, with longer and warmer days.
- Rapid, even emergence (especially for clover).
- More opportunities for weed control.
- Well established swards prior to first spring cuts.
- Reduced ‘tillage effect’ on first years harvest.
• Objective is to ‘simulate grazing’.
• The number of cuts taken will depend on local yield potential, i.e. a flexible cutting strategy that reflects good farming practice locally.
• Cuts will be grouped seasonally and reported as follows:
Frequent Cutting Protocol

• Spring Yield:
  – 1 or 2 cuts before 15th April.
• Summer Yield:
  – 4 or 5 cuts from 15\textsuperscript{th} Apr. to 15\textsuperscript{th} August.
• Autumn Yield:
  – 2 or 3 cuts from Aug. 15\textsuperscript{th} to mid October.
Frequent Cutting Protocol

• Cuts taken 15-21 days apart from spring through summer, extending to 28-36 days in autumn.

• N fertiliser (total of 310kg/ha) is applied to plots as soon as possible after cutting to optimise regrowth during the shorter cutting intervals.

• The target cutting height is 4-5cms i.e. as low as practical without damage to sward or Haldrup harvester.
### Summary of plots tested

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<th>Gen. Purpose</th>
<th>Freq. Cut</th>
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DAFM 2010 PRG Frequent Cutting trials, total DM yield from two harvest years

![Bar chart showing DM yield T/ha for different sites and harvest times.](chart.png)
Frequent Cutting trials mid-season quality

• Samples from one location, Backweston, used for NIRS analysis of mid-season quality parameters:
  • DMD, WSC, Protein and Buffer
  • Samples taken from April, May, June, July, August & Sept.
Ground Cover Scores

- To date: single visual score taken from each plot at all locations at the end of the evaluation period, i.e. after 3 winters.

- Scale used is 1 to 9, where 1 = bare ground/<10% sown PRG, and 9 = full ground cover/perfect sward.

- From 2011 scores are taken annually, i.e. 3 scores taken each winter to establish change in ground cover over evaluation period.
Rec. List Varieties: Yield & Ground Cover

Graph showing variety performance based on yield and ground cover score. Varieties include Mesquita, Glenveagh, CanCan, Soriento, Denver, Stefani, Malambo, Piccadilly, AberMagic, AberChoice, Giant T, Carraig T, Tywstar, Portstewart, Majestic, Drumbo, Shandon, Tywmax T, Orion T, Navan T, Magician T, Dunluce T, Lismore T, AberCraigs T, Glencar T, Delphin T, Kintyre T, Trend T, Malone T.
Future Challenges

• Persistency under animal grazing
  – Collaborative work with Teagasc ongoing

• White Clover evaluation with sheep grazing
  – Athenry 2012 successful pilot project
  – Plus Raphoe from 2013

• Number of varieties and species evaluated

• How to reduce time period from breeding/trials to farm?
Conclusions

• Earlier sowing improves data collection
• Reduced number of varieties evaluated, but with more data collected on each variety
• Merit of each variety evaluated under two management protocols at each location
• Provisional ‘simulated grazing’ data on most RL varieties for Recommended List 2014