Pasture Profit Index: Prototype & industry feedback

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Pasture Profit Index - Overview

• Total merit index developed to assist in cultivar selection
  • Assigns an economic value to important traits of grass performance
  • Define the total economic merit of a cultivar (€ per ha per year)
  • Rank cultivars on Total Economic Merit

• Traits of importance:
  • Seasonal DM yield
  • Quality
  • Silage DM Yield
  • Persistency
Economic Values

- Moorepark Dairy Systems Model (MDSM)
  - Simulates a model dairy farm across 12 months
  - Includes
    - Herd parameters, nutritional requirements, land use
    - Total inputs and outputs
    - Receipts
    - Variable and fixed costs (Shalloo et al., 2004)
  - Base assumptions
    - Spring calving herd
    - 365 day calving interval
    - Milk price of 27c/l
    - 40 ha farm

- Economic values updated December 2013
Grass Growth and Feed Demand Curve
(2.5 cows/ha)

Spring
€0.16/ kg DM

Feed Demand

Surplus

Summer
€0.04/ kg DM

Grass Growth

Autumn
€0.11/ kg DM

Deficit

0 20 40 60 80 100 120

kg DM/ha/day

The Irish Agriculture and Food Development Authority
Economic Value – Persistency

• Determine the change in sward lifetime relative to base
  • Standard (base) 10-yr sward longevity
  • Cost of reseeding (€672.30 per ha)

• Measurement of persistency
  • Ground score (GS) change determined using DAFM data (Y2 – Y1)
  • Apply loss in production to GS change
  • At 50% of it’s original DM yield sward is due to be reseeded

• Cultivar does not reach 50% of initial yield for 10 years or longer = (-€672/10) + 67.23 = €0

• Cultivar reaches 50% of initial yield after 7 years = (-€672/7) + 67.23 = -€29
Pasture Profit Index

€ per ha/year
Defining Base Values

- Necessary to quantify the economic effect of each cultivar for each trait
  - If cultivar performance exceeds base value – positive effect
  - If cultivar performance falls short of base value – negative effect
- Where possible use farm data to define base values
  - DM yield (9.1 t DM/ha) average level of on-farm production (Shalloo et al. 2009)
  - Persistency – standard is 10 years at farm level
- Alternatively use average data from DAFM trials
  - Silage DM yield
  - Quality
Prototype 2014

- Economic values applied to cultivar data
- Data generated in DAFM plot trials
- Frequent cutting (FC) trials
  - Seasonal yield, quality, persistency data
    - 2010 sowing (2011 & 2012 harvest years)
    - 4 sites (3 reps per site)
- General Purpose trials
  - Silage data
- Combine biological data and economic values
- 2014 Recommended List cultivars with FC data presented
<table>
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<tr>
<th>Rank</th>
<th>Variety</th>
<th>Ploidy</th>
<th>Heading date</th>
<th>Total €/ha per year</th>
<th>PPI Sub-Indexes (€ per ha per year)</th>
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Summary

• Focus on important traits for an Irish grass based production system
• Only cultivars on Recommended List have a PPI value
  • Must have frequent cutting data
  • Currently 16 cultivars ~50% of Recommended List cultivars
  • As more cultivars get a PPI – better information on true rankings
    • 2015
    • 2016
    • Rankings will change as more cultivars are included
• Reliability value will be included going forward
  • identify stable cultivars and/or those with more data available