

Optimising yield, quality and digestibility of dairy grasses





Phoebio

**Return on investment
for Dairy farmers**

10/1

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Palatability of grass

When grass comes under attack its immune system creates a chemical “Hydrogen peroxide” to defend the plant. This bitter chemical response deters herbivores from continuous grazing.

Phoebio contains anti stress molecules called betaines which reduce the plant’s chemical response, thereby improving grass palatability and increasing forage intake.



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Increasing grass yield and feed value

At the start of each season, grass increases its root mass to source the available minerals and crop nutrients in the soil. This increases both lateral and vertical leaf development.

However, after turn-out of livestock and the cutting of leys for silage, the growth habit of grass changes from lush explorative growth to stressed defensive growth habits. Grass roots recoil in response to leaf grazing by herbivores and mechanical cutting for silage.

So, from this stage forward, grass develops a defensive, hemicellulose vertical growth habit with reduced lateral root exploration. **Phoebio** provides phytohormones and polyphenols which counteract these changes in growth habit, thereby maintaining lateral root access to the essential crop nutrients and minerals.

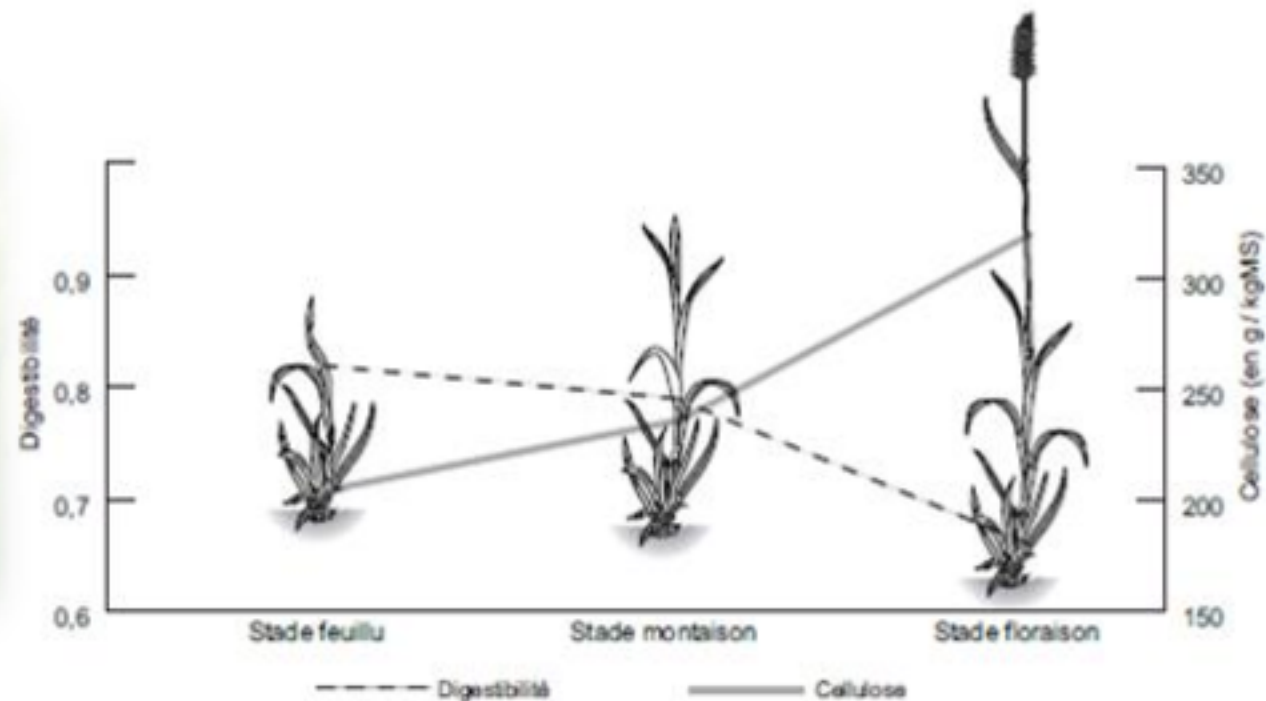


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Fibre in grass (NDF)

Young grass with low stem to leaf ratio are very digestible. As grass grows the proportion of stems increase. Grass fibre content increases inline with higher stem to leaf ratio.

A 1% increase in NDF can reduce DM Intake (DMI) by 0.25 kg per cow per day. This in turn will reduce milk production by 0.25 litre per cow per day.

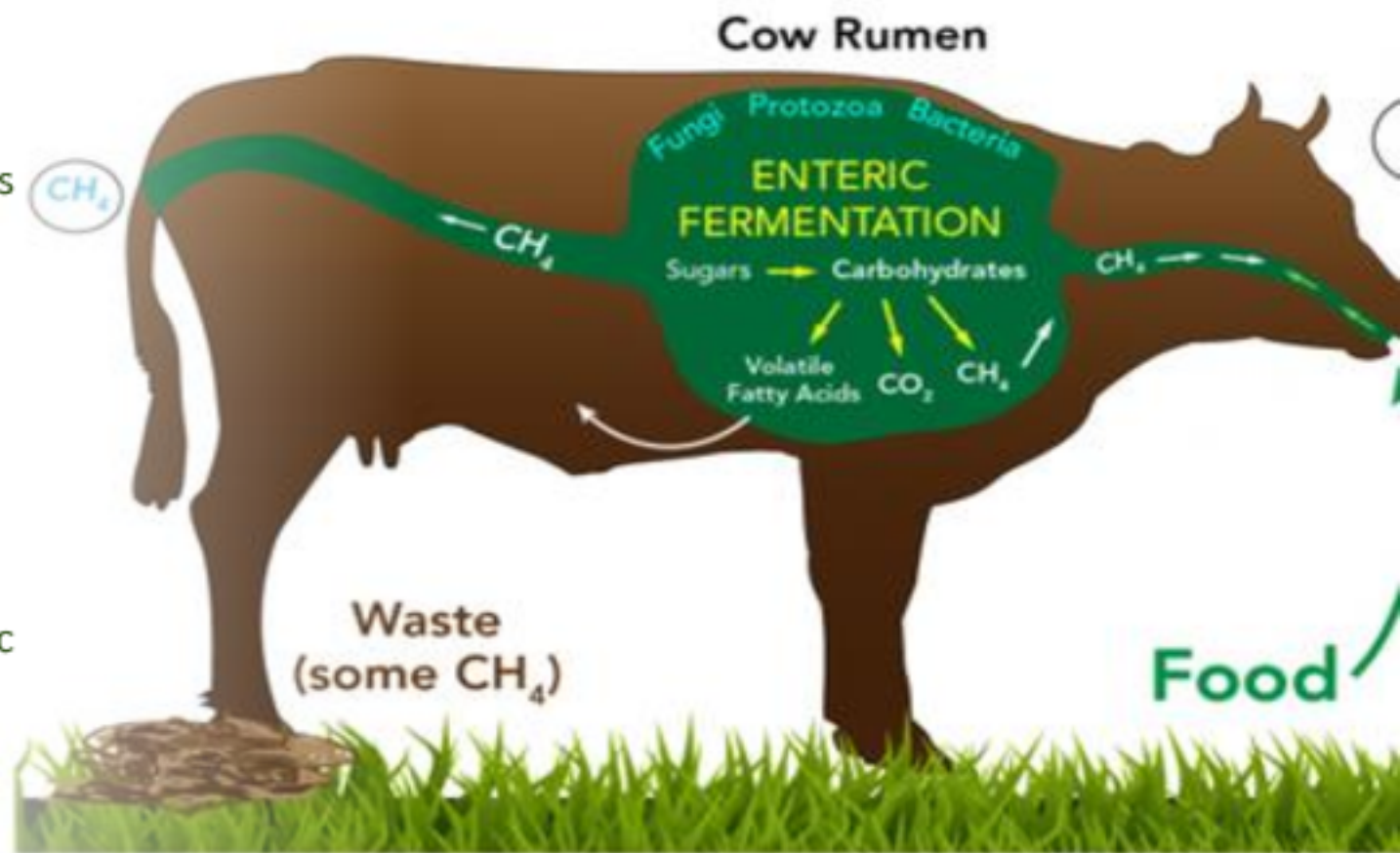


Reducing methane burps

Metabolizable Energy (ME) from grass is the cheapest form of energy utilized by livestock. Less digestible fibrous and high dry matter grass will release less ME and in turn induces higher levels of **methane burps**.

The utilizable energy that we measure in mega joules per kilo of dry matter (DM) is in part lost as body heat and maintenance of the animal. The remaining available ME is used to produce milk and meat.

Phoebio's complex of vitamins, proteins, alginic acids and polysaccharides promote increased ME production while also reducing fibrous hemicellulose in grass. Thereby promoting increased milk and meat production.



Animal	System	Range in D-Value (No. of Comparisons)	Range in animal performance per day	Mean animal response (Unit D/day)	Mean animal % response (Unit D/day)
Dairy Cows	Rotational Grazing	69 – 74 (2)	17.2 – 18.6 L (milk)	0.28 L	1.6
Beef Cattle	Rotational Grazing	75 – 77 (5)	0.68 – 0.76 kg (LWG)	40 g	5.6
Fat Lambs	Continuous Grazing	63 – 66 (8)	157 – 218 g (LWG)	20 g	10.7
Dairy Cows	Silage + fixed concs.	60 – 72 (15)	15 – 18 L (milk)	0.25 L	1.5
Beef Cattle	Silage + fixed concs.	61 – 68 (7)	0.82 – 1.11 kg (LWG)	41g	4.3
Store Lambs	Silage alone	66 – 70 (3)	249 – 341 g (LWG)	23g	7.8

Digestibility

The % digestibility of OM in grass indicates its level of quality and energy yielding capacity. Higher D-Value grass increases the feed potential and energy yield.

(Target value for dairy grass is 70-80 D)

Maturing cells create lignin, which is the least digestible turgid tissue of grass stems.

All grasses are measured for yield at 67D as a trade off between quality and yield.

(Rye grass has an average fall of 0.4D/day)



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The importance of grass digestibility (D Value)

(1 unit of D = 0.16 MJ/ME) (1 MJ/ME = 5.4 litres of milk per cow per day)

2 litres of Phoebio in 200 litres of water per acre

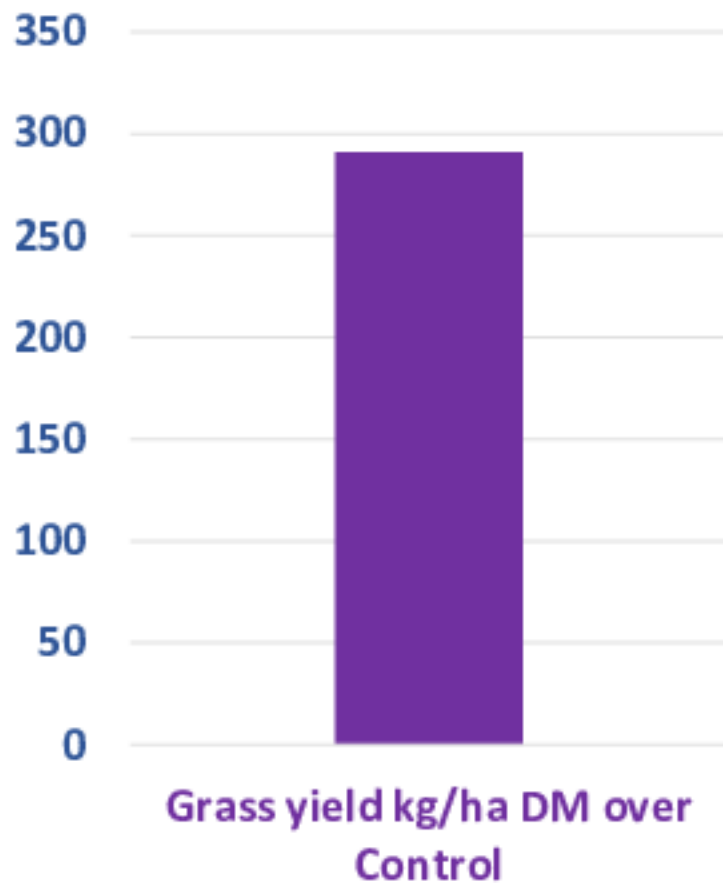
7-10 days after slurry and/or fertiliser has been applied on cutting leys to ensure that there is adequate clean grass leaf area available to receive the natural biostimulant benefits of **Phoebio**

2-3 weeks prior to the grazing of leys will improve grass palatability, intake, and animal performance

There are no adverse effects or chemical residues related to the use of **Phoebio**. Normal spraying conditions are recommended for optimum foliar intake by grass



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■ PHOEBIO @ 5 litres per hectare



Independent trial Co. Galway,
Ireland. September 2021

Phoebio



3174 kg/ha DM

2201 kg/ha DM
Control

Independent trial, Usk, Gwent, UK. May 2021

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Measuring grass yield and feed value

- Fresh Yield
- Dry Matter % (DM%)
- Dry Matter Yield (DM/ha)
- D Value
- Metabolizable Energy (ME)
- Sugars

Lower milk production cost

Phoebio is a sustainable solution which improves grass yield and feed values, which in turn increases milk yield from grass, thereby reducing the cost of milk production for dairy farmers



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Return on investment 13/1 (ROI) for 2 litres of PHOEBIO in 200 litres of water per acre foliar applied to grass leys

Increased ME over controls = mj/ME/hectare over controls

PHOEBIO application result (5757.99 mj/ME/ha divided by 5.5 = 1046.91 litres of milk)

Increased ME divided by 5.5 = extra litres of milk per hectare

PHOEBIO application result (1046.91 litres/milk/ha x £ 0.40/litre = £ 419.00 profit/ha)

Return on Investment

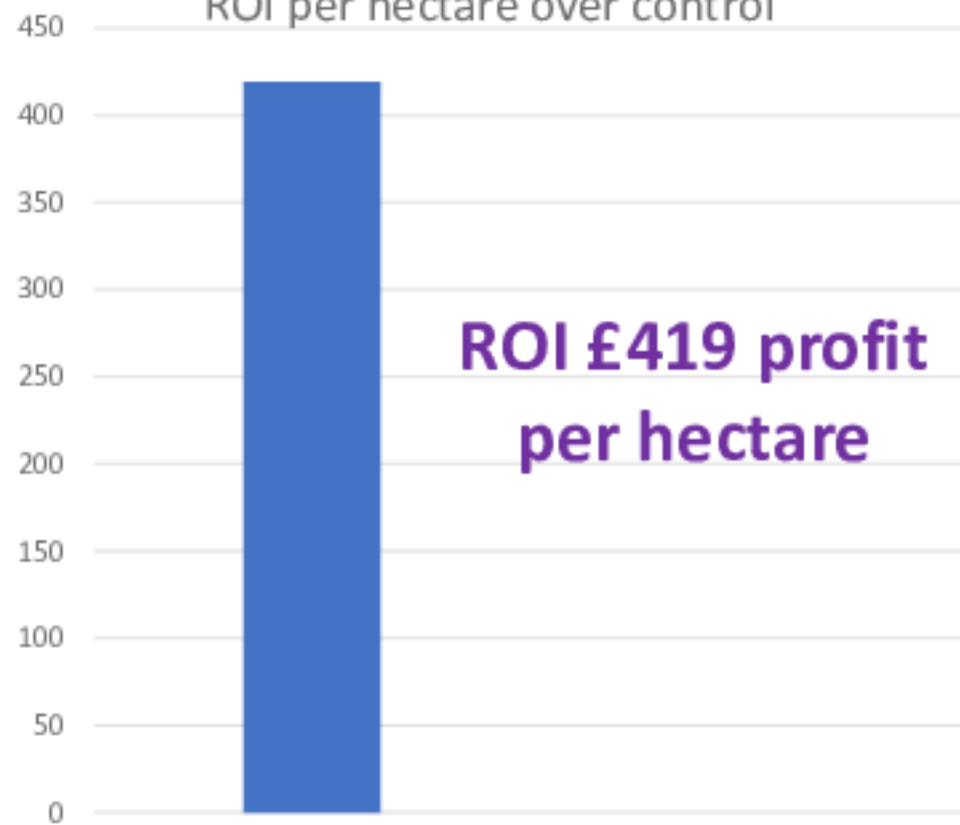
Increased litres of milk x Farm gate value £ 0.40/litre milk price = the ROI/ha

Independent data from Southern Scientific Services Ltd 10 Nov 2021



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Return on Investment 10/1
ROI per hectare over control



■ PHOEBIO @ 5 litres/ha

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ROI 10/1

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Sustainably improving dairy farm incomes

