



## Assessment of Grass Production and Efficiency of Utilisation on Three Northern Ireland Dairy Farms

A. J. Dale

*Agricultural Research Institute of Northern Ireland*

P. D. Barrett

*Agricultural Research Institute of Northern Ireland*

C. S. Mayne

*Agricultural Research Institute of Northern Ireland*

Follow this and additional works at: <https://uknowledge.uky.edu/igc>



Part of the [Agricultural Science Commons](#), [Agronomy and Crop Sciences Commons](#), [Plant Biology Commons](#), [Plant Pathology Commons](#), [Soil Science Commons](#), and the [Weed Science Commons](#)

This document is available at <https://uknowledge.uky.edu/igc/20/satellitesymposium4/43>

The XX International Grassland Congress took place in Ireland and the UK in June-July 2005.

The main congress took place in Dublin from 26 June to 1 July and was followed by post congress satellite workshops in Aberystwyth, Belfast, Cork, Glasgow and Oxford. The meeting was hosted by the Irish Grassland Association and the British Grassland Society.

Proceedings Editor: D. A. McGilloway

Publisher: Wageningen Academic Publishers, The Netherlands

© Wageningen Academic Publishers, The Netherlands, 2005

The copyright holder has granted the permission for posting the proceedings here.

## Assessment of grass production and efficiency of utilisation on three Northern Ireland dairy farms

A.J. Dale, P.D. Barrett and C.S. Mayne

Agricultural Research Institute of Northern Ireland, Hillsborough, Co Down BT26 6DR, United Kingdom,

Email: andrewdale2000@yahoo.com

**Keywords:** utilisation, calibration, efficiency

**Introduction** Recent research has shown that grazed grass can be an expensive forage for milk production, particularly if herbage production is low or utilisation is inefficient. There is very limited data on the level of herbage grown and utilised on commercial farms. The objective of this project was to quantify grass production and efficiency of utilisation on farm to substantiate the potential of grazed grass for profitable milk production.

**Materials and methods** Three dairy farms (Farm 1, 2, and 3) with 145, 68 and 135 dairy cows, respectively, were selected for detailed on-farm assessment during 2004. Farm 1 had predominantly medium loam soils and a grazing area of 30 ha, with Holstein Friesian cows managed under a winter/spring calving system. Farm 2 included 28 ha of heavy clay soils in the grazing area and a winter/spring calving herd of Holstein and crossbred animals (Norwegian x Holstein). Farm 3 incorporated 50 ha of light loam soils with crossbred dairy animals (Jersey x Holstein) managed within a spring calving system. Concentrates were fed throughout the summer on Farms 1 and 2, with part time feeding on Farm 3, and average quantities of concentrates offered during the project were 3.7, 3.6, and 1.5 kg/cow/day for Farms 1, 2 and 3 respectively. Cows were fully grazed for 157, 160, and 256 days on Farms 1, 2 and 3, respectively, with this extending to 183, 219, 299 days respectively, including days of partial grazing. The average grazing stocking rates (cows/ha) for the grazing season were: Farm 1 (4.5); Farm 2 (3.4); and Farm 3 (2.9). Nitrogen fertiliser application totalled 304, 332, and 262 kg N/ha for Farms 1, 2 and 3, respectively. Sward height (cm) (*b*) was converted to herbage mass (*Y*) (kg DM/ha) using the linear equation ( $Y=316(b)+330$ ). Herbage mass was then calibrated using a rolling adjustment based on detailed cutting measurements undertaken periodically during the season (Barrett *et al.*, 2005). Utilised Metabolisable Energy (UME) was calculated using the equations of FIM (2004) from known quantity and quality of milk and supplements, with assumptions made for liveweight. Four grazing paddocks per farm were intensively measured throughout the grazing season with pre- and post-grazing herbage mass recorded using a rising plate meter. All data were recorded during the period March to November.

**Table 1** Summary of sward and animal measurements recorded on farm

		Farm 1		Farm 2		Farm 3	
		s.d		s.d		s.d	
Pre-grazing	Sward height (cm)	10.7	2.51	11.9	2.70	11.5	2.62
	Herbage mass (kg DM/ha)	3239	578.0	3119	805.9	3491	704.7
Post-grazing	Sward height (cm)	6.1	1.09	5.5	0.70	5.5	1.11
	Herbage mass (kg DM/ha)	1967	295.1	1585	341.7	1842	290.6
Average farm cover (kg DM/ha)		2480	332.2	2515	343.8	2589	307.5
Average milk yield during grazing (kg/cow/day)		24.0	4.03	19.6	2.82	21.6	3.55
Total grass accumulation (kg DM/ha)		8936		11736		10786	
Utilised herbage (>1500kg DM/ha) (%)		75		78		83	
Utilised Metabolisable Energy (GJ/ha)		85		64		119	

**Results** The average pre- and post-grazing sward information for the three farms is shown in Table 1, with the average farm cover and milk yield during the grazing season also shown. Average utilisation and total grass accumulation for the three farms are shown in Table 1. The pre- and post-grazing sward data and the average herbage mass presented for the three farms are within recognised targets for grazing management, with the UME measured for Farms 1 and 3 indicative of good grazing management.

**Conclusions** All three farms demonstrated excellent grassland management throughout the summer, reflected in pre- and post-grazing herbage mass and average farm cover. These farms demonstrate that grazed grass can be an effective forage for milk production with high levels of growth and utilisation being achieved.

### References

- Barrett, P.D. & A. J. Dale (2005). Assessment of rising plate meter calibration on Northern Ireland dairy farms. *Irish Grassland and Animal Production Association, (In press)*
- Feed Into Milk. (2004). A new applied feeding system for dairy cows. Ed. Thomas, C. Nott. University Press