THE EFFECT OF TURNOUT DATE TO PASTURE IN SPRING AND GRAZING STRATEGY ON THE PERFORMANCE OF SPRING-CALVING DAIRY COWS IN A WET LAND ENVIRONMENT

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ABSTRACT
The objective was to investigate the effect of earlier turnout to pasture in spring on animal performance in a wet land environment. Fifty-six spring-calving dairy cows were randomly allocated to four treatments and the stocking rate for each treatment was 2.47 cows/ha. Cows in three of these treatments commenced grazing in mid-March. The cows on Treatment A grazed 100% of the farm and received 3 kg/day of concentrate. Cows on Treatment B and C grazed 50% of the farm (area designated for silage production), received silage at night, indoors, and 6 kg/day and 3 kg/day of concentrate respectively. The animals on treatment D received silage and 6 kg/day of concentrate. All animals were provided with pasture as the sole forage source from April 11th to the end of the experiment. There was no effect of treatment on milk production in the initial period or over the complete experimental period (10 weeks). Difficult grazing conditions prevented optimum performance from pasture.

KEYWORDS
Cows, grass, turnout date, animal performance, wet land, grazing strategy, spring

INTRODUCTION
Conserved forage and concentrates can amount to a significant proportion of the dairy cow's diet in early lactation. Since grazed grass is the cheapest feed available on the farm (Dillon, Cliffe and Hurley, 1991), the provision of early spring grass may be important for the spring-calving cow. Animal performance is generally improved when grazed grass is included in the diet of the dairy cow. However, due to low growth rates in the early spring period, grass supply will not be adequate to meet the dairy cow's demand when first turned out to grass. Grass supply is influenced by overall stocking rate, previous autumn management, nitrogen application, prevailing grass growth conditions and calving pattern. On wetland farms, stocking rate is generally lower and grass growth rates in spring are also lower compared to that of dry land. The site where this experiment was carried out represents a soil type which is very common to dairying on difficult land in Ireland. Since dairying on wet land represents a significant amount of total milk production in the country, the length of the grazing season on these soil types is likely to have a large influence on farm profitability.

MATERIALS AND METHODS
The experimental treatments are shown in Table 1. A total of 56 spring-calving Friesian cows were allocated at random to the four treatment groups (n=14) on the basis of lactation number, calving date and milk yield. The experimental design was a randomised block design. A permanent grassland site was used. The overall stocking rate for each system was 2.47 cows/ha prior to closing up for first cut silage. Treatment B and D grazed by day and Treatment A by day and night. The turnout date varied according to treatment but all animals were on a grass diet only from April 11th and were stocked at 4.94 cows/ha. Grass was allocated on a rationed basis daily. The forage area designated for silage production was closed completely on April 10th in treatments A, B and C. Animal, sward, soil and meteorological parameters were measured.

RESULTS AND DISCUSSION
The effect of treatment on animal performance following turnout and over the complete experiment is shown in Table 2.

In this study there was no benefit in terms of animal performance by turning out dairy cows early to pasture relative to a system where the animals were on a full indoor feeding regime. The results are contrary to previous research carried out by Dillon and Crosse (1994). A significant improvement in animal performance was recorded in their study when animals were allowed access to some grazed grass in early Spring. This improved performance was associated with an increase in total feed intake when the cows had access to grazed grass. It is probable, however, that in this study the total intake of all the cows which were allowed to graze in the first three weeks of the experiment was limited by poor grazing conditions resulting from high rainfall during this period. This had a direct effect on the water-table level and the soil bearing strength (trafficability) was reduced (Brereton and Hope-Cawderey, 1988). In addition, the deposition of mud on the pasture rendered the grass less palatable and presumably this reduced grass intake.

There was a tendency towards improved milk fat and protein content in the initial period (Week 1-3) of the experiment when cows were at pasture on a full-time basis (Treatment A) but the effects were not significant. An increase in the protein content of the milk is associated with access to grazed grass in Spring (Rook and Rowland, 1959; Dillon and Crosse, 1994).

In this study there was no immediate response to the increased level of concentrate feeding in terms of milk yield or milk composition. This result is at variance with a previous similar study on dry land (Dillon and Crosse, 1994). It is difficult to explain the lack of response to supplementation in the present study because it was not possible to measure individual animal intakes.

It is suggested that grazing conditions and not grass supply and grass quality were the reason why there was no response in animal performance when cows had access to grazed grass. The soil must reach an adequate bearing strength before grazing animals can be turned out to grass. Even though there was no difference in animal performance between the treatments compared, there was a difference in diet composition. An equivalent level of performance was obtained with a reduced amount of silage and concentrate feeding.

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Table 1

Experimental Treatments (March 21st - April 10th).

Treatment	Start of grazing	Stocking rate on pasture (cows/ha)	Allocation of silage	Concentrates (kg/day)
A	March 21st	2.47	None	3
B	March 21st	4.94	Ad-lib	6
C	March 21st	4.94	Ad-lib	3
D	Indoors	-	Ad-lib	6

*Rationed

Table 2

The effect of treatment on milk yield (kg/cow/day) and milk composition (g/kg).

	Treatment					
	A	B	C	D	SED	Signif.
Week 1-3						
Milk yield	24.4	24.5	23.7	24.8	0.68	NS
Fat	37.1	35.8	36.2	34.7	1.21	NS
Protein	32.6	31.8	31.7	31.9	0.41	NS
Week 1-10						
Milk yield	23.2	23.4	23.4	24.1	0.61	NS
Fat	35.4	34.8	35.9	34.3	1.02	NS
Protein	33.1	32.5	32.7	32.6	0.43	NS