

Optimum stocking rate on the grazing platform of fragmented dairy farms

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Summary

- The stocking rate on the grazing platform of a fragmented farm can be as high as 3.5 cows/ha and remain competitive with non-fragmented farms.
- High quality silage should be made to supplement cows during times of pasture deficit on the grazing platform. This home-grown feed is a cheaper alternative than concentrates.
- There needs to be a clear plan for making and feeding out silage. It is easy to underestimate the amount of high quality silage needed for supplementing cows during lactation.

Introduction

The majority of dairy farms are fragmented and a typical farm of 50 ha has 28 ha in the grazing platform and 22 ha in outside parcels. Before the phasing out of the milk quota, many such farms carried 60–70 dairy cows on the grazing platform (2.2–2.5 cows/ha) with an overall farm stocking rate of 1.8–2.0 LU/ha including replacements and beef cattle on outside parcels. Since the phasing out of milk quotas, many farmers have increased dairy cow numbers. The objective of the current research is to investigate the optimum stocking rate of dairy cows on the grazing platform of a fragmented dairy farm.

It is clear that Ireland's competitive advantage lies in our capacity to turn low-cost grazed grass into milk. Higher-cost alternative feeds expose the farm business to downturns in milk price and upturns in concentrate costs. The challenge for fragmented farms in Ireland is to get the most out of grazed grass on the grazing platform and to get the most out of outside parcels in terms of high quality silage for supplementing lactating cows and dry-cow winter feed.

Systems comparison

Four dairy systems are compared. Each of these systems is stocked at 2.5 cows per ha but fragmented to different degrees as shown in Table 1. Outside parcels are used solely for silage production that is used to fill feed deficits in the feed budget of each herd. On the outside parcels, silage is harvested three times per year (mid-May, Mid-July and end of August) and residual grass is zero-grazed in October or grazed with dry cows in December. So far, this project has been conducted over two relatively difficult years, with a wet spring and a wet autumn in 2017 and a very wet spring and summer drought in 2018. The length of the grazing season decreased with higher stocking rate on the grazing platform (Table 1). Grass growth averaged 16.6 t DM/ha in 2017 and 13.9 t DM/ha in 2018. The amount of grazed grass per cow declined with higher grazing platform stocking rate (GPSR), whereas the quantity of silage harvested increased. Nevertheless, differences in feed costs per cow were relatively small. Concentrate costs were the same because the same amount was fed in each system each year and although the silage costs increased with higher GPSR, some of this was offset by lower consumption of grazed grass. Grazed grass was estimated to cost €80 per t DM, which included the cost of fertiliser, slurry spreading, land rental, lime applied every five years and reseeding at 10 year intervals. Silage making costs were additional to the cost of grass. Degree of fragmentation did not influence silage making costs because contractors charge the same for making silage on outside parcels within

reasonable distances. Housing costs (slurry application etc.) increased with higher GPSR.

In an overall assessment of the four GPSR systems, the additional costs associated with GPSR 3.0 cows/ha and 3.5 cows/ha were offset by the value of additional milk produced on these systems. This surprising result is attributed to supplementing cows on pasture with very low dry matter content (12%) during the spring and autumn with high dry matter silage (35 to 40%) with 72% DMD. We have recorded this in both years and more work is needed before we can draw firm conclusions about it. There was a very clear lesson in the need to make high quality silage for supplementing lactating cows particularly at the higher GPSR. Averaged over two relatively difficult years, the proportion of all silage made, that was fed to the cows during lactation, ranged between 48% and 62%. Clearly it is not good management practice to disregard silage as a 'dry cow feed' even at the lower GPSR.

Table 1. Stocking rates, milk production, feed budgets and net margins for the four systems

GPSR system	S1	S2	S3	S4
Overall farm stocking rate (cows/ha)	2.5	2.5	2.5	2.5
Proportion of the farm in grazing platform	100%	83%	71%	63%
Grazing platform stocking rate (cows/ha)	2.5	3.0	3.5	4.0
Milk yield (L/cow)	5,455	5,571	5,766	5,425
Milk solids (kg/cow)	456	468	478	457
Fat yield (kg/cow)	255	262	266	255
Protein yield (kg/cow)	201	206	212	201
Grazing days per cow	235	223	211	199
Grazed grass (t DM/ha)	10.8	9.6	9.0	8.6
Grass harvested for silage (t DM/ha)	4.5	5.6	6.3	6.7
Silage fed (t DM per cow)*	1.60	1.77	2.04	2.16
Feed costs (€ per cow)	703	720	743	746
Net margin (€ per 50 ha farm)	117,490	119,604	119,137	105,993
Proportion of silage fed during lactation	48	53	58	62

*Multiply by five to get a rough estimate of silage fresh-weight fed per cow

Conclusions

The stocking rate on the grazing platform of a fragmented farm can be as high as 3.5 cows/ha and remain competitive with non-fragmented farms. Making high quality silage is a priority on fragmented farms.