

Stocking rate — how important is it?

Kevin Macdonald

*Teagasc, Animal & Grassland Research and Innovation Centre, Moorepark, Fermoy, Co. Cork
(Formerly Farm systems scientist, DairyNZ, New Zealand)*

Summary

- Stocking rate is important for efficient pasture utilisation, but how the system is managed is just as important.
- There needs to be an appropriate set of farm management decision rules to optimise profit.
- Use of decision support tools can be used to determine the appropriate stocking rate for any farm.
- Be aware of present and future environmental issues that may place limitations on your system.

Introduction

The efficiency of milk production from pasture is a function of annual pasture production, pasture utilisation, and the efficiency of milk solids (MS) production per cow. Annual pasture production (or feed on farm) determines the total amount of feed energy available for animal maintenance, growth and milk production. If attempting to determine an appropriate stocking rate (SR) for any farm, pasture growth patterns and feed demand need to be determined.

Important factors to consider for your farm

Pasture eaten per ha is obviously an important component of successful farm management, but it is often forgotten in an attempt to maximise per cow intake. The amount of pasture eaten is also dependent on the weather due to variations in seasonal pasture growth and the amount that can be utilised by the cow. The amount and distribution of pasture production is driven by several factors such as climate, soil type, soil fertility and management. Within Ireland, there is a large variation in daily pasture growth between and within years. To manage seasonal variation requires planning, the appropriate infrastructure on the farm and a set of decision rules that govern pasture management to achieve the critical factors for a sustainable system which are, average pasture cover (APC) and cow body condition score (BCS) at turnout and BCS at mating. Importantly, the effects of shortfalls in these are greater as SR increases.

The decision rules need to achieve target levels of APC for different seasons of the year. As rotation length is a key driver of APC and post-grazing residuals, there needs to be rules on rotation length, especially for high stocked farms. On a low-stocked farm, a fast rotation may be used to reduce pasture growth to match feed supply while, on a high-stocked farm, a slower rotation length should be used to maximise growth rates, e.g. rotation length never faster than 21 days. The risks for any farm system need to be identified and minimised by applying the appropriate decision rules. When to make silage out of surplus pasture is also critical to the success of any farm operation. Knowing what pasture growth is, will allow timely and efficient silage harvesting and confidence in removing areas for conservation. Along with decision rules, the use of decision support programs such as PastureBase Ireland can be invaluable. For a farming system to be sustainable, there needs to be a set of management rules to ensure that negative effects from one season are not carried through to the next. These rules ensure that production between years is stable and that there are no carry-over effects from one year to the next. Attaining a BCS of 3.25

at calving is an important component of this. Having compact calving is dependent on successful mating which will only occur with appropriate management at mating time.

Planning

Planning is an important aspect of wet weather management. Wet weather and poor drainage of soils means that plans must be in place to limit soil damage. To ensure there is sufficient pasture on the farm in the spring, poaching of the soil must be minimised. At turnout, there needs to be a wedge of feed ahead of the herd and not a large bank which is unmanageable because all the pasture is ready for grazing at once. Therefore, some paddocks will have been closed for too long and the quality of the subsequent feed available is compromised. Also, when pasture is closed for too long a period, regrowth is slowed (canopy closure) and the farm can go very quickly from a feed surplus to a deficit. This is particularly so if the calving spread is not compact.

Increasing attention, both locally and internationally, is being focussed on the sustainability of modern agricultural production systems, including Ireland's dairy industry. To ensure Ireland retains its present 'clean green' image, it is essential that you are aware of present and future environmental issues that may place limitations on your system and have plans to overcome or mitigate these. Do not sit back and wait to be forced into doing something. *'Failing to plan is planning to fail.'*

Stocking rate has been identified as one of the main drivers in farm profitability in both Ireland and New Zealand. In reporting on early stocking rate trials in New Zealand, McMeekan stated in his book "Grass to Milk," *"No more powerful force exists for good or evil than the control of SR in grassland farming. Properly understood and used, it can influence productive efficiency for good more than can any other single controllable factor. Misunderstood and misapplied, it can lead to abuses which may have permanent harmful effects on land use."* I believe that the abuses that McMeekan referred to can be eliminated by good planning and appropriate decision rules.

Conclusions

How the dairy farm is operated is just as important as choosing the appropriate SR. This requires a clear set of decision rules, applied with discipline, to ensure pasture is efficiently utilised and cows are well managed.

