Some critical points of dairy farming based on grazing compared to indoor feeding systems

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Abstract

Grazing is not currently a common practice on dairy farms in Hungary. There are several possible reasons for this situation: the necessary conditions are not available for grazing, or technical considerations about grazing are not favourable in practice. These questions were investigated on two dairy farms through farm visits and technical interviews. Farm 1 has grazing, whereas Farm 2, which used to graze its animals, currently does not graze but there are plans to establish pasture for grazing. The main results of the investigations are as follows: neither farm has enough pasture/land area available to meet the requirements of grazing; the period of adequate grass growth/supply is relatively short, it is a maximum of two months in the beginning of spring; the nutritive value of grass decreases sharply in spring, and for this reason only animals requiring less-intensive feeding can be grazed (dry cows, heifers and perhaps low yield cows); grazing can result in remarkable savings in terms of inputs and costs; grazing does not need specific labour, and staff currently on the farms can manage grazing at the necessary technical level; the safety of outdoor animals from theft were not considered to be an obstacle to grazing on the farms.

Keywords: dairy farms, grazing, seasonal herbage allowance, safety of grazing animals

Introduction

The most important overall characteristics of dairy farming in Hungary are as follows: production is based on large dairy herds having several hundred cows per farm unit; the overall management system is intensive, with indoor confinement; and the feeding technology is based on single diet total mixed ration (TMR) systems. Grazing on dairy farms has become increasingly rare over the last few decades; consequently, the role of grazing in dairy farming has become negligible in recent years. What are the reasons why dairy farmers do not want to, or cannot utilize the benefits of grazing in milk production? This was the basic question of an empirical study based on farm visits and technical interviews. The objectives of the study were (1) to select two dairy farms with some relevance to grazing, (2) to search the critical points in favour of and/or against grazing under farm conditions, and (3) to find the critical economic and labour management points of grazing in dairy production.

Materials and methods

Two dairy farms were selected for the study. Farm 1 still grazes about half of its dairy stock and the remainder of the herd is fed by TMR. Farm 2 used to graze, but recently it has not grazed its stock and its overall feeding system is TMR. Farms 1 and 2 have 186 and 318 dairy cattle, respectively. The housing system on both farms is a free-stall system with deep litter. Milk production on Farms 1 and 2 are 6,000 and 12,300 litre cow^{-1} $lactation^{-1}$, respectively. Available pasture area for grazing on Farms 1 is 100 ha and on Farm 2 has no grassland area for grazing (in the past it had 20 ha). The number of employees is 12 on both dairy farms.

The grazing-related questions investigated during farm visits, and asked by experienced farm experts, were as follows: the relationship between grassland area demanded for grazing and the available grassland area on the farms; difference between grass demand for grazing and the grass supply during the grazing season on the farms; changes in the nutritive value of the grass available for grazing during the season; technical skills of employees on the farms regarding grazing management; potential replacement of preserved

forage from TMR by grazing and their financial value; animal physiological and economic benefits of grazing experienced under practical conditions; safety of grazing/outdoor animals from theft in farming systems.

Results and discussions

Farm 1

Dry cows, growing heifers and late-milking cows (at the very end of lactation) are the preferred animals that are grazed on this farm. According to the experienced farm manager the daily savings by grazing compared to indoor technology and its financial value is as follows:

- for dry cows 18 kg fresh maize silage cow^{-1} day^{-1} (160 HUF cow^{-1} day^{-1})
- for heifers 6 kg fresh maize silage heifer^{-1} day^{-1} (60 HUF heifer^{-1} day^{-1})
  8 kg grass hay heifer^{-1} day^{-1} (120 HUF heifer^{-1} day^{-1})
  3 kg farm grain heifer^{-1} day^{-1} (120 HUF heifer^{-1} day^{-1})
- for late milking cows 9 kg fresh maize silage cow^{-1} day^{-1} (80 HUF cow^{-1} day^{-1})
  4 kg farm grain cow^{-1} day^{-1} (160 HUF day^{-1} cow^{-1}).

In addition, the saving on straw litter on days when animals are grazed is 5 kg animal^{-1} day^{-1} (50 HUF animal^{-1} day^{-1}). Altogether, total savings due to grazing of dry cows, heifers and late-milking cows are 210 HUF, 350 HUF and 290 HUF animal^{-1}day^{-1}, respectively.

The manager listed some additional benefits of grazing. The carotene content of the blood of grazed animals, as tested regularly by a local veterinary, is optimal. The reproductive performance of the cows is favourable. Retained placenta in cows after calving does not occur. Indirect proof of the benefits of grazing on this farm are that the average age of milking cows is greater than 6 years (40% of the cows are older than 5 years), compared to the national average, which is approximately 3.5 years (Béri *et al.*, 1995). Practical experiences with grazing on the farm were positive. Technical skills for grazing management are provided by the employees of the farm. Safety of animals from theft is not a critical point in grazing management.

There are some conditions that hinder the most efficient use of grazing: there is not enough grassland area available for grazing, and there is no chance to buy or rent extra land for grazing. The period of optimal grass growth is limited to two months (April and May) at the beginning of the grazing season. There are large differences in grass growth between years due to changeable weather conditions (Nagy, 2008). Nutritive value of the grass declines sharply in late spring (Nagy, 2008). All these conditions make it impossible on the farm to graze high performance dairy cows.

Farm 2.

This farm used to graze its cattle but gave up grazing for a number of reasons. For example, the available pasture area for grazing became very limited, and renting or buying extra land became impossible. The production per cow has increased remarkably up to 12,300 l cow^{-1} lactation^{-1} on the farm and this high level of production requires reliable and stable daily feeding all the year round, which cannot be provided with grazing under practical conditions. In spite of all these issues the manager had very positive experiences with grazing, so the farm plans to establish 20 ha of grassland for grazing its dry cows.

According to the experienced farm manager the daily savings by grazing dry cows, compared to indoor technology and its financial value are as follows: 6 kg fresh maize silage cow^{-1} day^{-1} (60 HUF cow^{-1}day^{-1}) and 6 kg meadow hay cow^{-1} day^{-1} (90 HUF cow^{-1}day^{-1}).

The past experiences with grazing regarding retained placenta, carotene content of the blood, reproductive performance of cows, reproductive life span of the cows, were as positive as on Farm 1. Farm managers observed that the vitality of new-born calves was much better if cows were grazed during the dry period. Although grazing has not been practised recently on the farm, meadow hay as a grass product is fed *ad libitum* to maintain efficient digestion for high animal performance.

Technical skills for grazing management can be provided by the present employees of the farm. Safety of animals from theft is not a critical point in grazing management. Conditions that hinder the most efficient use of grazing on the farm are connected to the limited period of good grass growth. The feeding value of grass from pastures cannot meet the requirements of high-producing dairy cows. On intensive dairy farms, like this one, grazing can be practised only for dry cows because of animal nutritional reasons. All these findings support the results of previous studies (Béri *et al.*, 1995; Nagy, 2005), which analysed the situation of grazing management in the country.

The results of existing on-farm technical skills for grazing management, and the situation that there were no problems with safety of animals from theft on either of the farms, can be considered as new findings regarding previous publications dealing with practical constraints of grazing management in the country (Nagy, 2000).

Conclusions

The main outcomes from the study are: (1) neither of the studied farms has enough pasture/land area to meet the requirements of grazing; (2) the period of substantial herbage growth is relatively short – a maximum of two months at the beginning of the season; (3) the nutritive value of grass decreases sharply in spring; (4) only animals requiring less-intensive feeding can be grazed (first of all dry cows, than heifers and perhaps low yield cows); (5) grazing can result in remarkable savings regarding inputs and costs; (6) the physiological benefits of grazing are undoubted; (7) necessary skills for grazing management exist on farms, and (8) safety of grazing animals from theft is not a problem.

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