

A study of the factors associated with improving economic efficiency in small dairy herds

Research conducted for Milklink

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Executive summary

Introduction

E1 Along with all of the mainstream farming systems, the UK dairy farming sector has suffered over recent years from problems currently generic to the agriculture industry: changes in food marketing chains which disadvantage the primary producer, increased consumer concerns over food quality and safety, and growing policy pressures to achieve higher environmental standards in the interests of improved sustainability. In addition, however, the longer term implications of deregulation of dairy marketing in 1994 are steadily becoming evident, contributing to an acceleration in the rate of structural change at both production and processing levels.

E2 Against this background there have been sustained pressures on the profitability of UK dairy farming over recent years, to a degree which has caused increasing concern over the economic sustainability of the sector both within the industry and at policy level, particularly from a regional perspective. Nowhere is this more true than in the South West of England, which still accounts for more than a fifth of the nation's dairy herd and where dairying is still of critical economic significance across swathes of the region. The region's dairying is particularly vulnerable to economic pressures because of its relatively greater proportion of small dairy herds.

E3 The research which is reported here was commissioned by Milklink, the UK's third largest integrated dairy business which is owned by some 2,500 British dairy farmers. Milklink has strong commercial interests in the continued viability of dairy farming in the Southwest and is particularly committed to assisting sectoral adjustment to the new market realities. Many previous studies have identified a considerable range in the economic and technical performance of UK dairy farms, suggesting that there remains scope for specific and targeted advice and training to assist poorer performing farm businesses to improve.

E4 The overall aim of the study has been to provide a fresh and more detailed insight into the factors associated with improving economic efficiency in the small dairy herd sector in the Southwest, and has addressed five specific questions about the factors associated with differentials in financial outcomes, with a clear focus on smaller herds. Using the Centre's Farm Business Survey (FBS) sample and database, the research has involved two activities: a desk analysis of the regional sample and a telephone survey of a sub-sample of forty farms.

Economic realities in dairy farming

E5 This brief review highlighted much common ground between some very different studies, and is intended to form the backdrop to the research we have conducted which aims to identify what, if anything, smaller dairy farmers can do to improve the long term viability of their business. The general picture is clear, and has been for many years: **larger dairy herds have an inherent advantage over smaller herds, in that they can utilise their fixed costs in production more efficiently, thus lowering their total costs of production.** This advantage particularly comes into focus in the area of labour costs, now the biggest single cost item in milk production.

E6 In various ways, all of these studies either identify this fundamental reality, or accept its validity, but there are other important findings of relevance in various ways to this study, which we summarise as follows:

- The analysis of top and bottom quartile farms found that the better farms achieved a much higher output, with considerably lower variable and, especially, fixed costs, so achieving vastly better profit levels.
- Top quartile farms had a much higher stocking rate and made much more efficient use of key inputs, particularly concentrates; although they had consistently higher cost structures, measured in '£ per hectare' terms, *relative to output, costs on top quartile farms were lower.*
- Even between the top and bottom quartiles, these differences amount to an overall gulf in net profit of £720 per hectare, or more than £50,000 per farm. If the analysis had concentrated on the top and bottom ten per cent segments of the sample, the observed differences would clearly have been very much greater.
- Top quartile farms are more effectively focused on efficient milk production and, relative to the total value of the farm's *output*, they make more efficient use of concentrates and purchased fodder, other livestock costs, variable costs, farm labour, machinery resources and fixed costs.
- In 'bottom line' terms, top quartile farms retained a third of their output as net profit, while bottom quartile farms retained just four per cent.
- Even so, high yields are not necessarily the route to high profits; at average yield levels some farmers are making as much or more profit (per hectare) than others with higher yielding herds.
- While there *are* generally positive correlations between factors such as milk yield and herd size and higher profitability, measured at the business level, these relationships are in some cases fairly weak and in no instance is it so strong as to be deterministic.

Current and potential performance

E7 While there will continue to be an inexorable movement towards larger herds which will be able to compete more effectively in the tighter markets and economic environment in which dairying is operating, **this does not necessarily signal the imminent demise of small herds.** At this point it is worth noting that 'small' and 'large' are relative terms, and that the history of post-war UK agriculture shows that there is a long-established trend towards increasing size.

E8 There is no sign that this trend is likely to change in the foreseeable future – indeed, the logic of the research evidence suggests that it will, if anything, intensify. The challenge for those who wish to see the survival of smaller scale dairying is to assist such producers to, above all, raise the level of their management, since the available evidence suggest that most, if not all, do have scope to improve the financial performance of their business to a level consistent with continued business viability.

E9 There is, in fact, room for encouragement in these analyses for those with smaller farms (and smaller herds). It has been established in the above section that, irrespective of the relationship observed, in all cases there is such a wide distribution

of results that it can only be concluded that **many farms do have scope for improving their profitability**. The ways in which the very best farmers – defined here as those achieving the highest net profit per litre in 2003/04 – approach the management of their herds and businesses is considered in the next two chapters.

E10 These analyses point towards several key lessons of relevance to this study, which we summarise as follows:

- The analysis of top and bottom quartile farms found that the better farms achieved a higher output, with considerably lower variable and, especially, fixed costs, so achieving vastly better profit levels.
- Top quartile farms had a higher stocking rate, made much more efficient use of key inputs, particularly concentrates, and had consistently lower cost structures.
- Even between the top and bottom quartiles, these differences amount to an overall gulf in net profit of £612 per hectare, or more than £50,000 per farm. If the analysis had concentrated on the top and bottom ten per cent segments of the sample, the difference would have been very much greater.
- Top quartile farms are more effectively focused on efficient milk production and, relative to the total value of the farm's *output*, they make more efficient use of concentrates and purchased fodder, other livestock costs, variable costs, farm labour, machinery resources and fixed costs.
- In 'bottom line' terms, top quartile farms retained more than a third of their output as net profit, while bottom quartile farms retained just five per cent.
- High yields are not necessarily the route to high profits; at average yield levels some farmers are making as much or more profit (per hectare) than others with higher yielding herds.
- While there *are* generally positive correlations between factors such as milk yield and herd size and higher profitability, measured at the business level, these relationships are in some cases fairly weak and in no instance is it so strong as to be deterministic.

Better performance, better management?

E11 The analyses presented in Chapter 4 go a long way to identifying those management factors which contribute to the dramatically superior financial performance of the top quartile farms. The analysis points to a far superior level of management, reflecting advantages in both technical and business skills on the top quartile farms. These differences are seen to be consistent and, of course, their impacts are cumulative.

E12 The top quartile farms are more effectively focussed on milk production. They make more efficient use of concentrates and purchased fodder, other livestock costs, variable costs, farm labour, machinery resources and fixed costs. In terms of the 'bottom line', top quartile farms retained 35 per cent of their output as net profit, bottom quartile farms just 6 per cent.

E13 These findings point to the top quartile farmers having management advantages in the following areas:

- A range of herd management factors including stocking rate (see also grassland and forage management), diet and feed management, control of variable costs.
- Herd replacement rates were slightly higher on top quartile farms, but this may reflect a greater readiness to dispose of less productive cows in order to gain improved potential.
- Grassland and forage management as evidenced by stocking rates and forage production cost levels.
- A small premium in milk price conferring a useful output advantage, which reflects not only the dairy used but also factors such as seasonality and hygiene quality production standards.
- More effective use of the labour input – although total costs were higher (on slightly smaller farms), relative to both *total output* and *gross margin* they were lower.
- Similarly, the machinery resources are used more effectively, both in relation to absolute and proportional costs.

E14 Drawing on earlier research, the herd management ‘tools’ employed by top dairy farmers are not beyond the reach of any dairy farmer and include:

- All used *some* means of monitoring dairy herd performance, using NMR recording or similar at least;
- Seven out of ten used at least some tools for regularly monitoring production efficiency, such as ‘margin over concentrates’, other related output/feed margins, milk output/conc. feed rate, etc.;
- Five out of ten used some form of comparative standards for these indicators, and a similar number calculate financial gross margins at least annually;
- Given the basis of the sample, all have feedback from the FBS, of course.

Raising performance: issues and challenges

E15 In Chapter 5 we reviewed the key KTP principles which should be taken into account in designing and implementing an approach to improving the economic performance, and hence the future viability, of smaller scale dairy enterprises. We have also summarised the findings of our research in addressing the principal research question: can small dairy enterprises be as efficient as large ones?

E16 Dairy farming, and especially smaller scale dairying, is characterised by a number of features which must be taken into account in designing KTP activities, and we identify the following aspects as important:

- Transferring results to producers is getting harder because of increasing isolation, with fewer farmers going to market and more being heavily committed to routine on-farm herd management and related tasks.
- A flexible package of KTP methods, including the imaginative use of ICT, distance learning schemes, farm demonstrations and ‘best practice’ type events or visits will be essential.

- Either the establishment of the old-style demonstration farms or, more practically, the identification of suitable commercial farms which could service a focussed demonstration role, at least periodically if not permanently.
- The use of a variety of 'peer groups' to facilitate KTP activities aimed specifically at those involved in smaller-scale dairying; these would range from the sort of benchmarking clubs being established by Duchy College, through focus group type meetings (either one-off or semi-regular) to buying groups which aim to involve some discussion of enterprise performance.
- Information should come from a trusted source and should be appropriate to the needs of the farmer, and of a high quality.
- Improved use of regional information points (such as the Regional Enterprise Gateway) or centres (such as agricultural colleges) with a range of material of immediate relevance to the needs of smaller-scale dairy producers.

E17 The overall research question can be answered in two ways. First, the nature of the economies of scale associated with dairying is such that, **for a given level of management skill, larger herds have an inherent efficiency advantage over smaller herds**; in that sense the answer to the research question is NO. Secondly, however, most dairy farmers (irrespective of scale) have scope for improvement in terms of overall efficiency, and our research shows that **small dairy enterprises can be as efficient as many larger ones and that, if this is achieved, they will be well placed to survive and prosper**; in that sense the answer to the research question is YES.



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