

Research Paper Summary

The impact of work organisation on the work life of people on pasture-based dairy farms

Short title: Work organisation on dairy farms

Key words: organisation; management; dairy; pasture

Ref No 24/1

Practical point

Increased herd sizes, a declining workforce and a seasonal workload have affected the sustainability of pasture-based dairying systems. Focusing on effective work organisation can have a positive impact on the social sustainability of farms. Farms with effective work organisation are more labour efficient and have more profitable farm systems with the potential for better farmer well-being, health and safety, and quality of life. Alleviating these labour stresses and quality of life concerns are among the key challenges faced by dairy farmers.

Background

Social sustainability issues on pasture-based farms have been exacerbated by farm expansion, reduced labour availability and labour retention challenges. Social issues include farmer stress levels, mental health issues, work/life balance and the ability to spend time with family. Social sustainability of dairying could be improved via the adoption of more effective work organisation. Labour efficiency and productivity, flexibility, and standardisation within the farm workload are key characteristics of effective work organisation. This work showed that farms with effective work organisation had a labour-efficient system with relatively low farmer work hours. Increased uptake of the work organisation concept across other farms could reduce farm labour issues and improve quality of life for farmers.

Work undertaken

Data used in this study were part of a larger project examining labour time-use and efficiency on Irish dairy farms (Hogan et al., 2022a, 2022b). Data from 55 farms were used in the current analysis. The study used data collected between February 1st and June 30th, 2019, covering a wide range of farm sizes and farms across all levels of labour efficiency.

Data were collected using a smartphone app which allowed farmers/farm operators to record their labour use in real-time by starting/stopping a stopwatch function in the app as each task commenced and was completed. Tasks were split into 10 categories, as shown below.

Table 1: Tasks on the smartphone app and their definitions.

Task	Definition
Administration/ business	Office work, advisory, staff management, sourcing materials, and trading dairy enterprise stock
Breaks	Breaks and non-farm activities
Calf care	Preparing/ transporting milk to calves, feeding milk/ forage/ supplement to calves pre-weaning, cleaning calf equipment, cleaning/ bedding calf sheds, tagging, and veterinary work with calves
Cow care	Cubicle cleaning/ bedding, cleaning yards/ passages, veterinary (cows), heat observation and artificial insemination, and calving/ monitoring cows
Feeding	Feeding forage/ supplement to livestock other than pre-weaned calves, and silage management (e.g. removing pit covers, opening baled silage)
Grassland management	Grassland measurement, strip fencing, spraying, silage, reseeded, mowing, topping, and fertilizer, lime, slurry, farmyard manure and soiled water spreading
Heifer care	Herding, cubicle cleaning/ bedding, cleaning yards/passages, veterinary, and heat observation/ artificial insemination for heifers
Milking	Herding cows pre/ post milking, milking, and washing post milking
Other enterprises	Any other farm tasks not related to the dairy enterprise
Repairs & maintenance	Land and building maintenance, machinery maintenance, and milking machine maintenance

Farmers or farm workers/family used the app to record their labour data in real time, on an alternating day each week, except Sundays. Data relating to contractor time allocation were input separately. Farms were classified into quartiles based on their ranking for work organization effectiveness using productivity and efficiency, flexibility and standardisation as the key characteristics. Two proxy indicators were selected to describe each characteristic. Efficiency and productivity were described by farm hours worked per cow and farmer hours worked per day. Flexibility was described by the length of the farmers' working day and the number of days off for the farmer between the start of calving and the end of the breeding season. Standardisation was expressed by the number of tasks completed per day and the finish time of the farmer. The average herd size was 112 on farms which fell into the most effective work organisation quartile and 113 on those which fell into the least effective quartile.

Farmers in the least effective work organisation quartile started earlier (13 minutes) and finished later (93 minutes) than those in the most effective quartile, giving them a significantly longer working day and less time available for non-farm activity ($p = 0.03$). Over the course of a week, this difference led to farmers in the least effective work organisation quartile working 70.0 h/week from February to June, compared with 51.2 h/week for farmers in the most effective quartile ($p < 0.001$). Farmers in the least effective quartile took 1.1 less days off during the study period ($p = 0.71$).

The study was able to identify patterns of work organisation used by farmers on farms with the most and least effective work organisation. A work pattern which represented the "Ideal Working Day" was found on many farms in the most effective work organisation quartile. This included (a) later start times and earlier finish times than the average farm, resulting in a shorter working day; (b) longer non-farm activity time during the working day; and (c) fewer tasks completed during the day.

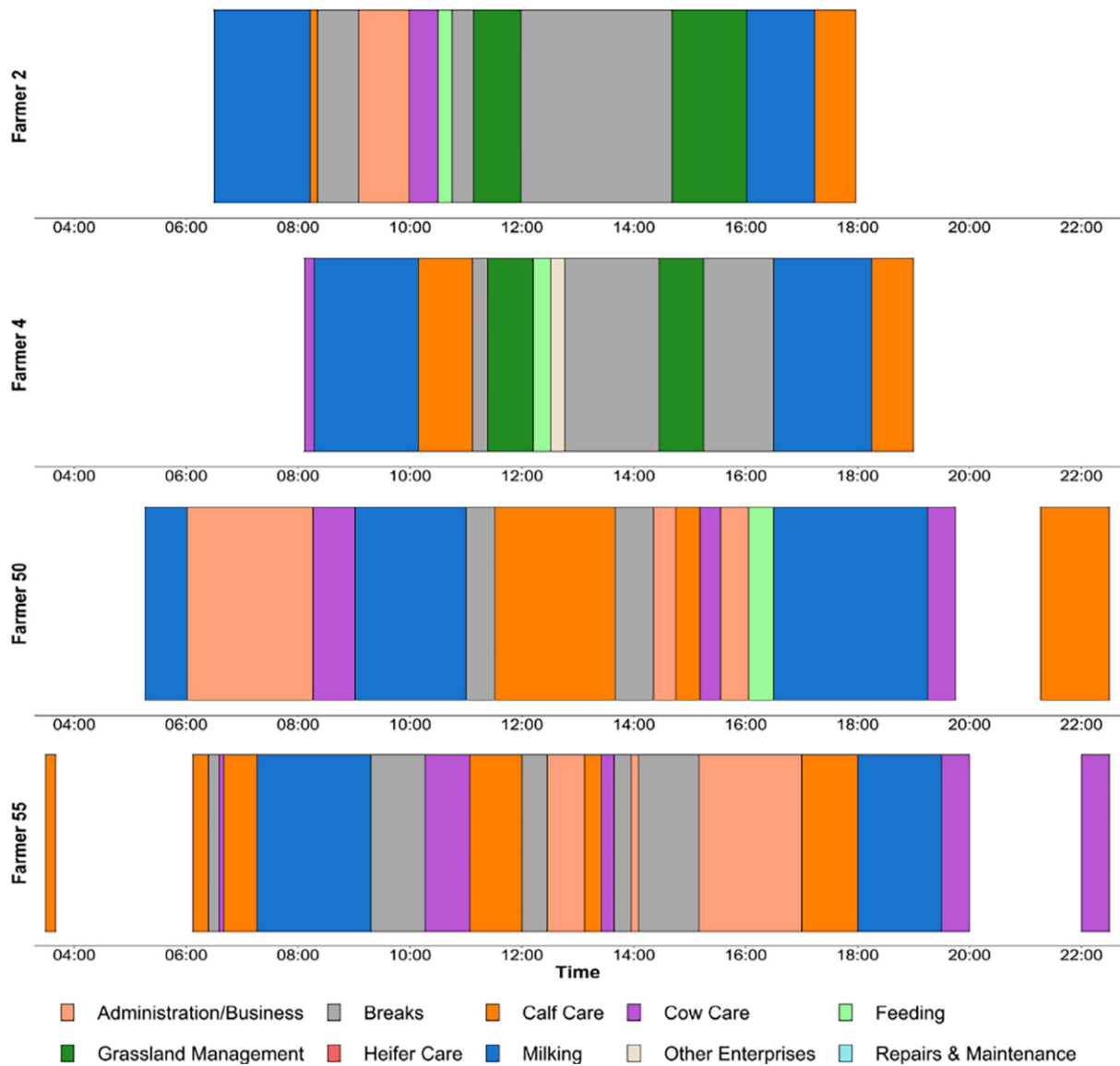
The profile of "Ineffective Work Organisation" identified was the opposite of the "Ideal Working Day" and was most seen in farmers in the quartile with the least effective work organisation. Length of working day was considerably longer due to earlier start times and later finish times and less time taken for "non-farm activity", leading to longer working hours. Figure 1 below shows daily task timelines of example working day patterns of farmers in the most (Farmers 2 and 4) and least (Farmers 50 and 55) effective work organisation quartiles.

This work suggests that more focus on labour efficiency and productivity, flexibility, and standardisation within the workload could allow farmers to improve their work organisation effectiveness, which will have a positive effect on farm sustainability. Improved farm work organisation can potentially aid in addressing key issues for pasture-based farms such as the seasonal workload and difficulty attracting and retaining labour. In addition to addressing these issues, it can also have a positive influence on farmer stress level, quality of life, health and safety, and farm financial performance. Two key aspects of effective work organisation identified in this study include an earlier finish time and the number of tasks completed per day. Earlier finish times can reduce the feeling of “being tied to the farm” improving quality of life and ability to achieve sufficient sleep. Earlier finish times and more flexibility also increase the attractiveness of dairying as a potential career. A possible way to achieve earlier finish times is moving the evening milking time earlier.

In this study, the least effective farms were found to be completing more tasks per day than more effective farms. Longer, more focused time spent on one task, versus switching between lots of tasks can increase the task performance and efficiency.

This study found 51% of farmers took no full day off between February and June. Therefore, farmers may need to look towards innovative solutions to reduce total working hours worked while continuing to complete routine work (i.e., taking extra time off during the day rather than taking full days off). Several farmers with effective work organisation only carried out essential work on Saturdays and Sundays in this study and there is potential for others to shorten the working week through this practice. However, improved organisation will be required during the week to ensure non-routine tasks are completed before the weekend – highlighting the importance of focusing on task performance and efficiency.

Overall, the study showed that by focusing more on efficiency and productivity, flexibility, and standardisation, farmers can improve their work organisation effectiveness, which will have a consequential positive effect on farm sustainability through reduced workload, improved flexibility and creating more attractive careers in dairy farming for young people.



Reference

Hogan, C., Kinsella, J., Beecher, M., O'Brien, B., (2023). The impact of work organisation on the work life of people on pasture-based dairy farms. *Animal* 17: 100686

Hogan, C., Kinsella, J., O'Brien, B., Gorman, M., Beecher, M., 2022a. An examination of labor time-use on spring-calving dairy farms in Ireland. *Journal of Dairy Science* 105, 5836–5848.

Hogan, C., Kinsella, J., O'Brien, B., Markey, A., Beecher, M., 2022b. Estimating the effect of different work practices and technologies on labor efficiency within pasture-based dairy systems. *Journal of Dairy Science* 105, 5109–5123.

HDRF is a Scottish Charitable Incorporated Organisation SCIO No. SC007058

Disclaimer: The article is based on information provided by researchers. Hannah Dairy Research Foundation does not endorse any products or particular farming systems.