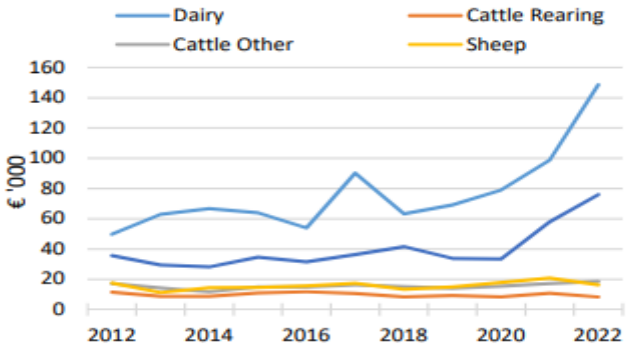
Comparing input costs, margins and feed utilisation trends across a sample of high performing dairy farms 2019-2022

Joe Patton, Teagasc Dairy Knowledge Transfer

Introduction

Input cost inflation of has been a constant pressure on dairy farm cost structures over the last number of years, on foot of Covid-related issues and wider economic trends. Supply chain effects of the conflict in Ukraine resulted compounded the inflation pressure on feed, fertilizer and energy costs in particular in 2021-22. High milk prices mitigated this effect on margins in 2022 such that incomes on dairy farms rose significantly (Fig.1). However an erosion of milk market returns in 2023 saw a 60% drop in dairy farms incomes within the year and a reduction of 1% in milk output.

Fig 2: Trends in farm system average FFI 2012 - 2022



Source: Teagasc National Farm Survey

With such rapid and wide fluctuations in price and output costs and values, it can be difficult to gauge the underlying trends in farm practices and efficiencies, and their effects on performance. Key questions to examine include example, did dairy farms react to high input prices by changing input usage? Did high milk price drive changes in inputs? What were the outcomes, separate to changes in milk price? Are there long term consequences for farm management decisions?

Analysis of input costs and trends- selection of farms

To examine these questions, we selected 100 dairy farms from the e-Profit Monitor database to include in the analysis. Criteria for selection were that the farm had multiple (>5) years' data available, and are specialist dairy farm businesses (>90% LU as dairy stock). The resulting group of farms used are larger than national average herd size and operate at a high whole-farm stocking rate. Physical and financial data from 2019-2022 were compared. Paid labour and land leasing charges were excluded from common costs and margins. No inferences regarding national average costs or margins should be drawn from this data as a result (instead see National Farm Survey report 2022); however, the trends and outcomes provide a very useful picture of management trends.

Summary results and discussion

Summary results from the 100 farms are outlined in Table 1. As expected, there was a very significant increase in annual input costs (per cow, per kg milk solids and per ha) from 2019 to 2022. On a

common cost basis (excluding labour and land lease costs), costs per cow increased by €554, or a 40% increase in costs per cow. Farm stocking rate remained relatively constant over this time-period therefore the trends in per-cow and per-hectare costs will run in parallel.

Table 1. Summary cost and feed budget data for sample of 100 eProfit Monitor herds

	2019	**2022**	***Difference***
Cows	163	182	*19*
Farm SR	2.42	2.46	*0.04*
Milking SR	2.99	3.04	*0.05*
Solids per cow	497	511	*14*
Costs € per cow			
Fertilizer per cow	177	294	*117*
Purchased Feed	312	527	*215*
Contractor	160	188	*28*
Other Variable Costs	263	381	*118*
Total VC	912	1390	*478*
Common Fixed Costs	465	541	*76*
Common Costs total	1377	1931	*554*
Margin per ha			
Feed Utilised metrics			
Concentrate Cow	1.03	1.29	*0.26*
Fertilizer N per ha	213	194	*-19*
Grass Utilised per ha	9.40	8.90	*-0.50*

The distribution of this change was analysed across the main cost categories. (Figure 2). Fertilizer cost changes accounted for 21% of the total increase in common costs per cow. Unit price (per tonne) differential accounted for over 100% of the differential in fertilizer cost, as farmers in the dataset reduced usage rate per ha.

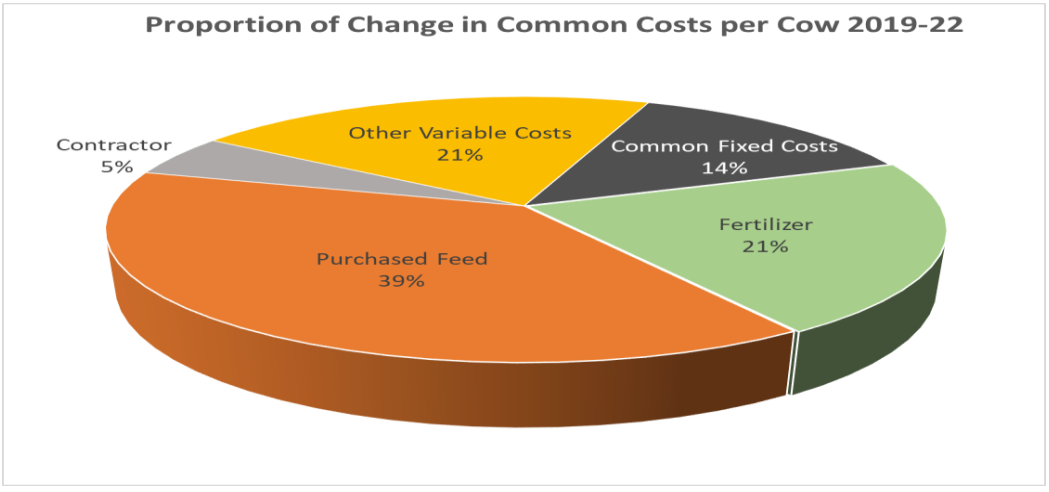


Figure 2. Source of change in common costs per cow 2019-22

Purchased feed accounted for 39% of the total change in common costs. Approximately two thirds of the total cost per cow difference was due to unit price. However, unlike fertilizer, which saw a reduction in usage due to price, concentrate fed per cow increased by 29% to 1229kg per cow. Despite this increase in direct supplement cost per cow, the overall milk solids production per cow difference across was relatively minor at 14kg solids, and with farm stocking rates remaining similar, the milk output per ha differences were likewise minor.

Given the possible/likely variation in annual grass production across years, the data do not allow for calculation of a direct response to concentrate *per se.* Nonetheless, net effect of the cumulative changes to input and herd performance metrics, was a reduction in grass utilised of approximately 0.5t DM per ha. Grass utilised per ha is an important measure to consider when examining system trends over the longer term, as it is the key metric relating physical performance to profitability outcomes (Figure 2). This relationship held constant for the study farms across both years despite the large swings in milk and input prices, demonstrating the robustness to the metric.

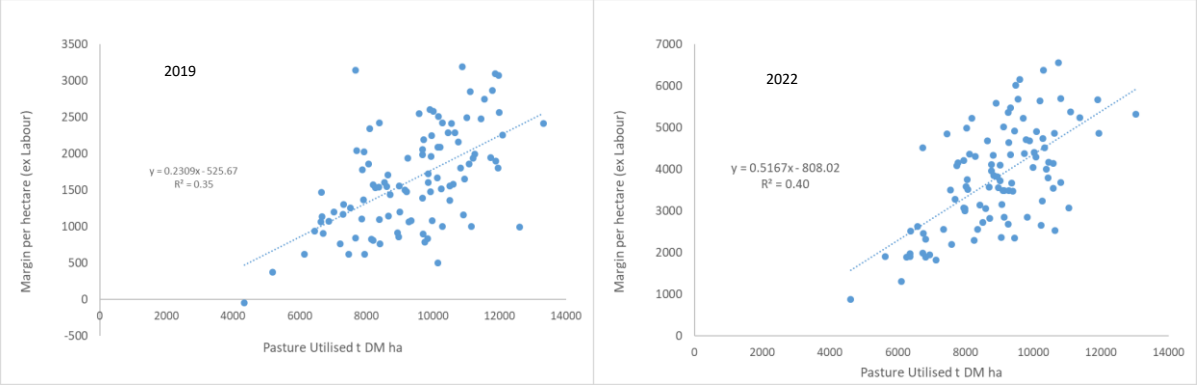


Figure 2. Relationship between pasture utilised and margin per ha for matched sample of farms in 2019 and 2022

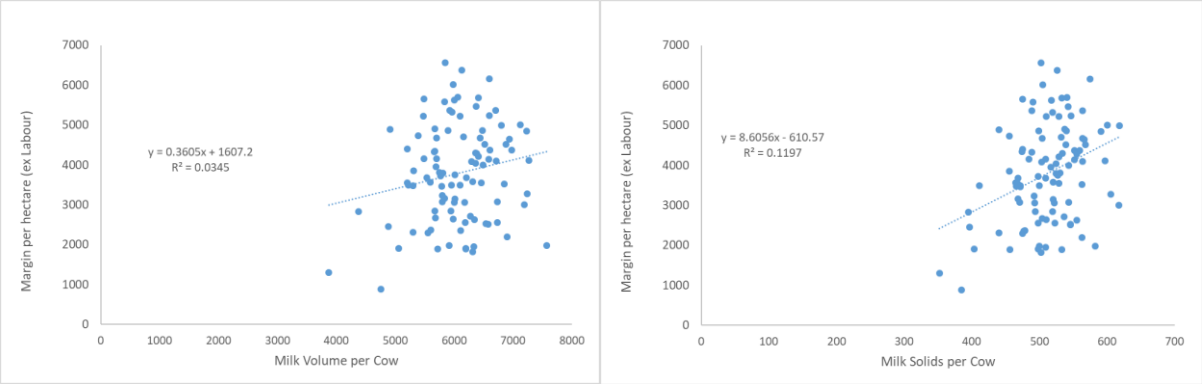


Figure 2. Relationship between milk volume or milk solids to margin per farm ha in 2022

In contrast, milk output per cow (volume or solids) proved to be a poor predictor of farm profitability on per-cow or per-hectare basis in both years (Figure 2: data shown for 2022 only). This is unsurprising given previous analyses conducted on similar datasets; it is interesting to note however that the very large increase in unit milk price in 2022 did not affect the (lack of) relationship between milk volume per cow and profitability. We observed also that concentrate feeding rate was unrelated to profit measures (per cow or per ha) in either 2019 or 2022 (data not displayed, $R^2 < 0.10$ in each comparison).

Reducing common cost per litre of milk produced was associated with increased margin per ha across both years (Figure 3), indicating that cost control per unit of milk output is a key drive of profit independent of the prevailing milk price.

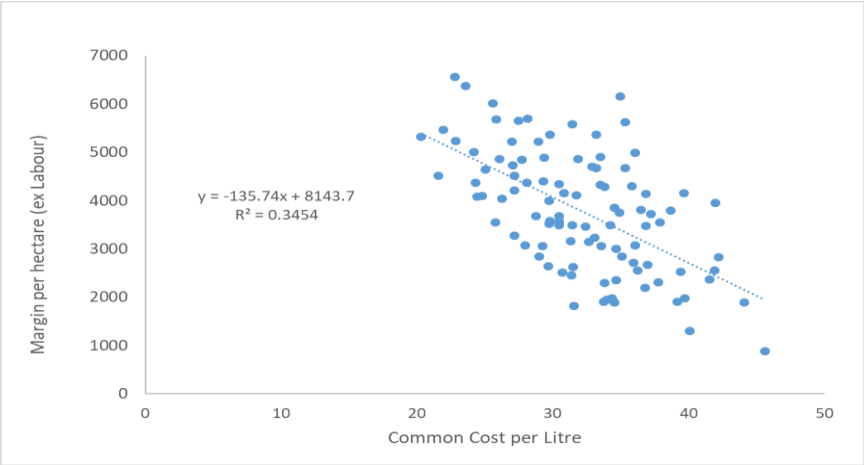


Figure 3. The relationship between margin per hectare and cost per litre

Summary and conclusions

Recent years have seen unprecedented increases in direct and overhead costs for dairy farms. While high milk prices buffered farm profitability in some years, the rising cost base will erodes farm margins where milk price declines. The data presented show that rates of inputs, particularly for purchased feed, need to be closely monitored by individual farms. Increasing milk price does not guarantee an economic return from additional supplement feeding. Instead, focus on increasing pasture utilised per hectare, which declined in 2022, remains the most important driver of farm profit. Farm management decisions should reflect this objective on a short and long term basis.