

## **FINANCIAL MANAGEMENT PRACTICES ON IRISH DAIRY FARMS: THE ROLE-PLAYED BY EXTENSION**

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### **Abstract**

*With the advent of increased competition, adjustments to the CAP (Common Agricultural Policy) and the future globalisation of the agricultural sector, Irish farmers are involved in an increasingly competitive business environment. These changes have brought into focus the need for farmers to improve their business management as well as to continue best practices in production husbandry. Consequently, identifying the factors that may contribute or lead to an increased uptake in formal financial recording, planning and analysis systems among Irish farmers was the primary focus of this research. The literature on farm financial management highlighted a number of issues in relation to the slow adoption of farm financial management techniques among Irish farmers. The results in this paper illustrate the financial management practices in the Irish dairy farm sector and the link between these practices and their impact on the profitability of Irish farms was also highlighted. The farm, personal and financial management characteristics of the dairy farmers in this study who were most efficient in terms of costs and profit and who were most committed to the financial management aspects of their business.*

### **Introduction**

The land area in the Republic of Ireland (RoI) is 6.9 million hectares (Ha's), of which 4.4 million Ha's are used for agriculture (Department of Agriculture and Food, 2004). However, the importance and contribution of agriculture to Ireland's Gross Domestic Product (GDP) continues to decline (Department of Agriculture and Food, 2006). Also various studies have reported trends of falling farm incomes, rising costs of farm inputs, rising levels of off-farm employment, increasing diversification of farm level enterprises, and the further polarisation of larger, more innovative commercial farmers compared to the smaller, state-reliant farmers (CSO, 2003; Connolly et al., 2003). These changes have emphasised the importance for farmers to improve their business management as well as to continue best practices in the production husbandry's.

### Purpose of the Paper

The purpose of this paper is to present an in-depth view into the farm financial management practices of Irish dairy farm managers who spend varying amounts of time working on the financial management side of their farm business across different farm business sizes (as measured by herd size). A further purpose of this paper is to measure the impact of financial management practices on the financial performance of Irish dairy farms using the Dairy Profit Monitor (a computerised service operated by Teagasc (Irish Agriculture and Food Development Authority) to provide dairy farmers with a detailed analysis of their farm financial performance).

### Methods and Data Sources

Case study analysis was undertaken in order to obtain a comprehensive insight into the financial management practices of Irish dairy farmers. Participants in the case study research were selected from the Dairy Farmer Survey (completed prior to the case study research – see Byrne et al., 2003) based on the hours per week farmers spent working on the financial management aspects of their farm business and the number of dairy cows in the herd (Table 1).

**Table 1. Number of Respondents by the Hours per Week they Spent Working on the Financial Management Aspects of the Farm Business and the Number of Dairy Cows in the Herd (n=121)**

Number of Dairy Cows in the Herd	Hours per Week spent Working on Financial Management			
	<1 Hour (N=25) Category 1	1 – 3 Hours (N=54) Category 2	4 – 5 Hours (N=20) Category 3	> 5 Hour (N=22) Category 4
< 56	11 (1)*	20 (4)	6 (7)	1 (10)
56 – 85	7 (2)	21 (5)	8 (8)	5 (11)
> 85	7 (3)	13 (6)	6 (9)	16 (12)

*Pearson's Chi Square = 19.931      D.F. = 6      Sig. = 0.003*

*\*figures in brackets relate to the individual case study farmer*

A respondent from each of the 12 identified groups in Table 1 was randomly selected to participate in the case study research. For example, (1)\* case study farm 1 was selected from those respondents in the Dairy Farmer Survey from Category 1 and who had a farm business with less than 56 dairy cows, and case study farm 2, (2), was selected from those respondents in Category 1 who had a farm business with 56 to 85 dairy cows, until all selections were completed.

The case study 'interview schedule' used in this research consisted of two sections: Section 1 consisted of the participant filling in the Teagasc Dairy Profit Monitor Input Sheet with the assistance of the researcher and Section 2 involved discussing the financial management practices in place on their farm. The purpose of completing the Teagasc Dairy Profit Monitor Input Sheet was to determine the financial performance of the dairy farm business, and to examine the financial management tools used by the participating farmers to complete it. Prior to conducting the actual case study research, the case study interview schedule was piloted with three farmers. The case study schedule was adjusted to take account of the views expressed in this pre-testing phase.

### Results

The three case study farmers in *Category 1* were chosen across three different farm business sizes, as illustrated by area farmed and the number of dairy cows in the herd (Table 2). Their common costs ranged from 15.40c/l down to 8.8c/l with common profit ranging from 20.46c/l up to 23.98c/l. The Teagasc guideline figures in relation to common costs is 10.9c/l and common profit is 20.2c/l. All three case farmers were achieving the Teagasc target in the case of Common Profit, while only case farmer 2 was meeting the standard in terms of Common Costs. The case farm 2 respondent demonstrated a willingness to adapt new management practices to improve farm profitability as they are actively involved in a DairyMIS (Management Information System) discussion group which focuses on reducing their costs per litre of milk produced as well as improving the quality of milk produced.

**Table 2. Characteristics of Case Study Farmers in Category 1.**

Case Farm	Area Farmed (Ha)	Total Farm LU's <sup>1</sup>	No. of Dairy Cows			Hours per Week work on Financial Management				Common Costs(c/l) <sup>2</sup>	Common Profit (c/l)	Financial Records	
			< 56	56 - 85	> 85	< 1	1 - 3	4 - 5	> 5			Manual Account Book	Comp. <sup>3</sup> Accounts
1	38	69	√			√				15.40	20.46		
2	81	168		√		√				8.8	21.56		
3	123	442			√	√				11.44	23.98		√

<sup>1</sup> Livestock Units

<sup>2</sup> Currency is Euro

<sup>3</sup> Comp. Is computerised

There were no financial records kept on these farms. Case farmer 3 hired a book-keeper to record farm financial details using a commercial accounts package. There was a high level of debt on this latter farm and recording all cash-flow activities on the farm was a requirement of the lender. The three case study farmers in this category sought professional farm financial advice from their agricultural consultant, two from their accountant and two from their discussion group.

The three case study farmers in this Category were not fully committed to their dairy business due to imminent retirement, off-farm employment, no immediate successor identifiable and off-farm investments. While the farmers in case farm 1, 2 and 3 spent less than one hour per week personally working on the financial management side of their farm business, those farmers in case farms 2 and 3 had a strong understanding of the financial situation on their farms and how their business was performing. This was reflected in their Common Costs and Common Profits (Table 2). Case farmer 2 achieved this through his frequent involvement in discussion group activities, farm walks and demonstrations, while case farmer 3 hired a bookkeeper to record all financial data, which resulted in this farmer having functional financial records and an understanding of where he stood financially.

However, these three case study respondents were beginning to concentrate more on other areas of their lives (case farm 1 – off-farm employment, case farm 2 – retirement and case farm 3 – off-farm investments) and were not planning any major capital investment in their farm business in the near future. This ignored the professional advice that expansion had been identified as a key contributor in maintaining and increasing dairy farm incomes in the years ahead (O'Dwyer, 2002).

**Table 2. (continued) Characteristics of Case Study Farmers in Category 1.**

Case Farm	Financial Analysis		Sources of Professional Farm Financial Advice			People Involved in Making Farm Capital Investment Decisions				Farm Goals	Farm Business Plan
	Compiled by farmer	Compiled by professional	Accountant	Agricultural Consultant	Discussion Group	Partner	Accountant	Parent	Professional Advisor		
1		√	√	√			√	√			
2		√		√	√	√			√		
3		√	√	√	√						

None of these three case study farmers had developed farm goals or business plans, even though some major decisions were being made about their own future directions and that of their businesses. The family farm is a complex business due to the intimate interaction between business and lifestyle goals. Traditional measures of farm success are financial and production based and personal and family goals are rarely contemplated with respect to their measurement (Rawlings et al., 2000). These three case study farmers needed to develop a strategy for their lives as well as their businesses to enable them achieve their life and business mission.

The three case study farmers in *Category 2* were selected across three different farm business sizes, as illustrated by the area farmed (Table 1) and the number of dairy cows in the herd, to participate in this research. Their common costs ranged from 14.3 c/litre to 6.6 c/litre with common profit ranging from 14.08 c/litre to 22.00 c/litre. Case farmer 6's results demonstrated better performed in terms of common costs and common profit than the Teagasc guideline figures. The respondent in case farm 6 illustrated a willingness to participate in discussion group activities and to adopt best practices as illustrated by other farmers in a similar position.

The respondent from case farm 4 was not involved in any discussion group while the respondent in case farm 5 though involved in a discussion group was focused only on the production side of the farm business. Case farmers 4 & 5 maintained their detailed financial records in Microsoft Excel, which they used to account for current spending, and to supply financial material to the accountant who then prepared the annual taxation accounts.

**Table 3. Characteristics of Case Study Farmers in Category 2.**

Case Farm	Area Farmed (Ha)	Total Farm LU's	No. of Dairy Cows			Hours per Week work on Financial Management				Common Costs(c/l)	Common Profit (c/l)	Financial Records	
			< 56	56 – 85	> 85	< 1	1 - 3	4 – 5	> 5			Manual Account Book	Comp. Accounts
4	37	81	√				√			14.3	14.08		√
5	123	197		√			√			11.66	16.94		√
6	93	253			√		√			6.6	22.00		

A professional (Table 3) compiled the financial data on all three case study farms. However, case farmer 6 was the only farmer to use this data to his advantage to increase farm profit. All three case study farmers sought professional farm financial advice from their agricultural consultant. Case farmers 4 and 5 also sought this type of advice from their accountants (Table 3), while only case farmer 6 sought this advice from discussion group members and the Teagasc advisor. Case farmers 4 & 5 indicated that they would seek advice from a professional and a family member when making a farm capital investment decision. Case farmer 6 did not intend to make any capital investments in the farm business in the near future due to family educational commitments. Case farmers 4 and 5 both had business plans in place for their farm businesses and had their farm business goals identified. These two farmers are young Irish dairy farmers who wished to expand their farm businesses in the near future.

**Table 3. (continued) Characteristics of Case Study Farmers in Category 2.**

Case Farm	<i>Financial Analysis</i>		Sources of Professional Farm Financial Advice			People Involved in Making Farm Capital Investment Decisions				Farm Goals	Farm Business Plan
	Compiled by farmer	Compiled by professional	Accountant	Agricultural Consultant	Discussion Group	Partner	Accountant	Parent	Professional Advisor		
4	√	√	√	√		√	√			√	√
5	√	√		√				√	√	√	√
6	√	√	√	√	√		√				

The major difference between case farmers 4 & 5 and case farmer 6 was their relative stages of development of the farm businesses. Case farmer 6 had made steady progress over a number of years to become one of the bigger dairy farmers in Ireland who is operating a very efficient business. This farmer now wished to invest in his children's education over the next number of years instead of in the dairy farm business. Case farmer 6 needed to continue to monitor the farm's financial performance to ensure that existing levels of efficiency were maintained, as well as monitoring the cost expenditures of educating his children to ensure that these costs would not become a major drain on the farm resources. Case farmers 4 & 5, in comparison, were just at the initial stages of developing their farm businesses. However, they did not participate in discussion groups, which focus on the financial aspects of the farm business.

While there was a strategy in place on case farms 4 & 5, the goals of the farm business were not being achieved due to a lack of knowledge (both production and financial). Perhaps farm goals and plans needed to be revised to include a learning and growth element, to allow these young enthusiastic dairy farmers to expand efficiently. These farmers needed to focus on the businesses' ability to change, improve and adapt their products and processes as well as the ability to develop and introduce new improved products and services (Kaplan and Norton, 1992). The business must set targets that respond to continuous change in customer needs (Newing, 1995). Therefore, as well as measuring the financial performance of the farm business, these farmers must adopt non-financial measures of performance as well. Non-financial indicators are usually leading, that is they inform the manager of likely future performance. For example, the learning of a new skill is a lead indicator of the farmer's future focus and ability to manage (Rawlings et al., 2000).

The three case study farmers in *Category 3* were chosen across three different farm business sizes, as illustrated (Table 3) by area farmed and the number of dairy cows in the herd to participate in this research. Their common costs ranged from 10.78 c/litre up to 12.98 c/litre with common profit ranging from 20.90 c/litre to 23.76 c/litre. The three case study farmers had common profit in excess of Teagasc guideline figures. However, the results from case farm 7 demonstrated that common costs were lower than Teagasc guideline figures. This would indicate that opportunities existed for case farmers 8 & 9 to improve the efficiencies of their farm business. All three case study farmers kept detailed financial records, which are used as part of discussion group activities. Case farmer 8 had just become a Teagasc monitor farmer in the past year, which was an indication of his intention to reduce costs over the coming years. While case farmer 9 prepared detailed financial budgets and farm business plans, the financial figures used as part of his discussion group analysis were derived from his annual taxation accounts. However, annual taxation accounts are historic and are prepared for taxation purposes.

**Table 3. Characteristics of Case Study Farmers in Category 3.**

Case Farm	Area Farmed (Ha)	Total Farm LU's	No. of Dairy Cows			Hours per Week work on Financial Management				Common Costs(c/l)	Common Profit (c/l)	Financial Records	
			< 56	56 - 85	> 85	< 1	1 - 3	4 - 5	> 5			Manual Account Book	Comp. Accounts
7	81	117	√					√		10.78	20.90	√	
8	59	117		√				√		12.98	22.00		√
9	63	178			√			√		12.54	23.76		√

Each of the case study farmers who spent between 4 and 5 hours per week working on the financial management side of their farm business, along with a professional, usually the Teagasc advisor or the accountant, compiled the financial analysis for their farm businesses. Case farmers 7 and 8 only started to compile their own financial analysis in 2001, so they expected to experience the benefits of this exercise through lower common costs and higher common profits over the coming years.

All three case farmers sought professional farm financial advice from their individual agricultural consultant and their discussion group members. Case farmers 7 and 8 also sought this advice from their accountant. The respondents from case farms 8 and 9 involved their parents and their professional advisors when making farm capital investment decisions in their farm business. Case farmers 7 and 9 involved their accountant in these decisions also. Only case farmer 9 had farm goals and a business plan in place for the farm business. Case farmers 7 & 8 had made capital investments in their farm businesses during 2001. However, case farmers 7 & 8 appear typical of dairy farmers at the developing stages of their farm business in contrast to case farmer 9 who would be representative of one of the larger dairy farmers in Ireland with few options available to expand expect through the purchase or leasing of additional land and quota.

**Table 3. (continued) Characteristics of Case Study Farmers in Category 3.**

Case Farm	Financial Analysis		Sources of Professional Farm Financial Advice			People Involved in Making Farm Capital Investment Decisions				Farm Goals	Farm Business Plan
	Compiled by farmer	Compiled by professional	Accountant	Agricultural Consultant	Discussion Group	Partner	Accountant	Parent	Professional Advisor		
7		√	√	√	√		√				
8	√	√		√	√			√	√		
9	√	√	√	√	√		√	√	√	√	√

All three case study farmers are representative of young Irish dairy farmers who are committed to the dairy business. The case farmer 9 respondent was farming in partnership with his father who managed the financial side of the farm business while case farmers 7 & 8 had just commenced farming in the past few years. Case farmer 9 has a business plan in place for the farm. If case farmers 7 & 8 were to make progress in the areas of farm efficiency and business expansion they need to develop a strategy for their farm business (O'Dwyer, 2002).

Inflation and the increasing costs of living are catching Irish dairy farmers in a price-cost squeeze, which will only deteriorate unless improvement in farm profitability is achieved. With the operating costs of a typical rural farm household standing at €28,000 per annum in 2000, a farm household income in excess of €40,000 per annum is required to ensure that living expenses, loan repayments and taxation liabilities would be met in full. By 2008, it is estimated that farm household income will need to be in excess of €57,000 to keep pace with predicted inflation levels. To achieve the same profit in 2008 by increasing scale alone would require an increase of 40 to 50 per cent in volume of milk supplied. To achieve the same profit through cost efficiency achievements only would require a reduction in costs of 6.0 c/l (O'Dwyer, 2002).

Therefore case farmers 7, 8 & 9 must become creative and strategic in their thinking to identify the most appropriate opportunities for their farm businesses in the years ahead. These three case study farmers have great opportunities, as they are young, enthusiastic and are starting to develop their farm businesses. An essential part of creating these opportunities will be to improve their knowledge and skills in all areas related to the farm business – production, financial, EU regulations, environment, safety etc. (Kaplan and Norton, 1996; Shadbolt and Rawlings, 2001 and Parker, 2000).

The three case study farmers in *Category 4* were chosen across three different farm business sizes (Table 4) by area farmed and the number of dairy cows in the herd to participate in this research. Their common costs ranged from 7.26 c/litre up to 12.10 c/litre with common profit ranging from 19.58 c/litre up to 20.68 c/litre. On case farm 12 common costs were substantially lower than guideline figures available from Teagasc, while Case Farm 11 has Common Profit higher than the guideline figure available from Teagasc.

All three case study farmers retained detailed financial records as part of their discussion group activities. Considerable opportunity for improvement in terms of common costs and common profit exist for the case-farm 10 respondent.

**Table 5. Characteristics of the Case Study Farmers in Category 4.**

Case Farm	Area Farmed (Ha)	Dairy LU's	No. of Dairy Cows			Hours per Week work on Financial Management				Common Costs(c/l)	Common Profit (c/l)	Financial Records	
			< 56	56 – 85	> 85	< 1	1 – 3	4 – 5	> 5			Manual Account Book	Comp. Accounts
10	74	89	√						√	12.10	19.58		√
11	114	60		√					√	10.56	20.68	√	
12	272	241			√				√	7.26	19.80		√

The case study farmers as well as a professional compiled financial analyses for their farms. As a result of compiling some of the financial analyses themselves the case study farmers have a good opportunity to get a deeper and more fundamental understanding of each financial measure and its value in interpreting farm performance together with obtaining advice from outside the farm gate.

All three case study farmers seek professional farm financial advice from an agricultural consultant and their discussion group members. Case farmers 11 & 12 also obtained advice from their individual accountants. Case farmer 11 has made capital investments in the areas of farm buildings, machinery and milk quota over the past few years. While case farmer 12 has made no major capital investments in their farm business over the past few years they have entered a number of long term leases for both land and quota. Case Farm 10, who farms in partnership with his father, was anxious to double the size of the farm business over the next 10 years. However, his father was identified as very conservative in this matter and did not concur with any decisions to further invest in the farm business.

**Table 5. (continued) Characteristics of the Case Study Farmers in Category 4.**

Case Farm	Financial Analysis		Sources of Professional Farm Financial Advice			People Involved in Making Farm Capital Investment Decisions				Farm Goals	Farm Business Plan
	Compiled by farmer	Compiled by professional	Accountant	Agricultural Consultant	Discussion Group	Partner	Accountant	Parent	Professional Advisor		
10	√	√		√	√			√	√	√	√
11	√	√	√	√	√	√	√		√	√	√
12	√	√	√	√	√	√	√		√	√	√

All three case study farmers had farm goals and each had a business plan in place for their farms. Case farmers 11 & 12 represented farming couples with a commitment to the dairy

business and who invested time and money in their operations over the last 10 years. Case farmer 10 was a father and son operation, with conflicting ideas about expansion and dairy farming.

The major contributor to success for case farmers 11 & 12 was their willingness to increase their knowledge base, whether this related to production, financial, EU regulations, safety or other issues over the last ten years. They participated in discussion groups, research trials, meetings, demonstrations and other activities. Non-traditional areas of the farm business such as the farmers' personal growth and development need to be monitored, since the knowledge and skills possessed by the farmer may frequently be a barrier to change rather than the absence of a physical resource on the farm, and because these factors are usually lead indicators of future performance (Parker, 2000).

### **Discussion and Conclusions**

The farm, personal and financial management characteristics of the case study farmers who were most efficient in terms of costs and profit and who were most committed to the financial management aspects of their farm business are outlined above. The characteristics common to these case study farmers can be grouped under four headings: Financial Issues, Production Issues, Learning Issues and Regulation Issues.

#### *Financial Issues*

All the case study farmers were interested in the financial performance of their farm business. However, comparisons of the financial performance (using the Teagasc Dairy Profit Monitor) of the case study farms showed large variations in terms of Common Costs and Common Profit (Table 2 to Table 5). The four Case Study Farmers (Case Studies 2, 6, 11 & 12) who had Common Costs lower (highly efficient) than the guideline figures available from Teagasc represented farm businesses which were established more than 15 years ago.

The common factor enabling these four Case Study Farmers (2, 6, 11 & 12) to keep their Common Costs below the guideline figure available from Teagasc was their active participation in DairyMIS discussion group activities. This comparative analysis of the farm's production and financial values made the farmers aware of their relative performance to other farmers with similar dairy operations. Subsequently corrective action in farm practices can be taken if required.

While the other case study farmers have less 'financial analysis' but are involved in 'discussion groups' (except case farm 1 & 4) they were not using the relevant information to lower their costs of production. Case farmers 7, 8 & 10 were actively involved in discussion group activities; however they had just commenced farming in the past few years and as yet had not used these activities to their advantage in lowering costs. For case farmers 3, 5 and 9 discussion group activities was focused on off-farm investments, production issues and taxation account analysis. Case farmers 11 and 12 also had detailed business plans in place for their farms. However, the limitations of managing solely with financial measures has been recognised for decades and the case study farmers also focused on other issues when managing their farm businesses.

#### *Production Issues*

Production management has historically been the strongest focus of farm business management, both in practice and in the literature (Parker, 2000). This was evident on all the

case study farms, where production advice was sought from at least one source and detailed production records were retained. All the case study farmers except those on case farms 1, 3 & 4 participated in discussion groups, which focused on the production side of the farm business. This tactical focus of the case study farmers may be influenced by the common belief that high production levels are responsible for a healthy business (Deane, 1993). This is exacerbated by both a community and industry perception that success is dependent on the quantity of milk solids produced per cow or Ha.

However, only case farmers 2, 6, 11 & 12 were participating in the comparative analysis of the farm's production and financial values. This allowed the case study farmers to analyse how their business was performing relative to other farmers with similar dairy operations. Subsequently corrective action in farm practices can be taken if needed.

### *Learning Issues*

Another factor common to case farmers 2, 6, 11 & 12 is their 'wealth of experience and knowledge'. Respondents on case farms 6, 11 & 12 were continually involved in activities that enabled them to increase their knowledge and skills such as research trials, attending farm meetings, demonstrations and other activities. Case farmer 2 was actively involved in these activities up to a few years ago. However as retirement from farming was imminent, involvement in these activities was reduced.

Case farmers 7, 8 & 10 were enthusiastic young dairy farmers committed to their dairy farm businesses. However they are very inefficient when this research was in progress. If they are to survive in an increasingly competitive business environment they need to understand the critical importance of 'learning' to farm business performance. An increased emphasis in organisational learning has been advocated by Argyris (1991), Kreigal & Brandt (1996) and Porter (1997). How effectively staff learn new capabilities required to realise strategies is a lead indicator of future business performance. Without a knowledge and understanding of new technologies or better management practice it will be difficult for farmers to make continuous improvement or a transformational change (e.g. trebling herd size to improve profitability and enable succession for children). Even where the base system of milk production remains similar over time, there is a demand for learning with respect to food safety, milk quality, environmental sustainability and animal welfare. Learning should be targeted towards the demands for future growth.

### *Regulation Issues*

All Irish farmers operated in a context of strict environmental regulations as well as under the Common Agricultural Policy rules (CAP). These factors have a major influence on any decisions taken by Irish farmers for their farm businesses. The two main opportunities available to Irish dairy farmers are to improve efficiencies and to increase scale (O'Dwyer, 2002). However, it is very difficult for Irish farmers to increase scale operating under the restrictions of the CAP (quota regulations) as illustrated in the case study results. Only case farmers 4 & 5 planned to invest in their farm businesses over the coming years, as access to quota is a restricting factor.

### **Educational Importance**

The question of how farmers do, as opposed to how they should, manage their financial affairs receives surprisingly little coverage in the farm management literature. Yet it is critical

for Irish extension educators to understand better how dairy farmers manage a successful profitable farm business in practice and which may serve to inform dairy farmers elsewhere.

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