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## WHAT ARE THE CHARACTERISTICS OF THE IRISH DAIRY FARMERS WHO USE TEAGASC PROFIT MONITOR?

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### Abstract

*Profit Monitor is a financial analysis package used by the Teagasc advisory service. Teagasc have been promoting the 'Profit-Monitoring' style of financial analysis for over a decade. The concept involves taking a close look at the performance of the farm business for the last completed production year and comparing the principal physical and financial aspects of the farm business. Just over 1,000 dairy farmers (4.5 per cent of all Irish dairy farmers or 9 per cent of Teagasc dairy farmer clients) completed Profit Monitor analysis for the 2005 production year. This study aimed to identify the attitudes and objectives common to regular dairy farmer users of Teagasc Profit Monitor. The study also made an initial assessment of the opinions of these regular dairy farmer users towards the concept of benchmarking analysis as carried out by Teagasc Profit Monitor. Farmer's attitudes and objectives were ascertained by means of a questionnaire containing a series of fifty statements. The statements were based on those used by Willock et al. (1999) in their study of decision making on farms. The key finding from a Teagasc perspective was that 84 per cent of respondents indicated that Profit Monitor completion has enabled them to increase their farm income. Those farmers who agreed that completing Profit Monitor was worth the effort also tended to agree (1) that it is an essential farm financial management tool; and (2) that it helps me to make better decisions for my farm business.*

*Keywords: Teagasc, Profit Monitor, attitudes, objectives*

### Introduction

Teagasc is the largest provider of research, advisory, education and training services to the agriculture sector in Ireland. As part of its advisory function Teagasc provides a farm financial analysis service to its farmer clients using its online benchmarking programme, *eProfit Monitor*. Profit Monitor is a financial analysis package used by the Teagasc advisory service. It was developed as a benchmarking initiative in 1995 in response to client farmers' needs for a true picture of the profitability of individual enterprises on their farms.

Teagasc have been promoting the 'Profit-Monitoring' style of financial analysis for over a decade. The concept involves taking a close look at the performance of the farm business for the last completed production year. A true picture of farm production efficiency emerges by creating the link between the principle physical and financial aspects of the business i.e. relating the income received from sales of product and production expenses incurred to the quantity of product produced. Examining the performance of each enterprise on a 'per unit of product' basis allows easier comparison not only with Teagasc targets but also with other farms operating the same system.

The total number of farms that availed of this service in 2006 was 1,296 of which 1,010 (78 per cent) were classified as dairy farms. Teagasc has contact with around 11,000 dairy clients out of a total of

22,300 dairy farmers in Ireland. So the 1,010 dairy farmer participants represent only a 9 per cent participation rate among Teagasc clients and a 4.5 per cent participation rate among all dairy farmers.

It is often assumed that dairy farmers' usage of Profit Monitor analysis will largely be driven by financial or economic concerns. But such assumptions fail to recognise that the decision making of farmers is driven by many psychological and sociological factors (Massey *et al.*, 2002). Technology transfer is defined as the specific process by which farmers or growers become aware of, gain access to, interpret and then apply, new knowledge (Butcher, 1998). Farmers have been aware of Teagasc Profit Monitor for at least 10 years; but the number of farmers who have adopted this financial analysis tool still remains stubbornly low. This failure raises the question as to whether technology transfer by the extension model is poor or has failed or whether the practice has simply not been adopted, even though technology transfer has occurred.

Rogers' (2003) Diffusion of Innovations model has been much used to describe agricultural extension. Even Rogers himself has recently identified the pro-innovation bias of his model. This implies that all new innovations should be diffused and adopted by all members of a social system, that it should be diffused more rapidly and that the innovation should be neither re-invented nor rejected. This is unlikely to happen in practice.

The Theory of Reasoned Action (Ajzen and Fishbein, 1980) suggests that a person's behaviour is determined by his/her intention to perform the behaviour and that this intention is, in turn, a function of his/her attitude toward the behaviour and his/her subjective norm. The best predictor of behaviour is intention. Attitudes are determined by the beliefs about the outcomes of performing the behaviour and the evaluation of these expected outcomes. The subjective norm is dependent on beliefs about how others feel the individual should behave and their motivation to comply with these 'others'.

The Edinburgh Study of Decision Making on Farms (Willock *et al.*, 1999) was brought about to provide a broader understanding of the vocational behaviour of farmers. It is often assumed, quite incorrectly, that the ultimate aim for all farmers is profit maximisation. Farming attitudes identified as important range from risk aversion, innovation, diversification, off-farm work, environment, production, management, legislation, stress, pessimism and satisfaction towards farming.

Objectives are important in understanding the decisions made by farmers. Two main farming objectives can be identified: those relating to economic factors and those relating to job satisfaction. Willock *et al.* (1999) reported that the following farming objectives have been identified from the literature: management and environmental objectives, objectives relating to the quality of life, status objectives and specific objectives, such as having off-farm employment.

## **Research Objectives and Methodology**

This study aimed to identify the attitudes and objectives common to regular dairy farmer users of Teagasc Profit Monitor. The study also made an initial assessment of the opinions of these regular dairy farmer users towards the concept of benchmarking analysis as carried out by Teagasc Profit Monitor. From these assessments, conclusions were drawn as to the attitudes and objectives of those farmers who have 'bought into' the concept of profit monitoring.

Farmer's attitudes and objectives to their own occupation were ascertained by means of a questionnaire containing a series of fifty statements. The statements were based on those used by Willock *et al.* (1999) in their study of decision making on farms. There were 21 'attitude' statements, 13 'objective' statements and 16 'Profit Monitor' statements (see tables 2 to 4 in Appendix 1 to this paper). The statements were randomly scattered throughout the questionnaire in an attempt to elicit 'true' replies by preventing the

imposition of cognitive consistency on responding to a series of items (Willock *et al.*, 1999). The questionnaires were self-administered by the authors to the farmer members of seven discussion groups. These groups were chosen because:

All members had Profit Monitor completed for 2006; and  
All members were regular users of Profit Monitor.

The questionnaires were administered during February and March 2006. Farmers were presented with a series of statements and were asked to indicate their level of agreement with each statement on a Likert scale from 1 to 5 where 1 = 'disagree strongly' and 5 = 'agree strongly'. In presenting the results below, where the term 'agreed' is used, it includes those respondents who either 'agreed' or 'agreed strongly' with the statement; likewise where the term 'disagreed' is used – respondents either 'disagreed' or 'disagreed strongly'. Where 'unsure' is used it refers to those respondents who 'neither disagreed nor agreed' with the statement.

Key physical and financial measures for each of the respondents were extracted from the Profit Monitor database subsequent to the data collection.

Statistical analysis was carried out using SPSS. Spearman Rank Correlations were estimated for each possible pair of statements.

## Results

### *Profile of Respondents*

Table 1 lists the key physical and financial measures for both the respondents and for all dairy farmers who had completed Profit Monitor for 2006 by late March 2007. The table indicates that the participants in this study:

Had a total farm size similar to all respondents;

Had a similar stocking rate, on average, to all respondents;

Had a slightly larger herd size on average;

Produced 35,772 more litres, on average, than all farmers in 2006; and

Had a similar Gross Margin, but a higher Net Margin, than all farmers.

**Table 1: Average physical and financial measures for respondents and all dairy farmers who have completed Profit Monitor.**

	<b>Respondents<sup>1</sup></b>	<b>All farmers<sup>2</sup></b>
Area Farmed, Ha	68.5 (4.0)	65.1
Stocking Rate, LU/Ha	2.10 (0.04)	2.09
Average Cow Numbers	85 (6.7)	79
Litres produced	464,679 (34,083)	428,907
Gross Margin, cent/ litre	18.7 (0.33)	18.6
Net margin, cent/ litre	10.6 (0.41)	10.2
<sup>1</sup> Standard deviation in brackets.		
<sup>2</sup> Who had completed Profit Monitor for 2006 as of 28/3/2007.		

### *Attitudes of Respondents*

Virtually all respondents (94 per cent) agreed with the statement that ‘farming is satisfying’; the remaining six per cent were unsure. Thirty-eight per cent and 67 per cent of respondents disagreed with the statements ‘dairy farmers in Ireland are generally demoralised’ and ‘other employment would be better than farming’ respectively.

The importance of keeping up to date – whether by visiting other farms, reading about the latest developments or engaging with your adviser was evidenced by the fact that the majority of respondents agreed with the statements ‘it is important to visit other farms to look at their methods’ (99 per cent) and ‘it is important to read about farming practices’ (90 per cent). Seventy-four per cent of respondents disagreed with the statement that ‘successful farmers make decisions on their own’.

The attitude of the respondents towards farm performance was evidenced by their responses to three statements. All respondents agreed that ‘a farm is a business to be run efficiently’ and 96 per cent agreed that ‘it is important to monitor production levels’. However the level of agreement with the statement that ‘farm production is the thing to take most pride in’ was somewhat less – only 28 per cent of respondents agreed with this statement. This perhaps indicates that this group of farmers is more interested in farm performance in terms of profit than in terms of production per se.

The increasing burden of paperwork on farmers was reflected in the fact that three-quarters of respondents agreed that ‘there is too much paperwork in farming’. Nonetheless a majority of respondents (81 per cent) felt that ‘farming is a job with plenty of scope to do things your own way’ – perhaps the extra paperwork is not proving overly restrictive in terms of farming practices?

Those respondents who agreed that ‘a farm is a business to be run efficiently’ also tended to agree that (1) ‘it is important to monitor farm production levels’ ( $r = 0.491$ ,  $p < 0.01$ ) and (2) ‘farming is a job with plenty of scope’ ( $r = 0.417$ ,  $p < 0.01$ ). They tended to disagree that (1) ‘borrowing money is bad for farming’ ( $r = -0.319$ ,  $p < 0.01$ ) and (2) ‘modern record keeping systems are unimportant in farming’ ( $r = -0.377$ ,  $p < 0.01$ ).

Those respondents who indicated that farming is satisfying tended to disagree that (1) ‘dairy farmer in Ireland are generally demoralised’ ( $r = -0.307$ ,  $p < 0.01$ ); (2) ‘other employment would be better than

farming' ( $r = -0.484$ ,  $p < 0.01$ ); and (3) 'young people should not be encouraged to farm' ( $r = -0.328$ ,  $p < 0.01$ ) but tended to agree that 'farm land should be fully productive' ( $r = 0.367$ ,  $p < 0.01$ ).

### ***Objectives of Respondents***

There is more to farming than simply making an income. The importance of quality of life and having time to spend with your family were highlighted by the responses obtained to a number of statements in this section. Virtually all respondents agreed with the following statements:

'improving the living standards of family life is important' – 98 per cent;

'improving the quality of life is important' – 99 per cent;

'it is important to spend time with the family' – 99 per cent; and

'it is important to have other interests outside farming' – 97 per cent

The only statements in this section to which any sizeable number of respondents disagreed with were:

'having up to date equipment and machinery is important' – 22 per cent disagreed; and

'it is important to keep debt as low as possible' – 27 per cent disagreed.

Five respondents (6 per cent) disagreed with the statement 'it is important to make the largest possible profit' and a further 12 respondents (15 per cent) were unsure; the remaining respondents all agreed that profit maximisation was very important.

Three out of five respondents (63 per cent) felt that it was important to have off-farm investments – a reflection of the difficulty of making an adequate income from dairy farming in the current economic circumstances.

Those respondents who indicated that it 'is important to spend time with the family' also tended to indicate that (1) 'it is important to have other interests outside farming' ( $r = 0.513$ ,  $p < 0.01$ ) and (2) 'it is important to plan for retirement' ( $r = 0.407$ ,  $p < 0.01$ ).

### ***Respondent's Opinions of Profit Monitor***

Approximately one third of respondents agreed that they only 'complete Profit Monitor because my discussion group insisted on it'. A larger proportion of respondents (54 per cent) disagreed with this statement. The analysis indicated that:

All respondents complete Profit Monitor 'to measure my business performance';

95 per cent of respondents complete Profit Monitor 'to benchmark my business performance against highest profit farmers';

A smaller proportion (65 per cent) complete Profit Monitor 'to benchmark my business performance against other local farmers'; and

Only one out of five respondents (20 per cent) completes Profit Monitor ‘because my adviser asked me to’.

A majority of respondents agreed that ‘Profit Monitor is very useful in managing my farm business’ (97 per cent) while 84 per cent of respondents went even further and agreed that it ‘has enabled me to increase my farm income’. The role of Profit Monitor in decision making was highlighted by the fact that 87 per cent of respondents disagreed with the statement that it ‘has no impact on my farm financial management decisions’ and that 96 per cent of respondents agreed that it ‘helps me to make better decisions for my farm business’.

Respondents indicated that Profit Monitor should be used at all times. Similar proportions (86 per cent) disagreed that ‘it is only useful when the business is going well’ and ‘it is only useful when the business is under pressure’.

Those farmers who agreed that ‘Profit Monitor was worth the effort involved in completing it’ tended to also agree that:

‘Profit Monitor is very useful in managing my farm business’ ( $r = 0.412$ ,  $p < 0.01$ );

‘Profit Monitor helps me to make better decisions for my farm business’ ( $r = 0.514$ ,  $p < 0.01$ ); and

‘Profit Monitor is an essential farm financial management tool’ ( $r = 0.578$ ,  $p < 0.01$ ).

They also tended to disagree that:

‘Profit Monitor has no impact on my farm financial management decisions’ ( $r = -0.458$ ,  $p < 0.01$ );

‘Profit Monitor is only useful when the business is going well and profits are increasing’ ( $r = -0.338$ ,  $p < 0.01$ ); and

‘I complete Profit Monitor because my adviser asked me to’ ( $r = -0.301$ ,  $p < 0.01$ ).

Those respondents who agreed that ‘Profit Monitor helps me to make better decisions for my farm business’ tended to agree that ‘Profit Monitor has enabled me to increase my farm income’ ( $r = 0.528$ ,  $p < 0.01$ ).

A statistically significant correlation was observed between the statement ‘Profit Monitor has enabled me to increase my farm income’ and both Gross Margin per litre (0.329,  $p < 0.01$ ) and Net Margin per litre ( $r = 0.365$ ,  $p < 0.01$ ). While both the gross margin and net profit figures relate to 2006 only and no information is available relating to profitability in previous years, it is significant that those farmers with the highest profit figures perceive that ‘Profit Monitor has enabled me to increase my farm income’.

## ***Correlations***

### *Between Attitude and Profit Monitor Statements*

The following weak, but significant ( $p < 0.01$ ), Spearman rank correlations were observed.

Those farmers who complete Profit Monitor to ‘measure business performance against highest profit farmers’ tended to disagree that

‘successful farmers make decisions on their own’ ( $r = -0.322$ );

‘other employment would be better than farming’ ( $r = -0.321$ ); and

‘modern record keeping systems are unimportant in farming’ ( $r = -0.315$ ).

Those respondents who complete Profit Monitor to measure business performance tend to agree that ‘it is important to measure farm production levels’ ( $r = 0.470$ ). Those respondents who view Profit Monitor as an essential management tool, view the farm as a business to be run efficiently ( $r = 0.325$ ) and realise the importance of monitoring production levels ( $r = 0.390$ ).

Those respondents who believe that Profit Monitor is worth the effort taken to complete it, view the farm as a business to be run efficiently ( $r = 0.459$ ) and take the view that farming is satisfying ( $r = 0.437$ ).

#### *Between Objective and Profit Monitor Statements*

Those respondents who indicated that ‘having up-to-date equipment and machinery is important’ tended to also agree that ‘annual tax accounts are very useful in managing the farm business’ ( $r = 0.315$ ). This suggests, perhaps, that these farmers are more interested in reducing their taxable farm profit (as calculated by their farm accounts) than in maximising their farm profit from farming (as measured by their farm production accounts or Teagasc Profit Monitor).

Those respondents who indicated that Profit Monitor was ‘worth the effort required’ tended to be those who:

wished to improve their standard of life ( $r = 0.366$ );

agreed that it is important to spend time with the family ( $r = 0.332$ ); and

agreed that it is important to plan for retirement ( $r = 0.458$ ).

### **Discussion and Conclusions**

In relation to farmers’ attitudes, the results obtained indicate that these farmers are:

willing to stay abreast of the latest farming developments; and

willing to entertain the ideas of others and learn about innovations in practice.

This is not surprising given that all respondents are members of discussion groups where a high value is put on information sharing. In addition the results indicate that these farmers set high standards of business practice and are generally satisfied with farming as a career. Their attitude towards financial risk were somewhat contradictory – 66 per cent disagreed that ‘to farm successfully, one must be in debt’ while 88 per cent disagreed that ‘borrowing money is bad for farming’.

The respondents indicated that they wished to be successful farmers. Success is not necessarily linked to profit maximisation – although 79 per cent agreed that ‘it is important to make the largest possible profit’. But there were other indicators of a willingness to succeed – 49 and 46 per cent of respondents respectively agreed with the statements that ‘having up-to-date equipment and machinery is important’



and ‘it is important to pass on the farm to a member of the family’. But researchers (Rogers, 2003) have recognised that farmers are not solely motivated by the profit maximisation objective alone. The research indicated that these respondents also had other, non-monetary, objectives:

Sustainability – virtually all respondents (98 per cent) agreed that ‘improving the quality of the farm generally is important’;

Quality of life – as evidenced by the high percentage of respondents who agreed with the statements: ‘improving the living standards of family life is important’, ‘improving the quality of life is important’ and ‘it is important to spend time with the family’;

Status – possibly not as important as the quality of life objectives given the lower percentage of respondents agreeing with the statements regarding having up-to-date equipment and being able to pass the farm onto a family member;

In relation to Profit Monitor, these respondents indicated that they considered it to be an essential farm financial management tool and that it has an impact on their farming decisions. The majority of respondents indicated that they complete it to benchmark their farm performance against the highest profit farmers – not necessarily against other local farmers – and not because their local adviser requested them to do so. Of greatest interest from a Teagasc perspective is the fact that this sample of farmers have indicated that Profit Monitor is worth the effort, helps them to make better financial management decisions and that for 84 per cent of them, has helped to improve their farm income. These findings must be used by Teagasc in promoting the use of Profit Monitor amongst the wider population of dairy farmers. Given these findings, it is hard to understand why less than 10 per cent of Teagasc dairy farmer clients are using Profit Monitor currently.

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Table 2: Summary of Responses Obtained to 21 Statements re Farmer's Attitudes		Level of Agreement					
Number	Statement	N	1	2	3	4	5
3	It is important to read about farming practices	79	3	3	2	49	22
7	It is important to visit other farms to look at their methods	81	1	-	-	29	51
8	Farming is likely to provide a secure retirement	81	3	9	25	33	11
13	Farmers don't have the administrative set-up to deal with the paperwork (from legislation)	81	5	14	20	28	13
14	Sometimes it is necessary to consult with professional farming advisers before making decisions	81	2	-	4	48	27
16	Successful farmers make decisions on their own	81	15	45	10	7	4
17	Successful farming is the result of cautious planning	81	1	17	16	37	10
18	A farm is a business to be run efficiently	81	-	-	-	33	48
23	It is important to monitor farm production levels	80	-	-	3	44	33
24	Dairy farmers in Ireland are generally demoralised	79	2	28	17	24	8
25	Other employment would be better than farming	81	19	35	15	3	8
27	Farming is a job with plenty of scope to do things your own way	81	1	8	6	40	25
32	In starting a new farming venture one should be willing to take out a loan for most of the capital required	81	1	19	25	29	7
35	Borrowing money is bad for farming	81	26	45	5	3	1
37	Farm production is the thing to take most pride in	81	2	25	30	19	4
40	Young people should not be encouraged to farm	81	33	30	9	4	5
43	Modern record keeping systems are unimportant in farming	81	37	33	1	9	1
45	Farm land should be fully productive	80	-	1	16	40	23
47	To farm successfully, one must be in debt	80	7	46	20	7	-
48	There is too much paper work in farming	81	1	6	13	34	27
50	Farming is satisfying	81	-	-	5	39	37

**Table 3: Summary of Responses Obtained to 13 Statements re Farmer's Objectives**

Number	Statement	Level of Agreement					
		N	1	2	3	4	5
1	Improving the quality of the farm generally is important	80	-	-	2	39	39
6	Improving the living standards of family life is important	81	-	-	1	24	56
10	It is important to utilise your resources	81	-	-	2	30	49
12	It is important to prevent pollution	81	2	2	6	29	42
15	Having up-to-date equipment and machinery is important	81	2	16	23	30	10
21	It is important to pass on the farm to a member of the family	81	2	9	33	27	10
26	Improving the quality of life is important	81	-	-	1	35	45
30	It is important to spend time with the family	79	-	-	1	23	55
34	It is important to have off-farm investments	81	1	9	20	33	18
38	It is important to plan for retirement	79	-	-	2	40	37
42	It is important to have other interests outside farming	81	-	-	2	32	47
44	It is important to make the largest possible profit	81	-	5	12	40	24
46	It is important to keep debt as low as possible	81	4	18	17	35	7

<b>Table 4: Summary of Responses Obtained to 16 Statements re Profit Monitor</b>							
		<b>Level of Agreement</b>					
<b>Number</b>	<b>Statement</b>	<b>N</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
2	I complete Profit Monitor because my discussion group insisted on it	78	12	30	9	13	14
4	Profit Monitor has no impact on my farm financial management decisions	77	38	29	2	2	6
5	Profit Monitor is very useful in managing my farm business	79	1	1	-	32	45
9	Profit Monitor has enabled me to increase my farm income	80	-	2	11	39	28
11	I complete Profit Monitor to benchmark my business performance against highest profit farmers	81	-	-	4	40	37
19	I fully understand all of the figures in my Profit Monitor report	81	4	4	5	52	16
20	Profit Monitor helps me to make better decisions for my farm business	81	1	-	2	42	36
22	I complete Profit Monitor to measure my business performance	81	-	-	-	52	29
28	Profit Monitor is too detailed / overly complicated	80	15	47	11	6	1
29	Profit Monitor is only useful when the business is going well and profits are increasing	78	38	29	4	3	4
31	I complete Profit Monitor because my adviser asked me to	80	23	41	6	7	3
33	Annual Taxation Accounts are very useful in managing my farm business	81	5	28	18	23	7
36	Profit Monitor is an essential farm financial management tool	80	-	1	3	38	38
39	The Profit Monitor report is worth the effort involved in completing it	80	-	-	2	35	43
41	I complete Profit Monitor to benchmark my business performance against other local farmers	81	4	14	10	40	13
49	Profit Monitor is only useful when the business is under pressure and profits are declining	81	29	41	2	7	2