# The Farm Management Survey 1966 to 1969 

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Farm management surveys are now a relatively common feature in developing and developed countries. Their prominence is largely due, no doubt, to increased interest and concern with social and economic equity amongst all sectors of the population. The widespread use and acceptance of social and economic planning at national level has accentuated the need for objective and functional information on farm incomes and the farm economy.
Since the resources in agriculture in Jreland are distributed, for historical and other reasons, in varying amounts. amongst the people who comprise the agricultural sector, it is reasonable to assume that the returns to those resources, in the form of income will vary widely, especially in absolute terms. It is important to determine the variations in income which arise through differences in farming circumstances due to size of farm. systems of farming and farming region so that the effects of existing social and economic policies can be determined and also that alternative new policy proposals can be evaluated. It is also necessary to determine the relative profitability of the various farming enterprises and activities for which opportunities in production and sale exist across the spectrum of the agricultural economy. But above all else it is the variation which occurs in outputs and incomes in agriculture, for whatever reason, which justifies farm management surveys, since such surveys constitute the basic source of data.
Surveys on the economic status of farms have been carried out in this country for only a relatively short number of years. The National Farm Survey, conducted by the Central Statistics Office from 1955 to 1958 broke new ground in ths field. The results of this survey gave, for the first time, the kind of detailed information necessary for a fuller understanding of the economic situation at farm level in this country. Since the establishment of An Foras Taluntais in 1958 several smaller scale surveys were carried out, all of which led to the Farm Management Survey 1966-69, which forms the basis of most of the discussion in this paper.

## PURPOSES OF SURVEY

The purposes and objectives of the Farm Management 1966-69 were: (a) to determine the level of farm output, costs and incomes arising at farm level, and the variation in these as between different regions, sizes and farming systems.
(b) to obtain information on the structure of farm outputs and expenses for similar classifications.
(c) to provide farm statistics with a view to improving existing official estimates of global farm output and income, particularly in respect of various items of expenditure and consumption of own farm produce and
(d) to obtain standards of farm performance for various farm types and size which would provide an aid to farm planning.
Besides these major objectives the Survey has also provided data which have been the basis or the inspiration for other research projects. It has also given the opportunity to carry out simultaneous surveys on other aspects of farm practice e.g. the Fertiliser Use Survey 1967 and the current study of the Social and Socio-psychological factors related to farm management performance, to name just two.

## THE SAMPLE

In order to ensure that the data collected would be representative of the farming sector as a whole, the Survey was conducted on a sample of holding-owners farming more than five acres, in which all 26 counties were included.
The sample which was drawn by the Central Statistics Office, provided for the inclusion of 1,823 holding-owners selected on a stratified random basis. Stratification was carried out according to area owned i.e. each stratum represented a particular size group e.g. $50-100$ acres. The 1,823 in the sample were distributed in equal numbers to the different size groups except the smallest and largest groups. This distribution would (a) reduce sampling errors of aggregates and (b) provide a reasonable number of holding-owners in each size group.

The units in each size group were allocated between counties in proportion to the numbers of such units existing in the counties. Thus, if a county had one-twentieth of all the 5-15 acre units in the country there would be 180/20 i.e 9, 5-15 acre holding-owners selected in that county. This method gave the number required in each county for each sizegroup. In oder to economise in travelling time and cost during the recording it was decided to select units in clusters within each county. For this reason holding-owners would not be selected at random within a county. Instead they would be selected from within certain District Electoral Division (D.E.D.) which would be randomly chosen. Five to six units would be chosen from each D.E.D. and thus the number of D.E.D.'s for each county was calculated. The selection of the D.E.D.'s was carried out on a random basis. Before doing this it was necessary to weight each D.E.D. according to its size. The weight used was the number of holdingowners in the central size group (the 50-100 acre group for Leinster and Munster and the $30-50$ acre group elsewhere). Once the D.E.D's were randomly chosen, and knowing the number required in each size group,
the holding-owners were selected on a random basis to complete the sample. Where difficulty was experienced in finding a sufficient number in any size group in any D.E.D.-this could easily occur in some D.E.D.'s for the larger holding-owners-it was necessary to go outside the selected D.E.D., but where this occurred, selection was kept as near as possible to the D.E.D. concerned.

Details of the distribution of the original sample are to be found in Appendix, Table I.

## RESPONSE AND SUBSTITUTION

One of the main hazards faced in a random sample survey which requires the provision over an extended period of time, of a considerable volume of personal or private information, is the degree of non-response. This aspect is particularly relevant to surveys pertaining to farm accounts, and is not peculiar to Ireland. In fact, Ireland is one of the few countries which have found it possible to carry out a survey of farm accounts based on a random sample drawn before any requests for cooperation are made to farmers likely to be involved. Of the present six E.E.C. countries, only Holland works on a random sample for national farm accounting purposes.

In 1966, the original sample constituted 1,823 holding-owners. Of this sample 1,139 ( $62.5 \%$ ) co-operated and completed a farm account book for the year 1966/67. In the event of non-response, substitutes were drawn from the same D.E.D. or from a neighbouring one. Substitution however, was not simultaneous and besides, some of those who cooperated originally dropped out too late in the recording year to allow for substitution. For these reasons it was only possible to selert 554 substitutes for the 684 farmers who dropped out from the original sample. The response rate among the substitutes was only just under $46 \%$ but this was largely due to the difficulty which most farmers experience in back-dating recording, since they would not normally be keeping account of the kind of information and in the detail required in the survey.

The issue of non-response is, of course, a major factor influencing the random and representative nature of the sample and the results. In 1966/67. the first year of the Farm Management Survey, 1,139 of the original 1.823 completed the year's recording and a further 254 of the 554 substitutes did likewise. The total numper of completed farm records in the first year was therefore 1,393 . The distribution of this first year's final sample is shown in Appendix. Table II.

In the two succeeding years of the survey, attempts were made to get the desired number of 1,823 to participate and so substitution continued. This was also necessary to compensate for those who continued to drop out over the life of the survey. In the second year 1967/68, the number from the original sample who remained was 857 and by 1968/69 this had fallen further to 743. Substitution continued right through the
duration of the survey and this enabled 1,395 and 1,329 books to be completed in 1967/68 and 1968/69 respectively. In all, 888 farmers participated for all three years, 743 from the original sample and 145 from among the first year's substitutes. In terms of percentages $62.5 \%$ of the original sample participated in the first year, $46.5 \%$ in the second year and $40.2 \%$ in the third year. This highlights the difficulties encountered when working with a random sample. Similar difficulties will, no doubt, be met with the Farm Management Survey begun in January 1972. Following the initial visit requesting co-operation just under $70 \%$ of the original remain. whilst around $66 \%$ of the substitutes agreed to participate. In the normal course of events, some of those who originally agreed to co-operate will, for a variety of reasons drop out at various stages during the recording year.

## REASONS FOR NON-RESPONSE

The most important single explanation for non-response was straightforward general refusal. Just under $47 \%$ of all non-respondents indicated that they would be unwilling to participate. This is a factor which muct always be faced with a new sample where essentially private, personal and relatively intricate data is being sought by recorders who are not already known to the farmers concerned. There is also the aspect that there is as yet, no tradition of record-keeping of this nature among the farming community.

Apart from non-response for health reasons practically all other causes of non-participation could be explained by the fact that the farm unit selected no longer existed as the type of entity and with the characteristics for which it was originally chosen. Under this general theading would come reasons like "land let" ( $13 \%$ ), "unidentifiable" $(7.5 \%)$, "land sold to another farmer", and there were several cases where the land was derelict and the owner not traceable.

## COLLECTION OF DATA

A full-time recording staff was employed to collect the necessary data for the survey. Recorders completed with each farmer who participated a Farm Records and Accounts Book which was speoially compiled by the Farm Manogement Department of the Rural Economy Division. The data were collected during a series of farm visits at intervals of about six to eight weeks. Once the selected holding-owner agreed to participate, the farm activities relating to all the land farmed by him were recorded for analysis and this embraced full details of all on-farm physical and financial transactions. These data included inventories and valuations of all livestock, machinery, crops and produce on the farms, receipts and expenditure for each farm enterprise, household consumption of own farm produce, labour inputs, livestock births and deaths, quantity and value of each item of sales and purchase for the farm and
the allocation of inputs to the various enterprises, including that of home-grown feeding stuffs used for farm livestock.

## SUMMARY FOR FARMER

On completion of the Farm Records and Accounts Book, a statement summarising the outputs and costs, family farm income and a set of efficiency factors describing the performance, for the recording year, of the various farm enterprises and the farm business as a whole, was sent to each participant in the survey. This statement was intended for use by the farmer for farm-planning purposes, in consultation with his local Advisory Officer.

## CONFIDENTIALITY

In all cases the participants in the Survey are given a guarantee that under no circumstances whatever would individual farm information, whether anonymously or otherwise, be given to any third party without the prior consent of the farmer concerned. This pledge of confidentiality is the foundation on which the Survey is built and it is essential in order to receive and retain the confidence of the farmers who participate, so that accurate information is obtained and recorded.

## ANALYSIS

The analysis of the data presented quite a problem caused principally by the fact that almost half a million items of information had to be extracted, checked and analysed, whilst at the same time it was essential that the results, to retain their value, should be got out with maximum speed. The sheer magnitude of the block of the data is always associated with this type of survey. Computerisation is essential from the point of view of the mechanics of handling this amount of data but in spite of this the lag between the ending of a recording year and publication of the date is greater than anybody would wish.

As in the case of the National Farm Survey 1955/58, three main factors were identified as influencing variations in the results viz., size of farm, sysem of farming and region. Classification according to these criteria therefore, made it possible to compare the outcomes with the results presented in the earlier National Farm Survey. Six farm sizegroups were classified together with seven major farming systems and three regions. The initial part of the analysis was designed to yield results per farm. Besides, in order to allow for, where possible, the fact that average farm sizes vary as between farming system and region the results were also analvsed and presented on a per acre basis.

It was considered that the main items of interest would be output, costs and incomes arising in various strata of farms. It was also considered that farm totals would not necessarily present the detailed picture of farming either required or available, and for this reason a
breakdown was given of the major items contributing to gross output and to total costs. A' distinction was made between overhead costs and direct or variable costs so that gross margins per farm and per acre could be calculated.*
Eventually, however, the main objective was the calculation of family farm income-the difference beween gross output and total current expenditure. It should be mentioned that family farm income is the reward to all the members of the family employed on the farm for their labour, investment and management. The concept of family farm income has often been criticised precisely because it is the reward to all family members working on the farm and as such it is not the farmer's personal income. Since it is normal, under Irish conditions for the number of family labour units to exceed one, it has also been argued that family farm income gives an inflated estimate of the farmer's income, as all family labour is recorded as unpaid labour. For this reason,, in all cases where figures for family farm incomes per farm are presented, details are also given of the number of family labour units per farm.

One of the major objectives of the survey was to record and analyse much more detail about the farm business than is normally available from farm accounts. The normal accountancy system pertains to the performance of the farm as a whole, usually aimed at the calculation of family farm income. From a farm management point of view this system is acceptable as useful in giving a farmer an introdution to techniques in farm accountancy and thus creating the interest necessary for aiming at a really good set of records and accounts for farm planning purposes. At this level the interest is oriented towards the performance of the various enterprises which combine to make up the total farm business. The Farm Mangement Survey therefore placed major emphasis on detailed records of the individual farm enterprises on each participating farm with a view to the calculation of efficiency factors needed for farm planning purposes. The data required and the enterprise results presented related to such factors as gross output, inputs and gross margins per acre, yields, prices per unit of the commodities produced and their variability. Apart from the value of such information for farm planning purposes it complements the main results so that not only can inter-size, inter-system and inter-regional comparisons be made but inter-enterprise comparisons are also possible.

## AVERAGES

The results presented were averages for the respective groups. Weighted averages were used where weights were known or could be esimated. The use of averages in the presentation of Farm Management Survey results is the most widely accepted method. All previous similar

[^0]surveys conducted in this country have used the group average as the point estimate of the parameter in question. This is also the method adopted in Britain, in the E.E.C. and in the U.S. The basis for the extent of the reliance on the arithmetic mean is that it is an unbiased estimate of the population mean. Its main disadvantage is that it does not, of of itself, adequately represeni the situation in or performance of the sub-group to which it pertains. The classical problem associated with farm survey data especially those based on random sampling is the wide varation which occurs in the data. This variation generally leads to large errors of estimate and this problem has never been successfully solved. Since one of the main contributors to variation in levels of output, costs and incomes in the size of farm, stratification is introduced into the design of the sample in order to reduce the variation and the errors of estimate. It does not, however, satisfactorily solve the prob-lem-it is never claimed that it does-since the amount of variation within the strata is still normally quite high.

In order to supplement the mean as an estimate representing the performance of the particular sub-group, some indicators of variation are customarily used. In the presentation of the results of the Farm Management Survey several tables were included showing the frequency distribution of the main items of value and interest such as family farm income as well as management and investment income.

Irrespective of which estimators are used there will be arguments for and against. It can be reasonably argued that the standard errors associated with the mean should be included in the results. It may be equally valid to argue that the median rather than the mean should be used. In cases where the distribution of the particular variable is skewed a good case could be made for using the mode as an indicator. The use of the results for planning or other purposes would probably be extended if in the presentation of the data, such results were divided into quantiles e.g. to present results being achieved by, say, the upper, middle and lower third of each group of farmers. Indeed it is proposed to apply this method when analysing the overall three-year results of the survey.

The range of indicators of performance and measures of variability discussed by me is not by any means exhaustive. The problem in the presentation of results will remain one of trying to strike a happy medium, between on the one hand presenting an adequate, objective description of the results and the inherent varation, and on the other hand, not confusing a large proportion of the users of the results, and all of this to be done at the lowest possible cost and with the minimum time lag.

## RESULTS 1966/69

I do not propose. in this paper, to dwell at length on the results of the survey for the three years $1966 / 67$ to 1968/69. A report on each individual year's results has been published by An Foras Taluntais,
each report containing $78-80$ tables of data. Furthermore a comprehensive report on the combined three-year data will be published on completion of the analysis now being carried out. It is, however, appropriate to include a summary of those findings which have proved of greatest interest and use. These results will also serve as an example of the form of the data published for each year. Details of the main financial results per farm are shown in Table 1.

In each of the three years under review the average gross output per farm increased, the amounts being $£ 901, £ 1,069$ and $£ 1,255$ respectively. Costs also rose from $£ 436$ to $£ 465$ to $£ 541$. The outcome of these two results was that the average family farm income per farm for each of the three years was $£ 465, £ 604$ and $£ 714$ respectively.
The average management and investment income-the reward to all family members for their management and investment-was negative for each size group under 50 acres, except for the $30-50$ acre group in 1968/69. Nevertheless, these results also showed an upward trend.

TABLE 1
FINANCIAL RESULTS PER FARM, 1966-69

| Size group (adj. acres) |  | 5-15 | 15-30 | 30-50 | 50-100 | 100-200 | $200+$ | All farms |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Gross output ( ) $^{\text {) }}$ | 1966/67 | 252 | 369 | 740 | 1,327 | 2.164 | 3.724 | 901 |
|  | 1967/68 | 302 | 469 | 859 | 1.563 | 2,735 | 4,225 | 1,069 |
|  | 1969/69 | 328 | 550 | 997 | 1,898 | 3,216 | 4,699 | 1,255 |
| Total net expenses (f) | 1966/67 | 125 | 167 | 332 | 628 | 1,187 | 2,333 | 436 |
|  | 1967/68 | 123 | 179 | 342 | 669 | 1,397 | 2,410 $\mathbf{2}, 574$ | 465 |
|  | 1968/69 | 136 | 210 | 396 | 827 | 1,584 | 2,574 | 541 |
| Family farm income ( ) $^{\text {) }}$ | 1966/67 | 127 | 202 | 408 | 669 | 997 | I,391 | 465 |
|  | $1967 / 68$ | 179 | 290 | 517 | 894 | 1,338 | 1,815 | 604 |
|  | 1968/69 | 192 | 340 | 601 | 1,071 | 1,632 | 2,125 | 714 |
| Management and investment income ( $£$ ) |  |  |  |  |  |  |  |  |
|  | $1966 / 67$ $1967 / 68$ | -205 -191 | -207 -170 | -103 -50 | 124 <br> 281 <br>  | 371 635 | 762 1.071 | -5 |
|  | 1968/69 | -188 | -137 | 16 | 384 | 836 | 1,350 | 147 |
| Family labour units ... | 1966/67 | 0.78 |  |  |  |  |  |  |
|  | 1967/68 | 0.80 | 0.99 | 1.22 | 139 | 1.49 | 1.55 | 1.16 |
|  | 1968/69 | 0.76 | 0.95 | 1.20 | 1.34 | 1.53 | 1.53 | 1.13 |

As mentioned earlier the farms were also classified according to system of farming and some of the main results in these cases are shown in Table 2.

TABLE 2
FINANCIAL RESULTS PER FARM BY SYSTEM OF FARMING 1966-69

| System |  | $\begin{aligned} & \text { Mainly } \\ & \text { creamery } \\ & \text { milk } \end{aligned}$ | Creamery milk and sillage | Creamery milk and pigs | Liquid milk | Mainly drystock | Drystock and sillage | Hill sheep \& cattle |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Gross output ( ${ }^{\text {( ) }}$ | 1966/67 | 936 | 2,538 | 1,679 | 3,210 | 586 | 2,044 | 319 |
|  | 1967/68 | 1,018 | 2,864 | 1,925 | 3,764 | 771 | 2,222 | 343 |
|  | 1968/69 | 1,301 | 3,197 | 2,512 | 3,699 | 850 | 2,628 | 406 |
| Family farm income ( $£$ ) |  |  |  |  |  |  |  |  |
|  | 1966/67 | 508 | 1,267 | 804 | 1,330 | 283 | 806 | 155 |
|  | 1967/68 | 627 | 1.477 | 992 | 1,746 | 414 | 1,080 | 228 |
|  | 1968/69 | 792 | 1,639 | 1,230 | 1,755 | 509 | 1,317 | 269 |
| Average size of farm (adj. acres) |  |  |  |  |  |  |  |  |
|  | 1966/67 |  |  |  | 102.1 |  |  |  |
|  | 1967/68 | $47 \cdot 2$ | 89.0 | 53.8 | 93.2 | 47.2 | 88.0 | 36.5 |
|  | 1968/69 | 49.7 | 82.4 | 56.4 | 98.5 | 46.0 | 93.1 | 41.6 |
| Family labour units |  |  |  |  |  |  |  |  |
|  | 1966/67 | 1.24 | 1.47 | 1.38 | 1.41 | 1.03 | 1.36 | 0.91 |
|  | 1967/68 | 1.23 | 1.51 | 1.43 | 1.43 | 1.01 | 1.46 | 1.00 |
|  | 1968/69 | $1 \cdot 18$ | 1.49 | 1.44 | 1.56 | 1.04 | 1.40 | 0.86 |

For the purposes of the survey the country was divided into three regions viz. East and Midlands which comprises Leinster except Co. Kilkenny together with East Galway and Co. Roscommon; South, made up of all of Munster together with Co. Kilkenny; North and West which was the remainder of the State i.e. counties Cavan, Donegal, Monaghan, Leitrim, Mayo, Sligo and West Galway. The main financial results on th:s regional basis are shown in Table 3.

Table 3
FINANCIAL RESULTS PER FARM BY REGION 1966-69

| Region | East and | Midands | South | North and West |
| :---: | :---: | :---: | :---: | :---: |
| Gross output (£) | 1966/67 | 958 | 1,290 | 542 |
|  | 1967/68 | 1,169 | 1,472 | 523 |
|  | 1968/69 | 1,327 | 1,775 | 611 |
| Family farm income ( $£$ ) | 1966/67 | 504 | 698 | 222 |
|  | 1967/68 | 642 | 848 | 298 |
|  | 1968/69 | 769 | 999 | 350 |
| Size of farm (adj. acres) | 1966/67 | $45 \cdot 2$ | 51.4 | 28.0 |
|  | 1967/68 | 48.4 | 51.0 | 27.8 |
|  | 1968/69 | $47 \cdot 8$ | 52.6 | 27.9 |
| Family labour units ... | 1966/67 | $1 \cdot 13$ | 1.18 | 1.03 |
|  | 1967/68 | $1 \cdot 17$ | 1.24 | 1.05 |
|  | 1968/69 | $1 \cdot 15$ | 1.22 | 1.00 |

One of the main objectives of the survey was the calculations of gross margins for the major farm enterprises. A summaiy of these results are shown in Table 4.

Table 4
GROSS MARGINS PER ACRE 1966-69 (£)

| Enterprise |  | 1966/67 | 1967/68 | 1968/69 |
| :---: | :---: | :---: | :---: | :---: |
| Creamery milk | $\ldots$ | 24.4 | 28.3 | 29.9 |
| Liquid milk | ... | $36 \cdot 3$ | $36 \cdot 7$ | $38 \cdot 1$ |
| Cattle ... | ... | 8.0 | 11.0 | 11.3 |
| Sheep ... | ... | $10 \cdot 8$ | $12 \cdot 8$ | $15 \cdot 1$ |
| Wheat | ... | $33 \cdot 4$ | $36 \cdot 4$ | $45 \cdot 7$ |
| Oats | ... | $16 \cdot 1$ | 16.4 | 17.9 |
| Feeding barley | $\ldots$ | 19.2 | $22 \cdot 9$ | $25 \cdot 4$ |
| Malting barley | $\ldots$ | $25 \cdot 6$ | $30 \cdot 5$ | $34 \cdot 6$ |
| Sugar beet | $\ldots$ | 70.0 | $72 \cdot 1$ | $81 \cdot 3$ |
| Potatoes | ... | $59 \cdot 3$ | 69.9 | $67 \cdot 3$ |

As previously mentioned the exiracts from the survey results represent only a fraction of the data presented in the reports published for each individual year, and are included in this paper mainly for the benefit of those who have not studied the reports and to illustrate both the type of information which was calculated in the course of the analysis and the form of presentation.

## ANALYSIS OUTSTANDING

The analysis presently in hand relating to the Farm Management Survey 1966/69 is geared toward the production of a comprehensive three-year repott on the results. This analysis will be divided into two main parts, (a) a straighiforward compilation of the principal outcomes for each of the three years and (b) a more detailed examination of the results on those farms which were in the sample for all three years. This matched sample, which comprises 888 farms, may be expected to yield more powerful results than any of the individual year's records. The analysis will also take into account the range of and variation in the data, so as to increase its use. The results will also be divided into quantities so that a range of performance within each group can be made available.

It is also proposed to undertake a detailed econometric analysis based on pooduction function estimation. The objective of this work is to estimate the marginal productivities of the inputs involved in farm production.

## FUTURE DEVELOPMENTS

From the operational and budgeting point of view one of the main lessons to be learned from the Farm Management Survey 1966/69 is
that collection, processing and analysis of this kind of data on a relatively large sample of farms can prove quite costly. We are constantly evaluating our methods with a view to cost savings where possible. A large proportion of the total cost arises at the processing stage where checking and extraction of data from the farm records and accounts books require a lot of man hours.

For the purposes of the Farm Management Survey commencing in 1972, an entirely new records book has been produced with the objective of eliminating as much as possible of the manual work in the stage between ending of recording and the analysis proper. This should also lead to considerable reduction in the time lag before publication of the results. We are only too well aware of the importance of getting the results published with the minimum of delay. This concern must, however, be balanced against the necessity of avoiding errors in the results. Handling such a mass of data increases the possibility of errors and it is important that accuracy should not be sacrificed in the interests of speed.

The new samp'e for the Farm Management Survey 1972, will, at 2,000 be a slight increase on the 1966/69 figure. This will provide a further bulwark against drop-outs over the life of the survey. Moreover, in the current survey, a list of substitutes was drawn up at the time of selecting the original sample, so that substitution for non-respondents could be speedily achieved. This will also help to increase the number of farms for whom full records and accounts will be available.

Another factor which will have an important implication for the current survey will be Ireland's involvement in the E.E.C. Farm Accounts Network when we join the Community. Participation in the E.E.C. network is mandatory for all member states, and if this country becomes a member, our involvement will commmence in 1973. Preparations are being made for this eventuality since the Farm Management Survey begun this year will be expected to provide the basis for the E.E.C. requirements. We are already aware of the extra demands the E.E.C. Commission will make in terms of the information required and the time limits imposed and the current survey has been geared to take all this into account.
Finally, I would like to refer briefly to one further aspect of the survey which will become of increasing importance and value in the future. Since the current Farm Management Survey will be continued on an annual basis, it will enable us to develop a data series showing the trends in output, costs and returns per farm and per acre for the various farming sizes, systems and regions. This has not previously been available and its provision will greatly supplement existing data from the agricultural sector and supply very valuable information at individual farm level.





[^0]:    *Note: Gross Margin is the difference between gross output and direct or variable costs.

