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Farm management



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Agricultural Economics Division

School of Agriculture, Aberdeen

JUN 14 1971

**An Evaluation
of the
Small Farm
(Business Management)
(Scotland) Scheme 1965**

by
N. ROBSON, B.Sc. (Agric. Econ.)

March, 1971

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THE NORTH OF SCOTLAND COLLEGE OF AGRICULTURE

AGRICULTURAL ECONOMICS DIVISION

AN EVALUATION OF THE SMALL FARM

(BUSINESS MANAGEMENT)(SCOTLAND) SCHEME, 1965

by

N. Robson, B.Sc. (Agric. Econ.)

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SUMMARY AND CONCLUSIONS

1. "Small" farms (of 250 to 600 standard man-days) account for some 17 per cent of all farms in Scotland, and 40 per cent of those over 250 S.M.D., and number about 9,300 units (including crofts). These farms represent a significant proportion of the crops and grass acreage of Scotland (18 per cent) and are important in respect of oats, turnips and swedes, all beef cattle and pigs, as well as employing some 12 per cent of the full-time labour force. These farms account for about 16 per cent of the output of the industry.

2. Government policy has evolved from the active creation of smallholdings and small farms, through a period of financial support of small farms, to the passing of an Act in 1967 to encourage the amalgamation of small farms into larger units.

3. The Small Farm (Business Management)(Scotland) Scheme, 1965 had as one of its main objectives the improvement of the standards of business management in small farm businesses, through the keeping of certain physical and financial records, and the use of these records for planning the development of the farm with the aid of grants in proportion to the crops and grass acreage of the farm.

4. Although it is difficult to determine the precise number of farmers¹ eligible for the Scheme, the proportion of participants would appear to have been a little over 50 per cent of those eligible by the end of 1969. The cost of Small Farm Schemes in the United Kingdom from 1959 to 1969 has only been 1½ per cent of all agricultural support, and never exceeded 2½ per cent in any individual year during that period.

5. The Small Farm (Business Management)(Scotland) Scheme, 1965 required participants to keep records for a period of three years, submit plans for each of these three years, and achieve the objectives of those plans to obtain the relevant grant. The record book was often beyond the accounting capacity of farmers, and although the records were kept by the farmer or his accountant, only a quarter of those studied made any use of the records by discussing them with the local Agricultural Adviser or by having a farm management analysis carried out.

6. The fact that for two of the three years of the Scheme plans were made which were not based on financial management data meant that the logical process of recording, analysis, planning and execution was not demonstrated to those concerned. Indeed, the structure of the Scheme was almost a contradiction of what is implied by planned farm management.

7. The administration of the record-book side of the Scheme was open to some criticism, and there appeared to be some clash of purpose between the Small Farm (Business Management)(Scotland) Scheme 1965, and the Farm Amalgamation and Boundary Adjustment Scheme, 1967.

8. The educational impact of the Small Farm (Business Management) (Scotland) Scheme, 1965 could have been much greater than that achieved, and the advisory element exploited to a greater extent, had greater forethought been given to the Scheme's design. As it was, the Scheme, seemed to require an amount of administrative work out of all proportion to the financial importance of the Scheme to the State.

9. A sample of 75 farms has been utilised to measure the influence of the Small Farm (Business Management)(Scotland) Scheme, 1965 on those farms participating. These represented 61 per cent of the farms in the Scheme in the counties sampled when the sample was selected, approximately 2 per cent of all farms eligible in those counties, and 3 per cent of those farms approved and accepted into the Scheme up to June 1969. Various physical and sociological features of the sample have been presented and an analysis undertaken of the proposals contained in the annual plans put forward during the Scheme.

10. Financial and physical data for the period of the Scheme's operation on the sample farms have been presented for all farms, and an analysis also undertaken by farm size, farm type and nature of occupancy. Similar data are presented for the 20 per cent of the sample exhibiting the greatest profit increase, and the 20 per cent with the greatest profit decrease.

11. All farms in the sample achieved an increase in gross output of 16 per cent, against an increase in costs of 15 per cent, resulting

in an increase in profit¹ (excluding grants paid under the Scheme) of 19 per cent between 1966/67 and 1968/69. Owners earned a higher profit than tenants throughout, and achieved a greater increase in profits during the Scheme (32 per cent increase, against 5 per cent in the case of tenants). Small farms, up to 450 standard man-days, in this sample, earned lower profits and achieved a smaller increase in profits than larger units, whose profit increase ranged from 9 per cent (farms over 550 S.M.D.) to 50 per cent (farms of 500 - 550 S.M.D.).

12. Analysis of the sample data by type of farm showed wide differences of output, costs and profits, according to the enterprises carried. During the duration of the Scheme on these farms, cattle and sheep farms and intensive farms exhibited a very substantial increase in profit (of 41 per cent and 48 per cent respectively, excluding grants paid under the Scheme). Upland farms achieved a slight increase in profits (13 per cent) while arable farms suffered a severe reduction (over 50 per cent).

13. The "top 20 per cent" of the sample had a lower average profit in 1966/67 than had the "bottom 20 per cent", but achieved an average profit increase of 168 per cent, whereas the "bottom 20 per cent" suffered a reduction in profits (or increase in loss) of -131 per cent. Even if Small Farm (Business Management)(Scotland) Scheme grants are included (they are excluded above) the "bottom 20 per cent" would still have suffered a profit reduction of 90 per cent.

14. Complete balance sheets were available for 58 of the 75 farms, with limited capital data also available for a further 3 farms. The main reason for the lack of such data on the remaining farms was that the balance sheet was not one of the essential records - a serious deficiency of the Scheme. Of those farms (61 farms) with capital data 56 per cent increased their net worth during the Scheme, excluding grants paid, or 85 per cent when these grants are included. The average total grant paid per farm was £887 and 59 per cent of the 61 farms increased their net worth by £887 or more. Individual changes ranged from an increase in net worth

¹For a full definition of the term 'profit' see Appendix VII.

of £7,985 (including grants under the Scheme) to a decline of £1,380 (including grants paid) between the beginning of 1966/67 and the end of 1968/69.

15. Comparison of the physical changes on the 75 sample farms with a control group of farms eligible for the Small Farm (Business Management)(Scotland) Scheme, but not participating in it, showed that the farms in the Scheme had a significantly greater increase in cattle and breeding pig numbers, and a smaller decline in sheep and poultry numbers than had the control farms. A net increase in livestock units of 12 per cent was recorded on the farms in the Scheme, while on other similar farms a reduction in stock carried (as measured in livestock units) of 7 per cent was apparent.

16. With regard to crops, farms in the Small Farm (Business Management)(Scotland) Scheme, 1965, exhibited a greater proportionate move from oats to barley and an increased acreage of grass for mowing than the control group, and at the same time recorded less of a reduction in potato acreage than the control.

17. Farmers participating in the Small Farm (Business Management) (Scotland) Scheme, 1965 have been substantially successful in raising their incomes, and the Scheme has helped to induce a greater change in the pattern of output than occurred on similar farms not in the Scheme. The Scheme has been much less successful in impressing on farmers the need for, and usefulness of, management records. This has been due to:-

- A. The structure of the Scheme not demonstrating the logical sequence of recording, analysis, planning and application.
- B. The educational aspect of the record book not being exploited by greater explanatory backing.
- C. The absence of pressure on the farmer to use the records.

18. The Small Farm (Business Management)(Scotland) Scheme, 1965, has, however, brought a large number of small farmers into contact with the Agricultural Advisory Services, often for the first time, and this has resulted in improvements in technical efficiency. Stocking rates¹ on the sample farms increased by about 9 per cent, with no increase in feedingstuff expenditure

¹Livestock units per acre of crops and grass. For livestock unit conversion factors see Appendix IV.

during the period (1966 to 1969), while labour efficiency has increased by roughly $7\frac{1}{2}$ per cent, although the complications of casual labour and that of the farmer's wife make this calculation imprecise.

19. The Farm Structure (Payment, to Outgoers) Scheme and the Small Farm (Business Management)(Scotland) Scheme are aimed at substantially the same group of farmers. Those who wish to leave the industry are offered roughly twice the grant incentive that those who choose to remain and expand are offered. Some of the 75 farms in the sample might have been better, in the long run, to have opted for the Payments to Outgoers Scheme, either because they suffered a reduced income even after payment of the grant under the Small Farm (Business Management)(Scotland) Scheme (about 11 per cent), or because the farmers' net worth had declined in spite of these grants (about 15 per cent).

20. The puzzling question which remains unanswered is why so many of the farmers eligible for the Small Farm (Business Management)(Scotland) Scheme, 1965, have not taken advantage of it. Is it that their objectives are not primarily financial reward? Objectives other than monetary ones might perhaps conflict in their minds with the aims that recording, analysis and farm planning are normally regarded as having. To maximise monetary rewards might well seem to many to conflict with ideas about avoiding risks, additional indebtedness, and more intensive farming, and about independence in running ones own affairs including the emphasis sometimes placed on leisure and satisfaction. If such were the reasons for non-participation in the Scheme then fuller explanation of its possibilities to the less commercially minded should have been given. But, at least, average net financial rewards were increased for those who did participate.

INTRODUCTION

An important feature of the agricultural industry is that it is made up of a very large number of production units. The units themselves vary in size over a wide range. For many purposes the size of an agricultural unit is measured by the acreage of land involved with reference to either the total acreage, or the acreage of crops and grass (that is, excluding rough grazing). However, one of the limitations of acreage as a measure is that it does not take any account of the intensity of use of the land involved and for this reason other measures have been adopted. One measure which is widely accepted in the United Kingdom is that of standard labour requirements, and the structure of the agricultural industry has been described in terms of standard man-days¹.

One area of the agricultural industry which has received increasing attention in recent years is the small farm sector. Measured in terms of standard man-days, small farms are considered to be those of between 250 and 599 standard man-days, which should provide employment for one to two men. In Scotland these small farms account for about 17 per cent of all agricultural units, and 40 per cent of holdings greater than 250 standard man-days in size². About 9,300 agricultural units (including crofts) in Scotland fall between 250 and 599 standard man-days and these holdings represent some 18 per cent of the crops and grass acreage of the country. Small farms are important in the proportion of oats, turnips, beef cattle and pigs that they produce, and these farms employ about 12 per cent of the full-time paid labour force, in the production of roughly 16 per cent of the agricultural output of Scotland.

One of the problems now recognised in most European countries is that of the low incomes earned, in general, on small farms. This problem has been tackled in various ways in different countries. One method adopted in Britain is by means of development plans,

¹"The Structure of Agriculture". H.M.S.O. 1966.

²These figures are based on agricultural census data and are approximate, since census data may contain minor errors due to the definition of an agricultural "holding", and the fact that data refer to a particular date.

with related grants, undertaken by small farmers who are within specific eligibility limits. The first of such schemes was introduced in 1959, but in September 1965 a new Small Farm Scheme became operative which required the farmer to keep financial records in addition to formulating and executing development plans in order to earn capital grants to assist the business.

The Small Farm (Business Management)(Scotland) Scheme, 1965, was introduced in Scotland by the Department of Agriculture and Fisheries for Scotland on the first day of September, 1965, with the object of raising the income of small farms through improved management and expansion of the business, assisted by grants of up to £1,000 spread over three years. As this Scheme was quite different from its predecessors, the Department of Agriculture and Fisheries for Scotland suggested that an evaluation of the Scheme should be undertaken by an independent body, such as one of the Colleges of Agriculture. Since most of the farms eligible for the Scheme were in the area covered by the North of Scotland College of Agriculture, that College was invited to undertake such a study.

The basis for the evaluation study was a sample of farmers who entered the Small Farm (Business Management)(Scotland) Scheme between September 1965 and the end of May 1966, and physical and financial data relating to these farms was collected for the three year duration of the Scheme as applied to these farms. A second sample was drawn from farmers entering the Scheme between May 1966 and May 1967, but final data relating to these farms will not be available before the end of 1970.

This report studies the physical and financial changes occurring on a group of 75 farms which were participating in the Small Farm (Business Management)(Scotland) Scheme, 1965 from 1966 to 1969. The report analyses these changes, and looks at the general structure and administration of the Scheme, and attempts to assess the impact of the Scheme in physical terms, compared with progress on other small farms, and in its effect upon management.

GENERAL REVIEW OF GOVERNMENT POLICY
ON SMALL FARMS

Government policy and legislation on small farms goes back a long way in time, and in its evolution has changed from the active creation of small agricultural units to promoting their consolidation into larger farm units. The following review excludes legislation on crofting, as the crofting problem is, and has always been, considered a separate issue from that of small farms.

The Small Landholders' (Scotland) Act of 1911 extended the earlier Crofters' Acts to the whole of Scotland, with modifications, and set up the Board of Agriculture, conferring on the Board wide powers to create new holdings and enlargements to satisfy an existing demand for such holdings. Although many of these holdings are now below the size considered to be small farms, the Act of 1911 had the intention of creating holdings which at that time were considered to be small farms. From 1911 to 1948 several Acts were passed to facilitate and accelerate the creation of small holdings, the final one of this type being the Agriculture (Scotland) Act of 1948, which allowed the creation of holdings to a limit of 75 acres or £150 rent, but by 1948 it was becoming apparent that demand was declining for such holdings and that their long term future was in some doubt.

In 1943 the Marginal Agricultural Production Scheme came into operation and although it may be thought that this was not designed to aid small farmers, later White Papers (Cmnd 390 and 553) do connect the policy closely with assistance for small farms. The economic classification also shows that the majority of small farms as later defined are of a marginal nature¹. The 1951 Report of the Department of Agriculture for Scotland describes the Scheme as "A scheme designed to promote increased production on inferior land, enables agricultural executive committees to offer assistance to farmers whose holdings are 'marginal' in the sense that they would not yield an adequate return without such

¹"The Structure of Agriculture". H.M.S.O. 1966.

assistance. Such holdings consist wholly or mainly of land of relatively low productivity". The various Marginal Agricultural Production Schemes operated from 1943 to 1963, and a substantial proportion of the £12½ to £13 million paid in grants must have been paid to farms which are now within the 275 - 600 S.M.D. range, designated as "small".

1958 saw some significant changes in policy. The last of the land settlement holdings were created on land already in hand - all dairy holdings. In October 1958 a White Paper was issued setting out a policy of financial assistance specifically for small farmers¹. "One of the Bill's two main purposes was to provide special help to those small farmers whose businesses were fundamentally economic and who were prepared to carry out a three to five year improvement plan"². "The other main purpose of the Bill was to provide, under a supplementary scheme, continued help for a limited period to some marginal producers who would not be eligible for the small farmer scheme"³. The 1959 Report of the Department of Agriculture for Scotland (Cmd 1028) contains the first mention of the amalgamation of land settlement holdings into larger units - "Where it is practical and desirable the Department seek to amalgamate vacant units with others to make more economic subjects" (P. 31). On 19th February 1959 the Agriculture (Small Farmers) Act, 1959, received Royal Assent, and the Scheme came into operation in Scotland on 26th March 1959. By the end of the year over 2,000 applications had been received, out of an estimated eligible 4,900 farmers. (A number of the applicants would of course be ineligible).

Eligibility for the 1959 Small Farmer Scheme was restricted to farms of between 20 and 100 acres of crops and grass, and between 250 and 450 standard man days. On the 31st July 1962 a new Scheme, the Small Farmers (Scotland) Scheme, 1962, came into force and this increased the maximum standard labour requirement from 450 to 500 standard man days. The number of farms estimated to be eligible rose from 4,900 to 6,000. By the end of 1968, 3,509

¹Cmd 553. "Assistance for Small Farmers", H.N.S.O. October, 1968.

²"Agriculture in Scotland". Report of Department of Agriculture for Scotland for 1958 (Cmd. 699) P.25.

³"Agriculture in Scotland". Report of Department of Agriculture for Scotland for 1958 (Cmd. 699) P.25.

Schemes had been approved under the 1959 and 1962 Small Farmer Schemes and £2, 745, 953 had been paid in grants¹. About 1, 000 plans under these Schemes were yet to be completed at 31st December, 1968.

On the 1st September, 1965 a new scheme came into operation called the Small Farm (Business Management)(Scotland) Scheme, 1965. One of its main objectives was the "improvement of the standards of business management in small farm businesses"². Farmers have to implement an approved three year management programme (made up of three separate annual plans) and are obliged to keep each year certain specified farm records, to form the basis of farm management decisions. To be eligible for this Scheme the farm must be between 20 and 125 acres of crops and grass, and from 250 to 600 standard man-days. The basis of calculating S.M.D. was revised to account for increased labour productivity and as a result the new limit of 600 S.M.D. is equivalent to about 700 under the 1959 and 1962 Schemes. The Scheme was originally to run for 3 years to 31st August 1968, but was subsequently extended by periods of 12 months to 31st August 1969, and then 31st August 1970. Under the Small Farm (Business Management)(Scotland) Schemes 1965 - 1969, grants up to a maximum of £1, 000 can be obtained by carrying out the requirements of the Scheme.

In 1967 Government Policy for small farms took another decisive turn, with the passing on 10th May 1967 of the Agriculture Act. Under Part II of this Act important legislation on farm structure was enacted and this resulted in two Schemes: The Farm Amalgamations and Boundary Adjustments Scheme and The Farm Structure (Payments to Outgoers) Scheme, and both Schemes came into operation on 31st October 1967.

Under the Farm Amalgamation and Boundary Adjustments Scheme grants of 50 per cent are offered for expenditure incurred in carrying out farm amalgamations, and to qualify one of the units being amalgamated must be of not less than 100 standard man-days

¹Agriculture in Scotland^a. Report for 1968 of D.A.F.S. (Cmnd 4003) P.35.

²Agriculture in Scotland^a. Report for 1965, (Cmnd 2913).

and not more than 600, and the resulting combined unit must be of more than 600 standard man-days, except in special circumstances.

The Farm Structure (Payments to Outgoers) Scheme offers a lump sum payment or an annuity (depending on the occupier's age) to farmers who give up their holdings so that the unit can be amalgamated with another farm (or other farms). To qualify, the holding being relinquished must be of 100 - 600 standard man-days, and the resulting combined unit must be over 600 standard man-days. In addition, the farm must be the main source of income of the holder, and he or she must undertake not to resume farming elsewhere, or in partnership. Thus, the two Schemes together constitute a dynamic policy for encouraging small farmers and older farmers to leave the industry, and at the same time to create larger holdings and encourage structural reform.

In the relatively short space of 83 years from 1886, Government policy has gone through a complete revolution. From merely giving the then existing structure permanence, policy moved to the active creation of smallholdings and this activity reached its peak in the early 1940's with over 10,000 holdings having been created or enlarged since the 1886 Crofter's Act¹. The policy of creating allotments for the unemployed in the industrial belt reached its peak in 1937 with over 2,000 holders on 1,400 acres. By 1968 there were only 57 holders on 40 acres². In the early 1950's the policy of creating holdings had virtually ceased, and by 1959 the difficult situation of the small farmer in a world of rapidly rising production and static or falling prices was recognised by a series of Small Farmers' Schemes initiated in that year. For ten years the policy of financial assistance to small farmers has been active, but even while realisation of the importance of management was being promoted by the 1965 Small Farmers' Scheme, it was becoming apparent to the policy makers that this alone would still not solve the problem of low incomes on small farms. If productivity in agriculture increases rapidly, then incomes may fall, unless fewer and fewer farms share the income of the industry. In this policy,

¹Cmd 6577. "Land Settlement in Scotland". Report by the Scottish Land Settlement Committee. H.M.S.O. 1945.

²"Agriculture in Scotland". Report of the Department of Agriculture and Fisheries for Scotland for 1968. (Cmd 4003) H.M.S.O.

the answer may yet be found, for by encouraging small farmers to leave the industry, and creating farms of a size more suited to modern production methods it should be possible for the remainder to maintain output and have relatively high incomes. In spite of considerable criticism of the structural policies of the 1967 Agriculture Act, a substantial number of farmers have taken advantage of the opportunity to leave the industry. The "Scotsman", 27th June 1969:-

"Scotland's small farmers have surprised the Department of Agriculture by their response to the Government's scheme for enlarging the size of farm units by payments for amalgamations and by lump sums and annuities for "outgoers". The response has been three times greater than the initial estimate when the scheme started in November 1967, and it has been far higher than in England".

"We feel that the scale of the response, particularly by outgoers in Scotland shows that the scheme is meeting a real need", said a Department spokesman. The response has been particularly great in the North-East from where over half the applications have come".

Thus, as a result of changing economic circumstances, and changing administrative philosophy, the last 80 - odd years have witnessed a reversal of policy from that of increasing the number of people in agricultural holdings, via a decade of specific financial support, to a policy of reducing the number dependant upon agriculture and by that means, increasing the earning potential of those that remain.

THE OBJECTIVES OF THE SCHEME
AND PROGRESS UNDER IT

The thinking behind the establishment of the Small Farm (Business Management) Scheme can be traced through a series of Government White Papers, from the initial policy of helping small farmers to the formulation of the most recent Scheme which puts the emphasis on management and financial recording. Official recognition of a small farm problem was stated in the Price Review White Paper of 1958. (Cmnd. 390).

"The Government recognise the special problem created by the fact that many small farmers are particularly concerned with the production of milk, pigs and eggs and that many of them have relatively low incomes and small resources despite the generally satisfactory condition of the agricultural industry. This is a difficult problem which raises social as well as economic issues"¹.

In October 1958 a White Paper entitled "Assistance for Small Farmers" further developed the discussion of the small farm problem as a policy concern.

"A main objective of the Government's agricultural production policy is to foster a steady improvement in the industry's competitive position. It is against this background that special consideration has been given to the position of the small farmer. Many small farmers need to take special steps to adapt their methods, production and resources generally if their small farm businesses are to earn a satisfactory living for them in conditions of increasing competition. The more limited financial and other resources generally available to them, as compared with larger farmers, make it particularly difficult for them to take these steps. But it is important that all such businesses that are fundamentally economic should have the encouragement and opportunity to achieve the higher standards of efficiency and of management that are required".

"Good management in particular is a key to economic success on the small farm, as in farming generally.

¹Cmnd. 390. Annual Review and Determination of Guarantees, 1958. H.M.S.O.

Many small farms are in practice earning good profits. In most cases it is better management that distinguishes them from the rest. Even so, many small farms that are already reasonably well managed could adopt still better management and technical practices, particularly in regard to the improvement of grassland with the object of creating the conditions in which they can become more competitive"¹.

The solution to the small farm problem was seen to be in improved management, but this was technical improvement principally, and not tightening up the financial control of the farm. By 1965 the emphasis of policy statements concerning small farms was changing from technical improvement to recognition of the poor economic efficiency of such businesses.

"..... the Government wish to give further encouragement to improving the business management of small farms, and have therefore decided to revise the Small Farmer Schemes which have remained basically unchanged since their inception in 1959"².

Later, in the same paragraph, is the main point of the revised Scheme - "An essential part of the programme will be the keeping and using of farm records as a basis for farm management decisions"².

The new Small Farmers' Scheme was established in the autumn of 1965, and its main objectives and conditions are briefly stated in the Department of Agriculture and Fisheries for Scotland Annual Report for that year.

"The Small Farm (Business Management)(Scotland) Scheme 1965 came into operation on 1st September 1965 and has as one of its main objectives the improvement of the standards of business management in small farm businesses. Payment of grants is dependent on the farmer implementing an approved three year farm management programme (made up of three separate annual plans) to increase the productivity and profitability of the business. An essential part of the programme is the keeping each year of

¹Cand. 553 "Assistance for Small Farmers", H.M.S.O. 1958.

²Cand. 2621 "Annual Review and Determination of Guarantees, 1965" H.M.S.O.

specified farm records, the information obtained from these records to be used as the basis for farm management decisions. Farmers are eligible for grant at the end of each annual plan at rates varying with the acreage of crops and grass on the farm. To qualify for assistance a farm business must at the time the programme is approved be between 20 and 125 acres of crops and grass with normal cropping and stocking arrangements of not less than 250 and not more than 600 standard man-days. A grant for keeping records, payable at the end of each year of the programme, is made at a flat rate of £50 per annum, and if earned, acreage grant, up to a maximum of 100 acres of crops and grass in the farm business, is payable in addition at £2 an acre for the first-year plan, £3:10s. an acre for the second-year plan and £3 an acre for the third-year plan. The maximum grant which can be earned for any one farm business is £1,000, but account has to be taken of any assistance under previous Small Farmers' Schemes paid to the applicant or in respect of the farm business¹.

The crux of the 1965 Small Farm (Business Management) Scheme then, is the keeping of financial and physical records, their interpretation and the application of the resulting analysis to the farm business, in order to improve its efficiency and thereby raise the farmer's income.

The records to be kept under the Scheme are divided into essential records (the completion of which is an obligation of fulfilling the requirements of the Scheme) and optional records which may provide useful information for a more detailed scrutiny of the farm business. The text of the "Notes on Keeping the Approved Records" in the front of the Small Farm (Business Management)(Scotland) Scheme Record Book implies that the farmer is expected to keep all the essential records, with the exception that it is suggested that the accountant should be called in to prepare the Profit and Loss Account. A brief explanation of each type of record is provided and also advice on how to make the entries, but even with this information many farmers are unable to keep the records themselves.

¹Cand. 2913. Agriculture in Scotland. Report for 1965. H.M.S.O.

The Essential Records under the Scheme are:

1. Opening Valuation of Livestock.
2. Opening Valuation of Produce and Stores.
3. Outstanding accounts, being money owed both by and to the farm.
4. Payments Analysis Sheets, consisting of a line for entry of the name of the supplier and details of the commodity, then a column for the amount paid with facilities for recording both cheque and cash payments. The monetary entry is then repeated in the appropriate analysis column so that at the end of the year the various categories of payment can be totalled, adjusted for outstanding accounts, and entered directly in the Profit and Loss Account.
5. Receipts Analysis Sheets, being similar in design to the Payments Analysis Sheets, allow for entry of the name of the buyer, details of the purchase and the amount (by cheque or cash). The receipt is then entered under the appropriate enterprise, e.g. barley, cattle, pigs etc., so that at the end of the year the analysis columns can be totalled, adjusted for valuation changes and purchases, and entered in the Profit and Loss Account as an "output" from that enterprise.
6. Crop acreages, Production and Disposals constitute a record of the cropping of the farm, the physical yields obtained and (by recording disposal of the crops) a check on the original yield estimates.
7. Profit and Loss Account, summarising the financial performance of the farm for the year.
8. Schedules of Depreciation of Permanent Improvements, Machinery, Equipment and Farm Vehicles. As well as being used to calculate depreciation, these schedules also record purchases and sales of machinery and capital expenditure on new structures.

The Optional Records consist of:

9. Record of Perquisites and Produce going to the Farmhouse.
10. Details of Livestock Carry and Monthly Summary and Reconciliation of Livestock.
11. Grassland Record, showing fertiliser treatment and utilisation of grass produced in each field concerned.
12. Arable Crop Record, showing details of cultivations, treatments and production of arable crops in each field concerned.

13. Feed Record Summary, to show the allocation of home-grown and purchased feeds to the various categories of livestock.
14. Balance Sheet.
15. Schedule of Gross Output, used to convert valuations, purchases and sales to an output basis.
16. Closing Valuation of livestock, crops and stores.
17. Personal Account.

The essential records are sufficient to arrive at the profit or loss of the farm, except that use must be made of the closing valuation and schedule of Gross Output which are classed as "optional". The other optional records supply additional information to enable a more penetrating analysis of the business to be completed, and provide a statement of the financial strength of the business through the Balance Sheet.

How have farmers in Scotland reacted to these Government Schemes to help the small farmer? The number of farms estimated to be eligible under the three Small Farmers' Schemes, 1959, 1962 and 1965, and the number actually taking part are shown in Figure 1 and Table 1. It can be seen that the response of farmers to these Schemes has never risen above 56 per cent of those eligible. It would be interesting to know why the farmers who did not take advantage of the Schemes declined to do so, in view of the surprisingly large numbers of them. Because some farmers would take part in both the 1959 and 1965 Schemes, the cumulative total of approvals contains some double counting of farms, so that the number of farmers who did not take advantage of the Small Farmers' Schemes is greater than at first appears.

Table 1

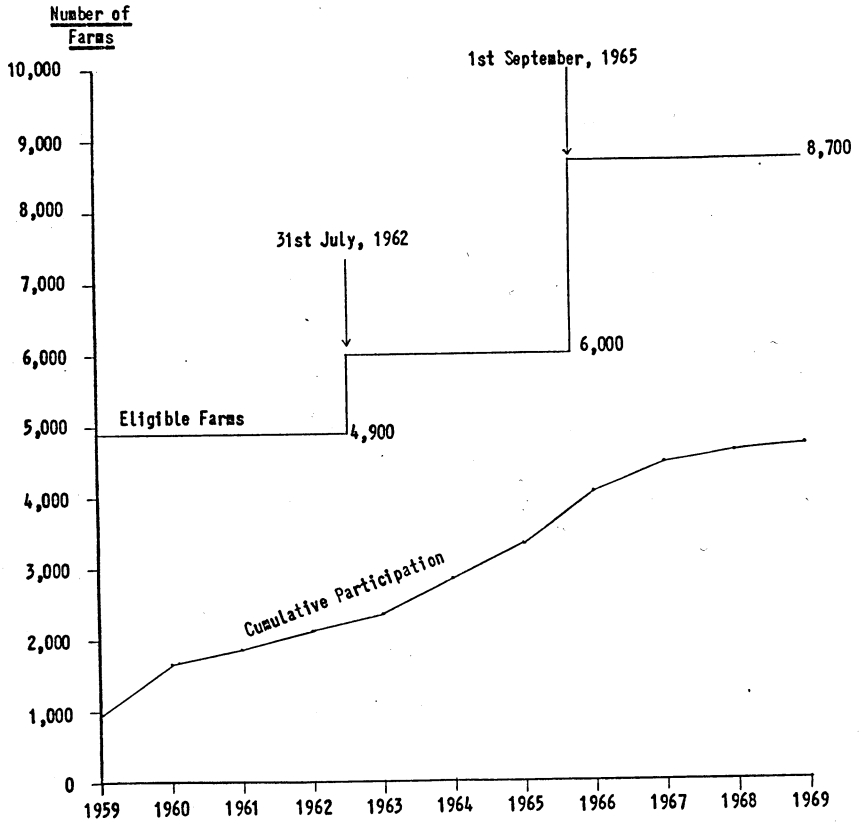
Small Farmers' Schemes 1959, 1962 and 1965
Numbers Eligible and Numbers of Approvals Issued

Year	No. Eligible	Annual Approvals	Cumulative Approvals	Approvals as % of Eligibility
1959	4,900	948	948	19.3
1960	"	694	1,642	33.5
1961	"	204	1,846	37.7
1962	6,000	274	2,120	35.3 (43.3% of 1959 Scheme)
1963	"	249	2,369	39.4
1964	"	465	2,834	47.2
1965	8,700	518	3,352	38.5 (55.9% of 1962 Scheme)
1966	"	704	4,056	46.6
1967	"	411	4,467	51.3
1968	"	131	4,598	52.9
1969	"	79	4,677	53.8

SOURCE: Department of Agriculture and Fisheries for Scotland.

Table 2 shows applications and approvals for the 1965 Scheme by Agricultural Executive Committee areas, and indicates the overwhelming importance of the North East region (Aberdeen, Banff and Kincardine) in this Scheme, having almost half of all the approvals made by 31st December, 1969.

Fig. 1 Small Farmers' Schemes 1959, 1962 & 1965. Number of Farms
Eligible and Cumulative Participation, Scotland



Participation (Approvals Issued) at 31st December

Table 2 Applications and Approvals for the Small Farm (Business Management)
(Scotland) Scheme, 1965 by Agricultural Executive Committee Areas¹.

Total by 31st December, 1969

Area	Applications Received	Not Eligible or Withdrawn	Approvals of Programmes
Argyll	54	14	35
Border	16	3	7
Central	58	12	44
Clyde	86	18	59
Eastern	84	23	44
Highland	235	50	169
Lothians	18	10	7
North Eastern	819	227	545
Northern	134	13	116
South Western	139	32	92
Southern	80	19	50
Scotland	1,723	421	1,168

SOURCE: Department of Agriculture and Fisheries for Scotland.

¹For Agricultural Executive Committee areas see Appendix V.

The approval of applications from farmers for the three Small Farmers' Schemes shows a similar pattern for the 1959 and 1965 Schemes (Figure 2), but with a slow build up of approvals for the 1962 Scheme. The 1959 Scheme had 50 per cent of the total approvals in the first year, but thereafter a rapid rate of decline in applications. The 1965 Scheme also had some 50 per cent of total approvals (to date) in the first year, but this was followed by a rapid decline in interest. The 1962 Scheme, however, had a mounting number of applications up to the introduction of the Small Farm (Business Management) Scheme in 1965. At some future date a most interesting analysis could be done to show

- a. How many farmers took part in two Small Farmers' Schemes.
- b. How many of those who had a Small Farmers' Scheme on their farm, subsequently took the Farm Structure (Payment to Outgoers) Scheme.
- c. How many of the farmers who took the Farm Structure (Payment to Outgoers) Scheme had declined to take advantage of the Small Farmers' Scheme at any time.

Although the number of farms eligible for the Small Farmers' Schemes is a significant proportion of all farms, the cost of these Schemes has been of very little significance when compared with the total cost of agricultural support.

Fig. 2

Small Farmers' Schemes, 1959, 1962 & 1965

Annual Number of Approvals Issued, Scotland

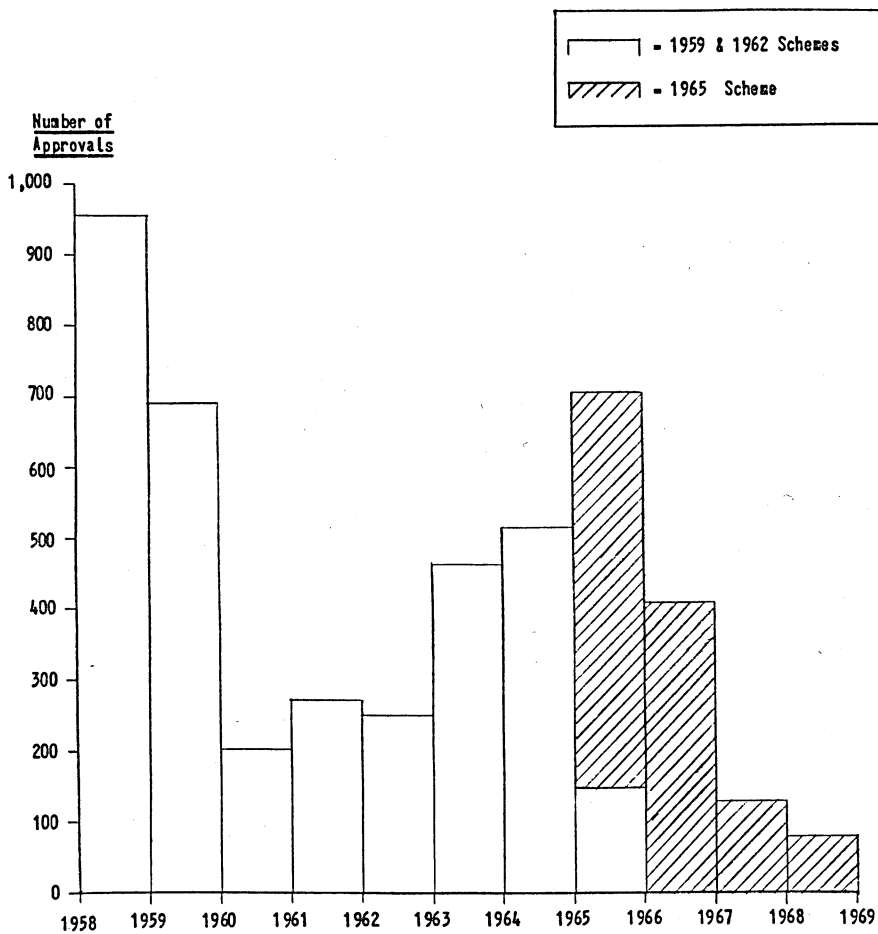


Table 3 Cost and Significance of Small Farmers' Schemes
1959/60 to 1968/69. Scotland and United Kingdom

	SCOTLAND	UNITED KINGDOM
	£'000	£ Million
1. Total ¹ of Price Guarantees, Production Grants & Subsidies	452,414	2,638.4
2. Production Grants Only ² .	200,257	914.3
3. Small Farmers' Scheme Grants	3,067	41.2
4. Small Farmers' Scheme Grants as % of Total Price Guarantees, Production Grants & Subsidies	0.68	1.56
5. Small Farmers' Scheme Grants as % of Production Grants	1.53	4.5

SOURCE: Scotland: Scottish Agricultural Economics Vol 11 - 19
U.K. : Annual Review and Determination of Guarantees 1968 and 1969. Cmd 3558 and 3965

- 1 - Equivalent to Totals I, II & III in Command 3965 (& 3558), Pages 36 & 37 (in 3965)
2 - Equivalent to Total II only in Command 3965 (& 3558), Pages 36 & 37 (in 3965)

Table 3 shows that grants paid to small farmers over the ten years of the Small Farmers' Schemes to date were, in Scotland, only 0.68 per cent of all agricultural support expended, and 1.53 per cent of production grants. In the United Kingdom the proportions are greater, being 1.56 per cent of all price guarantees, production grants and subsidies, and 4.5 per cent of production grants. The main reason for the higher proportion in the United Kingdom is because both absolutely and relatively, England and Wales have more small farms eligible for these Schemes. In 1965, farms of 275 - 600 S.M.D. in England and Wales totalled 68,000 and were 44 per cent of all full-time farms. Scotland had only 8,700 farms in this size range and these represented 35 per cent of full-time farms¹.

In the context of total Exchequer expenditure on agriculture, then the payment of grants to small farmers through the Small Farmers' Schemes has only amounted to 1½ per cent in the United Kingdom over the 10 years of these Schemes to date. In Scotland such expenditure has been under 1 per cent, and represents an insignificant proportion of the total. Even in individual years, Small Farmers' Scheme grants never exceeded 1 per cent of total agricultural support in Scotland or 2½ per cent in the United Kingdom during the period 1959/60 to 1968/69².

¹"The Structure of Agriculture" H.M.S.O. 1966 P.9.

²Appendix Table A1.

METHOD OF STUDY - A BRIEF SUMMARY

From an address list of all farmers participating in the Small Farm (Business Management)(Scotland) Scheme certain counties and districts were excluded, and a stratified random sample drawn from two counties with an above average proportion of eligible farmers participating. The sample, which numbered 90 farms initially, diminished for a variety of reasons to a final number of 75 farms, with complete data available at December 1969.

These 75 farms were first of all studied as a group, and then divided according to certain attributes. The first subdivision was into owner-occupiers and tenants, and data are presented for these groups. The 75 farms were then grouped according to their size in standard man-days in June 1966 into four groups and studied in this arrangement. The 75 farms were next grouped according to an economic classification which takes into account the relative importance of different enterprises; 73 of the farms are analysed in four major type groups in this arrangement. Finally, the 15 farms with the greatest increase in profit between 1966/67 and 1968/69 (20 per cent of the sample of 75) are contrasted with the 15 farms showing the greatest fall in profit between 1966/67 and 1968/69.

The 75 farms in the Scheme are then compared with a "control" group of farms which were eligible for the Scheme in June 1966 but had not entered it by June 1969. The physical changes occurring in these two groups during the three year period are contrasted by measuring percentage changes in livestock numbers and crop acreages.

In a statistical appendix (Appendix VI) the individual farm profit data have been subjected to multiple correlation analysis, and the influence of several attributes of the farms on their annual and three-year average profit estimated by regression co-efficients.

A GENERAL DESCRIPTION OF THE SAMPLE STUDIED

The origin of the sample was an address list of all farms in the North of Scotland College area which had been approved for the Scheme by May 1966. This list was supplied to the College by the Department of Agriculture and Fisheries for Scotland. The counties covered were Aberdeen, Banff, Inverness, Moray, Nairn, Ross and Orkney (mainland). Other counties in the College area were omitted because of inaccessibility and travelling cost (Caithness and Shetland) or because very few of the eligible farms had entered the Scheme by May 1966 (Kincardine). The counties of Inverness and Moray had a higher proportion of eligible farms in the Scheme when the address list was compiled than other counties sampled, and these counties were random sampled on a stratified basis by S.M.D. size groups in case a bias as a result of their greater representation was introduced.

At the start of field work in April 1967 the sample stood at 95. On visiting these farms the sample was reduced to 90, as three of the original farmers had withdrawn from the Scheme, one was in hospital, and one could not be contacted. Between May 1967 and December 1969 the sample was further reduced for various reasons to 82, and when collection of data closed at the end of December 1969, 7 farms had still not produced financial data for the third year of the Scheme, leaving a total of 75 farms for analysis, which are considered to be representative of all farms entering the Scheme in the counties sampled between September 1965 and June 1966. The history of the sample is summarised in Table 4 below.

Table 4

Derivation of Sample. Small Farm
(Business Management)(Scotland) Scheme, 1965

Number of farms on original list of approvals at May 1966	= 132
Farms in counties not sampled (Caithness, Shetland, Kincardine)	= 13
Farms eliminated from counties with high proportion of those eligible	= 24
Address list at April 1967	= 95
Of Which: unable to contact	= 1
in hospital	= 1
withdrawn from Scheme	= 3
Address list at May 1967	= 90
Of Which: sold farm	= 1
withdrawn from Scheme	= 2
rejected because of inadequate data	= 5
	= 82
No accounts for 3rd year by 31/12/69	= 7
Sample used in report	= 75

Table 5 shows that the sample of 75 farms is somewhat less than 2 per cent of all farms in the North of Scotland College area (in the counties sampled) estimated to be eligible for the Scheme, but represents over 60 per cent of those farms given approval by the date at which the sample was drawn. The low proportion of all eligible farms represented is put into proper perspective by the fact that three years after drawing the sample some 42 per cent of farms said to be eligible had not entered the Scheme.

Table 5 Significance of Sample in Relation to Farms Eligible for and
Participating in the Small Farm (Business Management)(Scotland) Scheme, 1965

Counties Sampled	Estimated Eligible Farms	Sample Number	Sample as % of Eligible	No. of Farms in Scheme May 1966	Sample Number	Sample as % of No. in Scheme	No. of Farms Not in Scheme 0 June 1969	Farms Not in Scheme as % of Eligible
Aberdeen	2,385	22	0.9	27	22	81	1,151	48
Banff	540	19	2.2	12	12	100	269	50
Inverness	180	9	5.0	16	9	56	58	32
Moray	240	9	3.8	34	9	26	97	40
Nairn	65	2	3.1	3	2	66	12	18
Ross	200	11	5.5	14	11	79	53	27
Orkney	575	10	1.7	18	10	56	104	18
Total	4,158	75	1.8	124	75	61	1,744	42

The distribution of crops and grass acreage on the sample farms at June 1966 and June 1969 showed a slight upward trend in size during the three years (Appendix Table A2). There appeared to be no significant difference in the size distribution of owned and tenanted farms.

The size distribution of the sample farms by standard man-days (S.M.D.) in 1966 and 1969 at the June census date indicates that an increase in S.M.D. size occurred on the majority of the 75 farms (Appendix Table A3). The fact that four farms exceeded 600 S.M.D. at June 1966 implies that they were above the eligibility limit for the Scheme, but at the time of application (which could be up to 9 months previously) these farms would have been less than 600 S.M.D. or they would not have obtained approval. An analysis of the change in S.M.D. size shows some impressive increases (Appendix Table A4). The largest increase exceeded 300 S.M.D., although over 50 per cent of the farms changed by less than 50 S.M.D. from their size in 1966. This does not imply any lack of progress, since adjustment on the farm from high labour demanding enterprises such as turnips to less demanding ones such as silage would enable a change of production to occur with very little change in labour requirements.

Type analysis

The 75 farms can be classified into economic types, using the system currently employed by the Agricultural Economics Division of the North of Scotland College of Agriculture, (for definition of types see Appendix III). Table 6 shows the result of such classification.

Table 6 Economic Classification of Sample Farms (N.O.S.C.A. System)

TYPE	NUMBER	%
1. Hill sheep farms	1	1
2. Upland farms	9	12
3. Mixed farms (Cattle and Sheep)	38	50
4. Mixed farms (Arable)	13	18
5. Mixed farms (Intensive Pigs and Poultry)	13	18
6. Dairy farms	1	1
7. Crofts	Nil	-
Total	75	100

It is evident from the above table that 50 per cent of the sample farms were of a type depending to a large extent on cattle and sheep for their output, with some arable crops as well, (Type 3). 18 per cent of the sample farms were basically arable in nature and the same proportion principally dependent on intensive livestock, (Types 4 and 5 respectively). Hill and upland farms represented roughly one eighth of the sample, but dairy farms were represented by only one farm. The high S.M.D. requirements of dairy cows causes all but the smallest of dairy farms to exceed the 600 S.M.D. limit of the Scheme. The sample of 75 farms covered about 6,700 acres of crops and grass and nearly 16,000 acres in total area.

Social features of the sample

The social characteristics of the sample exhibited a typically wide variation. The farmers' ages ranged from 21 (in 1966) to 80 (in 1966), although in the latter case the farm was run jointly by the farmers' son from an adjacent unit, and for purposes of age classification the son was considered to be the "farmer". The age distribution of the sample farmers is given in Table 7 below.

Table 7

Distribution of Farmers in Sample by Age in 1966

Age	Number
Under 25	2
25 to 34	6
35 to 44	14
45 to 54	21
55 to 64	25
Over 65	<u>7</u>
Total	75
	—

Length of occupation of the farm ranged from one year to 60 and the distribution of farmers by the period of occupancy is given in Table 8 below.

Table 8 Distribution of Farmers in Sample by Length of Occupancy in 1966

Years	No.
Over 40	5
30 to 39	9
20 to 29	13
10 to 19	20
5 to 9	14
Under 5	<u>14</u>
Total	<u>75</u>

There is clearly no such thing as a "typical small farmer", and in fact, the range of age and ability of small farmers may well exceed that of farmers on larger units.

The number of persons relying on the farm income for their livelihood ranged from single persons to complex households up to ten in total. In analysing the size of household relying on the farm, farm workers or members of the family receiving the full agricultural wage (or more) have not been considered as falling in the category of "relying" on the farm. This is because such persons could have obtained employment on other farms at a similar wage. The household relying on the farm is therefore regarded as consisting of those who rely for a livelihood on the profit of the business after wages and all other costs are paid. The analysis is thus confined to the occupier and his wife, his dependants and his school age family if any, or the total number of persons in partnership households. Two households did not rely on the farm for their income at all. The remaining 73 are classified by size in Table 9 below.

Table 9 Classification of the Composition of Households Reliant on Farm Income, Sample Farms, 1966/67. (Excluding Paid Workers & Paid Family Workers)

	Households
1. Single person	5
2. Man and wife only	23
3. Man, wife and 1 child	11
4. " " " 2 children	9
5. " " " 3 or more children	13
6. 2 families, or farmers' family and his parents	3
7. Complex households (of from 3 to 10 persons)	<u>9</u>
Total	<u>73</u>

The two occupiers who had full-time jobs and did not rely on the farm income had their farms run by hired workers. Complex households usually consisted of the occupier and his immediate family as well as sisters, brothers or cousins, or several generations of a single family - in one case three generations of a family, totalling ten persons in all, lived on the income of the farm. Two of the farmers had other occupations, supplemented by the farm, and both of them ran the farm single-handed at the same time as carrying on their paid employment.

Only seven of the farmers had received any formal education in agriculture, ranging from short College of Agriculture courses or night classes (4 farmers), and City and Guilds Courses (1 farmer), to a Scottish Diploma in Agriculture (1 farmer) and Land Agency qualifications (1 farmer).

Previous occupations showed a wide variety with farming elsewhere (19 per cent), working on fathers' farm (43 per cent) and farm workers (17 per cent) predominating - such agricultural jobs accounting for almost 80 per cent of previous job experience. Non-agricultural employment prior to farming included a butcher, a haulage contractor, a factory foreman, an electricity board engineer, a lorry driver, a feed mill manager, a joiner, a mason, a blacksmith, a Civil Servant and a solicitor. There appeared to be little connection between previous experience and success in running the farm profitably.

ANNUAL PLANS PROPOSED BY THE SAMPLE FARMS

Table 10 below shows an analysis of the proposals in plans submitted to the Department of Agriculture and Fisheries for Scotland for approval each year during the life of the Scheme on the sample farms. As each annual plan usually contained three or four proposals, the problem of how to treat the data analytically was difficult. In the end, the individual proposals were sorted into the main categories listed in the table and a distribution calculated, since to sum the proposals numerically would have been less meaningful - there being many more proposals each year than there were farms in the sample.

Table 10 Analysis of Annual Plan Proposals. Per Cent Distribution

Proposal	1st Year	2nd Year	3rd Year
Increase production of crops and grass by lime and fertiliser at rates determined by soil analysis	33.3	28.9	27.5
Change in distribution of crops - usually to increase barley and grass output	12.9	7.8	6.4
Increase livestock numbers by:-			
A less than 5 per cent in the year	8.6	8.9	5.3
B between 5 and 10 per cent in the year	10.8	7.2	9.4
C more than 10 per cent in the year	16.7	14.4	17.0
	36.1	30.5	31.7
Addition to or alteration of buildings and fixed equipment, or purchase of machinery	5.9	5.6	5.8
Cost investigation of enterprises or change of policy based on costing	2.1	2.8	1.1
No change proposed - i.e. maintain present position in relation to stock and/or crops	4.3	18.3	20.5
Reduce livestock: Poultry	-)	2.2	4.7
Cattle	2.1)	1.1	-)
Sheep	2.8)	2.8	2.3)
Pigs	0.5)	-)	-)
	5.4	6.1	7.0
Total	100.0	100.0	100.0

The first proposal in almost all plans was the greater use of lime and fertilisers - an essential prerequisite of increased stocking and a policy advocated strongly by College Advisers. The next most frequent proposal was an increase in livestock numbers, with

changes in excess of 10 per cent being predominant in each of the three years. Changes in the distribution of crops - generally reducing acreages of oats and turnips and increasing those of barley and mown grass - completed the changes designed to increase output from the farm during the Scheme. Reductions in certain enterprises were put forward, and the most frequent contractions proposed were in poultry production (mainly eggs) and sheep. Alterations to fixed equipment or buildings, or purchase of machinery accounted for nearly 6 per cent of plans in each year.

The great majority of the plans related to physical and technical changes, although these were presumably put forward in the belief that the result would be increased profitability. The number of proposals which actually involved costing enterprises, or changes made on the basis of costing, accounted for about 1 - 3 per cent of the total. A greater amount of economic scrutiny would have been desirable, as the popular or general trend in the industry is not necessarily the best one in individual cases.

Proposals to maintain the 'status quo' of the stocking and cropping of the farm increased in prominence during the period and by the third year 20 per cent of the plans were of a "no change" type.

While being somewhat critical of the vagueness of many proposals, one must also recognise the difficulties facing the Agricultural Adviser - a complete lack of suitable data in nearly all cases, and frequently a lack of policy objectives by the farmer.

THE EFFECTS OF THE SMALL FARM
(BUSINESS MANAGEMENT)(SCOTLAND) SCHEME, 1965
ON THE SAMPLE FARMS

Various forms of analysis have been applied to the physical and financial data relating to the 75 sample farms during the period 1966/67 to 1968/69. Results are presented on a "per farm" basis.

In studying the financial data it is important to note

1. The Small Farm Scheme Grant payable has been excluded in arriving at the profit or loss figure, and noted below the profit or loss entry.
2. All wages paid to the farmer's wife are excluded.
3. No notional rent has been entered in the case of owner occupiers, and bank interest remains in the account, i. e. no adjustments have been made to produce a "net farm income" figure; the result of deducting total costs from gross output is therefore profit¹.

Note: Comprehensive statistical analysis is presented in Appendix VI.

All Farms

Between 1966/67 and 1968/69 the average gross output of the sample farms rose by 16 per cent, with livestock gross output rising by 26 per cent and crop gross output falling by 9 per cent.² (See Table 11 below; full details in Appendix Table A5).

Table 11 Financial Data for Sample Farms 1966/67 to 1968/69

£ Per Farm	1966/67	1967/68	1968/69
Crop Gross Output	701	669	637
Livestock Gross Output	2,456	2,780	3,091
Miscellaneous Output	<u>264</u>	<u>248</u>	<u>237</u>
Total Gross Output	3,421	3,697	3,965
Total Costs	<u>2,680</u>	<u>2,772</u>	<u>3,082</u>
Profit	<u>741</u>	<u>925</u>	<u>883</u>
(Standard Error of mean profit)	(+65)	(+69)	(+97)
Small Farmers' Scheme Grant payable	222	354	311

¹A full definition of the term 'profit' is given in Appendix VII.

²Profit and loss accounts of the farmer's accountant were the source of financial data. If any errors existed in annual valuations - used to derive gross output - these remain unaltered.

During the period 1966/67 to 1968/69, total costs rose by 15 per cent, and when set against the increase in gross output, resulted in a profit rise of 19 per cent. If the grants paid under the Scheme are added to the average profit, then a similar rise of 19 per cent results, calculated from a higher base of £963 profit in 1966/67. Details of the physical changes on the sample farms (Appendix Table A6) show that a slight increase in average size occurred, and an increase in beef cow numbers, young cattle numbers and breeding pig numbers, while sheep and poultry both declined in number. On the crop side, a movement from oats and turnips to barley and grass for mowing took place. The livestock S.M.D. 's and livestock units increased by 14 per cent and 12 per cent respectively, while crop S.M.D. 's declined by 5 per cent. The total S.M.D. size of the farm (including maintenance) increased on average by 4½ per cent.

The distribution of farm profits for all farms in the sample exhibited a wide variation (Appendix Table A7). In 1966/67 the range, on these farms of roughly the same size measured by S.M.D. was from a loss of £1,400 to a profit of £3,400 (excluding grant). In 1966/67 the distribution of profits tended to peak in the region of £500 to £1,000, but by 1968/69 the distribution was more evenly spread. When the change in farm profits between 1966/67 and 1968/69 is analysed the magnitude of individual profit changes can be seen. (Table 12 below, and Appendix Tables A8, A9 and A10).

Table 12 Distribution of Sample Farms by Profit Change 1966/67 - 1968/69

£	No.
>-1,000	5
-751 to -1,000	4
-501 to -750	4
-251 to -500	5
0 to -250	12
0 to +250	15
+251 to +500	8
+501 to +750	6
+751 to +1,000	9
+1,001 to +1,250	3
+1,251 or more	4
Total	75

Profit changes vary from upward movements of over £1,250 to downward changes in excess of £1,000, and no less than 37 per cent of the sample showed a downward movement (excluding grant). On analysing the change in farm profit by age of farmer and size of farm (S.M.D.), there seems to be no discernible pattern of relationship, except that a consistent fall in profit was shown by farmers in the 55 to 64 age group. (Appendix Tables A8 and A9). Analysis by type of farm showed some tendency for profits on Mixed Cattle and Sheep farms (Type 3) to move upwards and for those on Mixed Arable farms (Type 4) to move downwards. (Appendix Table A10). This pattern accords with the relative fortunes of beef production and arable cropping during the time period covered by the study.

Three-year Average Profit 1966/67 to 1968/69

Because of the year-to-year variation in farm profits, the average profit for the three years of the Scheme was calculated for each farm. (Table 13). The distribution of average profit was further analysed by age of occupier, type of farm, size of farm and by nature of occupancy. (Appendix Tables A11 to A13).

Table 13 Distribution of Sample Farms by 3 Year Average Profit 1966/67 - 1968/69

£	No.
More than -500	1
-251 to -500	1
0 to -250	1
0 to +250	6
+251 to +500	8
+501 to +750	16
+751 to +1,000	15
+1,001 to +1,250	13
+1,251 to +1,500	9
+1,501 to +2,000	4
+2,001 to +3,000	-
+3,000 and Over	1
Total	<u>75</u>

Comparing the three-year average profit with the age of farmer indicated a weak tendency for younger farmers to earn higher profits, but the small numbers involved make this relationship of doubtful significance. Analysis by type of farm and

S.M.D. size of farm were inconclusive¹. With regard to type of occupancy there appeared to be a slight difference between owners and tenants, but this is less due to the nature of occupancy than to the types of farms occupied by owners and tenants respectively. A greater proportion of tenants were in the lower average income type groups (Upland Rearing and Mixed Arable) than was the case with owner occupiers. This fact is reflected in the higher profits earned by owner occupiers in each year of the Scheme. (Table 14 below).

Note: Individual farm profits for each year are given in Appendix Table A28.

Owner Occupiers and Tenants

Data from the sample farms were analysed by type of occupancy, for the three years 1966/67 to 1968/69. A summary of the financial features is presented in Table 14 below. Full details of both financial and physical analyses are in Appendix Tables A5 and A6.

Table 14 Financial Data for Owner-Occupiers and Tenants 1966/67 to 1968/69

Group No. of Farms	Owner-Occupiers 40			Tenants 35		
	1966/67	1967/68	1968/69	1966/67	1967/68	1968/69
£ per Farm						
Crop Gross Output	597	603	547	818	745	740
Livestock Gross Output	2,685	3,075	3,461	2,194	2,442	2,669
Miscellaneous Output	<u>242</u>	<u>229</u>	<u>219</u>	<u>291</u>	<u>270</u>	<u>258</u>
Total Gross Output	3,524	3,907	4,227	3,303	3,457	3,667
Total Costs	<u>2,775</u>	<u>2,858</u>	<u>3,244</u>	<u>2,572</u>	<u>2,673</u>	<u>2,896</u>
Profit	<u>749</u>	<u>1,049</u>	<u>983</u>	<u>731</u>	<u>784</u>	<u>771</u>
(Standard Error of Mean Profit)	(±105)	(±109)	(±144)	(±73)	(±74)	(±127)
Small Farmers' Scheme Grant payable	225	357	315	218	351	306

The total gross output of owned farms rose by 20 per cent during the three years, while that of tenanted farms increased by 11 per cent. As a result of these output changes and differing cost structures between the two groups, the profit of owner-occupiers increased on average by 32 per cent, against that of 5 per cent in the case of

¹ A full study of the relationship of S.M.D. to farm output and income is contained in Appendix II.

tenants. The detailed financial breakdown (Appendix Table A5) showed the relative importance of such costs as bank interest in the case of owners and rent in the case of tenants. Except for feedingstuffs, other costs were similar between the two groups, but while feedingstuffs rose as a cost by the same proportion in both groups, rent increased by a greater proportion than bank interest.

The farms of owner occupiers and of tenants were of a similar average size, but with slight differences in emphasis in the stock carried and crops grown. (Appendix Table A6). Owners had fewer sheep and more pigs on average, than had tenants, and more barley and grazing grass. Tenants had more oats and mowing grass than had owner-occupiers.

Analysis by S.M.D. Size

When the data for the sample of 75 farms are analysed by S.M.D. size groups it can be seen that on an average group basis total gross output tends to increase as S.M.D. size increases, and that average profit follows a similar trend¹. (Table 15 below; full details in Appendix Tables A14 and A15).

The smallest size group (under 450 S.M.D.) made a very moderate profit in 1966/67, enjoyed an increase of some £120 in 1967/68, but in 1968/69 fell back to near the level of the first year of the Scheme. The other groups, however, all achieved an increase, varying from 50 per cent in the 500-550 S.M.D. group to about 9 per cent in the 'over 550 S.M.D. group', and managed either to maintain this increase or add to it in the third year of the Scheme.

In physical features the farms showed an increase in almost all enterprises as total S.M.D. size increased, but between 1966 and 1969 both the magnitude of change occurring, and its direction differed from group to group. Possibly less change occurred in the smallest group than in others, but this is understandable as these farms would have less room to manoeuvre from one enterprise to another.

¹A full study of the relationship of S.M.D. to farm output and income is contained in Appendix II.

Table 15

Financial Data for Sample Farms by S.M.D. Size 1966/67 to 1968/69

S.M.D. Size (June 1966) No. of Farms	Up to 450 S.M.D. 20			450-500 S.M.D. 18			500-550 S.M.D. 20			Over 550 S.M.D. 17		
	1966/67	1967/68	1968/69	1966/67	1967/68	1968/69	1966/67	1967/68	1968/69	1966/67	1967/68	1968/69
£ per Farm												
Crop Gross Output	593	515	619	795	807	719	793	768	684	619	589	515
Livestock Gross Output	2,085	2,328	2,486	2,252	2,568	3,007	2,357	2,729	2,990	3,225	3,596	4,013
Miscellaneous Output	<u>223</u>	<u>190</u>	<u>188</u>	<u>240</u>	<u>242</u>	<u>248</u>	<u>250</u>	<u>240</u>	<u>235</u>	<u>355</u>	<u>330</u>	<u>285</u>
Total Gross Output	2,901	3,033	3,293	3,287	3,617	3,974	3,400	3,737	3,909	4,199	4,515	4,813
Total Costs	<u>2,300</u>	<u>2,322</u>	<u>2,694</u>	<u>2,572</u>	<u>2,734</u>	<u>3,070</u>	<u>2,794</u>	<u>2,779</u>	<u>2,988</u>	<u>3,110</u>	<u>3,332</u>	<u>3,660</u>
Profit	<u>601</u>	<u>711</u>	<u>599</u>	<u>715</u>	<u>883</u>	<u>904</u>	<u>606</u>	<u>958</u>	<u>921</u>	<u>1,089</u>	<u>1,183</u>	<u>1,153</u>
(Standard Error of Mean Profit)	(±131)	(±92)	(±209)	(±104)	(±135)	(±186)	(±83)	(±84)	(±109)	(±173)	(±216)	(±256)
Small Farmers' Scheme Grant Payable	219	344	297	218	355	321	233	371	322	217	346	303

Analysis by Type of Farm

Analysis of the sample data by type of farm, (using the North of Scotland College of Agriculture classification) shows up some very real differences. (Table 16 below; full details in Appendix Tables A17 and A18).

Total Gross Outputs differed by as much as £1,700 in the first year between Upland farms (Type 2) and Mixed Intensive farms (Type 5) and by the third year this difference had increased to £2,200 or so. Costs in these two type groups rose by less than output over the period 1966/67 to 1968/69 with the result that profits in the third year had risen. But the cost change on the Upland farms was relatively greater than on the Mixed Intensive farms, so that the Upland farm profits increased by about 13 per cent while Mixed Intensive farm profits increased by 48 per cent from a level fairly comparable in the first year.

On Mixed Cattle and Sheep farms (Type 3) Total Gross Output rose by 24 per cent during the three years of the Scheme, while on Mixed Arable farms (Type 4) output fell by 4 per cent. Although the costs on the Mixed Arable farms only rose by 8 per cent over the period, as against a 20 per cent cost increase on Mixed Cattle and Sheep farms, the result of the changes in Gross Output was that Cattle and Sheep farms experienced a 41 per cent increase in profit, while Arable farms suffered a fall in profit of over 50 per cent, on average.

So far as the physical size is concerned, Intensive farms were smaller on average and had only about 3 acres of rough grazing. Upland rearing farms were next in size on the basis of crops and grass acres, but had some 240 acres of rough grazing in addition, while both the Cattle and Sheep farms and the Arable farms had about 95 acres of crops and grass and 10 to 15 acres of rough grazing on average. All farms exhibited an increase in beef cow numbers by up to 35 per cent (on Cattle and Sheep farms), and with the exception of the Intensive farms, a tendency to reduce the numbers of older cattle and increase the number of young cattle on the farm. Sheep numbers declined on all except Arable farms, and breeding pig numbers increased by over 50 per cent on those farms carrying pigs. The number of livestock units carried increased on all types of farms by up to 15 per cent.

Table 16

Financial Data for 73 Sample Farms by Type of Farm 1966/67 to 1968/69

Type of Farm No. of Farms	2. Upland Rearing 9			3. Mixed (Cattle & Sheep) 38			4. Mixed (Arable) 13			5. Mixed (Intensive) 13		
	1966/67	1967/68	1968/69	1966/67	1967/68	1968/69	1966/67	1967/68	1968/69	1966/67	1967/68	1968/69
£ per Farm												
Crop Gross Output	452	353	335	507	487	548	1,780	1,712	1,414	420	444	408
Livestock Gross Output	2,140	2,388	2,689	2,332	2,728	3,100	1,437	1,615	1,668	4,060	4,392	4,969
Miscellaneous Output	369	382	353	266	235	218	249	240	252	207	217	197
Total Gross Output	2,961	3,123	3,377	3,105	3,450	3,866	3,466	3,567	3,334	4,687	5,053	5,574
Total Costs	2,147	2,297	2,456	2,416	2,517	2,896	2,751	2,855	2,981	3,823	3,845	4,295
Profit	814	826	921	689	933	970	715	712	353	864	1,208	1,279
	==	==	==	==	==	==	==	==	==	==	==	==
(Standard Error of Mean Profit)	(±154)	(±226)	(±244)	(±87)	(±71)	(±124)	(±118)	(±116)	(±176)	(±232)	(±271)	(±284)
Small Farmers' Scheme Grants payable	226	361	317	240	380	337	210	344	292	215	338	297

It can be shown that type of farm is likely to be more important than is size by the measure of S.M.D. (See Appendix II). In the foregoing analysis of the sample farm data, it is probable, therefore, that some of the changes observed were due to type differences within S.M.D. size groups, and vice versa. An analysis of the North of Scotland College of Agriculture farm types occurring in each S.M.D. size group suggests that there is no significant difference in the types of farm seen in the various size groups (Appendix Table A16), nor in their distribution. The only possible exception seems to be in the over 550 S.M.D. group which appears to have a below average representation of Mixed Cattle and Sheep farms (Type 3), which would give greater effect to the slightly higher number of Mixed Intensive farms (Type 5) in the group.

Upper and Lower 20 per cent of the Sample¹

In selecting the farms to be used in an analysis of the extremes it was decided to use the 20 per cent of the sample having the greatest profit increase between 1966/67 and 1968/69, and the 20 per cent of the sample with the greatest profit decrease (or loss increase) between those years.

Other possibilities for selecting "top" and "bottom" groups would be highest and lowest profit in the first or the last year, or highest and lowest average profit over the three years involved. Using any one of these criteria would have selected a different group of farms than would be obtained by using one of the other bases because, for example, the farm with the highest average profit exhibited virtually no change between the first year and the third.

An analysis of the data for the 20 per cent of the sample with the greatest profit increase (the "top 20 per cent") and the 20 per cent with the greatest profit decrease (the "bottom 20 per cent") between 1966/67 and 1968/69 was carried out (Table 17 below; full details in Appendix Tables A19 and A20).

¹Readers may question whether a 20 per cent cut-off level selects those farm businesses sufficiently different from the mean to provide a well-defined contrast or whether this level selects atypical extremes. Such discussion has occupied considerable time among agricultural economists without producing an agreed norm. For the purpose of this study, 20 per cent was felt to be satisfactory.

Table 17 **Financial Data for Upper & Lower 20 Per Cent of Farms**
by Profit Change 1966/67 to 1968/69

Group of Farms	20 Per Cent with Greatest Profit Increase			20 Per Cent with Greatest Profit Decrease		
	15			15		
No. of Farms						
£ per Farm	1966/67	1967/68	1968/69	1966/67	1967/68	1968/69
Crop Gross Output	483	589	565	1,036	1,007	818
Livestock Gross Output	2,258	2,554	3,470	2,119	2,322	2,035
Miscellaneous Output	277	255	298	292	284	203
Total Gross Output	3,018	3,398	4,333	3,447	3,613	3,056
Total Costs	2,392	2,368	2,652	2,776	3,134	3,266
Profit or Loss	626	1,030	1,681	671	479	- 210
(Standard Error of Mean Profit)	(±101)	(±101)	(±105)	(±187)	(±81)	(±195)
Small Farmers' Scheme Grants payable	225	356	313	218	343	302

In the first year (1966/67) the 15 farms with the greatest profit increase had a lower crop output, higher livestock output but considerably lower total gross output (by 12 per cent) than had the 15 farms recording the greatest profit decrease. In 1966/67 the "top 20 per cent" had lower costs and a lower average profit (by 7 per cent) than the "bottom 20 per cent". By 1968/69 the "top 20 per cent" had increased their total gross output by 44 per cent on average over the level of 1966/67, and had increased their costs by only 11 per cent in the same time, so that their average profit rose by about £1,055 above that earned in 1966/67 - an increase of 168 per cent.

The "bottom 20 per cent", or those recording the greatest profit fall, had a reduction in total gross output between 1966/67 and 1968/69 of 11 per cent - mainly due to reduced crop output - and an increase in costs of 18 per cent, resulting in the first year profit of £671 becoming a loss of £210 by the third year.

The costs of the two groups seem to be broadly similar with the obvious exception of wages to regular labour. The "top 20 per cent" average £125 per annum for regular labour over the three years, whereas the "bottom 20 per cent" average £575 per annum for this

item over the same period. The difference in labour costs lies in the fact that the "top 20 per cent" had only five employees of which two were part-time, the balance of the labour requirement being supplied by the farmers (all 15 being working farmers) and their wives and families (3 working sons or relatives being partners and unpaid). The "bottom 20 per cent" however, had eleven employees of which 10 were full-time and one part-time. Furthermore, two of the farmers in this group contributed no manual labour to the business, and there were fewer sons in partnership (2). The total costs of the "bottom 20 per cent" were some 16 per cent higher than those of the "top 20 per cent" in 1966/67, but were 23 per cent higher in 1968/69. The inclusion of the Small Farm Scheme grants in the profits of the "bottom 20 per cent" would not have prevented an income decrease, for the 1966/67 profit including grant would be £889, and the 1968/69 profit (including grant) £92 - a fall of 90 per cent.

One possible explanation of the changes in profit of the "top 20 per cent" and "bottom 20 per cent" is related to the different type-of-farm constituency of the groups. Two thirds of the farms with rising profits were Cattle and Sheep farms, while more than one third of the farms with falling profits were in the Arable type group (Appendix Table A21).

In physical terms the "top 20 per cent" and "bottom 20 per cent" were of a similar crops and grass acreage, but the increase in livestock carry on the "top 20 per cent" (3.5 livestock units) greatly exceeded the change on the "bottom 20 per cent" (of 0.2 livestock units). A substantial reduction in poultry and sheep numbers on the "top 20 per cent" farms was contrasted by an increase in sheep and poultry numbers on the 20 per cent of the sample showing the greatest decrease in profit.

Further study of the two groups suggests that while the "top 20 per cent" had a lower average profit in 1966/67 than the "bottom 20 per cent", the gains made by the former were substantially greater than the falls recorded by the latter. When individual farms in each group are ranked by their profit (or loss) in 1966/67 and their position in that year compared with the rank position in 1967/68 and 1968/69, some of the largest gains and losses are shown to have occurred on farms which in 1966/67 had substantial profits

(Appendix Tables A23 and A24). In the "top 20 per cent" the three most profitable farms in 1966/67 all earned over £1,000 and were still the most profitable in 1968/69, but all earned over £2,000 by then. Among the "bottom 20 per cent" the five most profitable farms in 1966/67 all earned over £1,000, but suffered substantial reductions by the end of the three year period. By contrast the three least profitable farms in the "bottom 20 per cent" in 1966/67 had very poor results in that year and the position worsened by 1968/69.

Changes in Farm Capital

Complete balance sheets for all three years of the Small Farm (Business Management)(Scotland) Scheme, 1965 were obtained for 58 of the 75 farms and limited data on the net worth¹ position of a further 3 farms. Thus, for 14 of the 75 farms (18 per cent) no capital information was available, the major reason being that the balance sheet was not one of the compulsory records.

The average investment in livestock (on all farms with complete balance sheets) at the end of 1966/67 was £3,548 and by the end of 1968/69 this had risen to £4,077 - a rise of 15 per cent. At the same points in time, investment in machinery and equipment rose from £1,518 on average to £1,588 - a rise of 4½ per cent.

An analysis of the net worth¹ of the 61 farms with capital data available shows a very wide distribution, ranging from under £1,000 to over £15,000 (Appendix Table A25). The distribution of initial net worth was further analysed according to profit change, to investigate the hypothesis that farms with the greatest capital restriction made least improvement in profit during the Scheme, but a correlation of these two features was not significant² ($r = -0.09$).

¹Net Worth = Total assets minus total liabilities, i.e. the farmers' own capital in the business. It is the Balance Sheet value of assets available to the owner of the business after all other claims against these assets have been met.

²Correlation analysis estimates the extent to which changes in one variable (the dependent or y variable) are associated with changes in another variable (the independent or x variable). A perfect correlation (or functional relationship) would be represented by a coefficient figure (called r) of +1.0 or -1.0 (for a negative relationship). The percentage of variation in y explained by changes in x can be estimated by squaring 'r'. i.e. if $r = 0.7$, then 0.49 or 49 per cent of the variation in y is due to variations in x. In the case above, the dependent variable (y) was profit change from 1966/7 to 1968/9, and the independent variable (x) was initial net worth in 1966. There was no evidence of any connection between these two, i.e. capital limitations at the start of the Scheme did not significantly affect the increase in profits achieved in the three years.

An analysis of net worth at the end of the third year (including grants paid or due under the Scheme) showed that an upward shift in net worth occurred. The actual change in net worth occurring during the Scheme is shown in Table 18, both excluding and including grants payable under the Scheme. 56 per cent of the farms with capital data increased their net worth excluding grants, and 85 per cent when these grants are included. The average total grant per farm was £887 and 59 per cent of the 61 farms increased their net worth by £887 or more, rising to a maximum increase in net worth (including grants) of £7,985 in one case. At the other extreme, one farm suffered a decline in net worth of £1,380 even after taking into account the payment of grants due, and this was not the least profitable farm, as capital data for the least profitable farm was not available.

Table 18 Distribution of Farms by Change in Net Worth 1966 to 1969

Change in Net Worth 1966 to 1969	Excluding Small Farm Scheme Grants	Including Small Farm Scheme Grants
Rise of over £5,000	1	1
£3,001 to £5,000	-	3
£2,001 to £3,000	3	7
£1,501 to £2,000	5	7
£1,001 to £1,500	3	14
£501 to £1,000	7	11
£251 to £500	6	5
£0 to £250	9	4
Fall of £0 to £250	4	3
£251 to £500	7	2
£501 to £1,000	7	3
£1,001 to £1,500	6	1
over £1,500	3	-
Total Number	61	61

Table 19, below, gives details of the bank overdraft or deposit position of the 58 farms with complete balance sheets at the beginning of 1966/67 and at the end of 1968/69. During the period, 5 farms moved from an overdrawn position to a deposit one, but the range of bank indebtedness or credit is still very large indeed, varying from an overdraft in excess of £10,000 to deposits in current account

exceeding £3,000. The data indicate a tendency for overdrafts to be reduced and deposits increased during the Scheme, so that in general the capital position of the farms has been strengthened, although in particular cases the capital situation has shown a change varying from substantial improvement to severe capital erosion.

Table 19 Distribution of 58 Farms by Size of Balance in Bank Account 1966 and 1969

Size of Balance in Bank Account	Overdrafts		Deposits	
	Start of 1966/67	End of 1968/69	Start of 1966/67	End of 1968/69
Under £500	10	7	12	15
£500 to £1,000	3	3	2	3
£1,001 to £1,500	6	3	4	1
£1,501 to £2,000	1	3	2	6
£2,001 to £3,000	3	2	2	1
£3,001 to £5,000	7	6	2	3
Over £5,000	4	5	-	-
Total	34	29	24	29

THE CHANGE ON THE SAMPLE FARMS
COMPARED WITH THE CONTROL GROUP

In order to determine the net effect of the Small Farm (Business Management)(Scotland) Scheme, 1965 over and above the changes occurring on farms of a similar size, it was necessary to compare the changes on the sample farms with those occurring in general on small farms. To do this a "control group" was isolated by the Scottish Office Computer Services from the June Agricultural Returns by applying the following procedure:-

1. All farms of 275 to 600 S.M.D. 's were selected at June 1966.
2. Of this group all farms of 20 to 125 acres of crops and grass were selected and a code number list made.
3. All farms on this list which entered the Small Farm (Business Management)(Scotland) Scheme, 1965 or which were in the 1962 Small Farmer Scheme between June 1966 and June 1969 were removed. The reason for removing the latter group is that they could be in the course of plans of three to five years duration, and receiving financial stimulus to expand.
4. The Agricultural Returns of the remainder were totalled at June 1966 and June 1969, and the item totals, by county, printed out.

The control group thus consisted of farms which were eligible for the Small Farm (Business Management)(Scotland) Scheme 1965, but did not enter it, and were not receiving financial assistance from the previous Scheme either. Only by comparing the change on the 75 sample farms with the change taking place on other farms of the same size can the full effects of the Scheme be identified. The control group totalled 2,002 farms in the North of Scotland College of Agriculture area, and by using only those counties represented in the sample of 75 farms, the control was reduced to 1,744.

The comparison of the sample farms with the control group is presented in Table 20 in terms of actual numbers and acreages, percentage change in each group, and the net change attributable to the Scheme. The table is fairly self explanatory, and suggests that the Scheme has been associated with a significant increase in cattle and breeding pig numbers, and with limiting the decline in sheep and poultry numbers to less than that occurring on other small

Table 20

Sample Farms Compared with Control. June, 1966 & 1969

	Sample Farms Total			Control Farms Total			Net Change Associated With Scheme
	1966	1969	% Change	1966	1969	% Change	
<u>Stock Numbers</u>							
Dairy Cows	40	20	-50.0	1,390	1,004	-27.8	N/S ²
Beef Cows	900	1,147	+27.4	10,433	11,441	+9.7	+17.7
Bulls	33	41	+24.2	327	360	+10.1	+14.1
Other Cattle:							
Over 2 years	200	157	-21.5	8,825	7,777	-11.9	-9.6
1 - 2 years	1,181	1,400	+18.5	26,685	25,778	-3.4	+21.9
Under 1 year	<u>1,262</u>	<u>1,555</u>	<u>+23.2</u>	<u>21,932</u>	<u>21,035</u>	<u>-4.1</u>	<u>+27.3</u>
Ewes and Rams	3,141	2,825	-10.1	41,630	35,954	-13.6	+3.5
Other Sheep	<u>4,026</u>	<u>3,767</u>	<u>-6.4</u>	<u>55,817</u>	<u>47,407</u>	<u>-15.1</u>	<u>+8.7</u>
Sows and Boars	206	378	+83.5	2,139	3,446	+61.1	+22.4
Other Pigs	<u>842</u>	<u>1,065</u>	<u>+26.5</u>	<u>8,524</u>	<u>11,810</u>	<u>+31.1</u>	<u>-4.6</u>
ALL Poultry	12,463	8,004	-35.8	329,195	185,658	-43.6	-7.8
Total Livestock Units ¹							
	2,980.7	3,346.2	+12.3	56,713.2	52,802.5	-6.9	+19.2
<u>Crop Acres</u>							
Barley	772.75	928.25	+20.1	13,316.25	14,252.5	+7.0	+13.1
Oats	1,401.5	1,166.75	-16.7	25,430.0	21,213.5	-16.5	N/S
Feed Roots	441.5	401.0	-9.2	9,612.0	8,307.75	-13.6	+4.4
Other Crops	176.75	206.25	+16.7	2,863.75	2,763.25	-3.5	N/S
Grass: Mown	1,306.0	1,540.75	+18.0	19,862.0	21,948.5	+10.5	+7.5
Grazed	<u>2,644.25</u>	<u>2,679.5</u>	<u>+1.3</u>	<u>50,794.75</u>	<u>53,555.25</u>	<u>+5.4</u>	<u>-4.1</u>
Total Crops & Grass	<u>6,742.75</u>	<u>6,922.75</u>	<u>+2.7</u>	<u>121,851.75</u>	<u>122,076.75</u>	<u>+0.2</u>	<u>+2.5</u>
Livestock S.M.D.	16,287	18,588	+14.1	307,339	279,010	-9.2	+23.3
Crops S.M.D.	16,251	15,481	-4.7	304,271	281,033	-7.6	+2.9
Total S.M.D. (Incl. 15% for maintenance)	37,425	39,125	+4.5	703,351	644,050	-8.4	+12.9
Livestock Units per Acre of Crops & Grass	0.44	0.48	+9.1	0.46	0.43	-6.5	+15.6

¹For conversion factors of livestock units see Appendix IV.²N/S = Not significant due to smallness of numbers involved.

farms. The net effect of the Scheme on total stocking, as measured by livestock units, has been to cause a 12 per cent increase, as against a 7 per cent decrease on other small farms.

Farms participating in the Scheme had a significantly greater change in beef cow and young cattle numbers compared with the control group, and in breeding pig numbers. It is doubtful if the smaller decline in breeding sheep numbers on the sample farms is significant as only 42 of the 75 returned sheep at all in 1966 and numbers were usually small, but the difference in change of poultry numbers is of significance because several of the sample farms increased their poultry numbers.

Farms in the Scheme exhibited a greater proportionate move from oats to barley, and an increased acreage of grass for mowing. The total figures for the two groups may disguise the possibility that the farms involved were, on average, quite different in nature in the two groups being compared. To examine this possibility "per farm" figures were calculated for each group (Appendix Table A26). It was found that the control farms were some 22 per cent smaller in terms of crops and grass acreage, with fewer beef cattle (apart from those over 2 years of age), fewer sheep and pigs, but more poultry. The actual crop acreages differed between the two groups, but in 1966 the distribution of crops was fairly similar (Appendix Table A27). By 1969, however, the sample of farms in the Scheme had shown a relatively greater change in the distribution of crops than had the control group.

To conclude, farms in the Small Farm (Business Management) (Scotland) Scheme, 1965 had an increase in the number of beef cows, young cattle and breeding pigs substantially greater than the increase occurring on other farms of similar S.M.D. size, while the decline in sheep and poultry numbers was less than that occurring on similar farms. The Scheme has also induced a greater change in the cropping pattern than that taking place on similar farms during the period.

DISCUSSION OF THE SMALL FARM (BUSINESS
MANAGEMENT)(SCOTLAND) SCHEME, 1965 IN OPERATION

During the investigation informal discussions were held with those most closely connected with the farmers and the running of the Scheme - the General Inspectors of the Department of Agriculture and Fisheries for Scotland, and the County Advisers of the North of Scotland College of Agriculture. This section attempts to combine the author's conclusions, and makes criticisms and suggestions concerning the Scheme.

It was generally felt that to support specific sectors of the industry was justified, especially where special problems existed, and there was little doubt that small farms needed assistance of some sort. In selecting farms for such specific support, however, there was the usual problem of where to "draw the line", although in this Scheme, the limits set seemed to be well chosen. Of the resources land, labour and capital, capital was probably the most restricted, but that made available under the Scheme was too frequently regarded as an income supplement. This was possibly because the most able businessmen were unlikely to be within the limits set, except at the beginning of their farming careers. There was little doubt that the younger farmers gained most from the capital aid provided.

Objectives of Scheme and Degree of Success

The main objectives of the Scheme were generally viewed as being to supply capital and to impress on farmers the need for management records. However, the objective of supplying capital is open to criticism due to the fact that the initial payment was small (25 per cent of the total) and often received 18 to 24 months after the participant had entered the Scheme. Although the grants were intended as both aid and incentive, their actual effect in many cases was to mitigate the general income decline occurring on farms.

The Scheme was felt to be only moderately successful overall. The capital element was considered to be effective in the main, but

the promotion of a greater knowledge of record keeping and of farm administration was much less successful, except in a few cases. The success of this aspect of the Scheme was highly dependent on the initiative of the farmer concerned. Factors limiting the success of the Scheme were managerial and technical limitations, and the failure to overcome the traditional suspicion of book-keeping - often increased by the farmer's first impressions of the Small Farmer's Book. In extreme cases farmers only fulfilled the requirements of the Scheme to obtain the grants, but little change in their ideas or knowledge took place - a situation frequently made worse by the accountant doing everything for them, so that the farmers never saw the book at all.

While it is clear that improved recording, analysis and planning are valuable management tools, it should be stressed that improvement of any sort is mainly dependent on the farmer in the first place, and on the capital available. It is doubtful if greater knowledge of farm management techniques alone will solve the small farm income problem. Aspects of management other than mere record keeping and its application can limit the potential - judgement, intelligence, personal capacity and objectives to state a few. Market knowledge may also be an important factor leading to success as many technically inefficient farmers make a good living on market price changes alone.

Signs of significant changes in attitude and better understanding of management occurred only in a minority of cases - say from 10 - 25 per cent. A few dramatic "conversions" were noticed, and these were most heartening. One point to bear in mind is that such change is creeping in nature and perhaps is not as yet evident. Managerially orientated advice by the College was thought to be an important factor in inducing greater awareness of farm management - producing an interest in figures in the accounts other than mere "profit". Contact with the Department of Agriculture and Fisheries for Scotland and the College tended to increase technical efficiency through soil testing etc. and often triggered off interest in other Schemes. It was thought that those who improved were inherently superior human material at the outset.

The major proportion of participants were not managerially conscious at all - thinking entirely in technical terms - and the Scheme did not demonstrate the relationship between farm accounts and planning. The value of farm management was difficult to get over during this recent period when a general income decline set in. In any case, on many upland farms the only feasible system was the one operating, which may be a single enterprise, so that management advice had less to contribute than improved technical efficiency.

Connection with Payment to Outgoers' Scheme

The relationship of the Small Farm (Business Management) (Scotland) Scheme, 1965 to the Farm Structure (Payments to Outgoers) Scheme presented an interesting contrast in opportunity to the farmer. Many farmers opting for the Payments to Outgoers Scheme were probably leaving the industry anyway, either through old age, ill health or because it was unlikely that their business would survive increasing economic pressure. The Scheme provides an encouragement to retirement and may well have triggered off the idea in the minds of many farmers who had not yet thought of retiring. For many, the Payments to Outgoers' Scheme came at a convenient time in their lives, and it fulfills a real need in the industry. Some concern was felt at the actual working of the Payments to Outgoers' Scheme, with the inhibiting factors of legal problems, and the long run stability of the combined units being foremost among difficulties envisaged. The Payments to Outgoers' Scheme was felt to be more realistic than the Small Farm Scheme at the present time. Although time may cast doubt on the wisdom of expenditure on earlier Small Farmers' Schemes, such Schemes could nevertheless be regarded as sound policy, at least in a social context, if less so agriculturally. Which of the two Schemes is preferable presents a policy dilemma between what is good in economic terms for the agricultural industry, and what is good in social terms for rural communities.

On the question of how individual farmers have responded to the two Schemes, there is evidence that in the North East Region just over 50 per cent of the farmers applying for the Payments to Outgoers' Scheme have had a Small Farmers' Scheme in the past.

Clearly, age is a very important factor involved, and does not necessarily indicate that the Small Farmers' Scheme was not a success in 50 per cent of the cases. The Payments to Outgoers' Scheme has a lower S.M.D. limit of 100, so that a number of farmers applying for this Scheme were not eligible for the Small Farmers' Scheme.

It was thought that most of those taking the Payments to Outgoers' Scheme were old or ill and had had a Small Farmers' Scheme in the past. A few of those taking the lump sum option were going into other farms. The reason for the limited support of the Small Farmers' Scheme could be put down, in many cases, to the fact that the farmer just could not be bothered either to enquire about the Scheme, or to fulfill the requirements once they have started on it. (At the end of June 1970, 13 per cent of farms given approval had withdrawn or lapsed). Another factor thought to motivate people into taking the Payments to Outgoers' Scheme after the Small Farmers' Scheme is the psychological effect of enjoying three years of raised income, followed in many cases by a drop. Many of the outgoers have no heirs, or marital partners, and are too old to be interested in the expansion needed to maintain income levels. A number of those eligible for the Small Farmers' Scheme did not apply because of the book-keeping requirements, and also fears of enquiries into their business by the Department of Agriculture and Fisheries for Scotland, or because the Scheme was viewed as charity. (There is evidence that viewing official money as charity is a big factor in deterring eligible persons from applying for National Assistance and Social Security benefits).

Table 21 indicates the relative attractiveness of grants offered to farmers under the Small Farm (Business Management) Scheme and the Farm Structure (Payments to Outgoers) Scheme, according to the size of farm concerned. In terms of the grants offered, retirement from the agricultural industry is made relatively twice as attractive as staying in, where the farmer qualifies for a lump sum (up to the age of 65).

Table 21 Grants or Annuities Payable Under the Small Farm (Business Management)
(Scotland) Scheme and the Farm Structure (Payments to Outgoers) Scheme,
According to Acreage of Crops & Grass

Crops & Grass Acreage of Farm	Small Farm Scheme Grant	Payments to Outgoers' Lump Sum	Ratio of Column One to Column Two	Payments to Outgoers' Annuity	Break-even Point of Lump Sum & Annuity
	£	£		£	Years
50 Acres	575	1,400	2.4	230.0	6.0
60 "	660	1,500	2.3	237.5	6.3
70 "	745	1,600	2.1	245.0	6.5
80 "	830	1,700	2.0	252.5	6.7
90 "	915	1,800	2.0	260.0	6.9
100 "	1,000	1,900	1.9	267.5	7.1
110 "	1,000	2,000	2.0	275.0	7.3

The annuities payable to those farmers over 65 years old are shown in column four, but farmers between 55 and 65 years have a choice of accepting either a lump sum or an annuity. Which of these two is more advantageous depends on how long the farmer lives after making that choice and the last column of Table 21 indicates the relationship of the sums involved. If the farmer accepts an annuity and lives fewer years than the number in the last column applicable to the size of farm involved, then ignoring discounting factors he would have gained by opting for a lump sum (although a surviving spouse would continue to receive half the annuity).

The Record Book

The majority of the farmers lacked the knowledge of book-keeping required to fill in the Small Farm Record Book. A limited number attended College classes and learned, and in many cases little guidance was needed. A proportion completed the cash sheets themselves, and had the last 4 sheets finalised by their accountant. Those who did not learn to complete the Record Book simply handed it to their accountant and he did it for them. This tendency predominated in the Moray Firth region, whereas in the North East more farmers completed their own books. Where the accountant did the books, the farmer was little wiser at the end of the Scheme.

Whether or not the farmer completed the Record Book, most of them did not know enough of farm management analysis to be able to use the records, and only a few had any interpretation done by the College, so that although the requirements of the Scheme were fulfilled, its benefit was limited. Certain firms of accountants had farm business analysis done for their clients automatically, but many farmers were not interested in any comments or professional appraisal and had had the records kept only because they were a requirement prior to receiving a grant. While it is recognised that there may be some danger of over-emphasis on the value of records in solving problems, and that on single enterprise farms, their benefit may be limited, there seems little point in keeping records unless they are used. The whole point in having farm records is to apply the information for managerial purposes - otherwise recording is simply an exercise in arithmetic.

It was quite clear that assumptions about farmers' knowledge of book-keeping and farm business management were far in excess of the situation. While almost all farmers can understand the profit and loss account, in the investigator's opinion over 66 per cent of the sample in this study failed to understand the balance sheet and capital account, and the serious implication of declining net worth - a not uncommon feature of the latter document. For the majority of the farmers, nobody had ever explained farm accounts to them, and any knowledge of management analysis, gross margins and other tools of decision making was restricted to a very small number. As there was no compulsion to have the farm records subjected to a farm management appraisal, the majority of farmers are little wiser in the field of management after the Scheme.

The plans and advice were not related to the records, except perhaps in the third year, and so the farmer could see no connection between the records and what happened on the farm. The structure of the Scheme was almost a contradiction of farm management. Plans tended to be the farmer's ideas, written down, with little chance of ascertaining whether the policy was the best one financially. The importance and value of farm records was not brought home because for 2 of the 3 years plans were made with no reference to the books. In many cases the books were never

referred to, even when formulating the plans for the third year, when some records were available. Two possible ways of correcting this might have been possible within the original structure:-

- (i) Extending the period of the Scheme and/or
- (ii) Insisting on some appraisal of the records being carried out.

Alternatively, the structure suggested at the end of this section seems a very much superior one from the point of view of bringing home to the farmer the value of farm records and their use in planning, i. e. the structure of 1 or 2 years of record keeping first then 2 years of planning on the basis of those records, with grants in greater individual amounts. Extension of the duration of the Scheme would have been undesirable if it resulted in a reduction in amounts of individual annual grants.

So far as the administration of the record keeping side was concerned there were some very doubtful features. Sending the F.R.B. 12 (Profit and Loss Account) to the Department of Agriculture and Fisheries for Scotland was of little value, without the rest of the book. It is only possible to find out if the F.R.B. 12 has been completed correctly by reference to the whole book. While the Department of Agriculture and Fisheries for Scotland inspectors were supposed to check on this point, they could not possibly do so thoroughly in the brief time they could allow to each one. There appeared to be obvious errors in some of the F.R.B. 12s, which were accepted and on which grant was paid.

Feed records were optional, and with mixed farms this severely limited the extent of farm business analysis. Although these records are more valuable with intensive livestock and on mixed farms, they could have been valuable on most farms, and the inspector could have used his discretion in deciding on their necessity in individual cases. Where only extensive enterprises are kept, some simple form of grazing records might have been a suitable alternative.

Although F.R.B. 1 and 2 (opening valuation) and F.R.B. 14 (closing valuation) were of the same content, they were of completely different layout, which was confusing. The Scottish

Farm Business Record Book has F.R.B. 1 and 2 in duplicate - the same might have been included in the Small Farmers' Record Book.

In the second and third years only the essential record sheets were sent out. Any farmer who had been keeping the others had to write to Edinburgh to get them renewed, and this was clearly a deterrent to continuing with these records.

General Comments

It was felt that to some extent the Scheme benefited farmers who had not bothered to expand in the past - especially the middle aged and older ones. Advisers found it somewhat galling to see farmers they had encouraged to expand being excluded, because by their own initiative, they had exceeded the S.M.D. limits. This led in some cases to purposely reducing the S.M.D. size of the farm in order to get into the Scheme, by cutting out those enterprises with high S.M.D. ratings such as turnips and potatoes. The validity of this criticism depends on whether the object of the Scheme is to benefit the individual or benefit the industry as a whole.

Any plans made, or advice given, should be within the financial and managerial ability of the farmer concerned and these factors can render any improvement marginal. Many of these small farms have severe capital limitations and as these are some reflection of the farmer's ability to earn profits it means that the farmer himself is the ultimate limiting factor. Some technical improvement is usually possible with even the poorest farmers, but one cannot change the nature of the man. If plans were made which were too ambitious there was always the danger that such plans would not be achieved, and the grant not paid.

Many farmers said that if the farm was "fully stocked" the only change possible was to improve the quality of the stock. It must be recognised that "fully stocked" is a subjective judgement and there is frequently room for further intensification, but this may not be within the occupier's technical ability. The limit may be due to other factors such as buildings.

A frequent complaint of farmers was that the value of the grant was badly eroded by taxation. Capital development would reduce

the effects of taxation, but this may not have been the most profitable use of the money. One suspects that if these comments were a result of very heavy taxation, then such farmers were not in need of financial assistance, as their profits were adequate for expansion to take place.

There appeared to be poor public relations in several cases at the outset. Farmers were advised to have the book-keeping done by an accountant when quite a number of them clearly had the intelligence to do it themselves, with some guidance and to their greater benefit. There was evidence that accountants disliked the "new" system of book-keeping in some cases, and complaints were heard of duplication of accounting. Such duplication is, of course, unnecessary because the F.R.B. system could replace the former method. Even so, several accountants still do the farm accounts by both systems.

Suggested Changes in Small Farmers' Scheme

During the course of this study it became apparent to the investigator that certain changes in the Scheme were desirable to make it more effective. A major change would have been to have two years of record keeping only, at £50 per year, then 2 years of planning and records with the capital grant in large amounts - say £500 and £400 - paid immediately the planning stage was completed. This would have been valuable in -

- (a) Ensuring plans were based on facts, and were seen to be related to record keeping.
- (b) Capital payments were in amounts which were large enough for realistic investment purposes.
- (c) The more lethargic cases would drop out before the grant stage was reached.

Other suggestions which might have improved the effectiveness of the Scheme could be put forward.

- (i) Make the Balance Sheet one of the essential records, as this is as important as the Profit and Loss Account, yet is very largely neglected, and its implications ignored.
- (ii) Exploit the advisory element to a greater extent. A first step would be to insist on the farmer consulting the Adviser at the outset, and reviewing each year's records as they become available. Too many farmers

only saw the Adviser once - at the outset - and never bothered subsequently, thus a great deal of the potential value of the Scheme was lost.

- (iii) Use the Money voted for this Scheme as guarantees for bank loans, and not simply grants to the good, bad or indifferent farmer. Alternatively, make the money available as cheap repayable loans.
- (iv) If (iii) was thought undesirable it might have been possible to adjust the basis of the grant, since, under the 1959 and 1962 scheme smaller farms could still obtain the full grant by having their Schemes over a longer time period, whereas under the 1965 Scheme the larger farms automatically receive more money because of their greater acreage. As acreage is considered an insufficient measure of business size, it suggests that to relate grants to acreage only penalises the small intensive farm.
- (v) Raise both the upper and lower S.M.D. limits of eligibility to exclude the really poor farms and to include more of the more intensive ones, although keeping the same acreage limits.
- (vi) Reduce the amount of administrative work, which appeared to be out of all proportion to the amount of money being dispensed, and concentrate effort on more effective areas such as instruction in accounting, management appraisal of records and technical advice.

ASSESSMENT OF THE SUCCESS OF THE SMALL FARM
(BUSINESS MANAGEMENT)(SCOTLAND) SCHEME, 1965

The two primary objectives of the Small Farm (Business Management)(Scotland) Scheme, 1965 would appear to be

- (i) To improve the income of the small farmer, and
- (ii) To impress on the small farmer the need for, and usefulness of, farm records.

Improving the Income of the Small Farmer

The average income of the 75 farms studied from 1966/67 to 1968/69 rose from £738 to £883 during the period (excluding grants payable under the Scheme). With grants payable included, the average income rose from £960 to £1,194. In either case the rise in average income of the whole group was 19 to 20 per cent during the period of the Scheme studied. So far as the individual farms were concerned, 45 of the 75 (60 per cent) enjoyed an increase in profits, excluding grants. If grants under the Scheme are included the number of farms showing an increased profit was 68 of the 75 (90 per cent), although on either basis the increase in some cases will be fairly limited.

Judged on the basis of whether or not the Scheme has increased the income of the participating farmers, then it would appear to have been a success.

The Need for, and Usefulness of Records

As an exercise in educating the small farmer in the need for, understanding of, and usefulness of farm records the Scheme had considerably less impact than it could have had.

The structure of the Scheme did not demonstrate the logical sequence of recording, analysis, identification of weak points and application of the knowledge yielded in management changes. This was partly due to the structure of the Scheme as it was administered, but was also due to the farmers' limited understanding of the record-keeping system and to the lack of analysis or managerial appraisal of the resulting profit and loss account and balance sheet. So far as explaining accounts and business analysis was concerned, considerable impact might have been achieved by the free issue of a

simplified version of "Planning the Farm Business"¹, or of a similar booklet.

With regard to having the completed record books appraised by persons with a knowledge of farm management only 25 per cent of those questioned had had any such appraisal undertaken, and much of this was fairly superficial discussion with the local Adviser. Although only a quarter of the sample had any analysis or appraisal of their records carried out, some 47 per cent when questioned directly said they intended to continue keeping records after the Scheme had finished, i. e. when there would no longer be any compulsion to keep farm records.

About 54 per cent of the Small Farm Record Books were kept by accountants, 37 per cent by the farmers themselves or by their wives or members of their families, while the remaining 9 per cent had the cash sheets filled in by the farmer and the profit and loss account completed by the accountant. Although almost all the farmers involved clearly understood the profit and loss account, in the investigators' opinion, over 66 per cent of this sample did not understand the balance sheet and capital account, nor appreciated their implications in relation to the health of the farm business.

The Success of the Scheme in Features other than the Stated Objectives

One of the most successful results of the Scheme apart from the stated objectives of raising income and impressing on the small farmer the need for managerial records, has been the number of farmers it has brought into contact with the College Advisory Services. This fact was frequently mentioned by College Advisers who had been approached for advice by many farmers with whom the College had had no previous contact at all, as well as by those who had made very limited use of the Advisory Service. These contacts allowed considerable technical improvement to be initiated through soil testing, fertiliser treatment advice and improved animal feeding. The educational impact of such contacts must be considerable, and may lead to a widening of the extension function on a permanent basis.

¹"Planning the Farm Business". H.M.S.O. 1967 (8s.6d.)

It would appear as if an increase in technical efficiency had occurred on many of the 75 farms in the sample as a result of such advisory contacts.

The number of livestock units per 100 acres of crops and grass increased by 9 per cent during the period studied while other small farms showed a reduction of over 6 per cent in livestock units per 100 acres crops and grass. Although expenditure on feedingstuffs showed a rise of 12 per cent between 1966/67 and 1968/69, when related to the number of livestock units being carried, it remained unchanged at £15.66 per livestock unit in both 1966/67 and 1968/69.

At first sight it appears that the increased livestock carry was made possible by an increase in fertiliser use. In 1966/67 expenditure on lime and fertiliser per crop and grass acre was £3.04, while in 1968/69 it was £3.60 - a rise of 18.4 per cent. However, a major part of this increased expenditure was due to a price increase of fertilisers themselves. The Ministry of Agriculture, Fisheries and Food index of fertiliser prices rose from 95.1 in 1966/67 to 110.6 in 1968/69, a rise of 16.3 per cent. When the increase in fertiliser expenditure on the sample farms is adjusted for this factor, the resulting quantity increase is reduced to about 2 per cent. However, it can be assumed that as a result of contact with the Advisory Officers better utilisation was made of the lime and fertiliser purchased as there has clearly been an increase in economic efficiency occurring during the Scheme. A 9 per cent increase in livestock units per 100 acres of crops and grass, with no unit increase in feedingstuff expenditure and only 2 per cent more expenditure on lime and fertiliser is evidence of this.

Labour productivity on the farms in the Scheme increased during the period studied by some $7\frac{1}{2}$ per cent. In 1966 the number of working farmers and employees was 113 on the 75 farms and their average labour effort in standard man-days was 331 S.M.D. By 1969 the total work force of full-time men was 110 and their average effort was 356 standard man-days. This calculation, of course, takes no account of the increase or decrease in casual labour use, or the work of the farmers' wife.

Table A1 Cost and Significance of Small Farmers' Schemes, 1959/60 to 1968/69 (Forecast) Scotland and United Kingdom

	1959/60	1960/61	1961/62	1962/63	1963/64	1964/65	1965/66	1966/67	1967/68	1968/69 (Forecast)	Total 1959/60 to 1968/69
<u>Scotland</u>											
	£'000	£'000	£'000	£'000	£'000	£'000	£'000	£'000	£'000	£'000	£'000
Total of Price Guarantees, Production Grants and Subsidies ¹	39,225	41,198	52,206	47,210	46,366	41,614	39,672	44,246	48,887	51,790	452,414
Production Grants Only ²	16,489	18,373	17,407	18,569	18,694	20,666	20,710	23,296	22,283	23,770	200,257
Small Farmers' Scheme Grants	36	270	290	390	350	330	367	344	320	370	3,067
	£	£	£	£	£	£	£	£	£	£	£
Small Farmers' Scheme Grants as % of Total Price Guarantees, Production Grants and Subsidies	0.09	0.66	0.56	0.83	0.75	0.79	0.93	0.78	0.65	0.71	0.68
Small Farmers' Scheme Grants as % of Production Grants	0.22	1.47	1.67	2.10	1.87	1.60	1.77	1.48	1.44	1.56	1.53
<u>United Kingdom</u>											
	£ Million	£ Million	£ Million	£ Million	£ Million	£ Million	£ Million	£ Million	£ Million	£ Million	£ Million
Total of Price Guarantees, Production Grants and Subsidies ¹	250.3	256.2	333.6	300.1	283.6	254.6	226.5	217.2	248.8	267.5	2,638.4
Production Grants Only ²	83.0	91.8	93.4	94.1	89.4	92.0	88.4	92.6	89.8	99.8	914.3
Small Farmers' Scheme Grants	1.1	5.9	7.1	7.2	5.6	4.8	3.4	2.3	1.8	2.0	41.2
	£	£	£	£	£	£	£	£	£	£	£
Small Farmers' Scheme Grants as % of Total Price Guarantees, Production Grants and Subsidies	0.44	2.3	2.13	2.40	1.97	1.89	1.50	1.06	0.72	0.75	1.56
Small Farmers' Scheme Grants as % of Production Grants	1.32	6.43	7.60	7.65	6.26	5.22	3.85	2.48	2.00	2.00	4.51

SOURCE: Scotland: Scottish Agricultural Economics. Vols. 11-19

U.K. : Annual Review and Determination of Guarantees, 1968 & 1969. Cand. 3558 & 3965

1 - Equivalent to Totals I, II & III in Command 3965 (& 3558).

2 - Equivalent to Total II only in Command 3965 (3558).

Table A2 Distribution of Sample by Crops & Grass Acres, 1966 & 1969, and by Occupancy

	Less than 50 Acres	51 to 74 Acres	75 to 89 Acres	90 to 104 Acres	105 to 125 Acres	Over 125 Acres	Total No.
ALL Farms 1966	2	12	21	25	15	-	75
ALL Farms 1969	2	13	17	24	17	2	75
Owners 1969	1	6	11	11	10	1	40
Tenants 1969	1	7	6	13	7	1	35

Table A3 Distribution of Sample by S.M.D.^{*}, 1966 & 1969 and by Occupancy

	Under 450 S.M.D.	450-499 S.M.D.	500-549 S.M.D.	550-600 S.M.D.	Over 600 S.M.D.	Total No.
ALL Farms 1966	20	18	19	14	4	75
ALL Farms 1969	21	12	14	12	16	75
Owners 1969	13	6	6	5	10	40
Tenants 1969	8	6	8	7	6	35

*S.M.D. according to Agricultural Return of June 1966 & 1969

Table A4 Analysis of S.M.D. Change Between 1966 & 1969 (June)

	Less than 50	51-99 S.M.D.	100-149 S.M.D.	150-199 S.M.D.	200-249 S.M.D.	Over 250 S.M.D.	Total
Increase	20	10	5	5	2	1	43
Decrease	23	8	1	-	-	-	32

Table A5

Financial Data for ALL Sample Farms, Owner-Occupiers & Tenants, 1966/67 to 1968/69

Number of Farms	All Farms			All Owner-Occupiers			All Tenants		
	75			40			35		
	1966/67	1967/68	1968/69	1966/67	1967/68	1968/69	1966/67	1967/68	1968/69
Gross Outputs: £ per Farm									
Barley	203	205	202	249	254	229	150	149	171
Oats	269	249	267	219	196	207	327	310	335
Potatoes	128	123	82	68	90	70	197	161	96
Other Crop Output	101	92	86	61	63	41	144	125	138
Total Crops	<u>701</u>	<u>669</u>	<u>637</u>	<u>597</u>	<u>603</u>	<u>547</u>	<u>818</u>	<u>745</u>	<u>740</u>
Cattle	1,400	1,702	1,957	1,476	1,800	2,066	1,312	1,590	1,831
Sheep & Wool	312	327	355	327	358	403	295	291	299
Pigs	454	518	591	544	647	779	352	370	377
Poultry	254	204	160	329	261	206	169	139	107
Other Livestock	36	29	29	9	9	7	66	52	55
Total Livestock	<u>2,456</u>	<u>2,780</u>	<u>3,091</u>	<u>2,685</u>	<u>3,075</u>	<u>3,461</u>	<u>2,194</u>	<u>2,442</u>	<u>2,669</u>
Miscellaneous Output ²	264	248	237	242	229	219	291	270	258
Total Gross Output	<u>3,421</u>	<u>3,697</u>	<u>3,965</u>	<u>3,524</u>	<u>3,907</u>	<u>4,227</u>	<u>3,303</u>	<u>3,457</u>	<u>3,667</u>
Costs									
Fertiliser & Lime	274	314	332	257	298	325	292	333	340
Feedingstuffs	622	608	699	736	716	830	490	483	549
Regular Labour ¹	338	289	336	359	321	385	314	252	281
Machinery & Power	384	425	482	397	432	503	368	416	457
Machinery Depreciation	249	273	318	268	300	334	228	243	299
Rent & Rates	154	165	173	50	54	55	273	292	308
Bank & Loan Interest	114	115	125	163	164	178	59	59	66
Other Costs	546	583	617	544	573	634	548	685	596
Total Costs	<u>2,680</u>	<u>2,772</u>	<u>3,082</u>	<u>2,775</u>	<u>2,858</u>	<u>3,244</u>	<u>2,572</u>	<u>2,673</u>	<u>2,896</u>
Profit or Loss	<u>741</u>	<u>925</u>	<u>883</u>	<u>749</u>	<u>1,049</u>	<u>983</u>	<u>731</u>	<u>784</u>	<u>771</u>
S.F.S. Grant Due	222	354	311	225	357	315	218	351	306

¹Excluding farmer and wife, as well as unpaid family workers or partners. ²Excluding S.F.S. Grant.

Table A6 Livestock, Crops and S.M.D., Average per Farm at June Census 1966 and 1969
All Farms and by Occupancy

	All Farms		Owner Occupiers		Tenants	
	1966	1969	1966	1969	1966	1969
Stock Numbers						
Dairy Cows	0.5	0.3	0.1	-	1.0	0.6
Beef Cows	12.0	15.3	11.9	14.1	12.1	16.6
Bulls	0.4	0.5	0.5	0.6	0.4	0.5
Other Cattle: Over 2 years	2.7	2.1	2.5	1.9	2.8	2.3
1-2 years	15.8	18.7	18.9	22.0	12.1	14.9
Under 1 year	16.8	20.7	16.8	19.9	16.8	21.7
Ewes and Rams	41.9	37.7	39.3	34.7	44.8	41.0
Other Sheep: Over 1 year	11.2	9.6	11.9	8.9	10.4	10.4
Under 1 year	42.5	40.6	47.4	41.9	36.8	39.2
Sows and Boars	2.7	5.0	3.2	6.0	2.2	4.0
Other Pigs: 2-5 months	9.6	13.1	12.4	18.9	6.5	6.5
Over 5 months	1.6	1.1	1.5	0.7	1.7	1.6
Poultry: Laying Birds	102.5	94.2	126.5	123.0	75.0	61.0
Growers	60.6	12.0	84.8	13.7	32.8	10.0
Other Poultry	3.1	0.5	4.2	0.9	1.8	-
Total Livestock Units	39.74	44.6	42.07	46.27	37.08	42.73
Crops - Acres						
Barley	10.3	12.4	11.1	14.0	9.4	10.5
Oats	18.7	15.6	16.2	12.8	21.5	18.7
Potatoes	1.3	1.2	0.7	1.0	1.9	1.4
Feed Roots	5.9	5.3	5.8	5.5	5.9	5.2
Other Crops	1.0	1.6	0.8	0.7	1.4	0.5
Grass: Mown	17.4	20.5	15.7	18.6	19.4	22.8
Grazed	35.3	35.7	40.0	39.8	29.7	31.0
Total Crops and Grass	89.9	92.3	90.3	92.4	89.4	92.1
Rough Grazing	120.3	119.9	33.3	33.3	219.6	219.0
Buildings, Woods, etc.	2.6	2.6	3.7	3.9	1.3	1.1
Total Farm Acreage	212.8	214.8	127.3	129.6	310.3	312.2
Livestock S.M.D.	217	248	229	257	204	237
Crop S.M.D.	217	206	197	193	239	222
Livestock and Crop S.M.D.	434	454	426	450	443	459
Total S.M.D. (Incl. 15% for Maintenance work)	499	522	490	517	509	527

Table A7 Distribution of Farms by Farm Profit. All Farms 1966/67 to 1968/69.
Excluding and Including Grant

Profit or Loss (£)	Excluding Grant Payable			Including Grant Payable		
	1966/67	1967/68	1968/69	1966/67	1967/68	1968/69
> -500	1	-	5	1	-	1
-251 to -500	1	-	-	-	-	4
0 to -250	2	1	3	-	-	-
0 to +250	7	5	6	3	2	3
251 to 500	7	11	5	7	3	5
501 to 750	19	16	11	9	6	5
751 to 1,000	20	12	9	18	11	10
1,001 to 1,250	11	12	11	19	17	8
1,251 to 1,500	3	8	11	11	16	12
1,501 to 2,000	3	9	10	6	12	16
2,001 to 2,500	-	-	3	-	7	9
2,501 to 3,000	-	-	-	-	-	1
3,001 to 4,000	1	-	1	1	-	1
Over 4,000	-	1	-	-	1	-
Total	75	75	75	75	75	75

Table A8 Distribution of Farms by Profit Change 1966/67 to 1968/69 (Excluding Grant)
And by Age of Farmer (1966)

Profit Change (£)	No.	Under 25	25 - 34	35 - 44	45 - 54	55 - 64	Over 65
> -1,000	5	-	-	1	1	3	-
-751 to -1,000	4	-	-	-	1	3	-
-501 to -750	4	-	-	-	-	3	-
-251 to -500	5	-	1	1	1	2	-
0 to -250	12	-	3	3	1	4	1
0 to +250	15	-	1	2	6	4	2
+251 to +500	8	-	-	2	4	-	2
+501 to +750	6	1	-	-	4	1	-
+751 to +1,000	9	1	-	3	1	2	2
+1,001 to +1,250	3	-	1	-	2	-	-
+1,251 or more	4	-	-	1	-	3*	-
Total	75	2	6	14	21	25	7

*Son (24) took over in second year.

Table A9 Distribution of Farms by Profit Change 1966/67 to 1968/69 (Excluding Grant)
And by North of Scotland College of Agriculture Type Groups

Profit Change (£)	No.	1	2	3	4	5	6
> -1,000	5	-	-	1	3	-	1
-751 to -1,000	4	-	1	1	1	1	-
-501 to -750	4	-	1	1	1	1	-
-251 to -500	5	1	1	2	1	-	-
0 to -250	12	-	2	8	2	-	-
0 to +250	15	-	-	8	3	4	-
+251 to +500	8	-	2	3	2	1	-
+501 to +750	6	-	-	3	-	3	-
+751 to +1,000	9	-	1	8	-	-	-
+1,001 to +1,250	3	-	1	1	-	1	-
+1,251 or more	4	-	-	2	-	2	-
Total	75	1	9	38	13	13	1

Table A10 Distribution of Farms by Profit Change 1966/67 to 1968/69 (Excluding Grant)
And by S.M.D. Size in 1966

Profit Change (£)	No.	Under 450 S.M.D.	450 - 499 S.M.D.	500 - 549 S.M.D.	550 - 600 S.M.D.	Over 600 S.M.D.
> -1,000	5	1	1	1	2	-
-751 to -1,000	4	2	1	-	1	-
-501 to -750	4	2	1	-	1	-
-251 to -500	5	1	1	1	2	-
0 to -250	12	5	3	2	-	2
0 to +250	15	2	4	5	4	-
+251 to +500	8	2	2	2	1	1
+501 to +750	6	2	-	4	-	-
+751 to +1,000	9	3	3	2	1	-
+1,001 to +1,250	3	-	-	2	1	-
Over +1,250	4	-	2	-	1	1
Total	75	20	18	19	14	4

Table A11 Distribution of Farms by Average Profit¹ per Farm 1966/67 to 1968/69
And by Age of Occupier²

3 Year Average Profit (£)	No.	Under 25	25 - 34	35 - 44	45 - 54	55 - 64	65 and over
More than -500	1	-	-	-	-	1	-
-251 to -500	1	-	-	-	-	1	-
0 to -250	1	-	-	-	-	1	-
0 to +250	6	-	-	-	1	4	1
+251 to +500	8	-	-	3	3	2	-
+501 to +750	16	-	2	3	2	7	2
+751 to +1,000	15	-	1	1	8	5	-
+1,001 to +1,250	13	1	1	3	3	2	3
+1,251 to +1,500	9	1	1	1	4	2	-
+1,501 to +2,000	4	-	-	3	-	-	1
+2,001 to +3,000	-	-	-	-	-	-	-
+3,001 and over	1	-	-	-	-	-	-
Total	75	2	6	14	21	25	7

¹Excluding Grant.

²Age in 1966.

Table A12 Distribution of Farms by Average Profit¹ per Farm 1966/67 to 1968/69
And by Type of Farm²

3 Year Average Profit (£)	No.	1	2	3	4	5	6
More than -500	1	-	-	1	-	-	-
-251 to -500	1	-	-	-	1	-	-
0 to -250	1	-	-	-	-	1	-
0 to +250	6	-	2	2	1	-	1
+251 to +500	8	-	2	2	3	1	-
+501 to +750	16	-	-	10	2	4	-
+751 to +1,000	15	1	-	10	4	-	-
+1,001 to +1,250	13	-	3	5	2	3	-
+1,251 to +1,500	9	-	1	6	-	2	-
+1,501 to +2,000	4	-	1	2	-	1	-
+2,001 to +3,000	-	-	-	-	-	-	-
+3,001 and over	1	-	-	-	-	1	-
Total	75	1	9	38	13	13	1

¹Excluding Grant.

²North of Scotland College of Agriculture Types.

Table A13 Distribution of Farms by Average Profit per Farm 1966/67 to 1968/69
By S.H.D. Size (1966) and Occupancy

3 Year Average Profit (£)	No.	Under 450 S.H.D.	450 - 499 S.H.D.	500 - 549 S.H.D.	550 - 600 S.H.D.	Over 600 S.H.D.	Owner	Tenant
More than -500	1	1	-	-	-	-	1	-
-251 to -500	1	-	1	-	-	-	1	1
0 to -250	1	1	-	-	-	-	1	-
0 to +250	6	2	2	1	1	-	3	3
+251 to +500	8	3	1	2	1	1	1	7
+501 to +750	16	4	3	5	4	-	9	7
+751 to +1,000	15	3	4	5	3	-	9	6
+1,001 to +1,250	13	4	3	5	1	-	8	5
+1,251 to +1,500	9	2	3	1	2	1	4	5
+1,501 to +2,000	4	-	1	-	1	2	3	1
+2,001 to +3,000	-	-	-	-	-	-	-	-
+3,001 and over	1	-	-	-	1	-	1	-
Total	75	20	18	19	14	4	40	35

Table A14

Average per Farm Financial Data for Sample Farms by S.M.D. Size Groups (June 1966), 1966/67 to 1968/69

Number of Farms	Up to 450 S.M.D. (1966)			450-500 S.M.D. (1966)			500-550 S.M.D. (1966)			Over 550 S.M.D. (1966)		
	20			18			20			17		
	1966/67	1967/68	1968/69	1966/67	1967/68	1968/69	1966/67	1967/68	1968/69	1966/67	1967/68	1968/69
Gross Outputs: £ per Farm												
Barley	128	119	134	265	253	247	282	289	304	132	156	115
Oats	236	219	305	287	284	246	267	246	273	292	252	236
Potatoes	123	87	57	134	157	143	148	162	65	106	82	68
Other Crop Output	106	90	123	109	113	83	96	71	42	89	99	96
Total Crops	593	515	619	795	807	719	793	768	684	619	589	515
Cattle	1,219	1,491	1,556	1,437	1,666	2,007	1,474	1,922	2,220	1,486	1,729	2,065
Sheep & Wool	218	219	263	266	302	335	296	342	410	490	463	418
Pigs	445	462	509	197	293	370	205	231	262	1,031	1,159	1,309
Poultry & Eggs	175	149	152	334	299	285	378	231	94	117	137	113
Other Livestock	28	7	6	18	8	10	4	3	4	101	108	108
Total Livestock	2,085	2,328	2,486	2,252	2,568	3,007	2,357	2,729	2,990	3,225	3,596	4,013
Miscellaneous Output ²	223	190	188	240	242	248	250	240	235	355	330	285
Total Gross Output	2,901	3,033	3,293	3,287	3,617	3,974	3,400	3,737	3,909	4,199	4,515	4,813
Costs												
Fertiliser & Lime	228	230	294	231	233	310	307	343	345	333	369	384
Feedingstuffs	582	492	598	433	469	565	625	541	590	866	968	1,087
Regular Labour ¹	261	294	322	390	312	383	384	301	339	318	244	300
Machinery & Power	343	372	465	418	465	514	365	408	432	416	464	525
Machinery Depreciation	244	281	288	294	291	361	233	241	295	228	284	333
Rent and Rates	113	116	113	158	177	190	156	168	172	196	206	227
Bank and Loan Interest	72	76	95	83	88	92	171	160	172	131	135	141
Other Costs	457	461	519	567	699	655	553	617	643	622	662	663
Total Costs	2,300	2,322	2,694	2,572	2,734	3,070	2,794	2,779	2,988	3,110	3,332	3,660
Profit or Loss	601	711	599	715	883	904	606	958	921	1,089	1,183	1,153
S.F.S. Grant Due	219	344	297	218	355	321	233	371	322	217	346	303

¹Excluding farmer and wife, as well as unpaid family workers or partners. ²Excluding S.F.S. Grant.

Table A15 Livestock, Crops & S.M.D., Average per Farm at June 1966 & 1969
By S.M.D. Size Groups

	Up to 450 S.M.D. (1966)		450-500 S.M.D. (1966)		500-550 S.M.D. (1966)		Over 550 S.M.D. (1966)	
	1966	1969	1966	1969	1966	1969	1966	1969
	Stock Numbers							
Dairy Cows	1.0	-	-	0.2	-	-	1.2	0.9
Beef Cows	9.6	11.6	10.7	12.3	12.1	16.3	16.0	21.7
Bulls	0.4	0.4	0.4	0.4	0.4	0.6	0.6	0.8
Other Cattle:								
Over 2 yrs.	2.6	0.9	2.6	2.7	3.1	3.0	2.2	2.4
1 - 2 yrs.	15.0	18.0	16.0	22.9	17.6	20.9	14.2	12.4
Under 1 yr.	11.7	14.0	15.4	14.9	20.9	27.7	19.5	26.7
Ewes & Rams	24.5	27.1	30.1	26.0	39.2	34.9	77.9	65.7
Other Sheep:								
Over 1 yr.	17.9	8.3	2.8	9.1	5.1	2.7	19.4	19.6
Under 1 yr.	24.9	27.9	42.9	34.8	43.9	43.6	61.0	58.2
Sows & Boars	4.0	5.6	0.9	4.1	1.4	1.9	4.8	9.1
Other Pigs:								
2 - 5 months	9.6	7.6	3.8	8.9	2.0	3.0	24.8	36.0
Over 5 months	3.1	2.8	1.1	1.2	0.1	-	1.9	0.3
Poultry:								
Laying Birds	65.9	66.2	90.9	146.5	159.2	114.1	91.0	48.6
Growers	31.3	15.0	94.9	13.9	74.2	17.5	42.3	-
Other	1.6	-	1.3	1.9	6.8	-	2.6	-
Total Livestock Units	33.48	34.99	33.45	41.09	41.88	47.19	51.26	56.6
Crops - Acres								
Barley	8.8	10.9	11.9	12.5	10.2	14.5	10.4	11.5
Oats	16.0	16.9	18.1	16.0	21.4	14.2	19.3	15.0
Potatoes	1.1	0.9	1.7	2.0	1.3	1.1	1.0	0.8
Feed Roots	3.2	3.5	6.6	6.0	6.9	6.5	7.0	5.5
Other Crops	1.3	0.8	0.9	0.7	0.2	0.4	2.1	4.5
Grass: Mown	14.0	18.8	18.7	21.8	18.5	20.5	18.9	21.4
Grazed	34.2	33.9	34.2	33.4	37.1	40.1	35.4	35.4
Total Crops & Grass	<u>78.6</u>	<u>85.7</u>	<u>92.1</u>	<u>92.4</u>	<u>95.6</u>	<u>97.3</u>	<u>94.1</u>	<u>94.1</u>
Rough Grazing	35.5	35.3	43.5	43.4	41.5	40.4	393.9	394.1
Building, Woods, etc.	2.6	2.7	5.1	5.3	1.6	1.5	1.2	0.7
Total Farm Acreage	<u>116.7</u>	<u>123.7</u>	<u>140.7</u>	<u>141.1</u>	<u>138.7</u>	<u>139.2</u>	<u>489.2</u>	<u>488.9</u>
Livestock S.M.D.	187.1	197.1	179.4	227.7	228.3	256.0	279.5	319.2
Crop S.M.D.	167.4	179.5	235.2	223.7	236.0	219.3	232.2	204.7
Livestock & Crop S.M.D.	354.5	376.6	414.6	451.4	464.3	475.3	511.7	523.9
Total S.M.D. (Incl. 15% for maintenance work)	407.5	432.5	477.3	519.0	534.3	544.6	588.4	602.4

Table A16 North of Scotland College of Agriculture Farm Type Analysis of Sample
By S.M.D. Size Groups (S.M.D. at June 1966)

N.O.S.C.A. Type	1	2	3	4	5	6	Total
S.M.D. Size							
Under 450 S.M.D.	-	1	12	4	3	-	20
450 - 499 S.M.D.	-	4	7	4	3	-	18
500 - 549 S.M.D.	-	2	12	3	3	-	20
Over 550 S.M.D.	1	2	7	2	4	1	17
Total	1	9	38	13	13	1	75

Table A17 Average per Farm Financial Data for 73 Farms by North of Scotland College of Agriculture Type Groups 1966/67 to 1968/69

Number of Farms	Upland Rearing Farms			Mixed (Cattle & Sheep) Farms			Mixed (Arable) Farms			Mixed (Intensive) Farms		
	9			38			13			13		
	1966/67	1967/68	1968/69	1966/67	1967/68	1968/69	1966/67	1967/68	1968/69	1966/67	1967/68	1968/69
Gross Outputs: £ per Farm												
Barley	-	-	14	189	223	205	552	506	469	49	39	77
Oats	250	149	147	232	204	256	443	478	471	246	241	221
Potatoes	6	7	1	36	26	49	580	528	297	49	92	40
Other Crops	196	197	173	50	34	38	205	200	177	76	72	70
Total Crops	<u>452</u>	<u>353</u>	<u>335</u>	<u>507</u>	<u>487</u>	<u>548</u>	<u>1,780</u>	<u>1,712</u>	<u>1,414</u>	<u>420</u>	<u>444</u>	<u>408</u>
Cattle	1,553	1,762	2,025	1,612	1,972	2,312	1,102	1,248	1,304	1,182	1,563	1,830
Sheep & Wool	481	574	636	320	320	359	179	191	215	155	162	173
Pigs	39	14	-	144	228	299	10	1	7	2,108	2,263	2,550
Poultry & Eggs	62	31	24	232	198	121	146	174	141	606	401	411
Other Livestock	5	7	4	24	10	9	-	1	1	9	3	5
Total Livestock	<u>2,140</u>	<u>2,388</u>	<u>2,689</u>	<u>2,332</u>	<u>2,728</u>	<u>3,100</u>	<u>1,437</u>	<u>1,615</u>	<u>1,668</u>	<u>4,060</u>	<u>4,392</u>	<u>4,969</u>
Miscellaneous Output ¹	369	382	353	266	235	218	249	240	252	207	217	197
Total Gross Output	<u>2,961</u>	<u>3,123</u>	<u>3,377</u>	<u>3,105</u>	<u>3,450</u>	<u>3,866</u>	<u>3,466</u>	<u>3,567</u>	<u>3,334</u>	<u>4,687</u>	<u>5,053</u>	<u>5,574</u>
Costs												
Fertiliser & Lime	298	313	333	274	286	371	244	365	312	300	357	274
Feedingsuffs	275	297	302	471	471	571	232	209	237	1,742	1,678	1,872
Regular Labour ²	194	197	218	321	284	319	545	459	467	285	261	389
Machinery & Power	356	393	457	369	422	467	418	462	503	400	425	528
Machinery Depreciation	315	323	327	259	277	321	240	272	356	216	248	277
Rent & Rates	163	168	193	117	127	136	238	237	237	153	180	178
Bank & Loan Interest	58	43	57	115	124	134	113	117	143	148	124	118
Other Costs	488	563	569	490	526	577	721	734	726	579	592	659
Total Costs	<u>2,147</u>	<u>2,297</u>	<u>2,456</u>	<u>2,416</u>	<u>2,517</u>	<u>2,896</u>	<u>2,751</u>	<u>2,855</u>	<u>2,981</u>	<u>3,823</u>	<u>3,845</u>	<u>4,295</u>
Profit or Loss	<u>814</u>	<u>826</u>	<u>921</u>	<u>689</u>	<u>933</u>	<u>970</u>	<u>715</u>	<u>712</u>	<u>353</u>	<u>864</u>	<u>1,208</u>	<u>1,279</u>
S.F.S. Grant Due	226	361	317	240	380	337	210	344	292	215	338	297

¹Excluding S.F.S. Grant.

²Excluding farmer and wife as well as unpaid family workers and partners.

Table A18 Livestock, Crops and S.M.D., Average per Farm
at June 1966 and 1969 by North of Scotland College of Agriculture Type

	Upland Rearing Farms		Mixed (Cattle and Sheep) Farms		Mixed (Arable) Farms		Mixed (Intensive) Farms	
	1966	1969	1966	1969	1966	1969	1966	1969
Stock Numbers								
Dairy Cows	-	-	0.6	0.1	-	-	-	-
Beef Cows	24.4	30.1	12.5	16.8	6.7	7.5	9.1	10.8
Bulls	0.9	0.9	0.5	0.6	0.3	0.3	0.1	0.3
Other Cattle:								
Over 2 yrs.	2.1	0.2	3.1	1.9	0.8	0.6	3.9	5.5
1-2 yrs.	6.8	11.4	18.8	22.1	15.8	16.9	15.5	18.2
Under 1 yr.	25.7	28.2	18.6	25.1	10.5	12.5	14.4	13.7
Ewes and Rams	92.7	85.8	30.2	24.2	12.6	19.1	22.8	18.7
Other Sheep:								
Over 2 yrs.	25.9	36.2	10.5	5.8	0.3	-	5.0	2.1
Under 1 yr.	65.1	75.3	42.6	35.6	10.9	24.2	32.8	21.5
Sows and Boars	-	-	0.9	3.2	-	-	13.0	19.5
Other Pigs:								
2-5 mths.	1.0	-	4.2	6.8	1.0	0.1	39.6	48.9
Over 5 mths.	-	-	0.8	0.4	-	-	6.8	5.2
Poultry:								
Laying Birds	34.2	21.4	107.9	82.2	56.7	65.7	191.8	222.9
Growers	-	-	61.6	6.6	21.8	7.7	147.3	42.3
Other	-	-	5.2	0.9	2.2	-	-	-
Total Livestock Units	48.67	49.80	39.97	45.80	23.10	26.48	45.17	52.30
Crops - Acres								
Barley	-	0.6	9.9	12.6	19.5	17.2	10.2	17.1
Oats	20.2	13.3	18.1	15.5	21.6	22.1	18.8	12.0
Potatoes	0.4	1.3	0.6	0.6	4.2	3.3	0.7	0.7
Feed Roots	4.6	2.6	6.5	5.9	7.4	8.3	3.7	3.3
Other Crops	3.4	5.5	0.6	0.7	0.2	0.1	0.7	0.8
Grass: Mown	31.2	32.4	17.5	20.7	12.8	17.5	11.9	14.9
Grazed	27.4	32.8	40.2	40.8	26.4	25.9	36.2	33.8
Total Crops and Grass	87.2	88.5	93.4	96.8	92.1	94.4	82.2	82.6
Rough Grazing	239.7	238.7	9.6	9.5	13.0	12.3	3.6	3.4
Buildings, Woods, etc.	4.6	5.2	2.0	1.9	4.7	4.8	0.7	0.7
Total Farm Acreage	331.5	332.4	105.0	108.2	109.8	111.5	86.5	86.7
Livestock S.M.D.	258.5	293.5	219.0	251.7	119.6	135.4	264.7	305.6
Crop S.M.D.	190.1	149.8	208.9	205.0	310.4	304.8	173.2	167.4
Livestock and Crop S.M.D.	448.6	443.3	427.9	456.7	430.0	440.2	437.9	473.0
Total S.M.D. (incl. 15 per cent for maintenance work)	515.9	509.7	491.2	524.1	495.0	506.1	503.6	543.0

Table A19 Average per Farm Financial Data for 20% of Sample with Greatest Profit Rise & 20% with Greatest Profit Fall 1966/67 to 1967/68

Number of Farms	20% with Greatest Profit Rise			20% with Greatest Profit Fall		
	15			15		
	1966/67	1967/68	1968/69	1966/67	1967/68	1968/69
Gross Outputs: £ per Farm						
Barley	196	274	183	303	281	271
Oats	142	126	191	322	283	267
Potatoes	77	68	105	289	294	146
Other Crops	68	121	86	122	149	134
Total Crops	483	589	565	1,036	1,007	818
Cattle	1,448	1,798	2,466	1,195	1,389	1,227
Sheep & Wool	280	284	418	367	356	297
Pigs	288	286	475	356	343	294
Poultry & Eggs	219	179	101	94	115	94
Other Livestock	23	7	10	107	119	123
Total Livestock	2,258	2,554	3,470	2,119	2,322	2,035
Miscellaneous Output ¹	277	255	298	292	284	203
Total Gross Output	3,018	3,398	4,333	3,447	3,613	3,056
Costs						
Fertiliser & Lime	270	309	295	262	333	313
Feedingsuffs	493	450	544	473	520	553
Regular Labour ²	175	79	123	620	582	568
Machinery & Power	372	432	488	410	433	487
Machinery Depreciation	273	266	294	221	320	34.7
Rent & Rates	178	199	204	215	239	251
Bank & Loan Interest	106	105	103	93	103	136
Other Costs	525	528	601	482	604	611
Total Costs	2,392	2,368	2,652	2,776	3,134	3,266
Profit or Loss	626	1,030	1,681	671	479	-210
S.F.S. Grant Due	225	356	313	218	343	302

¹Excluding S.F.S. Grant.

²Excluding farmer and wife as well as unpaid family workers and partners.

**Table A20 Livestock Numbers, Crops & S.M.D., Average per Farm at June 1966 & 1969
for 20% of Sample with Greatest Profit Rise & 20% with Greatest Profit Fall**

	20% with Greatest Profit Rise		20% with Greatest Profit Fall	
	1966	1969	1966	1969
Stock Numbers				
Dairy Cows	-	0.3	1.3	1.0
Beef Cows	15.9	18.3	10.3	12.8
Bulls	0.5	0.5	0.5	0.6
Other Cattle: Over 2 yrs.	2.1	3.3	2.0	0.9
1-2 yrs.	13.5	17.7	13.2	11.0
Under 1 yr.	24.1	25.5	10.7	13.9
Ewes & Rams	42.7	35.5	32.1	32.5
Other Sheep: Over 1 yr.	2.7	5.1	11.1	9.9
Under 1 yr.	52.7	42.4	33.7	33.8
Sows & Boars	1.7	4.3	5.1	4.5
Other Pigs: 2-5 months	6.6	6.7	7.7	11.2
Over 5 months	2.0	-	0.2	-
Poultry: Laying Birds	150.5	55.7	38.9	46.0
Growers	13.3	-	21.6	-
Other	1.0	-	-	-
Total Livestock Units	42.45	45.94	33.76	33.96
Crops - Acres				
Barley	10.5	13.5	12.9	10.2
Oats	16.8	12.5	17.2	17.0
Potatoes	1.2	1.2	2.5	2.2
Feed Roots	4.9	4.4	6.3	5.9
Other Crops	0.9	0.5	1.2	1.8
Grass: Mown	20.3	22.7	15.2	19.8
Grazed	<u>34.1</u>	<u>38.0</u>	<u>29.8</u>	<u>29.8</u>
Total Crops & Grass	<u>88.7</u>	<u>92.8</u>	<u>85.1</u>	<u>86.7</u>
Rough Grazing	39.5	39.2	51.0	49.5
Buildings, Wood, etc.	<u>0.6</u>	<u>0.5</u>	<u>4.8</u>	<u>4.8</u>
Total Farm Acreage	<u>128.8</u>	<u>132.5</u>	<u>140.9</u>	<u>141.0</u>
Livestock S.M.D.	236.7	252.1	186.9	191.5
Crop S.M.D.	203.5	192.2	242.0	231.0
Livestock & Crop S.M.D.	440.2	444.3	428.9	422.5
Total S.M.D. (Incl. 15% for maintenance work)	506.2	510.2	494.0	485.8

Table A21 North of Scotland College of Agriculture Type Analysis of 20% of Sample with Greatest Profit Rise & 20% with Greatest Profit Fall
Between 1966/67 and 1968/69

Type Group Group of Farms	1	2	3	4	5	6	Total No.
20% with Greatest Profit Rise	-	2	10	-	3	-	15
20% with Greatest Profit Fall	-	2	4	6	2	1	15

Table A22 Distribution of Average Profit (Excluding Grant) 1966/67 to 1968/69 of 20% of Sample with Greatest Profit Rise
and 20% with Greatest Profit Fall

3 Year Average Profit 1966/67 to 1968/69 Group of Farms	More than -£500	-£251 to -£500	£0 to -£250	£0 to +£250	£251 to £500	£501 to £750	£751 to £1,000	£1,001 to £1,250	£1,251 to £1,500	£1,501 to £2,000	£2,000 £3,000	Over £3,000	Total No.
20% with Greatest Profit Rise	-	-	-	-	-	3	2	5	4	1	-	-	15
20% with Greatest Profit Fall	1	1	1	3	4	3	1	1	-	-	-	-	15

Table A23 20% of Sample with Greatest Profit Rise; Individual Farms
Ranked by Profit in 1966/67 and Showing Change
of Position in 1967/68 and 1968/69

Profit 1966/67	Rank 1966/67	Profit 1967/68	Rank 1966/67	Profit 1968/69	Rank 1966/67
£1,216	1	£1,777	4	£2,351	2
1,057	2	1,530	2	2,119	3
1,026	3	1,302	3	2,084	1
862	4	1,299	10	1,935	10
849	5	1,282	1	1,826	11
816	6	1,147	9	1,774	4
805	7	1,116	15	1,765	6
798	8	991	6	1,717	7
634	9	959	14	1,680	9
543	10	893	8	1,677	8
391	11	823	7	1,659	5
313	12	735	5	1,365	15
147	13	705	13	1,270	13
2	14	703	11	1,132	12
-68	15	183	12	780	14

Table A24 20% of Sample with Greatest Profit Fall; Individual Farms
Ranked by Profit (or Loss) in 1966/67 & Showing
Change of Position in 1967/68 & 1968/69

Profit 1966/67	Rank 1966/67	Profit 1967/68	Rank 1966/67	Profit 1968/69	Rank 1966/67
£1,408	1	£1,012	10	941	2
1,380	2	910	2	531	7
1,375	3	766	15	408	5
1,192	4	712	3	233	3
1,102	5	680	1	130	8
935	6	548	7	92	9
905	7	467	13	28	1
669	8	466	12	-47	6
631	9	412	8	-56	10
627	10	412	5	-238	4
614	11	403	11	-667	13
572	12	344	4	-671	12
126	13	167	6	-722	11
-59	14	14	9	-732	14
-1,416	15	-126	14	-2,273	15

Table A25 Analysis of Net Worth of Business, 61 Farms in 1966 & 1969. 1966 Net Worth Analysed by Profit Change 1966/67 to 1968/69

Net Worth of Business (Incl. Grants, 1969)	Opening Balance Sheet 1966	Closing Balance Sheet 1969	Analysis of Profit Change (Excluding Grant) 1966/67 to 1968/69 by Net Worth Commencing 1966/67										
			> - £1,000	-£751 to -£1,000	-£501 to -£750	-£251 to -£500	£0 to -£251	£0 to +£250	£251 to £500	£501 to £750	£751 to £1,000	£1,001 to £1,250	Over £1,250
Under £1,000	1	1	-	-	-	-	1	-	-	-	-	-	-
£1,000 to £2,500	4	4	1	-	-	2	1	-	-	-	-	-	-
£2,501 to £5,000	22	15	2	-	3	-	4	4	2	3	4	-	-
£5,001 to £7,500	15	16	-	1	2	1	3	4	1	1	2	-	-
£7,501 to £10,000	12	12	1	-	-	1	2	2	3	1	2	-	-
£10,001 to £15,000	6	12	-	-	-	-	1	2	1	-	1	-	1
Over £15,000	1	1	-	-	-	-	-	-	-	-	-	1	-
Total No.	61	61	4	1	5	4	12	12	7	5	9	1	1

Table A26

"Per Farm" Figures of Livestock, Crops and S.M.D. (1966)
of Sample Farms and Control

	Small Farmers' Scheme Farms	Control Group
Dairy Cows - Numbers	0.5	0.8
Beef Cows	12.0	6.0
Bulls	0.4	0.2
Other Cattle > 2 years	2.7	5.1
1-2 years	15.8	15.3
< 1 year	16.8	12.6
Ewes and Rams	41.9	23.9
Other Sheep > 1 year	11.2	5.9
< 1 year	42.5	26.1
Sows and Boars	2.7	1.2
Other Pigs 2-5 months	9.6	3.9
> 5 months	1.6	1.0
Poultry - Layers	102.5	133.0
Growers	60.6	50.5
Other	3.1	4.8
Livestock Units	39.74	32.5
Barley - Acres	10.3	7.6
Oats	18.7	14.6
Potatoes	1.3	0.9
Feed Roots	5.9	5.5
Other Crops	1.0	0.7
Grass: Mown	17.4	11.4
Grazed	35.3	29.1
Total Crops and Grass	89.9	69.9
Rough Grazing	120.3	105.6
Buildings/Woods	2.6	1.4
Total Farm Acres	212.8	176.7
Livestock S.M.D.	217	176
Crop S.M.D.	217	174
Crop and Livestock S.M.D.	434	350
Total S.M.D. (Incl. 15% maint)	499	403

Table A27 Percentage Distribution of Crops, Sample Farms and Control
1966 and 1969

June, 1966	Small Farmers' Scheme Farms	Control Group
	£	£
Barley	11.5	10.9
Oats	20.8	20.8
Potatoes	1.4	1.3
Feed Roots	6.5	7.9
Other Crops	1.2	1.1
Grass: Mown	19.4	16.3
Grazed	39.2	41.7
Total Crops and Grass	100.0	100.0
June, 1969	Small Farmers' Scheme Farms	Control Group
	£	£
Barley	13.4	11.7
Oats	16.8	17.4
Potatoes	1.3	1.2
Feed Roots	5.8	6.8
Other Crops	1.7	1.2
Grass: Mown	22.3	17.8
Grazed	38.7	43.9
Total Crops and Grass	100.0	100.0

Table A28

Individual Annual Profit (Excluding Grants) of 75 Farms
 In the Small Farm (Business Management) (Scotland) Scheme, 1965,
 In 1966/67, 1967/68 and 1968/69

Farm Number	Profit 1966/67	Profit 1967/68	Profit 1968/69	Farm Number	Profit 1966/67	Profit 1967/68	Profit 1968/69
1	3,381	4,155	3,608	40	732	495	596
2	1,735	1,901	1,714	41	730	1,621	964
3	1,563	1,767	1,494	42	729	1,006	733
4	1,511	1,470	1,406	43	694	656	565
5	1,408	680	28	44	669	1,038	858
6	1,380	910	941	45	669	412	130
7	1,375	712	233	46	652	783	1,421
8	1,249	1,421	1,458	47	634	1,147	1,680
9	1,225	1,715	1,288	48	631	14	92
10	1,216	1,282	2,084	49	627	1,012	-156
11	1,206	1,647	1,064	50	614	403	-722
12	1,192	344	-238	51	613	887	553
13	1,012	412	408	52	606	652	647
14	1,090	1,672	1,034	53	572	466	-671
15	1,060	1,272	1,239	54	570	376	807
16	1,057	1,530	2,351	55	567	297	347
17	1,035	1,211	1,252	56	567	642	1,035
18	1,026	1,302	2,119	57	543	1,299	1,935
19	947	1,044	894	58	434	39	182
20	935	167	-49	59	391	703	1,826
21	915	1,109	751	60	350	693	804
22	905	548	531	61	341	719	569
23	899	1,262	1,648	62	337	1,228	1,059
24	888	1,052	576	63	313	183	1,132
25	876	705	1,127	64	312	923	506
26	867	1,529	1,429	65	185	56	303
27	862	1,777	1,774	66	176	487	92
28	857	1,146	1,500	67	147	705	1,270
29	849	735	1,659	68	123	747	580
30	846	839	957	69	126	467	-667
31	828	919	1,209	70	69	523	696
32	816	991	1,765	71	2	959	780
33	813	953	1,310	72	-59	-126	-732
34	807	1,256	1,040	73	-68	1,116	1,365
35	805	829	1,717	74	-198	262	355
36	798	893	1,677	75	-1,416	+766	-2,273
37	753	942	463				
38	752	1,078	1,046				
39	732	558	1,015				

Appendix II

Farm Size by S.M.D. and Farm Type¹

The problem which lies behind the policy of the Small Farmers' Scheme is that of the low incomes of the majority of small farms. Since it is low income which is the problem, it is desirable that the criterion of size bears some relationship to income. The objective should be to select farms of roughly equal earning potential, given average circumstances and average management. The incomes being earned on farms of different types, but the same size by the measure of S.M.D., would indicate whether this selection objective was being realised.

Table A29 contains data of net output and net farm income² from Scottish farm accounts for 1966/67 and 1967/68 grouped on an S.M.D. basis, as given by McEwan³. These data have been adjusted pro-rata to the mean S.M.D. of all type groups of farms of 435 S.M.D. and presented in Table A30. The net output and net farm income figures in Table A30 therefore represent farms of the SAME size by S.M.D., but of different types. It is apparent that considerable variation exists in net output: in 1966/67 cropping farms had a net output 21 per cent higher than the average for all farms, while hill sheep farms had a net output which was 15 per cent below this average - a total range of 36 per cent. In 1967/68, a similar variation is seen, with hill sheep and cropping farms again showing the extremes.

Figures for net farm income show a much greater variation among farms of the same S.M.D. size, the total range in 1966/67 being over 72 per cent between the extremes. Net farm income on cropping farms in that year was about $2\frac{1}{4}$ times greater than on upland farms of the same S.M.D. size. A similar picture is seen in 1967/68 with cropping and upland farms again showing a wide divergence. It would appear, therefore, that if the intention is to offer support

¹For definition of farm types used by Department of Agriculture & Fisheries for Scotland and North of Scotland College of Agriculture see Appendix No. III.

²"Net Output" is Gross Output less purchased feeds and seeds. Gross Output is determined by deducting purchases of livestock from sales of crops, livestock and livestock products, and adjusting for changes in the valuation of crops and livestock. Net Farm Income is the sum from which interest on borrowed capital, return to tenant's capital, reward to management and labour of farmer and wife is paid.

³The financial results of Scottish Farming 1967-68^a. L.V. McEwan, Scottish Agricultural Economics, Vol. 19, 1969.

to farms of similar income potential, then S.M.D. is a somewhat imperfect criterion for selecting those eligible for assistance. The relationship between the estimated labour involved and the rewards it obtains shows considerable variation in different types of farming, on the basis of the data studied. However, this may be too facile an explanation and the real cause may be something else, such as differences in managerial ability applied to different types of farming. Alternatively it may simply be that at any point in technological progress, prices and costs temporarily favour certain types of farms. Also one must recognise the administrative convenience of using S.M.D. as a measure, and its ease of application. The only feasible alternatives would be some form of Standard Output, or a "means test" based on the actual farm output and income. The former would require a range of standards for different farming types and regions, while the latter would be politically unpopular and too highly personal.

Table A29 Net Output and Net Farm Income by Type Groups for Farms of 275-600 S.M.D. Scotland, 1966/67 and 1967/68

Type	Average S.M.D. 1966/67 and 1967/68	Net Output		Net Farm Income	
		1966/67 £	1967/68 £	1966/67 £	1967/68 £
1. Hill Sheep	465	2,048	2,214	744	953
2. Upland	439	2,132	2,419	413	638
3. Rearing with Arable	456	2,158	2,652	544	1,006
4. Rearing with Intensive Livestock	415	2,128	2,334	811	931
5. Arable, Rearing and Feeding	405	2,530	2,782	821	1,027
6. Cropping	430	2,709	3,064	914	1,178
7. Dairy	439	2,071	2,064	690	662
Total S.M.D.	3,049				
Mean S.M.D.	435				

SOURCE: L. V. McEwan. "Scottish Agricultural Economics", Vol. 19, 1969, P. 235.

Table A30 Net Output and Net Farm Income by Type Groups in Table A29 Adjusted Pro-Rata to 435 S.M.D. 1966/67 and 1967/68

Type	Net Output				Net Farm Income			
	1966/67 £	% Deviation from Mean	1967/68 £	% Deviation from Mean	1966/67 £	% Deviation from Mean	1967/68 £	% Deviation from Mean
1. Hill Sheep	1,916	-15.3	2,071	-17.5	696	-1.8	891	-2.8
2. Upland	2,112	-6.6	2,397	-4.5	409	-42.3	632	-31.0
3. Rearing with Arable	2,059	-8.9	2,530	+0.8	519	-26.8	960	+4.8
4. Rearing with Intensive Livestock	2,230	-1.4	2,446	-2.6	850	+19.9	976	+6.6
5. Arable Rearing, Feeding	2,717	+21.1	2,988	+19.0	882	+24.4	1,103	+20.4
6. Cropping	2,741	+21.2	3,100	+23.5	925	+30.5	1,192	+30.1
7. Dairy	2,052	-9.2	2,045	-18.6	684	-3.5	656	-28.4
Total	15,827	*	17,577	*	4,965	*	6,410	*
Mean	2,261	*	2,511	*	709	*	916	*
Range	*	36.5	*	42.1	*	72.8	*	61.1

NOTE: Figures in Table A30 derived from those in Table A29 by pro-rata adjustment to 435 S.M.D. (Mean of Types in Table A29). Example: Net Output of Hill Sheep Farms of 465 S.M.D. was £2,048 in 1966/67. $(£2,048 \div 465) \times 435 = £1,915.9$. Hill Sheep Farms' Net Output 1966/67 in Table A30 = £1,916.

Appendix III

Definition of farm types in Department of Agriculture and Fisheries for Scotland Classification and North of Scotland College of Agriculture Classification

Department of Agriculture and Fisheries for Scotland Classification

- Type 1 Hill Sheep Farms At least 90 per cent of the land in rough grazing and at least 35 per cent of the labour requirement in sheep. Excludes farms where labour needed by cattle exceeds that needed by sheep.
- Type 2 Upland Farms Cattle and sheep must account for more than 30 per cent of the labour requirement, sale crops less than 15 per cent, and pigs and poultry together less than 25 per cent.
- Type 3 Rearing with Arable The proportion of improved land in tillage is much higher than on upland farms; there is little rough grazing and sheep are fewer while cropping is mainly for livestock feeding and not for sale. The grazing acreage exceeds 60 per cent of the total acreage, while crop labour requirements are less than 55 per cent of basic labour requirements.
- Type 4 Rearing with Intensive Livestock Farms with at least 25 per cent of their basic labour requirements in pigs and poultry.
- Type 5 Arable Rearing and Feeding Similar to Type 3, but the acreage of grazing land is less than 60 per cent of the total acreage, and the crop labour requirements are 55 per cent or more of the basic labour requirements.
- Type 6 Cropping Farms Sale crops account for at least 25 per cent of the labour requirements and all crops at least 55 per cent.
- Type 7 Dairy Farms The labour requirement of dairy cows is at least 25 per cent of the basic labour requirement. In this system of classification "labour requirement" refers to Standard Man-Days.

North of Scotland College of Agriculture Classification

- Type 1 Hill Farms These are high lying farms with 95 per cent of their land in rough grazing and which mainly depend on a hill ewe flock for their income. Breeding cows may be carried but these tend to be of secondary importance relative to sheep. All farms in this group are eligible for hill ewe and hill cow subsidies.

- Type 2 Upland Rearing Farms The farms in this group tend to occupy land at lower elevations than the hill farms, but extensive rough grazings are still of importance, amounting to not less than 30 per cent of the total farm land area. These farmers are also eligible to receive hill ewe and hill cow subsidies, but cattle occupy the dominant position in their economy.
- Type 3 Mixed Farms (Cattle and Sheep) On these farms the output from cattle and sheep together must contribute at least 50 per cent of total farm output and rough grazing - which is of minor importance in most cases - must not exceed 30 per cent of total land area.
- Type 4 Mixed Farms (Arable) Whilst livestock is still important on these farms, greater emphasis is placed on crop products than in the case of the previous group since these enterprises must contribute at least 35 per cent of total output.
- Type 5 Mixed Farms (Intensive Pigs and Poultry) The output from pigs and poultry on these basically mixed farms must make up at least 25 per cent of total output.
- Type 6 Dairy Farms The major source of income on these farms is the sale of milk.

Appendix IV

Livestock Units

The following conversion factors have been employed in obtaining the number of Livestock Units.

	<u>Conversion Factor</u>
Bulls	1. 000
Dairy Cows	1. 000
Beef Cows	0. 750
Cattle - Under 1 year	0. 300
1 - 2 years	0. 600
Over 2 years	0. 750
Ewes (with lambs) - lowground	0. 250
hill	0. 150
Rams	0. 200
Other Sheep over 6 months	0. 050
Sow (including litters to weaning)	0. 500
Boars	0. 500
Other pigs	0. 100
Poultry - over 6 months	0. 020
- under 6 months	0. 005

Standard Man-Days

The standard man-days applied to the various categories of livestock and crops in assessing a farmer's eligibility for the Small Farm (Business Management)(Scotland) Scheme 1965 are as follows:-

Wheat	2 $\frac{1}{2}$ man-days	Dairy cows	12 man-days
Barley	2 $\frac{1}{2}$ " "	Beef cows	4 " "
Oats	3 $\frac{1}{2}$ " "	Bulls	7 " "
Arable silage	3 " "	Other cattle	2 $\frac{1}{2}$ " "
Potatoes - seed	20 " "	Upland sheep	2 $\frac{1}{2}$ " "
Potatoes - ware	18 " "	Lowland sheep	2 $\frac{3}{4}$ " "
Turnips and swedes (stockfeed)	11 " "	Breeding sows/ gilts	4 " "
Rape and Kale	1 $\frac{1}{2}$ " "	Boars	4 " "
Bare fallow	1 $\frac{1}{2}$ " "	Laying poultry	0. 2 " "
Grass for mowing	1 $\frac{1}{2}$ " "	Rearing poultry	0. 01 " "
Grass for grazing*	1 $\frac{1}{4}$ " "	Rearing/fattening pigs	1 $\frac{1}{2}$ " "

*Excluding rough grazing.

Appendix V

Agricultural Executive Committee Areas
and Counties Covered in Each

<u>ARGYLL</u>	Argyll only
<u>BORDER</u>	Selkirk, Peebles, Roxburgh and Berwick
<u>CENTRAL</u>	Stirling, Clackmannan and West Perthshire
<u>CLYDE</u>	Renfrew, Lanark, Bute and Dunbarton (but excluding Arran)
<u>EASTERN</u>	East Perth, Angus, Fife, Kinross
<u>HIGHLAND</u>	Moray, Nairn, Inverness, Ross & Cromarty
<u>LOTHIANS</u>	Midlothian, East Lothian, West Lothian
<u>NORTH EASTERN</u>	Aberdeen, Banff and Kincardine
<u>NORTHERN</u>	Sutherland, Caithness, Orkney and Zetland
<u>SOUTH WESTERN</u>	Ayr, Wigtown and Arran
<u>SOUTHERN</u>	Dumfries and Kirkcudbright

Appendix VI

Statistical Analysis of Data

The data of farm profits for the 75 farms in the study presented some complication so far as statistical analysis was concerned.

Each farm had certain attributes, namely, nature of occupancy (owner or tenant), size group, economic type group, age of farmer and actual S.M.D. size of the unit. In addition, profit data were available for three consecutive years, and these provided further information on average profit over the period and the increase (or decrease) taking place between the first and third of the three years. The problem was whether the appropriate statistical technique was a $2 \times 3 \times 4^2$ factorial or a multiple regression analysis. Following advice from the Statistics Department of Aberdeen University, the data were analysed by a multiple regression programme on the University Computer.

1. The first analysis treated the data in farm type groups using, in turn, as dependent variables first year profit, second year profit, third year profit, profit increase from first to third year, and three year average profit. The independent variables correlated were owner/tenant, size group, age of farmer and actual S.M.D. size of farm. The resulting multiple correlations, 'F' ratios, and regression co-efficient 't' values (regression co-efficient divided by the standard error of the co-efficient) are given in Table A32. This analysis indicated that the only independent variables of any significance were the age of the farmer and the size of the farm. It was therefore, decided to carry out a second multiple correlation analysis on average profit per farm, and average profit per S.M.D. with age and S.M.D. size of farm as the independent variables.
2. Table A33 contains the results of this second analysis. In two of the four type groups treated, 'F' ratios were significant at the 5 per cent level of probability. In the same two groups regression co-efficient 't' values were significant, but in type group 3 the significant variable was S.M.D. size, while in type group 5 it was age of farmer.

Tables A32 and A33 suggest that none of the features treated as independent variables, namely, nature of occupancy, size of farm, age of farmer or S.M.D. size of unit are a highly significant source of variation. Only one of the significant figures is of a lower

Table A31

Results of First Multiple Correlation/Regression of Profit Data by Type of Farm, with Four Independent Variables

Type Group & Size of Group (N)	Dependent Variable*	Multiple Correlation Co-efficient = r	r ²	F† = Regression M.S. / Residual M.S.	†† Values of Regression Co-efficients			
					Owner/Tenant	Size Group	Age of Farmer	S.M.D. Size of Farm
Type 2 (Upland Farms) N = 9	Profit 1966/67	0.671073	0.45034	0.81930	-0.361373	0.589938	0.753148	-0.548122
	Profit 1967/68	0.263520	0.06944	0.07462	-0.247845	0.268323	0.001646	-0.227380
	Profit 1968/69	0.489526	0.23964	0.31516	0.002828	0.853118	-0.119514	-0.819941
	Profit Increase† 3 Year Average Profit	0.312974	0.09795	0.10859	0.215709	0.556848	-0.520544	-0.540204
Type 3 (Mixed Cattle & Sheep Farms) N = 38	Profit 1966/67	0.480368	0.23075	0.29997	-0.195235	0.638498	0.125007	-0.595497
	Profit 1966/67	0.458877	0.21057	2.20056	0.309657	-0.975069	-1.404068	1.498699
	Profit 1967/68	0.521278	0.27173	3.07824	-1.702369	1.130590	-1.088805	-0.224638
	Profit 1968/69	0.319935	0.10236	0.94075	0.428247	-0.613800	0.340232	1.180968
Type 4 (Mixed Arable Farms) N = 13	Profit Increase† 3 Year Average Profit	0.280840	0.07887	0.70641	0.280179	0.038391	1.599776	0.239387
	Profit 1966/67	0.439922	0.19353	1.97979	-0.118137	-0.382647	-0.634642	1.154382
	Profit 1966/67	0.472247	0.22302	0.57406	0.553127	-0.631026	-0.788093	0.607481
	Profit 1967/68	0.870715	0.75814	6.26939*	-1.198624	-3.424314**	-2.93983*	3.003877*
Type 5 (Mixed Intensive Farms) N = 13	Profit 1968/69	0.703079	0.49432	1.95507	-0.532882	-0.836234	-2.401960*	0.320568
	Profit Increase† 3 Year Average Profit	0.522985	0.27351	0.75297	-0.825818	-0.283456	-1.506109	-0.138257
	Profit 1966/67	0.793368	0.62943	3.39712	-0.400225	-1.796734	-2.726347*	1.348729
	Profit 1966/67	0.676785	0.45804	1.69029	-1.430300	1.775011	-0.792801	-1.314240
Type 5 (Mixed Intensive Farms) N = 13	Profit 1967/68	0.678170	0.45991	1.70312	-1.339331	1.482082	-1.457687	-1.244680
	Profit 1968/69	0.681003	0.46376	1.72971	-0.716749	1.061347	-1.767828	-0.663575
	Profit Increase† 3 Year Average Profit	0.481347	0.23169	0.60313	0.588724	-0.510832	-1.426384	0.534577
	Profit 1966/67	0.695987	0.48439	1.87896	-1.213413	1.513393	-1.498417	-1.122363

† Between 1966/67 and 1968/69

* = sig. at 5% level

F† test at DF1 (= dependent degrees of freedom) & DF2 (= independent degrees of freedom) from Analysis of Variance Tables.

** = sig. at 1% level

*** = sig. at 0.1% level

†† values tested at N-(dependent & independent variables) level.

Table A32

Results of Second Multiple Correlation/Regression of Profit Data by Type of Farm with Two Independent Variables

Type Group and Size of Group (N)	Dependent Variable	Multiple Correlation Coefficient = r	r ²	F = $\frac{\text{Regression M.S.}}{\text{Residual M.S.}}$	't' Values of Regression Coefficients	
					Age of Farmer	S.M.D. Size of Farm
Type 2 (Upland Farms) N = 9	3 year Average Profit Av. Profit/S.M.D.	0.295238 0.390803	0.08716 0.15273	0.286467 0.540771	0.373915 0.427682	-0.366489 -0.585741
Type 3 (Mixed Cattle and Sheep Farms) N = 38	3 year Average Profit Av. Profit/S.M.D.	0.434266 0.206523	0.18859 0.04265	4.067323* 0.779662	-0.702953 -0.680486	2.473991* 0.825926
Type 4 (Mixed Arable) N = 13	3 year Average Profit Av. Profit/S.M.D.	0.539790 0.529404	0.29137 0.28027	2.055900 1.947036	-1.843987 -1.973333	0.778484 -0.074254
Type 5 (Mixed Intensive) N = 13	3 year Average Profit Av. Profit/S.M.D.	0.687968 0.582120	0.47330 0.33886	4.493079* 2.562599	-2.236726* -2.04755	-0.626830 -1.082303

* = sig. at 5% level
 ** = sig. at 1% level
 *** = sig. at 0.1% level

'F' test at DF₁ (= dependent degrees of freedom) and DF₂ (independent degrees of freedom) from analysis of Variance Tables.

't' values tested at N - (dependent + independent variables) level.

probability than $P = 0.05$, and there is a lack of consistency between type groups with regard to the sign and magnitude of regression co-efficient 't' values. The conclusion is that the major source of variation in the 75 farms under scrutiny is some other feature, for example motivation and/or managerial ability. The regression equation of the second (2 independent variable) analysis has been applied to individual farms to estimate the average profit on each unit after taking into account

- (i) System of farming, through analysing by type groups.
- (ii) Size of farm and intensity of farming, by the use of a S.M.D. as a measure.
- (iii) The age of the farmer*.

Differences between the predicted average profit and the actual average profit (i. e. the residual variation) might give some indication of above average or below average management (depending on sign of the residual) or differences in motivation. Table A34 presents the individual farms, ranked in order of descending actual average profit, and the predicted average profit of each unit with the residual variation expressed both absolutely, and as a percentage deviation from the predicted average profit produced by the regression equation.

If differences between the actual average profit and that predicted by the regression equation are due to management or motivation, one would expect a strong positive correlation between the actual average profit and the percentage error of the predicted figure. This correlation was calculated for the type groups in Table A34, and results were as follows:

Type Group 2	$r = 0.7113$;	$t = \frac{r\sqrt{N-2}}{\sqrt{1-r^2}}$	= 2.677 (sig. at $P = 0.05$)
" " 3	$r = 0.8939$;	"	= 11.965 (sig. at $P = 0.001$)
" " 4	$r = 0.6594$;	"	= 2.909 (sig. at $P = 0.05$)
" " 5	$r = 0.6253$;	"	= 2.657 (sig. at $P = 0.05$)

The magnitude and sign of the percentage error of the residual regression would seem to be a useful means of ranking managerial

*Using a three year average also eliminates to a considerable extent year to year fluctuations commonly seen in farm profit data.

**Table A33 Actual and Estimated 3-Year Average Profits and Residual Variation.
Individual Farms by Type Groups**

Farm No.	Actual 3-Year Average Profit	3-Year Av. Profit from Regression Equation	Residual = Actual Minus Regression Figure	Residual as % of Regression Figure	Farm No.	Actual 3-Year Average Profit	3-Year Av. Profit from Regression Equation	Residual = Actual Minus Regression Figure	Residual as % of Regression Figure
	£	£	£	%		£	£	£	%
Type Group 2 (Upland)					Type Group 4 (Mixed Arable)				
2	1,783	1,034	749	+72	54	584	771	-187	-24
11	1,306	828	478	+58	71	580	967	-387	-40
47	1,154	720	434	+60	64	580	1,027	-447	-43
35	1,115	998	117	+12	63	543	707	-164	-23
33	1,025	911	114	+12	55	404	639	-235	-37
68	483	533	-50	-9	45	404	772	-367	-48
20	351	746	-395	-53	65	176	642	-466	-73
48	245	976	-731	-75	74	139	979	-839	-86
58	218	934	-716	-77	75	-974	430	-1,404	-327
Type Group 3 (Mixed Cattle and Sheep)					Type Group 5 (Mixed Intensive)				
3	1,603	1,209	394	+33	41	1,105	1,003	102	+10
10	1,527	1,067	460	+43	6	1,077	1,125	-48	-4
18	1,482	1,047	435	+41	31	985	951	34	+4
27	1,471	933	538	+58	44	855	489	366	+75
4	1,462	619	843	+136	7	773	250	523	+209
9	1,409	822	587	+71	39	768	661	107	+16
8	1,376	1,059	317	+30	43	623	478	145	+30
14	1,265	1,377	-112	-8	61	543	389	154	+40
32	1,191	549	642	+117	49	494	633	-139	-22
17	1,166	1,012	154	+15	12	433	614	-181	-30
28	1,134	545	589	+108	66	251	480	-229	-48
36	1,122	729	393	+54	50	98	270	-172	-64
29	1,081	912	169	+19	72	-306	356	-662	-186
59	973	998	-25	-2	Type Group 5 (Mixed Intensive)				
19	961	868	93	+11	1	3,715	1,832	1,883	+103
38	959	1,001	-42	-4	16	1,646	1,731	-85	-5
46	952	690	262	+38	26	1,275	1,598	-323	-20
21	925	894	31	+3	57	1,259	684	574	+84
25	903	846	57	+7	23	1,233	992	241	+24
30	881	896	-15	-2	15	1,190	950	240	+25
62	849	1,022	-173	-17	34	1,004	338	666	+197
42	823	948	-125	-13	56	748	1,018	-270	-27
73	804	798	6	+1	67	707	1,735	-1,028	-59
37	719	865	-146	-17	13	641	949	-308	-32
5	705	1,167	-462	-40	52	635	802	-167	-21
51	688	1,073	-385	-36	70	417	1,263	-846	-67
22	661	755	-94	-12	69	-25	552	-577	-104
60	616	510	106	+21					
40	608	607	1	0					

ability or motivation when system, size, intensity, age of farmer and chance year to year variation in profits have been accounted for. Variations in management or motivation might account for a greater proportion of total profit variation than the other features investigated.

One outstanding feature of almost all economic studies of agriculture at the farm level is the extremely wide range of results achieved on farms, however, much effort is made to group farms by similar size or type or district. The number of factors influencing a single farm is considerable and would include such things as elevation, slope, aspect, rock and soil types, climate, proximity to markets, the extent of man made works; such as drainage, and previous husbandry practices. In addition, more general influences such as price changes operate, and over the whole is superimposed the varying knowledge and capability of the farmer.

It is thus not particularly surprising that statistical analysis of farm economic data produces results which are not of a high order of significance. The analysis of the 75 farms in various groupings produces "average" results which, at best, only indicate tendencies, since the standard errors of means estimated show that within-group variation is high. Nevertheless, such relatively crude methods of grouping and averaging farm data is still valuable, since to enumerate all the factors influencing individual farm results would be an enormous task. Multiple correlation analysis has suggested that even those attributes which may be expected to have a major influence, i. e. enterprises adopted, size and intensity of farming and age of the entrepreneur, cannot be said to affect significantly the outcome of the business operations.

While statistical analysis remains a necessary and useful technique, at the farm level it tends to emphasise the wide between-farm variation which exists. So long as the reader is aware of this range of individual results, then the presentation of group 'average' results is a useful method of indicating trends, particularly when contrasting different types of farming.

Appendix VII

Definition of Term 'Profit'

Profit is the difference between Gross Output and Costs. It represents the surplus or deficit before imputing any notional charges such as rental value or unpaid labour. In the accounts of owner-occupiers it includes any profit accruing from the ownership of land. Profit is therefore an aggregate of the return to the farmer for the unpaid manual labour of himself, his wife and any member of his family working without reward; the return to his policy and executive management; a return for the risk involved in the business and for uncertainty; and a return on the capital invested, including land and buildings in the case of owner-occupiers.

