

DEVELOPMENTS IN THE STRUCTURE OF IRISH AGRICULTURE, 1960-75 WITH SPECIAL REFERENCE TO THE SITUATION IN 1975

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The State and county results of the June, 1975 Agriculture Enumeration were issued recently and a detailed analysis of a representative sample of the returns is nearing completion, the results of which will be published in the near future. In many ways, therefore, it is timely that the Society has afforded me this opportunity to present a paper on the subject of structural developments in Irish Agriculture.

INTRODUCTION AND BACKGROUND

The pattern of a full enumeration (i.e. Census) of all agricultural holdings every five years is well established and in keeping with this pattern the 1975 June Enumeration of crops, livestock, males engaged in farmwork and machinery was a full-scale census. It was similar in scope and content to previous such censuses. The principal and fundamental roles of the five yearly full enumerations are (a) to establish regular benchmark data and (b) to provide the basis for the subsequent annual sample enumerations. The results of these latter enumerations are derived from samples matched on a year to year basis but linked retrospectively to the last full enumeration. Estimates prepared from a series of linked samples extending over a number of years may involve increasing risk of bias and any unknown bias which arises in any one year is inherently carried forward to the succeeding intercensal years and will not be apparent until the next full census. Thus the need to conduct regular benchmark censuses is obvious. The five yearly full enumeration also provides the basis for selecting the sample used in the intercensal years and a regular updating of the sample becomes essential when rapid or fundamental structural changes are taking place. As shall be seen later, the physical structure (i.e. the distribution of enterprises by size of enterprise) of some of the major crop and livestock enterprises in Irish Agriculture have undergone, in many respects, considerable changes in recent years.

The need to identify the physical structure of the various farm activities prompted the CSO to introduce in 1960 a major analysis which it was hoped could be repeated at regular five yearly intervals. The 1960 analysis was based on a random ten per cent sample selected from the 1960 census returns and covering in all some 29,000 holdings. The results are set out in Part II of "Agricultural Statistics 1960" (Pr. 7540). A similar analysis of a random sample of some 26,000 holdings, stratified by size of holding, was carried out after the 1965 full enumeration. Subsequently, after the 1970 agricultural census, a further analysis of some 27,000 holdings, randomly selected and again stratified by size of holding, was undertaken. In the meantime, however, priority had to be given to other work arising from EEC membership and the 1970 sample returns are being processed in conjunction with the 1975 sample. It is hoped to publish these results also in the near future. In 1975, unlike previous years when selection was a post-census exercise, the sample was selected in advance of the census and included some 42,000 holdings. The pre-selection and the substantially larger size of the 1975 sample was necessary to comply with the requirements of Directive 75/108/EEC* in accordance with which each Member State of the EEC carried out a sample survey on the structure of agriculture in 1975 (commonly known as the 1975 EEC "Structures" Survey). While the national 1975 June Enumeration incorporated the EEC Survey, it was not feasible to collect all the information required by the EEC in the routine enumeration forms. Thus, some items were included in a supplementary questionnaire which was completed in respect of the pre-selected sample of holdings at the same time as the routine enumeration return. These latter returns for the pre-selected sample are the basis for the 1975 analysis presented in this paper.

In the selection of the 1965, 1970 and 1975 samples, varying sampling fractions have been used to optimise accuracy of results for a given size of sample – in 1960 every tenth holding was selected. In all four years holdings of one acre or less, including landless stockholders, have been excluded. The analyses which follow have been derived from these samples and grossed estimates were obtained by raising the sample results by the ratio of the number of holdings in a particular size group to the number of holdings in the corresponding size group in the sample. In other words for each size group the grossing or raising factor is the inverse of the sampling fraction for that size group. Grossing was carried out at county level so that, within a particular size group in each county, each holding had the same grossing factor which was used to raise all the data on that holding.

* Official Journal, Vol. 18, No. L42, 15 February, 1975.

With the exception of 1960, when actual census figures were used, the totals for the various items of livestock and crops given in the paper are grossed estimates and not the census totals. No adjustment has been made to reconcile the overall raised sample results with the corresponding census totals and the extent of the differences which occur is illustrated in Appendix Table 10 where the percentage ratios of the raised estimates to the census totals for 1965, 1970 and 1975 are set out. As all holdings have not been included in the samples the ratios should be less than 100 but, as may be seen from Table 10, this is not always the case. It has to be stressed that, as the results have been derived from samples, they are subject to sampling errors.

This, then, is the background to the 1975 June Enumeration and to the structural analyses carried out to date. In the sections of the paper which follow, some results for the major livestock and crop enterprises of the analysis of the 1975 sample of holdings are discussed together with comparative figures for earlier periods and, in particular, for a similar analysis of the 1970 June Enumeration – the last full census prior to 1975. Results at national level only are discussed since time does not allow for a consideration of regional aspects. For the same reason it is not feasible to discuss the results of the 1975 EEC “Structures” Survey, which in its own right would require lengthy and detailed consideration.

AGRICULTURAL HOLDINGS, 1960-1975

We begin our review with an examination of the numbers of and area on agricultural holdings. In Appendix Table 1.1 the relevant distributions by total size of holding are shown for 1960, 1965, 1970 and 1975 and the corresponding percentage distributions are set out in Appendix Table 1.2. The most striking feature of these tables is the relatively small decline in the total number of holdings between 1960 and 1975 – a fall of some 20,000 or 7 per cent, which is an average of some 1,300 per annum. In the same period, the total area on holdings declined by about 428,000 acres or 3 per cent. The net result of these changes has been to increase the average size of holding from 49.1 acres in 1960 to 51.2 acres in 1975, an increase of just over 2 acres.

Table A sets out the percentage changes in the numbers of holdings by size of holding in each of the five year periods between 1960 and 1975. With the exception of the 50 to 100 and 100 to 200 acre size groups, the numbers of holdings in all size groups have consistently declined. The largest decreases, percentage and absolute, have occurred in the 15 to 30 acre size group where, over the fifteen years under review, a fall of some 11,800 holdings has taken place.

**TABLE A: PERCENTAGE CHANGE IN THE NUMBERS OF HOLDINGS IN EACH
SIZE GROUP, 1960-1975**

Size of Holding (Total Area)	Change in the Numbers of Holdings			
	1965/60	1970/65	1975/70	1975/60
Acres	Percentage			
1 ≤ 15	- 4.2	- 2.0	- 4.2	- 10.0
15 ≤ 30	- 6.2	- 5.0	- 5.9	- 16.1
30 ≤ 50	- 1.4	- 1.7	- 3.3	- 6.2
50 ≤ 100	+ 1.9	+ 1.8	+ 1.0	+ 4.7
100 ≤ 200	+ 2.0	- 0.1	+ 0.5	+ 2.3
Above 200	- 1.5	- 4.2	- 2.4	- 7.9
Total Holdings	- 2.4	- 1.8	- 2.9	- 6.9
Area on Holdings	- 0.8	- 1.2	- 1.1	- 3.0
Average Size of Holding	+ 1.6	+ 0.8	+ 1.8	+ 4.3

Table A clearly highlights the trend towards increasing numbers of holdings in the 50 to 200 acre size groups at the expense of smaller and larger sized holdings. The 50 to 200 acre holdings accounted for nearly 53 per cent of the total area on holdings in 1975 compared with some 49 per cent in 1960, an absolute increase of 301,000 acres. Overall, however, changes between 1960 and 1975 have made little difference to average holding size.

The classification used here relates to the total area of holdings and not to the utilised agricultural area. If the latter had been used as a measure of size, the numbers of larger holdings would be fewer and the numbers of smaller sized holdings would be correspondingly higher.

In considering the numbers of holdings it has to be recognised that each holding is not necessarily a farm unit and, more importantly, not necessarily a viable economic unit. Indeed the relatively minor changes in the numbers of holdings contrast sharply with the decline in agricultural employment between 1960 and 1975 when the numbers of males engaged in farmwork, which are the principal indicators of the level of agricultural employment, declined from 383,000 to 242,000, a fall of 141,000 or 37 per cent. During the same period male members of the family, aged 18 years and over, declined from 275,000 to almost 204,000, a decrease of 71,000 or 26 per cent. Moreover, it is estimated that in 1975 some 185,000 holdings had males engaged in farmwork compared with 224,000 in 1960, a decline of some 39,000 or 17 per cent. Indeed, as will be seen later, changes in the numbers of holdings are a very poor indicator of the changing structure of Irish agriculture.

LIVESTOCK AND CROPS, 1960-1975

In the three sections which follow, the developments in the physical structure of individual items of livestock and crops are considered – first, the overall developments; secondly, the developments by size of holding and thirdly, the developments by size of enterprise. At the end of each section the situation in 1975 is summarised. The individual enterprises (i.e. categories of livestock and items of crops) considered are cattle, cows, sheep, ewes, pigs and breeding pigs in the case of livestock and wheat, oats, malting barley, other barley, potatoes and sugar beet in the case of crops.

(1) Overall Developments

In Table B the percentage changes in the volume of output of livestock, livestock products and crops are set out. Between 1960 and 1975 the volume of gross agricultural output increased by almost 50 per cent due to increases of 54, 62 and 21 per cent in the volume of livestock, livestock products and crops, respectively. During the same period the volume of net output rose by one-third. In each five year period the volume of both livestock and livestock products increased while the volume of crops increased between 1965 and 1970 only.

TABLE B: PERCENTAGE CHANGE IN THE VOLUME OF OUTPUT, 1960-1975

Item	Volume Change			
	1965/60	1970/65	1975/70	1975/60
	Percentage			
Livestock*	+ 21	+ 9	+ 18	+ 54
Livestock Products	+ 15	+ 15	+ 23	+ 62
Crops	- 9	+ 41	- 6	+ 21
Gross Agricultural Output*	+ 12	+ 15	+ 15	+ 48
Net Agricultural Output*	+ 4	+ 9	+ 18	+ 33

* Including changes in livestock numbers

The changes in the volume of output reflect the changes which have occurred between 1960 and 1975 in the frequency and size of the principal livestock and crop enterprises. The trends in the latter are set out in index form, to base 1960 = 100, in Appendix Table 2. Ploughed land has been included to give an overall perspective of tillage. On the left hand side of Table 2 the trends in the numbers of holdings with the selected categories of livestock, the corresponding livestock numbers and average herd sizes are shown while on the right hand side of the table the corresponding information is given for the selected crop items.

Livestock

While the numbers of holdings with livestock have declined, there are marked differences in the trends between the major livestock categories. For cattle, between 1960 and 1970 the number of holdings with cattle show a steady decline of about 5 per cent in each of the two five year periods. However, between 1970 and 1975 the decline was just over 1 per cent. Similarly, for cows, the number of holdings declined by over 7 per cent in each of the two five year periods between 1960 and 1970 but between 1970 and 1975 a decline of less than 3 per cent took place. For both categories, numbers of animals on holdings rose substantially since 1960, the largest increases occurring between 1970 and 1975. In 1975, cattle numbers were over 50 per cent higher than in 1960 and 20 per cent up on 1970 while cow numbers were almost 70 per cent above the 1960 level and 25 per cent up on 1970. The average size of the cattle herd has increased also since 1960, rising by 17, 21 and 23 per cent respectively in each of the five year periods. The overall increase between 1960 and 1975 was just short of 75 per cent. The average size of the cow herd rose by 29, 21 and 29 per cent respectively which resulted in a doubling of size between 1960 and 1975.

For sheep and ewes the numbers of holdings in 1975 were less than two-thirds of the 1960 levels, the largest declines having occurred between 1965 and 1970 when there were falls of over 20 per cent. The numbers of sheep and ewes rose between 1960 and 1965 (when in fact record numbers were returned) and since then have declined continuously. Average sizes of flock, however, have shown increases despite the falling numbers of sheep and ewes and in 1975 were 40 and 50 per cent respectively above the 1960 level.

For pigs, the decline in the numbers of holdings has been considerable, with falls of 19, 25 and 61 per cent respectively in each of the five year periods. In particular, the fall between 1970 and 1975 has been dramatic. The changes in the numbers of pigs have not followed the trend in holdings. In fact, between 1960 and 1965, pig numbers rose by 29 per cent and the 1965 levels were maintained in 1970. Since then, however, a fall of one-third has occurred and in 1975 pig numbers were some 13 per cent below the 1960 levels. As a result of these changes, the average herd size has risen by 60, 35 and 67 per cent respectively in each of the five year periods, the latter period showing a substantial rise. Over the entire 15 years average size of herd has more than trebled.

In the case of breeding pigs, the numbers of holdings have also declined but not as dramatically. Between 1960 and 1965 little change occurred but this was followed by a decline of 13 per cent between 1965 and 1970 and of 55 per cent between 1970 and 1975 to leave the number of holdings in 1975 some 60 per cent below the 1960 level. The numbers of breeding pigs showed increases of 23 and 7 per cent respectively in the five year intervals between 1960 and 1970 but declined by over 30 per cent between 1970 and 1975. Thus, in 1975, breeding pigs were some 10 per cent below the 1960 level. Average size of herd, however, has shown increases, the largest increase occurring again between 1970 and 1975 when there was a rise of over 50 per cent. Average herd size in 1975 was more than double the 1960 average.

Crops

Holdings with wheat have shown substantial declines, falling by 46, 26 and 55 per cent respectively in each of the five year periods, which has resulted in an overall decline of over 80 per cent. The acreage, apart from a rise of over 30 per cent between 1965 and 1970, has decreased and in 1975 was 70 per cent below the 1960 level. The average size of crop declined by 10 per cent between 1960 and 1965, but rose substantially since then and in 1975 was close on 70 per cent above the 1960 average. Oats has shown considerable decreases also between 1960 and 1975, the numbers of holdings fell by almost two-thirds, acreage by 70 per cent and average crop size by 17 per cent.

For malting barley the numbers of holdings have declined by 28 per cent, while acreage has increased by 34 per cent and average crop size by 86 per cent, in which a rise of over 40 per cent occurred between 1970 and 1975. In the case of other barley, the numbers of holdings increased by 6 per cent between 1960 and 1965 but in the following five years dropped back to just below the 1960 level. Since 1970 a decline of 12 per cent has occurred. Acreage increases of 57, 23 and 11 per cent respectively have occurred in each five year period and this has resulted in the 1975 acreage being more than double that of 1960. These changes are reflected in the average size of crop which rose by 47, 32 and 27 per cent respectively in each of the five years, leaving the 1975 average almost 2½ times the 1960 level.

Potatoes, like oats, have shown fairly consistent declines in all of the five year periods and overall declines of over 40 per cent in holdings, 57 per cent in acreage and 20 per cent in average crop size have occurred. Holdings with sugar beet have declined by over 50 per cent in number since 1960, the fall between 1970 and 1975 being over 30 per cent. The acreage showed small declines between 1960 and 1970 but since then has increased by over 25 per cent. The average size of crop increased by 22, 15 and 87 per cent respectively in each of the five year periods and in 1975 was over 160 per cent higher than in 1960.

Overall, in 1975, holdings with some ploughed land number just less than two-thirds of the 1960 total. The total area ploughed has fallen by over 30 per cent, an absolute decline of over a half-million acres, while average area per holding has increased by 4 per cent.

The Situation in 1975

The overall percentage changes between 1960 and 1975 are summarised in Table C from which it is evident that the percentage declines in the numbers of holdings with cattle, cows and other barley have been relatively small compared with the remaining enterprises. In particular, the percentage declines in the numbers of holdings with pigs, wheat, oats, sugar beet and potatoes have been substantial. The percentage declines in sheep and pig numbers, while not considerable, contrast with the large increases in cattle and cow numbers. For crops, the percentage increases in the acreages of barley and sugar beet were not sufficient to prevent the overall decline of over 30 per cent in the area ploughed. For all enterprises, other than oats and potatoes, the average size of enterprise increased, the percentage increases being substantial in most cases.

TABLE C: TRENDS IN LIVESTOCK AND CROPS, 1960-1975

Category of Livestock	Holdings with	Livestock Numbers	Average Herd Size
		1960 = 100	
Total Cattle	89	154	174
Cows	84	169	202
Total Sheep	63	89	140
Ewes	64	95	149
Total Pigs	24	87	360
Breeding Pigs	40	90	232

Crop Item	Holdings with	Area Grown	Average Crop Size
		1960 = 100	
Wheat	18	30	168
Oats	35	29	83
Malting Barley	72	134	186
Other Barley	87	215	247
Potatoes	57	43	80
Sugar Beet	48	125	263

Ploughed Land	66	69	104
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(2) *Developments by Size of Holding*

In Appendix Tables 3 (livestock) and 4 (crops) the frequency and average size of enterprises in each size of holding are shown for 1960, 1965, 1970 and 1975. To facilitate use of these tables the total numbers of holdings in each size group are shown at the top of table 3.1.

Livestock

Table 3.1 shows the percentage of holdings in each size group with cattle, sheep and pigs and Table 3.2 sets out the corresponding average herd sizes. The most striking feature of Table 3.1 is the high percentage of holdings with cattle in each size group. For holdings above 30 acres, the percentages at all times have been above 90 and, for holdings between 15 and 30 acres, these have been above 80. Even in the 1 to 15 acre size group, close on 60 per cent of holdings have cattle. A further feature is the relatively static percentage of holdings with cattle in size groups above 15 acres between 1965 and 1975. While declines occurred between 1960 and 1970, the trends since 1970 are generally upwards which emphasises the continuing importance of cattle farming, resulting no doubt from Ireland's accession to the EEC.

For cows also the percentage of holdings in each size group is high, being over 80 for holdings above 30 acres and over 70 for holdings in the 15 to 30 acre size group. For holdings less than 15 acres the percentage has declined from 57.1 in 1960 to 44.5 in 1975. In all size groups the percentages decreased between 1960 and 1970 but it is noteworthy that between 1970 and 1975 the percentage of holdings with cows in each size group has shown little change except in the largest size group where the decline between 1960 and 1970 has continued. The arrest of the decline between 1970 and 1975 must reflect the effects of EEC membership on dairying.

For both total cattle and cows the average size of herd has increased consistently in each of the five year periods since 1960. On holdings above 200 acres, the average herd of cattle was 85 in 1960 and 127 in 1975 which now represents a sizeable investment in livestock. In the case of cows, on holdings above 50 acres, the average size of herd has doubled since 1960, while in the size groups below 50 acres, the increases in herd sizes have ranged from over 40 to above 80 per cent.

In the case of sheep and ewes the picture is one of decreasing percentages of holdings in all size groups since 1960 – an exception being the 50 to 100 acre size group where small increases occurred between 1960 and 1965. A surprising feature is the high percentage of the above 200 acre holdings with sheep, over one-half of which continue to have sheep despite the 94 per cent with cattle. In the 100 to 200 acre size group, two out of five holdings have sheep compared with the 95 per cent with cattle. For these two size groups, the stage now may be nearing when further expansion in cattle numbers could have significant effects on sheep, particularly in lowland areas. The average size of the sheep flock has increased generally but it is significant that, since 1970, on holdings above 50 acres, flock size has tended to level off. Indeed holdings above 200 acres show declining flock size since the record numbers of 1965. In contrast to this, the average size of flock on holdings less than 50 acres has continued to rise substantially. Similar trends exist for ewes.

For pigs, too, the situation is one of declining percentages of holdings in all size groups since 1960, the most dramatic changes occurring between 1970 and 1975. In each successive five year period, the rate of decline has tended generally to accelerate. Average size of herd, however, has increased on all holdings. On holdings less than 15 acres, an overall increase of 400 per cent has occurred between 1960 and 1975. On holdings above 200 acres, an increase of 500 per cent was recorded and average herd size in 1975 was some 134 compared with 51 in 1970 and 23 in 1960. In all other size groups average size increased about threefold over the fifteen years.

In the case of breeding pigs, the percentage of holdings in size groups below 50 acres showed marginal changes between 1960 and 1970 but dropped sharply between 1970 and 1975. For holdings above 50 acres, decreasing percentages of holdings reported breeding pigs in each five year period, the decline between 1970 and 1975 in all cases being considerable. In all size groups, average herd size rose relatively little between 1960 and 1965 and again between 1965 and 1970 but substantial increases occurred between 1970 and 1975, particularly in the above 200 acre size group where herd size more than doubled. In 1975 the average size of herd in this size group was four times the 1960 level.

Crops

In Appendix Tables 4.1 and 4.2 the frequency and average size of crop enterprises are set out. Table 4.1 shows the percentages of holdings in each size group growing the selected crops, while Table 4.2 contains the average area grown per holding. Overall, with the exception of other barley, the trend is one of declining percentages of holdings in each size group growing crops. The percentages of holdings with other barley generally increased between 1960 and 1965 but since then have decreased except in the above 200 acre size group. In Table 4.2 differing trends in average size of crop are evident. For wheat, the average size of crop has fluctuated with the total acreage grown but the underlying trend in each size of holding is towards a larger crop size. For oats, only holdings above 100 acres have shown a definite tendency to increase and this only since 1965. For both of the barley crops and sugar beet, average crop sizes have increased substantially in all size groups and on holdings above 200 acres, the average sizes of the other barley and sugar beet crops have almost trebled. In the case of potatoes, the average size of crop on holdings up to 200 acres has tended to decrease while on holdings above 200 acres little change has taken place. Despite general increases between 1965 and 1970, the average area ploughed in all size groups up to 200 acres has declined, while on holdings above 200 acres an upward trend is evident since 1965.

The Situation in 1975

The position in 1975 is summarised in Table D in respect of three broad size classes of holdings. It is clear from this table that the most popular enterprises are cattle and cows and high percentages were recorded in all size groups. Following these, potatoes was the next most common enterprise on all sizes of holdings. Oats, though on the decline as seen earlier, was grown by about one in four of holdings in all size groups. However, on holdings above 50 acres other barley was more widely grown which is a reversal of the

1960 situation. Other barley, sheep and ewes were equally popular and these were followed by pigs. Finally the least common enterprises were breeding pigs in the case of livestock and malting barely, sugar beet and wheat in the case of crops. These latter crops have become somewhat "exclusive" in that holdings growing them were relatively few in number in 1975.

TABLE D: PERCENTAGE OF HOLDINGS WITH AND AVERAGE SIZE OF SELECTED ENTERPRISES IN CERTAIN SIZE GROUPS, JUNE 1975

Item	Size of Holding (acres)															
	1 ≤ 50				50 ≤ 100				Above 100				Total			
	Percentage of Holdings with				Average Size of Enterprise*				No.				Acres			
Cattle	78.2	94.1	95.1	83.5	17.2	43.4	87.2	32.3	17.2	43.4	87.2	32.3	17.2	43.4	87.2	32.3
Cows	65.4	85.5	84.9	71.9	6.2	15.3	26.5	11.1	6.2	15.3	26.5	11.1	6.2	15.3	26.5	11.1
Sheep	14.4	28.3	41.6	20.3	47.1	62.3	124.4	69.2	47.1	62.3	124.4	69.2	47.1	62.3	124.4	69.2
Ewes	13.6	27.1	40.1	19.4	22.7	29.6	59.7	33.3	22.7	29.6	59.7	33.3	22.7	29.6	59.7	33.3
Pigs	7.4	15.8	14.9	10.0	19.5	27.6	61.9	29.2	19.5	27.6	61.9	29.2	19.5	27.6	61.9	29.2
Breeding Pigs	5.0	11.9	10.4	7.0	4.1	4.8	8.6	5.1	4.1	4.8	8.6	5.1	4.1	4.8	8.6	5.1
Wheat	1.5	4.5	12.5	3.3	5.1	9.1	19.2	12.1	5.1	9.1	19.2	12.1	5.1	9.1	19.2	12.1
Oats	21.2	24.5	26.0	22.5	1.1	2.4	5.9	2.0	1.1	2.4	5.9	2.0	1.1	2.4	5.9	2.0
Malting Barley	2.6	7.9	13.2	4.9	6.1	10.3	20.8	11.9	6.1	10.3	20.8	11.9	6.1	10.3	20.8	11.9
Other Barley	11.2	29.9	43.6	18.7	3.7	7.5	18.7	8.9	3.7	7.5	18.7	8.9	3.7	7.5	18.7	8.9
Potatoes	43.2	55.1	52.4	46.7	0.6	0.8	1.3	0.8	0.6	0.8	1.3	0.8	0.6	0.8	1.3	0.8
Sugar Beet	2.3	7.4	12.3	4.5	3.7	6.2	11.9	7.1	3.7	6.2	11.9	7.1	3.7	6.2	11.9	7.1
Ploughed Land	51.9	69.3	75.4	58.2	2.8	8.0	24.7	7.2	2.8	8.0	24.7	7.2	2.8	8.0	24.7	7.2

* Per holding with

As may be expected, the average herd and crop sizes increased with size of holding. This is true even of pigs, which unlike other enterprises do not depend on acreage for expansion. On holdings above 100 acres, the average size of enterprise in all cases was roughly twice the average on holdings in the 50 to 100 acre size group. However, the ratio of average size of enterprise in the 50 to 100 size group to that in the 1 to 50 size group varied from just over 1 (ewes, breeding pigs and potatoes) to 2½ (cattle and cows).

(3) Developments by Size of Enterprise

In this section the distribution, by size of enterprise (i.e. size of herd or area of crop grown), of holdings with the selected livestock and crop enterprises and the corresponding livestock numbers or crop acreages are considered. Since considerable detail is involved, the analysis is restricted to 1970 and 1975. The relevant Appendix Tables are 5, 6 and 7 for livestock and 8 and 9 for crops.

Livestock

Cattle (Appendix Table 5.1)

	<i>Holdings with</i>	<i>Total Cattle</i>	<i>Average Herd Size</i>
Change 1975/70:	- 2,800	+ 1,283,000	+ 6.0

An estimated 225,000 holdings had cattle in 1975 compared with 228,000 holdings in 1970, a decline of just over 1 per cent in the five years. Average herd size has risen from 26.3 to 32.3, an increase of 23 per cent and this rise is due almost entirely to increased cattle numbers. The numbers of holdings with herd sizes less than 20 show decreases while those with 20 or more show increases. Furthermore, in 1975 some 19 per cent of holdings had 50 or more cattle and accounted for over one-half of all cattle. This compares with 13 per cent of holdings accounting for 43 per cent of cattle in 1970.

Cows (Appendix Table 5.2)

	<i>Holdings with</i>	<i>Total Cows</i>	<i>Average Herd Size</i>
Change 1975/70:	- 5,600	+ 434,000	+ 2.5

An estimated 194,000 holdings had cows in 1975 compared with 199,000 in 1970, a decline of less than 3 per cent in five years. Average herd size has increased from 8.6 to 11.1, a rise of almost 30 per cent which is mainly the result of increased cow numbers. Holdings with less than 10 cows have decreased, though the decline in the 5-9 herd size class was just over 2 per cent. Holdings with herds of 10 or more show consistent increases. For herds of 30 or more these increases are substantial, the numbers of holdings rose from 8,500 in 1970 to almost 16,000 in 1975, an increase of some 87 per cent. In 1975 these holdings represented 8 per cent of holdings with cows and accounted for one-third of all cows; the corresponding 1970 estimates were 4 per cent of holdings for 21 per cent of cows.

While a comparison of dairy cows between 1970 and 1975 is not possible – the now familiar breakdown of cows was not in use in 1970 – the dairy enterprise is too important to overlook and the structure of the dairy herd in 1975 is set out in Appendix Table 5.3 where the distribution of holdings with dairy cows is cross-classified by size of herd and size of holding.

In 1975 an estimated 130,000 holdings, just less than one-half of all holdings, had dairy cows and average size of herd was 11.4. Thus of the 194,000 holdings with cows, over two-thirds had dairy cows. The importance of the larger herd sizes is evident from Table 5.3 where the number of holdings with 20 or more dairy cows exceeds 24,000, i.e. some 19 per cent of total holdings with dairy cows, and accounts for an estimated 839,000 or almost 57 per cent of dairy cows. The popularity of the dairy cow on all sizes of holdings is evident also and, with the exception of the 1 to 15 acre size group where 28 per cent of holdings had dairy cows, the percentage in each size group lies between 47 and 61.

Dairy cows are defined to include all cows whose milk is for sale or human consumption. Thus, what might be termed the “house” cow is included and indeed the herds of 1 to 2 must consist largely of such cows. Additionally, it is doubtful if herds of 3 to 4 cows constitute “commercial” dairy enterprises. Thus, the 76,000 holdings with 5 or more cows are those which might be classed as the “commercial” producers. Of these the 25,000 holdings with 5 to 9 dairy cows must be potentially the most responsive to policies aimed at encouraging dairy farmers to give up milk production. It can be seen from Table 5.3 that of these 25,000 holdings some 10,500 do not exceed 30 acres in size and a further 8,000 do not exceed 50 acres. Given the present dependence on grass by Irish dairy farming, these producers are capable of a limited expansion only, and, if the incentives to leave dairying are sufficiently attractive, they may not continue their involvement in milk production. These holdings, however, accounted for only 11 per cent of total dairy cows in 1975 and even if one-half discontinue milk production, the drop, while it may be significant, would be readily off-set by any further expansion of the 51,000 holdings with 10 or more dairy cows. These latter holdings must constitute the hard-core of the fully-committed producers and it is worth noting that in 1975 these holdings accounted for almost 1.2 million dairy cows which was over 80 per cent of the national herd.

Sheep (Appendix Table 6.1)

	<i>Holdings with</i>	<i>Total Sheep</i>	<i>Average Flock Size</i>
Change 1975/70:	-10,500	- 379,000	+ 5.4

The number of holdings with sheep has decreased from 65,000 in 1970 to 55,000 in 1975, a fall of over 16 per cent. Sheep numbers also declined but average flock size has risen from 63.8 to 69.2. The numbers of holdings in all size classes have decreased with

the exception of those in the 200 plus size class. In 1975 holdings with 200 or more sheep were estimated to comprise over 6 per cent of all holdings with sheep and to account for some 30 per cent of total sheep numbers. The comparable 1970 estimates were 5 per cent of holdings for 27 per cent of total sheep. In both 1975 and 1970 close on 80 per cent of sheep were found on holdings with herds of 50 or more.

Ewes (Appendix Table 6.2)

	<i>Holdings with</i>	<i>Total Ewes</i>	<i>Average Flock Size</i>
Change 1975/70:	- 9,500	- 156,000	+ 2.6

The number of holdings with ewes has declined from 62,000 in 1970 to 52,000 in 1975; the number of ewes has fallen by 156,000 and average size of flock has increased from 30.7 to 33.3. The numbers of holdings in all size classes show decreases with the exception of those in the 100 and over size classes, where marginal increases occurred.

It is clear from Tables 6.1 and 6.2 that significant structural changes at State level have not occurred within sheep farming between 1970 and 1975. However, it was seen earlier in Appendix Table 3.2 that average flock sizes on holdings not exceeding 50 acres increased between 1970 and 1975 while on holdings above 50 acres little change occurred. The former may be indicative of structural improvements in highland flocks and the latter of counter-movements in lowland flocks. The county data, when available, will throw further light on these two aspects of sheep farming.

Pigs (Appendix Table 7.1)

	<i>Holdings with</i>	<i>Total Pigs</i>	<i>Average Herd Size</i>
Change 1975/70:	- 41,000	- 405,000	+ 11.7

The number of holdings with pigs has declined from 68,000 in 1970 to 27,000 in 1975, a decline of over 60 per cent; the number of pigs declined by 405,000 or over one-third while average size of herd increased from less than 18 to over 29 pigs. Major structural changes have occurred between 1970 and 1975 and the emerging predominance of a small number of large units is evident. In 1970 and 1975 some 1,100 holdings had 100 or more pigs and accounted for 26 per cent and 60 per cent of the total herd, respectively - average size of herd having risen from 274 in 1970 to 452 in 1975, an increase of 65 per cent. The numbers of holdings in all other size of herd classes show large decreases as also do the numbers of pigs. If these trends should continue, the pig industry will become highly intensive with a relatively small number of holdings controlling supplies.

Additional information on fattening pigs (pigs of at least 50 Kgs. liveweight) and young pigs (pigs not exceeding 50 Kgs. liveweight) further emphasises the growing intensification within pig farming. In 1975 some 400 holdings out of a total of 7,700 with fattening pigs had 100 or more fattening pigs but accounted for 209,000 or almost 78 per cent of the herd. The average herd size on these holdings was 535 fattening pigs. A further 800 holdings had 20 to 100 fattening pigs and accounted for 12 per cent of the herd. Thus the remaining 6,500 holdings (nearly 85 per cent of the total) had less than 20 each and accounted for only 10 per cent of the herd.

For young pigs, some 650 holdings out of a total of 15,900 with young pigs had 100 or more in 1975 and accounted for just less than 200,000 or 48 per cent of the total herd. Average herd size on these holdings was over 300 young pigs. Some 3,700 holdings had herds of 20 to 100 and accounted for a further 30 per cent of the total herd, while the remaining 11,500 holdings (over 70 per cent of the total) had less than 20 young pigs each and accounted for just over 20 per cent of the total herd.

Breeding Pigs (Appendix Table 7.2)

	<i>Holdings with</i>	<i>Breeding Pigs</i>	<i>Average Herd Size</i>
Change 1975/70:	- 23,000	- 44,000	+ 1.8

Holdings with breeding pigs have declined from 42,000 in 1970 to 19,000 in 1975, a decline of some 55 per cent. In the same period the numbers of breeding pigs have declined from 141,000 to 96,500, a fall of over 30 per cent. Average herd size has risen from 3.3 to 5.1 but still remains relatively low. As for pigs in general, the internal structural changes have been significant and in 1975 some 1,400 holdings with 10 or more breeding pigs accounted for over one-half of the total breeding herd. In 1970 the corresponding number of holdings was 1,800 accounting for less than one quarter of the herd. Average herd size on these holdings in 1975 was 37 compared with 18 in 1970. The numbers of holdings in all other herd-size classes show substantial declines with corresponding decreases in pig numbers. It is worth noting that in 1975 some 11,300 holdings, almost 60 per cent of the total, have only 1 or 2 breeding pigs each and account for 16.5 per cent of the herd. In 1970 the corresponding number of holdings was 23,800, again almost 60 per cent of the total, accounting for just over one-quarter of the herd.

Crops

Wheat (Appendix Table 8.1)

	<i>Holdings with</i>	<i>Total Acreage</i>	<i>Average Crop Size</i>
Change 1975/70:	- 11,500	- 130,000	+ 0.5

An estimated 9,000 holdings were growing wheat in 1975 compared with 20,500 holdings in 1970. Despite the decline of 130,000 acres in total area, a 54 per cent decrease, the average area grown per holding increased by 0.5 acres to 12.1 acres. While major declines occurred in all size of crop classes, significant structural movements have not taken place and in 1975 some 25 per cent of holdings grew 15 or more acres of wheat and accounted for 65 per cent of the crop compared with the corresponding 1970 estimates of 23 per cent of holdings accounting for 64 per cent of the acreage.

Oats (Appendix Table 8.2)

	<i>Holdings with</i>	<i>Total Acreage</i>	<i>Average Crop Size</i>
Change 1975/70:	- 28,000	- 47,000	+ 0.1

The growing of oats is a predominantly small scale enterprise and in 1975 was grown on more holdings than any other cereal. However, between 1970 and 1975 a substantial decline in the number of holdings has occurred, from 89,000 to 61,000, a fall of over 30 per cent. This decline has been accompanied by a drop of 47,000 or 28 per cent in acreage and thus, the average area grown remains low at 2.0 acres compared with 1.9 acres in 1970. The percentage distributions illustrate the predominance of the small acreages and some 87 per cent of holdings with oats grew less than 4 acres and accounted for 45 per cent of the area grown in 1975 compared with the corresponding 1970 estimates of 88 per cent of holdings for 51 per cent of the acreage. Holdings with 15 or more acres have increased to 1,000 in 1975 from 800 in 1970 while the corresponding acreage increased to 25,500, just over one-fifth of the total, from 21,000 acres, about one-eighth of the crop in 1970.

Malting Barley (Appendix Table 8.3)

	<i>Holdings with</i>	<i>Total Acreage</i>	<i>Average Crop Size</i>
Change 1975/70:	- 2,300	+ 28,000	+ 3.5

The relatively small changes in the numbers of holdings growing malting barley probably reflect the practice of growing this crop under contract. The numbers of holdings with malting barley declined from 15,500 in 1970 to 13,000 in 1975, while the acreage increased by 28,000 to 157,000 acres. The average size of crop rose from 8.4 to 11.9 acres, an increase of 42 per cent. Significantly, decreases have occurred in the holdings growing less than 10 acres while those growing 10 or more acres have increased in number; the most pronounced increases have occurred in the 20 and over size classes. In 1975 some 17 per cent of holdings were in these size classes and accounted for more than one-half of the entire acreage, compared with 9 per cent of holdings growing less than 40 per cent of the acreage in 1970.

Other Barley (Appendix Table 8.4)

	<i>Holdings with</i>	<i>Total Acreage</i>	<i>Average Crop Size</i>
Change 1975/70:	- 6,700	+ 46,000	+ 1.9

An estimated 50,000 holdings grew other barley in 1975 compared with 57,000 holdings in 1970 and this decrease coupled with an increase in acreage has resulted in an average crop size of 8.9 acres in 1975 compared with 7.0 acres in 1970. Holdings with less than 10 acres have declined; those with 10 to 20 acres showed no change and those with 20 or more acres have increased in number. In 1975 holdings growing 20 or more acres accounted for 12 per cent of holdings growing other barley and for over one-half of the total area grown compared with 8 per cent of holdings for 43 per cent of the acreage in 1970.

Potatoes (Appendix Table 9.1)

	<i>Holdings with</i>	<i>Total Acreage</i>	<i>Average Crop Size</i>
Change 1975/70:	- 29,900	- 41,500	- 0.1

Potatoes is the most commonly grown crop but, like oats, it is a small scale enterprise. In 1975 this latter aspect was illustrated by the number of holdings growing less than 1 acre which comprised almost 80 per cent of the total holdings with potatoes and accounted for close on 40 per cent of the acreage grown. This compares with 68 per cent and 32 per cent respectively in 1970. Overall the number of holdings has fallen from

156,000 in 1970 to 126,000 in 1975 while the acreage grown has declined by 41,500 acres and the average size of crop has changed little – 0.9 to 0.8 acres. No size class shows an increase. Given the upheavals in the potato market over the last few years, the distributions in Table 9.1 are of some interest. Indeed the relative importance of the small-scale growers (an estimated 48,500 holdings grew $\frac{1}{4}$ acre in 1975 and a further 49,500 grew $\frac{1}{2}$ or $\frac{3}{4}$ of an acre) underlines the difficulties of organising an orderly market. It is highly probable that many of these growers do not grow potatoes primarily for sale but, when prices are high, are tempted to increase production with a view to selling in anticipation of prices remaining attractive.

Sugar Beet (Appendix Table 9.2)

	<i>Holdings with</i>	<i>Total Acreage</i>	<i>Average Crop Size</i>
Change 1975/70:	- 5,300	+ 19,000	+ 3.3

Major structural changes have occurred since 1970 and are due to a combination of an increase in acreage and a decline in the number of growers. The number of holdings growing sugar beet has declined from 17,000 in 1970 to 12,000 in 1975, a drop of over 30 per cent. The net result of this and of the increased acreage (just short of 30 per cent) has been a rise in the average area grown from 3.8 to 7.1 acres, an increase of 87 per cent. The pattern of declining numbers growing smaller acreages and increasing numbers growing larger acreages is evident. Holdings growing 7 or more acres of sugar beet rose from an estimated 2,000 in 1970 to 4,000 in 1975 when they accounted for 59,000 acres or some 70 per cent of the total area. It should be noted here that in Appendix Table 10 for both 1970 and 1975 the ratios of the raised estimates to the actual census figures are 103.7 and 103.4, respectively. From data made available by the Irish Sugar Company, the numbers of contract growers in 1975 were 11,200 compared with the raised estimates of 12,000 holdings.

THE SITUATION IN 1975

The overall position in 1975 is summarised in Table E, which further underlines the conclusions drawn from Table D. Clearly, livestock farming, in particular cattle, is the dominant enterprise in Irish farming. A large number of holdings, however, have some tillage of which potatoes and oats are the most widespread, but both of these are very

small scale enterprises. These are followed by sheep, other barley and pigs after which come malting barley, sugar beet and wheat. Despite the fact that wheat is grown on fewer holdings than any of the other crops considered, the average crop size is the largest. Given the increases which have occurred in the wheat acreage since 1975, the average crop size may have increased further as it is unlikely that substantial numbers of holdings have returned to growing wheat.

TABLE E: ESTIMATED NUMBER OF HOLDINGS WITH SELECTED CATEGORIES OF LIVESTOCK AND CROPS, JUNE, 1975

Category of Livestock	Holdings with	Livestock Numbers*	Average Herd Size
	(000)		No.
Total Cattle	225	7,258	32.3
Total Cows	194	2,153	11.1
Dairy Cows	130	1,478	11.4
Total Sheep	55	3,790	69.2
Ewes	52	1,737	33.3
Total Pigs	27	785	29.2
Breeding Pigs	19	97	5.1

Crop Item	Holdings with	Acreage* grown	Average Crop Size
	(000)		Acres
Wheat	9	109	12.1
Oats	61	123	2.0
Malting Barley	13	157	11.9
Other Barley	50	447	8.9
Potatoes	126	95	0.8
Sugar Beet	12	85	7.1
Ploughed Land	157	1,134	7.2

* Raised estimates, not census totals - see Table 10.

FUTURE TRENDS

The present analysis indicates that there has been a movement away from tillage and sheep towards cattle and dairy farming, which in recent years must be due largely to existing EEC policies. Pig farming has become a highly intensive operation and the rising costs of feed in recent years coupled with the non-return of skimmed milk in the traditional creamery areas have undoubtedly aided the exodus.

In the future, further intensification in cattle and dairying is certain. It is possible that rising costs, combined with handicaps of expansion (size of holding and capital), may force many of the smaller sized holdings to review their continued participation in dairying. In any event, the continuing emphasis of EEC agricultural policies on beef and milk will further direct Irish agriculture towards these two enterprises.

In the case of sheep, further declines in the numbers of holdings cannot be ruled out and expansion in cattle might accelerate these declines, particularly in lowland areas. Undoubtedly, sheep will continue to be a major enterprise for hill and disadvantaged area holdings, on which poor pastures and rough grazing land will not adequately support other grazing livestock enterprises. The possibilities for major structural improvements on these holdings, however, will be a principal factor in determining growth. It should be noted that while the number of sheep in June 1977 increased by some 51,000 or 1.5 per cent on 1976, the 1977 flock remains well below the 1975 level.

Pig farming is likely to become more intensive and the contribution of small units to total production will become increasingly insignificant. One may only speculate if the permanent loss of the small breeding units will not initially hinder expansion in the pig sector since a sizeable investment in large breeding units may be required to offset the departure of the many small units.

It seems likely that wheat and barley, both of which have increased in acreage since 1975, will be enterprises for larger holdings and further declines in the numbers growing these crops may be expected. This may be the case also for sugar beet. For oats and potatoes, the numbers of holdings are likely to continue declining which, in the case of potatoes, should prove beneficial in any moves to rationalise the system of marketing. The acreages of both these crops are likely to decline also in the long term - between 1975 and 1977 the area of oats has declined by a further 36,000 acres but potato acreage, following on the scarcities of the 1975/76 crop year, has increased by 32,000 acres.

FUTURE ANALYSES

In conclusion, a few remarks regarding future analyses may not be amiss. In the present analysis it has been necessary to examine the major enterprises independently of each other and the relative significance of individual enterprises within holdings has not been assessed. Thus, the overall pattern of farming in the State has not been analysed but it is obvious that, in any such analysis of farming patterns, cattle and dairying would be predominant. To obtain a complete picture it would be necessary to express the physical data on crops and livestock in terms of a common denominator. For enumeration data this is best achieved by applying standard coefficients (e.g. standard man-days,

standard gross margins, standard net value added etc.) to the individual items of crops and livestock. Currently, the nine Member States of the EEC are drawing up such a farm "typology" based on Standard Gross Margins, which will be applied in the first place to the physical data of the 1975 "Structures" Survey. The CSO, together with the Department of Agriculture and the Agricultural Institute, has been participating in the work of the relevant Working Group in Brussels. This Group is now completing the first phase of its work and a classification scheme is almost finalised. It is hoped to apply this scheme to the 1975 sample in early 1978 to obtain a pattern of farming classification for Irish agriculture. These results should be extremely useful and should provide a statistical basis for analysing the overall pattern and structure of Irish farming. The classification will be repeated in respect of 1977 when another EEC - wide "Structures" Survey was carried out and 1980 when the next full enumeration is likely to be undertaken. Apart from the pattern of farming classification, the 1975 analysis will be repeated also for 1977 and 1980.

It should be noted also that in the analyses presented in this paper, changes have been the *net* result of increases and decreases in the activities of all the holdings in the State. In other words, the changes between 1970 and 1975 are the net results of movements into and out of each enterprise. This is true also of the numbers of holdings engaging in each enterprise. In contrast to this approach, which is sometimes called "latitudinal" analysis, there is an interest also in pursuing changes at the individual holding level over time i.e. what is termed "longitudinal" analysis. The objective is to highlight the "gross", as distinct from the "net", changes and more importantly to identify the real source of change, e.g. which type or size of holding contributes most to the change. At present a number of pilot studies are being carried out within the EEC to examine the feasibility of conducting a large scale "longitudinal" survey. The CSO is undertaking a pilot study of Irish holdings for 1975 and 1977. If successful, similar full scale surveys would aim at monitoring the "gross" changes in structure over time. It is too early yet to say if the pilot surveys will be successful but similar surveys conducted in Sweden were inconclusive when carried out on a sample basis. It was found that to obtain meaningful results it was necessary to include the totality of holdings, an impossible task in Ireland, given present methods of collecting and processing data.

APPENDIX

LIST OF TABLES

- Note:*
- (1) *In all cases the livestock numbers and crop acreages shown in the Tables are raised estimates and not census totals. (See Table 10).*
 - (2) *As figures have been rounded, there may be discrepancies between the sum (or difference) of the constituent items and the total shown. In some instances rounding has given rise also to discrepancies in the size of herd and size of crop classes in Tables 5 to 9 inclusive.*

Percentages have been calculated on actual figures.

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Table	10	Ratio of Raised Estimates to Actual Census Totals, 1965, 1970 and 1975

HOLDINGS
TABLE 1.1: NUMBER AND AREA* OF AGRICULTURAL HOLDINGS CLASSIFIED BY SIZE OF HOLDING, 1960, 1965, 1970 AND 1975

Size of Holding (Total Area) Acres	1960		1965		1970		1975	
	Holdings No.	Area Acres	Holdings No.	Area† Acres	Holdings No.	Area Acres	Holdings No.	Area Acres
	('000)							
1 ≤ 15	70.1	568.5	67.2	538.7	65.9	526.4	63.2	501.7
15 ≤ 30	73.2	1,699.5	68.7	1,602.0	65.3	1,528.9	61.4	1,446.0
30 ≤ 50	62.0	2,456.2	61.2	2,434.6	60.1	2,401.6	58.1	2,341.4
50 ≤ 100	54.2	3,814.1	55.2	3,894.0	56.2	3,971.7	56.7	4,035.4
100 ≤ 200	22.9	3,130.9	23.3	3,183.7	23.3	3,176.2	23.4	3,210.3
Above 200	7.1	2,554.3	7.0	2,455.3	6.7	2,340.0	6.5	2,260.1
Total	289.5	14,223.3	282.6	14,108.4	277.4	13,944.6	269.4	13,794.9
Average Size of Holding (Acres)	49.1		49.9		50.3		51.2	

TABLE 1.2: PERCENTAGE DISTRIBUTIONS

Size of Holding (Total Area) Acres	1960		1965		1970		1975	
	Holdings	Area	Holdings	Area†	Holdings	Area	Holdings	Area
	Percentage							
1 ≤ 15	24.2	4.0	23.8	3.8	23.8	3.8	23.4	3.6
15 ≤ 30	25.3	11.9	24.3	11.4	23.5	11.0	22.8	10.5
30 ≤ 50	21.4	17.3	21.6	17.3	21.7	17.2	21.6	17.0
50 ≤ 100	18.7	26.8	19.5	27.6	20.2	28.5	21.1	29.3
100 ≤ 200	7.9	22.0	8.3	22.6	8.4	22.8	8.7	23.3
Above 200	2.4	18.0	2.5	17.4	2.4	16.8	2.4	16.4
Total	100.-	100.-	100.-	100.-	100.-	100.-	100.-	100.-

* Areas other than those for 1960 are raised estimates, not census totals - see Table 10.

† Distribution by size of holding is writer's estimate.

TABLE 2: TRENDS IN LIVESTOCK AND CROPS, 1960-1975

Livestock					Crops				
		Holdings with	Livestock Numbers	Average Size of Herd*		Holdings with	Area Grown	Average Size of Crop*	
1960 = 100					1960 = 100				
Cattle	1965	94	111	117	Wheat	1965	54	49	90
	1970	90	127	141		1970	40	65	161
	1975	89	154	174		1975	18	30	168
Cows	1965	92	119	129	Oats	1965	78	67	88
	1970	86	135	156		1970	51	40	79
	1975	84	169	202		1975	35	29	83
Sheep	1965	95	116	122	Malting Barley	1965	98	113	116
	1970	75	97	129		1970	84	110	131
	1975	63	89	140		1975	72	134	186
Ewes	1965	96	119	125	Other Barley	1965	106	157	147
	1970	76	104	137		1970	99	193	194
	1975	64	95	149		1975	87	215	247
Pigs	1965	81	129	160	Potatoes	1965	86	78	90
	1970	61	132	216		1970	70	61	90
	1975	24	87	360		1975	57	43	80
Breeding Pigs	1965	101	123	123	Sugar Beet	1965	79	95	122
	1970	88	131	150		1970	70	97	141
	1975†	40	90	232		1975	48	125	263
					Ploughed Land	1965	89	83	94
						1970	76	80	106
						1975	66	69	104

*Average per holding with

† Including gilts not yet served

TABLE 3.1: PERCENTAGE OF HOLDINGS IN EACH SIZE GROUP WITH SELECTED CATEGORIES OF LIVESTOCK, 1960, 1965, 1970 AND 1975

Item and Year	Size of Holding (acres)							Holdings above 1 acre
	1 ≤ 15	15 ≤ 30	30 ≤ 50	50 ≤ 100	100 ≤ 200	Above 200		
Number of holdings ('000)								
Holdings	1960	70.1	73.2	62.0	54.2	22.9	7.1	289.5
	1965	67.2	68.7	61.2	55.2	23.3	7.0	282.6
	1970	65.9	65.3	60.1	56.2	23.3	6.7	277.4
	1975	63.2	61.4	58.1	56.7	23.4	6.5	269.4
Percentage of holdings in size group								
<i>Holdings with:</i>								
Cattle	1960	66.9	90.9	94.7	96.8	98.1	95.9	87.7
	1965	62.1	87.5	92.8	94.5	95.8	94.5	84.9
	1970	56.8	83.6	90.8	93.9	94.6	94.3	82.1
	1975	58.4	86.0	91.7	94.1	95.3	94.0	83.5
Cows	1960	57.1	81.2	87.9	92.1	93.6	92.3	80.1
	1965	51.2	76.2	85.4	87.6	89.7	87.7	75.9
	1970	44.9	71.3	81.4	86.1	86.2	84.4	71.8
	1975	44.5	72.4	81.0	85.5	86.1	80.7	71.9
Sheep	1960	10.7	24.6	33.8	41.2	57.2	70.6	30.0
	1965	9.9	22.6	32.2	41.7	55.4	69.6	29.2
	1970	6.6	18.7	26.1	33.2	44.4	60.8	23.5
	1975	6.4	14.6	22.9	28.3	38.4	53.2	20.3
Ewes	1960	9.3	22.4	31.5	39.3	55.3	69.4	28.1
	1965	8.8	20.9	29.8	39.8	53.4	67.9	27.5
	1970	6.0	17.3	24.6	31.7	42.7	58.9	22.3
	1975	5.8	13.7	21.9	27.1	37.0	51.4	19.4
Pigs	1960	15.8	33.9	45.6	54.8	58.3	51.8	38.3
	1965	13.0	25.9	38.5	46.1	48.6	41.6	31.8
	1970	8.9	20.1	29.4	37.8	35.1	26.2	24.5
	1975	3.5	6.4	12.5	15.8	15.5	12.5	10.0
Breeding Pigs	1960	3.5	10.7	18.5	29.3	35.0	29.3	16.5
	1965	4.3	11.2	20.4	29.0	31.8	24.9	17.1
	1970	4.4	10.8	18.4	25.5	24.1	16.3	15.1
	1975*	2.3	4.2	8.7	11.9	11.2	7.8	7.0

* Includes gilts not yet served.

**TABLE 3.2: AVERAGE NUMBER OF SELECTED CATEGORIES OF LIVESTOCK
PER HOLDING, IN EACH SIZE GROUP, 1960, 1965, 1970 AND 1975**

Item and Year	Size of Holding (acres)							Holdings above 1 acre
	1 ≤ 15	15 ≤ 30	30 ≤ 50	50 ≤ 100	100 ≤ 200	Above 200		
Average herd size* (number)								
Cattle	1960	5.2	9.8	15.1	25.5	45.2	85.2	18.6
	1965	5.8	11.3	17.6	29.4	52.6	92.8	21.8
	1970	6.8	13.3	20.9	35.0	61.5	103.4	26.3
	1975	7.6	15.7	25.2	43.4	76.4	126.6	32.3
Cows	1960	2.1	3.3	4.8	7.6	11.5	16.4	5.5
	1965	2.3	4.0	6.1	9.8	14.9	20.1	7.1
	1970	2.6	4.6	7.1	12.0	18.2	23.9	8.6
	1975	3.0	5.4	8.7	15.3	24.8	33.2	11.1
Sheep	1960	22.9	27.7	36.2	49.8	74.2	154.4	49.3
	1965	27.3	30.9	40.6	58.3	91.2	202.0	60.0
	1970	33.2	36.6	42.6	61.1	95.0	194.1	63.8
	1975	41.4	42.2	52.2	62.3	98.3	192.2	69.2
Ewes	1960	11.7	12.9	16.3	21.9	33.0	68.1	22.4
	1965	14.4	14.7	18.7	26.3	42.2	91.6	28.0
	1970	18.2	17.5	20.3	29.0	44.9	92.0	30.7
	1975	21.1	20.6	24.6	29.6	47.2	92.1	33.3
Pigs	1960	4.8	4.8	6.6	9.5	13.0	23.4	8.1
	1965	6.1	8.2	10.5	14.9	19.6	39.5	13.0
	1970	9.0	11.9	15.4	19.8	23.9	51.4	17.5
	1975	23.5	16.2	20.0	27.6	45.8	133.8	29.2
Breeding Pigs	1960	1.9	1.7	2.0	2.2	2.7	4.7	2.2
	1965	2.0	2.2	2.3	2.9	3.4	5.2	2.7
	1970	2.3	2.7	2.8	3.7	4.2	6.9	3.3
	1975†	4.3	3.5	4.3	4.8	6.7	18.4	5.1

* Per holding with.

† Including gilts not yet served.

TABLE 4.1: PERCENTAGE OF HOLDINGS IN EACH SIZE GROUP WITH SELECTED CROPS, 1960, 1965, 1970 AND 1975*

Item and Year	Size of Holding (acres)							Holdings above 1 acre
	1 ≤ 15	15 ≤ 30	30 ≤ 50	50 ≤ 100	100 ≤ 200	Above 200		
Percentage of holdings in size group								
<i>Holdings with:</i>								
Wheat	1960	4.5	10.0	18.6	28.5	43.2	47.8	17.5
	1965	2.6	5.1	10.0	15.0	24.5	29.2	9.7
	1970	1.8	3.1	6.4	10.9	22.7	30.6	7.4
	1975	0.7	1.5	2.4	4.5	10.8	18.7	3.3
Oats	1960	36.6	63.1	69.4	71.8	72.1	72.2	60.6
	1965	27.8	50.6	56.1	56.2	56.4	59.0	48.1
	1970	16.6	35.7	37.4	37.1	35.7	40.3	31.9
	1975	14.1	24.7	25.5	24.5	24.8	30.0	22.5
Malting Barley	1960	1.8	3.6	6.6	10.3	16.1	16.4	6.3
	1965	1.6	3.4	6.4	10.3	15.9	16.8	6.4
	1970	1.4	2.6	5.6	8.9	14.4	16.2	5.6
	1975	0.9	2.3	4.7	7.9	12.7	14.8	4.9
Other Barley	1960	3.9	14.0	23.5	32.7	41.0	44.4	20.0
	1965	5.6	14.6	25.0	33.6	44.7	44.2	21.6
	1970	4.2	13.3	22.7	33.6	43.7	45.2	20.6
	1975	4.4	11.1	18.7	29.9	43.0	45.9	18.7
Potatoes	1960	58.6	76.8	83.1	86.6	86.8	84.9	76.6
	1965	48.8	67.3	75.5	76.9	77.5	73.0	67.5
	1970	37.1	55.2	64.3	66.9	64.6	60.9	56.2
	1975	31.9	46.2	52.5	55.1	53.6	47.8	46.7
Sugar Beet	1960	1.7	4.5	9.4	15.4	21.0	21.3	8.6
	1965	1.1	3.6	7.5	12.3	17.3	14.3	7.0
	1970	0.9	3.2	6.7	10.7	15.7	14.2	6.3
	1975	1.1	1.8	4.0	7.4	12.0	13.5	4.5
Ploughed Land	1960	66.7	81.8	87.8	91.1	93.5	91.8	82.3
	1965	56.5	73.1	81.6	84.2	87.7	86.0	74.7
	1970	44.1	61.7	71.6	77.6	81.2	81.3	65.0
	1975	40.4	54.2	62.0	69.3	75.0	76.7	58.2

* The total number of holdings in each size group is shown at top of Table 3.1.

TABLE 4.2: AVERAGE AREA OF SELECTED CROPS GROWN PER HOLDING IN EACH SIZE GROUP 1960, 1965, 1970 AND 1975

Item and Year	Size of holding (acres)							Holdings above 1 acre
	1 ≤ 15	15 ≤ 30	30 ≤ 50	50 ≤ 100	100 ≤ 200	Above 200		
Average area grown* (acres)								
Wheat	1960	2.0	2.8	3.6	6.2	11.8	24.5	7.2
	1965	1.9	2.4	3.2	5.6	10.0	20.7	6.5
	1970	3.4	4.1	5.9	9.2	15.3	32.4	11.6
	1975	3.9	5.1	5.5	9.1	14.2	29.7	12.1
Oats	1960	0.9	1.4	2.0	3.1	5.2	8.2	2.4
	1965	1.0	1.2	1.7	2.7	4.2	6.8	2.1
	1970	0.8	1.1	1.5	2.3	4.3	7.1	1.9
	1975	0.8	1.0	1.5	2.4	4.8	9.1	2.0
Maltng Barley	1960	2.1	3.0	4.0	6.0	9.5	19.4	6.4
	1965	2.1	3.3	4.5	6.5	11.5	22.2	7.4
	1970	2.3	3.3	5.4	7.2	12.6	23.2	8.4
	1975	4.5	5.8	6.7	10.3	16.7	33.6	11.9
Other Barley	1960	1.3	1.3	1.8	3.4	7.1	12.5	3.6
	1965	1.7	1.7	2.7	5.0	10.4	19.9	5.3
	1970	2.2	2.5	3.4	6.4	12.3	26.9	7.0
	1975	2.8	3.3	4.2	7.5	14.3	33.5	8.9
Potatoes	1960	0.6	0.9	1.0	1.2	1.5	1.9	1.0
	1965	0.7	0.8	0.9	1.0	1.3	1.7	0.9
	1970	0.5	0.7	0.8	1.0	1.4	2.0	0.9
	1975	0.5	0.6	0.7	0.8	1.1	2.0	0.8
Sugar Beet	1960	1.4	1.8	2.0	2.6	3.8	6.3	2.7
	1965	1.8	2.0	2.5	3.1	4.6	7.3	3.3
	1970	2.6	2.1	2.8	3.6	5.3	8.6	3.8
	1975	4.0	3.2	3.9	6.2	9.7	18.7	7.1
Ploughed Land	1960	1.5	3.1	5.0	9.3	19.4	37.8	6.9
	1965	1.6	2.6	4.4	8.3	17.7	34.3	6.5
	1970	1.5	2.6	4.5	8.6	19.6	43.3	7.3
	1975	1.5	2.5	3.9	8.0	18.7	45.9	7.2

* Per holding with

CATTLE

TABLE 5.1: ESTIMATED DISTRIBUTION OF HOLDINGS WITH AND NUMBERS OF CATTLE* CLASSIFIED BY SIZE OF HERD

Size of Herd	1970				1975			
	Holdings		Animals		Holdings		Animals	
	No. ('000)	%	No. ('000)	%	No. ('000)	%	No. ('000)	%
1 - 4	22.0	9.7	65.9	1.1	17.5	7.8	52.4	0.7
5 - 9	40.0	17.6	278.5	4.7	32.2	14.3	224.0	3.1
10 - 14	36.3	16.0	431.1	7.2	30.3	13.5	359.4	5.0
15 - 19	27.1	11.9	458.6	7.7	25.7	11.4	432.6	6.0
20 - 29	37.1	16.3	887.0	14.8	37.2	16.6	891.6	12.3
30 - 49	34.5	15.1	1,301.1	21.8	39.1	17.4	1,483.7	20.4
50 - 99	24.2	10.6	1,618.6	27.1	31.7	14.1	2,163.2	29.8
100 and over	6.5	2.8	934.9	15.6	11.1	4.9	1,651.5	22.8
Total	227.6	100.-	5,975.5	100.-	224.8	100.-	7,258.5	100.-
Average size of herd	26.3				32.3			
Holdings with cattle as percentage of all holdings	82.1%				83.5%			

*Raised estimates, not census totals - see Table 10.

COWS

TABLE 5.2: ESTIMATED DISTRIBUTION OF HOLDINGS WITH AND NUMBERS OF COWS* CLASSIFIED BY SIZE OF HERD

Size of Herd	1970				1975			
	Holdings		Animals		Holdings		Animals	
	No. ('000)	%	No. ('000)	%	No. ('000)	%	No. ('000)	%
1 - 2	48.0	24.1	77.7	4.5	35.7	18.5	56.9	2.6
3 - 4	41.4	20.8	141.9	8.3	35.6	18.4	123.8	5.7
5 - 9	51.0	25.6	335.9	19.5	49.9	25.8	329.6	15.3
10 - 14	24.9	12.5	289.4	16.8	26.2	13.6	304.2	14.1
15 - 19	12.3	6.2	204.4	11.9	13.7	7.1	227.0	10.5
20 - 29	13.2	6.6	304.8	17.7	16.6	8.6	384.9	17.9
30 - 49	6.6	3.3	235.2	13.7	11.4	5.9	413.4	19.2
50 and over	1.9	1.0	129.8	7.6	4.5	2.3	312.9	14.5
Total	199.2	100.-	1,719.0	100.-	193.6	100.-	2,152.7	100.-
Average size of herd	8.6				11.1			
Holdings with cows as percentage of all holdings	71.8%				71.9%			

*Raised estimates, not census totals - see Table 10.

**TABLE 5.3: ESTIMATED DISTRIBUTION OF HOLDINGS WITH DAIRY COWS*
CLASSIFIED BY SIZE OF HERD AND SIZE OF HOLDING, JUNE 1975**

Size of Herd	Size of Holding (acres)						Total	Total Dairy Cows
	1 ≤ 15	15 ≤ 30	30 ≤ 50	50 ≤ 100	100 ≤ 200	Above 200		
Number ('000)								
1 - 2	11.0	10.1	6.9	5.5	2.2	0.8	36.6	52.3
3 - 4	4.4	6.1	4.2	2.2	0.6	0.2	17.6	60.7
5 - 9	2.0	8.4	8.3	5.1	1.0	0.2	25.0	168.7
10 - 14	0.3	2.9	6.3	5.8	1.4	0.2	17.0	198.8
15 - 19	0.1	0.9	2.7	4.5	1.2	0.2	9.6	158.5
20 - 29	0.0	0.5	2.5	6.4	2.6	0.3	12.3	285.7
30 - 49	-	0.1	0.6	4.4	3.0	0.5	8.6	310.6
50 and over	-	-	0.0	0.8	1.9	0.7	3.5	243.0
Total Holdings	17.8	28.9	31.6	34.6	14.0	3.1	130.1	1,478.2
Holdings with dairy cows as percentage of all holdings	28.2%	47.1%	54.4%	61.1%	60.0%	47.5%	48.3%	
Total number of dairy cows ('000)	48.7	151.4	280.8	548.9	352.7	95.9	1,478.2	
Average size of herd (No.)	2.7	5.2	8.9	15.8	25.1	31.0	11.4	

* Raised estimates, not census totals - see Table 10.

SHEEP

TABLE 6.1: ESTIMATED DISTRIBUTION OF HOLDINGS WITH AND NUMBERS OF SHEEP* CLASSIFIED BY SIZE OF FLOCK

Size of Flock	1970				1975			
	Holdings		Animals		Holdings		Animals	
	No. ('000)	%	No. ('000)	%	No. ('000)	%	No. ('000)	%
1 - 9	5.4	8.3	31.0	0.7	5.1	9.2	29.6	0.8
10 - 19	10.1	15.5	142.5	3.4	8.2	15.0	117.5	3.1
20 - 29	9.9	15.1	235.6	5.7	7.3	13.4	174.6	4.6
30 - 49	13.4	20.5	514.1	12.3	10.3	18.7	396.5	10.5
50 - 99	15.5	23.8	1,074.2	25.8	13.2	24.0	912.6	24.1
100 - 199	7.6	11.7	1,031.3	24.7	7.3	13.3	985.6	26.0
200 and over	3.4	5.1	1,140.4	27.4	3.5	6.4	1,174.0	31.0
Total	65.3	100.-	4,169.0	100.-	54.8	100.-	3,790.4	100.-
Average size of flock	63.8				69.2			
Holdings with sheep as percentage of all holdings	23.5%				20.3%			

* Raised estimates, not census totals - see Table 10.

EWES

TABLE 6.2: ESTIMATED DISTRIBUTION OF HOLDINGS WITH AND NUMBERS OF EWES* CLASSIFIED BY SIZE OF FLOCK

Size of Flock	1970				1975			
	Holdings		Animals		Holdings		Animals	
	No. ('000)	%	No. ('000)	%	No. ('000)	%	No. ('000)	%
1 - 9	13.1	21.3	70.5	3.7	11.1	21.2	60.0	3.5
10 - 19	16.1	26.1	214.1	11.3	12.2	23.4	160.7	9.2
20 - 29	11.1	18.1	250.3	13.2	9.5	18.2	213.7	12.3
30 - 49	11.2	18.2	403.9	21.3	9.5	18.1	339.7	19.6
50 - 99	7.1	11.5	456.8	24.1	6.7	12.7	430.0	24.8
100 - 199	2.4	3.8	286.5	15.1	2.5	4.8	311.7	17.9
200 and over	0.7	1.1	210.9	11.1	0.8	1.6	221.1	12.7
Total	61.7	100.-	1,893.1	100.-	52.2	100.-	1,736.8	100.-
Average size of flock	30.7				33.3			
Holdings with ewes as percentage of all holdings	22.3%				19.4%			

* Raised estimates, not census totals - see Table 10.

PIGS

TABLE 7.1: ESTIMATED DISTRIBUTION OF HOLDINGS WITH AND NUMBERS OF PIGS* CLASSIFIED BY SIZE OF HERD

Size of Herd	1970				1975			
	Holdings		Animals		Holdings		Animals	
	No. ('000)	%	No. ('000)	%	No. ('000)	%	No. ('000)	%
1 - 2	16.1	23.7	25.3	2.1	8.9	33.1	12.6	1.6
3 - 9	19.4	28.5	97.6	8.2	6.2	22.9	31.7	4.0
10 - 19	16.4	24.1	222.3	18.7	5.8	21.4	76.6	9.8
20 - 49	12.4	18.3	364.0	30.6	4.0	14.7	117.1	14.9
50 - 99	2.6	3.8	169.5	14.3	1.0	3.9	68.6	8.7
100 and over	1.1	1.7	310.4	26.1	1.1	3.9	478.1	60.9
Total	67.9	100.-	1,189.1	100.-	26.9	100.-	784.5	100.-
Average size of herd	17.5				29.2			
Holdings with pigs as percentage of all holdings	24.5%				10.0%			

* Raised estimates, not census totals - see Table 10.
1975 figures for breeding pigs include gilts not yet served.

BREEDING PIGS

TABLE 7.2: ESTIMATED DISTRIBUTION OF HOLDINGS WITH AND NUMBERS OF BREEDING PIGS* CLASSIFIED BY SIZE OF HERD

Size of Herd	1970				1975			
	Holdings		Animals		Holdings		Animals	
	No. ('000)	%	No. ('000)	%	No. ('000)	%	No. ('000)	%
1	11.6	27.6	11.6	8.2	6.6	34.8	6.6	6.8
2	12.2	29.1	24.5	17.4	4.7	24.8	9.4	9.7
3 - 4	10.6	25.3	35.7	25.3	3.9	20.4	13.0	13.5
5 - 9	5.8	13.7	35.8	25.5	2.4	12.6	15.1	15.7
10 and over	1.8	4.3	33.2	23.6	1.4	7.5	52.3	54.2
Total	42.0	100.-	140.7	100.-	19.0	100.-	96.5	100.-
Average size of herd	3.3				5.1			
Holdings with breeding pigs as percentage of all holdings	15.1%				7.0%			

* Raised estimates, not census totals - see Table 10.
1975 figures for breeding pigs include gilts not yet served.

WHEAT

TABLE 8.1: ESTIMATED DISTRIBUTION OF HOLDINGS WITH AND AREA UNDER WHEAT* CLASSIFIED BY AREA GROWN

Area Grown (Acres)	1970				1975			
	Holdings		Area		Holdings		Area	
	No. ('000)	%	Acres ('000)	%	No. ('000)	%	Acres ('000)	%
Under 2	2.7	13.3	2.4	1.0	1.5	16.2	1.1	1.0
2 - 4	3.4	16.6	8.5	3.6	0.9	10.0	2.4	2.2
4 - 7	4.0	19.7	20.1	8.4	1.8	19.6	8.7	8.0
7 - 10	2.5	12.1	19.9	8.3	1.1	12.2	8.7	8.0
10 - 15	3.1	15.2	35.6	14.9	1.5	17.0	17.5	16.1
15 - 20	1.4	6.7	22.9	9.6	0.6	6.5	9.6	8.8
20 - 30	1.5	7.5	34.8	14.6	0.9	9.6	19.5	17.9
30 and over	1.9	9.0	94.5	39.6	0.8	8.8	41.4	38.0
Total	20.5	100.-	238.5	100.-	9.0	100.-	108.9	100.-
Average Area Grown (Acres)	11.6				12.1			
Holdings with wheat as per-centage of all holdings	7.4%				3.3%			

* Raised estimates, not census totals - see Table 10.

OATS

TABLE 8.2: ESTIMATED DISTRIBUTION OF HOLDINGS WITH AND AREA UNDER OATS* CLASSIFIED BY AREA GROWN

Area Grown (Acres)	1970				1975			
	Holdings		Area		Holdings		Area	
	No. ('000)	%	Acres ('000)	%	No. ('000)	%	Acres ('000)	%
Under 2	58.3	65.8	42.1	24.7	41.6	68.6	28.7	23.3
2 - 4	19.4	21.9	45.6	26.7	11.3	18.6	26.3	21.3
4 - 7	7.1	8.0	33.6	19.7	4.7	7.8	22.2	18.1
7 - 10	1.7	1.9	13.1	7.7	1.0	1.6	7.5	6.1
10 - 15	1.4	1.5	15.1	8.8	1.2	1.9	13.0	10.5
15 - 20	0.2	0.3	3.9	2.3	0.4	0.6	5.7	4.6
20 - 30	0.3	0.3	6.8	4.0	0.3	0.6	7.5	6.1
30 and over	0.2	0.2	10.4	6.1	0.3	0.4	12.3	10.0
Total	88.6	100.-	170.5	100.-	60.6	100.-	123.1	100.-
Average Area Grown (Acres)	1.9				2.0			
Holdings with oats as per-centage of all holdings	31.9%				22.5%			

* Raised estimates, not census totals - see Table 10.

MALTING BARLEY

TABLE 8.3: ESTIMATED DISTRIBUTION OF HOLDINGS WITH AND AREA UNDER MALTING BARLEY* CLASSIFIED BY AREA GROWN

Area Grown (Acres)	1970				1975			
	Holdings		Area		Holdings		Area	
	No. ('000)	%	Acres ('000)	%	No. ('000)	%	Acres ('000)	%
Under 2	1.9	12.5	1.9	1.5	1.3	9.5	1.2	0.7
2 - 4	3.9	25.3	9.7	7.5	1.8	14.0	4.6	2.9
4 - 7	3.4	21.7	16.6	12.8	2.8	21.4	14.1	8.9
7 - 10	1.9	12.2	15.0	11.6	1.8	13.5	14.3	9.1
10 - 15	2.1	13.7	24.1	18.7	2.2	16.7	25.3	16.1
15 - 20	0.8	5.3	13.5	10.4	1.0	7.6	16.3	10.3
20 - 30	0.8	5.0	17.5	13.5	1.2	8.9	26.9	17.1
30 and over	0.7	4.3	31.1	24.0	1.1	8.3	54.8	34.8
Total	15.5	100.-	129.4	100.-	13.2	100.-	157.3	100.-
Average Area Grown (Acres)	8.4				11.9			
Holdings with malting barley as percentage of all holdings	5.6%				4.9%			

*Raised estimates, not census totals - see Table 10.

OTHER BARLEY

TABLE 8.4: ESTIMATED DISTRIBUTION OF HOLDINGS WITH AND AREA UNDER OTHER BARLEY* CLASSIFIED BY AREA GROWN

Area Grown (Acres)	1970				1975			
	Holdings		Area		Holdings		Area	
	No. ('000)	%	Acres ('000)	%	No. ('000)	%	Acres ('000)	%
Under 2	17.3	30.3	15.0	3.7	12.3	24.3	10.3	2.3
2 - 4	12.8	22.4	31.3	7.8	10.6	21.0	26.1	5.8
4 - 7	10.4	18.1	51.1	12.7	9.9	19.6	48.7	10.9
7 - 10	4.7	8.2	37.0	9.2	4.5	9.0	35.7	8.0
10 - 15	5.0	8.7	57.2	14.2	5.0	10.0	57.4	12.8
15 - 20	2.3	4.1	38.2	9.5	2.3	4.5	37.3	8.3
20 - 30	2.3	4.0	52.2	13.0	2.7	5.4	62.6	14.0
30 and over	2.4	4.2	119.7	29.8	3.1	6.2	169.2	37.8
Total	57.2	100.-	401.7	100.-	50.4	100.-	447.4	100.-
Average Area Grown (Acres)	7.0				8.9			
Holdings with other barley as percentage of all holdings	20.6%				18.7%			

*Raised estimates, not census totals - see Table 10.

POTATOES

TABLE 9.1: ESTIMATED DISTRIBUTION OF HOLDINGS WITH AND AREA UNDER POTATOES* CLASSIFIED BY AREA GROWN

Area Grown (Acres)	1970				1975			
	Holdings		Area		Holdings		Area	
	No. ('000)	%	Acres ('000)	%	No. ('000)	%	Acres ('000)	%
Under 1	106.7	68.4	43.0	31.6	97.9	77.8	37.2	39.4
1 - 2	36.0	23.1	37.8	27.8	20.9	16.6	21.8	23.1
2 - 3	7.0	4.5	14.2	10.4	3.4	2.7	7.0	7.3
3 - 5	3.6	2.3	12.3	9.0	1.8	1.4	6.2	6.6
5 - 7	1.0	0.6	5.2	3.8	0.8	0.6	4.1	4.3
7 - 10	0.6	0.4	4.4	3.3	0.4	0.3	3.0	3.2
10 - 15	0.6	0.4	6.8	5.0	0.4	0.3	4.8	5.0
15 - 20	0.1	0.1	2.0	1.4	0.1	0.1	1.9	2.0
20 and over	0.3	0.2	10.6	7.8	0.3	0.2	8.6	9.1
Total	155.8	100.-	136.1	100.-	125.9	100.-	94.6	100.-
Average Area Grown (Acres)	0.9				0.8			
Holdings with potatoes as percentage of all holdings	56.2%				46.7%			

* Raised estimates, not census totals - see Table 10.

SUGAR BEET

TABLE 9.2: ESTIMATED DISTRIBUTION OF HOLDINGS WITH AND AREA UNDER SUGAR BEET* CLASSIFIED BY AREA GROWN

Area Grown (Acres)	1970				1975			
	Holdings		Area		Holdings		Area	
	No. ('000)	%	Acres ('000)	%	No. ('000)	%	Acres ('000)	%
Under 2	3.7	21.4	3.9	5.9	1.2	10.0	1.3	1.5
2 - 3	4.6	26.4	9.5	14.3	2.0	16.6	4.1	4.8
3 - 5	4.6	26.7	16.0	24.2	2.8	23.7	10.0	11.7
5 - 7	2.4	13.8	13.1	19.8	1.9	16.1	10.7	12.6
7 - 10	0.9	5.1	6.9	10.5	1.4	11.6	10.9	12.9
10 - 15	0.7	4.0	7.8	11.8	1.4	12.0	16.1	19.0
15 - 20	0.3	1.5	4.2	6.4	0.4	3.6	7.0	8.2
20 and over	0.2	1.1	4.8	7.3	0.8	6.4	24.9	29.3
Total	17.3	100.-	66.1	100.-	12.0	100.-	85.0	100.-
Average Area Grown (Acres)	3.8				7.1			
Holdings with sugar beet as percentage of all holdings	6.3%				4.5%			

* Raised estimates, not census totals - see Table 10.

TABLE 10: RATIO OF RAISED ESTIMATES TO ACTUAL CENSUS TOTALS

Item	1965	1970	1975
	Percentage		
<i>Livestock:</i>			
Total Cattle	97.7	100.3	101.3
Total Cows	98.0	100.3	102.4
Dairy Cows	N.A.	N.A.	100.9
Total Sheep	99.0	102.1	102.9
Ewes	99.0	102.7	102.9
Total Pigs	91.9	99.7	98.6
Breeding Pigs	95.0	101.3	99.8
<i>Crops:</i>			
Wheat	97.2	102.1	98.9
Oats	99.9	101.5	101.7
Malting Barley	98.5	103.0	104.6
Other Barley	99.5	99.4	98.3
Potatoes	99.4	96.9	94.3
Sugar Beet	98.4	103.7	103.4
Ploughed Land	97.9	100.2	99.9
Total Area (on Holdings)	N.A.	99.5	99.6

N.A. not available

DISCUSSION

Brendan Kearney: This is a most welcome occasion this evening, having before us vital data on the structure of Irish agriculture – a subject on which there has been a dearth of information for too long. For the latter, I don't blame the CSO, let me hasten to add. It is widely appreciated that the obligations imposed by EEC membership have possibly weighted more heavily on the Central Statistics Office than on any other sector of the public service, without a commensurate increase in staffing.

That said, however, I want to single out what seems to me a few of the more important aspects of Mr Embleton's paper. I'll take the section relating to agricultural holdings first. What strikes one most of all is that so little change has taken place in the total number of holdings from 1960 to 1975, that the average size of holding has increased by only 2.1 acres, and that a pull to the centre from the extremes has occurred. The author has not defined holding in this context but presumably it is as defined in the December 1971 Irish Statistical Bulletin, as follows:-

“All land used wholly or partly for agricultural or livestock production, that is, operated, directed or managed by one person (the holder), alone or with the assistance of others without regard to title, size or location and may be in one or more pieces, if they are in the same neighbourhood and are known and operated as a single holding or property”.

The use of this definition of holding obviously overstates the actual number of farm units in the country in the sense that a 'let' holding is enumerated separately. However, unless the letting of land has changed disproportionately the concept of 'holding' is useful enough for comparative purposes but perhaps misleading when used for such purposes as indicating structure of production. For instance, land let in conacre is included in the area of the holding of the rated occupier, so for crops grown extensively on conacre the concentration in production is thereby understated. The survey also indicates that the area in holdings declined by about 428,000 acres from 1960 to 1975, but it would be interesting to establish how much of this is now derelict and/or used for afforestation, industrial or commercial purposes. Presumably as the decline indicated is net, the actual amount of land taken out of production must be greater when the additive effect of reclamation is taken into consideration.

With regard to the structural information on crops and livestock I welcome, particularly, that relating to the tillage enterprises and sheep, as we have some useful structural information on the cattle and pig populations for 1973 and 1975. For holdings with livestock, one is often surprised that the number of holdings with cattle has shown a decline even of the slight extent indicated, because in the process of scaling down activity on farms, one would have thought that cattle in one form or another would be the last item to be excluded. So the question remains if a cattle enterprise is not pursued on such holdings, then what activity are they engaged in? It is shown that the number of holdings

with sheep was about 33 per cent less than in 1960 but here I think regional data will be vastly more interesting than the national picture because it's highly probable that virtually all of the change has occurred on the lowlands. The author expresses surprise that a high proportion of the holdings over 200 acres have sheep but surely these must be on mountainous farms. Again the fact that scale is not increasing as fast in sheep as in some other enterprises indicates that new technology is not being adopted, due presumably to low and unstable returns in the enterprise. With regard to pigs we now have reached the stage where only 10 per cent of holdings have pigs and the irony of the situation is that the decline has been greatest on the smallest holdings although this has not been as severe with breeding pigs. Indeed the data on Table 3.1 disturbs the conventional wisdom that pig production was ever the preserve of the smaller farmer.

Apart from pigs perhaps the most spectacular change has occurred in the incidence of tillage crops on farms and especially wheat, potatoes and oats. Again, although tillage may be considered an appropriate enterprise for small farms, it is obvious that its incidence on such farms is very low and declining faster than on larger farms. It seems that this process is facilitated by technological change and indeed all recent evidence indicates that productivity is greater on larger than smaller acreages.

To me the most interesting aspect of the paper is that which relates to scale or the distribution by size of enterprise. I would consider that in the relatively short period 1970-75 the structure of the cattle and cow enterprises has changed appreciably. For instance herds of 50 cows or greater now account for 14.5 per cent of all cows as against 7.6 per cent in 1970. I fully agree with the author when he states that the dairy enterprise is too important to overlook in his analysis. However, I would not be in agreement with him in his subsequent remark as to what constitutes a "commercial" herd, and specifically his remarks relating to the inclination of 5 to 9 cow dairy farmers to quit milk production. There is little evidence of this happening on any significant scale and in any event there is hardly any real alternative for such, albeit small, dairy farmers except to stay in dairying and even expand their production. The poor response to the EEC Schemes to discourage dairy farmers testifies to this development.

In regard to tillage, the fall in the number of holdings with wheat from 20,500 in 1970 to 9,000 in 1975 is quite dramatic indeed although the extent of structural change is surprisingly small. The change in the structure of sugar beet production is appreciable however, and probably reflects the relatively low level of price and technical uncertainty associated with the crop. Conversely, the structure of oat and potato production has tended to be quite rigid but the structure of the latter may be now undergoing significant change.

Finally, while I mentioned at the outset that the publication of this data is very welcome, one wonders if there is a conflict between detail and frequency in the reporting of agricultural enumeration data. Perhaps some consideration might be given to the earlier publication of such data even if provisional in nature in the interests of servicing policy formulation. In conclusion it gives me great pleasure to propose on behalf of the Society this vote of thanks to Mr Embleton for the content and presentation of his paper and if he has possibly made one mistake it has been in whetting our appetite for more structural information which in any event can only rebound on himself.

Professor Robert O'Connor: It gives me great pleasure to second the vote of thanks to Mr Embleton for this very important paper. I am also very grateful to be given the opportunity of commenting on the work since I was responsible for the collection of the 1960 and 1965 statistics on which this analysis is based.

In preparing his paper Mr Embleton has kept well in line with traditional CSO practice of recording the data with the minimum of comment. It is left to others to rationalise the changes which have occurred and to draw conclusions from the figures. In saying this I do not wish to give the impression that the paper as presented is inferior in any way. On the contrary, I think it is of a very high scientific standard. The author had to make decisions as to what data he would present and how he should present them. He had to think of who the users would be, what figures would be of interest to them and what detail they would require. It was a most difficult task and in my opinion he has coped with it more than adequately. He has given a vast amount of data in the space at his disposal and has presented it most efficiently. The tables are in best CSO professional tradition.

It is difficult to comment on a paper of this kind. There is little to criticise since the author makes no rash statement and gives few value judgements. One might question his opinion on future trends, but since these views are based very closely on past trends it would be difficult to put forward any better views. One is forced, therefore, to try and comment intelligently on the figures shown, but even here there are difficulties. There is an embarrassment of choice. One could write a separate essay on every table.

Brendan Kearney has pre-empted a number of the things I had planned to say so I will confine myself to a few points in which I have an interest. Before going on to do this, however, I cannot help remarking on the overall trend towards big business which in many ways is desirable but in others frightening. The whole-time small farmer and his way of life seems to be gone, being replaced by a smaller number of commercial farmers and a sizeable group of part-time farmers of all kinds. This is taking place in all the European countries and its consequences are being studied increasingly by agricultural economists

and sociologists. Recent studies in An Foras Talúntais show that output per acre on those part-time farms is low but output per person employed is relatively high. There is therefore a trade-off here between the two situations and it is a matter of opinion as to which is the more desirable. Many people would argue that income per person is what really matters even if it means a low output per acre. Others would argue that a high output per acre is more important, as in this way the land can support more people. I think that land policy should be geared to obtain the best of both worlds though I see great difficulties in achieving these two aims simultaneously.

This brings me to one of the points in which I am interested. The author says on page 34 (and I agree with his statement) that changes in the number of holdings are a very poor indicator of the changing structure of Irish agriculture. This in many ways is one of the great problems of Irish agriculture. The number of holdings is remaining constant but many of them alas, are now virtually derelict, being run by old people who are unable or unwilling to work them well. They just hold on to the land in expectation of capital gains while they draw their dole and old age pensions and while young energetic people go without land. I estimate from Table 3.1 of the Appendix that in 1975 some 45,000 holdings in the State had no cattle as against about 36,000 in 1960. Furthermore in 1975 about one-third of the total holdings in the State had no males engaged in farm work compared with about one-sixth in 1960. Admittedly the bulk of these were holdings under 15 acres but still over 40 per cent were over 15 acres in 1975 compared with about one-third in 1960.

The above figures do not, of course, tell the whole story. We have to wait for the final results, when figures will likely be available on stocking rates to show the numbers of holdings with different stocking rate levels. At the 1976 Agricultural Institute Rural Economics Conference, Andy Conway produced figures to show that one-third of Irish farms are held by families in the contraction phase (i.e. farm households having no children and in which all the males are over 45 years of age) and he states:

“Empirical evidence suggests that in the recent past, farms with households in the contracting stage or having less than one labour unit showed no significant growth in the volume of net product per acre.”

The implication of Conway's findings are serious. They mean that we can expect very little, if any, growth from one-third of our farms unless a mechanism can be created for transferring a proportion of the least productive, to people who will farm them efficiently.

The method of doing this is under investigation by the Inter-Departmental Committee on Land Policy which in its Interim Report said: “This is a most complex issue and any proposals are likely to have wide implications. Consequently the Committee feels that it must give the matter greater study before making specific recommendations”. These recommendations are not yet available. I might mention in this connection that under-utilisation of land is not just an Irish problem. Most European countries have similar problems which they find almost impossible to deal with. Laws empowering compulsory

powers of acquisition are in force in some countries, while compulsory leasing systems are recommended in others (i.e., Norway, Germany and France). These laws are however difficult to enforce. What the Irish Inter-Departmental Committee said in regard to Ireland is true in all countries, i.e., "The difficulties in specifying acceptable levels of management and proving in law that these have not been reached are almost insurmountable". The OECD says that compulsory acquisition of rural land with a view to change in land use is difficult in kind from similar urban acquisition. Even where only small areas are involved, the measure amounts to agrarian reform and tends to provoke a contagious insecurity in the entire farming community. Most of the reputable land economists are of opinion that a compulsory purchase procedure must be operated within the content of a democratically agreed plan which is not being observed by the land owner. In other words, if a land owner is, in the opinion of the land authority, not working his land in accordance with the rules of good husbandry, the authority should sit down with him and prepare an agreed plan. If he does not carry out this plan he should be requested to rent the land to somebody who will work it in accordance with the plan and if he fails to do this then, according to the economists, the land should be compulsorily acquired.

I will leave the land question at that and move on to another aspect of the paper which I think is of much interest also. This is the changing pattern of pig production in the country over the years. As mentioned in the text on page 35, the decline in the number of pig herds (holdings having pigs) since 1960 has been considerable with falls of 19, 25 and 61 per cent respectively in each of the 5 year periods. As can be seen the fall in herds between 1970 and 1975 has been dramatic. According to the 1960 Census of Agriculture Report there were 111,000 holdings with some pigs in that year. In 1970 the number of herds had dropped to 68,000 and in 1975 to 27,000. In the latter year only 10 per cent of the total holdings in the State had pigs compared with 38 per cent in 1960. Average size of herd, however, increased over the period from 8.1 in 1960 to 17.5 in 1970 and 29.2 in 1975. In the latter year 85 per cent of the pigs were produced in about 6,000 herds. Average size of these herds was 109 pigs. The figures also show that 61 per cent of the pigs in 1975 were produced in herds of 100 and over, the number of such herds being 1,100. Also there were 78 per cent of the fattening pigs on 400 holdings. The average herd size was 535 which represents over 1,500 pigs fattened per annum. There was also a fall in pig numbers over the period, 1970-1975, but this was due mainly to the pig cycle (which became very severe since we joined the EEC) and is not likely to be of a permanent nature. The year 1975 was a low pig output year due to a most unfavourable pig/meal price ratio in 1974. The long-term average for this ratio (i.e., price of 1 cwt dead wt. of pig/price of 1 cwt of pig meal) is 7.40. In 1974 it dropped to 6.62 and in January and February of that year it was less than 6.0 (the lowest figures I've ever seen). Under these circumstances pig keepers were in a loss making situation and as usual in those circumstances many of the smaller ones went out of production altogether. The larger ones on the other hand, who derived an important part of their livelihood from pigs and had large amounts of resources committed to this enterprise had to stay in production. They suffered a temporary loss by so doing but made large gains later when the pig/meal price ratio went to over 8.0 in 1975 and 1976.

The moral of the story is that nobody is interested anymore in the small pig producer who goes in and out of production with the pig cycle. The factories are encouraging large scale producers through loans and grants of various kinds since they know that the latter, once committed must stay in production regardless. Hence the movement to fewer but larger herds.

With regard to future prospects, I would agree with the author about intensification in cattle, dairying and pigs in the coming years. In the case of sheep I think a good deal will depend on whether or not we get a good EEC sheep policy. If we get such a policy it will have tremendous advantages for the traditional sheep producing areas. Because there is no sheep policy at present, people in those areas are being forced into dairying for which they are not well trained. Consequently yields are poor and incomes relatively low. Many of these farmers would gladly go back into sheep production again if prices for these animals could be supported. They would be much happier also with this enterprise.

We must however not expect too much from a sheep policy. The Paris market is a very small, high quality one. High prices are maintained because of restricted supplies. But once supplies are increased prices are bound to drop so that we need not expect the present high level of prices to continue. We must be prepared to accept some kind of a deficiency payment and hope that Brussels will finance it.

I am inclined to agree with the author about declines in the number of tillage farmers also. Because of our fickle weather situation, acreages of the different tillage crops are not likely to expand either, though one would hope to see an increase in the area of feed barley for home feeding. In view of the high transport and marketing costs, the growing of barley for home use on the larger farms is well justified.

My final remarks relate not to what is in the present paper but to the future analysis referred to by the author on page 49. He says that the Department of Agriculture, the CSO and the Agricultural Institute are participating in an EEC Study which aims at drawing up a farming typology based on standard gross margins. By applying the gross margins to the individual items of crops and livestock, a pattern of farming classification can be established which will show in a simple way what each holding is producing. This is a most useful study and its results will be eagerly awaited.

Of course, this is not the first time a pattern of farming analysis was carried out by the CSO. We did one in connection with the 1960 Census, the results of which are published in Agricultural Statistics 1960. At that time we had few figures available for gross margins or standard man-days and so we had to adopt a method of putting together various combinations of livestock and crops on different sized holdings. Unfortunately the results were rather complicated and made little impact. I'd guess that few people now remember their existence.

An analysis based on man-days was carried out in connection with the 1965 Census. The results of this were published in the Report of the Committee on the Review of State Expenditure in Relation to Agriculture and showed the numbers by size of holding (as defined by the Committee) of viable, non-viable and potentially viable holdings in the State. The results were most revealing. It was found that 88,100 holdings were considered to be viable (had more than 300 SMD's), while 44,000 were considered potentially viable (had between 200 and 300 SMD's); a further 150,000 were non-viable (had less than 200 SMD's). In other words only 132,000 holdings out of 282,000 were considered as being viable or potentially viable. I was also interested to hear of the proposed longitudinal study of farms over time. As the author says the net results tell only part of the story. We hope to hear the full story from the new study. Again many thanks to Mr Embleton for his excellent paper.

○

Dr Geary (with some afterthought): A paper of mine (my first ever) in this Society, read nearly 53 years ago, on sampling of Irish agricultural statistics, raises a methodological question on tonight's paper. In my paper I compared the efficiency of two methods of estimation termed *simple* and *ratio*. The simple, which seems to have been that used by CSO as described by the lecturer, the national estimate for each class for each entity is found by multiplying the sample average by the known population of units (farms) in the class. The ratio method assumed the existence of a previous full census: for each entity the ratio of the sample total to the total for the same units at the census was multiplied by the census total. It turns out that the simple method is more efficient (i.e. would give more accurate estimates in the long run) than the ratio method only when the correlation coefficient between the values of the entity on the same units in sample and census is less than 1 : 2 approximately, the sample number being large. Was this test made in the present case?

We learn that variable sampling fractions were used, presumably between the different farm sizes. But naturally only a single sample was used for estimation of all entities. What was the single criterion, the variance of which was to be minimised, for determining the sample numbers in each size class?

While this is abstemiously a statistical paper, previous speakers have been unable to resist dealing with its social and economic aspects; nor can I. Fashions in statistics change and I think classification by size of the various enterprises is a useful addition, new to me, especially as these statistics have shown such drastic changes in recent years: the lecturer's tables show that for nearly every enterprise the rule for each entity over time is fewer enterprises with increasing average size. This is a phenomenon of the greatest importance. It means that, to a significant extent, agriculture is changing from being that celebrated "way of life" (with a large subsistence, i.e. non-marketing

element in it) to fully economic practice. Overall in 15 years, volume of net output has increased on average by about 2 per cent a year. Labour productivity has increased since 1960 at a rate at least as large as in non-agricultural industry but mainly by the expedient of reducing numbers engaged.

It ill behoves us townfolk to be censorious about agriculture (in large degree parasitic as we are on agriculture). We must respect things as they are and the fact that wherever we go we must start from where we are now. We must be coldly analytic, blaming nobody. We might wish that farmers sought income by higher quantity production and lower prices rather than vice versa. There are fewer coronaries for farmers by the price route to prosperity and the income elasticity for Irish agricultural produce generally is low, so that the increased quanta would be hard to sell.

Still, higher quantum production is absolutely necessary to prevent the shedding of manpower by agriculture, now a major cause of the tragically high level of unemployment in non-agriculture. The lower rate of manpower decline from agriculture in recent years may have been due to the comparative prosperity of agriculture in the recession at home and abroad. From the manpower viewpoint the clear upward trend in the average size of cattle herds, and indeed in every other enterprise, has sinister implications for improvement in employment in agriculture.

Also whether relevant or not, in speaking about any agricultural topic one must refer to the constant tendency towards so called surplus production of this or that agricultural product in Europe and America – with a thousand million people in the world perpetually on the brink of starvation. A fault in the market economy. But hurray for the cheap Christmas butter and a hearty boo for the fact that Irish crisps are (or were in recent years) made from imported potatoes.