Hay - Cost & prod. O.S.

THE WEST OF SCOTLAND AGRICULTURAL COLLEGE

HAY COSTINGS, CROP 1960

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HAY COSTINGS, CROP 1960

F. McIntosh

INTRODUCTION

In this College area about 200,000 acres are mown for hay each year and so, although the acreage of grass silage is increasing steadily, haymaking is still the most important method of conserving grass.

This report continues the crop costing series and presents figures derived from 40 costing records that were satisfactorilycompleted for the hay crop of 1960. The previous year's costing was of turnips.

The spring and early summer of 1960 was a very favourable growing season and the luxuriant growth of grass and a spell of warm, dry weather enabled and encouraged many farmers to begin mowing rather earlier than usual. As a result, most of the costing records referred to hay secured before the weather broke at the end of June, and so the costs shown in the report are certainly lower than they would be on farms where bad weather made haymaking difficult later in the summer, and probably lower than they would be in many years.

Since hay was last costed in this area in 1954, many farmers have bought pick-up balers, and in the College province (excluding west Perthshire) in 1959 there were about 2000 - nearly eight times as many as in 1954. Two of the 44 costings completed in 1954 were for hay baled from the swath - in 1960, out of 40 costings from a different sample of farms, there were 28 baled from the swath. (In 1954, however, the weather was very unfavourable for haymaking.) There were also 12 crops baled from the rick and one which was partly baled and partly stacked. The crop which was only partly baled was therefore not suitable for grouping with the 40 other costings, and the results were excluded from this report.

Full details of the costing method are given on pages 8,9 and 10. Briefly, the "enterprise cost" method was used, not full costing, and so the charges for such items as horse and tractor work and the share of "farm general expenses" were at estimated average rates and not at actual cost. The work of the farmer and family was charged at rates based on the wages for hired workers.

The help given by the farmers who took part in the investigation is gratefully acknowledged. The Department of Agriculture and Fisheries for Scotland kindly provided the estimated hay yields for the counties in south-west Scotland.

SUMMARY

The figures given below summarise the costing results for 34 crops. These 34 comprise a group of 13 that received no dung for the 1960 crop and another of 21 that were dunged.

	No Dung Applied	Dung Applied	All Crops
Number of records	13	21	34
Acreage costed	117	170	287
Yield per acre - cwt.	56	58	57
Cost per acre (a)	£18.14/-	£22. 0/-	£20.15/-
Cost per ton (a)	£6.14/-	£7.12/-	£7. 5/-
Hours worked per acre (b):			
Man	15½	20¾	18¾
Horse	¾	¼	¼
Tractor	7¼	12	10¼

(a) Including a charge for share of Farm General Expenses and an adjustment for manurial residues.

(b) Includes all man, horse and tractor hours except contract spreading of lime and fertilisers.

The average cost per acre of £20.15/- and the average yield per acre of 57 cwt. gave an average cost per ton of £7.5/-.

As the fields mown for hay are normally used for other purposes also, only part of certain charges is borne by the hay crop and the costs obtained for the hay depend to some extent on the share of these charges allocated to other uses, such as aftermath (grazed or mown) and winter grazing. Early hay-making in many of the fields costed in 1960 reduced the share of these charges allocated to the hay crop, and this and the spell of good weather meant lower than normal costs.

Full details of the results are given in the tables in the appendix.

THE SAMPLE

The final sample was obtained from 33 farms. On some, more than one costing was carried out - usually for a field that received dung and another that did not - and the final total was 41. The distribution by counties was:-

Ayr	10
Dumfries	8
Dunbarton	7
Kirkcudbright	4
Lanark	6
Renfrew	3
Stirling	2
Wigtown	1
	41

All of these crops were baled from the swath or the rick, except one in Stirling. As it was partly baled and partly stacked, it was not comparable with the others and the results were excluded from this report.

The 40 costings were grouped according to whether or not dung had been applied for the crop of 1960. 13 were dunged, 21 were not and six were partly dunged. These six had to be omitted from the costings section of the report, as they did not fit into either of the groups and were not suitable to form a group of their own. They were, however, used for the operational costs section and for the Standard Appendix tables.

Half of the 34 costings were for first year's grass, four for second year's, eight for third year's and the five others for older swards.

YIELDS

There was a very good growth of grass in the early summer of 1960 and as a result hay yields tended to be high. The fact that some hay was cut earlier than usual would, however, have the effect of keeping yields closer to normal.

The average yield per acre for the 34 crops was 57 cwt. and Table 1 shows that it ranged from below 35 cwt. to over 70 cwt.

Table 1

Average and Range of Yield per Acre

	No Dung Applied	Dung Applied	All Crops
Average yield per acre - cwt.	56	58	57
Range of yield per acre	Number of records		
Over 70 cwt.	-	4	4
65 - 70 cwt.	2	2	4
60 - 65 cwt.	2	1	3
55 - 60 cwt.	4	5	9
50 - 55 cwt.	3	2	5
45 - 50 cwt.	1	4	5
40 - 45 cwt.	-	1	1
35 - 40 cwt.	-	2	2
Under 35 cwt.	1	-	1
	13	21	34

These yields are high compared with the estimates shown in Table 2, but the average yield per acre on the farms that took part in the 1954 hay costing was 56 cwt. for crops that were not dunged and 54 cwt. for those that were.

Table 2

Hay Yields per Acre - D.A.F.S. Estimates

	1959 cwt.	1960 cwt.	Average 1948-57 cwt.
Ayr	31.3	32.6	32.4
Dumfries	23.3	25.3	26.1
Dunbarton	43.7	48.7	37.9
Kirkcudbright	27.3	28.4	28.5
Lanark	38.1	39.0	37.5
Renfrew	32.9	35.4	36.1
Stirling	38.0	38.2	31.6
Wigtown	24.1	25.6	25.5

COSTS

The highest cost per acre was almost £32 and the lowest under £15. Nearly two-thirds of the crops cost between £17.10/- and £22.10/- per acre.

Table 2 shows the average and range of cost per acre.

Table 3

Average and Range of Cost per Acre

	No Dung Applied	Dung Applied	All Crops
Average cost per acre	£18.14/-	£22. 0/-	£20.15/-
Range of cost per acre		Number of records	
Over £30	-	3	3
£27½ - £30	-	-	-
£25 - £27½	-	1	1
£22½ - £25	1	3	4
£20 - £22½	4	6	10
£17½ - £20	5	5	10
£15 - £17½	2	2	4
Under £15	1	1	2
	13	21	34

Other things being equal, the dunged crops were bound to cost more per acre than the crops that did not have dung applied and their average cost per acre was £22. 0/- against £18.14/-. The dearest crop without dung cost £23.19/- and the five most expensive crops had all received dung.

As the average yield per acre of the dunged crops was only 2 cwt. more, they were nearly £1 per ton dearer than the others, and while only one of the 13 undunged crops cost more than £8 per ton, nine of the 21 dunged crops were more expensive than that.

Table 4 gives the average and range of cost per ton. Most of the crops costed were from high yielding fields harvested in good weather and this probably resulted in a lower than normal cost per ton. Two-thirds of the crops cost between £5 and £8 per ton.

Table 4

Average and Range of Cost per Ton

	No Dung Applied	Dung Applied	All Crops
Average cost per ton	£6.14/-	£7.12/-	£7.5/-
Range of cost per ton	Number of records		
Over £10	-	3	3
£9 - £10	1	1	2
£8 - £9	-	5	5
£7 - £8	3	4	7
£6 - £7	5	3	8
£5 - £6	4	4	8
Under £5	-	1	1
	13	21	34

The fact that the dunged crops cost more than the others should not be taken as an indication that it is better to use only artificial fertilisers. Too many other factors need to be taken into consideration.

COST STRUCTURE

The cost of production of hay can be divided into two parts:-

(i) The cost of growing the grass.
(ii) The cost of preparation and haymaking.

The grass production costs comprise the current year's manuring, a share of the sow-out cost, rent, and part of the share of "farm general expenses". This cost has to be adjusted for manurial residues and a deduction is made for the other uses that the field is put to during the year, such as winter and aftermath grazing.

In 1960, as the hay was generally cut early and the fields were available sooner for aftermath grazing, the deduction for the other uses that was made from the grass production costs was fairly high. This helped to reduce the cost of the hay in this costing year.

To the share of the grass production costs that is chargeable to the hay, there is added the cost of preparation and haymaking and the other part of the share of "farm general expenses".

Table 5 shows the structure of the costs.

Table 5

Structure of the Cost per Acre

(Cost figures are in £'s and decimal parts of £'s)

	No Dung Applied £	Dung Applied £	All Crops £
Grass Production Costs			
Lime and fertilisers (a)	5.15	4.22	4.57
Dung (b)	3.20	9.68	7.21
Share of sow-out cost	.62	.30	.42
Rent	1.82	1.64	1.71
Share of Farm General Expenses (acreage charge)	.45	.45	.45
Total	11.24	16.29	14.36
Deduction for other uses than hay	4.59	6.45	5.74
Share chargeable to hay	6.65	9.84	8.62
Cost of Preparation and Harvesting			
Up to "ready to cut"	.46	.54	.51
Harvesting	7.57	7.59	7.58
Share of Farm General Expenses (labour and power charge)	4.04	4.01	4.02
	18.72	21.98	20.73

(a) Net cost adjusted for grass and manurial residues as shown in Table V in the appendix.

(b) Inclusive cost (dung, dung application and share of overheads) adjusted for residues as shown in Table V in the appendix.

The cost of preparation and harvesting was almost the same for both the dunged and the undunged crops. The difference in the grass production costs of the two groups was due mainly to the charge for dung, as, although the charge for lime and fertilisers was nearly £1 an acre less in the dunged group than in the undunged group, the dung charge fell so heavily on the dunged group that, after adjusting for residues, the cost of grass production was £5 an acre higher.

The deduction for winter grazing and aftermath was almost the same proportion (about two-fifths) in both groups, and so the cost of grass production chargeable to the hay was more than £3 an acre higher in the dunged group than in the undunged group. It is, however, important that the charge for dung is not a direct cost like purchases of lime and fertilisers.

The largest single item of cost was that incurred at harvesting and this emphasises how dependent the costs are on suitable weather at that time.

COST OF STARCH EQUIVALENT

If the starch equivalent of the hay is taken as 32, then a yield of hay of 57 cwt. per acre is equal to 18 cwt. of starch equivalent. At a cost of £7.5/- per ton for the hay, the cost of starch equivalent works out at £1.2.8 per cwt.

Table 6 shows the cost per cwt. of starch equivalent of a number of home-grown and purchased feedingstuffs, using the starch equivalents given in "Rations for Livestock" (Ministry of Agriculture, Fisheries and Food, Bulletin No.48) and the prices given in the market report of the Department of Agriculture and Fisheries for Scotland for the week ending 2nd November 1960.

Table 6

Comparison of Costs - per Cwt. and per Cwt.S.E.

		Cost per Cwt.	Cost per Cwt.S.E.
Hay (1960 costings)		£ 7- 3	£1- 2- 8
Grass silage (1st quality)	say	£ 3- 0	£1- 4- 7
Turnips	say	£ 3- 0	£2- 1- 1
Oats (grower's price)		£ 19- 0	£1-11-11
Barley (grower's price)		£ 18-11	£1- 6- 7
Brewers' dried grains		£1- 2-11	£2- 7- 4
Flaked maize		£1- 8- 8	£1-14- 1
Molassed sugar beet pulp		£1- 4- 8	£2- 2- 4

While the cost of the hay per cwt. of starch equivalent is low, at £1.2.8, it is well to remember that in most cases the haymaking on the farms taking part in the costing was completed in good weather and that there was a high yield of good quality hay. In bad weather the cost per acre and per ton of hay rises and, as the quality of the hay is lower, the cost per cwt. of starch equivalent goes up sharply.

HARVESTING

Baling of hay from the swath is becoming very common in south-west Scotland. Not only does it reduce the work, but, unlike ricking, it can be performed by one man. This is a special advantage on farms with small staffs, and where a farm is not large enough to make the purchase of a baler worth while, the services of a contractor can be made use of.

While the feasibility of baling from the swath depends on the weather, many farmers feel that it is more economic to sacrifice some quality rather than go to the trouble of ricking before baling.

24 crops were baled from the swath and 10 from the rick, but this was in good haymaking weather. In bad conditions, a higher proportion would be expected to rick the hay before baling.

Table 7 compares the hours of work and the costs for two groups - "baled from swath" and "baled from rick". These figures cover the whole of the harvesting stage from the start of cutting to the storing of the bales at the steading and show that the crops baled from the swath required about two-thirds of the man hours of those baled from the rick and cost nearly £1 an acre less. It is not possible to give a completely satisfactory comparison of costs here, as a higher proportion of the crops baled from the swath were baled by contractors, but the later section on operational costs gives more details.

The inclusive charge made by contractors for baling from the swath was usually 6d a bale.

Table 7

Harvesting

(Cost figures are in £'s and decimal parts of £'s)

	Baled from swath		Baled from rick	
Number of records	24		10	
Acreage costed	206		81	
Yield per acre - cwt.	58		56	
	Per Acre	Per Ton	Per Acre	Per Ton
Labour and Power (a)	Hours	Hours	Hours	Hours
Man work	12.18	4.23	17.63	6.27
Horse work	0.14	0.05	0.45	0.16
Tractor work	6.57	2.28	6.59	2.34
Costs	£	£	£	£
Man work	2.55	0.89	3.80	1.35
Horse work	0.01	neg.	0.05	0.02
Tractor work	1.44	0.50	1.47	0.52
Contract work (b)	0.79	0.27	0.27	0.10
Materials	0.61	0.21	0.73	0.26
Depreciation, etc. on Special Equipment	1.92	0.67	1.90	0.68
	7.32	2.54	8.22	2.93

(a) Includes contractors' men and tractors.

(b) Inclusive cost of hire of contractors' men, tractors and machinery.

OPERATIONAL COSTS

This section deals with individual jobs and the figures were derived from the 40 completed records, that is to say the 34 used in the costing section and the other six that had to be excluded from that part.

Farm horses are now little used in this area and on the farms that took part in the costing horse work was unimportant. For this reason, any job record referring to horse work was excluded and an analysis made only of jobs done by men and tractors.

A few miscellaneous jobs were omitted from this section, but not from the costs. For the others, Table 8 gives the cost incurred and the time taken in performing the operation once on each acre.

Table 8

Labour and Power Use - per Operational Acre

(Cost figures are in £'s and decimal parts of £'s)

Operation	Number of Records	Operational Acreage	Per Operational Acre: Man Hours	Tractor Hours	Cost £
Cart and spread dung					
(i) Hand load, machine spread	18	148	6.68	4.39	2.37
(ii) Machine load, machine spread	8	92	3.30	3.78	1.56
Sow fertiliser (farmer's machine)	27	386	0.50	0.41	0.20
Harrow	12	107	0.35	0.35	0.15
Roll	26	286	0.41	0.40	0.18
Mow	40	455	2.04	1.64	0.80
Crops baled from the swath:					
Turn and make (machine)	19	432	0.82	0.80	0.34
Bale (i) Farmer's machine	19	222	1.63	1.22	0.62(a)
(ii) Contractor's machine	8	67	0.71	0.71	3.05
Cart bales and store at steading	27	301	5.27	2.07	1.59
Crops ricked before baling:					
Turn, make and rick (hand and machine)	9	115	9.94	2.73	2.78
Cart, bale and store at steading (farmer's baler)	9	59	5.92	2.52	1.82(b)

(a) Add £0.89 for twine and £1.88 for baler depreciation to give a total of £3.39.

(b) Add £0.66 for twine and £1.97 for baler depreciation to give a total of £4.45.

Where a job was performed more than once on at least part of the acreage costed, the per crop acre figures were greater than those calculated per operational acre, as shown in Table 9.

Table 9

Labour and Power Use - per Crop Acre

(Cost figures are in £'s and decimal parts of £'s)

Operation	Number of Records	Crop Acreage	Per Crop Acre: Man Hours	Tractor Hours	Cost £
Sow fertiliser (farmer's machine)	27	285	0.68	0.56	0.28
Harrow	12	99	0.38	0.37	0.16
Crops baled from the swath:					
Turn and make (machine)	19	231	1.53	1.50	0.65

The figures for sowing fertiliser in Tables 8 and 9 do not include those farms where this was done by a contractor, as the equipment used is different from that normally owned by farmers and the time taken in those circumstances is not comparable.

A more detailed analysis was made of the work of applying dung, as shown in Table 10.

Table 10

Dung Application

	Loaded by hand and spread by machine		Loaded and spread by machine	
Number of records	18		8	
Acreage costed	148		92	
Application of dung per acre - tons	13.3		10.9	
Average distance hauled - yards (a)	440		330	
	Per Acre	Per Ton(b)	Per Acre	Per Ton(b)
Labour and Power	Hours	Hours	Hours	Hours
Man work	6.68	0.50	3.30	0.30
Tractor work (c)	4.39	0.33	3.78	0.35
Costs	£	£	£	£
Man work	1.38	0.10	0.71	0.06
Tractor work	0.99	0.08	0.85	0.08
	2.37	0.18	1.56	0.14

(a) Distance from steading or field clamp to the field.
(b) That is, per ton of dung spread.
(c) Includes some standing-by time.

Loading and spreading by machine cost less than loading by hand and spreading by machine, but, like all costs in this section, this takes account only of the charges for labour and for tractor work. Depreciation and repairs on the equipment hauled by tractors are excluded.

COSTING METHOD AND CHARGES

METHOD

The costings were prepared by the enterprise method and some charges had to be estimated, but wherever possible actual costs were used.

The method of presenting the costs in Table I of the appendix is to show charges for:-

(i) The cost of lime and fertilisers applied for the 1960 crop.

(ii) Labour, horse and tractor work, materials, depreciation and repairs on special equipment, rent and a share of "farm general expenses".

(iii) An estimate of the value of dung applied for the 1960 crop, the application costs, and the share of"farm general expenses" calculated on the labour and power used in the dung application.

(iv) A share of the sow-out cost.

The sum of items (i) to (iv) is then adjusted by:-

(v) A deduction of the residues of the 1960 manuring chargeable to future crops.

(vi) An addition of the residues of previous manuring chargeable to the 1960 crop.

(vii) A deduction of a share of those costs requiring to be allocated between (a) the hay crop and (b) aftermath (mown or grazed) and other grazing.

This gives the net cost.

CHARGES

Lime and Fertilisers are at net cost after deducting subsidies.

Dung is charged at 17/6d a ton at the steading.

Materials (for example, baler twine) are charged at cost.

Hired Labour is at cost. The charges for regular labour include the employer's share of National Insurance and an addition of seven per cent to allow for sick time, broken time and holidays.

Family Labour charges are at rates approximately equivalent to those for hired labour. Examples of hourly charges are:-

Farmer	4/6d.	Wife	3/2d.
Son (over 20)	4/6d.	Daughter (over 21)	3/2d.
Son (18 to 20)	3/9d.	Daughter (18 to 21)	2/11d.
Son (up to 18)	2/6d.	Daughter (up to 18)	2/2d.

Horse and Tractor Work charges are at estimated hourly rates:-

Horse (excluding ploughman)	2/-
Tractor (excluding tractorman)	4/6d.

Contract Work is charged at cost.

Depreciation, etc. on Special Equipment refers to equipment regarded as additional to the normal farm equipment and includes repairs as well as depreciation. For the hay crop the equipment in this category includes balers, special haymaking machines and elevators. It does not include dung loaders or spreaders.

An estimated share for depreciation and repairs on all the normal farm equipment is included in Farm General Expenses.

Rent is based on the rent paid or, if the farm is owner-occupied, on the gross annual value. Where only part of the farm was arable, the share appropriate to that part was agreed with the farmer.

Farm General Expenses (or Overheads) cannot be calculated for an individual farm without access to the farm accounts or full costing. In enterprise costing in Scotland the method of application and rates used are derived from a sample of the accounts of Scottish farms. The rates used for the 1960 hay crop are:-

	Dairy Farms	Other Farms
(i) For each acre costed	9/-	7/9d.
(ii) For each £1 of labour (farm and casual) used	6/9d.	7/6d.
(iii) For each tractor hour and for every four horse hours worked	8/-	5/-

The total of these three charges is the "Share of Farm General Expenses", by means of which charges are brought in for this crop's share of the following and other items:-

(i) That part which cannot be allocated to any particular enterprise of the farm expenditure on wages, fuel, light and power, and tractor depreciation and repairs.

(ii) Car running expenses and depreciation.

(iii) The cost of repairs to buildings, fences and drains.

(iv) The cost of implement repairs.

(v) Rates, insurances and depreciation on tenant's fixtures.

(vi) Miscellaneous farm expenses.

Share of Sow-out Cost is based on the original sow-out cost and varies according to the cost of the seed and the number of years that the sward is expected to last.

Grass Residues is a charge made against the four crops following a lea. It is based on the cost of the sow-out and the age of the lea, the maximum charge being 92/- an acre, and is charged against the four following crops in the proportions of $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$ and $\frac{1}{8}$.

Residues to Future Crops is the share of 1960 manuring chargeable to future crops.

Residues from Previous Crops is the share applicable to the 1960 crop of residues from earlier years. Grass residues are included.

The calculation of Residues is based on the publication "Residual Values of Fertilisers and Feedingstuffs" of the Department of Agriculture and Fisheries for Scotland.

Value placed on Grazing, etc. This represents the share of the 1960 joint costs that is not chargeable to the hay crop. The joint costs are:-

(i) The cost of lime and fertilisers, except nitrogenous fertilisers, adjusted for residues to future crops and residues from previous crops.

(ii) The estimated value of the dung applied for the 1960 crop, the application costs, and the share of "farm general expenses" calculated on the labour and power used in the dung application - all adjusted for shares chargeable to future crops and shares brought forward from previous crops.

(iii) The share of the sow-out cost.

(iv) The rent.

(v) That part of the share of "farm general expenses" that is calculated on an acreage basis.

These joint costs were shared as follows:-

(i) Winter grazing Up to one-eighth of the joint costs, depending on how much use was made of the field in winter.

(ii) Summer uses The joint costs less any charge for winter grazing were charged to the period from 1st April to 30th September. In the months of April to July each week was regarded as one unit and in August and September as one-half unit, giving a total of 22 units. Each week devoted to uses other than the hay that was costed was counted as one or one-half unit and the appropriate fraction of the joint costs deducted.

AVERAGES

Except in the Operational Costs section, all the per acre figures are unweighted. The per ton figures are derived from the per acre figures.

TABLE I

HAY CROP OF 1960

AVERAGE COSTS PER ACRE FOR 34 CROPS

(Cost figures are in £'s and decimal parts of £'s)

	No Dung Applied	Dung Applied	All Crops
Number of records	13	21	34
Acreage costed	117	170	287
Yield per acre - cwt.	56	58	57
Applied for 1960 Crop			
Lime	£ 0.13	£ 0.07	£ 0.09
Slag	0.51	0.23	0.34
Mineral phosphate	0.28	0.18	0.22
Nitrogenous fertilisers	0.53	0.48	0.50
Other fertilisers	3.33	2.32	2.70
Sub-total A	4.78	3.28	3.85
Other Costs up to "Ready to Cut"			
Materials	-	-	-
Labour and field power (a)	0.46	0.54	0.51
Sub-total B	0.46	0.54	0.51
Harvesting			
Materials	0.50	0.74	0.65
Labour and field power (b)	5.29	4.85	5.02
Depreciation etc. on Special Equipment	1.78	2.00	1.91
Sub-total C	7.57	7.59	7.58
Total of A+B+C	12.81	11.41	11.94
Rent charge	1.82	1.64	1.71
Share of Farm General Expenses	4.49	4.46	4.47
	19.12	17.51	18.12
Dung Application, 1960			
Value placed on dung	-	11.35	7.01
Labour and field power	-	2.28	1.41
Share of Farm General Expenses	-	2.17	1.34
	19.12	33.31	27.88
Share of sow-out cost	0.62	0.30	0.42
	19.74	33.61	28.30
Less Residues to future crops	1.58	8.93	6.12
	18.16	24.68	22.18
Add Residues from previous crops	5.15	3.75	4.29
	23.31	28.43	26.47
Less Value placed on grazing etc:-			
Summer	3.83	5.58	4.91
Winter	0.76	0.87	0.83
NET COST PER ACRE	£18.72	£21.98	£20.73
NET COST PER TON	£ 6.69	£ 7.58	£ 7.25

(a) Including contract machinery services, except some lime and fertiliser application charges not separated from the cost of the lime and fertilisers.

(b) Including contract machinery services.

TABLE II

HAY CROP OF 1960

STRUCTURE OF THE AVERAGE COSTS FOR 34 CROPS

(Cost figures are in £'s and decimal parts of £'s)

	No Dung Applied		Dung Applied		All Crops	
Number of records	13		21		34	
Acreage costed	117		170		287	
Yield per acre - cwt.	56		58		57	
	Per Acre	Per Ton	Per Acre	Per Ton	Per Acre	Per Ton
Fertilisers(except lime,slag, mineral phosphate and dung) applied 1960	£3.86	£1.38	£2.80	£0.97	£3.20	£1.12
Materials	0.50	0.18	0.74	0.25	0.65	0.23
	4.36	1.56	3.54	1.22	3.85	1.35
All work except dung application, 1960:-						
Man work	3.34	1.19	3.04	1.05	3.16	1.10
Horse work	0.06	0.02	0.02	0.01	0.03	0.01
Tractor work	1.60	0.57	1.68	0.58	1.65	0.58
Contract work (a)	0.75	0.27	0.65	0.22	0.69	0.24
	10.11	3.61	8.93	3.08	9.38	3.28
Depreciation etc.on Special Equipment	1.78	0.64	2.00	0.69	1.91	0.67
Sub-total A	11.89	4.25	10.93	3.77	11.29	3.95
Lime, 1960	0.13	0.05	0.07	0.02	0.09	0.03
Slag and mineral phosphate,1960	0.79	0.28	0.41	0.14	0.56	0.20
Sub-total B	0.92	0.33	0.48	0.16	0.65	0.23
Dung application, 1960:-						
Man work	-	-	1.30	0.45	0.81	0.28
Horse work	-	-	-	-	-	-
Tractor work	-	-	0.98	0.34	0.60	0.21
Contract work	-	-	-	-	-	-
Sub-total C	-	-	2.28	0.79	1.41	0.49
Total of A+B+C	12.81	4.58	13.69	4.72	13.35	4.67
Rent charge	1.82	0.65	1.64	0.57	1.71	0.60
Value placed on dung	-	-	11.35	3.91	7.01	2.45
Share of sow-out cost	0.62	0.22	0.30	0.10	0.42	0.15
Share of Farm General Expenses:- Except that chargeable to dung application, 1960	4.49	1.60	4.46	1.54	4.47	1.56
Chargeable to dung application, 1960	-	-	2.17	0.75	1.34	0.47
	19.74	7.05	33.61	11.59	28.30	9.90
Less Residues to future crops	1.58	0.56	8.93	3.08	6.12	2.14
	18.16	6.49	24.68	8.51	22.18	7.76
Add Residues from previous crops	5.15	1.84	3.75	1.29	4.29	1.50
	23.31	8.33	28.43	9.80	26.47	9.26
Less Value placed on grazing,etc.	4.59	1.64	6.45	2.22	5.74	2.01
NET COST	£18.72	£6.69	£21.98	£7.58	£20.73	£7.25

(a) Excluding some lime and fertiliser application charges not separated from the cost of the lime and fertilisers.

TABLE III

HAY CROP OF 1960

DETAIL OF 1960 APPLICATIONS OF DUNG, LIME AND FERTILISERS

	No Dung Applied	Dung Applied	All Crops
Number of crops	13	21	34
DUNG			
Number of crops using	-	21	21
Application per acre (these crops):			
Average (tons)	-	13.0	13.0
Range (tons)	-	4.0-22.0	4.0-22.0
LIME			
Number of crops using	1	1	2
Application per acre (these crops):			
Average (cwt.)	40.0	33.3	36.7
Range (cwt.)	40.0	33.3	33.3-40.0
SLAG			
Number of crops using	2	1	3
Application per acre (these crops):			
Average (cwt.)	15.7	20.0	17.1
Range (cwt.)	11.4-20.0	20.0	11.4-20.0
MINERAL PHOSPHATE			
Number of crops using	1	2	3
Application per acre (these crops):			
Average (cwt.)	7.3	4.2	5.2
Range (cwt.)	7.3	1.7-6.7	1.7-7.3
OTHER PHOSPHATE			
Number of crops using	-	-	-
Application per acre (these crops):			
Average (cwt.)	-	-	-
Range (cwt.)	-	-	-
POTASH			
Number of crops using	1	-	1
Application per acre (these crops):			
Average (cwt.)	3.0	-	3.0
Range (cwt.)	3.0	-	3.0
COMPOUNDS			
Number of crops using	11	16	27
Application per acre (these crops):			
Average (cwt.)	3.9	3.5	3.6
Range (cwt.)	2.0-6.1	1.8-5.0	1.8-6.1
NITROGEN			
Number of crops using	5	8	13
Application per acre (these crops):			
Average (cwt.)	1.9	1.8	1.9
Range (cwt.)	1.6-2.2	0.5-3.0	0.5-3.0

TABLE IV

HAY CROP OF 1960

SUMMARY OF LABOUR AND FIELD POWER USAGE

	PER ACRE			
	Dung Work	Other work up to harvest	Harvest work	Total
No Dung Applied				
Man hours (a)	-	1.07	14.33	15.40
Horse hours	-	0.25	0.41	0.66
Tractor hours (b)	-	0.74	6.53	7.27
Dung Applied				
Man hours (a)	6.23	1.20	13.44	20.87
Horse hours	-	0.06	0.12	0.18
Tractor hours (b)	4.33	0.98	6.62	11.93
All Crops				
Man hours (a)	3.84	1.15	13.78	18.77
Horse hours	-	0.13	0.23	0.36
Tractor hours (b)	2.68	0.89	6.58	10.15

(a) Includes the hours of operators with contract machines, except at the application of lime and fertilisers.

(b) Includes the hours of tractors with contract machines, except at the application of lime and fertilisers.

TABLE V

HAY CROP OF 1960

DETAIL OF RESIDUE ADJUSTMENTS PER ACRE IN TABLE I

(Cost figures are in £'s and decimal parts of £'s)

No Dung Applied

	1960 application	Less to future	1960 net	Add from past	1960 total
Grass residues	£ -	£ -	£ -	£0.25	£0.25
Dung	-	-	-	3.20	3.20
Dung application	-	-	-		
Lime	0.13	0.11	0.02	0.40	0.42
Phosphate	0.79	0.32	0.47	0.18	0.65
Potash	0.25	0.13	0.12	-	0.12
Compounds	3.08	1.02	2.06	1.12	3.18
Nitrogen	0.53	-	0.53	-	0.53
	£4.78	£1.58	£3.20	£5.15	£8.35

Dung Applied

	1960 application	Less to future	1960 net	Add from past	1960 total
Grass residues	£ -	£ -	£ -	£0.29	£0.29
Dung	11.35	5.68	5.67	1.79	9.68
Dung application	4.45	2.23	2.22		
Lime	0.07	0.05	0.02	0.32	0.34
Phosphate	0.41	0.20	0.21	0.30	0.51
Potash	-	-	-	-	-
Compounds	2.32	0.77	1.55	1.05	2.60
Nitrogen	0.48	-	0.48	-	0.48
	£19.08	£8.93	£10.15	£3.75	£13.90

All Crops

	1960 application	Less to future	1960 net	Add from past	1960 total
Grass residues	£ -	£ -	£ -	£0.28	£0.28
Dung	7.01	3.51	3.50	2.33	7.21
Dung application	2.75	1.37	1.38		
Lime	0.09	0.07	0.02	0.35	0.37
Phosphate	0.56	0.25	0.31	0.26	0.57
Potash	0.09	0.05	0.04	-	0.04
Compounds	2.61	0.87	1.74	1.07	2.81
Nitrogen	0.50	-	0.50	-	0.50
	£13.61	£6.12	£7.49	£4.29	£11.78

STANDARD APPENDIX TABLE A

HAY CROP OF 1960

SUMMARY OF AVERAGE COSTS PER ACRE

(Cost figures are in £'s and decimal parts of £'s)

Number of cost records	40	
Total acreage costed	455	
	Hours	£
Dung Work Only		
Farm staff	2.70	0.54
Farmer and wife	1.18	0.27
Casual and gang	-	-
Contract services: operators	-	-
tractors	-	-
Horse work: farm	-	-
Tractor work: farm	2.69	0.61
Depreciation and repairs (a)	-	-
All Other Work		
Farm staff	8.60	1.79
Farmer and wife	4.75	1.07
Casual and gang	1.57	0.33
Contract services: operators	0.21 (b)	} 0.86 (c)
tractors	0.21 (b)	
Horse work: farm	0.32	0.03
Tractor work: farm	7.32	1.64
Depreciation and repairs (a)	-	1.72
Share of sow-out cost		0.40
Dung		6.81
Fertilisers and manures		3.91
Sundries		0.61
Rent		1.76
Share of Farm General Expenses		5.83 (d)
		28.18
Adjustment for residues		(-) 1.89
Cost of production		26.29
Adjustment for aftermath and other grazing		(-) 5.60
NET COST OF PRODUCTION (e)		20.69

(a) Relates to farm-owned specialist equipment for this crop. See the definitions of Farm General Expenses and Depreciation on Special Equipment.

(b) Except application of lime and fertilisers.

(c) Except some lime and fertiliser application charges included in the cost of lime and fertilisers.

(d) Including £1.35 applicable to dung work.

(e) At delivery point, i.e. the farm steading.

STANDARD APPENDIX TABLE B

Yield (estimated) of hay per acre 55.2 cwt.

STANDARD APPENDIX TABLE C

SUMMARY OF AVERAGE QUANTITIES OF FERTILISERS AND MANURES PER ACRE

	Area Dressed Only		Total Costed Area
	Acres	Cwt. per Acre	Cwt. per Acre
Dung	249	253.8	171.4
Lime	74	29.8	2.2
Slag	33	17.1	1.3
Mineral phosphate	135	4.3	0.7
Other phosphate	-	-	-
Potash	18	3.0	0.1
Compounds	393	3.6	3.0
Nitrogen	157	1.8	0.7