

Hay - Cost of prod. O.S.

THE WEST OF SCOTLAND AGRICULTURAL COLLEGE

GIANNINI FOUNDATION OF
AGRICULTURAL ECONOMICS
LIBRARY

JUL 20 1961

HAY COSTINGS, CROP 1960

F. McINTOSH

6 BLYTHSWOOD SQUARE,
GLASGOW, C.2.

ECONOMICS DEPARTMENT REPORT No. 71
1961.

Price 2/6

*With the Compliments of the
College Economist and Staff*

West of Scotland Agricultural College,
6 Blythswood Square,
GLASGOW, C.2.

HAY COSTINGS, CROP 1960

CONTENTS

	<u>Page</u>
INTRODUCTION	1
SUMMARY	1
THE SAMPLE	2
YIELDS	2
COSTS	3
COST STRUCTURE	4
COST OF STARCH EQUIVALENT	5
HARVESTING	5
OPERATIONAL COSTS	6
COSTING METHOD AND CHARGES	8

APPENDIX

Table I	Average costs per Acre for 34 Crops
Table II	Structure of the Average Costs for 34 Crops
Table III	Detail of 1960 Applications of Dung, Lime and Fertilisers
Table IV	Summary of Labour and Field Power Usage
Table V	Detail of Residue Adjustments per Acre in Table I

STANDARD APPENDIX

Table A	Summary of Average Costs per Acre
Table B	Estimated Yield per Acre
Table C	Summary of Average Quantities of Fertilisers and Manures per Acre

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 satisfactorily completed 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.

	<u>No Dung</u>	<u>Dung</u>	<u>All</u>
	<u>Applied</u>	<u>Applied</u>	<u>Crops</u>
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	15 $\frac{1}{4}$	20 $\frac{3}{4}$	18 $\frac{3}{4}$
Horse	$\frac{3}{4}$	$\frac{4}{4}$	$\frac{4}{4}$
Tractor	7 $\frac{1}{4}$	12	10 $\frac{1}{4}$

(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 £26.15/- 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
	<u>41</u>

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

	<u>No Dung Applied</u>	<u>Dung Applied</u>	<u>All Crops</u>
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
	<u>13</u>	<u>21</u>	<u>34</u>

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

	<u>1959</u> cwt.	<u>1960</u> cwt.	<u>Average</u> <u>1948-57</u> 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

	<u>No Dung</u> <u>Applied</u>	<u>Dung</u> <u>Applied</u>	<u>All</u> <u>Crops</u>
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	<u>1</u>	<u>1</u>	<u>2</u>
	<u>13</u>	<u>21</u>	<u>34</u>

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 <u>Applied</u>	Dung <u>Applied</u>	All <u>Crops</u>
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
	<u>13</u>	<u>21</u>	<u>34</u>

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 after-math 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 <u>Applied</u> £	Dung <u>Applied</u> £	All <u>Crops</u> £
<u>Grass Production Costs</u>			
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
<u>Deduction</u> for other uses than hay	<u>4.59</u>	<u>6.45</u>	<u>5.74</u>
Share chargeable to hay	6.65	9.84	8.62
<u>Cost of Preparation and Harvesting</u>			
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
	<u>18.72</u>	<u>21.98</u>	<u>20.73</u>