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Tractors  
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THE WEST OF SCOTLAND AGRICULTURAL COLLEGE

DIESEL TRACTOR OPERATING  
COSTS, 1957-58

BY

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DIESEL TRACTOR OPERATING COSTS, 1957-58

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GRAPHS:   Fig I   - Seasonal Variation in Hours Worked)   *Before*  
               Fig II  - No. of Days Tractor in Use        } ~~Facing~~ Page 5.

REPORT ON DIESEL TRACTOR OPERATING COSTS, 1957-58

FOREWORD

Since the previous survey made by this department into the costs of operating diesel tractors<sup>†</sup>, this type of power unit has become increasingly popular in all parts of Scotland, as the following figures (the latest available) show:-

		<u>1954</u>	<u>1956</u>
Tractors, (V.O. & Petrol ... .. (Wheeled), 10h.p. and over	{ Diesel ... ..	34,118	30,102
	{ Diesel ... ..	7,599	16,396

(Source: D.O.A.S. Agricultural Machinery Census)

An investigation was begun on 1st June, 1957, and continued for one year, to obtain information on the current operation of diesel tractors on a sample of farms in the central college area, an area characteristically low-arable dairying, with tractors handled largely by farmers and their families.

The study started with 38 records, of which 18 were completed for the full year. This report deals with some aspects of the average and individual results from these 18 tractors.

Acknowledgments

Grateful acknowledgment is extended to all farmers and tractor drivers who patiently recorded the points of detail which made this report possible.

Thanks are also due to the staff of the College Engineering Department, and to the Regional Machinery Advisers, for their interest and co-operation.

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SOME TERMS DEFINED

Classification of Tractors

Group I:- Light - Under 30 brake horse power (b.h.p.)  
Group II:- Medium-Heavy - 30 h.h.p. and over

Hours of Work

These were recorded as engine running time.

"Per Hour" Figures

All hourly rates quoted are exclusive of the labour cost of the tractor driver.

Depreciation was calculated, at 28<sup>1</sup>/<sub>8</sub>% per annum from the date of original purchase. The charge against the year's costing was thus 28<sup>1</sup>/<sub>8</sub>% of the book value of each tractor at the start of the costing year.

Major Overhauls

Complete engine or gearbox overhauls, also new tyres and other major replacements, were not charged wholly against the current year's running, but were given a life and only the appropriate share charged.

Averages

The averages given for the annual costs per tractor are unweighted, i.e. they are the sums of the individual annual costs per tractor divided by the number of tractors. Figures of costs per hour and per month are derived from these annual figures.

Unweighted averages per hour may, if required, be calculated from the Appendix, which shows the individual results.

---

† Report No.19: June, 1954. "Diesel Tractor Operating Costs, 1953-54", by J.F. Macpherson.

SUMMARY

The average total cost per hour of the 11 Group I tractors was 2/9d., including fuel cost of 5½d.

The average total cost per hour of the 7 Group II tractors was 4/3d., including fuel cost of 7½d.

TABLE 1

	<u>Group I</u>	<u>Group II</u>
No. of Tractors Costed	11	7
Average age at end of cost year (months)	56	22
Average written-down value at end of cost year (£)	144	367
Average hours worked per annum	867	840
" fuel consumed " " (galls)	274	359
" " " " hour (galls)	0.32	0.43
" price paid per gallon of fuel	<u>1/5½</u>	<u>1/5½</u>
	£. s.	£. s.
Average cost per annum: Fuel Oil	19.16.	26.13.
Depreciation	55. 9.	137.14.
Other Costs	<u>43.14</u>	<u>14. 1.</u>
Total Costs	<u>£118.19.</u>	<u>£178. 8.</u>
Average cost per hour: Fuel Oil	-/5½d.	-/7½d.
Depreciation	1/3½d.	3/3½d.
Other Costs	<u>1/- d.</u>	<u>-/4 d.</u>
Total Costs	<u>2/9 d.</u>	<u>4/3 d.</u>

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THE SAMPLE OF TRACTORS

Number and Type

The 18 tractors in the sample are presented in two groups according to brake horse power, viz:-

Group I, under 30 b.h.p.	...	...	11
" II, 30 b.h.p. & over	...	...	7

The Group I tractors were all the same make and model. No tracklayers or "garden" types have been included in either group.

Age

In the previous survey, to which reference has already been made, for the year from 1st March, 1953, to 28th February, 1954, the average age of all tractors at the end of the costing year was only 24 months, reflecting the then recent development of the diesel tractor, for the smaller farm. In the present study it has been possible to include a wider range of tractor ages, namely:-

AGE AT END OF COST YEAR

	<u>Range</u> (months)	<u>Average</u> (months)
Group I	35 - 87	56
" II	12 - 41	22

The higher average age of the Group I tractors reveals the early popularity of one model of light tractor, which makes up 100% of this group and 61% of the whole sample.

Other Tractors on the Costing Farms

The sample of 18 tractors was provided by 15 farms which had, in addition, a total of 12 other tractors with V.O. or petrol engines. The costed tractors performed 81% of all tractor hours.

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METHOD OF RECORDING

A combined log and cost sheet was written up whenever the tractor was in use.

Fuel put into the tractor tank was measured by the farmer or tractor driver at his discretion. Two farmers used dipsticks provided by the college, but the rest continued their practice of filling from 2, 4 or 5 gallon cans. No allowance was made for spillage. No loss of time, caused by blocked injectors was reported, despite the extra opportunities for dirt to enter the fuel system during measuring and filling.

The hours run by the engine were, for ease of recording, divided into four types of work and coded thus:-

- A - Ploughing
- B - Other field work
- C - Road work and haulage
- D - Stationary belt work

Information was given on oils, repairs and maintenance, and also on hours worked by other tractors on the farm (e.g. V.O. models not included in the present study).

HOURS WORKED AND TYPE OF WORK DONE

Table 2 which follows relates to the number of days the costed tractors were in use in each calendar month throughout the year, irrespective of the number of hours worked each day.

Table 3 relates to the distribution by hours worked.

Tables 4 and 5, showing the seasonal variations in tractor use, relate only to the diesel tractors costed in this study; on 9 farms there was at least one other tractor which performed an average of 29% of the total tractor hours worked on each of these farms.

The following summary shows the percentage of total hours spent at each of the four types of work as coded above:-

		<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>
Group I	...	15.2	46.7	25.4	12.7
Group II	...	21.9	47.6	25.2	5.3

TABLE 2

Number of Days Tractor in use

<u>Month</u>	<u>Range</u>	<u>Group I</u>		<u>Range</u>	<u>Group II</u>	
		<u>Average</u>	<u>Deviation</u>		<u>Average</u>	<u>Deviation</u>
June	10 - 30	18.9	0	5 - 25	17.3	- 1.6
July	11 - 31	20.7	+ 1.8	13 - 27	19.3	+ 0.4
Aug.	5 - 31	14.7	- 4.2	4 - 24	13.0	- 5.9
Sept.	8 - 30	17.3	- 1.6	9 - 25	16.4	- 2.5
Oct.	5 - 31	20.5	+ 1.6	7 - 25	18.9	0
Nov.	7 - 30	20.5	+ 1.6	12 - 29	21.1	+ 2.2
Dec.	7 - 31	18.9	0	12 - 31	20.1	+ 1.2
Jan.	9 - 31	19.5	+ 0.6	9 - 31	18.6	- 0.3
Feb.	6 - 28	17.7	- 1.2	8 - 28	17.4	- 1.5
Mar.	13 - 31	20.5	+ 1.6	22 - 31	24.1	+ 5.2
Apr.	13 - 30	20.5	+ 1.6	21 - 27	24.1	+ 5.2
May	5 - 31	<u>16.5</u>	-2.4	9 - 27	<u>17.0</u>	- 1.9
Year		<u>227.3</u>	Mean Deviation, 1.5		<u>227.3</u>	Mean Deviation, 2.3
Monthly Mean		18.9			18.9	

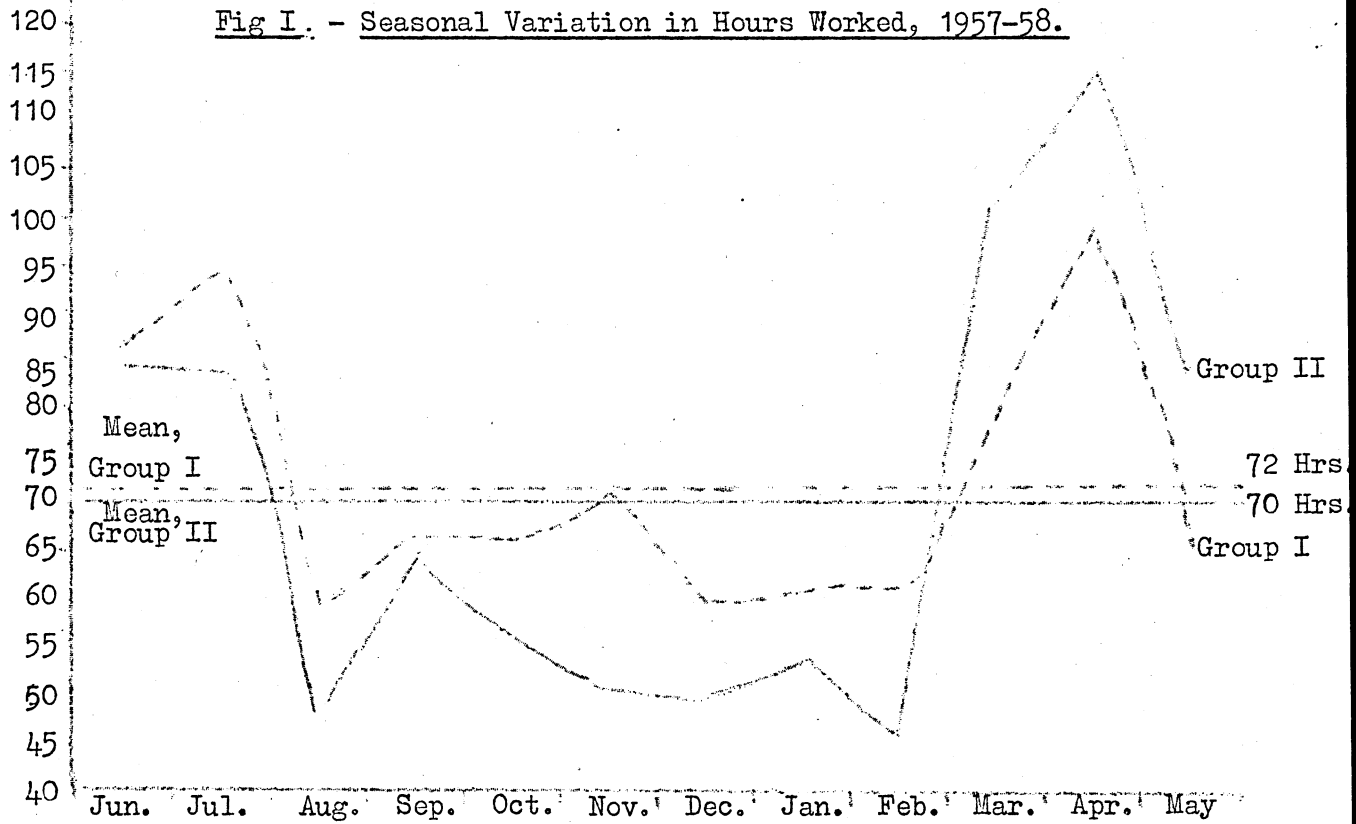
TABLE 3

Distribution by Hours Worked

				<u>Group I</u>	<u>Group II</u>
200 - 399 Hours	...	...	...	2	-
400 - 599 "	...	...	...	-	-
600 - 799 "	...	...	...	3	4
800 - 999 "	...	...	...	4	2
Over 1000 "	...	...	...	<u>2</u>	<u>1</u>
				<u>11</u>	<u>7</u>

Hours

Fig I. - Seasonal Variation in Hours Worked, 1957-58.

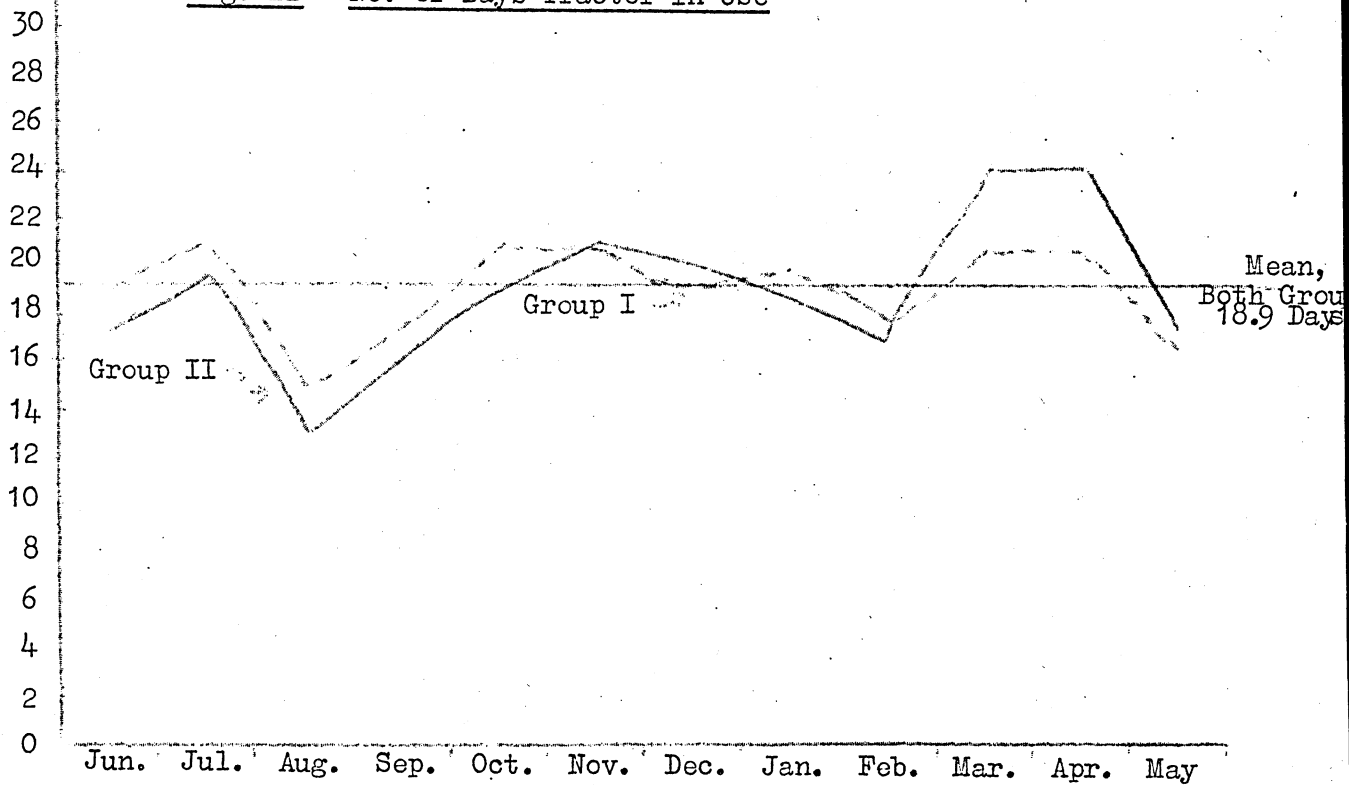


Source: Data of Tables 4 & 5.

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Days

Fig. II - No. of Days Tractor in Use



Source: Data of Table 2.

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TABLE 4

SEASONAL DISTRIBUTION - GROUP I (11 Tractors)

Month	A: Ploughing		B: Other Field Work		C: Haulage		D: Belt Work		Total Hours
	Hours	% of Total Hours	Hours	% of Total Hours	Hours	% of Total Hours	Hours	% of Total Hours	
June	5	0.5	821	86.1	59	6.2	69	7.2	Av. 87 954
July	8	0.8	720	69.9	187	18.1	115	11.2	94 1030
Aug.	-	-	393	59.9	169	25.8	94	14.3	59 656
Sept.	14	1.9	297	41.2	321	44.5	89	12.4	66 721
Oct.	25	3.4	388	53.1	221	30.3	96	13.2	66 730
Nov.	56	7.2	215	27.7	403	51.9	103	13.2	71 777
Dec.	260	39.9	47	7.2	236	36.3	108	16.6	59 651
Jan.	138	20.5	117	17.4	285	42.3	133	19.8	61 673
Feb.	319	47.8	118	17.7	134	20.1	96	14.4	61 667
Mar.	446	50.5	140	15.8	186	21.1	111	12.6	80 883
April	150	13.9	691	64.1	124	11.5	113	10.5	98 1078
May	32	4.5	499	70.1	95	13.3	86	12.1	65 712
Year	1453	15.2	4446	46.7	2420	25.4	1213	12.7	867 9532

TABLE 5

## SEASONAL DISTRIBUTION - GROUP II (7 Tractors)

Month	A: Ploughing		B: Other Field Work		C: Haulage		D: Belt Work		Total Hours
	Hours	% of Total Hours	Hours	% of Total Hours	Hours	% of Total Hours	Hours	% of Total Hours	
June	37	6.3	497	84.1	52	8.8	5	0.8	Av. 84 591
July	31	5.3	465	79.8	78	13.4	9	1.5	83 583
Aug.	-	-	294	88.3	35	10.5	4	1.2	48 333
Sept.	52	11.5	151	33.3	244	53.7	7	1.5	65 454
Oct.	5	1.3	209	52.8	160	40.4	22	5.5	57 396
Nov.	68	18.9	51	14.2	196	54.4	45	12.5	51 360
Dec.	104	30.1	34	9.8	180	52.0	28	8.1	50 346
Jan.	120	31.8	58	15.4	144	38.2	55	14.6	54 377
Feb.	115	35.4	33	10.2	111	34.1	66	20.3	46 325
Mar.	444	62.5	131	18.4	101	14.2	35	4.9	102 711
Apr.	210	25.9	496	61.1	77	9.5	28	3.5	116 811
May	101	17.1	378	64.1	103	17.4	8	1.4	84 590
Year	1287	21.9	2797	47.6	1481	25.2	312	5.3	840 5877

COMMENT ON TABLES 2 TO 5

From Table 2 it will be observed that Group II shows a greater monthly deviation from the mean than Group I, illustrated graphically in Figure II.

Both groups record the lowest daily employment in the months of August and May, the peaks of activity being (i) July, (ii) November and (iii) March - April.

Table 3 shows that over 72% of all tractors worked between 600 and 999 total hours.

Tables 4 & 5:

Ploughing:- Group I: Over 50% of the total hours spent in ploughing were recorded in February and March, with a winter peak in December.

Group II: March and April provided over 50% of the total ploughing hours, with a winter peak in January.

Other Field Work:- Groups I & II: Both groups show great activity in April (spring cultivations) and June - July (silage and hay-making)

Haulage:- Group I: Almost 17% of all haulage is recorded in November, mainly carting turnips. Smaller peaks occur in September (oats harvest) and January (carting farm-yard manure).

Group II: Over 16% recorded in September (oats harvest), with a rise in November (turnips)

Belt Work:- Group I: Belt work is maintained at a fairly steady level throughout the year, with maximum activity in January.

Group II: Maximum activity in January and February.

Figure I represents graphically the average monthly variations in total hours worked, "per tractor".

TRACTOR DRIVER

Three of the 18 tractors were rarely, if ever, driven by the farmer, because of diversity of interest or remoteness of control.

The figure of 15 "working farmers" underlines the predominantly family type of farming represented by the costing sample.

Driver

Farmer only	...	...	1	
Farmer and son	...	...	6	
Farmer and hired worker	...	...	8	15
Hired Worker only	...	...		<u>3</u>
				<u>18</u>

FUEL CONSUMPTION

The average fuel consumption rates were:-

			<u>Per Annum</u>	<u>Per Hour</u>
			<u>(Galls)</u>	<u>(Galls)/(Pints)</u>
Group I	...	...	274	0.32 / 2.56
" II	...	...	359	0.43 / 3.44

The lowest hourly rate was 0.2 gallons or 1.6 pints for a Group I tractor which spent 57% of its total time on belt work.

The following statement shows the annual and hourly rates in respect of each item of cost included in the study, comment on which is given below.

TABLE 6  
STATEMENT OF COSTS

	<u>AVERAGE ANNUAL COST</u>		<u>Pence per Hour</u>	
	<u>Group I</u>	<u>Group II</u>	<u>Group I</u> (867 hrs)	<u>Group II</u> (840 hrs)
Fuel	£19.16s.	£26.13s.	5.48	7.61
Farm Service:				
Labour	2.13s.	1.14s.	0.73	0.49
Materials	4.10s.	3.18s.	1.25	1.11
Farm Repairs:				
Labour	-.19s.	-.4s.	0.26	0.06
Materials	3.9s.	1.12s.	0.96	0.46
Garage Repairs	15.12s.	1.9s.	4.32	0.41
Share of Major Overhauls	11.13s.	-.6s.	3.22	0.09
≡ <u>VARIABLE COSTS</u>	£58.12s.	£35.16s.	16.22	10.23
Insurance and Tax	£4.19s.	£4.19s.	1.37	1.41
Depreciation	55.9s.	137.14s.	15.35	39.34
≡≡ <u>FIXED COSTS</u>	£60.8s.	£142.13s.	16.72	40.75
<u>TOTAL COSTS</u>	£119.-s.	£178.9s.	32.94	50.98

THE ITEMS OF COST

Fuel Oil

This was charged at purchase price paid by the farmer, except that where an old stock was being used, and the purchase price not traceable, the average price paid by the rest of the sample was applied. During the costing year there were slight fluctuations in price, and also small price variations depending on the distance of the farm from the distribution centre, and on the purchasing policy. The average price per gallon was 1/5<sup>1</sup>/<sub>2</sub>d.

Lubricating Oils

Engine and transmission oils were also charged at purchase price. Prices varied from 5/3d. to 11/2d. a gallon, according to the make, grade and quantity bought, the average for all types being 8/3d.

The average quantity of these oils used was:-

	<u>Per Annum</u>	<u>Per Hour</u>
	<u>Pints</u>	<u>Pints</u>
Group I ... ..	72.25	.083
Group II ... ..	58.00	.069

Grease

No information could be obtained as to the exact amount of grease used, as few farmers bought grease during the costing year, and such grease as was used on the farm was applied to a variety of equipment and machinery.

The cost of grease used on the tractors has therefore been ignored, although the cost of "Farm Service" will cover any time spent in greasing.

- ≡ Variable Costs - Costs which vary in relation to the number of hours worked.
- ≡≡ Fixed Costs - Costs which are constant, irrespective of the number of hours worked.

## Repairs and Servicing

Repairs and servicing done on the farm by the farm staff was recorded separately from such work done at a garage. For the former, repair materials - chiefly nuts and bolts and puncture repairing sundries - averaged:-

			<u>Group I</u>	<u>Group II</u>
Repair Materials	...	...	£3.19s.	£1.12s.
Farm Labour, Repairs	...	...	-.19s.	-. 4s.
(Garage Repairs	...	...	15.12s.	1. 9s.)

Farm time on repairs and servicing was charged at 3/10d. an hour, with lower rates applied where the drivers were under 20 years of age.

The average time spent on service and repairs during the whole year was 22 hours and 10 $\frac{3}{4}$  hours for Groups I and II respectively.

## Major Overhauls

Where a repair or replacement was considered suitable for spreading over more than one year, the cost was divided by the estimated life of the overhaul, and the resultant annual figure shown separately in the cost statement.

Major overhauls carried out before the start of the cost year were similarly treated, and a share included for the current year.

The average costs of this section were:-

Group I	...	...	£11.13s. or 3.22d. per hour
Group II	...	...	£-. 6s. or 0.09d. " "

## Tax and Insurance

All tractors were licensed for road work at £2 per annum. Insurance premiums actually paid (i.e. taking "no claims" bonuses where applicable) averaged £2.19s.

## Depreciation

This has been calculated on the Inland Revenue basis of 28 $\frac{1}{8}$ % (22 $\frac{1}{2}$ % plus one-quarter) of the written-down value at the beginning of the year.

TABLE 7

### Depreciation Charges

	<u>Range</u>	<u>Average</u>	<u>Range</u>	<u>Average</u>	<u>% of</u>
	<u>£. s.</u>	<u>£. s.</u>	<u>(Pence)</u>	<u>(Pence)</u>	<u>Total Costs</u>
Group I =	18.17 - 107. 4	55. 9	6.66 - 68.88	15.36	46.6
" II =	83.16 - 172.14	137.14	17.13 - 60.16	39.37	77.2

### COMMENT ON SOME INDIVIDUAL FIGURES

#### Tractor Numbers as in Appendix

1. This tractor was in daily use throughout the year driving the milking machine, and in addition it performed normal farm duties.
4. One of the three newest tractors in the study: only 2 months old at the beginning of the costing year, with a consequent high charge for depreciation. The Variable Costs per hour were 12.25d.
5. One of the three oldest tractors: 53 months old at the beginning of the year. Variable Costs 20d. an hour compared with Fixed Costs of only 10.25d.

6. Another of the oldest tractors (55 months). Variable Costs 7.75d.; Fixed Costs 13.25d.
7. Repairs and share of major overhauls account for 16d. an hour of the total variable costs of 23.5d.
9. One of the newest tractors - 1 month old at the beginning of the year. Variable Costs per hour, 8.75d.
11. Variable Costs 10d.; Fixed Costs 50d. an hour.
15. This tractor was new at the beginning of the year. Variable Costs: 6.5d.; Fixed Costs 61.75d. an hour.
16. The oldest tractor in the study (75 months). Variable Costs 15d.; Fixed Costs 8d. an hour.

SOME OTHER ASPECTS OF THE STUDY

THE TRACTOR FORCE

Table 8 (i) shows the farm acreages in relation to the costed tractors of each group, together with the acreages of tillage and of hay and silage.

Table 8 (ii) takes into account other tractors on the farm, as well as Land-Rovers and horses. On the 15 farms in the study there were altogether 3 Land-Rovers and 5 horses. Each of these has been taken as equivalent to  $\frac{1}{4}$  of a tractor.

There was an average of 2 tractors on each farm, although the "second tractor" might well be in occasional or seasonal use. This figure, together with that of 0.05 for Land-Rovers and of 0.08 for horses, gives a total "tractor equivalent" per farm of 2.13.

TABLE 8 (i)

ACRES PER COSTED TRACTOR

	<u>Total Farm Acreage (excl. Rough)</u>	<u>Tillage</u>	<u>Hay &amp; Silage</u>
Group I	172.2	42.9	30.5
Group II	200.8	43.9	33.9
Whole Sample	183.3	43.3	31.8

TABLE 8 (ii)

Average Acreage: Crops, Hay and Silage	85.10
" No. of Tractors of all kinds, per farm (15)	2.00
" " " Land-Rovers (= $\frac{1}{4}$ tractor)" "	0.20
" " " Horses (= $\frac{1}{4}$ tractor) " "	0.33
" " " Tractor Equivalent" per Farm = 2.13	
Acreage of Crops, Hay and Silage per "Tractor Equivalent" 39.9	

INVESTMENT IN TRACTORS AND EQUIPMENT

TABLE 9

Average Written Down Value of all Tractors per Farm (15) at 31st May, 1958	...	...	£4.10
" Value of Tractors per acre (excl. Rough)...		...	£2.2
" " " " " Crops, Hay and Silage		...	£4.8
" W.D.V. of Tractor-drawn or operated Equipment per Farm (15) at 31st May, 1958	...		£650
" Value of Equipment per acre (excl. Rough)		...	£3.5
" " " " " Crops, Hay and Silage		...	£7.6
" " " Tractors and Equipment per acre (excl. Rough)			£5.7
" " " " " " Crops, Hay and Silage	...	...	£12.4

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REPAIRS IN RELATION TO AGE

When using, as here, the "diminishing value" method of depreciation, it is assumed that as the annual charge for depreciation decreases, the charge for repairs increases. In this study the Group I tractors (average age at end of cost year 56 months) show a much heavier average expenditure on repairs - including share of major overhauls - than those in Group II (average age at end of cost year 22 months).

The three oldest tractors had an average repair bill of £21. 4s., the three newest, an average of £2. 4s.

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THE APPENDIX

The individual tractor figures are given in the Appendix, and are arranged in descending order of hours worked in the year.

This table should be read in conjunction with "Comment on Some Individual Figures" on p. 9.

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APPENDIX

INDIVIDUAL TRACTOR FIGURES

ARRANGED IN ORDER OF HOURS WORKED IN YEAR

Group	Hours Worked	Fuel		Farm Service		Farm Repairs		Garage Repairs	Share of Overhauls	Variable Costs	Insurance & Tax	Depreciation (28 $\frac{1}{8}$ %)	Fixed Costs		Total Costs	Cost per Hour
		Galls.	£. s.	Labour	Materials	Labour	Materials						Labour	Materials		
1. I	1859	380	27.18.	£. s.	£. s.	£. s.	£. s.	£. s.	£. s.	£. s.	£. s.	£. s.	£. s.	£. s.	£. s.	18.32
2. I	1242	478	34.10.	1.13.	4.19.	-.16.	7. -.	-.12.	30. -.	72.18.	4.12.	64. 8.	69. -.	141.18.	18.32	
3.II	1174	517	37. 9.	5. 5.	3.18.	4. -.	10. 9.	17.10.	44. -.	119.12.	4.12.	57.19.	62.11.	182. 3.	35.20	
4.II	993	437	31.15.	2.10.	4. 9.	-. 4.	-. 7.	4. 6.	2. -.	51. 5.	4.17.	83.16.	88.13.	139.18.	28.60	
5. I	946	404	29.12.	2.15.	9. -.	-.15.	-. 1.	5.15.	-	50. 1.	4.16.	165. 8.	170. 4.	220. 5.	53.23	
6. I	874	185	13.17.	4.12.	8.15.	-.10.	13. 5.	5. 2.	16.15.	78.11.	4.10.	36. -.	40.10.	119. 1.	30.20	
7. I	865	318	22. 6.	2. 6.	7. 2.	2. 6.	-	2. 8.	-	27.19.	4.13	43.12.	48. 5.	76. 4.	20.92	
8. I	855	355	25.10.	1.17.	2.17.	-	-	48. 4.	9. 7.	84.11.	4. 8.	69. 9.	73.17.	158. 8.	43.95	
9.II	803	342	24. 8.	3. 7.	3.19.	2. 3.	7.11.	47.14.	11. -.	101. 4.	4.13.	30. 8.	35. 1.	136. 5.	38.25	
10. I	796	234	17. 3.	1. 3.	3.12.	-. 1.	-. 2.	-	-	29. 6.	4.13.	166.10.	171. 3.	200. 9.	59.91	
11.II	758	336	25.12.	3. 3.	2. 9.	-. 8.	-	36.11.	-	59.14.	4.19.	30.13.	35.12.	95. 6.	28.73	
12.II	737	343	28.16.	1.11.	4. 9.	-	-	-	-	31.12.	4.16.	152. 3.	156.19.	188.11.	59.70	
13.II	724	321	22.17.	1. 4.	2. 8.	-	-	-	-	32. 8.	5.16.	95.18.	101.14.	134. 2.	43.67	
14. I	714	248	17. 9.	1.16.	1.16.	-. 6.	10.13.	-	-	37. 8.	5. 4.	127.10.	132.14.	170. 2.	56.39	
15.II	689	219	15.14.	1.18.	2. 7.	-	-	-	5.10.	27. 4.	4.16.	61. 6.	66. 2.	93. 6.	31.36	
16. I	679	212	15. 4.	1. 3.	1.10.	-	-	-	-	18. 7.	4.10.	172.14.	177. 4.	195.11.	68.12	
17. I	374	99	6.18.	1. 3.	2.14.	-	-	12. -.	11. 8.	42. 9.	4.13.	18.17.	23.10.	65.19.	23.31	
18. I	330	104	7.12.	1.11.	9. 8.	-. 4.	-	1. 6.	-	19. 7.	8. -.	107. 4.	115. 4.	134.11.	86.34	