A

FARM MANAGEMENT REFERENCE MANUAL

prepared by the

DEPARTMENT OF AGRICULTURAL ECONOMICS

UNIVERSITY OF NOTTINGHAM

Sutton Bonington

Loughborough

Price 2s. 6d.

JUNE 1954

C O N T E N T S

FOREWORD

This Manual is the fifth edition of a booklet prepared for use by students in the University of Nottingham. It is not a text-book, but a collection of information of the type which a farmer might wish to consider in connection with his production and marketing plans. Text has been kept to a minimum, and information is presented as briefly as possible. Where possible, sources have been indicated so that readers requiring more detailed information can refer to these sources.

THE 1954 REVIEW AND RELATED INFORMATION.

W. STUART SENIOR.

POLICY.

The 1954 White Paper puts less emphasis than its predecessors have done on physical expansion of output and more emphasis on improving economic efficiency by "raising quality, catering for consumer choice, and reducing unit costs of production". Expansion of NET output to 60 per cent above pre-war is said to be still a major objective, and the Government look to its achievement by means of

(i) more beef and perhaps more mutton and lamb

(ii) continued steady improvement in crop yields

(iii) saving feed imports by (a) more ley farming, improved management and use of grass and (b) skill and economy in the use of concentrated feeding stuffs.

But during the last 15 years expansion has been so rapid that many farmers have been unable to adjust their farming to make full economic use of modern techniques. The aim must now be to combine technical progress with wise management of resources.

Home agriculture cannot be completely insulated from world market conditions, and in determining the level of guarantees account must be taken of long-term trends in market price. Producers will be protected against sharp fluctuations in prices to allow them time to adjust their farming policy. But the cost to the taxpayer of the support given to British agriculture is very high - of the order of £200 millions. Further consideration will be given to means of limiting the dependence of the industry on Exchequer assistance, and progressive improvement in efficiency will provide a basis for steady reduction in the cost to the Exchequer.

The Review contains stern warnings and small price cuts, and this may be interpreted to mean that farmers are being given a short time in which to improve their efficiency in preparation for more competitive prices in the future. Farmers should heed the warnings, and take this opportunity to make any possible adjustments which will increase their ability to absorb those further cuts in prices which can be foreseen.

PROSPECTS AND GUARANTEES.

New arrangements for implementing the guarantees of the 1947 Agriculture Act in a freer economy have meant that more consideration has been paid to market prospects. The 1954 White Paper is entitled "Annual Review and Determination of Guarantees", and not "Annual Review and Fixing of Farm Prices" as in previous years. Only wool, potatoes and sugar-beet will be subject to fixed prices in 1954-55 - other prices will be guaranteed in various ways, but the total payment which an individual farmer receives will depend largely on the price he obtains in the market.

CEREALS.

Guarantees for the 1955 harvest assume that the deficiency payment schemes agreed for 1954 will also operate for the 1955 harvest; if a different form of the scheme is adopted for barley in 1955 a revised price will be announced before the end of 1954.

(1) Millable Wheat and Rye.

Farmers will sell on the open market for the best price they can get. If the average price obtained by farmers as a whole is below the standard price, a deficiency payment (equal to the difference between standard price and average market price) will be paid on all sales. There are no seasonal variations in the standard price for rye, which is shown in Table 2. The standard price of wheat is subject to seasonal variations:-

WHEAT - SEASONAL STANDARD PRICES.

TABLE 1. Price per cwt.

1st July to 30th Sept.	1st Oct. to 30th Nov.	1st Dec. to 28th Feb.	1st March to 30th April	1st May to 30th June
28s.10d.	30s. 4d.	31s.10d.	33s. 1d.	33s.10d.

(2) Oats and Barley.

As a large proportion of these crops is retained on farms deficiency payments will be on a "per acre harvested" basis. Average market prices will be calculated for each crop.(1) The deficiency payments per acre will be the amounts by which the standard prices exceed the average market prices per cwt. multiplied by 17.2 in the case of oats and 19.2 in the case of barley.

CEREALS - AVERAGE STANDARD PRICES.

TABLE 2 Price per cwt.

	Wheat	Rye	Barley	Oats
1954 harvest	30s. 9d.	25s. 0d.	25s. 6d.	24s. 0d.
1955 harvest	29s. 9d.	23s. 0d.	24s. 6d.	23s. 0d.

(3) Mixed Corn.

Mixtures without wheat or rye, and mixtures which though including wheat or rye also include enough barley to ensure at least 25 per cent barley in the crop, will be treated as oats for deficiency payments, but the full rate of payment will only apply to all-cereal mixtures. Cereal legume mixtures will qualify for payment at 70 per cent of the rate for oats if enough cereal is included to ensure 50 per cent in the crops.

(1) In the case of barley, sales in the higher price ranges (assumed to be malting barleys) will be excluded from the calculations.

POTATOES.

The 1954 harvest will be handled under existing arrangements, i.e. current fixed prices apply.

The 1955 crop will be sold on a free market and a Potato Marketing Board is expected to be in operation. In a year of average yields the market should provide producers with fair and reasonable prices and no significant Government support should be necessary. A support price is introduced to protect producers against low returns in years of high yield.

POTATOES(1) - AVERAGE SUPPORT PRICES(2) 1955-56.

TABLE 3	Price per ton
	s. d.
United Kingdom	212. 6.
Regional Prices - England and Wales	
Region 1	227. 6.
Region 2	219. 2.
Region 3	214. 2.

(1) Definition of sub-standard potatoes will be considerably tightened up and the average support price for sub-standard potatoes will be 150s. 0d. per ton.

(2) Support prices will be on a seasonal scale.

SUGAR BEET.

The Government want farmers to continue to produce as much sugar beet as the factories can handle economically. There is at present no Exchequer liability on home grown sugar.

Price for 1954-55 and 1955-56 - 125s. 7d. per ton, 16.5 per cent sugar content.

WOOL.

Average guaranteed price remains unchanged at 4s. 6d. per lb.

MILK.

The Milk Marketing Boards now determine monthly prices for producers. The average wholesale price (including quality premiums etc.) will be 3s. 1.2d. per gallon in 1954-55, and it will be broken down into separate guaranteed prices for each of five large marketing areas. For each area the guaranteed price will be related to a Standard Quantity of milk(1) and if total sales off farms exceed this the effective level of the guaranteed price per gallon will be reduced.

The Accredited Premium will cease to be paid after 1st October, 1954, but the T.T. Premium of 2d. per gallon will continue during 1954-55.

EGGS.

Maintenance or expansion of output must depend on a firmer market or reduced costs.

Average support prices(2) for 1954-55.) Hen eggs - 4s. 0d. per dozen
) Duck eggs - 2s. 9d. " "

These prices are subject to seasonal variations and to changes up or down of ½d. per dozen for each change of 6 2/3d. in the price (29s. 1d.) per cwt. of the "basic ration".(3)

---

(1) Equal to the estimated sales off farms in that area in 1953-54.

(2) For first quality eggs sold through packing stations.

(3) Wheat offals 30 per cent Maize 30 per cent
Wheat 10 " " White fish meal 10 per cent
Oats 20 " "

The price from which variations are calculated is 29s. 1d.

FATSTOCK.

More beef of better quality marketed at lower weights is needed. But increased mutton production must be accompanied by reduced costs. After decontrol (3rd July, 1954) farmers may sell by auction or privately, by live or deadweight. The Two-fold Guarantee will apply to steers, heifers, special young cows and first grade clean fat sheep and fat lambs. Quality fat cows killing out at 54 per cent and over qualify for a collective guarantee but not an individual guarantee. Individual and collective guarantees apply to eligible stock sold by auction; only collective guarantees apply to eligible stock sold privately.

Sales by grade and deadweight will receive guarantees equivalent to those on sales by auction.

Average Guaranteed Individual Prices.(1)

Steers, heifers and special young cows	- 114s. 0d. per live cwt. gross weight.
Clean fat sheep and lambs	- 2s. 4½d. per lb. estimated dressed carcase weight.

Standard Prices.

Steers, heifers and special young cows	- 133s. 2d. per live cwt. gross weight.
Fat cows	- 83s. 0d. per live cwt. gross weight.
Fat sheep and lambs	- 2s.10½d. per lb. dressed cwt.

(1) Vary seasonally and by grade.

PIGS.

Higher quality and lower costs are of overriding importance. After decontrol (3rd July, 1954) farmers may sell by auction or privately, by live or deadweight. The Two-fold Guarantee will apply to all clean fat pigs which weigh at least three score deadweight (or four and a half score liveweight and are fit for human consumption(1) Collective Guarantees apply to eligible pigs sold by auction or privately, by live or deadweight. Eligible pigs sold at auction also qualify to receive a percentage(2) addition to their market price, and are subject to Guaranteed Individual Prices. If the percentage addition does not bring the market price up to the guaranteed price the full difference will be paid.

Pork pigs sold by deadweight receive guarantees equivalent to those on sales by auction.

Bacon pigs sold on grade and deadweight to bacon curers receive the Collective Guarantees payment, the percentage addition AND special quality premiums of 2s. 0d. per score for Grade A(3) pigs and 1s. 0d. per score for Grade B(3) pigs.

Standard Price - 51s. 3d. per score deadweight related to feed(4) @ 29s.10d. per cwt.

---

(1) Male pigs must have been properly castrated at an early age and female pigs must not be pregnant.

(2) The percentage to be added will be announced before the beginning of each guarantee period.

(3) Grades refer to new grading standards in force after decontrol. These are similar to the 1939 standards, and whilst the percentage of pigs graded A under present standards has recently been about 68 per cent, if 1939 standards had been applied the figure would have been about 40 per cent. This indicates that quality has deteriorated since 1939, when about 55 per cent of pigs graded A.

(4) The "basic ration" for this purpose is:

Barley meal	40 per cent	Maize meal	20 per cent
Wheat offal	30 " "	White Fish Meal	10 per cent

Guaranteed Individual Prices, 1954-55

Liveweight	Price per Score liveweight.
	s. d.
6 score to 7 score	32. 6.
7 " " 8 "	32. 0.
8 " " 9 "	31. 6.
9 " " 10 "	30. 6.
10 " " 11 "	29. 0.
11 " " 12 score 10 lbs.	28. 0.

SOURCES OF INFORMATION.

Further details are given in the following leaflets:-

(1) Wheat and Rye - Farmers' Guarantees for the 1954 Harvest. January 1954.
(2) Oats, Barley and Mixed Corn - Farmers' Guarantees for the 1954 Harvest. January 1954.
(3) The New Fatstock Guarantees, November 1953.
(4) Farmers' Guides to the Fatstock Guarantee Schemes, 1954-55 (separate leaflets for Cattle, Sheep and Pigs)
(5) Annual Review and Determination of Guarantees, 1954. (Cmd 9104)
(6) Decontrol of Cereals and Feedingstuffs, 1953 (Cmd 8745)
(7) Home Grown Cereals Deficiency Payments Scheme, 1954.

(Items Nos. 1, 2, 3 and 4 are obtainable free of charge on request at any County Agricultural Executive Committee Office. Item 4 is also obtainable from collecting centres. Items Nos. 5, 6 and 7 are obtainable from H.M. Stationery Office, P.O. Box 569, London S.E.1 or any bookseller at a low cost).

FARMING GRANTS AND FOOD SUBSIDIES.

As the Government hope to reduce the cost of Exchequer support to British agriculture, farmers will be interested in seeing some details of the way in which support is given at present. The Civil Estimate for "Farming Grants and Subsidies, 1954-55" is shown in Table 4 (administrative expenses are excluded). There is a separate estimate (£13 million) for "Services to Agriculture", such as land drainage and flood services, pest control, education, research etc. (Notes on some important forms of assistance to farmers are given in Appendix I).

FARMING GRANTS AND SUBSIDIES, 1954-55.

TABLE 4

Subheads	Estimates 1954-55
	£
General Fertilisers Subsidy (U.K.)	13,500,000
Contributions Towards Cost of Lime (U.K.)	6,000,000
Grants for Ploughing up Grassland (England, Wales and Northern Ireland)	5,000,000
Field Drainage and Water Supply Grants (England and Wales)	2,395,000
Grants for Improvement of Livestock (England, Wales and Northern Ireland)	1,005,010
Marginal Production Assistance Grants (England and Wales)	900,000
Tuberculosis (Attested Herds) Scheme, 1950 (Great Britain)	10,250,000
Livestock: Improvement of Breeding (England and Wales)	135,720
Grants in Respect of the Rearing of Calves (England, Wales and Northern Ireland)	5,800,000
Subsidy Payments, Hill Sheep and Hill Cattle (England, Wales & Northern Ireland)	1,215,200
Guaranteed Prices for Home-Produced Wool	10
Remaining Payments	200
Gross Total	46,201,140
Deduct: Appropriations in Aid	2,500
Net Total	46,198,640

The grants and services to agriculture may continue for some time at their present level. If Exchequer assistance is to be reduced it is more likely to be done by cuts in the food subsidies, some details of which are given in Table 5. The amounts in column A are commonly regarded as subsidies to producers (farmers) and those in column B as subsidies to consumers.

ANALYSIS OF FOOD SUBSIDIES,(1) 1954-55.

TABLE 5

	A	B	Total A + B
I. WELFARE SUBSIDIES:			
(a) School milk	-	11.0	11.0
(b) Welfare milk	-	27.7	27.7
(c) Welfare foods	-	6.7	6.7
	-	45.4	45.4
II. BREAD AND GENERAL MILK SUBSIDIES:			
(a) Bread (baking subsidy)	-	47.4	47.4
(b) Milk (excluding school and welfare milk)	-	55.1	55.1
Total	-	102.5	102.5
III. AGRICULTURAL PRICE GUARANTEES AND RESIDUAL TRADING OPERATIONS:			
(a) Bacon and ham	15.5	-5.3	10.2
(b) Cereals	66.0	4.5	70.5
(c) Eggs and egg products	34.4	2.7	37.1
(d) Meat and livestock	29.3	16.4	45.7
(e) Milk products	-	0.3	0.3
(f) Oils and fats	-	-0.5	-0.5
(g) Potatoes	4.5	-	4.5
(h) Sugar	-	-0.1	-0.1
(i) Miscellaneous	-	-0.2	-0.2
	149.7	17.8	167.5
TOTAL SUBSIDIES ADMINISTERED BY MINISTRY OF FOOD	149.7	165.7	315.4

(1) Including administrative overheads.

IMPORTED AND HOME PRODUCE.

Some estimates of import prices and home produce prices for the main foodstuffs are given in Hansard, March 8th, and the table based on this is shown below. It should be borne in mind that it is not possible to make accurate comparisons between the prices paid for home produced food and for imported supplies unless differences in quality, which may be substantial, and variations in the terms of purchase, are taken into account. Prices are for April-March, 1953-54, with the exception of wheat and barley, which are for crop year 1953-54.

IMPORTS AND HOME PRODUCE - PRICES AND SUPPLIES.

TABLE 6 — 1953-54

Commodity	Estimated average prices: Imported(1)	Estimated average prices: Home produced(2)	Home produce price as per cent of import price	Home produced supply as per cent of total supply
	(£ per ton)	(£ per ton)	Per cent	Per cent
Beef(3)	174.0	207.7	119.4	64.7
Lamb(3)	189.0	290.4	153.7	39.2
Bacon	252.3	399.8	158.5	42.1
Sugar(raw)	39.8	43.7	109.8	21.0
Wheat	30.1	30.7	102.0	40.0
Barley (feeding)	23.8	25.0	105.0	61.0
Eggs	3s. 6½d. per doz.	4s. 5¾d. per doz.(4)	126.0	82.5

(1) Approximate estimates of average landed prices, excluding duty.

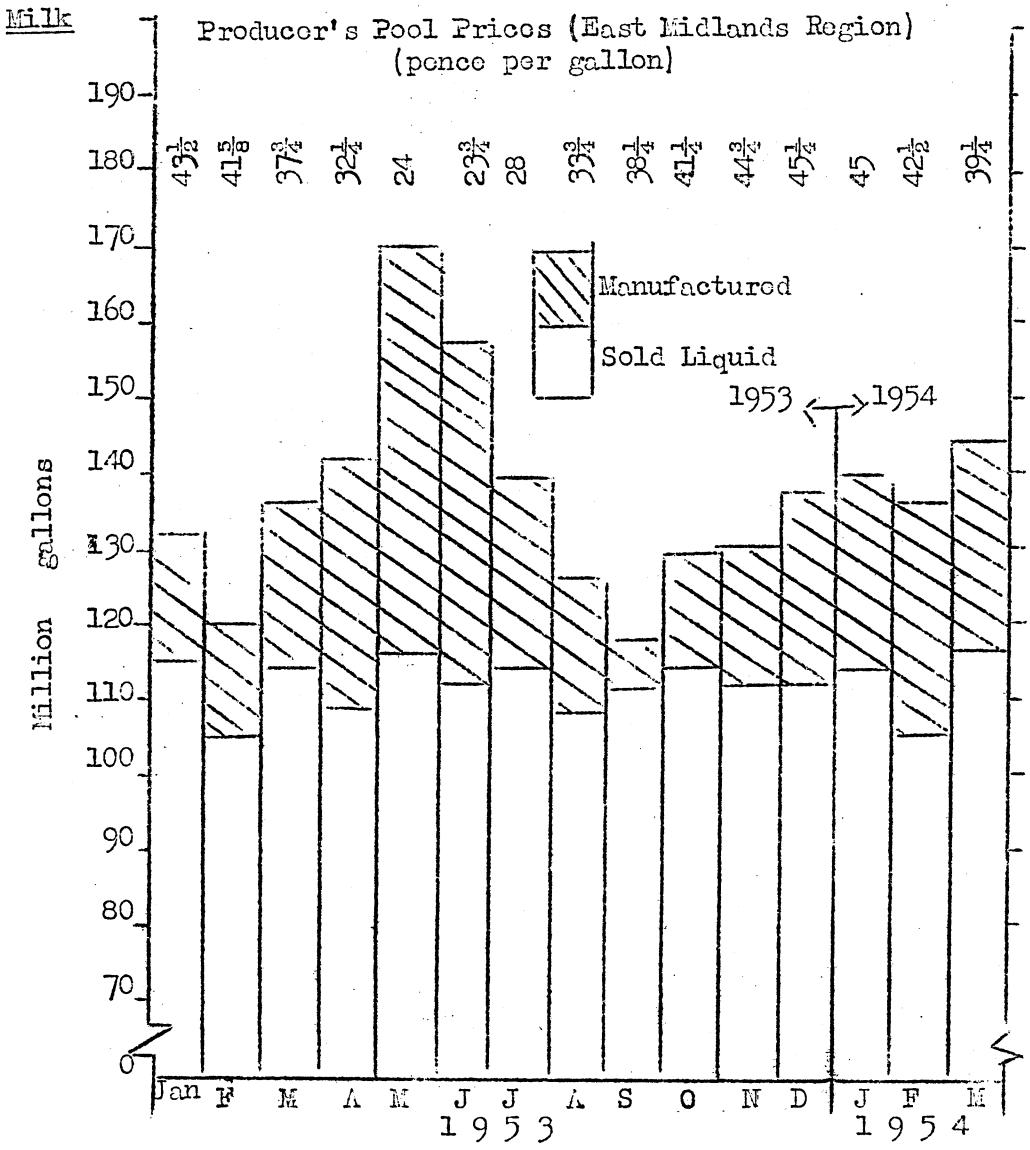
(2) Approximate estimates of average prices recoverable by farmers.

(3) Both home and import prices estimated at point of entry to Wholesale Meat Supply Association depot.

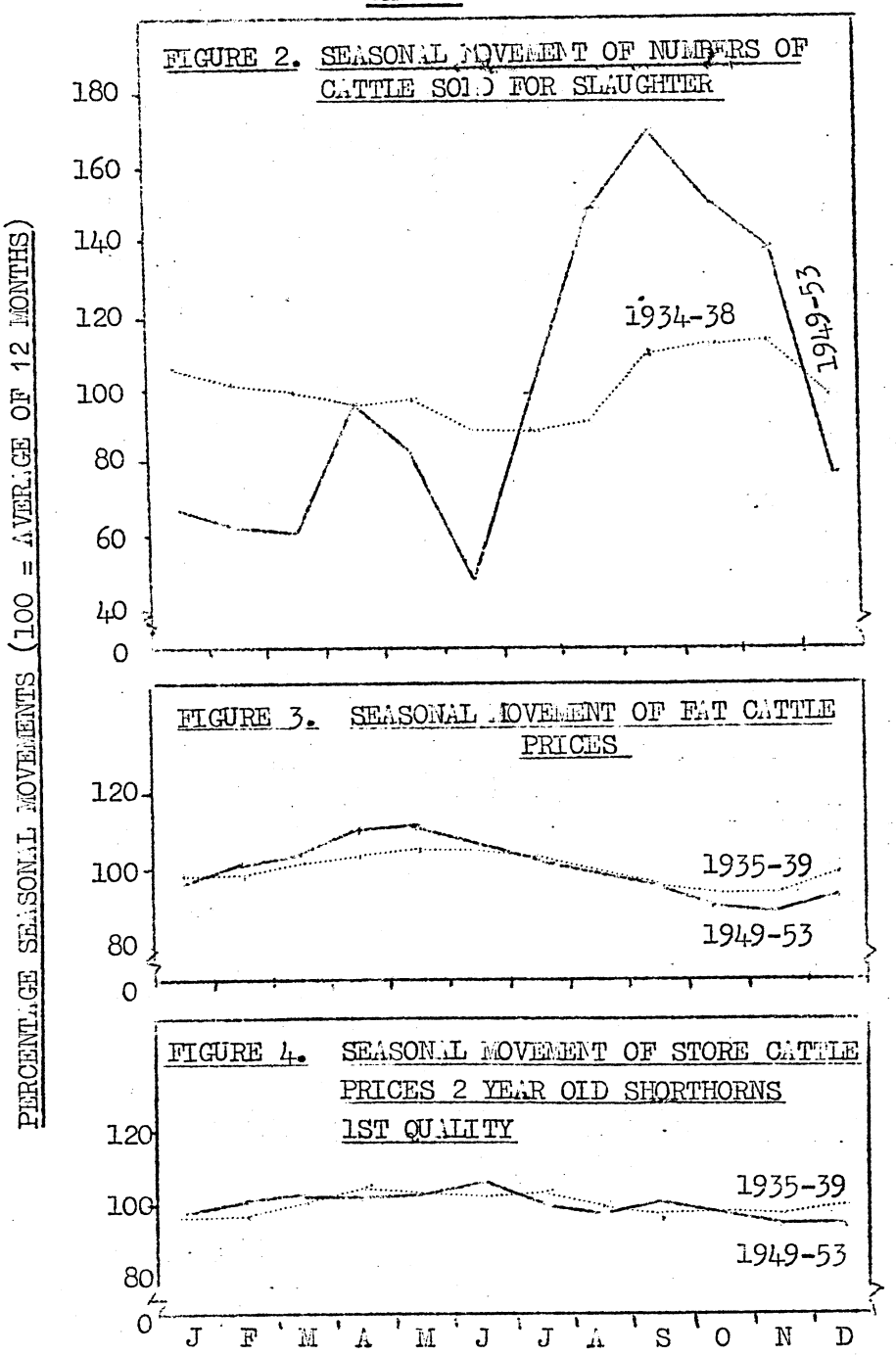
(4) Ex packing station.

CHARTS SHOWING SEASONALITY OF SUPPLIES AND PRICES

FIGURE 1 MONTHLY PRODUCTION AND UTILISATION OF MILK.



CATTLE



Figures 2-16 by Prudence P. Richardson

SHEEP

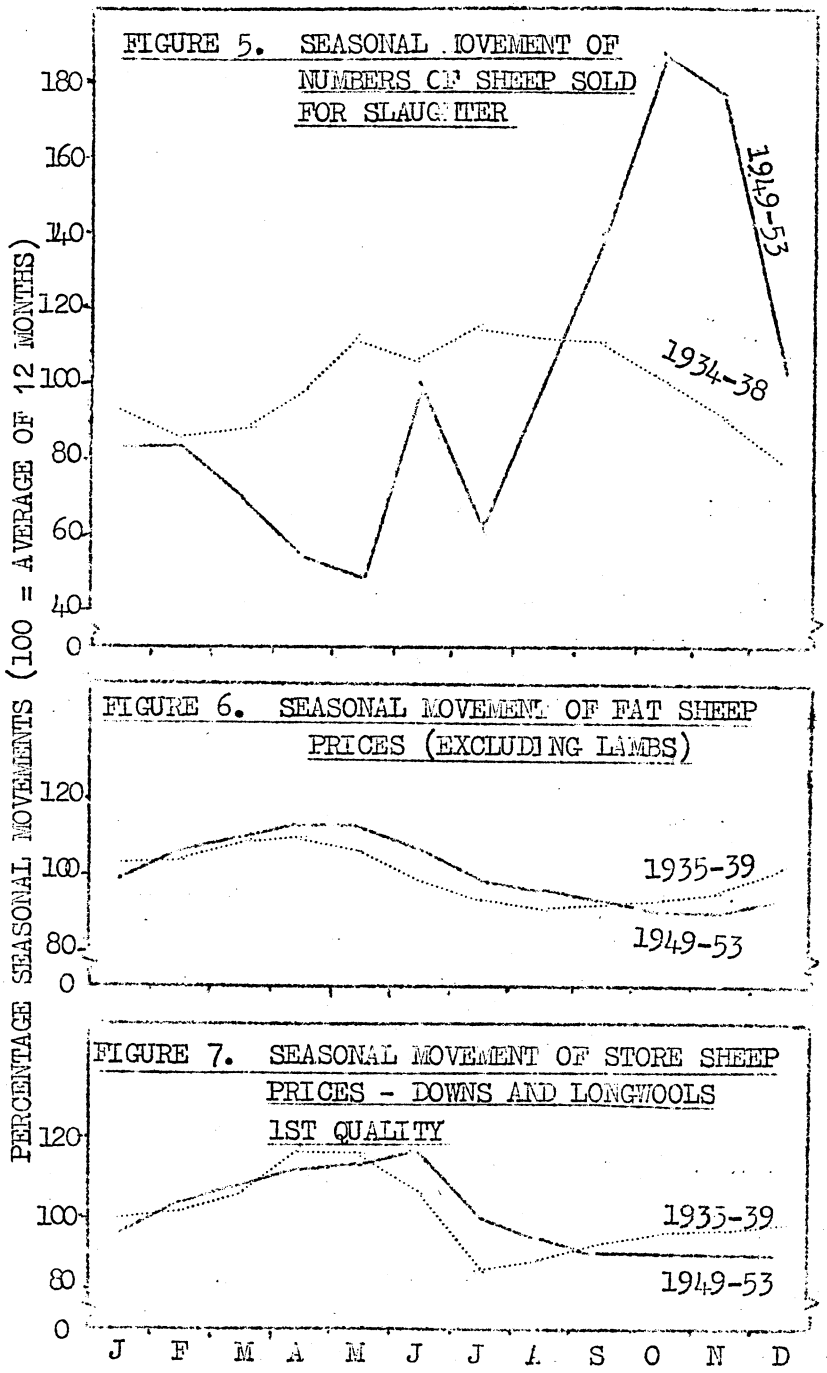


FIGURE 5. SEASONAL MOVEMENT OF NUMBERS OF SHEEP SOLD FOR SLAUGHTER
1949-53
1934-38
PERCENTAGE SEASONAL MOVEMENTS (100 = AVERAGE OF 12 MONTHS)
180
160
140
120
100
80
60
40
0
FIGURE 6. SEASONAL MOVEMENT OF FAT SHEEP PRICES (EXCLUDING LAMBS)
1935-39
1949-53
120
100
80
0
FIGURE 7. SEASONAL MOVEMENT OF STORE SHEEP PRICES - DOWNS AND LONGWOOLS 1ST QUALITY
1935-39
1949-53
120
100
80
0
J F M A M J J A S O N D

PIGS

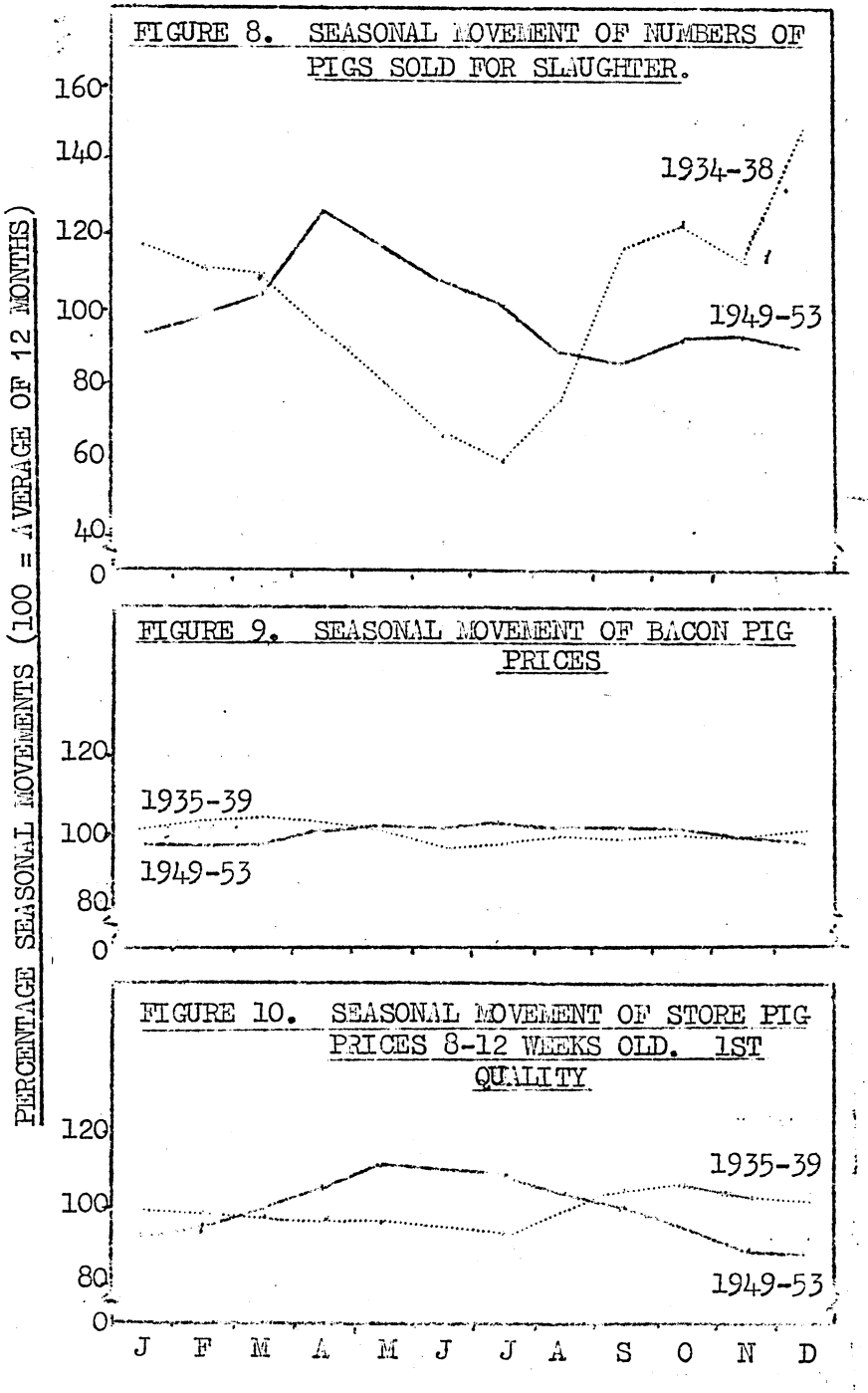
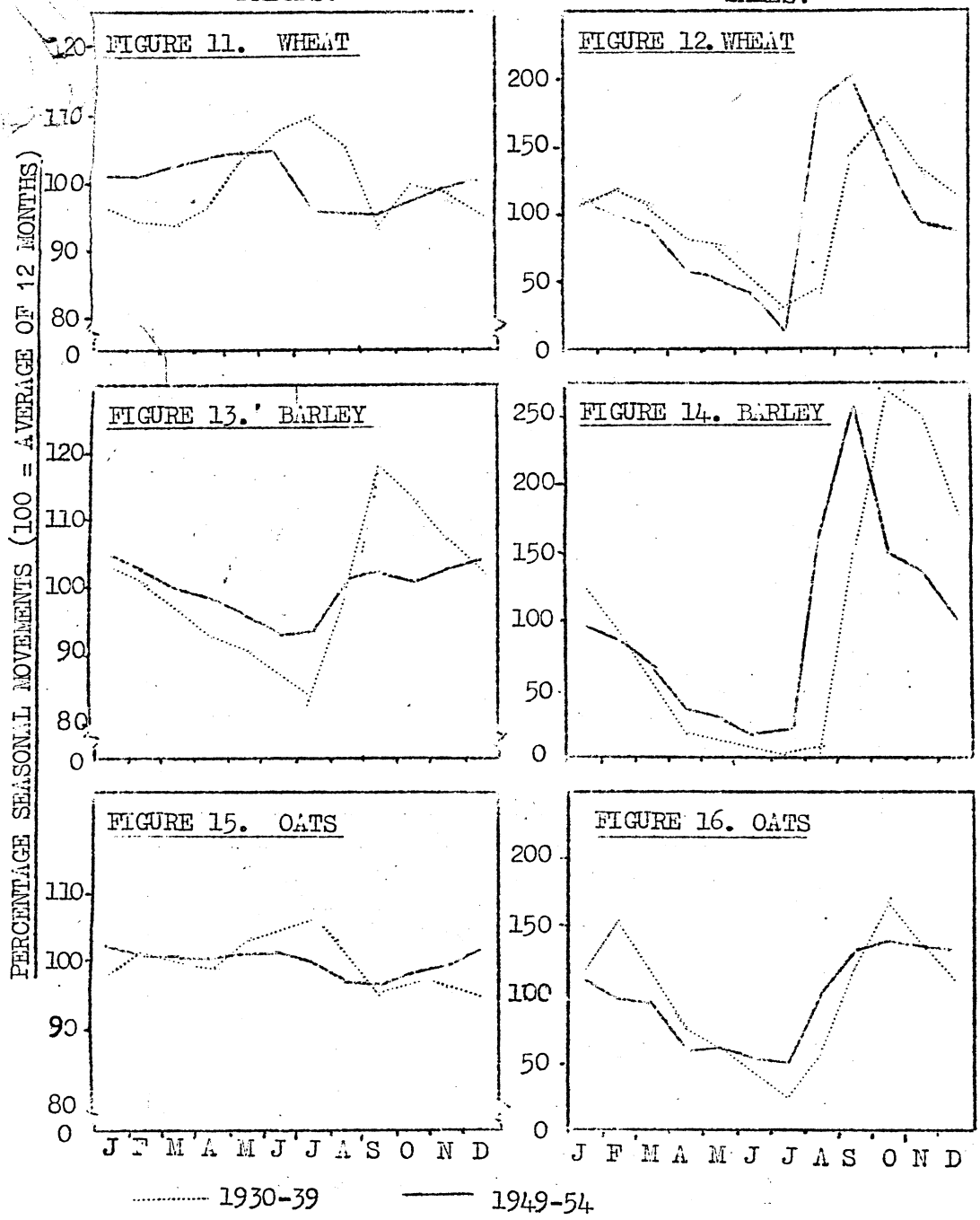


FIGURE 8. SEASONAL MOVEMENT OF NUMBERS OF PIGS SOLD FOR SLAUGHTER.
PERCENTAGE SEASONAL MOVEMENTS (100 = AVERAGE OF 12 MONTHS)
160
140
120
100
80
60
40
0
1934-38
1949-53
FIGURE 9. SEASONAL MOVEMENT OF BACON PIG PRICES
120
100
80
0
1935-39
1949-53
FIGURE 10. SEASONAL MOVEMENT OF STORE PIG PRICES 8-12 WEEKS OLD. 1ST QUALITY
120
100
80
0
1935-39
1949-53
J F M A M J J A S O N D

CROPS

SEASONAL MOVEMENTS OF PRICES:-

SEASONAL MOVEMENTS OF SALES:-



FARMING TYPES AND FINANCIAL RESULTS.

R.G. MORTIMER.

Each year about 250-300 East Midlands farmers co-operate with this Department in providing financial data relating to their farms, and they in turn receive an annual report giving their results alongside comparative results for similar farming types.

The basis of classification of farms according to type group is as follows.

1. Dairy Farms. Those with less than 25 per cent of their crops and grass acreage under crops for sale and with more than 14 cows (i.e. cows and heifers in milk and cows in calf) per 100 acres.

2. Cropping with Dairying. Farms with more than 25 per cent of their acreage devoted to crops for sale and more than 10 cows per 100 acres.

3. Cropping with Pigs and/or Poultry. More than 25 per cent of land under sale crops and with more than 1,000 total poultry or 60 pigs per 100 acres or an equivalent combination of pigs and poultry.

4. Cash Cropping (on Predominantly Arable). More than 50 per cent of land under sale crops.

5. Cropping with Livestock. More than 25 per cent but less than 50 per cent of land under sale crops.

6. Mainly Livestock. Farms with less than 25 per cent of sale crops and less than 14 cows per 100 acres.

Tables 1 and 2 show the financial results achieved on farms, above and below 150 acres in size, for the year ending April, 1953 - on a per 100 acre basis to facilitate comparisons.

The definitions of the items referred to are as follows:-

Production (referring to individual items).	Sales adjusted for valuation changes and debtors and minus purchases in the case of livestock items.
Other Income.	Any "production" from horses plus the value of perquisites to workers and produce and stores consumed in the farm-house. An allowance for the value of the private use of the farm house and farm car, and receipts for contract work done, ploughing grants received and other sundry items of income.
Total Production.	The sum of the individual items of production plus "other income".
Equipment Costs.	Machinery and other repairs, tools purchased, fuel and power charges and equipment depreciation. Sales and purchases of equipment are not included.
Total Costs.	All farm expenses including the rental value of owner-occupied farms and a charge for unpaid family labour (other than farmer's or wife's) but excluding purchase of livestock. No charge is included for interest on tenant's capital (whether owned or borrowed) invested in the farm business. Interest payments on loans and overdrafts are not included in costs.
Net Farm Income.	The difference between total production and total costs. It is the return to the farmer and wife for their own manual labour and managerial functions and the interest on tenant's capital invested in the farm business.
Farmer and Wife's Labour.	An estimate at prevailing rates of the farmer's and wife's manual labour.

Management Investment Income. The difference between net farm income and farmer's and wife's labour. It is the return to the farmer and wife for their managerial functions and interest on tenant's capital invested in the farm business.

It will be seen that the differences between the two concepts of "profit", namely "Net Farm Income" and "Management and Investment Income", are larger on the smaller farms. The latter concept does to some extent put farms of all sizes on an equal basis as regards comparisons of profitability. Table 3 shows the average Net Farm Income during recent years of farms of all sizes in England and Wales, and for those types found in the East Midlands. But the classification here is on an area and district basis and not on a type of production basis as in Tables 1 and 2.

Farm Efficiency.

Various physical factors of efficiency such as milk yield per cow, eggs laid per bird, numbers of pigs and litters per sow, yield of crops per acre etc. can be worked out on the farm. Similarly various economic factors of efficiency can be calculated. Of the economic factors, net costs or income per 100 acres, per £100 total cost, per £100 labour, or per £100 rent have been used. Tables 1 and 2 show the relative efficiency in "production per £100 costs" of the various farming groups. At the present time labour is of particular importance on a farm and various standards of labour efficiency have been calculated. These are based on the assumption that a standard number of Man Work Units (= 8 working hours) are required annually for the various crops and types of livestock. Table 6 gives these standard requirements. The actual requirements will, of course, vary from farm to farm depending on methods of harvesting crops, systems of housing livestock, etc. They are not absolute standards but are useful for comparative purposes when considering requirements of different types and sizes of farms. Table 4 shows the M.W.U. required per acre on East Midlands farms in 1952-53 and shows that dairy and cash cropping farms were more intensive in labour requirements than livestock farms, and small farms more intensive than large farms.

A farmer can calculate the efficiency of the use of his own labour by using the following formula:

$$\frac{\text{MAN WORK UNITS REQUIRED} \times 100}{\text{MAN WORK UNITS EMPLOYED}} = \text{LABOUR EFFICIENCY}$$

The Man Work Units required are calculated as above, and the Man Work Units employed are derived by dividing the total labour bill[1] by the average estimated annual wage of an adult worker. In 1952-53 this latter figure was estimated at £343. Those with a "labour efficiency" above 100 per cent are making good use of their labour and those with an efficiency below 100 per cent probably need to look more closely at the labour situation on their farm to see where economies in its use can be made. No account is taken of yield levels in these standard calculations and a low labour efficiency can arise where high yields have been obtained, so care in interpreting the results obtained is necessary.

Table 5 derived in a similar way to the above, shows the effective number of days worked by a worker (i.e. Man Work Unit of 8 hours) on different types and sizes of East Midland farms.

A low figure for days of work per man unit employed may be due to a low level of intensity of cropping and livestock carry as much as to extravagent or inefficient use of labour, so here again care in interpreting the results is necessary. It is often better to intensify production than to reduce the size of the labour force if greater "profit margins" are being aimed for.

---

[1] Including manual work of farmer and wife.

PRODUCTION COSTS AND INCOMES BY TYPE OF FARM.
1952-53. Over 150 acres.

TABLE 1

Item	Type of Farm				
	Dairying (1)	Cropping with Dairying (2)	Cash Cropping (4)	Cropping with Livestock (5)	Mainly Livestock (6)
Production	£'s per 100 acres				
Cattle	348	401	305	332	732
Sheep and wool	64	51	140	304	273
Pigs	200	122	248	175	111
Poultry and eggs	108	193	110	134	114
Milk and dairy products	2,502	1,113	79	113	178
Sale crops	182	1,656	3,005	1,565	497
Other income	135	186	114	126	90
Total production	3,539	3,722	4,001	2,749	1,995
Costs					
Labour (excluding F. and W.)	736	816	971	677	366
Foodstuffs	1,107	538	299	246	319
Seeds and fertilisers	280	533	679	477	177
Rent and rates	192	175	182	154	176
Equipment	518	628	625	477	306
Other costs	168	298	225	194	170
Total costs	3,001	2,988	2,981	2,225	1,514
Net farm income	538	734	1,020	524	481
Farmer's and wife's labour	194	109	95	99	121
Management and investment income	344	625	925	425	360
Production per £100 costs	118	126	134	127	136
Size in acres	187	281	384	362	273

PRODUCTION COSTS AND INCOMES BY TYPE OF FARM
1952-53. Under 150 acres.

TABLE 2

Item	Type of Farm: Dairying (1)	Cropping with Dairying (2)	Cropping with Pigs/or Poultry (3)	Cash Cropping (4)	Cropping with Livestock (5)	Mainly Livestock (6)
Production	£'s per 100 acres					
Cattle	347	208	241	280	390	421
Sheep & wool	104	51	-	6	66	189
Pigs	359	106	1,258	297	308	270
Poultry & eggs	509	622	3,569	430	344	278
Milk & dairy products	3,007	1,754	-	23	204	462
Sale crops	164	1,301	3,583	3,691	1,492	546
Other income	251	176	327	236	194	174
Total production	4,741	4,218	8,976	4,963	2,998	2,340
Costs						
Labour (excl. F. & W.)	586	795	1,046	978	578	438
Foodstuffs	1,630	1,112	2,769	393	380	597
Seeds and fertilisers	229	342	834	742	397	255
Rent & rates	271	218	400	284	195	180
Equipment	631	643	1,015	736	483	350
Other costs	341	311	460	314	230	168
Total costs	3,588	3,426	6,524	3,447	2,263	1,988
Net farm income	1,153	792	2,452	1,516	735	352
Farmer's and wife's labour	706	694	1,126	640	430	483
Management & investment income	447	93	1,326	876	305	-131
Production per £100 costs	134	126	147	146	134	121
Size in acres	72	62	41	70	92	89

NET FARM INCOME ON FARMS IN ENGLAND AND WALES. 1940-41 to 1951-52.

TABLE 3

Year	Type of Farm				
	Mainly Dairying	General Mixed Farming	Light Land Arable	Alluvial Arable	All Types
	£'s per 100 acres				
1940-41	479	387	347	651	420
1941-42	522	496	578	686	498
1942-43	465	578	678	734	570
1943-44	501	531	619	677	491
1944-45	440	386	260	491	347
1945-46	447	475	464	642	427
1946-47	424	391	435	789	380
1947-48	373	343	161	688	287
1948-49	641	657	671	1,116	608
1949-50	581	540	608	1,091	554
1950-51	661(1)	434	627	1,157	536
1951-52	634(1)	537	865	1,320	639

SOURCE: Farm Incomes in England and Wales. Ministry of Agriculture and Fisheries. Published annually by H.M. Stationery Office, London.

(1) Includes all dairy farms after 1949-50.

MAN WORK UNITS REQUIRED PER ACRE. East Midlands 1952-53.

TABLE 4

Type of Farm	0-100 acres.	100-150 acres.	150-300 acres.	300 acres and over
	M.W.U.	M.W.U.	M.W.U.	M.W.U.
1. Dairying	10.9	8.9	8.5	-
2. Cropping with Dairying	9.5	-	7.1	7.6
3. Cropping with pigs/or poultry	11.8	-	-	-
4. Cash cropping	9.3	8.6	7.8	6.9
5. Cropping with livestock	6.6	6.7	6.8	6.4
6. Mainly livestock	5.9	6.4	3.9	3.9

DAYS OF WORK PER MAN PER YEAR. EAST MIDLANDS. 1952-53.

TABLE 5

Type of Farm	0-100 acres work units	100-150 acres work units	150-300 acres work units	300 acres and over work units
1. Dairying	280	261	268	-
2. Cropping with dairying	239	-	291	275
3. Cropping with pigs/or poultry	245	-	-	-
4. Cash cropping	210	229	250	248
5. Cropping with livestock	237	284	280	331
6. Mainly livestock	215	322	265	319

STANDARD LABOUR REQUIREMENTS FOR CALCULATING TOTAL ANNUAL MAN-WORK UNITS

TABLE 6

Crop	M.W.U. per year per acre	Type of Livestock	M.W.U. per year per head
Cereals	3½	Dairy cows	20
Threshed beans & peas	4½	Heifers in calf) Beef breeding cows)	2½
Arable silage	4	Other cattle over one year	2
Sugar beet) Potatoes)	20	Other cattle under one year	4½
Fodder roots & kale	16	Breeding ewes) Other sheep)	1
Peas (green & canning)	25	Breeding sows and gilts	4½
Market garden	30	Other pigs	1½
Hay-leys	2½	Hens and pullets) Other poultry)	¼
-permanent grass	2		
Silage-leys	3		
-permanent grass	2½		
Grazing-leys or permanent grass)	½		
Seed production	7		

INDIVIDUAL ENTERPRISES.

Factors such as a farm's size, soil and topography, layout and buildings set broad limits on most farms to the type of organisation which is likely to be most successful. Within those broad limits there is a great deal of scope for making adjustments in the farm organisation. But before a farmer decides to make any particular change he needs to satisfy himself not only that it can be expected to increase his profit, but that the expected increase will be greater than that from any other possible adjustment.

The number of changes which are possible is sometimes embarassingly large. The three main types are:-

(i) changes in the sizes of existing enterprises.

(ii) introduction of a new enterprise, either as an addition or to replace an existing enterprise.

(iii) changes in practices adopted.

This section gives some information concerning the major farm enterprises, and a number of comparisons are made between alternative practices. A study of this Section may make it possible to reduce the number of changes which have to be seriously considered. The remaining possibilities can be tested by budgeting.

This involves three steps. The first is to estimate, for each adjustment under consideration, the increase (or decrease) in the quantities of raw materials and extra labour which will be required and in the quantities of goods produced for sale. The second step is to decide on price expectations for the raw materials and products affected. The third step is to multiply the estimated quantities by the expected prices, and so calculate the changes in costs and returns, and profit, which would result if the change were adopted.

Most calculations regarding the future will always include elements of uncertainty, and farming plans are no exception. But this section gives examples of the information and the type of calculations which are required to estimate the cost probable results of alternative courses of action. Most of the figures used are averages, or estimates for average conditions. Farmers making their own calculations should use their own farm figures where possible, or adjust these figures in accordance with their own expectations.

MILK PRODUCTION - R.G. Mortimer.

The general structure and relative importance of the various items involved in the cost of milk production have not changed greatly during recent years, and are similar for the East Midlands and England and Wales as a whole. Here in the East Midlands in 1951-52, foods accounted on the average for 64 per cent of the costs, labour for 20 per cent and miscellaneous and herd replacement costs for the remaining 16 per cent.

On individual farms all or some of these items of costs are affected by various factors peculiar to the farm. The most important of these are - size of herd, yield per cow, method of milking, type of housing, seasonality of production and grade of milk produced.

SIZE OF HERD.

The effect of this factor on costs, returns and margins per cow can be seen in Table 1 for England and Wales. This Table shows that as herd size increases labour hours (and hence labour costs) per cow decrease. Total food costs do not vary greatly but the smaller herds who are more dependent on purchased foods have higher costs for this particular item, than the medium and large sized herds. The other items involved are not greatly affected by the herd size factor.

YIELD PER COW.

Table 2 shows the effect of this factor on herds in this province. It will be seen that food costs increase the most with increasing yield while Labour and Miscellaneous costs show only slight increases up to the 900-999 gallons group. The increase in margins shows that as high a yield as possible should be the aim since costs do not increase at so fast a rate as margins. From 500-599 gallons group to the 900-999 gallons group costs increased by 42 per cent while margins increased by 178 per cent.

SEASONALITY OF PRODUCTION.

This feature is illustrated in Table 3 and to some extent in Table 4. The increase in winter gallonage as a percentage of total production shown in Table 4 has occurred gradually over the years. The price differential for winter production has been maintained and it is obvious that for an individual cow the greater the production in winter the greater the margin will be, but when considering average figures the effect of seasonality is masked by other factors, particularly yield per cow, which have greater influences on margins. However, since the annual yield of an autumn calver tends on average to be higher than that of a spring calver, winter milk production is likely to lead to higher margins per cow.

GRADE OF MILK.

Table 3 brings out the differences in costs and profits margins between T.T. and non-T.T. producers and shows that about £10 per cow more is made by the T.T. producer.

Part of the difference in margins shown in Table 3 is due to the higher yield of the T.T. producers but excluding this factor T.T. producers would still show higher margins. With few exceptions, such as cases of small farmers with little or no available capital, farmers would be well advised to change to T.T. production. The other changes between the two periods shown in Table 4 have all been gradual, i.e. the decrease in labour hours, and the increases in yield, costs, returns and margins per cow.

The other two important factors affecting margins are method of milking and system of housing, and as both exert their influence through the item of labour costs, they will be considered later.

The above are some of the factors affecting the economics of milk production on individual farms. Some of the more important items involved in cost are considered below.

FOODS.

This is the most important item and the level of concentrate feeding is of particular importance. Table 5 shows that for a given yield group the farmer achieving this yield with the least amount of concentrates will have the best margins, but that on average, feeding increased quantities of concentrates to get higher yields does pay up to the level of 35 cwts. per cow per annum. At the present average prices of milk (3s. 1d.) and feeding stuffs, a level of feeding of 10 lbs. of purchased concentrates to produce the final gallon of milk would still be economically sound. It is only be treating cows as individuals and feeding in accordance with yield that farmers can find the economic capacity of their cows for milk production. Better quality grazing, forage, grass and grass crops will help to reduce the need for concentrates. A level of output from grass of 300 gallons of milk per annum should be possible and aimed for. Levels below 200 can be considered poor.

Table 6 shows results for concentrate feeding in this country.

The question of whether to feed home grown or purchased foods or how to combine them has to be settled on the farm and will depend on farm size, fertility and the availability of labour and machinery for growing cash crops, such as sugar beet, instead of fodder crops, such as kale grazed off. This in turn depends on the prices for purchased foods and prices received for cash crops.

LABOUR.

Although labour is not so important an item in costs as food, it is one where by careful planning economies can often be made more easily. Table 7 shows the saving in labour by changing from hand milking to machine milking. Milking machine costs on 453 herds in England and Wales in 1950-51 amounted to £1. 2s. 0d. per cow, and led to a saving on average of 57 labour hours per cow or a net saving of (at that time) £5.12s. 0d. per cow. The introduction of milking machines is to be recommended for most herds, and even the small 5-10 cow size herds will benefit from the use of the new small mobile machines.

The times for milking individual cows vary with the animal, from less than four minutes to 16 minutes and over. Petersen has claimed that all can be milked in four minutes, and other American work has shown that cows can be trained to let down their milk more quickly if farmers are willing and keen enough to try.

Table 8 shows the effect of type of housing on labour requirements and Table 9 shows the relative importance of the various operations performed in milking on 10 farms in this province.

It should be remembered, however, that to economise in labour is useless unless alternative use can be found for the labour saved, although it may mean greater leisure time for the small farmer and possibly lead to a reduction in the numbers employed on the large farms.

MISCELLANEOUS COSTS.

Individually the various items involved amount to relatively little but together amount to about 13½ per cent of cost. Table 10 shows the more important items involved. Attention to such matters as using A.I. instead of a bull, careful handling and assembling of milking machines to reduce replacement costs, improving the health of the herd by a little prompter and greater use of the vet. and medicines and so on, may result in greater profits from the herd.

By being careful in the small items, farmers may be led to arrange and make economies in the large items of costs.

The above tables have shown that many of the items and factors involved in costs are inter-related and it is only by paying attention to all the factors and not treating them in isolation, that the greatest increased profits are to be made.

COSTS, RETURNS AND MARGINS OF MILK PRODUCTION BY SIZE OF HERDS. ENGLAND AND WALES. ALL FARMS. YEAR 1951-52.

TABLE 1

Item	9.9 & under	10 - 19.9	20 - 29.9	30 - 39.9	40 - 49.9	50 - 59.9	60 & over	Total
Number of herds	76	133	117	70	55	29	41	521
Cows per herd. No.	7.3	15.1	24.6	34.7	44.4	53.5	80.5	29.1
Labour hours per cow	196	159	148	137	132	121	119	138
Gallons per labour hour	3.8	4.4	4.8	5.4	5.5	5.9	6.3	5.3
Yield per cow (galls)	737	695	708	743	731	720	750	727
Costs per cow.	£. s.	£. s.	£. s.	£. s.	£. s.	£. s.	£. s.	£. s.
Foods - Purchased	26. 1.	21.15.	21. 5.	20. 9.	22. 4.	22. 7.	23. 5.	22. 2.
Home grown	15.12.	17.12.	19. 3.	21. 6.	19.16.	17. 7.	19.11.	19. 3.
Grazing	7. 1.	5.19.	6. 4.	6. 6.	6.10.	5.16.	6.10.	6. 6.
Total	48.14.	45. 6.	46.12.	48. 1.	48.10.	45.10.	49. 6.	47.11.
Labour	24. 4.	19. 9.	18. 5.	17.19.	17. 6.	16. 0.	16.10.	17.16.
Miscellaneous	11.18.	12.11.	12. 9.	12.15.	11.19.	11. 4.	11. 3.	12. 0.
Herd replacement	5.13.	3.19.	3. 2.	3.14.	3.17.	3.10.	3. 9.	3.13.
Credit (-)	4. 9.	4. 7.	4. 1.	4. 2.	4. 1.	4. 0.	3.19.	4. 2.
Net costs	86. 0.	76.18.	76. 7.	78. 7.	77.11.	72. 4.	76. 9.	76.18.
Returns	113. 7.	108. 7.	110. 6.	115.11.	114.10.	112.14.	115.12.	113. 2.
Margin	27.7	31. 9	33.19.	37. 4.	36.19.	40.10.	39. 3.	36. 4.

COSTS, RETURNS AND MARGINS PER COW BY YIELD GROUPS ON 54 EAST MIDLANDS FARMS 1951-52.

TABLE 2

Yield group	Food	Labour	Miscellaneous	Net Costs	Net Returns	Margin
Galls.	£	£	£	£	£	£
Less than 500	33.0	16.2	7.5	55.1	64.2	9.1
500-599	43.8	14.0	8.2	65.2	87.7	22.5
600-699	43.2	17.2	11.4	69.8	97.4	27.6
700-799	52.9	16.0	11.9	79.3	114.4	35.1
800-899	56.5	16.7	11.1	83.4	132.7	49.3
900-999	58.8	21.3	18.5	92.8	155.3	62.5
Over 1,000	67.7	22.1	22.6	106.7	170.9	64.2

COSTS, RETURNS AND MARGINS PER COW BY SEASONALITY OF PRODUCTION. ENGLAND AND WALES. 1951-52.

TABLE 3

Average seasonality	Average Yield (galls)	Net costs	Returns	Margin
Per cent of winter to total production		£.	£.	£.
33.1	646	66.6	94.1	27.4
38.2	622	64.4	92.3	27.9
42.4	685	71.4	104.1	32.7
46.2	739	78.5	113.7	35.2
49.8	747	78.4	116.9	38.5
53.6	736	78.8	115.7	36.9
57.6	740	76.1	117.1	41.1
64.2	729	83.5	118.8	35.3
49.9	727	76.9	113.1	36.2

SOURCE: National Investigation into the Economics of Milk Production.

COSTS, RETURNS AND MARGINS IN T.T. AND NON-T.T. HERDS IN ENGLAND AND WALES 1947-48 AND 1951-52.

TABLE 4

	T.T.		Non-T.T.	
	1947-48	1951-52	1947-48	1951-52
Number of herds	289	368	370	153
Number of cows	9,251	11,794	8,595	3,364
Av. no. of cows per herd	32.0	32.0	23.2	22.0
Gallons produced (000's)	6,062	8,766	5,245	2,252
Labour hours per cow	158	138	159	139
Gallons per labour hour	4.2	5.4	3.9	4.8
Seasonality - winter galls. per cent of year	47.4	50.1	46.5	49.4
Yields - galls. per cow	655	743	610	670
Costs and returns - per cow	£. s.	£. s.	£. s.	£. s.
Foods	20. 1.	48.19.	28. 1.	42.11.
Labour	15.15.	17.18.	15.10.	17.11.
Miscellaneous	9.13.	12.15.	7. 9.	9. 7.
Herd replacement	3. 7.	3.12.	4. 5.	3.15.
Gross farm costs	58.16.	83. 4.	55. 5.	73. 4.
Calves and manurial residues	3.11.	4. 3.	3. 3.	3.17.
Net farm costs	55. 5.	79. 1.	52. 2.	69. 7.
Returns	86.14.	117. 7.	73. 3.	98. 1.
Margin	31. 9.	38. 6.	21. 1.	28.14.
Per gallon	d.	d.	d.	d.
Net farm costs	20.23	25.52	20.50	24.87
Returns	31.75	37.90	28.78	35.16
Margin	11.52	12.38	8.28	10.29

SOURCE: Derived from National Investigation into the Economics of Milk Production 1951-52.

MARGINS PER COW AT VARIOUS LEVELS OF CONCENTRATE FEEDING. ENGLAND AND WALES 1950-51.

TABLE 5

Concentrates	MARGINS £			
	Under 459 galls.	730 - 819 galls.	910 - 1,000 galls.	All herds
Under 15 cwts.	12.63	42.16	66.43	29.0
15-24.9 "	8.41	41.08	62.33	34.97
25-34.9 "	-29.40	35.17	52.94	36.79
35 and over	-	23.78	45.14	35.26

SOURCE: National Investigation into the Economics of Milk Production.

(1) Includes Home grown and purchased concentrates.

DIFFERENCES IN CONCENTRATES FED PER COW IN EACH YIELD GROUP. ENGLAND AND WALES. 1950-51.

TABLE 6

Yield group	Average yield per cow	Average concentrates fed per cow.	Lbs. concentrates per gallon.
galls.	galls.	lbs.	lbs.
Up to 459	411	1,322	3.27
460-549	517	1,424	2.76
550-639	596	1,895	3.18
640-729	685	2,332	3.40
730-819	773	2,725	3.53
820-909	851	3,076	3.61
910+	1,035	4,112	3.97

LABOUR INPUTS BY SIZE OF HERD AND METHOD OF MILKING.

TABLE 7

Size of herd No. of cows.	Yield per cow (galls.)		Labour hours per cow	
	Hand milked	Machine milked	Hand milked	Machine milked
9.9 and less	686	677	229	178
10.0 - 19.9	651	703	205	152
20.0 - 29.9	826	699	202	150
30.0 - 39.9	663	707	209	137
40.0 - 49.9	830	747	216	135
50.0 - 59.9	574	756	172	124
60.0 and over	615	733	112	117
Average all herds	694	724	204	136

SOURCE: National Investigation into the Economics of Milk Production. 1950-51.

LABOUR FOR DIFFERENT HOUSING SYSTEMS - COWSHED v YARD.

(Man hours per cow per year)

TABLE 8

Group :-	Cowshed only	Yard & Cowshed	Yard & Parlour
Type of Machine :-	Bucket	Bucket	Releaser
Milking	75	80	65
Dairy work	26	24	23
Cleaning shed	26	16	13
Feeding	26	22	21
Other work	29	27	17
Total	182	169	139
Size of herd	37.8 cows	33.4 cows	39.1 cows
Yield per cow	733 galls.	705 galls.	732 galls.
No. of herds	40	18	16

SOURCE: Labour Organisation in Milk Production. University of Cambridge, Department of Agriculture, Farm Economics Branch. Report No. 32. February, 1949.

PERCENTAGE OF TOTAL TIME TAKEN UP BY DIFFERENT JOBS. ON 10 EAST MIDLANDS FARMS.

TABLE 9

Item	Per cent of total time
Milking	34.0
Feeding	16.0
Food preparation	8.0
Cleaning	10.0
Dairy work	11.0
Tying and releasing	4.0
Work on other stock	17.0
Total	100.0

SOURCE: Labour in relation to Economic Efficiency on Dairy Farms. J.S. Nalson. M.Sc., University of Nottingham School of Agriculture. Department of Agricultural Economics.

MISCELLANEOUS COSTS 1950-51.

TABLE 10

	Per cow £
Charge for cowshed and dairy buildings Dairy equipment repairs and depreciations Miscellaneous horse and tractor labour Share of general farm expenses	4.8
Milk machine expenses	1.1
Bull upkeep, service fees and artificial insemination	1.9
Veterinary fees and medicines Consumable dairy stores and general dairy expenses	3.6
	11.4

CATTLE REARING AND FATTENING - T.W.D. Theophilus.

Relative costs of Calf Rearing.

The following data are based on figures obtained from "Costs and Returns from Rearing Store Cattle on a number of Yorkshire Farms", University of Leeds, Department of Agriculture, Economics Section. Farmers' Report No. 99. June, 1951.

ITEMISED COSTS OF KEEPING INWINTERED COWS FOR SUCKLING DURING 1950 AS PERCENTAGE OF TOTAL COSTS.

TABLE 1

Method of Rearing	Average		
		Multiple Suckling	
	Single Suckling	Low Intensity	Medium Intensity
Number of herds	8	3	5
Number of cows	178	58	44
Calves reared per cow	0.95	1.74	3.99
Costs.	----------Per cent----------		
All foods	54.0	51.6	42.0
Grazing	19.0(1)	22.0	13.5
Man labour	15.5	19.0	21.8
Horse and tractor labour	1.6	1.7	.7
Herd depreciation	4.2	.8(2)	14.6
Overheads	3.9	4.8	5.8
Other costs	1.8	1.7	1.6
	100.0	100.0	100.0

(1) Includes cost of grazing by calf.
(2) Herd appreciation.

It will be noticed that the greatest expenditure in each case is on food. Labour costs are highest in the multiple suckling (medium intensity) system, this is because of the larger number of calves to be supervised.

If the costs of keeping cows for single suckling = 100, we find the cost per cow for multiple suckling (low intensity) = 91, and for multiple suckling (medium intensity) = 170.

The other costs of rearing are given in Table 2. On this basis total rearing costs per calf are - single suckling 100, multiple suckling (low intensity) = 80, multiple suckling (high intensity) 70, whilst bucket reared calves = 76.

ITEMISED COSTS OF REARING CALVES ON INWINTERED COWS UP TO SIX MONTHS OF AGE AT WEANING.

TABLE 2 Per cent

Items	METHOD OR REARING		
		Multiple Suckling	
	Single Suckling	Low Intensity	Medium Intensity
Number of herds	8	3	5
Number of calves	171	99	163
Costs per calf.	Per cent	Per cent	Per cent
Suckling costs	100	71.0	57.0
Foods : Hay		1.9	3.8
Roots		-	.2
Home grown concentrates		.6	4.5
Purchased concentrates		5.2	5.8
Total		7.7	14.3
Grazing		5.2	2.0
Man labour		.3	2.0
Cost of purchased calves		15.7	24.5
Overheads		.1	.2
	100	100.0	100.0

ITEMISED COST OF REARING CALVES ON THE BUCKET TO SIX MONTHS.

TABLE 3		Per cent Average
Number of farms		8
Number of cattle		113
Costs per calf.		Per cent
Foods:	New milk	23.4
	Separated milk	5.5
	Milk substitute	2.2
	Purchased concentrates	20.0
	Home grown concentrates	5.7
	Hay	2.2
Total		59.0
Man labour		17.0
Cost of calf		19.1
Overheads		4.3
Other costs		.6
Total		100.0

It is likely, however, that both bucket reared and multiple suckled calves will continue to cost rather less than single suckled ones for this initial period. The cost per calf appears to decrease as the number of calves reared per cow increases.

Grass Fattening.

The grazing areas of Leicestershire and Lindsey are very different and the place of cattle in the farm economy also differs. Table 4 summarises the result of a recent study in these two areas. Table 5 shows the Lincolnshire cattle to have been bigger and fed for a longer period. The average gain was 1.68 lbs. per day but the variation from farm to farm was very significant.

AVERAGE COSTS AND RETURNS OF GRASS FED CATTLE IN EAST MIDLANDS (LEICS. & LINCS.)1952 (1)

TABLE 4

	Leicestershire 23 herds	Lincolnshire 26 herds
Average no. of cattle per herd	27	21
	£. s. d.	£. s. d.
Cost of store cattle	56.12. 9.	59. 6. 3.
Value of fat cattle	67. 2. 6.	71.18. 6.
Feeder's margin	10. 9. 9.	12.12. 3.
Grazing costs*	3. 1. 0.	4.19. 6.
Other costs		
Shepherding	8. 5.	10. 6.
Feeding stuffs - Home grown	6. 4.	-
Purchased	-	-
Transport	3.10.	5. 2.
Droving and market dues	7.	4. 8.
Overheads	3. 3.	5. 1.
Miscellaneous	7.	5.
Total costs	4. 4. 0.	6. 5. 4.
Net margin	6. 5. 9.	6. 6.11.

* Including rent, cultivations, fertilisers, drainage, rates, etc.

GRASS FED CATTLE (LEICS. & LINCS.) 1952(1) WEIGHTS AND LENGTH OF FEEDING PERIOD.

TABLE 5

	Average per head	
	Leicestershire	Lincolnshire
Weight of store cattle	9cwts. 0qrs.	9cwts. 3qrs.
Weight of fat cattle	11cwts. 0qrs.	12cwts. 0qrs.
Weight gain	2cwts. 0qrs.	2cwts. 1qr.
Length of grazing period	129 days	143 days
Average weight increase per day	1.68 lbs.	1.68 lbs.

(1) SOURCE: Grass Fed Cattle Investigation 1952. Dept. of Agricultural Economics, University of Nottingham, Farmers' Report F.R.123.

GRASS FED CATTLE (LEICS. & LINCS.) 1952. MAIN ITEMS OF COSTS.

TABLE 6

	Leicestershire	Lincolnshire
	Per cent	Per cent
Grazing costs	5	8
Other costs	2	2
Cost of store	93	90
	100	100

It will be seen from Table 6 that the cost of store cattle is by far the most important item. So buying of good store cattle cheaply is one of the secrets of successful fattening of cattle. The other costs are insignificant when compared with the cost of the store animal.

Winter Fattening of Cattle in Yards.

In mixed farming systems, cattle feeding is undertaken with two main objectives, viz: (1) To produce net revenue by (a) converting into saleable products fodder crops and roughages which might otherwise be unsaleable and (b) producing F.Y.M. for maintaining soil fertility, especially where arable crops are a major source of revenue and (2) to regularise the demand for labour throughout the year by balancing winter demand against the Spring and Autumn peaks.

Over many years, costings of winter fed cattle have seemed to show that there has been little, if any, direct net profit from this side of farming and since cattle feeding has continued, it must be concluded that apart from direct net revenue sufficient indirect revenue has been earned to justify the continuance of cattle feeding.

SUMMARY OF AVERAGE COSTS AND QUANTITIES OF FOOD PER HEAD FOR YARD FATTENED CATTLE, 1951-52(1)

TABLE 7

	Quantity per head	Food charged on cost of Production basis	Saleable food charged on Market Price basis
		£. s. d.	£. s. d.
Value of store beast	-	55.18. 4.	55.18. 4.
Foods	cwts.		
Roots and silage	58.00	5.14. 2.	5.14. 2.
Hay	16.00	3.13. 7.	9.11. 0.
Straw	3.00	4. 9.	4. 9.
Oats	2.93	1.16. 1.	3.14. 4.
Beans	0.34	4. 9.	13. 8.
Barley	0.34	5. 2.	8. 9.
Mixed corn	0.11	1. 7.	2.11.
Purchased concentrates	0.64	19. 5.	19. 5.
Total foods	-	12.19. 6.	21. 9. 0.
Labour and power	-	2. 6.11.	2. 6.11.
Miscellaneous charges	-	3.10.	3.10.
	-	71. 8. 7.	79.18. 1.

RETURNS, COSTS AND MARGINS PER HEAD, GRADED CATTLE ONLY AND ALL CATTLE(1)

TABLE 8

	Graded cattle only (Bullocks)		All cattle (Bullocks)	
	Returns with food charged on:-			
	Cost of production basis	Market price basis	Cost of production basis	Market price basis
	£. s. d.	£. s. d.	£. s. d.	£. s. d.
Average return	80.14. 6.	80.14. 6.	80. 0. 4.	80. 0. 4.
Cost of store	58.11. 5.	58.11. 5.	58.11. 5.	58.11. 5.
Gross feeding margin	22. 3. 1.	22. 3. 1.	21. 8.11.	21. 8.11.
Costs, feeds etc.	15.10. 3.	23.19. 9.	15.10. 3.	23.19. 9.
Net margin	6.12.10.	-1.16. 8.	5.18. 8.	-2.10.10.

(1)SOURCE: D.H. Dinsdale and S. Robson. Costs and Returns from Yard Fattened Cattle 1951-52. University of Durham, King's College, Newcastle. Report G.42. September, 1952.

Had the marketable foods been charged at average prices the effect would have been to turn the average net margin from a positive one to a negative one. This is merely transferring the margin from the cattle to the crops. The financial effect to the farm as a whole is precisely the same in either case.

General Information.

	Percentage of Total Cost
Store	79
Total foods	18
Labour	3
	100
Finished liveweight	11.67 cwts.
Store weight	10.35 cwts.
Liveweight gain	1.32 cwts.
Feeding period	105 days
Daily increase	1.4 lbs.

The main function of winter feeding cattle is the production of farm yard manure, and as already stated, winter fed cattle do not seem a very profitable enterprise as regards direct net revenue. Therefore an alternative method of obtaining farm yard manure is to keep store cattle through the winter in yards, and then finish these cattle off on grass in the summer. Approximately six cwts. of farm yard manure per week is an average production from yard fed cattle, i.e. about 4½ tons per head for a feeding period of 15 weeks.

COSTS AND RETURNS FROM WINTERING STORE CATTLE AND FINISHING ON GRASS (ESTIMATED BUDGET)

(Inside Feeding 120 days - Grazing 120 days)

TABLE 9

		£. s.
Value of store cattle		45. 0.
Foods	Daily Ration	
Meadow hay*	20 lbs.	6. 0.
Oats, barley, etc.*	4 lbs.	5. 7.
Labour, power, etc.		2.10.
Total cost		58.17.

* Cost of foodstuff based on Market Value.

The daily ration used above supplies 21 lbs. dry matter, 9 lbs. starch equivalent and 1.2 lbs. protein equivalent. The maintenance requirement is 5.5 lbs. starch equivalent, so that the balance available for production would be 3.5 lbs. sufficient for fully 1½ lbs. live weight increase.

Weight of store cattle in Autumn	8 cwts.
Inside feeding	120 days
Average daily increase in weight	1½ lbs.
Weight increase	180 lbs.

Therefore the store cattle would be turned out on to grass in the Spring for fattening at approximately 9½ cwts.

SPRING FINISHING ON GRASS (ESTIMATED BUDGET)

TABLE 10

	£. s. d.
Cost of store beast in the Spring	58.17. 0.
* Grazing costs	3. 1. 0.
* Other costs	1. 3. 0.
Total costs	63. 1. 0.
Cattle sold @ 11½ cwts. @ £6. 4s. 0d. per cwt.	71. 6. 0.
Margin	8. 5. 0.

* SOURCE: Grass Fod Cattle Survey, 1950. University of Nottingham, Dept. of Agricultural Economics, Sutton Bonington.

By this method of wintering store cattle and fattening off on grass, one is able to buy store cattle when the demand for them is not so great, and reasonable stores may be bought cheaper than in the Spring when the demand for them is greater. The disadvantage of this system of fattening is that the cattle are sold off the farm in the Summer when the price paid for fat cattle is at its lowest.

This method should give a greater margin of profit than the classical method of finishing the cattle during the winter in yards. A comparison of the results of this estimated budget, and the figures given by the Durham University Report on Winter Fattening of Cattle, shows that, by wintering stores and fattening on grass a profit margin of £3. 5s. 0d. may be obtained, whilst winter fattening shows a loss. (Foodstuffs in both cases being charged on market price basis.)

This method, therefore, has the advantages of both systems:-

1. Farm yard manure is produced by the store cattle in Winter.
2. Labour is utilised profitably during the slack Winter months.
3. Store cattle use up fodder crops and roughages.
4. Cheap fattening on grass in the summer.

On the debit side is the possibility that the manurial value of farm yard manure produced by store cattle may not be as great as that produced by cattle being finished off on a high plane of nutrition on purchased feeds.

Choosing the Most Economical Feed for Winter Fattening.

On an average about 80 per cent of the costs involved in winter fattening of cattle represent charges incurred on foods. To make winter fattening of cattle a more profitable enterprise it is necessary to discover possible methods of reducing the cost in feeding of beef cattle. Instead of feeding expensive purchased concentrates, the possibility of introducing home grown concentrates ought to be considered.

Some alternative rations are set out in Table 11. These rations are suitable for 9 cwts. bullocks, and designed to meet maintenance requirements and 2 lbs. live weight gain per day. The rations set out in the table are the average requirements, and will have to be adjusted from week to week. The dry matter content of some of the rations are on the low side, but this can be remedied by the animals utilising bedding straw to satisfy their appetite.

The costs of different foodstuffs included in the rations are based on national average costs of production and yields. In the last column, the gross margin over feed costs when the food used is charged at market value is given. In both examples the gross margin varies from a negative gross margin for Ration 1 to a positive one for Rations 5 and 6. Efficient farmers would obtain much higher yeilds amd incur lower costs of production.

FOOD REQUIREMENTS AND COSTS OF 10 BULLOCKS

TABLE 11

Ration	Total requirements	Yield per acre	Acreage equivalent required	Total food costs
	tons	tons		£
1. Hay	13.39	1.45	4.61(1)	
Bought cake	5.86	-	-	
			4.61	294.87
2. Hay	5.36	1.45	1.85(1)	
Swedes	26.11	12.72	2.05	
Dried sugar beet pulp	5.36	-	-	
Oats and beans (1:2)	2.68	.98	2.73	
			6.63	248.81
3. Hay	5.36	1.45	1.85(1)	
Mangolds	76.33	26.03	2.93	
Oats and beans (1:2)	3.35	.98	3.42	
			8.20	225.81
4. Oat straw	7.37	-		
Arable silage	33.48	6.71	4.99	
Crushed oats	1.34	1.05	1.28	
Dried grass	3.35	1.00	1.67	
			7.94	198.20
5. Grass silage 1st quality	58.92	4.05	7.27(1)	
Grass silage 2nd quality	14.73	4.05	1.82(1)	
			9.09	160.56
6. Hay	5.36	1.45	1.85(1)	
Marrowstem kale	42.85	19.94	2.15	
Oat straw	4.69	-	-	
Oats and beans (1:2)	2.68	.98	2.73	
			6.73	160.31

SOURCE: V.H. Beynon. Increased Production of Beef "Agriculture" April, 1953.

FOR 150 DAYS AND ESTIMATED GROSS MARGIN.

Assumed cost of stores	Cost of food & stores	Total receipts from fat cattle	Gross margins over feed costs per bullock			
			Total	Per acre equiv-alent	Per bullock	Food charged at Market Value
£	£	£	£	£	£	£
500	794.87	781.87	-13	2.82	-1.3	-7.47
500	748.81	781.87	33.06	4.99	3.31	-3.31
500	725.81	781.87	56.06	6.84	5.61	-2.02
500	698.20	781.87	83.67	10.54	8.37	- .85
500	660.56	781.87	121.31	13.35	12.13	6.4
500	660.31	781.87	121.56	18.06	12.16	6.5

(1) In the case of hay and silage only hay acreage is included, as it is assumed that fields are available for grazing soon after hay harvest.

PIGS - R.W.T. Hunt.

Capital Costs.

Expenditure on both working and fixed capital shows very wide variations from farm to farm. Working capital will depend mainly on the price paid for breeding stock and the amount of purchased feeding stuffs used. Fixed capital will depend mainly on what buildings are available.

Specimen prices for new housing.

Pig farrowing units £40 - £50 per hut

Fattening houses with run, for 15 fatteners £150

These could be used to fatten three lots of 15 per year allowing 17 weeks per lot.

These are the main items of fixed capital expense, but there are others such as weighing scales, pig rings, electric fencing, etc.

Feed requirements.

(i) Breeding sows require 25 cwts. of meal per year (including creep feed and share of boar's ration).

(ii) Fattening pigs will require $6\frac{1}{2}$-7 cwts. meal each from weaning (32 lbs. l.w.) to bacon weight (212 lbs. l.w.) 1 lb. of meal = 4 lbs. of potatoes = 5 lbs. of fodder beet. Fodder beet and potatoes can be used to replace 2-$2\frac{1}{2}$ cwts. of meal, but a higher proportion of protein would be needed to balance the ration.

Alternative Methods of Feeding.

1. Home produced meal.

Barley meal	450 lbs.
Weatings	220 lbs.
White fish meal	40 lbs.
Grass meal	40 lbs.
Total	750 lbs. (6½ cwts.)

2. Home produced meal and fodder beet.

Barley meal	270 lbs.
Weatings	132 lbs.
White fish meal	64 lbs.
Grass meal	24 lbs.
Total	490 lbs.
Plus fodder beet	12 cwts.

3. Home produced meal and cooked potatoes.

Barley meal	250 lbs.
Weatings	120 lbs.
White fish meal	58 lbs.
Grass meal	22 lbs.
Total	450 lbs.
Plus cooked potatoes.	10 cwts

Production efficiency factors.

Breeding. Standards of efficiency vary considerably. The figures shown below give some idea of average standards.

LITTER AVERAGES.

TABLE 1

Litters per sow per year	1.65
Pigs born alive per litter	9.2
Pigs born alive per sow and gilt per year	15.2
Pigs weaned per litter	7.5
Pigs weaned per sow per year	12.5

SOURCE: Cambridge University Farm Economics Branch. Based on Pig Costings Reports 1952 etc.

Labour. One man can look after 25 to 40 breeding sows and fatten the litters to bacon weight. The number will depend mainly on the system used.

POSSIBLE COSTS, RETURNS AND MARGINS OF ONE MAN, 30 SOWS, BREEDING AND FATTENING UNIT.(1)

TABLE 2

Costs	£	Returns	£
Food			
Sows 30 x 25 cwts. @ 32s. cwt.	1,200	Sale of bacon pigs 355 @ £20 (8 sc. @ average of 50s. 0d. per score.)	7,100
Baconers 360 x 7 cwts. @ 32s. cwt.	4,032		
Labour 1 man and casual	500		
Other expenses			
Depreciation of stock, equipment, vet., etc.	400		
Margin	468		
	£7,100		£7,100

(1) Costs and returns on individual farms will vary from those shown here. Some farmers may have lower food costs, other a higher average price per pig. The account shown here is just an illustration of how probable profit can be estimated.

POULTRY - R.W.T. Hunt.

The figures in the following section are based on the financial results of 36 poultry flocks on general farms in Lincolnshire and Nottinghamshire in the season 1951-52. The standards given here are based on average figures and mask considerable variations. However, a table is included to show the effect of the factors responsible for most of the larger variations in profits, namely production, price of eggs, and price of food.

The budget calculations at the end are included, not to indicate practices profitable at present as these vary according to individual circumstances, but to show in a simple way how calculations can be made to help to predict the effect of changing economic conditions.

Rearing.

(a) Working Capital 18s. a bird to rear to point of lay.
(b) Food Required 1 cwt. for every four birds reared.
(c) Costs (per bird)

	s.	d.
Food	10.	0.
Labour	2.	6.
Depreciation etc.	1.	6.
Cost of chick	4.	0.
	18.	0.

Egg Production.

(a) Capital Required. 5s. 0d. to £2. per bird for housing depending on type of house.
(b) Food 100 to 140 lbs. a bird per annum.(1)
(c) Costs

	shillings
Feed	25-40
Bird depreciation	9
Equipment depreciation	2
Labour	6
Other expenses	1
	43-58

(1) Free range birds would consume the least food, and battery birds the most.

Possible Costs, Returns and Margins given various prices of feed and eggs.

In Table 1 below costs other than feed are held at 18s. 0d. i.e. - (Bird depreciation 9s. 0d., Labour 6s. 0d., Equipment depreciation 2s. 0d., Other expenses 1s. 0d.).

The table assumes that:-

1. A hen will eat 120 lbs. of food a year.

2. Income from eggs is the sole source of income, sale of birds being included against the charge of bird depreciation.

TOTAL COSTS in each column is the cost of 120 lbs. of food plus the charge of 18s. 0d. for "other costs".

TOTAL RECEIPTS are arrived at by multiplying the production by the price of eggs.

There will be variations from the standards as shown in Table 1 on page 53, some may have lower labour costs, others higher bird depreciation, and perhaps the biggest variation will be in the amount of food consumed. However, this will depend mainly on the system practised, and if we assume that birds in batteries will consume 140 lbs. of food and those on range 100 lbs., this means that an addition or deduction of 5s. 0d. a bird would be a fairly reasonable correction to the standard cost of food per cwt.

POSSIBLE MARGINS FOR COMMERCIAL EGG PRODUCTION, COSTS, RETURNS AND MARGINS IN SHILLINGS PER BIRD PER YEAR.

TABLE 1

Price of 1 dozen eggs	Cost of 1 cwt. food	PER CENT PRODUCTION (360 EGGS = 100%) or Dozens of Eggs per Bird per Year								
		40% or 12 dozen			50% or 15 dozen			60% or 18 dozen		
		Total cost	Total receipts	Margin	Total cost	Total receipts	Margin	Total cost	Total receipts	Margin
3s.6d.	25s.	45	42	-3	45	52	+7	45	63	+18
	30s.	50	42	-8	50	52	+2	50	63	+13
	35s.	56	42	-14	56	52	-4	56	63	+7
	40s.	61	42	-19	61	52	-9	61	63	+2
	45s.	66	42	-24	66	52	-14	66	63	-3
4s.0d.	25s.	45	48	+3	45	60	+15	45	72	+27
	30s.	50	48	-2	50	60	+10	50	72	+22
	35s.	56	48	-8	56	60	+4	56	72	+16
	40s.	61	48	-13	61	60	-1	61	72	+11
	45s.	66	48	-18	66	60	-6	66	72	+6
4s.6d.	25s.	45	54	+9	45	67	+22	45	81	+36
	30s.	50	54	+4	50	67	+17	50	81	+31
	35s.	56	54	-2	56	67	+11	56	81	+25
	40s.	61	54	-7	61	67	+6	61	81	+20
	45s.	66	54	-12	66	67	+1	66	81	+15
5s.0d.	25s.	45	60	+15	45	75	+30	45	90	+45
	30s.	50	60	+10	50	75	+25	50	90	+40
	35s.	56	60	+4	56	75	+19	56	90	+34
	40s.	61	60	-1	61	75	+14	61	90	+29
	45s.	66	60	-6	66	75	+9	66	90	+24

Some Management Problems.

1. Are food costs being covered?

As food cost is the most important expense which can be reduced by culling, it is useful to know the number of eggs which a hen must lay in a month to cover its food cost.

Assuming one hen eats 1 cwt. of food a year.
12 hens eat 1 cwt. of food a month.
∴ $\frac{\text{Cost of 1 cwt. food}}{\text{Price of dozen eggs}}$ gives the number of eggs a hen must lay in a month to cover food cost.

e.g. $\frac{32s.0d.}{4s.0d.}$ = 8 eggs a month to cover food cost.

2. When to cull.

The main points to consider are:-

1. Change in value of the birds.
2. Food cost.
3. Estimated future production and price of eggs.

A simple calculation can then be made to find out if it will pay to keep the birds.

e.g. What will the additional costs and returns be for keeping birds from April 1st. to September 1st. instead of selling out?

Additional Expenses per bird.	£. s. d.	Additional Receipts per bird.	£. s. d.
Change in value (15s. 0d. to 10s.0d) of birds including mortality	5. 0.	Sale of eggs 8 dozen at 3s. 9d.	1.10. 0.
Food cost ½ cwt.	17. 0.		
Margin	8. 0.		
	£1.10. 0.		£1.10. 0.

Keeping older birds in the flock.

The main points to consider are:-

1. The saving in cost of replacements.
2. The reduction in egg production.

If we assume similar rates of mortality for hens and pullets, then a pullet costing 18s. 0d. to rear and worth 10s. 0d. after one laying season, can be compared with a hen worth 10s. 0d. at the beginning of her second season and 9s. 0d. at the end. This represents a 7s. 0d. difference in bird depreciation of the two birds and therefore a saving of 7s. 0d. on replacement.

Translated into terms of eggs, this difference is equal to about 20 eggs at 4s. 0d. a dozen, and the reduced production of the second season birds should not be greater than 20 if the the two classes of birds are to make similar profits.

Based on unculled flocks the reduced production is usually about 20 per cent or 36 eggs for a 180 egg bird, but the difference could be narrowed with rigorous culling.

The Christmas Market.

Hens kept on until Christmas may be expected to show an appreciation so that a profit may be possible even if food costs are not covered by sales of eggs.

e.g. Possible Returns from October 1st. to Christmas.

Additional Expenses	s. d.	Additional Income	s. d.
Food ¼ cwt.	8. 6.	Sale of eggs 1½ doz. @ 4s. 6d.	6. 9.
		Bird appreciation (10s. 0d. to	
Margin	4. 3.	16s. 0d.)	6. 0.
	12. 9.		12. 9.

Similarly a calculation can be made to see if it would be worth while keeping birds on to sell at Easter. In this case egg production would probably be higher, but the price of culls lower.

In these calculations labour cost has been left out, not because it is unimportant, but because the labour cost would probably be incurred in any case. However, if there is an alternative use for labour such as rearing pullets or other work then labour should be charged, as an additional expense.

SHEEP ON ARABLE FARMS - R.O. Wood.

In the East Midlands most of the sheep on arable farms are on the light land and are concentrated in three areas, the Nottinghamshire Sands, the Lincolnshire Wolds and the Lincolnshire Limestones. Generally a ewe flock is maintained to breed lambs for folding on green crops, roots and beet tops. The best ewe lambs are retained for flock replacements and the remainder of the lambs sold fat. The following data are based upon an investigation made in these areas in 1949-50 to 1951-52.

Flock Maintenance and Disposal of Ewes and Lambs.

Three basic policies are assumed,

(a) all replacements are home bred,
(b) a portion of the ewes are replaced by purchases, (commonly adopted in flocks with a longwool foundation or to save keeping gimmers during the summer),
(c) all replacements are purchased, (commonly adopted in flocks of hill-type ewes).

In the following tables, three columns are given, headed a, b and c respectively, to give the data when it differs according to the policy adopted.

Annual Changes in Breeding Flock	Per 100 ewes		
	(a)	(b)	(c)
Ewes retained from previous season	70	70	70
Replaced by: purchased gimmers	-	15	30
home bred gimmers	30	15	-
	100	100	100

Ewes sold fat and cull	10	
Ewes casualties and deaths	10	
Ewes culled to feeding flock	10	30

Rams. One kept for every 30 to 40 ewes and will be used from two to four seasons, depending upon size of flock and ewe replacement policy.

Lambs Produced	Per 100 ewes
Lambs tailed in April	125
Casualties and deaths April to October	7
Lambs put into folding flock	118

Folding Flock	Per 100 ewes			Per 100 folded sheep		
Incoming	(a)	(b)	(c)	(a)	(b)	(c)
Home bred lambs	118	118	118	83	88	92
Cull gimmers	15	7	-	10	7	-
Cull ewes	10	10	10	7	5	8
	143	135	128	100	100	100
Disposals						
Fat gimmers & ewes	25	17	10	17	12	8
Fat lambs	69	92	114	48	69	89
Lambs retained for flock replacements	45	22	-	32	16	-
Casualties and deaths	4	4	4	3	3	3

Weights and Prices

Purchases	per head
Gimmers for breeding flock	£8 - £12
Lambs for feeding	£5 - £7
Cull ewes to feed	£5 - £6
Wethers to feed	£6 - £8

Sales	Estimated dressed carcase weight	Value at 1953-54 prices
	lbs.	£. s.
Fat ewes (Nov.)	90	6. 5.
Fat wethers (Jan.)	85	10.13.
Fat lambs (hoggs)		
January	70	9.13.
March	70	10. 7.
May	75	11. 5.
Early fat lambs		
June	50	7.10.

	Per fleece	
	Weight	Value
Wool		£.s. - £.s.
Downs & hill sheep	6-9 lbs.	1.5. - 2.5.
Longwool sheep	10-13lbs.	2.0. - 3.0.

Note: The guaranteed average price per lb. for wool is 4s. 6d. but the return per fleece varies according to quality and type.

FEED REQUIREMENTS.

Breeding Flock. Per 100 ewes.

The feed requirements are given for the sheep flock, i.e. ewes, rams and summer keep for gimmers retained for flock replacements, under system (b). Ley and permanent grass requirements should be raised or lowered slightly for systems (a) and (c).

	Per 100 ewes per annum	
	Quantity	Acres
Food:-		
Purchased concentrates (Mainly beet pulp and compound cake)	40 cwts.	-
Home grown grain (mainly oats)	40 cwts.	1½
Hay	15 cwts.	½
Mangolds	25 tons	1
Folded crops	75 tons	5
(Beet tops may be substituted at 6 tons per acre)		
Leys	-	32
Permanent grass	-	10
Total	-	50

Notes:- 1. Mangolds are usually grown solely for the ewes.
2. Folded crops and beet tops. Ewes act as scavengers after feeding sheep. This is the estimated acreage consumed.

Feeding Flock. Per 100 sheep

There is a tendency to allow the sheep available to eat the feed available and to adjust the daily level of concentrate feeding so that the sheep are fat when the folded crops are finished. The following data assumes an average crop of mixed turnips and kale is available when the sugar beet tops are finished

	Per 100 sheep per season	
Food:-	Quantity	Acres
Purchased concentrates (Mainly beet pulp & compound cake)	40 cwts.	-
Home grown grain (mainly oats)	30 cwts.	1
Hay	10 cwts.	$\frac{1}{4}$
Beet tops	40 tons	$6\frac{1}{2}$
Folded crops	100 tons	$6\frac{1}{2}$
Grazing	Aftermaths	-
		$7\frac{3}{4} + 6\frac{1}{2}$ acres Beet tops

Notes: Folded crops are not intensively cultivated, cleaning operations being fewer and the usual fertiliser application 5 to 8 cwts. compound root fertiliser and no dung.

LABOUR REQUIREMENTS.

Flocks under 150 ewes.

These flocks are generally shepherded by the farmer, manager or foreman as a part time job with some help from the regular farm labour.

Flocks over 200 ewes.

These flocks require the services of a full time shepherd during the months October to April with other help according to the size of flock. During the months May to September the shepherd often looks after the grazing cattle as well as the sheep.

	Breeding sheep	Feeding sheep
	Hours per 100 sheep per annum	Hours per 100 sheep per season
Small flocks (under 150 ewes)	900	300
Large flocks (over 150 ewes)	750	240

CROPS.

The main object of this section is to present information which will help in forecasting the most likely results of changes in cropping programmes. Such forecasts involve estimating extra costs and extra receipts, along with any savings in costs or reductions in receipts. Overhead costs such as rent, and any other items which will not be affected by the change, can be ignored. The costs which vary directly with acreage, such as fertiliser and seed, must always be considered. And for some changes it may be important to consider costs which do not vary directly with acreage - for example when considering the introduction of a new crop the cost of any new equipment required must be taken into account. Notes have, therefore, been included on both the variable costs and the capital costs of various crops. There are also notes on alternative practices, such as planting potatoes by hand and by machine.

Changes in cropping programmes may have far-reaching effects on the organisation of the farm as a unit. Owing to the interdependence of many farm enterprises, changes in one section of the farm may cause, or call for, related changes in other sections. Some notes are also included, therefore, on such things as seasonal labour requirements and the availability of by-products.

General Information.

1. Tractor Running Costs.

	s. d.
Fuel, grease etc.	2. 0. per hour
Repairs and maintenance	9. per hour
	2. 9. per hour

2. Fertilisers.

Fertiliser Prices[1] (six ton lots, delivered buyer's station)

TABLE 1

per ton

Fertiliser	N	P_2O_5	K_2O	Price	Subsidy	Net Price
	%	%	%	£. s. d.	£. s. d.	£. s. d.
Sulphate of Ammonia	20.6	-	-	17. 1. 6.	3. 3. 0.	14.18. 6.
Nitrate of Soda	16	-	-	26.12. 6.	2. 8. 0.	24. 4. 6.
Nitrate of Potash	15	-	10	29. 2. 6.	2. 5. 0.	26.17. 6.
Nitro-chalk	15.5	-	-	15.14. 0.	2. 7. 0.	13. 7. 0.
Muriate of Potash[2]	-	-	50	15.17. 0.	-	15.17. 0.
	-	-	60	18.12. 0.	-	18.12. 0.
Sulphate of Potash[2]	-	-	48	21.10. 6.	-	21.10. 6.
Superphosphate - powder	-	18	-	12.17. 0.	4.17. 0.	7.12. 0.
granular	-	19	-	13.19. 6.	4.17. 0.	9. 2. 6.
triple	-	48	-	36.18. 9.	13. 0. 0.	23.18. 9.
Basic slag - range from	-	7	-	4.18. 6.	1.12. 6.	3. 6. 0.
to	-	22	-	12.10. 0.	3. 4. 0.	9. 6. 0.
Compounds	7	7	10½	17.15. 6.	3. 5. 3.	14.10. 3.
	9	9	15	22. 7. 6.	4. 3. 7.	18. 3.11.
	6	9	6	16.13. 0.	3.14. 8.	12.18. 4.
	9	18	-	23.15. 0.	7. 1. 6.	16.13. 6.
	5	12½	10	19.10. 0.	4.13. 9.	14.16. 3.
	-	16	16	19. 9. 0.	5. 1. 6.	14. 7. 6.
	7	6½	20	20. 9. 0.	3. 0. 4.	17. 8. 8.
	12	12	15	25.14. 0.	5.13. 9.	20. 0. 3.

(1) Prices ex importers' store.

(2) Rebates for early delivery are allowed on many fertilisers.

MAINCROP POTATOES.

Variable Costs per Acre.

1. Seed. 20 cwts. ($1\frac{1}{2}$" x $2\frac{1}{2}$") per acre, in 28" rows and 15"-16" spacing. With larger seed an increased weight per acre is needed even though spacing may be increased up to 21".

   Price per ton - about £20, varying with certificate, variety, delivery date and cost of carriage.

2. Fertiliser.(1) Rough recommendations for the East Midlands are as follows:-

   Straight fertlisers:-

	S. of A.	Supers	M. of P.
Low rainfall	6 cwts.	4 cwts.	3 cwts.
Medium rainfall	5 cwts.	4 cwts.	3 cwts.

   A compound fertiliser with an N, P_2O_5, K_2O analysis of 7:$6\frac{1}{2}$:20 is available - 10 cwts. per acre would give amounts of phosphate and potash similar to the above recommendations, but if this is used it may be advisable to apply extra nitrogen.

3. Tractor running costs. 20 hours.

4. Casual labour. see Appendix II.

5. Copper spraying. Materials - £1 per application.

6. Haulm destruction. Contract acid spraying - £3.10s. 0d. to £4. 0s. 0d. Sodium chlorate - 15 lb. - approx. cost £1.

(1) The most profitable application depends on soil type and previous manurial treatment, and varies with changes in the relative prices of potatoes and fertilisers. The suggested applications are based on present prices and average responses for the East Midlands.

Capital Costs.

Ridgers	from £15 to £60
Planters 2 row (extra to ridger)	from £30
3 row (complete with ridger)	from £150 to £200
P.t.o. spinner	from £50 to £90
1 row elevator digger	from £200 to £300
Complete harvester	from £800 to £1,200

Alternative Planting Methods.(1)

	Man hours per acre.
Hand	15 to 20
2 row planter	9 to 12
3 row planter	8 to 9

With a two-row machine three or four men can plant ½ acre an hour, and with a three-row machine four or five men can plant two-thirds of an acre in an hour. A gang of 10 may be required to plant two-thirds of an acre an hour by hand.

Points to consider are:

(i) Saving in labour costs, e.g. overtime or casual labour.

(ii) Value of timeliness - after mid-April yields may drop by 3½cwts. per acre for each day by which planting is delayed.(2).

(iii) Depreciation and interest on capital for the machine.

---

(1) Based on N.A.A.S. Technical Report No.2. "Machinery and labour in Potato Planting."

(2) J.D. Ivins and N. McDermott, "Agriculture" January, 1949.

(iv) Method of fertiliser application - 10 cwts. broadcast over ridges (hand-planting) or in a band below potatoes (machine attachment) is as effective as 14 cwts. broadcast before ridging, which may be necessary if the machine has no fertiliser attachment.

Alternative Harvesting Methods.

LABOUR REQUIRED FOR HARVESTING POTATOES WITH COMPLETE HARVESTER, ELEVATOR DIGGER AND SPINNER.(1)

TABLE 1

	Complete harvester (chain type)	1-row elevator digger	P.t.o. spinner
Soil	Black fen	Black fen	Black fen
Average yield (tons per acre)	12.9	12	13
Size of picking and loading gang	2-4	9-10	9-12
Labour requirements	Man hours per acre	Man hours per acre	Man hours per acre
Lifting and picking	9.9	18.8	30.5
Carting	5.9	7.3	8.9
Clamping	3.3	6.3	6.5
Harrowings, etc.	2.8	4.3	2.2
Total	21.9	36.7	48.1

(1) "Farm Mechanization Costs and Methods." by Claude Culpin. Table 22.

Whatever method of harvesting is adopted, careful attention to correct setting of harvesters and supervision of labour is worthwhile - it is estimated that on average ¾ ton of ware per acre is left in the ground after lifting.

Storage.[1]

Shrinking due to water-loss and respiration may be three or four per cent by March and 10 per cent by mid-May. Loss of weight in the form of sprouts varies between varieties and increases rapidly with increased temperature and ventilation - say four or five per cent by mid-May. Loss due to disease and rotting is very variable - apart from direct loss due to rotting, the heat produced causes high losses from sprouting and evaporation.

These losses are similar in clamps or buildings. The chief advantage of buildings is that grading is done more quickly and easily and is independent of the weather. But where storage is in clamps, some degree of independence from the weather can be obtained by using waterproof sheets on movable pole frameworks. The case of grading in buildings must be set against the distance which potatoes may need to be hauled at lifting time and the cost of providing a suitable building, i.e. one in which loading and unloading can be done easily (insulation can be provided by the use of straw).

General Considerations.

1. Considerable variations in yields from year to year - not under farmer's control.

2. Considerable yield variations in same year from farm to farm, due to the fact that a high standard of husbandry is required to obtain high yields.

3. Dung applied to potatoes gives more valuable response than when applied to any other farm crop. The average response (in presence of fertilisers) is 1.4 tons per acre or about 16 per cent of the yield without dung. Straw ploughed in during the previous autumn may increase yield by $\frac{1}{2}$ ton per acre, and straw ploughed in a year earlier than this may increase yield by one ton per acre.

(1) Food Investigation Leaflet No.16 - Department of Scientific and Industrial Research. H.M.S.O.

4. Use of chitted seed can be expected to increase yields by about one ton per acre. Cost of chitting trays - about £5 for 60 trays (one ton of seed). A chitting house 17' to 20' wide and 9' to the eaves will take one ton of seed per foot run. Cost - about £33 per foot run, including heated apparatus. Conversion of existing buildings may be possible much more cheaply.

5. Straw for clamping - one ton straw to 25 tons potatoes.

6. By-product - pig potatoes - yield varies from 5 cwts. to 2 tons per acre, and is often one ton or more.

SUGAR BEET.

Variable Costs per Acre.

1. Seed. 8lbs. per acre rubbed and graded seed at 2s. 9d. per lb.

2. Fertilisers.(1) Three to five cwts. salt normally increases yield by ½ ton to one ton per acre and makes potash unnecessary except on deficient soils.(2) Three or four cwts. sulphate of ammonia normally increases yield by 1¼ to 1½tons and on fertile soils five to six cwts. can be expected to give an economic response. Response to phosphate is usually low - on some soils phosphate need not be given, and except on phosphate deficient soils the optimum dressing is no more than two to three cwts. superphosphate.

3. Tractor Running Costs. 15 to 20 hours.

---

(1) See footnote, page 62.
(2) When potash is omitted, the following crop may require extra potash, but a worthwhile overall saving may be made.

4. Casual labour. See Appendix II.

5. Transport. up to 15s. 2d. per ton[1]

Capital Costs.

Steerage Hoe - from £60 to £120.
Lifting bodies - about £10-£15 per row, plus toolbar (£20)
Toppers - single row - about £60
four-row - about £140
Top-savers (elevator type) - about £285
Small lifters - single row - about £120
Combined toppers and lifters - from £400-£800.

Date of Drilling and Date of Singling.

Singling is best done when plants have two or four true leaves. Drilling of part of the crop is sometimes delayed so that a larger proportion of the crop may be singled at this stage. But crops drilled in late March or early April remain in the two to four leaf stages longer than do crops drilled later, and the reduction in yield caused by late drilling may be greater than would have been caused by late singling - at the Norfolk Agricultural Station beet sown in early April can be expected to yield two tons per acre more than beet sown in early May. The reduction in yield due to late singling is shown in Table 1.

TIME OF SINGLING AND YIELD OF BEET - AVERAGE RESULTS 1935 AND 1936.[2]

TABLE 1

Singling stage	Yield of washed beet (tons per acre)	Plant Population
2 True leaves	13.5	30,300
1 week later	13.3	31,900
2 weeks later	12.8	35,600
3 weeks later	12.1	33,600

(1) Excess paid by factory.
(2) From "Sugar Beet Cultivation", Bulletin No. 153. Ministry of Agriculture and Fisheries.

The rate of singling can be increased by up to 10 per cent by the use of rubbed and graded seed. Cross-blocking may increase it by up to 30 per cent and also makes it possible to delay singling by seven to 10 days without affecting yield.

General Considerations.

1. Spring labour requirements are rather inflexible (see above), but harvest is more flexible. During October after a year of normal rainfall, yield can be expected to increase by five cwts. per week, but after a dry summer, the increase may be much greater. After October in normal years, returns are not much affected by date of harvesting, though on rich soils heavily dressed with nitrogen it may pay to delay lifting until late November, depending on soil conditions, whether or not tops are to be used, and the needs of the following crop.

2. By-products. Weight of tops - from 70 to 100 per cent of weight of roots.
   1½ cwts. of dried pulp (at about £17. 5s. 0d. per ton) may be bought for each ton of washed beet delivered.

3. Limitation on acreage - contract with factory necessary.

4. Factory may make some advance payment on a satisfactorily established crop.

CASH CORN.

Variable Costs per acre.

1. Seed. One to 1¼ cwts. per acre. Rather more seed is required if seed bed conditions are unfavourable but in good conditions higher seed rates are not recommended - they result in weaker straw and increased liability to lodging without increased yields.
Pedigree seed - Wheat £3.10s. 0d. per cwt.
Barley £4. 0s. 0d. per cwt.

2. Fertiliser.

Expected Responses to Sulphate of Ammonia(1)
TABLE 1

Cwts. S. of A.	Cwts. of extra grain per acre	
	Wheat	Barley
1	3.0	3.2
2	4.6	5.5
3	5.4	-

The limiting factor to nitrogenous manuring is fear of lodging (and malting quality, in barley) but nitrogen applied when the plant is running up to ear has little effect on length of straw. Moderate seed-bed applications of phosphate and potash reduce liability to lodging, but have little direct effect on yield except where heavy dressings of nitrogen are applied, or on deficient soils.

3. Contract charges (threshing, baling, combining, spraying etc.) see Appendix II.

4. Spray materials. MCPA single strength 10s. 0d.
double strength £1. 0s. 0d.
DNOC £1.10s. 0d. to £2. 0s. 0d.

(1) A.W. Smith - Journal of Institute of Corn and Agricultural Merchants. Vol. IV. No.3.

Spraying[1]
Capital Costs.

Spraying machines -	low volume	£80 to £120
	high volume	from £150 to £400
Combines -	tractor drawn 4ft.	- £550
	5ft. 6ins.	- £725
	self-propelled 8ft. 6ins.	- £1,400 to £2,300
	12ft.	- £1,525

Spraying[1]

SPRAYING - AVERAGE RATES OF WORK.

TABLE 2

Machine	Galls./acre	Acres per 8½ hrs.
Low volume	5	30
	50	9
High volume	10 - 20	48
	25 - 50	34
	70 - 100	21

Points to consider:-

(i) Probable increase in yield, which obviously depends on the number and type of weeds present before spraying.

(ii) "Residual" benefits in the form of cleaner following crops.

(iii) Where the crop is to be combined, spraying may considerably reduce the cost of drying for the standing crop may dry more quickly and the green material which can be so troublesome in combined corn may be eliminated. Grain losses over the chaffer sieve may be up to 1 cwt. per acre higher in a very weedy crop.

(iv) The sprayer may be useful in connection with other crops, e.g. grassland weed destruction, potato haulm destruction, flea beetle control, etc.

---

[1] SOURCE: "The Economics of Crop Spraying" - Farm Economics Branch, Cambridge University. 1954.

(v) Costs - depreciation, interest on capital, tractor running costs and spray materials.

(vi) Availability and cost of contract spraying.

Harvesting.

1. A combine can be expected to deal with 20 to 25 acres per foot of cutter bar.

2. The saving in labour depends on the type of combine and the practices adopted. Table 3 gives some rough figures for labour requirements.

STANDARD LABOUR REQUIREMENTS FOR HARVESTING GRAIN.

TABLE 3

Binder		Combine (8 or 12 foot cut)	per acre
Operation	Man hrs.	Operation	Man hrs.
Cutting	2 to 3	Combining	2 to 2½
Stooking	2 to 4	Hauling grain	1 to 1½
Carting & stacking	7 to 9	Dressing grain	1 to 2
Threshing	7 to 10	Pick-up baling	½ to 1
		Hauling and stacking baler	1½ to 2½
Total	18 to 26	Total	6 to 9½

Grain Drying and Storing.(1)

Standing grain after 8 hours sunshine may have a moisture content of about 18 per cent. The maximum moisture contents for safe grain storage are:-

	Up to one month	Several months
In bulk	16 per cent	14 per cent
In thin sacks(2)	20 per cent	18 per cent

Standard grain driers (which blow hot air through a thin layer of grain) are not often justified unless a very large acreage of grain is grown.

(1) See T.W.D. Theophilus "Farm Management Notes" No.11. Dept. of Agricultural Economics, University of Nottingham.

(2) One row deep and under observation.

The alternatives are:-

(i) Sell most of the grain within a month or so after harvest.

(ii) Dry in sacks, and arrange for storage (e.g. pre-cast concrete silos - 25s. 0d. to 45s. 0d. per ton of grain.)

(iii) Dry and store in ventilated bins.

A 40 sack drier may be constructed for £350 - £450 and operated on three gallons of diesel oil per ton of grain dried (removing six per cent moisture). Labour requirements for drying are confined to moving sacks on and off the platform. An electrically powered ventilated bin installation for 250 tons may cost £2,000 and each ton of grain dried by six per cent, would require 17 units of heat and 23 units of power. One man can fill the bins, which must be inspected four or five times daily until moisture content drops to 14 per cent.

When comparing either of the last two alternatives with (i) above, the drier operating costs, the depreciation and interest charges on the driers and stores, and the interest on the capital value of the grain[1] must be set against the increased price obtained later in the season. Grain which is to be stored until May or June may need to have an extra one or two per cent of moisture removed (compared to grain to be sold in winter or early spring), and if so this loss in weight should be borne in mind.

---

[1] An overdraft of £28.16s. 8d. on September 1st. would (at five per cent) increase to £29.18s. 6d. by June 1st, and standard price of wheat rises from £28.16s. 8d. to £33.16s. 8d. in that time.

FORAGE CROPS.

Table 2 gives an indication of the production which can be expected from one acre of various crops at certain assumed yields. It is a matter of simple arithmetic to adjust these figures according to the yields expected on any particular farm. The table forms a useful starting point for the consideration of forage cropping, but it gives no information regarding costs. The most important variable costs which have to be considered are seed, fertilisers, tractor running costs and labour costs. Fertiliser requirements depend so much on soil, climate, previous manuring and practices to be adopted in growing and utilising the crop that no attempt has been made to tabulate "standard" requirements. For the other items, some standard requirements are given in Tables 3, 4 and 5. The tables should be regarded as rough guides, suitable for "standard" conditions, and the figures should be adjusted according to circumstances on individual farms.

So far as labour costs are concerned, it must be borne in mind that although small increases in labour requirements can often be met by some streamlining of the general farm organisation, these small increases in various departments of the farm can add up to an appreciable total, and eventually result in the need for an extra man. However, if adjustments are made step by step, rather than a large scale re-organisation at one time, it will be possible to estimate whether in practice any additional labour would need to be set on. (There is a certain amount of flexibility about the regular labour supply if the regular staff are prepared to work overtime).

FEEDING VALUES OF VARIOUS FORAGE CROPS(1)

TABLE 1

Crop	Fibre	S.E.	P.E.
	lbs. per 100 lbs. of crop		
Grains			
Barley	4.5	71.4	7.3
Oats	10.3	59.5	7.6
Peas	5.4	69.0	18.1
Beans	7.1	65.8	19.7
Roughages			
Oat straw	34.0	20.0	0.7
Meadow hay, medium	29.4	32.0	3.2
" " , very good	19.3	48.0	7.7
Seeds hay, medium	27.5	30.0	4.9
" " , good	23.1	40.0	7.0
Lucerne hay, before flowering	27.0	32.0	10.1
" " , in full flower	29.5	27.0	8.0
Arable silage (oats)	8.5	8.9	0.8
Grass " , first quality	4.3	12.8	1.8
" " , second "	6.6	12.6	1.6
Roots, etc.			
Turnips	0.9	4.4	0.4
Swedes	1.2	7.3	0.7
Mangolds, intermediate	0.7	6.2	0.4
Fodder beet, Pajbjerg(2)	0.9	13.0	0.7
Sugar beet tops	1.6	8.6	1.1
Cabbage, drumhead	2.0	6.6	0.9
Kale, marrowstem	2.5	9.0	1.3

(1) Based on "Rations for Livestock". Ministry of Agriculture and Fisheries. Bulletin No.48.

(2) Castle, Foot and Rowland, Empire Journal of Experimental Agriculture. Vol.20. No.80, 1952.

PRODUCTION OF S.E. AND P.E. BY VARIOUS FORAGE CROPS.

TABLE 2

Crop	Assumed Yield	S.E. lbs.	P.E. lbs.	S.E. Index (Barley = 100)
Grains	cwts.			
Barley	30	2,400	245	100
Oats	25	1,665	210	70
Peas	20	1,545	405	64
Beans	20	1,475	440	61
Roughages				
Oat straw	25	560	20	23
Meadow hay, (one cut, medium quality)	25	900	90	37
Seeds hay (two cuts, good quality)	40	1,800	310	75
Lucerne hay (two cuts, good quality)	40	1,435	450	60
	tons			
Arable silage (oats)	7	1,400	125	58
Grass silage (three cuts, second quality)	6	1,700	215	71
Roots etc.				
Turnips	15	1,480	135	62
Swedes	15	2,450	235	102
Mangolds, intermediate	25	3,780	225	158
Fodder beet, Fajbjerg				
- roots	15	4,370	235	182
- tops(1)	7	1,350	140	56
- total	-	5,720	375	238
Sugar beet tops	9	1,730	220	72
Cabbage, drumhead	20	2,950	400	123
Kale, marrowstem	20	4,030	580	168
Grazing				
Permanent grass, average utilised	-	1,200	-	50
Leys, average utilised	-	1,800	-	75
Leys, average quality, strip grazed	-	2,250	-	94

(1) Calculations assume 100 lbs. tops contain 8.6 lbs. S.E. and 0.9 lbs. P.E.

FORAGE CROPS - STANDARD SEED AND LABOUR REQUIREMENTS.

TABLE 3

per acre

Crop	Seed rate		Labour requirements	
	Quantity	Cost	Man	Tractor
	cwts.	£	days	days
Barley	1 to 1½	4 to 6	3½	1¼
Oats	1 to 1½	4 to 6	3½	1¼
Peas (7" rows)	1 to 1½	5 to 8	4½	1¼
Beans (wide rows)	1 to 1½	3 to 5	4½	1½
	lbs.	s.		
Turnips	4	10	16	4
Swedes	4	13	16	4
Mangolds	8	20	18	5
Fodder beet	8	30	18	5
Kale	3	12	16(1)	6(1)
Cabbage	5,000	£5	16	5

(1) Includes four days cutting and carting.

STANDARD LABOUR REQUIREMENTS FOR SILAGE MAKING.

TABLE 4

Hours per acre

	Hand loading	Buck raking	Green crop loading	Cutlifting
Manual labour	22	12	24	18
Tractor labour	10	6	10	8

AVERAGE LABOUR REQUIREMENTS FOR HAY MAKING, 1949 and 1950(1)

TABLE 5

Hours per acre

1949	Stat'y baling	Load and Stack	Pick Up Baling	Sweep and Stack	Cocking Harvesting	Tripoding Harvesting
Manual labour	18.83	16.24	9.56	10.06	17.63	18.97
Horse labour	0.66	2.71	0.14	0.66	1.57	1.01
Tractor labour	4.37	2.71	3.60	2.16	2.92	3.43
No. of farms	4	19	23	18	16	4
1950						
Manual labour	12.80	8.61	5.11	5.83	8.93	19.59
Horse labour	-	3.91	0.09	0.41	0.08	0.96
Tractor labour	3.91	1.50	2.41	1.29	2.38	5.76
No. of farms	4	13	33	8	5	8

(1) From The Economics of Green Crop Conservation, 1949-1950. University of Cambridge. Farm Economics Branch. Report No. 38.

Fertilising Grassland.

Although discussion of the optimum fertilising of grassland is beyond the scope of this manual, Tables 1 and 2 have been included to give some indication of the plant nutrients which are likely to be lost from the soil to various crops, and to grass under various systems of management.

ESTIMATES OF MAJOR PLANT NUTRIENTS (EXPRESSED IN TERMS OF FERTILISERS) CONTAINED IN GRASS AND OTHER CROPS OF AVERAGE COMPOSITION(1)

TABLE 1

Crop	Yield per acre	Cwts. "Nitro Chalk" 15.5% N	Cwts. Superphosphate 18% P_2O_5	Cwts. Muriate of Potash 50% K_2O	Cwts. Lime $CaCO_3$
Grass	30 cwts. dry matter	5.4	1.5	2.1	1.1
Grass	60 cwts. dry matter	10.8	3.0	4.2	2.2
Grass	90 cwts. dry matter	16.1	4.5	6.3	3.3
Wheat	16 cwts.	2.6	1.0	0.5	0.1
Wheat	26 cwts.	3.8	1.4	0.6	0.2
Oats	16 cwts.	2.3	0.9	0.8	0.3
Oats	26 cwts.	3.3	1.4	0.9	0.3
Potatoes	6 tons	2.6	1.2	1.5	0.1
Potatoes	12 tons	5.1	2.4	2.9	0.2
Mangolds	20 tons	4.1	2.0	3.6	0.2
Mangolds	40 tons	8.2	4.0	7.2	0.4

(1) R.A. Hamilton "Proceedings No.8", The Fertiliser Society, 1950.

ESTIMATES OF MAJOR PLANT NUTRIENTS (EXPRESSED IN TERMS OF FERTILISERS) LOST FROM THE SOIL UNDER DIFFERENT SYSTEMS OF MANAGEMENT(1)

TABLE 2

	Cwts. per acre							
	"Nitro Chalk" 15.5% N		Superphosphate 18% P_2O_5		Muriate of Potash 50% K_2O		Lime $CaCO_3$	
Yield level - cwts. dry matter per acre	30	60	30	60	30	60	30	60
Grass grazed by adult fattening cattle	0.3	0.6	0.07	0.14	0.12	0.24	0.05	0.10
Grass partly grazed by dairy cows and young stock and partly eaten indoors as hay and silage	2.9	5.8	0.5	1.0	0.7	1.4	0.4	0.8
All grass removed by cutting and sold off farm	5.4	10.8	1.5	3.0	2.1	4.2	1.1	2.2

(1) R.A. Hamilton "Proceedings No.8", The Fertiliser Society, 1950.

Many farmers could profitably increase their use of nitrogenous fertilisers on leys. Some say they restrict their use of nitrogen on longer leys because of its effect on the clover in the ley. Williams(2) found that grazing plots (white clover 20 per cent) gave a high return to an application of 4 cwts. of "Nitro Chalk", and that up to this level of fertilising, the contribution of white clover to the total yield is important, and "there must be a combined

(2) T.E. Williams, Vol.8.No.1. Journal of The British Grassland Society, 1953.

use of white clover with the fertiliser and nitrogen for best productivity". With heavier dressings (from 3 to 4 cwts. up to 7 to 8 cwts.) the depletion of white clover is not adequately covered by the addition of fertiliser nitrogen, and if no reliance is placed on white clover 8 cwts. of "Nitro Chalk" appears to be the minimum dressing.

It must be stressed that poor pastures cannot be expected to respond to fertilising in the way in which good swards respond, and that there are many grass fields which could be much more profitable if they were ploughed, re-seeded and then fertilised and well managed.

SEASONAL LABOUR REQUIREMENTS.

The labour requirements of most crops are not evenly distributed over the year, and because of seasonal fluctuations there may be periods during which it is difficult to deal with all the jobs which arise. Most of these difficult periods occur between April and November, and for this period notes on the peak labour requirements of some crops have been given in previous sections.

The man taking a farm and designing his initial farming system may want a rough guide to the monthly labour requirements of a wider range of crops. Table 3 provides this, but if this table is used to check that sufficient labour will be available to carry out the farm plan, there are several points which should be borne in mind.

Most of the work on crops is affected by weather, and does not fit conveniently into a monthly classification. In some years it may be possible to harvest a considerable acreage of corn in July, in other years it may be the end of August before a similar acreage is harvested.

Although Table 3 allows for some differences in techniques, it does not attempt to deal with the full range of variations which can be achieved by skilful management. For example, sugar beet has a "standard" requirement of three man days in May, but the notes on sugar beet (page 68) point out that cross-blocking may both reduce labour requirements and allow singling to be delayed by seven to 10 days without any appreciable loss in yield.

There are many jobs which can only be done under certain conditions, and these conditions may not obtain during all the working days in the month. Whenever possible, local advice should be sought on such points as the number of "combine operating hours" which may be expected in August, or the earliest date on which potatoes may be planted to avoid damage from late frosts.

MONTHLY LABOUR REQUIREMENTS (APRIL-NOVEMBER) FOR CERTAIN CROPS.

TABLE 3 — Man hours per acre

Crop	April	May	June	July	Aug.	Sept.	Oct.	Nov.
Spring Corn-binder	3	1	1	-	5	5	-	2
-combine	3	1	1	-	4	4	-	2
Winter Corn-binder	1	1	1	1	5	5	4	4
-combine	1	1	1	-	4	4	2	4
Potatoes, hand planting and harvesting	20	5	5	-	-	10	50	10
Sugar beet	6	25	25	25	-	-	30	30
Fodder roots	6	5	15	20	10	-	20	40
Kale	4	10	20	20	-	-	-	20(1)
Hay (made in cocks)	1	-	10	8	-	-	-	-
Silage (using buckrake)	1	-	12	-	-	-	-	-

(1) Cutting and carting.

APPENDIX I.

SOME GRANTS AND SERVICES AVAILABLE TO FARMERS.

Information on the services available to farmers is given in "At The Farmers' Service", obtainable free from C.A.E.C.'s. Some forms of assistance which are important in the East Midlands are noted briefly below:

Marginal Production Scheme. This has two objects -

(i) To help marginal producers maintain or achieve a higher level of production.
(ii) To reduce the capital cost to other farmers of bringing land into (or keeping land in) production where the cost of doing so is too high to show a return in a reasonable time. (Operations such as bush clearing, fencing, constructing cattle grids, temporary sheds and shelters may qualify).

Grants may be made of up to 50 per cent of the cost of approved schemes.

Ditching and Draining - Grants of up to half the cost of approved work. Cost can be spread over three years.

Water Supplies - Grants of 25 or 40 per cent of the approved cost.

Housing - (i) New Cottages - Grants of £15 a year for 40 years. (ii) Improvements to Houses and Cottages - grants of half the approved cost (where the cost is not less than £150 or more than £800).

Ploughing Grants.

£5 an acre for ploughing grassland sown down before 1st June, 1951 and ploughed between 1st June, 1954 and 31st May, 1955. £10 an acre for grass down since May 1939, where expense of ploughing and preparing for cropping justifies this higher rate, and where approval is obtained from C.A.E.C. before ploughing.

Liming.

A subsidy of 50 per cent[1] of delivered cost, and a contribution towards the cost of spreading, can be claimed.

Calf Subsidy.

£5 a head on steer and heifer calves of beef type.

Credit.

(i) Agricultural Goods and Services. Farmers may be supplied by C.A.E.C.'s with certain goods and services on credit, and repayments may be spread over a period of three years.

(ii) Long Term Loans. Landowners can obtain long term loans which cannot be called up and on which the rate of interest cannot be increased, from The Lands Improvement Co. and/or the Agricultural Mortgage Corporation.

(a) Mortgage Loans. Up to two thirds of the freehold valuation may be borrowed and used for purchase or improvement of land buildings, water supplies, etc.

(b) Improvement Loans. Where property is already mortgaged, or an owner is unwilling to borrow on mortgage, loans for new farm buildings or improvements can be obtained on the security of an Absolute Order from the Ministry of Agriculture. The Ministry's approval must be given to plans and specifications before work is commenced. In approved case the full cost of the work can be advanced.

---

(1) 70 per cent for lime delivered between 17th May and 11th September, 1954.

Investment Allowance (Income Tax).

(i) Plant and Machinery[1] - 20 per cent of the cost.
(ii) Works and Buildings - 10 per cent of the cost. (e.g. new buildings, adaptations to buildings, farm roads and farm drainage).

Investment allowances are in addition to ordinary depreciation allowances e.g. a new tractor qualifies for 20 per cent investment allowance and 28 per cent depreciation allowance in the first year and 72 per cent depreciation allowance in subsequent years, so that in all 120 per cent of its cost is allowed against taxable income.

[1] Second-hand plant and machinery are not eligible for investment allowance but continue to be eligible for initial allowance.

APPENDIX II.

PIECEWORK RATES.
Operative from 17th August, 1953.

Lincolnshire (Parts of Kesteven and Lindsey) and Rutland.

	First grade lands		Second grade lands	
	Per acre	Margin up or down	Per acre	Margin up or down
	£. s. d.	s. d.	£. s. d.	s. d.
SEED CROPS(1)				
Cutting and Tying.				
Mustard (Brown)	6.13. 2.	5. 0.	6. 1. 2.	10. 0.
Mustard (White)	6. 6. 1.	10. 0.	-	-
Turnips and swedes	5.19. 8.	5. 0.	5.15. 2.	5. 0.
Cutting, Tying and Stooking.				
Beet and mangolds	7. 4. 4.	5. 0.	6. 3.10.	5. 0.
Carting (crops shown above) per man	8. 5.	6.	6.10.	6.

Mustard seed, turnip and swede seed tying after reaper - Half cost of cutting and tying.

PEAS (gang of seven men)	per man	per man	per man	per man
Carting (with elevator)	6.11.	6.	6.11.	6.
Carting (without elevator)	8.11.	6.	8.11.	6.

(1) In this section prices for LINCS. (LINDSEY) are left to individual arrangements.

Lincs. (Kesteven and Lindsey) and Rutland (Continued)

CORN	£. s. d.	s. d.	£. s. d.	s. d.
Mowing round and tying	4. 0.	3.	3. 6.	3.
Stooking after binder	10. 2.	1. 0.	7. 4.	1. 6.
Carting (including one raking per single gang)	6. 7. per man	1. 0. per man	6. 0. per man	1. 6. per man
Thatching	per square yard $6\frac{1}{2}$	-	per square yard $6\frac{1}{2}$	-
POTATOES				
(a) King Edward and Royal Kidney varieties				
Picking into carts				
After plough or spinner(1)	8.19. 0.	5. 0.	7.15. 3.	15. 0.
After hoover(1)	7. 6. 5.	5. 0.	6. 8. 5.	15. 0.
Graving, strawing and spitting	1. 5. 7.	9.	1. 2. 2.	2. 0.
(b) Gladstone, Majestic and other white varieties.				
Picking into carts				
After plough or spinner(1)	8. 0. 6.	5. 0.	7. 9. 5.	15. 0.
After hoover(1)	6.10. 2.	5. 0.	6. 4. 8.	15. 0.
Graving, strawing and spitting	1. 6. 9.	10.	1. 4.11.	2. 6.

(1) Price includes twice harrowing after spinner and once after hoover.

Lincs. (Kesteven and Lindsey) and Rutland (Continued)

	First grade lands		Second grade lands	
	Per acre	Margin up or down	Per acre	Margin up or down
	£. s. d.	s. d.	£. s. d.	s. d.
SUGAR BEET				
Beet lifting, knocking, topping and heaping, with ground cleared from tops.				
(a) Until Nov.15th.	7.18. 2.	5. 0.	6.19.11.	15. 0.
(b) From Nov.16th.	10. 4. 4.	5. 0.	9. 1.10.	15. 0.
Filling carts from heaps	2. 1. 9.	5. 0.	1.18. 3.	5. 0.
Beet lifting into rows				
(a) Until Nov.15th.	7. 9. 9.	5. 0.	6.12. 5.	15. 0.
(b) From Nov.16th.	9.15.10.	5. 0.	8.12. 0.	15. 0.
Filling carts from rows	2.12. 4.	5. 0.	2. 7.10.	5. 0.
MANGOLDS 20" coulter				
Filling into carts	-	-	2. 2.10.	5. 0.
Lifting, topping into heaps and loafing	-	-	4.18.11.	5. 0.
Topping into rows	-	-	3.11. 8.	5. 0.
2s. 6d. per inch variation in rows.				

SOURCE: Printed scale agreed by N.F.U.'s, Agricultural Executive Committees, etc.

Nottinghamshire, Leicestershire and Derbyshire.

	Per acre	Margin per acre Up	Down
	£. s. d.	s. d.	s. d.
SUGAR BEET (20" coulters)			
Chopping out (Gapping)	2. 9. 6.	3. 0.	3. 0.
Singling	2. 9. 6.	6. 0.	6. 0.
Last hoeing and cleaning	2. 9. 6.	6. 0.	6. 0.
For all three operations	7. 8. 6.	15. 0.	15. 0.

(i) If all three operations are carried out 5s. 0d. per inch per acre for variation of width of rows, or 1s. 8d. per inch per acre for variation of width of rows for each individual operation.

(ii) Where the employer agrees with a worker for all three operations to be undertaken and, at the instance of the employer, the third operation is later dispensed with, the full rate as for the three operations shall be paid.

SEEDS			
Mustard seed cutting and tying (white)	7.15. 3.	10. 0.	10. 0.
Turnip and swede seed cutting and tying	6. 6. 9.	5. 0.	5. 0.
Beet and mangold seed cutting and tying and stooking	6. 8. 9.	5. 0.	5. 0.
Carting (crops shown above)	6. 9.*	6.*	6.*
PEAS			
Pea hooking for harvest	4. 1. 6.	5. 0.	5. 0.
Pea carting (per single gang)	7. 9.*	9.*	9.*

* = per man per acre.

Nottinghamshire, Leicestershire and Derbyshire (Continued)

	Per acre	Margin per acre	
		Up	Down
	£. s. d.	s. d.	s. d.
CORN			
Tying and stooking	2.15. 0.	2. 6.	2. 6.
Mowing round and tying	3. 5.	2.	3.
Stooking after binder	7. 6.	2. 0.	2. 0.
Carting cereals other than barley (including one raking per single gang)	7. 3.*	1. 6.*	1. 6.*
Carting barley (including one raking per single gang)	5. 1.*	1. 6.*	1. 6.*
* = per man per acre.			
THATCHING	Per sq. yard.		
Thatching	6½		
SUGAR BEET (ignoring width of rows)			
Beet lifting, knocking off soil, topping and placing into heaps with ground cleared from tops:-			
(a) To end of October	7.19. 9.	10. 0.	20. 0.
(b) November 1st to 30th	8.15. 0.	20. 0.	20. 0.
(c) December 1st to 31st	9.12. 0.	10. 0.	20. 0.
Beet lifting into rows	7.17. 9.	10. 0.	20. 0.
Beet loading into carts) - extra per acre)	1.15. 0.	5. 0.	5. 0.
FODDER BEET (20" coulter) (Prices are arranged for one year only)			
Gapping and singling	4. 5. 0.	5. 0.	5. 0.
Hoeing	2. 9. 6.	5. 0.	5. 0.

Nottinghamshire, Leicestershire and Derbyshire (Continued)

	Per acre	Margin per acre Up	Down
	£. s. d.	s. d.	s. d.
MANGOLDS (20" coulters)			
Gapping and singling	3.18. 9.	5. 0.	5. 0.
Hoeing	2. 9. 6.	5. 0.	5. 0.
Lifting, topping into heaps and leafing	4.16. 6.	5. 0.	5. 0.
Topping into rows	3.10. 0.	5. 0.	5. 0.
Filling into carts	2. 3. 6.	5. 0.	5. 0.
SWEDES (20" coulters)			
Gapping	1.14. 3.	5. 0.	5. 0.
Chopping and singling	2.17. 9.	10. 0.	10. 0.
Lifting, topping, cleaning and placing into rows	4.17. 3.	10. 0.	10. 0.
Lifting, topping and cleaning and placing into heaps and soiled down.	6. 1. 9.	5. 0.	5. 0.
1s. 6d. per inch per acre for variation in width of rows. No deduction after 24 inch coulter.			
TURNIPS (20" coulters)			
Setting out	2. 1. 3.	10. 0.	10. 0.
Chopping out for sheep (10" blade)	1. 7. 0.	2. 6.	2. 6.
1s. 0d. per inch per acre for variation in width of rows. No deduction after 24 inch coulter.			
POTATOES			
Picking into carts after spinner	7.19. 0.	15. 0.	15. 0.
Picking into carts after hoover	6.13. 3.	10. 0.	10. 0.
Planting from bags	1. 1. 9.	-	-
Planting from trays	1.14. 3.	-	-
Riddling	17. 9.*	2. 0.*	1. 0.*

* = Per ton

None of above rates apply to school children.
SOURCE: Printed list agreed by N.F.U. and N.U.A.W.
All prices apply from 17th August, 1953.

CHARGES FOR CULTIVATIONS. - Applicable from 12th September, 1953.

	NOTTINGHAMSHIRE Minimum rate per hour.
	£. s. d.
Hire of tractor and driver:-	
Fordson	18. 6.
Tracklayer TD9 or D4	1. 8. 0.
Fowler, D2 or TD6	1. 5. 0.
Trailer (Fordson)	1. 1. 0.
Ploughing by wheel tractor, one or two furrow	1. 1. 0.
Ditto but three furrow	1. 3. 6.
Ploughing by tracklayer TD9, D4	1.12. 0.
Ditto by Fowler D2, TD6	1. 8. 0.
Cultivating, ridging and inter-row by Fordson	1. 5. 0.
Ditto by tracklayer TD9, D4	1.17. 0.
Ditto by Fowler D2, TD6	1.10. 0.
Cultivating by Rotovator	1.15. 0.
Bulldozing by tracklayer	2. 0. 0.
Harrowing seed or chisel	1. 2. 6.
Harrowing pitch polo	1. 3. 6.
Disc harrow by Fordson	1. 5. 0.
Ditto by tracklayer TD9, D4	1.12. 0.
Ditto by Fowler D2, TD6	1.10. 0.
Drilling grain or grass seeds	1. 5. 0.
Drilling grain and fertiliser	1. 7. 6.
Drilling grain suntyne and tracklayer TD9 or D4	1.13. 6.
Rolling. Gang or single rolls	1. 2. 6.
Haymaking, grass cutting, farmer to sharpen knives	1. 5. 0.
Haymaking, side or hay raking, sweeping	1. 2. 6.
Corn cutting, farmer to provide rider and twine	1. 8. 6.
Combine harvesting 12 ft. Machine	6.10. 0.
Ditto but 8 ft. or 8 ft. 6 ins. machine	5. 5. 0.

	NOTTINGHAMSHIRE Minimum rate per hour. £. s. d.
Pick-up baling, plus cost of twine	2.12. 6.
Fertiliser drilling	1. 5. 0.
Potato planting 3-row, farmer to provide labour	1.10. 0.
Potato spinning	1. 2. 6.
Potato lifting by elevator digger	1. 8. 6.
Beet lifting by Fordson	1. 5. 0.
Small areas (Minimum charge for operation)	
Small areas - tracklayer (minimum)	5. 5. 0.
Small areas - wheel tractor (minimum)	3. 0. 0.
Fordson Winch	1. 7. 6.
Fordson Winch MINIMUM CHARGE £4. 0. 0.	-
Scrub clearing by "Sabre" cutter	1.10. 0.

It is emphasised that the charges are minima. The prices have to be adjusted to cover jobs that are unusually difficult.

SOURCE: Nottinghamshire Agricultural Executive Committee.

CHARGES FOR CULTIVATIONS, ETC. - Current at October, 1953.

(All figures are "Per hour")

	DERBYSHIRE		
	Wheel	Crawler	Heavy Crawler
	£. s. d.	£. s. d.	£. s. d.
Tractor and driver	17. 6.	1. 5. 0.	1.10. 0.
Tractor, driver and trailer	1. 0. 0.	1. 7. 6.	-
Ploughing	1. 0. 0.	1. 7. 6.	1.15. 0.
Ploughing with S/F or deep digger	1. 2. 6.	1.10. 0.	1.15. 0.
Cultivating and subsoiling	1. 0. 0.	1.10. 0.	1.17. 6.
Discing	1. 0. 0.	1. 7. 6.	-
Rolling	1. 0. 0.	1. 7. 6.	-
Harrowing	18. 6.	1. 6. 0.	-
Drilling fertiliser	1. 0. 0.	1. 7. 6.	-
Drilling seeds	1. 0. 0.	1. 7. 6.	-
Drilling seeds and fertilisers	1. 2. 6.	1.10. 0.	-
Potato planting (3 row)	1. 7. 6.	1.15. 0.	-
Potato ridging	1. 0. 0.	-	-
Potato digging	1. 0. 0.	-	-
Buckraking	1. 0. 0.	-	-
Greencrop loading (with trailer)	1. 5. 0.	-	-
Hedgecutting	1. 5. 0.	-	-
Mowing	1. 2. 6.	-	-
Binning (string extra)	1. 5. 0.	-	-
Combine harvesting (8 ft. 6 ins. cut, driver only) (MINIMUM CHARGE £12)	4. 5. 0.	-	-
Pick up baling (cord extra)	2.10. 0.	-	-
Bulldozing Fowler	1.15. 0.	-	-
D.4	2. 0. 0.	-	-
TD.14	2. 5. 0.	-	-

SOURCE: Derbyshire Agricultural Executive Committee.

CHARGES FOR CULTIVATIONS - Operative from 1st January, 1953.

Prices are "Per hour". All are minimum rates

	LEICESTERSHIRE
	£. s. d.
Ploughing:	
Wheel tractor (not high powered)	18. 0.
D2 class tractor	1. 5. 0.
D4 class tractor	1.10. 0.
TD.14 class tractor	1.12. 0.
Cultivating and disc harrowing:	
Wheel tractor (not high powered)	18. 0.
D2 class tractor	1. 4. 0.
D4 class tractor	1. 9. 0.
TD.14 class tractor	1.11. 0.
Bulldozing. D4 tracklayer	2. 0. 0.
Heavy bulldozing. Allis HD7 tracklayer	2. 5. 0.
Duckfoot harrowing	18. 0.
Fertiliser distributing	18. 6.
Drilling (Farmer to provide man to ride drill):	
(a) Grain or seeds	1. 0. 0.
(b) Grain and fertiliser	1. 2. 6.
Binding (Farmer to provide man to ride binder and twine)	1. 7. 0.
Mowing	18. 0.
Combine harvesting (Price not yet fixed)	-
Pick-up baling:-	
(a) Hay (twine extra)	2. 9. 0.
(b) Straw (twine extra)	1.18. 6.
Inter-row cultivating	18. 0.
Potato lifting with spinner	19. 6.
Tractor hire with driver:	
Wheel tractor (not high powered)	17. 6.
Wheel tractor (high powered)	1. 2. 6.

CHARGES FOR CULTIVATIONS - LEICESTERSHIRE (Continued)

DISCOUNT. All accounts are subject to 2½ per cent discount for cash within 30 days.

THRESHING. Not now undertaken by this Committee.

It is emphasised that the charges are minima and for difficult jobs higher prices are charged to cover cost of the work.

Minimum charges for each visit operate as under:-

£3.12s. 0d. for a wheeled tractor.
£6. 0s. 0d. for a crawler tractor.

Unless otherwise specified above, the charges are fixed on the basis of using a wheel tractor. If because of site conditions it is necessary to use a tracklayer tractor an additional charge is made.

SOURCE: Leicestershire Agricultural Executive Committee.

RUTLAND CHARGES. The charges made by Rutland A.E.C. vary slightly from the above, but they are so nearly comparable with Leicestershire that there is no need to quote them in detail. They do however, include LIME DISTRIBUTION at a charge of £1. 0s. 9d. per hour.

CHARGES FOR CULTIVATIONS - Operative from 1st. January, 1953.

Prices are minima. They apply to fields or jobs of 10 acres upwards.

		KESTEVEN
		Rate per acre unless otherwise stated.
Ploughing:		£. s. d.
Stubble up to 6"		1.15. 0.
Fallow up to 6"		1.15. 0.
Third time		1.13. 0.
Land 8"		2. 0. 0.
Land 10"		2.10. 0.
Land 12"		3. 0. 0.
Grub breaking by arrangement		-
EXTRAS for subsoiling, land pressing, land pressing and drill 12s. 6d. per acre or by arrangement.		
Cultivating:		
Fast twice after stubble.	Light	1.10. 0.
	Heavy	1.15. 0.
Deep cultivating	Once	1.15. 0.
	Twice	1. 5. 0.
Harrowing:		
Duckfoot	Once	17. 0.
	Twice	13. 0.
Pitchpole	Once	11. 0.
	Twice	19. 0.
Light Disc	Once	15. 0.
	Twice	1. 7. 0.
Heavy Disc	Once	19. 0.
	Twice	1.17. 0.
Heavy ordinary		13. 6.
Light seed		6. 0.
Rolling:		
Heavy		10. 0.
Gang		7. 6.

CHARGES FOR CULTIVATIONS (Continued)

Prices are minima. They apply to fields or jobs of 10 acres upwards.

	KESTEVEN Rate per acre unless stated otherwise
	£. s. d.
Drilling	
Spring seed (excluding man on drill)	18. 0.
Winter	1. 3. 0.
Combine at 2 cwts. per acre	1. 7. 6.
(additional rates chargeable above that quantity)	
Bulldozing - by arrangement only.	
Combine Harvesting:	
Minimum charge per acre for any combine	4. 0. 0.
Distributing lime	15. 0.
Distributing manure	12. 0.
Harvest:	
Binding, excluding string, standing crops	1. 5. 0.
Laid crops - 3 way - by arrangement	
Laid crops - 1 way - by arrangement	
Baling	
Pick-up baler, excluding string and one man - straw.	1.10. 0.
Hay or clover	1.15. 0.
Stationary power baler (excluding wire) including tractor and man	6.10. 0 per day
Hay Harvest	
Grass cutting (including knife sharpening)	1. 0. 0.
Seed cutting (including knife sharpening)	1. 0. 0.

CHARGES FOR CULTIVATIONS (Continued)

Prices are minima. They apply to fields or jobs of 10 acres upwards.

	KESTEVEN
	Rate per acre unless stated otherwise
	£. s. d.
Potato Harvest:	
Spinning	1. 0. 0. per hour
Elevator	1.10. 0. "
Ridging	17. 6.
Ridging and inter-row cultivation	17. 6.
Mechanical potato planting (including tractor, man and fuel).	
Light land	3. 0. 0.
Heavy land	3. 5. 0.
Potato harvester	7.10. 0.
Beet Harvest:	
Lifting - light land	2. 5. 0.
- heavy land	2. 5. 0.
Beet mechanical lifter	8. 0. 0.
Sundries:	
Small wheeled tractor and driver	17. 6. per hour
Crawler (TD2 type) and driver	1. 5. 0. "
Mole draining up to 20" deep	2. 6. per chain
Hedge cutting - by machine	
For 1 year's growth	4. 6. per chain
For 2 year's growth	6. 0. "
For 3 year's growth	7. 6. "

All prices are nett and are to be regarded as minima only.

SOURCE: Kesteven Contractors' Association.

Note: Recent change in wages rates may cause the charges to be increased. Five per cent should cover any such increase.

THRESHING CHARGES CURRENT AT OCTOBER, 1953.

	NOTTINGHAMSHIRE Per day £. s. d.
For thresher and two men (irrespective of their duties)	7. 8. 0.
For thresher, elevator and two men as above.	8. 0. 0.
For thresher and chaffcutter and two men as above	9. 0. 0.
For thresher and trusser and two men as above.	8. 3. 0.
For thresher and baler (string type) and two men as above.	9. 5. 0.
For thresher and baler (wire type) with two men as above (plus cost of wire extra)	9.10. 0.
For baling only, plus wire	7. 8. 0.
For clover hulling	8. 0. 0.
For chaffcutting only	6.18. 0.
Extra for self-feeder	10. 0.
Extra for cavings blower	5. 0.
Extra for chaffblower	5. 0.
Food money for two men as above	5. 0. per man

SOURCE: Nottinghamshire Agricultural Executive Committee.

THRESHING CHARGES 1953-54 HARVEST.

	LINCOLNSHIRE Per hour
	£. s. d.
Threshing, engine, drum and elevator with two men.	19. 0.
Ditto but fitted with self-feeder and chaff blower.	1. 1. 0.
Chaff cutting (only) two men	19. 0.
Threshing and cutting engine, drum and chaff box with two men.	1. 2. 9.
Ditto but fitted with self-feeder and chaff blower.	1. 4. 9.
Threshing and baling, engine, drum and baler with two men.	1. 2. 9.
Clover hulling, engine, clover huller with two men.	1. 1. 6.
Stationary baling with tractor and two men*	19. 0.

SOURCE: Rates agreed by the Lincolnshire Branch of the N.F.U. as published in Rutland and Stamford N.F.U. Farmers' Journal.

* This last charge excludes the cost of string or wire.

SPRAYING.

Recommended spraying charges (exclusive of cost of spraying material).	Per acre £. s. d.
HIGH VOLUME - Crop spraying with toxic sprays.	2. 5. 0.
HIGH VOLUME - Crop spraying with non-toxic sprays	1.10. 0.
LOW VOLUME - Crop spraying.	1. 5. 0.

NOTES:
High volume spraying to be regarded as 50 gallons and over. The charges are based on a job of from 10 to 20 acres under normal conditions.

COSTS OF SPRAYING MATERIALS.

Name of Product	Price per unit	Quantity per acre	Cost per acre
NON-POISONOUS	£. s. d.		£. s. d.
DDT Miscible liquid 25 per cent	1.10. 0. per gallon	3 pints	11. 3.
'Gammalin' CL.	6. 7. 6. per gallon	¾ pint	12. 0.
'Perenox'	17. 0. 0. per cwt.	5 lbs.	10. 6.
'Agroxone'	1.17. 0. per gallon	2½ pints	11. 8.
'Atlacide'	5.19. 0. per cwt.	3 cwts.	17.17. 0.
POISONOUS			
'Fosferno' 20	1.17. 6. for 40 fluid ounces	12 fl.oz.	11. 0.
'Tetrax'	5.15. 6. per quart	1 pint	2.17. 9.
'Hawmac'	1. 4. 0. per gallon	1 gallon	1. 4. 0.

SOURCE: Plant Protection Ltd., 18, High Baxter Street, Bury St. Edmunds, Suffolk.
The 'Atlacide' spray is for Weeds on Farm Roads and Stock Yards.

GRAIN DRYING.

Drying charges for Wheat, Barley and Oats (for once drying)

Moisture content of wet grain	Charge for drying to 18 per cent maximum moisture per ton
	£. s. d.
Up to 20 per cent	1.15. 0.
Between 20 per cent and 21 per cent	1.17. 6.
Between 21 per cent and 22 per cent	2. 0. 0.

Add 15 per cent to above prices for oats.

Grain with moisture content above or below the foregoing range should be subject to special arrangements. Grain with over 22 per cent moisture often has to be passed through the dryer more than once.

The charges should be levied on incoming wet grain and include weighing, re-packing and cleaning, but exclude haulage to or from the drier.

The prices are for lots of five tons upwards.

The charges do not take any loss of weight into account.

These are charges recommended for neighbour to neighbour services and are not intended to apply to persons who operate commercially.

SOURCE: Rutland and Stamford N.F.U. Farmers' Journal.