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# OILSEED RAPE : 1976

SUSAN M. FLETCHER

Agricultural Enterprise Studies in England & Wales  
Economic Report No. 53

1977

Price 75p

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DEPARTMENT OF

AGRICULTURAL ECONOMICS & MANAGEMENT

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## FOREWORD

### AGRICULTURAL ENTERPRISE STUDIES IN ENGLAND AND WALES

University departments of Agricultural Economics in England and Wales have for many years undertaken economic studies of crop and livestock enterprises, receiving financial and technical support from the Ministry of Agriculture, Fisheries and Food.

The departments in different regions of the country conduct joint studies of those enterprises in which they have a particular interest. This community of interest is recognised by issuing enterprise studies reports prepared and published by individual departments in a common series entitled "Agricultural Enterprise Studies in England and Wales".

Titles of recent publications in this series and the addresses of the University departments are given at the end of the report.

## PREFACE & ACKNOWLEDGEMENTS

For a number of years this Department has concentrated its study of individual farm enterprises in the general area of breakcrops. This latest report contains the final results of a two year study (1975 and 1976) of the economics of oilseed rape production in Southern England. The results of the 1975 harvest were covered in a similar report published in 1976.

The Department is indebted to the farmers who have given us their time and information, and to numerous producers' and other commercial organisations who have also helped us to compile the necessary data.

Within the Department the field work was carried out by the author, Mr. R.L. Vaughan and Mr. J. Wright. The report was typed and reproduced by Mrs. P.A. Longhurst.

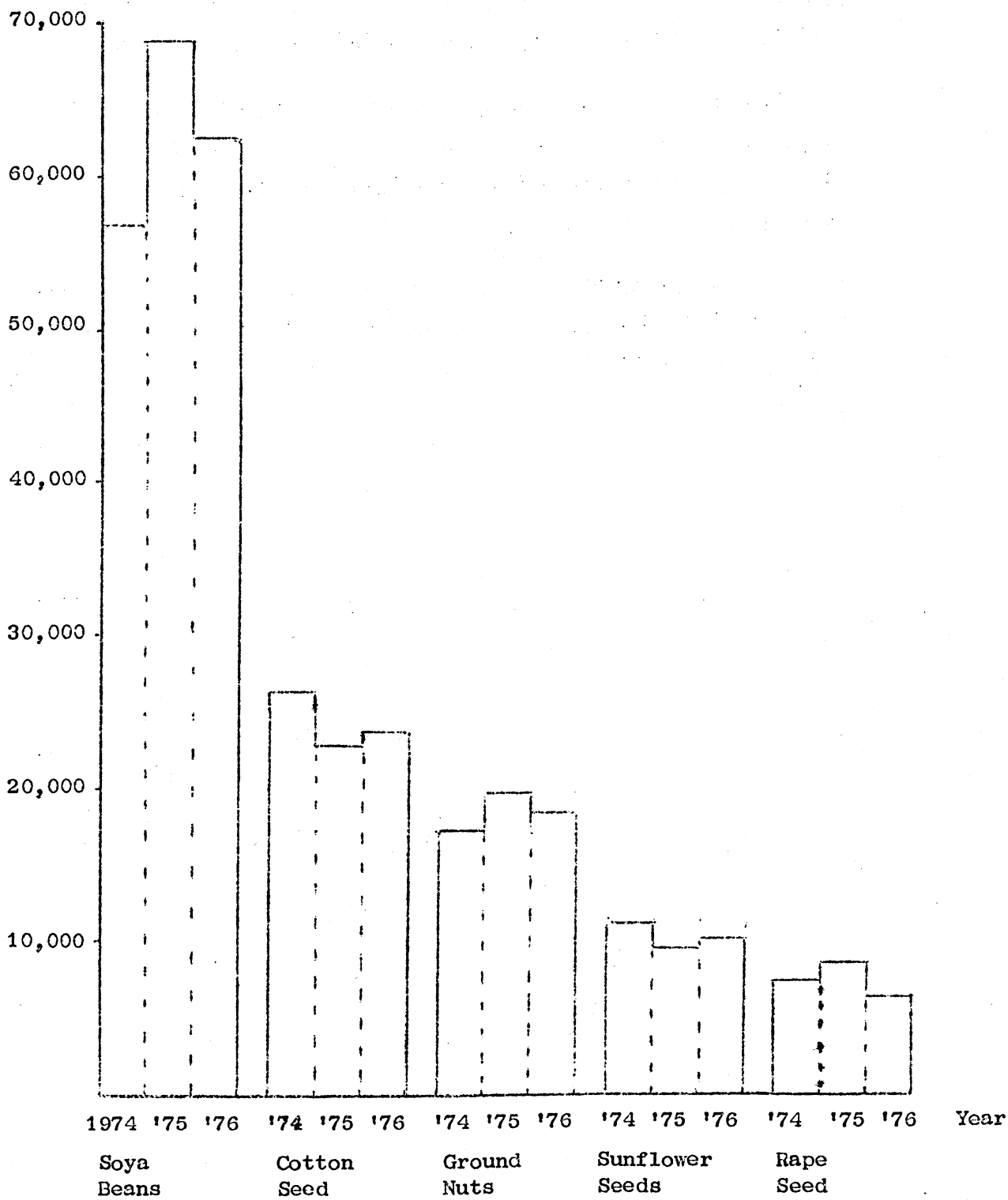
DIAGRAM 1

WORLD PRODUCTION OF 5 LEADING OILSEEDS

(1974-76 incl.)

Production

1000 tonnes



Source: FAO

## SECTION 1: WORLD PRODUCTION OF OILSEEDS

### THE OVERALL SITUATION

Vegetable oils are fatty oils, commercially produced from trees and plants, used mainly in the food and soap making industries and the manufacture of paints, varnishes and lubricants. The hydrogenation or hardening process discovered in the late 19th century permitted use of cheaper oils than animal fats in the manufacture of margarine, with a resulting lowering of price and increased consumption in Western Europe. Expansion of oil and oilseed production in tropical and sub-tropical areas followed swiftly to cope with the increasing demand.

Although some of the vegetable oils are interchangeable three groups of oils are still evident

- (1) the edible (soft) oils (including rapeseed) used mainly for edible purposes.
- (2) the hard oils which are utilised in margarine manufacture specialised food uses and for soap, chemical and synthetic detergent production.
- (3) the industrial group used chiefly as drying agents or lubricants.

In 1976 oilseed rape ranked as 5th largest in terms of output of oilseeds, the first four being soyabeans, cottonseeds, groundnuts and sunflower seeds. Diagram 1 illustrates World production of these commodities for 1974-76 inclusive, and emphasises the World dependence on soyabeans.

Areas and production levels of the five main oilseeds for the leading producers are detailed in Table 1. Over the three years 1974-6 between 55 and 61% of all soya beans were produced in the U.S.A., with, in 1975, 30% of total U.S. output being exported. In the same year the E.E.C. imported 8,233 million tonnes and the U.K. 754,000 tonnes. The relative position of Brazil as a world producer of soya beans has risen greatly since 1974, with plantings increasing by 25% and production by 42.5%. Thirty four percent (3,333 million tonnes) of home production was exported in 1975. China, although accounting for approximately 20% of World soyabean output (F.A.O. estimates) does not figure in the export market. Area and production of soya beans in 1976 fell from the 1975 level, the short fall in the U.S. being responsible for the major decrease.



TABLE I

AREAS & PRODUCTION LEVELS OF THE 5 LEADING OILSEEDS

	<u>Area Harvested</u> 1000 ha.				<u>Production</u> 1000 tonnes				<u>1976 Production</u>
	<u>1961-65</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1961-65</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>% of total</u>
<u>Soya Beans</u>									
World	28373	44743	46006	44885	32474	56969	68938	62117	100
of which USA	12016	21192	21756	20009	19560	33062	42079	34425	55
Brazil	337	5143	5824	6416	354	7876	9892	11227	18
China	13293F	14144F	14141F	14202F	10683F	11867F	12062F	12143F	20
<u>Cottonseed</u>									
World	NA	NA	NA	NA	20203	26232	22859	23763	100
of which USSR	NA	NA	NA	NA	3292	5460*	5100*	5400F	23
China	NA	NA	NA	NA	2456F	4987F	4770F	4900F	21
India	NA	NA	NA	NA	2064	2580	2386	2292*	10
U.S.A.	NA	NA	NA	NA	5556	4091	2749	3661	15
<u>Groundnuts</u>									
World	18225	18902	19321	19112	15786	17338	19504	18412	100
of which India	7226	7063	7376	7000F	5125	5111	6991	5700*	31
China	1811F	2164F	2214F	2273F	2071F	2794F	2891F	2893F	16
USA	569	596	609	612	890	1664	1750	1694	9
Africa	6414	6622	6605	6707	5267	5176	5076	5306	29
<u>Sunflower seeds</u>									
World	7034	8977	8642	9550	7349	10956	9390	10017	100
of which USSR	4495	4686	4045	4638	5068	6784	4990	5200	52
Europe	986	1619	1998	1870	1211	1888	2183	2209	22
Argentina	920	1190	1005	1258	625	970	732	1085	11
<u>Rapeseed</u>									
World	6861	9281	10208	8997	4293	7230	8436	7520	100
of which Canada	306	1279	1748	803	278	1163	1749	930	12
China	1883F	2501F	2683F	2683F	1035F	1251F	1304F	1310F	17
EEC	186	537	517	511	360	1203	919	971	13
of which France	107	339	301	283	196	685	487	510	7
U.K.	1	25	39	48	3	56	61	111	2

Source: FAO

\* Unofficial figure

F - FAO Estimate

NA - Not available

Second in the league table of oilseeds is cotton seed, which is used principally for the production of cotton fibre. World output runs at approximately 23 million tonnes, with a fall of 9% being evident since 1974.

Fluctuations in areas sown and yields of both groundnuts and sunflower seeds have occurred since 1974. A 17% increase in sunflower seed was shown by Europe over the same time period.

Between the early 1960's and 1975 total area sown to rapeseed in the world rose by 49% whilst production increased by 96.5%. The harvested area fell to approximately 9 million hectares with a total yield of 7.5 million tonnes. Seventy eight percent of the fall in world plantings occurred in Canada as a result of the 1975 acreage being halved. The area released was largely used in the expansion of the wheat crop.

The area sown to rape in the E.E.C. as a whole has fallen gradually since 1974, although showing a 189% increase over the previous decade. Of individual E.E.C. members, France, the major producer, has been responsible for a large part of the decrease in rape hectareage. U.K. plantings and production, as will be illustrated in more detail later, have risen since the 1960's with both area and production increasing by over 90% since 1974.

An oil content of between 15 and 60% of the crushed oilseed is a main characteristic of vegetable oilseeds. After extraction of the oil the residual meal is available as an important source of animal protein. One of two types of meal is produced depending on the method of oil extraction used - application of mechanical pressure to the oilseeds supplies 'expeller cake', whilst crushing of the flaked seed using a volatile solvent for the oil results in 'extracted meal'.

The characteristics of the various oil crops are shown below:-

TABLE II

	<u>Product</u>	<u>By-products</u>	<u>% Oil by weight</u>	<u>% Meal by weight</u>	<u>% Oil in meal</u>
Soya beans	meal	oil	18	80	44
Cottonseed	cotton fibre	meal & oil	18	60 (20% hulls)	45
Groundnut	oil	meal	45	55	50
Sunflower seed	oil	meal	44	55	40
Rapeseed	oil	meal	38.5	60	36

Soya at present tends to dominate the market for oils, seeds and oil cakes. Soya meal is believed to be the ideal vegetable protein, but this is mainly because of various negative factors applied to other vegetable meals, namely anti-nutrients. These are also present in the raw state in soya beans but, unlike in other oilseeds, are destroyed during processing. Although the predominant anti-nutrients in rapeseed meal are tannins and glucosinalates, low glucosinalate levels are now available in rapeseed whilst the breeding of varieties with reduced tannin is currently in progress.

Palm oil is the fastest growing sector of the vegetable oil trade and production has increased to 3.3 million tonnes in 1976 from 1.3 million tonnes in the early 1960's. Projections of production to between four and five million tonnes by 1980 have been made, which, with exports in the region of 3.5 to 4 million tonnes, may result in palm oil having an increasing influence on the whole vegetable oilseed sector, with the possibility of it displacing soya oil as the key product in the case of oil.

Details of world palm oil production by the main producers are shown in Table III.

TABLE III

<u>Palm Oil</u>	<u>1961-65</u>		<u>1974</u>		<u>1975</u>		<u>1976</u>	
		%						%
World	1,332	100	2,730		3,087		3,318	100
of which								
Africa	980	74	1,080		1,124		1,158	35
(Nigeria	540	41	485F		500F		510F	15)
Asia	317	24	1,516		1,818		2,011	61
of which								
(Indonesia	151	11	334		404*		450*	14
Malay Peninsula	120	9	942		1,135		1,250*	38)

Source: FAO

The increase has been most marked in the Malay Peninsula and Indonesia, these countries together accounting for about one half of world production in 1976 compared with one fifth in the early 1960's. Production in the Malay Peninsula has expanded to 1.25 million tonnes in 1976 from 120,000 tonnes in 1961-65. Exports of palm oil from Malaysia in 1975 were 8.05 million tonnes (71% of production) but by the third quarter of 1976 had risen to 22% above the similar period a year previously. Large increases in Malaysian palm oil production resulted from rubber producers turning to an alternative source of revenue in the mid-sixties when it was anticipated that competition from synthetic rubber would threaten the whole future of the national rubber trade. Although these fears proved to be wildly exaggerated, Malaysia has, as a result, gained an important new source of export earnings. Palms produce very much more oil than other products but only leave a negligible amount of meal. This reduces the revenue in comparison with other crops that have a more even joint production of oil and meal.

Another disadvantage of palms would seem to be their very long production lag. Palms, a plantation crop, only commence a production life which lasts for 25-30 years, after a five year period of inactivity following planting. If high prices cause increased plantings, the production lag of palms can subsequently cause over-supply of palm oil on the world market and a fall in price. Low labour and other variable costs compared with fixed costs of tree planting and removal result in continued production until prices are very low or palm growth ceases. The decision regarding plantings of soyabeans and rapeseed can be taken annually and thus supply of these commodities responds rapidly to changing prices.

West African output of palms, mainly for local consumption, has remained more or less static.

THE EEC SITUATION

EEC production of fats and oils covers only 39% of consumption, with the only products of any importance in the Community being rape, olive oil, sunflowerseed and animal fats. Production of meal from EEC grown vegetable seed (about 550,000 tonnes) meets only 4.5% of consumption. This has led to some concern over the dependence of the EEC on other countries for its supplies of animal feedingstuffs.

TABLE IV.

EEC RAPESEED PRODUCTION

	<u>Area Harvested</u> 1000 ha.			<u>Yield Tonnes/ha.</u>			<u>Production 1000 tonnes</u>			<u>% of total in 1976</u>
	1974	1975	1976	1974	1975	1976	1974	1975	1976	
France	339	301	283	2.02	1.62	1.80	685	487	510	52.5
W. Germany	110	90	95	2.74	2.21	2.34	301	199	222	22.9
U.K.	25	39	48	2.26	1.56	2.31	56	61	111	11.4
Denmark	48	72	72	2.33	1.82	1.25	112	131	90	9.3
Netherlands	14	14	12	3.27	2.60	2.78	45	37	34	3.5
Italy	1	1	1	2.22	2.24	2.18	3	3	3	0.3
Belg./Lux.	-	-	-	2.26	2.18	2.25	1	-	1	0.1
AVERAGE EEC	-	-	-	2.44	2.03	2.13	-	-	-	-
TOTAL EEC	537	517	511	-	-	-	1203	918	971	100.0

Overall the trend in rapeseed plantings in the EEC in the three year period 1974-76 is downward, although the previous decade has seen almost a threefold increase. Production has shown fluctuations, falling in 1975 but increasing again in 1976 to 971,000 tonnes. Yields show great variations, both between and within years. In the period 1974-76 the Netherlands consistently had the highest yields with West Germany in second position for two of the three years. France, the major producer, was next to bottom in the yield league table for each year of this period. Low yields, coupled with high costs of spraying against insect pests, are the main reasons for the fall in the French rapeseed hectareage between 1974 and 1976. Sunflowers, with higher yields and prices than rapeseed, and linseed, with the attractive proposition of an EEC subsidy, were substituted for rapeseed by French growers in 1975.

THE U.K. SITUATION

TABLE V

U.K. SUPPLIES OF RAPESEED

	(July/June 1000 tonnes)				
	1972/3	1973/4	1974/5	1975/6	1976/7 (fore- cast)
Production	14	31	53	67	115
Imports from the Eight	30	44	23	22	5
Imports from Third countries	73	53	18	39	11
Exports	0	1	3	1	1
Total new supply	117	127	91	127	130
Production as % of total new supply	12	24	58	53	88

Source: M.A.F.F.

Home production of rapeseed has increased eightfold since 1972/3 and is forecast to be 115,000 tonnes for 1976/7. Imports in the same year are likely to be 16,000 tonnes, 5,000 tonnes of this coming from the EEC. This compares with an import figure of some 103,000 tonnes in 1972/3. Thus, self-sufficiency in the case of this oilseed has risen from 12% in 1972/3 to a forecast 88% in 1976/7.



SECTION 2: THE SURVEY

I. INTRODUCTION

The 1976 oilseed rape survey was the second part of a two year study into the economics and management of oilseed rape production in southern and central counties of the U.K.

The national acreage of this crop in 1976 amounted to 118,086 (47808 ha.) an increase of 22.6% on the 1975 figure. From Table 1, where a breakdown of the total acreage into regions is shown, it will be noted that whilst the South Eastern region had the largest area of rape in 1975, the East Midlands went into the lead in 1976 with 33,461 acres followed by the Eastern region in close second position. The South West showed a substantial drop of 23% in its 1976 area.

TABLE 1

ACREAGE OF OILSEED RAPE BY REGION 1968, 1970, 1975 & 1976

<u>MAFF REGION</u>	<u>1968</u>	<u>1970</u>	<u>1975</u>	<u>1976</u>	<u>% Change in area between 1975 &amp; 1976</u>
Eastern	2,217	1,075	24,190	33,278	+37.6%
South Eastern	6,971	5,180	26,567	27,054	+ 1.8%
East Midlands	2,688	1,271	25,220	33,461	+32.7%
West Midlands	815	215	3,417	5,088	+48.9%
South Western	2,840	1,506	9,068	6,975	-23.1%
Northern	143	223	1,740	2,586	+48.6%
Yorks & Lancs	221	55	5,800	8,830	+52.2%
Wales	126	369	299	815	+172.6%
<b>TOTAL ENGLAND AND WALES</b>	<b>16,020</b>	<b>9,894</b>	<b>96,299</b>	<b>118,086</b>	<b>+22.6%</b>

This increase in total acreage of necessity results in a larger percentage of the crops and grass area being taken up by rape, and the regional percentages for 1976 and comparisons with 1968 and 1975 are displayed in Table 2.





TABLE 2

PROPORTION OF CROPS AND GRASS ACREAGE OCCUPIED  
BY OILSEED RAPE: 1968, 1975 & 1976 BY REGION

<u>MAFF REGION</u>	<u>Oilseed Rape as % of</u> <u>Total Crops and Grass Acreage</u>		
	<u>1968</u>	<u>1975</u>	<u>1976</u>
Eastern	0.058	0.690	0.949
South Eastern	0.232	0.910	0.932
East Midlands	0.090	0.850	1.132
West Midlands	0.029	0.130	0.186
South Western	0.067	0.220	0.167
Northern	0.006	0.070	0.102
Yorks & Lancs	0.010	0.270	0.407
Wales	0.005	0.010	0.031
<u>TOTAL ENGLAND</u> <u>&amp; WALES</u>	<u>0.067</u>	<u>0.410</u>	<u>0.500</u>

II. THE SAMPLE

This consisted of growers who co-operated in the 1975 Survey and continued to grow the crop again in 1976. A reduction in both the number of crops and acreage was evident in 1976 as a result of some growers omitting oilseed rape from their 1976 rotation.

Seventy-six crops, of which 57 were winter and 19 spring, were grown on 74 holdings. The percentage of spring rape in the total area we looked at fell from 42.6% in 1975 to 24.2% in 1976. The reverse, of course, was the case for winter rape, increasing from 57.4% in 1975 to 75.8% in 1976 reflecting the general preference for and move towards the winter crop.

The geographical distribution, area and types of crop grown are detailed in Table 3, together with comparisons of the two years, whilst size distribution of crops in 1975 and 1976 are the topic of Tables 4A and 4B.

TABLE 3

GEOGRAPHICAL DISTRIBUTION OF THE CROPS SURVEYED

<u>COUNTY</u>	<u>No. of Farms</u>		<u>No. of crops</u>				<u>Acreage</u>			
	1975	1976	<u>Winter</u>		<u>Spring</u>		<u>Winter</u>		<u>Spring</u>	
			1975	1976	1975	1976	1975	1976	1975	1976
Bedfordshire	5	5	5	5	-	-	418	377	-	-
Berkshire	8	6	2	3	6	3	151	167	404	150
Buckinghamshire	7	5	4	4	3	1	400	388	182	52
Gloucestershire	3	3	3	3	1	-	255	302	320	-
Hampshire	17	14	5	5	16	10	242	321	1339	1018
Hertfordshire	2	1	2	1	-	-	184	67	-	-
Huntingdon	7	7	7	7	-	-	395	401	-	-
Northamptonshire	16	10	15	10	3	-	1052	841	129	-
Oxfordshire	7	6	6	6	2	-	349	395	113	-
Warwickshire	9	9	9	9	-	-	742	788	-	-
Wiltshire	12	8	4	4	10	5	228	305	790	168
	93*	74**	62*	57**	41*	19**	4416	4352	3277	1388

\* 10 farmers grew both winter and spring crops

\*\* 2 farmers grew both winter and spring crops

TABLE 4A

SIZE DISTRIBUTION OF THE OILSEED RAPE CROPS IN THE 1976 SAMPLE  
AND COMPARISONS WITH 1975

<u>Size Group</u>	<u>Number of crops 1976</u>	
	<u>Winter</u>	<u>Spring</u>
Under 25 acres	-	1
25-49 acres	14	7
50-74 acres	17	7
75-99 acres	15	2
100-149 acres	8	-
150 acres and over	3	2
	<u>57</u>	<u>19</u>

TABLE 4B

NUMBER OF CROPS BY SIZE GROUP AS % OF TOTAL - 1975 & 1976

<u>Size Group</u>	<u>Winter</u>		<u>Spring</u>	
	<u>1975</u>	<u>1976</u>	<u>1975</u>	<u>1976</u>
Under 25 acres	3.0	-	2.0	5.0
25-49 acres	27.0	15.0	42.0	37.0
50-74 acres	29.0	30.0	24.0	37.0
75-99 acres	26.0	26.0	5.0	10.5
100-149 acres	10.0	14.0	20.0	-
150 acres and over	5.0	5.0	7.0	10.5
	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>

### III. OUTPUT, COSTS AND MARGINS - 1976 HARVEST

The hot dry summer of 1976, generally speaking, proved to be disadvantageous towards spring oilseed rape but not to the winter crops. The latter, drilled in the autumn of 1975, were well established and deeply rooted by the spring of 1976, and subsequently harvested by or during July, missing the rigours of the worst drought months. The spring crops, on the other hand, truly suffered. The dry spring resulted in very poor and erratic establishment followed by uneven growth in the appallingly dry conditions throughout the summer. These adversities are reflected in the figures shown opposite.

The average yield for spring rape fell by 20% compared with 1975, to 5.57 cwts. per acre and output was also reduced to £41.61 per acre, despite an increase in the prices received for the crops. The range of yields was wide and not dissimilar to 1975 - 0.7 to 14.4 cwts in 1976, 0.9 to 14.8 cwts. in 1975. Output for winter rape rose by 32% above the 1975 average, partly due to higher sale prices and partly to improved yields. The average 1976 yield of 17.49 cwts. per acre was some 1.83 cwts. above the 1975 figure.

Variable costs, at £39.85 per acre for winter rape and £31.69 per acre for spring rape, had risen by 17% and 12% respectively. The worst offenders were sprays for the winter crops (+37%) and fertiliser for the spring crops (+18%), although fertiliser remained the major contributor to this section of inputs, 57% of the winter and 66% of the spring variable costs. In contrast to the general cost increases felt in 1976, some items, e.g. sprays, contract and miscellaneous costs, fell between the two years.

Average gross margins of £91.23 per acre (+£26.15) for winter and £9.92 per acre (-£4.97) for the spring rape crops, were achieved.

As in 1975, a study of the results for individual crops showed there was nowhere near as much farm to farm variation in costs as in output. The differences in yields, already mentioned, and therefore output, are thus largely responsible for the wide variation in net margin - £60.20 to £119.41 per acre for winter rape, and -£89.69 to £20.69 per acre for spring rape. The average net margin we calculated for the 56 winter crops was £45.55 per acre, an increase of £18.19, with a premium figure of £89.91. Spring rape's net margin was negative, -£42.91 per acre, a fall of £17.40, with a premium figure, also negative, of -£8.13 per acre.

RESULTS OF THE 1976 HARVEST

OILSEED RAPE

	<u>Winter</u>		<u>Spring</u>	
	Average	Premium*	Average	Premium*
Number of farms	56	14	19	5
Total acreage	4287	1018	1388	354
of which failed	78	0	72	3
Yield - cwt per acre	17.49	21.25	5.57	10.82
<b>OUTPUT</b>	<u>£ per acre</u>		<u>£ per acre</u>	
Sales of rapeseed	131.08	170.72	41.61	83.01
<b>Total</b>	131.08	170.72	41.61	83.01
<b>Less Variable Costs</b>				
Seed	4.45	4.16	4.81	4.76
Fertiliser	22.56	22.07	20.94	19.80
Spray materials	5.93	5.45	4.51	4.63
Contract	5.59	4.84	1.34	3.24
Miscellaneous	1.32	0.69	0.09	0.22
<b>Total</b>	39.85	37.21	31.69	32.65
<b>= GROSS MARGIN</b>	91.23	133.51	9.92	50.36
<b>Less Fixed Costs</b>				
Labour	5.69	4.85	8.03	9.13
Power and Machinery	13.64	13.14	17.86	20.43
Rent	15.19	15.07	15.92	17.04
General Farm Overheads	11.16	10.54	11.02	11.89
<b>Total</b>	45.68	43.60	52.83	58.49
<b>= NET MARGIN</b>	45.55	89.91	-42.91	-8.13

<u>Range**</u>	<u>cwt per acre</u>	
Yield	3.30 to 24.80	0.70 to 14.40
	<u>£ per acre</u>	
Output	21.96 to 203.36	5.56 to 113.14
Variable Costs	23.87 to 77.10	20.85 to 53.88
Gross Margin	-17.73 to 165.92	-30.95 to 77.62
Total Fixed Costs	23.30 to 66.51	35.91 to 68.43
Net Margin	-60.20 to 119.41	- 89.69 to 20.69

\* Premium - the best 25% taking net margin as the criterion

\*\* Harvested crops only

CHANGES BETWEEN THE 1975 AND 1976 RESULTS

EXPRESSED AS PERCENTAGES

	<u>Winter Rape</u>		<u>Spring Rape</u>	
	Average	Premium	Average	Premium
Yield	+12	+2	-20	-7
Sales of rapeseed	+32	+30	- 4	+13
Total variable costs	+17	+22	+12	+16
Gross margin	+40	+32	-33	+11
Net Margin	+66	+45	-68	-721

IV. MANAGEMENT PRACTICES

IV(i) SEED VARIETIES

Table 5 details the varieties of winter and spring oilseed rape grown by acreage and number of crops, in 1975 and 1976.

TABLE 5

Winter Oilseed Rape Varieties

	<u>No. of crops</u>		<u>Acreage</u>		<u>% of total acreage</u>	
	<u>1975</u>	<u>1976</u>	<u>1975</u>	<u>1976</u>	<u>1975</u>	<u>1976</u>
Victor	21	-	1580	-	36	-
Rapora	1	27	40	2234	1	51
Primor	25	21	1455	1476	33	34
Expander	-	6	-	403	-	9
Rapol	7	2	601	133	13	3
Lesira	5	3	205	106	5	2
Sonnengold	3	-	225	-	5	-
Mogul	3	-	219	-	5	-
Eurora	1	-	91	-	2	-
<b>TOTAL</b>	<b>66</b>	<b>59</b>	<b>4416</b>	<b>4352</b>	<b>100</b>	<b>100</b>

1976 - 1 grower used 3 varieties

Spring Oilseed Rape Varieties

Maris Haplona	6	13	415	1008	13	73
Erglu	4	4	170	200	5	14
Lesira	2	1	100	110	3	8
Gulle	32	2	2521	70	77	5
Oro	1	-	71	-	2	-
<b>TOTAL</b>	<b>45</b>	<b>20</b>	<b>3277</b>	<b>1388</b>	<b>100</b>	<b>100</b>

Looking at the winter rape varieties Victor (high erucic acid) which accounted for 36% of the crops in 1975, was not grown on any of the 1976 surveyed acreage. Rapora increased its portion by 50% and Primor was again in second place with 34% of our 1976 area. Although Gulle (high erucic acid) was the favourite in the 1975 spring crops, it was responsible for only 5% of the area in 1976, with Maris Haplona going well into the lead (73%). Once again one farmer drilled a winter variety (Lesira) in the spring and for our purposes this was regarded as a spring crop.

The results emerging from Table 5, of course, reflect the transfer to low erucic acid varieties as a direct consequence of the EEC regulations governing the erucic acid content of rapeseed. As from 1st July 1976, the maximum erucic acid level allowed in fats, oils and margarines was not to exceed 15%, with a further drop to 10% on 1st

July, 1977. This level will remain in force until 30th June, 1979 when it will again be lowered, to 5%. Rapeseed oil is the only oil in general use containing a significant proportion of erucic acid which is possibly harmful in large doses. In the past the traditional varieties grown in the U.K. contained about 40% erucic acid. Now most of the U.K.'s rapeseed acreage is sown with varieties with less than 0.5% erucic acid in the oil. Low erucic acid varieties are in fact hybrids produced from low and high acid types - first generation seed contains less than 0.5% acid in the oil.

IV(ii) DRILLING METHODS

Once again, as with the 1975 crop, the direct drill was the sowing method preferred by the bulk of winter rape growers (45%). The corn drill increased its popularity compared with 1975 and was used by 40% of the 1976 growers (Table 6). Eight growers transferred to the use of a corn drill - 5 from a direct drill and 3 from a broadcaster - whilst 3 growers moved away from a corn drill - 1 to a direct drill and 2 to a broadcaster. Thirty-five growers remained faithful to the drilling method they used in 1975.

TABLE 6

DRILLING METHODS USED IN 1975 & 1976

Winter Oilseed Rape

	<u>7" row width</u>		<u>Number of growers</u>		<u>Acreage</u>		<u>Acreage as % of total</u>	
	<u>1975</u>	<u>1976</u>	<u>1975</u>	<u>1976</u>	<u>1975</u>	<u>1976</u>	<u>1975</u>	<u>1976</u>
Direct drill	28	24	34	27	2322	2021	53	46
Corn drill	12	21	19	24	1290	1739	29	40
Broadcast	-	-	13	8	633	414	14	10
Not available	-	-	1	1	70	178	2	4
Other	-	-	1	-	101	-	2	-
<b>TOTAL</b>	<b>40</b>	<b>45</b>	<b>68</b>	<b>60</b>	<b>4416</b>	<b>4352</b>	<b>100</b>	<b>100</b>

Spring Oilseed Rape

Corn drill	14	10	26	15	1809	814	55	59
Broadcast	-	-	12	4	602	574	18	41
Not available	-	-	2	-	367	-	11	-
Other	-	-	1	-	421	-	13	-
Direct drill	2	-	2	-	78	-	3	-
<b>TOTAL</b>	<b>16</b>	<b>10</b>	<b>43</b>	<b>19</b>	<b>3277</b>	<b>1388</b>	<b>100</b>	<b>100</b>



Table 6 reflects the move of many growers to the use of an ordinary corn drill with minimal cultivations for sowing rapeseed. Direct drilling, when not used within the necessary guidelines, can in fact, cause problems. A tilth is not created for the seed to germinate in and compacted soil can impede root development and in turn affect yields. Rapeseed is very small and thus has only a tiny quantity of energy available. It is of paramount importance, therefore, that it strikes out into a loose soil in order that germination will not be delayed. In addition, sowing must not be too deep, approximately  $\frac{1}{2}$ " is the general recommendation. If buried deeper than this the seed will use up its limited reserves in a futile effort to establish itself.

#### IV(iii) DRILLING DATES

Maximisation of yields is the prime objective of growing any crop and rape is no exception. Crop establishment and autumn growth are the two main factors affecting yields. Well-established leafy crops with well-developed root systems are capable of producing more seed, since the amount of leaf present when the plant changes from the vegetative to the reproductive (flowering) state influences flower and therefore, seed production. This stage of flower bud development is critical and is precipitated by a period of cold weather (vernalisation).

Sowing times are of the utmost importance in determining crop establishment and, therefore, yield maximisation. Too early sowing results in excessive growth early on which is vulnerable to cold weather, whilst late sowing invariably leads to poor germination. 1976 was abnormal from this point of view as the drought delayed germination until mid-September when the rain started, and thus two weeks were lost.

Greater flexibility of drilling dates is possible with the new low erucic acid varieties, enabling drilling after combining of cereals other than winter barley. A breakdown of drilling dates by variety is given in Table 8 for both the winter and spring crops in 1976, and these in no way conformed to the rule of earlier for direct and later for conventional methods.

TABLE 8

DRILLING DATES BY SEED VARIETY

Winter Rape Variety →		<u>Rapora</u>		<u>Primor</u>		<u>Expander</u>	<u>Rapol</u>	<u>Lesira</u>
Date ↓		<u>No.</u>	<u>%</u>	<u>No.</u>	<u>%</u>	<u>No.</u>	<u>No.</u>	<u>No.</u>
Aug.	15-21	-	-	-	-	-	1	-
	22-31	12	45	6	29	1	-	1
Sept.	1-7	6	22	7	33	2	1	-
	8-14	6	22	4	19	1	-	-
	15-21	2	7	3	14	2	-	2
	22-30	1	4	-	-	-	-	-
	Not available	-	-	1	5	-	-	-
TOTAL = 59		27	100	21	100	6	2	3

1 farmer grew  
3 varieties

Spring Rape Variety →		<u>Maris Haplona</u>		<u>Erglu</u>	<u>Gulle</u>	<u>Lesira</u>
Date ↓		<u>No.</u>	<u>%</u>	<u>No.</u>	<u>No.</u>	<u>No.</u>
Mid Feb.		-	-	-	-	1
March	1-7	-	-	-	-	-
	8-14	1	8	-	2	-
	15-21	3	23	1	-	-
	22-31	5	38	2	-	-
April	1-7	3	23	-	-	-
	8-14	1	8	-	-	-
May	5	-	-	1	-	-
TOTAL = 20		13	100	4	2	1

IV (iv) FERTILISER USAGE

The average number of units of N, P and K used on both the winter and spring crops with comparisons with 1975, were as follows:

	<u>N</u>	<u>P</u>	<u>K</u>
Spring oilseed rape 1976	132(61)	49	51
1975	129(48)	47	48
Winter oilseed rape 1976	188(41)	45	34
1975	178(43)	45	43

The figures in brackets denote the units of fertiliser applied to the seed bed. More nitrogen was applied to the winter crop as a top dressing than in 1975, together with less potash.

Twenty-two of the winter crops received split top dressings of nitrogen, with 34 winter and 16 spring crops having all their nitrogen in one fell swoop.

IV(v) SPRAYS

Use of both herbicides and insecticides was resorted to by 56 of the 57 growers of winter rape in 1976, the remaining 1 using an insecticide only. In the spring crop, 17 used insecticides with 6 using a herbicide in addition. One used no chemicals at all on his spring crop. Thus, a marked increase in the use of chemicals to control these ever-increasing bugs and beasties was evident in 1976, 71 of the 74 growers compared with 57 of the 93 growers in 1975. Greater acreages of oilseed rape in the last year or two have intensified the problems associated with pests and diseases which, with more expansion in area, are unlikely to sink into obscurity.

IV(vi) CONTRACT WORK

Charges for contract work in the 1976 sample fell marginally for both winter and spring crops when making comparisons with 1975 (in brackets) - winter £5.59/acre (£6.01) and spring £1.34/acre (£1.54).

Tables 9 and 10 detail the work carried out on contract for the 1976 crop.

TABLE 9

NUMBER OF GROWERS USING A CONTRACTOR

	<u>Winter Rape</u>	<u>Spring Rape</u>
Total	57	19
Number using contractors	41 (47)	6 (12)

The figures in brackets denote the number of 1975 growers in the 1976 survey who used contractors in 1975.

TABLE 10

TYPES OF WORK CARRIED OUT BY  
THE CONTRACTORS

	<u>Total</u>	<u>Winter Crops</u>	<u>Spring Crops</u>
Windrowing	29	26	3
Direct drilling	19	19	-
Spraying -	13	13	-
of which aerial	9	9	-
Combining	3	3	-
Fertiliser spreading	5	2	3
Drying	2	2	-
Drying and storage	1	1	-
Cleaning and drying	2	1	1
<b>Total</b>	<b>74</b>	<b>67</b>	<b>7</b>

(A number of growers used contractors for more than one operation).

In the winter crops windrowing was the most utilised, contractor's operation (26) with direct drilling in second place (19 winter crops).

IV(vii) HARVESTING METHODS

TABLE 11

	<u>COMBINING METHODS</u>									
	<u>Total</u>		<u>Winter Crops</u>				<u>Spring Crops</u>			
	<u>1976</u>	<u>1975</u>	<u>1976</u>		<u>1975</u>		<u>1976</u>		<u>1975</u>	
			No.	%	No.	%	No.	%	No.	%
Direct combined	21	33	9	16.0	4	7.0	12	63.0	29	71.0
Windrowed & combined	50	63	46	81.0	54	87.0	4	21.0	9	22.0
Desiccated & direct combined	2	-	-	-	-	-	2	11.0	-	-
Combinations of methods	1	3	1	1.5	2	3.0	-	-	1	2.0
Not harvested	1	4	-	-	2	3.0	1	5.0	2	5.0
Not available	1	-	1	1.5	-	-	-	-	-	-
	76	103	57	100.0	62	100.0	19	100.0	41	100.0

Eighty-one per cent of winter crops were windrowed and combined out of the swath, although this was a fall compared with 1975 when 87% of the winter crops were harvested similarly. An increase in direct combining of 9% may have been a consequence of the hot dry summer. Two of the spring crops were desiccated and combined direct, although direct combining was still the method favoured for the bulk of the spring crops (63%).

IV(viii) SELLING METHODS

TABLE 12

	<u>On Contract</u>	<u>Not on Contract</u>	<u>Not Harvested</u>
<u>Winter Rape</u>			
Number of sales (5 growers used both methods)	43 (70%)	18 (30%)	-
Tonnage sold	2664.85	1224.63	-
<u>Spring Rape</u>			
Number of sales	15 (83%)	3 (17%)	1
Tonnage sold	291.87	147.26	-
<b>TOTAL SALES</b>	<b>58 (73%)</b>	<b>21 (27%)</b>	<b>-</b>
<b>TOTAL TONNAGE MARKETED</b>	<b>2956.72 (69%)</b>	<b>1371.89 (31%)</b>	

Marketing methods are detailed in Table 12. It is evident that the most popular means of selling the crop (both winter and spring) is on contract. Sixty-Nine per cent (by weight) of the crop was marketed in this fashion - 73 per cent of sales. Five per cent of the winter growers kept their options open and used both outlets for their crops.

TABLE 13

CHANGES IN MARKETING METHODS

	<u>Winter Crops</u>	<u>Spring Crops</u>	<u>TOTAL</u>
Sold on contract in 1975 & 1976	31	14	45
Not sold on contract in 1975 & 1976	8	2	10
Sold on contract in 1975 and non- contract in 1976	5	1	6
Not sold on contract in 1975 and contract in 1976	6	1	7
Sold on contract in 1975 and used both methods of sale in 1976	4	-	4
Not sold on contract in 1975 and used both methods of sale in 1976	1	-	1
Not available in 1975, sold on contract in 1976	1	-	1
Not harvested	-	1	1
Not available	1	-	1
TOTAL	57	19	76

From Table 13 it can be seen that 55 of the crops were marketed in the same manner in both years, 45 of these on contract and 10 sold on the open market. A number of crops were marketed differently - 6 switching to the open market and 7 away from this outlet in 1976.

TABLE 14

1976 CROP SALES BY DATE OUTLET AND PRICE - ALL CROPS

<u>Date of Sale</u>	<u>Total Tonnage</u>	<u>Sales on Contract</u>		<u>Difference in Price</u>	<u>Sales Not on Contract</u>	
		<u>Tonnage</u>	<u>Price</u>		<u>Tonnage</u>	<u>Price</u>
July 1976	147.28	147.28	135.05	-	-	-
Aug. "	372.46	372.46	133.50	-	-	-
Sept. "	400.50	254.96	132.91	-2.34	145.54	135.25
Oct. "	421.84	330.96	141.61	+3.57	90.88	138.04
Nov. "	892.25	355.83	148.57	+2.38	536.42	146.19
Dec. "	693.48	363.53	152.64	+5.22	329.95	147.42
Jan. 1977	586.19	510.10	155.64	+4.89	76.09	150.75
Feb. "	420.12	410.30	155.95	+0.62	9.82	155.33
March "	157.41	64.21	150.82	-16.98	93.20	167.80
April "	198.32	108.32	179.76	-16.08	90.00	195.84
	<u>4289.85</u>	<u>2917.95</u>			<u>1371.90</u>	
Details not available		38.86				
		<u>2956.81</u>				

The yardstick used for comparing price was the original quoted price before any adjustments for oil content etc. plus any bonus paid by a marketing organisation. Prices obtained and tonnages moved throughout the year are displayed in Table 14 for winter and spring crops combined. With the exception of September, March and April, contract prices were slightly higher than those achieved on the open market, the largest difference of £5.22/tonne occurring in December. In March the open market price was £16.98 above the contract price for the same month. Tonnages moved varied a great deal with approximately half of the total quantity moved during November, December and January.

IV(ix) DIFFICULTIES NOT ENCOUNTERED PRIOR TO 1976

In the winter crops the most stated problem in 1976 was the increased attacks from pests, especially pollen beetles and seed weevils (22 growers). Sixteen farmers encountered problems at harvest as a result of the very dry hot summer, namely heavy losses at combining, due to pods shattering and uneven ripening. Storage, as a reflection of the heat, was also a problem i.e. cooling the seed after harvest and its overheating in store. Pigeon attack was suffered by 11 growers on a worse scale than in previous years, whilst the dry 1975 autumn was blamed for poor germination by 2 growers.

Almost all the complaints voiced by the spring growers were as a result of the drought - a dry spring resulted in erratic crop establishment, very uneven growth and ripening, and subsequently low yields (11 growers). An increase in the level of pest attack was felt by only 2 growers.



V FUTURE PLANS OF THE OILSEED RAPE GROWERS CO-OPERATING IN THE  
1976 SURVEY

Once again farmers were questioned as to their plans concerning the rape crop in both the short and long term and Tables 15 and 16 summarise their intentions.

TABLE 15

GROWERS' INTENTIONS FOR 1977

	<u>Winter Rape</u>	<u>Spring Rape</u>	<u>Winter &amp; Spring</u>
	<u>Growers</u>	<u>Growers</u>	<u>Rape Growers</u>
Not growing oilseed rape	3	4	-
Decrease oilseed rape acreage	7	-	-
Increase oilseed rape acreage	23	2	-
Change from winter & spring to all winter	--	-	2
Change from spring to winter	-	4	-
Change from spring to both winter and spring	-	2	-
No change	16	5	-
Growing oilseed rape but acreage not available	4	-	-
Not available	2	-	-
	<u>55</u>	<u>17</u>	<u>2</u>

TOTAL = 74 growers

Seven growers (3 winter and 4 spring) decided not to include rape in their cropping for 1977 whilst 23 of the winter growers and 2 spring growers were considering an increase in acreage for 1977.

Six growers (4 spring and 2 winter and spring) were changing over to winter rape, whilst another 2 spring growers intended trying both crops in 1977.

Thus by 1977 only 9 spring rape crops will remain from the original sample of 41, reflecting the overall preference of growers for the winter rather than the spring crop.

TABLE 16

GROWERS' INTENTIONS IN THE LONG TERM

	<u>Winter Growers</u> <u>in 1976</u>	<u>Spring Growers</u> <u>in 1976</u>	<u>Winter &amp; Spring</u> <u>Growers in 1976</u>
Continue growing winter rape	49	4	2
Continue growing spring rape	-	3	-
Not growing oilseed rape	1	4	-
Not sure	4	6	-
Not available	1	-	-
	<u>55</u>	<u>17</u>	<u>2</u>

In the long term a total of 58 growers thought they would continue to grow the crop - 55 of these preferring winter. Ten growers were not sure and stated their decisions would depend on the 1977 crop, together with the overall profitability levels of rape in the future.

VI DEFINITIONS OF TERMS USED

(i) Output The revenue from sales includes any storage allowances and trading bonuses payable but is net of buyers' deductions, transport charges, membership subscriptions to marketing groups etc.

(ii) Variable Costs Charged at the cost recorded by the growers.  
Fertilisers The cost shown is the actual value of fertilisers applied for the 1975 crop. No residual values have been taken into account.

Sprays This figure represents the cost of materials only.

Contract The actual cost of hiring machines, tractors and operators.

Miscellaneous This includes such items as sack hire, bird scaring materials, etc.

(iii) Fixed Costs

Labour Hours were not recorded for the 1976 crop, but the charge made in 1975 was increased by 24%

Power & Machinery Details were not recorded in 1976. The charge made in 1975 was increased by 24%. If a change in system occurred between the 2 years an adjustment to the costs was made.

Rent Rents and assessed rental values from 1975 were increased by 20%.

Share of General Farm Overheads is 15% of all other costs.

(iv) Margin

Gross Margin Total returns less variable costs

Net Margin Total returns less total costs

(v) Input of Labour and Machinery by type of Operation

Seed bed preparation - all cultivation work after removal of the previous crop up to the stage immediately before sowing

Drilling and covering - drilling and broadcasting seed and fertilisers onto the seed bed and rolling or harrowing in.

Spraying, top dressing and post drilling operations - Includes hauling seeds from the field and straw disposal but not stubble cultivation. If a crop failed and was ploughed in then half the hours taken to do so were charged to the rape crop.

Drying and Storage - all barn work, including pre-cleaning the crop and labour loading lorries at time of sale.

LIST OF PUBLICATIONS ISSUED IN THE AGRICULTURAL ENTERPRISE  
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2	Cucumber Production in the Lea Valley A.H. Gill	Reading	Nov.1970	30p
3	Oilseed Rape: 1967, 1968 and 1969 Harvests J.A.L. Dench	Reading	Dec.1970	50p
4	Outdoor Pigs: Report on an economic investigation M.A.B. Boddington	Wye College (University of London)	Aug.1971	75p
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<u>Number</u>	<u>Title &amp; Author</u>	<u>Published by</u>	<u>Date</u>	<u>Price</u>
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