



AgEcon SEARCH
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search

<http://ageconsearch.umn.edu>

aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

Rape seed

Agricultural Enterprise Studies
in England and Wales
Economic Report No. 3

GIANNINI FOUNDATION OF
AGRICULTURAL ECONOMICS
LIBRARY

MAY 1971

OILSEED RAPE

J. A. L. Dench

University of Reading
Department of Agricultural Economics
and Management

December 1970

Price 50p (10s)

OILSEED RAPE

**A study of its production based
on economic surveys of the 1967,
1968 and 1969 harvest.**

by

J.A.L. Dench

DECEMBER 1970

ACKNOWLEDGEMENTS

The results summarised in this report comprise those collected in 1968 and 1969 in a two year survey carried out jointly by the Universities of Cambridge, Nottingham and Reading, and co-ordinated by the Department of Agricultural Economics at Reading University. Use has also been made of data from a survey of the 1967 rape crop conducted by Imperial Chemical Industries Ltd., who very kindly made the information in their original records available and passed their grower contacts over to the Universities.

Grateful thanks are due to all the farmers who co-operated in these surveys and took so much trouble to provide the basic information, in many cases for three successive years; also to Messrs. Wessex Agricultural Producers Ltd., the National Agricultural Advisory Service and others for supplying names and addresses of farmers growing oilseed rape and help in many other ways. In particular, the department wishes to thank Messrs. Wessex Agricultural Producers Ltd. for their contribution towards the cost of producing this report.

Within the three University Departments, the general scheme for the two year study was drawn up in consultation with Messrs. A.K. Giles, W.L. Hinton and H.W.T. Kerr, and the data collection shared with Messrs. C.W.O. Brooks and W.C. Housden (Cambridge); Messrs. P.G. Barrett and H.W.T. Kerr (Nottingham); Miss W. Brooker, Miss M.R. Gardner, Messrs. A.K. Giles and E.G. Hunt (Reading). Analysis of the background information on oilseed rape growing for Appendix IV was carried out by Miss W. Brooker.

CONTENTS

	Page
Foreword	-
Introduction	1
The Farms in the Survey	3
Spring Rape	5
Winter Rape	9
Harvesting, Drying and Disposal	12
Discussion and Conclusions	14
Appendices	
I The Sample	18
II Data from the 1968 and 1969 Surveys	20
III The Influence of Certain Factors in Yield	24
IV Background Information and Growers' Views	27
V Explanation of Terms and Notes on Costing Method	29
Addresses of University Departments	31

FOREWORD

University departments of agricultural economics in England and Wales, which formed the Provincial Agricultural Economics Service, have for many years conducted economic studies of farm and horticultural enterprises. Such studies are now being undertaken as a co-ordinated programme of investigations commissioned by the Ministry of Agriculture, Fisheries and Food. The reports of these studies will be published in a new national series entitled "Agricultural Enterprise Studies in England and Wales" of which the present report is the third.

The studies are designed to assist farmers, growers, advisers and administrators by investigating problems and obtaining economic data to help in decision-making and planning. It is hoped that they will also be useful in teaching and research. The responsibility for formulating the programme of studies rests with the Enterprise Studies Sub-Committee, on which the Universities and the Ministry (including the National Agricultural Advisory Service) are represented.

Copies of the reports may be obtained from the University Departments concerned. Details of the first and second reports in this series and the addresses of the Departments are given at the end of this report.

INTRODUCTION

The increasingly intensive search for cash crops which will provide an effective break in cereal cropping sequences has led to a widespread interest in oilseed rape in recent years. Before 1966 the crop was of relatively minor importance, probably amounting to under 5,000 acres in England and Wales. The acreage then increased rapidly to about 16,000 acres for the 1968 harvest but declined sharply to just under 13,000 acres in 1969, a trend which was continued in 1970. ⁽¹⁾

In response to the need for more technical and economic information, the I.C.I. conducted a study in 1967 covering 3,356 acres of rape on 68 farms situated mainly in the South of England. ⁽²⁾ The three University Departments of Agricultural Economics followed this with a joint study of the 1968 and 1969 harvests in the main areas of production, namely Eastern, East Midland and Central Southern England. Records were collected for a total of 6,603 acres of rape on 128 farms in 1968 and for 4,218 acres on 69 farms in 1969, representing 41% and 33% respectively of the National acreage in those years. ⁽³⁾

Unfortunately in both 1968 and 1969 the weather adversely affected many crops, and this should be kept well in mind when attempting to assess the results given here. In particular, the very wet harvest conditions in 1968 resulted in poor yields being obtained from crops which otherwise promised quite well. Wet conditions continued well into the spring of 1969 making seedbed preparation and sowing difficult for the 1969 crop, especially on heavy land. However 1967 may be regarded as a reasonably favourable year for oilseed rape production and also 1969 for spring rape on lighter land.

(1) Appendix I, Table 3. (Attention is drawn to supporting tables in the Appendices which amplify many of the statements made in the text).

(2) Oilseed Rape. The technical and economic facts. Published by Wessex Agricultural Producers Ltd. and Imperial Chemical Industries Ltd.

(3) Appendix I, Tables 1, 2 and 3.

Although the popularity of oilseed rape now appears to be declining, it is hoped that the results and conclusions presented here will be of help to those who continue to grow, or are considering whether to grow it. Undoubtedly the crop has a place on many cereal producing farms at the present time and if economic circumstances change in the future, if Britain becomes a member of the E.E.C. for example, oilseed rape could well attain the widespread popularity it deserves as a cereal break crop.

THE FARMS IN THE SURVEY

For the purpose of this study an attempt was made to contact growers in all the areas where a significant acreage of oilseed rape was grown. Unfortunately, reliable national data on the acreage and location of oilseed rape was not available until the end of 1968 - too late to be used for the selection of a random sample of growers. However, the total acreage covered by the study proved to be a relatively high proportion of the national acreage,⁽¹⁾ so the results can be taken as reasonably representative.

Within the 1968 sample of 128 farms, winter rape was confined almost exclusively to those on medium and heavy soils in the Midland and Eastern counties, whereas farms in the South grew spring rape and were situated mostly on medium and light soils overlying chalk or limestone formations⁽²⁾. The farms were typically large arable units, those in the South being larger and having a higher proportion of their acreage devoted to grazing livestock.

	<u>Southern Counties</u>	<u>Midland and Eastern Counties</u>	
		Spring rape	Winter rape
Number of farms	67	31	30
Average size acres	1131	598	587
Cropping:	%	%	%
Cereals	63	70	65
Other cash crops	14	21	24
Grass, forage and rough grazings	23	9	11
	<hr/> 100	<hr/> 100	<hr/> 100
Livestock:	Number per 1,000 acres		
Dairy cows	35	3	7
Other cattle	71	42	49
Sheep (excl. lambs under 6 months)	137	70	94
Pigs (excl. piglets under 8 weeks)	128	33	65
Poultry	1358	111	1800
Number of farms without any livestock	16	12	10

(1) Appendix I, Table 3

(2) Appendix I, Table 2

Nearly all the farms in the Midland and Eastern Counties were below the 250 foot contour, but in the South elevations ranged from 50 to 800 feet. And it is interesting to note that within this range there appeared to be no difference in oil %, or in yield of rapeseed oil per acre, when the results were grouped according to elevation.

SPRING RAPE

It will be evident from the results in Table I that the average margin from spring rape is barely sufficient to cover rental charges and general farm overheads (together between £10 and £11 per acre). However, the average margin for premium crops, while not exciting, is probably about equal to the margin from barley grown under 'continuous' systems. Perhaps readers should be reminded, however, that an average of the best 25% (the premium farms) implies that only about 12½% of farms actually achieved or exceeded these results. Clearly the profit potential of the crop is not high, but many growers emphasised that the rotational benefits it conferred made it a worthwhile break crop especially on medium and light barley growing soils.

TABLE I

Spring Rape: Gross Output Costs and Margin

	1967		1968		1969	
	Average	10 highest yielding	average	premium*	average	premium*
Number of farms	84**	10**	99	25	58	14
Yield of seed cwt. per acre	14.8	21.4	12.5	16.5	14.4	17.1
Oil content %	38.9	38.7	37.3	38.1	37.7	39.9
Price £ per ton	37.3	37.3	37.8	38.3	39.2	40.7
	£ per acre					
Gross output (Range)	27.6	39.9	23.6 (6.7 to 35.3)	31.8 (25.4 to 35.3)	28.2 (7.0 to 38.9)	34.8 (29.3 to 38.9)
Variable costs:						
Seed	1.8	1.9	1.5	1.2	1.3	1.1
Fertilizers	7.1	7.5	7.0	6.5	7.4	7.0
Spray materials: Herbicide } Pesticide }	1.0	1.5	0.2 0.6	- 0.9	0.2 0.7	0.2 0.6
Total	9.9	10.9	9.3	8.6	9.6	8.9
Gross Margin (over seed fertilizers and sprays)	17.7	29.0	14.3	23.2	18.6	25.9
Labour, machinery contract and sundries			9.4	9.3	9.1	8.7
Margin for rent, general farm overheads and profit (Range)			4.9 (-17.0 to 17.3)	13.9 (7.8 to 17.3)	9.5 (-11.6 to 21.7)	17.2 (13.7 to 21.7)

* The best 25% of crops taking net margin as the criterion

** Number of fields.

The most obvious difference between the average and premium results shown in Table I is in yield and gross output, the difference in costs being relatively small. A study of the results for individual crops also shows that there is a much greater farm to farm variation in output than there is in costs: for example 91% of the spring rape crops in the 1969 study had costs within £5 above or below the average but only 64% achieved outputs within this fairly wide range.⁽¹⁾ Thus under the prevailing techniques of growing the crop, yield is the important thing to consider when attempting to discover the secrets of success.

Sowing

Analysis of yield, according to sowing and harvesting date, points to an optimum sowing period from late March to mid April, the majority of crops sown in this period being harvested in the first half of September.⁽²⁾ Increased yield and earliness of harvesting appeared to be only broadly related to the earliness of sowing however.

There was little evidence that seed rate or method of sowing i.e. broadcasting or drilling at different row spacing, influenced yields to a significant degree, although crops sown in narrow 4½" to 5" drills did appear to yield slightly better on average in 1968 and 1969.⁽³⁾ Broadcasting had the advantage of speed, but at the other extreme, wide row spacing in 15 to 21" drills incurred the additional cost of inter-row cultivations, whereas closer spaced crops, at the more usual 7 to 8 inches, mostly checked weed growth effectively by their smothering effect. Many crops were sown in seedbeds which had been extensively worked in order to control perennial weed infestations built up under previous white straw cropping. The cost of seed bed preparation recorded⁽⁴⁾ may in consequence be higher than would be incurred on clean land although a fine firm tilth is important.

(1) Appendix II, Tables 2 and 6.

(2) Appendix III, Table 3

(3) Appendix III, Table 2

(4) Appendix II, Tables 1 and 5

Variety

The range of varieties in the sample was too limited to allow any comparison between them, Nilla being by far the most important, Rigo a long way behind in second place was mainly confined to the Eastern and Midland counties and only one other spring variety, Zollerngold, featured at all. ⁽¹⁾

TABLE II

<u>Spring Rape</u>	Physical inputs per acre					
	1967		1968		1969	
	average	10 highest yielding	average	premium yield*	average	premium yield*
Fertilizer						
Units per acre						
Nitrogen: basal	70	58	82	73	83	72
top dressing	62	94	52	67	52	67
	<u>132</u>	<u>154</u>	<u>134</u>	<u>140</u>	<u>135</u>	<u>139</u>
Phosphate	48	48	48	48	50	50
Potash	57	50	53	55	55	57
Seed rate lbs. per acre (Range)	6.1	6.4	6.7 (4.0 to 13.7)	6.5 (4.0 to 9.0)	6.5 (4.0 to 9.8)	6.6 (4.5 to 8.3)
Labour man hrs. per acre	-	-	6.2	6.0	5.7	5.0
Tractors hrs. per acre	-	-	4.4	4.3	4.0	3.3

* The best 25% of crops taking yield as the criterion

Manuring

The level of nitrogen application associated with above-average yields was in the range 130 to 140 units per acre. This was evident in all three years and also when the results were broken down by date of sowing and harvesting as well as by yield. ⁽²⁾ The optimum appeared to be near the upper limit of this range, and from Table II it will be seen that the better yielding crops received nearly half of it as a top dressing applied at least two weeks after drilling. There was some evidence, particularly in the 1968 survey, that very heavy applications of nitrogen may delay harvesting. ⁽³⁾

Pests

The most widespread pest reported was pollen beetle: 59% of recorded crops were sprayed to control this pest or seed weevil in 1968, and in 1969 the proportion was 79%. Spraying gave adequate

(1) Appendix II, Tables 4 and 8

(2) Appendix III, Table 1

(3) Appendix III, Table 3

control in all but a few crops although correct timing was important and some crops had to be sprayed up to three times, in a few cases using high clearance sprayers or by air. The chemicals used were Malathion, costing 18/- to 20/- (£0.90 to £1.00) per acre, and D.D.T. or B.H.C. at a cost of 8/- to 12/- (£0.40 to £0.60) per acre.

Weeds

Herbicidal sprays to control wild oats or perennial grass weeds were used on only 20% of the spring rape crops, as many growers considered the pre-sowing cultivations would give sufficient control of grass weeds. Barban, di-allate or dalapon (£2.00 to £2.50 per acre) or T.C.A. before drilling (£4.50 to £5 per acre) for the most part achieved effective results when they were used. In a number of instances these sprays were regarded as a requirement of the rotation rather than the rape alone, and only a proportion of their cost has been included in the costings. In the absence of sprays to control broadleaved weeds in rape the fairly general practice was to spread the seedbed preparation over a prolonged period with intervals to allow weed seeds to germinate.

Pigeons

Quite extensive damage by pigeons was reported in a number of crops; 28% of spring rape growers⁽¹⁾ said this was a major problem in growing the crop and many recorded considerable expenditure of time keeping the pest away from the young rape. Of the various scaring devices - shooting, balloons and bangers - carbide bangers were most frequently reported as effective. Another precaution was to delay sowing until April when more alternative food is available for the pigeons and the crop will grow away faster.

(1) Appendix IV, Table 4.

WINTER RAPE

Although the margin from winter rape may not be attractive in comparison with such cash crops as potatoes, sugarbeet, or field scale vegetables, where these can be grown well, it is obviously a break crop worth considering by those wishing to follow a simple all cereal type of cropping system or where farm soil or situation, e.g. distance from beet factories, limit the alternatives. Two difficulties which frequently deter farmers from growing winter rape are the clash of sowing time with cereal harvest, and the high risk of pigeon damage to the over-wintering plants. The first difficulty can be reduced by keeping seed bed preparations to a minimum, in fact a number of crops were successfully disc drilled direct into the stubbles of the preceding crop. In this way the rape can be planted in the short gap between harvesting winter barley - the ideal crop for it to follow - and the start of the main cereal harvest. The extent of pigeon damage to winter rape crops can be alarming but, provided the main shoot is not damaged, the crop will recover from quite a severe leaf stripping. Experienced growers in the Midlands did not appear to be very worried by the damage caused by pigeons, but it still remains to be seen how successfully the crop can be over-wintered in southern counties where the pigeon population appears to be higher.

TABLE III

Winter Rape: Gross Output Costs and Margin

		1967		1968		1969	
		average	average	premium*	average	premium*	
Number of farms		4	31	8	13	3	
Yield of seed	cwt. per acre	21.0	15.4	20.8	18.2	22.1	
Oil content	%	42.2	41.5	41.7	41.7	41.7	
Price	£ per ton	40.0	39.5	40.2	39.5	39.6	
		£ per acre					
Gross output		42.0	30.4	41.8	35.9	43.7	
(Range)			(8.6 to 57.9)	(33.8 to 57.9)	(21.8 to 49.9)	(40.3 to 49.9)	
Variable costs:							
Seed		1.7	1.8	1.2	1.7	1.6	
Fertilizers		8.9	7.9	7.8	7.5	7.3	
Spray materials:							
herbicides		1.8	0.7	0.8	0.7	0.8	
pesticides		-	-	-	0.1	-	
Total		12.4	10.4	9.8	10.0	9.7	
Gross Margin (over seed fertilizers and sprays)		29.6	20.0	32.0	25.9	34.0	
Labour, machinery contract and sundries			9.4	8.7	9.0	7.0	
Margin for rent, general farm overheads and profit			10.6	23.3	16.9	27.0	
(Range)			(-8.2 to 36.2)	(12.3 to 36.2)	(2.1 to 32.9)	(13.7 to 32.9)	

* The best 25% of crops taking net margin as the criterion.

As with spring rape, the results of the study show quite clearly that it is variation in yield rather than in costs which is the most important factor explaining variations in profitability between individual crops.

Sowing

In both 1968 and 1969 the crops producing the highest yields, on average, were those sown during August, but although average yields from crops sown in September were distinctly lower, there appeared to be only slight advantage in sowing early in August compared with later in the month.⁽¹⁾ The main harvesting period of the better yielding crops was from mid-July to mid-August. Crops coming to harvest early generally produced better yields and there did appear to be some relationship between early sowing and earliness of harvest.

The seed rates and methods of sowing used for winter rape were much the same as for spring rape,⁽²⁾ and good yields were produced by crops sown broadcast and in wide spaced (15" to 21") drills as well as in the more frequently used 7 to 8 inch spacing. As a group however, crops sown in wide drills gave below average yields. Over a quarter of the crops in 1968, and 15% in 1969, were drilled in this way with the intention of inter-row cultivating, but in all cases the growth of the crops made subsequent cultivation impossible. As mentioned above, the seedbed can be prepared with a minimum of cultivations, and a number of growers stressed that this was important in helping to get even germination of the seed through avoiding moisture loss from the soil.

Variety

The winter rape results for both 1968 and 1969 relate almost entirely to a single variety, Victor, which accounted for 90% of the crops in the study.⁽³⁾

-
- (1) Appendix III, Table 6
(2) Appendix III, Table 5
(3) Appendix II, Tables 4 and 8.

TABLE IV

Winter Rape	Physical inputs per acre	1967					1968					1969				
		average		average		premium* yield	average		average		premium* yield	average		average		premium* yield
Fertilizer		Units per acre														
Nitrogen:	basal	62		37		40	26		40		40	26		40		40
	top dressing	149		141		160	140		163		163	140		163		163
		211		178		200	166		203		203	166		203		203
Phosphate		39		42		32	41		33		33	41		33		33
Potash		39		53		39	42		33		33	42		33		33
Seed rate	lbs. per acre	5.6		6.6		6.2	6.3		5.6		5.6	6.3		5.6		5.6
	(Range)			(3.5 to 10.4)		(4.0 to 10.0)	(4.0 to 10.0)		(4.9 to 7.4)			(4.0 to 10.0)		(4.9 to 7.4)		
Labour	hours. per acre	-		5.6		5.0	4.5		3.0		3.0	4.5		3.0		3.0
Tractors	hours per acre	-		3.4		2.7	3.0		2.2		2.2	3.0		2.2		2.2

* The best 25% of crops taking yield as the criterion.

Manuring

Above-average applications of nitrogen were associated with above-average yields and with earlier harvesting.⁽¹⁾ Although the sample was rather a small one from which to draw conclusions, it appears that an optimum level is probably reached at between 200 and 220 units of nitrogen per acre, and that the gain from higher applications is relatively small. All crops received a substantial part as spring top dressings in up to three applications between February and the end of April. Basal manuring was in all cases applied in autumn and in this connection a number of growers stressed the importance of sufficient nitrogen and early sowing to ensure well grown plants able to withstand pigeon attacks during the winter.

Weeds and Pests

Most growers found that autumn spraying with dalapon, combined with the smothering effect of the crop, gave very satisfactory control of volunteer cereals and perennial grass weeds. Nearly 60% of the winter rape crops were sprayed with dalapon in Autumn at an average rate of 3½ lbs and cost of 24/- (£1.20) per acre, but in contrast to spring rape the use of pesticide sprays was negligible.

(1) Appendix III, Table 4 and 6

HARVESTING, DRYING AND DISPOSAL

Harvesting

In 1968 22% of the spring rape crops in the study were cut and windrowed before combining, and in 1969 17% were harvested in this way instead of combining from the standing crop direct. The advantages claimed for this are that the time of combining is less critical and losses of seed through the pods shattering are minimised. The number of spring rape crops windrowed in 1969 was too small to shed much light on the benefits of this method but in the difficult harvesting season of 1968 there appeared to be some advantage in doing so in Southern England:

	<u>Direct Combined</u>	<u>Windrowed</u>
Number of crops	45	20
Yield per acre	12.1 cwt.	13.3 cwt.
Oil content	37.0%	37.6%
Harvesting cost per acre	£2.7	£3.8
Gross return per acre	£23.0	£25.2

Thus, for crops grown under similar conditions of soil and climate, there was a net advantage of approximately £1 per acre without taking into account the lower drying costs resulting from a lower moisture content in the seed from windrowed crops. The case for windrowing spring rape may not be so favourable however under good harvesting weather conditions. Windrowing was much more frequently used for harvesting winter rape largely because of the greater bulk of material which has to pass through the combine but also to overcome threshing difficulties caused by uneven ripening. In 1968 53% of the winter rape crops costed were windrowed and in 1969 the proportion was 77%. As a consequence harvesting costs and capital requirements for winter rape are generally higher than for spring rape.

Straw disposal after spring or winter rape usually presented few problems, the usual practice being to chop before ploughing in, using a chopper or forage harvester. Where no chopping equipment was available raking into rows or heaps and burning had to be resorted to, but this was frequently laborious because rape straw does not burn readily.

Drying

In most cases it is essential to put the rape seed over a pre-cleaner to remove green material before drying. Thorough pre-cleaning not only minimises the risk of rapid overheating and helps to speed up drying but also reduces the likelihood of price deductions for admixture which, in the majority of cases recorded, was due as much to trash as to contamination with particular weed seeds. Once some experience had been gained, drying did not present serious problems although between 20% and 30% of growers reported some difficulties at first, particularly with continuous dryers.⁽¹⁾ Temperatures in tray, batch or continuous dryers were usually kept down to 120^oF or less but a few growers successfully operated their dryers at up to 210^oF without any apparent reduction in oil content. Seed stored in "in bin" or "on floor" systems was mostly dried with unheated air.

Disposal

Nearly all the rape seed was sold on contract to three or four main buyers. Contracted prices were linked to a specified oil content, usually 38% or 40%, with an adjustment of 0.1% or 0.15% up or down for each 0.1% variation in oil above or below the contracted figure. Deductions from the contract price were also made for admixture if this exceeded a certain level, usually 1%, and samples were liable to be rejected if moisture exceeded 9% or 10%. Typical contract prices in the last three years have been £38-10s, £40 and £41 per ton at 40% oil content.

Movement off the farm usually started very soon after harvest and some growers were able to re-fill their stores with late harvested corn. In 1969 the bulk of the crop had been collected from farms by the end of November and all but isolated loads had been moved by the end of the year. In 1968/9 however, the crop was not cleared from many farms until the end of March because low priced imports depressed the price early in the season and buyers requested some growers to hold the seed pending imposition of an anti-dumping duty on these imports by the Board of Trade.

(1) Appendix IV, Table 4.

DISCUSSION AND CONCLUSIONS

How does oilseed rape fit into cereal growing systems? Does it have a place as a break crop? One of the attractions of oilseed rape is the ease with which it can be incorporated into the organisation of a cereal producing farm. Its demands on managerial and labour skills are very similar to cereal growing. The labour hours required to grow the crop are relatively low and, with the exception of harvest, all the operations can be handled with one man. While some growers said that the rape clashed with cereal harvest, this did not appear to present serious problems, in fact 13% of spring rape growers and 31% of winter rape growers claimed that the rape crop actually helped to spread harvest work.⁽¹⁾ Very little additional capital need be invested in machinery or equipment in order to grow rape and on most farms in the study spring rape was grown without incurring any expense of this sort. The table below summarises the cost of modifications to corn growing machinery where these had to be made for rape.

Capital Expenditure on Modifications to Corn Growing Machinery

	Number of farms	Cost per farm	
		Average	Range
		£	£
Drills	15	18.2	3 to 100
Combines	24	90.3	50 to 400
Dryers	7	48.1	30 to 80

Modifications to drills were mostly fitting restrictors, small seed boxes etc. and those to combines, additional sieves or modifications to air flow mechanisms, the more expensive modifications being pick-up reels or draper attachments. The few dryer modifications necessary consisted of fitting false floors to ventilated bin systems and additional screens for cleaners. On one farm an in-sack dryer was purchased to handle the rapeseed.

The only specialised machines purchased for handling rape were windrowers: 16 farmers were recorded as buying new machines at an average cost of £312, five farmers purchased second-hand machines for an average of £71 and a number of others either borrowed neighbours machines or relied on contractors. The average cost of operating these machines was

(1) Appendix IV, Table 3.

just over 12/- (£0.60) per acre for depreciation and repairs with a range of 5/- to 30/- (£0.25 to £1.50) per acre, but a number were used for other crops as well as rape, thus spreading their cost.

Thus the only substantial capital investment involved harvesting machinery - windrowers and combine attachments - which were largely for winter rape because of the greater difficulty in harvesting it.

Both winter and spring rape provide a good opportunity for perennial grass weed control; winter rape by its smothering effect, especially if it is sprayed with dalapon in autumn, and spring rape by the opportunity it allows for cultivations in autumn and spring before sowing, also by its tolerance to T.C.A. applied shortly before sowing.

Some doubt has been cast on the value of one year breaks of any sort as a check to cereal disease, and approximately 85% of the rape crops in the study were grown as one year breaks!⁽¹⁾ However, growers were asked to estimate the effect of oilseed rape on the health and yield of cereal crops following rape on their farms:⁽²⁾ 42% of growers did not have sufficient experience with rape to give an opinion; 28% gave estimates of increased yield in the following crop, averaging 4 cwt. per acre; 12% considered there was an improvement in yield but could not estimate how much; 14% considered that although there was no improvement in yield, weeds and cereal diseases were reduced or that rape was an easily grown break crop affording an entry for winter wheat; and only 4% said there was no benefit at all either because of weed increase or through slug damage to the following winter wheat. It must be emphasised that these views are based on fairly limited experience, as only 27% of the farmers had grown rape for more than two years at the time they were questioned.⁽³⁾ Also very few opinions were given on the effect of rape on the second and subsequent cereal crops following it. Recent studies suggest that rapid re-establishment of cereal disease after a one year break may result in a depression in yield from the second and subsequent cereal crops, which compensates for any increase gained in the first crop.

-
- (1) Appendix IV, Table 2
(2) Appendix IV, Table 5
(3) Appendix IV, Table 1.

Any break crop, if it is to be worthwhile, must have a gross margin which contributes something towards the farm profits. This is obviously the weakest feature of oilseed rape, particularly spring rape, but in view of the importance many growers attach to its rotational benefits, it may be worthwhile attempting to place a value on two of them; (a) the increased yield in the following crop and (b) as an entry for winter wheat - 60% of growers in the study were growing rape as a one-year entry for winter wheat.

Some examples (Table V) based on introducing 100 acres of oilseed rape into a continuous barley system may help to illustrate how the £.s.d. of the crop could work out in practice, assuming a gross margin from the barley of £25 per acre and a gross margin from winter wheat of £33 per acre.

In conclusion, spring rape certainly has a place where alternative break crops are limited, particularly where an opportunity for cleaning cultivations is desired, and winter rape, because of its higher gross margin, deserves more serious consideration as a break crop than it has received up to now in many areas.

TABLE V

<u>The effect on farm profits: three example budgets.</u>		Net increase (+) or decrease (-)	
1. Winter rape, gross margin £25 per acre, replacing 100 acres of barley having a gross margin of £25			nil
(a) Possible increase in yield of following barley crop, 4 cwt. per acre x 100 acres			+£450
(b) Winter rape used as an entry for 100 acres winter wheat in place of 100 acres barley. Increase in gross margin of £8 x 100			+£800
2. Spring rape, gross margin £19 per acre replacing 100 acres of barley having a gross margin of £25.	=	-£600	-£600
(a) Possible increase in yield of following barley crop, 4 cwt per acre x 100 acres.	=	+£450	-£150
(b) Spring rape used as an entry for 100 acres winter wheat in place of 100 acres barley. Increase in gross margin £8 x 100	=	+£800	+£200
3. Another alternative is to use late-sown spring rape in place of a full summer fallow. In this way the area under 'fallow' can be doubled without reducing income. For example, assuming 20 acres of bare fallow to be followed by winter wheat and 20 acres of barley, is replaced by 40 acres of oilseed rape sown in May, which produces a yield of 12½ cwt. and a gross margin of £13 per acre, all of which is followed by winter wheat: Income lost: 20 acres barley having a gross margin of £25 per acre	=	-£500	
Additional income: 40 acres rape x G.M. of £13	=	+£520	
Add gain from additional wheat acreage in place of barley 20 x £8	=	+£160	+£180

APPENDIX I

The Sample

Table I.1 Acreage of Oilseed Rape Surveyed

	1967		1968		1969	
	Acres	Farms	Acres	Farms	Acres	Farms
Spring oilseed rape:						
Harvested	3040		5238		3229	
Failed	22		101		-	
Total	3062	64	5339	99	3229	58
Winter oilseed rape:						
Harvested	294		1226		960	
Failed	-		38		29	
Total	294	4	1264	31	989	13
Total	3356	68	6603	128*	4218	69*

* Two farms grew both spring and winter rape.

Table I.2 Distribution of Crops Surveyed

County	Number of Farms					
	1967		1968		1969	
	Spring rape	Winter rape	Spring rape	Winter rape	Spring rape	Winter rape
<u>Eastern</u>						
Bedford	-	1	-	3	-	2
Cambridge	-	-	4	-	1	1
Essex	-	-	-	2	-	-
Hertford	1	-	3	1	1	-
Huntingdon	1	1	3	3	1	-
Norfolk	-	-	3	2	1	-
Suffolk	-	-	7	3	5	-
Total*	2 (151)	2 (195)	20 (803)	14 (459)	9 (450)	3 (390)
<u>Midland</u>						
Leicester	-	-	3	2	1	-
Lincoln	1	-	5	3	1	1
Northampton	1	1	2	7	-	6
Nottingham	1	1	2	2	1	1
Shropshire	1	-	-	-	-	-
Warwick	1	-	-	1	1	-
Worcester	1	-	2	1	1	-
Total*	6 (158)	2 (99)	14 (483)	16 (790)	5 (132)	8 (527)
<u>Southern</u>						
Berkshire	4	-	7	-	6	-
Dorset	4	-	3	-	2	1
Gloucester	-	-	1	-	1	-
Hampshire	26	-	32	-	21	-
Kent	2	-	-	-	-	-
Oxford	5	-	6	-	2	1
Sussex	3	-	2	-	2	-
Wiltshire	12	-	14	1	10	-
Total*	56 (2753)	-	65 (4053)	1 (15)	44 (2647)	2 (72)
Total*	64 (3062)	4 (294)	99 (5339)	31 (1264)	58 (3229)	13 (989)

* Acreage of oilseed rape shown in brackets

Table I.3 Acreage of Oilseed Rape in England and Wales: June Census data

	1968			1969			1970 (Provisional figures)	
	Total	% of	Survey	Total	% of	Survey	Total	% of
	in E & W	total	area as % of total	in E & W	total	area as % of total	in E & W	total
	Acres	%	%	Acres	%	%	Acres	%
Eastern counties*	2202	14	57	1441	11	58	1000	10
Midland counties*	3323	21	38	2652	21	24	1300	13
Southern counties*	8894	55	46	6558	51	41	5000	51
England and Wales	16020	100	41	12877	100	33	9900	100

* Counties listed in Table I.2.

Table I.4 The Farms in the Survey - Crops and Stocking

	<u>Southern Counties</u>		<u>Midland and Eastern Counties</u>	
			Spring Rape	Winter Rape
Number of farms	67		31	30
Total crops and grass + rough grazings	acres 75805		18539	17634
Average farm size	acres 1131		598	587
Croppings:	% of crops and grass + rough grazings			
Wheat	16.6		26.9	29.5
Barley	44.9		40.0	34.5
Oats	1.7		2.8	1.7
Oilseed rape	5.5		6.7	7.3
Beans	3.7		5.2	7.7
Sugar beet and potatoes	0.4		5.5	5.6
Herbage seed	3.5		0.6	0.1
Other cash crops	1.0		2.5	2.9
Fallow	0.8		0.5	0.4
Forage crops ('roots' & silage)	1.3	} 13.7	0.1	0.3
Temporary grass	12.4		2.5	3.6
Permanent grass	4.3	} 8.2	4.0	4.9
Rough grazing	3.9		2.0	1.3
Orchards and hops	-		0.7	0.2
	100.0		100.0	100.0
	% of arable area			
All cereals	69		75	71
Cash crops other than cereals	15		22	25
Forage crops, leys and fallow	16		3	4
	100		100	100
Livestock:	Number per 100 acres of grass and forage*			
Dairy cows and bulls	18		4	7
Dairy youngstock	15		4	7
Beef cows and bulls	8		7	3
Other beef cattle	10		45	41
Ewes and rams	55		56	94
Other sheep over 6 months	14		37	6
Sows and boars outdoors	7		-	-
Grass and forage acres* per grazing livestock unit	1.82		1.86	1.72

* adjusted for value of rough grazing

APPENDIX II

Data from the 1968 and 1969 Surveys

Table II.1 Average Output, Costs and Margin 1968

	Spring Oilseed Rape		Winter Oilseed Rape	
	Average	Premium*	Average	Premium*
Number of farms costed	99	25	31	8
Acreage per farm	53.2	62.4	38.2	65.9
YIELD	cwt. per acre			
	12.5	16.5	15.4	20.8
	per acre			
	£	£	£	£
OUTPUT				
Sales of rapeseed	23.6	31.8	30.4	41.6
Value of rapeseed retained	-	-	-	0.2
Total	23.6	31.8	30.4	41.8
Less Variable Costs				
Seed	1.5	1.2	1.8	1.2
Fertilizers	7.0	6.5	7.9	7.8
Spray materials	0.7	0.8	0.7	0.8
Contract	0.7	0.4	1.6	1.3
Miscellaneous	0.2	0.3	0.4	0.4
Total	10.1	9.2	12.4	11.5
= GROSS MARGIN	13.5	22.6	18.0	30.3
Less Fixed Costs				
Labour	2.3	2.2	2.1	1.8
Tractor and Lorries	1.6	1.5	1.3	1.0
Machinery and Dryers	4.1	4.4	3.6	3.4
F.Y.M. lime and slag	0.3	0.2	0.4	0.4
Rent	6.4	6.1	6.8	7.1
Storage costs	0.6	0.6	0.5	0.7
Share of general farm overheads	3.8	3.7	4.0	4.0
Total	19.1	18.7	18.7	18.5
= NET MARGIN	-5.6	3.9	-0.7	11.8
TOTAL COSTS	29.2	27.9	31.1	30.0
INPUT OF LABOUR AND MACHINERY BY TYPE OF OPERATION				
Labour & Machinery costs (including contract)				
Seed bed preparation	2.9	2.9	1.9	1.2
Drilling and covering	0.9	0.9	0.8	0.8
Spraying, top dressing & post drilling operations	0.8	0.7	0.6	0.6
Harvesting and straw disposal	3.1	2.9	4.0	3.1
Drying and storage	1.5	1.7	1.6	2.6
Total	9.2	9.1	8.9	8.3
Total Labour Hours	Per acre hours			
	6.2	6.0	5.6	5.0
Distribution of Labour Hours				
	%	%	%	%
Seed bed preparation	39	40	22	17
Drilling and covering	14	13	13	14
Spraying, top dressing & post drilling operations	8	8	11	11
Harvesting and straw disposal	26	28	46	47
Drying and storage	13	11	8	11
Total	100	100	100	100
Total Tractor Hours	Per acre hours			
	4.4	4.3	3.3	2.7
Distribution of tractor hours				
	%	%	%	%
Seed bed preparation	55	55	35	28
Drilling and covering	18	17	20	22
Spraying, top dressing & post drilling operations	9	10	15	17
Harvesting and straw disposal	17	18	30	33
Drying and storage	1	-	-	-
Total	100	100	100	100

* The best 25% of crops taking net margin as the criterion.

Table II.2 Range in Yield, Output, Costs and Margins per acre 1968

		Spring Rape	Winter Rape
Yield	cwt.	3.6 to 18.9	4.7 to 29.5
Output	£	6.6 to 35.3	8.6 to 57.9
Variable Costs	£	5.2 to 16.0	4.7 to 18.5
Gross Margin	£	-7.5 to 26.6	-2.9 to 45.5
Total Costs	£	20.1 to 41.6	23.5 to 38.7
Net Margin	£	-26.4 to 9.6	-17.0 to 19.4

Proportion of crops falling within \pm £5 of the average

Total Costs	76%	80%
Output	25%	20%

Table II.3 Price per ton and Oil Percentage 1968

	Yield cwt per acre	Price per ton £	Oil%
Spring rapeseed crops			
Average	12.5	37.8	37.3
Premium	16.5	38.3	38.1
Winter rapeseed crops			
Average	15.6	39.5	41.5
Premium	20.8	41.2	41.7
Range in oil percentage			
Spring rapeseed		32.2% to 41.0%	
Winter rapeseed		37.7% to 45.9%	

Table II.4 Varieties 1968

	Number of farms growing	Acres	% of acres
Spring			
Nilla	73	4379	82
Rigo	28	764	14
Zollerngold	5	196	4
		<u>5339</u>	<u>100</u>
Winter			
Victor	27	1033	82
MaRGO	2	114	9
Emerald	1	31	2
Unknown	1	86	7
		<u>1264</u>	<u>100</u>

Table II.5 Average Output, Costs and Margin 1969

	Spring		Winter		
	Oilseed Rape Average	Premium*	Oilseed Rape Average	Premium*	
Number of farms costed	58	14	13	3	
Acreage per farm	56.0	64.0	72.6	91.7	
YIELD	cwt. per acre	14.4	17.1	18.2	22.1
	per acre	£	£	£	£
OUTPUT					
Sales of rapeseed	28.1	34.8	35.9	43.7	
Value of rapeseed retained	0.1	-	-	-	
Total	28.2	34.8	35.9	43.7	
Less Variable Costs					
Seed	1.3	1.1	1.7	1.6	
Fertilizers	7.4	7.0	7.5	7.3	
Spray materials	0.7	0.6	0.8	0.8	
Contract	0.5	0.7	1.1	-	
Miscellaneous	0.2	0.1	0.4	0.1	
Total	10.1	9.5	11.5	9.8	
= GROSS MARGIN	18.1	25.3	24.4	33.9	
Less Fixed Costs					
Labour	2.2	1.9	1.8	1.2	
Tractors and Lorries	1.5	1.4	1.2	0.9	
Machinery and Dryers	4.4	4.3	4.0	3.8	
F.Y.M. lime and slag	0.3	0.4	0.4	0.2	
Rent	6.4	5.8	7.0	6.9	
Storage costs	0.5	0.5	0.5	1.0	
Share of general farm overheads	3.8	3.6	3.9	3.6	
Total	19.1	17.9	18.8	17.6	
= NET MARGIN	-1.0	7.4	5.6	16.3	
TOTAL COSTS	29.2	27.4	30.3	27.4	
INPUT OF LABOUR AND MACHINERY BY TYPE OF OPERATION					
Labour and machinery costs (including contract)					
Seed bed preparation	3.0	2.5	1.1	0.6	
Drilling and covering	0.9	0.8	0.8	0.7	
Spraying, top dressing & post drilling operations	0.8	1.0	0.7	0.5	
Harvesting and straw disposal	3.1	2.9	4.0	3.5	
Drying and storage	1.4	1.6	2.0	1.6	
Total	9.2	8.8	8.6	6.9	
Total Labour Hours	Per acre hours	5.7	5.0	4.5	3.0
Distribution of Labour Hours					
Seed bed preparation	%	40	36	14	10
Drilling and covering	%	14	14	16	12
Spraying, top dressing & post drilling operations	%	8	10	12	14
Harvesting and straw disposal	%	26	28	53	61
Drying and storage	%	12	12	5	3
Total	%	100	100	100	100
Total Tractor Hours	Per acre hours	4.0	3.3	3.0	2.2
Distribution of tractor hours					
Seed bed preparation	%	55	50	20	14
Drilling and covering	%	20	20	22	15
Spraying, top dressing & post drilling operations	%	9	10	18	17
Harvesting and straw disposal	%	16	20	40	54
Drying and storage	%	-	-	-	-
Total	%	100	100	100	100

* The best 25% of crops taking net margin as the criterion.

Table II.6 Range in Yield, Output, Costs and Margins per acre 1969

		Spring Rape	Winter Rape
Yield	cwt.	4.0 to 19.0	11.7 to 24.9
Output	£	7.0 to 38.9	21.8 to 49.9
Variable Costs	£	6.2 to 14.8	4.4 to 22.0
Gross Margin	£	-1.7 to 29.8	16.2 to 39.2
Total Costs	£	21.2 to 37.1	19.9 to 47.8
Net Margin	£	-24.7 to 10.4	-12.1 to 22.3

Proportion of crops falling within \pm £5 of the average

Total Costs	91%	77%
Output	64%	46%

Table II.7 Price per ton and Oil Percentage 1969

	Yield cwt per acre	Price per ton £	Oil %
Spring rapeseed crops			
Average	14.4	39.2	37.7
Premium	17.1	40.7	39.9
Winter rapeseed crops			
Average	18.2	39.5	41.7
Premium	22.1	39.6	41.7

Range in oil percentage

Spring rapeseed	33.6% to 42.7%
Winter rapeseed	38.0% to 45.8%

Table II.8 Varieties 1969

	Number of farms growing	Acres	% of acres
Spring			
Nilla	51	2875	89
Rigo	7	278	9
Zollerngold	2	76	2
		3229	100
Winter			
Victor	11	872	89
Margo	2	94	9
Novin (for seed)	1	23	2
		989	100

APPENDIX III

The Influence of Certain Factors on Yield

Table III.1 Manuring - Spring Rape

<u>Nitrogen</u>						
Units per acre	1967		1968		1969	
	Number of "fields"	Oil yield cwt per acre	Number of farms	Oil yield cwt per acre	Number of farms	Oil yield cwt per acre
Under 101	13	5.03	13	3.93	3	5.27
101 - 120	21	5.48	13	4.81	14	5.14
121 - 140	22	6.23	29	4.68	20	5.81
141 - 160	14	6.11	27	5.00	13	5.51
161 - 202	14	5.36	17	4.58	8	5.42
 <u>Phosphate</u>						
Under 40	20	5.75	28	4.61	17	5.18
41 - 45	31	5.55	21	4.59	12	5.66
46 - 50	10	6.45	15	4.81	5	5.88
51 - 60	15	5.81	26	4.57	15	5.61
61 - 100	8	4.91	9	5.17	9	5.48
 <u>Potash</u>						
Under 40	17	5.71	25	4.56	12	5.03
41 - 50	23	6.10	25	4.30	11	5.57
51 - 60	12	5.94	20	4.81	14	6.07
61 - 70	18	5.54	15	5.22	11	5.35
71 - 120	14	5.10	14	4.71	10	5.35
Average	84	5.75	99	4.67	58	5.50

Note The data on phosphate and potash manuring is included here to give an indication of manuring practice rather than to imply any definite relationship to yield.

TABLE III.2 Row Spacing and Seed Rate - Spring Rape

	"Fields"	1967		Farms	1968		Farms	1969	
		Seed rate	Oil yield		Seed rate	Oil yield		Seed rate	Oil yield
		per acre			per acre			per acre	
	Number	lbs	cwt	Number	lbs	cwt	Number	lbs	cwt
Broadcasting seeding	11	5.9	5.99	17	6.2	4.43	11	6.5	4.53
Narrow drill spacing (up to 5")	22	6.6	5.56	17	7.1	5.37	12	6.6	6.02
Normal drill spacing (over 5" & under 10")	40	6.1	5.72	47	7.0	4.56	29	6.6	5.78
Wide drill spacing (10" and over)	8	5.2	5.68	18	6.0	4.50	6	5.9	4.95
	81	6.1	5.75	99	6.7	4.67	58	6.5	5.50

Table III.3 Sowing and Harvest Period, Nitrogen manuring and Yield - Spring Rape

1967		% of crops				Oil yield per acre	Crops*
Sowing Period	Harvesting Period	August		September		October	
		1st-14th	15th-31st	1st-14th	15th-31st		
March	1st-14th	-	-	-	-	-	-
"	15th-31st	-	6	7	-	6.57	12
April	1st-14th	1	15	28	4	5.64	40
"	15th-30th	-	2	23	12	5.28	32
May		-	-	-	-	-	-
Oil yield, cwt per acre		6.63	6.63	5.42	5.45	6.91	5.75
Nitrogen, units per acre		110	133	130	135	129	132
Number of crops*		1	19	48	13	1	84
1968		% of crops				cwt	number
March	1st-14th	-	2	9	-	-	5.02
"	15th-31st	-	-	20	11	2	4.96
April	1st-14th	-	4	20	14	9	4.51
"	15th-30th	-	-	2	3	2	4.09
May		-	-	-	3	-	3.77
Oil yield, cwt per acre		-	5.78	5.38	4.22	3.51	4.67
Nitrogen, units per acre		-	114	138	132	151	134
Number of crops*		-	5	35	28	10	99
1969		% of crops				cwt	number
March	1st-14th	-	-	-	-	-	-
"	15th-31st	-	-	3	3	3	3.75
April	1st-14th	3	14	30	14	-	5.64
"	15th-30th	-	3	14	3	3	5.12
May		-	-	3	3	-	4.54
Oil yield, cwt per acre		3.25	5.68	5.98	4.59	3.21	5.50
Nitrogen, units per acre		157	127	137	143	119	135
Number of crops*		1	7	21	8	2	58

Note Dates of sowing and harvest were not supplied for all farms, these tables are therefore based on that proportion of the sample recording the information.

* The number of farms on which the yield figures are based.

Table III.4 Nitrogen manuring - Winter Rape

Units per acre	1967		1968		1969	
	Number of farms	Oil yield cwt per acre	Number of farms	Oil yield cwt per acre	Number of farms	Oil yield cwt per acre
Under 141	-	-	5	6.00	3	5.29
141 - 180	1	6.72	12	6.21	3	8.09
181 - 220	1	8.51	7	6.49	6	8.28
221 - 268	2	10.11	7	7.21	1	8.93
	4	8.86	31	6.46	13	7.59

Table III.5 Row spacing and Seed Rate - Winter Rape

	1967			1968			1969		
	Farms	Seed rate per acre	Oil yield per acre	Farms	Seed rate per acre	Oil yield per acre	Farms	Seed rate per acre	Oil yield per acre
	Number	lbs	cwt	Number	lbs	cwt	Number	lbs	cwt
Broadcast seeding	-	-	-	6	6.5	7.71	2	4.5	8.42
Narrow drill spacing (up to 5")	-	-	-	5	8.9	6.38	2	8.3	7.27
Normal drill spacing (over 5" & under 10")	-	-	-	11	6.3	5.81	7	6.5	7.60
Wide drill spacing (10" and over)	4	5.6	8.86	9	5.6	6.41	2	5.5	7.10
	4	5.6	8.86	31	6.6	6.46	13	6.3	7.59

Table III.6 Sowing and Harvest Period, Nitrogen manuring and Yield - Winter Rape

1968		Harvesting Period			Oil yield per acre	Crops*
Sowing Period	Harvesting Period	July	August			
		15th-31st	1st-14th	15th-30th	cwt	number
			% of crops			
August	1st-14th	7	4	-	8.49	3
"	15th-31st	7	15	-	7.18	9
September	1st-14th	19	15	7	5.53	11
"	15th-31st	11	7	7	6.19	7
Oil yield, cwt per acre		7.20	6.69	5.30	6.46	31
Nitrogen, units per acre		181	189	145	178	
Number of crops*		12	10	5	31	
1969		Harvesting Period			Oil yield per acre	Crops*
Sowing Period	Harvesting Period	July	August			
		15th-31st	1st-14th	15th-30th	cwt	number
			% of crops			
August	1st-14th	10	-	-	8.27	1
"	15th-31st	10	-	-	8.48	1
September	1st-14th	20	30	-	7.40	6
"	15th-31st	10	20	-	7.40	2
Oil yield, cwt per acre		8.37	7.03	-	7.59	13
Nitrogen, units per acre		203	129	-	166	
Number of crops*		5	5	-	13	

Note Dates of sowing and harvest were not recorded for all farms, these tables are therefore based on that proportion of the sample recording this information.

* The number of farms on which the yield figures are based.

APPENDIX IV

Background Information and Growers' Views

Table IV.1 Experience growing Oilseed Rape

Year	Number growing rape*					
	All growers		Spring rape growers		Winter rape growers	
	No.	%	No.	%	No.	%
1964	11	8	9	9	2	6
1965	21	16	16	16	5	16
1966	35	27	26	26	9	29
1967	109	85	85	87	24	77
1968	128	100	97	100	31	100
1969	69	54	57	59	12	39

* Number of growers in 1968 survey = 100% (Co-operators who ceased to grow rape after 1968 were not replaced)

Table IV.2 Position of Oilseed Rape in the Rotation

	All growers		Spring rape growers		Winter rape growers	
	No.	%	No.	%	No.	%
A one year break providing an entry for wheat	77	60	52	54	25	81
The second crop in a two year break providing a wheat entry	8	6	7	7	1	3
To provide a wheat entry after a break of more than two years, i.e. after leys	3	2	3	3	-	-
The first crop in a two year break, i.e. followed by oats, beans, potatoes or sugar beet	7	6	6	6	1	3
A one or two year break followed by barley	13	10	12	12	1	3
No set rotation	19	15	17	18	2	7
No details given	1	1	-	-	1	3
	128	100	97	100	31	100

Table IV.3 Reasons for growing Oilseed Rape

(95 spring rape growers and 32 winter rape growers)

	Spring rape growers		Winter rape growers	
	No.	%	No.	%
Because it fits easily into existing cropping system and labour supply	22	23	8	25
Can be grown with existing equipment	27	28	3	9
Helps to spread harvest work	12	13	10	31
To control cereal diseases and weeds	34	36	10	31
Allows more time for cultivations in spring	4	4	-	-
Provides a good entry for wheat	13	14	8	25
For the gross margin it contributes	16	17	4	13
Because soil or situation limit the alternatives	13	14	4	13
Better than beans for gross margin/weed control/harvesting period	6	6	7	22
Giving the crop a trial	5	5	3	9
Other reasons	9	9	4	13

Note The number of replies add to more than 100% because many growers gave several reasons.

Table IV.4 Difficulties and disadvantages of growing Oilseed Rape

The problems most frequently reported by 97 spring rape growers and 31 winter rape growers

	Spring rape growers		Winter rape growers	
	No.	%	No.	%
None	21	22	-	-
Harvesting: setting and operating combines	10	10	2	6
High risk of loss through shedding, due to bad weather at harvest time and the need to judge cutting stage precisely	19	20	4	13
Drying: setting and operating dryers	21	22	8	26
Controlling pigeon damage to growing crop	27	28	19	61
Controlling broadleaved weeds in the crop	9	9	1	1
Halm disposal after harvest	5	5	-	-
Clash with cereal harvest work	4	4	2	6
Difficulty in preparing a suitable seedbed	-	-	3	10
Additional capital required for windrowers and combine modifications	2	2	5	16

Note: The number of replies add to more than 100% because many growers answered under several headings

Table IV.5 The Benefits of Growing Oilseed Rape

Growers' estimates of the effect on yield of subsequent cereal crops

	All growers		Spring rape growers		Winter rape growers	
	No.	%	No.	%	No.	%
Insufficient experience with rape to estimate the benefit	52	41	33	34	19	61
Rape crop followed by herbage seed (which yielded well) i.e. no experience.	2	1	2	2	-	-
Increases the yield of the subsequent crop (average estimate 4 cwt)	35	28	28	28	7	23
Could not quantify the increase in yield but considered there was:-						
(a) A definite benefit	7	6	6	6	1	3
(b) A slight benefit	6	5	4	4	2	7
(c) A benefit equal to that from other break crops e.g. beans or leys	2	1	2	2	-	-
No beneficial effect on yield but:						
(a) Weeds or cereal diseases controlled	12	9	12	12	1	3
(b) An easily grown wheat entry	7	5	7	7	1	3
A reduction in yield due to:						
(a) Increase in weeds	4	3	4	4	-	-
(b) Slug damage	1	1	1	1	-	-
Total*	128	100	99	100	31	100

* Two growers grew both spring and winter rape

APPENDIX V

Explanation of Terms and Notes on Costing Method

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

Variable Costs Charged at the cost recorded by growers.

Fertilizers net of subsidy without any adjustment for residual values brought or carried forward.

Spray materials in some cases have been included under Contract where the material cost is not known separately.

Miscellaneous includes sack hire charges, bird scaring materials etc.

Fixed Costs

Labour hours recorded have been charged at a flat rate of 7/4d for the 1968 crop and 7/10d for the 1969 crop, which allows for rates of payment above the minimum, a proportion of overtime, sickness with pay, holidays and the value of perquisites.

Power, Machinery and Storage

Tractors and lorries have been charged at standard hourly rates according to size and type, other machines at standard per acre rates according to type of machine, plus a depreciation charge on the cost of any modifications required for handling rape. Dryer and storage costs have been based on the tonnage of rapeseed dried/stored and the type of plant used. The charges include an allowance for fuel costs but wherever it is known the actual rather than standard fuel consumption had been charged for combines and dryers.

F.Y.M. lime and slag is a charge for rotational manuring based on the usual annual application.

Rent represents an appropriate rental value in the case of owner occupied farms.

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

Total Costs represent the value of all resources used except management and interest on capital.

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 fertilizers onto the seed bed and rolling or harrowing in.

Spraying, top dressing and post drilling operations, includes any spraying carried out shortly before drilling and also all operations, such as hoeing, up to the start of harvest.

Harvesting and straw disposal includes hauling seed from the field and chopping straw but not ploughing in or stubble cultivation.

Drying and Storage; all barn work and labour loading lorries at sale time. Tractor time driving dryer fans is not included in tractor hours per acre but the cost has been taken into account.

Other Publications in this Series

No. 1. Lowland Sheep: Production Policies and Practices
Editor: W.J.K. Thomas
University of Exeter
October, 1970. 50p (10s.)

No. 2. Cucumber Production in the Lea Valley,
Profitability on a Sample of Nurseries
By. A.H. Gill
University of Reading.
November, 1970. 30p (6s.)

UNIVERSITY DEPARTMENTS

- BRISTOL Agricultural Economics Research Unit,
University of Bristol,
79, Woodland Road,
Bristol, BS8 1UT.
- CAMBRIDGE Agricultural Economics Unit,
Department of Land Economy,
University of Cambridge,
Silver Street,
Cambridge, CB3 9EP.
- EXETER Agricultural Economics Unit,
Department of Economics,
University of Exeter,
Lafrowda, St. German's Road,
Exeter, EX4 6TL.
- LEEDS Agricultural Economics Department,
University of Leeds,
34, University Road,
Leeds, LS2 9JT.
- LONDON Department of Agricultural Economics,
Wye College (University of London),
Nr. Ashford,
Kent.
- MANCHESTER Department of Agricultural Economics,
The University,
Manchester, M13 9PL
- NEWCASTLE Department of Agricultural Economics,
The University of Newcastle-upon-Tyne,
Newcastle-upon-Tyne, NE1 7RU.
- NOTTINGHAM Department of Agricultural Economics,
University of Nottingham,
School of Agriculture,
Sutton Bonington,
Loughborough,
Leics.
- READING Department of Agricultural Economics,
University of Reading,
Building No. 4,
Earley Gate,
Whiteknights Road,
Reading, RG6 2AR.
- WALES Department of Agricultural Economics,
University College of Wales,
Institute of Rural Science,
Penglais,
Aberystwyth,
Cardiganshire.

