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*Lettuce*

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Faculty of Economic  
and Social Studies

DEPARTMENT OF AGRICULTURAL ECONOMICS

LETTUCE IN THE OPEN  
A LANCASHIRE SURVEY 1970

Bulletin 143/H3

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### Foreword

This report relates to the last survey for which the field work was due to be completed under the direction of the late Keith N. Lingard. The piecing together of the survey fragments and supplementary information was done by Richard D. Hexton during his relatively short sojourn in the Department: his, therefore, is the credit for the written report.

No survey would have been possible without the generous co-operation of lettuce growers and the Department is glad to place its gratitude on record. We are also grateful to the Ministry of Agriculture, Fisheries and Food - at national and local level - for kindly supplying data relevant to the report.

T. W. Gardner

## LETTUCE IN THE OPEN

A Lancashire Survey 1970

### Chapter One

#### Introduction

Since the mid 1960's there has been an increase in the acreage of outdoor lettuce in the U.K. There has, however, been a gradual movement of consumer preference towards glasshouse lettuce to the detriment of the outdoor producer. (Glasshouse lettuce - An Economic Survey in Lancashire - Bulletin 139/H2, Manchester University 1972).

Table 1.1

#### U.K. Lettuce Output\* on Commercially Significant Holdings

Crop-Year	Outdoor Lettuce		Lettuce Under Glass			Total Tonnage	
	June/May	'000 tons	Percentage	'000 tons	Percentage		
					(of which in frames)		
1964/65		107.1	90.2	11.7	9.8	(3.3)	118.8
1965/66		106.6	88.8	13.4	11.2	(3.8)	120.0
1966/67		121.8	89.5	14.3	10.5	(3.9)	136.1
1967/68		113.5	87.8	15.8	12.2	(4.3)	129.3
1968/69		105.1	86.8	16.0	13.2	(4.3)	121.1
1969/70		109.2	86.1	17.6	13.9	(4.9)	126.8
1970/71		136.2	86.8	20.7	13.2	(4.8)	156.9
1971/72 (forecast)		129.1	86.2	20.7	13.8	(4.8)	149.8

\* Output is the quantity estimated to go to market and hence is the nearest figure to an estimate of 'consumption' of U.K. lettuce.

Large scale production of outdoor lettuce has been encouraged by the introduction of specialised machinery, pelleted seed, chemical weeding, and other aids which have led to a reduction in the labour requirement. An increasing proportion of arable farmers now include lettuce in rotation with other vegetable crops.

Table 1.2

Estimated Output of Outdoor Lettuce in the U.K.

	1964/65	1965/66	1966/67	1967/68	1968/69	1969/70	1970/71 (Prov.)
Acres	14,909	15,890	16,579	16,140	17,919	18,238	20,234
'000 tons	107.1	106.6	121.8	113.5	105.1	109.2	136.2
£'000	6,957	7,044	9,801	8,754	9,504	10,371	12,019
Tons per acre	7.2	6.7	7.2	7.0	5.9	6.0	6.7
£ per acre	466	443	585	543	530	569	594

Table 1.3

Estimated Gross Yields of Outdoor Lettuce in Lancashire

	1964/65	1965/66	1966/67	1967/68	1968/69	1969/70	1970/71 (Prov.)
Tons per acre	12.2	12.1	12.5	12.0	9.9	9.6	10.3

The total planting of outdoor lettuce in 1970 in Lancashire was 2005 acres; it is estimated that approximately 55 per cent. consisted of plants raised in glasshouses and transplanted, whilst the remainder consisted of lettuce sown in the open during the summer.

Chapter Two

Acreage Surveyed

The survey included almost 600 acres of lettuce, covering the Chat Moss, Tarleton Moss and the Hesketh Bank areas. A greater percentage of growers was located in the Manchester area and, as this is a predominantly Cos growing area, a higher percentage of Cos is included in the survey than is strictly proportionate to county production.

Lancashire lettuce is sub-divided into the three types, namely, Cos, Curly and Flat, and the percentages of the types of lettuce produced for each grower and for the survey as a whole are shown in Table 2.1.

Table 2.1

Percentages of the Types of Lettuce Produced in the Survey: Individual Farms and Survey Total

	Cos	Curly	Flat
M1	75	18	7
M2	25	25	50
M3	75	25	-
M4	85	15	-
M5	25	25	50
M7	60	35	5
M8	100	-	-
M9	60	25	15
M10	80	20	-
M11	75	25	-
M12	85	8	7
M13	80	13	7
M14	50	-	50
M15	100	-	-
M16	14	43	43
M17	15	80	5
M19	-	95	5
S2	-	50	50
S3	80	10	10
S8	35	35	30
S9	30	30	40
S10	-	-	100
No. of Growers	33*	26	26
Total Acreage	356*	142	64
Acreage per Grower	10.8*	5.5	2.5
Per cent. of Acreage	63.3	25.3	11.4

\* This column includes 8 growers of celery who interplanted with lettuce: half of the 116 acres involved has been attributed to the lettuce.



### Chapter Three

#### Marketing

Transport costs are becoming a serious problem, especially for supplying a distant market. Transport charges per dozen lettuce ranged from 2½p for a local market to 9p for a distant market, the average being 6p. Some growers favoured their own transport but there appeared to be little difference in costs, at the end of the season, between this and hired transport.

As the goods transported are perishable, it was stressed that it was essential for the produce to reach the following morning's wholesale market. Thirty-eight per cent. of the lettuce produced on the Manchester mosses are transported to London and sold to wholesalers in the five main London markets. The reasons for this specialisation in the area appear to be mainly concerned with long-standing 'traditions', together with soil type and weather conditions.

Of the 32 growers visited, 15 grew for local markets only (Manchester, Liverpool, Bradford, Burnley, Leeds). Thirteen grew for both local and London and four grew for London only. Three of the growers had contracts (on a quota basis) for some or all of their lettuce. Sixty-two per cent. of the lettuce produced was marketed locally and 38 per cent. was sold in London.

The majority of growers now pack their lettuce in non-returnable cardboard boxes, although a great reluctance to use these non-returnable containers was shown by some producers. The main disadvantages of the cardboard boxes are their high cost and their poor handling quality during wet weather. It is for these reasons that many growers still use the wholesalers' boxes and sell at an agreed price, after the wholesaler has deducted the necessary charges for boxes, transport, etc.

A point raised by many growers was that the type of weather during the season had a definite effect on the price of lettuce. It is highly

probable that price can be related to sunshine hours during the season. But both supply and demand determine the market price for lettuce and, even if the weather is poor, fair prices may be made. Growers seem inclined to confuse short-term price movements and seasonal averages.

Since supermarkets and chain stores have frequently turned to the larger producers and marketing organisations overseas in order to obtain their substantial supplies of 'reliable quality' produce, there should be an opening for large producers or marketing groups in Britain to gain a growing share of this important market by:

1. use of modern production techniques
2. satisfactory grading
3. efficient delivery of fresh 'home-grown' produce.

Table 3.1

Estimated Average Farm-Gate Price for U.K. Lettuce: £ per ton

Year	1964/65	1965/66	1966/67	1967/68	1968/69	1969/70	1970/71
Price £ per ton	66.08	80.47	77.13	90.43	94.97	88.25	94.31

Chapter Four

Methods of Production

With the advent of precision sowing and inter-row land spraying, it has been possible for farmers, with holdings of say 100 acres or more, to grow and harvest substantial acreages of lettuce crops.

Table 4.1

Methods of Lettuce Production: Proportions in the Survey

Method of Production	Growers		Acres of Lettuce		Average Lettuce Acreage
	No.	%	No.	%	
Glasshouse Raised Transplanted	24	28.3	38	6.7	1.6
Drilled (Natural Seed)	8	9.4	21	3.8	2.6
Precision Drilled (Pelleted Seed)	17	20.0	68	12.1	4.0
Frame Raised/Transplanted	36	42.3	435	77.4	12.0
Survey Total	85	100.0	562	100.0	-

1. Early Outdoor Lettuce:

This method of production was normally found on small (1-2 acres) sheltered holdings with well drained mineral soils, or on moss soils near the coast.

The seed was sown in mid-January in heated glasshouses and pricked out into seed boxes; in late February the young plants were transferred in their seed boxes to cold frames for hardening off. Planting out commenced in early to mid-March. Growers used either a 6 or 7 row bed system with 7" - 8" between the rows, or 2 to 3 row ridges. On the Irlam moss soil production was somewhat later and sowing often took place in early February in heated glass, with planting out in early April for harvesting at the end of May.

This early lettuce was often followed by a second lettuce crop,

self-blanching celery or by salad onions. Although Cos and Curly varieties are grown, cabbage (flat) varieties predominate because of their earliness.

Varieties Grown:

(a) <u>Flats</u>	(b) <u>Curlys</u>	(c) <u>Cos</u>
i Borough Wonder	i Avon Crisis	i Labjoits
ii Cobham Green	(N.V.R.S. Mildew Resistant)	ii Panis White
iii May Beauty	ii Great Lakes	iii Vaux (self-folding)
iv Spring Market	iii Penlakes	
v Supermarket		
vi Suzan		

2. Lettuce Drilled and Thinned:

Successional sowings took place from the beginning of April till the end of June, at near weekly intervals; although weather conditions often broke up sowings or plantings and resultant breaks in production occurred.

The adoption of the 'stale seed-bed' technique was found to be successful, the lettuce being chopped out to a final stand of plants down the row, when they reached the two to three true leaf stage. Each grower aims to produce the same quantity of crop per week, with continuous harvesting from June to September. Since the first sowings take longer to mature, fourteen days are often left between the first and second sowings; similarly, nine days may be left between the second and third sowings. Thereafter growers try to commence fresh batches of sowing or planting at seven days intervals.

The main advantages, which the growers saw in successional cropping were that:

- i Labour requirement was kept constant;
- ii Market outlets were kept supplied;
- iii Peaks of production were avoided.

3. Lettuce Summer Transplanted

Seed for the summer crop is sown on plant "butts" or in frames with no lights. The young plants are then transferred to ridges 28 inches apart,



with two rows per ridge.

A large percentage of this crop is still planted by hand. Although an increasing amount is now being planted by machine, this was found to be no quicker on the mossland; nevertheless machine planting was preferred by the employees.

All types of lettuce - Cos, Curly and Cabbage - were found, although Cos was more common, interplanted with celery.

## Chapter Five

### Labour and Mechanisation

On many 'farms' the total labour force has declined, necessitating the accelerated introduction of machinery, chemical weedkillers and other aids to offset the reduced labour force.

The production and harvesting of early glasshouse-raised lettuce plants, involved many labour hours. The main labour requirements for production occurred during February for the pricking-out of the seedlings. Harvesting labour was at its peak during May.

Many growers stressed that the object of Glasshouse Raising and Transplanting, was to ensure a good strong plant, with a well developed root system for the recommencement of outdoor planting in March or April. Although the technique of precision drilling was being widely used for the later crops, many growers felt that our harsh winters, made the system unsuitable for early lettuce crops because there would be a very low plant survival rate from open-land direct drilling. Also it was noted that transplanting tended to give many growers greater control over the date of cutting compared with direct drilling.

It must be stressed that where specialist machinery and equipment involve high investment, it is important to obtain optimum use and hence spread the overheads. The increase of large scale growing reflected in the survey indicates that growers are trying to achieve this.

### Harvesting Costs per 1000 dozen lettuce

The following tables compare the harvesting costs per 1000 dozen outdoor summer lettuce for a selection of growers, whose individual enterprises may have been on varying scales, as implied with each set of figures.

Harvesting Costs per 1000 dozen Outdoor Summer Lettuce

<u>Selected Lancashire Holdings</u>	£
3 hours per 1000 dozen harvested	
3 tractors and 4 trailers at 25p per hour	2.25
15 casuals at 30p per hour	13.50
9 full-time employees at 37½p per hour	<u>10.12½</u>
	<u>£25.87½</u>
8 hours per 1000 dozen harvested	
2 tractors and trailers at 25p per hour	4.00
3 casuals at 30p per hour	7.20
5 full-time employees at 37½p per hour	<u>15.00</u>
	<u>£26.20</u>
* Based on results relating to 1½ hours per 100 dozen harvested	
1 tractor at 25p per hour	3.75
1 man at 42½ per hour	6.37½
1 boy at 25p per hour	<u>3.75</u>
	<u>£13.87½</u>
* Based on results relating to 4 hours per 500 dozen harvested	
2 tractors and trailers at 25p per hour	4.00
1 man at 42½p per hour	3.40
5 women at 35p per hour	<u>14.00</u>
	<u>£21.40</u>
* Based on results relating to 1 hour per 150 dozen harvested	
2 tractors and trailer at 25p per hour	3.33
1 casual at 35p per hour	2.33
4 men at 42½ per hour	<u>11.33</u>
	<u>£17.00</u>
* Based on results relating to 7 hours per 500 dozen harvested	
2 tractors and trailers at 25p per hour	7.00
2 casuals at 35p per hour	9.80
3 full-time men at 42½p per hour	<u>17.85</u>
	<u>£34.65</u>
* Figures multiplied up to give cost per 1000 dozen harvested lettuce.	

Table 5.1

Harvesting Costs per 1000 dozen for Outdoor Lettuce

Code	Harvesting Cost
	£
*M.1	14.25
M.2	31.50
M.4	25.87
*M.5	13.90
M.6	29.00
M.7	22.20
M.8	25.00
*M.10	34.65
*M.12	21.40
M.13	35.00
*M.15	17.00
M.17	26.10
M.20	31.00
S.8	20.00
S.9	34.00
S.11	30.00
S.13	22.50
S.14	25.00

\* Figures multiplied up.

Although the costs of harvesting for 1000 dozen lettuce range from £13.90 to £35.00, the lowest figures relate to holdings where the figures have had to be multiplied up in order to give a basis for comparison. On these holdings the grower may have misestimated his own labour input. It is at least significant that tractor costs appear to show less extreme variability. The average cost of harvesting 1000 dozen lettuce was £28.70.



Table 5.2

Average Production Costs per acre for Outdoor Summer Lettuce

Yield	2000 dozen	
	£	£
Crop Sales per acre		400.00
<u>Variable Costs</u>		
(1) <u>Marketing Expenses</u>		
Commission 10%	40.00	
Transport charges	60.00	
Purchase of Containers	<u>100.00</u>	<u>200.00</u>
Crop output less marketing expenses		200.00
(2) <u>Production Materials</u>		
2 lb Mosaic tested seed (drilled)	7.00	
Fertilizer	15.00	
Sprays	<u>8.00</u>	30.00
(3) <u>Casual Labour</u>		
Growing	6.00	
July/August Harvesting	<u>29.00</u>	<u>35.00</u>
Total 'Variable' Costs		265.00
Gross Margin		£135.00

Marketing costs play an important part in the profitability of outdoor summer lettuce, and it is perhaps for this reason that large scale growers and farmers should look for new 'local' market outlets with emphasis on direct sales.

Table 5.2

Average Production Costs per acre for Outdoor Summer Lettuce

Yield	2000 boxes
Crop Sales per acre	400.00
<u>Variable Costs</u>	
<u>(1) Marketing Expenses</u>	
Commission 1%	40.00
Transport charges	60.00
Purchase of Containers	200.00
Crop output less marketing expenses	200.00
<u>(2) Production Materials</u>	
2 lb Mosaic treated seed (billed)	7.00
Fertilizer	15.00
Sprays	8.00
	30.00
<u>(3) Casual Labor</u>	
Planting	6.00
July/August Harvesting	29.00
	35.00
Total Variable Costs	285.00
Gross Margin	115.00

Marketing costs play an important part in the profitability of outdoor summer lettuce, and it is perhaps for this reason that large scale growers and farmers should look for new 'local' market outlets with emphasis on direct sales.