THE WEST OF SCOTLAND AGRICULTURAL COLLEGE.

TOMATO PRODUCTION IN SCOTLAND

Analysis of the trends in Tomato Production and Marketing in Scotland and the prospects for the future

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SUMMARY

Tomato production represents 15% of the total value of horticultural production in Scotland and 60% of the value of glasshouse production. It is therefore of the utmost importance to the horticultural industry as a whole that tomato production remains viable in Scotland. At present the tomato industry in Scotland is dominated by small producers with two thirds of producers growing less than 10,000 sq.ft. of tomatoes each. There is a problem in relation to the age of glasshouse, nearly two thirds of the glass in production in 1969 being built before 1945. During the 1960's the performance of the industry as a whole was disappointing with tomato production remaining constant and the price premium obtained for Scottish tomatoes gradually being eroded. The apparent stagnation of the industry was possibly caused by the difficulty of small businesses in obtaining capital, credit restrictions and by attitudes within the industry. An important factor in the decline in the price premium obtained for Scottish tomatoes has been the decline in the demand for these tomatoes from the supermarkets and chain stores who preferred to buy imported tomatoes. Imported tomatoes meet the requirements of these buyers in terms of consistency of quality and continuity of supply whereas Scottish tomatoes are neither consistent in quality nor continuously available in sufficient quantities on the wholesale markets.

Progress has been made in the industry in improving the yield of tomatoes and this has resulted an increase in the revenue per acre in real terms during the 1960's despite a fall in the real price of tomatoes. Also the Scottish producer has enjoyed a significant cost advantage over his foreign competitors because of his nearness to market and, in the case of imports from Holland, because of a tariff levied on imported tomatoes.

However, on entry to the E.E.C. the tariff on tomatoes from Holland will be removed over a four year period and this will undoubtedly increase the competitiveness of Dutch tomatoes on the Scottish market. To survive this increase in competition tomato producers in Scotland must

i). produce tomatoes efficiently

ii). produce and sell their own tomatoes on a large scale as individuals or work together (on a co-operative basis) to meet the requirements of supermarkets and chain stores

iii). produce tomatoes for which the consumer is prepared to pay a premium price on the grounds of freshness or taste.

Provided the Scottish industry fulfils these criteria there is no reason why the industry should not survive and indeed prosper in the future.

TOMATO PRODUCTION IN SCOTLAND

1. INTRODUCTION

The tomato industry is made up of a large number of producers. Although each producer has problems peculiar to his business, collectively they have also a number of common problems. For example all producers face similar difficulties in marketing tomatoes, in raising capital for expansion and all could be affected by increased competition when Britain enters the European Economic Community. These common problems (and also opportunities) make up part of the environment within which the industry as a whole operates. The objective of this report is to describe this environment by drawing together and analysing available and relevant information.

This background information should help producers particularly those who find their life dominated by day to day management and cultural problems. The broader appreciation of changes in the industry and the trends within it should help in the vital task of long term planning to ensure either success or survival in the future. Because of the rapid pace of technical change and the imminent entry of this country to the E.E.C., it is of vital importance that business decisions about the future are taken in relation to the pressures on the industry as a whole and that decisions are not based solely on the problems of individual holdings.

A secondary objective of this analysis of the trends and pressures facing the industry is to guide those involved in advisory and research work. Advice should be given to producers against the background of the changes likely to take place within the industry as a whole. Similarly the aims and objectives of research work must be based on a realistic assessment of the overall problems and opportunities of the industry.

2. THE GLASSHOUSE INDUSTRY IN SCOTLAND

i). Horticulture in Scotland

A measure of the importance of horticultural production in Scotland can be obtained by comparing the value of horticultural production with that of agriculture. In 1970-71, the value of agriculture and horticultural production in Scotland was estimated at £263 million of which horticultural output accounted for £12.2 million or 5%.

Scottish horticultural production can be divided in 3 main sectors - fruit, flowers and plants and vegetables. The relative importance of these 3 sectors is shown in Table 2.1.

TABLE 2.1

The Importance of the Main Sectors of Horticultural Production

1970-1971

Sector	Value £ooos	% of Total
Fruit	3.250	27
Flowers and Plants	3.181	26
Vegetables (outdoor and under glass)	5.746	47
	12.177	100

Fruit

Almost three quarters of the value of fruit production is accounted for by raspberries, the bulk of production being for the processing industry. (See Fig. 1.1).

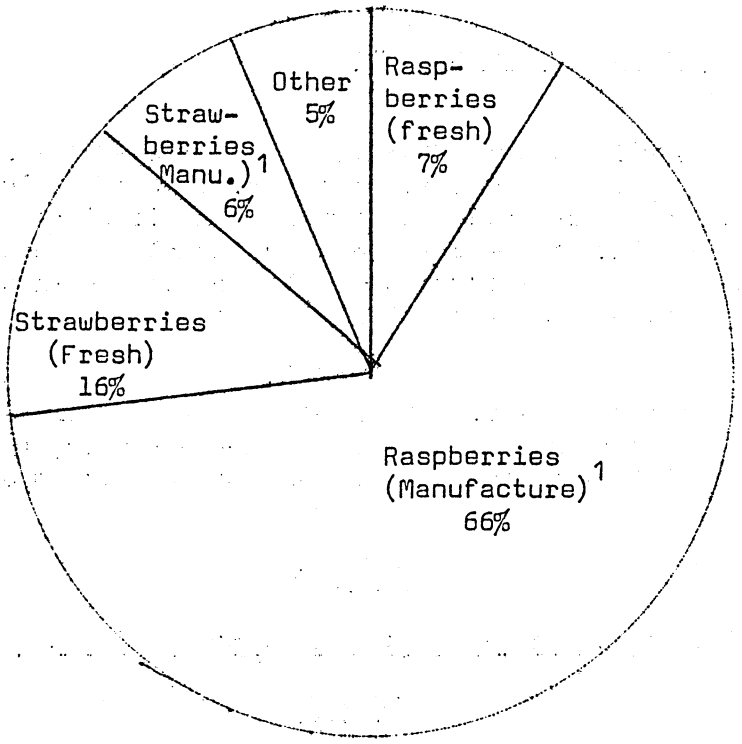
Vegetables

The production of vegetables both outdoor and under glass accounts for almost half of the value of horticultural production in Scotland. Tomato production is the most important single vegetable crop representing one third of the total value of vegetable production. (See Fig. 1.2).

Flowers and Plants

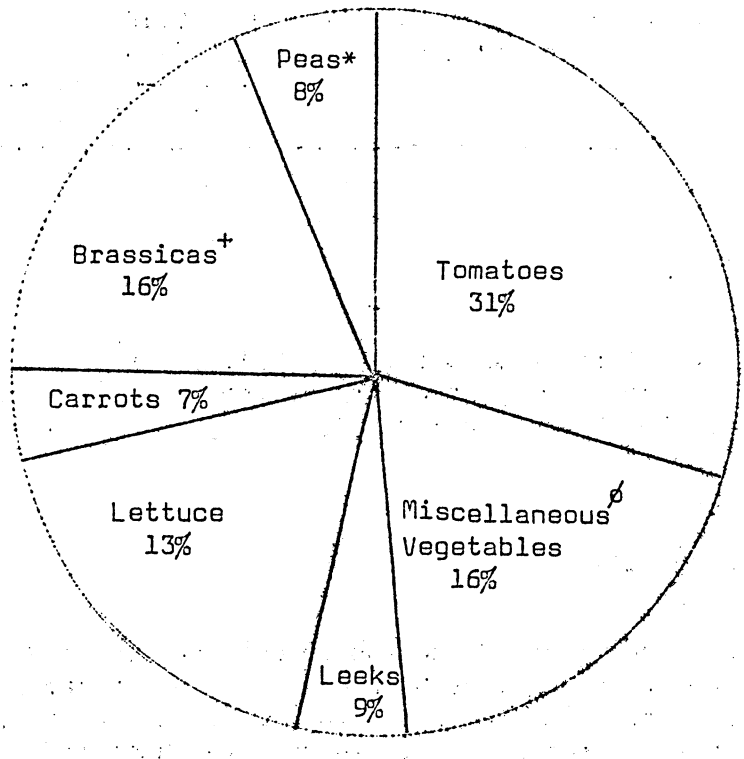
Unfortunately there is no published data available of the production within this sector.

Fig. 1.1 Value of the output of the major fruit crops in Scotland in 1970/71



[1]Including canning and freezing

Fig. 1.2 Value of the Output of the major vegetable crops in Scotland 1970/71



*Peas - for freezing and canning

+Brassicas - Sprouts, Cabbage, Cauliflower

øIncluding lettuce grown under glass

ii). Production under Glass

A large variety of vegetable and flower crops (including pot plants) are produced under glass in Scotland. The total value of horticultural production under glass was estimated at £3¼ million in 1969 representing almost one third of total horticultural production in Scotland. In the same year horticultural production under glass in the United Kingdom was estimated at £68 million or less than one quarter of the total horticultural production of £268 million. It can be seen that production under glass makes a significantly greater contribution to overall horticultural production in Scotland than it does in the remainder of the United Kingdom.

From the results of the Glasshouse Survey completed by the Department of Agriculture in 1969, an estimate has been made of the major glasshouse crops. Almost two thirds of the total value is accounted for by tomato production with flower production accounting for a further 20%. (See Table 2.2).

TABLE 2.2

Value of Glasshouse Production 1969

	Area	Output Per Acre	Value	% of Total
	Acres	£	£	
Tomatoes	201[1]	9700[1]	1,950,000	61
Chrysanthemums	59	4350[2]	257,000	8
Lettuce	52	4110[2]	214,000	7
Bulbs for forcing	24	1720[2]	418,000	13
Pot Plants	10	1075[2]	109,000	3
Bedding and Veg. Plants	17	9180[2]	156,000	5
Cucumbers	6	10800[2]	65,000	2
Other Vegetable and Fruit	4	4350[3]	17,000	-
Other Flowers and Shrubs	8	4350[3]	34,000	1
Total	379		3,221,000	100

[1]Yield 39 tons per acre at £250 per ton

[2]Output estimates based on figures from Management Notes - Horticulture

[3]Assuming an output of £100 per 1000 sq.ft. of glass

iii). Acreage of Glass

The acreage of glass has been estimated at between 260 and 315 acres during the past 20 years. Although some of the fluctuations are undoubtedly due to changes in the method of collecting the statistics, there would appear to be a slight downward trend over the past 5 years. In Table 2.3 the acreage of glass in Scotland is compared to that in England and Wales, Holland, Eire and Guernsey.

Apart from Eire, all of these countries had substantially more glass in 1962 than Scotland. In both England and Wales and in Holland, the acreage of glass has increased - by 10% in England and Wales and by almost 50% in Holland. During the same period the area of glass in Guernsey has remained almost static. In Eire, where the acreage of glass in 1962 was less than that in Scotland, considerable expansion has occurred until by 1969 there were over 400 acres of glass compared to 260 acres in Scotland.

TABLE 2.3

Acreage of Glass in various countries (heated and cold glass)

Year	Scotland	England & Wales	Holland	Eire	Guernsey
1962	294	3799	12,367	268	N.A.
1963	281	3703	12,884	225	N.A.
1964	276	3702	14,062	248	N.A.
1965	296	3647	14,890	272	1145
1966	314	3912	15,523	302	1152
1967	285	3907	16,143	332	1148
1968	271	4061	16,529	386	1135
1969	259	4169	16,971	411	1131
1970	261	4172	17,329	-	1128
1971	275*	4269	17,670	-	-
% Change 1962-70	- 11	+ 10	+ 43	-	-

The expansion of the acreage of glass in England and Wales was due mainly to the increase in flower production particularly chrysanthemums. In Holland, the two thirds of the increase in the area of glass has resulted from increased vegetable production and only one third from increased flower production. In Eire, the expansion of the acreage of glass has been directly due to increased tomato production.

*Statistics on a new basis

iv). Location of the Glasshouse Industry

Glasshouse production is concentrated in the South West of Scotland and in 1969-1970 nearly three quarters of the glasshouse acreage was situated in this region. Within this region production is concentrated in Lanarkshire (with half the total acreage of glass in Scotland) and in Ayrshire.

There has been little change in the location of the glasshouse industry although the acreage in the East Central region has declined.

TABLE 2.4

Location of the Glasshouse Industry

Region[1]	1954-1956		1969-1970		% change 1954-1956 to 1969-1970
	Area	% of Total	Area	% of Total	
Highlands	2	1	2	1	no change
North East	7	2	8	3	+ 14
East Central	39	14	30	12	- 23
of which Angus	19	-	9	-	
South East	32	11	29	11	- 9
South West	207	72	190	73	- 8
of which Ayr	43	-	32	-	
Lanark	128	-	129	-	
Total	288	100	260	100	- 10

[1]For definition of the regions see Appendix

v). The Structure of Glasshouse Production

The number of holdings with glasshouses was 970 in 1969. This represented a fall of 13% over the number of holdings in 1963. By classifying these holdings according to the area of the glass on the holding, a picture of the size structure of the industry can be drawn. (See Table 2.5). This classification shows that over two thirds of the glasshouse units are under 10,000 sq.ft. in size but the area of glass on these units accounts for only one fifth of the total acreage. At the other end of the scale, only 3% of the units are over 50,000 sq.ft. in size but the area of glass on these units is over one quarter of the total acreage.

Statistics from England and Wales show a similar distribution of units with again two thirds of the units being less than 10,000 sq.ft. in size. However the distribution of the glasshouse acreage differs considerably with over half of the total area of glass occurring in units of over 50,000 sq.ft.

TABLE 2.5

Size Structure of the Glasshouse Industry in Scotland (1969)

Size Group (Sq.ft.)	Units		Area	
	No.	% Total	Acreage	% Total
1 - 9,999	672	69.3	56	21
10 - 49,999	264	27.2	135	51
50,000 - 99,999	24	2.5	36	14
100,000 +	10	1.0	38	14
Total	970	100.0	265	100

A comparison with Holland shows the larger scale of production in that country with only a quarter of the units being less than 10,000 sq.ft. in size and over half being in the 10-50,000 sq.ft. size group. The larger scale production in Holland is also shown in the distribution of the acreage of glass.

TABLE 2.6

Size Structure of the Glasshouse Industry in England and Wales (1969)

Size Group (Sq.ft.)	Units		Area	
	No.	% Total	Acreage	% Total
1 - 9,999	7007	66.2	705	16.6
10 - 49,999	2802	26.5	1346	32.4
49,999 - 99,999	554	5.2	832	20.0
100,000 +	209	2.1	1286	31.0
Total	10572	100.0	4169	100.0

TABLE 2.7

Size Structure of the Glasshouse Industry in Holland (1969)

Size Group (Sq.ft.)	Units		Area	
	No.	% Total	Acreage	% Total
1 - 9,999	5314	25.5	614	3.1
10 - 49,999	10661	51.2	6613	39.9
49,999 - 99,999	4038	19.4	6572	39.7
100,000 +	807	3.9	2763	16.7
Total	20820	100.0	16562	100.0

In Guernsey, the size groups are slightly different, but the overall structure of the industry would appear to be very similar to that in Scotland apart from a smaller number of units in the smallest size group (1-12,000 sq.ft.).

TABLE 2.8

Size Structure of the Glasshouse Industry in Guernsey (1970)

Size Group (Sq.ft.)	Units		Area	
	No.	% Total	Acreage	% Total
1 - 12,000	1562	53.8	216	19.1
12,000 - 48,000	1228	42.3	585	51.9
48,000 +	114	3.9	327	29.0
Total	2904	100.0	1128	100.0

The decline in the number of units with glass in Scotland has not occurred evenly throughout the various size groups. The greatest decline has occurred in the smallest size groups and small reductions have also occurred in the number of units over 50,000 sq.ft. in size. The number of units in the 10-50,000 sq.ft. size group has increased.

TABLE 2.9

Classification of Glasshouse Units by Size Group in Scotland

Size Group (Sq.ft.)	No. of Units			Increase 1963-69
	1963	1966	1969	
1 - 9,999	848	816	672	- 176
10,000 - 49,999	224	266	264	+ 40
50,000 - 99,999	35	37	24	- 11
100,000 +	13	15	10	- 3
Total	1120	1134	970	- 150

The change in the acreage of glass in each size group is shown in Table 2.10. In view of the changes in the number of units with glass, both the increase in the area of glass in the 10,000-49,999 sq.ft. size group and the decline in the acreage in the larger size groups were to be expected. However, although the number of units in the smallest size group declined the area of glass in this size group has increased due to an increase in the average size of each unit - from 2300 sq.ft. in 1963 to 4000 sq.ft. in 1969.

The reasons for these changes in the structure of the glasshouse industry are not clear. The decline in the number of units and the area of glass in the two largest size groups could be due to the fact that these larger nurseries were the first to be established in Scotland. They were built on land that had been used for orchards and strawberry production and as a result a number were built on sloping land in poor light areas. This was not a drawback at that time but with advances in cultural techniques and improvements in production facilities making the achievement of high yields possible, these sites are no longer suitable.

The increase in the average size of each unit in the smallest size group (up to 10,000 sq.ft. in size) has already been noted. Taking this size group and the 10-50,000 sq.ft. size group together, the average size of unit has risen from 6,500 sq.ft. in 1963 to 8,900 sq.ft. in 1969. This is a substantial increase and tends to indicate that the minimum economic unit for glasshouse production has increased during the period.

TABLE 2.10

Classification of Glasshouse Acreage by Size Group

Size Group (sq.ft.)	Acreage of Glass			Increase or Decrease
	1963	1966	1969	1963-69
1 - 9,999	45.7	47.9	56.4	+ 10.7
10,000 - 49,999	114.2	134.2	134.9	+ 20.7
50,000 - 99,999	57.2	61.4	35.8	- 21.4
100,000 +	63.5	72.2	37.9	- 25.6
Total	280.6	315.7	265.0	- 15.6

vi). Age of the Glass

With the continual improvements in the design and construction of glasshouses, the age structure of the glasshouse acreage can be used to give an indication of the technical efficiency of the industry. The acreage of glass in Scotland can be divided into 4 age groups and these are shown in Fig. 1.3a. Of the glasshouse acreage in 1969 over 60% was built before 1945.

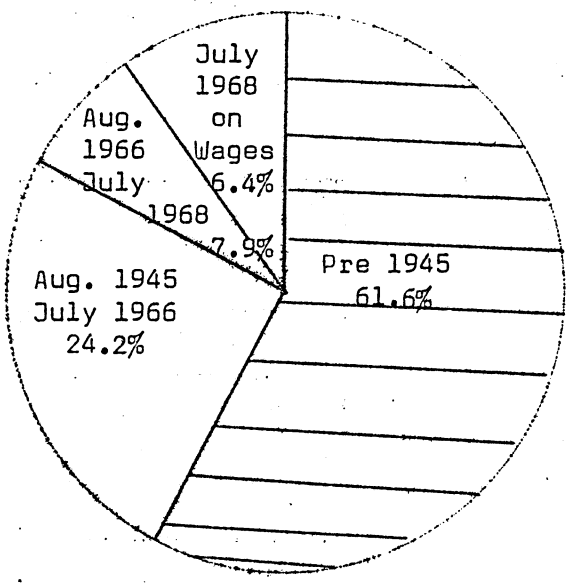
A similar analysis of the age of the glasshouse acreage in England and Wales is shown in Fig. 1.3b. The percentage of existing glass built before 1945 is almost half that in Scotland whereas the percentage of glass built between 1945 and 1966 is double that of Scotland.

Unfortunately information from Holland on this subject is somewhat scanty - the last age census being in 1963. However, figures are available of the area of glass pulled down between 1963 and 1968 and assuming this to be glass built before 1945, the area of pre 1945 glass remaining in 1968 can be calculated. Figures are also available on the area of glass built between 1963 and 1968. By making these adjustments, the age distribution of glass in 1968 in Holland can be estimated. (See Fig. 1.3c).

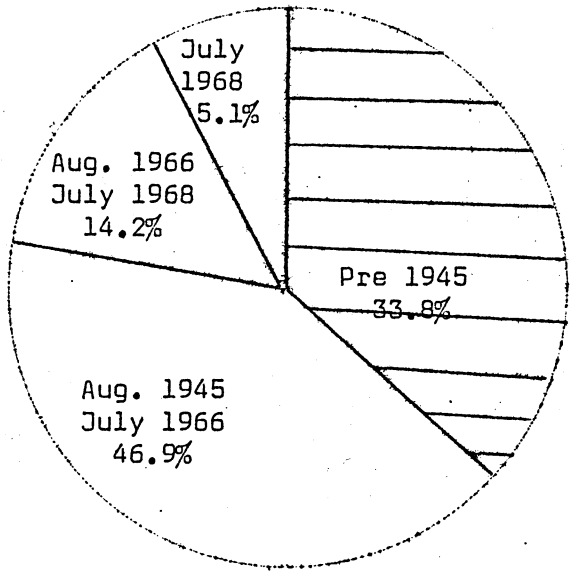
The striking feature of the Dutch industry is the small proportion of glass built before 1945 that remains in production compared with England and Wales and, more especially, Scotland. By 1968 over half the glass in Holland was less than ten years old.

Fig. 1.3 Distribution of Glasshouse Acreage by Age

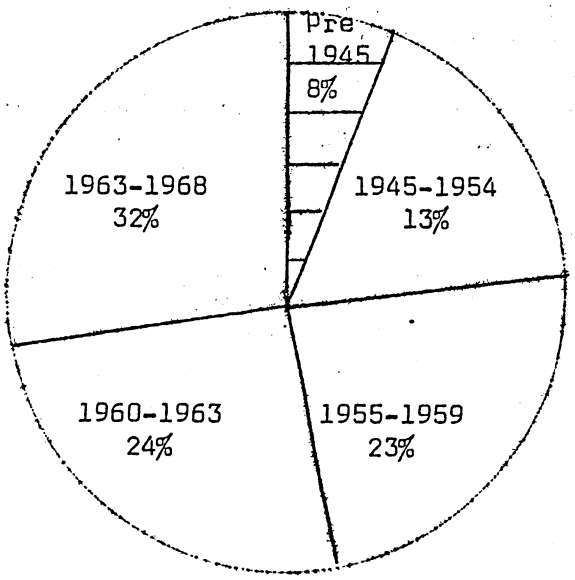
a). Scotland 1969



b). England and Wales 1969



c). Holland 1968

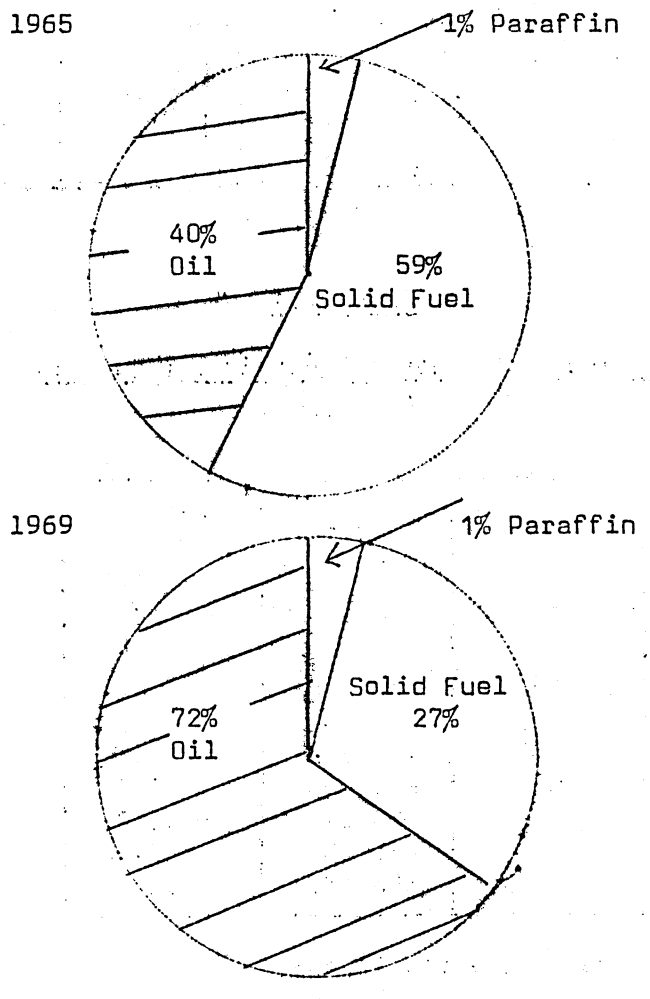


This difference in the age structure of the glass between Scotland and both Holland and England and Wales is particularly important. With modern cultural systems, high yields of tomatoes and other crops are attainable provided that the environment within the glasshouse is not the limiting factor. There is little doubt that in older glasshouses built before 1945, the environment in the glasshouse is the factor limiting yield. This limitation reduces the competitiveness of the industry in Scotland.

The technical efficiency of the industry can also be measured by the type of equipment used. In the provision of automatic heating equipment substantial progress has been made in Scotland with 80% of the glass being heated by automatically controlled boilers.

There has also been a significant change in the type of fuel used for heating the glasshouses with almost three quarters of glasshouse area being heated by oil in 1969 compared to less than half in 1965. (See Fig. 1.4).

Fig. 1.4 The Percentage of the Heated Glasshouse area in Scotland heated by coal and oil



vii). Rate of Investment in Glasshouse Production

The investment in glasshouse production facilities increased rapidly throughout the 1960's and in June 1969 17 acres of glass were erected representing an investment in glass alone of about £300,000. Unfortunately, there is no further information available on the amount of glass built since June 1969. Details are, however, available on the cost of schemes approved under the Horticultural Improvement Scheme*. The Scheme covers the erection of new glass with a grant of 40% towards the cost of the glass being made. It also covers a number of other improvements such as the provision of irrigation equipment, improvements in heating systems etc.

The cost of all approved schemes rose to over £650,000 in 1971 (almost £500,000 at 1965 prices) and this indicates an increasing investment in new glass and equipment up to 1970 with a slight fall in 1971.

TABLE 2.11

Rate of Erection of New Glass

	Total Acreage Built	No. of Years	Annual Acreage Built
1945 - July 1964	77.82	20	3.9
Aug. 1964 - July 1966	15.43	2	7.7
Aug. 1966 - July 1968	20.26	2	10.1
Aug. 1968 - July 1969	17.73	1	17.7

TABLE 2.12

Cost of Schemes approved under the Horticultural Improvement Scheme

Year	Actual Cost	Cost at 1965 Prices
	£	£
1965	138,318	-
1966	216,460	208,083
1967	290,722	272,697
1968	519,000	465,024
1969	478,149	404,753
1970	639,936	518,220
1971	653,491	482,145

*For details of the scheme see Appendix

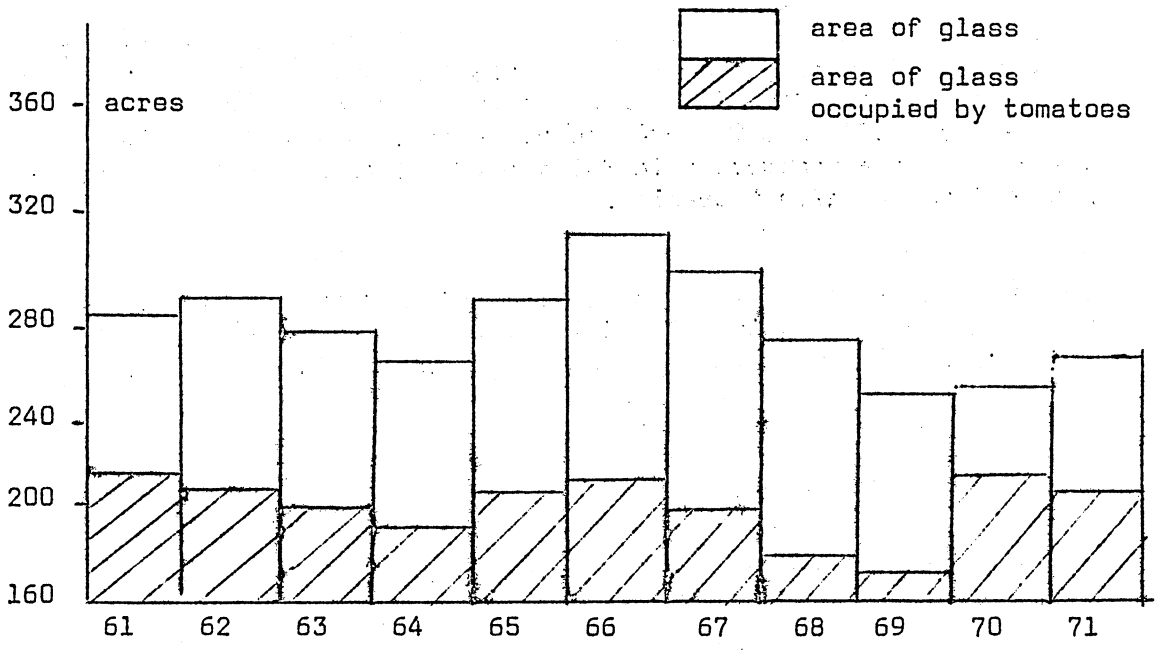
3. TOMATO PRODUCTION IN SCOTLAND

i). The Value of Tomato Production

The importance of tomato production to Scottish Horticulture is evident from the fact that in 1970-71 the value of tomato production (£1.8 million) represented 15% of the total value of horticultural production and almost two thirds of the value of horticultural production under glass. During the summer months of 1970, 70% of the total area of glass was occupied by tomatoes.

The area of glass occupied by tomatoes has fluctuated during the past ten years (although again, some of the fluctuations could be due to changes in the methods of collecting the statistics). But there would appear to have been a decline in the tomato acreage from about 230 acres in 1961 to 200 acres in 1971. Accompanying this fall in the acreage of tomatoes, the percentage of the total area of glass occupied by tomatoes has also declined from 80% in the mid 1950's to 70% in 1970.

Fig. 2.1 The Acreage of Glass and Tomatoes in Scotland



ii). The Quantity of Tomatoes Produced

Despite the decline in acreage, the output of tomatoes has remained fairly constant, the decrease in acreage being compensated for by a rise in the yield per acre from 30 tons per acre in 1961 to 36 tons per acre in 1970. (See Table 3.1).

TABLE 3.1

Production of Tomatoes in Scotland and some other countries

	Scotland			Production ('000 tons)		
Year	Area Acres	Yield tons/acre	Production 000 tons	U.K.	Holland	Eire
1961	229	30.0	6.9	89.7	N.A.	N.A.
1962	222	34.6	7.7	87.5	233.8	N.A.
1963	207	31.9	6.6	81.6	221.8	7.2
1964	196	35.5	7.5	75.6	293.9	N.A.
1965	214	34.2	7.9	82.1	306.7	N.A.
1966	219	31.8	7.5	78.5	292.4	10.5
1967	201	33.3	7.3	79.7	335.8	12.5
1968	175	36.7	7.0	83.8	331.7	15.9
1969	169	36.0	7.8	81.1	345.4	16.4
1970	200*	35.4	7.1	91.3	372.9	20.7

Production in Scotland amounts to 7.5% of the total United Kingdom production and during the past 10 years the proportion has remained fairly constant. Overall production in the United Kingdom declined in the mid 1960's but by 1970 had returned to the 1961 level. Over the same period production in Holland increased by 50% and production in Eire has almost trebled.

The average yield of tomatoes in Scotland, England and Wales and in Holland are shown in Table 3.2. Improvements in yields have occurred in all three countries, the largest being in Holland with an increase of 10 tons per acre.

*acreage of tomatoes computed on a new basis

TABLE 3.2

Average Yield of Tomatoes

Year	Scotland	Holland	England & Wales
	Tons Per Acre		
*1960	36.3	31.8	38.9
1965	34.2	36.6	42.9
1970	35.4	42.5 (1971)	46.2 (1968)

*The average yield in Scotland was exceptionally high in 1960. The yield in 1959 was 33.3 tons per acre and in 1961 was 30.0 tons per acre.

The average yield per acre in Scotland is some 10 tons less than in England and Wales. The lower yield is possibly the result of the high proportion of old glass still used for tomato production in Scotland as the yields obtainable in this type of glass are considerably lower than in the more modern structures. With 10 tons of tomatoes valued at between £2000 and £2500, this lower yield significantly reduces the competitiveness of the Scottish industry.

iii). The Structure of Tomato Production

The size structure of tomato production is very similar to that of the glasshouse acreage as a whole with two thirds of the producers having less than 10,000 sq.ft. of the crop and the total acreage in this size group amounts to only one sixth of the total acreage of tomatoes. Only 5% of producers have over 50,000 sq.ft. of the crop but over one third of the total acreage of tomatoes occurs on these holdings. (See Table 3.3).

TABLE 3.3

Classification of Holdings growing Tomatoes by size of crop (1969)

Size of Crops (sq.ft.)	% of Growers	% of area of Tomatoes
1 - 9,999	64.3	16.6
10,000 - 49,999	30.1	49.8
50,000 - 99,999	4.6	19.4
100,000 and over	1.0	14.2

A direct comparison between the figures for Scotland and Holland cannot be made because of a lack of information. But evidence of the larger scale of production is reflected on the distribution of vegetable crops grown under glass shown in Table 3.4. Nearly two thirds of the vegetables are produced in units of over 50,000 sq.ft. in size.

TABLE 3.4

Distribution of Holdings growing vegetables under glass by Size of Crop in Holland (1969)

Size Group (sq.ft.)	% of growers	% of area of vegetables
1,076 - 10,760	18	2
10,760 - 53,819	52	36
53,819 - 107,637	25	44
107,637 and over	5	18

Location of Tomato Production

In 1970, three quarters of the acreage of tomatoes in Scotland was located in the South West region and half of the total tomato acreage of Scotland was located in Lanarkshire. Since 1963 the area of tomatoes in Lanarkshire has remained constant but because the total acreage of tomatoes has fallen, this represents an increasing share of the crop. (In 1963, 52% of the tomato acreage was in Lanark compared to 58% in 1970).

4. IMPORTS OF TOMATOES

i). Sources of Imports

Production of tomatoes within the United Kingdom is not sufficient to meet the demand from the consumer and the deficiency is made up by imports. These not only occur during the winter period when home production ceases, but also during the summer period when home production is at its peak. The main sources of imports are the Channel Isles, Holland, Spain and the Canary Isles.

Small quantities are also imported from many other countries during the winter period to supplement those from Spain and Canary Islands. The imports from both Holland, the Canary Islands and more recently from the Republic of Ireland compete directly with production in the United Kingdom.

To protect home production a tariff is imposed on imports from Holland, Spain and the Canary Islands (but not those from the Channel Isles). This tariff is variable and is at its maximum during May and June. In Table 4.1 the actual value of the tariff paid in 1971 on imports of Dutch tomatoes is shown.

TABLE 4.1

Duty payable per 12 lbs of Tomatoes Imported from Holland (1971)

		Duty
		£
May	1st - 15th	0.20
May	16th - June 15th	0.30
June	16th - July 31st	0.25
Aug.	1st - 31st	0.20
Sept.	1st - Oct. 31st	0.10
Nov.	1st - Apr. 30th	10%

ii). Quantities of Tomatoes Imported to Scotland

Information on the quantities of tomatoes imported to Scotland is not available but the share of the Scottish tomato market supplied by home production can be calculated (See Table 4.2). Overall the Scottish growers produce less than one third of the tomatoes consumed in Scotland.

TABLE 4.2

Scottish Producers share of the Tomato Market in Scotland

Year	Population ooo's	Consumption oz/person/ week	Total Consumption Tons	Production in Scotland Tons	Scottish Production as a Percentage of Total Consumption**
1960	5178	3.24	24341	9000*	36.9
1961	5184	3.10	23316	6900	25.3
1968	5188	2.91	21904	7000	32.0
1969	5195	3.28	24722	7800	31.6

*Production in 1960 was exceptionally high owing to high yield in that year. Production in the previous 3 years had averaged 8100 tons.

**Assuming no exports of Scottish tomatoes.

However, there is no production during the period December to March owing to the adverse climatic conditions and this tends to distort the situation. A more accurate picture of the market share can be obtained by calculating the seasonal supply of Scottish tomatoes* and the quarterly tomato consumption of tomatoes (See Table 4.3).

TABLE 4.3

Proportion of the Tomato Market supplied by Scottish Producers during the season (1969)

	Consumption oz/person/ week	Estimated Total Consumption	Estimated total supply from Scotland	%
April - June	4.11	7745 tons	2472 tons	31.9
July - September	5.53	10492 tons	4999 tons	47.6
October - December	2.35	4428 tons	329 tons	13.6
	4.01	22665	7800	34.4

This shows that even during the summer months, when Scottish production is at its peak, less than half tomatoes consumed are grown in Scotland.

*See British Isles Tomato Survey 1968

iii). Quantities of Tomatoes Imported to United Kingdom

In order to analyse the trends of imports in any greater detail, it is necessary to look at the United Kingdom as the statistics on imports are only available for the United Kingdom as a whole and not for Scotland.

The total quantity of tomatoes consumed during the period - April - December (when home production occurs) was estimated at 284,000 tons in 1970 (see Table 4.4). The average weekly consumption per head declined during the 1960's more rapidly than population increased resulting in an overall decline in the total quantity of tomatoes consumed.

TABLE 4.4

Consumption of Tomatoes during April-December in the United Kingdom (1960-1970)

Year	Population	Av. weekly Consumption	Total Consumption
	Millions	(oz.)	000 tons
1960	52.4	5.25	299.1
1961	52.8	5.10	293.0
1962	53.3	4.78	277.3
1963	53.6	4.68	273.1
1964	54.0	4.91	288.5
1965	54.4	4.57	270.3
1966	54.7	4.59	272.9
1967	55.0	4.68	279.9
1968	55.2	4.57	274.9
1969	55.5	4.70	284.0
1970	55.7	4.69	284.3

These tomatoes are supplied from home production and from imports. The quantities of tomatoes from these various sources are shown in Table 4.5. There is a discrepancy between the total quantity consumed and the quantity produced, this can be accounted for in part by supplies from non-commercial sources.

TABLE 4.5

Source of Tomatoes Consumed in the United Kingdom

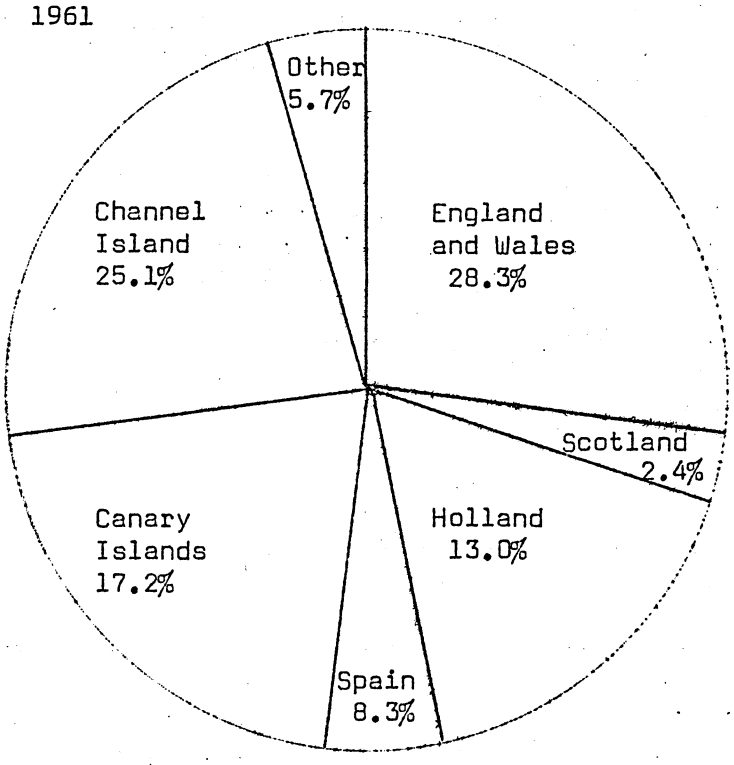
Country of origin	1960	1961	1968	1969	1970
	000 tons	000 tons	000 tons	000 tons	000 tons
England & Wales	81.0	82.8	77.4	73.9	84.0
Scotland	9.0	6.9	7.0	7.8	7.1
Channel Islands	68.3	73.5	70.6	64.6	68.9
Rep. of Ireland	0.3*	0.5*	2.0	2.4	3.5
Holland	34.0	38.1	52.4	46.3	49.9
Spain	22.4	24.6	24.3	23.9	30.2
Canary Isles	56.2	50.5	39.0	31.0	30.7
Other	0.2	0.6	0.8	1.9	0.1
Total	271.4	277.5	272.8	251.2	274.5
Total consumed	299.1	293.0	274.1	284.0	284.3

*Republic of Ireland and other Commonwealth countries

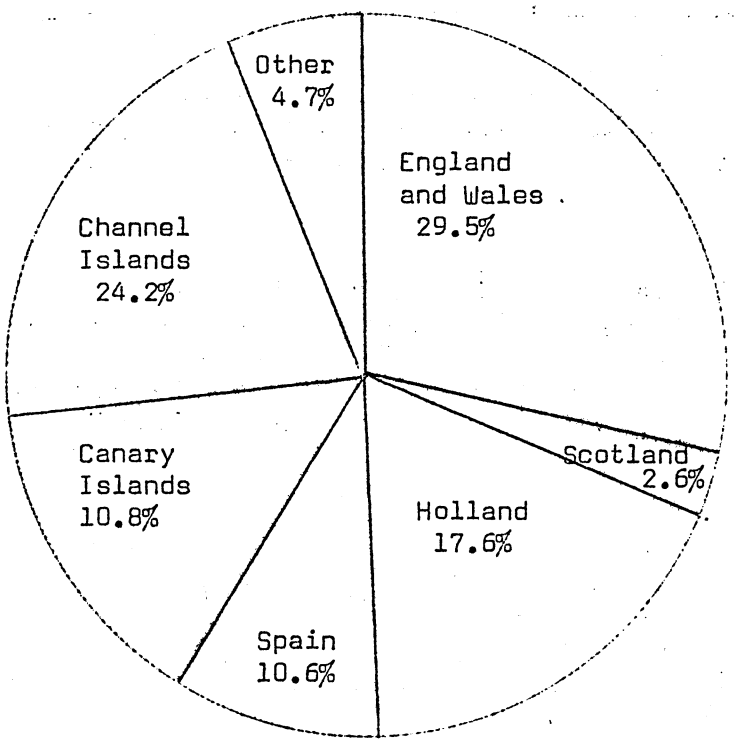
From the figures in Table 4.4 it is possible to calculate the market share of each of the countries in 1961 and in 1970 (see Figure 3.1). This calculation shows that imports from Holland and Spain have increased at the expense of imports from the Canary Isles whereas the home producers share of the market has remained constant.

Fig. 3.1 Percentage of tomatoes consumed during April - December in U.K. from main sources of supply

a). 1961



b). 1970



iv). Imports of Tomatoes from Holland

On entry to the European Economic Community, the tariff levied on imports of tomatoes from Holland will be removed over a 4 year period. This will obviously affect the imports of Dutch tomatoes and therefore it is worth examining the position of Dutch tomatoes more closely.*

Imports from Holland have remained fairly static. Since 1965, the total quantity of tomatoes imported from Holland has fluctuated at around 50,000 tons reaching a peak of 53,000 tons in 1970. Of more importance than this annual fluctuation has been the change in the distribution of imports during the season. In Table 4.7 the quantity of tomatoes imported to the United Kingdom from Holland during the two periods April-June and July-October are shown.

TABLE 4.6

Imports of Tomatoes from Holland

Year	April - June		July - October		Total (000 tons)
	Quantity (000 tons)	% of Total	Quantity (000 tons)	% of Total	
1965	29.3	56	22.9	44	52
1966	28.6	57	20.9	43	50
1967	27.0	56	21.2	44	48
1968	24.2	48	25.6	52	50
1969	27.1	59	18.9	41	46
1970	33.8	64	19.3	36	53
1971	25.0	N.A.	N.A.	N.A.	-

Since 1968 substantial increases have occurred in the quantity of imports during the April-June period although in 1971 a reduction occurred due to the unusual market conditions prevalent in that year (q.v.).

This change in the pattern of imports from Holland is a direct reflection of the change in the pattern in the production in that country. Production during the March-May and June-July periods has increased substantially and in 1971, 70% of the crop was marketed in this period compared to 50% in 1962. (See Table 4.7).

*Imports from other countries are likely to be unaffected by British entry to the E.E.C. Imports from the Channel Isles and Eire will continue to be imported free of tariff. Imports from the Canary Isles and Spain are at present subject to a tariff similar to that for Dutch tomatoes. In future they will be subject to a tariff set by the E.E.C. (Common External Tariff).

TABLE 4.7

The Percentage of the Dutch Tomato Crop Marketed during the Season

Year	March-May	June-July	Aug.-Dec.	Total
1962	12.7	37.9	49.4	100
1965	22.1	39.3	38.6	100
1968	27.0	39.5	33.5	100
1971	28.5	42.1	29.4	100

v). The "dumping" of Tomatoes from Holland

In discussions with producers, the problems of imports of tomatoes being dumped on the wholesale market is sometimes raised. (The dumping of produce implies that imports continue regardless of the market price resulting in "unfair competition"). A closer examination of the market situation in June 1971 shows that there are no grounds for suggesting that imports of tomatoes for Holland are "dumped" on the market.

On Glasgow market, the price of tomatoes in June 1971 was about 30p per 12 lbs. less than in June 1970. The situation in Glasgow was typical of the situation in the United Kingdom as a whole. As a result of this low price, the quantity of Dutch tomatoes imported was reduced by almost 50%.

TABLE 4.8

The Influence of Price on Imports of Dutch Tomatoes

Year	Average Price Glasgow (P/12 lb.)	Imports of Dutch Tomatoes to U.K. (tons)	Price at the Dutch Auctions (P/12 lb.)
June 1970	145.6 - 152.4	17,200	75
June 1971	112.9 - 125.7	9,000	83

The switch of supplies of Dutch tomatoes from U.K. markets to other markets, particularly West Germany, indicates the sophistication of Dutch marketing system and shows that the export of tomatoes to the U.K. is due to demand and not due to the "dumping" of surpluses on the U.K. market. It must be remembered that the United Kingdom is a secondary market for Dutch tomatoes - the bulk of tomatoes being exported to West Germany. In 1967, production of tomatoes in Holland was 335,000 tons of which 187,000 tons were exported to West Germany and 48,000 to United Kingdom.

vi). The Cost Advantage in Marketing to the Scottish Producer

The cost of importing tomatoes from Holland and selling them on Glasgow market was 58p per 12 lb. in 1971 compared to a cost of 20.4p per 12 lb. for selling Scottish tomatoes on the same market (see Table 4.9).

TABLE 4.9

Estimated Costs of selling Dutch and Scottish Tomatoes on Glasgow Market

	Per 5 Kilos	Equivalent per 12 lb.	Scottish Tomatoes
	Pence		
Tray	6.0	5.3	4.0
Labour handling and exporters margin	6.0	5.3	-
Freight (Holland - Glasgow)	11.0	9.8	6.00**
Importers margin	4.0	3.7	-
Wholesaling expenses*	10.0	8.9	10.4
Total	37.0	33.0	20.4
Add tariff (June 16th-July 31st)		25.0	
Total cost		58.0	20.4

*Scottish figure based on a handling charge of 1p per 12 lb. and a commission rate of 7½% on a selling price of £1.25.

**Current contractors charge for transporting tomatoes from the Clyde Valley to Glasgow market.

Bearing in mind that Dutch tomatoes are normally sold at a lower price than Scottish tomatoes, the return home to the Dutch producer will be in the region of 30p less than the return to the Scottish grower for tomatoes sold on the same market. Although the quantity of Dutch tomatoes sold in Glasgow is only a very small proportion of the total Dutch crop and tomatoes sold in other markets may realise a higher price with lower charges, the figures do indicate the present advantage the Scottish grower enjoys in his home market.

On entry to the E.E.C., the tariff will be removed over a 4 year period thus reducing substantially the cost of importing Dutch tomatoes and the cost advantage enjoyed by the Scottish producer.

5. CONSUMPTION

i). Consumption of Tomatoes

The consumption of tomatoes per head in Scotland is considerably less than in the remainder of the United Kingdom and in this respect the consumption of tomatoes is similar to many other fruit and vegetable crops. Annual consumption of tomatoes has fluctuated around an average of 3 oz. per person per week, compared to the U.K. national average of between 4 and 4½ oz. per person per week.

TABLE 5.1

Consumption of Tomatoes (oz. per person per week)

	Scotland	U.K.	Highest Region Figure
1960	3.24	4.50	4.90 Eastern
1961	3.10	4.52	5.13 S.E. & Southern
1962	3.17	4.20	4.68 " " "
1963	2.77	3.96	4.62 " " "
1964	3.16	4.22	4.91 Eastern
1965	2.73	3.92	4.51 S. Western
1966	2.96	3.98	4.51 Eastern
1967	2.82	4.06	4.77 S. East/E. Anglia
1968	2.91	3.98	4.50 " " "
1969	3.28	4.10	4.91 " " "
1970	2.82	4.00	
% Change 1960-1970	- 13%	- 11%	

During the 10 year period consumption has fallen both in Scotland and over the country as a whole, although since 1967 it would appear that the consumption levels have stabilised.

Consumption of tomatoes is highest during July, August and September and lowest during the winter months of January, February and March (see Table 5.2).

TABLE 5.2

Consumption of Tomatoes per quarter (oz. per person per week)

	1960		1961		1968		1969	
Months	Scot.	U.K.	Scot.	U.K.	Scot.	U.K.	Scot.	U.K.
Jan.-March	1.49	2.25	1.11	2.27	1.41	2.24	1.11	2.28
April-June	4.23	5.22	3.98	4.90	3.35	4.22	4.11	4.07
July-Sept.	5.04	6.98	5.69	6.98	4.69	5.99	5.53	6.40
Oct.-Dec.	2.22	3.54	1.60	3.44	2.19	3.29	2.35	3.64
Year	3.24	4.50	3.10	4.52	2.91	3.98	3.28	4.10

6. PRICES

i). General Price Pattern

The price of tomatoes in the wholesale market is fixed by the interaction of supply and demand. The price fluctuates considerably from day to day and even during each day. However, in general, the price of Scottish tomatoes is high in April and decreases during the summer as supplies increase. (See Appendix Table A.1).

ii). Level of Prices

The average price received by an individual grower will depend on price of tomatoes in the market each week and the quantity of tomatoes marketed each week. With a crop which is marketed over a long season and where fluctuations in price occur from day to day, it is difficult to identify overall trends in prices from year to year. The most obvious method of overcoming this difficulty is to calculate the average price over the whole season and then compare these average prices over a number of seasons.

In considering the changes in prices from the growers point of view, the variation in average prices caused by changes in the quantity of tomatoes marketed each week must be eliminated. This can be done by calculating an average price for each year based on a similar quantity crop of tomatoes being marketed. The average price is then calculated by dividing the total revenue by the total yield (see Table 6.1).

Of more importance than the change in the actual price, is the change in the price in real terms i.e. allowing for the change in the purchasing power of the pound. A method of measuring this "purchasing power" is the retail price index published by the Department of Employment (see Table 6.1).

In order to show how the prices of tomatoes has changed compared to the change in the retail price index a "parity" price for tomatoes has been calculated. This shows, for each year the average price tomatoes should have been in order to keep the producers income the same as in 1959, in terms of the goods that could have been bought*. (See Table 6.1 and Fig. 5.1).

*For Methodology see Appendix B.

TABLE 6.1

Average Price of Tomatoes, Retail Price Index and the "parity" Price of Tomatoes 1959-1971

Year	Average Price £'s per 12 lb.	Retail Price Index	Parity Price £'s per 12 lb.	Difference Average Price - Parity Price
1959	1.021	92.1	1.021	0
1960	1.216	93.2	1.033	+ 0.183
1961	1.232	97.0	1.075	+ 0.157
1962	1.273	101.6	1.126	+ 0.147
1963	1.435	103.6	1.148	+ 0.287
1964	1.293	107.0	1.186	+ 0.107
1965	1.383	112.1	1.243	+ 0.140
1966	1.514	116.5	1.292	+ 0.222
1967	1.433	119.4	1.324	+ 0.109
1968	1.347	125.0	1.383	- 0.036
1969	1.237	132.3	1.467	- 0.230
1970	1.284	138.3	1.533	- 0.249
1971	1.378	151.8	1.683	- 0.305

January 1962 = 100

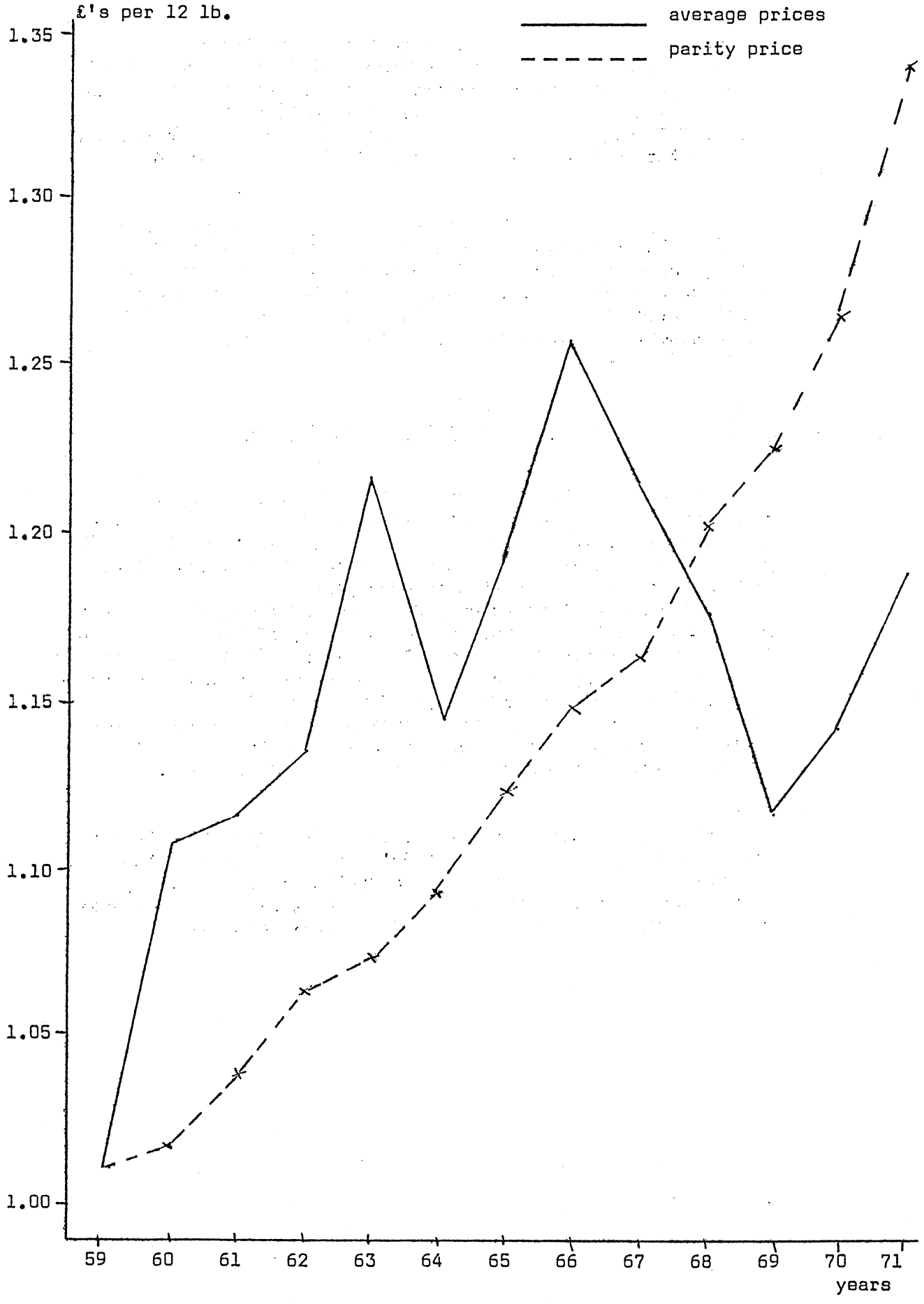
The results of this comparison must be treated with some care. No allowance has been made in this comparison for increases in efficiency of production and marketing or changes in the yield pattern throughout the season - all of which would obviously affect the average price returned to the grower over the season as a whole. However the comparison of actual prices compared to the "parity" price does indicate that:

i). Between 1959 and 1967, the price of tomatoes increased more rapidly than the price of other goods so that tomato producers in this period should have experienced an increase in profit margins.

ii). Since 1967, the price of tomatoes has tended to decline and the retail price index has risen more quickly. This indicates that the profit margins of tomato producers have been under increasing pressure.

The reasons for this change from increasing real prices to declining real prices lies in the changing supply and demand situation in Scotland and the United Kingdom during the past 10 years.

Fig. 5.1 Comparison of actual and parity price 1959-1971



In the period 1959-1967, the production of tomatoes in the United Kingdom fell from 90,000 tons in 1961 to 78,000 tons in 1966. During this period imports rose only slightly resulting in a decline in the total supply. The decline in supply resulted in higher prices and this led in turn to a decrease in the quantity consumed - i.e. supply limited consumption.

Since 1967, the production of tomatoes in the U.K. has increased and in 1970 production was back to the 1961 level of 90,000 tons. During the same period imports have remained constant resulting in an overall increase in supply. The increase in supply has caused prices to fall and this has led in turn to an increase in consumption - i.e. production plus imports has more than satisfied demand.

iii). Change in the average price returned to producers

In order to establish the change in the real price of tomatoes, the effects of changes in the efficiency of production on the average price returned to the growers has been eliminated. (This was done by calculating the average price of tomatoes assuming the same crop to be marketed in each year). In fact by employing improved cultural techniques and production facilities growers have been able to increase production early in the season when the price of tomatoes is high. This has resulted in an improvement in the average price returned to the grower over the season as a whole. Also the average yield per acre has been increased. This higher yield and higher average price have resulted in a higher revenue per acre which has more than offset the effects of lower real prices during the season (see Table 6.2).

This means in effect that instead of profit margins on tomatoes being lower at the end of the 1960's than they were at the beginning of the decade due to the decline in real prices, profit margins have actually increased as a result of improvements in production facilities and cultural methods.

TABLE 6.2

The Revenue per acre from Tomatoes

Year	Yield per Acre	Average Price per Ton	Revenue per Acre	Revenue per Acre in real terms
	Tons	£ per Ton	£s	£
1961	30.0	151.9	4557	4698
1962	34.6	159.6	5522	5434
1963	31.9	166.8	5321	5135
1964	35.5	170.7	6060	5666
1965	34.2	177.3	6064	5415
1966	31.8	178.6	5679	4873
1967	33.3	186.1	6197	5172
1968	36.7	253.8	9313	7450
1969	36.0	239.9	8638	6530
1970	35.4	247.4	8757	6332

iv). Changes in seasonal price pattern

It has already been stated that the price of tomatoes fluctuates during the season but the general trend is for tomatoes to decrease in price from April onwards. This pattern has remained constant over a number of years. Despite the similarity from year to year it is possible that changes have occurred within the season. For example, as technical efficiency has increased it has been possible to produce tomatoes earlier each year. This increase in supply earlier in the year could be expected to lead to lower prices during April and May.

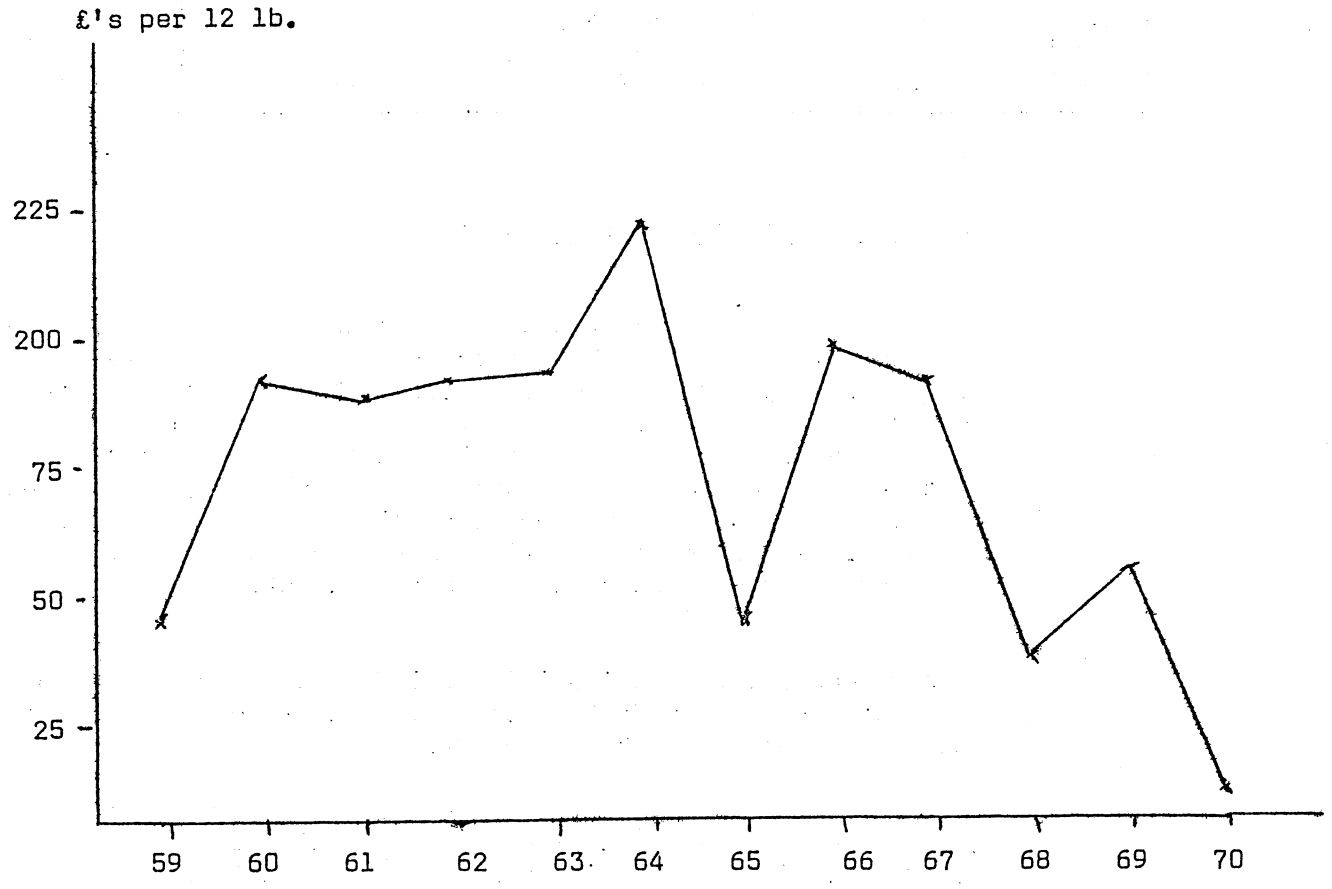
The prices for the period 1959 to 1971 have been re-examined to establish if, in fact, changes in the price in each month have occurred during this period*.

From this examination it would appear that the only month in which a definite trend in prices can be identified is May (Fig. 5.2). This shows that since 1964, the price in real terms in the last week of May has been declining.

This fall in the real price of tomatoes early in the season is due to the increase in production in Scotland and other countries (particularly Holland) during the period. This has been brought about by improvements in both production facilities and cultural methods enabling tomatoes to be produced earlier in the year.

*See Appendix

Fig. 5.2 Average Real Price of Tomatoes in the last week of May



v). Price differential between Scottish and Dutch Tomatoes

Traditionally there was a premium for Scottish tomatoes in the Glasgow market. This premium was a measure of the preference of the Scottish housewife for the home produced article. The premium obviously allowed the home producer to compete successfully with other producers in more favoured climates.

TABLE 6.3

Prices per 12 lb. of Scottish and Dutch Tomatoes

Week		1961			1971		
		Dutch	Scottish	Difference	Dutch	Scottish	Difference
		£					
May	1	1.90	3.30	+ 1.40	1.82	2.31	+ 0.49
	2	1.80	2.40	+ 0.60	1.76	2.16	+ 0.40
	3	1.60	2.10	+ 0.50	1.97	2.10	+ 0.13
	4	1.60	1.80	+ 0.20	1.82	1.98	+ 0.16
June	1	1.10	1.65	+ 0.55	1.82	1.62	- 0.20
	2	1.10	1.35	+ 0.25	1.34	1.38	+ 0.04
	3	0.90	1.20	+ 0.30	1.22	1.26	+ 0.04
	4	0.88	0.95	+ 0.07	1.31	1.34	+ 0.03
July	1	0.75	1.00	+ 0.25	1.25	1.14	- 0.11
	2	0.90	1.20	+ 0.30	0.94	0.75	- 0.19
	3	0.75	1.15	+ 0.40	1.10	1.26	+ 0.16
	4	0.95	1.10	+ 0.15	1.00	1.17	+ 0.17
	5	0.85	0.95	+ 0.10	-	-	-
Aug.	1	0.78	1.10	+ 0.32	1.41	1.62	+ 0.21
	2	-	0.80	-	1.52	1.50	- 0.02
	3	0.55	0.75	+ 0.20	1.04	1.16	+ 0.16
	4	0.68	0.80	+ 0.12	1.27	1.18	- 0.09
Sept.	1	0.65	0.90	+ 0.25	1.18	1.26	+ 0.08
	2	0.65	0.85	+ 0.20	1.22	0.93	- 0.29
	3	0.55	0.95	+ 0.40	1.34	1.35	+ 0.01
	4	0.78	-	-	1.06	1.23	+ 0.17

In 1961, the average difference between Scottish and Dutch tomatoes was £0.34 per 12 lb. but by 1971 this had fallen to £0.065 per 12 lb. This is a decrease of over 2p per lb. Also in 1971, price of Dutch was higher than that of Scottish tomatoes for six weeks during the season whereas in 1961 the price of Dutch was never above that of Scottish tomatoes.

7. DISCUSSION AND CONCLUSIONS

In the type of review of the historical data concerning an industry undertaken in this report, many interesting facts and trends emerge. The problem is to put these into perspective. In the analysis that follows, the perspective chosen is the identification of the strengths and weaknesses of the industry so that an assessment of the future prospects can be made. To achieve this objective the analysis is divided into 3 sections.

i). the performance of tomato producers in Scotland
ii). the performance of imports
iii). prospects for the future

i). THE PERFORMANCE OF TOMATO PRODUCTION IN SCOTLAND

During the past 10 years, the quantity of tomatoes produced in Scotland has remained static whereas production in Holland has increased by 50%. Production in Scotland appears to have been limited by one or more factors and this has prevented the type of expansion seen in Holland. The possible factors limiting production are:-

a). lack of demand for Scottish tomatoes

b). shortage of capital for expansion

c). attitudes within the industry

a). Lack of demand for Scottish tomatoes

Even during the months of peak production, the Scottish industry produces less than half of the tomatoes consumed in Scotland and overall the industry produces less than one third of tomatoes consumed. By increasing production the market share could be increased provided that there is a consumer preference for Scottish tomatoes and that the marketing of tomatoes by the Scottish producer can compete in providing consumers and the retailers with the product they require.

Consumer demand

On the wholesale market, Scottish tomatoes have traditionally commanded a higher price than imported produce. This higher price is paid by the retailer in the knowledge that he can recoup the extra cost involved by charging more for Scottish than imported tomatoes. This "premium" enjoyed by the Scottish grower is a measure of the consumer preference for Scottish tomatoes. Possibly the most disturbing fact to emerge from this report is that this "premium" has been eroded and that on a number of occasions during 1971 tomatoes imported from Holland fetched a higher price than Scottish produce in the wholesale market.

Marketing of Tomatoes

The main method of marketing tomatoes has been through the wholesale markets of Glasgow and Edinburgh. In these markets tomatoes sent in by producers are sold by commission agents to retailers either directly or via secondary wholesalers. The proportion of the Scottish crop passing through the wholesale markets is not known but these markets have undoubtedly played a major role in the sale of tomatoes with the price fixed in the wholesale market acting as the reference price for the tomatoes sold directly by growers to retailers (or to consumers).

Recently, with the changes in retailing (particularly the growth of the supermarkets and chain stores) there has been much discussion of the suitability of the wholesale market as a source of supply to this type of shop. Evidence from a retail survey in Kilmarnock suggested that these large supermarkets and chain stores found the wholesale market unsuitable as a source of Scottish tomatoes because of the differences in quality between the produce sent in by different growers, the small quantities available through each commission agent and the lack of continuity of supply. These problems had resulted in a number of the large retail groups buying imported rather than Scottish produce. This increase in the demand for imported tomatoes from these retailers at the expense of Scottish produce is undoubtedly one of the factors resulting in the decline in the premium obtained by Scottish produce.

It would appear that in the past expansion of production in Scotland would have led to an increased share of the market by replacing imports because of the consumer preference for the home produced article. However with the decrease in the premium for Scottish tomatoes as demand has declined, increased production would probably not now result in an increase in market share by replacing imports but would merely increase total supply causing prices to decline. Therefore the expansion of tomato production under the present marketing arrangements appears to be limited by retailer demand.

b). Shortage of capital

The production of tomatoes under glass requires a high level of capital investment in glasshouses and equipment (an acre of glass plus heating and other equipment costing about £30,000). With this level of investment, the expansion of production is likely to be limited by a shortage of capital. The availability of capital to the industry is affected by the structure of the industry, profit levels within the industry and credit restrictions.

Structure of the industry

Tomato production in Scotland is dominated by the small producer with over 90% of producers having less than 1 acre of tomatoes. In this type of small business the financing of a modernisation or expansion programme is particularly difficult and the business can find itself trapped in a vicious circle. Consider the position of a small business with old glass -

i). Even run efficiently, the small unit will generate only a small amount of cash available for reinvestment in the business.

ii). The large amount of capital required to finance modernisation and expansion coupled with the small cash flow makes it virtually impossible to finance modernisation out of retained profits. Therefore the owner must look outside the business for finance.

iii). The normal source of capital for financing expansion is the bank. In assessing the credit worthiness of a business, the bank will look at the past performance of the business, the potential of the project and at the security available within the business. Small businesses will not normally have sufficient security in terms of buildings and land to satisfy the bank and therefore the small business will have difficulty in borrowing enough money to finance expansion. Unable to finance the capital required for modernisation and expansion the business continues to make low profits with the financing of capital becoming steadily more difficult.

Profit Levels

A second factor likely to affect the availability of capital in a business is the profit level. Firstly the profit level will affect the amount of capital that can be financed from within the business and secondly it is likely to affect the credit worthiness of a business. A business with a good profit record will be viewed more favourably by a lending institution than one with a poor profit record.

It would therefore seem logical to expect that in an industry generating a high level of profits, modernisation and expansion of that industry would occur as there would be cash available from within the business for reinvestment and also the credit rating of individual business would be high. Although the real price of tomatoes has fallen during the decade, the revenue per acre from tomatoes has increased as a result of higher yields and also increases in production in the early part of the season when prices are high. This means that more money would be available towards the end of the decade for reinvestment.

Credit Restrictions

The amount of money available for lending to horticultural and other businesses fluctuates with the economic conditions prevailing in the country. During 1969 and 1970 the Government restrictions made borrowing money very difficult and this undoubtedly slowed down the rate of investment in horticultural businesses. More Recently credit controls have been relaxed and more money has become available for investment.

Production of tomatoes under glass is a capital intensive industry. The provision of the capital for expansion and modernisation is likely to present difficulties. As has been shown these difficulties are affected by the structure of the Industry, the profit levels within the industry and by the overall economic climate in the country as a whole.

During the 1960's, the rate of investment in the glasshouse industry actually increased reaching a peak in 1970. This was possibly due in part to more cash being made available from within the industry for reinvestment as the revenue per acre from tomatoes increased. In 1971 the rate of investment declined reflecting the credit restriction in force during 1970 which made the borrowing of money very difficult.

There is one further factor that has affected the rate of investment and that is the Horticultural Improvement Scheme. This Scheme has gradually been extended to cover not only glasshouses but also a wide range of equipment, encouraging investment in the industry. Also producers have been anxious to take advantage of the grant aid available before the end of the Scheme in 1974.

However, the increase in investment up to 1970 must be measured in terms of the size of the total investment by the industry required to put the production facilities on a par with those in Holland. This would involve the replacement of the 150 acres of glass built before the war representing an investment of approximately £4½ million. In 1971, the cost of all projects approved under the Horticulture Improvement Scheme was £650,000 and a much higher rate will be required in future if the production facilities of the industry are to match those in Holland.

c). Attitudes within the Industry

The tomato production industry - like any other industry - is made up of individual producers. The overall development of the industry will depend on the reactions of the individual producers to the economic and social pressures. The problems of marketing and of raising capital affect many growers but their reaction to these problems will be modified by personal circumstances such as the age of the growers, the long term objectives in terms of inheritance, etc. There is also the question of "confidence" in the future of the industry which individuals may or may not have. As yet there is little information on the way in which the personal circumstances may affect the decision making process of the individual. Suffice to say that these factors will affect the decisions made and in turn the development of the industry as a whole.

The performance of the tomato production industry in Scotland during the past decade has been disappointing as it has failed to increase its share of the market during a period when there has been a consumer preference for Scottish tomatoes. This failure has been due to poor marketing of Scottish produce and a shortage of capital restricting expansion modified by the attitudes of the individual producers within the industry.

In the future, expansion of the industry is likely to be much more difficult as the demand for Scottish tomatoes becomes a limiting factor.

ii). THE PERFORMANCE OF IMPORTS

In examining the performance of imports it is necessary to look primarily at imports from Holland because these compete directly with production in this country. As has been stated above, the Dutch industry has increased production of tomatoes by some 50% in the last 10 years and they have increased their share of the U.K. market by 4%. This increase has been concentrated during the early part of the season which is traditionally a higher price period. This increase in imports, plus the increase in early production at home with improved techniques have been responsible for the fall in the real price of tomatoes during May.

Perhaps the most impressive achievement of the Dutch industry has been the cutting of the price differential between Scottish and Dutch tomatoes in Glasgow Market. By catering for the demands of the large buyers in terms of standard quality, continuity of supply and bulk buying facilities, the demand for Dutch produce has been increased at the expense of the demand for Scottish produce.

iii). THE PROSPECTS FOR THE FUTURE

On entry to the European Economic Community the tariff on tomatoes imported from Holland will be removed over a period of 4 years. This will result in increased competition. To be in a position to compete successfully tomatoes must be produced efficiently and marketed effectively.

From the evidence in this report, it is in these two areas that problems exist. The age and consequent inefficiency of production facilities in Scotland compared to Holland is evident. Also the reduction of the price differential between Scottish and Dutch tomatoes during the past decade has highlighted the inadequacy of the present merketing arrangements. Within the industry, priority must be given to:-

i). improvement of production facilities

ii). improvement of the marketing of Scottish tomatoes particularly to the chain stores and supermarkets.

The main strength of the industry is that the Scottish housewife prefers Scottish tomatoes and in the past has been prepared to pay a premium price for them. Such a premium can help to cushion the effects of increased competition on the Scottish producer. But there is no room for complacency as this premium is gradually being eroded. To survive in the face of this increased competition individual producers must -

a). produce tomatoes efficiently

b). produce and sell their own tomatoes on a large scale as individuals or work together on a co-operative basis to meet the requirements of supermarkets and chain stores

c). produce tomatoes for which the consumer is prepared to pay a premium price on the grounds of freshness or taste.

Provided that the Scottish industry fulfills these criteria there is no reason why the industry should not survive and indeed prosper.

APPENDIX

1. Horticulture Improvement Scheme

The Scheme, made under Part I of the Horticulture Act, 1960, provided for grants to horticultural producers, the owners of land occupied by horticultural businesses and horticultural producers co-operative marketing associations, towards the cost of providing or improving buildings and equipment for storage or preparation for market of horticultural produce. Grants were also available for improvements to heating systems and certain other long term improvements. (The level of grant aid was one third of the approved cost). Since its inception the scheme has been modified and extended.

i). 1964

The list of items eligible for grant was extended to incorporate the replacement, reconstruction and improvement of glasshouses, the provisions of irrigation, ventilation and harvesting and planting equipment.

ii). 1966

For the first time the scheme was extended to include in the list of items eligible for grant the erection as well as the replacement of glasshouses.

iii). 1967

The rate of grant was increased to 38⅓%.

iv). 1971

The rate of grant was reduced to 35%, and range of items eligible for grant was again extended.

v). 1972

The rate of grant was increased to 40%.

2. Method of Calculating the "parity price"

It has been calculated as follows:-

$$\text{Parity price 1965 Per 12 lb. tomatoes} = \frac{\text{price in 1965} \times \text{retail price index in 1965}}{\text{retail price index in 1959.}}$$

$$= \frac{1.021 \times 112.1}{92.1}$$

$$= £1.243$$

This "parity" price has been calculated for each year from 1959.

3. Seasonal Price Changes

The method used in estimating the seasonal price changes was as follows:-

a). The average monthly price of tomatoes for each year since 1959 was calculated from the Horticultural Supplement to the Weekly Agricultural market report published by the Department of Agriculture and Fisheries for Scotland (see Table A.1).

b). To calculate, these prices in real terms, the actual price was multiplied by the reciprocal of the retail price index (see Table A.2).

TABLE A.1

Average Price of Tomatoes (n.p. per 12 lb.) in the last week of each month

Year	May	June	July	August	September	*Retail Price Index
1959	1.575	0.950	0.800	0.900	0.850	92.1
1960	1.800	1.400	0.700	0.800	0.750	93.2
1961	1.800	0.950	0.950	0.800	-	97.0
1962	1.900	1.400	0.900	0.825	0.850	101.6
1963	1.950	1.350	1.000	1.200	0.900	103.6
1964	2.350	1.275	0.750	1.100	1.150	101.0
1965	1.650	1.000	1.000	1.100	0.900	112.0
1966	2.250	1.725	1.350	0.900	1.200	116.5
1967	2.175	1.725	1.350	1.050	1.150	119.4
1968	1.750	1.350	1.200	1.150	1.325	125.0
1969	2.050	1.100	0.775	0.700	0.750	132.3
1970	1.800	1.350	0.900	1.250	0.950	138.3

*Base 1962 (January) = 100

TABLE A.2

Real Average Price of Tomatoes (n.p. per 12 lb.) in last week of each month

(£'s per 12 lb.)

Year	$\frac{1}{R}$*	May	June	July	August	September
1959	1.086	1.7104	1.0313	0.8688	0.9774	0.9231
1960	1.073	1.9314	1.5022	0.7511	0.8584	0.8047
1961	1.031	1.8558	0.9794	0.9794	0.8248	-
1962	0.984	1.8696	1.3776	0.8856	0.8118	0.8364
1963	0.965	1.8817	1.3027	0.9650	1.1580	0.8685
1964	0.935	2.1972	1.1921	0.7012	1.0285	1.0752
1965	0.843	1.4734	0.8930	0.8930	0.9823	0.8037
1966	0.858	1.9305	1.480	1.1583	0.7722	1.0296
1967	0.837	1.8204	1.4438	1.1299	0.8788	0.9625
1968	0.800	1.400	1.080	0.9600	0.9200	1.060
1969	0.756	1.5498	0.8316	0.5859	0.5292	0.5670
1970	0.723	1.3014	0.9760	0.6507	0.9037	0.6868

* = reciprocal of the retail price

4. Definition of Regions

REGION	COUNTIES	REGION	COUNTIES
Highland	Argyll	South East	Berwick
	Inverness		East Lothian
	Ross and Cromarty		Midlothian
	Sutherland		Peebles
	Zetland		Roxburgh
			Selkirk
			West Lothian
North East	Aberdeen		
	Banff		
	Caithness	South West	Ayr
	Kincardine		Bute
	Moray		Dumfries
	Nairn		Dunbarton
	Orkney		Kirkcudbright
			Lanark
			Renfrew
East Central	Angus		Stirling
	Clackmannan		Wigtown
	Fife		
	Kinross		
	Perth		

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