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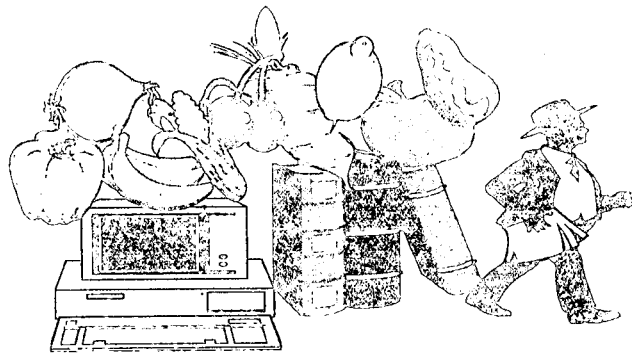
HARTI AGRICULTURAL COMMODITY REVIEW

G.M. Henegedara

L.P. Rupasena

Chitra P. Hathurusinghe

T. Ravichandran



HARTI Agricultural Commodity Review Series No.2

November 2000

**Statistics and Data Processing Division
Hector Kobbekaduwa Agrarian Research and Training Institute
114, Wijerama Mawatha,
Colombo 07.
Sri Lanka.**

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FOREWORD

This is the second volume of the HARTI Agricultural Commodity Review, which consists of synthesized agricultural information collected by various institutions in Sri Lanka. The first volume of the HARTI Commodity Review was published in 1998 by analyzing agricultural information in relation to selected food commodities. The main objective of preparing the Agricultural Commodity Review was to enhance usefulness of the HARTI data bank for a wider forum through a complete set of indicators on agricultural development.

The second volume of HARTI Commodity Review highlights trends in production and cultivation of selected agricultural commodities. It includes spices, vegetables, fruits and other crops. The time series data of these crops indicates the change in production, yield and returns in accordance with trade and cultivation policy changes.

The report was prepared by a multi disciplinary team appointed by the Institute. Mr. G.M. Henegedara, Head, Statistics and Data Processing Division (SDPD) coordinated the work in cooperation with the researchers in other research divisions. Mr. L.P. Rupasena, Marketing Economist was responsible for writing profiles on vegetables i.e. leeks, radish and pumpkin. Mrs. Chitra Hathurusinghe, Research and Training Officer (RTO) was responsible for writing profiles on spices while profiles in connection with fruits and other food crops were written by Mr. G.M. Henegedara and T. Ravichandran (RTOs) respectively.

Preparation of data formats and tables were done by Mr. K.D.S. Ariyasinghe and Mr. E.N.R. Fernando, Data Analysts of the SDPD and Mr. S.S.J. Rosa, Miss. P. Ranasinghe and Mr. S. Pinnawala, Data Assistants of the SDPD were involved in preparation of tables. Graphical analysis of the report was done by Mrs. N.P. Jayanetti, Data Assistant under the supervision of Mr. M.D.L. Senarath, Analyst Programmer of the SDPD.

I also appreciate the valuable services rendered by government institutions in providing necessary information, without whose support, the publication of a report of this nature would be impossible as secondary data are mainly used in this publication.

It was found that there was a good demand for the first issue. I welcome comments from users of this report for further improvement of this series.

Dr. S.G. Samarasinghe
Director

ACKNOWLEDGEMENT

This report is entirely based on secondary sources of information. Thus, I extend my gratitude to the institutions involved in recording macro level information on agriculture and socio economic development which we have extensively utilized.

My grateful thanks are also due to Dr. S.G. Samarasinghe, the Director of HARTI, who originated the idea of producing a statistical publication of this nature. His encouragement and support was forthcoming throughout this work. A special word of appreciation is due to the Board of Governors of HARTI for the guidance provided.

This is the outcome of a team effort. I acknowledge the excellent contributions made by the research staff. The dedication and commitment of the staff of SDPD in bringing out this report is highly appreciated. They consisted of Mr. K.D.S. Ariyasinghe and E.N.R. Fernando, Data Analysts; Mr. S.S.J. Rosa, Mr. S. Pinnawala, Miss. P. Ranasinghe and Mrs. N.P. Jayanetti, Data Assistants. Mrs. Deepthika Rupasinghe, Miss. Bimali Munasinghe and Miss. Dulari Manthriratna typed the final report.

Finally I wish to thank the Head, Publication Unit and his staff for their services.

G.M. Henegedara
Head, Statistics and Data Processing Division

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INTRODUCTION

1. Background

The HARTI Agricultural Commodity Review (1997) is an annual publication of agricultural statistics gathered by the Statistics and Data Processing Division (S.D.P.D). The first volume of the commodity review which was prepared in 1996 had three main objectives : to

- (1) collate all agricultural information collected by various institutions such as the Department of Census and Statistics, the Department of Agriculture, the Central Bank of Sri Lanka and the Sri Lanka Customs, and so on;
- (2) prepare agricultural profiles for selected commodities in order to see the trends of market behaviour and production potentials; and to
- (3) present agricultural data in a more readable format and make them available to a wider range of users like academics, project implementers and farmers.

In furtherance of the same program, the HARTI Commodity Review 1997 also aimed at reviewing time series data of 12 agricultural crops listed under spices, vegetables, fruits and other crops, as indicated below.

- | | | | |
|----|-------------|---|--|
| 1. | Spices | : | Pepper, Cardamom, Cinnamon, Cloves, Nutmeg |
| 2. | Vegetables | : | Leeks, Radish, Pumpkin |
| 3. | Fruits | : | Limes, Oranges |
| 4. | Other Crops | : | Betel, Arecanut |

A selection of these commodities was done considering

- (a) The development priorities as set out in the national agricultural policy. The performance of agricultural commodities which have a good market potential is also reviewed.
- (b) The increased demand for many of these commodities due to the government's trade liberalization programs and consequently the growing need for more and better information regarding these crops.
- (c) The lack of a comprehensive database. The agricultural information collected by various institutions, show discrepancies and are not very reliable. This report therefore hopes to use all available sources of agricultural information and to present the data as crop profiles.

Having regard to the need and the importance of information relating to the production of selected crops, this report makes available such data to all those interested.

2. Objectives

The overall objective of this study is to review secondary agricultural information relating to spices, fruits and vegetables mentioned earlier. The specific objectives are; to

- (a) analyze the present status of these commodities.
- (b) prepare crop profiles of these commodities.
- (c) disseminate information to interested persons.

3. Methodology

The review was based on secondary information published by the Department of Census and Statistics, the Central Bank of Sri Lanka, the Department of Agriculture, the Department of Export Agriculture, Department of Customs and the HARTI. The data was analyzed by using simple statistics and graphs. The commodity profiles took into account a number of considerations such as

a. Background

- i. Origin (historic and biological background)
- ii. Agro ecological requirements

b. Production

- i. Major producing districts/areas (based on last five year average of production and geographical locations)
- ii. Seasonality of production (disaggregate production by seasons)
- iii. Production targets (total and average yields)
- iv. Cost and returns

c. Marketing

- i. Marketing channels
- ii. Price behaviour in respect of producer, wholesaler and retailer, over the years

d. External Trade

- i. Major import/export countries
- ii. Trends in exports/imports in quantity, value and price

e. Consumption

- i. Change in per capita consumption over time
- ii. Per capita consumption by income groups and sectors

f. Government Policy

- i. Review of Government policy in relation to crops

Concluding Remarks

4. Expected Output

- a. Preparation of crop profiles for fruits and vegetables mentioned earlier.
- b. Preparation of the Agricultural Commodity Review for 1997.
- c. Dissemination of findings through conducting local workshops.

**PART ONE : EXPORT AGRICULTURAL
CROPS AND SELECTED
FOOD COMMODITIES**

1. SPICES

1.1 PEPPER

1. Introduction

Pepper (*Piper nigrum*) a native of the Western Ghats in India is one of the oldest and the world's most widely used spice and the most important one grown in Sri Lanka. Black pepper is the whole dried fruit and white pepper the fruit from which the mesocarp has been removed. Black pepper is used directly as a spice and also in the preparation of its derivatives, pepper oleoresin and black pepper oil. White pepper is used almost exclusively as a direct spice.

In Sri Lanka pepper can be grown upto an elevation of about 1,000 m. in most parts of the Central, North Western, Western, Southern, Sabaragamuwa and Uva provinces. Soils with deep, well-drained loam rich in organic matter are suitable for pepper cultivation. Well-distributed rainfall of 1,600 mm. - 2,500 mm. annually and a temperature between 24°C - 29°C are required for a successful cultivation.

The crop is basically cultivated in small holdings. The older variety is the most common, while the new varieties like Panniyur are also grown in new plantings. The flowering stage is between September and November and the crop can be harvested during March to May.

The initial harvests will yield about 0.5-2.7 Kg. of green berries per vine and increase to about 4.5-9 Kg. after about 8 years and remain at that level upto 15th year after which the decline will be sharp.

2. Production

2.1 Major Producing Districts

Kandy, Matale and Kegalle are the main producing districts, which account for about 65% of the total extent cultivated, and 67% of the total production.

2.2 Extent Cultivated, Production and Yield

The extent cultivated was 6,436 Ha. in 1970 and this increased to 25,840 Ha. in 1993. From 1993 onward there was a gradual increase in the extent cultivated.

Production has fluctuated greatly. The maximum production was recorded in 1983 (19,995 Mt), where the average yield was about 2,000 kg /Ha. In 1984 and in 1988 production declined sharply due to low yields. Since 1989 the yield has shown a very slight increase. In 1997 the average yield was 639 kg/Ha., which was far below the yield recorded in the period 1970-1985.

2.3 Cost of Cultivation and Returns

The establishment and maintenance cost during the first year of cultivation was estimated at Rs. 51,750/=. The percentage break down of costs during the first year was, labour (55.1%), planting materials (13.1%), fertilizer (15.4%) and agro-chemicals and others (16.4%). In the eighth year of cultivation, the cost per Ha. increased to Rs. 55,030/= and remained static

during the following years. A positive net return of Rs.17,835/= per Ha. was obtained in the 5th year of cultivation which increased to Rs. 69,970/= per Ha. in the eighth year and continued at that level in the following years, upto the 15th year.

3. Marketing

3.1 Marketing Channels

The marketing channels of spices is annexed.

3.2 Price Behaviour

The annual average producer price has shown a steady increase during the period 1993-1997. The annual average producer price in 1993 was Rs.42.74 per Kg and it had increased to Rs.153.99 per Kg. in 1997. The annual average retail price had also increased by a very high percentages during the last five years, from Rs.71.82 per Kg. (1993) to Rs. 223.96 per Kg. (1997). The quarterly average retail price was above Rs. 300/= per Kg in the last quarter of the year 1997 and the monthly average retail price was Rs. 380/= per Kg. in December. The auction price of pepper has shown an upward trend during the period 1985-1987. The auction price dropped sharply in 1988 and downward trend was seen upto 1992. From 1992 onwards prices increased every year and in 1997 about at Rs. 224.89 per Kg. The international price of pepper had dropped drastically from 1986 to 1992, but from 1993 onwards the international price showed an upward trend. The international price of black pepper in 1993 was Rs. 63.30 per Kg. and Rs. 255.97 per Kg. in 1997.

4. External Trade

Pepper is exported in the form of whole fruit, ground pepper and pepper oil.

4.1 Major Import/Export Countries

Pepper whole fruit is mainly exported to India, UK, USA and Pakistan. In the last five years UAE and France were the major importers of ground pepper and pepper oil respectively.

4.2 Trends in Exports

During the period 1970-1997 the exported quantity of pepper varied greatly. The highest exported quantity was in 1978 (61,241 MT) while the lowest quantity exported was in 1980 (647 MT). In the last five years the average quantity exported was 4,033 MT. Pepper oil has a good market prospects with value addition. The quantity exported increased from 1,235 Kg. in 1993 to 38,117 Kg. in 1997. Export earning had also increased from Rs. 875 mn. in 1995 to Rs. 59,097 mn. in 1997.

5. Per Capita Consumption

Per capita consumption of pepper per annum in the urban sector was the highest (0.18 Kg.) and particularly so among the high-income groups.

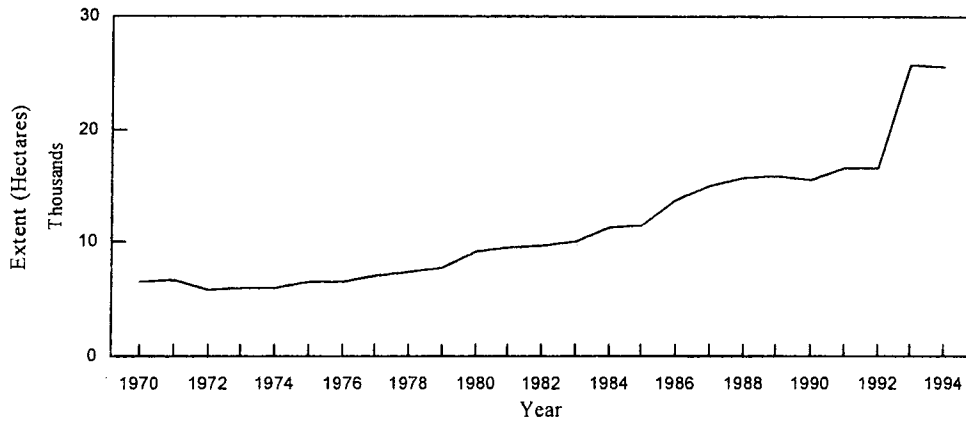
Table 1.1.1
EXTENT, PRODUCTION & AVERAGE YIELD OF PEPPER - SRI LANKA

Year	Extent (Hectares)	Production (M.Tons)	Average Yield (Kg/Ha)
1970	6,436	14,359	2,231
1971	6,722	12,788	1,902
1972	5,883	13,910	2,364
1973	5,942	16,511	2,779
1974	5,983	13,173	2,202
1975	6,445	13,065	2,027
1976	6,535	16,570	2,535
1977	7,128	16,971	2,381
1978	7,443	16,767	2,253
1979	7,831	13,457	1,718
1980	9,080	13,550	1,493
1981	9,467	18,857	1,992
1982	9,704	18,015	1,856
1983	9,994	19,995	2,001
1984	11,307	10,332	914
1985	11,511	10,617	922
1986	13,812	9,217	667
1987	15,013	10,404	693
1988	15,616	6,831	437
1989	15,939	8,473	532
1990	15,559	8,732	561
1991	16,669	9,936	596
1992	16,669	10,888	653
1993	25,840	14,627	566
1994	25,590	14,714	575
1995	26,956	16,109	598
1996	26,988	17,349	643
1997	27,028	17,273	639

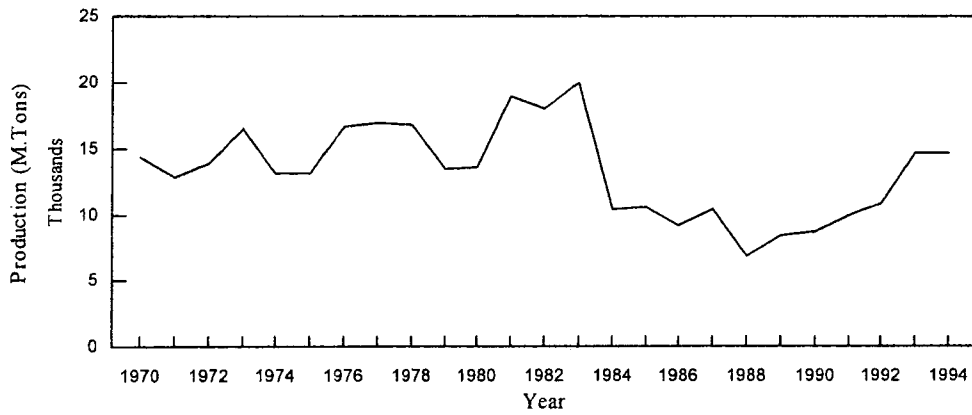
Source : Department of Census and Statistics

Data Development Unit of HARTI

Graph I.1.1
EXTENT OF PEPPER



Graph I.1.2
PRODUCTION OF PEPPER



Graph I.1.3
AVERAGE YIELD OF PEPPER

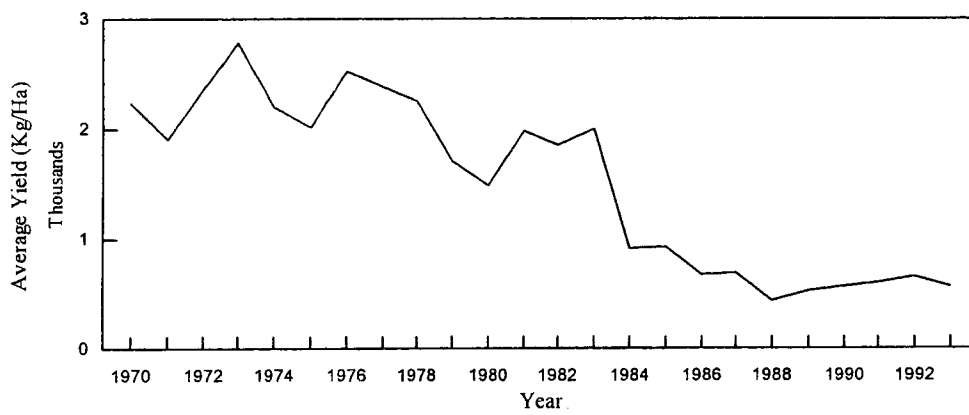


Table 1.1.2
EXTENT OF PEPPER BY MAJOR GROWING DISTRICTS (Hectares)

District	1980	1985	1990	1993	1994	1995	1996	1997	AVG(93-97)	%
KANDY	2652	3,019	3,332	7,884	7,957	7,875	7,879	7,946	7,908	(29.86)
MATALE	3021	3,308	4,671	6,339	6,334	6,351	6,448	6,499	6,394	(24.15)
KEGALLE	971	1,076	1,643	2,911	2,918	2,925	2,925	2,934	2,923	(11.04)
KURUNEGALA	388	672	1,011	1,689	1,693	2,806	2,617	2,638	2,289	(8.64)
RATNAPURA	327	562	794	1,417	1,405	1,424	1,668	1,634	1,510	(5.70)
OTHERS*	1721	2,874	4,108	5,600	5,283	5,572	5,451	5,377	5,457	(20.61)
SRI LANKA	9080	11,511	15,559	25,840	25,590	26,956	26,988	27,028	26,480	(100.00)

*Total of Hambantota, Gampaha, Badulla, Matara, Kalutara, Galle, Nuwara Eliya,
Colombo, Monaragala, Puttalam and Ampara.

Source : Department of Census and Statistics

Table 1.1.3

PRODUCTION OF PEPPER BY MAJOR PRODUCING DISTRICTS (M.Tons)

District	1980	1985	1990	1993	1994	1995	1996	1997	AVG(93-97)	%
MATALE	5,742	2,880	2,853	5,018	5,082	5,044	5,638	4,818	5,120	(31.97)
KANDY	2,635	3,230	2,132	3,464	3,477	3,597	3,668	4,731	3,787	(23.65)
KEGALLE	1,767	956	914	1,755	1,767	1,862	1,959	1,935	1,856	(11.59)
KURUNEGALA	493	987	514	1,001	1,104	2,171	2,318	1,728	1,664	(10.39)
RATNAPURA	423	373	493	903	899	916	1,237	1,227	1,036	(6.47)
OTHERS *	2,491	2,191	1,826	2,486	2,385	2,518	2,529	2,834	2,550	(15.93)
SRI LANKA	13,550	10,617	8,732	14,627	14,714	16,109	17,349	17,273	16,014	(100.00)

*Total of Kegalle, Kurunegala, Ratnapura, Hambantota, Badulla, Gampaha, Matara, Nuwara Eliya, Kalutara, Galle, Colombo, Monaragala, and Puttalam.

Source : Department of Census and Statistics

Table 1.1.4
AVERAGE RETAIL PRICES OF PEPPER - SRI LANKA
Unit: Rs./Kg.

Month	1993	1994	1995	1996	1997
January	68.96	81.40	132.89	150.02	150.00
February	68.46	80.81	131.67	148.37	150.00
March	68.19	82.68	136.46	148.36	150.00
April	69.42	85.12	135.28	156.45	150.00
May	68.20	86.10	143.47	153.57	160.00
June	69.12	86.96	145.71	150.88	160.00
July	67.26	83.58	145.69	151.64	160.00
August	68.19	85.94	146.43	145.86	230.00
September	75.01	86.83	145.83	153.39	325.00
October	79.45	92.55	150.76	153.27	330.00
November	80.12	103.38	158.95	151.79	342.50
December	79.48	106.37	156.79	152.98	380.00
An. Average	71.82	88.48	144.67	151.38	223.96

Source: Department of Census and Statistics

Table 1.1.5
AVERAGE PRODUCER PRICES OF PEPPER - SRI LANKA
Unit: Rs./Kg.

Month	1993	1994	1995	1996	1997
January	39.30	49.30	86.17	101.83	107.43
February	36.29	47.70	93.73	109.17	101.46
March	35.13	50.06	93.44	92.60	111.85
April	36.07	51.13	97.97	104.39	116.15
May	38.09	49.60	92.96	104.33	118.31
June	37.61	51.10	95.59	103.74	127.51
July	38.88	58.06	101.01	99.83	146.66
August	42.90	57.88	100.71	97.50	153.95
September	44.42	64.38	106.33	94.07	174.83
October	53.49	68.19	105.29	99.79	199.21
November	55.33	71.54	109.78	102.71	241.44
December	53.98	75.39	109.40	101.95	234.18
An. Average	42.74	58.53	100.37	100.95	153.99

Source: Department of Census and Statistics

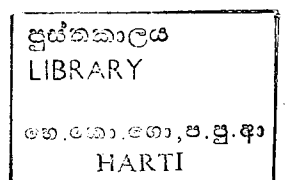


Table : 1.1.6
AUCTION PRICES AND SELECTED INTERNATIONAL MARKET*PRICES
OF PEPPER (Rs/Kg)

Year	Auction Price	International Prices	
		Black Pepper	White Pepper
1985	88.09	-	-
1986	117.58	123.62	172.43
1987	132.61	143.43	176.62
1988	88.93	86.13	121.19
1989	87.65	104.30	146.76
1990	63.49	67.00	82.87
1991	50.56	56.25	58.27
1992	36.10	50.23	63.42
1993	48.44	63.30	100.93
1994	88.34	100.42	163.16
1995	121.97	139.45	193.77
1996	110.40	128.57	201.45
1997	224.89	255.97	378.15

* London and New York

Source : Department of Export Agriculture

Table 1.1.7
EXPORTS OF PEPPER & PEPPER OIL

Year	PEPPER		PEPPER OIL	
	Qty. (Mt)	Value (000Rs)	Qty. (Mt)	Value (000Rs)
1970	858.25	4,710.50	-	-
1971	45.21	666.80	-	-
1972	105.16	861.21	-	-
1973	na	10,300.00	-	-
1974	337.68	3,410.65	-	-
1975	96.12	1,192.47	0.05	8.41
1976	10.00	228.64	0.36	114.36
1977	632.22	60,371.44	0.59	236.46
1978	61,241.21	35,135.89	1.42	330.43
1979	44,487.27	22,851.25	0.06	79.95
1980	646.82	18,987.91	0.09	70.10
1981	2,051.57	51,718.66	0.17	132.18
1982	1,237.87	34,209.98	0.07	52.35
1983	1,119.68	38,068.62	0.15	181.69
1984	2,202.07	92,979.22	0.05	29.06
1985	1,214.57	111,597.10	-	-
1986	1,271.40	159,627.32	-	-
1987	2,014.72	285,814.15	-	-
1988	2,692.35	291,476.33	-	-
1989	1,575.77	151,677.77	-	-
1990	1,304.90	117,298.49	6.65	1,843.44
1991	2,062.51	140,258.62	1.82	2,037.44
1992	2,144.31	121,105.30	0.20	302.78
1993	7,885.33	387,959.30	1.24	874.52
1994	3,411.84	308,477.47	4.75	4,659.01
1995	2,395.68	326,910.09	2.75	2,678.03
1996	2,989.46	389,489.20	7.36	8,116.84
1997	3,484.49	807,991.10	38.12	59,096.99

Source : Department of Customs

Table 1.1.8
EXPORTS OF PEPPER OIL BY COUNTRY OF DESTINATION

COUNTRY	1993		1994		1995		1996		1997	
	QTY (Kg.)	VALUE (Rs000)	QTY (Kg.)	VALUE (Rs000)	QTY (Kg.)	VALUE (Rs000)	QTY (Kg.)	VALUE (Rs000)	QTY (Kg.)	VALUE (Rs000)
INDIA REP.	-	-	3,960	3,233	-	-	-	-	21,410	27,052
FR. GERMANY	-	-	200	835	-	-	1,335	2,325	1,855	10,170
UK	-	-	-	-	2,000	1,724	2,900	2,616	50	244
USA	75	316	544	480	359	184	2,510	2,675	582	3,689
FRANCE	1,160	558	-	-	340	570	10	46	440	2,537
OTHERS	-	-	50	111	50	201	600	456	13,780	15,406
TOTAL	1,235	875	4,754	4,659	2,749	2,678	7,355	8,117	38,117	59,097

Source: Department of Custom

Table 1.1.9
EXPORTS OF PEPPER BY COUNTRY OF DESTINATION

COUNTRY	1993		1994		1995		1996		1997	
	QTY. (Mt.)	VALUE (Rs000)	QTY. (Mt.)	VALUE (Rs000)	QTY. (Mt.)	VALUE (Rs000)	QTY. (Mt.)	VALUE (Rs000)	QTY. (Mt.)	VALUE (Rs000)
INDIA REP.	840.0	43,347.6	880.5	93,191.2	494.6	72,052.8	772.3	107,576.5	1,226.3	279,101.9
UK	250.5	13,025.0	239.5	21,967.8	475.7	69,115.9	404.1	56,913.1	626.9	163,485.5
USA	452.5	24,719.3	388.5	33,247.6	396.0	54,355.6	363.0	53,587.6	277.5	103,531.0
PAKISTAN	2,131.8	94,826.5	832.8	64,336.8	76.0	7,744.5	408.8	43,517.8	273.5	42,649.8
RUSSIA	492.0	28,142.0	761.6	64,026.3	320.0	40,089.8	11.5	1,817.3	3.8	853.0
NETHERLAND	247.0	12,901.0	42.0	4,338.0	14.0	1,486.9	94.5	10,664.2	193.0	44,697.1
OTHERS	3,364.8	165,849.3	232.8	22,275.8	585.9	75,129.1	842.4	102,592.0	769.6	148,871.2
TOTAL	7,778.7	382,810.7	3,377.7	303,383.7	2,362.3	319,974.5	2,896.5	376,668.5	3,370.6	783,189.5

Source : Department of Customs

Table 1.1.10
EXPORTS OF CRUSHED OR GROUND PEPPER BY COUNTRY OF DESTINATION

COUNTRY	1993		1994		1995		1996		1997	
	QTY (Mt.)	VALUE (Rs000)	QTY (Mt.)	VALUE (Rs000)	QTY (Mt.)	VALUE (Rs000)	QTY (Mt.)	VALUE (Rs000)	QTY (Mt.)	VALUE (Rs000)
INDIA REP.	15	907	-	-	-	-	10	1,319	31	10,538
UAE	38	1,664	-	23	-	-	41	5,352	17	2,929
RUSSIA	-	-	-	-	25	3,683	1	111	2	622
SAUDI ARABIA	-	-	-	-	-	-	16	2,188	4	690
USA	0	10	4	1,958	3	2,140	4	1,110	3	1,124
ITALY	38	1,569	-	-	0	132	5	647	15	1,568
POLAND	-	-	15	1,205	3	370	-	-	-	-
BELRUS	-	-	7	775	-	-	-	-	2	388
OTHERS	16	999	8	1,132	2	611	12	2,094	41	6,943
TOTAL	107	5,149	34	5,094	33	6,936	90	12,821	114	24,802

Source: Department of Customs

Table 1.1.11
PER CAPITA CONSUMPTION OF PEPPER PER ANNUM BY SECTORS
 Unit: (Kg)

Sector	1973	1978/79	1981/82	1986/87
Urban	0.40	0.21	0.25	0.18
Rural	0.34	0.16	0.21	0.13
Estate	0.42	0.17	0.20	0.12
All Sectors	0.36	0.17	0.22	0.14

Source : Central Bank of Sri Lanka

Table 1.1.12
PER CAPITA CONSUMPTION OF PEPPER PER ANNUM
BY INCOME GROUPS & SECTORS - 86/87 (Kg)

Income Group	Urban	Rural	Estate	All Sectors
0-100	0.94	0.14	-	0.32
101-200	0.11	0.12	-	0.12
201-400	0.14	0.07	0.06	0.07
401-600	0.17	0.05	0.07	0.06
601-800	0.10	0.07	0.07	0.07
801-1000	0.10	0.08	0.12	0.09
1001-1500	0.09	0.09	0.10	0.09
1501-2000	0.13	0.10	0.12	0.11
2001-3000	0.16	0.15	0.12	0.15
3001-5000	0.21	0.18	0.14	0.19
5001-10000	0.26	0.21	0.14	0.23
OVER 10000	0.28	0.29	0.43	0.29
Average	0.18	0.13	0.12	0.14

Source : Central Bank of Sri Lanka

1.2 CARDAMOM

1. Introduction

Cardamom is the dried fruit of the herb *Elettaria cardamomum* (Linn) maton, belonging to the ginger family, and is found growing wild in the evergreen forests of the Western Ghats in India and in Sri Lanka. Cardamom cultivation is primarily found as pure stands growing under a forest canopy in either estates or plots over 4 acres in extent.

The major cardamom producing countries are India, Guatamala, Tanzania and Sri Lanka.

Cardamom requires a cool climate and as such can be successfully cultivated only at elevation of over 600m. It also requires a well distributed rainfall of 1,500mm-2,500mm annually, a temperature range of 10°C-25°C and well drained soils which have good organic matter content. Loamy and loamy clay soils are suitable but water logged soils are unsatisfactory for cardamom cultivation. In Sri Lanka cardamom is found in agro-ecological regions of the wet and intermediate zones of the hill country. Cardamom is grown mostly as a mono crop and the main varieties are Mysore and Malabar. A higher yielding selection called Vazhukka has also been identified.

The seeds have a pleasant aroma and a characteristically warm, but slightly pungent taste. The spice is used for flavoring curries, cakes and bread. It is often used to season the betel chew.

2. Production

2.1 The Major Producing Districts

The main producing districts are Matale and Kandy which contribute 72% of the total extent cultivated in the country. In terms of national production, Matale and Kandy account for 49% and 33% respectively.

2.2 Extent Cultivated, Production and Yield

In the period 1971-1997 the lowest extent cultivated was in 1973 (3,741 Ha.) and the highest was in 1981 (5,573 Ha.). Average extent cultivated during the last five years (1993-1997) was around 4,500 Ha. In the period 1980-1986, more than 5,000 Ha. were cultivated.

The highest production (8,635 MT) and average yield (1,905 Kg/Ha) were recorded in 1971. Both the production and yield have shown a decreasing trend from 1971 to 1992, however from 1993 onwards a slight increase was seen in both production and average yield.

2.3 Cost of Cultivation and Returns

During the first five years of planting the total cost involved per hectare was Rs.106,580/=. Labour was the major input in cultivation, which accounts for 60% of the total cost. Gross return in the 1st five years of cultivation amounted to Rs. 64,000/= per hectare. Profits could be earned after six years. Net return per hectare in the seventh year of cultivation was Rs. 43,875/= and remained stable in the succeeding years.

3. Marketing

3.1 Marketing Channels

The marketing channels of spices is annexed.

3.2 Price Behaviour

During the period of 1993-1997 the annual average producer price dropped from Rs. 542/= per Kg. to Rs.399/= per Kg.

In the year 1997 the annual average retail price of cardamom was Rs.672/= per Kg. The highest annual average retail price recorded during the period 1993-1997. Also it was observed that the retail prices were higher in the latter part of the years.

In the period 1985-1997, the highest auction price (Rs.680/= per Kg.) was in 1993. The auction price was around Rs.470/= per Kg. in 1996 and 1997.

The international prices were low in the period 1986-1989. Since 1990 prices increased gradually and reached a maximum of Rs.615/= per Kg. in 1996. In 1997 the international price was Rs.529/= per Kg.

4. External Trade

4.1 Major Import/Export Countries

Cardamom is exported in the form of whole fruit or oil. During the period of 1993-1997, cardamom was mainly exported to Singapore, the Maldiv Islands, USA, Yemen and the UAE. However, there were no exports to Yemen and United Arab Emirates since 1994. Cardamom oil was mainly exported to France.

4.2 Trends in Exports

Sri Lankan export of cardamom was very high during the 1970s and 1980s compared to the current exports. The average quantity exported during 1970-1979 was 185 MT and in 1980-1989 was 180 MT.

Exports dropped sharply from 126 MT. in 1989 to 34 MT. in 1990. Since then they have dropped further to 9 MT. in 1997. Export earnings have also shown a similar trend, the highest value of Rs. 75.9 mn. was recorded in 1985 and the lowest Rs. 3.7 mn. in 1996.

5. Per Capita Consumption

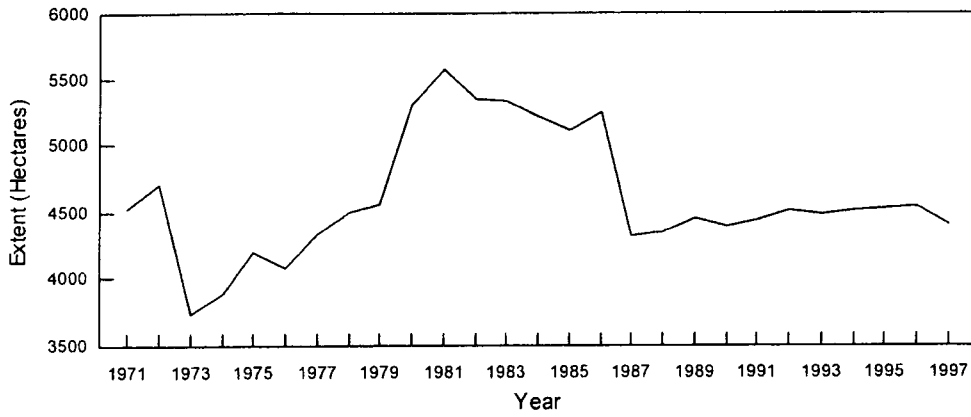
Per capita consumption is high both with the lower and higher income groups in the urban sector where the average per capita consumption was 10.8 gms. per annum. Consumption by the rural sector is negligible and hardly any by the estate sector.

Table 1.2.1
EXTENT PRODUCTION & AVERAGE YIELD OF CARDAMOM - SRI LANKA

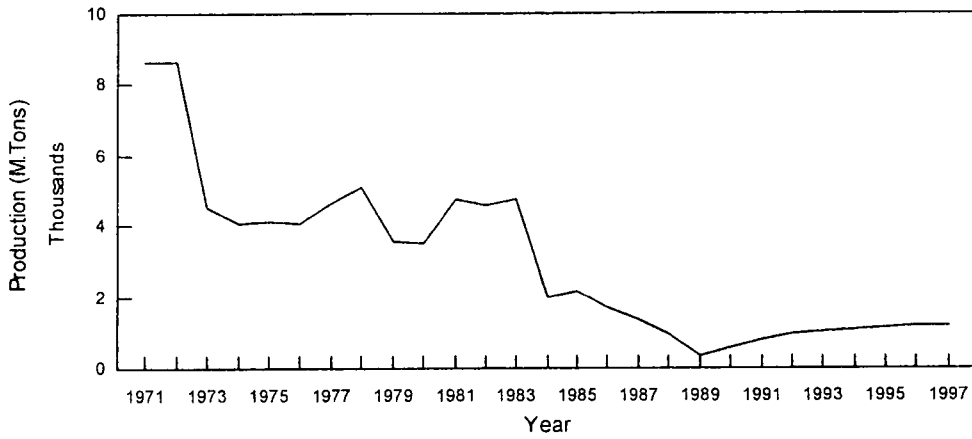
Year	Extent (Hectares)	Production (M. Tons)	Average Yield (Kg/Ha)
1971	4,532	8,635	1,905
1972	4,704	8,624	1,833
1973	3,741	4,540	1,214
1974	3,881	4,054	1,044
1975	4,200	4,116	980
1976	4,077	4,090	1,003
1977	4,339	4,608	1,062
1978	4,506	5,113	1,135
1979	4,552	3,534	776
1980	5,300	3,490	658
1981	5,573	4,745	851
1982	5,347	4,553	852
1983	5,333	4,762	893
1984	5,213	1,993	382
1985	5,110	2,160	423
1986	5,240	1,669	318
1987	4,327	1,331	308
1988	4,351	976	224
1989	4,452	326	73
1990	4,391	546	124
1991	4,440	764	172
1992	4,512	969	215
1993	4,487	1,017	227
1994	4,510	1,068	237
1995	4,535	1,118	247
1996	4,547	1,209	266
1997	4,405	1,167	265

Source: Department of Census and Statistics
Data Development Unit of HARTI

Graph 1.2.1
EXTENT OF CARDAMOM



Graph 1.2.2
PRODUCTION OF CARDAMOM



Graph 1.2.3
AVERAGE YIELD OF CARDAMOM

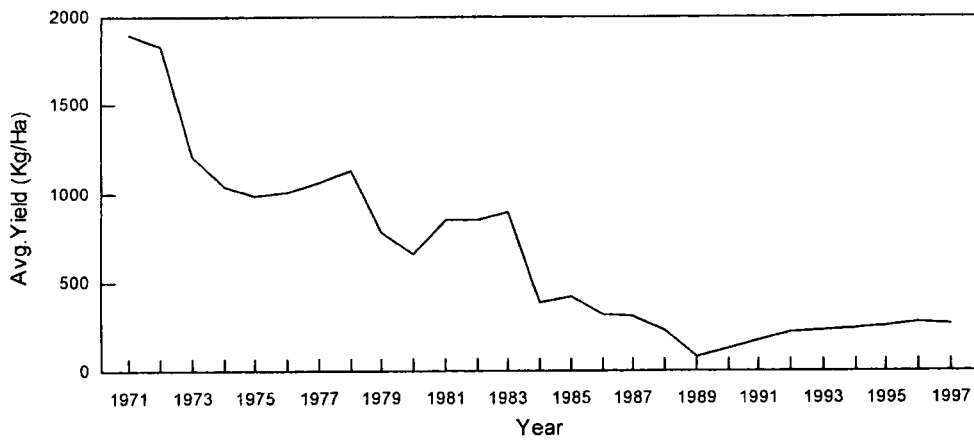


Table 1.2.2

EXTENT OF CARDAMOM BY MAJOR GROWING DISTRICTS (Hectares)

DISTRICT	1980	1985	1990	1993	1994	1995	1996	1997	AVG(93-97)	%
MATALE	2,294	1,929	1,155	1,668	1,686	1,682	1,680	1,589	1,661	(36.94)
KANDY	1,949	1,723	1,746	1,548	1,548	1,550	1,569	1,570	1,557	(34.62)
KEGALLE	500	765	790	654	654	654	643	644	650	(14.45)
RATNAPURA	400	412	356	293	291	365	344	334	325	(7.24)
OTHERS *	157	281	344	324	331	284	311	268	304	(6.75)
SRI LANKA	5,300	5,110	4,391	4,487	4,510	4,535	4,547	4,405	4,497	(100.00)

*Total of Nuwara Eliya, Colombo, Gampaha, Badulla and Kurunegala.

Source: Department of Census and Statistics

Table 1.2.3
PRODUCTION OF CARDAMOM BY MAJOR PRODUCING DISTRICTS (M.Tons)

DISTRICT	1980	1985	1990	1993	1994	1995	1996	1997	AVG(93-97)	%
MATALE	1,699	801	140	529	551	570	575	515	548	49
KANDY	1,008	594	256	321	350	390	395	395	370	33
OTHERS *	783	765	150	167	167	158	239	257	198	18
SRI LANKA	3,490	2,160	546	1,017	1,068	1,118	1,209	1,167	1,116	100

* Total of Ratnapura, Nuwara Eliya, Galle, Colombo, Kurunegala, Gampaha and Badulla

Source: Department of Census and Statistics

Table 1.2.4
AVERAGE RETAIL PRICES OF CARDAMOM - SRI LANKA
Unit: Rs./Kg

Month	1993	1994	1995	1996	1997
January	504.19	519.41	569.08	514.41	695.54
February	513.44	525.18	579.13	484.10	650.00
March	570.67	582.82	555.26	502.08	636.39
April	572.33	565.74	565.79	518.09	635.42
May	619.67	552.65	571.97	527.33	640.14
June	611.82	564.41	589.47	525.53	647.21
July	609.08	536.88	585.53	541.30	685.39
August	641.38	667.73	588.29	547.43	696.58
September	634.83	618.00	550.69	549.63	702.64
October	630.08	630.00	567.11	572.00	705.00
November	597.08	621.89	520.59	655.18	676.81
December	592.50	579.17	554.11	669.29	694.85
An. Average	589.33	573.36	566.49	546.01	671.96

Source : Department of Census and Statistics

Table 1.2.5
AVERAGE PRODUCER PRICES OF CARDAMOM - SRI LANKA
Unit: Rs./Kg.

Month	1993	1994	1995	1996	1997
January	200.00	65.00	125.00	50.00	500.00
February	200.00	65.00	125.00	61.50	670.00
March	na	65.00	150.00	60.00	670.00
April	na	65.00	107.50	48.50	760.00
May	na	62.50	56.67	62.00	760.00
June	na	60.00	57.00	56.42	750.00
July	na	60.00	57.00	58.50	800.00
August	na	59.00	57.10	62.50	810.00
September	na	65.00	60.00	69.00	750.00
October	na	65.00	72.50	110.33	750.00
November	na	65.00	75.00	115.83	775.00
December	na	65.00	75.00	117.67	775.00
An. Average	200.00	63.46	84.81	78.05	730.83

Source : Department of Census and Statistics

Table : 1.2.6
AUCTION PRICES AND SELECTED INTERNATIONAL MARKET * PRICES
OF CARDAMOM (Rs/Kg)

Year	Auction Price	International Price
1985	291.03	-
1986	193.81	310.18
1987	165.44	232.64
1988	148.09	174.29
1989	167.53	199.54
1990	303.22	418.96
1991	216.44	410.10
1992	503.84	460.43
1993	680.24	578.86
1994	424.60	591.90
1995	398.17	615.22
1996	474.59	602.87
1997	471.68	528.80

* London and New York

Source : Department of Export Agriculture

Table 1.2.7
EXPORTS OF CARDAMOM & CARDAMOM OIL

YEAR	CARDAMOM		CARDAMOM OIL	
	Qty. (Mt)	Value (000Rs)	Qty. (Mt)	Value (000Rs)
1970	191.4	11,306.2	-	-
1971	176.0	5,819.4	-	-
1972	203.2	5,747.8	-	-
1973	na	na	-	-
1974	139.5	6,467.2	-	-
1975	315.9	12,727.9	0.2	30.7
1976	161.6	12,194.1	0.5	538.3
1977	83.9	11,398.4	1.1	2,536.7
1978	148.7	10,345.9	2.8	7,298.7
1979	179.4	55,246.8	0.9	3,848.1
1980	163.9	44,102.6	0.7	2,925.1
1981	216.3	53,282.9	1.3	4,407.0
1982	208.8	48,953.7	1.2	4,133.1
1983	136.1	41,867.7	0.6	3,310.0
1984	117.5	71,619.2	0.2	2,609.6
1985	231.5	75,846.1	0.3	2,117.2
1986	272.3	64,437.9	0.3	1,333.6
1987	161.6	35,153.0	0.2	730.7
1988	138.8	21,965.2	0.6	2,307.8
1989	126.3	19,398.7	0.4	1,274.2
1990	34.3	9,839.5	0.2	1,065.3
1991	29.1	6,949.4	0.5	3,606.7
1992	20.6	6,191.5	0.3	1,972.4
1993	14.3	7,590.2	0.2	2,493.3
1994	26.0	10,788.9	0.2	2,602.8
1995	18.9	7,968.7	0.3	3,673.6
1996	5.8	3,714.0	0.4	5,830.3
1997	8.6	6,671.1	1.3	6,501.6

Source : Department of Customs

Table 1.2.8
EXPORTS OF CARDAMOM BY COUNTRY OF DESTINATION

COUNTRY	1993		1994		1995		1996		1997	
	QTY (Kg.)	VALUE (Rs000)	QTY (Kg.)	VALUE (Rs000)	QTY (Kg.)	VALUE (Rs000)	QTY (Kg.)	VALUE (Rs000)	QTY (Kg.)	VALUE (Rs000)
YEMAN	-	-	7,000	2,855	-	-	-	-	-	-
UNITED ARAB	7,300	2,408	-	-	-	-	-	-	-	-
SINGAPORE	2,500	1,685	6,000	2,234	7,222	2,261	51	72	3,106	1,561
MALDIVE ISLAND	1,994	527	1,707	583	2,651	1,112	1,964	958	301	179
ITALY	339	1,287	70	83	246	321	375	245	170	236
USA	-	-	51	32	42	28	502	382	1,231	1,174
UK	12	18	9	13	3,522	1,299	320	275	218	245
AUSTRALIA	278	131	282	186	1,137	555	294	290	268	292
OTHERS	1,866	1,534	10,832	4,802	4,112	2,393	2,344	1,493	3,295	2,984
TOTAL	14,289	7,590	25,951	10,789	18,932	7,969	5,850	3,714	8,589	6,671

Source: Department of Customs

Table 1.2.9
EXPORTS OF CARDAMOM OIL BY COUNTRY OF DESTINATION

COUNTRY	1993		1994		1995		1996		1997	
	QTY (Kg.)	VALUE (Rs000)	QTY (Kg.)	VALUE (Rs000)	QTY (Kg.)	VALUE (Rs000)	QTY (Kg.)	VALUE (Rs000)	QTY (Kg.)	VALUE (Rs000)
FRANCE	165	2,003	105	1,566	210	2,785	356	5,030	335	5,977
GERMANY RE.	30	411	50	606	50	658	50	692	-	-
OMAN	-	-	15	286	-	-	-	-	-	-
OTHERS	5	79	10	144	15	231	11	109	1,009	525
TOTAL	200	2,493	180	2,603	275	3,674	417	5,830	1,344	6,502

Source: Department of Customs

Table 1.2.10
PER CAPITA CONSUMPTION OF CARDAMOM PER ANNUM
BY INCOME GROUPS & SECTORS 1986/87 (Grams)

Income Group	Urban	Rural	Estate	All Sectors
0-100	42.00	-	-	9.60
101-200	-	160.80	-	104.40
201-400	13.20		-	1.20
401-600	12.00	1.20	-	2.40
601-800	2.40	1.20	-	1.20
801-1000	2.40	1.20	-	1.20
1001-1500	3.60	1.20	-	1.20
1501-2000	7.20	1.20	-	2.40
2001-3000	1.20	2.40	-	1.20
3001-5000	12.00	3.60	1.20	6.00
5001-10000	22.80	9.60		15.60
OVER 10000	33.60	8.40		21.60
Average	10.80	2.40	-	3.60

Source : Central Bank of Sri Lanka

1.3 CINNAMON

1. Introduction

Cinnamon (*Cinnamomum Verum*, Syn *C. Zeylanicum*) indigenous to Sri Lanka is cultivated in most parts of the low country. The districts of the South West coastal belt are ideally suited particularly where there is an average annual rainfall of 1,250 mm. to 2,500 mm. with a temperature of 20°C-30°C. Cinnamon is also cultivated in India, Burma and the Malaysian Peninsula. Sri Lanka produces the largest quantity and the best quality in the form of quills. Cinnamon is the dried bark of *cinnamomum varum*. Cinnamon bark oil, obtained by steam distillation of the bark is used in perfumery and for flavouring baked goods, sauces, pickles and confectionery, beverages of the coca-cola type and in some dental and pharmaceutical preparations. Cinnamon leaf oil obtained by steam distillation of the leaves has a different composition and is a source of Eugenol. It is also used as a flavoring and in perfumery.

2. Production

2.1 Major Producing Districts

The major producing districts are Galle and Matara accounting for 42% and 31% respectively of the total extent cultivated. Of the total production, Galle and Matara contribute 42% and 30% respectively.

2.2 Extent Cultivated, Production and Yield

In 1974 the extent cultivated increased by 5,000 Ha. as compared with 1993 and the previous years. In 1993 however there was an increase of over 4,000 Ha. and since then has remained constant. During the period of 1973-1997 the highest cultivated extent of 24,358 Ha. was in 1997. From 1973 to 1983 there was a fairly high average yield and production. During 1984-1994 the average yield was above 500 Kg. per Ha. Since 1994, the average yield remained below 500 Kg. per Ha. while the production was below 12,000 MT.

2.3 Cost of Cultivation and Returns

Labour is the major input in cinnamon cultivation and accounts for 70% of the total cultivation cost in the first five years. Considering the fifteen years of cultivation the cost of labour accounts for 80% of the cost of cultivation. The total cost of cultivation per hectare during the first five years was estimated at Rs.150,000/=. Gross return for the same period was Rs.256,000/=. A positive net return was obtained only in the third year of cultivation, Rs.14,000/= per hectare. By the eighth year the net return increased to Rs.145,000/= per hectare and remained constant throughout.

3. Marketing

3.1 Marketing Channels

The marketing channels of spices is annexed.

3.2 Price Behaviour

During the period 1993-1997, both the average farmgate and the average retail prices of cinnamon have shown an increasing trend. Generally the average retail prices were higher in the latter part of the year.

Auction prices have shown an increasing trend from 1985-1997. The highest price increases were recorded in 1988, 1989 and 1990. Since then prices have been stable upto 1996. The average price during July to December 1997 was above Rs.300/= per Kg.

Since 1993 the international price of cinnamon bark has been over Rs.60/= per Kg. During the period 1992-1995 the international prices of Cinnamon leaf oil have shown an increasing trend and the highest price of Rs.744/= per Kg. was recorded in 1995. Since then it dropped to Rs.534/= per Kg. in 1997.

4. External Trade

Exports of cinnamon were in the form of bark oil, leaf oil, quills, quillings, featherings and chips.

4.1 Major Import/Export Countries

During the five year period (1993-1997), cinnamon was exported mainly in the form of quills and 48% of the total exports of quills and 30% of the total exports of quillings were exported to Mexico. U.S.A., Colombia and Peru were the other main importers of Cinnamon quills. 76% of the exported quantity of Cinnamon featherings were exported to Argentina while Canada was the major importer of Cinnamon chips. About 55% of the exports of cinnamon bark oil sent to France, USA and Italy. Also USA imports 56% of the total exports of cinnamon leaf oil.

4.2 Trends in Exports

In the period of 1970-1997, cinnamon exports were on the increase. The lowest quantity being recorded in 1970 (4,257 MT.) and the highest in 1997 (1,076 MT.). The average quantity exported in last five years (1993-1997) was 9,800 MT. and the corresponding value was Rs.2,050 million.

5. Consumption

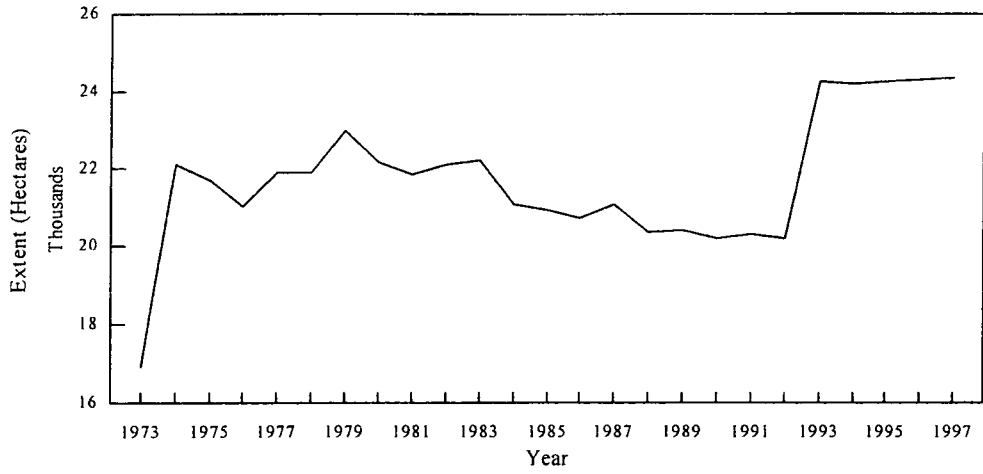
Per capita consumption per annum of cinnamon increased from 0.03 Kg. in 1973 to 0.05 Kg. in 1986/87 and consumption was high in both urban and rural sectors, while that in the estate sector was minimal.

Table 1.3.1
EXTENTS PRODUCTION AND AVERAGE YIELD OF CINNAMON - SRI LANKA

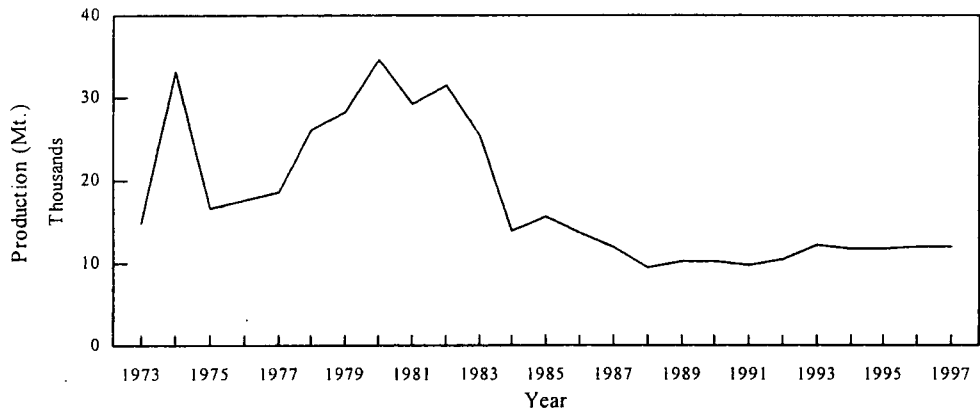
Year	Extent (Hectares)	Production (M.Tons)	Average Yield (Kg./Ha.)
1973	16,953	15,049	888
1974	22,080	33,152	1,501
1975	21,691	16,696	770
1976	21,006	17,678	842
1977	21,893	18,586	849
1978	21,909	26,259	1,198
1979	22,975	28,429	1,237
1980	22,150	34,638	1,564
1981	21,868	29,321	1,341
1982	22,094	31,544	1,428
1983	22,183	25,379	1,144
1984	21,083	14,030	665
1985	20,900	15,580	745
1986	20,715	13,724	662
1987	21,056	11,928	566
1988	20,361	9,657	474
1989	20,420	10,235	501
1990	20,197	10,453	518
1991	20,312	9,857	485
1992	20,212	10,535	521
1993	24,257	12,232	504
1994	24,218	11,924	492
1995	24,248	11,797	487
1996	24,320	11,969	492
1997	24,358	12,166	499

Source: Department of Census and Statistics

Graph 1.3.1
EXTENT OF CINNAMON



Graph 1.3.2
PRODUCTION OF CINNAMON



Graph 1.3.3
AVERAGE YIELD OF CINNAMON

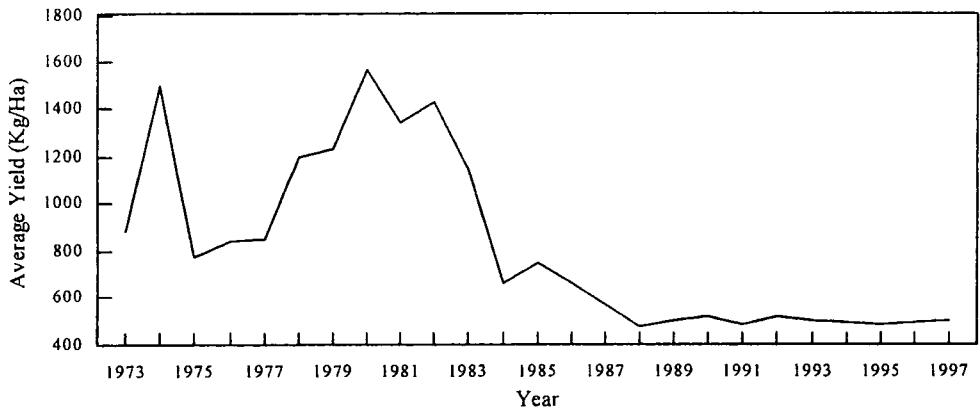


Table 1.3.2
EXTENT OF CINNAMON BY MAJOR GROWING DISTRICTS (Hectares)

DISTRICT	1980	1985	1990	1993	1994	1995	1996	1997	AVG(93-97)	%
GALLE	9,598	8,770	9,211	10,010	10,062	10,087	10,065	10,235	10,092	(41.56)
MATARA	6,344	6,048	5,843	7,681	7,751	7,774	7,760	7,818	7,757	(31.95)
KALUTARA	1,747	1,300	1,464	2,415	2,460	2,493	2,551	2,437	2,471	(10.18)
RATNAPURA	2,250	2,594	1,904	1,882	1,873	1,864	1,796	1,779	1,839	(7.57)
HAMBANTOTA	1,289	1,246	1,084	1,579	1,422	1,456	1,563	1,508	1,506	(6.20)
OTHERS *	924	942	691	690	650	574	585	581	616	(2.54)
SRI LANKA	22,150	20,900	20,197	24,257	24,218	24,248	24,320	24,358	24,280	(100.00)

* Total of Colombo, Matale, Gampaha, Kandy, Kegalle, Badulla, Kurunegala and Nuwara Eliya.

Source: Department of Census and Statistics
Data Development Unit of HARTI

Table 1.3.3
PRODUCTION OF CINNAMON BY MAJOR PRODUCING DISTRICTS (M.Tons)

DISTRICT	1980	1985	1990	1993	1994	1995	1996	1997	AVG(93-97)	%
GALLE	10,962	5,567	4,893	5,007	5,057	5,043	5,065	5,097	5,054	(42.05)
MATARA	7,347	6,087	3,255	3,971	3,740	3,576	3,532	3,509	3,666	(30.50)
KALUTARA	2,503	665	666	1,062	1,079	1,081	1,087	1,080	1,078	(8.97)
OTHERS *	13,826	3,261	1,639	2,192	2,048	2,097	2,285	2,480	2,220	(18.48)
SRI LANKA	34,638	15,580	10,453	12,232	11,924	11,797	11,969	12,166	12,018	(100.00)

* Total of Hambantota, Ratnapura, Colombo, Gampaha, Matale, Badulla, Kurunegala, Kegalle, Kandy and Nuwara Eliya.

Source : Department of Census and Statistics

Table 1.3.4
AVERAGE RETAIL PRICES OF CINNAMON - SRI LANKA
 Unit: Rs./Kg.

Month	1993	1994	1995	1996	1997
January	191.33	198.41	233.71	250.06	248.95
February	185.73	209.58	232.84	248.50	252.76
March	183.49	212.80	244.70	245.19	237.11
April	189.91	218.06	242.88	253.90	233.50
May	187.80	225.24	244.58	255.00	236.88
June	199.53	224.13	244.11	258.18	251.18
July	200.34	233.75	244.82	255.42	270.00
August	198.55	223.50	252.62	250.88	276.97
September	187.01	215.13	261.50	251.63	272.24
October	190.84	222.34	273.44	227.74	277.89
November	190.57	257.98	269.79	235.95	283.55
December	184.33	249.22	268.52	237.02	296.18
An. Average	190.78	222.56	250.65	247.32	261.21

Source: Department of Census and Statistics

Table : 1.3.5
AUCTION PRICES AND SELECTED INTERNATIONAL MARKET * PRICES
OF CINNAMON (Rs/Kg)

Year	Auction Price	International Prices		
		Cinnamon Bark	Cinnamon Quills	Cinnamon Leaf Oil
1985	43.02	n.a.	n.a.	n.a.
1986	49.09	25.25	n.a.	n.a.
1987	62.29	37.26	n.a.	n.a.
1988	108.56	51.59	n.a.	n.a.
1989	156.53	62.24	n.a.	n.a.
1990	190.28	n.a.	n.a.	n.a.
1991	182.35	n.a.	n.a.	n.a.
1992	183.35	59.80	n.a.	318.78
1993	185.17	63.23	n.a.	336.02
1994	182.64	72.65	n.a.	449.17
1995	183.71	77.28	n.a.	743.52
1996	189.22	83.87	n.a.	670.80
1997	281.80	91.87	531.09	534.42

* London and New York
 n.a. - not available

Source : Department of Export Agriculture

**Table 1.3.6
EXPORTS OF CINNAMON & CINNAMON PRODUCTS**

YEAR	CINNAMON		CINNAMON LEAFOIL		CINNAMON BARK OIL		QUILLS IN CUT PIECES		GROUND CINNAMON	
	Qty (Mt)	Value (000 Rs)	Qty (Mt)	Value (000 Rs)	(Qty) (Mt)	(Value) (000 Rs)	Qty (Mt)	Value (000 Rs)	Qty (Mt)	Value (000 Rs)
1970	4,256.79	31,684.88	50.54	1,127.75	0.68	426.44	—	—	—	—
1971	4,518.12	29,323.73	56.10	1,011.58	0.92	464.58	—	—	—	—
1972	5,303.03	32,250.94	70.13	1,332.35	0.97	542.72	—	—	—	—
1973	0.00	0.00	na	na	na	na	—	—	—	—
1974	7,764.46	65,084.82	95.26	4,959.54	0.89	648.20	—	—	—	—
1975	4,552.72	46,055.35	51.60	1,578.49	0.19	157.70	—	—	—	—
1976	6,957.61	81,385.67	110.86	4,474.23	0.93	579.92	—	—	—	—
1977	6,735.62	84,847.74	89.37	4,639.05	0.98	697.50	—	—	—	—
1978	6,635.06	182,615.05	101.55	7,796.74	0.97	1,588.87	—	—	—	—
1979	7,094.66	211,402.66	114.02	8,252.92	1.14	1,956.40	—	—	—	—
1980	8,023.95	237,834.22	83.06	7,428.25	1.40	2,541.97	—	—	—	—
1981	9,222.96	441,127.23	90.60	8,858.58	1.16	3,530.12	—	—	—	—
1982	6,358.56	308,795.95	96.84	10,323.09	1.38	3,986.31	—	—	—	—
1983	5,766.83	244,275.41	107.61	17,481.57	1.79	5,427.90	299.90	12,329.90	56.30	1,270.18
1984	9,023.98	343,190.69	134.15	21,664.38	1.76	6,102.91	514.49	22,331.55	43.53	1,112.57
1985	7,711.59	342,964.93	123.73	18,590.32	2.16	6,230.18	797.32	42,847.38	132.30	3,918.71
1986	7,690.36	349,108.19	99.44	14,457.75	1.92	6,667.83	743.38	45,552.16	188.42	3,451.29
1987	7,639.98	483,358.65	132.57	26,208.70	2.69	11,839.12	1,593.15	123,966.65	217.28	6,730.15
1988	6,945.15	730,382.75	131.74	36,782.95	2.69	18,932.28	1,098.47	119,786.45	120.49	4,444.75
1989	7,656.94	1,125,627.05	161.66	43,794.61	2.57	23,795.32	818.48	129,323.76	49.07	2,033.13
1990	4,887.82	721,180.50	46.16	12,996.03	0.72	7,388.32	845.42	16,009.80	602.58	53,144.61
1991	7,999.38	1,498,517.97	107.26	29,174.70	2.84	33,148.20	350.65	74,042.14	251.37	14,381.68
1992	8,359.78	1,590,160.76	119.26	32,396.52	2.84	33,864.69	189.65	46,574.08	162.58	10,051.28
1993	8,896.30	1,738,782.70	136.90	43,516.43	4.68	50,109.96	316.13	72,311.21	190.15	11,029.06
1994	9,221.98	1,740,676.84	176.12	68,117.40	3.56	46,441.60	427.12	97,688.80	207.47	14,970.68
1995	10,055.20	1,916,901.43	199.09	136,327.32	4.44	57,262.61	588.19	129,929.08	207.03	17,526.55
1996	10,198.21	2,011,986.84	83.08	47,377.22	3.05	42,038.29	1,140.41	247,274.37	170.92	23,712.90
1997	10,761.07	2,861,592.63	94.97	45,579.76	3.92	60,659.79	1,408.14	428,162.50	144.95	16,210.14

Table 1.3.6 (contd..)

YEAR	CINNAMON QUILLS		CINNAMON QUILLINGS		CINNAMON CHIPS		CINNAMON FEATHERINGS		CINNAMON OTHER	
	(Qty) (Mt)	(Value) (000 Rs)	Qty (Mt)	Value (000 Rs)	Qty (Mt)	Value (000 Rs)	(Qty) (Mt)	(Value) (000 Rs)	(Qty) (Mt)	(Value) (000 Rs)
1970	3,558.50	28,423.63	--	--	647.07	1,707.06	--	--	--	--
1971	3,683.32	25,608.11	--	--	777.78	2,239.46	--	--	--	--
1972	4,142.42	26,937.80	--	--	1,089.51	3,438.07	--	--	--	--
1973	na	na	--	--	na	na	--	--	--	--
1974	5,037.61	50,932.85	--	--	2,630.70	8,544.23	--	--	--	--
1975	3,349.24	38,924.75	465.35	3,685.37	464.74	1,066.64	221.60	642.14	--	0.26
1976	5,291.76	68,510.72	795.90	5,334.36	510.18	1,424.72	247.07	1,051.31	0.91	10.41
1977	5,206.24	71,742.48	612.31	4,864.70	533.13	1,824.57	293.49	1,077.22	0.10	2.22
1978	5,182.12	158,142.57	655.49	10,422.90	404.88	2,525.18	286.53	2,095.37	3.52	43.42
1979	5,788.35	188,631.74	602.48	9,897.00	316.09	2,070.12	242.03	249.55	30.55	344.93
1980	4,964.97	206,846.85	661.34	14,292.83	1,998.69	3,711.67	282.27	2,570.21	32.22	442.44
1981	7,611.00	403,607.11	670.11	16,266.67	449.23	4,391.77	400.86	4,472.98	--	--
1982	4,825.07	269,854.02	602.98	15,310.44	510.84	5,172.90	293.35	3,607.75	28.10	541.44
1983	3,916.59	178,831.48	769.78	19,227.94	341.79	3,747.00	180.85	3,430.80	92.22	2,528.64
1984	6,633.29	259,417.94	966.32	24,550.34	519.90	5,229.30	142.23	1,580.44	68.31	1,201.26
1985	5,530.97	249,848.68	672.73	16,991.94	358.93	3,098.07	73.39	980.68	20.06	458.97
1986	5,102.59	248,775.76	896.03	22,609.52	487.06	5,126.31	143.50	1,862.73	28.02	604.84
1987	4,277.79	271,716.17	867.69	35,126.42	406.61	4,998.36	111.18	1,976.57	31.02	796.51
1988	4,498.97	502,616.35	590.30	39,584.98	350.21	5,484.07	78.99	1,721.48	73.29	1,029.44
1989	5,029.14	805,817.12	1,040.38	106,471.41	427.64	8,546.64	54.58	1,884.91	73.42	3,960.15
1990	2,772.89	558,068.81	162.91	18,872.06	153.53	3,239.71	27.62	698.10	275.99	50,763.06
1991	6,478.62	1,279,893.44	413.28	53,066.12	288.19	6,446.71	78.83	3,259.61	28.34	5,105.37
1992	6,963.90	1,390,349.00	482.08	53,690.62	305.54	10,874.83	90.72	8,003.52	43.21	4,356.22
1993	6,898.42	1,407,680.15	515.26	68,827.41	472.11	13,078.79	26.28	2,785.89	336.37	69,443.80
1994	6,769.88	1,323,180.77	505.82	63,971.66	464.59	13,055.85	72.54	4,122.71	594.88	109,127.37
1995	7,034.70	1,358,683.10	825.61	104,093.45	639.70	21,563.86	84.33	4,623.01	472.11	86,892.45
1996	7,113.42	1,472,969.23	885.48	117,702.37	488.73	15,506.08	86.91	4,904.81	226.21	40,501.57
1997	7,335.41	2,076,698.24	991.40	176,770.89	537.49	15,696.18	81.63	5,856.11	163.16	35,959.02

Source : Department of Customs

Table 1.3.7
EXPORTS OF CINNAMON QUILLS IN CUT PIECES BY COUNTRY OF DESTINATION

COUNTRY	1993		1994		1995		1996		1997	
	QTY. (Mt.)	VALUE (Rs000)	QTY. (Mt.)	VALUE (Rs000)	QTY. (Mt.)	VALUE (Rs000)	QTY. (Mt.)	VALUE (Rs000)	QTY. (Mt.)	VALUE (Rs000)
USA	101	29,344	200	45,329	184	43,502	275	69,800	311	104,869
MEXICO	32	6,121	21	3,892	91	15,888	267	50,896	502	142,621
COLOMBIA	14	2,355	23	3,626	68	11,916	132	22,011	131	35,100
GERMANY FE.	27	7,972	21	7,604	41	12,036	48	14,776	82	31,973
PERU	-	-	14	2,263	68	11,513	75	13,215	102	29,039
GVATAMALA	14	3,076	48	9,907	20	3,823	102	21,771	20	5,700
UK	19	3,683	9	4,191	27	8,000	37	10,425	26	10,155
OTHERS	110	19,762	93	20,876	89	21,251	204	44,381	234	68,706
TOTAL	316	72,311	427	97,689	588	127,929	1,140	247,274	1,408	428,163

Source: Department of Customs

Table 1.3.8

EXPORTS OF CINNAMON QUILLINGS BY COUNTRY OF DESTINATION

COUNTRY	1993		1994		1995		1996		1997	
	QTY. (Mt.)	VALUE (Rs000)	QTY. (Mt.)	VALUE (Rs000)	QTY. (Mt.)	VALUE (Rs000)	QTY. (Mt.)	VALUE (Rs000)	QTY. (Mt.)	VALUE (Rs000)
MEXICO	116	20,010	164	22,576	285	31,213	287	35,741	260	45,595
SPAIN	61	8,729	58	9,129	95	14,766	154	20,809	169	30,650
GERMANY FE.REP.	107	12,770	72	7,486	94	10,064	125	15,164	155	23,280
USA	17	2,776	31	4,769	97	16,896	78	14,932	68	15,678
ITALY	20	2,135	49	5,016	62	7,445	51	6,152	56	8,685
OTHERS	193	22,407	130	14,995	191	23,710	190	24,904	284	52,883
TOTAL	515	68,827	506	63,972	826	104,093	885	117,702	991	176,771

Source: Department of Customs

Table 1.3.9
EXPORTS OF CINNAMON QUILLS OTHER BY COUNTRY OF DESTINATION

COUNTRY	1993		1994		1995		1996		1997	
	QTY (Mt.)	VALUE (Rs000)	QTY (Mt.)	VALUE (Rs000)	QTY (Mt.)	VALUE (Rs000)	QTY (Mt.)	VALUE (Rs000)	QTY (Mt.)	VALUE (Rs000)
MEXICO	3,398	718,651	2,954	581,831	3,523	698,410	3,990	858,246	3,862	1,169,209
USA	1,381	267,793	1,175	245,450	665	129,331	418	91,022	390	105,133
COLOMBIA	365	61,750	479	77,103	547	91,641	566	98,821	741	186,779
PERU	358	59,620	603	100,840	525	86,748	452	71,296	681	137,301
EQUADOR	203	34,532	261	47,813	312	55,932	399	73,529	396	107,246
SPAIN	227	55,352	266	62,825	231	49,419	144	39,536	211	73,497
GVATAMALA	132	26,592	144	25,735	271	54,087	225	47,839	180	56,109
CHILE	183	37,453	187	32,014	204	36,086	204	35,827	160	45,094
OTHERS	651	145,937	700	149,570	757	157,030	716	156,851	715	196,331
TOTAL	6,898	1,407,680	6,770	1,323,181	7,035	1,358,683	7,113	1,472,969	7,335	2,076,698

Source: Department of Customs

Table 1.3.10
EXPORTS OF CINNAMON FEATHERINGS BY COUNTRY OF DESTINATION

COUNTRY	1993		1994		1995		1996		1997	
	QTY (Mt.)	VALUE (Rs000)	QTY (Mt.)	VALUE (Rs000)	QTY (Mt.)	VALUE (Rs000)	QTY (Mt.)	VALUE (Rs000)	QTY (Mt.)	VALUE (Rs000)
ARGENTINA	-	-	66	3,450	72	4,093	66	3,881	65	4,851
SWITZERLAND	12	2,140	-	-	5	194	10	593	14	767
RUSSIA	-	-	-	-	7	336	-	-	-	-
UK	-	-	0	7	-	-	11	431	-	-
OTHERS	15	646	7	665	-	-	-	-	4	238
TOTAL	26	2,786	73	4,123	84	4,623	87	4,905	82	5,856

Source: Department of Customs

Table 1.3.11

EXPORTS OF CINNAMON CHIPS BY COUNTRY OF DESTINATION

COUNTRY	1993		1994		1995		1996		1997	
	QTY (Mt.)	VALUE (Rs000)	QTY (Mt.)	VALUE (Rs000)	QTY (Mt.)	VALUE (Rs000)	QTY (Mt.)	VALUE (Rs000)	QTY (Mt.)	VALUE (Rs000)
CANADA	121	2,366	198	3,738	243	4,536	218	4,588	258	4,898
AUSTRALIA	40	1,672	53	2,358	67	2,991	80	3,656	63	3,306
UK	40	1,153	82	1,832	99	2,240	55	1,476	59	1,778
USA	18	369	9	141	75	2,739	68	1,630	108	2,846
FRANCE	54	1,372	-	-	29	1,481	-	-	-	-
ELSALVADOR	-	-	-	-	7	1,410	-	-	-	-
NEWZEALAND	35	1,495	30	1,532	18	1,201	24	1,319	28	1,315
ITALY	2	67	8	810	13	1,704	4	565	-	-
OTHERS	163	4,584	86	2,645	90	3,263	40	2,271	22	1,554
TOTAL	472	13,079	465	13,056	640	21,564	489	15,506	537	15,696

Source: Department of Customs

Table 1.3.12
EXPORTS OF CRUSHED OR GROUND CINNAMON BY COUNTRY OF DESTINATION

COUNTRY	1993		1994		1995		1996		1997	
	QTY. (Mt.)	VALUE (Rs000)	QTY. (Mt.)	VALUE (Rs000)	QTY. (Mt.)	VALUE (Rs000)	QTY. (Mt.)	VALUE (Rs000)	QTY. (Mt.)	VALUE (Rs000)
PERU	-	-	12	1,478	11	1,849	32	5,704	38	7,411
BOLIVIA	-	-	-	-	-	-	20	3,936	-	-
AUSTRALIA	99	4,486	102	4,774	99	4,670	39	2,135	56	3,380
USA	-	-	-	-	8	848	23	5,657	-	-
MEXICO	-	-	28	3,299	14	1,379	14	2,010	-	-
ISREAL	-	-	11	1,772	-	-	-	-	-	-
POLAND	-	-	-	-	11	1,735	-	-	-	-
SOUTH AFRICA	-	-	-	-	4	180	21	1,096	36	2,449
OTHERS	91	6,543	55	3,647	62	6,866	22	3,176	15	2,970
TOTAL	190	11,029	207	14,971	207	17,527	171	23,713	145	16,210

Source: Department of Customs

Table 1.3.13

EXPORTS OF CINNAMON OTHER BY COUNTRY OF DESTINATION

COUNTRY	1993		1994		1995		1996		1997	
	QTY (Mt.)	VALUE (Rs000)	QTY (Mt.)	VALUE (Rs000)	QTY (Mt.)	VALUE (Rs000)	QTY (Mt.)	VALUE (Rs000)	QTY (Mt.)	VALUE (Rs000)
MEXICO	108	18,491	137	33,380	84	15,601	69	14,711	15	3,636
COLOMBIA	48	8,026	61	10,133	82	13,918				
PERU	53	11,077	95	16,261	95	16,458	27	4,569	14	3,454
GVATAMALA	14	5,489	61	11,660	34	6,425	27	5,472	27	10,335
USA	37	8,024	65	6,025	36	9,975	34	6,581	17	6,493
SPAIN	30	6,113	41	9,917	6	1,588	6	1,082	6	2,030
EQUADOR	-	-	26	3,952	20	3,653	-	-	14	2,825
CHILE	-	1,238	40	4,741	30	5,395	14	1,315	7	2,165
OTHERS	46	10,986	68	13,058	84	13,880	50	6,771	64	5,020
TOTAL	336	69,444	595	109,127	472	86,892	226	40,502	163	35,959

Source: Department of Customs

Table 1.3.14
EXPORTS OF CINNAMON BARK OIL BY COUNTRY OF DESTINATION

COUNTRY	1993		1994		1995		1996		1997	
	QTY (Kg.)	VALUE (Rs000)	QTY (Kg.)	VALUE (Rs000)	QTY (Kg.)	VALUE (Rs000)	QTY (Kg.)	VALUE (Rs000)	QTY (Kg.)	VALUE (Rs000)
FRANCE	884	12,110	986	13,067	999	13,992	897	10,243	1,144	16,212
USA	714	11,967	629	9,269	1,115	19,703	540	9,481	815	15,164
GERMANY FE.	533	7,152	369	5,101	391	6,433	490	7,046	271	5,161
UK	290	4,593	360	6,288	223	3,490	280	4,155	445	7,471
NETHERLAND	117	1,908	370	4,181	205	3,054	217	3,778	419	6,821
ITALY	400	3,582	525	4,106	497	3,618	255	2,503	498	4,547
SWITZERLAND	360	5,052	100	1,997	308	4,975	85	1,494	55	1,104
OTHERS	1,384	3,746	225	2,433	705	1,997	285	3,338	278	4,180
TOTAL	4,682	50,110	3,564	46,442	4,443	57,263	3,049	42,038	3,925	60,660

Source: Department of Customs

Table 1.3.15

EXPORTS OF CINNAMON LEAF OIL BY COUNTRY OF DESTINATION

COUNTRY	1993		1994		1995		1996		1997	
	QTY (Mt.)	VALUE (Rs000)	QTY (Mt.)	VALUE (Rs000)	QTY (Mt.)	VALUE (Rs000)	QTY (Mt.)	VALUE (Rs000)	QTY (Mt.)	VALUE (Rs000)
USA	72	21,845	97	38,416	126	85,895	43	25,637	51	24,896
UK	17	5,765	21	8,688	25	16,603	13	5,770	14	6,738
FRANCE	14	4,395	14	5,825	14	9,885	6	3,959	10	4,736
HONGKONG	4	1,352	12	5,009	11	7,621	8	3,725	7	3,393
OTHERS	30	10,160	32	10,179	24	16,322	13	8,286	13	5,816
TOTAL	137	43,516	176	68,117	199	136,327	83	47,377	95	45,580

Source: Department of Customs

Table 1.3.16
PER CAPITA CONSUMPTION OF CINNAMON PER ANNUM BY SECTORS
 Unit: (Kg)

Sector	1973	1978/79	1981/82	1986/87
Urban	0.05	0.02	0.04	0.07
Rural	0.03	0.01	0.03	0.05
Estate	0.02	0.00	0.01	0.01
All Sectors	0.03	0.17	0.03	0.05

Source : Central Bank of Sri Lanka

Table 1.3.17
PER CAPITA CONSUMPTION OF CINNAMON PER ANNUM
BY INCOME GROUPS & SECTORS - 86/87 (Kg)

Income Group	Urban	Rural	Estate	All Sectors
0-100	0.04	0.02	-	0.02
101-200	0.02	0.09	-	0.07
201-400	0.10	0.05	-	0.05
401-600	0.06	0.04	0.02	0.04
601-800	0.02	0.04	0.01	0.03
801-1000	0.04	0.04	0.01	0.04
1001-1500	0.05	0.04	0.01	0.04
1501-2000	0.06	0.04	0.01	0.04
2001-3000	0.05	0.05	0.02	0.05
3001-5000	0.07	0.06	0.01	0.06
5001-10000	0.10	0.08	-	0.09
OVER 10000	0.10	0.08	-	0.09
Average	0.07	0.05	0.01	0.05

Source: Central Bank of Sri Lanka

1.4 CLOVES

1. Introduction

Cloves are the dried unopened flower buds of an evergreen tree, (*syzygium aromaticum*, *L. Syn. Eugenia caryophyllata*). The plant is indigenous to the Moluccas (Indonesia). According to the records, the growing of cloves began in 1830 when a single consignment of seed was planted at the Peradeniya Botanical Gardens. From there planting material has moved to the neighbouring areas, and only occasionally to other areas.

Clove grows well in a humid tropical climate from sea level up to an elevation of about 1,000 m. An average rainfall of 1,750 mm.- 2,500 mm. per annum is sufficient for this crop. In Sri Lanka, clove is cultivated mostly in the mid-country and the potential for its cultivation in the wet low-country plains is considerable.

The main forms of clove products are (1) clove buds used as such or in the form of ground spice (2) clove steam oil and (3) clove leaf oil. The major uses of cloves are for domestic culinary purposes and in the manufacture of sauces and pickles.

Cloves come into bearing in the 7th to 10th year. The rate of annual increase in production is slow, about 5 Kg. of dry cloves per tree in the 15th year and 10 Kg. of dry cloves in the 20th year. The maximum yield is not reached until the tree is about 30-35 years. The peak harvesting season is from April to mid June and mid July to September.

2. Production

2.1 Major Producing Districts

In the five year period 1993-1997, the main producing districts were Kandy, Kegalle and Matale which on an average contributed 78% of the total extent cultivated in Sri Lanka, and these three districts also accounted for 81% of the total production.

2.2 Extent Cultivated, Production and Yield

The extent cultivated in 1984 was 3,527 Ha. and by 1992 had increased gradually to 6,146 Ha. The extent cultivated increased sharply by 73% in 1993 to 10,619 Ha. and since then has been more or less stable.

The production of cloves has shown uneven fluctuations from 1984 to 1988. From 1988 onwards it has increased gradually upto 1992. In 1993 there was a sharp increase of 126% over 1992 and since then the production has shown an increasing trend.

In the period 1994-1997, the average yield of cloves fluctuated. The maximum yield of 418 Kg. per Ha. was recorded in 1996 and the lowest (162 Kg. per Ha.) in 1986. The average yield in 1997 was 404 Kg. per Ha.

3. Marketing

3.1 Marketing Channels

The marketing channels of spices is annexed.

3.2 Price Behaviour

Annual average producer prices of cloves had declined gradually from Rs.61.46 per Kg. in 1993 to Rs.53.64 per Kg. in 1997. Compared to other years the lowest prices prevailed in 1997. The average retail prices of cloves fluctuated yearly and the lowest prices were recorded in 1997. In the period 1993-1997 the highest price of Rs.222.94 per Kg. was recorded in 1996.

The auction prices of cloves were on a decreasing trend showing uneven fluctuations in the period 1985-1997. From Rs.170.55 per Kg. in 1986, which was the highest price recorded in the period, it dropped to Rs. 61.49 per Kg in 1997. The lowest price of Rs.45.45 per Kg. was recorded in 1993. Considering the period 1986-1997 the lowest international price was recorded in 1994 (Rs.37.97 per Kg.) and the highest price in 1986 (Rs.136.97 per Kg.). During this period prices fluctuated considerably. However a slight increasing trend was observed since 1994. The international price of cloves in 1996 was around Rs.61.00 per Kg. The price of clove oil was above Rs.300.00 per Kg. during 1996 except in the months of April, May and June. But this situation changed in 1997 and the prices were less than Rs.300.00 per Kg. except in January, February, March and December. However the Sri Lankan cloves obtained higher price than Madagascar cloves in the international market due to its pungency.

4. External Trade

Exports of cloves fall under four categories, clove whole fruit, cloves, clove stem, and clove oil.

4.1 Major Import/Export Countries

Cloves were mainly exported to Saudi Arabia. During the five year period 1993-1997, 60% of the exports of cloves were sent to Saudi Arabia. 80% of Sri Lankan exports of clove stems were exported to Syria (25%), Jordan (14%), U.K. and India 13% each, and Netherland (12%).

4.2 Trends in Exports

Between 1970 and 1997, export prices fluctuated unevenly. Though the maximum quantity of exports recorded was in 1997 (2,463 MT.), the highest export earnings were recorded in 1983. (Rs.373 Mn.)

5. Consumption

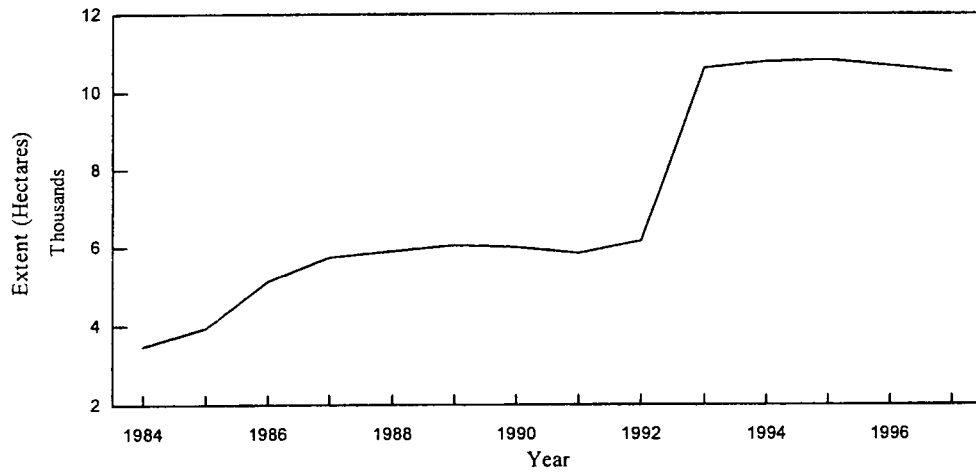
Annual average Per Capita Consumption of the urban sector was 3.6 grams and that of all other sectors was 1.2 grams.

Table 1.4.1
EXTENT, PRODUCTION & AVERAGE YIELD OF CLOVES - SRI LANKA

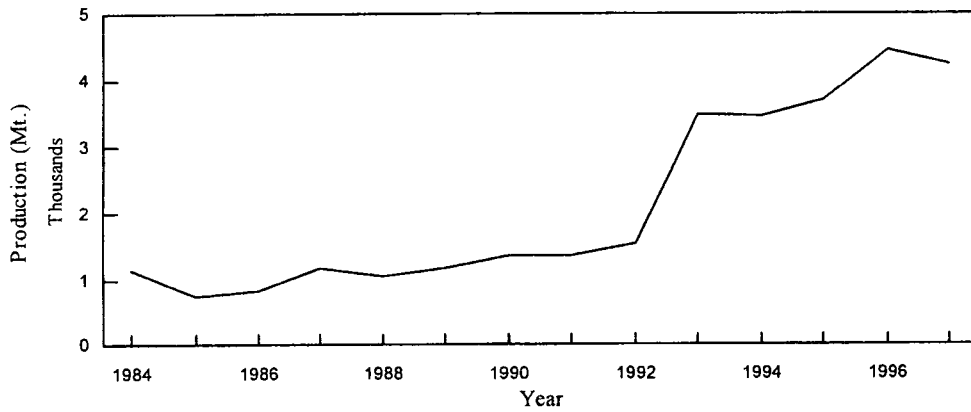
Year	Extent (Hectares)	Production (M.Tons)	Average Yield (Kg/Ha)
1984	3,527	1,147	325
1985	3,971	737	186
1986	5,156	835	162
1987	5,775	1,164	202
1988	5,898	1,052	178
1989	6,046	1,179	195
1990	5,997	1,352	225
1991	5,874	1,352	230
1992	6,146	1,545	251
1993	10,619	3,489	329
1994	10,778	3,448	320
1995	10,831	3,693	341
1996	10,678	4,459	418
1997	10,489	4,235	404

Primary Source: Department of Census and Statistics
 Data Development Unit of HARTI

Graph 1.4.1
EXTENT OF CLOVES



Graph 1.4.2
PRODUCTION OF CLOVES



Graph 1.4.3
AVERAGE YIELD OF CLOVES

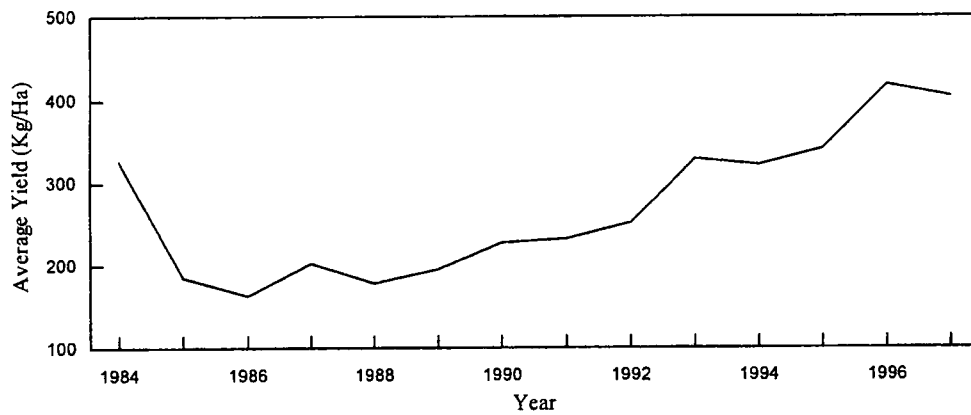


Table 1.4.2

EXTENT OF CLOVES BY MAJOR GROWING DISTRICTS (Hectares)

DISTRICT	1985	1990	1993	1994	1995	1996	1997	AVG(93-97)	%
KANDY	1,236	1,503	4,352	4,462	4,406	4,393	4,361	4,395	(36.94)
KEGALLE	1,044	1,762	2,816	2,817	2,811	2,776	2,695	2,783	(34.62)
MATALE	594	760	1,149	1,125	1,137	1,143	1,151	1,141	(14.45)
MATARA	200	456	592	650	647	635	606	626	(7.24)
OTHERS	897	1,516	1,710	1,724	1,830	1,731	1,676	1,734	(6.75)
SRI LANKA	3,971	5,997	10,619	10,778	10,831	10,678	10,489	10,679	(100.00)

* Total of Kurunegala, Ratnapura, Nuwara Eliya, Galle, Matara, Kalutara,
Hambantota, Colombo, Badulla, Monaragala and Puttalam

Primary Source: Department of Census and Statistics
Data Development Unit of HARTI

Table 1.4.3
PRODUCTION OF CLOVES BY MAJOR PRODUCING DISTRICTS (M.Tons)

DISTRICT	1985	1990	1993	1994	1995	1996	1997	AVG(93-97)	%
KANDY	0	379	1,390	1,334	1,328	1,367	1,923	1,468	(37.99)
KEGALLE	182	426	1,014	1,018	1,215	1,860	1,090	1,239	(32.07)
MATALE	213	116	384	381	385	447	484	416	(10.77)
OTHERS *	342	431	701	715	765	785	738	741	(19.17)
SRI LANKA	737	1,352	3,489	3,448	3,693	4,459	4,235	3,865	(100.00)

*Total of Kurunegala, Matara, Ratnapura, Nuwara Eliya, Galle, Gampaha, Kalutara, Hambantota, Colombo and Badulla.

Source : Department of Census and Statistics

Table 1.4.4
AVERAGE RETAIL PRICES OF CLOVES - SRI LANKA
 Unit: Rs./Kg.

Month	1993	1994	1995	1996	1997
January	176.18	187.69	174.69	207.44	173.26
February	168.51	190.42	176.38	193.06	177.24
March	174.22	181.88	201.88	192.94	171.11
April	173.46	183.95	165.31	243.9	178.42
May	173.79	183.22	159.56	253.57	164.72
June	172.28	173.20	158.75	235.04	165.00
July	169.56	171.00	172.95	234.63	178.82
August	166.08	169.13	164.76	260.5	165.39
September	174.74	173.31	165.18	223.06	175.39
October	169.46	220.83	173.81	211.73	169.61
November	186.43	232.94	182.95	194.21	172.94
December	180.91	226.25	191.91	220.39	162.11
An. Average	173.51	187.70	172.92	222.94	171.21

Source: Department of Census and Statistics

Table 1.4.5
AVERAGE PRODUCER PRICES OF CLOVES - SRI LANKA
 Unit: Rs./Kg.

Month	1993	1994	1995	1996	1997
January	63.17	52.27	61.11	55.17	46.32
February	56.19	52.39	48.18	53.83	50.37
March	52.79	50.26	51.14	54.29	51.41
April	57.59	53.95	52.48	50.11	51.21
May	61.67	55.95	52.13	54.56	51.24
June	59.60	58.45	55.47	56.75	53.81
July	60.47	59.29	67.50	54.08	45.57
August	63.27	58.57	66.90	58.90	56.67
September	64.43	68.31	64.78	56.80	55.00
October	65.50	69.45	67.78	62.30	55.69
November	62.06	67.34	70.33	62.00	62.18
December	71.86	72.50	72.86	58.41	58.40
An. Average	61.46	59.78	61.57	57.05	53.64

Source: Department of Census and Statistics

Table : 1.4.6
AUCTION PRICES AND SELECTED INTERNATIONAL MARKET * PRICES
OF CLOVES (Rs/Kg)

Year	Auction Price	International Price
1985	165.68	-
1986	170.55	136.97
1987	102.93	124.39
1988	127.31	95.18
1989	105.00	85.96
1990	104.73	122.03
1991	112.96	83.34
1992	77.95	43.60
1993	45.45	42.82
1994	50.32	37.97
1995	58.02	49.00
1996	55.20	61.07
1997	61.49	77.80

* London and New York

Source : Department of Export Agriculture

Table 1.4.7
EXPORTS OF CLOVES & CLOVE OIL

Year	Clove		Clove Oil	
	Qty. (Mt)	Value (000 Rs)	Qty. (Mt)	Value (000 Rs)
1970	277.84	4,136.81	-	-
1971	7.82	55.27	-	-
1972	106.58	832.32	-	-
1973	na	na	-	-
1974	571.58	12,474.96	-	-
1975	156.01	4,755.69	-	-
1976	475.09	18,263.89	-	-
1977	na	na	0.10	6.64
1978	470.39	32,304.40	0.18	22.32
1979	1,223.47	60,459.24	0.34	52.89
1980	1,193.71	191,725.57	-	-
1981	1,355.58	254,975.87	-	-
1982	974.97	217,035.32	-	-
1983	1,749.83	373,318.82	-	-
1984	254.30	10,455.15	-	-
1985	75.87	2,783.92	-	-
1986	740.24	161,912.67	-	-
1987	491.72	42,726.01	-	-
1988	2,251.04	252,680.80	-	-
1989	311.67	16,002.07	-	-
1990	2,292.10	233,749.47	-	-
1991	1,036.33	63,574.89	-	-
1992	1,110.47	60,570.88	-	-
1993	1,687.65	71,870.98	-	-
1994	849.87	41,303.90	0.57	589.58
1995	1,115.56	65,363.48	7.42	338.29
1996	1,434.21	84,610.99	0.30	241.48
1997	2,463.34	131,551.54	0.85	620.78

Source : Department of Customs

Table 1.4.8

EXPORTS OF CLOVES BY COUNTRY OF DESTINATION

COUNTRY	1993		1994		1995		1996		1997	
	QTY (Mt.)	VALUE (Rs000)	QTY (Mt.)	VALUE (Rs000)	QTY (Mt.)	VALUE (Rs000)	QTY (Mt.)	VALUE (Rs000)	QTY (Mt.)	VALUE (Rs000)
SAUDI ARABIA	775	42,197	362	17,339	478	32,612	623	39,929	1,049	65,566
UK	29	2,643	32	2,496	47	4,839	93	9,684	130	13,471
INDIA REP.	11	221	18	872	71	4,127	180	6,852	184	11,262
USA	18	1,923	6	587	16	1,851	26	2,612	29	2,782
OTHERS	328	18,083	189	14,297	170	13,996	241	17,692	332	24,430
TOTAL	1,161	65,067	607	35,592	782	57,425	1,163	76,769	1,724	117,511

Source: Department of Custom

Table 1.4.9

EXPORTS OF CLOVES WHOLE FRUIT BY COUNTRY OF DESTINATION

COUNTRY	1993		1994		1995		1996		1997	
	QTY (Mt.)	VALUE (Rs000)	QTY (Mt.)	VALUE (Rs000)	QTY (Mt.)	VALUE (Rs000)	QTY (Mt.)	VALUE (Rs000)	QTY (Mt.)	VALUE (Rs000)
SAUDI ARABIA	-	-	-	-	-	-	33	2,117	-	-
TAIWAN	-	-	-	-	32	2,047	-	-	5	322
INDIA REP.	-	-	-	-	12	780	-	-	-	-
KOREA SOUTH	-	-	-	-	8	535	-	-	-	-
OTHERS	1	65	4	190	0	65	0	30	0	12
TOTAL	1	65	4	190	52	3,427	33	2,147	5	333

Source: Department of Customs

Table 1.4.10

EXPORTS OF CLOVES STEMS BY COUNTRY OF DESTINATION

COUNTRY	1993		1994		1995		1996		1997	
	QTY (Mt.)	VALUE (Rs000)	QTY (Mt.)	VALUE (Rs000)	QTY (Mt.)	VALUE (Rs000)	QTY (Mt.)	VALUE (Rs000)	QTY (Mt.)	VALUE (Rs000)
SYRIA	228	2,703	18	209	9	101	68	1,354	239	4,567
NETHERLAND	-	-	35	1,892	87	1,094	-	-	125	2,030
UK	56	855	37	1,290	55	970	60	1,415	54	1,311
INDIA REP.	109	1,636	25	264	-	-	1	177	129	1,772
JORDAN	60	659	52	537	33	557	51	934	86	1,620
AUSTRALIA	10	174	-	339	-	-	14	408	8	248
OTHERS	63	711	72	992	98	1,790	45	1,406	94	2,159
TOTAL	526	6,739	239	5,522	282	4,511	238	5,694	735	13,708

Source: Department of Customs

Table 1.4.11
EXPORTS OF CLOVE OIL BY COUNTRY OF DESTINATION

COUNTRY	1994		1995		1996		1997	
	QTY (Kg.)	VALUE (Rs000)	QTY (Kg.)	VALUE (Rs000)	QTY (Kg.)	VALUE (Rs000)	QTY (Kg.)	VALUE (Rs000)
PHILIPPINES	200	160	200	14	300	241	100	84
U.S.A.	360	421	-	-	-	-	-	-
CANADA	-	-	7,025	184	-	-	200	112
U.K	-	-	-	-	-	-	400	284
FRANCE	-	-	200	140	-	-	-	-
OTHERS	10	9	-	-	-	-	146	140
TOTAL	570	590	7,425	338	300	241	846	620

Source: Department of Customs

Table 1.4.12
PER CAPITA CONSUMPTION OF CLOVES PER ANNUM
BY INCOME GROUPS & SECTORS - 86/87 (gm)

Income Group	Urban	Rural	Estate	All Sectors
0-100	42.00	-	-	9.60
101-200	-	-	-	-
201-400	1.20	-	-	-
401-600	1.20	-	-	-
601-800	2.40	-	-	-
801-1000	1.20	-	-	-
1001-1500	2.40	1.20	-	1.20
1501-2000	1.20	1.20	-	1.20
2001-3000	1.20	1.20	-	1.20
3001-5000	3.60	2.40	2.40	2.40
5001-10000	10.80	3.60	-	7.20
OVER 10000	10.80	3.60	-	7.20
Average	3.60	1.20	-	1.20

Source : Central Bank of Sri Lanka

1.5 NUTMEG

1. Introduction

The Nutmeg tree (*Myristica Fragrans Houltuym*) is unique among the spice plants in that it provides two separate and distinct products, the nutmeg which is the dried kernel of the seed, and the mace which is the dried aril surrounding the seed within the fruit. This is indigenous to the Moluccas (Indonesia) but is now grown in almost every tropical country. Nutmeg was introduced to Sri Lanka in the beginning of the 19th century. Indonesia, Granada, Sri Lanka, Trundle, China and India are the major countries producing nutmeg and mace.

Nutmeg can be grown at elevations upto about 600 m. in the wet zone districts. Soils with deep, well drained, loams and sandy clay loams rich in organic matter are preferable, but soils with high water-table or liable to water- logging are unsuitable. Well distributed annual rainfall of 1,500 mm. - 2,500 mm. and annual average temperature of 20⁰-30⁰C without much seasonal variations, are other factors favouring cultivation. Shade is essential during the first 2-3 years of growth. Sheltered valleys and leeward slopes are the best situations for growing nutmeg as persistent strong winds are harmful to the crop.

In the East, nutmeg is said to be a stimulant and to have carminative, astringent, and aphrodisiac properties. The husk or pericarp is used in making sweet-meats and jellies. Oil of nutmeg is used as a flavoring agent and also in liquors and perfumes and in soap manufacture. The volatile oil of both spices contains small amounts of myristicin and elemicin which are narcotic and poisonous, and so these two spices are used sparingly. Nutmeg butter is a mild external stimulant.

The main harvesting season is from November to April during which there are two or three main pickings annually. Maturity of nuts is based on colour (mature nuts are dark brown, turning almost black after drying) and hardness (immature nuts can be scratched with a finger nail). The usual weight range of mature nuts is about 130- 200 nuts per Kg., but immature nuts could range up to 320 nuts per Kg.

According to the growers trees could bear anytime from 5-12 years. Nutmeg yields increase till the trees are about 30 to 40 years old and continue to produce till they are over 75 years. The average yield under moderate levels of management is 227 Kg. per Ha. for nutmeg and 23 Kg. per Ha. for mace.

2. Production

2.1 Major producing districts

Kandy is the main producing district (75%) followed by Matale(11%). In 1970s there was a trend in growing nutmeg plants. One of the major problems of cultivating this plant is its unisexual nature. The female trees can be identified only when the flowering occurs. Depending on the degree of shade and level of fertility this occurs between 6-10 years.

2.2 Extent Cultivated, Production and Yield

In 1990, the total extent cultivated was 704 Ha. and the production was 305 MT. The present area under nutmeg is 2,460 Ha. and the production is 1,108 MT. According to a survey

conducted by the Dept. of Minor Export Crops in 1986, the average yield of nutmeg and mace was 227 Kg. per Ha. and 23 Kg. per Ha. respectively.

3. Marketing and External Trade

3.1 Marketing Channels

Marketing channels are shown in the annex.

3.2 Price Behaviour

Auction prices of nutmeg showed that lower prices prevailed during March to June 1997. Both the international price and auction price of mace were low in January 1997. In 1997, international prices of nutmeg ranged from Rs.133.82 to Rs. 258.45 per Kg and local auction prices from Rs.60.00 to Rs. 99.00 per Kg. In the same period, the international prices of mace ranged from Rs. 289.99 to Rs. 783.48 per Kg. and local auction prices from Rs. 246.67 to Rs. 616.67 per Kg. During the period 1986 to 1997, the highest international price of nutmeg fetched (Rs. 291.02 per Kg.) was in 1989 while the lowest was in 1993 (Rs. 54.88 per Kg.). In the case of mace the highest price during the period was in 1997 (Rs. 542.75 per Kg.) and the lowest in 1993 (Rs. 99.53 per Kg.).

4. External Trade

4.1 Major Import/Export Countries

Nutmeg and mace are mainly exported to India and to Pakistan while the United Kingdom is the main importer of Nutmeg oil.

4.2 Trends in Exports

In the period 1993-1997 the lowest quantity exported was in 1994. The exports of Nutmeg and Mace were 646 MT. and 19 MT. respectively. The quantity exported of nutmeg and nutmeg oil fluctuated yearly while the exports of mace increased gradually from 24 MT. (1993) to 105 MT. (1997). The quantity of nutmeg, nutmeg oil and mace exported increased remarkably in 1996.

Though, export earnings of nutmeg, nutmeg oil and mace showed an increase, the unit price declined sharply in 1996.

5. Consumption

The annual average per capita consumption of nutmeg of the urban and estate sectors was 2.4 grams while that of the rural sector was 1.2 grams. The overall average was 1.2 grams.

Table : 1.5.1
AUCTION PRICES AND SELECTED INTERNATIONAL MARKET * PRICES
OF NUTMEG AND MACE (Rs/Kg)

Year	Auction Price		International Price	
	Nutmeg	Mace	Nutmeg	Mace
1985	na	na	-	-
1986	63.74	na	162.56	305.52
1987	91.2	na	231.29	na
1988	92.07	na	240.04	285.58
1989	90	na	291.02	530.75
1990	75.10	na	235.53	431.38
1991	33.94	na	244.01	270.14
1992	31.04	61.82	149.96	219.93
1993	32.6	89.68	54.88	99.53
1994	42.57	140.44	92.83	175.13
1995	55.96	222.66	114.62	226.85
1996	62.01	225.44	134.93	259.6
1997	76.4	366.11	179.14	542.75

* London and New York

n.a. - not available

Source : Department of Export Agriculture

Table 1.5.2
EXPORTS OF NUTMEG & NUTMEG OIL

Year	Nutmeg		Nutmeg Oil	
	QTY (Mt)	VALUE (000Rs)	QTY (Mt)	VALUE (000Rs)
1975	124.3	1,278.1	4.8	421.1
1976	295.6	2,750.0	8.0	733.5
1977	144.5	1,633.5	3.5	543.5
1978	370.6	8,561.6	10.1	2,686.4
1979	328.2	7,370.9	8.0	2,058.5
1980	261.5	6,039.9	13.0	3,208.9
1981	383.4	8,752.6	4.2	1,311.7
1982	318.1	7,621.8	6.5	2,177.2
1983	259.7	7,672.0	8.3	2,813.7
1984	391.8	10,680.0	9.7	3,801.0
1985	314.4	9,906.6	9.4	4,207.6
1986	383.9	24,264.7	13.7	7,976.1
1987	257.5	28,332.0	16.5	13,808.3
1988	450.5	48,422.4	18.5	18,230.7
1989	366.1	39,210.5	10.9	12,271.5
1990	268.0	22,198.8	2.6	2,264.8
1991	465.6	22,730.9	4.5	2,534.8
1992	747.8	42,395.1	11.5	6,857.8
1993	759.6	33,939.4	11.5	5,678.5
1994	646.3	35,350.1	14.5	8,217.3
1995	741.1	49,808.6	9.8	7,123.9
1996	1,008.9	60,555.9	47.9	7,122.7
1997	654.9	57,157.3	20.0	10,714.6

Source : Department of Customs

Table 1.5.3
EXPORTS OF NUTMEG BY COUNTRY OF DESTINATION

COUNTRY	1993		1994		1995		1996		1997	
	QTY Mt.)	VALUE (Rs000)	QTY (Mt.)	VALUE (Rs000)	QTY (Mt.)	VALUE (Rs000)	QTY (Mt.)	VALUE (Rs000)	QTY (Mt.)	VALUE (Rs000)
PAKISTAN	228	7,468	217	9,576	131	6,167	219	11,293	190	12,974
INDIA REP.	25	631	85	3,379	193	13,156	167	9,461	248	18,416
UAE	108	4,209	31	1,219	154	10,211	261	17,482	35	3,401
BANGLADESH	36	1,625	53	3,050	57	3,574	105	3,003	25	1,783
YEMEN	42	1,602	45	1,902	49	3,725	51	3,047	24	1,645
OTHERS	321	18,404	215	16,224	157	12,975	206	16,269	135	18,937
TOTAL	760	33,939	646	35,350	741	49,809	1,009	60,556	655	57,157

Source: Department of Customs

Table 1.5.4
EXPORTS OF NUTMEG OIL BY COUNTRY OF DESTINATION

COUNTRY	1993		1994		1995		1996		1997	
	QTY (Kg.)	VALUE (Rs000)	QTY (Kg.)	VALUE (Rs000)	QTY (Kg.)	VALUE (Rs000)	QTY (Kg.)	VALUE (Rs000)	QTY (Kg.)	VALUE (Rs000)
UK	6,100	2,590	7,910	3,561	6,340	4,425	2,000	1,680	5,050	4,898
ITALY	-	-	-	-	-	-	15,000	2,003	-	-
JAPAN	2,000	1,505	4,000	3,172	-	-	1,000	916	-	-
PHILLIPPINES	1,000	521	1,250	691	1,300	1,033	-	-	700	1,151
GERMANY FE.	960	436	600	227	540	449	-	-	-	-
OTHERS	1,480	626	764	566	1,570	1,217	29,930	2,524	14,240	4,666
TOTAL	11,540	5,678	14,524	8,217	9,750	7,124	47,930	7,123	19,990	10,715

Source: Department of Customs

Table 1.5.5
PER CAPITA CONSUMPTION OF NUTMEG PER ANNUM
BY INCOME GROUPS & SECTORS 1986/87 (Grams)

Income Group	Urban	Rural	Estate	All Sectors
0-100	42.00	-	-	9.60
101-200	-	-	-	-
201-400	15.60	-	15.60	2.40
401-600	1.20	-	16.80	1.20
601-800	-	-	-	-
801-1000	-	2.40	3.60	2.40
1001-1500	-	1.20	1.20	1.20
1501-2000	4.80	1.20	3.60	1.20
2001-3000	2.40	1.20	3.60	1.20
3001-5000	1.20	-	-	-
5001-10000	2.40	1.20	-	1.20
OVER 10000	3.60	-	-	2.40
Average	2.40	1.20	2.40	1.20

Source : Central Bank of Sri Lanka

2. VEGETABLES

2.1 LEEKS

1. Introduction

Leeks (*Allium Ampelloprassum Vai Porrum*) were introduced to Sri Lanka by European colonists. Leeks can be grown in the up country wet zones on well-drained soils. Leeks are tolerant to wet weather and forest cover but cannot be grown in a hot climate. A very rich soil well supplied with humus is desirable for best results. "Large long summer" is the recommended variety. Cultivation of leeks is common in homesteads and in tea estates because of the high returns compared with many other vegetables. Nevertheless the crop duration is longer than in other types of vegetables and takes at least 5 months to harvest. Farmer generally grow leeks with either beet root or carrot. A yield of 30-40 MT. Per Ha. can be expected from a well planned cultivation.

2. Production

2.1 Major Producing districts

Leeks cultivation is highly location specific. Nearly 95% of the total extent cultivated comes from N'eliya (71%) and Badulla (21%), which contribute 99% of the national production.

2.2 Extent Cultivated, Production and Yield

The production average over a five year period (1993-1997), shows that Sri Lanka produces about 16,000 MT. annually from 1,100 Ha. The highest production 18,700 MT, was recorded in 1997 due to an increase in the extent under cultivation from 1,139 Ha. in 1996 to 1,342 Ha. in 1997. Both the area under cultivation and production appear to be increasing especially since early 1990s though yield remained stagnated around 14 MT.per Ha.

2.3 Cost of Cultivation and Returns

Compared to many other vegetables, the cost of production of leeks is considerably higher. According to a survey done by the Dept. of Agriculture in the Nuwara Eliya district in Maha 1995/96, the cost of cultivation per acre was about Rs. 81,500/=. Labour is the major cost component, accounting for 45% of the total cost, followed by the cost of fertilizer (36%). It was revealed that the net return per acre including imputed cost was about Rs.32,000/= (A recent study done by HARTI computed the return at Rs.61,000/= per acre, of which labour accounted for 65%).

3. Marketing

3.1 Marketing Channels

Farmers mainly sell their leeks to collectors who in turn supply wholesalers. In areas like Kandapola in the Nuwara-Eliya district and Widurupola in the Badulla district, some farmers sell direct to the traders. The majority of farmers in the Bandarawela area send the leeks to Colombo to be sold on a commission basis while farmers at Hanguranketha send their produce to the Kandy market.

3.2 Price Behaviour

Retail prices progressively rose in Colombo from Rs.10.50 in 1985 to Rs.36.00 per Kg. in 1997. Farmers on an average receive 40% of the price consumers pay. Leeks are often packed in damaged sacks, and the wastage is relatively high (35%). In the course of a year, prices fluctuate being 30% up in June and 20% down in September. There are two major harvesting seasons: February-April during Maha and August-October in Yala.

4. External Trade

With regard to trade, both imports and exports are insignificant; the annual figures being less than 1,000 MT. The highest imports, 53 MT. was reported in 1997 while 896 MT. were exported in the same year. During the period 1993-1997 the highest exports, 968 MT. was registered in 1996.

5. Consumption

According to the Consumer Finances and Socio-Economic Survey 1986/87, per capita consumption was 0.76 Kg. per annum, indicating a marginal decline from 0.98 Kg. in 1978/79. Least consumption was in the rural sector. There is a positive relationship between income levels and consumption indicating that higher income earners consume more Leeks than those with lower income. According to the Consumer Finances and Socio-Economic Survey 1996/97 which is the latest, per capita consumption was 1.27 Kg. per annum, indicating that the consumption of Leeks was very much higher compared to 1986/87.

6. Government Policy

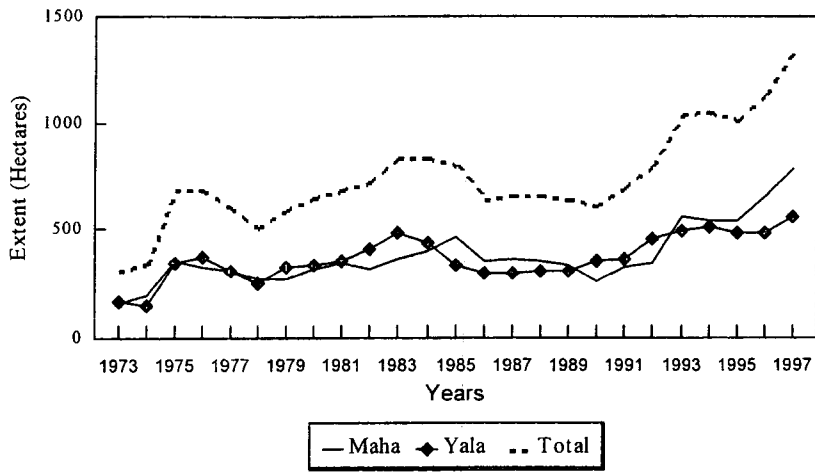
There is no specific government policy relating to leeks.

Table 2.1.1
EXTENT, PRODUCTION AND AVERAGE YIELD OF LEEKS

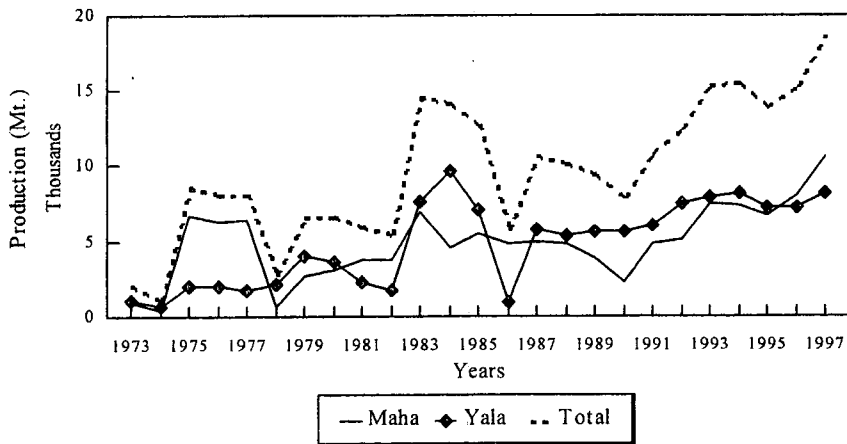
YEAR	EXTENT(Ha)			PRODUCTION(Mt)			AVERAGE YIELD (Kg/Ha)		
	MAHA	YALA	TOTAL	MAHA	YALA	TOTAL	MAHA	YALA	TOTAL
1973	156	161	317	971	1,116	2,087	6,216	6,928	6,578
1974	194	150	344	456	713	1,169	2,350	4,747	3,395
1975	348	340	688	6,663	1,998	8,661	19,124	5,876	12,582
1976	323	367	689	6,251	1,981	8,232	19,381	5,403	11,945
1977	304	301	605	6,395	1,758	8,153	21,013	5,840	13,467
1978	264	251	515	713	2,142	2,855	2,699	8,549	5,546
1979	271	322	592	2,757	3,984	6,741	10,182	12,384	11,378
1980	313	335	648	3,107	3,658	6,765	9,919	10,930	10,441
1981	338	353	691	3,790	2,321	6,111	11,213	6,575	8,844
1982	318	408	726	3,833	1,738	5,571	12,053	4,260	7,674
1983	361	480	841	6,932	7,651	14,584	19,202	15,934	17,341
1984	401	434	835	4,582	9,598	14,180	11,426	22,115	16,982
1985	468	335	803	5,575	7,123	12,698	11,912	21,263	15,813
1986	348	294	642	4,787	940	5,727	13,756	3,197	8,921
1987	361	298	659	4,916	5,840	10,756	13,618	19,597	16,322
1988	356	306	662	4,889	5,355	10,244	13,733	17,435	15,474
1989	336	302	638	3,960	5,598	9,558	11,786	18,536	14,981
1990	262	353	615	2,289	5,624	7,913	8,737	15,932	12,867
1991	328	366	694	4,901	5,982	10,883	14,942	16,344	15,682
1992	340	457	797	5,039	7,467	12,506	14,821	16,339	15,691
1993	556	492	1,048	7,483	7,940	15,423	13,459	16,138	14,717
1994	541	515	1,056	7,350	8,240	15,590	13,586	16,000	14,763
1995	539	481	1,020	6,758	7,183	13,941	12,538	14,933	13,668
1996	652	487	1,139	8,036	7,191	15,227	12,325	14,766	13,369
1997	785	557	1,342	10,595	8,135	18,730	13,497	14,605	13,957

Source :Department of Census and Statistics.
Data Development Unit of HARTI

Graph 2.1.1
EXTENT OF LEEKS



Graph 2.1.2
PRODUCTION OF LEEKS



Graph 2.1.3
AVERAGE YIELD OF LEEKS

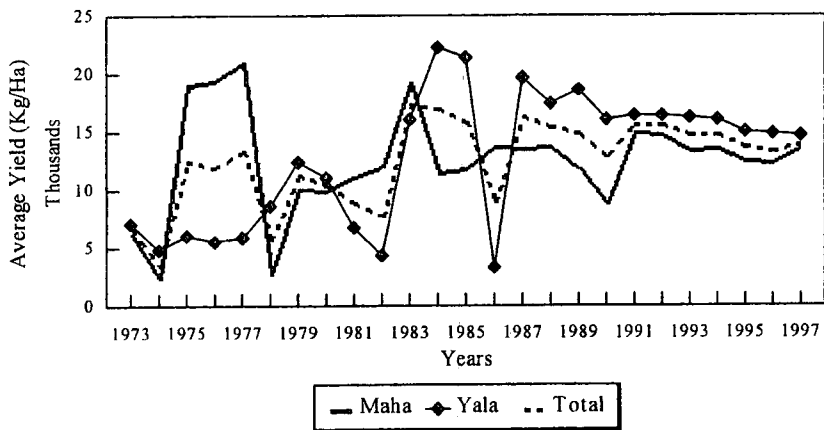


Table 2.1.2
EXTENT OF LEEKS BY MAJOR GROWING DISTRICTS (HECTARES).

DISTRICT	PERIOD	1980	1985	1990	1993	1994	1995	1996	1997	AVG(93-97)	%
NUWARAELIYA	MAHA	228	405	214	315	319	310	414	631	398	(70.97)
	YALA	219	265	294	405	405	372	365	442	398	
	TOTAL	447	670	508	720	724	682	779	1073	796	
BADULLA	MAHA	38	41	34	215	199	197	208	123	188	(23.98)
	YALA	34	44	39	51	83	88	97	83	80	
	TOTAL	71	85	73	266	282	285	305	206	269	
KANDY	MAHA	19	15	8	11	13	18	15	18	15	(3.28)
	YALA	56	13	20	30	21	16	21	21	22	
	TOTAL	75	28	28	41	34	34	36	39	37	
OTHERS *	MAHA	28	7	6	14	10	14	15	13	13	(1.75)
	YALA	26	13	0	6	6	5	4	11	6	
	TOTAL	54	20	6	20	16	19	19	24	20	
SRI LANKA	MAHA	313	468	262	556	541	539	652	785	615	(100.00)
	%	(48.3)	(58.3)	(42.6)	(53.1)	(51.2)	(52.8)	(57.2)	(58.5)	(54.8)	
	YALA	335	335	353	492	515	481	487	557	506	
	%	(51.7)	(41.7)	(57.4)	(46.9)	(48.8)	(47.2)	(42.8)	(41.5)	(45.2)	
	TOTAL	648	803	615	1048	1056	1020	1139	1342	1121	
%	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	

* Total of Ratnapura, Jaffna, Ampara, Matale, and Moneragala districts.

Source : Department of Census and Statistics.

Table 2.1.3

PRODUCTION OF LEEKS BY MAJOR PRODUCING DISTRICTS (M.TONS).

DISTRICT	PERIOD	1980	1985	1990	1993	1994	1995	1996	1997	AVG(93-97)	%
NUWARAELIYA	MAHA	2,395	5,124	1,974	5,472	5,483	4,877	6,062	9,409	6,261	(83.14)
	YALA	2,928	6,523	5,231	7,354	7,326	6,247	6,165	7,215	6,861	
	TOTAL	5,323	11,647	7,205	12,826	12,809	11,124	12,227	16,624	13,122	
BADULLA	MAHA	152	371	286	1,937	1,809	1,796	1,888	1,105	1,707	(15.99)
	YALA	150	517	343	517	858	894	973	837	816	
	TOTAL	302	888	629	2,454	2,667	2,690	2,861	1,942	2,523	
OTHERS *	MAHA	560	80	29	75	58	85	86	81	77	(0.87)
	YALA	580	83	50	69	56	42	53	83	61	
	TOTAL	1,140	163	79	144	114	127	139	164	138	
SRI LANKA	MAHA	3,107	5,575	2,289	7,483	7,350	6,758	8,036	10,595	8,044	(100.00)
	%	(45.93)	(43.90)	(28.93)	(48.52)	(47.15)	(48.48)	(52.77)	(56.57)	(50.97)	
	YALA	3,658	7,123	5,624	7,940	8,240	7,183	7,191	8,135	7,738	
	%	(54.07)	(56.10)	(71.07)	(51.48)	(52.85)	(51.52)	(47.23)	(43.43)	(49.03)	
	TOTAL	6,765	12,698	7,913	15,423	15,590	13,941	15,227	18,730	15,782	
	%	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	

* Total of Kandy, Jaffna, Ampara, Ratnapura, Matale, and Moneragala districts.

Source : Department of Census and Statistics

Table 2.1.4
MONTHLY AVERAGE RETAIL PRICES OF LEEKS IN COLOMBO & SUBURBS
 Unit: Rs./Kg

Month	1993	1994	1995	1996	1997
January	34.50	36.65	41.57	28.96	33.77
February	31.38	40.43	33.48	32.76	32.54
March	26.73	37.71	31.46	24.62	31.56
April	27.49	36.56	32.43	31.45	32.91
May	31.30	36.10	42.73	37.60	30.62
June	34.99	39.17	51.30	44.43	36.35
July	30.69	31.63	39.44	40.01	35.05
August	26.46	29.43	29.43	35.27	32.10
September	21.81	23.57	27.87	31.53	30.44
October	20.00	24.61	30.32	34.03	31.45
November	24.03	35.49	32.85	37.49	43.25
December	30.82	42.37	30.32	37.33	60.80
An. Average	28.35	34.48	35.27	34.61	35.90

Source : Marketing and Food Policy Division of HARTI

Table 2.1.5
MONTHLY AVERAGE PRODUCER PRICES OF LEEKS IN NUWARA ELIYA
 Unit: Rs./Kg

Month	1993	1994	1995	1996	1997
January	16.40	18.00	21.63	9.10	10.29
February	19.75	22.13	16.75	7.19	12.40
March	15.88	21.60	17.50	10.85	11.25
April	15.40	19.13	15.33	9.56	9.50
May	16.38	25.00	21.63	20.90	10.75
June	19.75	24.50	28.00	21.00	16.25
July	15.38	15.50	20.75	18.50	14.70
August	11.63	12.63	12.00	19.38	11.75
September	9.06	8.38	9.63	14.88	10.25
October	6.50	8.00	12.25	19.60	10.81
November	9.00	14.13	11.50	19.00	26.13
December	13.38	22.70	12.00	16.38	35.00
An. Average	12.68	617.64	16.58	15.53	14.92

Source : Marketing and Food Policy Division of HARTI

Table 2.1.6
AVERAGE WHOLE SALE PRICES OF LEEKS AT PETTAH MARKET
Unit: Rs./Kg

Month	1993	1994	1995	1996	1997
January	21.92	21.10	23.70	12.24	16.92
February	19.77	22.80	18.64	10.13	18.06
March	17.41	24.10	17.55	11.15	13.89
April	16.69	20.48	16.02	13.22	13.39
May	17.98	22.84	23.88	21.33	12.19
June	20.77	25.87	31.35	24.53	18.71
July	16.59	17.80	20.35	19.94	16.90
August	12.90	13.30	13.53	17.18	13.90
September	9.33	10.00	10.45	15.04	12.32
October	8.15	10.46	13.16	22.47	14.83
November	12.09	19.55	12.79	23.02	29.28
December	18.04	25.48	13.01	18.68	40.12
An. Average	15.97	19.48	17.87	17.41	18.37

Source : Marketing and Food Policy Division of HARTI

Table 2.1.7
COST OF CULTIVATION PER ACRE OF LEEKS (IRRIGATED)
BY INPUTS IN NUWARA ELIYA (Rs/Acre)

Input	94/95 Maha
Labour	23,881
Seed	6,664
Fertilizer	21,133
Agro Chemicals	5,325
Total	57,003

Source : Department of Agriculture

Table 2.1.8
NET RETURN PER AREA OF LEEKS (IRRIGATED)
BY SEASONS IN NUWARAELIYA

Season	Net Return per Acre (Rs)	
	Including Imputed Cost	Excluding imputed Cost
94/95 Maha	75,844	95,256

Source : Department of Agriculture

Table 2.1.9
PER CAPITA CONSUMPTION OF LEEKS
PER ANNUM BY SECTORS (kg)

Sectors	1981/82	1986/87
URBAN	0.90	1.19
RURAL	0.67	0.60
ESTATE	1.58	1.28
ALL SEC.	0.78	0.76

Source : Central Bank of Sri Lanka

Table 2.1.10
PER CAPITA CONSUMPTION OF LEEKS PER ANNUM
BY INCOME GROUPS & SECTORS (Kg)

Income Group	Urban	Rural	Estate	All Sectors
0-100	5.04	0.43	-	1.45
101-200	1.18	1.88	-	1.62
201-400	0.22	0.27	0.80	0.30
401-600	0.72	0.22	0.82	0.29
601-800	0.44	0.35	0.44	0.36
801-1000	0.30	0.36	1.27	0.44
1001-1500	1.19	0.39	1.00	0.53
1501-2000	0.91	0.46	1.49	0.64
2001-3000	1.24	0.63	1.48	0.81
3001-5000	1.22	0.98	1.57	1.08
5001-10000	1.38	1.23	-	1.29
OVER 10000	1.64	1.44	-	1.55
Over All Avg.	1.19	0.60	1.28	0.76

Source : Central Bank of Sri Lanka

2.2 RADISH

1. Introduction

The radish (*Raphanus Sativus*) was extensively cultivated in ancient Egypt. In Sri Lanka radish can be grown in all the agro-ecological regions. Well drained soils are suitable, but poorly drained soil can retard growth. "Japanese ball" and "Beeralu rabu" for the up country and low country areas, respectively are the recommended varieties. Average yields of 40-50 MT. per Ha. from Japanese ball and 20-30 MT. per Ha. from "Beeralu rabu" can be obtained.

Farmers from N' Eliya and Badulla districts grow radish in rotation with other vegetables. Since radish has a relatively short growing period, farmers prefer it as a rotational crop rather than a cash crop.

2. Production

2.1 Major Producing Districts

Nuwara Eliya and Badulla are the major producing districts. In the period 1993-1997 the Nuwara Eliya district alone contributed nearly 50% to the national production followed by the Badulla district with 20%.

There is no marked difference in production between the Yala and Maha seasons. For instance Maha contribution during the reference period was 53% of the total production.

2.2 Extent Cultivated, Production and Average Yield

The extent cultivated under radish was about 2,000 Ha. Sri Lanka produces around 20,000 MT. of radish annually. The maximum amount produced was 30,012 MT. in 1984 and since then production has declined continuously till 1988 and at present appears to be constant around 20,000 MT. Average yield is around 9 MT. per Ha. with a maximum of 10.6 MT per Ha. in 1985.

2.3 Cost of Cultivation and Returns

According to the survey of Agro Resources of the Central Province the cost of cultivation per hectare of radish under irrigated conditions was Rs. 31,475/= in 1995, of which 36% was for labour. Net income per hectare was Rs. 28,525/=.

3. Marketing

3.1 Marketing Channels

Farmers sell mainly to collectors in the area itself and also to commission agents either in Colombo or Kandy. Farmers in the Nuwara-Eliya and Badulla areas often send their produce to Colombo while farmers in Hanguranketha prefer Kandy.

3.2 Price Behaviour

The retail price of radish increased over the years. During the last ten years (1988-1997)

prices went up over three fold. The price rises by 25% in a year while there are two periods where the price falls by 15% below the annual price from January to April and from August to September. The latter period coincides with the harvesting of the crop in Welimada and the Hanguranketha area.

The farmer usually gets about 30% of the consumer price due mostly to high wastage (30%) as a result of poor packing. Farmers bundle radish into damaged sacks and the leaves are open in many cases. A bundle contain about 35 Kg. Retailers' mark up price is high for vegetables like radish, which is considered a cheap vegetable.

4. External Trade

Radish is neither exported nor imported.

5. Consumption

Per capita annual consumption is less than one kilogram and fluctuates over time. A recent consumer finance survey conducted by the Central Bank of Sri Lanka indicated that consumption of radish increased marginally compared to the mid 1980s. The highest consumption is by the rural sector followed by the estate sector. When incomes rise consumers tend to reduce their consumption of radish.

6. Government Policy

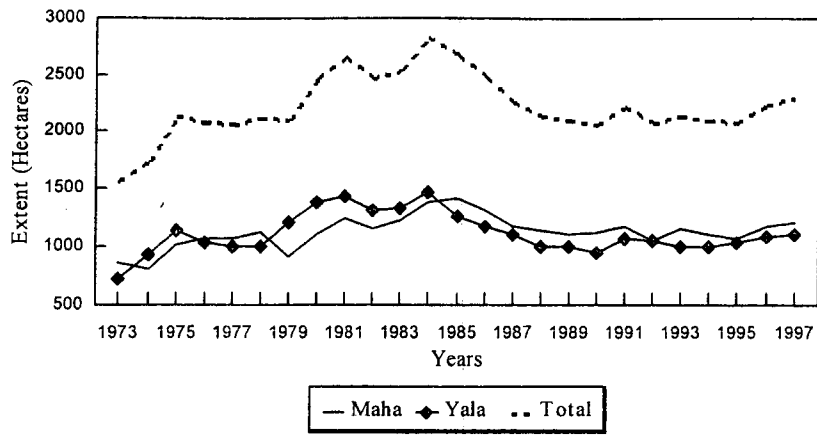
There is no specific government policy relating to radish.

Table 2.2.1
EXTENT, PRODUCTION AND AVERAGE YIELD OF RADISH

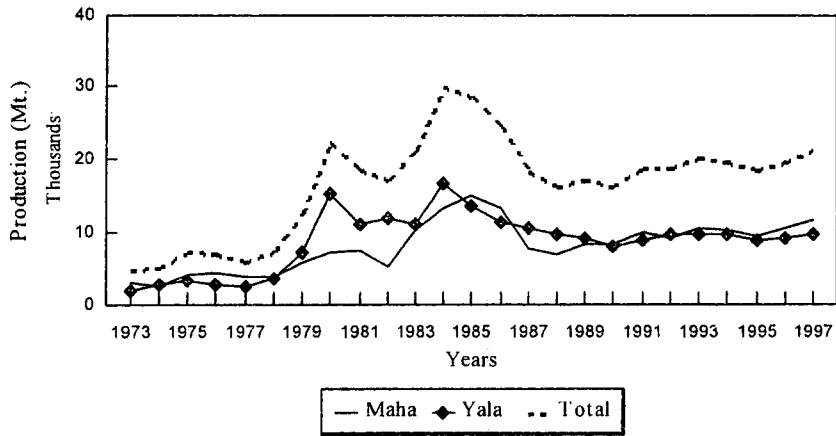
YEAR	EXTENT(Ha)			PRODUCTION(Mt)			AVERAGE YIELD(Kg/Ha)		
	MAHA	YALA	TOTAL	MAHA	YALA	TOTAL	MAHA	YALA	TOTAL
1973	864	714	1,578	2,994	2,020	5,014	3,464	2,829	3,177
1974	812	928	1,740	2,585	2,732	5,317	3,183	2,944	3,055
1975	1,007	1,131	2,138	4,144	3,455	7,599	4,114	3,054	3,554
1976	1,065	1,034	2,099	4,387	2,787	7,174	4,119	2,695	3,418
1977	1,070	1,004	2,074	3,782	2,354	6,136	3,535	2,344	2,958
1978	1,125	1,006	2,131	3,851	3,570	7,421	3,423	3,547	3,482
1979	915	1,202	2,117	5,738	7,201	12,939	6,268	5,993	6,112
1980	1,098	1,377	2,475	7,195	15,403	22,598	6,553	11,188	9,132
1981	1,244	1,430	2,674	7,484	11,119	18,603	6,016	7,776	6,960
1982	1,157	1,319	2,476	5,264	11,900	17,164	4,550	9,022	6,932
1983	1,216	1,333	2,549	10,258	11,140	21,398	8,436	8,357	8,395
1984	1,374	1,460	2,834	13,246	16,766	30,012	9,640	11,484	10,590
1985	1,420	1,266	2,686	14,989	13,717	28,706	10,556	10,835	10,687
1986	1,316	1,173	2,489	13,330	11,289	24,619	10,129	9,624	9,891
1987	1,172	1,097	2,269	7,738	10,594	18,332	6,602	9,657	8,079
1988	1,141	1,002	2,143	6,849	9,621	16,470	6,003	9,602	7,685
1989	1,111	1,004	2,115	8,317	9,095	17,412	7,486	9,059	8,233
1990	1,128	950	2,078	8,387	8,152	16,539	7,435	8,581	7,959
1991	1,168	1,063	2,231	10,121	8,853	18,974	8,665	8,328	8,505
1992	1,050	1,047	2,097	9,255	9,655	18,910	8,814	9,222	9,018
1993	1,148	998	2,146	10,544	9,708	20,252	9,185	9,727	9,437
1994	1,109	993	2,102	10,289	9,640	19,929	9,278	9,708	9,481
1995	1,060	1,029	2,089	9,512	9,039	18,551	8,974	8,784	8,880
1996	1,164	1,077	2,241	10,551	9,279	19,830	9,064	8,616	8,849
1997	1,202	1,105	2,307	11,808	9,798	21,606	9,824	8,867	9,365

Source :Department of Census and Statistics.

Graph 2.2.1
EXTENT OF RADISH



Graph 2.2.2
PRODUCTION OF RADISH



Graph 2.2.3
AVERAGE YIELD OF RADISH

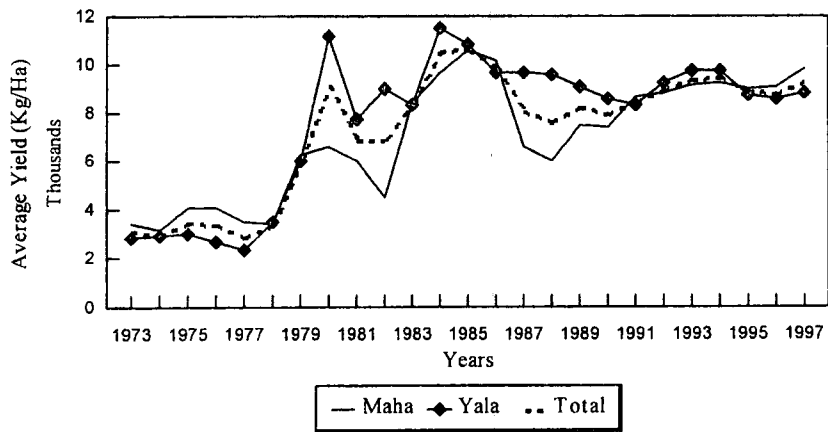


Table 2.2.2
EXTENT OF RADISH BY MAJOR GROWING DISTRICTS (HECTARES).

DISTRICT	PERIOD	1980	1985	1990	1993	1994	1995	1996	1997	AVG(93-97)	%
NUWARAELIYA	MAHA	194	349	380	532	528	472	476	501	502	(37.45)
	YALA	192	279	244	295	297	288	305	382	313	
	TOTAL	386	628	624	827	825	760	781	883	815	
BADULLA	MAHA	182	167	200	198	173	166	240	252	206	(19.11)
	YALA	268	142	149	178	205	237	208	223	210	
	TOTAL	450	309	349	376	378	403	448	475	416	
KANDY	MAHA	203	106	88	64	78	89	82	82	79	(9.79)
	YALA	414	132	144	145	132	134	130	130	134	
	TOTAL	617	238	232	209	210	223	212	212	213	
MATALE	MAHA	25	28	49	47	51	63	66	57	57	(6.27)
	YALA	35	55	62	85	76	79	81	77	80	
	TOTAL	60	83	111	132	127	142	147	134	136	
KURUNEGALA	MAHA	45	123	59	46	37	32	33	53	40	(5.26)
	YALA	39	108	76	74	52	43	127	76	74	
	TOTAL	84	231	135	120	89	75	160	129	115	
RATNAPURA	MAHA	103	82	62	45	55	55	66	62	57	(5.05)
	YALA	44	127	59	52	57	51	55	52	53	
	TOTAL	147	209	121	97	112	106	121	114	110	
HAMBANTOTA	MAHA	25	51	51	45	44	45	66	69	54	(4.95)
	YALA	48	44	45	45	49	60	57	59	54	
	TOTAL	74	95	96	90	93	105	123	128	108	
OTHERS *	MAHA	321	514	239	173	143	138	135	126	143	(12.14)
	YALA	336	379	171	124	125	137	114	106	121	
	TOTAL	657	893	410	297	268	275	249	232	264	
SRI LANKA	MAHA	1,098	1,420	1,128	1,148	1,109	1,060	1,164	1,202	1,137	(100.00)
	%	(44.36)	(52.87)	(54.28)	(53.49)	(52.76)	(50.74)	(51.94)	(52.10)	(52.21)	
	YALA	1,377	1,266	950	998	993	1,029	1,077	1,105	1,040	
%	(55.64)	(47.13)	(45.72)	(46.51)	(47.24)	(49.26)	(48.06)	(47.90)	(47.79)		
TOTAL	2,475	2,686	2,078	2,146	2,102	2,089	2,241	2,307	2,177		
%	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	

* Total of Matara, Kalutara, Galle, Polonnaruwa, Kegalle, Moneragala, Trincomalee Ampara, Anuradhapura, Gampaha, Puttalam, Jaffna, Mannar, districts and special project Mahaweli-H.

Source : Department of Census and Statistics.
Data Development Unit of HARTI

Table 2.2.3
PRODUCTION OF RADISH BY MAJOR PRODUCING DISTRICTS (M.TON).

DISTRICTS	PERIOD	1980	1985	1990	1993	1994	1995	1996	1997	AVG(93-97)	%			
NUWARAELIYA	MAHA	1,910	5,543	2,637	6,215	6,066	5,302	5,518	6,615	5,943	(49.27)			
	YALA	2,044	4,558	2,888	4,223	4,224	3,230	3,528	4,429	3,927				
	TOTAL	3,954	10,101	5,525	10,438	10,290	8,532	9,046	11,044	9,870				
BADULLA	MAHA	1,510	1,485	2,095	1,783	1,575	1,574	2,250	2,432	1,923		(19.70)		
	YALA	2,438	1,568	1,627	1,751	1,998	2,249	2,001	2,122	2,024				
	TOTAL	3,948	3,053	3,722	3,534	3,573	3,823	4,251	4,554	3,947				
RATNAPURA	MAHA	576	990	486	385	474	490	596	559	501			(5.85)	
	YALA	247	1,919	656	597	752	644	710	655	672				
	TOTAL	823	2,909	1,142	982	1,226	1,134	1,306	1,214	1,172				
	MAHA	200	560	561	438	497	545	577	586	529				
HAMBANTOTA	YALA	364	498	458	549	586	796	531	499	592				(5.59)
	TOTAL	564	1,058	1,019	987	1,083	1,341	1,108	1,085	1,121				
	MAHA	56	343	399	311	364	370	390	324	352				
MATALE	YALA	180	602	462	469	485	495	490	463	480	(4.15)			
	TOTAL	236	945	861	780	849	865	880	787	832				
	MAHA	302	966	384	243	212	197	197	329	236				
KURUNEGALA	YALA	264	949	475	799	338	282	843	482	549		(3.92)		
	TOTAL	566	1,915	859	1,042	550	479	1,040	811	784				
	MAHA	1,502	746	333	171	197	220	200	208	199				
KANDY	YALA	8,727	434	579	644	553	567	542	553	572			(3.85)	
	TOTAL	10,229	1,180	912	815	750	787	742	761	771				
	MAHA	1,138	4,356	1,492	997	904	814	823	755	859				
OTHERS *	YALA	1,138	3,189	1,007	676	704	776	634	595	677				(7.67)
	TOTAL	2,276	7,545	2,499	1,673	1,608	1,590	1,457	1,350	1,536				
	MAHA	7,195	14,989	8,387	10,544	10,289	9,512	10,551	11,808	10,541				
SRI LANKA	%	(31.84)	(52.22)	(50.71)	(52.06)	(51.63)	(51.27)	(53.21)	(54.65)	(52.62)	(100.00)			
	YALA	15,403	13,717	8,152	9,708	9,640	9,039	9,279	9,798	9,493				
	%	(68.16)	(47.78)	(49.29)	(47.94)	(48.37)	(48.73)	(46.79)	(45.35)	(47.38)				
TOTAL	22,598	28,706	16,539	20,252	19,929	18,551	19,830	21,606	20,034					
%	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)					

* Total of Matara, Kalutara, Galle, Polonnaruwa, Monaragala, Ampara, Kegalle, Trincomalee, Puttalam, Anuradhapura, Jaffna, Gampaha, Mannar, districts and special project Mahaweli-H.

Source : Department of Census and Statistics.
Data Development Unit of HARTI

Table 2.2.4
MONTHLY AVERAGE RETAIL PRICES OF RADDISH IN COLOMBO & SUBURBS

Unit: Rs./Kg

Month	1993	1994	1995	1996	1997
January	13.83	17.95	21.12	14.75	20.11
February	12.90	17.54	16.05	18.03	20.40
March	12.17	17.45	14.25	15.21	21.02
April	12.14	16.61	15.50	21.03	19.87
May	15.32	16.93	22.34	25.26	20.88
June	19.09	17.26	27.40	28.18	25.53
July	18.62	16.35	23.93	20.19	21.32
August	17.97	16.35	18.36	17.17	19.93
September	14.93	15.35	15.73	16.00	18.95
October	14.10	15.80	18.04	18.75	21.49
November	16.24	19.64	21.30	23.09	27.25
December	16.77	22.72	19.33	23.16	32.65
An. Average	15.34	17.50	19.45	20.07	22.45

Source : Marketing and Food Policy Division of HARTI

Table 2.2.5
MONTHLY AVERAGE PRODUCER PRICES OF RADDISH IN NUWARA ELIYA

Unit: Rs./Kg

Month	1993	1994	1995	1996	1997
January	2.62	3.25	3.75	0.85	3.80
February	2.13	4.75	2.25	0.59	3.56
March	2.88	5.00	1.65	2.19	2.50
April	2.90	2.94	2.33	3.13	2.57
May	2.38	2.50	3.50	7.50	2.78
June	4.56	2.69	7.75	6.50	3.13
July	4.75	2.38	7.00	3.75	2.25
August	4.38	2.06	2.75	3.06	2.62
September	4.13	1.34	1.25	2.41	2.82
October	1.90	1.50	1.81	3.05	3.13
November	3.50	2.50	3.20	3.50	9.25
December	3.13	5.90	3.88	3.06	10.25
An. Average	3.27	3.07	3.43	3.30	4.06

Source : Marketing and Food Policy Division of HARTI

Table 2.2.6
AVERAGE WHOLE SALE PRICES OF RADISH AT PETTAH MARKET
Unit: Rs./Kg

Month	1993	1994	1995	1996	1997
January	4.93	7.26	7.14	3.30	6.46
February	4.12	6.74	4.44	2.19	6.41
March	3.66	5.87	3.75	3.48	6.06
April	3.60	5.81	4.36	6.38	5.95
May	5.28	5.05	7.92	12.17	6.38
June	8.44	6.22	11.81	12.27	8.26
July	8.08	4.66	8.48	7.52	5.94
August	7.33	3.73	4.33	4.72	4.47
September	4.90	5.10	2.92	4.23	4.30
October	3.65	4.29	4.70	5.68	6.55
November	6.22	7.99	6.38	8.50	13.25
December	6.32	9.97	5.76	7.45	16.86
An. Average	5.54	6.05	6.00	6.49	7.57

Source : Marketing & Food Policy Division of HARTI

Table 2.2.7

**PER CAPITA CONSUMPTION OF RADISH
PER ANNUM BY SECTORS (Kg)**

Sector	1978/79	1981/82	1986/87
URBAN	0.41	0.47	0.43
RURAL	0.71	0.89	0.65
ESTATE	0.45	0.82	0.49
ALL SEC.	0.62	0.81	0.60

Source : Central Bank of Sri Lanka

Table 2.2.8

**PER CAPITA CONSUMPTION OF RADISH PER ANNUM
BY INCOME GROUPS & SECTORS 1986/87 (Kg)**

Income Group	Urban	Rrral	Estate	All Sectors
0-100	-	1.53	-	1.19
101-200	-	2.08	-	1.36
201-400	0.73	0.51	2.20	0.65
401-600	0.38	0.40	0.69	0.42
601-800	-	0.82	0.30	0.73
801-1000	0.53	0.69	0.82	0.69
1001-1500	0.24	0.62	0.35	0.56
1501-2000	0.47	0.70	0.48	0.65
2001-3000	0.40	0.62	0.70	0.59
3001-5000	0.46	0.65	0.16	0.57
5001-10000	0.51	0.61	-	0.57
OVER 10000	0.46	0.57	4.28	0.52
Over All Avg.	0.43	0.65	0.49	0.60

Source : Central Bank of Sri Lanka

2.3 PUMPKIN

1. Introduction

Pumpkin (*Cucurbita Maxima*) is a native of South America and is cultivated throughout India, Sri Lanka and most tropical regions of the world. In Sri Lanka it is best grown in the dry zone especially after the rains.

Propagation is by seeds and requires high temperature of 25°C - 30°C and a low humidity. Soils with high organic contents are ideal for normal growth. Pumpkin grows well in altitude below 2,000 m. A.N.K and local strains are cultivated. Harvesting of fruits can be done in 80-140 days of sowing or planting. The average yield is 15-25 MT. per Ha.

2. Production

2.1 Major Producing Districts

In the period 1993-1997, over one third of the total area cultivated was in the two districts; Anuradhapura (18%) and Kurunegala (16%) and the balance in the districts of Matale, Hambantota, Moneragala and Ratnapura, about 34%. During the same period, about 35% of the total production came from Kurunegala (19%) and Anuradhapura (16%). Hambantota, Matale and Moneragala are the other major producing districts, which account for over 30% of the national production. Since the Pumpkin is a rainfed crop, about 65% of the annual production is grown in the Maha season.

2.2 Extent Cultivated, Production and Yield

The country produces around 60,000 MT. of pumpkin annually covering an extent of about 6,000 Ha. However, there has been no increase in production in the recent past. An increasing trend in production was observed between 1982 and 1988, registering nearly 140,000 MT. in 1988. The average yield recorded in 1988 was (18.5 MT. per Ha.) well above the current level of 10 MT. per Ha. The area under cultivation remains static.

2.3 Cost of cultivation

There is no regular cost of production data. The Department of Agriculture conducted a survey in the 1990/91 Maha season in the Anuradhapura district under rainfed conditions. The findings showed that of the total cost of production of Rs. 3,209/= per acre, 56% was for labour. Also, that the net return per acre was Rs.15,000/= (including imputed cost).

3. Marketing

3.1 Marketing Channels

The Pola, the local fair is the principal market outlet at farm level. Producers bring pumpkins to the pola by tractors and bullock-carts and sell them to wholesalers mainly from the major cities. In addition, there are some specialized traders who send the pumpkins to the terminal markets like Colombo and Kandy. In areas where polas are not in operation, farmers generally sell to collectors who in turn supply wholesalers also send the produce to Colombo and Kandy for sale on a commission basis. Retail Sales of pumpkin are done mostly in the polas.

3.2 Price Behaviour

The price of pumpkins has been rising annually with a sharp increase since 1990. The retail price reported in Colombo and the suburbs was Rs. 23.37 per Kg. in 1997, which represents a three-fold increase, compared to ten years ago. Within a year, prices fluctuate by 20% of the annual price level. Prices often reach the lowest in February and the highest in July. In general, prices remain low during the Maha harvest times: January to March. An analysis of the Colombo prices in 1997 indicates that producers in the Hambantota district received 26% of the consumer price. The analysis further revealed that the wholesaler and retailer in Colombo get about Rs. 14/= per Kg. nearly three times as much as the producer gets.

Pumpkin is sold without packing. Unlike most other vegetables it keeps for a longer time. Wastage is minimal. Traders in Colombo reported less than one Kg. as wastage for a lot. However, there is some loss in the process of scaling as it is not possible to cut pieces exactly.

4. External Trade

Sri Lanka does not export pumpkins neither have there been any imports.

5. Consumption

Per capita consumption is 2.79 Kg. per annum, which indicates a marginal increase compared to the 1980s level. There is no significant change in consumption by urban, rural and estate dwellers. There is also no close relationship between income and consumption.

6. Government Policy

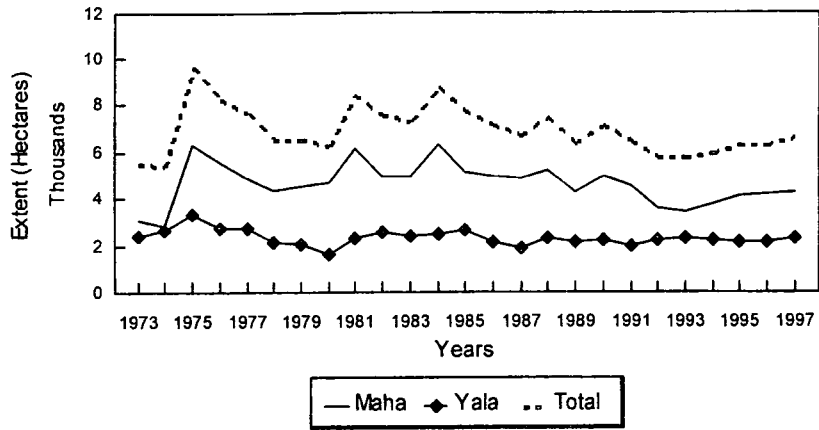
There is no specific government policy in regard to pumpkin.

Table 2.3.1
EXTENT, PRODUCTION AND AVERAGE YIELD OF PUMPKIN-SRI LANKA

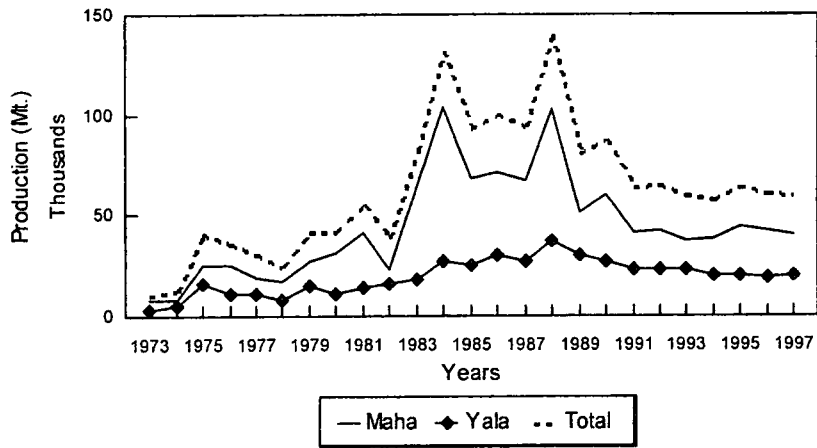
YEAR	EXTENT(Ha)			PRODUCTION(Mt)			AVERAGE YIELD(Kg/Ha)		
	MAHA	YALA	TOTAL	MAHA	YALA	TOTAL	MAHA	YALA	TOTAL
1973	3,098	2,454	5,552	8,068	3,108	11,176	2,604	1,267	2,013
1974	2,813	2,654	5,467	8,538	4,925	13,463	3,035	1,855	2,462
1975	6,343	3,356	9,699	25,624	16,092	41,716	4,040	4,796	4,301
1976	5,558	2,740	8,298	25,032	11,057	36,089	4,504	4,035	4,349
1977	4,922	2,784	7,706	19,353	11,571	30,924	3,932	4,157	4,013
1978	4,411	2,184	6,595	16,953	8,107	25,060	3,843	3,712	3,800
1979	4,562	2,031	6,593	27,453	14,993	42,446	6,018	7,383	6,438
1980	4,699	1,603	6,301	31,690	11,104	42,794	6,744	6,929	6,791
1981	6,180	2,292	8,472	41,068	13,996	55,064	6,645	6,106	6,500
1982	4,974	2,605	7,579	23,642	16,121	39,763	4,753	6,188	5,246
1983	4,959	2,407	7,366	64,227	17,812	82,039	12,952	7,400	11,138
1984	6,341	2,466	8,807	103,826	27,494	131,320	16,374	11,149	14,911
1985	5,151	2,633	7,784	68,626	25,426	94,052	13,323	9,657	12,083
1986	5,012	2,197	7,209	71,035	30,015	101,050	14,173	13,662	14,017
1987	4,919	1,883	6,802	66,993	27,484	94,477	13,619	14,596	13,890
1988	5,218	2,325	7,543	102,757	37,230	139,987	19,693	16,013	18,558
1989	4,276	2,148	6,424	50,999	30,098	81,097	11,927	14,012	12,624
1990	4,930	2,273	7,203	60,233	27,484	87,717	12,218	12,092	12,178
1991	4,517	2,008	6,525	41,584	22,830	64,414	9,206	11,370	9,872
1992	3,647	2,202	5,849	42,307	23,122	65,429	11,600	10,500	11,186
1993	3,423	2,361	5,784	36,938	23,552	60,490	10,791	9,975	10,458
1994	3,798	2,212	6,010	38,144	20,103	58,247	10,043	9,088	9,692
1995	4,158	2,144	6,302	44,573	19,870	64,443	10,720	9,268	10,226
1996	4,187	2,183	6,370	42,007	18,957	60,964	10,033	8,684	9,570
1997	4,310	2,339	6,649	40,019	20,468	60,487	9,285	8,751	9,097

Source :Department of Census and Statistics
Data Development Unit of HARTI

Graph 2.3.1
EXTENT OF PUMPKIN



Graph 2.3.2
PRODUCTION OF PUMPKIN



Graph 2.3.3
AVERAGE YIELD OF PUMPKIN

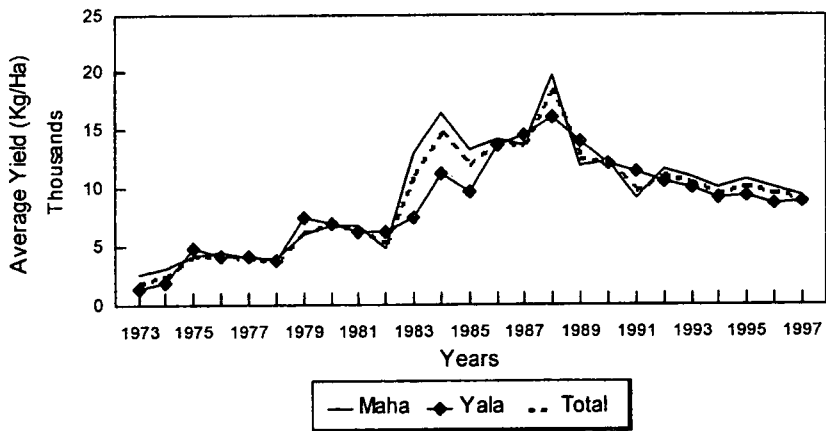


Table 2.3.2

EXTENT OF PUMPKIN BY MAJOR GROWING DISTRICTS (HECTARES)

DISTRICT	Period	1980	1985	1990	1993	1994	1995	1996	1997	AVG(93-97)	%
ANURADHAPURA	MAHA	817	1,030	1,149	1,067	1,114	1,119	815	1,005	1,024	(17.85)
	YALA	7	114	105	62	68	70	102	132	87	
	TOTAL	824	1,144	1,254	1,129	1,182	1,189	917	1,137	1,111	
KURUNEGALA	MAHA	716	1,035	705	510	625	812	647	493	617	(15.99)
	YALA	325	788	535	548	296	295	398	352	378	
	TOTAL	1,041	1,823	1,240	1,058	921	1,107	1,045	845	995	
MATALE	MAHA	597	355	648	321	319	372	438	403	371	(9.95)
	YALA	307	222	339	229	229	218	289	277	248	
	TOTAL	904	577	987	550	548	590	727	680	619	
HAMBANTOTA	MAHA	454	422	366	282	295	374	434	384	354	(9.49)
	YALA	103	253	134	280	218	240	221	225	237	
	TOTAL	557	675	500	562	513	614	655	609	591	
MONERAGALA	MAHA	524	339	575	8	222	132	500	741	321	(8.09)
	YALA	147	35	385	85	241	222	160	206	183	
	TOTAL	671	374	960	93	463	354	660	947	503	
RATNAPURA	MAHA	178	273	88	168	201	195	205	180	190	(6.14)
	YALA	113	297	66	185	206	191	192	188	192	
	TOTAL	291	570	154	353	407	386	397	368	382	
AMPARA	MAHA	296	246	280	268	253	315	257	270	273	(5.60)
	YALA	29	13	84	40	68	63	66	141	76	
	TOTAL	325	259	364	308	321	378	323	411	348	
OTHERS *	MAHA	1,117	1,451	1,119	799	769	839	891	1,083	876	(26.89)
	YALA	573	911	625	932	886	845	755	818	847	
	TOTAL	1,690	2,362	1,744	1,731	1,655	1,684	1,646	1,652	1,674	
SRI LANKA	MAHA	4,699	5,151	4,930	3,423	3,798	4,158	4,187	4,310	3,975	(100.00)
	%	(74.58)	(66.17)	(68.44)	(59.18)	(63.19)	(65.98)	(65.73)	(64.82)	(63.88)	
	YALA	1,603	2,633	2,273	2,361	2,212	2,144	2,183	2,339	2,248	
%	(25.44)	(33.83)	(31.56)	(40.82)	(36.81)	(34.02)	(34.27)	(35.18)	(36.12)		
TOTAL	6,301	7,784	7,203	5,784	6,010	6,302	6,370	6,649	6,223		
%	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)		

*Total of Badulla, Puttalam, Nuwaraeliya, Kandy, Polonnaruwa, Jaffna, Batticaloa, Kegalle, Vavuniya, Mannar, Kilinochchi, Mulativu, Gampaha, Matara, Trincomalee, Colombo, Kalutara, Galle district and Special project Mahaweli H

Source : Department of Census and Statistics.
Data Development Unit of HARTI

Table 2.3.3
PRODUCTION OF PUMPKIN BY MAJOR PRODUCING DISTRICTS (M.TONS)

DISTRICT	Period	1980	1985	1990	1993	1994	1995	1996	1997	AVG(93-97)	%
KURUNEGALA	MAHA	9,629	12,893	9,519	6,861	8,254	10,564	8,184	5,866	7,946	(19.04)
	YALA	4,371	9,584	7,319	6,127	2,535	2,724	3,660	3,223	3,654	
	TOTAL	14,000	22,477	16,838	12,988	10,789	13,288	11,844	9,089	11,600	
ANURADHAPURA	MAHA	3,662	22,293	14,061	10,638	9,594	9,466	7,159	7,806	8,933	(16.13)
	YALA	13	991	2,408	667	709	750	1,026	1,321	895	
	TOTAL	3,675	23,284	16,469	11,305	10,303	10,216	8,185	9,127	9,827	
HAMBANTOTA	MAHA	5,085	8,608	5,403	3,527	4,353	6,574	6,473	5,365	5,258	(14.97)
	YALA	1,157	3,189	3,016	5,265	4,106	4,188	3,030	2,727	3,863	
	TOTAL	6,241	11,797	8,419	8,792	8,459	10,762	9,503	8,092	9,122	
MATALE	MAHA	897	4,972	6,543	3,000	3,274	3,745	4,296	3,961	3,655	(9.09)
	YALA	374	2,170	3,040	1,577	1,635	1,732	2,259	2,202	1,881	
	TOTAL	1,271	7,142	9,583	4,577	4,909	5,477	6,555	6,163	5,536	
MONERAGALA	MAHA	3,308	2,120	9,565	86	1,082	921	3,637	5,826	2,310	(6.89)
	YALA	573	349	4,114	873	2,653	2,467	1,745	1,705	1,889	
	TOTAL	3,882	2,469	13,679	959	3,735	3,388	5,382	7,531	4,199	
BADULLA	MAHA	941	3,512	2,281	1,395	1,347	1,970	2,901	2,583	2,039	(5.96)
	YALA	1,064	1,098	1,350	1,297	1,433	1,644	1,462	2,134	1,594	
	TOTAL	2,005	4,610	3,631	2,692	2,780	3,614	4,363	4,717	3,633	
AMPARA	MAHA	3,496	2,103	2,570	3,609	2,913	3,300	2,641	2,747	3,042	(5.79)
	YALA	297	111	675	296	470	442	62	1,154	485	
	TOTAL	3,793	2,214	3,245	3,905	3,383	3,742	2,703	3,901	3,527	
OTHERS *	MAHA	4,671	12,125	10,291	7,821	7,326	8,033	6,716	5,865	7,152	(22.13)
	YALA	3,255	7,934	5,562	7,450	6,562	5,923	5,113	6,002	6,210	
	TOTAL	7,928	20,059	15,853	15,271	13,888	13,956	12,429	11,867	13,482	
SRI LANKA	MAHA	31,690	68,626	60,233	36,938	38,144	44,573	42,007	40,019	40,336	(100.00)
	%	(74.05)	(72.97)	(68.67)	(61.06)	(65.49)	(69.17)	(68.90)	(66.16)	(66.21)	
	YALA	11,104	25,426	27,484	23,552	20,103	19,870	18,957	20,468	20,590	
%	(25.95)	(27.03)	(31.33)	(38.94)	(34.51)	(30.83)	(31.10)	(33.84)	(33.79)		
TOTAL	42,794	94,052	87,717	60,490	58,247	64,443	60,964	60,487	60,926		
%	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)		

*Total of Nuwaraeliya, Puttalam, Ratnapura, Polonnaruwa, Kandy, Jaffna, Batticaloa, Mannar, Vavuniya, Kilinochchi, Mulativu, Kegalle, Gampaha, Trincomalee, Matara, Kalutara, Colombo, Galle district and Special project Mahaweli H

Source : Department of Census and Statistics.

Table 2.3.4
MONTHLY AVERAGE RETAIL PRICES OF PUMPKIN IN COLOMBO & SUBURBS
 Unit: Rs./Kg

Month	1993	1994	1995	1996	1997
January	11.80	14.27	14.09	13.54	17.94
February	10.90	13.95	13.31	20.04	19.83
March	10.89	14.63	12.91	13.49	24.41
April	11.36	16.00	13.76	15.43	26.59
May	12.71	15.90	16.71	17.14	25.22
June	13.14	15.24	17.50	21.73	24.09
July	12.83	15.54	19.67	30.15	21.56
August	14.60	15.73	19.41	23.39	21.78
September	14.89	14.99	17.87	18.87	21.33
October	15.58	15.02	18.35	19.36	22.02
November	15.28	15.53	18.31	21.05	21.97
December	14.21	16.64	15.55	18.73	21.67
An. Average	13.18	15.29	16.45	19.41	22.37

Source : Marketing and Food Policy Division of HARTI

Table 2.3.5
MONTHLY AVERAGE PRODUCER PRICES OF PUMPKIN IN HAMBANTOTA
 Unit: Rs./Kg

Month	1993	1994	1995	1996	1997
January	na	3.25	3.65	4.08	5.75
February	3.25	3.63	3.69	4.46	7.75
March	3.50	3.53	3.91	5.12	10.40
April	3.71	5.00	5.78	4.92	12.81
May	3.44	4.38	4.30	5.34	10.63
June	5.13	6.00	6.10	8.75	10.50
July	3.87	5.25	10.24	7.75	10.63
August	6.72	6.00	8.56	8.77	10.54
September	6.63	6.63	7.42	8.33	9.63
October	7.13	6.38	6.92	11.46	na
November	6.72	6.50	5.46	5.25	5.50
December	4.25	3.75	4.56	5.88	5.63
An. Average	4.94	5.03	5.88	6.68	9.07

Source : Marketing and Food Policy Division of HARTI

Table 2.3.6
AVERAGE WHOLESALE PRICES OF PUMPKIN AT PETTAH MARKET
 Unit: Rs./Kg

Month	1993	1994	1995	1996	1997
January	4.53	4.95	4.61	4.26	6.19
February	3.93	4.46	4.46	3.97	6.88
March	4.39	5.50	3.98	3.90	10.90
April	4.42	7.85	5.06	5.88	11.99
May	5.09	6.40	6.89	6.92	11.15
June	5.22	7.19	7.43	11.18	9.92
July	5.58	6.94	8.99	16.82	8.25
August	7.50	7.46	7.24	10.83	8.19
September	7.83	6.65	6.68	7.55	7.70
October	7.78	7.21	6.05	8.85	8.73
November	6.89	7.20	5.54	9.20	8.40
December	5.26	5.93	5.12	6.10	7.61
An. Average	5.70	6.47	6.00	7.96	7.82

Source : Marketing and Food Policy Division of HARTI

Table 2.3.7
COST OF CULTIVATION PER ACRE OF PUMPKIN (RAINFED)
BY INPUTS IN ANURADHAPURA (Rs/Acre)

Input	90/91 Maha
Labour	1,804
Seed	69
Fertilizer	385
Agro Chemicals	
Draught power- Machinery and Equipment	951
Total	3,209

Source : Department of Agriculture

Table 2.3.8
NET RETURN PER AERE OF PUMPKIN (RAINFED)
BY SEASONS IN ANURADHAPURA

SEASON	NET RETURN PER ACRE (Rs)	
	Including Imputed Cost	Excluding imputed Cost
90/91Maha	14,936	15,998

Source : Department of Agriculture

Table 2.3.9

PER CAPITA CONSUMPTION OF PUMPKIN
PER ANNUM BY SECTORS (Kg)

SECTORS	1978/79	1981/82	1986/87
URBAN	1.19	1.86	1.92
RURAL	1.75	2.57	2.48
ESTATE	1.46	2.57	1.90
ALL SEC.	1.59	2.43	2.33

Source : Central Bank of Sri Lanka

Table 2.3.10

PER CAPITA CONSUMPTION OF PUMPKIN PER ANNUM
BY INCOME GROUPS & SECTORS (Kg)

INCOME GROUP	URBAN	RURAL	ESTATE	ALL SECTORS
0-100	-	2.67	-	2.08
101-200	1.00	0.32	-	0.55
201-400	1.04	1.58	-	1.42
401-600	1.42	2.08	1.78	2.01
601-800	1.77	1.86	0.78	1.80
801-1000	1.05	2.36	1.94	2.22
1001-1500	1.39	2.40	2.53	2.32
1501-2000	2.15	2.42	1.34	2.27
2001-3000	1.75	2.77	2.08	2.54
3001-5000	2.09	2.83	1.52	2.55
5001-10000	2.19	2.17	2.82	2.18
OVER 10000	2.05	2.21	-	2.12
Over All Avg.	1.92	2.48	1.90	2.33

Source : Central Bank of Sri Lanka

3. FRUITS

3.1 LIMES

1. Introduction

The lime (*Citrus auratifolia*) is one of the citrus species and belongs to the citrus family. It is a crop adaptable to a wide range of soils, terrain, planting and cultural practices (Reitz, 1984 and Ghosh, 1990). It is a native of northern India and it was introduced to Europe in the 13th century by the Spaniards (Purseglove, 1968). It is widely cultivated in India, Sri Lanka, Malaysia, W. Indies and Florida.

Propagation is either by seeds or budding on to rootstock. The major lime varieties could be identified as lime, rough lemon, sour lime, sweet lime, citron and Persian lime. The lime is a small glabrous tree with stiff sharp spines.

The lime is a common fruit tree in Sri Lanka and grows mainly in the wet intermediate and dry zone areas. The tree is grown mainly as a plant in home gardens. Juice of the fruit is used for flavouring foods. The fruit is salted, dried and preserved in its own juice as a pickle. Lime makes a delicious drink, which is rich in vitamin C. Jelly, Jams, Cordial and confectioneries are made using lime juice. Boiled fruits are usually used as a shampoo. Dried leaves are used to preserve grains from insects.

2. Production

2.1 Major Producing Districts

About 28% of the total extent of lime is grown in the Monaragala district. Kurunegala (15%), Ampara (10%) and Ratnapura (10%) are the other major growing areas and accounts for 35% of the total extent grown. About 14% of the total extent is grown in Badulla, Hambantota and Anuradhapura districts and the balance (23%) in other districts.

2.2 Extent Cultivated, Production and Yield

The total extent cultivated with lime is 6,854 Ha. (1997) and is largely concentrated in the intermediate and dry zone areas. In the past 18 years (1980-1997) the total extent cultivated has increased from 3,954 Ha. in 1980 to 6,854 Ha. in 1997. Table 3.1.1 and figure 3.1.1 show the distribution of cultivated areas over the period.

Total production has decreased sharply during the consecutive period (1980-1997) from 328,557 ('000 Nos.) in 1980 to 136,225 ('000 Nos.) in 1997. The decrease is very significant in 1991 but has once again increased gradually. Table 3.1.1 and figure 3.1.2 show the change of total production over the period. The average yield per hectare has also decreased by 76% during the same period despite some positive trends in 1986. The notable fact is that the average production and yield has decreased instead of increasing with the extent grown. Table 3.1.1 and figure 3.1.3 illustrate the change of average yield over the past twenty-five years.

2.3 Cost of Cultivation and Returns

There is no accurate data to estimate cost and returns of lime production in Sri Lanka.

3. Marketing

Limes grown in the rural areas are bought by local collectors and sold at weekly fair. Usually area collectors collect the produce through local agents and send it to the terminal markets in Colombo and Kandy.

The average wholesale price has increased from Rs.16.73 per Kg. in 1993 to Rs.29.79 per Kg. in 1996 but dropped to Rs.20.60 per Kg. in 1997. Wholesale prices fluctuate throughout the year depending on the local supply. Limes fetch a low price in April and May, and high price in June and July. Compared to wholesale prices the producer prices remain very low, even below Rs.1/= per fruit. Table 3.1.5 and 3.1.6 shows average producer and wholesale prices of limes during the past five years.

The monthly average retail price was Rs.41.05 per Kg. in 1997 which was a 19% increase over the prices in 1993. Retail prices fluctuate during the year and vary from Rs.26.70 per Kg. in February to Rs.74.27 per Kg. in December. Prices remained low during the months of February and March. Table 3.1.4 shows fluctuations of retail prices over the years. Wastage of lime is minimal because it keeps for long periods.

4. External Trade

The export of lime and lemon has decreased from 27,503 Kg. (1985) to 1,304 Kg. in 1997. The value of exports decreased subsequently from Rs. 1,116,800/= to Rs. 35,900/= during the same period. More than 50% of total exports were sent to the Maldive Islands and the balance exported to France, Australia and Kuwait (Table 3.1.7 and 3.1.8).

The import of lime and lemon has decreased from 30,600 Kg. in 1982 to 2,814 Kg. in 1997. The value of imports also decreased from Rs. 469,270/= to Rs. 410,250/= in the same period. According to Custom reports lemon is imported mainly from Australia (Table 3.1.9 and 3.1.10).

5. Consumption

According to the Consumer Finances and Socio-economic Survey in 1986/87 the per capita consumption of lime for all sectors per annum was 0.48 Kg., but varies depending on household incomes and whether consumers are rural or urban dwellers. The per capita consumption is lower among middle level income categories than the lowest and higher level income groups. Likewise the per capita consumption of lime in the urban sector is higher than by the rural and estate sectors. The situation in the estate sector is more significant.

6. Government Policy

No special programs were followed with regard to lime cultivation in Sri Lanka. However, policy reforms for the development of the overall agricultural sector also covered lime cultivation and included improving marketing, extension and agro-based industries.

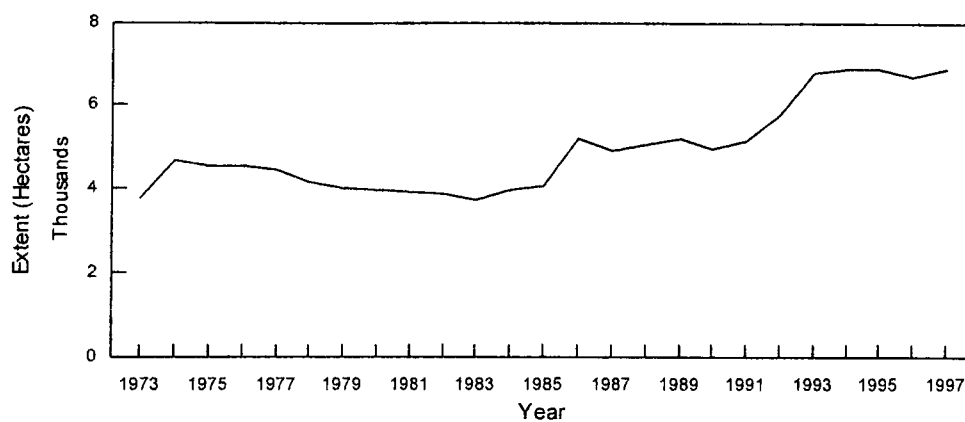
Table 3.1.1

EXTENT, PRODUCTION AND AVERAGE YIELD OF LIME - SRI LANKA

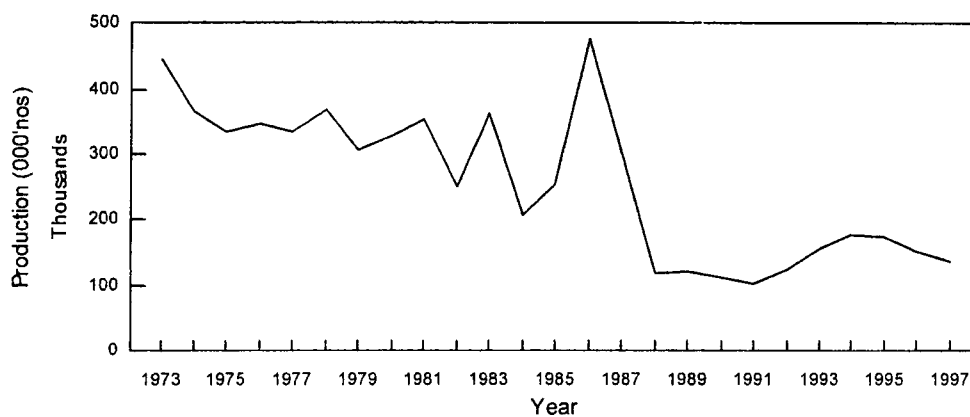
YEAR	EXTENT (Hectares)	PRODUCTION (000 No)	AVERAGE YIELD (No/Ha)
1973	3,790	445,033	117,423
1974	4,676	364,080	77,861
1975	4,528	334,444	73,861
1976	4,542	345,066	75,972
1977	4,453	333,737	74,947
1978	4,173	368,057	88,200
1979	4,023	307,317	76,390
1980	3,954	328,557	83,095
1981	3,908	351,855	90,035
1982	3,883	251,601	64,796
1983	3,704	360,972	97,455
1984	3,953	208,011	52,621
1985	4,074	252,902	62,077
1986	5,217	474,501	90,953
1987	4,937	304,305	61,638
1988	5,041	117,238	23,257
1989	5,194	119,832	23,071
1990	4,964	113,167	22,798
1991	5,154	103,747	20,129
1992	5,788	125,102	21,614
1993	6,773	155,911	23,019
1994	6,894	175,080	25,396
1995	6,860	172,009	25,074
1996	6,691	151,459	22,636
1997	6,854	136,225	19,875

Source : Department of Census and Statistics

Graph 3.1.1
EXTENT OF LIME



Graph 3.1.2
PRODUCTION OF LIME



Graph 3.1.3
AVERAGE YIELD OF LIME

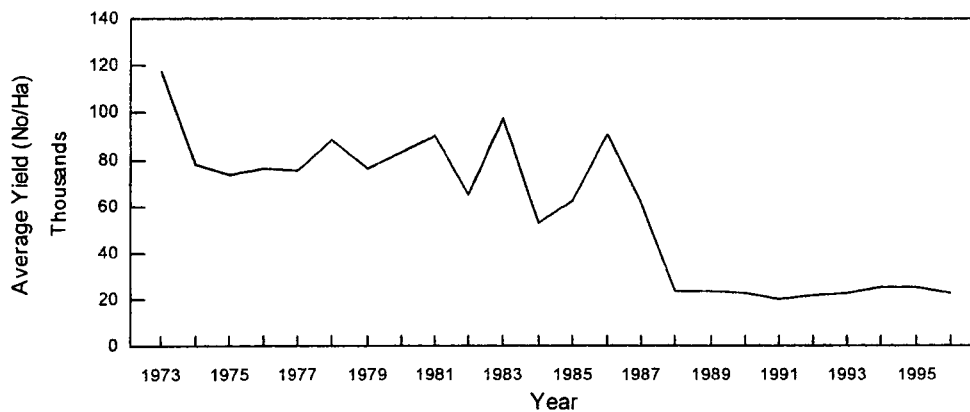


Table 3.1.2
EXTENT OF LIME BY MAJOR GROWING DISTRICTS (Hectares)

DISTRICT	1980	1985	1990	1993	1994	1995	1996	1997	AVG(93-97)	%
MONERAGALA	1,142	1,142	1,622	2,167	1,919	1,778	1,827	1,883	1,915	(28.10)
KURUNEGALA	410	575	721	1,134	1,146	1,208	800	807	1,019	(14.95)
RATNAPURA	443	383	336	701	712	687	662	710	694	(10.19)
AMPARA	395	352	393	522	712	724	739	739	687	(10.08)
BADULLA	165	137	178	228	383	392	435	435	375	(5.50)
HAMBANTOTA	222	196	179	413	332	340	319	316	344	(5.05)
ANURADHAPURA	216	238	241	219	218	238	267	252	239	(3.50)
OTHERS *	1,083	1,044	1,294	1,389	1,472	1,493	1,642	1,712	1,542	(22.62)
SRI LANKA	3,954	4,074	4,964	6,773	6,894	6,860	6,691	6,854	6,814	(100.00)

* Total of Puttalam, Matale Polonnaruwa, Galle, Kalutara, Gampaha, Matara, Kandy, Jaffna, Colombo, Batticaloe, Nuwara-Eliya
Kegalle, Mannar, Vavuniya, Killinochchi, Trincomalee and Mullativu districts and special project Mahaweli H

Source: Department of Census and Statistics

Table 3.1.3
PRODUCTION OF LIME BY MAJOR PRODUCING DISTRICTS (000 No.)

DISTRICT	1980	1985	1990	1993	1994	1995	1996	1997	AVG(93-97)	%
MONERAGALA	121,300	105,449	43,636	45,826	45,240	48,312	50,434	38,682	45,699	(28.90)
KURUNEGALA	16,208	52,612	11,739	24,715	50,575	46,966	28,514	29,587	36,071	(22.81)
RATNAPURA	30,138	19,726	10,128	26,631	26,851	22,537	19,237	14,042	21,860	(13.82)
AMPARA	29,113	8,322	2,719	9,567	10,690	12,189	11,682	11,682	11,162	(7.06)
HAMBANTOTA	54,900	12,894	12,127	20,025	6,896	7,868	6,366	6,294	9,490	(6.00)
OTHERS *	76,898	53,899	32,818	29,147	34,828	34,137	35,226	35,938	33,855	(21.41)
SRI LANKA	328,557	252,902	113,167	155,911	175,080	172,009	151,459	136,225	158,137	(100.00)

* Total of Badulla, Puttalam, Anuradhapura, Polonnaruwa, Kalutara, Matale, Galle, Matara, Nuwara Eliya, Gampaha, Mannar, Jaffna, Vavuniya Colombo, Batticaloe, Kandy, Trincomalee, Kegalle, Mullativu and Killinochchi districts and special project Mahaweli H

Source: Department of Census and Statistics

Table 3.1.4
MONTHLY AVERAGE RETAIL PRICES OF LIME IN COLOMBO & SUBURBS
 Unit: Rs./Kg

Month	1993	1994	1995	1996	1997
January	42.94	39.62	42.53	50.88	37.54
February	38.93	38.56	36.34	15.84	26.70
March	28.65	33.82	37.42	38.85	29.51
April	30.54	34.67	84.42	45.28	59.86
May	44.99	48.34	94.06	52.81	68.50
June	50.75	77.91	94.29	70.93	70.12
July	44.55	90.12	75.89	63.13	54.19
August	37.83	122.10	61.02	60.14	39.30
September	37.98	127.38	63.12	74.49	37.34
October	40.53	119.54	89.48	99.16	42.64
November	40.41	92.41	111.94	101.20	54.69
December	40.71	62.19	76.84	65.04	74.27
Average	33.07	42.50	59.94	57.60	41.05

Source: Marketing and Food Policy Division of HARTI

Table 3.1.5
AVERAGE PRODUCER PRICES OF LIME
 Unit: Rs/Each

Month	1993	1994	1995	1996	1997
January	0.65	0.82	0.82	1.07	0.83
February	0.61	0.79	0.79	0.93	0.67
March	0.59	0.91	0.92	0.76	0.68
April	0.50	1.08	1.07	0.84	0.79
May	0.53	1.30	1.32	0.83	0.90
June	0.57	1.28	1.26	0.83	0.89
July	0.55	0.96	0.96	0.85	0.77
August	0.52	0.95	0.95	0.90	0.67
September	0.54	1.24	1.28	0.97	0.64
October	0.56	1.00	1.00	1.05	0.74
November	0.54	1.02	1.06	1.11	0.76
December	0.56	0.89	0.98	0.97	0.81
Average	0.56	1.02	1.04	0.93	0.76

Source : Department of Census and Statistics

Table 3.1.6
AVERAGE WHOLESALE PRICES OF LIME AT PETTAH MARKET
 Unit: Rs/kg

Month	1993	1994	1995	1996	1997
January	17.66	14.50	18.87	18.69	11.05
February	14.03	10.53	14.71	14.87	22.06
March	9.41	9.73	15.18	12.61	10.52
April	10.70	11.59	47.31	16.24	26.24
May	23.43	24.66	54.83	25.59	30.24
June	26.73	47.98	56.82	33.52	32.57
July	20.34	55.51	38.47	21.80	19.24
August	12.97	76.19	28.44	28.28	10.25
September	15.91	79.24	27.83	44.61	10.20
October	16.55	68.25	60.35	67.06	15.55
November	16.64	43.17	60.17	52.95	24.00
December	16.35	26.23	31.88	21.25	35.22
Average	16.73	38.97	37.91	29.79	20.59

Source : Marketing and Food Policy Division of HARTI

Table 3.1.7
EXPORTS OF LEMON & LIME

Year	Quantity (Kg)	Value (Rs 000)
1985	27,503	1,116.80
1986	20,670	1,168.00
1987	-	-
1988	11,086	470.50
1989	17,407	988.40
1990	16,297	859.50
1991	17,119	850.90
1992	11,722	624.40
1993	4,600	379.50
1994	7,063	545.50
1995	232	14.00
1996	920	51.00
1997	1,304	35.90

Source: Department of Customs

Table 3.1.8
EXPORTS OF LEMON & LIME BY COUNTRY OF DESTINATION

COUNTRY	1993		1994		1995		1996		1997	
	QTY (Kg.)	VALUE (Rs000)	QTY (Kg.)	VALUE (Rs000)	QTY (Kg.)	VALUE (Rs000)	QTY (Kg.)	VALUE (Rs000)	QTY (Kg.)	VALUE (Rs000)
MALDIVE ISLAND	3,616	276.5	7,057	539.6	232	14.0	770	20.0	854	26.1
FRANCE	540	57.4	-	-	-	-	-	-	-	-
AUSTRALIA	-	-	-	-	-	-	150	31.0	-	-
KUWAIT	435	23.6	-	-	-	-	-	-	-	-
OTHERS	9	22.1	6	5.9	-	-	-	-	450	9.8
TOTAL	4,600	379.5	7,063	545.5	232	14.0	920	51.0	1,304	35.9

Source: Department of Customs

Table 3.1.9
IMPORTS OF LEMON & LIME

Year	Quantity (Kg)	Value (Rs 000)
1982	30,600	469.27
1983	35	1.71
1984	-	0.00
1985	73	344.16
1986	12,685	254.59
1987	-	0.00
1988	55	5.42
1989	25	2.45
1990	20,998	632.14
1991	305	51.47
1992	4,457	312.29
1993	1,130	181.00
1994	3,184	191.04
1995	22,822	400.87
1996	1,743	298.80
1997	2,814	410.25

Source: Department of Customs

Table 3.1.10
IMPORTS OF LEMON & LIME BY COUNTRY OF ORIGIN

COUNTRY	1993		1994		1995		1996		1997	
	QTY (Kg.)	VALUE (Rs000)	QTY (Kg.)	VALUE (Rs000)	QTY (Kg.)	VALUE (Rs000)	QTY (Kg.)	VALUE (Rs000)	QTY (Kg.)	VALUE (Rs000)
AUSTRALIA	1,130	178	1,184	180	1,557	334	1,360	270	2,681	382
OTHER	0	3	2,000	11	21,265	67	383	29	133	29
TOTAL	1,130	181	3,184	191	22,822	401	1,743	299	2,814	410

Source: Department of Customs

Table 3.1.11
PER CAPITA CONSUMPTION OF LIME PER ANNUM BY SECTORS

SECTOR	1973 (Nos)	1978/79 (Nos)	1981/82 (Nos)	1986/87 (Kg)
Urban	52.26	19.20	na	0.72
Rural	40.98	15.00	na	0.46
Estate	22.92	6.12	na	0.14
All Sectors	41.34	15.24	na	0.48

Source : Central Bank of Sri Lanka

Table 3.1.12
PER CAPITA CONSUMPTION OF LIME PER ANNUM
BY INCOME GROUPS & SECTORS - 86/87

INCOME GROUP	Urban	Rural	Estate	All Sectors
0-100	1.28	0.38	-	0.58
101-200	0.87	0.95	-	0.92
201-400	0.43	0.39	0.11	0.37
401-600	0.76	0.28	0.12	0.30
601-800	0.42	0.30	0.14	0.30
801-1000	0.35	0.30	0.18	0.30
1001-1500	0.44	0.36	0.12	0.34
1501-2000	0.44	0.42	0.12	0.39
2001-3000	0.62	0.51	0.14	0.49
3001-5000	0.78	0.59	0.24	0.63
5001-10000	1.03	0.78	0.29	0.88
OVER 10000	1.23	0.86	1.72	1.06
Average	0.72	0.46	0.14	0.48

Primary Source: Central Bank of Sri Lanka

3.2 ORANGE

1. Introduction

Orange (*Citrus aurantium*) is a leading tree-fruit crop belongs to citrus family. It is a crop adaptable to wide range of soils, terrain, planting and cultural arrangements (Reitz, 1984 and Ghosh, 1990). It is believed that most species under the genus citrus are native to India, China and the region between these two countries. Following the explorations of Columbus in the 15th century the orange was spread all over the world. The world's orange production has increased many fold in the past thirty years though increased domestic demand and consumption (Ghosh, 1990).

Propagation is either by seeds or budding on to rootstock. Quite a good number of species of citrus have been exploited for direct fruit production and rootstocks in propagation. In addition a large number of intergeneric and interspecific hybrids have been developed of horticultural value. Mandarin group, orange group, pummelo-grapefruit group and acid group could be identified as major citrus species.

The orange is a common fruit in Sri Lanka which grows mainly in the intermediate and dry zone areas. The tree is small and it grows mainly as a plant in home gardens. Ripe fruits are eaten fresh. The fruit juice is a delicious drink, which is rich in vitamin C. Jams, cordials and confectioneries are made using orange juice.

2. Production

2.1 Major Producing Districts

According to statistics of orange cultivation in the past 25 years (1973-1997), about 47% of total extent of orange has spread in four districts namely Kurunegala (15%), Monaragala (14%), Ampara (9%) and Ratnapura (9%). About 28% of total extent is in the Badulla, Polonnaruwa, Matale, Anuradhapura and Puttalam districts and the balance (25%) come from other districts.

2.2 Extent Cultivated, Production and Yield

The total extent under orange was 3,535 Ha. (1997) and was largely concentrated in the intermediate and dry zone areas. According to data over the past 25 years (1973-1997) the total extent has dropped from 4,060 Ha. in 1978 to 3,535 Ha. in 1997. Though the extent increased from 3,777 Ha. in 1973 to 4,060 Ha. in 1978, it dropped gradually since 1978 due to viral disease and low production incentives. Table 3.2.1 and figure 3.2.1 show the variation of extent cultivated over the period.

Total production decreased during the period (1973-1997) from 84.8 Mn. Nos. in 1977 to 24.3 Mn. Nos. in 1997. However, the total production increased by 54% from 1973-1983. The decrease in total production started in 1984 and by the end of 1997 had dropped by 139%. Table 3.2.3 and figure 3.2.2 show fluctuation of production over the period. The average yield per hectare also decreased by 69% during the same period despite the increase in yield during the period 1973-1983. Table 3.2.1 and figure 3.2.3 illustrates the change of average yield over the past twenty five years.

2.3 Cost of Cultivation and Returns

The Ministry of Agriculture of the Central Province has estimated costs and returns of orange cultivation by taking into consideration that total life period of an orange tree as 30 years and the total cost that would be spent over 30 years on production inputs. The total cost of growing one hectare of orange was estimated at Rs. 89,360/= for the first year and rose to Rs. 104,050/= at the 21st-30th year. The total cost was estimated on the basis of labour costs and other input costs. About 80% of total cost was for inputs such as draught power, fertilizer, agro-chemicals, seeds and planting materials etc. Out of the total costs incurred during the 1st year about 29% went for planting materials while 14% and 20% was spent on agro-chemicals and composts respectively. The income received after 10 years was estimated at Rs.111,000/= per hectare and the gross income was expected to increase to Rs.832,500/= from the 21st-30th year. The net benefit during the initial period was negative but Rs.82,600/= will be had after 10 years. The net benefit will also increase up to Rs. 728,450/= from the 21st-30th year.

4. Marketing

The production of the rural areas reaches the market through local collectors and weekly fairs. Collectors collect produce through local agents and send it to the terminal markets in Colombo and Kandy.

The price of oranges over the past five years (1993-1997) appears to have fluctuated.

The average wholesale price increased from Rs.11.05 (1993) to Rs.15.32 per fruit (1996) and dropped to Rs. 13.62 per fruit in 1997. It seems that wholesale prices fluctuate within the year depending on the local supply and imports. The producer usually gets around Rs.6.00 per fruit which is about half the wholesale price. Table 3.2.6 and 3.2.5 show average wholesale and average producer prices over the past five years.

The monthly average retail price was Rs.19.24 per fruit in 1997, a 40% increase over the prices in 1993 (Rs.13.75). During the year 1997 the prices fluctuated throughout the year with a range of Rs.12.90 per fruit in May to Rs.26.56 per fruit in January. Prices remained at low during the months of March, April and May. Table 3.2.4 shows fluctuations of retail prices over the years. The wastage of orange is minimal because it keeps fresh for long periods.

4. External Trade

According to statistics of the Department of Customs the export of orange increased from 110 Kg (1987) to 350 Kg in 1997, and the value of exports also increased from Rs. 16,600/= to Rs. 204,200/= during the same period. Upto 1994 more than 95% of exports were sent to the Maldives Island. After 1996 France became the main exporter and 350 Kg were exported in 1997 (Table 3.2.7 and 3.2.8).

As a result of trade liberalization, the imports of orange has increased since 1982. The quantity of imports increased from 13 MT. in 1982 to 4,221 MT. in 1997 and the cost of imports increased from Rs. 365,000/= (1982) to Rs. 76,208,000/= (1997) (Table 3.2.9).

According to Customs reports oranges are imported from India, Pakistan, USA, South Africa and Australia. More than 51% of total imports in 1997 were imported from Pakistan and the balance were from Australia (31%), South Africa and India (Table 3.2.10).

5. Consumption

According to the Consumer Finances and Socio-economic Survey in 1986/87 the per capita consumption of oranges per annum was 1.2 fruits. There is no significant difference between the income categories, rural, urban or estate sector in respect of orange consumption.

6. Government Policy

Though there is no special policy programmes on orange cultivation, the general agricultural policy reforms of the new National Policy Framework (NPF-1995) helped to promote orange cultivation. The NPF for horticultural development has three main objectives :

to increase exports through producing sufficient quantities of quality fruit and vegetables, value addition and seeking new markets;

to concentrate on the growing of selected low cost, popular vegetables and fruits for local consumption and

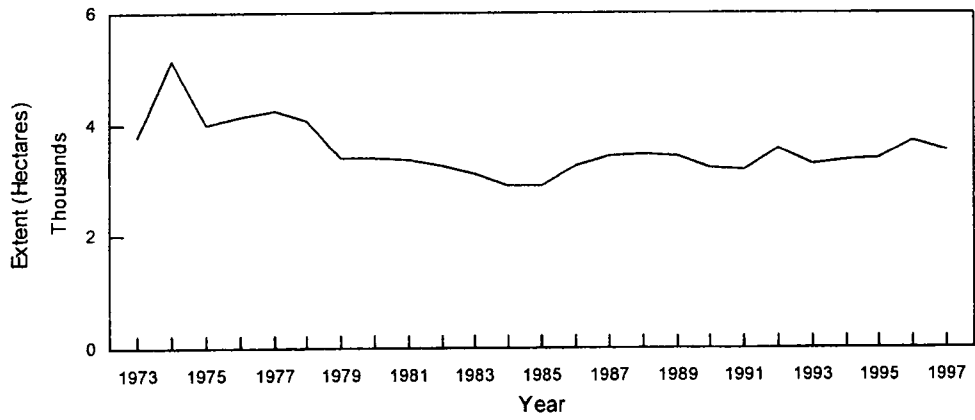
to have a greater range of cut flowers for export.

Table 3.2.1
EXTENT, PRODUCTION AND AVERAGE YIELD OF ORANGE - SRI LANKA

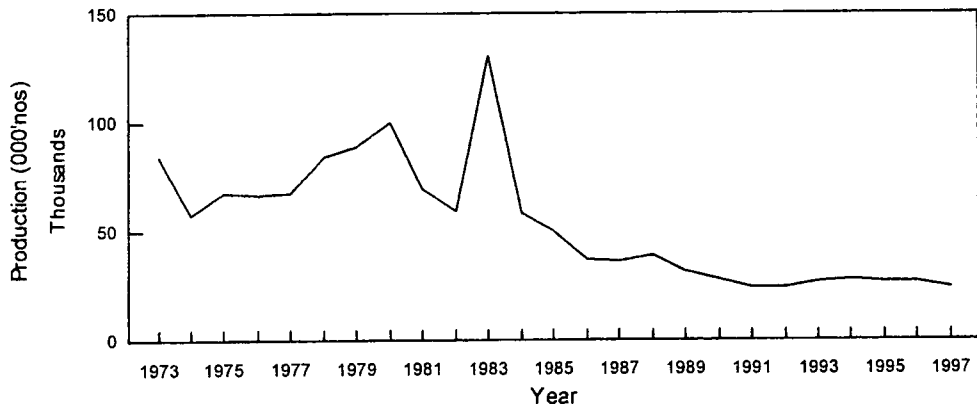
YEAR	EXTENT (Hectares)	PRODUCTION (000 No)	AVERAGE YIELD (No/Ha)
1973	3,777	84,752	22,439
1974	5,144	57,613	11,200
1975	4,007	67,924	16,951
1976	4,149	66,419	16,008
1977	4,244	67,512	15,908
1978	4,060	84,533	20,821
1979	3,371	89,152	26,447
1980	3,380	100,206	29,647
1981	3,354	69,874	20,833
1982	3,254	59,166	18,183
1983	3,091	131,012	42,385
1984	2,870	58,260	20,300
1985	2,897	49,755	17,175
1986	3,224	37,006	11,478
1987	3,412	35,814	10,496
1988	3,444	39,417	11,445
1989	3,416	31,967	9,358
1990	3,211	27,810	8,661
1991	3,167	23,923	7,554
1992	3,580	24,019	6,709
1993	3,265	27,076	8,293
1994	3,352	27,529	8,213
1995	3,380	27,443	8,119
1996	3,703	27,147	7,331
1997	3,535	24,293	6,872

Source : Department of Census and Statistics

Graph 3.2.1
EXTENT OF ORANGE



Graph 3.2.2
PRODUCTION OF ORANGE



Graph 3.2.3
AVERAGE YIELD OF ORANGE

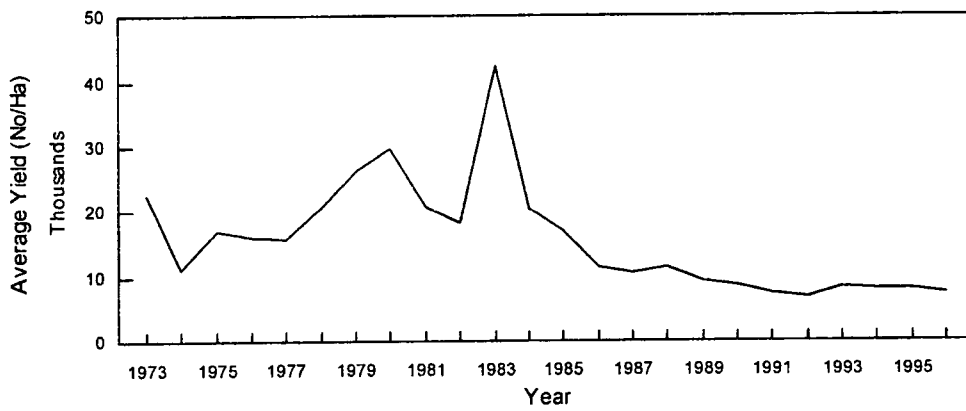


Table 3.2.2
EXTENT OF ORANGE BY MAJOR GROWING DISTRICTS (Hectares)

DISTRICT	1980	1985	1990	1993	1994	1995	1996	1997	AVG(93-97)	%
KURUNEGALA	489	444	589	557	553	543	423	453	506	(14.67)
MONERAGALA	849	705	683	524	522	451	437	461	479	(13.90)
AMPARA	241	208	259	336	330	308	311	311	319	(9.26)
RATNAPURA	263	206	159	310	317	311	307	343	318	(9.21)
BADULLA	346	205	195	150	215	216	469	227	255	(7.41)
MATALE	109	105	182	227	236	245	254	219	236	(6.85)
POLONNARUWA	19	18	59	68	68	140	269	263	162	(4.69)
PUTTALAM	170	97	187	139	148	159	154	170	154	(4.47)
ANURADHAPURA	147	126	140	114	110	116	191	175	141	(4.10)
OTHERS *	747	783	758	840	853	891	888	913	877	(25.44)
SRI LANKA	3,380	2,897	3,211	3,265	3,352	3,380	3,703	3,535	3,447	(100.00)

* Total of Hambantota, Nuwara Eliya, Batticaloe, Galle, Kalutara, Matara, Kandy, Gampaha, Vavuniya, Kegalle, Trincomalee, Mannar Colombo, Trincomalee, Mannar, Colombo, Jaffna, Killinochchi, Mullativu and special project Mahaweli H.

Source : Department of Census and Statistics

Table 3.2.3
PRODUCTION OF ORANGE BY MAJOR PRODUCING DISTRICTS (000 No)

DISTRICT	1980	1985	1990	1993	1994	1995	1996	1997	AVG(93-97)	%
MONERAGALA	13,818	23,231	5,204	5,969	6,019	4,725	4,380	4,339	5,086	(19.05)
KURUNEGALA	2,416	9,616	10,254	4,794	5,049	5,762	4,753	4,805	5,033	(18.85)
AMPARA	7,861	1,940	2,515	4,931	4,719	4,653	4,976	2,976	4,451	(16.67)
BADULLA	5,711	3,366	2,379	2,001	2,052	2,073	2,015	2,089	2,046	(7.66)
HAMBANTOTA	9,675	1,467	961	1,864	1,765	1,434	1,303	742	1,422	(5.32)
MATALE	3,409	1,955	1,440	1,349	1,436	1,485	1,437	1,220	1,385	(5.19)
NUWARAELIYA	240	1,065	700	1,050	1,194	1,197	1,604	770	1,163	(4.36)
OTHERS*	57,076	7,115	4,357	5,118	5,295	6,114	6,679	7,352	6,112	(22.89)
SRI LANKA	100,206	49,755	27,810	27,076	27,529	27,443	27,147	24,293	26,698	(100.00)

* Total of Ratnapura, Anuradhapura, Polonnaruwa, Puttalam, Batticaloe, Galle, Kalutara, Matara, Kandy, Gampaha Vavuniya, Colombo, Kegalle Trincomalee, Mannar, Jaffna Killinochchi and Mullativu districts and Special project Mahaweli H

Source : Department of Census and Statistics

Table 3.2.4
MONTHLY AVERAGE RETAIL PRICES OF ORANGE IN COLOMBO & SUBURBS
 Unit: Rs/Each

Month	1993	1994	1995	1996	1997
January	15.92	13.90	17.76	26.50	26.56
February	15.60	15.02	15.59	23.00	22.00
March	12.85	14.67	13.13	20.70	14.80
April	12.31	14.78	13.02	17.20	13.00
May	12.08	13.84	13.19	16.00	12.90
June	12.26	20.15	14.37	17.30	17.20
July	15.68	24.83	16.80	20.10	22.30
August	14.34	20.08	22.08	21.80	24.60
September	14.64	20.01	24.59	23.10	26.00
October	15.23	24.94	25.12	24.00	19.20
November	12.57	25.87	25.32	24.90	15.10
December	11.99	25.17	25.80	26.10	17.24
Average	13.79	19.44	18.90	21.73	19.24

Source: Marketing and Food Policy Division of HARTI

Table 3.2.5
AVERAGE PRODUCER PRICES OF ORANGE
 Unit: Rs/Each

Month	1995	1996	1997
January	4.27	5.79	5.98
February	5.56	5.39	5.61
March	5.79	5.48	5.26
April	7.15	6.48	5.59
May	6.31	5.68	6.12
June	6.46	6.92	5.98
July	6.94	5.94	6.58
August	7.28	5.62	5.49
September	6.48	5.61	5.65
October	6.16	5.96	5.91
November	6.52	7.64	6.31
December	-	6.03	6.37
Average	6.35	6.11	5.94

Source : Department of Census and Statistics

Table 3.2.6
MONTHLY AVERAGE WHOLESALE PRICES OF ORANGE AT PETTAH MARKET
Unit: Rs/each

Month	1993	1994	1995	1996	1997
January	12.01	11.63	14.35	17.72	20.62
February	11.12	12.31	10.56	15.13	14.63
March	9.72	11.46	7.62	13.44	11.04
April	8.48	9.71	7.61	10.83	9.73
May	9.06	9.98	8.34	10.42	9.68
June	9.76	18.07	13.36	12.08	11.61
July	15.68	20.66	15.71	15.09	14.94
August	13.38	16.94	17.92	15.85	17.37
September	11.84	17.89	17.71	17.00	17.43
October	12.81	22.68	16.33	17.33	13.87
November	9.30	24.54	16.53	18.47	10.71
December	9.40	21.23	17.57	20.43	11.79
Average	11.05	16.42	13.63	15.32	13.62

Source : Marketing and Food Policy Division of HARTI

Table 3.2.7
EXPORT OF ORANGE (FRESH OR DRIED)

Year	Quantity (Kg)	Value (Rs)
1987	110	16,587
1988	1,002	57,088
1989	8	5,378
1990	539	41,683
1991	908	187,037
1992	575	98,215
1993	1,382	196,350
1994	1,340	195,174
1995	-	-
1996	15	37,899
1997	350	204,203

Source: Department of Customs

Table 3.2.8
EXPORTS OF ORANGE BY COUNTRY OF DESTINATION

COUNTRY	1993		1994		1995		1996		1997	
	QTY (Kg.)	VALUE (Rs000)	QTY (Kg.)	VALUE (Rs000)	QTY (Kg.)	VALUE (Rs000)	QTY (Kg.)	VALUE (Rs000)	QTY (Kg.)	VALUE (Rs000)
MALDIVE ISLAND	1382	196.0	1320	192.6	-	-				
FRANCE							15	37.9	350	204.2
OTHERS	*	0.3	20	2.6	-	-				
TOTAL	1382	196.3	1340	195.2	-	-	15	37.9	350	204.2

* Negligible

Source: Department of Customs

Table 3.2.9
IMPORTS OF ORANGE

Year	Quantity (Kg)	Value (Rs 000)
1982	13	365
1983	42	565
1984	9	491
1985	77	1,622
1986	216	1,946
1987	251	2,843
1988	97	3,018
1989	118	3,830
1990	359	8,382
1991	277	10,517
1992	557	13,328
1993	682	18,741
1994	908	27,572
1995	1,588	40,974
1996	2,158	51,174
1997	4,221	76,208

Source: Department of Customs

Table 3.2.10
IMPORTS OF ORANGE BY COUNTRY OF ORIGIN

COUNTRY	1993		1994		1995		1996		1997	
	QTY (Mt.)	VALUE (Rs000)	QTY (Mt.)	VALUE (Rs000)	QTY (Mt.)	VALUE (Rs000)	QTY (Mt.)	VALUE (Rs000)	QTY (Mt.)	VALUE (Rs000)
INDIA	27	862	1	0	70	1878	1	0	75	1335
PAKISTAN	92	2,110	175	4,105	443	6,666	1,108	15,213	3,121	39,559
USA	132	4,167	95	4,297	131	4,290	106	3,268	115	3,543
SOUTH AFRICA	1	0	34	693	23	484	271	7,400	265	7,804
AUSTRALIA	430	11,578	591	18,196	859	26,434	587	22,412	620	23,633
OTHER	0	25	13	281	61	1,223	85	2,882	24	334
TOTAL	682	18,741	908	27,572	1,588	40,974	2,158	51,174	4,221	76,208

Source: Department of Customs

Table 3.2.11
PER CAPITA CONSUMPTION OF ORANGE PER ANNUM
BY INCOME GROUPS & SECTORS - 86/87 (Kg)

Income Group	Urban	Rural	Estate	All Sectors
0-100	-	-	-	-
101-200	-	-	-	-
201-400	-	1.2	-	-
401-600	-	-	-	-
601-800	1.2	-	-	-
801-1000	2.4	-	-	-
1001-1500	-	-	-	-
1501-2000	-	-	-	-
2001-3000	-	-	-	-
3001-5000	-	-	-	-
5001-10000	1.2	1.2	-	1.2
OVER 10000	-	-	-	-
AVERAGE	-	-	-	-

Source : Central Bank of Sri Lanka

4. OTHER CROPS

4.1 BETEL

1. Introduction

The Betel (*Piper betlay*) originated from Malaysia. It is now grown in a number of Asian and East African countries.

The betel chewing habit is common among Sri Lankans, especially in the rural areas and also in certain Asian countries. Betel is also used to mark cultural and religious events and also for medicinal purposes. It is customarily used on occasions such as welcoming distinguished visitors, fostering friendships and hospitality and many other traditional functions.

Betel is a tropical crop. It can be grown from sea level to 1,000 meters. A high rainfall and fertile soil are ideal for betel cultivation. Irrigation is necessary during the dry periods. Frequent application of fertilizer is also very important.

There are four main varieties of betel, Ratadalu, Galdalu, Getadalu and Nagawalli. The leaves of the first two varieties are large and the leaves of the others are smaller. The first harvest could be had four months after planting and the peak production will be during the second year. Normally, a betel crop lasts for 8-10 years, unless affected by disease.

2. Production

2.1 Major Producing Districts

The Kurunegala district, mainly Kuliypitiya and Pannala, is the major betel producing area, and accounted for 86% of the total production and 59% of total extent cultivated during the period 1993-1997. The Gampaha district was next and the Minuwangoda and the Divulapitiya areas accounted 8% and 13% of the total production and extent cultivated respectively. The Batticaloa and Galle districts each accounted for 1% of the total production. In most of these districts the extent cultivated as well as the production declined, while yields, too, fluctuated widely.

2.2 Extent Cultivated, Production and Yield

The production of betel has declined steadily during past 25 years. It was 808 billion leaves in 1973 and declined to 7 billion leaves in 1997. The extent cultivated also declined being 3,874 Ha. in 1973 and 2,569 Ha. in 1997. The highest extent cultivated (5,238 Ha.) was in 1994 and the lowest (2,471 Ha.) in 1996. The average yield declined steadily from 208.6 million Leaves per Ha. in 1973 to 2.6 million Leaves per Ha. in 1997.

2.2 Seasonality of Production

Betel production varies within the year according to climatic conditions. Peak production occurs during the rainy season, especially from October to December, while production is lower during the dry periods, March to April.

2.4 Cost of Production

A survey was conducted by the Department of Export Agriculture to find out the costs of growing and returns on betel cultivation. It was found that in a small scale cultivation (1-500

stakes) the cost of production was Rs. 109/= per 1,000 leaves, while in a large scale operation (2,000-10,000 stakes), the cost of production was Rs. 85/= per 1,000 leaves while a medium scale operation required Rs.100/= to produce 1,000 leaves. Also 5% of the leaves produced were rejected and 50% of the leaves produced were categorized as large. (Length > 15cm and width > 12cm).

3. Marketing and External Trade

There are many weekly polas mainly for betel in Naiwala, Banduragoda, Mabodala (in the Gampaha district); Kuliyaipitiya, Giriulla, Kandanedegara, Yakvila, Bopitiya, and Appaladeniya (in the Kurunegala District). Also, betel is sold in the mornings on pola days in Narammala, Alawwa, and Hettipola Markets (Kurunegala District). The betel farmers in the areas of Kuliyaipitiya, Pannala, Dambadeniya and Appaladeniya have formed CO-OP Societies. The betel farmers CO-OP Society in Appaladeniya has started a betel pola. Even non-members were permitted to market their produce at this pola.

Farmers usually bring their betel leaves to weekly polas, for sale. The wholesalers from different parts of the country buy from the polas and sell to retailers in different parts of the country.

3.1 Marketing Channels

The marketing channels for domestic market

Farmer → Wholesaler → Retailer → Consumer

The marketing channel for exports

Farmer → Wholesaler → Exporter → Importer → Retailer → Consumer

3.2 Price Behaviour

The price in the local market depends mainly on the supply and demand situation in the export market. The annual average producer prices fluctuate greatly and has increased from Rs. 94/= per 1,000 leaves in 1993 to Rs. 172/= per 1,000 leaves in 1997 which was the highest price recorded during the period 1993-1997. The lowest price Rs. 87/= per 1,000 leaves was recorded in 1994. The price fluctuates greatly within a year, and generally the highest prices are obtained during March and April.

3.3 Major Import/Export Countries

The main requirements of betel leaves for export are colour, shape, size and freshness. The colour should be dark green, and large size leaves preferable 15-20 cm. in length and 10-15 cm. in width. The taste should be good. The leaves must be of good shape, fresh and intact.

The leaves are packed in special cane bags for export. Each such bag contains 18 Kg (4,000 leaves). Exports are generally air freighted.

Betel leaves are mainly exported to Pakistan. The state trading institutions such as CWE and Markfed also purchase betel from wholesalers mainly for exports. There are no duty or restriction on betel exports.

3.4 Trends in Exports

The total quantity exported and export earnings fluctuated greatly during the period 1975-1992. The highest export earnings recorded was in 1988 (Rs. 100.6 million) and lowest in 1980 (Rs.3.1 million). From 1993 to 1997 there was a gradual decline in both export earnings and the quantity exported. The export earnings declined from Rs. 125.9 Million in 1993 to Rs. 59.1 Million in 1997.

4. Consumption

Annual per capita consumption of betel has declined from 463 leaves in 1981/82 to 334 leaves in 1990/91. Less betel was used by persons in all sectors. The highest consumption was in the estate sector followed by the rural sector; the lowest was in the urban sector. The highest consumption was by the Rs. 0-100 income group in the rural sector and the lowest consumption by those in the over Rs. 10,000/= income group in the urban sector.

5. Remarks

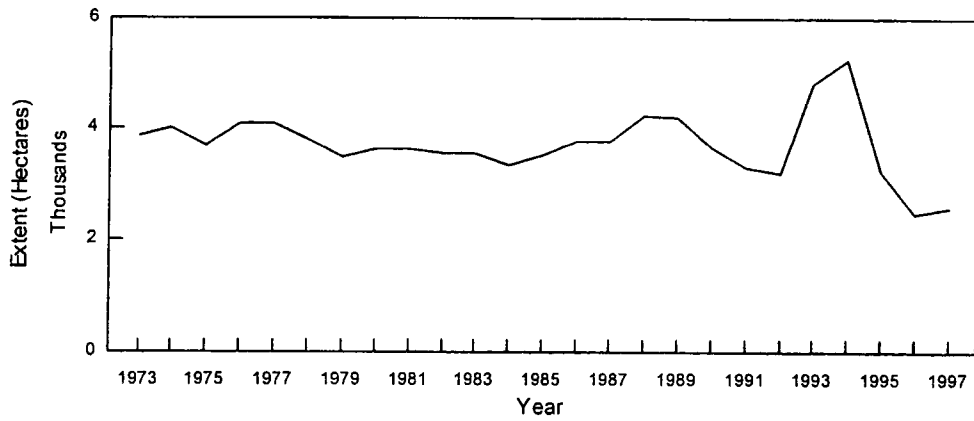
The betel farmers due mostly to inadequate extension services, rely mostly on traditional methods of cultivation. The sticks are very essential for betel cultivation and farmers face a shortage of these sticks. Also farmers need regular information on local and international prices.

Table 4.1.1
EXTENT, PRODUCTION AND AVERAGE YIELD OF BETEL -SRI LANKA

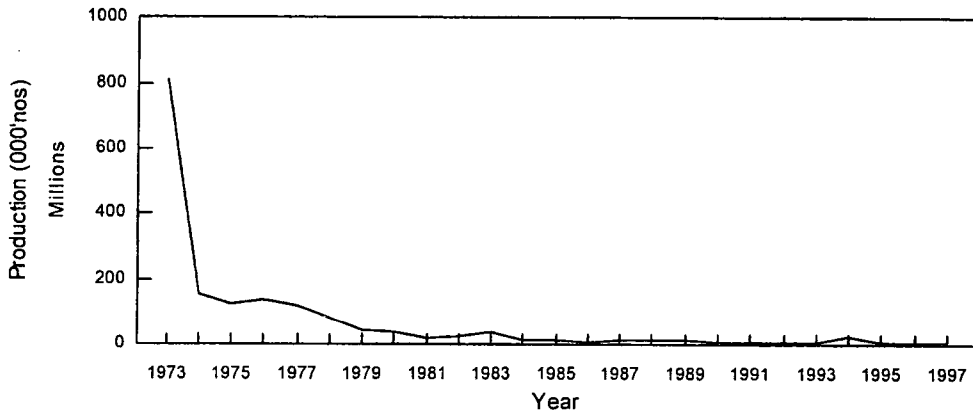
YEAR	EXTENT (Hectares)	PRODUCTION (000 No)	AVERAGE YIELD (000 No/Ha)
1973	3,874	808,111,412	208,599
1974	4,008	152,913,645	38,152
1975	3,678	126,129,715	34,293
1976	4,098	134,804,526	32,895
1977	4,077	117,050,479	28,710
1978	3,788	82,423,146	21,759
1979	3,479	43,830,952	12,599
1980	3,611	39,166,733	10,847
1981	3,626	22,567,276	6,224
1982	3,556	22,892,090	6,438
1983	3,562	40,975,794	11,504
1984	3,334	14,808,195	4,442
1985	3,503	14,867,892	4,244
1986	3,757	10,034,411	2,671
1987	3,764	11,074,401	2,942
1988	4,216	11,412,264	2,707
1989	4,188	12,327,528	2,944
1990	3,658	4,402,296	1,203
1991	3,292	5,678,153	1,725
1992	3,195	4,915,536	1,539
1993	4,790	7,430,140	1,551
1994	5,238	26,976,788	5,150
1995	3,223	9,899,679	3,072
1996	2,471	6,814,024	2,758
1997	2,569	6,680,279	2,600

Source : Department of Census and Statistics

Graph 4.1.1
EXTENT OF BETEL



Graph 4.1.2
PRODUCTION OF BETEL



Graph 4.1.3
AVERAGE YIELD OF BETEL

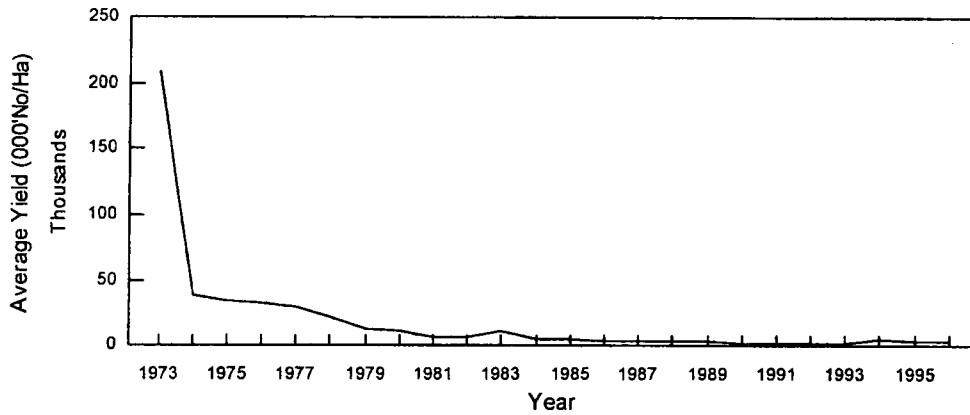


Table 4.1.2
EXTENT OF BETEL BY MAJOR GROWING DISTRICTS (HECTARES)

DISTRICT	1980	1985	1990	1993	1994	1995	1996	1997	AVG(93-97)	%
KURUNEGALA	765	855	1,095	3,365	3,816	1,715	906	952	2,151	(58.79)
GAMPAHA	878	802	957	434	408	454	526	524	469	(12.83)
KALUTARA	284	278	331	167	166	175	192	187	177	(4.85)
KEGALLE	338	363	223	133	132	140	145	169	144	(3.93)
RATNAPURA	142	216	162	149	149	153	106	104	132	(3.61)
GALLE	177	186	228	113	110	118	120	135	119	(3.26)
COLOMBO	265	190	182	116	115	118	122	115	117	(3.20)
MATARA	132	122	111	101	113	122	119	114	114	(3.11)
OTHERS *	630	491	369	212	229	228	235	269	235	(6.41)
SRI LANKA	3,611	3,503	3,658	4,790	5,238	3,223	2,471	2,569	3,658	(100.00)

* Total of Batticaloa, Hambantota, Puttalam, Matale , Badulla, Moneragala, Polonnaruwa, Kandy Nuwaraeliya, Ampara, Mannar Jaffna, Anuradhapura districts and special project Mahaweli H.

Source : Department of Census and Statistics.

Table 4.1.3
PRODUCTION OF BETEL BY MAJOR PRODUCING DISTRICTS (000 No)

DISTRICT	1980	1985	1990	1993	1994	1995	1996	1997	AVG(93-97)	%
KURUNEGALA	11,346,000	7,281,488	2,684,033	6,732,977	25,105,133	7,986,930	5,093,120	4,958,701	9,975,372	(86.29)
GAMPAHA	4,005,058	768,348	500,045	101,800	1,137,600	1,163,890	1,140,200	1,122,300	933,158	(8.07)
BATTICALOA	14,730,000	88,000	0	186,000	195,000	195,000	105,600	127,500	161,820	(1.40)
GALLE	1,369,115	709,160	215,392	148,068	141,920	152,220	154,847	169,700	153,351	(1.33)
MATARA	131,220	449,000	103,000	78,755	76,300	79,125	71,280	66,700	74,432	(0.64)
OTHERS *	7,585,340	5,571,896	899,826	182,540	320,835	322,514	248,977	235,378	262,049	(2.27)
SRI LANKA	39,166,733	14,867,892	4,402,296	7,430,140	26,976,788	9,899,679	6,814,024	6,680,279	11,560,182	(100.00)

* Total of Habmbantota, Kegalle , Colombo, Ratnapura, Puttalam, Kalutara, Ampara, Polonnaruwa, Moneragala, Kandy, Badulla, Nuwaraeliya, Mannar, Jaffna, Matele, Anuradhapura districts and Spceial project Mahaweli-H.

Source : Department of Census and Statistics

Table 4.1.4
AVERAGE PRODUCER PRICES OF BETEL
Unit: Rs./100

Month	1993	1994	1995	1996	1997
January	102.43	70.38	174.91	194.37	131.02
February	99.03	78.09	159.05	195.97	189.49
March	95.28	81.99	203.54	201.01	204.03
April	92.86	97.17	166.90	202.89	225.88
May	89.00	81.80	153.67	165.69	168.00
June	90.32	85.43	157.53	153.46	138.60
July	90.52	81.49	169.78	153.91	151.38
August	90.53	88.12	177.29	151.11	145.89
September	91.07	89.60	169.16	141.53	165.51
October	88.74	92.70	166.98	128.70	178.31
November	95.63	96.29	160.29	133.67	180.89
December	96.97	100.53	154.12	134.17	179.08
An. Average	93.61	86.97	167.86	162.70	171.91

Source : Department of Census and Statistics

Table 4.1.5
EXPORTS OF BETEL

Year	Quantity (Mt)	Value (Rs 000)
1975	567	3861.61
1976	495	4218.05
1977	776	6204.24
1978	1265	14163.5
1979	1371	23985.1
1980	220	3091.99
1981	1697	37741.36
1982	2,189	45,179.70
1983	2,027	41,781.26
1984	2,276	64,072.62
1985	1,700	44,109.61
1986	1,789	46,348.41
1987	1,902	70,461.03
1988	2,472	100,585.09
1989	2,297	92,272.85
1990	1,114	39,565.34
1991	2,332	77,040.08
1992	2,215	83,849.92
1993	2,824	125,913.98
1994	1,846	62,325.27
1995	1,811	61,347.24
1996	2,643	73,631.90
1997	1,847	52,138.73

Source: Department of Customs

Table 4.1.6
EXPORTS OF BETEL BY COUNTRY OF DESTINATION

COUNTRY	1993		1994		1995		1996		1997	
	QTY (Mt.)	VALUE (Rs.Mn)	QTY (Mt.)	VALUE (Rs.Mn)	QTY (Mt.)	VALUE (Rs.Mn)	QTY (Mt.)	VALUE (Rs.Mn)	QTY (Mt.)	VALUE (Rs.Mn)
PAKISTAN	2779	124	1837	61	1742	59	2572	73	1845	52
OTHERS	44	2	8	2	69	3	71	1	3	-
TOTAL	2823	126	1845	63	1811	62	2643	74	1848	52

Source : Department of Customs

Table 4.1.7
PER CAPITA CONSUMPTION OF BETEL PER ANNUM
BY INCOME GROUPS & SECTORS 1986/87 (No)

INCOME GROUP	Urban	Rural	Estate	All Sectors
0-100	-	1285.20	-	999.60
101-200	-	286.80	-	188.40
201-400	224.40	555.60	160.80	495.60
401-600	138.00	649.20	871.20	630.00
601-800	122.40	540.00	830.40	519.60
801-1000	88.80	574.80	886.80	562.80
1001-1500	92.40	517.20	762.00	507.60
1501-2000	198.00	478.80	726.00	469.20
2001-3000	104.40	482.40	776.40	441.60
3001-5000	80.40	478.80	687.60	375.60
5001-10000	74.40	388.80	710.40	260.40
OVER 10000	30.00	206.40	-	112.80
OVER ALL AVG.	99.60	495.60	758.40	445.20

Source : Central Bank of Sri Lanka

Table 4.1.8
PER CAPITA CONSUMPTION OF BETEL
PER ANNUM BY SECTORS (No.)

SECTORS	1981/82	1986/87
URBAN	116.40	99.96
RURAL	514.80	495.60
ESTATE	891.60	758.40
ALL SEC.	463.20	445.20

Source : Central Bank of Sri Lanka

4.2 ARECANUT

1. Introduction

Arecanut is considered an important commodity with Sri Lankans as it widely used by both rural and urban dwellers. Arecanut is used as one of the substance used in betel chewing which has been practiced from ancient times and is still widely prevalent.

The arecanut palm (*Areca catochu*) has been an important crop grown in the wet zone of Sri Lanka at elevation of upto 3,500 feet and where there is high rainfall , warm weather and an absence of strong winds.

There are three varieties of arecanut cultivated in Sri Lanka: Sinhala puwak, Rata puwak and Hamban puwak. The Sinhala puwak is the local variety while it is believed Hamban puwak was introduced from Java.

Flowering in local arecanut varieties usually commenced in the fourth year, but the first flowering does not result in any fruits. Commercial production starts in the 6th year. Maximum yields are reached about in the 12th year, after which production gradually declines.

The main economic use of arecanut is the nut for chewing with betel leaf, lime and tobacco. The arecanut tree yields several products of economic importance. Each part of the tree could be used for variety of purposes, which also include preparation of catechu (a tanning material). Betel chewing enhances the potential demand for arecanut in local and international markets.

2. Production

2.1 Major Producing Areas

The wet zone is more suitable for arecanut. The Ratnapura district is the major arecanut producing area and accounted for nearly 31% of the total production, with only 15% of the total extent cultivated. A steady increase of production was observed though extents cultivated remained almost the same during the past fifteen years in the Ratnapura district. The Kegalle district is the next major producing area and accounted for 16% and 18% of the total production and extent cultivated respectively but the production and extent cultivated has been declining during the past fifteen years. The Badulla district contributed 12% of the total production; Matara 10% and the Kurunegala district 6%. A decreasing trend in production and extent cultivated was observed in all of these districts.

2.2 Extent Cultivated, Production and Yield

A steady decline was observed in regard to the extent cultivated and in the production and average yield of arecanut during the past twenty years. The arecanut production was 200,000 MT. in 1975 and declined to 24,000 MT. in 1997. The extent cultivated declined by 36% and the average yield per hectare declined by 81% during this period due in most cases, to a lack of systematic cultivation practices. The arecanut is mostly grown in home gardens and isolated places without even a minimum of care. The massive cutting down of arecanut trees for various purposes also contributed to a decrease in production.

3. Marketing and International Trade

Arecanuts are harvested either at the yellow mature stage or as immature green nuts about 6-8 weeks before maturity. If the pick is of mature nuts they are either sold with husks or they are processed for storage for later off-season sale. The processing for storage are performed using the following methods; a) dry storage and b) water storage. Either sun or smoke drying is used for dry storage. After drying, the arecanut is commonly stored for 5-6 months in gunnysacks before being husked for sale. These arecanuts after being husked and split are sold in the local and international market. In the water storage method, the arecanuts are bagged and submerged in water tanks for 3-4 months (maximum 6 months). These arecanuts are sold only in the local markets.

The arecanuts collected by farmers or collectors are sold to wholesalers who, in turn, sell to retailers. Finally the retailer distribute to consumers. The arecanut exporters purchase mostly from wholesalers. The marketing channel for domestic and export markets is follows.

3.1 The Marketing Channel for Domestic Market:

Farmer → Collector → Wholesaler → Retailer → Consumer

3.2 The Marketing Channel for International Market:

Farmer → Collector → Wholesaler → Exporter → Importer → Retailer → Consumer

3.3 Price Behaviour

A high fluctuation was noticed in monthly and annual average producer prices. Except in 1993, the annual average producer prices ranged between cents 28 per nut to cents 36 per nut during 1993-1997. The highest annual average producer price (cents 55 per nut) was in 1993. The higher monthly prices were in June to October with the highest in August and September. The lowest prices fetched were in December to February.

3.4 Exports

For many years now, arecanut has been exported to many eastern countries. Export earnings increased from Rs. 2.4 Million in 1975 to Rs. 144.9 Million in 1997, fluctuating greatly. The lowest export earning (Rs. 8.7 Million) was recorded in 1993. Arecanuts have been exported mainly to South Asian countries. 98 MT. which was 80% of the total exports of arecanut was exported to Maldives in 1993 but this declined drastically to 1% in 1997. Pakistan and India are the main importers of arecanut with some fluctuations in 1997. Nepal became a major importer of arecanut with 1,153 MT. which was 35% of the total quantity exported. The value of this quantity amounted to Rs. 46 million which was 31% of the total value of arecanut exports. The exports to the Maldives declined from Rs. 28 Million to Rs. 1 Million during this period. The exports to Bangladesh were not stable and were negligible. No duty or other restrictions exist for the export of arecanuts.

4. Consumption

The consumption of arecanuts has increased over the period. The per capita consump-

tion of arecanuts per annum increased from 162.4 nuts in 1978/79 to 192.0 nuts in 1981/82 and declined to 170.4 nuts in 1986/87. The highest consumption was observed in the estate sector. However it has declined from 321.6 nuts per capita per annum in 1978/79 to 310.8 nuts in 1986/87. The next highest consumption was in the rural sector. The per capita consumption increased from 183.7 nuts in 1978/79 to 219.6 nuts in 1981/1982 and then declined to 188.4 nuts in 1986/87. The lowest consumption recorded was in urban sector which increased from 39.0 nuts in 1978/79 to 44.4 nuts in 1981/82 and then decreased to 31.2 nuts in 1986/87.

Of the income groups, the highest consumption reported was by those in the under Rs. 100/= category in the rural sector (992.8 nuts). The lowest consumption of 8.4 nuts was in the urban sector by those in the over Rs. 10,000/= category.

5. Remarks

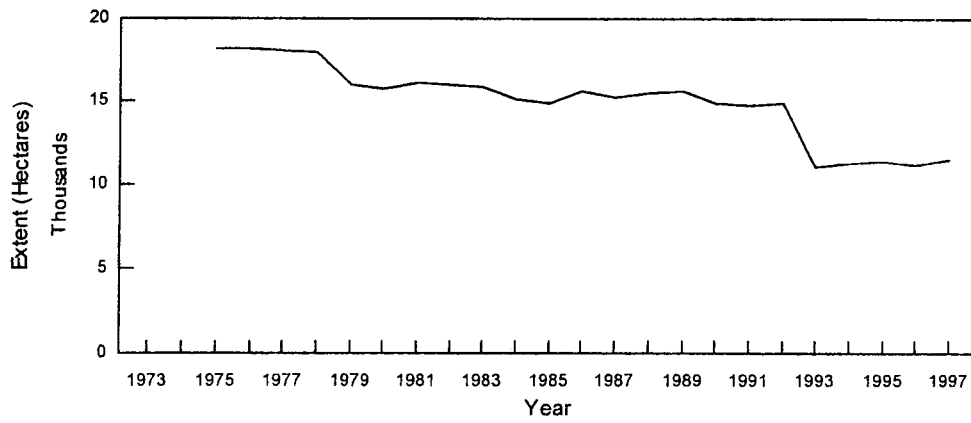
Areca nut cultivation has declining drastically due to lack of systematic cultivation practices and massive cutting down of areca nut trees for various purposes. The areca nut is an important commodity as it has a good potential demand in local and international markets. The promotion of areca nut cultivation would help to generate income and employment and also increase export earnings. Hence, much more attention should be given to the promotion of the areca nut industry.

Table 4.2.1
EXTENT, PRODUCTION AND AVERAGE YIELD OF ARECANUT

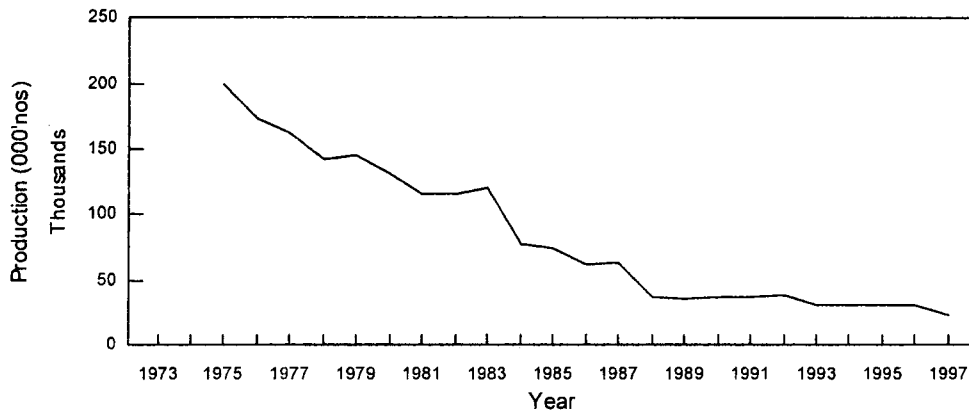
YEAR	EXTENT (Hectares)	PRODUCTION (000 No)	AVERAGE YIELD (No/Ha)
1973	18,024	166,698	9,250
1974			
1975	18,132	199,557	11,010
1976	18,097	172,567	9,540
1977	18,007	161,918	8,990
1978	17,958	142,241	7,920
1979	15,940	146,000	9,160
1980	15,734	131,845	8,380
1981	16,079	115,944	7,210
1982	15,972	115,953	7,260
1983	15,891	120,900	7,610
1984	15,207	76,718	5,040
1985	14,926	74,900	5,020
1986	15,582	62,244	3,990
1987	15,318	64,210	4,190
1988	15,505	37,036	2,390
1989	15,585	36,303	2,330
1990	14,933	37,432	2,510
1991	14,802	36,682	2,480
1992	14,882	39,083	2,630
1993	11,119	30,523	2,750
1994	11,297	31,210	2,760
1995	11,407	31,305	2,740
1996	11,214	31,854	2,840
1997	11,553	23,896	2,068

Source: Department of Census and Statistics
Data Development Unit of HARTI

Graph 4.2.1
EXTENT OF ARECANUT



Graph 4.2.2
PRODUCTION OF ARECANUT



Graph 4.2.3
AVERAGE YIELD OF ARECANUT

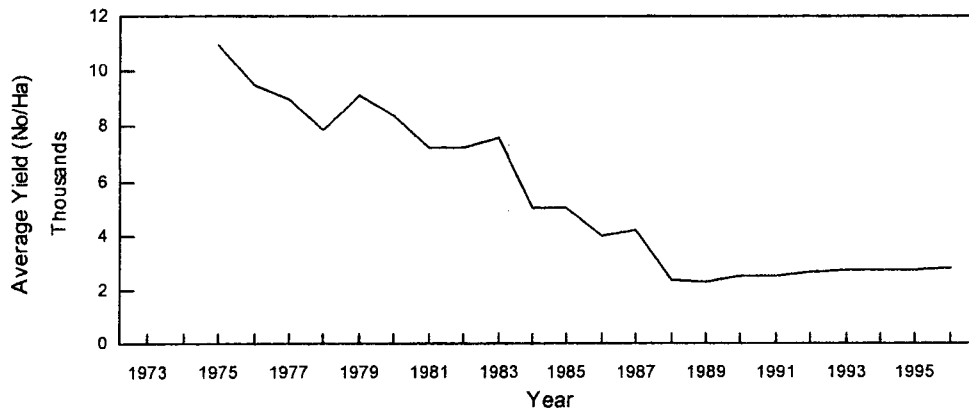


Table 4.2.2
EXTENT OF ARECANUT BY MAJOR GROWING DISTRICTS (HECTARES)

DISTRICT	1980	1985	1990	1993	1994	1995	1996	1997	AVG(93-97)	%
KEGALLE	3,458	3,552	2,499	2,074	2,068	2,065	2,052	2,042	2,060	(18.20)
RATNAPURA	1,681	1,620	1,375	1,591	1,607	1,658	1,698	1,766	1,664	(14.70)
KURUNEGALA	1,424	1,276	1,564	1,595	1,617	1,388	1,004	1,030	1,327	(11.72)
KANDY	1,648	1,707	1,764	1,134	1,154	1,198	1,197	1,161	1,169	(10.33)
MATALE	1,259	977	1,335	692	696	721	747	762	724	(6.39)
BADULLA	369	431	488	420	510	573	677	681	572	(5.06)
GAMPAHA	1,147	1,081	1,216	483	461	455	522	804	545	(4.82)
KALUTARA	683	641	902	501	523	522	549	550	529	(4.67)
GALLE	731	700	773	464	449	495	481	481	474	(4.19)
HAMBANTOTA	721	526	518	367	399	426	429	381	400	(3.54)
OTHERS *	1,116	1,012	1,091	1,013	967	987	951	982	980	(8.66)
SRI LANKA	15,734	14,926	14,933	11,119	11,297	11,407	11,214	11,553	11,318	(100.00)

* Total of Colombo,, Nuwaraliya, Moneragala, Puttalam, Jaffna, Batticaloa, Ampara, Polonnaruwa, Vavuniya, Anuradhapura, Trincomalee, Kilinochchi districts and special project Mahaweli-H.

Source : Department of Census and Statistics.

Table 4.2.3
PRODUCTION OF ARECANUT BY MAJOR PRODUCING DISTRICTS (000 No)

DISTRICT	1980	1985	1990	1993	1994	1995	1996	1997	AVG(93-97)	%
RATNAPURA	4,171	8,701	8,176	9,891	10,667	10,340	10,413	4,541	9,170	(30.82)
KEGALLE	26,321	6,630	5,009	4,629	4,770	4,982	4,834	4,686	4,780	(16.06)
BADULLA	4,491	3,526	3,593	3,375	3,567	3,671	4,482	2,388	3,497	(11.75)
MATARA	8,939	21,411	4,295	3,007	3,330	3,131	3,027	2,975	3,094	(10.40)
KURUNEGALA	1,788	13,314	2,775	2,136	1,664	1,673	1,362	1,419	1,651	(5.55)
GAMPAHA	13,057	2,232	2,773	1,213	1,198	1,081	1,235	1,979	1,341	(4.51)
GALLE	14,416	5,550	2,598	1,386	1,177	1,214	1,272	1,227	1,255	(4.22)
MATALE	6,113	5,950	2,119	1,031	1,036	1,053	1,069	1,220	1,082	(3.64)
OTHERS *	52,550	7,586	6,094	3,855	3,801	4,160	4,160	3,461	3,887	(13.06)
SRI LANKA	131,845	74,900	37,432	30,523	31,210	31,305	31,854	23,896	29,758	(100.00)

* Total of Kandy, Hambantota, Colombo, Moneragala, Kalutara, Nuwaraeliya, Puttalam, Ampara, Jaffna, Polonnaruwa, Vavuniya, Kilinochchi, Anuradhapura, Batticaloa, Trincomalee districts and special project Mahaweli-H.

Source : Department of Census and Statistics
Data Development Unit HARTI

Table 4.2.4
AVERAGE PRODUCER PRICES OF ARECANUT
Unit: Rs./Each

Month	1993	1994	1995	1996	1997
January	0.29	0.33	0.34	0.27	0.22
February	0.30	0.29	0.34	0.24	0.22
March	0.33	0.29	0.35	0.27	0.22
April	0.36	0.34	0.34	0.29	0.24
May	0.50	0.37	0.36	0.31	0.23
June	0.63	0.39	0.36	0.29	0.25
July	0.74	0.41	0.31	0.29	0.29
August	0.90	0.44	0.34	0.31	0.34
September	0.93	0.47	0.31	0.32	0.37
October	0.72	0.38	0.29	0.36	0.37
November	0.54	0.35	0.27	0.30	0.33
December	0.43	0.31	0.27	0.28	0.29
An. Average	0.55	0.36	0.32	0.30	0.28

Primary Source : Department of Census and Statistics

Table 4.2.5
EXPORTS OF ARECANUT

Year	Quantity (Mt)	Value (Rs 000)
1975	2197	2,368.00
1976	14054	16,773.00
1977	6026	13,359.00
1978	4443	39,409.00
1979	4229	46,038.00
1980	5480	56,482.00
1981	2098	32,769.00
1982	2,410	35,573.00
1983	3,269	30,835.00
1984	2,199	30,852.00
1985	383	11,033.00
1986	1,071	18,729.00
1987	1,376	13,545.00
1988	1,512	16,374.00
1989	714	15,432.00
1990	30,774	78,947.00
1991	2,585	92,400.00
1992	649	32,814.00
1993	122	8,694.00
1994	311	17,657.00
1995	2,763	111,052.00
1996	3,109	134,215.00
1997	3,338	144,944.00

Source: Department of Customs

Table 4.2.6
EXPORTS OF ARECANUT BY COUNTRY OF DESTINATION

COUNTRY	1993		1994		1995		1996		1997	
	QTY Mt.)	VALUE (Rs.Mn)	QTY (Mt.)	VALUE (Rs.Mn)	QTY (Mt.)	VALUE (Rs.Mn)	QTY (Mt.)	VALUE (Rs.Mn)	QTY (Mt.)	VALUE (Rs.Mn)
Maldiv	98.44	7.21	121.68	9.14	50.55	3.30	19.52	1.10	37.10	2.25
Pakistan	-	-	110.35	4.48	1,864.29	77.50	1,144.54	50.71	928.67	41.87
Bangladesh	16.25	0.74	-	-	-	-	52.50	0.88	-	-
India	-	-	-	-	774.54	26.23	1,654.03	70.84	1,099.48	48.54
Nepal	-	-	-	-	-	-	-	-	1,152.76	45.51
OTHERS	7.62	0.74	78.61	4.04	73.67	4.02	238.60	10.68	120.20	6.77
TOTAL	122.31	8.69	310.64	17.66	2,763.05	111.05	3,109.19	134.21	3,338.21	144.94

Source : Department of Customs

Table 4.2.7
PER CAPITA CONSUMPTION OF ARECANUT PER ANNUM
BY INCOME GROUPS AND SECTORS 1986/87 (No)

INCOME GROUP	Urban	Rural	Estate	All Sectors
0-100	-	922.80	-	717.60
101-200	-	66.00	-	43.20
201-400	56.40	214.20	70.80	211.20
401-600	27.60	244.80	355.20	237.60
601-800	20.40	182.40	294.00	174.00
801-1000	43.20	218.40	364.80	217.20
1001-1500	34.80	202.80	338.40	202.80
1501-2000	55.20	180.00	285.60	175.20
2001-3000	32.40	187.20	313.20	170.40
3001-5000	27.60	181.20	258.00	141.60
5001-10000	24.00	148.80	355.20	98.40
OVER 10000	8.40	70.80	-	37.20
OVER ALL AVG.	31.20	188.40	310.80	170.40

Source : Central Bank of Sri Lanka

Table 4.2.8
PER CAPITA CONSUMPTION OF ARECANUT
PER ANNUM BY SECTORS (No)

SECTORS	1978/79	1981/82	1986/87
URBAN	39.00	44.40	31.20
RURAL	183.72	219.60	188.40
ESTATE	321.60	318.00	310.80
ALL SEC.	162.36	192.00	170.40

Source : Central Bank of Sri Lanka

**PART TWO : SELECTED AGRARIAN
STATISTICS**

Appendix Table A : 1
CONTRIBUTION OF AGRICULTURAL SECTOR TO GDP AT CONSTANT (1982) FACTOR COST PRICES

SECTOR	1993		1994		1995		1996		1997	
	VALUE (Rs.Mn.)	%	VALUE (Rs.Mn.)	%	VALUE (Rs.Mn.)	%	VALUE (Rs.Mn.)	%	VALUE (Rs.Mn.)	%
TEA	2,985	2.0	3,116	2.0	3,166	1.9	3,327	1.9	3,565	1.9
RUBBER	681	0.5	688	0.4	694	0.4	738	0.4	695	0.4
COCONUT	2,799	1.9	3,376	2.1	3,548	2.1	3,278	1.9	3,386	1.8
PADDY	6,447	4.3	6,750	4.2	7,067	4.2	5,180	3.0	5,625	3.0
OTHER	13,680	9.1	13,666	8.6	14,021	8.3	14,512	8.3	14,577	7.9
TOTAL	26,592	17.6	27,596	17.3	28,496	17.0	27,035	15.5	27,848	15.0
GDP	150,783	100.0	159,269	100.0	167,953	100.0	174,261	100.0	185,500	100.0

Source : Central Bank of Sri Lanka
Data Bank of HARTI

Appendix Table A : 2
PER CAPITA G.N.P AND G.D.P. AT CONSTANT FACTOR COST PRICES - SRI LANKA
(Rs)

YEAR	G.N.P.	G.D.P.
*1960	635	640
1961	632	na
1962	643	na
1963	648	656
1964	675	679
1965	676	675
1966	683	689
1967	699	703
1968	739	742
1969	764	773
**1970	1,036	1,055
1971	1,026	1,040
1972	1,040	1,048
1973	1,071	1,079
1974	1,092	1,097
1975	1,104	1,110
1976	1,119	1,126
1977	1,148	1,157
1978	1,220	1,225
1979	1,271	1,276
1980	1,320	1,332
1981	1,353	1,380
1982	1,399	1,432
***1983	6,256	6,453
1984	6,500	6,692
1985	6,739	6,935
1986	6,922	7,089
1987	6,925	7,085
1988	7,006	7,178
1989	7,073	7,243
1990	7,440	7,606
1991	7,666	7,850
1992	7,933	8,101
1993	8,442	8,558
1994	8,764	8,915
1995	9,159	9,273
1996	9,340	9,515
1997	9,861	9,999

* 1960-1969 - Based on 1959

** 1970 - 1982 -Based on 1970

***1983 - 1997 - Based on 1982

Source : Central Bank of Sri Lanka

Appendix Table A : 3
Exchange Rates at the end of December
 (Rs. per 100 units of U.S. Dollars)

Year	Rs.
1970	595.24
1971	595.24
1972	639.53
1973	674.45
1974	668.81
1975	770.94
1976	886.39
1977	1,559.00
1978	1,552.00
1979	1,546.00
1980	1,801.50
1981	2,056.50
1982	2,132.75
1983	2,500.75
1984	2,628.75
1985	2,741.50
1986	2,852.75
1987	3,077.75
1988	3,304.75
1989	4,001.50
1990	4,025.50
1991	4,259.50
1992	4,623.00
1993	4,980.93
1994	5,022.99
1995	5,458.80
1996	5,727.21
1997	6,189.78

Source : Central Bank of Sri Lanka

Appendix Table A : 4
COLOMBO CONSUMERS' PRICE INDEX (1952=100)

Year	Total	Food	Clothing	Fuel & Light	Rent	Miscellaneous
1962	106.3	100.9	108.2	105.6	101.5	124.9
1963	108.8	103.0	118.2	103.0	101.5	126.6
1964	112.2	106.4	127.2	103.2	101.5	129.3
1965	112.5	107.3	126.8	100.7	101.5	128.3
1966	112.3	109.1	117.0	95.9	101.5	127.3
1967	114.8	112.7	116.7	96.5	101.5	128.9
1968	121.5	121.2	120.1	103.2	101.5	133.6
1969	130.5	127.9	130.9	124.9	108.4	147.1
1970	138.2	136.6	137.3	136.1	109.8	153.2
1971	141.9	139.1	145.0	140.8	109.8	159.5
1972	150.8	147.5	163.4	145.9	109.8	169.4
1973	165.4	164.8	186.1	164.4	109.8	170.0
1974	185.8	189.7	204.6	221.0	109.8	178.3
1975	198.3	204.3	208.2	231.1	109.8	191.9
1976	200.7	202.1	211.7	265.2	109.8	203.8
1977	203.2	203.3	257.5	223.8	109.8	208.4
1978	227.8	237.5	226.2	262.1	109.8	224.8
1979	252.3	263.3	231.2	328.5	109.8	252.4
1980	318.2	339.7	239.9	563.9	109.8	293.8
1981	375.4	399.6	257.8	767.9	109.8	345.7
1982	416.1	450.4	273.8	816.4	109.8	377.1
1983	474.2	506.3	291.1	1,087.6	109.8	433.7
1984	553.1	598.0	307.5	1,282.7	109.8	469.9
1985	561.2	598.4	324.2	1,332.1	109.8	524.4
1986	606.0	641.4	374.5	1,347.6	109.8	599.7
1987	652.8	697.0	400.9	1,358.7	109.8	650.7
1988	744.1	802.0	419.8	1,535.1	109.8	742.6
1989	830.2	884.6	490.0	1,718.9	109.8	860.2
1990	1,008.6	1,090.9	610.2	1,934.2	109.8	1,021.0
1991	1,131.5	1,220.3	678.4	2,252.2	109.8	1,146.0
1992	1,260.4	1,366.0	723.6	2,334.3	109.8	1,318.7
1993	1,408.4	1,519.4	782.7	2,730.0	109.8	1,490.4
1994	1,527.4	1,654.1	795.7	3,131.6	109.8	1,578.7
1995	1,644.6	1,768.1	803.9	3,239.1	109.8	1,800.6
1996	1,906.7	2,107.6	821.8	3,591.6	109.8	1,994.7
1997	2,089.1	2,336.9	844.0	3,752.8	109.8	2,157.8

Source : Department of Census and Statistics

Appendix Table A : 5

**CULTIVATION LOANS GRANTED UNDER NEW COMPREHENSIVE RURAL CREDIT
SCHEME
(Rs. Million)**

Season	Paddy	Subsidiary Food Crops	Total
92/93 Maha	319.3 (77.3)	93.9 (22.7)	413.2 (100.0)
93 Yala	125.6 (60.1)	83.5 (39.9)	209.1 (100.0)
93/94 Maha	283.6 (73.5)	102.5 (26.5)	386.1 (100.0)
94 Yala	145.3 (58.6)	102.8 (41.4)	248.1 (100.0)
94/95 Maha	531.9 (86.2)	85.0 (13.8)	616.9 (100.0)
95 Yala	179.6 (64.7)	97.9 (35.3)	277.5 (100.0)
95/96 Maha	259.7 (75.7)	83.2 (24.3)	342.9 (100.0)
96 Yala	81.9 (62.0)	50.3 (38.0)	132.2 (100.0)
96/97 Maha	227.3 (74.0)	80.0 (26.0)	307.3 (100.0)
97 Yala	79.9 (54.5)	66.8 (45.5)	146.7 (100.0)
97/98 Maha	183.5 (75.4)	59.9 (24.6)	243.4 (100.0)
98 Yala	73.1 (57.8)	53.4 (42.2)	126.5 (100.0)
98/99 Maha	108.2 (72.8)	40.5 (27.2)	148.7 (100.0)

Percentages are given in parenthesis

Source : Peoples Bank
Hatton National Bank
Bank of Ceylon
Commercial Bank

Appendix Table A : 6

**NUMBER OF DIVISIONAL SECRETARIATS AND
GRAMA NILADARI DIVISIONS BY DISTRICTS**

DISTRICT	Number of Divisional Secretariat	Number of Grama Niladari Divisions
Colombo	10	557
Gampaha	13	1,139
Kalutara	10	762
Kandy	17	1,189
Matale	11	546
Nuwara Eliya	5	427
Galle	16	892
Mathara	12	650
Hambantota	11	569
Kurunegala	17	1,610
Puttalam	10	548
Anuradhapura	18	702
Polonnaruwa	6	290
Badulla	14	532
Moneragala	10	319
Ratnapura	13	576
Kegalle	10	573
Ampara	15	474
Trincomalee	11	234
Batticaloa	N.A.	323
Vavuniya	N.A.	102
Jaffna	N.A.	451
Mannar	N.A.	155
Mullativu	N.A.	128
Killinochchi	N.A.	N.A.
TOTAL	229	13,748

N.A. - Not Available

Source : Dept. of Agrarian Services

Appendix Table A : 7
AGRARIAN SERVICE CENTRES AND FARMER ORGANISATIONS (1) BY DISTRICTS

DISTRICT	Number of Agrarian Centres	Number of Farmer Organisations		Funds Available (Rs.000)
		Registered	Not Register	
Colombo	7	240	64	817
Gampaha	26	830	207	1,204
Kalutara	20	584	47	1,203
Kandy	44	1,103	-	4,325
Matale	23	594	8	4,747
Nuwara Eliya	22	475	18	2,733
Galle	33	663	78	2,868
Mathara	22	644	-	2,506
Hambantota	16	535	87	5,873
Kurunegala	55	2,021	174	12,787
Puttalam	17	692	4	4,477
Anuradhapura	40	1,111	10	15,873
Polonnaruwa	9	225	-	4,367
Badulla	31	716	34	5,366
Moneragala	16	476	34	4,594
Ratnapura	30	664	8	2,746
Kegalle	14	602	-	1,879
Ampara	28	390	67	3,133
Batticaloe	17	171	-	1,631
Trincomalee	22	137	14	1,825
Vavuniya	8	59	28	1,293
Jaffna	12	221	-	2,289
Mannar	12	46	25	200
Mullativu	10	80	-	6
Killinochchi	8	NA	NA	NA
TOTAL	542	13,279	907	88,742

N.A. - Not Available

(1)Progress as at 31st Dec. 1998

Appendix Table A - : 8

**NUMBER, LOCATIONS AND MEMBERSHIP OF GOVISEVANA CENTRES
BY DISTRICTS
(As at December 1998)**

District	Govijana Khendraya	Govisevana Centres					
		No.	Location	Membership			
				Male	Female	Total	
Gampaha	Nittambuwa	1	Malwatta Pinnagolla	54	42	96	
Kandy	Medapitiya	5	Narangvita	6	64	70	
			Doluwa	96	13	109	
			Navagurukele	46	29	75	
			Morahena	60	20	80	
			Castlemilk	165	10	175	
		Uipothagama	1	Hasalaka Town	18	22	40
		Kurunduwatta	1	Kurunduwatta	41	2	43
		Menikhenna	1	Dodangolla	39	14	53
		Gunnepana	1	Pallekele	63	72	135
		Marassana	1	Galagoda	67	18	85
		Thalathuoya	1	Uduwela	44	35	79
	Wavinna	1	Galpihilla	35	40	75	
	Giragama	1	Giragama	28	6	34	
Nuwara Eliya	Helboda	1	Balapokunugama	66	31	97	
Galle	Walahanduwa	1	Niyagama	77	7	84	
Matara	Morawaka	1	Kodikaragoda West	80	3	83	
Hambantota	Weeraketiya	1	Muruthawela	61	61	122	
	Weerawila	1	Pannegamuwa	171	64	235	
	Bandagiriya	1	Bandagiriya DC-1-2	143	21	164	
	Beliatta	1	Dammulla East	30	6	36	
Kurunegala	Mahawa	1	Konwewa	18	49	67	
	Bingiriya	2	Kiniyama East	51	9	60	
			Wellarawa	41	5	46	
			Galagamuwa	1	Dematawa	48	7
		Narammala	1	Weragala	53	7	60
		Panduwasnuwara	1	Dotella	47	1	48
		Dummala sooriya	1	Ethunugahakotuwa	67	15	82
		Mawathagama	1	Rambaththawa	54	15	69
		Ambanpola	1	Udadivulwewa)			
		Thambutta	1	Mailewa) Not Reported			
			W.F.P. Project)				
Anuradhapura	Elayapattuwa	1	Ulukkulama	265	44	309	
	Medawachchiya	1	Medawachchiya	30	-	30	
	Elhakada	1	Moragoda	85	62	147	
Moneragala	Bibile	1	Pitakumbura	43	40	83	
	Moneragala	1	Maduruketiya	108	96	204	
	Siyambalanduwa	1	Barawaya	55	28	83	
Badulla	Ridimaliyadda	1	Adaulpotha	220	64	284	
Ratnapura	Ambawila	1	Galpaya	146	10	156	
Kegalle	Delivala	1	Miriyagoda	108	34	142	
	Ruwanwella	1	Siyambalawala	159	96	255	
	Ambepussa	1	Kandegama	68	78	146	
	Deraniyagala	1	Welihinda	60	53	113	
	Yattogada	1	Harigala	70	30	100	
Kalutara	Ingiriya	1	Wagawatta	79	22	101	
Matale	Alugolla	1	Nalanda-Ududeniya	78	26	104	
	Tenna	1	Halangoda	50	12	62	
	Hettipola	1	Karawguhawewa	204	37	241	
Polonnaruwa	Hingurakgoda	1	Hingurakgoda-Minneriya	272	-	272	

Department of Agrarian Services

Appendix A : 9
ANNUAL ENROLLMENT OF FARMERS IN THE FARMERS' PENSION SCHEME

District	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Colombo	552	129	80	391	1772	366	172	-	236	321
Gampaha	637	591	389	799	2119	2301	1320	174	448	2943
Kaluthara	307	560	103	971	1882	863	441	717	1231	1907
Kandy	647	1,470	1,100	1477	12486	2074	797	1179	489	9329
Matalr	574	541	530	1853	5775	38998	2784	569	363	3710
Nuwara Eliya	1,034	742	312	913	2605	4907	449	1073	286	1650
Galle	1,024	3,133	783	7829	9199	8455	417	361	4558	2306
Matara	724	387	183	989	2400	1791	842	337	474	2402
Hambanthota	306	731	347	3346	2299	1341	743	528	436	1202
Jaffna	15	1,957	199	57	301	1070	580	672	76	136
Killinochchi	-	116	8	1	14	-	-	298	-	-
Mannar	-	620	-	39	-	-	-	-	-	-
Vaavuniya	2	259	75	10	-	213	178	60	43	49
Mullativu	-	170	77	8	-	340	57	35	15	4
Trincomalee	15	136	84	64	319	852	530	170	38	94
Batticaloa	234	188	251	109	241	135	450	149	381	323
Ampara	917	1,003	508	877	2471	1034	392	262	279	794
Anuradhapura	951	2,443	529	3493	10047	4366	416	417	741	1041
Polonnaruwa	495	756	786	2824	5788	2544	1970	826	1063	2228e
Badulla	1,528	440	811	2035	2828	1387	916	887	633	1701
Moneragala	410	598	291	3532	2508	2729	395	181	573	1501
Kurunegala	978	1,664	391	29916	13400	1099	1532	552	540	6533
Puttalama	334	858	518	1261	1571	1253	415	725	922	1599
Kegalle	710	853	329	1160	999	1066	1096	466	1105	2217
Ranapura	1,065	1,465	642	2262	6012	939	723	340	717	1324
Total	13,459	21,810	9,326	39,216	87,036	45,023	17,615	10,978	15,647	45,404

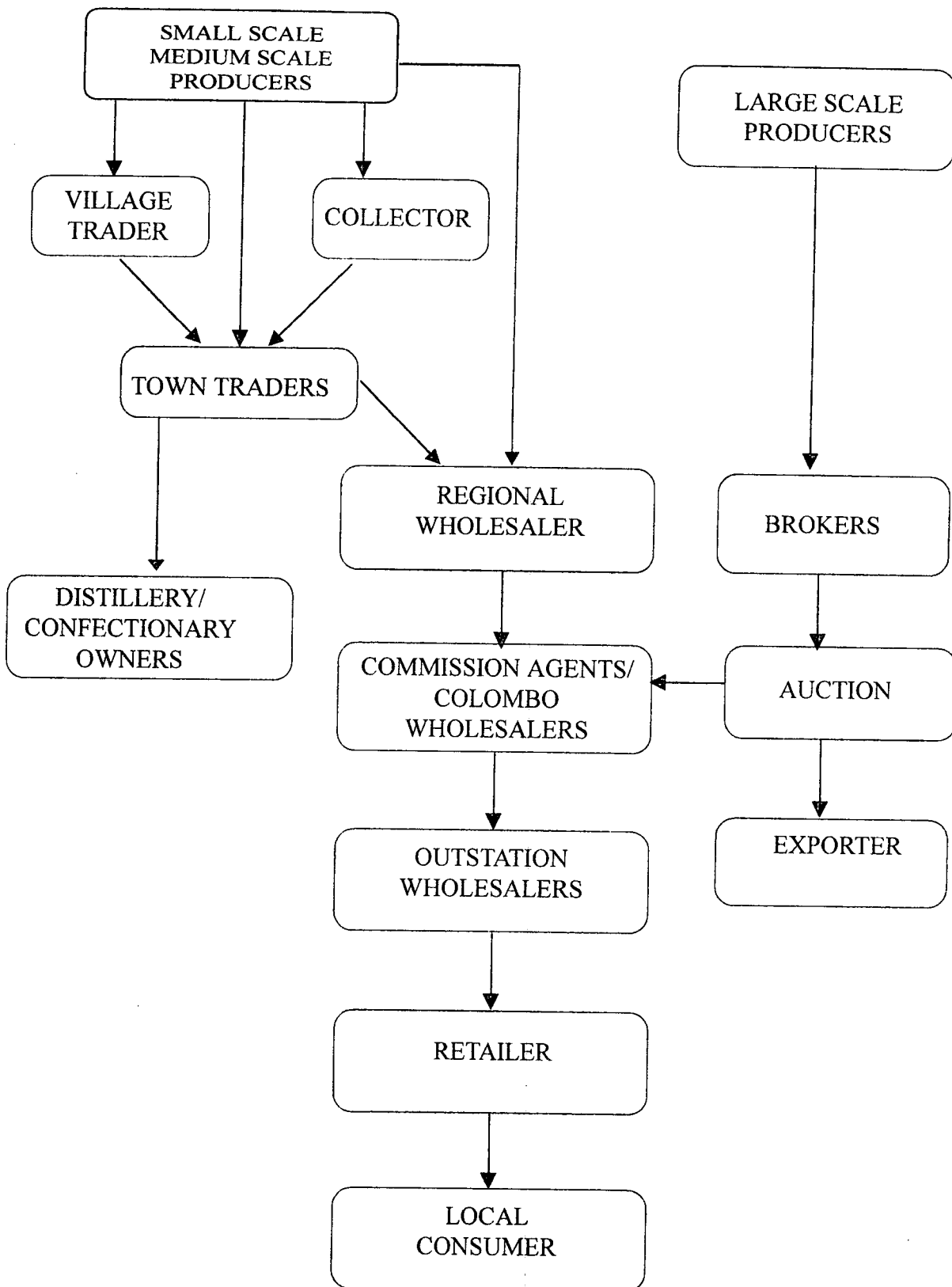
Source : Agricultural Insurance Board

ANNEXES

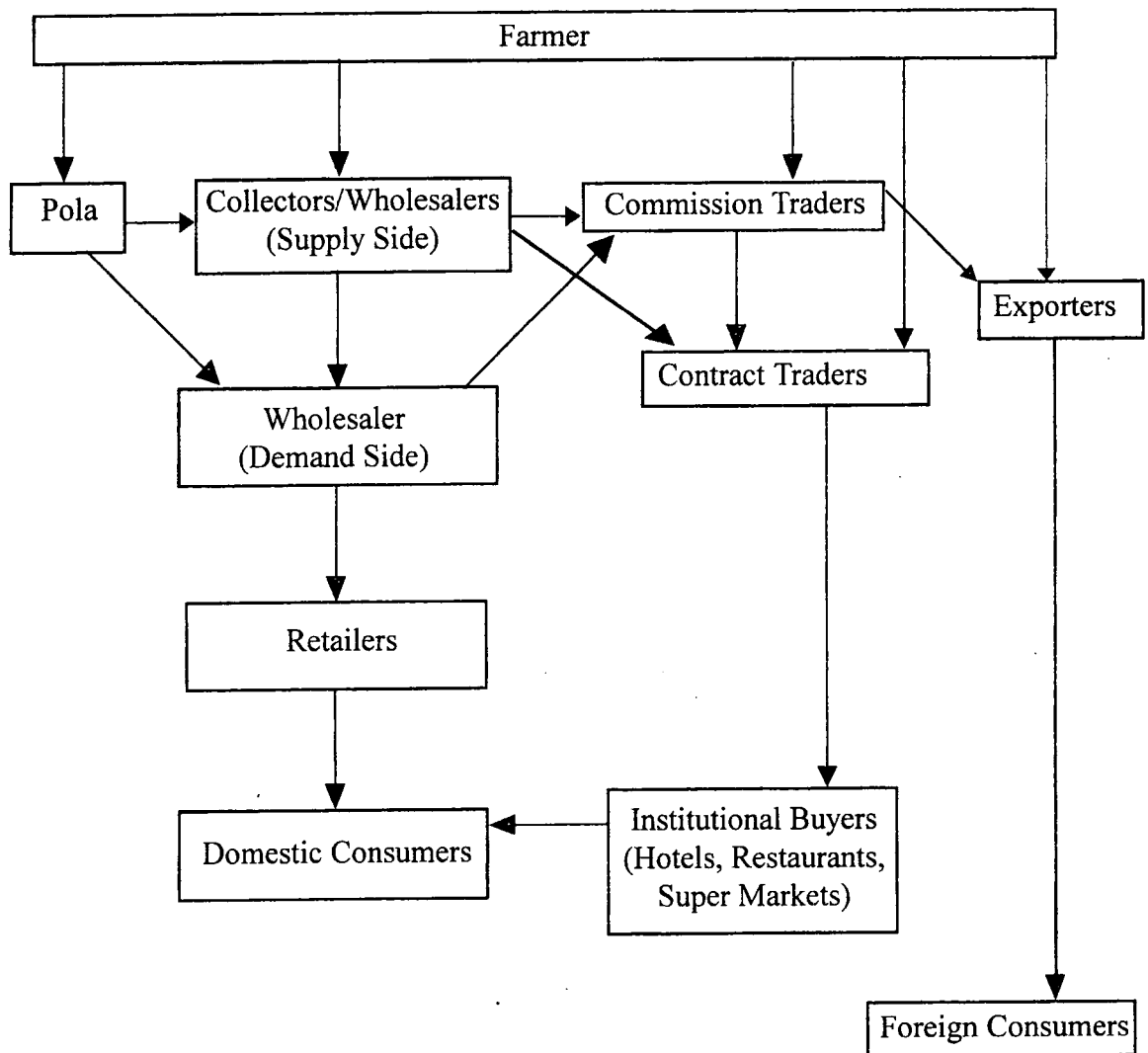
Annex : 1
COMPOSITION OF FOODS PER 100 g/EDIBLE PORTION

Name of Food Stuff	Energy Kcal	Protein g	Fat g	Carbo- hydrate g	Calcium mg	Phos- perous mg	Iron mg	Carotine mcg	Thiomin mcg	Riboflavin mcg	Niacin mg	Vitamin C mg
SPICES												
Pepper (dry)	304	11.5	6.8	49.2	460	198	16.8	1080	90	140	1.4	na
Cardamom (dried seed)	297	4.0	1.1	67.8	690	50	22.2	4	0	40	0.3	0
Cinnamon (Bark)	229	12.0	7.8	28.0	440	na	17.0	0	100	400	2.4	0
Cloves (dried flower buds)	293	5.0	9.0	48.0	740	na	5.0	na	100	200	2.0	0
Cloves (Green)	159	2.3	5.9	24.1	310	40	2.1	72	na	na	na	na
Nutmeg	472	7.5	36.4	28.5	120	240	4.6	0	330	10	1.4	0
Nutmeg (Rind)	52	1.0	0.4	11.2	40	10	2.0	4	na	na	na	na
Mace	437	6.5	24.4	47.8	180	100	12.6	3027	250	420	1.4	0
VEGETABLES												
Leeks	52	2.0	0.0	11.0	50	na	1.0	15	100	100	0.5	20
Leeks (Lower leaf & Bulb)	35	2.3	0.5	7.0	58	48	2.7	2435	90	100	0.6	32
Raddish	17	0.7	0.1	3.4	35	22	0.4	3	60	20	0.5	15
Table Raddish Leaves	38	3.9	0.6	4.2	310	60	18.0	5742	180	350	5.5	106
Pumpkin	25	1.4	0.1	4.6	10	30	0.7	50	60	40	0.5	2
Pumpkin Leaves	57	4.6	0.8	7.9	392	112	na	na	na	na	na	na
FRUITS												
Lime	59	1.5	1.0	10.9	90	20	0.3	15	20	30	0.1	63
Orange	48	0.7	0.2	10.9	26	20	0.3	1104	0	0	0.0	30
Orange Juice	9	0.2	0.1	1.9	5	9	0.7	15	60	20	0.4	64
OTHER CROPS												
Betel Leaves	44	3.1	0.8	6.1	230	40	7.9	5760	70	30	0.7	5
Arecanut	394	6	10.8	69.4	542	63	5.7	0	170	690	0.6	0

Annex II
Marketing Channels of Spices



Annex III
Major Marketing Channels for Vegetables



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