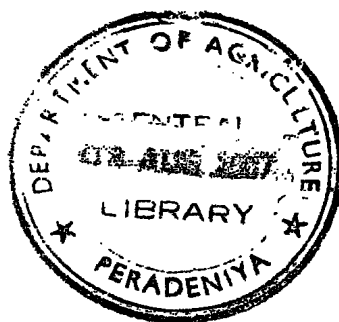


CITRUS

**PRODUCTION PROGRAMME
FOR
CITRUS (1998-2005)**



Ministry of Agriculture & Lands – 1997

PRODUCTION PROGRAMME FOR CITRUS

by

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Production Programme for Citrus 1998 – 2005

1.0 Introduction

Most of the commercial crops of Citrus are grown in sub-tropical countries between sea level to 2000 ft elevation. The Citrus group of fruits includes sweet orange, mandarin, lime, grapefruit, pumello and lemon species. Distribution of these species is different in agro-ecological zones.

Inadequate production, high seasonality, lack of suitable planting material and high incidence of pest and diseases are the major drawbacks in Citrus cultivation.

Total extent under Citrus cultivation is around 9000 ha and the production is approximately 20,000 mt. Export of Citrus fruits show a declining trend during the period of 1990–1996. Import of Citrus, especially sweet orange increased from 277 mt in 1991 to 2174 mt in 1996 (Table 1). During the same period, extent under Citrus cultivation shows an increasing trend. However, the production levels have not increased proportionately to the increased in extent (Table 2).

Though there is a high potential for processing of Citrus fruits, value added products are not popular in the local market. Development of the processing industries is vital in order to meet the seasonal scarcities and to reduce post-harvest losses.

2.0 Demand and Supply.

Future demand has been estimated based on the per capita availability, export & processing requirement and population growth. It is anticipated to increase the per capita availability from 1.2 kg/yr in 1996 to 1.7 kg/yr in 2005 (Table 3).

It is planned to increase the local supply of Citrus by increasing the extent and increasing the productivity. The estimated extent, production and planting material requirement are presented in table 4.

3.0 Planned Strategies to Increase Citrus Production

Citrus production would be increased mainly by

- 1) Increasing extent of cultivation
- 2) Increasing productivity of land
- 3) Reducing post harvest losses
- 4) Improving processing technologies.

3.1 Increasing Extent of Citrus Cultivation

Total extent of 11400 ha will be required by year 2003 to meet the expected production levels. The target extent to be cultivated, by districts are given in table 5. These targets are estimated based on the Agricultural Implementation Programme for 1996 and the information of Task Force on Fruit.

Suitable areas for expansion of citrus cultivation have been identified (Table 5). All species of Citrus can be promoted in Moneragala, Ratnapura, Kurunagala and Badulla districts. Colombo, Gampaha, Kalutara, Kandy and Kurunagala districts are more suitable for promotion of lemon. Matale, Galle, Hambantota Vauniya, Mulativu and Baticaloa districts are suitable for promotion of lime. Orange cultivation can be increased in Ampara, Trincomalee, Puttlam, Anuradhapura, Polonnaruwa, and Jaffna districts.

It is recommended to expand the mandarin cultivation in up-country region. In addition to Bibile Sweet and Bibile Seedless varieties, Washington Naval and Pineapple Sweet Orange varieties are recommended for local promotion.

3.2 Increasing Productivity

Average yields of all kind of Citrus species are very low in Sri Lanka. Poor management practices, inferior quality of planting materials, rainfed cultivation, lack of processing, high incidence of pest and diseases and unsatisfactory advisory services are identified as the main causes for low productivity. Therefore, the following improved technologies will be promoted in order to increase the productivity.

- (1) Use of high quality planting material
- (2) Use of improved soil and water management practices
- (3) Adoption of appropriate disease control measures.
- (4) Improve extension services

3.2.1 Use of high quality planting material

Lack of quality planting material is a main constraint in Citrus cultivation in Sri Lanka. Establishment of nurseries by private sector will be facilitated with DOA assistance. A comprehensive planting material production programme is presented in table 6. Grafted plants are recommended since seedlings take comparatively longer period for bearing. The planting of lime seedlings in wet zone is not feasible due to high incidence of diseases, and therefore lime grafted on lemon is recommended.

3.2.2 Use of improved management practices

Poor plant, soil and water management practices are the main causes of low productivity in Citrus. Farmer knowledge on proper tree management practices (training & pruning), fertilizers application, modern techniques of irrigation, pest and disease control and quality fruit production through thinning out will be improved through a suitable extension programme.

3.2.3 Off seasonal fruit production

Citrus production is highly seasonal and is associated with low market price and high wastage during the season. Well-planned long term research programmes are required for off-seasonal fruit production. This would generate knowledge on off-seasonal and extended seasonal fruit production technologies.

3.3. Reducing Post-harvest Losses and Improving Processing Technologies

Seasonality of production is associated with high fluctuation of prices. Preserved lime juice is a popular commodity in most of the countries. Since the technology is simple, processing will be promoted in lime-producing areas. Although lemon is available throughout the year, it is not being used for processing. Lemon juice is not suitable for heat treatment but it can be used in the beverage industry in mixed fruit cordial preparation.

4.0 Estimated Budget

The additional fund requirement for the implementation of proposed programmes is presented in table 7. The total additional fund requirement will be about Rs. 2 mn in 1998.

Table 1. Import quantity and value of Sweet Orange

Year	Import quality (mt)	Import Value (Mn. Rs.)
1991	277	10.52
1992	556	13.33
1993	681	18.74
1994	908	27.57
1995	1588	40.97
1996	2158	51.17

Table 2. Extent (hec) and Production (000 fruits) of Citrus Fruits in Sri Lanka

YEAR	LIME		ORANGE	
	EXT	PRO'N	EXT	PRO'N
1975	4530	197855	4009	27440
1976	4544	206358	4303	34205
1977	4455	207502	4276	37372
1978	4174	181314	4062	35450
1979	4023	163653	3371	36861
1980	3956	186668	3382	47429
1981	3910	174886	3335	33735
1982	3883	1433394	3254	31442
1983	3772	255169	3107	95400
1984	3953	208066	2870	58260
1985	4074	252902	2897	49755
1986	5218	474501	3225	37006
1987	4937	364305	3412	35814
1988	5041	117218	3444	39417
1989	5194	119832	3416	31967
1990	4887	93152	3174	34315
1991	5154	103747	3167	23923
1992	5771	133565	3573	23992
1993	6773	155911	3265	27076
1994	6894	175080	3352	27529
1995	6656	165124	3379	27421
1996	6691	151459	3703	27147

Note: * '000 Bunches

SOURCE: DEPARTMENT OF CENSUS & STATISTICS

Table 3. Targeted Percapita Availability

Year	kg/yr
1998	1.3
1999	1.3
2000	1.4
2001	1.5
2002	1.6
2003	1.7
2005	1.7

Table 4. Projected targets of Extent, Production, Yield and Planting material Requirements

Item	1998	1999	2000	2001	2002	2003	2004	2005
Total extent needed (ha)	10065	10100	10432	10705	11201	11383	11009	10659
Annual production (mt)	24155	25249	27123	28904	31364	33010	33026	33043
Expected yield (mt/ha)	2.4	2.5	2.6	2.7	2.8	2.9	3.0	3.1
Planting material requirement (000)	886	392	558	538	671	515	214	213

Identified districts: Moneragala , Ratnapura , Kurunegala, Badulla.

Potential districts: Lemonime - Colombo, Gampaha, Kalutara, Kandy, Kurunegala.

Lime - Matale, Galle, Hambantota, Vavuniya, Mulativu, Baticaloa.

Orange - Ampara, Trincomalee, Puttalam, Anuradhapura, Polonnaruwa, Jaffna .

Table 5: Proposed Targets of Area(ha): Citrus

Province	District	Present Extent(ha)		Proposed Total Extent(ha)						
		1996	1998	1999	2000	2001	2002	2003	2004	2005
Western	Colombo	60	67	67	69	71	74	75	73	70
	Gampaha	90	100	100	103	106	111	113	109	106
	Kalutara	131	145	146	151	155	162	164	159	154
Southern	Galle	42	47	47	48	50	52	53	51	49
	Matara	107	119	119	123	126	132	134	130	126
	Hambantota	333	369	371	383	393	411	418	404	391
Uva	Badulla	609	676	678	700	718	752	764	739	715
	Monaragala	2835	3145	3156	3259	3345	3500	3556	3440	3330
Sabaragamuwa	Ratnapura	930	1032	1035	1069	1097	1148	1167	1128	1092
	Kegalle	79	88	88	91	93	98	99	96	93
NWP	Kurunegala	735	815	818	845	867	907	922	892	863
	Puttalam	295	327	328	339	348	364	370	358	347
Central	Kandy	365	405	406	420	431	451	458	443	429
	Nuwara Eliya	243	270	270	279	287	300	305	295	285
	Natala	132	146	147	152	156	163	166	160	155
NCP	Anuradhapura	533	591	593	613	629	658	669	647	626
	Polonnaruwa	188	209	209	216	222	232	236	228	221
Northern	Jaffna	165	183	184	190	195	204	207	200	194
	Kilinochchi	55	61	61	63	65	68	69	67	65
	Mannar	11	12	12	13	13	14	14	13	13
	Vavuniya	113	125	126	130	133	139	142	137	133
	Mulativu	80	89	89	92	94	99	100	97	94
Eastern	Ampara	448	497	499	515	529	553	562	544	526
	Trincomalee	10	11	11	11	12	12	13	12	12
	Batticaloa	46	51	51	53	54	57	58	56	54
Mahaweli	Udawalawe	77	85	86	89	91	95	97	93	90
	System H	177	196	197	203	209	218	222	215	208
	System B	60	67	67	69	71	74	75	73	70
	System C	109	121	121	125	129	135	137	132	128
	System G		0	0	0	0	0	0	0	0
	System I	16	18	18	18	19	20	20	19	19
		9074	10065	10100	10432	10705	11201	11383	11009	10659

Table 6. Suitability of Citrus Species for Different Agro-ecological Zones.

Species	Suitable Zones
Sweet Orange	Intermediate Zone & Dry Zone
Mandarin	Intermediate Zone & Wet Zone
Lime	Intermediate Zone & Dry Zone
Grapefruit	Intermediate Zone & Wet Zone
Pumello	Intermediate Zone & Wet Zone
Lemon	All Zones

Table 7. Production Program of the Planting Material Production: Citrus (Seedlings)

	1998	1999	2000	2001	2002	2003	2004	2005
Total requirement (in '000)	886	392	558	538	671	515	214	213
<u>AGENCY</u>								
DOA (Nuclear Materials)	100	200	100	75	50	40	20	10
Selected Orchardmen (Basic Material)	-	-	-	-	-	-	-	-
Private Nurserymen (Planting Material)	450	190	450	450	600	470	190	200
Individual Farmers (Self)	336	2	8	13	21	5	4	3
Imports	-	-	-	-	-	-	-	-
% of formal supply out of (additional + replacement) requirement	62	99	99	99	99	99	98	98

* The fruits for seeds will be purchased only from the selected trees by a committee.

Table 8: Additional Funds Requirement('000 Rs): Citrus 1998-2005

Year	Research	Extension	Planting Material	Total
1998	150	1000	912	2062
1999	150	1050	1647	2847
2000	150	1103	912	2165
2001	150	1158	712	2020
2002	150	1216	550	1916
2003	150	1276	437	1863
2004	150	1340	207	1697
2005	150	1407	105	1662