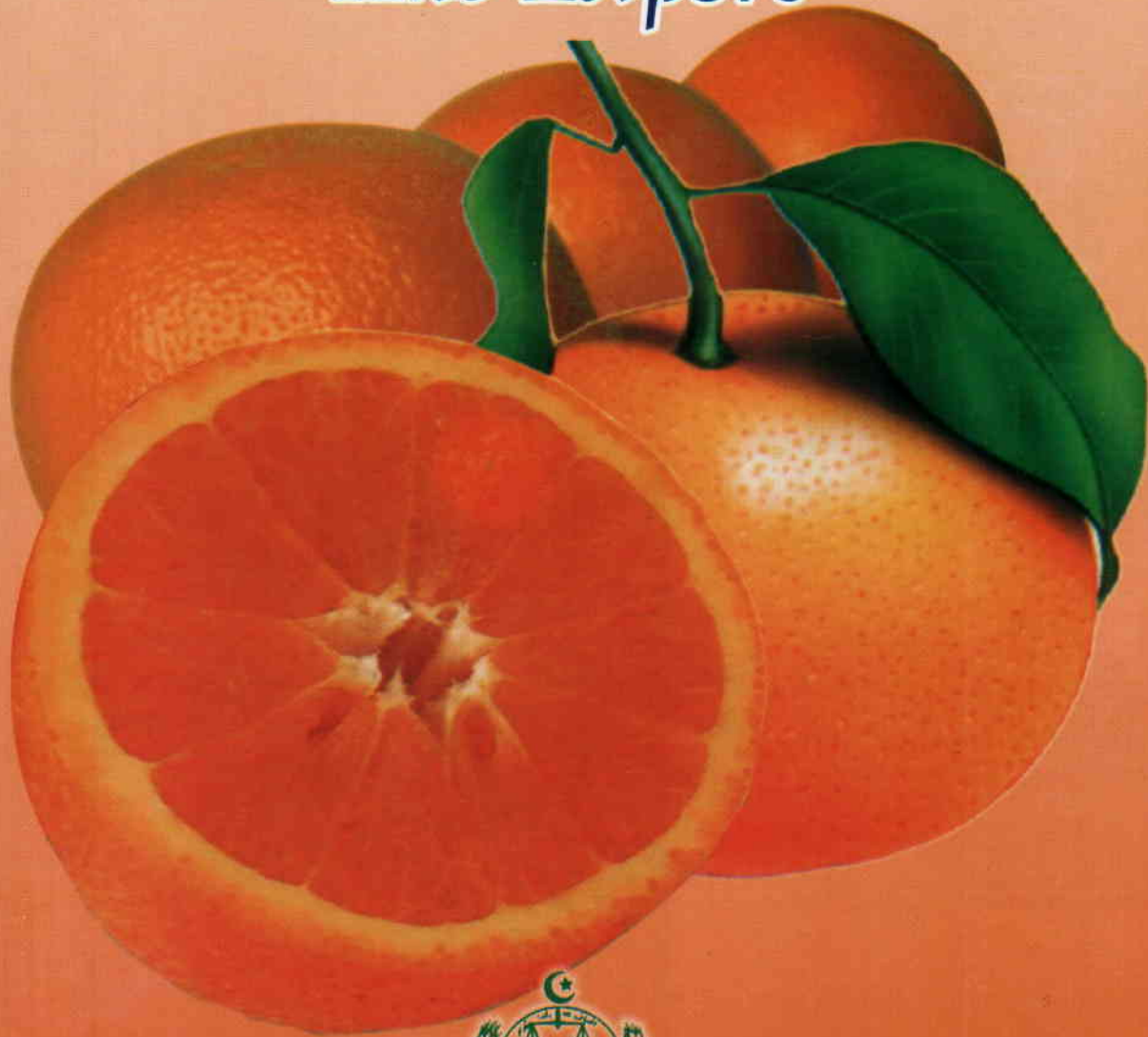


Kinno Production, Marketing And Export



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Foreword

Improved Agricultural Marketing Information system is key to the development of Pakistan's Agrarian Economy. Fully cognizant of the fact, Government of the Punjab in Agriculture Department is implementing a Programme for improvement of Agricultural Marketing Information System to facilitate Agribusiness with special emphasis on exports. The objectives are as follows:

- **Collection of data on domestic production to monitor the crop situation to find out estimation Marketable and Exportable Surplus.**
- **To collect information on International Production and Trade.**
- **To provide Information to the policy maker to facilitate export of Agriculture Crop/Produce to find out potential export markets to accelerate export.**
- **Maintenance of database on vital information regarding domestic and International Production, Trade, Consumption needs and quarantine requirements/ standards of Agriculture Crop.**
- **To discuss the WTO issues and Constraints under its regime.**

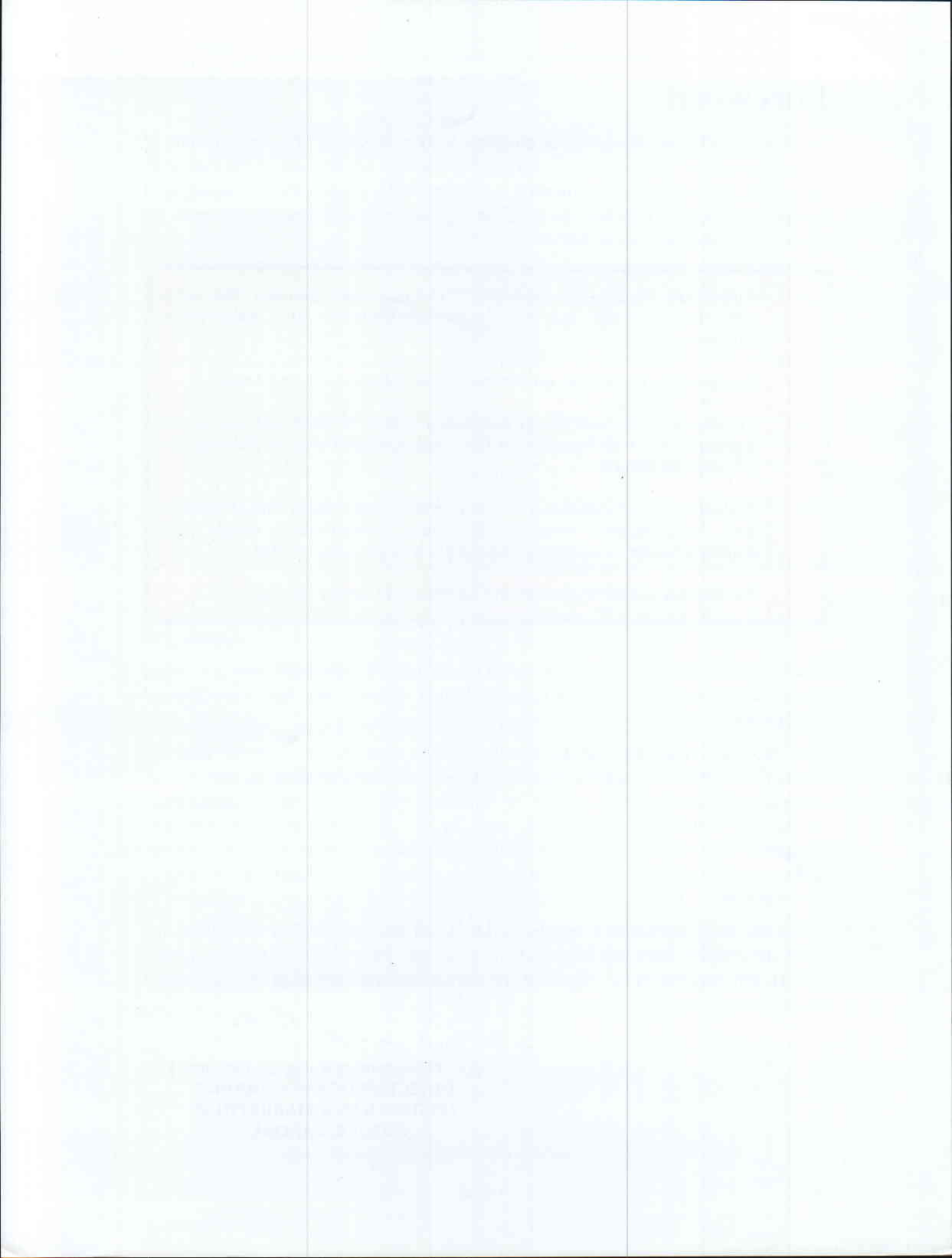
This report relate to Citrus crop through a planned effort, keeping in view the above objective. Available information is updated, further required data has been collected and processed.

The information collected has been compiled into a booklet form to be used as reference/benchmark by all the stakeholders' viz. producers, processors, traders and exporters to enable them to plan an effective role in the World's production, productivity and export. The efforts made by Mr. Munir Ahmad, Extra Assistant Director of Agriculture (Economics & Marketing) headquarter office & Mr. Muhammad Irfan Bhatti analyses and composition to compile the information is highly acknowledged.

To update the information is regular activities. All the stakeholders can obtain the latest information from the Directorate through toll free telephone Number (0800-51111). Any suggestion for improving the format and the content of this publication would be welcome.

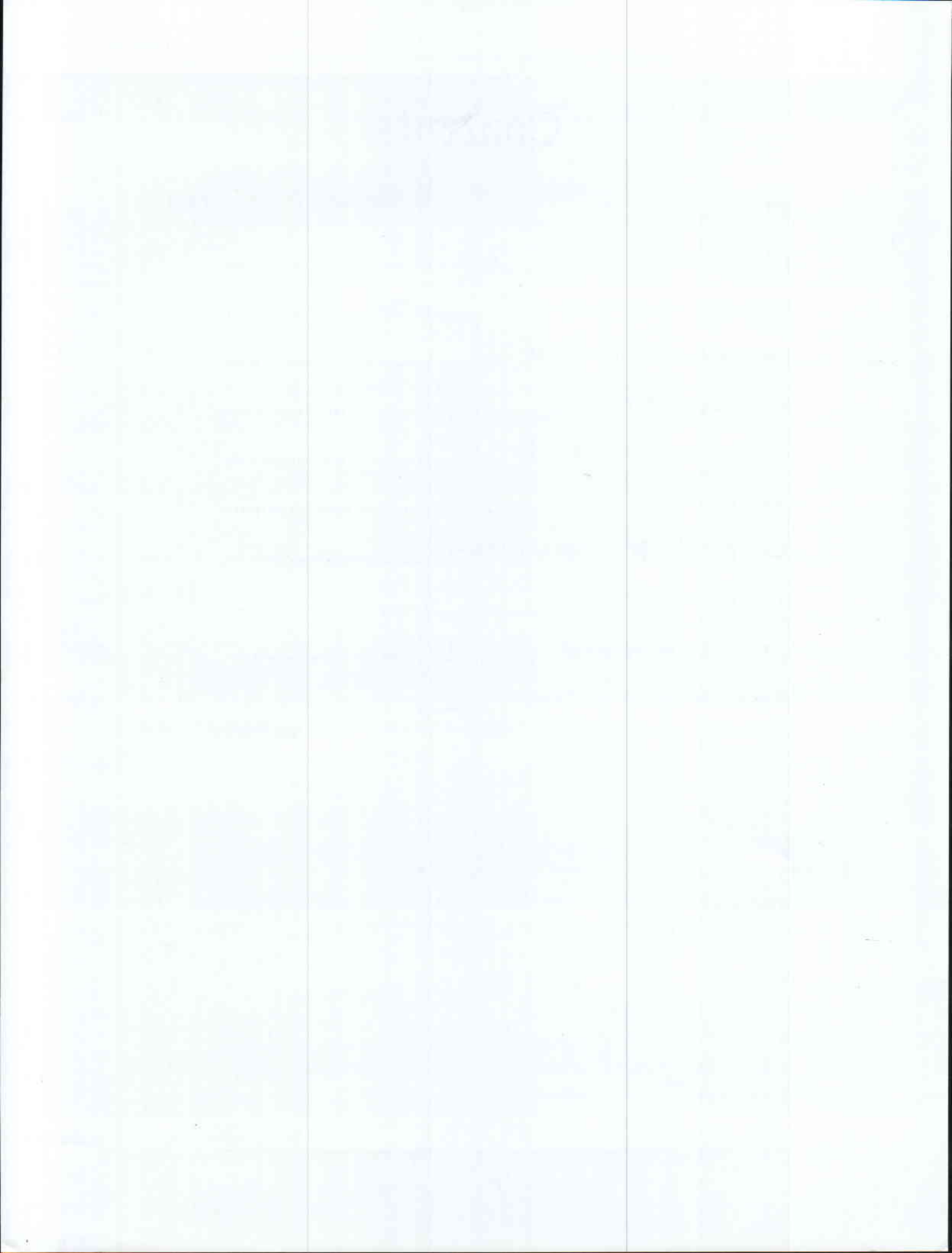


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CITRUS PRODUCTION, MARKETING & EXPORT

INTRODUCTION

Citrus production ranges from northeastern India eastward through the Malay Archipelago and south to Australia. Sweet oranges probably arose in India, the trifoliolate orange and mandarin in China, and acid citrus types from Malaysia. Oranges and pummelos were mentioned in Chinese literature in 2400 BC, and later in Sanskrit writings (800 BC) lemons were mentioned. Theophrastus, the Father of Botany, gave a taxonomic description of the citron in 310 BC, classifying it with apple as *Malus medica* or *Malus persicum*. At the time of Christ and shortly thereafter, the term "citrus" arose as a mispronunciation of the Greek word for cedar cones, "Kedros". Alternatively, "citrus" may have arisen through a condensation of "*Callistris*", the name for the sandalwood tree. At this time, citrus fruits were spread throughout Asia, North Africa, and Europe along trade routes. The dissemination was carried out by many cultures, indicating widespread appeal of the fruits at this time. From the first centuries BC to medieval times, orangeries and citrus "groves" were established in Europe, and cultivation became more sophisticated. Columbus, Ponce de Leon, and Juan de Grijavla carried various citrus fruits to the new world in the late 1400's early 1500's. Citrus culture proliferated in Florida in the late 1700's, when the first commercial shipments were made. Right about this time, citrus was introduced to California, although it was much later that commercial production began in the west.

Citrus is a product that offers many advantages in the lifestyles of people who are health conscious, demand convenience, and place a premium on food safety. Continuing improvements in transportation logistics will allow exporters to provide year-round supplies of high quality fresh citrus products, and also allow processed citrus producers to provide convenient, reasonably priced products to consumers throughout the world. These observations mean that world demand for citrus products will continue to expand, and that the long-run outlook for citrus producers remains positive.

The orange is a rich source of protective food ingredients like vitamins A, B, C and calcium and its health-promotion properties emanate from this fact. It is superior to almost any other fruit as a source of calcium. The orange also contains sodium, potassium, magnesium, copper, sulphur and chlorine. Its vitamin C content helps the body tissues to use the calcium contained in the food.



Food Value Orange*		Minerals and Vitamins	
Moisture	87.6%	Calcium	26 mg
Protein	0.7%	Phosphorus	20 mg
Fat	0.2%	Iron	0.3 mg
Minerals	0.3%	Vitamin C Small amounts of Vitamin B Complex	30 mg
Fibre	0.3%		
Carbohydrates	10.9%		
	100%		
		Calorific Value - 59	
*Values per 100 gms edible portion			

World Citrus Variety

Bearss Seedless Lime

Large fruit, very juicy and seedless. This is the most commonly grown commercial variety. Must be protected from severe frosts. Crop heaviest in fall, although fruit stores on tree finally turning from green to yellow before falling off.



Mexican Lime

Known as 'Key Lime in Florida, this is the most tender citrus. Fruit much smaller than 'Bearss' with many seeds. Strong lime flavor and Juicy.



Rangpur Lime

In reality this orange-colored fruit is a sour mandarin. Its juice combines mellow lime sourness with mild orange flavor. Closed blossoms are purple in color.



Kafir (Kieffer/Thai/Wild) Lime

Leaves, zest, and juice are used in Thai, Cambodian, and Indonesian cooking. Bumpy fruit. The leaves of the kaffir lime tree are a dark green color with a glossy sheen. The kaffir lime fruit approximates the size of a Western lime. The fruit is dark green in color and has a bumpy surface.



Calamondin

Prized fruit of the Philippines, known as 'Kalamansi'. Small orange fruit, sour in taste, can be used as a lime or to make marmalade. Spectacular ornamental. Upright habit. Early bearing and highly productive.



Eureka Lemon

Produces large crops of fruit all year near the coast. Prune tree to keep compact and to keep from becoming leggy. Has fewer thorns than 'Lisbon'. Handsome as individual specimen or patio container tree.



Lisbon Lemon

Major commercial variety worldwide. Originated in Portugal. Thornier than 'Eureka'. Does well in warmer desert regions and the interior valleys where it tends to fruit year-round.



Meyer Lemon

Thin-skinned fruit that is less tart than 'Eureka' or 'Lisbon'. Plant has a mounding habit. Nearly thornless. Fruits abundantly in winter but can have some fruit most months of the year. Mature fruit turns from yellow to slightly orange in color.



Eustis Limequat

Fruit gets its shape from Kumquat and its flavor from 'Mexican Lime'. Everbearing and highly productive. Somewhat more cold hardy than lime parent. Small foliage. Needs occasional pruning to keep full.



Minneola Tangelo

A tasty hybrid turns bright red-orange color in winter. Fruit must ripen slowly on tree during spring for best tangerine flavor. Very sweet and juicy upon maturity, even in summer months.



Dancy Tangerine

Best known of the Mandarins. Winter-ripening fruit. Easy to peel. Some seeds. Tree has fine foliage and upright habit. Good flavor.



Satsuma Mandarin

Hardest of all mandarins. Seedless and easy to peel. Excellent flavor when ripe in winter months. Stores well when refrigerated but not well on tree. A very slow grower.



Clementine Mandarin

From North Africa. Fruit is spring ripening, is slightly larger than Dancy and has fewer seeds. Yields best production in desert. Also produces well in coastal climates.



Fremont Mandarin

Bright reddish-orange peel, rich flavor, tender and juicy. Some seeds, heavy bearer. Fruit holds well on tree until spring. Where protected from cold, fruit flavor is unsurpassed.



Kumquat

Small orange fruit that are eaten peel and all. Will store on trees for months without loss of flavor. Needs lots of heat to produce very fragrant blossoms in summer. Plant is very cold hardy. Very ornamental with small foliage. Native of China, it is a symbol of prosperity and good luck.



Robertson Navel Orange

Fruit borne in clusters. This navel has excellent flavor even in areas of low summer heat. Early ripening, seedless and a heavy bearer.



Washington Navel Orange

Famous winter-ripening fruit. Excellent in flavor. Seedless, easy to peel, separates into segments. Also good for fresh squeezed juice in winter.



Trovita Orange

Spring ripening. Wide range of climate adaptation. Develops great flavor even in areas of low summer heat such as the coastal areas of California. Few seeds.



Valencia Orange

Summer ripening. The traditional "juice orange", also good for eating. Blooms in spring and has small green fruit first summer which ripen the following summer. Stores well on tree for long periods actually improving in quality.



Jaffa Orange

Also known as 'Shamouti' orange. Grown in Israel. Spring ripening. Fruit is almost seedless, pleasantly sweet and juicy. Easy to peel. Stores well on tree.



Sanguinelli Blood Orange

Rind blushed deep red. Flesh red flecked to beet red. Needs more heat than 'MORO' to sweeten up. Tart spicy flavor. Mostly seedless.



Moro Blood Orange

Rich burgundy color also grow in coastal areas. Very productive, early maturity. Distinctive aroma, exotic berry like flavor.



Marsh Seedless Grapefruit

Best flavor if grown in hot climate locations. Fruits takes 18 months from bloom to ripen. Tree has dense form and rich, green foliage.



Rio Red Grapefruit

Texas hybrid that shows much better color than the traditional 'Ruby'. Best in warmer locations but also performs well near the coast.



Oro Blanco Grapefruit

Large white-fleshed hybrid that matures mainly in early spring. Fruit very sweet even when grown in coastal areas with low summer heat. Huge fragrant blossoms in spring. Large glossy-green foliage.

**Star Ruby Grapefruit**

Dark red color is characteristic of this variety, even when grown in cooler coastal regions. Crop heavy in spring, stores well on the tree.

**WORLD CITRUS PRODUCTION**

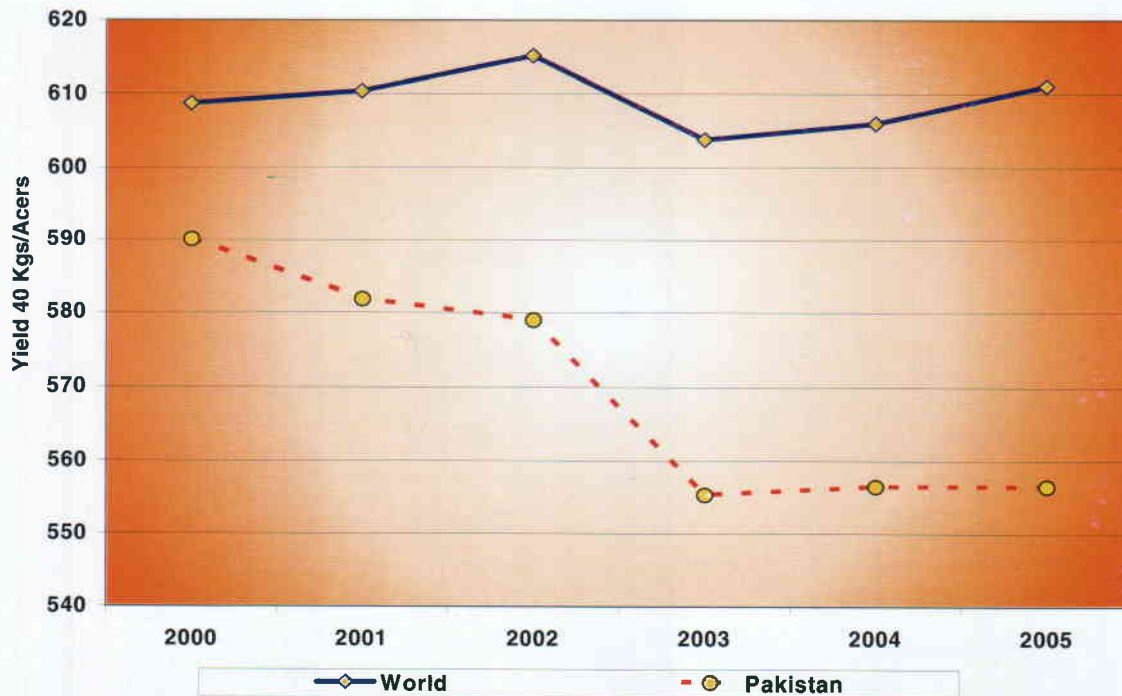
World citrus production and consumption has witnessed a period of strong growth since the mid-1980s. Production of oranges, tangerines, and lemons and limes has all expanded rapidly. Larger production levels have enabled higher levels of total as well as per capita consumption of citrus. Even faster growth has been realized for processed citrus products as improvements in transportation and packaging have lowered costs and improved quality.

World Production Citrus Fruits 2004-05

Sr. No.	Countries	Production in (MT)	%age Share
1	Brazil	20,142,100	19.2
2	China	16,019,500	15.2
3	United States of America	10,317,200	9.8
4	Mexico	6,475,411	6.2
5	Spain	4,867,300	4.6
6	India	4,750,000	4.5
7	Italy	3,836,793	3.7
8	Iran, Islamic Rep of	3,825,000	3.6
9	Nigeria	3,250,000	3.1
10	Egypt	2,797,600	2.7
11	Argentina	2,690,000	2.6
12	Turkey	2,587,650	2.5
13	Pakistan	1,670,000	1.6
14	South Africa	1,559,066	1.5
15	Japan	1,370,000	1.3
Sub Total:		86,157,620	82.0
Other 122 Countries		18,920,108	18.0
Grand Total:		105,077,728	100.0

Source: FAO

Citrus Yield Trend



Source: FAO

Kinno

Tangerines (Kinno) differ from oranges because nearly all tangerine production is intended for the fresh market. The major producers of tangerines are China, Spain, and Japan followed by Brazil, Korea, Pakistan, Italy, Turkey, Egypt, the United States, Morocco and Argentina. Spain has had significant success with its seedless Clementine varieties in Europe, and more recently, in the United States. Spain accounts for over 50 percent of world's exports of fresh tangerines. The other major exporters are Morocco and China. Morocco has a well-developed Clementine industry and ships to Europe and the United States.

World tangerine production exhibited strong growth between 1982-84 and 1992-94; increasing at an annual average rate of about 4.2 percent (Annexure-1) Production rose from 8.2 million tonnes in 1982-84 to 12.4 million tonnes in 1992-94. Increased crops in many countries, notably China among developing countries and Spain among developed countries, more than offset a large production decline in Japan.



Production Tangerines 2004-05

Sr. No.	Countries	Production (MT)	%age Share
1	China	11,395,000	48.95
2	Spain	1,944,600	8.35
3	Brazil	1,270,000	5.46
4	Japan	1,100,000	4.72
5	Iran, Islamic Rep of	720,000	3.09
6	Thailand	670,000	2.88
7	Egypt	665,000	2.86
8	Italy	661,823	2.84
9	Turkey	585,000	2.51
10	Korea, Republic of	580,000	2.49
11	Argentina	450,000	1.93
12	Pakistan	434,000	1.86
13	Morocco	425,000	1.83
14	United States of America	390,090	1.68
15	Mexico	360,000	1.55
Sub Total:		21,650,513	93.00
Other 46 Countries:		1,630,626	7.00
Grand Total:		23,281,139	100.00

Source: FAO

CITRUS PRODUCTION IN PAKISTAN

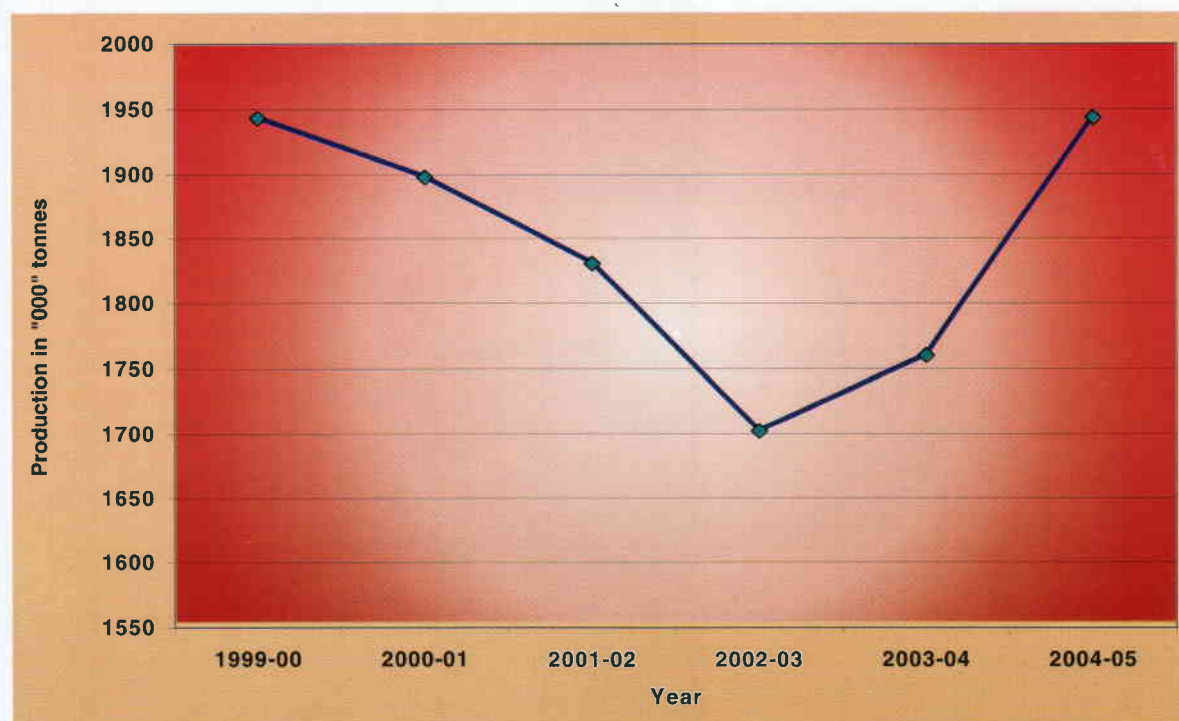
In Pakistan also, citrus fruits are the most important fruit crops grown on the area of 487 Thousand Acres with production of 1.9 Million Tonnes annually. Citrus fruit is grown in all four provinces of Pakistan but Punjab produces over 95% of the crop because of its greater population, favourable growing conditions and adequate water.

Area and Production of Citrus in Pakistan 2004-05

Province	Area "000" acres	Production "000" Tonnes	% Share
Punjab	422.06	1623.5	95.04
Sindh	10.13	27.7	1.89
NWFP	10.63	38	2.12
Balochistan	5.93	13.1	0.95
Pakistan	448.75	1702.3	100.00

Citrus cultivation in Pakistan has made great strides, particularly from 1960's onward. During the year 1975-80, production was 0.72 Million Tons and was cultivated on 186 thousand acres of land, whereas, during the year 2004-05, citrus fruit was cultivated on 449 thousand acres and production was 1.7 Million Tonnes.

Citrus Production Trend in Pakistan



Kinno (Mandarin) was introduced in Punjab from USA in the 1940's and currently Punjab is the center of production and supply of citrus fruits of high quality and grade. Its four varieties are placed into three groups as early, mid and late seasons. Area under different varieties indicates that about 60 per cent of the citrus is covered by kino followed by orange 13 per cent, musambi 12 per cent. The variety wise production of Citrus during 2000-01 is as under: -

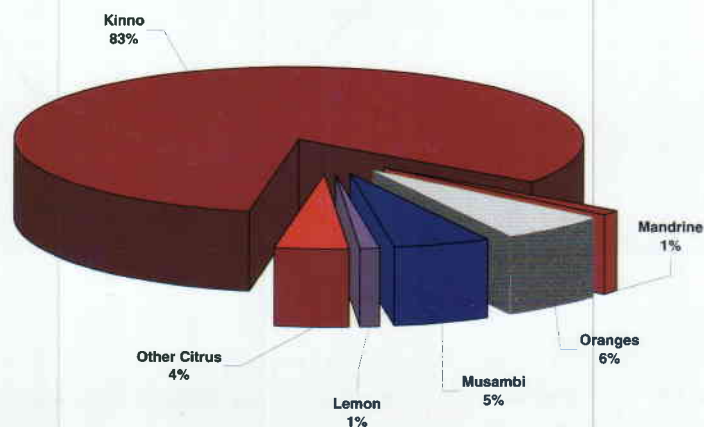
Variety wise Production of Citrus in Punjab

Area in '000' Acers
Production in '000' Tonnes

Sr. No.	Variety	Area	Production	%age Share in Production
1	Kinno	323731	1533977	81.93
2	Mandrine	7318	20355	1.09
3	Oranges	32564	117438	6.27
4	Musambi	29210	99420	5.31
5	Grap Fruit	826	3126	0.17
6	Lemon	12673	24440	1.31
7	Sure Lime	2582	6410	0.34
8	Sour Orange	1362	4713	0.25
9	Sweet Lime	14233	41835	2.23
10	Other Citrus	6317	20532	1.10
Total Citrus		430816	1872246	100.00

Source: Crop Reporting Service, Punjab

Variety Wise Production of Citrus



All the improved varieties are propagated by means of budding on rough lemons or sour orange. Rootstocks are generally grown through seed, T budding/T grafting are the usual method of citrus cultivars propagation. Budding may be done during spring (Feb-March) and autumn (August-October) when bark slip freely from both scion and stock. Bud should be selected from mature wood of productive and healthy trees. In sweet lime propagation through cutting is a common method.

Major Citrus Growing Areas in Punjab

Citrus is grown in almost all the districts of the Punjab but its 80% production concentrated in following 10 districts

**Area in '000' Acers
Production in '000' Tonnes**

Sr. No.	District	Total Citrus Fruits		
		Area	Production	%age Share in Production
1	Sargodha	188.052	930.577	49.70
2	T.T. Singh	25.587	110.746	5.92
3	Mandi Baha-u-Din	23.297	82.673	4.42
4	Sahiwal	19.293	77.429	4.14
5	Vehari	15.944	70.363	3.76
6	Khanewal	16.74	69.018	3.69
7	Bahawalpur	18.436	63.463	3.39
8	Multan	13.942	55.221	2.95
9	Okara	13.17	52.279	2.79
10	Jhnag	12.092	45.934	2.45
Sub Total:		346.553	1557.703	83.20
Other 25 District		84.263	314.543	16.80
Grand Total:		430.816	1872.246	100.00

Source: Crop Reporting Service, Punjab

Major Kinno Growing Areas in PunjabArea in '000' Acers
Production in '000' Tonnes

Sr. No.	District	Kinno		
		Area	Production	%age Share in Production
1	Sargodha	163.93	856.58	55.84
2	T.T. Singh	23.52	103.57	6.75
3	Mandi Baha-u-Din	21.31	77.94	5.08
4	Sahiwal	14.05	60.81	3.96
5	Khanewal	13.00	55.80	3.64
6	Vehari	10.94	53.90	3.51
7	Bahawalpur	13.35	49.83	3.25
8	Layyah	8.07	31.62	2.06
9	Okara	7.22	30.99	2.02
10	Multan	6.30	28.92	1.89
Sub Total:		281.67	1349.97	88.00
Other 25 District		42.06	184.01	12.00
Grand Total:		323.73	1533.98	100.00

Source: Crop Reporting Service, Punjab

WORLD EXPORT OF KINNO

Most tangerines, however, are consumed in the country of production. Thus the large consumption countries for tangerines are China, Japan, Pakistan and Egypt. Domestic production also supports significant tangerine consumption in Algeria, Mexico, Israel, Australia, Argentina, Paraguay, Bolivia, Cyprus, Jordan, Lebanon, Korea and the United States. The countries of the EU other than Spain, Italy, Greece and Portugal are the main importing countries.

World Export of Kinno

Sr. No.	Year	Qty.	Value	A.U.P.
1	1999-00	2521350	1435165	569
2	2000-01	3131899	1719738	549
3	2001-02	2996010	1663663	555
4	2002-03	3251889	1910033	587
5	2003-04	3425916	2367713	691

Source: FAO

Leading Exporters Kinno 2003-04

Spain dominates exports of tangerines with more than 48% share and the success of the Clementine varieties will serve to support its position. China is the second largest exporter of fresh tangerines. Pakistan's position in the export of tangerines is fifth in the world.

Sr. No.	Countries	Quantity		Value	
		Mt	%age Share	1000 \$	A.U.P
1	Spain	1420463	48.88	1321300	930
2	China	300159	10.33	85492	285
3	Turkey	216102	7.44	95559	442
4	Morocco	155804	5.36	115177	739
5	Pakistan	149587	5.15	30411	203
6	Netherlands	88712	3.05	77231	871
7	South Africa	76592	2.64	46229	604
8	Argentina	66479	2.29	32536	489
9	Italy	39078	1.34	26511	678
10	Uruguay	37290	1.28	22905	614
Sub Total:		2550266	87.76	1853351	5856
Other 85 Countries		355790	12.24	263302	62912
Grand Total:		2906056	100.00	2116653	68768

Source: FAO

Leading Importers Kinno 2003-04

Sr. No.	Countries	Import Qty.		Import Value	
		Mt	%age Share	1000 \$	A.U.P
1	Germany	350399	12.81	291223	831
2	United Kingdom	314907	11.51	273523	869
3	France	305860	11.18	315317	1031
4	Russian Federation	243515	8.90	103549	425
5	Czech Republic	163312	5.97	36937	226
6	Netherlands	146326	5.35	140049	957
7	Poland	119853	4.38	88648	740
8	Italy	104937	3.84	97446	929
9	Canada	99377	3.63	92151	927
10	United States of America	77296	2.82	140661	1820
Sub Total:		1925782	70.38	1579504	8754
Other 85 Countries		810431	29.62	545515	79567
Grand Total:		2736213	100.00	2125019	88321

Source: FAO

EXPORT OF CITRUS FROM PAKISTAN

Pakistan is one of the largest citrus producing countries of the world. There is great demand for Pakistani fresh fruits, particularly in the Middle East and the Gulf states. Unfortunately export of fruits represents only 8 per cent of the total production while Greece, Lebanon, Morocco, Spain and Iran export 50 per cent of their fruit production.

Export of Kinno from Pakistan

YEAR	QUANTITY Metric Tonne	VALUE Million Rs.
1999-00	82750	720.57
2000-01	97028	950.35
2001-02	121692	1278.67
2002-03	94806	1268.53
2003-04	149587	1771.34
2004-05	74508	1225.87

Source: Federal Bureau of Statistics, Pakistan

Export of Oranges from Pakistan

YEAR	QUANTITY	VALUE
	Metric Tonne	Million Rs.
1999-00	2107	21.84
2000-01	1031	10.85
2001-02	890	12.75
2002-03	247	4.54
2003-04	1672	17.42
2004-05	75	1.41

Source: Federal Bureau of Statistics of Pakistan

Major Markets for Pakistani Kinno

Qty in '000' Tonnes
Value in Million Rs.

Sr. No.	Countries	2004-05		2003-04	
		Qty.	Value	Qty.	Value
1	United Arab Emirates	19659	259	0	0
2	Russian Federation	12848	258	1812	30
3	Saudi Arabia	10752	168	14484	172
4	Indonesia	8532	146	29042	359
5	Philippines	7882	127	15778	180
6	Sri Lanka	2315	45	9115	105
7	Netherlands	2075	45	5611	73
8	Singapore	1837	37	4845	68
9	Bahrain	1416	22	2344	29
10	United Kingdom	1000	16	1317	22
Sub Total:		68315	1123	84347	1038
Other 54 Countries		142821	2349	233934	2809
Grand Total:		211136	3472	318282	3847

Source: FBS