

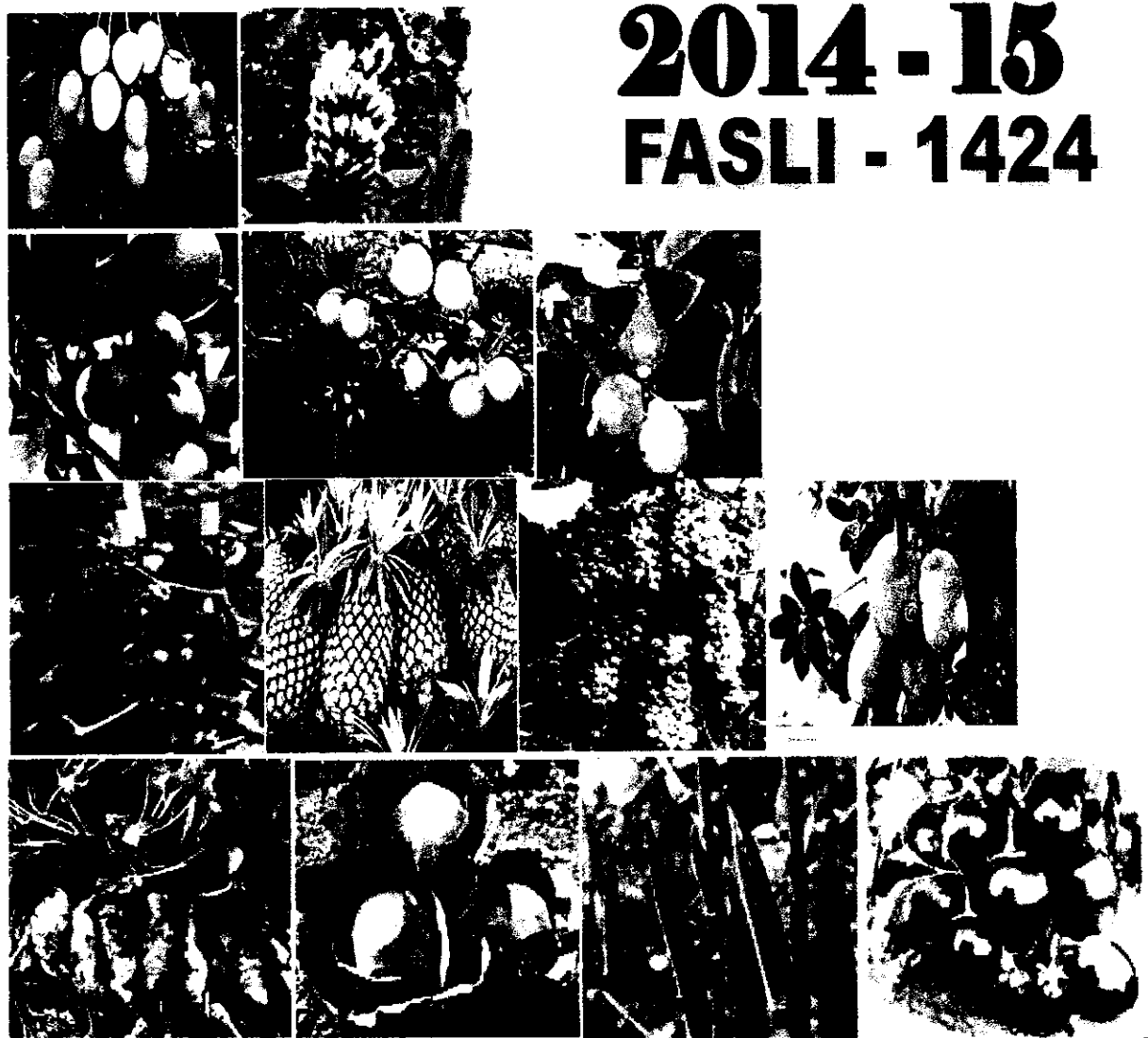
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# CROP ESTIMATION SURVEY ON FRUITS AND VEGETABLES

**2014 - 15**  
**FASLI - 1424**



PRINCIPAL SECRETARY / COMMISSIONER  
DEPARTMENT OF ECONOMICS AND STATISTICS  
CHENNAI-600 006

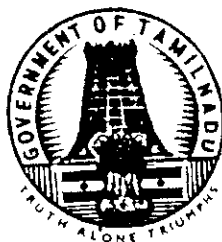
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**REPORT ON FRUITS AND VEGETABLES  
FASLI - 1424  
(2014-15)**

**PRINCIPAL SECRETARY / COMMISSIONER  
DEPARTMENT OF ECONOMICS AND STATISTICS  
CHENNAI - 600 006.**



**REPORT**  
**ON**  
**FRUITS AND VEGETABLES**

**TAMIL NADU**  
**Fasli 1424 (2014-15)**

**PRINCIPAL SECRETARY / COMMISSIONER**  
**DEPARTMENT OF ECONOMICS AND STATISTICS**  
**CHENNAI - 600 006**

# PREFACE

Fruits and Vegetables contribute significantly to agricultural economy in terms of its value addition and employment generation. The Crop Estimation Survey on Fruits, Vegetables and other Minor Crops is implemented in Tamilnadu as a Centrally Sponsored Scheme with 100 percent funding by GOI from 1982-83 onwards to estimate the area and yield of selected crops. But the Scheme has been converted as State Scheme from 2015-16 onwards. The results of the survey carried out during 2014-15 have been presented in this report.

During the year 2014-15, the survey covered eight fruit crops viz Mango, Jack, Guava, Lemon, Orange, Banana, Grapes and Pine-apple and five vegetable crops viz Brinjal, Lady's Finger, Tomato, Cabbage and Sweet- Potato.

This report consists of six parts. Part-I highlights the objectives of the Survey, Part-II explains Concept and Definition, Part-III presents the Estimation Procedure, Part-IV reveals the survey results, Part-V presents Findings of the survey and Part-VI contains Comparative Statement for 10 years data on fruits and vegetables crops.

This report will be useful to administrators, policy-makers in Government, Research scholars, Programme officials of Agriculture and Horticulture Departments and to those interested in the development of horticulture in Tamil Nadu.

(Sd.) V. Iraianbu,  
Principal Secretary / Commissioner.

Place: Chennai-6.

Date: 26.05.2016

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## **PART – I**

### **INTRODUCTION**

Fruits and Vegetables are high value addition crops which are labour intensive, generating employment. It is an essential item of human diet and also an important source of nutrition. They are sources of carbohydrates, next only to cereals. These crops are generally commercial in nature fetching lucrative incomes and having large export potential. Despite the fact that crops occupy a predominant position among horticultural crops, reliable data and information of area, production and yield of these crops are found to be inadequate for planning purposes both at micro and macro level. Government of India have extended a scheme for the conduct of Crop Estimation Survey on Fruits and Vegetables to gauge the area and average yield of each crop as in the case of principal crops.

The Crop Estimation Survey on Fruits and Vegetables is being implemented in Tamil Nadu from 1982-83 as a Centrally-Sponsored Scheme with 100 percent financial assistance by the Government of India. But the Scheme has been converted as State Scheme from 2015-16 onwards.

### **COVERAGE**

Currently the following eight fruit and five vegetable crops are covered under this survey.

#### **A. Fruits**

1. Mango, 2. Banana, 3. Guava, 4. Lemon, 5. Orange, 6. Jack, 7. Grapes and 8. Pineapple

#### **B. Vegetables**

1. Tomato, 2. Brinjal, 3. Lady's Finger, 4. Cabbage and 5. Sweet Potato

### **OBJECTIVES**

The main objectives of the survey are:

1. To arrive reliable estimates of average yield per hectare and production estimates of each crop both at district and state level and
2. Collection of certain ancillary information on cultivation practices of selected fruits and vegetables.

In addition, it covers the following aspects pertaining to tree crops.

- i. Estimation of number of bearing and non-bearing trees.

- ii. Estimation of average yield per bearing tree.

## **SAMPLING DESIGN**

The sampling technique adopted for the survey is a multistage stratified random sampling. Taluk within a district constitutes the stratum. The three stages of sampling are as follows:

- i. The selected village is the first stage sampling unit.
- ii. The field / orchard within the selected village is the second stage unit.
- iii. The experimental plot within the selected field is the third and ultimate sampling unit.

The villages are selected in proportion to the area under each crop in the taluk covered under the survey. In each selected village, two experimental plots were chosen for the crop.

In case of fruit tree crops viz. mango, guava, jack, lemon and orange, the revenue villages growing the above tree crops constitute the sampling unit. In each of the village selected, two gardens growing the specified tree crop are selected randomly for tree enumeration. From 1998-99 onwards, it has been decided to conduct the survey on garden only. For yield estimation, all the bearing trees in the selected garden are taken in to account.

## **SAMPLE SIZE**

During the year 2014-15, about 1320 experiments were planned in 660 villages. The following table shows the details of crop wise experiments planned.

Crop	No. of villages selected
<b>A. Fruits</b>	
1. Mango	120
2. Banana	100
3. Guava	50
4. Lemon	45
5. Jack	35
6. Orange	20
7. Grapes	35
8. Pineapple	10
<b>Total</b>	<b>415</b>
<b>B. Vegetables</b>	
1. Tomato	70
2. Brinjal	70
3. Lady's Finger	60
4. Cabbage	25
5. Sweet Potato	20
<b>Total</b>	<b>245</b>
<b>Fruits and Vegetables Total</b>	<b>660</b>

### PLOT SIZE

The experimental plot size for the conduct of crop cutting experiments for each of the fruits and vegetable crops (excluding tree crops) is given below:

<b>A. FRUITS</b>	<b>PLOT SIZE</b>
1. Banana	5m X 5m
2. Grapes	5m X 5m
3. Pineapple	5m X 1m
<b>B. VEGETABLES</b>	
1. Brinjal	5m X 5m
2. Lady's Finger	5m X 5m
3. Tomato	5m X 5m
4. Cabbage	10m X 2m
5. Sweet Potato	2m X 2m

## **PERIODICITY OF THE SURVEY**

The period of the Survey is one full Fasli year starting from July to June.

## **COLLECTION OF DATA**

The Statistical Inspectors were entrusted with the task of field work exclusively engaged for this Scheme in 31 districts of the State. The field work such as selection of garden, recording of yield etc., in the case of fruit tree crops and selection of field, plot, recording of yield with regard to other crops are carried out by the Statistical Inspectors appointed exclusively for this scheme. The village Administrative Officers of the selected villages rendered necessary assistance in the selection of field and collection of information from the cultivators.

## **SUPERVISION**

In order to ensure accuracy at every stage, the field work of Statistical Inspector was supervised by the respective Statistical Officers, Assistant Directors of Statistics, District Deputy Directors and Regional Joint Directors.

## **RESPONSE**

Survey was conducted in all the 1320 experiments planned for the year 2014-15.

The following table shows the number of experiments planned and conducted during 2014-15.

# **NUMBER OF EXPERIMENTS PLANNED AND CONDUCTED**

Crop	No. of Experiments	
	Planned	Conducted
<b>A. FRUITS</b>		
1. Mango	240	240
2. Banana	200	200
3. Guava	100	100
4. Lemon	90	90
5. Jack	70	70
6. Orange	40	34
7. Grapes	70	70
8. Pineapple	20	20
<b>Sub Total</b>	<b>830</b>	<b>824</b>
<b>B. VEGETABLES</b>		
1. Tomato	140	132
2. Brinjal	140	140
3. Lady's Finger	120	116
4. Cabbage	50	46
5. Sweet Potato	40	40
<b>Sub Total</b>	<b>490</b>	<b>474</b>
<b>GRAND TOTAL (A+B)</b>	<b>1320</b>	<b>1298</b>

## **PART II**

### **CONCEPT AND DEFINITION**

The concept and definition used in this survey are detailed below:

#### **BEARING TREE**

Bearing tree is defined as a tree of fruit bearing age, which had either borne fruits any time in the past or during the season.

#### **NON BEARING TREE**

Young tree which does not show flower or has not attained bearing age at the time of enumeration (or) tree which has reached the bearing age, but not found bearing fruit during the season, due to disease, old age, etc., are classified as non-bearing tree.

#### **GARDEN**

A garden is defined as a piece of land with a minimum number of 9 fruit trees planted in an order.

#### **PURE GARDEN**

A pure garden is defined as one which has 100% of the selected fruit crop trees.

#### **MIXED GARDEN**

It is the garden where more than 10 percent but less than 90 percent of the selected fruit trees are grown with other crops including perennial crops in the same garden.

#### **REPORTING AND NON-REPORTING VILLAGES**

Reporting villages are the villages having recorded area in the Adangal for the crop selected for the Survey. Non reporting villages are those where no area is recorded in the Adangal for the crop selected for the survey.

## PART III

### ESTIMATION PROCEDURE OF FRUIT TREE CROPS

(Crops: Mango, Jack, Guava and Citrus Fruits)

#### Estimation of Number of Trees

If  $N_{ij}$  - Total No. of villages growing the crop in the  $i^{th}$  stratum

$n_i$  - No. of villages selected for tree enumeration in the  $i^{th}$  stratum

$A_i$  - Total area under the crop in the  $i^{th}$  stratum as per "G" Return

$a_{ij}$  - Area under the crop in the  $j^{th}$  selected village of  $i^{th}$  stratum

$t_{ij}$  - No. of trees enumerated in the  $j^{th}$  selected village of  $i^{th}$  stratum

$b_{ij}$  - No. of bearing trees enumerated in the  $j^{th}$  selected village of  $i^{th}$  stratum

$R_{ni}$  - Average No. of trees per hectare in the  $i^{th}$  stratum

$$= \frac{\sum_{j=1}^{n_i} t_{ij}}{\sum_{j=1}^{n_i} a_{ij}}$$

Estimated Total no of trees for the  $i^{th}$  stratum ( $T_g$ ) =  $R_{ni} * A_i$

Ratio of bearing trees in the  $i^{th}$  stratum =  $\frac{\sum_{j=1}^{n_i} b_{ij}}{\sum_{j=1}^{n_i} t_{ij}}$

Estimated total no. of bearing trees in the  $i^{th}$  stratum

$$(Bg) = \left[ \frac{\sum_{j=1}^{n_i} b_{ij}}{\sum_{j=1}^{n_i} t_{ij}} \right] \times T_g$$

### Estimation of Average yield per bearing tree

If  $m_{gi}$  = No. of Villages selected for yield estimation

$B_{gi}$  = Total No. of bearing trees in the " $j^{th}$ " selected village of " $i^{th}$ " stratum.

$Y_{gij}$  = Total yield of all the trees in the " $j^{th}$ " selected village of " $i^{th}$ " stratum

Estimated Average yield per bearing tree for the " $i^{th}$ " stratum ( $R_{mgi}$ ) =

$$\frac{\sum_{j=1}^{m_{gi}} Y_{gij}}{\sum_{j=1}^{m_{gi}} B_{gij}}$$

its variance is  $V(G_{gi}) =$

$$\left\{ \frac{N_i - m_{gi}}{(N_i) \times (m_{gi})} - \frac{1}{(B_{gi})^2} \right\} \times \frac{1}{m_{gi} - 1} \times \sum_{j=1}^{m_{gi}} (Y_{gij} - R_{mgi} \times B_{gij})^2$$

$$\text{Percentage of sampling error} = \frac{\sigma}{R_{mgi}} \times 100$$

$$\text{Where } \sigma = \frac{\sqrt{V(G_{gi})}}{m_{gi}}$$

### Estimation procedure of average yield of vegetable and other food crops (General Crop Estimation method)

If  $n_{ij}$  = No. of plots selected in the " $j^{th}$ " village of " $i^{th}$ " stratum

$m_i$  = No. of villages selected in the " $i^{th}$ " stratum

$a_i$  = Area under the crop as per revenue record in the " $i^{\text{th}}$ " stratum

$n_i$  = Total No. of plots selected in the " $i^{\text{th}}$ " stratum and considered for analysis

$Y_{ijk}$  = Yield of ' $k^{\text{th}}$ ' plot of ' $j^{\text{th}}$ ' village in the ' $i^{\text{th}}$ ' stratum

$L$  = No. of districts selected

Average yield per plot for " $i^{\text{th}}$ " stratum is  $\bar{Y}_i = \frac{\sum_{k=1}^{n_i} Y_{ijk}}{\sum_{j=1}^{m_i} n_{ij}}$

Estimation of average yield per plot for all the stratum covered =

$$\bar{Y} = \sum_{i=1}^L W_i \times \bar{Y}_i \quad \text{Where } W_i = \frac{a_i}{\sum_{i=1}^L a_i}$$

Sampling error of the estimate

$E$  = Mean SSBV / DF

(i.e.) the estimate of the mean square between villages

$F$  = Mean SSWV / DF

(i.e.) the estimate of the mean square within villages 9-10

$$V[\bar{Y}] = \frac{E \sim F \times \frac{\sum_{i=1}^L a_i^2}{n_i}}{\sum_{i=1}^L a_i^2}$$

$E \sim F$  whichever is greater

**PART IV**  
**RESULT OF THE SURVEY**  
**SECTION-A**

**FRUITS**

Estimates of number of Trees, Average Yield, and Production as per the survey are furnished below:

**ESTIMATED NUMBER OF TREES, AREA, AVERAGE YIELD AND PRODUCTION**

Crop	Estimated no. of trees			Area as per Season and Crop Report (in ha.)	2014-2015	
	Bearing	Non-Bearing	Total		Estimated Average yield (kg./ha.)	Estimate Production (Tonnes)
Mango	15465658	781201	16246859	140367	6440	894870
Banana	-	-	-	91410	40705	3725939
Guava	1532806	109952	1642758	8216	5652	46100
Lemon	969551	117982	1087533	8555	1361	11646
Jack	211769	61361	273130	2896	11691	33857
Orange	326670	8763	335433	1715	2184	3746
Grapes	-	-	-	2244	13963	31333
Pineapple	-	-	-	820	36685	30082

**MANGO**

Mango is one of the most important fruit crops of the State and it is predominantly grown in Krishnagiri, Dharmapuri, Dindigul, Vellore and Tiruvallur Districts. During the year 2014-15 under mango, 240 villages were selected for conducting experiments. The district wise number of experiments planned / conducted estimated total number of trees and production estimates for 2014-15 are furnished below.

**NUMBER OF EXPERIMENTS PLANNED, CONDUCTED,  
BEARING AND NON- BEARING TREES (MANGO)**

Sl. No	District	No. of Experiments		Estimated no. of Trees		
		Planned	Conducted	Bearing	Non Bearing	Total
1	KANCHEEPURAM	10	10	1185499	39722	1225221
2	THIRUVALLUR	30	30	1076273	187593	1263866
3	VELLORE	20	20	1184383	13522	1197905
4	SALEM	10	10	673964	29983	703947
5	DHARMAPURI	20	20	1230048	48492	1278540
6	COIMBATORE	10	10	192486	19012	211498
7	TIRUCHIRAPPALLI	10	10	216259	8317	224576
8	NAGAPATTINAM	10	10	454082	0	454082
9	MADURAI	10	10	397310	185273	582583
10	THENI	20	20	1311622	0	1311622
11	DINDIGUL	30	30	1281692	35406	1317098
12	VIRUDHUNAGAR	10	10	253858	98347	352205
13	TIRUNELVELI	10	10	736226	57686	793912
14	KRISHNAGIRI	40	40	5271957	57844	5329801
	<b>STATE</b>	<b>240</b>	<b>240</b>	<b>15465658</b>	<b>781201</b>	<b>16246859</b>

The estimated total number of mango trees for the State during 2014-15 was 162.47 lakhs of which 95.19 per cent were bearing trees. Out of 154.66 lakhs bearing trees in the State, Krishnagiri district stood first with 52.72 lakh trees, followed by 13.12 lakh trees in Theni district, 12.82 lakh trees in Dindigul district and 12.30 lakh trees in Dharmapuri district.

### ESTIMATED PRODUCTION AND YIELD OF MANGO CROP

Sl. No.	District	Area as per Season and Crop Report (in ha.)		Estimated Average Yield (kg./ha)		Estimated production (in tonnes)	
		2014-15	2013-14	2014-15	2013-14	2014-15	2013-14
1	KANCHEEPURAM	3304	3473	4342	4988	14346	17324
2	THIRUVALLUR	9572	10593	9672	7772	92581	82327
3	VELLORE	13394	11599	2763	13217	33122	153306
4	SALEM	5423	4871	3874	5238	21009	25514
5	DHARMAPURI	7948	10361	4508	5601	35832	58030
6	COIMBATORE	2444	2434	2539	2532	6205	6162
7	TIRUCHIRAPPALLI	2323	2439	4459	2936	10359	7161
8	NAGAPATTINAM	3034	2991	2101	5915	6375	17691
9	MADURAI	6464	6594	1290	2606	8337	17185
10	THENI	9549	9539	1996	3586	19062	34204
11	DINDIGUL	16226	16283	4478	5583	72656	90907
12	VIRUDHUNAGAR	3096	3028	5221	2992	16164	9061
13	TIRUNELVELI	6259	6221	49072	12508	307144	77815
14	KRISHNAGIRI	35607	36889	4224	3839	150417	141619
	<b>STATE</b>	<b>140367</b>	<b>143177</b>	<b>6440</b>	<b>5799</b>	<b>894870</b>	<b>830289</b>

The area under mango crop as per Season and Crop Report for the year 2014-15 was at 140367 hectare as against 143177 hectare in 2013-14 with an decrease of 1.96 per cent over the year 2014-15.

The estimated average yield per hectare for the State increased to 6440 kg during 2014-15 as against 5799 kg. in 2013-14, the increase in yield rate being 11.05 per cent due to proper maintenance and irrigation.

The total production of mango during 2014-15 was 894870 tonnes as against 830289 tonnes in 2013-14, a decrease of 7.78 per cent.

## BANANA

District wise number of experiments planned, conducted and yield estimates are given in the table below:

**NUMBER OF EXPERIMENTS, AND YIELD ESTIMATES**

Sl. No.	District	No. of Experiments		Area as per Season and Crop Report (in ha)		Estimation Average Yield (kg./ha)		Estimated production (in tonnes)	
		Planned	Conducted	2014-15	2013-14	2014-15	2013-14	2014-15	2013-14
1	Cuddalore	10	10	4348	4251	50882	40400	221235	171740
2	Vellore	10	10	3726	4206	29786	30599	114705	128699
3	Tiruvannamalai	10	10	2284	2972	46680	57022	106617	169469
4	Namakkal	10	10	1299	1716	32150	30444	41763	52243
5	Coimbatore	20	20	8115	7412	38503	43781	312451	324506
6	Erode	20	20	11150	10426	24491	30129	273072	314123
7	Thiruchirappalli	20	20	6914	7144	46659	52614	322600	375877
8	Karur	10	10	2909	2666	66880	60345	194554	160880
9	Thanjavur	10	10	3318	3176	40232	50902	133490	161663
10	Pudukottai	10	10	2255	2303	48265	41118	108837	94696
11	Theni	10	10	6043	5996	58524	66453	353658	398454
12	Dindugul	10	10	3584	4037	95761	27512	343206	111066
13	Thirunelveli	20	20	7180	7193	21455	29442	154049	211773
14	Thoothukudi	20	20	9185	9142	40407	44178	371136	403882
15	Kanyakumari	10	10	6383	6542	24584	30293	156920	198178
	<b>STATE</b>	<b>200</b>	<b>200</b>	<b>91410</b>	<b>92463</b>	<b>40705</b>	<b>41534</b>	<b>3725939</b>	<b>3840376</b>

Thiruchirapalli, Erode, Theni, Thoothukudi, Coimbatore, Cuddalore and Tirunelveli are the main banana producing districts in the State. The area covered under banana as per Season and Crop Report for the year 2014-15 stood at 91410 hectare as against 92463 hectare in 2013-14 the decrease being of 1.14 per cent.

The estimated average yield rate per hectare worked out to 40705 kg. in 2014-15 as against 41534 kg. in 2013-14. The decrease in the yield rate was 2.00 per cent.

The estimated production for the year 2014-15 was 3725939 tonnes as against 3840376 tonnes in 2013-14 the decrease being 2.98 per cent.

## **GUAVA**

### **ESTIMATED PRODUCTION AND YIELD OF GUAVA CROP**

Sl. No.	District	Area as per Season and Crop Report (in ha.)		Estimated Average Yield (kg./ha)		Estimated production (in tonnes)	
		2014-15	2013-14	2014-15	2013-14	2014-15	2013-14
1	Cuddalore	568	571	3795	5201	2156	2970
2	Villupuram	428	409	9599	2042	4108	835
3	Vellore	715	636	1157	2072	759	1318
4	Madurai	1053	1004	1996	892	2102	895
5	Dindigul	1573	1324	7179	9554	11292	12649
6	Virudhunagar	716	661	8843	4622	6331	3055
7	Tirunelveli	385	404	9483	3767	3651	1522
	<b>STATE</b>	<b>8216</b>	<b>7730</b>	<b>5652</b>	<b>4641</b>	<b>46100</b>	<b>35872</b>

Guava crop is mainly grown in the districts of Dindigul, Virudhunagar, Villupuram, Vellore, Tirunelveli, Cuddalore and Madurai.

The area under guava for 2014-15 was at 8216 hectares as against 7730 hectares in 2013-14 which shows an increase of 6.29 per cent.

The estimated average yield per hectare was put at 5652 kg. in 2014-15 as against 4641 kg in 2013-14, the yield increased by 21.78 per cent due to proper maintenance and adequate availability of water.

The estimated production for the year 2014-15 was at 46100 tonnes as against 35872 tonnes in 2013-14 recording a increase of 28.51 per cent.

Sl. No.	District	Estimated no. of Trees -Guava		
		Bearing	Non Bearing	Total
1	Cuddalore	131728	26134	157862
2	Villupuram	123605	16993	140598
3	Vellore	101793	0	101793
4	Madurai	227342	45086	272428
5	Dindigul	677976	7778	685754
6	Virudhunagar	171521	13961	185482
7	Tirunelveli	98841	0	98841
	<b>STATE</b>	<b>1532806</b>	<b>109952</b>	<b>1642758</b>

The estimated total number of trees for 2014-15 stood at 1642758 out of which 93.31 per cent trees are bearing trees.

## LEMON

### ESTIMATED PRODUCTION AND YIELD OF LEMON CROP

Sl. No	District	Area as per Season and Crop Report ( in ha.)		Estimated Average Yield (kg./ha)		Estimated production (in tones)	
		2014-15	2013-14	2014-15	2013-14	2014-15	2013-14
1	Tiruchy	833	940	2668	1705	2222	1603
2	Theni	559	530	468	348	261	184
3	Dindigul	2046	2173	491	1189	1004	2583
4	Virudhunagar	381	338	1987	836	757	282
5	Tirunelveli	2576	2478	1499	3338	3860	8272
6	Thoothukudi	634	-	2308	-	1463	-
7	Perambalur	-	284	-	5031	-	1429
	<b>STATE</b>	<b>8556</b>	<b>8290</b>	<b>1361</b>	<b>2129</b>	<b>11646</b>	<b>17647</b>

The main lemon growing districts in the State are Dindugul, Tirunelveli , Thiruchirappalli and Thoothukudi. The estimated number of trees for 2014-15 was 10.87 lakhs, out of which 89.16 percent are bearing trees.

Sl. No.	District	Estimated no. of Trees - Lemon		
		Bearing	Non Bearing	Total
1	Thiruchirappalli	241352	3520	244872
2	Theni	131777	11143	142920
3	Dindigul	163040	34518	197558
4	Virudhunagar	79554	31795	111349
5	Tirunelveli	195576	35764	231340
6	Thoothukudi	158251	1244	159495
	<b>STATE</b>	<b>969551</b>	<b>117982</b>	<b>1087533</b>

The area for 2014-15 was at 8556 hectare as against 8290 hectare in 2013-14 which showed an increase of 3.21 per cent.

The estimated yield rate per hectare worked out to 1361 kg. in 2014-15 as against 2129 kg during 2013-14 which showed the decrease of 36.07 per cent .

The estimated production for the State during the year 2014-15 was at 11646 tonnes as against 17647 tonnes in 2013-14 with a decrease of 34.01 per cent.

## JACK FRUIT

### ESTIMATED PRODUCTION AND YIELD OF JACKFRUIT CROP

Sl. No.	District	Area as per Season and Crop Report ( in ha )		Estimated Average Yield (kg./ha)		Estimated production (in tonnes)	
		2014-15	2013-14	2014-15	2013-14	2014-15	2013-14
1	Cuddalore	711	665	9107	13928	6475	9262
2	Namakkal	223	159	10203	9689	2275	1541
3	Pudukottai	159	144	30718	7767	4884	1118
4	Kanyakumari	550	630	13669	23797	7518	14992
5	Ariyalur	117	112	1661	3458	194	387
6	Dindigul	325	322	9318	10310	3028	3320
	<b>STATE</b>	<b>2896</b>	<b>2808</b>	<b>11691</b>	<b>15069</b>	<b>33853</b>	<b>42313</b>

Kanyakumari, Cuddalore and Dindigul are the main Jackfruit growing districts in the State.

The area as per the Season and Crop Report was put at 2896 hectares in 2014-15 as against 2808 hectares in 2013-14, showing a increase of 3.13 per cent.

The estimated yield rate per hectare was calculated at 11691 kg. in 2014-15 as against 15069 kg in 2013-14. It showed decrease of 22.42 per cent.

The estimated production for 2014-15 stood at 33853 tonnes as against 42313 tonnes in 2013-14, a decrease of 19.99 per cent.

Sl. No.	District	Estimated no. of Trees- Jackfruit		
		Bearing	Non Bearing	Total
1	Cuddalore	48165	0	48165
2	Namakkal	27969	0	27969
3	Pudukottai	27226	8059	35285
4	Dindigul	27405	2856	30261
5	Kanyakumari	63176	46824	110000
6	Ariyalur	17828	3622	21450
	STATE	211769	61361	273130

The total number of trees estimated for 2014-15 was at 2.731 lakhs and the percentage of bearing trees worked out to 77.53 per cent.

## ORANGE

### ESTIMATED PRODUCTION AND YIELD OF ORANGE CROP

Sl. No.	District	Area as per Season and Crop Report (in ha.)		Estimated Average Yield (kg./ha)		Estimated production (in tonnes)	
		2014-15	2013-14	2014-15	2013-14	2014-15	2013-14
1	Theni	40	39	484	11174	19	436
2	Dindigul	1584	1688	2276	2350	3605	3967
3	The Nilgiris	38	64	166	677	6	43
	STATE	1715	1851	2184	2483	3747	4596

Dindigul, Theni and The Nilgiris are major Orange growing districts in the State.

The area as per the Season and Crop Report was at 1715 hectares for 2014-15 as against 1851 hectares in 2013-14, which showed a decrease of 7.35 per cent.

The estimated yield rate per hectare was 2184 kg. in 2014-15 as against 2483 kg. in 2013-14, which showed a decrease of 12.04 percent in the yield rate. This was due to age old trees and infection due to insects.

The State production for 2014-15 was estimated at 3747 tonnes as against 4596 tonnes in 2013-14. The decrease in the production of orange was 18.47 per cent.

Sl. No.	District	Estimated no. of Trees – Orange		
		Bearing	Non Bearing	Total
1	Theni	379	0	379
2	Dindigul	319297	6422	325719
3	The Nilgiris	6994	2341	9335
	<b>STATE</b>	<b>326670</b>	<b>8763</b>	<b>335433</b>

The total number of trees was estimated at 3.35 lakhs for 2014-15 and the percentage of bearing trees worked out to 97.39 per cent.

## GRAPES

### ESTIMATED PRODUCTION AND YIELD OF GRAPES CROP

Sl. No.	District	Area as per Season and Crop Report (in ha.)		Estimated Average Yield (kg./ha)		Estimated production (in tonnes)	
		2014-15	2013-14	2014-15	2013-14	2014-15	2013-14
1	Coimbatore	162	187	18050	21623	2924	4044
2	Theni	1764	1734	13705	12655	24175	21943
3	Dindigul	232	227	13072	12777	3033	2900
	<b>STATE</b>	<b>2244</b>	<b>2247</b>	<b>13963</b>	<b>13448</b>	<b>31333</b>	<b>30218</b>

Grapes are mainly cultivated in Theni, Coimbatore and. Dindigul districts. The area as per Season and Crop Report worked out to 2244 hectares in 2014-15 as against 2247 hectares in 2013-14, showing a slight decrease of 0.13 per cent.

The estimated yield rate per hectare was put at 13963 kg. in 2014-15 as against 13448 kg in 2013-14, an increase of 3.83 per cent due to the fact that it was raised as a second crop.

The estimated production was 31333 tonnes in 2014-15 as against 30218 tonnes in 2013-14, the increase being 3.69 per cent due to increase in yield rate.

## PINEAPPLE

### ESTIMATED PRODUCTION AND YIELD OF PINEAPPLE CROP

Sl. No.	District	Area as per Season and Crop Report (in ha.)		Estimated Average Yield (kg./ha)		Estimated production (in tonnes)	
		2014-15	2013-14	2014-15	2013-14	2014-15	2013-14
1	Namakkal	714	468	36685	25290	26193	11836
	<b>STATE</b>	<b>820</b>	<b>578</b>	<b>36685</b>	<b>25290</b>	<b>30082</b>	<b>14618</b>

Namakkal is the major Pineapple growing district in the State. The area as per the Season and Crop Report was at 820 hectares in 2014-15 as against 578 hectares in 2013-14 revealing a sizeable increase of 41.87 per cent.

The estimated yield rate per hectare stood at 36685 kg. in 2014-15 as against 25290 kg. in 2013-14 exhibiting a larger increase of 45.06 per cent and the reason may be attributed to sufficient rain fall.

The estimated production was 30082 tonnes in 2014-15 as against 14618 tonnes in 2013-14 recording comparatively larger increase with 105.79 per cent and this is due to the increase in area.

## SECTION – B

### VEGETABLES

Area as per Season and Crop Report, estimated average yield and Production of Vegetables in Tamil Nadu during the year 2014-15 are furnished below:-

#### AREA, ESTIMATED AVERAGE YIELD AND PRODUCTION

Sl. No.	Crop	Area as per Season and Crop Report (in Ha.)	Estimated Average Yield (Kg./Ha.)	Estimated Production (Tonnes)
1	Cabbage	1433	61095	87550
2	Brinjal	11016	8896	96608
3	Lady's Finger	8925	7350	65484
4	Sweet Potato	631	17581	11094
5	Tomato	23954	14470	345144

### CABBAGE

#### ESTIMATED PRODUCTION AND YIELD OF CABBAGE CROP

Sl. No.	District	Area as per Season and Crop Report ( in ha.)		Estimated Average Yield (kg./ha)		Estimated production (in tonnes)	
		2014-15	2013-14	2014-15	2013-14	2014-15	2013-14
1	Erode	1135	-	96375	-	13011	-
2	Theni	74	113	43507	36248	3219	4096
3	Nilgiris	448	442	55773	41525	24987	18354
4	Krishnagiri	642	258	59417	61295	38146	15814
	<b>STATE</b>	<b>1433</b>	<b>1089</b>	<b>61095</b>	<b>47065</b>	<b>87550</b>	<b>51254</b>

Cabbage is mostly being cultivated in Krishnagiri, The Nilgiris Theni and Erode District of Tamil Nadu. The area under this crop as per Season and Crop Report is 1433 hectares in 2014-15 as against 1089 hectares in 2013-14. There was an increase of 31.59 per cent.

The estimated average yield per hectare was estimated to 61095 kg. in 2014-15 as against 47065 kg. in 2013-14, increase being 29.81 percent due to proper maintenance and sufficient water.

The estimated production for the year 2014-15 was estimated at 87550 tonnes as against 51254 tonnes in 2013-14, with an increase being 70.82 percent due to increase in area and yield.

## BRINJAL

### ESTIMATED PRODUCTION AND YIELD OF BRINJAL CROP

Sl. No.	District	Area as per Season and Crop Report (in ha.)		Estimated Average Yield (kg./ha)		Estimated production (in tones)	
		2014-15	2013-14	2014-15	2013-14	2014-15	2013-14
1	Cuddalore	-	172	-	6939	-	1194
2	Thiruvallur	390	-	8200	-	3198	-
3	Vellore	1231	986	6149	8294	6610	8178
4	Thiruvannamalai	407	-	7238	-	2946	-
5	Salem	1665	1546	3667	5155	6106	7969
6	Dharmapuri	534	592	14625	16890	8541	9999
7	Coimbatore	303	395	7862	6197	3129	2448
8	Madurai	271	285	7600	7525	2060	2145
9	Dindigul	715	805	8924	2342	6381	1885
10	Tirunelveli	100	-	17929	-	3568	-
11	Krishnagiri	1233	1681	15416	14395	19393	24199
	<b>STATE</b>	<b>11015</b>	<b>10804</b>	<b>8896</b>	<b>8978</b>	<b>96608</b>	<b>96999</b>

Brinjal is mainly cultivated in Dharmapuri, Krishnapuri, Vellore, Salem, Thiruvallur, Dindigul and Coimbatore districts. As per the Season and Crop Report the area under Brinjal worked out to 11016 hectares in 2014-15 as against 10804 hectares in 2013-14, registering an increase of 1.96 per cent.

The estimated average yield rate per hectare stood at 8896 kg in 2014-15 as against 8978 kg. in 2013-14 showing an decrease of 0.91 per cent.

The estimated production was put at 96608 tonnes in 2014-15 as against 96999 tonnes in 2013-14, which showed a decrease of 0.40 per cent.

### LADY'S FINGER

#### ESTIMATED PRODUCTION AND YIELD OF LADY'S FINGER CROP

Sl. No.	District	Area as per Season and Crop Report (in ha.)		Estimated Average Yield (kg./ha)		Estimated production (in tonnes)	
		2014-15	2013-14	2014-15	2013-14	2014-15	2013-14
1	Kancheepuram	226	-	6195	-	1400	-
2	Vellore	968	1073	6567	6890	6252	7393
3	Thiruvannamalai	435	-	8479	-	3688	-
4	Salem	2066	1835	6331	5450	13079	10001
5	Dharmapuri	455	501	7652	8276	3482	4146
6	Coimbatore	336	273	9281	11356	3118	3100
7	Karur	258	-	23000	-	5934	-
8	Madurai	279	299	6426	10663	1793	3188
9	Dindigul	545	403	3494	4613	1904	1859
10	Tirunelveli	313	-	7858	-	2459	-
11	Namakkal	-	171	-	12672	-	2167
	<b>STATE</b>	<b>8925</b>	<b>7761</b>	<b>7350</b>	<b>6772</b>	<b>65484</b>	<b>52557</b>

Lady's finger crop is mainly cultivated in Salem, Vellore, Dindigul, Dharmapuri, Thiruvannamalai, Coimbatore and Madurai districts. The area under this crop as per Season and Crop Report was at 8925 hectares in 2014-15 as against 7761 hectares in 2013-14 exhibiting an increase of 14.99 per cent.

The estimated yield per hectare stood at 7350 kg. in 2014-15 as against 6772 kg. in 2013-14 the increase being 8.54 per cent because of Sufficient water and proper maintenance.

The estimated production was at 65484 tonnes in 2014-15 as against 52557 tonnes in 2013-14, the increase being 24.60 per cent. The increase in yield rate reflects the increase in production.

## SWEET POTATO

### ESTIMATED PRODUCTION AND YIELD OF SWEET POTATO CROP

Sl. No.	District	Area as per Season and Crop Report (in ha.)		Estimated Average Yield (kg./ha)		Estimated production (in tonnes)	
		2014-15	2013-14	2014-15	2013-14	2014-15	2013-14
1	Cuddalore	73	-	10688	-	780	-
2	Villupuram	75	-	16225	-	1217	-
3	Thiruvannamalai	33	-	16021	-	529	-
4	Karur	101	33	23583	27350	2382	903
5	Dindigul	51	32	23446	26825	1196	858
6	Tirunelveli	72	176	14125	17564	1017	3091
7	Madurai	-	19	-	33550	-	637
	<b>STATE</b>	<b>631</b>	<b>592</b>	<b>17581</b>	<b>21114</b>	<b>11094</b>	<b>12499</b>

The Sweet Potato crop is mainly grown in Madurai, Karur, Dindigul and Tirunelveli districts in the State. The area under this crop as per the Season and Crop

Report showed 631 hectares in 2014-15, as against 592 hectares in 2013-14, which displayed an increase of 6.59 per cent.

The estimated yield per hectare worked out to 17581 in 2014-15 as against 21114 kg in 2013-14 which reveals a decrease of 16.73 percent.

The estimated production for the year 2014-15 stood at 11094 tonnes as against 12499 tonnes in 2013-14, showing a decrease of 11.24 per cent.

## **TOMATO**

### **ESTIMATED PRODUCTION AND YIELD OF TOMATO CROP**

Sl. No.	District	Area as per Season and Crop Report (in ha.)		Estimated Average Yield (kg./ha)		Estimated production (in tonnes)	
		2014-15	2013-14	2014-15	2013-14	2014-15	2013-14
1	Vellore	1088	1150	6184	7796	6097	8965
2	Salem	3315	2968	6401	6922	21220	20544
3	Dharmapuri	2242	1772	19210	19031	43070	33722
4	Coimbatore	2117	1947	6525	11901	13813	23171
5	Theni	2142	2208	13529	9268	28980	20463
6	Dindigul	1521	1544	11096	9768	16877	15081
7	Krishnagiri	7429	9479	22245	15033	165256	142494
8	Tirupur	1865	1561	9378	9449	17490	14750
	<b>STATE</b>	<b>23954</b>	<b>24633</b>	<b>14470</b>	<b>12338</b>	<b>345144</b>	<b>303917</b>

Tomato crop is mainly cultivated in Krishnagiri, Dharmapuri, Coimbatore, Salem, Dindugul and Theni districts in Tamil Nadu. The area under this crop as per the Season and Crop Report accounted for 23954 hectares in 2014-15 as against 24633 hectares in 2013-14, with a decrease of 2.76 per cent.

The estimated yield per hectare for Tomato crop was 14470 kg. in 2014-15 as against 12338 kg. in 2013-14, showing a considerable increase of 17.28 per cent due to increase in area, proper maintenance and sufficient water.

The estimated total production was calculated at 345145 tonnes in 2014-15 as against 303917 tonnes in 2013-14, which showed an increase of 13.57 per cent.

The results of the survey reveals that the average yields of Banana, Jack, Lemon and Orange have shown a negative trend whereas Mango, Guava and Grapes and Pineapple have shown a positive trend during 2014-15. In respect of vegetable crops, the average yield of Brinjal and Sweet Potato have shown a downward trend whereas Tomato, Lady's Finger and Cabbage have shown an upward trend.

The production of some fruits, viz. Mango, guava, Grapes and Pineapple have showed a positive trend whereas Banana, jackfruit, Lemon and orange have shown a negative trend. With regard to vegetable items brinjal and sweet potato have shown a negative trend, while tomato, Lady'sfinger and cabbage have shown a positive trend.

## **PART VI**

Time Series data on Area, Estimated Average yield and Production of fruits and vegetables

### **AREA OF FRUITS AND VEGETABLE CROPS FROM 2005-2006 TO 2014-15**

(in ha.)

<b>CROP</b>		<b>2005-06</b>	<b>2006-07</b>	<b>2007-08</b>	<b>2008-09</b>	<b>2009-10</b>	<b>2010-11</b>	<b>2011-12</b>	<b>2012-13</b>	<b>2013-14</b>	<b>2014-15</b>
<b>A. FRUITS</b>											
1	Mango	125104	125856	128221	130012	132697	139496	141140	144509	143177	140367
2	Banana	94648	105206	112793	115804	113681	107394	103112	106016	92463	91410
3	Jack	2911	2919	2955	2910	2926	3058	2868	2936	2808	2896
4	Guava	8453	7792	7141	7050	7017	7498	7718	8114	7730	8216
5	Lemon	8146	7964	7767	7409	7463	7484	7794	8834	8290	8556
6	Orange	2151	2139	2004	2089	2039	2067	1847	1965	1851	1715
7	Grapes	2611	2581	2607	2532	2546	2463	2484	2356	2247	2244
8	Pineapple	653	634	692	581	500	809	603	758	578	820
<b>B. VEGETABLES</b>											
1	Tomato	21995	22433	22924	22751	23792	22087	21972	21090	24633	23954
2	Brinjal	7107	6059	6331	7275	6912	7871	9462	9174	10804	11016
3	Lady's Finger	4778	3578	3853	5054	5224	6229	7662	7434	7761	8925
4	Cabbage	1619	2313	2240	1250	2154	2222	1888	1547	1089	1433
5	Sweet Potato	1417	1127	1088	658	778	496	390	304	592	631

**PART - V**  
**5.1 AREA, YIELD AND PRODUCTION – A COMPARISON**

CROP	Area (ha.)			Average Yield (tonnes/ha.)			Production (tonnes)		
	2014-15	2013-14	% Variation	2014-15	2013-14	% Variation	2014-15	2013-14	% Variation
<b>Fruits</b>									
Mango	140367	143177	-1.96	6.440	5.799	11.05	894870	830289	7.78
Banana	91410	92463	-1.14	40.705	41.534	-2.00	3725939	3840376	-2.98
Jackfruit	2896	2808	3.13	11.691	15.069	-22.42	33853	42313	-19.99
Guava	8216	7730	6.29	5.652	4.641	21.78	46100	35872	28.51
Lemon	8556	8290	3.21	1.361	2.129	-36.05	11646	17647	-34.01
Orange	1715	1851	-7.35	2.184	2.483	-12.04	3747	4596	-18.47
Grapes	2244	2247	-0.13	13.963	13.448	3.83	31333	30218	3.69
Pineapple	820	578	41.87	36.685	25.290	45.06	30082	14618	105.79
<b>Vegetables</b>									
Tomato	23954	24633	-2.76	14.470	12.338	17.28	345145	303917	13.57
Brinjal	11016	10804	1.96	8.896	8.978	-0.92	96608	96999	-0.40
Lady's Finger	8925	7761	14.99	7.350	6.772	8.54	65484	52557	24.60
Cabbage	1433	1089	31.59	61.095	47.065	29.81	87550	51254	70.82
Sweet Potato	631	592	6.59	17.581	21.114	-16.73	11094	12499	-11.24

# ESTIMATED AVERAGE YIELD OF FRUITS AND VEGETABLE CROPS FROM 2005-2006 TO 2014-15

(in tonnes/ha.)

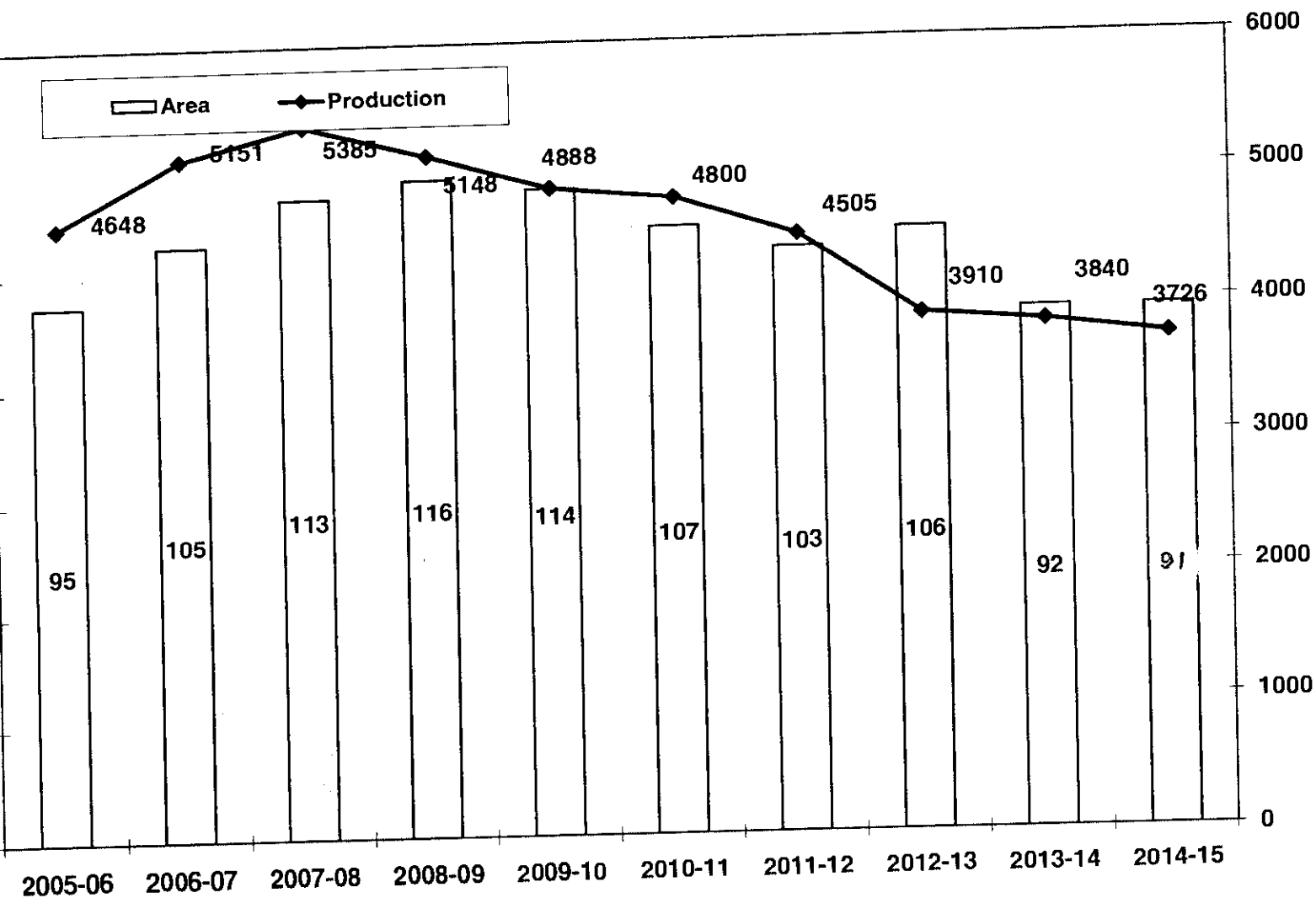
CROP		2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15
<b>A</b>	<b>FRUITS</b>										
1	Mango	4.299	5.519	5.477	4.958	4.795	6.867	4.438	8.230	5.799	6.440
2	Banana	49.104	48.965	47.741	44.453	42.996	44.700	43.695	36.879	41.534	40.705
5	Jack	12.346	13.848	14.749	13.238	13.475	15.117	4.930	11.852	15.069	11.691
3	Guava	10.904	11.031	13.603	12.074	13.186	9.109	5.244	8.162	4.641	5.652
4	Lemon	2.523	2.583	2.986	2.788	2.933	4.488	2.266	1.853	2.129	1.361
6	Orange	1.962	2.021	2.277	1.965	2.057	1.730	1.777	3.138	2.483	2.184
7	Grapes	32.486	29.815	28.921	17.938	17.338	16.333	15.321	16.270	13.448	13.962
8	Pineapple	33.156	33.076	37.866	36.993	36.052	41.965	30.291	30.178	25.290	36.685
<b>B</b>	<b>VEGETABLES</b>										
1	Tomato	12.627	12.611	13.047	13.017	13.091	13.506	12.068	14.228	12.338	14.470
2	Brinjal	10.690	11.099	10.011	7.960	9.390	9.997	10.638	9.228	8.978	8.896
3	Lady's Finger	7.525	7.498	6.688	7.608	8.000	8.397	8.700	7.962	6.772	7.350
4	Cabbage	53.426	56.247	50.395	52.978	56.726	51.837	60.597	57.784	47.065	61.094
5	Sweet Potato	20.857	16.799	13.585	13.287	14.629	18.550	20.491	19.928	21.114	17.581

**ESTIMATED PRODUCTION OF FRUITS AND VEGETABLE CROPS FROM 2005-2006 TO 2014-15**  
(in tonnes)

CROP		2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
<b>A</b>	<b>FRUITS</b>									
1	Mango	537780	694554	702260	644626	636330	957982	626392	1189270	830289
2	Banana	4647637	5151394	5384825	5148134	4887841	4800473	4505435	3909764	3840376
3	Jack	35939	40424	43585	38522	39427	46229	14139	34797	42313
4	Guava	92168	85952	97137	85124	92523	68299	40471	66230	35872
5	Lemon	20551	20569	23190	20658	21886	33592	17663	16366	17647
6	Orange	4215	4323	4562	4105	4194	3577	3282	6167	4590
7	Grapes	84820	76953	75398	45418	44144	40230	38057	38331	30210
8	Pineapple	21652	20970	26203	21493	18026	33949	18265	22875	14610
<b>B</b>	<b>VEGETABLES</b>									
1	Tomato	277728	282912	299095	296142	311450	298315	265153	300068	303910
2	Brinjal	75971	67247	63380	57917	64902	78685	100654	84662	96990
3	Lady's Finger	35951	26829	25768	38449	41794	52302	66656	59191	52550
4	Cabbage	86497	130099	112883	66223	122187	115181	114406	89393	51250
5	Sweet Potato	29555	18933	14780	8743	11381	9201	7991	6058	12490

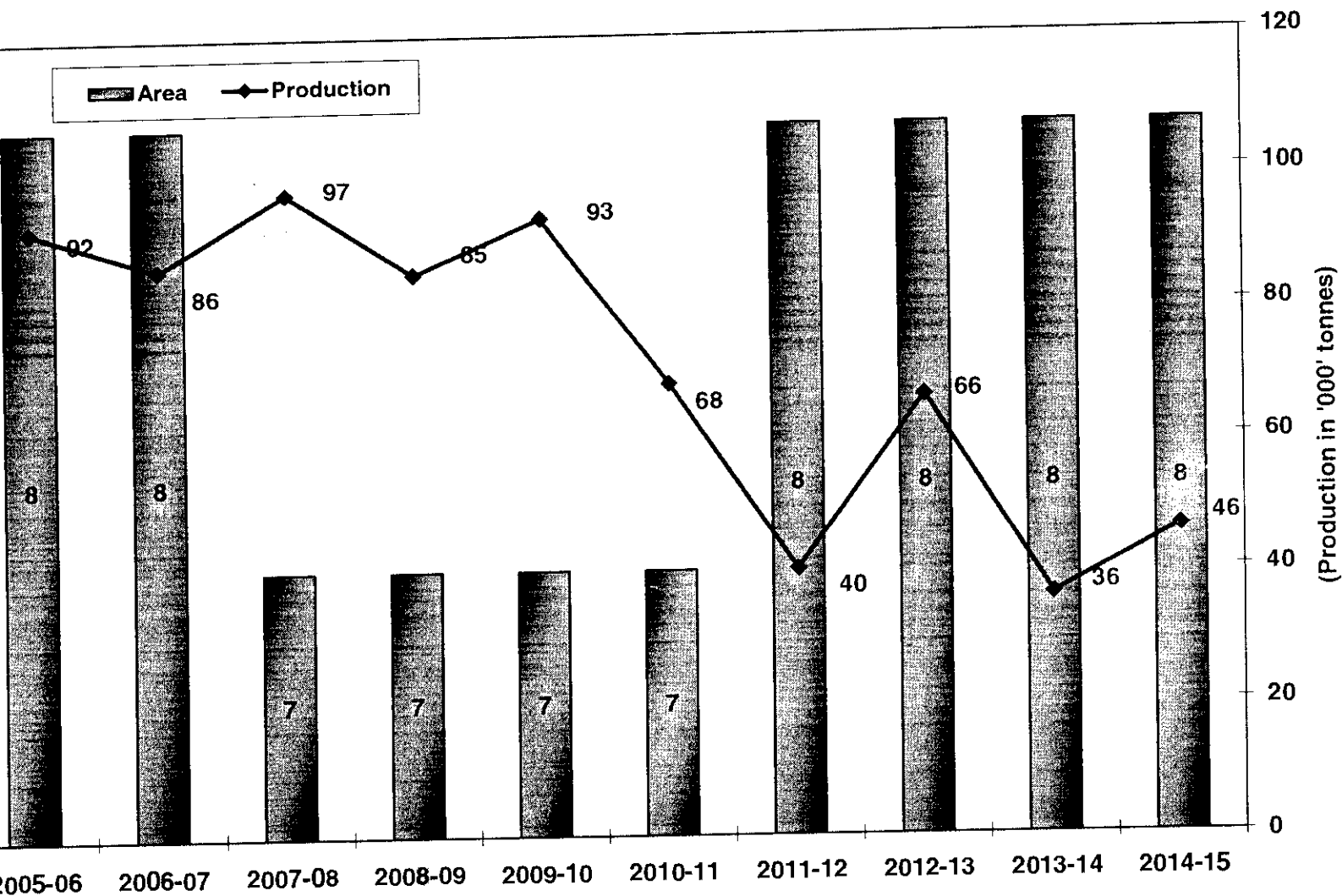
# BANANA

## AREA AND PRODUCTION OF BANANA (2005-06 TO 2014-15)



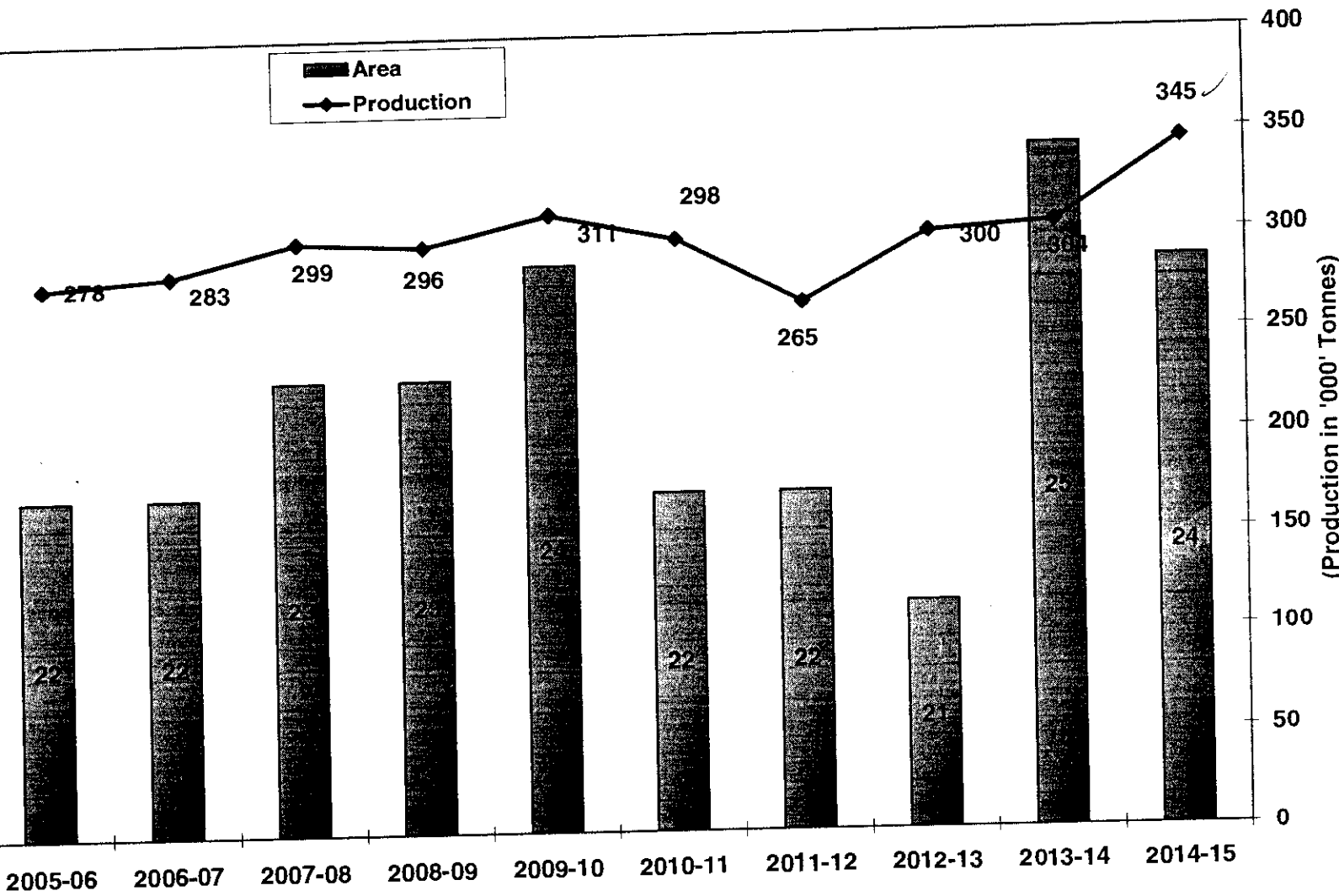
# GUAVA

## AREA AND PRODUCTION OF GUAVA (2005-06 TO 2014-15)



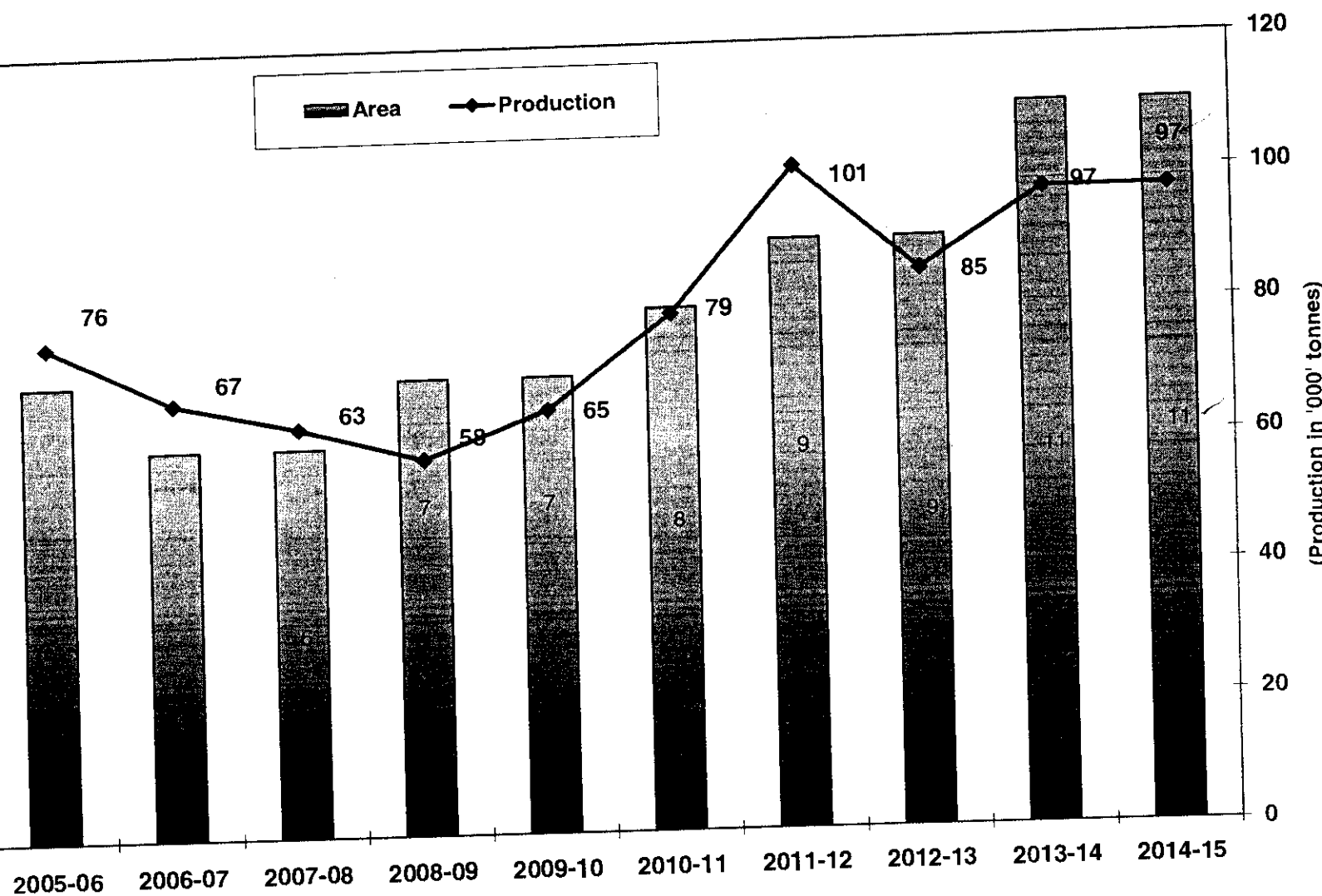
# TOMATO

## AREA AND PRODUCTION OF TOMATO (2005-06 TO 2014-15)



# BRINJAL

## AREA AND PRODUCTION OF BRINJAL (2005-06 TO 2014-15)



## LADY'SFINGER

### AREA AND PRODUCTION OF LADY'SFINGER (2005-06 TO 2014-15)

