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REPORT ON MINOR CROPS

FASLI - 1421

2011 - 12

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



REPORT ON MINOR CROPS TAMIL NADU

**FASLI 1421
(2011-12)**

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PREFACE

Land is of variable quality and finite in nature. Agricultural production is Supply determined rather than Demand determined. Due to shortage of assured irrigation farmers have to depend exclusively upon the vagaries of rainfall for the supply of an important input, viz. water to a large extent. Either too little rain or too much rain negatively influences Agricultural production and yield rates for different crops.

The Minor crops Scheme implemented in TamilNadu comprising of chillies, coriander, ginger, onion, potato, tapioca, turmeric and cashewnut plays a significant role in the agricultural economy. These minor crops yield immense benefits to the society. All these crops except Cashewnut is being used as a culinary item. With respect to Cashewnut, it has high export potential and generates huge foreign exchange earnings. The Crop Estimation Survey on selected minor crops like chillies, onion and potato was initiated in Tamil Nadu during 1971-72. Subsequently the survey was extended to include tapioca, turmeric, ginger, coriander and cashewnut. This report presents the results of Crop Estimation Survey conducted on the above minor crops for the year 2011-12. A mixed trend has been noticed in area, production and yield rate during 2011-12 compared to that of previous year. In short, the performance of these minor crops during 2011-12 is like a curator's egg. Besides this, adoption of agricultural technology for minor crops leaves much to be desired.

Chapter I of this report contains a brief Introduction to the Survey, Chapter II deals with the Estimation procedure, Chapter III highlights the Results of the survey, Chapter IV presents ~~the Findings of the survey and Chapter V furnishes the Time series data for a ten-year period ending by 2011.~~ and *Chapter IV furnishes the charts*

The information presented here would be highly useful and furnish a good insight to the administrators, planners, research scholars, students and other users. The time-series data on area, production and yield rates which are a rich source of material for the researchers, will kindle their interest and enthusiasm in the subject matter. Constructive feedback from the users of this document for improving the contents of this report is solicited.

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PRINCIPAL SECRETARY/ COMMISSIONER

Chennai – 6.

Date: 17.03.2014

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EXECUTIVE SUMMARY

During 2011-12, Crop Estimation Survey was conducted for the minor crops such as chillies, onion, potato, tapioca, turmeric, ginger, coriander and cashewnut. The main objective of this survey is to provide a whole gamut of information on area covered, average yield per hectare and production of minor crops at district and State level. During 2011-12, 1080 experiments were planned and conducted in 24 Districts for the above 8 crops. A mixed trend have emerged regarding changes in area, production and yield rate, as indicated below.

Findings of the Survey

Table - 1

CROPWISE AREA, AVERAGE YIELD AND PRODUCTION OF MINOR CROPS

Sl. No	Crops	Area (ha.)			Average Yield (Kg/Ha.)			Production(Tonnes)		
		2011-12	2010-11	% Variation	2011-12	2010-11	% Variation	2011-12	2010-11	% Variation
1	Chillies	56442	53626	5.251	436.557	404.489	7.928	24640	21691	13.596
2	Onion	34912	31959	9.240	10797.07	9365.258	15.289	376947	299304	25.941
3	Turmeric	67246	51446	30.712	5478.557	5403.319	1.392	368411	277979	32.532
4	Tapioca	105349	119618	-11.929	37662.92	32448.5	16.070	3967751	3881425	2.224
5	Ginger	635	587	8.177	11042.5	9845.47	12.158	7012	5779	21.336
6	Potato	4673	4624	1.060	19731.89	19232.64	2.596	92207	88932	3.683
7	Coriander	10804	10824	-0.185	467.322	418.681	11.618	5049	4532	11.408
8	Cashewnut	97033	96710	0.334	263.128	413.553	-36.374	25532	39995	-36.162

An insight into the table above reveals that during 2011-12 the area covered under Turmeric substantially increased by 30.71 percent whereas against the area under Tapioca and Coriander decreased by 11.93 percent and 0.185 percent respectively and in respect of Cashewnut and Chillies it was increased by 0.33 percent and 5.25 percent respectively when compared to that of previous year.

The average yield of Cashew decreased tremendously by 36.37 percent and as a result the Production of Cashew also has declined by 36.16 percent.

The area covered under Turmeric has increased to the tune of 30.71 percent and there is sizeable increase of Average yield per hectare by 1.39 percent and eventually the production of Turmeric increased sumptuously by 32.53 percent which has reflected the downward trend of Turmeric prices during 2011-12.

The production of Cashewnut has shown a negative trend whereas Chillies, Onion turmeric, Tapioca, Ginger, Coriander and potato has shown a positive trend during 2011-12 over that of the previous year.

CHAPTER - I

THE SURVEY ON MINOR CROPS

INTRODUCTION

The Scheme for the conduct of Crop Estimation Survey on selected minor crops like Chillies, Onion and Potato was initiated in Tamil Nadu during 1971-72 (Fasli 1381) in order to estimate the yield rate and production in a scientific manner by conducting crop cutting experiments. Subsequently the survey was extended to cover the following crops in a phased manner, as detailed below.

Tapioca	from 1975-76
Turmeric } Ginger }	from 1980-81
Coriander	from 1990-91
Cashewnut	from 1993-94

OBJECTIVE OF THE SURVEY

The main objective of this survey is to obtain reliable estimates of average yield per hectare and production of certain minor crops at the district and State level with a reasonable degree of precision. In addition to this, certain additional information on manuring, high yielding varieties and other agricultural practices adopted in respect of these crops were also collected and analysed in the tables annexed.

COVERAGE

The survey was conducted in the districts, where these crops are grown more predominantly. During 2011-12, 24 districts were covered under this survey.

SAMPLING DESIGN OF THE SURVEY

The sampling design adopted for this survey is a stratified multi-stage random sampling technique. The taluk is taken as stratum and villages within the taluk form the primary sampling units. Selection of fields and selection of experimental plots on specified size in each selected field form the second and third stages of sampling units.

SAMPLE SIZE

The following Table shows the number of experiments planned and conducted during the year 2011-12.

Number of Experiments Planned and Conducted

Crop	No. of Experiments	
	Planned	Conducted
1. Chillies	180	180
2. Onion	180	180
3. Turmeric	200	200
4. Tapioca	210	210
5. Potato		
Summer	50	50
Winter	10	10
6. Ginger	20	20
7. Coriander	70	70
8. Cashewnut	160	160
Total	1080	1080

All the experiments planned were conducted (100%) successfully without any loss and omission.

PLOT SIZE

The size of the experimental plot is given below:

Chillies, Onion and Turmeric	:	5M X 5M
Potato	:	10M X 2M
Tapioca and coriander	:	2M X 2M
Ginger	:	2M X 1M
Cashewnut	:	Entire selected garden.

PERIOD OF THE SURVEY

The periodicity of the Survey extended over a full Fasli year starting from July 2011 to June 2012.

COLLECTION AND SUPERVISION

At the district level, Block Statistical Inspectors are the primary workers of the survey for all crops except cashewnut and coriander for which the fieldwork is entrusted with the Assistant Horticulture Officers of the Department of Horticulture and Plantation Crops. In order to ensure maximum accuracy in yield estimation the fieldwork is supervised by the respective Statistical Officers, Assistant Director of Statistics, Deputy Director of Statistics and Regional Joint Director of Statistics at various stages.

CHAPTER II

ESTIMATION PROCEDURE

The following estimation procedure is adopted for finalising the estimates of average yield. The average yield of crops at Taluk level is calculated as a simple mean of individual plot yields. It can be denoted mathematically as follows:

$$\bar{Y}_i = \left\{ \sum_{r=1}^{m_i} \sum_{n=1}^2 Y_{ri} \right\} / n_i$$

Where \bar{Y}_i = average yield for i^{th} taluk.

Y_{ri} = yield of i^{th} experiments in i^{th} village.

n_i = number of experiments in i^{th} taluk.

m_i = number of villages in i^{th} taluk.

The average yield for the district is calculated by combining the stratum means using the area under the respective crop in the stratum as weight. Mathematically,

$$\bar{Y}(d) = \left\{ \sum_{i=1}^{t_k} \bar{Y}_i \times a_i \right\} / \sum_{i=1}^{t_k} a_i$$

Where $\bar{Y}(d)$ = average yield for the district

a_i = area in the i^{th} taluk.

t_k = number of taluks in the districts.

The estimates of average yield for each category of crops are then pooled to arrive at the estimated average yield for the combined crop at district and State level by using the area under the respective category as weight.

The Sampling error which gives an indication of the limits within which the estimated average yield likely to vary is worked out by using the formula.

$$SE = \sqrt{\bar{Y}_i} = \frac{\left[F \sum_{i=1}^{t_k} (a_i^2/n_i) + (E \sim F) \sum_{i=1}^{t_k} (a_i^2/n_i) \sum_{i=1}^{t_k} n_i^2 \lambda_i n_i \right]}{\left[\sum_{i=1}^{t_k} a_i \right]^2}$$

Where $\bar{Y}(d)$ = Estimated district mean yield

n_{ij} = The number of fields with j^{th} village of the i^{th} taluk..

n_i = Number of experiments conducted in the taluk.

m_i = The number of selected villages in the i^{th} taluk

t_k = Number of taluks in the districts.

a_i = Area of the crop in the i^{th} taluk.

E = $\frac{SSBV}{DF}$ (i.e) the estimate of the mean square between the field

DF within the village

F = $\frac{SSWV}{DF}$ (i.e) the estimate of the mean square within the village

$\lambda_i =$ Correction factor

$$= \left[n_i^2 - \sum_{j=1}^{n_i} n_{ij} \right] / n_i (n_i - 1)$$

The district average is worked out separately for each category such as season of crops, for irrigated and unirrigated categories, as the case may be by making use of the above formula. The district average for the combined crop is arrived at by pooling the estimates for each category on the basis of the area under the respective category. The estimates for the State are obtained by using weighted average method. The district-wise area figures under the crops are used as weight.

In case where crops are grown as mixed crops, the plot yields are estimated in proportion to the percentage of the mixed crop in the experimental field.

CHAPTER III

RESULTS OF THE SURVEY

CHILLIES

Chillies are an important culinary ingredient.

It may be noted that the districts of Ramanathapuram and Thoothukudi put together contribute a large chunk of 45 per cent to State aggregate production. According to the Season and Crop Report 2011-12, area under chillies increased by 5.25 per cent from 53626 ha. during 2010-11 to 56442 ha. during 2011-12,. During the same period estimated average yield pegged up by 8.17 per cent from 404 to 437 kg/ha. Estimated production went up from 21691 tonnes to 24640 tonnes exhibiting an increase of 13.60 per cent. Relevant information is portrayed below.

Table-2
District Wise Area, Average Yield and Production of Chillies
Year 2011-12

Sl. No.	District	No. of Experiments		Area as per Season and Crop Report (ha.)	Estimated Average Yield (kg./ha)	Estimated Production (tonnes)
		Planned	Analysed			
1	SALEM	10	10	879	644.447	566
2	TIRUCHIRAPPALLI	10	10	1540	545.649	840
3	KARUR	10	10	770	637.398	491
4	DINDIGUL	10	10	1674	1044.753	1749
5	RAMANATHAPURAM	50	50	21217	353.763	7506
6	VIRUDHUNAGAR	10	10	2662	1010.444	2690
7	SIVAGANGAI	20	20	4064	213.740	869
8	TIRUNELVELI	10	10	1591	1595.027	2538
9	THOOTHUKUDI	30	30	14120	253.767	3583
10	ARIYALUR	10	10	735	692.748	509
11	TIRUPUR	10	10	1028	592.711	609
	Total for the Districts covered In the State	180	180	50280	436.557	21950
	TOTAL FOR THE ENTIRE STATE	180	180	56442	436.557	24640

Chillies crop is predominantly grown in Ramanathapuram District covering 21217 hectare and the estimated average yield of Chillies is 354 kg/hectare.

Adoption of Modern Agricultural Practices

Yield rate will go up provided the farmers embrace the modern farm technology in cultivation of crops. Traditionally low yielding varieties are dominating the scene. Out of 180 farmers, only 12 per cent used high yielding crops, 55 per cent applied chemical fertilizers and 98 per cent used pesticides in the cultivation of chillies. Relevant information is shown below.

Table-3

Extent of Application of High Yield Variety Seeds, Fertilizers and Pesticides.

Year: 2011-12.

Sl No	DISTRICT	Percentage of Area under							
		Seeds			Fertilisers			Pesticides	
		LOCAL SEEDS	IMPROVED SEEDS	HIGH YIELDING SEEDS	CHEMICAL FERTILISER	OTHER MANURES	UN MANURED	TREATMENT OF PESTICIDES / INSECTICIDES	UN-TREATED BY PESTICIDES (INSECTICIDES)
1	SALEM	59	41	0	50	50	0	100	0
2	TIRUCHIRAPPALLI	0	88	12	52	48	0	100	0
3	KARUR	84	16	0	45	55	0	100	84
4	RAMANATHAPURAM	89	2	4	65	32	3	94	89
5	VIRUDHUNAGAR	66	0	34	79	21	0	100	66
6	SIVAGANGAI	100	0	0	10	62	29	100	100
7	TIRUNELVELI	45	0	55	50	50	0	100	45
8	THOOTHUKUDI	100	0	0	58	30	13	100	100
9	ARIYALUR	0	0	88	68	32	0	100	0
10	TIRUPUR	3	0	97	52	48	0	100	0
	STATE TOTAL	83	5	12	55	34	11	98	2

ONION

Onion is widely used for seasoning the food items. Area under onion went up by 9.24 per cent from 31959 ha. during 2010-11 to 34912 ha. during 2011-12. Average yield increased from 9365 kg/ha to 10797 kg./ha. registering a rise of 15.29 per cent. Total production rose by 25.94 per cent from 299304 tonnes to 376947 tonnes. Relevant information is displayed below.

Table-4

District-wise Area, Average Yield and Production of Onion year 2011-12

Sl. No.	District	No. of Experiments		Area as per Season and Crop Report (ha.)	Estimated Average Yield (kg./ha)	Estimated Production (tonnes)
		Planned	Analysed			
1	NAMAKKAL	20	20	2572	11834.249	30438
2	ERODE	10	10	1275	10198.445	13003
3	TIRUCHIRAPPALLI	20	20	4710	9902.584	46641
4	PERAMBALUR	40	40	8160	7543.023	61551
5	DINDIGUL	20	20	3803	8490.308	32289
6	VIRUDHUNAGAR	10	10	1395	7130.156	9947
7	TIRUNELVELI	20	20	1941	12382.827	24035
8	THOOTHUKUDI	10	10	1786	11659.009	20823
9	TIRUPUR	30	30	3857	19933.010	76882
	Total of covered districts	180	180	29499	10698.933	315608
	STATE	180	180	34912	10797.065	376947

As born out in table above, Perambalur district stands first in the area sown, followed by Tiruchirappalli and Tiruppur districts. In respect of the yield, Tiruppur district ranks first, followed by Tirunelveli and Namakkal.

Adoption of Modern Agricultural Practices

Out of 180 farmers contacted, 55 per cent applied traditional variety of seeds in onion(K) and 62 per cent in onion(R) while 36 per cent followed high yielding varieties in onion(K) and 28 per cent in onion(R). About 59 per cent used chemical fertilizers in onion(K) and 44 percent in onion(R). Crop was treated with pesticides in the cases of 100 percent of total farmers in onion(K) and 95 per cent in onion (R). Relevant information is set out below:

Table-5

Extent of Application of High Yielding Varieties Seeds, Fertilizers and Pesticides.

Year: 2010-11

Onion (Kharif)

Sl. No.	DISTRICT	PERCENTAGE AREA UNDER							UN-TREATED BY PESTICIDES / INSECTICIDES
		Seeds			Fertilisers			TREATMENT OF PESTICIDES / INSECTICIDES	
		LOCAL SEEDS	IMPROVED SEEDS	HIGH YIELDING SEEDS	CHEMICAL FERTILISER	OTHER MANURES	UN MANURED		
1	NAMAKKAL	26	74	0	50	50	0	100	0
2	ERODE	46	39	15	50	50	0	100	0
3	PERAMBALUR	100	0	0	50	50	0	100	0
4	DINDIGUL	35	0	65	12	0	88	100	0
5	VIRUDHUNAGAR	75	0	25	50	50	0	100	0
6	TIRUNELVELI	25	0	75	87	13	0	100	0
7	TIRUPUR	33	0	67	86	14	0	100	0
	STATE TOTAL	55	9	36	59	31	10	100	0

Table-6**Extent of Application of High Yielding Varieties Seeds, Fertilizers and Pesticides.****Year: 2011-12****Onion (Rabi)**

Sl. No.	DISTRICT	PERCENTAGE AREA UNDER							
		Seeds			Fertilisers			Pesticides	
		LOCAL SEEDS	IMPROVED SEEDS	HIGH YIELDING SEEDS	CHEMICAL FERTILISER	OTHER MANURES	UN MANURED	TREATMENT OF PESTICIDES / INSECTICIDES	UN-TREATED BY PESTICIDES / INSECTICIDES
1	NAMAKKAL	41	45	14	56	35	9	86	14
2	ERODE	50	0	50	67	33	0	100	0
3	TIRUCHIRAPPALLI	100	0	0	50	50	0	100	0
4	PERAMBALUR	100	0	0	50	50	0	100	0
5	DINDIGUL	0	0	100	0	0	100	76	24
6	VIRUDHUNAGAR	100	0	0	47	53	0	100	0
7	TIRUNELVELI	100	0	0	100	0	0	100	0
8	THOOTHUKUDI	40	60	0	56	38	6	100	0
9	TIRUPUR	4	0	96	46	36	18	100	0
	STATE TOTAL	62	10	28	44	38	18	95	5

TURMERIC

Turmeric is a ten-month long crop usually sown during May-June and harvested during March-April every year. It is used as a culinary ingredient. This crop is thriving in the districts of Erode, Salem and Dharmapuri because of presence of enterprising farmers and assured water supply.

Total area under turmeric soared by 30.71 per cent from 51446 ha during 2010-11 to 67246 ha during 2011-12. Yield rate rose by 1.41 per cent from 5403 kg / ha to 5479 kg/ha. Total production rose by 32.53 per cent from 277979 tonnes to 368411 tonnes. Relevant information is presented in Table-7.

Table-7
District-wise Area, Average Yield and Production of Turmeric

Year 2011-12

Sl. No.	District	No. of Experiments		Area as per Season and Crop Report (ha.)	Estimated Average Yield (kg./ha)	Estimated Production (tonnes)
		Planned	Analysed			
1	VILLUPURAM	20	20	3911	2627.391	10276
2	SALEM	40	40	13684	4207.859	57580
3	NAMAKKAL	30	30	5724	8664.061	49593
4	DHARMAPURI	30	30	14009	5740.630	80420
5	COIMBATORE	10	10	2454	11382.230	27932
6	ERODE	40	40	12857	5064.079	65109
7	TIRUCHIRAPPALLI	10	10	2329	3953.466	9208
8	PERAMBALUR					
9	KRISHNAGIRI	10	10	2127	4464.190	9495
	Total of Covered District	200	200	60222	5478.557	329930
	Total	200	200	67246	5478.557	368411

Adoption of Modern Agricultural Practices

Out of the total 200 sample farmers, 20 per cent of farmers adopted high yielding varieties, 60 per cent used chemical fertilizers and 91 per cent treated to crop with pesticides. Relevant information is presented in Table 8.

Table -8

Extent of Application of High Yielding Varieties, Seeds, Fertilizers and Pesticides

Sl. No.	DISTRICT	Percentage of Area Under							
		Seeds			Fertilisers			Pesticides	
		LOCAL SEEDS	IMPROVED SEEDS	HIGH YIELDING SEEDS	CHEMICAL FERTILISER	OTHER MANURES	UN MANURED	TREATMENT OF PESTICIDES / INSECTICIDES	UN-TREATED BY PESTICIDES / INSECTICIDES
1	VILLUPURAM	21	75	5	50	48	2	84	16
2	SALEM	26	35	39	49	51	0	100	0
3	NAMAKKAL	68	14	0	54	43	3	95	5
4	DHARMAPURI	77	23	0	89	11	0	76	24
5	COIMBATORE	51	0	49	50	50	0	100	0
6	ERODE	64	15	22	54	46	0	94	6
7	TIRUCHIRAPPALLI	0	0	100	50	50	0	100	0
8	KRISHNAGIRI	29	48	23	64	36	0	100	0
	STATE TOTAL	55	25	20	60	39	1	91	9

TAPIOCA

Tapioca is an annual crop. It has multiple uses such as human consumption and production of starch. This crop is predominantly grown in the districts of Nammakkal, Salem and Dharmapuri.

Total area decreased by 11.93 per cent from 119618 ha. during 2010-11 to 105349 ha. during 2011-12. The yield rate increased by 16.07 per cent from 32448 kg/ha. to 37663 kg/ha. Total production rose by 2.22 per cent from 3881425 tonnes to 3967751 tonnes. Relevant information is presented below:

Table-9
District-wise Area, Average Yield and Production of Tapioca

Sl. No.	District	No. of Experiments		Area as per Season and Crop Report (ha.)	Year: 2011-12	
		Planned	Analysed		Estimated Average Yield (kg./ha)	Estimated Production (tonnes)
1	CUDDALORE	20	20	3404	29790.816	101408
2	VILLUPURAM	30	30	12264	21553.744	264335
3	SALEM	30	30	17084	50635.771	865062
4	NAMAKKAL	30	30	27037	36313.885	981818
5	DHARMAPURI	40	40	18048	32602.733	588414
6	ERODE	10	10	5892	40251.248	237160
7	TIRUCHIRAPPALLI	10	10	5976	53942.912	322363
8	KARUR	10	10	2362	42734.266	100938
9	KANYAKUMARI	20	20	2712	42551.800	115400
10	TIRUPUR	10	10	878	29410.741	25823
Total covered District		210	210	95657	37662.919	3602722
STATE		210	210	105349	37662.919	3967751

Adoption of Modern Agricultural Practices

34 per cent of 210 sample farmers adopted high yield varieties, 48 per cent applied chemical fertilizers and 90 per cent treated the crop with pesticides. Relevant information is exhibited below:

Table -10

Extent of Application of High Yielding Varieties Seeds, Fertilizers and Pesticides.

Year 2011-12

Sl. No.	DISTRICT	Percentage of Area Under							
		Seeds			Fertilisers			Pesticides	
		LOCAL SEEDS	IMPROVED SEEDS	HIGH YIELDING SEEDS	CHEMICAL FERTILISER	OTHER MANURES	UN MANURED	TREATMENT OF PESTICIDES / INSECTICIDES	UN-TREATED BY PESTICIDES /INSECTICIDES
1	CUDDALORE	0	26	67	50	50	0	74	26
2	VILLUPURAM	3	90	7	50	50	0	93	7
3	SALEM	14	72	14	52	48	0	100	0
4	NAMAKKAL	0	45	55	50	50	0	82	18
5	DHARMAPURI	23	77	0	29	35	36	86	14
6	ERODE	0	0	100	49	51	0	100	0
7	TIRUCHIRAPPALLI	0	12	88	89	11	0	100	0
8	KARUR	100	0	0	77	23	0	73	100
9	KANYAKUMARI	22	65	14	6	94	0	100	0
	STATE TOTAL	10	56	34	48	45	7	90	10

POTATO

Potato is mainly grown in the district of Dindigul and The Nilgiris. It is raised during two seasons viz. Summer and Winter. Summer crop is sown during May and June whereas winter crop is raised during October and November.

Potato (Summer)

The area covered under the crop as per Season and Crop Report for 2011-12 was 3130 ha. against 3379 ha. in 2010-11. The area under cultivation substantially decreased by 7.37 per cent. The estimated yield per hectare stood at 18244 kg/ha. during 2011-12 against 18311 kg/ha. in 2010-11. The yield rate decreased by 0.37 per cent. The estimated production for 2011-12 was at 57104 tonnes against 61873 tonnes in 2010-11 recording a phenomenal decrease of 7.71 per cent.

Potato (Winter)

The winter area as per Season and Crop Report for 2011-12 was put at 1543 ha. against 1245 ha. in the previous year. The area under cultivation increased by 23.94 per cent. The estimated yield per hectare was 22750 kg./ha. in 2011-12 against 21734 kg./ha the increase being 4.67 per cent.

The estimated production for 2011-12 was at 35103 tonnes against 27058 tonnes in 2010-11 the increase being 29.73 per cent. The increase in the production was due to the significant increase in the area.

Potato (Combined)

The area under potato in both seasons combined together for the State was at 4673 ha. during 2011-12 against 4624 ha. in 2010-11 recording an increase of 1.06 per cent. With respect to yield rate it increased by 2.60 per cent from 19233 kg/ha. to 19732 kg/ha. Estimated total production shot up by 3.68 per cent from 88932 tonnes to 92207 tonnes. Relevant information is in Table-11.

Table- 11

District-wise Area, Average Yield and Production of Potato

Year : 2011-12

District	No. of Experiments		Area as per Season & Crop Report (ha.)	Estimated Average Yield (kg/ha)	Estimated Production (tonnes)
	Planned	Analysed			
POTATO (Summer)					
DINDIGUL	30	30	1830	13311.667	24360
THE NILGIRIS	20	20	936	27887.500	26103
TOTAL FOR THE DISTRICTS COVERED IN THE STATE	50	50	2766	18244.053	50463
TOTAL FOR THE ENTIRE STATE	50	50	3130	18244.053	57104
POTATO (Winter)					
THE NILGIRIS	10	10	850	22750.000	19338
TOTAL FOR THE DISTRICTS COVERED IN THE STATE	10	10	850	22750.000	19338
TOTAL FOR THE ENTIRE STATE	10	10	1543	22750.000	35103
POTATO (Combined)					
DINDIGUL	30	30	2320	15305.108	35508
THE NILGIRIS	30	30	1786	25442.441	45440
TOTAL FOR THE DISTRICTS COVERED IN THE STATE	60	60	4106	19714.576	80948
TOTAL FOR THE ENTIRE STATE	60	60	4673	19731.893	92207

Adoption of Modern Agricultural Practices during summer season

Of the total 50 sample farmers, 62 per cent used traditional seeds, 44 per cent applied chemical fertilizers. Pesticides was not at all used. Relevant information is displayed below:

Table-12

(Potato kharif)

Extent of Application of High Yielding Varieties Seeds, Fertilizers and Pesticides.

Sl. No.	DISTRICT	Percentage of Area Under							Pesticides	
		Seeds			Fertilisers			TREATMENT OF PESTICIDES / INSECTICIDES	UN-TREATED BY PESTICIDES / INSECTICIDES	
		LOCAL SEEDS	IMPROVED SEEDS	HIGH YIELDING SEEDS	CHEMICAL FERTILISER	OTHER MANURES	UN MANURED			
1	DINDIGUL	93	0	7	30	50	20	100	0	
2	THE NILGIRIS	0	0	100	71	29	0	100	0	
	STATE TOTAL	62	0	38	44	43	13	100	0	

Adoption of Modern Agricultural Practices during winter season.

Out of the total 10 sample farmers, 100 per cent used High Yielding Varieties and 56 per cent applied chemical fertilizers. Relevant information is furnished below:

Table -13

(Potato Rabi)

Extent of Application of High Yielding Varieties Seeds, Fertilizers and Pesticides.

Sl. No.	DISTRICT	Percentage of Area Under							
		Seeds			Fertilisers			Pesticides	
		LOCAL SEEDS	IMPROVED SEEDS	HIGH YIELDING SEEDS	CHEMICAL FERTILISER	OTHER MANURES	UNMANURED	TREATMENT OF PESTICIDES / INSECTICIDES	UN-TREATED BY PESTICIDES /INSECTICIDES
1	THE NILGIRIS	0	0	100	56	44	0	90	10
	STATE TOTAL	0	0	100	56	44	0	90	10

GINGER

The ginger crop requires copious and well-distributed rainfall. The crop is predominantly sown in The Nilgiris District. Generally this crop is planted during April-May and harvested in January-February. The area under the crop as per Season and Crop Report stood at 635 ha. in 2011-12 as against 587 ha. in 2010-11. The increase in area was 8.18 per cent.

The estimated average yield per hectare went down to 1104.3 kg/ha. during 2011-12 from 9845 kg/ha. in 2010-11. The yield rate sharply rose by 12.16 per cent. The estimated production for 2011-12 was put at 7012 tonnes against 5779 tonnes in 2010-11, the fall being 21.34 per cent. Relevant information is furnished below

Table-14
Area, Average Yield and Production of Ginger

District	No. of Experiments		Area as per Season & Crop Report (ha.)	Estimated Average Yield (kg/ha)	Estimated Production (tonnes)
	Planned	Analysed			
THE NILGIRIS	20	20	407	11042.500	4494
TOTAL FOR THE DISTRICTS COVERED IN THE STATE	20	20	407	11042.500	4494
TOTAL FOR THE ENTIRE STATE	20	20	635	11042.500	7012

Adoption of Modern Agricultural Practices

Out of total 20 sample farmers, 100 per cent used unmanured area and 100 per cent were untreated by pesticides with respect of ginger crop. Relevant information is portrayed in Table-15.

Table-15**Extent of Application of High Yielding Varieties Seeds, Fertilizers and Pesticides.**

Sl. No.	DISTRICT	Percentage of Area Under						
		Seeds			Fertilisers			Pesticides
		LOCAL SEEDS	IMPROVED SEEDS	HIGH YIELDING SEEDS	CHEMICAL FERTILISER	OTHER MANURES	UN MANURED	TREATMENT OF PESTICIDES / INSECTICIDES
1	THE NILGIRIS	0	0	0	0	0	100	0
	STATE TOTAL	0	0	0	0	0	100	0

CORIANDER

Coriander crop is predominant in the districts of Thoothukudi and Virudhunagar. Coriander is mainly sown as an unirrigated crop and usually raised during the month of October-November, i.e. North East Monsoon period and the crop is harvested in January-February.

Total area under coriander fell down by 0.18 per cent from 10824 ha. during 2010-11 to 10804 ha. during 2011-12. Yield rate rose by 11.62 per cent from 419 kg/ha. to 467 kg/ha. Total production increased from 4532 tonnes to 5049 tonnes, the rise being a significant 11.41 per cent. Relevant information is in Table-16.

Table-16
District-wise Area, Average Yield and Production of Coriander
Year 2011-12

Sl. No.	District	No. of Experiments		Area as per Season and Crop Report (ha.)	Estimated Average Yield (kg/ha)	Estimated Production (tonnes)
		Planned	Analysed			
1	CUDDALORE	10	10	96	356.640	34
2	RAMANATHAPURAM	10	10	1921	276.005	530
3	VIRUDHUNAGAR	20	20	2505	721.966	1809
4	THOOTHUKUDI	20	20	3975	388.465	1544
5	ARIYALUR	10	10	1921	276.005	530
	TOTAL FOR THE DISTRICTS COVERED IN THE STATE	70	70	8991	467.322	4202
	TOTAL FOR THE ENTIRE STATE	70	70	10804	467.322	5049

Adoption of Modern Agricultural Practices

Out of 70 sample farmers, 88 per cent used local varieties, 8 per cent applied chemical fertilizers.

Table -17

Extent of Application of High Yielding Varieties Seeds, Fertilizers and Pesticides.

Year: 2011-12

Sl. No.	DISTRICT	Percentage of Area Under						
		Seeds			Fertilisers		Pesticides	
		LOCAL SEEDS	IMPROVED SEEDS	HIGH YIELDING SEEDS	CHEMICAL FERTILISER	OTHER MANURES	UNMANURED	TREATMENT OF PESTICIDES / INSECTICIDES
1	CUDDALORE	66	0	34	34	0	66	100
2	RAMANATHAPURAM	43	0	57	18	62	20	100
3	VIRUDHUNAGAR	100	0	0	14	79	7	100
4	THOOTHUKUDI	100	0	0	0	4	96	100
5	TIRUPUR	100	0	12	8	37	55	100
	STATE TOTAL	88	0	12	8	37	55	100

CASHEWNUT

Cashewnut is a commercial and value added crop. It is bound to earn substantial foreign exchange earnings. Since the crop is xerophytic by nature, it requires minimum care and maintenance. This crop is dominant in the districts of Ariyalur and Cuddalore.

Total area rose by 0.33 per cent from 96710 ha. during 2010-11 to 97033 ha. during 2011-12. Yield rate decreased by 36.37 per cent from 414 kg/ha. to 263 kg/ha. In sympathy with fall in area and productivity, total production contracted from 39995 tonnes to 25532 tonnes the decline being 36.16 percent. Relevant information is presented below:

Table-18
District-wise Area, Average Yield and Production of Cashewnut

Year 2011-12

SL. NO	District	No of Experiments		Area as per Season & Crop Report (Ha.)	Estimated Average Yield (Kg/ha)	Estimated Production (tonnes)
		Planned	Analysed			
1	CUDDALORE	30	30	32261	171.373	5529
2	VILLUPURAM	20	20	4715	129.371	610
3	PUDUKOTTAI	20	20	8396	394.499	3312
4	THENI	20	20	5520	1083.484	5981
5	SIVAGANGAI	20	20	3752	275.808	1035
6	TIRUNELVELI	20	20	4368	107.392	469
7	ARIYALUR	30	28	29930	216.089	6468
	TOTAL FOR THE DISTRICTS COVERED	160	158	88942	263.128	23403
	STATE	160	158	97033	263.128	25532

Chapter
ANNEXURE IV

TIMES SERIES DATA

Area, yield and production for the past 10 years are furnished in the following Tables.

Trend in Area

(in ha.)

Year	Chillies	Onion	Turmeric	Tapioca	Potato	Ginger	Corian-der	Cashe w-nut
2002-03	68566	23492	17298	67951	4537	416	25327	95217
2003-04	75206	23452	16181	95022	4341	395	27722	102763
2004-05	66990	26491	21616	110589	5034	574	19350	104659
2005-06	49033	29169	25970	127122	5005	660	21062	106059
2006-07	61418	29587	30528	139628	5190	669	17425	103968
2007-08	67408	29809	27303	140092	4066	625	13288	101309
2008-09	65412	30255	29875	124301	4367	817	14139	99168
2009-10	58476	31024	33366	118647	4611	864	15977	99043
2010-11	53626	31959	51446	119618	4624	587	10824	96710
2011-12	56442	34912	67246	105349	4673	635	10804	97033

Trend in Average Yield

(in kg/ha)

Year	Chillies	Onion	Turmeric	Tapioca	Potato	Ginger	Corian-der	Cashew-nut
2002-03	592.8	8458.8	3730.8	31589.4	16169.8	16022.5	185.9	376.9
2003-04	532.8	9004.5	4156.1	33691.3	16149.0	14175.0	290.5	383.2
2004-05	666.2	9677.2	5479.6	41267.9	15705.1	19296.3	433.6	425.2
2005-06	649.1	8015.3	5520.0	38210.9	14903.8	19293.8	305.1	413.5
2006-07	695.5	8731.3	5745.2	40360.4	14921.8	18637.5	325.8	491.1
2007-08	505.6	9635.0	5347.8	42203.0	16765.6	19037.5	385.3	571.6
2008-09	503.4	9453.4	5768.9	36470.8	18438.4	20000.0	340.6	520.5
2009-10	534.1	9752.5	5067.2	34468.2	18365.4	16050.0	395.2	500.0
2010-11	404.5	9365.3	5403.3	32448.5	19232.6	9845.5	418.7	413.6
2011-12	436.6	10797.1	5478.6	37662.9	19731.9	11042.5	467.3	263.1

Trend in Production

(in tonnes)

Year	Chillies	Onion	Turmeric	Tapioca	Potato	Ginger	Corian- der	Cashew -nut
2002-03	40646	198715	64536	2146534	73362	6665	4707	35885
2003-04	40067	211173	67250	3201414	70103	5599	8052	39380
2004-05	44631	256359	118447	4563776	79060	11076	8391	44497
2005-06	31830	233796	143358	4857440	74593	12735	6425	43858
2006-07	42719	258333	175388	5635436	77443	12468	5676	51057
2007-08	34084	287210	146008	5912307	68169	11898	5120	57905
2008-09	32924	286040	172334	4533359	80539	16340	4817	51667
2009-10	31230	302563	169071	4089545	84683	13867	6315	49546
2010-11	21691	299304	277979	3881425	88932	5779	4532	39995
2011-12	24640	376947	368411	3967751	92207	7012	5049	25532

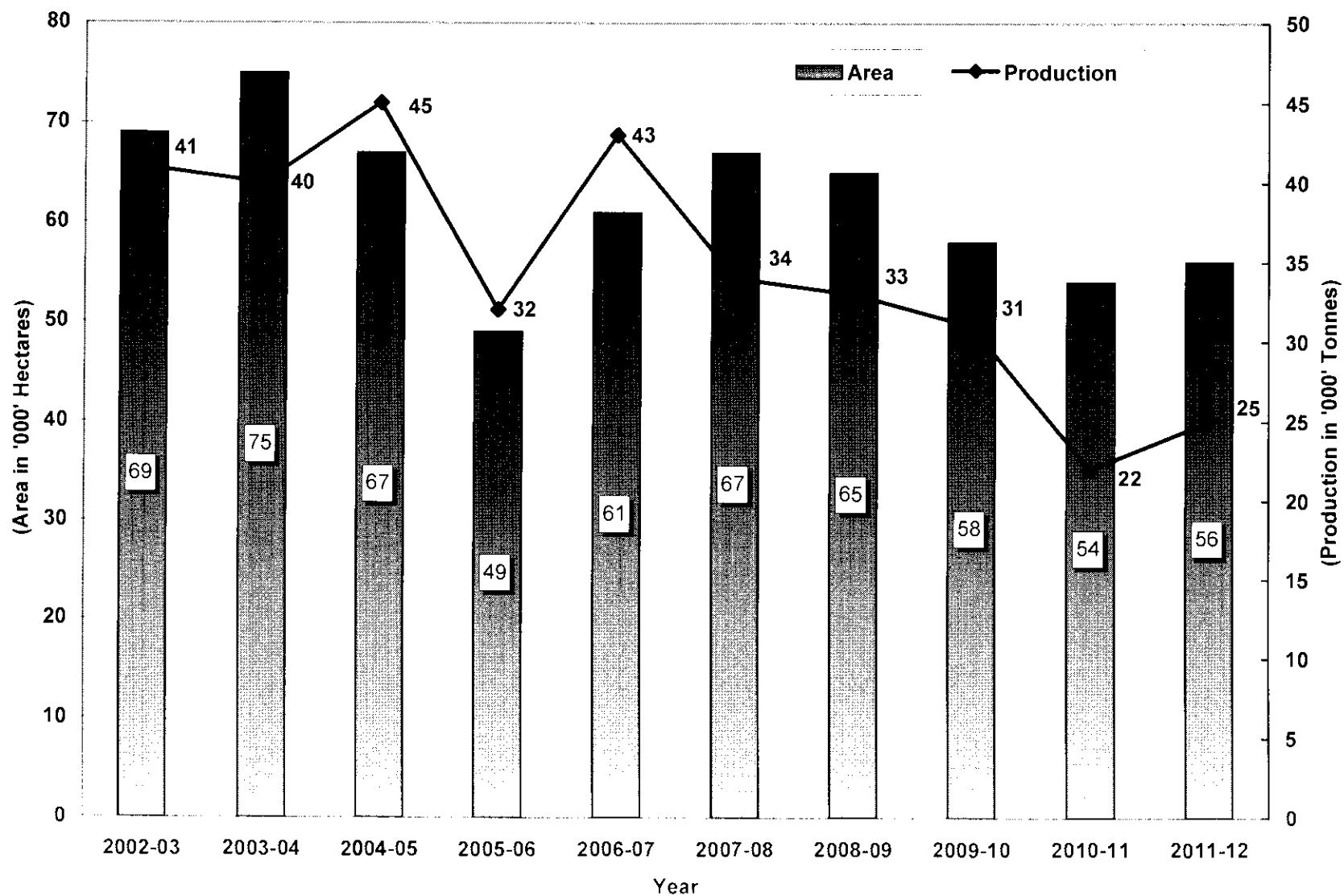
Glancing through the time series data on area reveals that wide variations are found in area coverage for all crops during the 10 year period under reference. In sympathy with the variations in area coverage, many oscillations are noticed in the level of production and yield rate for all crops. The main contributory factor is the significant deviation from the normal rainfall during the reference period.

Conclusion:

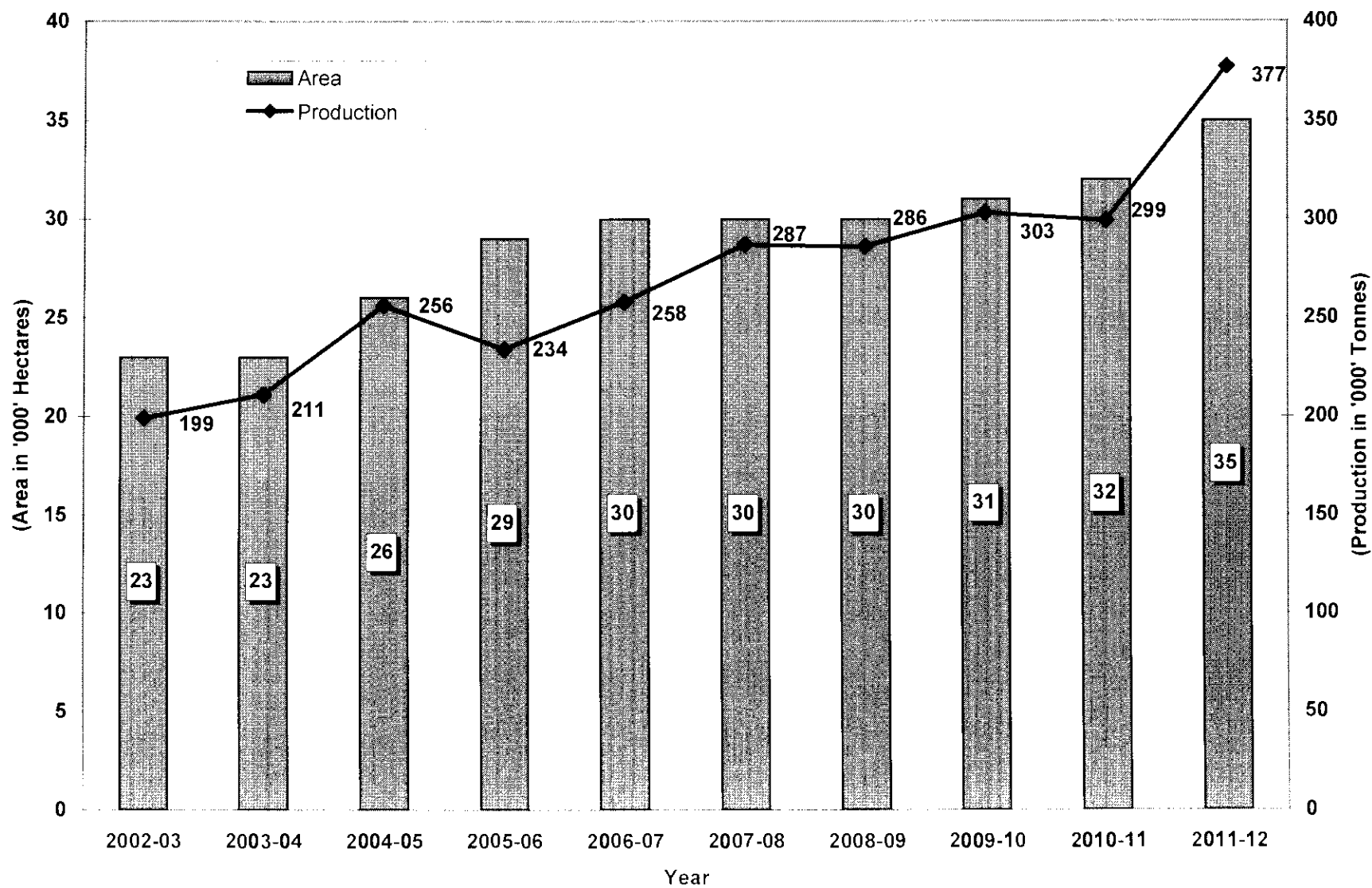
This versatile Report has carried out many information on Area, Production and ancillary information like application of HYV Seeds, manures, pesticides and cropping pattern followed. It is felt that the Market scenario has been facing fluctuations in day to day prices of Minor Crops which has been appraised in this report and hence experiment may be widely conducted to achieve good results.

Chapter V

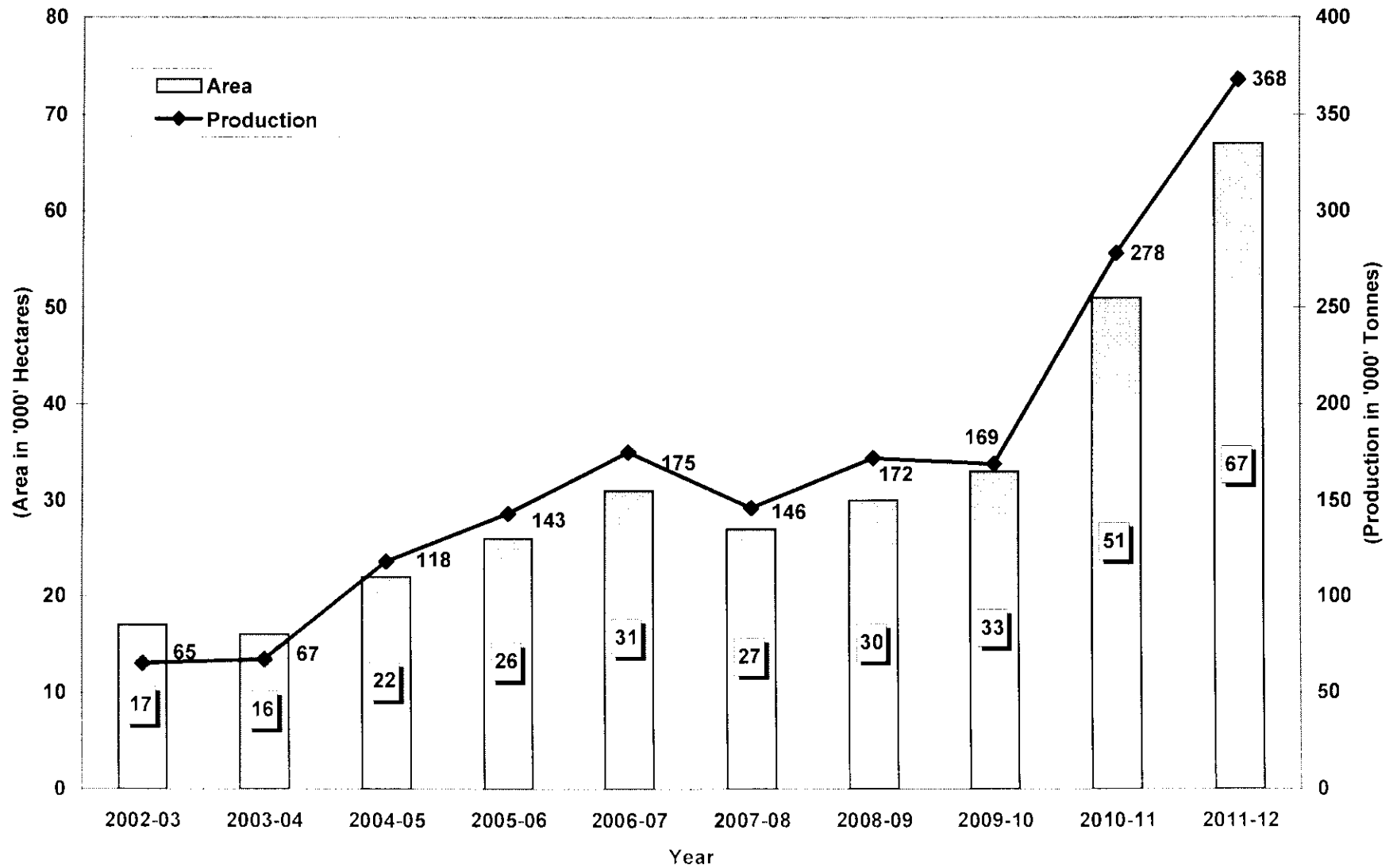
AREA AND PRODUCTION OF CHILLIES 2002-03 2011-12



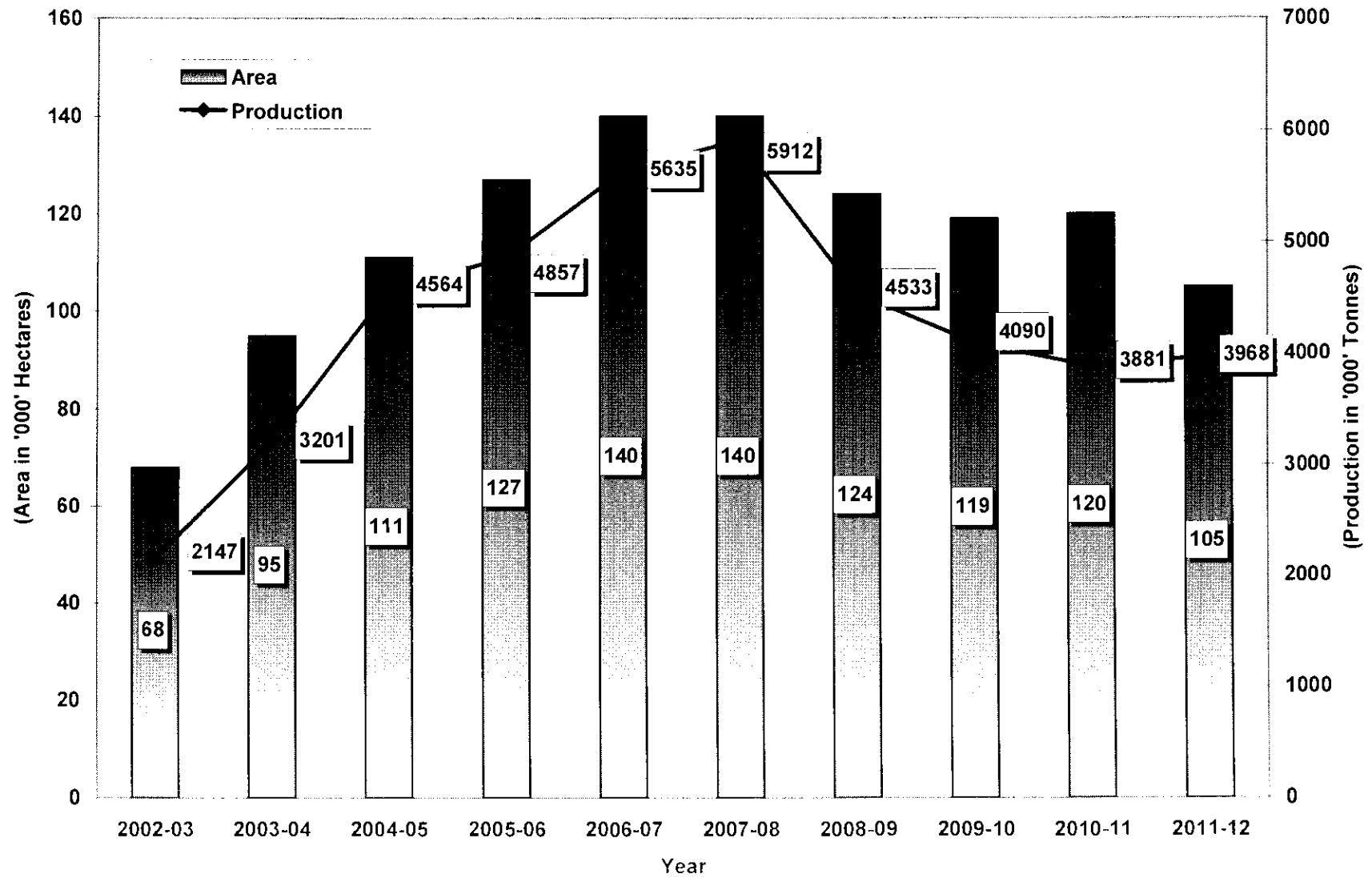
AREA AND PRODUCTION OF ONION 2002-03 TO 2011-12



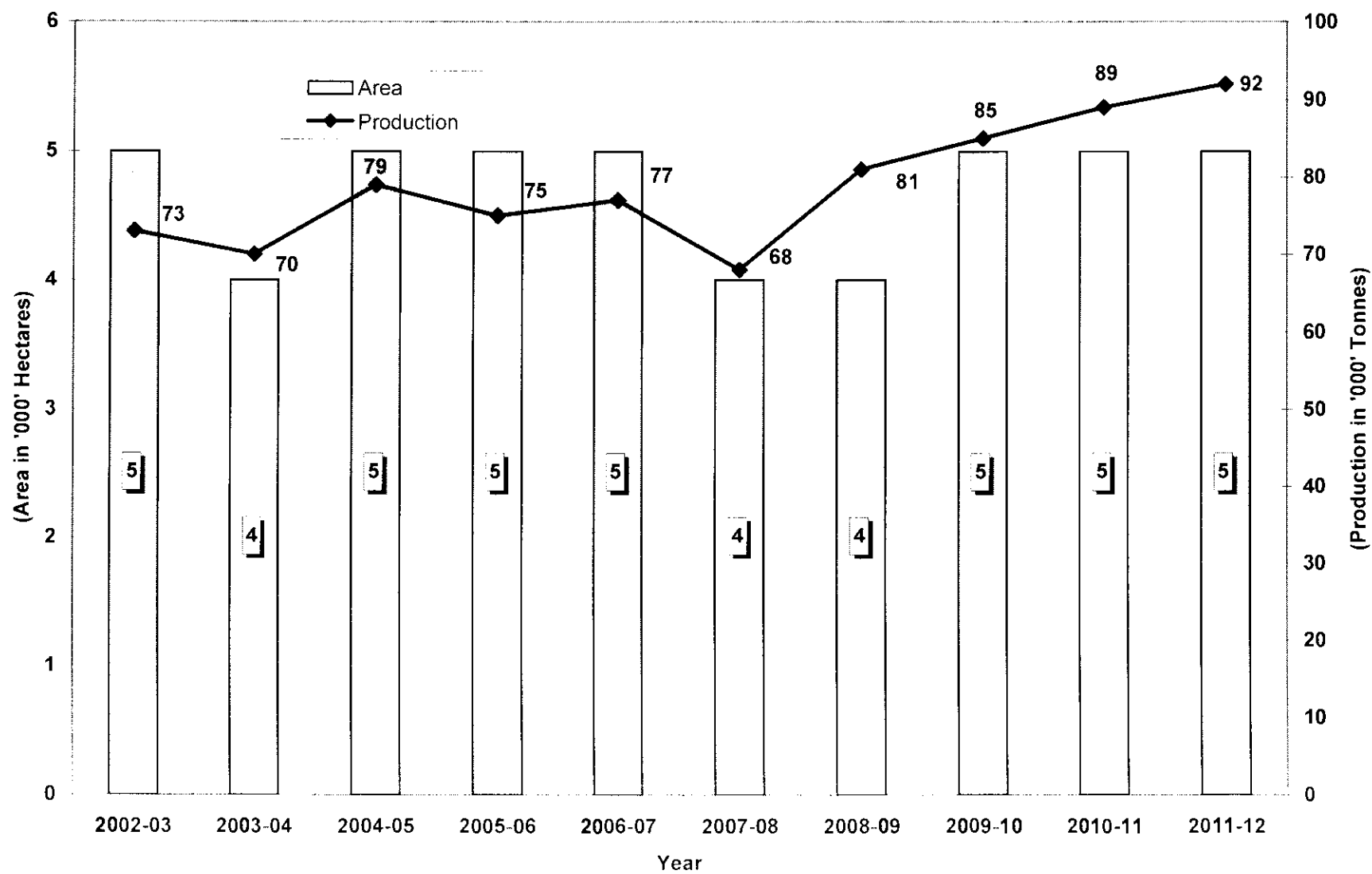
AREA AND PRODUCTION TURMERIC 2002-03 TO 2011-12



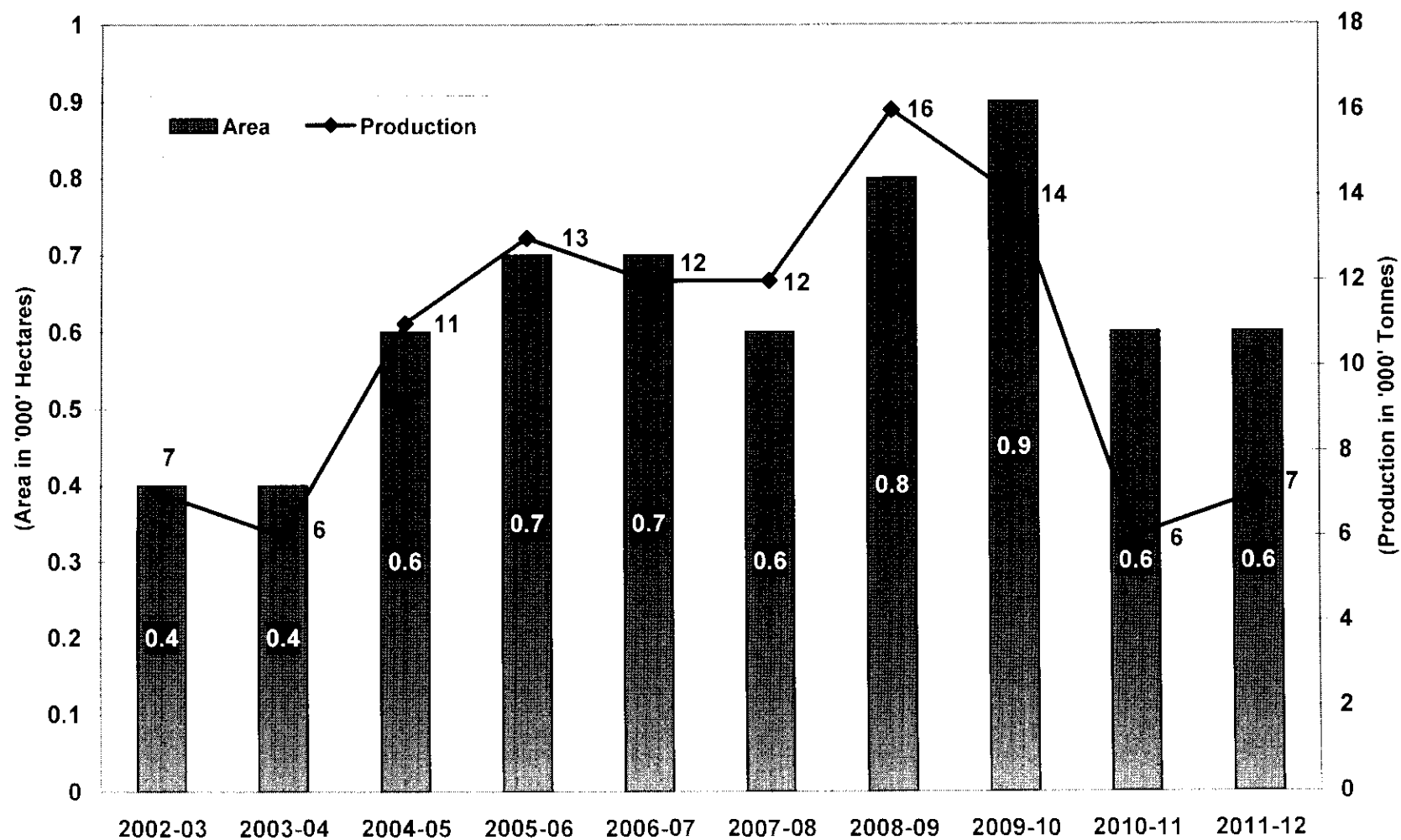
AREA AND PRODUCTION OF TAPIOCA 2002-03 TO 2011-12



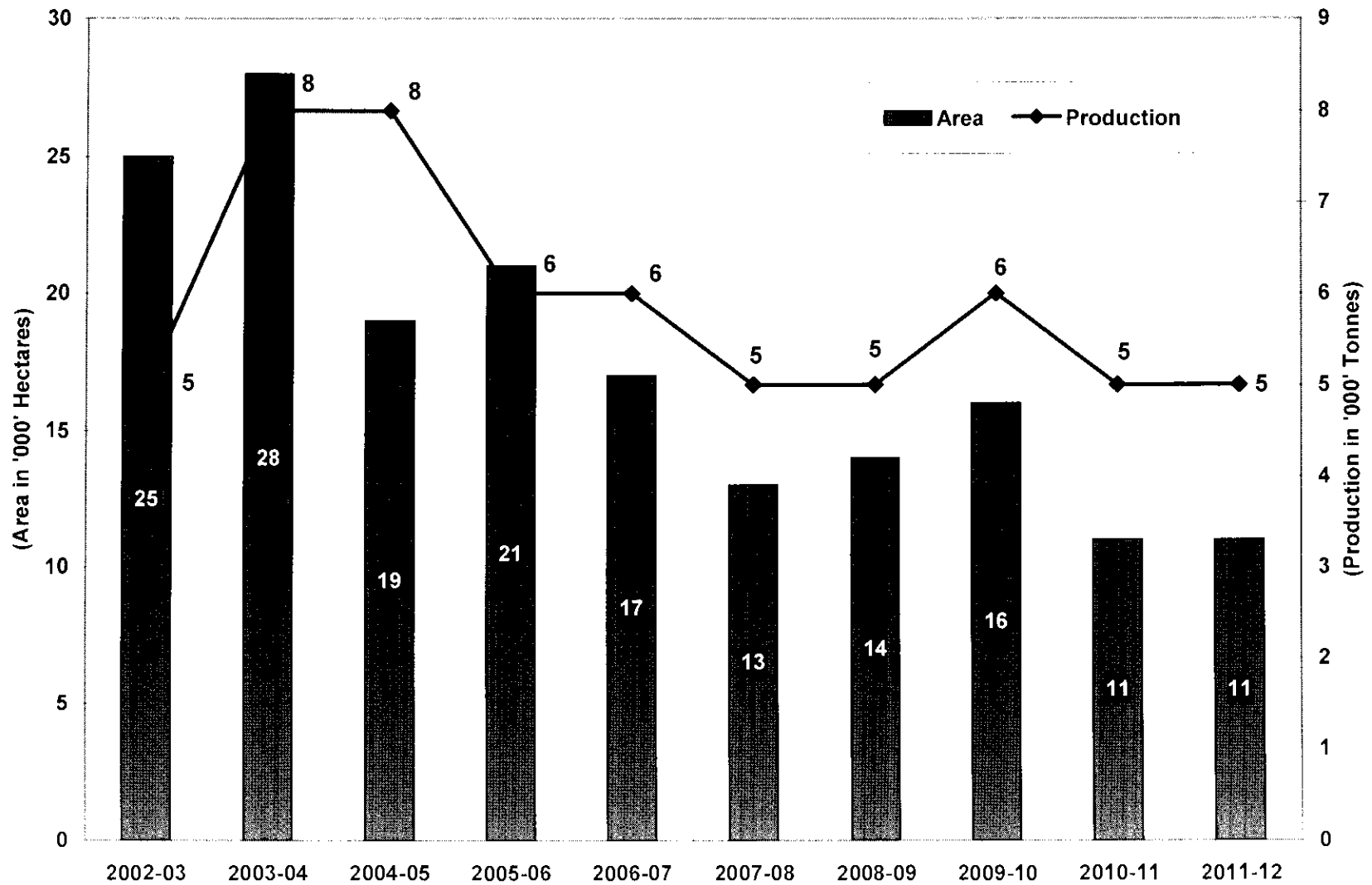
AREA AND PRODUCTION OF POTATO 2002-03 TO 2011-12



AREA AND PRODUCTION OF GINGER 2002-03 TO 2011-12



AREA AND PRODUCTION OF CORIANDER 2002-03 TO 2011-12



AREA AND PRODUCTION OF CASHEWNUT 2002-03 TO 2011-12

