



Government of Karnataka

REPORT

ON

ESTIMATES OF AREA OF PRINCIPAL CROPS

UNDER TIMELY REPORTING SCHEME

IN

KARNATAKA

2015-16

DIRECTORATE OF ECONOMICS AND STATISTICS
BANGALORE

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P R E F A C E

The centrally sponsored "Timely Reporting Scheme" is being implemented in the State since 1969-70 which aims to arrive at quick and reliable estimates of area under principal crops. Districtwise area under selected principal crops has been estimated based on the data from sample villages for all the three seasons during 2015-16 which constitute 20 percent of total villages. This report is based on the fifth set of 20% villages selected among the five sets of villages commencing from 2011-12 to 2015-16 with a coverage of 15 crops. While estimating area, classification of crops as traditional and high yielding variety and also status of irrigation are taken into account.

This report is prepared in the Agricultural Statistics Division of the Directorate of Economics and Statistics. Suggestions for improvement of this report are most welcome.

Place : Bangalore
Date : 10-03-2017


(K.V. SUBRAMANYAM)
Director

TIMELY REPORTING OF ESTIMATES OF AREA OF PRINCIPAL CROPS IN KARNATAKA 2015-16

1.1 Introduction

The “Timely Reporting Scheme” sponsored by Government of India is being implemented in the State since 1969-70, with an objective to arrive at quick, reliable and accurate estimates of area under selected principal crops soon after the end of each season. These estimates of area are worked out on the basis of the actual enumeration in 20% of total villages selected in the State every year. The area estimates under this scheme will help the Government in assessing agricultural prospects during the year and to take quick policy measures relating to agricultural output, imports, minimum support price and exports of the agricultural commodities etc.

1.2 Objective

The main objective of the scheme is to obtain reliable and statistically precise area estimates under selected principal crops soon after the end of each season. The area is estimated separately for irrigated and unirrigated category crops for both traditional and high yielding varieties.

1.3 Coverage

The time schedule of timely reporting scheme of the State covering the period from 1st April 2015 to 31th March 2016 is divided into three seasons viz., kharif, rabi and summer (see para 1.4). Totally 15 major crops are covered under the scheme but the number of crop coverage will vary from season to season. However, Paddy, Maize, Ragi and Sunflower crops are common for all the three seasons. Crop coverage in each season is as follows:-

- a) Kharif: 1. Paddy 2. Jowar 3. Maize. 4. Ragi 5. Bajra 6. Tur
7. Groundnut 8. Sesamum 9. Sunflower
- b) Rabi: 1. Paddy 2. Jowar 3. Maize 4. Ragi 5. Wheat 6. Cotton 7. Gram
8. Sugarcane 9. Sunflower 10. Safflower 11. Linseed
- c) Summer: 1. Paddy 2. Maize 3. Ragi 4. Groundnut 5. Sunflower.

1.4 Time Schedule

The time schedule for crop area enumeration was as follows:

Sl. No.	Agricultural Season	Sowing period	Crop enumeration period
1.	Kharif – Early - Late	1 st April 2015 to 30 th June 2015 1 st July 2015 to 31 st August 2015	1 st July 2015 to 9 th July 2015 1 st Sept. 2015 to 9 th Sept. 2015
2.	Rabi	1 st Sept. 2015 to 30 th Dec. 2015	1 st Jan. 2016 to 9 th Jan. 2016
3.	Summer	1 st Jan. 2016 to 31 st March 2016	1 st April 2016 to 9 th April 2016

1.5 Sampling design

- 1) Linear systematic sampling method, suggested by the Directorate of Economics and Statistics, Government of India, New Delhi, is adopted, treating each taluk as a stratum. 20% of total villages in each taluk are selected every year. All the village accountant circles in each taluk and all the villages in each village accountant circle are arranged in random order for preparing a sample frame to select the sampling unit.
- 2) The selection of 20% of sample villages in each taluk is by systematic sampling technique from the sampling frame stated above, with an interval of five sample units with a different random strata adopting non-overlapping sampling procedure.
- 3) Commencing the year 2015-16, 20% of villages are selected every year under the scheme so that 100% villages are covered in five years i.e. by 2015-16. This report is based on the data collected from the fifth set of villages selected for the year 2015-16.

1.6 Organisation of field work

- 1) The Directorate of Economics and Statistics was entrusted with the responsibility of implementation of the scheme and the field work was assigned to the Village Accountants of the Revenue Department.
- 2) To improve the quality of field work and to point out different kinds of mistakes committed by the Village Accountants in recording the crop area, supervision is essential. The supervision of field work was entrusted to Tahsildars and Revenue Inspectors of the Revenue Department, Assistant Directors of Agriculture, Assistant Agricultural Officers and the Agricultural Officers of the Department of Agriculture. The District Statistical Officers and their staff from the Economics & Statistics Department were also involved in the supervision work.

- 3) The District Statistical Officers were assigned with the overall responsibility of implementation of the scheme in their jurisdiction.

1.7 Training

The District Statistical Officers impart training to the field staff with regard to the procedure to be followed in the area enumeration and in recording the crop acreage in the prescribed crop abstracts from the RTC. Supervisory staff of the Revenue, Agriculture and Statistics Departments were also trained during kharif season, well before the commencement of the area enumeration work.

1.8 Sample size and receipt position of crop abstracts

During the year under review, in all 5794 villages were selected under the scheme. The details of number of villages selected and the number of the crop abstracts received in each season and other such particulars are given in Table-1.

Table – 1
Seasonwise receipt position of crop abstracts

Sl. No.	Particulars	Kharif	Rabi	Summer
1.	No. of villages selected	5794	5794	5794
2	No. of villages from which crop abstracts received			
	a By cut off date	4323	4729	4813
	b After cut off date	1471	1065	981
	Total	5794	5794	5794
3	Percentage response	100.00 (100.00)	100.00 (100.00)	100.00 (100.00)

(Figures in the bracket indicates percentage of last year)

1.9 Supervision

Out of the 20 % of the villages selected under the scheme during the year under review, the percentage fixed for supervision is 10%, 5% and 5% for Statistics, Revenue and Agriculture Departments respectively. The details of supervision conducted are given in Table- 2.

Table – 2
No. of villages supervised

Sl. No.	Agency	No. of villages (Kharif+Rabi+Summer)			
		Allotted	Supervised	Percentage of supervision	
				2015-16	2014-15
1.	Statistics	1764	1764	100.00	100.00
2.	Agriculture	903	903	100.00	100.00
3.	Revenue	915	915	100.00	100.00

1.10 Procedure for Estimating Area of Crops :

The formula adopted for estimating the area under selected crops and working out the sampling error of such estimates by the ratio and unbiased method are as follows :

A. Ratio Method:

1. Let k be the number of taluks in a district.
2. Y_{ij} be the area under a crop in the j^{th} village of the i^{th} taluk in the current year.
3. X_{ij} be the area under that crop in the j^{th} village of the i^{th} taluk during the previous year.
4. n_i be the total number of villages selected in the i^{th} taluk.
5. N_i be the total number of villages in the i^{th} taluk.
6. \hat{R}_c be the combined ratio estimates of the given crop in the district.
7. X is the area under that crop during previous ASCR report.
8. \hat{Y}_{Rc} be the estimates of the area of the crop in the district.

a) Area Estimates by Ratio Method

$$\hat{Y}_{Rc} = \frac{\sum_{i=1}^k N_i \bar{Y}_i}{\sum_{i=1}^k N_i \bar{X}_i} \times X$$

b) Area Estimates by Unbiased Method

$$Y \left[\begin{matrix} \hat{Rc} \\ \end{matrix} \right] = \sum_{i=1}^k N_i \bar{Y}_i$$

$$\bar{Y}_i = \frac{1}{n_i} \sum_{j=1}^{n_i} Y_{ij} \text{ and } \bar{X}_i = \frac{1}{n_i} \sum_{j=1}^{n_i} X_{ij}$$

Where X= the total area under the crop in the district during the previous year.

The variance of the Ratio estimates of the crop is given by :

$$V(\hat{YRc}) = \sum_{i=1}^k \frac{N_i(N_i - n_i)}{n_i} (S^2_{iy} + Rc^2 S^2_{ix} - 2Rc S_{ixy})$$

Where K = The number of taluks in a district

$$Rc = \frac{\sum N_i \bar{Y}_i}{\sum N_i \bar{X}_i}$$

$$\text{And } S^2_{ix} = \frac{1}{n_i - 1} \sum_{j=1}^{n_i} (x_{ij} - \bar{x}_i)^2$$

$$S^2_{iy} = \frac{1}{n_i - 1} \sum_{j=1}^{n_i} (y_{ij} - \bar{y}_i)^2$$

$$S_{ixy} = \frac{1}{n_i - 1} \left[\sum_{j=1}^{n_i} Y_{ij}x_{ij} - n_i (\bar{Y}_i \bar{X}_i) \right]$$

B. Unbiased Method:

$$= \sum_{i=1}^k \frac{N_i(N_i - n_i)}{n_i(n_i - 1)} \left[\sum Y_{ij}^2 - n_i \bar{Y}_i^2 \right]$$

Where Y_{ij} = Area of crop in “jth” village of “ith” taluk

n_i = Number of villages considered

N_i = Total no. of villages in the “ith” taluk

Where K = No. of taluks in the District.

Percentage of Standard error (S.E)

$$\% \text{ S.E} = \frac{\sqrt{V}}{A} \times 100$$

Where V = Variance

A = Estimated area (Ratio method)

CHAPTER – 2

2. Results of the scheme

Area estimates have been worked out by using both ratio and unbiased methods, comparing the same with reconciled area. Cropwise details of the estimates are presented in the ensuing paragraphs.

2.1 Paddy

It is an important cereal crop grown in 10.9 lakh hectares of area during 2015-16. The area covered under the crop was more in Shimoga followed by Raichur and Davanagere districts. About 87.79 % of the area under the crop was covered in Kharif season alone.

Seasonwise estimates of area as per ratio and unbiased methods along with reconciled area under paddy are given below in Table-3.

Table – 3
Seasonwise estimated and reconciled area under Paddy

Area in hectares

Season	Estimated area as per		Recon ciled area	% variation over reconciled area	
	Ratio	Unbiased		Ratio	Unbiased
1	2	3	4	5	6
Kharif	988433	1087931	956401	3.3	13.8
Rabi	32276	29245	29329	10.0	-0.3
Summer	105302	100183	103711	1.5	-3.4
Total	1126011	1217359	1089441	3.4	11.7

Compared to reconciled total area, the estimated area of Paddy under ratio and unbiased methods were higher. During Kharif season, percentage of variation under both the methods was higher. In Rabi season, percentage of variation under Ratio method was higher and unbiased method was lower. In summer season, percentage of variation ratio method was higher and unbiased method was lower.

Estimated area under irrigated/unirrigated category as per ratio method and the reconciled area are given in Table-4.

Table-4**Season and varietywise area estimated by ratio method under Paddy**

Area in hectares

Variety	Irrigated / Unirrigated	Estimated area as per ratio method				Reconciled area	% variation (col 6-7/7)
		Kharif	Rabi	Summer	Total		
1	2	3	4	5	6	7	8
Traditional	Irrigated	22938	322	50	23310	20866	11.7
	Unirrigated	80025	-	-	80025	79714	0.4
	Total	102963	322	50	103335	100580	2.7
High	Irrigated	657337	31954	105252	794543	752390	5.6
Yielding	Unirrigated	228133	-	-	228133	236471	-3.5
Variety	Total	885470	31954	105252	1022676	988861	3.4
Total	Irrigated	680275	32276	105302	817853	773256	5.8
	Unirrigated	308158	-	-	308158	316185	-2.5
	Total	988433	32276	105302	1126011	1089441	3.4

The irrigated area under paddy crop was 71.0 % of which high yielding variety constitutes 90.8 % under reconciled area. Under estimated area, 72.6 % of area under paddy was irrigated, of which 90.8 % was of the high yielding variety. The percentage variation of estimated area under ratio method over reconciled area was 5.8 % under irrigated category, - 2.5 % under unirrigated category and 3.4 % to the total during 2015-16. Districtwise details are given in Appendix-2.1.

2.2 Jowar

Jowar is another important cereal crop with 10.9 lakh hectares of area in the State of which 90.4 % of area was cultivated during rabi season alone. Kalburgi stands first in the area coverage i.e., 18.8 % followed by Vijayapura (16.3%) and Belgaum (15.0%). Seasonwise estimated area under jowar is given in Table-5.

Table – 5**Seasonwise estimated and reconciled area under Jowar**

Season	Estimated area as per		Reconciled area	Area in hectares	
	Ratio	Unbiased		% variation over reconciled area	
	1	2	3	4	5
Kharif	110586	139021	104498	5.8	33.0
Rabi	908317	843604	983968	-7.7	-14.3
Total	1018903	982625	1088466	-6.4	-9.7

It is clear from the above table that compared to reconciled area, the variation of area under ratio and unbiased methods was 5.8 % and 33.0 % respectively during kharif season and it was -7.7 % and -14.3 % under rabi season.

Area by varieties and status of irrigation worked out by ratio method and the reconciled area are given in Table-6.

Table – 6**Season and varietywise area estimated by ratio method under Jowar**

Variety	Irrigated/ Unirrigated	Estimated area as per ratio method			Reconciled area	% variation (col 5-6/6)
		Kharif	Rabi	Total		
	1	2	3	4	5	6
Traditional	Irrigated	317	9428	9745	14748	-33.9
	Unirrigated	18806	133392	152198	148925	2.2
	Total	19123	142820	161943	163673	-1.1
Hybrid Variety	Irrigated	17650	80385	98035	127103	-22.9
	Unirrigated	73813	685113	758926	797690	-4.9
	Total	91463	765498	856961	924793	-7.3
Total	Irrigated	17967	89813	107780	141851	-24.0
	Unirrigated	92619	818505	911124	946615	-3.7
	Total	110586	908318	1018904	1088466	-6.4

About 15.9 % of estimated jowar area was under traditional variety and the remaining 84.1 % under hybrid variety as against 15.0 % and 85.0 % of reconciled area respectively. District-wise details are given in Appendix – 2.2.

2.3 Ragi

Ragi is the third most important cereal crop largely grown in southern districts with 6.7 lakh hectares of area during 2015-16. The major ragi growing districts are Tumkur (22.7%), Ramanagara (10.5%), Hassan (9.6%), and Kolar (8.1%) which account for 50.9% of the total ragi area of the State. About 93.6 % of the area was covered under kharif season itself. Seasonwise area estimated as per ratio and unbiased methods are given in Table-7.

Table – 7

Seasonwise estimated and reconciled area under Ragi

Area in hectares

Season	Estimated area as per		Reconciled area	% variation over reconciled area	
	Ratio	Unbiased		Ratio	Unbiased
1	2	3	4	5	6
Kharif	676377	566548	628201	7.7	-9.8
Rabi	36822	35779	36275	1.5	-1.4
Summer	6656	6400	6381	4.3	0.3
Total	719855	608727	670857	7.3	-9.3

The percentage variation of area estimated by ratio and unbiased methods over reconciled area was 7.3 and –9.3 respectively. Compared to reconciled area, estimated area under Ratio methods higher and unbiased method was lower in Kharif and Rabi seasons. But it was higher under both the methods in summer season.

Estimated area in Table-8 depicts estimates of area by status of irrigation.

Table – 8**Season and varietywise area estimated under ratio method under Ragi**

Area in hectares

Variety	Irrigated/ Unirrigated	Estimated area as per ratio method				Reconciled area	% variation (col 6-7/7)
		Kharif	Rabi	Summer	Total		
1	2	3	4	5	6	7	8
Traditional	Irrigated	290	0	0	290	2575	-88.7
	Unirrigated	2095	105	0	2200	11734	-81.3
	Total	2385	105	0	2490	14309	-82.6
High Yielding Variety	Irrigated	23676	8367	6656	38699	38176	1.4
	Unirrigated	650316	28350	0	678666	618372	9.8
	Total	673992	36717	6656	717365	656548	9.3
Total	Irrigated	23966	8367	6656	38989	40751	-4.3
	Unirrigated	652411	28455	0	680866	630106	8.1
	Total	676377	36822	6656	719855	670857	7.3

97.9 % of reconciled area was covered by high yielding variety and 93.9 % was unirrigated. Estimated area was lower under traditional variety and higher under high yielding variety when compared to reconciled area. Districtwise details are given in Appendix- 2.3

2.4 Maize

Maize is yet another cereal grown in more than 11.8 lakh hectares in the State. Important Maize growing districts are Haveri (14.5 %), Davanagere (14.1 %), and Belgaum (10.4 %). 90.3 % of the area was covered under kharif season alone.

Seasonwise estimated area as per ratio and unbiased methods are given in Table – 9

Table – 9**Seasonwise estimated and reconciled area under Maize**

Area in hectares

Season	Estimated area as per		Reconciled area	% variation over reconciled area	
	Ratio	Unbiased		Ratio	Unbiased
1	2	3	4	5	6
Kharif	1158622	1080896	1064467	8.8	1.5
Rabi	90325	96869	89466	1.0	8.3
Summer	24588	25223	24664	-0.3	2.3
Total	1273535	1202988	1178597	8.1	2.1

Variation of area under ratio and unbiased methods over reconciled area was 8.8 % and 1.5 % in kharif season, 1.0 % and 8.3 % in rabi season and -0.3% and 2.3 % in summer season. The total estimated area was higher under both the methods compared to the reconciled area.

Estimated area by variety and irrigated / unirrigated as per ratio method and the reconciled area are given in Table – 10.

Table – 10**Season and varietywise area estimated under ratio method under Maize**

Area in hectares

Variety	Irrigated/ Unirrigated	Estimated area as per ratio method				Reconciled area	% variation (col 6-7/7)
		Kharif	Rabi	Summer	Total		
1	2	3	4	5	6	7	8
Traditional	Irrigated	2125	49	0	2174	2971	-26.8
	Unirrigated	3820	17765	0	21585	1530	1310.8
	Total	5945	17814	0	23759	4501	427.9
Hybrid Variety	Irrigated	297685	59991	24588	382264	343772	11.2
	Unirrigated	854992	12520	0	867512	830324	4.5
	Total	1152677	72511	24588	1249776	1174096	6.4
Total	Irrigated	299810	60040	24588	384438	346743	10.9
	Unirrigated	858812	30285	0	889097	831854	6.9
	Total	1158622	90325	24588	1273535	1178597	8.1

It is clear from the above table that, under ratio method, it was estimated that totally 30.2 % of area was irrigated out of which 98.1 % of area was sown with hybrid variety. As per reconciled area 29.4 % of area was irrigated and 99.6 % area was sown with hybrid variety. Under ratio method both irrigated and unirrigated area was high i.e 10.9 % and 6.9 % compared to reconciled area. Districtwise details are given in Appendix-2.4

2.5 Bajra

Bajra was grown in 1.6 lakh hectares in the State during the year under report. It is largely grown in Koppal (27.6%), Raichur (22.4 %), Vijayapura (12.6 %), Bagalkot (9.9 %) and Yadgiri (9.2 %) districts in the State. These 5 districts alone contribute 72.5% of cropped area of the crop. Area estimated under the crop by ratio and Unbiased methods were higher compared to the reconciled area. Only 3.4 % of area estimated had traditional variety and the remaining 96.6 % of the area was sown with high yielding variety as per ratio estimates as against 1.6 % covered under traditional variety and 98.4 % hybrid variety of reconciled area.

Estimates of area of Bajra crop varietywise and irrigated / unirrigated category by ratio and unbiased methods and reconciled area are given in Table-11.

Table – 11

Varietywise estimated and reconciled area under Bajra

Area in hectares

Variety	Irrigated/ Unirrigated	Estimated area as per		Reconciled area	% variation over reconciled area	
		Ratio	Unbiased		Ratio	Unbiased
1	2	3	4	5	6	7
Traditional	Irrigated	127	327	18	605.6	1716.7
	Unirrigated	5712	8210	2516	127.0	226.3
	Total	5839	8537	2534	130.4	236.9
Hybrid Variety	Irrigated	18388	22304	14342	28.2	55.5
	Unirrigated	147238	147102	143232	2.8	2.7
	Total	165626	169406	157574	5.1	7.5
Total	Irrigated	18515	22631	14360	28.9	57.6
	Unirrigated	152950	155312	145748	4.9	6.6
	Total	171465	177943	160108	7.1	11.1

It is observed from the above table that, there was 28.9 % variation under irrigated area and 4.9 % variation under unirrigated area under ratio method whereas it was 57.6 % and 6.6 % under unbiased method when compared to reconciled area. Variety wise, the variation was 130.4 % under traditional variety and 5.1 % under hybrid variety under ratio method and under unbiased method it was 236.9 % and 7.5 % respectively

2.6 Wheat

Wheat crop is grown only in rabi season in nearly 1.7 lakh hectares. About 53842 hectares of area is covered by Vijayapura district (31.0 %) followed by Belgaum (18.9 %) . It was estimated that, the area was less under Ratio method and more under Unbiased method compared to reconciled area. Details are given in Table – 12

Table – 12

Varietywise estimated and reconciled area under Wheat

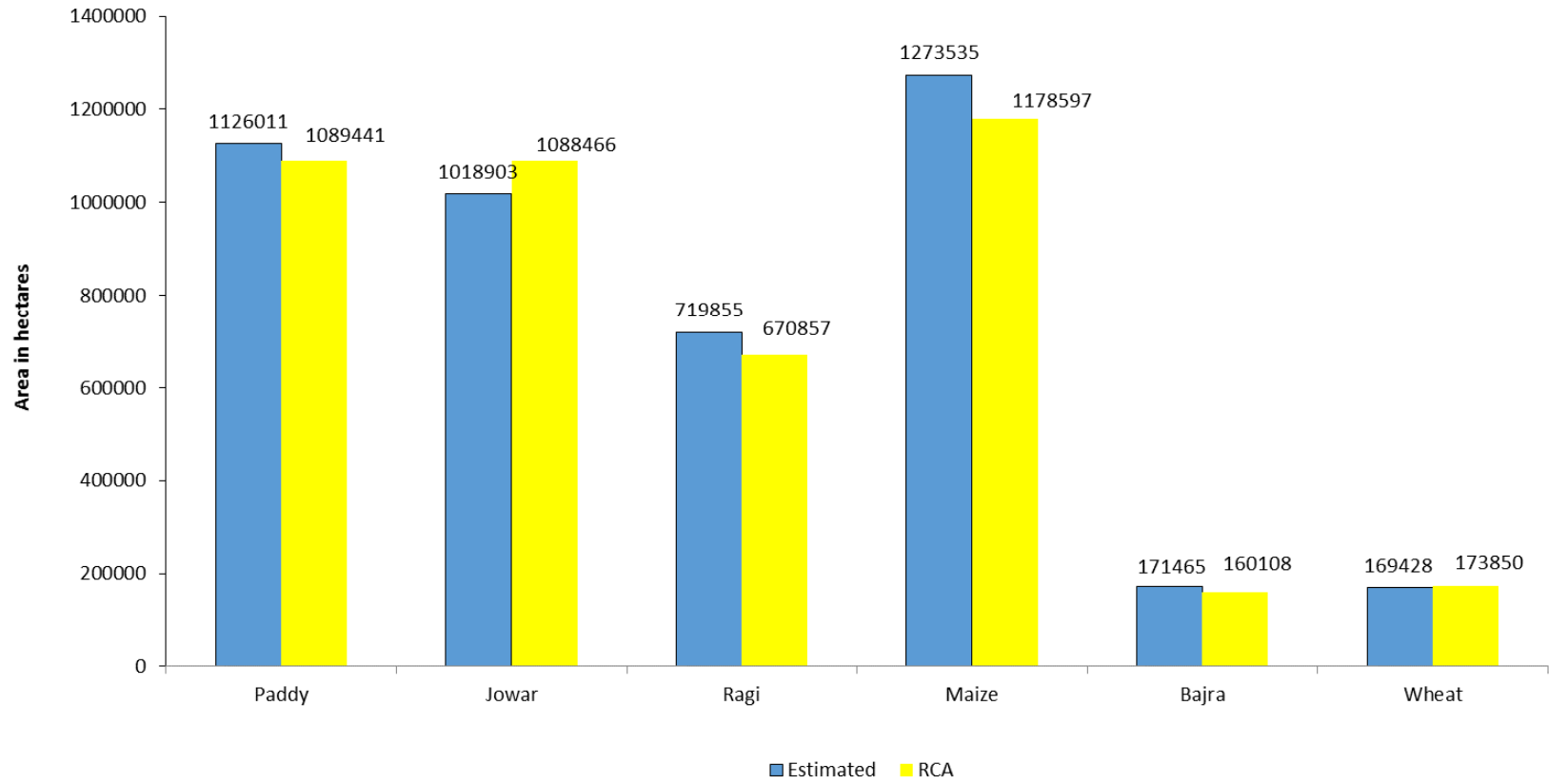
Variety	Irrigated/ Unirrigated	Estimated area as per		Reconciled area	Area in hectares % variation over reconciled area	
		Ratio	Unbiased		Ratio	Unbiased
		1	2		3	4
Traditional	Irrigated	8975	9529	8280	8.4	15.1
	Unirrigated	48266	47715	36276	33.1	31.5
	Total	57241	57244	44556	28.5	28.5
High Yielding Variety	Irrigated	73772	78486	91305	-19.2	-14.0
	Unirrigated	38415	43858	37989	1.1	15.4
	Total	112187	122344	129294	-13.2	-5.4
Total	Irrigated	82747	88015	99585	-16.9	-11.6
	Unirrigated	86681	91573	74265	16.7	23.3
	Total	169428	179588	173850	-2.5	3.3

It can be seen from the above table that, the estimated area under irrigation was 48.8 % whereas area under high yielding variety was 66.2 % under ratio method whereas it was 57.3 % and 73.4 % respectively under reconciled area. When compared to reconciled area, the area was less in Ratio method and more in unbiased method. Districtwise details are given in Appendix- 2.5

Estimated area for cereal crops under ratio method and reconciled area is graphically presented in chart -1.

Chart - 1

Estimated (Ratio Method) and Reconciled Area under Cereal Crops



2.7 Tur

Tur crop is one of the important pulse crops grown in about 6.5 lakh hectares of area in the State. Gulbarga district alone is covered by about 2.6 lakh hectares amounting to 40.3% of the total area under the crop in the State. It is a long duration crop grown only in kharif season. It is observed that the estimated area by ratio and unbiased were lower to the extent of -6.5 % and -3.0 %. When compared with the reconciled area. Details of estimated area are given in Table – 13 and districtwise details are given in Appendix – 2.5.

2.8 Bengalgram

Bengalgram is also important pulse crop of the State grown in nearly 13.9 lakh hectares in rabi season only Vijayapura is covered with 3.2 lakh hectares of area which works out to 23.2% of the State. When compared to the reconciled area, estimated area by ratio and unbiased methods were lower to the extent of -8.4% and -14.2%.

Estimated area under gram is given in Table – 13 and districtwise details are given in Appendix – 2.5.

Table – 13

Estimated and reconciled area under Tur and Bengalgram

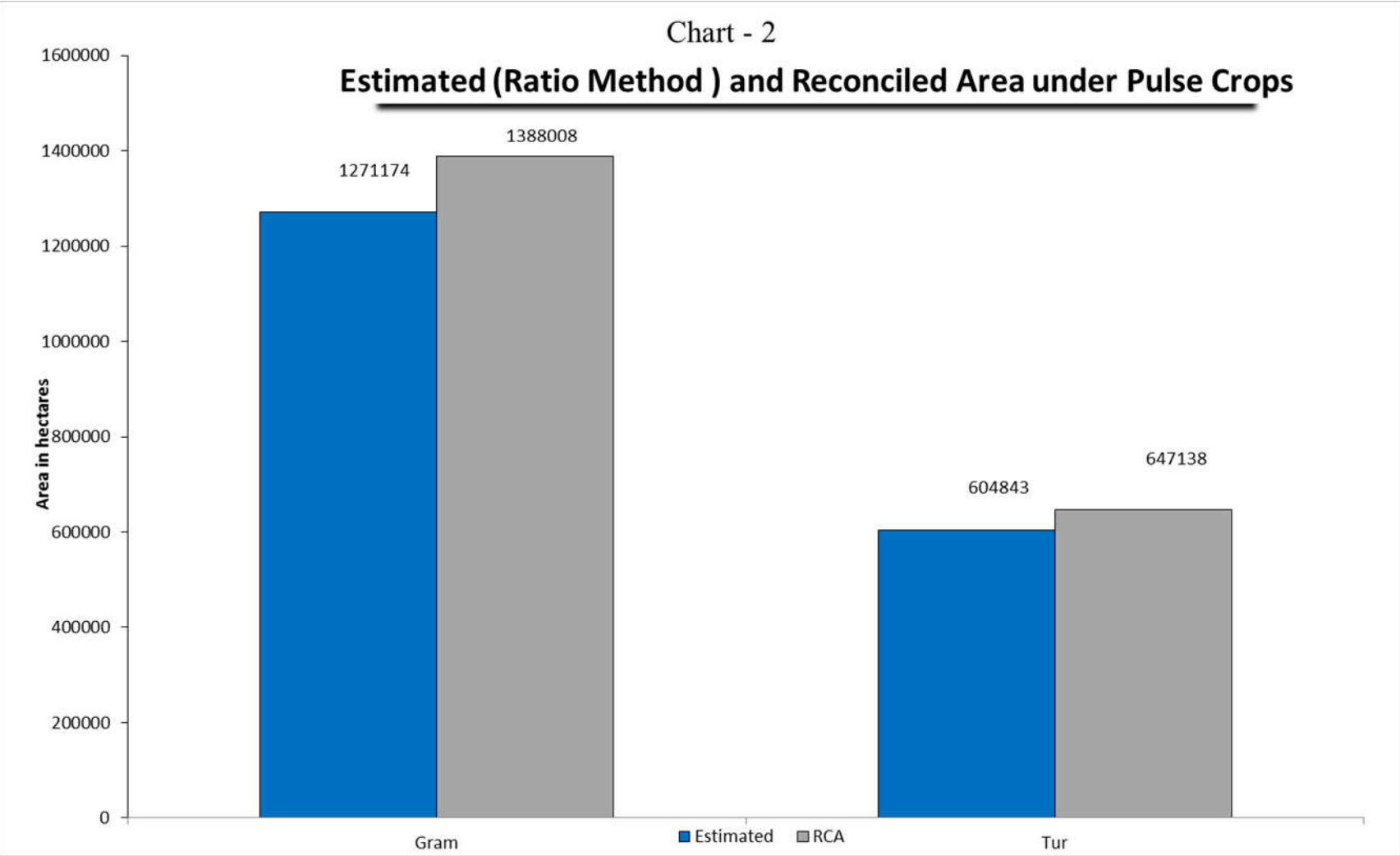
Area in hectares

Crop	Estimated area as per		Reconciled area	% variation over reconciled area	
	Ratio	Unbiased		Ratio	Unbiased
1	2	3	4	5	6
Tur	604843	627426	647138	-6.5	-3.0
Bengal gram	1271174	1190539	1388008	-8.4	-14.2

Estimated area for pulse crops under ratio method and reconciled area is graphically presented in chart - 2.

Chart - 2

Estimated (Ratio Method) and Reconciled Area under Pulse Crops



2.9 Groundnut

Groundnut is an important oilseed crop grown in about 5.7 lakh hectares in the State. Though it is grown in Kharif, Rabi and Summer seasons, about 71.6 % of the area is cultivated during kharif season alone. Predominant groundnut growing districts are Chitradurga (0.97 lakh hectares) and Tumkur (0.65 lakh hectares), which accounted for 28.5 % of the State. Seasonwise ratio and unbiased estimates of area are given in Table-14.

Table – 14
Seasonwise estimated and reconciled area under Groundnut

Crop	Estimated area as per		Reconciled area	% variation over reconciled area	
	Ratio	Unbiased		Ratio	Unbiased
	1	2		3	4
Kharif	449704	406124	405955	10.8	0.0
Summer	160442	156821	161199	-0.5	-2.7
Total	610146	562945	567154	7.6	-0.7

The estimated area under ratio method was higher side to the extent of 7.6 % and lower side to the extent of -0.7 % under unbiased method when compared with Reconciliation area. Variety wise and irrigated / un irrigated details are given in Table – 15.

Table – 15
Season and varietywise estimated area under ratio method under Groundnut

Variety	Irrigated/ Unirrigated	Estimated area as per ratio method			Reconciled area	% variation (col 5-6/6)
		Kharif	Summer	Total		
		1	2	3		
Traditional	Irrigated	7362	2590	9952	6380	56.0
	Unirrigated	134533	3288	137821	64010	115.3
	Total	141895	5878	147773	70390	110.0
High Yielding Variety	Irrigated	29854	154564	184418	160644	14.8
	Unirrigated	277955	0	277955	336120	-17.3
	Total	307809	154564	462373	496764	-6.9
Total	Irrigated	37216	157154	194370	167024	16.4
	Unirrigated	409874	3288	415776	400130	3.9
	Total	412488	160442	610146	567154	7.6

It is seen from the above table that, the estimated area under irrigation as per ratio method was on higher side to the extent of 16.4 % and area under high yielding variety was also on lower side to the extent of -6.9 % when compared with reconciled area. Districtwise details are given in Appendix – 2.6

2.10 Sunflower

Sunflower is another important oilseed crop grown in about 3.3 lakh hectares in all three seasons in the State. During the year under report Koppal has the largest area (0.49 lakh hectare) followed by Vijayapura (0.45 lakh hectare), Kalburgi (0.41 lakh hectare) and Gadag (0.40 lakh hectare). Total area in these four districts alone constitutes 53.0% sunflower area of the State.

Seasonwise estimated area under ratio and unbiased methods are given in Table – 16

Table – 16
Seasonwise estimated and reconciled area under Sunflower

Area in hectares

Crop	Estimated area as per		Reconciled area	% variation over reconciled area	
	Ratio	Unbiased		Ratio	Unbiased
1	2	3	4	5	6
Kharif	134309	125647	125584	6.9	0.1
Rabi	183471	165103	194166	-5.5	-15.0
Summer	11133	10835	10503	6.0	3.2
Total	328913	301585	330253	-0.4	-8.7

It is seen from the above table that, the area estimated under ratio and unbiased methods was lower side when compared with reconciled area. Seasonwise and varietywise estimates of area irrigated and high yielding variety area by ratio method compared with the corresponding reconciled area are given in Table – 17.

Table – 17

Season and varietywise area estimated under ratio method under Sunflower

Area in hectares

Variety	Irrigated/ Unirrigated	Estimated area as per ratio method				Reconciled area	% variation (col 6-7/7)
		Kharif	Rabi	Summer	Total		
1	2	3	4	5	6	7	8
Traditional	Irrigated	209	99	8	316	277	14.1
	Unirrigated	180	5081		5261	104	4958.7
	Total	389	5180	8	5577	381	1363.8
Hybrid Variety	Irrigated	29671	27958	11125	68754	66827	2.9
	Unirrigated	104249	150333	0	254582	263045	-3.2
	Total	133920	178291	11125	323336	329872	-2.0
Total	Irrigated	29880	28057	11133	69070	67104	2.9
	Unirrigated	104429	155414	0	259843	263149	-1.3
	Total	134309	183471	11133	328913	330253	-0.4

It is clear from the above table that, the area under traditional variety was higher and the area under hybrid variety was lower when compared to the reconciled area. The percentage variation of area estimated under ratio method over reconciled area was -0.4 %. Districtwise details are given in Appendix -2.7

2.11 Sesamum

Sesamum crop is grown in 0.51 lakh hectares, more in rainfed areas during kharif season only. It is largely grown in Mysore (19.9 %), Koppal (16.2%) and Chickmagalore (11.6 %) districts. Percentage variation of estimated area over reconciled area under ratio method was 4.9 % and under unbiased method it was -11.8 % respectively. District wise area details are given in Appendix -2.8

2.12 Safflower

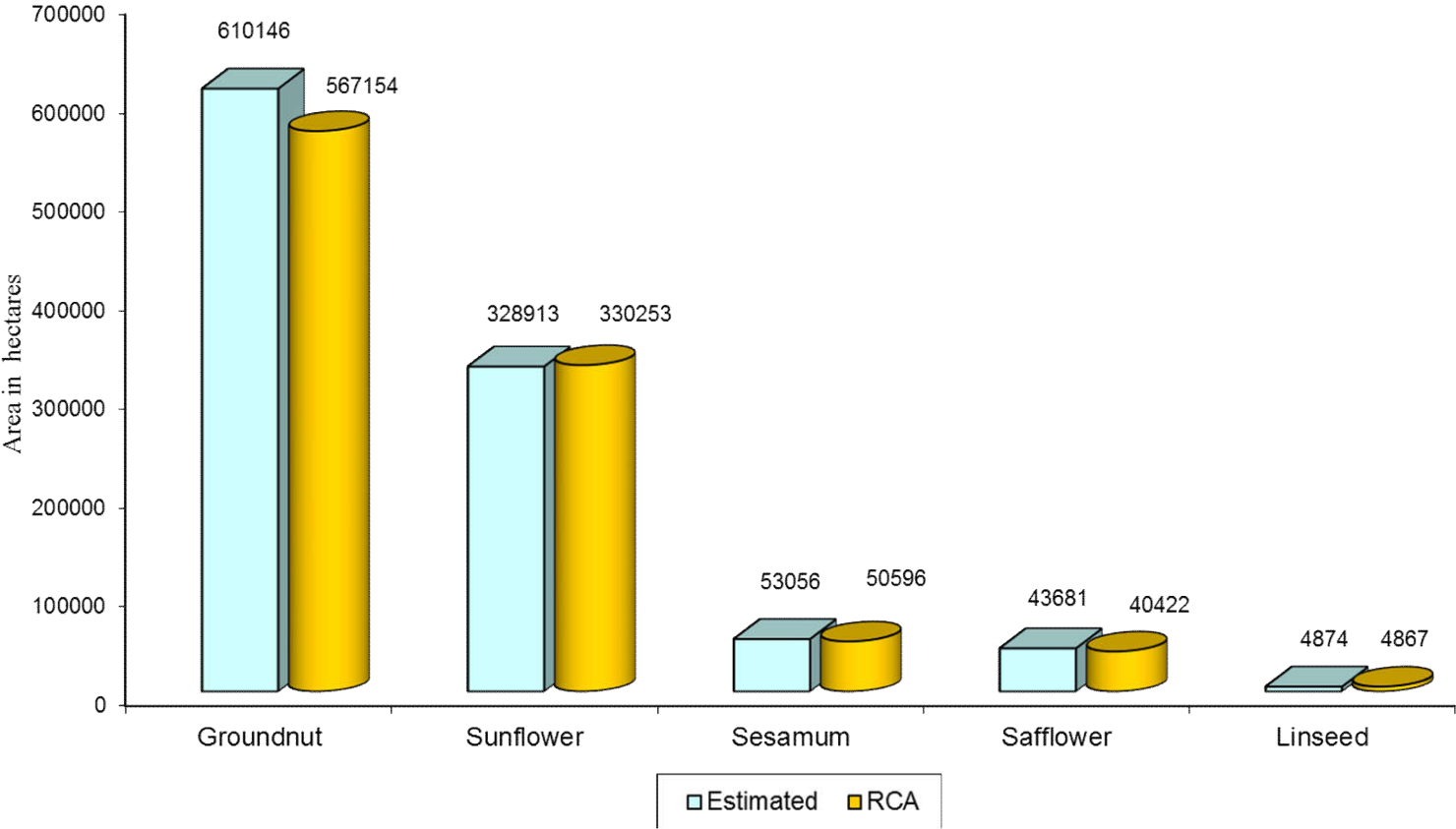
Safflower is an important oilseed crop grown during rabi season only. About 0.40 lakh hectares of area was under the crop during 2015-16. It is largely grown in Vijayapura district (34.2 %) followed by Dharwad (31.2 %) and Bidar (29.8 %). Estimated area by ratio and unbiased methods were higher to the extent of 8.1 % and 16.0 % when compared to reconciled area. Districtwise area details are given in Appendix 2.8.

2.13 Linseed

Linseed is another oilseed crop grown in the State during rabi season only. Out of 0.50 lakh hectares of area under the crop, about 49.7 % of area was sown in Bagalkot district followed by 21.9 % in Vijayapura district. The estimated area as per ratio method was 4874 hectares and 4801 hectares as per unbiased method. Estimated area by ratio method was higher and unbiased method was lower to the extent of 0.1 and -1.4 when compared with reconciled area. The entire area under the crop was unirrigated traditional variety only. Districtwise area sown details are given in Appendix – 2.8.

Estimated area for oilseed crops under ratio method and reconciled area is graphically presented in chart - 3.

Chart - 3
Estimated (Ratio Method) and Reconciled Area under Oilseed Crops



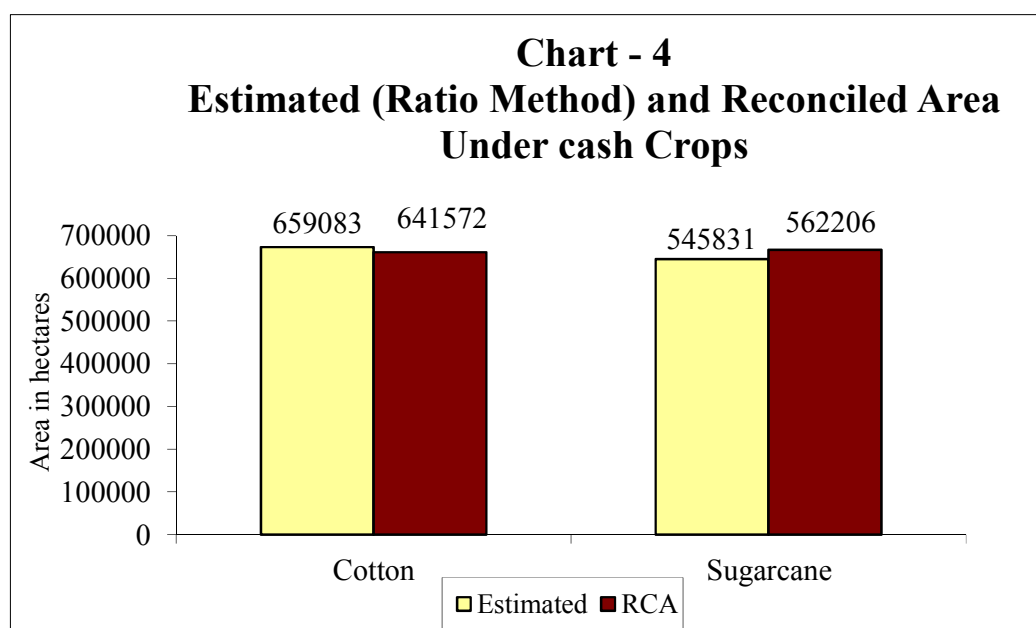
2.14 Cotton

Cotton is an important cash crop largely grown in Yadgir, Haveri, Bellary, Dharwad Kalburgi and Mysore districts. In the State, 6.4 lakh hectares of area was covered under the crop during 2015-16. Estimated area by ratio and unbiased methods was 6.6 lakh hectares and 6.4 lakh hectares respectively. The variation of estimated area over reconciled area as per ratio and unbiased methods was 2.7 % and 0.4 % respectively. The districtwise area details are given in Appendix – 2.9

2.15 Sugarcane

Sugarcane is an irrigated crop, which is grown in all the seasons. Out of 5.6 lakh hectares of area under the crop, 36.4 % of cropped area is found in Belgaum district alone. The other important sugarcane growing districts in the State are Bagalkot (18.7 %), Vijayapura (11.6 %) and Kalburgi (7.8 %). Estimated area by Ratio and Unbiased methods were lower to the extent of -2.9 and -38.9 when compared to Reconciled area. Districtwise details of estimates are given in Appendix – 2.9.

Graphical representation of estimated area under ratio method and reconciled area under cotton and Sugarcane crops are presented in chart – 4.



3. SUMMARY OF THE FINDINGS:

- 3.1 The area estimated under ratio method in this scheme on the basis of the 20% of villages selected is almost nearer to the reconciled area figures, which is helping to frame some important agriculture policies at National and State level.
- 3.2 During the year 2015-16 the Timely Reporting Scheme was implemented in 5794 villages of the State, which belong to the fifth set of villages selected under the scheme for the years 2011-12 to 2015-16. During the year under report the crop abstracts are received from all the villages during Kharif , Rabi and Summer seasons.
- 3.3 During the year 2015-16, percentage of supervision by Statistics, Agriculture and Revenue Department personnel was 100%, respectively.
- 3.4 As compared to reconciled area, the estimated area under ratio method in respect of Paddy, Ragi, Maize, Bajra, Groundnut, Safflower, Linseed, Sesamum and Cotton crops was high and low in respect of Jower Wheat, Tur Garm Sunflower and Sugarcane crops. Under unbiased method, estimated area in respect of Paddy Maize, Bajra Wheat, Safflower and Cotton crops was on higher side and on lower side for the remaining crops during the year under review.

* * * * *

APPENDIX

APPENDIX - 1

***Districtwise, Seasonwise receipt position of
village crop abstracts during 2015-16***

Sl.No.	District	No. of villages selected	No. of villages from which crop abstracts received					
			Kharif	%	Rabi	%	Summer	%
1	Bagalkot	119	119	100.00	119	100.00	119	100.00
2	Bangalore Urban	139	139	100.00	139	100.00	139	100.00
3	Bangalore Rural	212	212	100.00	212	100.00	212	100.00
4	Belgaum	229	229	100.00	229	100.00	229	100.00
5	Bellary	111	111	100.00	111	100.00	111	100.00
6	Bidar	125	125	100.00	125	100.00	125	100.00
7	Bijapur	126	126	100.00	126	100.00	126	100.00
8	Chamarajanagar	93	93	100.00	93	100.00	93	100.00
9	Chickballapur	303	303	100.00	303	100.00	303	100.00
10	Chickmagalur	223	223	100.00	223	100.00	223	100.00
11	Chitradurga	205	205	100.00	205	100.00	205	100.00
12	D. Kannada	72	72	100.00	72	100.00	72	100.00
13	Davanagere	185	185	100.00	185	100.00	185	100.00
14	Dharwad	79	79	100.00	79	100.00	79	100.00
15	Gadag	64	64	100.00	64	100.00	64	100.00
16	Gulbarga	181	181	100.00	181	100.00	181	100.00
17	Hassan	507	507	100.00	507	100.00	507	100.00
18	Haveri	134	134	100.00	134	100.00	134	100.00
19	Kodagu	54	54	100.00	54	100.00	54	100.00
20	Kolar	358	358	100.00	358	100.00	358	100.00
21	Koppal	124	124	100.00	124	100.00	124	100.00
22	Mandya	291	291	100.00	291	100.00	291	100.00
23	Mysore	256	256	100.00	256	100.00	256	100.00
24	Raichur	174	174	100.00	174	100.00	174	100.00
25	Ramanagara	163	163	100.00	163	100.00	163	100.00
26	Shimoga	312	312	100.00	312	100.00	312	100.00
27	Tumkur	537	537	100.00	537	100.00	537	100.00
28	Udupi	53	53	100.00	53	100.00	53	100.00
29	U.Kannada	265	265	100.00	265	100.00	265	100.00
30	Yadgir	100	100	100.00	100	100.00	100	100.00
TOTAL		5794	5794	100.00	5794	100.00	5794	100.00

APPENDIX - 2.1

**Cropwise and Seasonwise, ratio and unbiased estimates and
reconciled area for the year 2015--16**

Crop : : Paddy

Area in hectares

Sl. No.	District	Kharif			Rabi			Summer			Total		
		Ratio	Unbiased	RCA	Ratio	Unbiased	RCA	Ratio	Unbiased	RCA	Ratio	Unbiased	RCA
1	Bagalkot	29	149	32	0	0	0	0	0	0	29	149	32
2	Bangalore Urban	452	501	716	0	0	0	0	0	66	452	501	782
3	Bangalore Rural	159	81	704	0	0	0	0	2	32	159	83	736
4	Belgaum	64870	95150	61123	0	0	98	0	0	9	64870	95150	61230
5	Bellary	86078	98514	75608	0	406	0	18575	18722	18058	104653	117642	93666
6	Bidar	1727	1789	1549	0	0	0	0	0	0	1727	1789	1549
7	Bijapur	0	0	51	0	0	0	0	0	0	0	0	51
8	Chamarajanagar	8060	7485	13585	0	68.84	109	59	176	186	8119	7729.84	13880
9	Chickballapur	998	800	1216	0	0	0	12	51	117	1010	851	1333
10	Chickmagalur	37353	29149	32219	0	0	0	850	795	817	38203	29944	33036
11	Chitradurga	872	1102	847	300.61	425.39	97	413	488	353	1585.61	2015.39	1297
12	D. Kannada	24357	23357	28029	21275	17435.79	19085	1366	1444	1575	46998	42236.79	48689
13	Davanagere	75080	70800	72469	0	0	0	24840	25062	25792	99920	95862	98261
14	Dharwad	20096	28413	23897	0	0	0	6	6	12	20102	28419	23909
15	Gadag	808	321	879	0	0	0	796	735	828	1604	1056	1707
16	Gulbarga	3157	4269	3720	259.78	464.88	389	0	0	90	3416.78	4733.88	4199
17	Hassan	45327	39202	41719	404	316.7	150	539	720	949	46270	40238.7	42818
18	Haveri	40523	37075	38857	0	0	0	5876	5222	6111	46399	42297	44968
19	Kodagu	22740	29989	28285	6.25	5.21	5	49	6	46	22795.25	30000.21	28336
20	Kolar	514	1024	395	0	0	0	0	0	0	514	1024	395
21	Koppal	39927	51288	40917	0	0	0	10050	9850	9836	49977	61138	50753
22	Mandya	52485	50337	52495	567	473.93	132	6355	5060	5860	59407	55870.93	58487
23	Mysore	91441	78453	88740	0	0	0	4864	4449	4781	96305	82902	93521
24	Raichur	104531	151219	91129	0	0	0	11718	10119	11117	116249	161338	102246
25	Ramanagara	4532	3032	4092	0	0	45	250	200	317	4782	3232	4454
26	Shimoga	107852	110064	101511	0	0	2	10152	7846	8103	118004	117910	109616
27	Tumkur	7365	8331	7437	0	0	98	3006	2930	2844	10371	11261	10379
28	Udupi	43666	43912	43209	6241.99	7067	6322	70	68	75	49977.99	51047	49606
29	U.Kannada	62617	65462	64080	1339.3	1259	1314	603	913	753	64559.3	67634	66147
30	Yadgir	40817	56663	36891	1882	1322	1483	4853	5319	4984	47552	63304	43358
STATE TOTAL		988433	1087931	956401	32276	29245	29329	105302	100183	103711	1126011	1217359	1089441

RCA - Reconciled Crop Area

APPENDIX - 2.2

**Cropwise and Seasonwise estimated area under
ratio & unbiased methods and reconciled area during 2015-16**

Crop : Jowar		Area in hectares								
Sl.No.	District	Kharif			Rabi			Total		
		Ratio	Unbiased	RCA	Ratio	Unbiased	RCA	Ratio	Unbiased	RCA
1	Bagalkot	1281	2054	1455	101581	91541	109159	102862	93595	110614
2	Bangalore Urban	728	778	0	0	0	0	728	778	0
3	Bangalore Rural	0	0	0	0	0	0	0	0	0
4	Belgaum	26956	34041	18501	128960.98	118441.69	145162	155917	152483	163663
5	Bellary	16825	21630	17106	21629	20496	21225	38454	42126	38331
6	Bidar	23036	30644	23931	16161	29824.52	26851	39197	60469	50782
7	Bijapur	0	0	0	174125	177681	176980	174125	177681	176980
8	Chamarajanagar	16911	16212	13193	0	0	0	16911	16212	13193
9	Chickballapur	0	0	1754	0	0	0	0	0	1754
10	Chickmagalur	2623	3712	1331	8125	7950	8425	10748	11662	9756
11	Chitradurga	2593	6492	5047	10364.71	6380.32	7341	12958	12872	12388
12	D. Kannada	0	0	0	0	0	0	0	0	0
13	Davanagere	6031	6181	7568	2819	2766.85	2314	8850	8948	9882
14	Dharwad	733	946	1121	44387.83	40117	47291	45121	41063	48412
15	Gadag	2489	2843	2833	50738	50766.98	52166	53227	53610	54999
16	Gulbarga	2003	2238	1680	167879	140029	202699	169882	142267	204379
17	Hassan	957	401	963	0	0	38	957	401	1001
18	Haveri	1128	1153	1826	31092.61	31894	32241	32221	33047	34067
19	Kodagu	0	0	0	0	0	0	0	0	0
20	Kolar	0	0	0	0	0	0	0	0	0
21	Koppal	2490	5458	1606	24115	24778	24077	26605	30236	25683
22	Mandya	569	790	1005	0	8.12	17	569	798	1022
23	Mysore	2737	3234	3308	0	0	158	2737	3234	3466
24	Raichur	0	0	0	90668	67176	91397	90668	67176	91397
25	Ramanagara	0	0	0	0	0	76	0	0	76
26	Shimoga	26	114	80	42	4	93	68	118	173
27	Tumkur	0	0	0	0	0	0	0	0	0
28	Udupi	0	0	0	0	0	0	0	0	0
29	U.Kannada	0	0	0	0	0	0	0	0	0
30	Yadgir	470	100	190	35629	33750	36258	36099	33850	36448
STATE TOTAL		110586	139021	104498	908317	843604	983968	1018903	982625	1088466

RCA - Reconciled Crop Area

APPENDIX - 2.3

***Cropwise and Seasonwise estimated area under
ratio & unbiased methods and reconciled area during 2015 - 16***

Crop : Ragi

Area in hectares

Sl. No.	District	Kharif			Rabi			Summer			Total		
		Ratio	Unbiased	RCA	Ratio	Unbiased	RCA	Ratio	Unbiased	RCA	Ratio	Unbiased	RCA
1	Bagalkot	0	0	0	0	0	0	0	0	0	0	0	0
2	Bangalore Urban	26361	19362	19670	0	0	19	0	0	32	26361	19362	19721
3	Bangalore Rural	38737	28463	38725	2	14	111	0	0	48	38739	28477	38884
4	Belgaum	1032	2632	145	105	110	101	0	0	0	1136.96	2742	246
5	Bellary	1826	3233	2897	0	16	10	200	334	227	2026	3583	3134
6	Bidar	0	0	0	0	0	0	0	0	0	0	0	0
7	Bijapur	0	0	0	0	0	0	0	0	0	0	0	0
8	Chamarajanagar	16046	4410	15768	33	641.79	115	50	55	33	16129	5106.79	15916
9	Chickballapur	48821	36719	46747	18	115.71	27	138	336	172	48977.12	37170.71	46946
10	Chickmagalur	45092	30405	43660	0	0	0	0	0	0	45092	30405	43660
11	Chitradurga	48285	39310	41555	517	1476.84	364	2449	2095	2163	51250.71	42881.84	44082
12	D. Kannada	0	0	0	0	0	0	0	0	0	0	0	0
13	Davanagere	7366	7788	8805	1949	2145.52	1671	1198	1095	1118	10513	11028.52	11594
14	Dharwad	0	0	27	0	0	0	0	0	0	0	0	27
15	Gadag	213	356	1	0	0	0	0	0	0	213	356	1
16	Gulbarga	0	0	0	0	0	0	0	0	0	0	0	0
17	Hassan	59008	4735	58735	6949	5425.56	5862	36	90	64	65993.44	10250.56	64661
18	Haveri	334	259	143	0	0	11	0	0	0	334	259	154
19	Kodagu	0	0	0	0	0	0	0	0	0	0	0	0
20	Kolar	52965	45131	54328	0	0	40	0	0	0	52965	45131	54368
21	Koppal	0	0	0	0	0	0	0	0	0	0	0	0
22	Mandya	55550	58852	45022	6929	7187.81	6834	1401	1518	1566	63879.73	67557.81	53422
23	Mysore	30215	20545	29877	20320	18646	20835	449	178	170	50984	39369	50882
24	Raichur	0	0	0	0	0	0	0	0	0	0	0	0
25	Ramanagara	67141	61182	70105	0	0	59	100	98	201	67241	61280	70365
26	Shimoga	523	599	657	0	0	0	0	0	0	523	599	657
27	Tumkur	176855	136812	151329	0	0	216	635	601	587	177490	137413	152132
28	Udupi	0	0	0	0	0	0	0	0	0	0	0	0
29	U.Kannada	7	2	5	0	0	0	0	0	0	7	2	5
30	Yadgir	0	65753	0	0	0	0	0	0	0	0	65753	0
STATE TOTAL		676377	566548	628201	36822	35779	36275	6656	6400	6381	719855	608727	670857

RCA - Reconciled Crop Area

APPENDIX - 2.4

**Cropwise and Seasonwise estimated area under
ratio, & unbiased methods and reconciled area during 2015-16**

Crop : Maize

Area in hectares

Sl.	District	Kharif			Rabi			Summer			Total		
No.		Ratio	Unbiased	RCA	Ratio	Unbiased	RCA	Ratio	Unbiased	RCA	Ratio	Unbiased	RCA
1	Bagalkot	38828	27556	27789	14556	15153.65	13864	2473	2602	2557	55857	45311.65	44210
2	Bangalore Urban	792	215	917	0	0	106	60	70	106	852	285	1129
3	Bangalore Rural	15997	12454	14695	65.98	23	82	62	54	89	16124.98	12531	14866
4	Belgaum	101528	142049	96482	24419	25278	23620	3232	3341	3061	129179	170668	123163
5	Bellary	97293	93851	82764	3582	5843	3829	2037	2428	2146	102912	102122	88739
6	Bidar	548	130	1235	39.66	84.68	148	0	0	0	587.66	214.68	1383
7	Bijapur	28040	27361	27783	9709.65	11342	9884	2674	2692	2540	40423.65	41395	40207
8	Chamarajanagar	36041	15979	36049	1565	2727	1968	599	668	552	38205	19374	38569
9	Chickballapur	64369	44235	55407	361.23	676.59	456	547	613	514	65277.23	45524.59	56377
10	Chickmagalur	25063	13346	25831	0	0	0	0	0	0	25063	13346	25831
11	Chitradurga	85073	72854	89794	2031	1929	1524	899	1029	875	88003	75812	92193
12	D. Kannada	0	0	0	0	0	0	0	0	0	0	0	0
13	Davanagere	180839	169962	163015	1922	1605.9	2352	1172	1203	1033	183933	172770.9	166400
14	Dharwad	33113	23851	26421	3720	3344	3345	1216	815	1134	38049	28010	30900
15	Gadag	31227	33539	31263	3037	2779	2864	0	0	36	34264	36318	34163
16	Gulbarga	2025	2167	1803	134.9	803.69	538	0	0	295	2159.9	2970.69	2636
17	Hassan	78188	64177	76828	2886	2141	2156	109	181	74	81183	66499	79058
18	Haveri	160659	165741	158681	7880	7721	8014	3813	4743	4001	172352	178205	170696
19	Kodagu	2788	2292	3423	21	22.76	10	38	11	15	2847	2325.76	3448
20	Kolar	532	1459	550	0	0	38	0	0	52	532	1459	640
21	Koppal	50673	45240	38602	5002	5764	5212	1435	1265	1396	57110	52269	45210
22	Mandya	4219	2554	4376	545.64	154	351	141	136	166	4905.64	2844	4893
23	Mysore	38886	23053	29061	8124	8282	7668	538	377	474	47548	31712	37203
24	Raichur	106	23236	135	378	648	811	0	0	170	484	23884	1116
25	Ramanagara	1604	981	1453	0	0	175	210	196	359	1814	1177	1987
26	Shimoga	46408	41119	41088	168	422.78	245	2872	2328	2495	49448	43869.78	43828
27	Tumkur	28582	26824	24031	0	0	27	120	115	149	28702	26939	24207
28	Udupi	0	0	0	0	0	7	0	0	1	0	0	8
29	U.Kannada	4350	4633	4106	177.25	124.4	127	341	356	343	4868.25	5113.4	4576
30	Yadgir	851	38	885	0	0	45	0	0	31	851	38	961
STATE TOTAL		1158622	1080896	1064467	90325	96869	89466	24588	25223	24664	1273535	1202988	1178597

RCA - Reconciled Crop Area

APPENDIX - 2.5

***Cropwise estimated area under ratio & unbiased methods
and reconciled area during 2015-16***

Area in hectares

Sl. No.	District	Bajra			Wheat			Tur			Bengalgram		
		Ratio	Unbiased	RCA	Ratio	Unbiased	RCA	Ratio	Unbiased	RCA	Ratio	Unbiased	RCA
1	Bagalkot	17674	17169	15898	19563	20014	20118	10752	8608	4547	110436	101149	133071
2	Bangalore Urban	0	0	0	0	0	0	1716	844	458	0	0	0
3	Bangalore Rural	0	0	7	0	0	0	1500	1395	1380	0	0	87
4	Belgaum	10255	17707	4433	32898	36282	32907	2839	7346	4968	105275	104150	104232
5	Bellary	11329	15963	13136	150	178.99	114	2383	3356	2913	46727	47098	46344
6	Bidar	3215	2411	2348	3577	4248.87	3842	60661	63452	61453	23039	24581	47060
7	Bijapur	21270	22092	20156	53177	59854	53842	121348	130586	135696	310596	315761	322020
8	Chamarajanagar	276	142	519	0	0	0	3426	1202	542	3353	2259	3202
9	Chickballapur	0	3	82	0	0	0	4229	4191	7682	15.23	16.94	122
10	Chickmagalur	0	0	0	0	0	0	295	853	754	15215	12610	13249
11	Chitradurga	1294	2127	1799	385.63	395.33	372	8254	8620	9587	38040	33965	39850
12	D. Kannada	0	0	0	0	0	0	0	0	0	0	0	0
13	Davanagere	498	570	720	210.63	180.55	149	5128	3714	4368	2224	1410	1154
14	Dharwad	0	0	0	30357.68	30820.66	32835	977	519	1002	95331.96	91243.53	91455
15	Gadag	2332	1896	1089	16397	16602	16041	1218	940	1651	119581.95	111116.99	110163
16	Gulbarga	6472	5536	4886	7442	6786	9061	255893	269515	261076	123290	119702	196138
17	Hassan	0	0	0	0	0	0	2117	1951	1915	1612.74	937.78	1797
18	Haveri	0	0	0	726	993.8	977	1643	1167	1739	1151	1711.8	1991
19	Kodagu	0	0	0	0	0	0	0	0	0	0	0	0
20	Kolar	0	0	0	0	0	0	4480	2163	2637	0	0	0
21	Koppal	44401	46096	44190	4203	2791.95	2757	14226	10551	11637	92443	86182	88894
22	Mandya	0	0	0	0	0	0	1085	1582	1203	0	0	148
23	Mysore	0	0	0	0	0	0	3124	2553	2774	980	1100	1041
24	Raichur	37195	34671	35812	0	0	416	24834	20161	33623	153077	108970	155722
25	Ramanagara	0	0	9	0	0	0	3408	3403	3557	0	0	0
26	Shimoga	0	0	0	0	0	0	253	152	293	0	0	0
27	Tumkur	0	59	282	0	0	0	14032	12849	9824	1560	1475	1519
28	Udupi	0	0	0	0	0	0	0	0	0	0	0	0
29	U.Kannada	0	0	0	0	0	0	0	0	13	0	10	7
30	Yadgir	15254	11501	14742	341	440	419	55022	65753	79846	27226	25090	28742
STATE TOTAL		171465	177943	160108	169428	179588	173850	604843	627426	647138	1271174	1190539	1388008

RCA - Reconciled Crop Area

APPENDIX - 2.6

***Cropwise and Seasonwise estimated area under
ratio & unbiased methods and reconciled area during 2015-16***

Crop : Groundnut

Area in hectares

Sl. No.	District	Kharif			Summer			Total		
		Ratio	Unbiased	RCA	Ratio	Unbiased	RCA	Ratio	Unbiased	RCA
1	Bagalkot	1417	1303	723	22578	22768	22800	23995	24071	23523
2	Bangalore Urban	0	0	68	0	0	4	0	0	72
3	Bangalore Rural	380	151	169	0	0	6	380	151	175
4	Belgaum	33089	60445	27757	8770	8892	9662	41859	69337	37419
5	Bellary	46828	50192	42025	8136	8600	7737	54964	58792	49762
6	Bidar	247	211	246	0	0	52	247	211	298
7	Bijapur	7550	8151	9518	15410	14156	15261	22960	22307	24779
8	Chamarajanagar	11792	4217	12180	0	0	0	11792	4217	12180
9	Chickballapur	24631	17931	19466	0	0	69	24631	17931	19535
10	Chickmagalur	4493	4284	5709	90	85	142	4583	4369	5851
11	Chitradurga	104095	80009	93516	3209	2587	3193	107304	82596	96709
12	D. Kannada	0	0	0	0	0	0	0	0	0
13	Davanagere	9168	11379	12353	2988	2476	2927	12156	13855	15280
14	Dharwad	42873	35325	35384	754	435	768	43627	35760	36152
15	Gadag	41225	28144	34991	6200	6010	6183	47425	34154	41174
16	Gulbarga	1108	1477	2384	1476	1400	1433	2584	2877	3817
17	Hassan	669	1151	731	10	23	131	679	1174	862
18	Haveri	16665	14849	16021	1853	1562	1768	18518	16411	17789
19	Kodagu	0	0	56	0	0	7	0	0	63
20	Kolar	12185	8263	8608	0	0	0	12185	8263	8608
21	Koppal	13218	11485	9300	13454	12500	12974	26672	23985	22274
22	Mandya	915	226	1361	0	0	0	915	226	1361
23	Mysore	2288	3265	2344	35	26	43	2323	3291	2387
24	Raichur	2140	323	452	35235	35175	35508	37375	35498	35960
25	Ramanagara	3675	1779	3307	0	0	0	3675	1779	3307
26	Shimoga	3	24	165	127	81	272	130	105	437
27	Tumkur	64116	59596	63318	1619	1498	1453	65735	61094	64771
28	Udupi	0	0	0	1462	1782	1819	1462	1782	1819
29	U.Kannada	0	0	123	1826	1905	1827	1826	1905	1950
30	Yadgir	4934	1944	3680	35210	34860	35160	40144	36804	38840
STATE TOTAL		449704	406124	405955	160442	156821	161199	610146	562945	567154

RCA - Reconciled Crop Area

APPENDIX - 2.7

**Cropwise and Seasonwise ratio, unbiased estimates and
reconciled area for the year 2015-16**

Crop : Sunflower

Area in hectares

Sl. No.	District	Kharif			Rabi			Summer			Total		
		Ratio	Unbiased	RCA	Ratio	Unbiased	RCA	Ratio	Unbiased	RCA	Ratio	Unbiased	RCA
1	Bagalkot	15292	11483	8412	20072.77	16246.53	19706	1384	1461	1043	36748.77	29190.53	29161
2	Bangalore Urban	0	0	8	0	0	0	0	0	0	0	0	8
3	Bangalore Rural	0	0	4	0	0	0	0	0	0	0	0	4
4	Belgaum	6223	11684	10120	9356.48	9743.68	12948	1054	1098	914	16633.48	22525.68	23982
5	Bellary	13890	16971	11780	6433	6471.51	6074	1142	1129	945	21465	24571.51	18799
6	Bidar	1208	655	527	497	586	614	0	0	0	1705	1241	1141
7	Bijapur	7737	5684	9267	31327.24	24572	35288	786	507	780	39850.24	30763	45335
8	Chamarajanagar	15623	5386	8836	27.51	66.77	6	0	0	0	15650.51	5452.77	8842
9	Chickballapur	0	4	9	26.33	64.47	39	70	181	30	96.33	249.47	78
10	Chickmagalur	5112	5354	5062	0	0	26	0	0	0	5112	5354	5088
11	Chitradurga	18944	16101	18235	2343.56	2979.12	2076	178	355	260	21465.56	19435.12	20571
12	D. Kannada	0	0	0	0	0	0	0	0	0	0	0	0
13	Davanagere	1566	2099	2221	731	882.87	808	543	331	352	2840	3312.87	3381
14	Dharwad	0	0	8	2724	2367.56	2980	0	0	0	2724	2367.56	2988
15	Gadag	8093	7472	12145	27969	24369	26818	869	775	788	36931	32616	39751
16	Gulbarga	7987	6414	6827	31121	29220	34041	0	0	100	39108	35634	40968
17	Hassan	841	675	880	0	0	0	0	0	0	841	675	880
18	Haveri	21	53	103	2503.96	2871	3085	659	442	615	3183.96	3366	3803
19	Kodagu	0	0	0	0	0	0	0	0	0	0	0	0
20	Kolar	0	0	0	0	0	0	4150	0	0	4150	0	0
21	Koppal	15283	21928	15215	30685	30940.82	29759	0	3950	4077	45968	56818.82	49051
22	Mandya	0	0	6	0	0	0	0	0	0	0	0	6
23	Mysore	1279	770	1005	0	0	0	0	0	0	1279	770	1005
24	Raichur	11967	10995	12454	15253.91	11190.79	17221	0	392	290	27220.91	22577.79	29965
25	Ramanagara	0	0	8	0	0	0	0	0	0	0	0	8
26	Shimoga	0	0	11	548	577.73	359	298	214	283	846	791.73	653
27	Tumkur	694	766	504	0	0	1	0	0	0	694	766	505
28	Udupi	0	0	0	0	0	0	0	0	0	0	0	0
29	U.Kannada	0	0	0	43	27.11	7	0	0	0	43	27.11	7
30	Yadgir	2549	1153	1937	1808	1926	2310	0	0	26	4357	3079	4273
STATE TOTAL		134309	125647	125584	183471	165103	194166	11133	10835	10503	328913	301585	330253

RCA - Reconciled Crop Area

APPENDIX - 2.8

Cropwise and Seasonwise, ratio, unbiased estimates and reconciled area for the year 2015-16

		Area in hectares								
Sl. No.	District	Safflower			Linseed			Sesamum		
		Ratio	Unbiased	RCA	Ratio	Unbiased	RCA	Ratio	Unbiased	RCA
1	Bagalkot	830	1252	1109	2199	1847	2419	236	929	492
2	Bangalore Urban	0	0	0	0	0	0	0	0	18
3	Bangalore Rural	0	0	0	0	0	0	0	0	14
4	Belgaum	2169	2259	2004	754	787.88	251	160	404	102
5	Bellary	0	0	144	0	0	3	1380	2928	3131
6	Bidar	5458	9067	12041	0	0	133	5275	3004	5716
7	Bijapur	12499	12144	13809	936	676	1065	114	85	107
8	Chamarajanagar	0	0	0	0	0	0	956	1403	791
9	Chickballapur	0	0	0	0	0	0	0	5	0
10	Chickmagalur	0	0	0	0	0	0	6989	3293	5858
11	Chitradurga	1828	795	2061	0	0	0	2680	1589	2100
12	D. Kannada	0	0	0	0	0	0	0	0	0
13	Davanagere	0	0	10	0	0	0	47	140	45
14	Dharwad	12986	12958	12622	6	6	14	0	0	4
15	Gadag	2389	2478	2388	88.92	291	105	686	374	379
16	Gulbarga	1899	1947	4452	167	147	261	3798	4811	3526
17	Hassan	0	0	0	0	0	0	3250	1274	2410
18	Haveri	911	925	910	18	28	34	269	143	114
19	Kodagu	0	0	0	0	0	0	0	0	0
20	Kolar	0	0	0	0	0	0	0	0	258
21	Koppal	1519	1372	1083	704	1011.97	582	9473	9977	8197
22	Mandya	0	0	0	0	0	0	3452	3008	2626
23	Mysore	0	0	0	0	0	0	10307	8177	10066
24	Raichur	631	558	584	0	0	0	859	151	909
25	Ramanagara	0	0	0	0	0	0	2733	2637	3430
26	Shimoga	0	0	0	1	6	0	3	14	1
27	Tumkur	0	0	0	0	0	0	241	296	247
28	Udupi	0	0	0	0	0	0	0	0	0
29	U.Kannada	0	0	0	0	0	0	0	0	0
30	Yadgir	562	1126	485	0	0	0	148	6	55
STATE TOTAL		43681	46880	40422	4874	4801	4867	53056	44648	50596

RCA - Reconciled Crop Area

APPENDIX 2.9

***Cropwise estimated area under ratio & unbiased
methods and reconciled area during 2015-16***

Area in hectares

Sl. No.	District	Cotton			Sugarcane		
		Ratio	Unbiased	RCA	Ratio	Unbiased	RCA
1	Bagalkot	2496	2215	1820	106407	107961.63	105380
2	Bangalore Urban	0	0	0	0	0	3
3	Bangalore Rural	0	0	2	0	0	60
4	Belgaum	40469	41832	39578	210724	9474	204429
5	Bellary	71166	71343	68050	16112	7539.56	9872
6	Bidar	0	0	283	26596	30559	22543
7	Bijapur	8025	7358	7717	60934	61321	65136
8	Chamarajanagar	13365	12293	13584	5984	5562	5598
9	Chickballapur	0	0	107	0	0	101
10	Chickmagalur	1459	0	1364	2110	2180	2181
11	Chitradurga	15315	15614	16758	0	0	2
12	D. Kannada	0	0	0	0	0	20
13	Davanagere	14638	15563	15688	4212	4729	5786
14	Dharwad	75442	63602	66888	8311.7	10005	8712
15	Gadag	49183	48787	48846	7345	8171	7586
16	Gulbarga	55308	48776	49322	26478	28036	44106
17	Hassan	341	153	354	1412	806.74	1511
18	Haveri	83929	80151	84424	10965.5	8275	14826
19	Kodagu	0	0	0	0	0	0
20	Kolar	0	0	0	0	0	106
21	Koppal	24885	31720	27765	2219	1985	2094
22	Mandya	0	0	0	25108	29586	36678
23	Mysore	51110	50105	49160	9115	8016	9404
24	Raichur	47855	49623	45409	0	0	375
25	Ramanagara	0	0	1	9120	8910	751
26	Shimoga	681	947	540	5290	3342	6123
27	Tumkur	1400	1295	1534	0	0	324
28	Udupi	0	0	0	0	0	16
29	U.Kannada	1054	1018	960	6103	5988	6519
30	Yadgir	100964	101535	101418	1285	1010	1964
STATE TOTAL		659083	643930	641572	545831	343457	562206

RCA - Reconciled Crop Area

APPENDIX - 3

Cropwise Percentage variation of ratio and unbiased estimates of area over reconciled area for the years from 2014-15 to 2015-16

Sl. No.	Crop	2014-15		2015-16	
		% variation over RCA		% variation over RCA	
		Ratio	Unbiased	Ratio	Unbiased
1	2	3	4	3	4
	<u>Kharif</u>				
1	Paddy	10.5	-7.5	3.3	13.8
2	Jowar	7.5	21.1	5.8	33
3	Ragi	-4.2	-27.1	7.7	-9.8
4	Bajra	11.6	-22	7.1	11.1
5	Maize	6.9	-15.1	8.8	1.5
6	Tur	10.4	14	-6.5	-3
7	Groundnut	2.3	-4.9	10.8	0
8	Sesamum	9.3	14.3	4.9	-11.8
9	Sunflower	-0.6	-10	6.9	0.1
	<u>Rabi</u>				
1	Paddy	-4.1	-41.5	10.0	-0.3
2	Jowar	-0.4	1.5	-7.7	-14.3
3	Ragi	8.1	2.4	1.5	-1.4
4	wheat	5.0	-0.6	-2.5	3.3
5	Maize	8.1	93.2	1.0	8.3
6	Gram	0.0	-15.5	-8.4	-14.2
7	Sugarcane	-4.6	48.4	-2.9	-38.9
8	Sunflower	-2.0	1.0	-5.5	-15.0
9	Safflower	9.0	3.4	8.1	16.0
10	Cotton	-0.5	15.8	2.7	0.4
11	Linseed	21.0	3.4	0.1	-1.4
	<u>Summer</u>				
1	Paddy	-4.1	4.8	1.5	-3.4
2	Maize	-7.0	6.5	-0.3	2.3
3	Ragi	-5.9	-16.2	4.3	0.3
4	Groundnut	5.1	-39.0	-0.5	-2.7
5	Sunflower	-1.5	16.8	6.0	3.2

RCA - Reconciled Crop Area