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ಬೆಂಗಳೂರು



Government of Karnataka

REPORT

ON

ESTIMATES OF AREA OF PRINCIPAL CROPS

UNDER TIMELY REPORTING SCHEME

IN

KARNATAKA

2017-18


DIRECTORATE OF ECONOMICS AND STATISTICS
BENGALURU

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 2017-18 which constitute 20 percent of total villages. This report is based on the second set of 20% villages selected among the five sets of villages commencing from 2016-17 to 2020-21 covering 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.

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TIMELY REPORTING OF ESTIMATES OF AREA OF PRINCIPAL CROPS IN KARNATAKA 2017-18

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 2017 to 31th March 2018 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 varies 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 2017 to 30 th June 2017	1 st July 2017 to 9 th July 2017
		1 st July 2017 to 31 st August 2017	1 st Sept 2017 to 9 th Sept 2017
2.	Rabi	1 st Sept. 2017 to 30 th Dec. 2017	1 st Jan 2018 to 9 th Jan 2018
3.	Summer	1 st Jan. 2018 to 31 st March 2018	1 st April 2018 to 9 th April 2018

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% sample villages in each taluk is done as per 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 2016-17, 20% of villages are selected every year under the scheme so that 100% villages are covered in five years i.e. by 2020-21. This report is based on the data collected from the second set of villages selected for the year 2017-18.

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 5888 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	5888	5888	5888
2	No. of villages from which crop abstracts received			
	a By cut off date	4593	4668	4347
	b After cut off date	1295	1220	1541
	Total	5888	5888	5888
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	
				2017-18	2016-17
1.	Statistics	1794	1794	100.00	100.00
2.	Agriculture	882	882	100.00	100.00
3.	Revenue	957	957	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 :

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

Where K = The number of taluks in a district

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

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

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

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

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 9.9 lakh hectares of area during 2017-18. The area covered under the crop was more in Raichur followed by Yadgiri and Ballari districts. About 74.24 % 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	693321	701978	736292	-5.8	- 4.7
Rabi	30689	30865	30634	0.2	0.8
Summer	224200	227067	224744	-0.2	1.0
Total	948210	959910	991670	-4.4	-3.2

Compared to reconciled total area, the estimated area of Paddy under ratio and unbiased methods were lower. During Kharif season, percentage of variation under both the methods lower. In Rabi season, percentage of variation under both the methods was less than one percent. In summer season, percentage of variation under ratio method was marginally less and in unbiased method it was one percent.

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	14838	159	196	15193	13965	8.8
	Unirrigated	76618	-	-	76618	73935	3.6
	Total	91456	159	196	91811	87900	4.4
High Yielding Variety	Irrigated	407958	30530	224004	662492	678913	-2.4
	Unirrigated	193907	-	-	193907	224857	-13.8
	Total	601865	30530	224004	856399	903770	-5.2
Total	Irrigated	422796	30689	224200	677685	692878	-2.2
	Unirrigated	270525	-	-	270525	298792	-9.5
	Total	693321	30689	224200	948210	991670	-4.4

As per the reconciled area, the irrigated area under paddy crop was 69.9% and unirrigated was 30.1%, whereas under estimated area it was 71.5% and 28.5% respectively. In case of high yielding and traditional varieties the percentage of area under reconciled area was 91.1% and 8.9% as against the estimated area of 90.3% and 9.7% respectively. The percentage variation of estimated area under ratio method over reconciled area was -2.2 % under irrigated category, -9.5 % under unirrigated category and -4.4 % to the total during 2017-18. 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 91.5 % of area was cultivated during rabi season alone. Kalaburagi stands first in the area coverage i.e., 19.0 % followed by Vijayapura (13.4 %) and Belagavi (13.3%). Seasonwise estimated area under jowar is given in Table-5.

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

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	93505	93148	92443	1.1	0.8
Rabi	1002094	997116	993591	0.9	0.4
Total	1095599	1090264	1086034	0.9	0.4

It is clear from the above table that compared to reconciled area, the variation of area under ratio and unbiased methods was 1.1 % and 0.8 % during kharif season and it was 0.9% and 0.4 % under rabi season respectively.

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**

Area in hectares

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	7
Traditional	Irrigated	1	18891	18892	15298	23.5
	Unirrigated	15323	130374	145697	164015	-11.2
	Total	15324	149265	164589	179313	-8.2
Hybrid Variety	Irrigated	14186	101944	116130	89396	29.9
	Unirrigated	63995	750885	814880	817325	-0.3
	Total	78181	852829	931010	906721	2.7
Total	Irrigated	14187	120835	135022	104694	29.0
	Unirrigated	79318	881259	960577	981340	-2.1
	Total	93505	1002094	1095599	1086034	0.9

15.0 % of estimated jowar area was under traditional variety and the remaining 85.0% under hybrid variety as against 16.5 % and 83.5 % 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 7.8 lakh hectares of area during 2017-18. The major ragi growing districts are Tumakuru (18.6%), Hassan (12.2%), Mandya (10.8%), and Ramanagara (9.5%) which account for 51.1 % of the total ragi area of the State. About 93.5 % of the area was covered under kharif season itself. Season wise 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	733484	733103	726937	0.9	0.8
Rabi	42315	40937	42291	0.1	-3.2
Summer	7980	8212	7902	1.0	3.9
Total	783779	782252	777130	0.9	0.7

The percentage variation of area estimated by ratio and unbiased methods over reconciled area was 0.9 and 0.7 respectively. Compared to reconciled area, estimated area under both the methods were higher in Kharif and Summer seasons. In rabi season, the area estimated under ratio method is marginally higher and lower in unbiased method when compared to reconciled area.

Table-8 depicts estimated 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	0	0	0	0	2	-100.0
	Unirrigated	36	0	0	36	589	-93.9
	Total	36	0	0	36	591	-93.9
High Yielding Variety	Irrigated	162416	18397	7965	188778	62304	203.0
	Unirrigated	571032	23918	15	594965	714235	-16.7
	Total	733448	42315	7980	783743	776539	0.9
Total	Irrigated	162416	18397	7965	188778	62306	203.0
	Unirrigated	571068	23918	15	595001	714824	-16.8
	Total	733484	42315	7980	783779	777130	0.9

783743 hectares of reconciled area (99.9 %) was covered by high yielding varieties of which 92.0% was unirrigated. Estimated area was lower under traditional variety and higher under high yielding variety when compared to reconciled area. The area estimated under ratio method in case of irrigated area is significantly higher when compared to reconciled area. Districtwise details are given in Appendix- 2.3

2.4 Maize

Maize is yet another cereal crop grown in more than 12.9 lakh hectares in the State. Important Maize growing districts are Davanagere (14.7 %), Haveri (14.3 %), and Belagavi (10.9 %). 90.4 % 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	1168700	1165796	1168939	-0.0	-0.3
Rabi	96128	95994	100156	-4.0	-4.2
Summer	23852	23672	23408	1.9	1.1
Total	1288680	1285462	1292503	-0.3	-0.5

Variation of area under ratio and unbiased methods over reconciled area was -0.0 % (Negligible) and -0.3 % in kharif season, -4.0 % and -4.2 % in rabi season and 1.9 % and 1.1 % in summer season. The total estimated area was lower 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	1537	487	0	2024	178	1037.1
	Unirrigated	89	129	0	218	489	-55.4
	Total	1626	616	0	2242	667	236.1
Hybrid Variety	Irrigated	360924	87241	23848	472013	396020	19.2
	Unirrigated	806150	8271	4	814425	895816	-9.1
	Total	1167074	95512	23852	1286438	1291836	-0.4
Total	Irrigated	362461	87728	23848	474037	396198	19.6
	Unirrigated	806239	8400	4	814643	896305	-9.1
	Total	1168700	96128	23852	1288680	1292503	-0.3

It is clear from the above table that, under ratio method, it was estimated that totally 36.8 % of area was irrigated out of which 99.6% of area sown with hybrid variety. As per reconciled area, 30.7 % of area was irrigated of which the area sown with hybrid variety was 99.9% Under ratio method irrigated area was high and unirrigated area was low i.e 19.6 % and -9.1 % respectively compared to reconciled area. Districtwise details are given in Appendix-2.4

2.5 Bajra

Bajra was grown in 2.3 lakh hectares in the State during the year under report. It is largely grown in Koppal (35.0%), Raichur (17.5 %), Vijayapura (11.4 %), Ballari (10.7 %) and Bagalkot (9.6 %) districts in the State. These 5 districts alone contribute 84.2% of cropped area of the crop. Area estimated under the crop by ratio and Unbiased methods were higher compared to the reconciled area. Only 2.0 % of area estimated had traditional variety and the remaining 98.0 % of the area was sown with high yielding variety as per ratio estimates where as under reconciled area 1.0 % area was covered under traditional variety and 99.0 % under hybrid variety.

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	111	136	22	404.5	518.2
	Unirrigated	4395	4377	2212	98.7	97.9
	Total	4506	4513	2234	101.7	102.0
Hybrid Variety	Irrigated	24296	25534	17638	37.7	44.8
	Unirrigated	201057	206208	206517	-2.6	-0.1
	Total	225353	231742	224155	0.5	3.4
Total	Irrigated	24407	25670	17660	38.2	45.4
	Unirrigated	205452	210585	208729	-1.6	0.9
	Total	229859	236255	226389	1.5	4.4

It is observed from the above table that, there was 38.2 % variation under irrigated area and-1.6% variation under unirrigated area under ratio method whereas it was 45.4 % and 0.9 % under unbiased method respectively when compared to reconciled area. Under ratio method the variation under hybrid and traditional variety is 0.5% and 101.7% respectively when compared to reconciled area. Similarly under unbiased estimate the variation under traditional variety and hybrid variety is 102% and 3.4% respectively.

2.6 Wheat

Wheat crop is grown only rabi season nearly in 1.9 lakh hectares. About 46347 hectares of area is covered by Belagavi district (24.0 %) followed by Vijayapura (23.8 %). The estimated area for this crop was less under Ratio method and high under Unbiased method compared to reconciled area. However the variation is negligible. Details are given in Table – 12

Table – 12
Varietywise estimated and reconciled area under Wheat

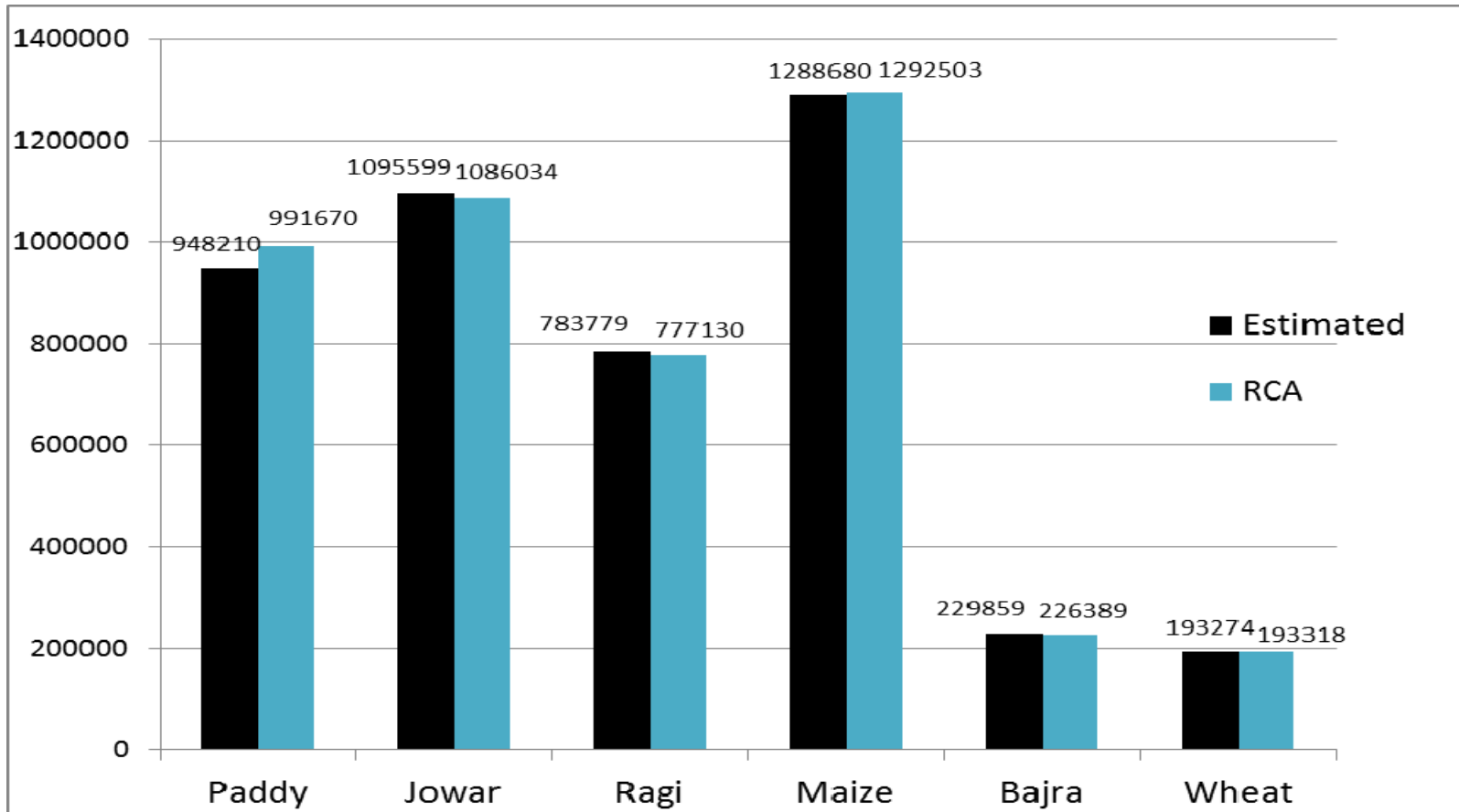
Variety	Irrigated/ Unirrigated	Estimated area as per		Reconciled area	Area in hectares	
		Ratio	Unbiased		% variation over reconciled area	
					Ratio	Unbiased
1	2	3	4	5	6	7
Traditional	Irrigated	8254	7923	6838	20.7	15.9
	Unirrigated	37820	37533	37775	0.1	-0.6
	Total	46074	45456	44613	3.3	1.9
High Yielding Variety	Irrigated	103399	102540	112721	-8.3	-9.0
	Unirrigated	43801	45973	35984	21.7	27.8
	Total	147200	148513	148705	-1.0	-0.1
Total	Irrigated	111653	110463	119559	-6.6	-7.6
	Unirrigated	81621	83506	73759	10.7	13.2
	Total	193274	193969	193318	-0.0	0.3

It can be seen from the above table that, under ratio method the estimated area under irrigation was 111653 hectares (57.8%) of which the area under high yielding variety was 92.6%. Under reconciled area, the area under irrigation was 119559 hectares (61.8%) of which area under high yielding varieties was 94.28%. The estimated total area was less in Ratio method and it is high in unbiased method when compared to the reconciled area. 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 (Hectares)



2.7 Tur

Tur crop is one of the important long duration pulse crops grown only in the kharif season. About 8.8 lakh hectares of area was under this crop during 2017-18 of which 3.3 lakh hectares grown in Kalaburagi and 2.6 lakh hectares in Vijayapura districts alone which constitutes 66.8% of the total area of the crop in the state. It is observed that the variation in estimated area by ratio method was only 0.2% when compared to the reconciled area. However, the variation in unbiased method is negligible.

2.8 Bengalgram

Bengalgram is also an important pulse crop of the State grown in nearly 12.6 lakh hectares in rabi season. Vijayapura district is covered with 2.5 lakh hectares of area which works out to 19.7% of the total State area. The estimated area by ratio and unbiased methods were higher to the extent of 7.5% and 4.1% respectively, when compared the reconciled area.

Estimated area under Tur crop and 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

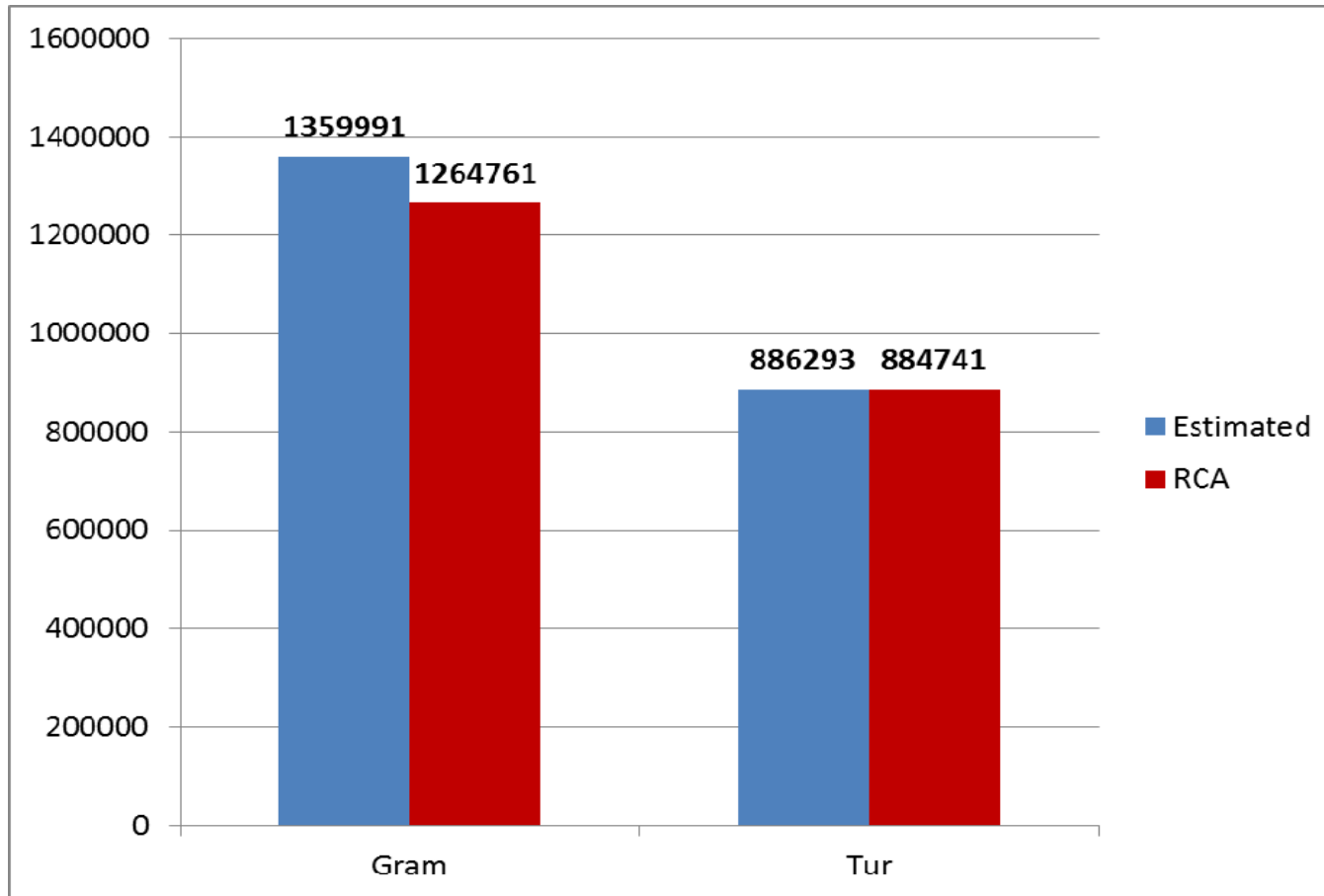
Area in hectares

Crop	Estimated area as per		Reconciled area	% variation over reconciled area	
	Ratio	Unbiased		Ratio	Unbiased
1	2	3	4	5	6
Tur	886293	884825	884741	0.2	0.0
Bengal gram	1359991	1317165	1264761	7.5	4.1

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 (Hectares)



2.9 Groundnut

Groundnut is an important oilseed crop grown in about 5.6 lakh hectares in the State. Though it is grown in Kharif, Rabi and Summer seasons, about 69.3 % of the area is cultivated during kharif season alone. Predominant groundnut growing districts are Chitradurga (0.92 lakh hectares) and Ballari (0.60 lakh hectares), which accounted for 27.1 % of the total area 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	Area in hectares	
				% variation over reconciled area	
	Ratio	Unbiased		Ratio	Unbiased
1	2	3	4	5	6
Kharif	389182	393073	389994	-0.2	0.8
Rabi & Summer	174322	173013	172377	1.1	0.4
Total	563504	566086	562371	0.2	0.7

The estimated area under ratio and unbiased method were higher side to the extent of 0.2 % and 0.7 % 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		
		3	4	5		
1	2	3	4	5	6	7
Traditional	Irrigated	1531	2828	4359	5354	-18.6
	Unirrigated	28017	1560	29577	36686	-19.4
	Total	29548	4388	33936	42040	-19.3
High Yielding Variety	Irrigated	28759	169934	198693	167599	18.6
	Unirrigated	330875	0	330875	352732	-6.2
	Total	359634	169934	529568	520331	1.8
Total	Irrigated	30290	172762	203052	172953	17.4
	Unirrigated	358892	1560	360452	389418	-7.4
	Total	389182	174322	563504	562371	0.2

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 17.4%. The total area under high yielding variety was also on higher side to the extent of 1.8 % 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 1.7 lakh hectares in all three seasons in the State. During the year under report, Bagalkot had the largest area (0.34 lakh hectares) followed by Gadag (0.31 lakh hectares), Koppal (0.28 lakh hectares) and Raichur (0.17 lakh hectares). Total area in these four districts alone constitute 63.8% 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	102917	104492	111323	-7.6	-6.1
Rabi	57542	56803	57696	-0.3	-1.5
Summer	4149	4029	3909	6.1	3.1
Total	164608	165324	172928	-4.8	-4.4

It is seen from the above table that, the area estimated under ratio and unbiased methods was lower side when compared with reconciled area. Comparative information showing the seasonwise and varietywise estimates of area irrigated and high yielding variety by ratio method and 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	7	14	0	21	0	0
	Unirrigated	13	354	0	367	5	7240
	Total	20	368	0	388	5	7660
Hybrid Variety	Irrigated	19921	8126	4149	32196	31405	2.5
	Unirrigated	82976	49048	0	132024	141518	-6.7
	Total	102897	57174	4149	164220	172923	-5.0
Total	Irrigated	19928	8140	4149	32217	31405	2.6
	Unirrigated	82989	49402	0	132391	141523	-6.5
	Total	102917	57542	4149	164608	172928	-4.8

It is clear from the above table that, in the ratio method 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 -4.8. Districtwise details are given in Appendix –2.7

2.11 Sesamum

Sesamum crop is grown in 0.35 lakh hectares, mainly in rainfed areas during kharif season only. It is largely grown in Mandya 0.07 lakh hectares, Mysuru 0.07 lakh hectares and Kalaburagi 0.06 lakh hectares. Percentage variation of estimated area over reconciled area under ratio and unbiased methods were lower to the extent of -5.9 % and -4.6 % respectively. Districtwise area details are given in Appendix -2.8

2.12 Safflower

Safflower is an important oilseed crop grown during rabi season only. About 0.34 lakh hectares of area was under the crop during 2017-18. It is largely grown in Bidar district(0.13 lakh hectares) followed by Dharwad(0.08 lakh hectares) and Gadag (0.03 lakh hectares). Estimated area by ratio method was -1.3% and under unbiased method was 0.8 % when compared to reconciled area. Districtwise area details are given in Appendix 2.8.

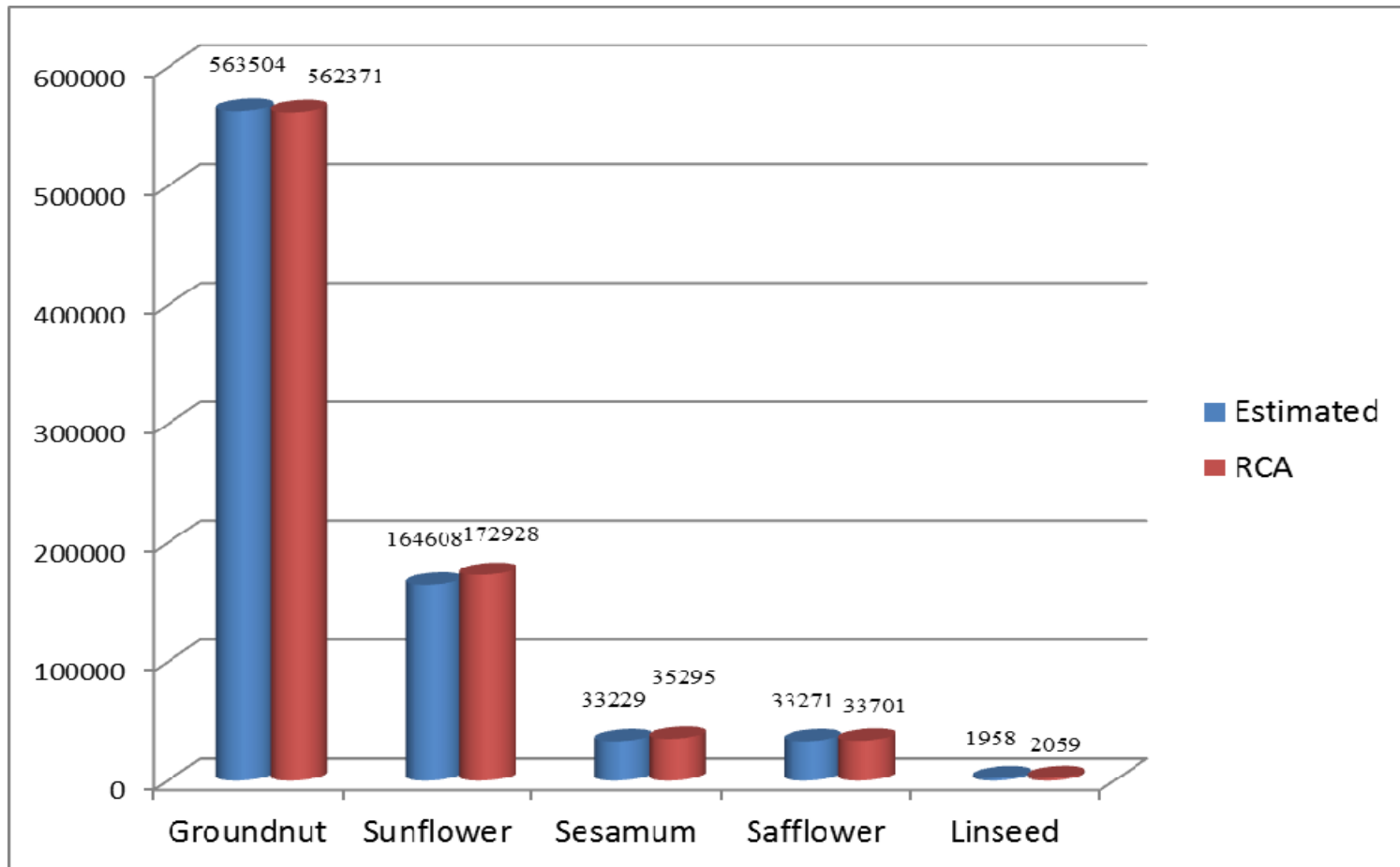
2.13 Linseed

Linseed is another oilseed crop grown in the State during rabi season only. Out of 0.02 lakh hectares of area under the crop, about 49.3 % of area was sown in Bagalkot district. The estimated area as per ratio method was 1958 hectares and as per unbiased method it was 2091 hectares. Estimated area by ratio method was lower to the extent of - 4.9% and unbiased method it was higher to the extent of 1.5% when compared with reconciled area. The entire area under the crop was grown as traditional variety under unirrigated condition. 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 (Hectares)



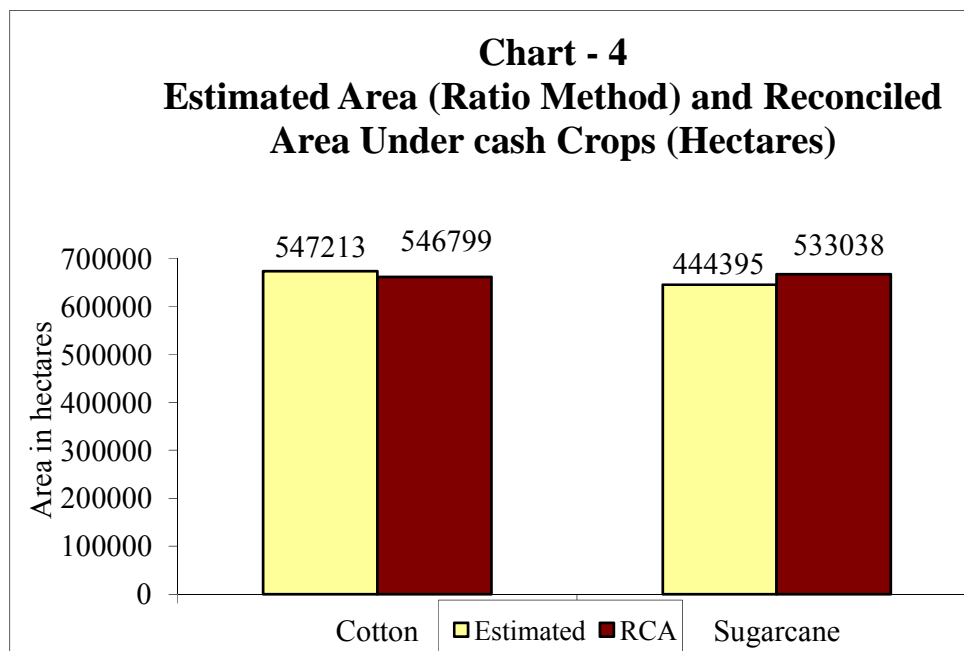
2.14 Cotton

Cotton is an important cash crop largely grown in Raichur, Haveri, Kalaburagi, Yadgiri, and Ballari districts. 5.5 lakh hectares of area was covered under the crop during 2017-18. Estimated area by ratio and unbiased methods was 5.5 lakh hectares and 5.4 lakh hectares respectively. The variation of estimated area over reconciled area as per ratio and unbiased methods was 0.1 % and -0.6 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 5.3 lakh hectares of area under the crop 41.5 % of cropped area is found in Belagavi district alone followed by Bagalkot (20.6 %), Vijayapura (9.2 %) and Kalaburagi (8.2 %). Estimated area by Ratio and Unbiased methods were lower to the extent of -16.6% and -15.9% 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 on the basis of the 20% of villages selected is almost nearer to the reconciled area figures, which helps to frame some important agriculture policies at national and state level.
- 3.2 The Timely Reporting Scheme was implemented in 5888 villages of the State, during 2017-18 which belong to the second set of villages selected under the scheme for the years 2016-17 to 2020-21.
- 3.3 During the year under report the crop abstracts were received from all the villages in respect of Kharif, Rabi and Summer seasons.
- 3.4 The percentage of supervision undertaken by Statistics, Agriculture and Revenue Department personnel was 100%.
- 3.5 The estimated area under ratio method in respect of Jowar, Ragi, Bajra, Tur, Gram, Cotton and Groundnut crops was high and low in case of Paddy, Maize, Wheat, Sugarcane, Sunflower, Sesamum, Safflower and Linseed crops when compared to the reconciled area. Under unbiased method the estimated area in respect of Jowar, Ragi, Bajra, Gram, Tur, Wheat, Groundnut, Safflower and Linseed crops was on higher side and on lower side for the remaining crops.

* * * * *

APPENDIX - 1

***Districtwise, Seasonwise receipt position of
village crop abstracts during 2017-18***

Sl.No.	District	No. of villages selected	No. of villages from which crop abstracts received					
			Kharif	%	Rabi	%	Summer	%
1	Bagalkot	121	121	100.00	121	100.00	121	100.00
2	Bengaluru Urban	121	121	100.00	121	100.00	121	100.00
3	Bengaluru Rural	215	215	100.00	215	100.00	215	100.00
4	Belagavi	237	237	100.00	237	100.00	237	100.00
5	Ballari	111	111	100.00	111	100.00	111	100.00
6	Bidar	128	128	100.00	128	100.00	128	100.00
7	Vijayapura	129	129	100.00	129	100.00	129	100.00
8	Chamarajanagar	93	93	100.00	93	100.00	93	100.00
9	Chikkaballapura	303	303	100.00	303	100.00	303	100.00
10	Chikkamagaluru	224	224	100.00	224	100.00	224	100.00
11	Chitradurga	210	210	100.00	210	100.00	210	100.00
12	D. Kannada	75	75	100.00	75	100.00	75	100.00
13	Davanagere	185	185	100.00	185	100.00	185	100.00
14	Dharwad	81	81	100.00	81	100.00	81	100.00
15	Gadag	67	67	100.00	67	100.00	67	100.00
16	Kalaburagi	185	185	100.00	185	100.00	185	100.00
17	Hassan	518	518	100.00	518	100.00	518	100.00
18	Haveri	140	140	100.00	140	100.00	140	100.00
19	Kodagu	56	56	100.00	56	100.00	56	100.00
20	Kolar	361	361	100.00	361	100.00	361	100.00
21	Koppal	127	127	100.00	127	100.00	127	100.00
22	Mandya	296	296	100.00	296	100.00	296	100.00
23	Mysuru	272	272	100.00	272	100.00	272	100.00
24	Raichuru	178	178	100.00	178	100.00	178	100.00
25	Ramanagara	167	167	100.00	167	100.00	167	100.00
26	Shivamogga	320	320	100.00	320	100.00	320	100.00
27	Tumakuru	542	542	100.00	542	100.00	542	100.00
28	Udupi	53	53	100.00	53	100.00	53	100.00
29	U.Kannada	271	271	100.00	271	100.00	271	100.00
30	Yadgiri	102	102	100.00	102	100.00	102	100.00
TOTAL		5888	5888	100.00	5888	100.00	5888	100.00

APPENDIX - 2.1

Cropwise and Seasonwise, ratio and unbiased estimates and reconciled area for the year 2017--18

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	0	0	0	0	0	0	0	0	0	0	0	0
2	Bengaluru Urban	248	175	226	0	0	9	0	0	35	248	175	270
3	Bengaluru Rural	594	607	532	0	3	0	0	0	144	594	610	676
4	Belagavi	65772	65447	64555	0	0	0	0	0	30	65772	65447	64585
5	Ballari	53984	50348	55561	6870	6500	6619	40762	41461	39753	101616	98309	101933
6	Bidar	1192	1240	1018	0	0	0	0	0	0	1192	1240	1018
7	Vijayapura	0	0	30	0	0	0	0	0	0	0	0	30
8	Chamarajanagar	3456	3696	2648	155	151	185	123	231	178	3734	4078	3011
9	Chikkaballapura	750	594	243	0	0	0	0	0	188	750	594	431
10	Chikkamagaluru	26089	26651	24094	0	0	0	3282	3332	2804	29371	29983	26898
11	Chitradurga	351	157	355	526	580	529	641	761	700	1518	1498	1584
12	D. Kannada	24834	25783	23343	9418	9509	9606	192	153	213	34444	35445	33162
13	Davanagere	13185	15293	15875	0	0	0	47719	48127	48528	60904	63420	64403
14	Dharwad	21394	21810	22416	0	0	0	0	0	5	21394	21810	22421
15	Gadag	1262	1679	1321	0	0	0	916	920	1116	2178	2599	2437
16	Kalaburagi	3100	2753	2800	2066	2198	1628	3223	3150	3405	8389	8101	7833
17	Hassan	21465	22317	21016	0	0	0	661	679	609	22126	22996	21625
18	Haveri	27348	26817	23672	0	0	0	4113	4207	4058	31461	31024	27730
19	Kodagu	27528	28706	27154	0	0	5	0	0	12	27528	28706	27171
20	Kolar	1265	1166	753	0	0	0	250	294	503	1515	1460	1256
21	Koppal	35371	40562	36285	0	0	0	16800	17283	17654	52171	57845	53939
22	Mandya	15390	14817	12366	6110	6112	6150	14766	15222	15337	36266	36151	33853
23	Mysuru	56763	58100	57177	0	0	0	8016	7834	7951	64779	65934	65128
24	Raichuru	90024	89677	90242	0	0	0	23900	23059	23215	113924	112736	113457
25	Ramanagara	5008	4157	4028	0	0	5	177	228	261	5185	4385	4294
26	Shivamogga	85721	85230	84105	15	67	40	11148	11184	9371	96884	96481	93516
27	Tumakuru	4012	4301	4289	0	0	32	340	416	537	4352	4717	4858
28	Udupi	18633	19505	42553	4388	4808	4471	65	100	71	23086	24413	47095
29	U.Kannada	59902	60728	59680	1141	937	1355	641	519	578	61684	62184	61613
30	Yadgiri	28680	29662	57955	0	0	0	46465	47907	47488	75145	77569	105443
STATE TOTAL		693321	701978	736292	30689	30865	30634	224200	227067	224744	948210	959910	991670

RCA - Reconciled Crop Area

APPENDIX - 2.2

Cropwise and Seasonwise estimated area under ratio & unbiased methods and reconciled area during 2017-18

Crop : Jowar

Area in hectares

Sl.No	District	Kharif			Rabi			Total		
		Ratio	Unbiased	RCA	Ratio	Unbiased	RCA	Ratio	Unbiased	RCA
1	Bagalkot	925	1132	354	113796	113822	110581	114721	114954	110935
2	Bengaluru Urban	0	0	0	0	0	0	0	0	0
3	Bengaluru Rural	0	0	0	0	0	0	0	0	0
4	Belagavi	15651	13403	12627	132001	132969	132339	147652	146372	144966
5	Ballari	11066	11412	11272	28439	26927	27861	39505	38339	39133
6	Bidar	21045	20982	20333	23400	22810	22355	44445	43792	42688
7	Vijayapura	0	0	0	143373	143083	145997	143373	143083	145997
8	Chamarajanagar	19631	19652	24258	0	0	40	19631	19652	24298
9	Chikkaballapura	0	0	0	0	0	0	0	0	0
10	Chikkamagaluru	573	689	477	11960	11697	12739	12533	12386	13216
11	Chitradurga	4262	5599	4479	7494	7084	9178	11756	12683	13657
12	D. Kannada	0	0	0	0	0	0	0	0	0
13	Davanagere	5028	5991	5344	4720	4131	4296	9748	10122	9640
14	Dharwad	2576	2280	1775	61648	61607	59576	64224	63887	61351
15	Gadag	3211	2748	2765	74870	74746	74081	78081	77494	76846
16	Kalaburagi	516	638	611	214165	214093	206071	214681	214731	206682
17	Hassan	1240	1092	1029	250	230	426	1490	1322	1455
18	Haveri	688	670	403	31171	31640	30743	31859	32310	31146
19	Kodagu	0	0	0	0	0	0	0	0	0
20	Kolar	0	0	0	0	0	0	0	0	0
21	Koppal	1819	1962	1501	44292	42797	45345	46111	44759	46846
22	Mandya	0	0	0	0	0	0	0	0	0
23	Mysuru	4880	4598	4988	100	80	250	4980	4678	5238
24	Raichuru	0	0	0	85997	85507	67018	85997	85507	67018
25	Ramanagara	0	0	0	0	0	0	0	0	0
26	Shivamogga	132	75	76	0	36	42	132	111	118
27	Tumakuru	0	0	0	500	608	0	500	608	0
28	Udupi	0	0	0	0	0	0	0	0	0
29	U.Kannada	0	0	0	0	0	2	0	0	2
30	Yadgiri	262	225	151	23918	23249	44651	24180	23474	44802
STATE TOTAL		93505	93148	92443	1002094	997116	993591	1095599	1090264	1086034

RCA - Reconciled Crop Area

APPENDIX - 2.3

***Cropwise and Seasonwise estimated area under
ratio & unbiased methods and reconciled area during 2017 - 18***

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	Bengaluru Urban	15866	16611	14268	169	246	132	0	0	49	16035	16857	14449
3	Bengaluru Rural	39330	39544	37019	136	147	105	0	0	39	39466	39691	37163
4	Belagavi	762	748	433	138	130	0	0	0	0	900	878	433
5	Ballari	10453	10174	10039	260	277	281	511	602	682	11224	11053	11002
6	Bidar	0	0	0	0	0	0	0	0	0	0	0	0
7	Vijayapura	0	0	0	0	0	0	0	0	0	0	0	0
8	Chamarajanagar	19991	21576	20062	271	245	270	350	302	233	20612	22123	20565
9	Chikkaballapura	47110	46273	48262	140	169	53	0	0	383	47250	46442	48698
10	Chikkamagaluru	51818	53620	52115	0	0	0	0	0	0	51818	53620	52115
11	Chitradurga	44532	45169	45602	232	254	2249	1981	2089	1739	46745	47512	49590
12	D. Kannada	0	0	0	0	0	0	0	0	0	0	0	0
13	Davanagere	17852	18219	18500	3992	3493	3325	1598	1421	1471	23442	23133	23296
14	Dharwad	7	46	6	0	0	0	0	0	0	7	46	6
15	Gadag	0	0	0	0	0	0	0	0	0	0	0	0
16	Kalaburagi	0	0	0	0	0	0	0	0	0	0	0	0
17	Hassan	93866	92941	91604	2958	2839	2945	69	149	78	96893	95929	94627
18	Haveri	279	174	186	0	0	0	0	0	0	279	174	186
19	Kodagu	0	0	0	0	0	0	0	0	0	0	0	0
20	Kolar	68842	67133	66148	0	0	76	105	34	157	68947	67167	66381
21	Koppal	0	0	0	0	0	0	0	0	0	0	0	0
22	Mandya	67892	66389	66671	15797	15118	15118	2013	2186	2003	85702	83693	83792
23	Mysuru	36765	38120	37987	17926	17712	17436	127	179	155	54818	56011	55578
24	Raichuru	0	0	0	0	0	0	0	0	0	0	0	0
25	Ramanagara	73279	72684	73600	0	0	74	204	187	173	73483	72871	73847
26	Shivamogga	520	671	821	0	3	4	124	159	30	644	833	855
27	Tumakuru	144320	143011	143614	296	304	223	898	904	710	145514	144219	144547
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	0	0	0	0
30	Yadgiri	0	0	0	0	0	0	0	0	0	0	0	0
STATE TOTAL		733484	733103	726937	42315	40937	42291	7980	8212	7902	783779	782252	777130

RCA - Reconciled Crop Area

APPENDIX - 2.4

Cropwise and Seasonwise estimated area under ratio, & unbiased methods and reconciled area during 2017-18

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	42160	40910	41804	18040	17845	18938	2356	2471	2064	62556	61226	62806
2	Bengaluru Urban	1572	1779	1037	136	136	92	0	0	24	1708	1915	1153
3	Bengaluru Rural	8287	8738	9339	130	119	87	0	20	23	8417	8877	9449
4	Belagavi	101556	108045	106256	31214	30710	31840	3102	2756	3099	135872	141511	141195
5	Ballari	96305	93920	94305	1349	1225	3105	528	416	408	98182	95561	97818
6	Bidar	1204	949	718	0	0	113	0	0	36	1204	949	867
7	Vijayapura	41939	43267	43347	3892	4145	4719	2475	2318	2454	48306	49730	50520
8	Chamarajanagar	21925	22140	22295	4820	5056	4727	2320	2392	2267	29065	29588	29289
9	Chikkaballapura	60011	57525	58805	309	316	310	0	0	386	60320	57841	59501
10	Chikkamagaluru	15311	14878	15287	0	0	0	0	0	0	15311	14878	15287
11	Chitradurga	77698	77237	76141	1364	1371	4096	506	630	629	79568	79238	80866
12	D. Kannada	0	0	0	0	0	0	0	0	0	0	0	0
13	Davanagere	186306	186804	187911	1389	1296	1225	471	422	300	188166	188522	189436
14	Dharwad	27002	27558	25321	2498	2980	2333	400	397	332	29900	30935	27986
15	Gadag	35771	34075	35460	3227	2928	3000	0	26	8	38998	37029	38468
16	Kalaburagi	1453	1490	1843	237	350	222	212	243	155	1902	2083	2220
17	Hassan	81211	82027	81657	727	1142	931	165	133	264	82103	83302	82852
18	Haveri	171706	172395	170047	12634	12202	11743	3563	3324	3363	187903	187921	185153
19	Kodagu	3742	2517	3558	0	0	0	0	0	0	3742	2517	3558
20	Kolar	196	138	114	0	0	0	0	0	0	196	138	114
21	Koppal	59592	59223	59661	3078	3012	2770	1561	1651	1313	64231	63886	63744
22	Mandya	6113	5535	7403	2351	2413	2326	594	516	558	9058	8464	10287
23	Mysuru	43609	44720	43013	5920	5762	5979	196	158	317	49725	50640	49309
24	Raichuru	0	0	1540	750	812	11	61	50	41	811	862	1592
25	Ramanagara	2584	1035	1679	0	0	307	0	62	174	2584	1097	2160
26	Shivamogga	54200	52359	53651	1752	1833	1074	4326	4777	4297	60278	58969	59022
27	Tumakuru	21003	20513	20073	162	149	24	90	21	25	21255	20683	20122
28	Udupi	0	0	0	0	0	0	0	0	6	0	0	6
29	U.Kannada	6039	5909	6636	145	147	166	926	889	861	7110	6945	7663
30	Yadgiri	205	110	38	4	45	18	0	0	4	209	155	60
STATE TOTAL		1168700	1165796	1168939	96128	95994	100156	23852	23672	23408	1288680	1285462	1292503

RCA - Reconciled Crop Area

APPENDIX - 2.5

**Cropwise estimated area under ratio & unbiased methods
and reconciled area during 2017-18**

Area in hectares

Sl. No.	District	Bajra			Wheat			Tur			Bengalgram		
		Ratio	Unbiased	RCA	Ratio	Unbiased	RCA	Ratio	Unbiased	RCA	Ratio	Unbiased	RCA
1	Bagalkot	28448	29091	21826	22728	23451	22675	29862	28391	23003	103534	101751	105262
2	Bengaluru Urban	0	0	3	0	0	0	1026	748	599	0	0	0
3	Bengaluru Rural	0	0	1	0	0	0	2017	1132	1347	0	0	130
4	Belagavi	9009	8847	7782	46703	46944	46347	5829	5695	6278	113045	112901	112244
5	Ballari	22325	24577	24180	338	383	582	9510	9991	9360	27166	26992	26834
6	Bidar	2572	2241	2290	4440	4430	4657	79166	79416	78680	65553	66120	65424
7	Vijayapura	27709	28660	25751	45376	45792	46022	268047	263818	262563	296509	255570	249354
8	Chamarajanagar	1117	1902	1704	0	0	0	1092	1259	786	1173	1145	2131
9	Chikkaballapura	0	0	106	0	0	0	9430	9301	10720	0	0	90
10	Chikkamagaluru	0	0	0	0	0	0	250	310	509	11230	12059	11267
11	Chitradurga	3520	3363	3694	283	235	271	13715	13707	13338	41825	41284	33665
12	D. Kannada	0	0	0	0	0	0	0	0	0	0	0	0
13	Davanagere	1288	1046	1562	77	172	195	9456	8067	8143	4534	4490	4360
14	Dharwad	0	0	0	36496	35654	35874	799	860	881	103700	103625	103103
15	Gadag	2123	2420	2171	19179	19700	18042	3730	3676	3373	133075	133002	132538
16	Kalaburagi	8410	9174	7481	10342	9960	10979	327583	329931	328808	206093	205629	206309
17	Hassan	0	0	0	0	0	0	1694	1729	1622	500	638	1177
18	Haveri	0	0	0	403	658	652	1973	1292	1221	3043	3002	1937
19	Kodagu	0	0	0	0	0	0	0	0	0	0	0	0
20	Kolar	0	0	0	0	0	0	2371	2538	2297	0	0	0
21	Koppal	77896	78703	79206	6597	6190	6536	17284	18411	17255	71829	71766	70673
22	Mandya	0	0	0	0	0	0	1277	1158	1040	0	0	0
23	Mysuru	0	0	0	0	0	0	2557	3018	2022	800	700	968
24	Raichuru	35600	37877	39708	280	310	391	26350	25864	38188	145306	145407	116784
25	Ramanagara	0	0	2	0	0	0	2909	3518	3377	0	0	0
26	Shivamogga	0	0	7	0	0	0	338	365	331	0	0	30
27	Tumakuru	0	0	24	0	0	0	9745	11440	10963	300	290	128
28	Udupi	0	0	0	0	0	0	0	0	0	0	0	0
29	U.Kannada	0	0	0	0	0	0	6	3	2	0	0	3
30	Yadgiri	9842	8354	8891	32	90	95	58277	59187	58035	30776	30794	20350
STATE TOTAL		229859	236255	226389	193274	193969	193318	886293	884825	884741	1359991	1317165	1264761

RCA - Reconciled Crop Area

APPENDIX - 2.6

***Cropwise and Seasonwise estimated area under
ratio & unbiased methods and reconciled area during 2017-18***

Crop : Groundnut

Area in hectares

Sl. No.	District	Kharif			Summer			Total		
		Ratio	Unbiased	RCA	Ratio	Unbiased	RCA	Ratio	Unbiased	RCA
1	Bagalkot	1694	1615	1271	24832	23532	24582	26526	25147	25853
2	Bengaluru Urban	12	11	78	0	0	4	12	11	82
3	Bengaluru Rural	328	70	112	0	0	3	328	70	115
4	Belagavi	28082	27844	27087	5524	5448	5545	33606	33292	32632
5	Ballari	50548	53200	53312	7487	7297	7104	58035	60497	60416
6	Bidar	21	52	10	0	0	54	21	52	64
7	Vijayapura	21768	22429	22845	26064	25289	25029	47832	47718	47874
8	Chamarajanagar	6544	6939	6227	0	0	0	6544	6939	6227
9	Chikkaballapura	17760	17574	17254	0	0	187	17760	17574	17441
10	Chikkamagaluru	4374	4695	4195	0	0	20	4374	4695	4215
11	Chitradurga	91247	91431	90618	1507	1572	1384	92754	93003	92002
12	D. Kannada	0	0	0	0	0	0	0	0	0
13	Davanagere	14900	14705	14750	1539	1545	1640	16439	16250	16390
14	Dharwad	16743	16056	18764	322	329	184	17065	16385	18948
15	Gadag	32044	31028	31104	5549	5568	5171	37593	36596	36275
16	Kalaburagi	834	777	584	7271	7312	7414	8105	8089	7998
17	Hassan	533	545	599	1	4	123	534	549	722
18	Haveri	22046	22083	22077	1575	1025	1102	23621	23108	23179
19	Kodagu	0	0	56	0	0	7	0	0	63
20	Kolar	7130	8678	6728	0	0	0	7130	8678	6728
21	Koppal	12280	12940	12639	21140	22150	21555	33420	35090	34194
22	Mandya	381	899	545	0	0	0	381	899	545
23	Mysuru	2962	2390	2550	0	0	0	2962	2390	2550
24	Raichuru	481	469	343	18141	18620	17817	18622	19089	18160
25	Ramanagara	1801	1467	1510	0	0	0	1801	1467	1510
26	Shivamogga	24	20	154	1	23	110	25	43	264
27	Tumakuru	53950	54490	53872	1570	1549	1427	55520	56039	55299
28	Udupi	0	0	0	1790	1702	1774	1790	1702	1774
29	U.Kannada	12	25	76	1560	1453	1607	1572	1478	1683
30	Yadgiri	683	641	634	48449	48595	48534	49132	49236	49168
STATE TOTAL		389182	393073	389994	174322	173013	172377	563504	566086	562371

RCA - Reconciled Crop Area

APPENDIX - 2.7

Cropwise and Seasonwise ratio, unbiased estimates and reconciled area for the year 2017-18

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	24698	24447	30818	2528	2496	2198	1074	1055	888	28300	27998	33904
2	Bengaluru Urban	0	0	2	0	0	0	0	0	0	0	0	2
3	Bengaluru Rural	0	0	0	0	0	0	0	0	0	0	0	0
4	Belagavi	2575	2772	2639	4624	4974	4662	509	402	492	7708	8148	7793
5	Ballari	5031	5788	5663	2793	2790	2360	6	10	17	7830	8588	8040
6	Bidar	17	104	11	0	0	0	0	0	0	17	104	11
7	Vijayapura	16121	16543	16331	63	77	72	0	0	0	16184	16620	16403
8	Chamarajanagar	9667	8715	8256	0	0	0	0	0	27	9667	8715	8283
9	Chikkaballapura	0	0	10	0	0	7	0	0	91	0	0	108
10	Chikkamagaluru	502	731	652	0	0	0	0	0	0	502	731	652
11	Chitradurga	527	870	550	1078	1187	1011	0	0	13	1605	2057	1574
12	D. Kannada	0	0	0	0	0	0	0	0	0	0	0	0
13	Davanagere	1657	1383	1745	106	152	715	158	154	45	1921	1689	2505
14	Dharwad	0	0	577	1282	1459	2944	0	0	0	1282	1459	3521
15	Gadag	8641	10238	8982	22658	21536	22371	0	26	20	31299	31800	31373
16	Kalaburagi	10507	10590	9954	189	154	469	0	0	150	10696	10744	10573
17	Hassan	195	408	457	0	0	0	0	0	0	195	408	457
18	Haveri	522	748	355	1476	1652	1212	155	150	125	2153	2550	1692
19	Kodagu	0	0	0	0	0	0	0	0	0	0	0	0
20	Kolar	0	0	0	0	0	0	0	0	0	0	0	0
21	Koppal	12602	12174	11627	14902	14348	14695	2118	2113	2000	29622	28635	28322
22	Mandya	0	0	10	0	0	0	0	0	0	0	0	10
23	Mysuru	360	260	306	0	0	0	0	0	0	360	260	306
24	Raichuru	9105	8521	12030	4868	4920	4757	0	25	0	13973	13466	16787
25	Ramanagara	0	0	10	0	0	0	0	0	0	0	0	10
26	Shivamogga	0	0	0	365	467	174	129	94	41	494	561	215
27	Tumakuru	0	0	34	0	0	0	0	0	0	0	0	34
28	Udupi	0	0	0	0	0	0	0	0	0	0	0	0
29	U.Kannada	0	0	0	0	0	5	0	0	0	0	0	5
30	Yadgiri	190	200	304	610	591	44	0	0	0	800	791	348
STATE TOTAL		102917	104492	111323	57542	56803	57696	4149	4029	3909	164608.45	165324	172928

RCA - Reconciled Crop Area

APPENDIX - 2.8

Cropwise and Seasonwise, ratio, unbiased estimates and reconciled area for the year 2017-18

Area in hectares

Sl. No.	District	Safflower			Linseed			Sesamum		
		Ratio	Unbiased	RCA	Ratio	Unbiased	RCA	Ratio	Unbiased	RCA
1	Bagalkot	1323	1549	1312	1220	1310	1015	100	100	282
2	Bengaluru Urban	0	0	0	0	0	0	0	0	9
3	Bengaluru Rural	0	0	0	0	0	0	0	0	2
4	Belagavi	1685	1665	1457	151	131	143	42	267	84
5	Ballari	0	10	5	0	0	0	0	0	89
6	Bidar	14101	0	13337	100	120	164	1083	1138	1050
7	Vijayapura	2369	16293	907	0	0	261	70	87	91
8	Chamarajanagar	0	0	0	0	0	0	990	1002	1212
9	Chikkaballapura	0	0	0	0	0	0	0	0	42
10	Chikkamagaluru	0	0	0	0	0	0	4072	2515	3094
11	Chitradurga	500	574	723	0	0	0	43	169	185
12	D. Kannada	0	0	0	0	0	0	0	0	0
13	Davanagere	0	0	0	0	0	0	49	16	9
14	Dharwad	6255	6421	8414	0	0	0	0	35	50
15	Gadag	2820	2679	2555	67	96	74	286	266	184
16	Kalaburagi	2099	2442	1946	0	0	23	6510	6573	6088
17	Hassan	0	0	0	0	0	0	725	1625	1183
18	Haveri	253	298	386	0	38	17	142	57	7
19	Kodagu	0	0	0	0	0	0	0	0	0
20	Kolar	0	0	0	0	0	0	0	0	29
21	Koppal	1533	1506	1328	420	396	362	5763	4099	4740
22	Mandya	0	0	0	0	0	0	5775	6797	6785
23	Mysuru	0	0	0	0	0	0	5210	6121	6694
24	Raichuru	300	350	1263	0	0	0	0	0	713
25	Ramanagara	0	0	0	0	0	0	1900	2400	2329
26	Shivamogga	0	0	0	0	0	0	0	0	0
27	Tumakuru	0	0	0	0	0	0	400	350	328
28	Udupi	0	0	0	0	0	0	0	0	0
29	U.Kannada	0	0	0	0	0	0	0	0	0
30	Yadgiri	33	198	68	0	0	0	69	49	16
STATE TOTAL		33271	33985	33701	1958	2091	2059	33229	33666	35295

RCA - Reconciled Crop Area

APPENDIX 2.9

***Cropwise estimated area under ratio & unbiased
methods and reconciled area during 2017-18***

Area in hectares

Sl. No.	District	Cotton			Sugarcane		
		Ratio	Unbiased	RCA	Ratio	Unbiased	RCA
1	Bagalkot	1527	267	1532	95115	97045	109967
2	Bengaluru Urban	0	0	0	0	0	2
3	Bengaluru Rural	0	0	0	0	0	45
4	Belagavi	30942	31767	30997	190809	189606	221086
5	Ballari	59100	58900	59161	6546	6267	7323
6	Bidar	350	380	490	18080	19059	19178
7	Vijayapura	19730	19946	12120	41640	42859	49270
8	Chamarajanagar	10033	10111	10014	6107	5959	6788
9	Chikkaballapura	0	0	40	0	0	205
10	Chikkamagaluru	2115	2150	1883	1410	1499	1662
11	Chitradurga	8914	8413	10314	0	0	4
12	D. Kannada	0	0	0	0	0	0
13	Davanagere	4656	4650	4768	3811	3654	3795
14	Dharwad	42626	42166	42633	8925	8482	8748
15	Gadag	34511	33007	35230	4984	5153	6840
16	Kalaburagi	62604	62197	62289	21020	22088	43493
17	Hassan	0	0	125	2050	2150	2191
18	Haveri	68935	69101	70187	9420	9243	13347
19	Kodagu	0	0	0	0	0	0
20	Kolar	0	0	0	0	0	11
21	Koppal	3330	3729	6606	1491	1501	1613
22	Mandya	0	0	0	18631	18929	20941
23	Mysuru	48011	46110	48027	4132	4301	4150
24	Raichuru	85180	85290	85850	0	0	0
25	Ramanagara	0	0	0	0	0	221
26	Shivamogga	1320	1450	1243	1720	1810	2348
27	Tumakuru	780	800	736	1040	991	1146
28	Udupi	0	0	0	0	0	24
29	U.Kannada	802	706	1075	6604	6672	7064
30	Yadgiri	61747	62300	61479	860	973	1576
STATE TOTAL		547213	543440	546799	444395	448241	533038

RCA - Reconciled Crop Area

APPENDIX - 3

Cropwise Percentage variation of ratio and unbiased estimates of area over reconciled area for the years from 2016-17 to 2017-18

Sl. No.	Crop	2016-17		2017-18	
		% variation over RCA		% variation over RCA	
		Ratio	Unbiased	Ratio	Unbiased
1	2	3	4	3	4
<u>Kharif</u>					
1	Paddy	-1.4	-1.7	-5.8	-4.7
2	Jowar	-14.1	-17.2	1.1	0.8
3	Ragi	-1.9	-3.4	0.9	0.8
4	Bajra	4.9	4.2	1.5	4.4
5	Maize	-2.2	-2.8	0	-0.3
6	Tur	-1.9	-2.5	0.2	0
7	Groundnut	-2.5	-2.9	-0.2	0.8
8	Sesamum	-0.8	-2.1	-5.9	-4.6
9	Sunflower	-3.6	-15	-7.6	-6.1
<u>Rabi</u>					
1	Paddy	3.5	2.9	0.2	0.8
2	Jowar	0.0	0.5	0.9	0.4
3	Ragi	-6.9	-5.7	0.1	-3.2
4	wheat	-1.9	-0.5	0.0	0.3
5	Maize	-7.0	0.4	-4.0	-4.2
6	Gram	1.0	1.5	7.5	4.1
7	Sugarcane	1.8	1.5	-16.6	-15.9
8	Sunflower	16.4	17.3	-0.3	-1.5
9	Safflower	-6.2	-8.9	-1.3	0.8
10	Cotton	-8.5	-8.1	0.1	-0.6
11	Linseed	10.0	12.2	-4.9	1.5
<u>Summer</u>					
1	Paddy	-0.8	1.5	-0.2	1.0
2	Maize	5.8	2.5	1.9	1.1
3	Ragi	-8.3	-8.7	1.0	3.9
4	Groundnut	3.3	2.9	1.1	0.4
5	Sunflower	74.4	75.4	6.1	3.1

RCA - Reconciled Crop Area