



Government of Karnataka

REPORT

ON

ESTIMATES OF AREA OF PRINCIPAL CROPS

UNDER TIMELY REPORTING SCHEME

IN

KARNATAKA

2018-19

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 2018-19 which constitute 20 percent of total villages. This report is based on the Third 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 2018-19

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 2018 to 31th March 2019 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 2018 to 30 th June 2018	1 st July 2018 to 9 th July 2018
		1 st July 2018 to 31 st August 2018	1 st Sept 2018 to 9 th Sept 2018
2	Rabi	1 st Sept 2018 to 30 th Dec 2018	1 st Jan 2019 to 9 th Jan 2019
3	Summer	1 st Jan 2019 to 31 st March 2019	1 st April 2019 to 9 th April 2019

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 third set of villages selected for the year 2018-19.

1.6 Organization 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 staffs 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 5856 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	5856	5856	5856
2	No. of villages from which crop abstracts received			
	a) By cut off date	4429	4727	4241
	b) After cut off date	1427	1129	1615
	Total	5856	5856	5856
3	Percentage response	100.00	100.00	100.00

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	
				2018-19	2017-18
1	Statistics	1806	1806	100.00	100.00
2	Agriculture	912	896	98.25	99.55
3	Revenue	960	948	98.75	99.79

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

$$\hat{Y}_{Rc} = \left(\frac{\sum_{i=1}^k N_i \bar{Y}_i}{\sum_{i=1}^K N_i \bar{X}_i} \right) X$$

b) Area Estimates by Unbiased Method

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

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

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 11.99 lakh hectares of area during 2018-19. The area covered under the crop was more in Raichur followed by Ballari and Davanagere districts. About 86.4 % 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		Reconciled area	% variation over Reconciled area	
	Ratio	Unbiased		Ratio	Unbiased
1	2	3	4	5	6
Kharif	1037130	1030489	1035755	0.1	-0.5
Rabi	10492	10404	11441	-8.3	-9.1
Summer	151720	150591	150993	0.5	-0.3
Total	1199342	1191484	1198189	0.1	-0.6

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

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

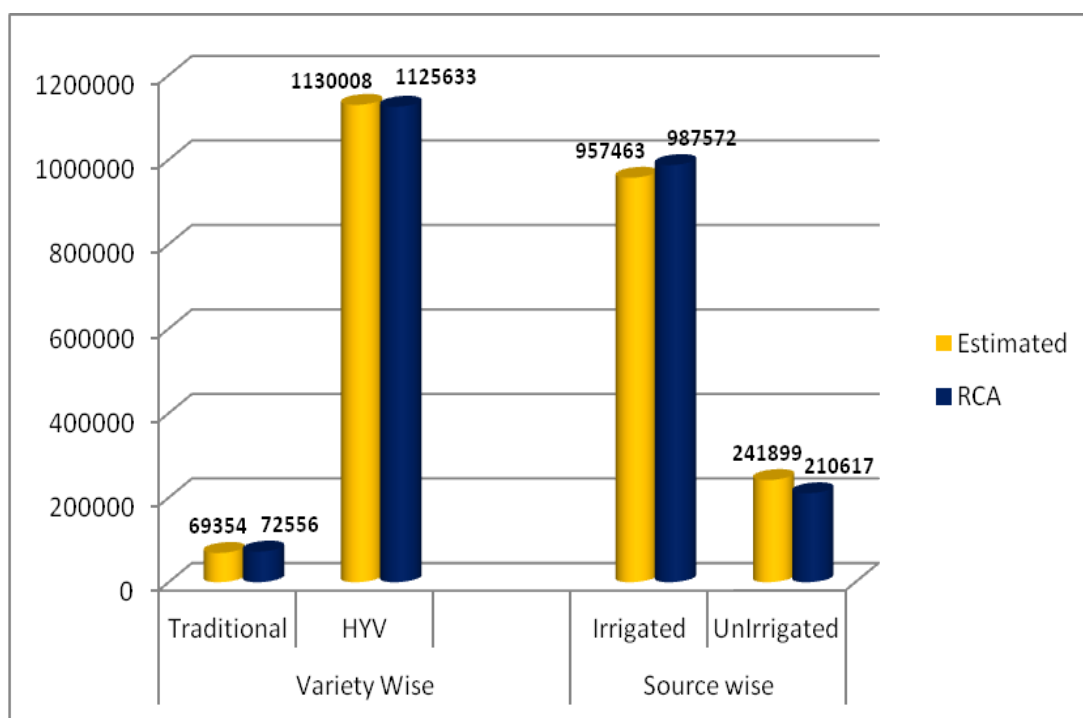
Table-4

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	15808	46	47	15901	20103	-20.90
	Unirrigated	53453	-	-	53453	52453	1.9
	Total	69261	46	47	69354	72556	-4.4
High Yielding Variety	Irrigated	779423	10466	151673	941562	967469	-2.7
	Unirrigated	188446	-	-	188446	158164	19.1
	Total	967869	10446	151673	1130008	1125633	0.4
Total	Irrigated	795231	10492	151720	957463	987572	-3.0
	Unirrigated	241899	-	-	241899	210617	14.9
	Total	1037130	10492	151720	1199362	1198189	0.1

Estimated Area (Ratio Method) and Reconciled Area Under Paddy Crop Variety wise and Source wise (Hectares)



As per the reconciled area, the irrigated area under paddy crop was 82.4% and unirrigated was 17.6%, whereas under estimated area it was 79.8% and 20.2% respectively. In case of high yielding and traditional varieties the percentage of area under reconciled area was 93.9% and 6.1% as against the estimated area of 94.2% and 5.8% respectively. The percentage variation of estimated area under ratio method over reconciled area was -3.0% under irrigated category, 14.9 % under unirrigated category and 0.1 % to the total during 2018-19. Districtwise details are given in Appendix-2.1.

2.2 Jowar

Jowar is another important cereal crop with 9.9 lakh hectares of area in the State of which 88.5 % of area was cultivated during rabi season alone. Vijayapura stands first in the area coverage i.e., 15.1 % followed by Belagavi (13.5 %) and Raichur (12.9%). 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	105149	105916	114481	-8.2	-7.5
Rabi	819900	821549	877414	-6.6	-6.4
Total	925049	927465	991895	-6.7	-6.5

From the above table the variation of area under ratio and unbiased methods was -8.2 % and -7.5 % during kharif season and it was -6.6% and -6.4 % under rabi season respectively. It is clear from the above table that compared to reconciled area, the variation of area was more in ratio than unbiased methods.

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

Table – 6

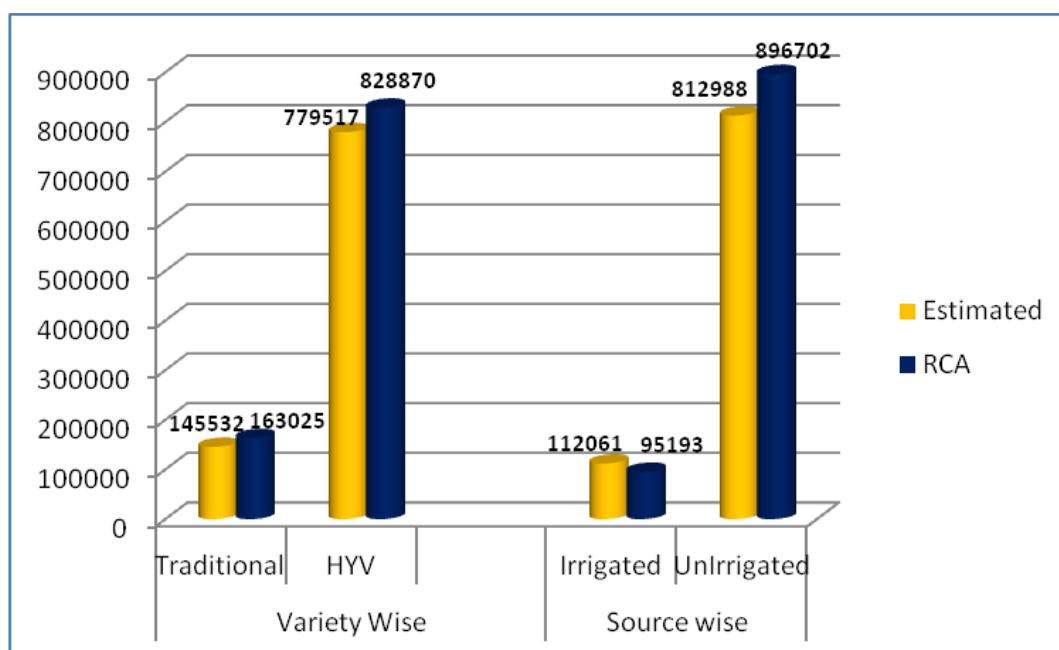
Season and Varietywise area Estimated by Ratio method under Jowar

Variety	Irrigated/ Unirrigated	Estimated area as per Ratio method			Reconciled area	% Variation (col. 5-6/6)
		Kharif	Rabi	Total		
		3	4	5		
1	2	3	4	5	6	7
Traditional	Irrigated	1836	19452	21258	14012	51.7
	Unirrigated	10009	114235	124244	149013	-16.6
	Total	11845	133687	145532	163025	-10.7
Hybrid Variety	Irrigated	10631	80142	90773	81181	11.8
	Unirrigated	82673	606071	688744	747689	-7.9
	Total	93304	686213	779517	828870	-6.0
Total	Irrigated	12467	99594	112061	95193	17.7
	Unirrigated	92682	720306	812988	896702	-9.3
	Total	105149	819900	925049	991895	-6.7

15.7 % of estimated jowar area was under traditional variety and the remaining 84.3% under hybrid variety as against 16.4 % and 83.6 % of reconciled area respectively. District-wise details are given in Appendix – 2.2.

Table-6

Estimated Area (Ratio Method) and Reconciled Area Under Jowar Crop Variety wise and Source wise (Hectares)



2.3 Ragi

Ragi is the third most important cereal crop largely grown in southern districts with 5.5 lakh hectares of area during 2018-19. The major ragi growing districts are Tumakuru (23.8%), Hassan (13.2%), Ramanagara (9.1%), and Mysuru (8.4%) which account for 54.5 % of the total ragi area of the State. About 92.6 % 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

Season	Estimated area as per		Reconciled area	% variation over Reconciled area	
	Ratio	Unbiased		Ratio	Unbiased
1	2	3	4	5	6
Kharif	541455	547059	510040	6.2	7.3
Rabi	27713	28185	36318	-23.7	-22.4
Summer	4421	4680	4276	3.4	9.4
Total	573589	579924	550634	4.2	5.3

The percentage variation of area estimated by ratio and unbiased methods over reconciled area was 4.2 and 5.3 respectively. Compared to reconciled area, estimated area under both the methods were higher in Kharif and Summer seasons.

Table-8 depicts estimated area by status of irrigation.

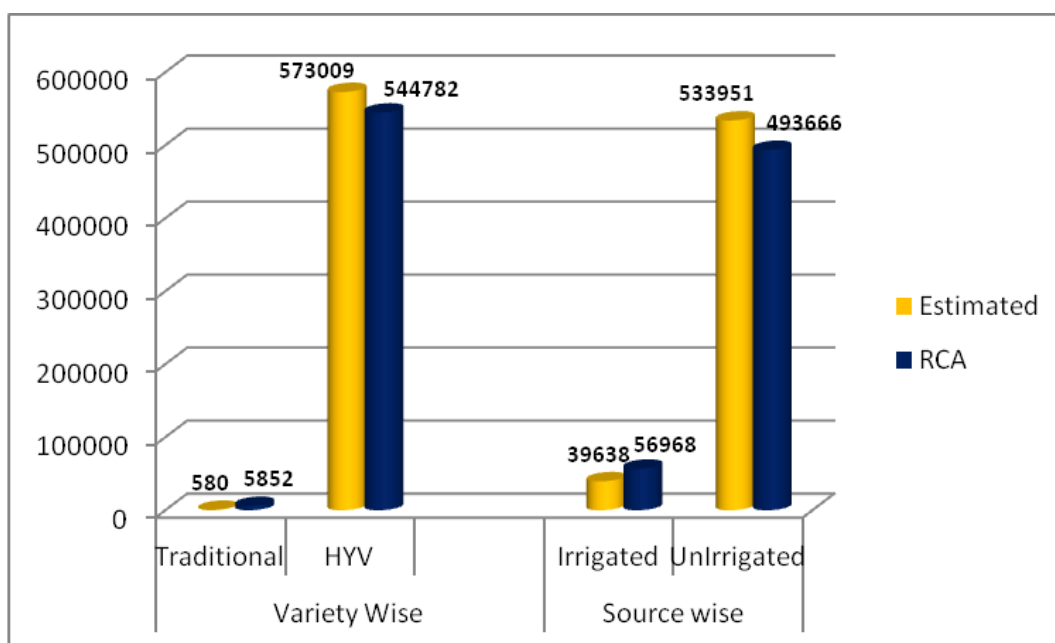
Table – 8

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	55	-100.0
	Unirrigated	580	0	0	580	5797	-90.0
	Total	580	0	0	580	5852	-90.1
High Yielding Variety	Irrigated	20292	15095	4251	39638	56913	-30.4
	Unirrigated	520583	12618	170	533371	487869	9.3
	Total	540875	27713	4421	573009	544782	5.2
Total	Irrigated	20292	15095	4251	39638	56968	-30.4
	Unirrigated	521163	12618	170	533951	493666	8.2
	Total	541455	27713	4421	573589	550634	4.2

Estimated Area (Ratio Method) and Reconciled Area Under Ragi Crop Variety wise and Source wise (Hectares)



544782 hectares of reconciled area (98.9 %) was covered by high yielding varieties of which 89.7% 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 lower 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 14.0 lakh hectares in the State. Maize growing Major districts are Davanagere (14.7 %), Haveri (13.7 %), and Belagavi (11.4 %). 91.9 % 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	1198398	1223456	1287440	-6.9	-5.0
Rabi	71194	76241	93618	-24.0	-18.6
Summer	18853	18643	19506	-3.3	-4.4
Total	1288445	1318340	1400564	-8.0	-5.9

Variation of area under ratio and unbiased methods over reconciled area was -6.9 % and -5.0 % in kharif season, -24.0 % and -18.6 % in rabi season and -3.3 % and -4.4 % 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

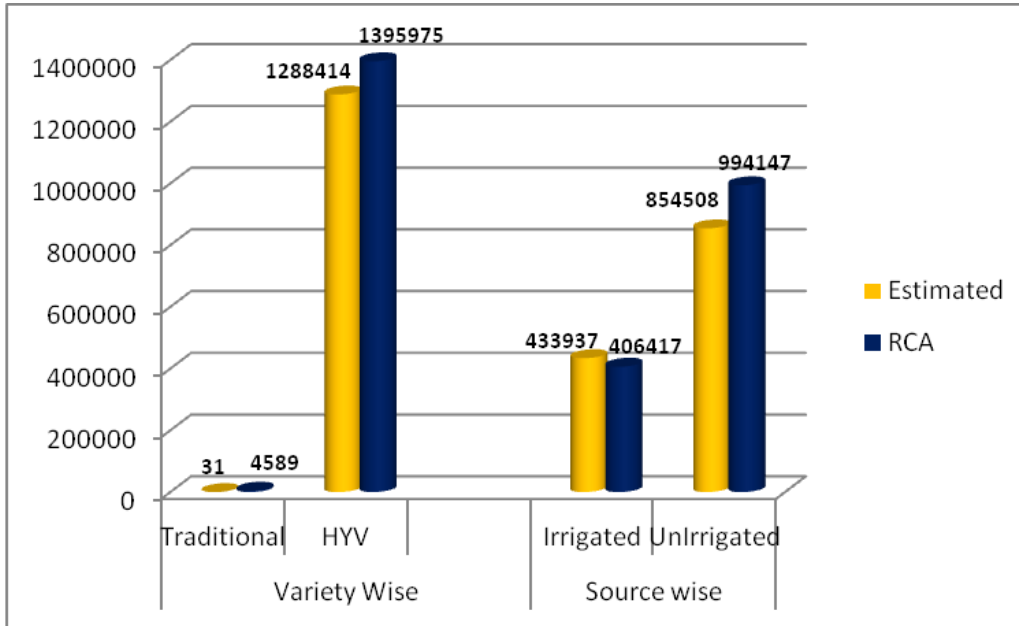
Season and Varietywise area Estimated under Ratio method under Maize

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	0	0	0	0	549	-100.0
	Unirrigated	31	0	0	31	4040	-99.2
	Total	31	0	0	31	4589	-99.3
Hybrid Variety	Irrigated	353046	62038	18853	433937	405868	6.9
	Unirrigated	845321	9156	0	854477	990107	-13.7
	Total	1198367	71194	18853	1288414	1395975	-7.7
Total	Irrigated	353046	62038	18853	433937	406417	6.8
	Unirrigated	845352	9156	0	854508	994147	-14.0
	Total	1198398	71194	18853	1288445	1400564	-8.0

Table – 10

Estimated Area (Ratio Method) and Reconciled Area Under Maize Crop Variety wise and Source wise (Hectares)



It is observe from the above table that, under ratio method, the total estimated irrigated area was 33.7% out of which 100% of area sown with hybrid variety. As per reconciled area, 29.0 % of area was irrigated of which the area sown with hybrid variety was 99.7% . Under ratio method irrigated area was high and unirrigated area was low i.e 6.8 % and -14.0 % respectively compared to reconciled area. Districtwise details are given in Appendix-2.4

2.5 Bajra

Bajra was grown in 1.8 lakh hectares in the State during the year. It is largely grown in Koppal (36.8%), Raichur (19.8%), Vijayapura (10.6%), Bagalakote (10.0%) and Ballari (8.1%) districts in the State. These 5 districts alone contribute 85.4% of cropped area of the crop. Area estimated under the crop by ratio and Unbiased methods were higher compared to the reconciled area. Only 1.3% of area estimated had traditional variety and the remaining 98.7% of the area was sown with high yielding variety as per ratio estimates where as under reconciled area 0.6 % area was covered under traditional variety and 99.4 % 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.

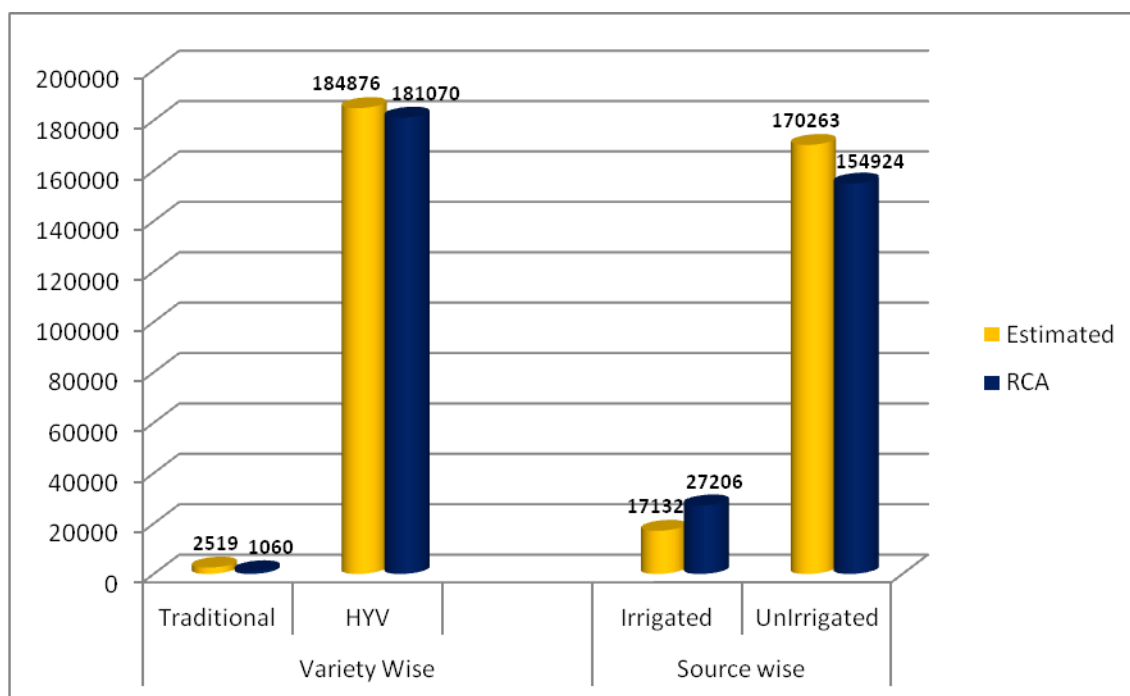
Table – 11

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	0	38	36	-100.0	6.0
	Unirrigated	2519	2729	1024	146.0	166.5
	Total	2519	2767	1060	137.6	161.0
Hybrid Variety	Irrigated	17132	17226	27170	-36.9	-37.0
	Unirrigated	167744	166813	153900	9.0	8.4
	Total	184876	184039	181070	2.1	1.6
Total	Irrigated	17132	17264	27206	-37.0	-36.5
	Unirrigated	170263	169542	154924	10.0	9.4
	Total	187395	186806	182130	2.9	2.6

Estimated Area (Ratio Method) and Reconciled Area Under Bajra Crop Variety wise and Source wise (Hectares)



It is observed from the above table that, under ratio method there was variation of -37.0% under irrigated area and 10.0% under unirrigated area whereas it was -36.5 % and 9.4 % under unbiased method respectively, when compared to reconciled area. Under ratio method the variation under hybrid and traditional variety is 2.1% and 137.6% respectively, similarly under unbiased method it was 161.0% and 1.6% respectively, when compared to reconciled area .

2.6 Wheat

Wheat crop is grown only rabi season nearly in 1.6 lakh hectares. About 38759 hectares of area is covered by Belagavi district (24.6%) followed by Vijayapura (22.4%). The estimated area for this crop was less under Ratio and unbiased methods when compared to reconciled area. Details are given in Table – 12

Table – 12

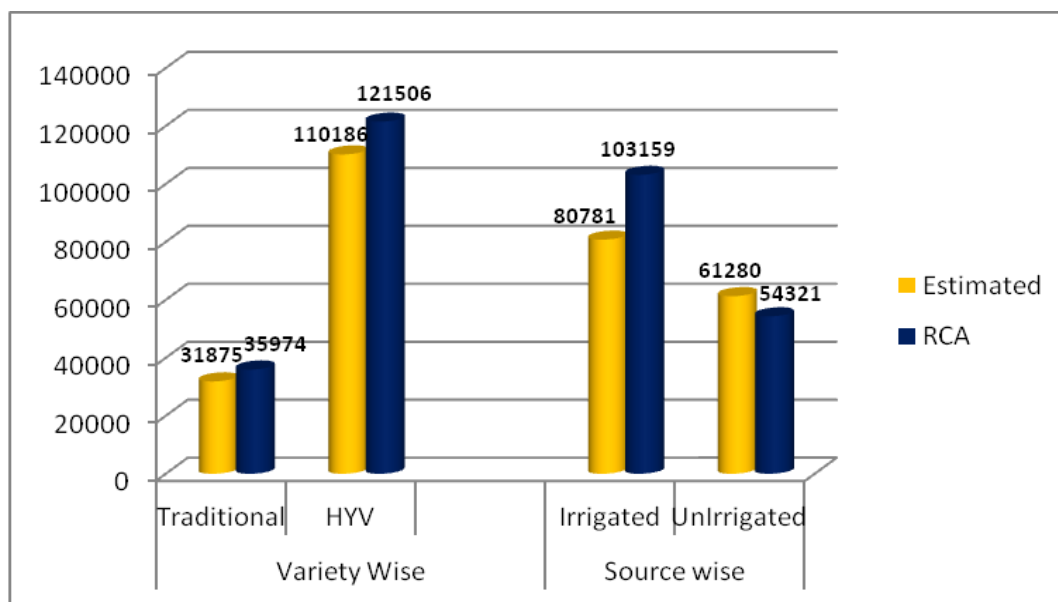
Varietywise Estimated and Reconciled area under Wheat

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	2037	1470	7994	-74.5	-81.6
	Unirrigated	29838	30957	27980	6.6	10.6
	Total	31875	32427	35974	-11.4	-9.9
High Yielding Variety	Irrigated	78744	84508	95165	-17.3	-11.2
	Unirrigated	31442	26953	26341	19.4	2.3
	Total	110186	111461	121506	-9.3	-8.3
Total	Irrigated	80781	85978	103159	-21.7	-16.7
	Unirrigated	61280	57910	54321	12.8	6.6
	Total	142061	143888	157480	-9.8	-8.6

Table-12

Estimated Area (Ratio Method) and Reconciled Area Under Wheat Crop Variety wise and Source wise (Hectares)

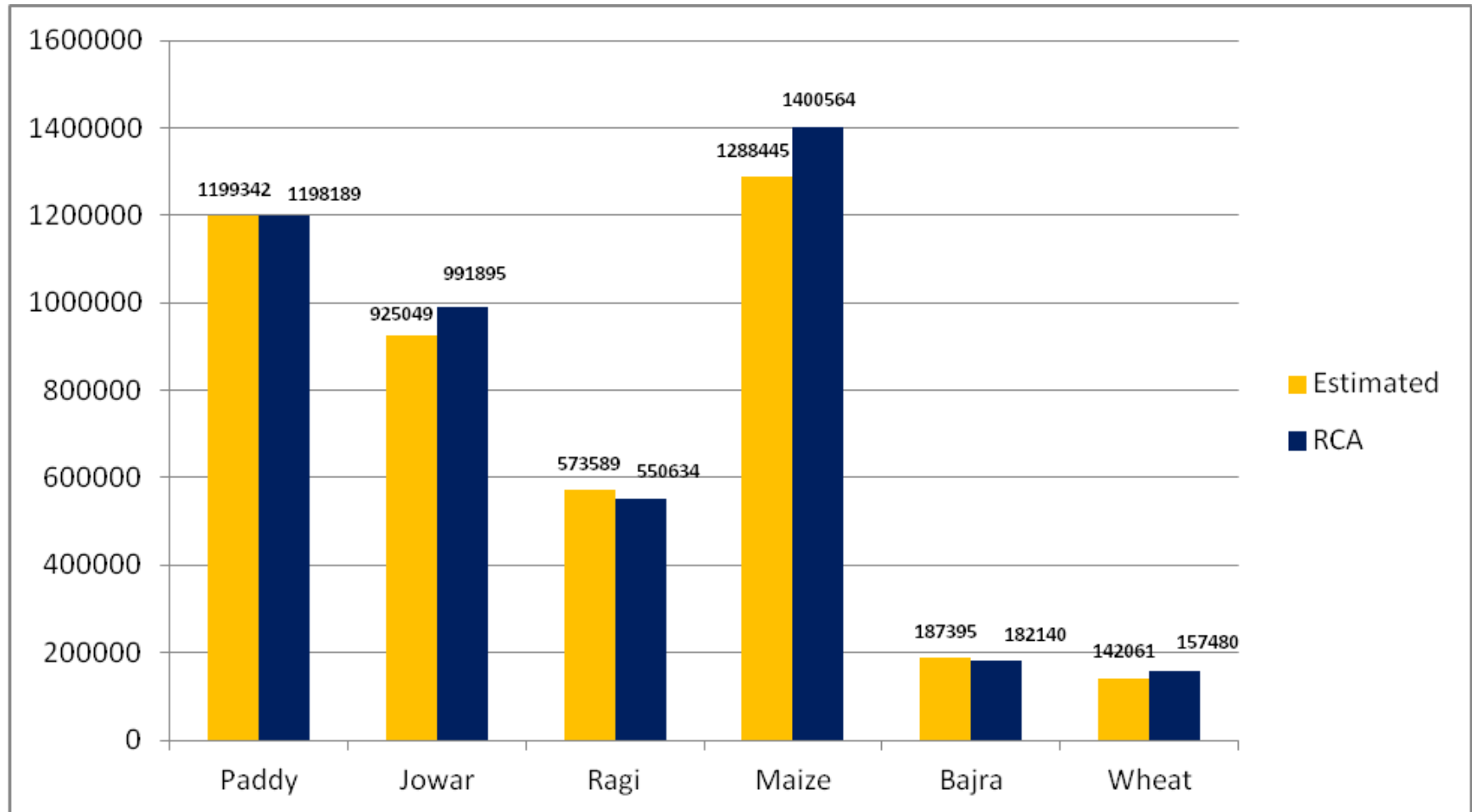


It can be seen from the above table that, under ratio method the estimated area under irrigation was 80781 hectares (56.9%) of which the area under high yielding variety was 97.5%. Under reconciled area, the area under irrigation was 103159 hectares (65.5%) of which area under high yielding varieties was 92.3%. The estimated total area was less in Ratio and unbiased methods 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 15.2 lakh hectares of area was under this crop during 2018-19 of which 6.0 lakh hectares grown in Kalaburagi and 5.2 lakh hectares in Vijayapura districts which constitutes 73.8% of the total area of the crop in the state. It is observed that the estimated area by ratio and unbiased were lower to the extent of -2.1% and -2.4% when compared to the reconciled area. Details of estimated area given in table 13 and districtwise details are given in Appendix - 2.5.

2.8 Bengalgram

Bengalgram is also an important pulse crop of the State grown in nearly 11.9 lakh hectares in rabi season. Vijayapura district is covered with 2.7 lakh hectares of area which works out to 22.7% of the total State area. The estimated area by ratio and unbiased methods were lower to the extent of -8.1% and -9.0% 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

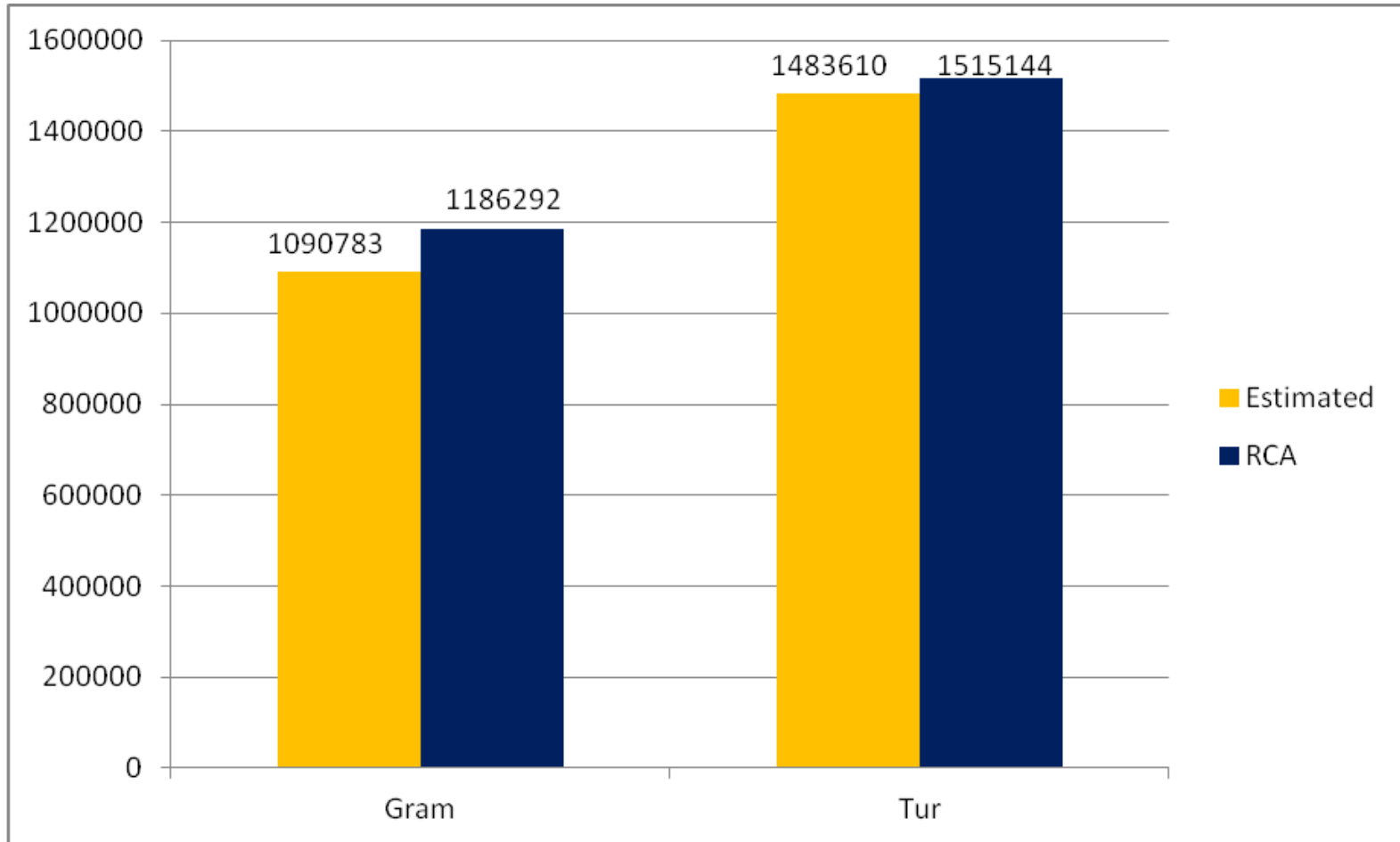
Area in hectares

Crop	Estimated area as per		Reconciled area	% variation over Reconciled area	
	Ratio	Unbiased		Ratio	Unbiased
1	2	3	4	5	6
Tur	1483610	1479263	1515144	-2.1	-2.4
Bengal gram	1090783	1079573	1186292	-8.1	-9.0

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 5.4 lakh hectares in the State. Though it is grown in Kharif, Rabi and Summer seasons, about 73.8% of the area is cultivated during kharif season alone. Predominant groundnut growing districts are Chitradurga (0.75 lakh hectares) and Tumakuru (0.64 lakh hectares), which accounted for 25.9% 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	% variation over Reconciled area	
	Ratio	Unbiased		Ratio	Unbiased
	1	2	3	4	5
Kharif	412367	412733	395999	4.1	4.2
Rabi & Summer	145970	147265	140926	3.6	4.5
Total	558337	559998	536925	4.0	4.3

The estimated area under ratio and unbiased method were higher side to the extent of 4.0% and 4.3% when compared with Reconciliation area. Variety wise and irrigated / un irrigated details are given in Table – 15.

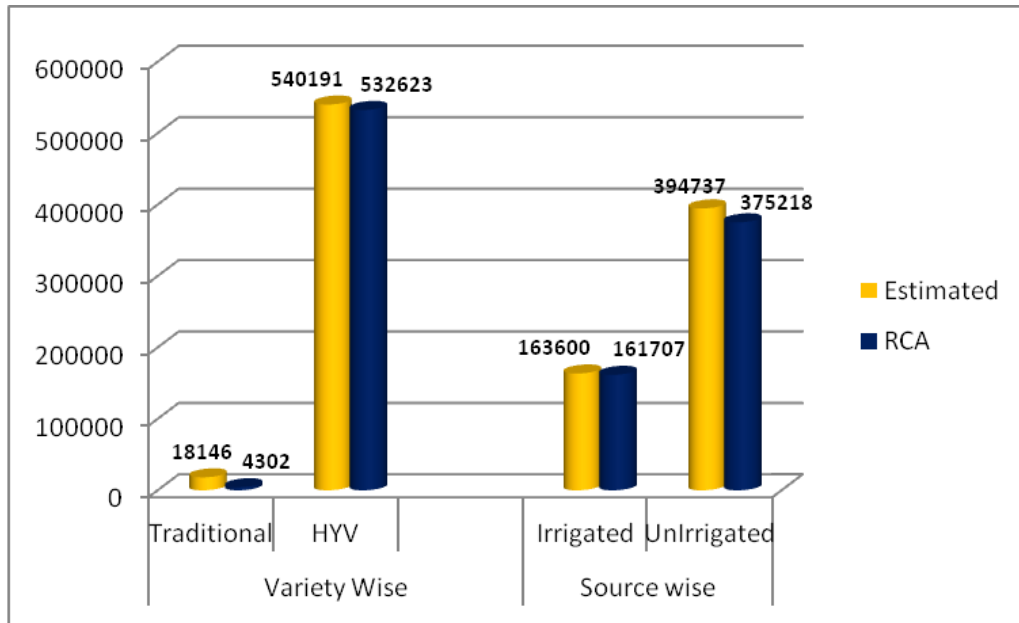
Table – 15

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	Rabi/ Summer	Total		
		1	2	3	4	5
Traditional	Irrigated	766	0	766	1552	50.6
	Unirrigated	16448	932	17380	2750	532.0
	Total	17214	932	18146	4302	321.80
High Yielding Variety	Irrigated	17796	145038	162834	160155	1.7
	Unirrigated	377357	0	377357	372468	1.31
	Total	395153	145038	540191	532623	1.4
Total	Irrigated	18562	145038	163600	161707	1.2
	Unirrigated	393805	932	394737	375218	5.2
	Total	412367	145970	558337	536925	4.0

Table-15

Estimated Area (Ratio Method) and Reconciled Area Under Groundnut Crop Variety wise and Source wise (Hectares)



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 1.2%. The total area under high yielding variety was also on higher side to the extent of 1.4% 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 1.4 lakh hectares in all three seasons in the State. Bagalkot had the largest area (0.40 lakh hectares) followed by Koppal (0.28 lakh hectares), Gadag (0.15 lakh hectares) and Ballari (0.13 lakh hectares). Total area in these four districts alone constitute 66.7% 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	84835	85586	94253	10.0	-9.2
Rabi	50273	54992	46437	8.3	18.4
Summer	2882	2869	2712	6.3	5.8
Total	137990	143447	143402	-3.8	0.0

It is seen from the above table that, the area estimated under ratio method was lower and unbiased method is slightly higher 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

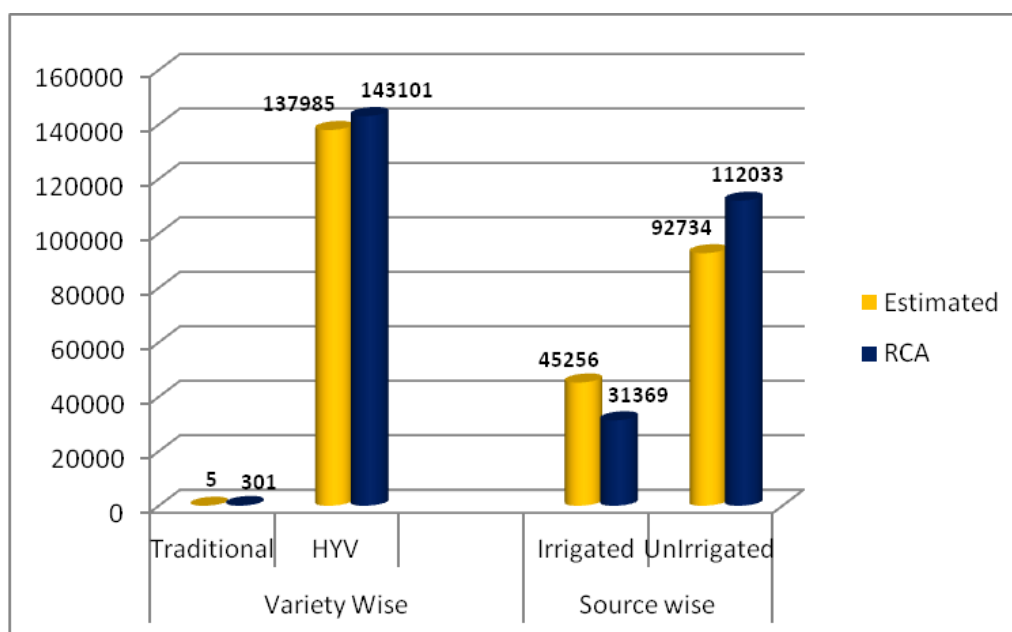
Season and Varietywise area Estimated under Ratio method under Sunflower

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	0	5	0	5	128	-96.1
	Unirrigated	0	0	0	0	173	-100
	Total	0	5	0	5	301	-98.3
Hybrid Variety	Irrigated	11965	30404	2882	45251	31241	44.8
	Unirrigated	72870	19864	0	92734	111860	-17.1
	Total	84835	50268	2882	137985	143101	-3.6
Total	Irrigated	11965	30409	2882	45256	31369	44.3
	Unirrigated	72870	19864	0	92734	112033	-17.2
	Total	84835	50273	2882	137990	143402	-3.8

Table-17

Estimated Area (Ratio Method) and Reconciled Area Under Sunflower Crop Variety wise and Source wise (Hectares)



It is clear from the above table that, in the ratio method area under traditional variety and hybrid variety was lower when compared to the reconciled area. The percentage variation of area estimated under ratio method over reconciled area was -3.8. Districtwise details are given in Appendix -2.7

2.11 Sesamum

Sesamum crop is grown in 0.25 lakh hectares, mainly in rainfed areas during kharif season only. It is largely grown in Koppal 0.09 lakh hectares, Mandya 0.03 lakh hectares and Chikkamagaluru 0.03 lakh hectares. Percentage variation of estimated area over reconciled area under ratio and unbiased methods were higher to the extent of 21.5 % and 24.7 % 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 0.17 lakh hectares of area was under the crop during 2018-19. It is largely grown in Bidar district (0.05 lakh hectares) followed by Dharwad (0.03 lakh hectares) and Gadag (0.02 lakh hectares). Estimated area by ratio method was 3.2% and under unbiased method was 2.9 % when compared to reconciled area. Districtwise area details are given in Appendix 2.8.

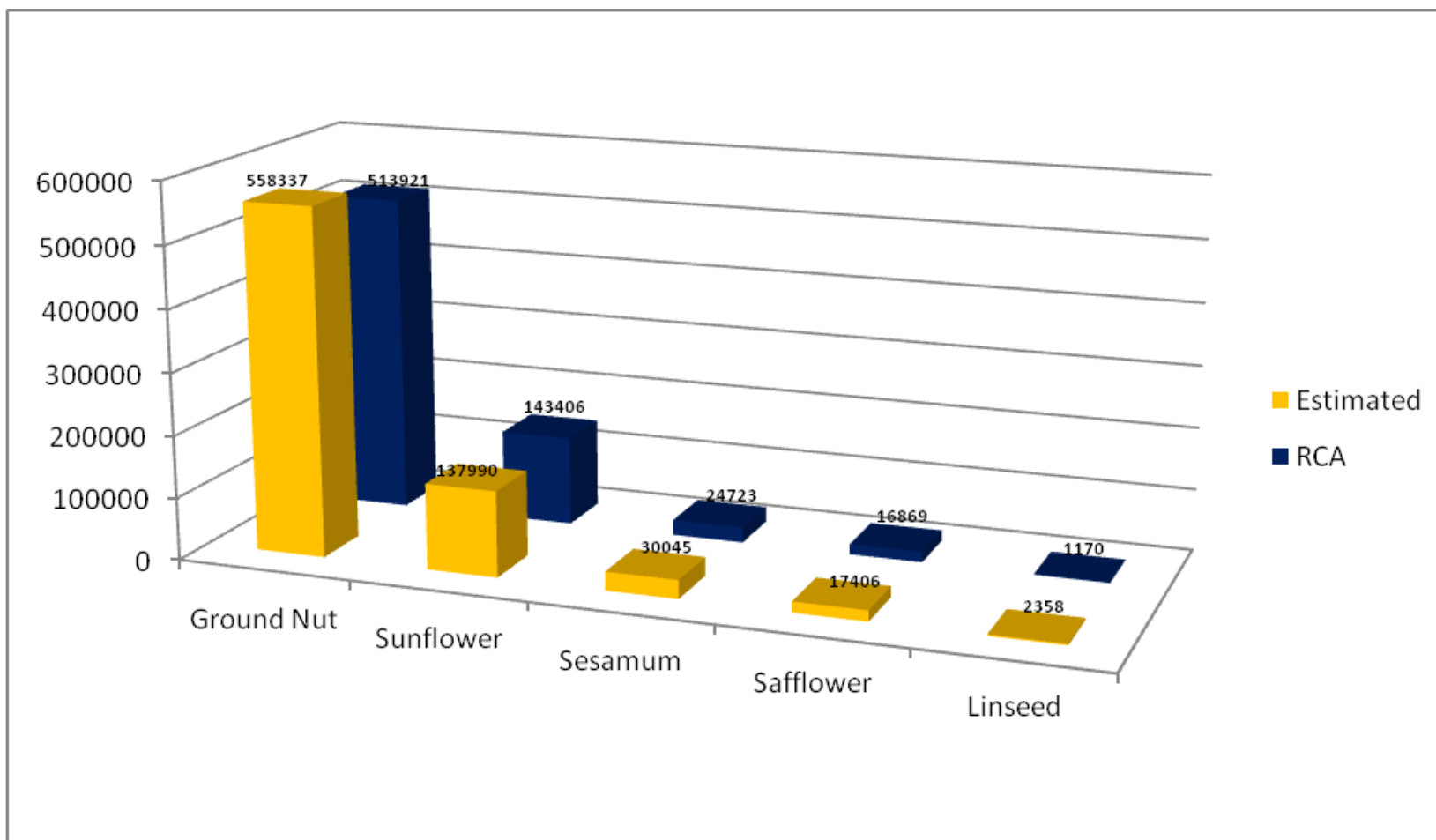
2.13 Linseed

Linseed is another oilseed crop grown in the State during rabi season only. Out of 0.01 lakh hectares of area about 39.2 % of area was sown in Bagalkot district. The estimated area as per ratio method was 2358 hectares and as per unbiased method it was 2327 hectares. Estimated area by ratio and unbiased methods was higher to the extent of 101.5% and 98.9% 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

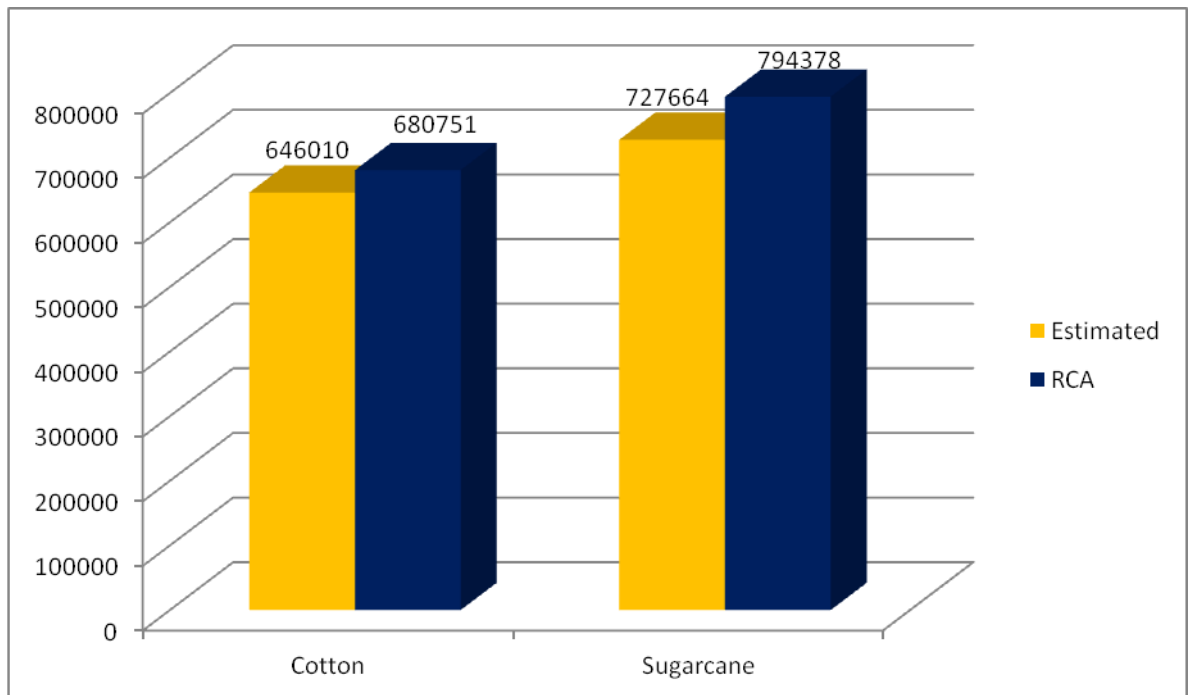
Cotton is an important cash crop largely grown in Yadgiri, Raichuru, Haveri, Kalaburagi, and Belagavi districts. 6.8 lakh hectares of area was covered under the crop during 2018-19. Estimated area by ratio and unbiased methods was 6.5 lakh hectares and 6.7 lakh hectares respectively. The variation of estimated area over reconciled area as per ratio and unbiased methods was -5.1 % and -2.3 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 7.9 lakh hectares of area under the crop 40.1 % of cropped area is found in Belagavi district alone followed by Bagalkot (22.4 %), Vijayapura (10.5%) and Mandya (7.1%). Estimated area by Ratio and Unbiased methods were lower to the extent of -8.4 and -9.2 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.

Chart-4
Estimated Area (Ratio Method) and Reconciled Area Under Cash Crops (Hectares)



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 5856 villages of the State, during 2018-19 which belong to the Third 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 During the year 2018-19 percentage of supervision by Statistics, Agriculture and Revenue Departments personnel was 100%, 98.25% & 98.75% respectively.
- 3.5 The estimated area under ratio method in respect of Paddy, Ragi, Bajra, Groundnut, Sesamum, Safflower and Linseed crops was high and low in case of Jowar, Maize, Tur, Wheat, Gram, Cotton, Sugarcane and Sunflower crops when compared to the reconciled area. Under unbiased method the estimated area in respect of Ragi, Bajra, Groundnut, Sesamum, Sunflower, 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 2018-19

Sl. No.	District	No. of villages selected	No. of villages from which crop abstracts received					
			Kharif	%	Rabi	%	Summer	%
1	Bagalkot	120	120	100.00	120	100.00	120	100.00
2	Bengaluru Urban	118	118	100.00	118	100.00	118	100.00
3	Bengaluru Rural	214	214	100.00	214	100.00	214	100.00
4	Belagavi	237	237	100.00	237	100.00	237	100.00
5	Ballari	127	127	100.00	127	100.00	127	100.00
6	Bidar	126	126	100.00	126	100.00	126	100.00
7	Vijayapura	128	128	100.00	128	100.00	128	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	223	223	100.00	223	100.00	223	100.00
11	Chitradurga	210	210	100.00	210	100.00	210	100.00
12	D. Kannada	73	73	100.00	73	100.00	73	100.00
13	Davanagere	169	169	100.00	169	100.00	169	100.00
14	Dharwad	78	78	100.00	78	100.00	78	100.00
15	Gadag	65	65	100.00	65	100.00	65	100.00
16	Kalaburagi	185	185	100.00	185	100.00	185	100.00
17	Hassan	515	515	100.00	515	100.00	515	100.00
18	Haveri	140	140	100.00	140	100.00	140	100.00
19	Kodagu	55	55	100.00	55	100.00	55	100.00
20	Kolar	360	360	100.00	360	100.00	360	100.00
21	Koppal	126	126	100.00	126	100.00	126	100.00
22	Mandya	295	295	100.00	295	100.00	295	100.00
23	Mysuru	271	271	100.00	271	100.00	271	100.00
24	Raichuru	177	177	100.00	177	100.00	177	100.00
25	Ramanagara	165	165	100.00	165	100.00	165	100.00
26	Shivamogga	318	318	100.00	318	100.00	318	100.00
27	Tumakuru	540	540	100.00	540	100.00	540	100.00
28	Udupi	53	53	100.00	53	100.00	53	100.00
29	U.Kannada	270	270	100.00	270	100.00	270	100.00
30	Yadgiri	102	102	100.00	102	100.00	102	100.00
TOTAL		5856	5856	100.00	5856	100.00	5856	100.00

APPENDIX - 2.1

Cropwise and Seasonwise, ratio and unbiased estimates and reconciled area for the year 2018-19

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	54	0	0	0	0	0	0	0	0	54
2	Bengaluru Urban	136	103	328	7	8	0	13	13	33	156	124	361
3	Bengaluru Rural	529	445	162	0	0	0	110	167	79	639	612	241
4	Belagavi	53422	53045	53500	0	0	0	32	30	30	53454	53075	53530
5	Ballari	102620	104864	101956	0	0	1550	30940	31006	30541	133560	135870	134047
6	Bidar	433	490	617	0	0	0	0	0	0	433	490	617
7	Vijayapura	0	0	91	0	0	0	0	0	0	0	0	91
8	Chamarajanagar	10553	11403	9789	460	447	393	280	183	253	11293	12033	10435
9	Chikkaballapura	1750	1682	583	0	0	0	0	0	1	1750	1682	584
10	Chikkamagaluru	19653	19886	17524	0	0	0	1893	2088	1892	21546	21974	19416
11	Chitradurga	566	672	774	694	787	36	0	35	33	1260	1494	843
12	D. Kannada	9209	9113	6017	3252	2910	3356	0	0	0	12461	12023	9373
13	Davanagere	79639	80795	77568	0	0	0	52204	51054	51959	131843	131849	129527
14	Dharwad	8849	9362	11104	0	0	0	0	15	4	8849	9377	11108
15	Gadag	3400	4011	2483	0	0	0	1343	1232	1221	4743	5243	3704
16	Kalaburagi	7206	8092	7945	1066	1598	710	1600	1510	1428	9872	11200	10083
17	Hassan	47032	47951	46251	0	0	0	480	415	551	47512	48366	46802
18	Haveri	29696	29850	31892	0	0	0	5319	5547	5396	35015	35397	37288
19	Kodagu	18238	18497	19006	8	10	5	0	0	12	18246	18507	19023
20	Kolar	2020	2116	3222	0	0	0	0	0	0	2020	2116	3222
21	Koppal	60041	59319	60971	0	0	0	14075	13848	14214	74116	73167	75185
22	Mandya	58391	59766	58464	128	126	70	9125	9205	9496	67644	69097	68030
23	Mysuru	85337	86574	91304	0	0	0	8646	8545	8440	93983	95119	99744
24	Raichuru	165157	166742	162181	0	0	0	12700	12454	12753	177857	179196	174934
25	Ramanagara	3635	3702	3024	5	8	0	114	318	150	3754	4028	3174
26	Shivamogga	95056	96241	85050	87	73	36	10087	10053	9803	105230	106367	94889
27	Tumakuru	5393	5587	6432	0	0	3	492	599	523	5885	6186	6958
28	Udupi	28618	28244	30918	3612	3370	3635	51	129	45	32281	31743	34598
29	U.Kannada	47768	27989	50987	1173	1067	1283	566	595	474	49507	29651	52744
30	Yadgiri	92783	93948	95558	0	0	364	1650	1550	1662	94433	95498	97584
STATE TOTAL		1037130	1030489	1035755	10492	10404	11441	151720	150591	150993	1199342	1191484	1198189

RCA - Reconciled Crop Area

APPENDIX - 2.2

Cropwise and Seasonwise estimated area under ratio & unbiased methods and reconciled area during 2018-19

Crop : Jowar

Area in hectares

Sl. No.	District	Kharif			Rabi			Total		
		Ratio	Unbiased	RCA	Ratio	Unbiased	RCA	Ratio	Unbiased	RCA
1	Bagalkot	3524	3379	1144	103698	103852	95092	107222	107231	96236
2	Bengaluru Urban	0	0	365	0	0	0	0	0	365
3	Bengaluru Rural	400	403	546	0	0	0	400	403	546
4	Belagavi	22663	22678	15463	118804	121756	118413	141467	144434	133876
5	Ballari	10361	10375	11750	14171	13850	15698	24532	24225	27448
6	Bidar	20986	21180	13177	13642	14784	16350	34628	35964	29527
7	Vijayapura	0	0	0	141058	140895	149508	141058	140895	149508
8	Chamarajanagar	10749	10292	8845	0	0	0	10749	10292	8845
9	Chikkaballapura	0	0	14887	0	0	0	0	0	14887
10	Chikkamagaluru	521	415	1844	5686	6227	11555	6207	6642	13399
11	Chitradurga	4266	4512	2022	4375	3366	1952	8641	7878	3974
12	D. Kannada	0	0	0	0	0	0	0	0	0
13	Davanagere	2328	2628	2943	2648	2589	2267	4976	5217	5210
14	Dharwad	2051	2067	1430	43431	43505	47632	45482	45572	49062
15	Gadag	6797	7011	1696	64662	64588	63597	71459	71599	65293
16	Kalaburagi	3774	4384	0	115165	113093	124811	118939	117477	124811
17	Hassan	1918	2220	12000	258	351	510	2176	2571	12510
18	Haveri	1227	1310	948	45514	46101	46441	46741	47411	47389
19	Kodagu	0	0	0	0	0	0	0	0	0
20	Kolar	0	0	1089	0	0	0	0	0	1089
21	Koppal	3204	2965	2418	0	0	37078	3204	2965	39496
22	Mandya	0	0	3257	0	0	0	0	0	3257
23	Mysuru	5949	5659	9690	31	64	163	5980	5723	9853
24	Raichuru	0	0	5112	127499	128168	122630	127499	128168	127742
25	Ramanagara	0	0	1702	0	0	0	0	0	1702
26	Shivamogga	5	18	109	12	55	73	17	73	182
27	Tumakuru	2358	2410	1870	0	0	290	2358	2410	2160
28	Udupi	0	0	4	0	0	0	0	0	4
29	U.Kannada	0	0	73	0	0	0	0	0	73
30	Yadgiri	2068	2010	97	19246	18305	23354	21314	20315	23451
STATE TOTAL		105149	105916	114481	819900	821549	877414	925049	927465	991895

RCA - Reconciled Crop Area

APPENDIX - 2.3

Cropwise and Seasonwise estimated area under ratio & unbiased methods and reconciled area during 2018 - 19

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	11005	0	24	0	0	0	0	0	0	11005	0	24
2	Bengaluru Urban	37382	11220	10611	56	73	30	8	6	20	37446	11299	10661
3	Bengaluru Rural	1150	37054	38353	37	28	141	20	21	40	1207	37103	38534
4	Belagavi	0	1038	1036	0	0	0	0	0	0	0	1038	1036
5	Ballari	0	0	4993	2647	2906	2610	670	668	684	3317	3574	8287
6	Bidar	0	0	12	0	0	0	0	0	0	0	0	12
7	Vijayapura	12957	0	77	0	0	0	0	0	0	12957	0	77
8	Chamarajanagar	24110	12426	8681	238	247	285	104	128	95	24452	12801	9061
9	Chikkaballapura	26963	24273	32260	0	0	34	100	120	54	27063	24393	32348
10	Chikkamagaluru	28637	25993	26956	0	0	0	0	0	0	28637	25993	26956
11	Chitradurga	0	28762	19025	2233	2558	1752	815	828	809	3048	32148	21586
12	D. Kannada	7342	0	0	0	0	0	0	0	0	7342	0	0
13	Davanagere	0	7104	9228	146	156	1921	231	258	236	377	7518	11385
14	Dharwad	0	0	67	0	0	2	0	0	0	0	0	69
15	Gadag	0	0	35	0	0	0	0	240	0	0	240	35
16	Kalaburagi	67132	0	69	0	0	0	0	0	0	67132	0	69
17	Hassan	156	66897	63784	1443	1080	8646	0	28	40	1599	68005	72470
18	Haveri	0	221	267	0	0	9	0	0	1	0	221	277
19	Kodagu	48820	0	62	0	0	0	0	0	0	48820	0	62
20	Kolar	0	49683	44077	0	0	22	0	0	21	0	49683	44120
21	Koppal	37116	0	69	0	0	0	0	0	0	37116	0	69
22	Mandya	52505	37114	35845	8303	8457	7884	1832	1720	1585	62640	47291	45314
23	Mysuru	0	56100	33236	12610	12574	12759	153	124	144	12763	68798	46139
24	Raichuru	53851	0	84	0	0	0	0	0	0	53851	0	84
25	Ramanagara	406	55038	50030	0	100	124	101	111	153	507	55249	50307
26	Shivamogga	131923	363	419	0	0	3	31	29	18	131954	392	440
27	Tumakuru	0	133773	130727	0	6	93	356	399	376	356	134178	131196
28	Udupi	0	0	0	0	0	0	0	0	0	0	0	0
29	U.Kannada	0	0	3	0	0	3	0	0	0	0	0	6
30	Yadgiri	0	0	10	0	0	0	0	0	0	0	0	10
STATE TOTAL		541455	547059	510040	27713	28185	36318	4421	4680	4276	573589	579924	550634

RCA - Reconciled Crop Area

APPENDIX - 2.4

Cropwise and Seasonwise estimated area under ratio, & unbiased methods and reconciled area during 2018-19

Crop : Maize

Area in hectares

Sl. No.	District	Kharif			Rabi			Summer			Total		
		Ratio	Unbiased	RCA	Ratio	Unbiased	RCA	Ratio	Unbiased	RCA	Ratio	Unbiased	RCA
1	Bagalkot	47992	47508	48517	2263	2404	17465	2015	2044	1949	52270	51956	67931
2	Bengaluru Urban	869	1030	1071	30	61	96	7	8	40	906	1099	1207
3	Bengaluru Rural	9572	10281	10411	46	57	68	17	24	25	9635	10362	10504
4	Belagavi	100898	102656	127171	29728	30275	27566	4892	4785	4942	135518	137716	159679
5	Ballari	108176	109741	115308	1032	1895	14595	51	41	325	109259	111677	130228
6	Bidar	810	790	1349	0	0	105	0	0	36	810	790	1490
7	Vijayapura	30575	31415	44173	1595	1459	1124	576	519	513	32746	33393	45810
8	Chamarajanagar	20851	20807	24274	4057	4266	3662	1266	1178	1210	26174	26251	29146
9	Chikkaballapura	43451	44030	32510	0	0	147	60	75	142	43511	44105	32799
10	Chikkamagaluru	20396	21124	20592	0	0	0	0	0	0	20396	21124	20592
11	Chitradurga	99995	99521	102901	2714	3196	1192	453	416	473	103162	103133	104566
12	D. Kannada	0	0	0	0	0	0	0	0	0	0	0	0
13	Davanagere	199882	198727	204832	752	680	420	541	540	499	201175	199947	205751
14	Dharwad	32832	32465	40000	3691	3664	2361	0	0	289	36523	36129	42650
15	Gadag	51521	53130	52874	3686	4414	2066	0	8	7	55207	57552	54947
16	Kalaburagi	1717	1930	1945	237	350	39	226	224	277	2180	2504	2261
17	Hassan	85576	103930	86040	4570	5024	1387	87	83	99	90233	109037	87526
18	Haveri	177674	178618	179759	8958	9868	8803	2819	2970	2753	189451	191456	191315
19	Kodagu	357	560	2237	0	0	0	0	0	0	357	560	2237
20	Kolar	1732	1827	1098	0	0	0	0	0	0	1732	1827	1098
21	Koppal	64681	65331	67180	0	0	5496	650	638	614	65331	65969	73290
22	Mandya	2754	2758	2799	390	276	297	284	218	394	3428	3252	3490
23	Mysuru	10692	10675	21051	6301	6888	5104	188	191	102	17181	17754	26257
24	Raichuru	506	490	4077	450	577	522	0	0	0	956	1067	4599
25	Ramanagara	2240	2266	2470	0	0	391	395	342	465	2635	2608	3326
26	Shivamogga	47396	46531	55206	556	752	536	3836	3857	3854	51788	51140	59596
27	Tumakuru	28369	28579	29348	0	0	2	0	0	20	28369	28579	29370
28	Udupi	0	0	1	0	0	0	0	0	1	0	0	2
29	U.Kannada	6853	6643	8119	138	135	173	490	482	477	7481	7260	8769
30	Yadgiri	31	93	127	0	0	1	0	0	0	31	93	128
STATE TOTAL		1198398	1223456	1287440	71194	76241	93618	18853	18643	19506	1288445	1318340	1400564

RCA - Reconciled Crop Area

APPENDIX - 2.5

Cropwise estimated area under ratio & unbiased methods and reconciled area during 2018-19

Area in hectares

Sl. No	District	Bajra			Wheat			Tur			Bengalgram		
		Ratio	Unbiased	RCA	Ratio	Unbiased	RCA	Ratio	Unbiased	RCA	Ratio	Unbiased	RCA
1	Bagalkot	19132	18592	18210	25017	26523	24665	43873	44002	42564	108412	108664	109255
2	Bengaluru Urban	0	0	9	0	0	0	476	550	461	0	0	0
3	Bengaluru Rural	0	0	11	0	0	0	1206	1207	816	0	0	81
4	Belagavi	7863	7797	9033	36267	35666	38759	13203	13122	14882	103946	102844	104888
5	Ballari	18453	18624	14832	0	0	18	4446	4163	9434	23512	22230	26003
6	Bidar	380	616	397	1330	1193	2927	79881	80620	74325	38395	38029	49509
7	Vijayapura	15131	15257	19373	33334	32173	35336	496127	485241	520937	261213	250856	268725
8	Chamarajanagar	694	760	502	0	0	1	1610	2095	962	4245	4486	4035
9	Chikkaballapura	0	25	210	0	0	0	4251	3924	4417	0	0	91
10	Chikkamagaluru	0	0	35	0	0	0	458	321	332	7936	7820	13595
11	Chitradurga	1991	1917	1912	248	239	231	7533	7391	4054	41558	41934	36624
12	D. Kannada	0	0	4	0	0	0	0	0	1	0	0	0
13	Davanagere	617	766	771	466	413	209	1153	1229	8048	4783	4626	3613
14	Dharwad	0	0	19	30208	30450	29262	901	860	628	91954	89714	85477
15	Gadag	4991	5374	3617	7539	8925	14327	2545	2327	2975	139105	140396	110412
16	Kalaburagi	6804	6644	1682	6721	7285	6349	560915	566920	596689	128092	126629	122055
17	Hassan	0	0	96	0	0	0	390	471	1138	143	116	1104
18	Haveri	0	0	6	930	1019	700	393	418	1463	3551	3652	3952
19	Kodagu	0	0	0	0	0	0	0	0	0	0	0	0
20	Kolar	0	0	98	0	0	0	1918	2015	2053	0	0	0
21	Koppal	73301	71201	67047	0	0	4351	43428	42222	24740	0	0	63150
22	Mandya	0	0	13	0	0	0	561	485	342	0	0	4
23	Mysuru	0	0	18	0	0	0	3477	3229	3767	909	835	606
24	Raichuru	25231	26309	36049	0	0	25	103611	104105	78092	126083	129093	175832
25	Ramanagara	0	0	7	0	0	0	1741	1657	1380	0	0	0
26	Shivamogga	0	37	2	0	0	0	130	135	24	7	11	9
27	Tumakuru	0	0	140	0	0	0	10294	11082	10499	0	48	605
28	Udupi	0	0	0	0	0	0	0	0	0	0	0	0
29	U.Kannada	0	0	1	0	0	0	1	1	1	0	0	3
30	Yadgiri	12807	12887	8046	1	2	320	99088	99471	110120	6939	7590	6664
STATE TOTAL		187395	186806	182140	142061	143888	157480	1483610	1479263	1515144	1090783	1079573	1186292

RCA - Reconciled Crop Area

APPENDIX - 2.6

Cropwise and Seasonwise estimated area under ratio & unbiased methods and reconciled area during 2018-19

Crop : Groundnut

Area in hectares

Sl. No.	District	Kharif			Rabi/Summer			Total		
		Ratio	Unbiased	RCA	Ratio	Unbiased	RCA	Ratio	Unbiased	RCA
1	Bagalkot	1661	1758	2886	28508	29450	25484	30169	31208	28370
2	Bengaluru Urban	0	10	86	0	0	1	0	10	87
3	Bengaluru Rural	108	182	158	0	0	4	108	182	162
4	Belagavi	19935	19770	25559	5571	5476	5107	25506	25246	30666
5	Ballari	52977	52764	54438	3944	3821	5051	56921	56585	59489
6	Bidar	0	0	30	0	4	6	0	4	36
7	Vijayapura	5816	5690	7436	7051	7055	6737	12867	12745	14173
8	Chamarajanagar	3513	3515	4437	0	0	0	3513	3515	4437
9	Chikkaballapura	36760	36574	24982	15	26	1	36775	36600	24983
10	Chikkamagaluru	429	466	4960	0	0	12	429	466	4972
11	Chitradurga	131980	131551	74641	440	470	433	132420	132021	75074
12	D. Kannada	0	0	0	0	0	0	0	0	0
13	Davanagere	13368	12738	14404	385	336	289	13753	13074	14693
14	Dharwad	13791	14691	30768	270	580	224	14061	15271	30992
15	Gadag	26905	27462	37914	2188	2178	2165	29093	29640	40079
16	Kalaburagi	1324	1319	1395	5974	5980	5614	7298	7299	7009
17	Hassan	94	56	310	0	0	20	94	56	330
18	Haveri	15860	14528	18829	1167	1164	1014	17027	15692	19843
19	Kodagu	0	0	0	0	0	8	0	0	8
20	Kolar	11766	12147	12104	0	0	0	11766	12147	12104
21	Koppal	10905	11279	11973	19395	18379	18825	30300	29658	30798
22	Mandya	204	150	344	0	0	145	204	150	489
23	Mysuru	351	442	1673	0	0	0	351	442	1673
24	Raichuru	1428	1386	585	33840	34100	33281	35268	35486	33866
25	Ramanagara	1220	1282	1170	0	0	0	1220	1282	1170
26	Shivamogga	7	85	97	27	28	39	34	113	136
27	Tumakuru	53568	53503	63162	602	616	601	54170	54119	63763
28	Udupi	0	0	1	1651	1670	1805	1651	1670	1806
29	U.Kannada	50	56	22	932	892	961	982	948	983
30	Yadgiri	8347	9329	1635	34010	35040	33099	42357	44369	34734
STATE TOTAL		412367	412733	395999	145970	147265	140926	558337	559998	536925

RCA - Reconciled Crop Area

APPENDIX - 2.7

Cropwise and Seasonwise ratio, unbiased estimates and reconciled area for the year 2018-19

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	7860	7917	32562	17095	17927	6307	1157	1188	1026	26112	27032	39895
2	Bengaluru Urban	0	0	1	0	0	0	0	0	0	0	0	1
3	Bengaluru Rural	0	0	1	0	0	0	0	0	0	0	0	1
4	Belagavi	4294	4628	6663	5097	5507	4992	508	495	483	9899	10630	12138
5	Ballari	27190	27181	7312	6423	6799	5954	0	27	10	33613	34007	13276
6	Bidar	0	0	23	0	0	0	0	0	0	0	0	23
7	Vijayapura	5177	5592	7034	3153	3296	1960	0	0	0	8330	8888	8994
8	Chamarajanagar	2449	2584	5914	0	0	98	0	0	16	2449	2584	6028
9	Chikkaballapura	0	0	0	0	0	0	0	0	0	0	0	0
10	Chikkamagaluru	118	289	1717	0	0	0	0	0	0	118	289	1717
11	Chitradurga	2219	2192	849	955	855	234	0	0	0	3174	3047	1083
12	D. Kannada	0	0	0	0	0	0	0	0	0	0	0	0
13	Davanagere	359	341	569	88	79	177	50	60	20	497	480	766
14	Dharwad	0	0	55	1311	3725	565	0	0	0	1311	3725	620
15	Gadag	12275	11102	7867	11648	11963	6807	15	13	15	23938	23078	14689
16	Kalaburagi	6851	7593	6891	689	915	572	0	0	9	7540	8508	7472
17	Hassan	0	0	2	0	0	0	0	0	0	0	0	2
18	Haveri	850	923	758	2939	3096	2929	171	178	189	3960	4197	3876
19	Kodagu	0	0	0	0	0	0	0	0	0	0	0	0
20	Kolar	0	0	1	0	0	0	0	0	0	0	0	1
21	Koppal	11666	11543	11784	0	0	15131	893	818	847	12559	12361	27762
22	Mandya	0	0	5	0	0	0	0	0	0	0	0	5
23	Mysuru	94	71	1108	0	0	0	0	0	0	94	71	1108
24	Raichuru	2725	2978	2412	77	20	365	0	0	25	2802	2998	2802
25	Ramanagara	0	0	1	0	0	0	0	0	0	0	0	1
26	Shivamogga	0	0	12	793	805	328	88	90	72	881	895	412
27	Tumakuru	143	101	98	0	0	0	0	0	0	143	101	98
28	Udupi	0	0	0	0	0	0	0	0	0	0	0	0
29	U.Kannada	0	0	1	5.45	5	3	0	0	0	5.45	5	4
30	Yadgiri	565	551	613	0	0	15	0	0	0	565	551	628
STATE TOTAL		84835	85586	94253	50273	54992	46437	2882	2869	2712	137990	143447	143402

RCA - Reconciled Crop Area

APPENDIX - 2.8

Cropwise and Seasonwise, ratio, unbiased estimates and reconciled area for the year 2018-19

Area in hectares

Sl. No.	District	Safflower			Linseed			Sesamum		
		Ratio	Unbiased	RCA	Ratio	Unbiased	RCA	Ratio	Unbiased	RCA
1	Bagalkot	737	724	260	500	504	459	72	80.51	248
2	Bengaluru Urban	0	0	0	0	0	0	0	0	7
3	Bengaluru Rural	0	0	0	0	0	0	0	0	1
4	Belagavi	1434	1414	1158	152	140	125	69	78	24
5	Ballari	850	757	906	0	0	0	0	0	100
6	Bidar	3254	3308	4797	128	119	69	540	360	898
7	Vijayapura	324	498	1702	1044	1072	331	93	118	83
8	Chamarajanagar	0	0	0	0	0	0	539	513	700
9	Chikkaballapura	0	0	0	0	0	0	0	0	3
10	Chikkamagaluru	0	0	0	0	0	0	2764	2790	2605
11	Chitradurga	1408	1520	1127	0	0	0	200	200	147
12	D. Kannada	0	0	0	0	0	0	0	0	0
13	Davanagere	0	0	0	0	0	0	0	0	24
14	Dharwad	6810	6727	3444	0	0	7	0	0	16
15	Gadag	1690	1676	1833	73	81	20	52	43	204
16	Kalaburagi	599	442	465	0	0	26	8512	8414	2355
17	Hassan	0	0	0	0	0	0	891	900	2518
18	Haveri	300	299	267	11	1	12	5	35	6
19	Kodagu	0	0	0	0	0	0	0	0	0
20	Kolar	0	0	0	0	0	0	0	0	11
21	Koppal	0	0	551	450	410	121	3713	4634	9022
22	Mandya	0	0	0	0	0	0	4620	4525	3024
23	Mysuru	0	0	0	0	0	0	7325	7326	1729
24	Raichuru	0	0	247	0	0	0	650	810	615
25	Ramanagara	0	0	0	0	0	0	0	0	287
26	Shivamogga	0	0	0	0	0	0	0	0	1
27	Tumakuru	0	0	0	0	0	0	0	0	53
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	0	0	112	0	0	0	0	0	42
STATE TOTAL		17406	17365	16869	2358	2327	1170	30045	30827	24723

RCA - Reconciled Crop Area

APPENDIX 2.9

Cropwise estimated area under ratio & unbiased methods and reconciled area during 2018-19

Area in hectares

Sl. No.	District	Cotton			Sugarcane		
		Ratio	Unbiased	RCA	Ratio	Unbiased	RCA
1	Bagalkot	1805	1927	1006	165140	161024	177782
2	Bengaluru Urban	0	0	14	0	0	43
3	Bengaluru Rural	0	0	3	0	0	9
4	Belagavi	101329	101299	59350	286492	283802	318415
5	Ballari	47708	49830	45175	12677	11161	12631
6	Bidar	8975	8699	447	30876	30279	18919
7	Vijayapura	35272	35383	34569	81085	82001	83558
8	Chamarajanagar	14165	14024	7097	7924	7658	11443
9	Chikkaballapura	0	0	118	0	0	189
10	Chikkamagaluru	0	0	1689	965	910	643
11	Chitradurga	15159	15752	9483	0	0	21
12	D. Kannada	0	0	0	0	0	10
13	Davanagere	5400	6010	3327	2155	2120	3616
14	Dharwad	89666	90007	53005	10204	10816	11922
15	Gadag	29380	31517	25671	3283	3136	5355
16	Kalaburagi	58120	69200	68183	38860	38218	41618
17	Hassan	0	0	49	3410	3500	4055
18	Haveri	75835	76340	80922	10435	10947	15214
19	Kodagu	0	0	0	0	0	0
20	Kolar	0	0	0	0	0	69
21	Koppal	3320	3410	7110	1318	1400	3717
22	Mandya	0	0	4	51820	52708	56473
23	Mysuru	46333	46600	43452	10233	10417	13470
24	Raichuru	38120	38101	90389	180	190	798
25	Ramanagara	0	0	1	525	550	396
26	Shivamogga	956	900	1495	1913	2000	2121
27	Tumakuru	810	899	1512	0	0	879
28	Udupi	0	0	0	0	0	43
29	U.Kannada	0	0	896	7149	7143	9766
30	Yadgiri	73657	75124	145784	1020	1114	1203
STATE TOTAL		646010	665022	680751	727664	721094	794378

RCA - Reconciled Crop Area

APPENDIX - 3

Cropwise Percentage variation of ratio and unbiased estimates of area over reconciled area for the years from 2017-18 to 2018-19

Sl. No.	Crop	2017-18		2018-19	
		% variation over RCA		% variation over RCA	
		Ratio	Unbiased	Ratio	Unbiased
1	2	3	4	5	6
	<u>Kharif</u>				
1	Paddy	-5.8	-4.7	0.1	-0.5
2	Jowar	1.1	0.8	-8.2	-7.5
3	Ragi	0.9	0.8	6.2	7.3
4	Bajra	1.5	4.4	2.9	2.6
5	Maize	0	-0.3	-6.9	-5.0
6	Tur	0.2	0	-2.1	2.4
7	Groundnut	-0.2	0.8	4.1	4.2
8	Sesamum	-5.9	-4.6	21.5	24.7
9	Sunflower	-7.6	-6.1	10.0	-9.2
	<u>Rabi</u>				
1	Paddy	0.2	0.8	-8.3	-9.1
2	Jowar	0.9	0.4	-6.6	-6.4
3	Ragi	0.1	-3.2	-23.7	-22.4
4	wheat	0.0	0.3	-9.8	-8.6
5	Maize	-4.0	-4.2	-24.0	-18.6
6	Gram	7.5	4.1	-8.1	-9.0
7	Cotton	0.1	0.6	-5.1	-2.3
8	Sugarcane	-16.6	-15.9	-8.4	-9.2
9	Sunflower	-0.3	-1.5	8.3	18.4
10	Safflower	-1.3	0.8	3.2	2.9
11	Linseed	-4.9	1.5	101.5	98.9
	<u>Summer</u>				
1	Paddy	-0.2	1.0	0.5	0.03
2	Maize	1.9	1.1	-3.3	-4.4
3	Ragi	1.0	3.9	3.4	9.4
4	Groundnut (Rabi & Summer)	1.1	0.4	3.6	4.5
5	Sunflower	6.1	3.1	6.3	5.8

RCA - Reconciled Crop Area