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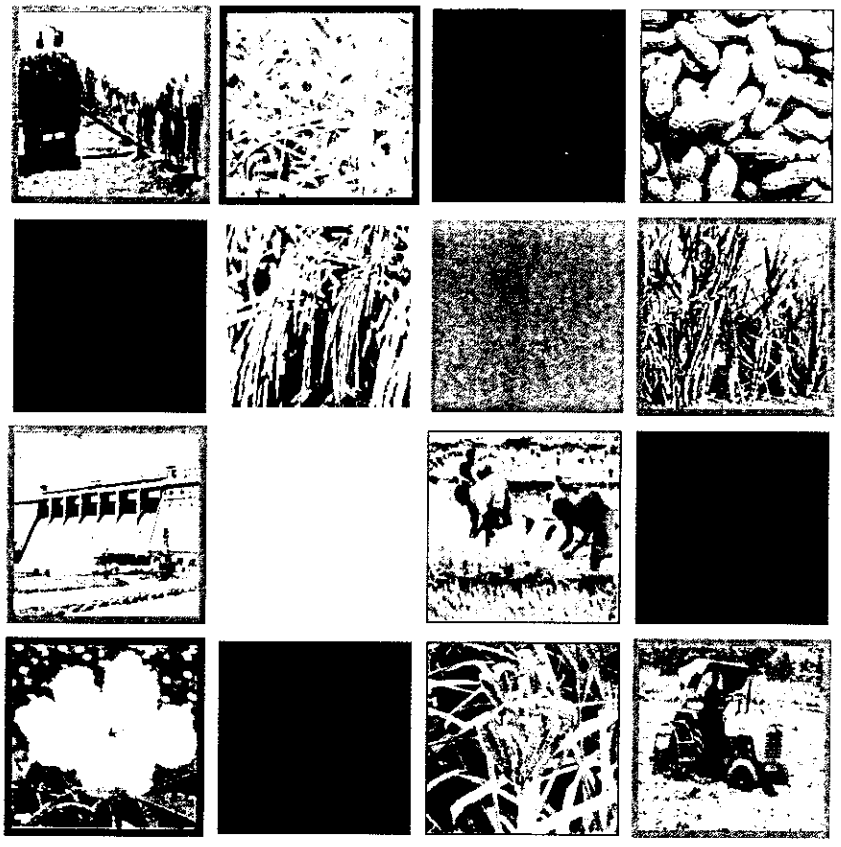
Report on
Improvement of Crop Statistics
Tamil Nadu
2012 - 13
Fasli 1422



Department of Economics and Statistics
Chennai

REPORT ON

IMPROVEMENT OF CROP STATISTICS SCHEME

TAMILNADU

2012 - 13

FASLI - 1422

DEPARTMENT OF ECONOMICS AND STATISTICS

CHENNAI- 600 006.

PREFACE

The Scheme for "Improvement of Crop Statistics " was launched in 1973 -74 as a joint effort of the NSSO, Government of India and Department of Economics and Statistics of the State Government, with an objective to locate the deficiencies in the system of Crop area and yield statistics by exercising technical supervision over the primary field work and suggesting remedial measures for improving the system towards achieving overall improvement of agricultural statistics.

The objectives, design, plan of work, estimation procedure etc are presented in this report together with analytical study of the results obtained as a result of the execution of the scheme during 2012-13.

The efforts put forth by the field officials of the National Sample Survey Organization and the Department of Economics and Statistics in data collection, tabulation, analysis and preparation of the report deserve appreciation.

Suggestions for further improvement of this report are solicited for perfecting it further.

Sd/-V.Iraianbu.
Principal Secretary/Commissioner.

Place: Chennai-6
Date :30.04.2015.

1.INTRODUCTION

1.1 GENESIS OF THE SURVEY

The official statistics on area under various crops are recorded at village level in Tamil Nadu by the Village Administrative Officers (V.A.O). But quite often the area statistics thus compiled are either found to be incomplete or inaccurate, the reason attributed thereto being, that the Village Administrative Officers are engaged in the preparation of village accounts mainly for the purpose of the collection of land revenue and other taxes at the village level. The need was, therefore, felt for an element of supervision that could be undertaken on a scientific basis over the primary work of area enumeration done by the Village Administrative Officers. However, as the supervision of the collection of accurate area statistics over a vast area is a voluminous work requiring a net work of personnel, other ways were to be attempted to correct the deficiency. With this objective, a working group on agricultural statistics, set up by the Governing Council of National Sample Survey Organization, made certain recommendations in March 1973 about the need for strengthening the supervision of field work relating to both crop-area and yield statistics. Based on those recommendations, a scheme known as 'Improvement of Crop Statistics' was first implemented in Tamil Nadu, as per G.O.Ms.No.310 (Statistics) Forests & Fisheries Department, dated: 21st March 1975 and continued thereafter. At present, the Department of Economics and Statistics is implementing this scheme in Tamil Nadu, in collaboration with the National Sample Survey Organization, Government of India.

1.2 FINANCIAL ASSISTANCE AND IMPLEMENTATION

The scheme was initially implemented as a centrally sponsored scheme fully funded by the Ministry of Agriculture and Irrigation, Government of India. From the year 1975-76, the expenditure was equally shared by the central and state government on a 50:50 basis. Again from the year 2007-08, Government of India has fully funded for this scheme. From the year 2003-04, centrally sponsored schemes, such as; i) TRS, ii) ICS, iii) CES on F&V have been merged and brought under one umbrella namely " Improvement of Agricultural Statistics " as its components. Implementation and monitoring of the scheme are the same. The technical guidance both for organizing the sample check on area enumeration and supervision of crop cutting experiments is provided by the National Sample Survey Organization (FOD), Government of India, Faridabad. At state level, the execution and administration of the scheme are under the control of Principal Secretary/Commissioner, Department of Economics and Statistics, Tamil Nadu.

1.3 OBJECTIVE

The main objective of the scheme is to attempt jointly by the National Sample Survey Organization (NSSO) and the State Agricultural Statistics Authority (SASA) to undertake about sample checks over the primary field work done by VAO's and to effect improvements in the quality of primary data in respect of both crop-area and yield estimation surveys in the State. The scheme is further expected to provide the basis for determining the precise lines on which the improvement in the crop estimation system would require to be effected.

1.4 COVERAGE

Every year, 520 villages from Timely Reporting Scheme (TRS) villages for sample check on area enumeration and 1560 experiments from General Crop Estimation Survey (GCES) for supervision of crop cutting experiments are selected for this scheme. From that, 50 percent of villages and experiments are being allotted for National Sample Survey Organization and the remaining 50 percent for State Agricultural Statistics Authority (SASA) for supervising area enumeration and yield estimation.

1.5 SURVEY DESIGN

A) SAMPLE CHECK ON AREA ENUMERATION (A.S -1.0)

The design adopted is multi-stage random sampling method without replacement by which two sets of non-overlapping sample villages are selected on a matching basis (i.e.) 260 villages for the National Sample Survey Organization (FOD) staff and 260 villages for the state statistical staff in all the districts of Tamil Nadu.

Under each one of the sample villages which are selected for Improvement of Crop Statistics, four clusters each consisting of five survey / sub-division numbers are selected on random basis for area supervision by applying circular systematic sampling method. A taluk or a group of contiguous taluks in each district constitute a stratum during each fasli year.

B) SUPERVISION OF CROP CUTTING EXPERIMENTS (A.S - 2.0)

It is mainly intended to check the quality of crop cutting experiments both at harvest and post-harvest stages. A matching sample of 780 experiments have been selected for supervision each by the state staff and the National Sample Survey Organization staff by simple random sampling technique without replacement from the list of General Crop Estimation Survey villages.

C) PAGE TOTALING OF KHASRA REGISTER (A.S -1.1)

The details of land use as per aggregation done and reported by the Village Administrative Officer to the higher authorities and as checked from adangal for the village as a whole by the supervisor will be recorded in A.S-1.1 schedule by the supervisor concerned.

1.6 TRAINING

At the commencement of each fasli year, all the field functionaries engaged under the scheme are being imparted training for two days at the district level, first day earmarked for theoretical aspects and the next day for field training.

2. PLAN OF WORK DURING 2012 – 13

2.1 COVERAGE

The plan of work are as follows:

(i) Carrying out sample checks on enumeration of area done by the Village Administrative Officers in the selected villages during each season.

(ii) Exercising supervision of crop cutting experiments in a sub-sample of villages selected from the General Crop Estimation Survey villages.

(iii) Checking the page totals of adangal (done by the Village Administrative Officers) in the sample villages at the end of each agricultural year.

2.2 PHASES

With regard to the sample check on area enumeration, four clusters at five survey / sub-division numbers per cluster were selected in each of the sample villages and the particulars of land utilisations in respect of those clusters were physically verified by the supervisors during each of the following phases every year.

Phase -I -------- July – October.

Phase -II -------- November – January.

Phase -III -------- February & March.

Under this scheme, the supervisory officers were required to verify the entries made in the adangals by the village administrative officers and report them in schedule A.S-1.0 along with their findings. This process is continued for all the three phases every year.

2.3 SUPERVISION

The supervision of crop cutting experiments on the principal food and non-food crops viz., Paddy – kar / kuruvai / sornavari, samba / thaladi / pishanam, navarai / kodai and irrigated as well as un-irrigated crops of Jowar, Bajra, Ragi, Groundnut, Cotton, Sugarcane, Gingelly and Maize; were undertaken in the villages selected to carry out inspection at harvest / post harvest stages. Particulars relating to yield data and other ancillary items such as variety of seeds, (High yielding variety or otherwise) sources of irrigation, application of manure, fertilisers and pesticides, etc. were gathered and furnished in Schedule A.S-2.0.

2.4 AREA CHECKING

Schedule A.S-1.1 is designed to study the discrepancies between the figures

(i) as aggregated by the patwari

(ii) as reported by patwari to higher authorities, and

(iii) as checked by the supervisors in respect of the area under the crops / crop mixtures / non-crop utislisations.

The assistant superintendent / state supervisor is to sum the area figures separately for each season for the crop / crop mixtures / non-crop uses page by page and attach them to the schedule. Working sheet has been provided to facilitate the page totaling of area figures.

3. ESTIMATION PROCEDURE

3.1 PREPARATION OF QUICK ESTIMATES OF "AVERAGE YIELD RATE" - PROCEDURE, TIME SCHEDULE, UTILITY ETC.

The primary responsibility for the collection of area and production of crops vests with the state government. The yield rates of principal crops are estimated under General Crop Estimation Surveys (GCES) through crop cutting experiments conducted by the state agencies. The crop cutting experiments consists of (i) location and marking of an experimental plot of specified size in a field selected on the basis of random sampling, (ii) harvesting and threshing of its produce, and (iii) recording the weight of the clean and dry or wet produce. The design adopted for the survey is multi-stage random sampling, community development blocks as strata, villages within a stratum as first stage units of sampling, fields within each selected village as second stage sampling units and experimental plot of a specified shape and size as the ultimate unit of sampling.

The National Sample Survey Organisation (NSSO) has the overall responsibility of assisting the states in developing suitable survey techniques for obtaining reliable and timely estimates. Under the Improvement of Crop Statistics scheme, the Central i.e., NSSO staff and the SASA staff supervise the crop cutting experiments, conducted by state primary workers, in a sub-sample of GCES experiments. The schedule A.S-2.0 is used for recording the observations of the supervisory staff on crop cutting experiments. The entire filled-in central and state A.S-2.0 schedules are sent to NSSO (FOD), Faridabad and to Department of Economics and Statistics from the field functionaries for the analysis and estimation of yield rates.

Cut-off dates are fixed for the receipt of schedules (both area enumeration and supervision of crop cutting experiments) in respect of central as well as state samples separately. Similarly, due dates are also fixed to send the final tables to NSSO (FOD), Faridabad.

SAMPLE CHECK ON AREA ENUMERATION

The estimates of area will be worked out for each category of crop (i) high yielding – irrigated, (ii) high yielding – un-irrigated, (iii) local-irrigated, (iv) local-un-irrigated. The estimates of % standard error (SE) will be worked out and given for the total estimated area under the crop for the state as a whole. Stratum-wise estimates of area under each category will be obtained as under:

$$\hat{Y}_i = \frac{N_i}{n_i} \sum_{j=1}^{n_i} \left[\frac{H_{ij} \times a_{ij}}{S_{ij}} \right]$$

Where,

$\hat{Y}_i$ = Estimated Area under a crop in the ith Stratum,

a_{ij} = Total area under a crop in the selected clusters of survey numbers in j^{th} village of ith stratum,

S_{ij} = Number of selected survey/serial numbers in the jth sample in the ith stratum,

H_{ij} = Highest serial number in j^{th} sample village in the ith stratum,

n_i = Number of sample villages analysed in the ith stratum and

N_i = Total number of revenue villages in the ith stratum.

The estimates of area thus obtained for each stratum in a district is added to get the estimate of area at district level (Y_d) and the total of district level estimate gives the state level estimate of area ($\hat{Y}$).

The % standard error of the estimate of area at state level is obtained as follows:

$$\% \text{ SE} = \frac{\text{S.E. of the estimate}}{\text{estimate}} \times 100$$

Where standard error is the square root of the state level variance, which is the sum of variance of the district level estimates.

SUPERVISION OF CROP CUTTING EXPERIMENTS

On the basis of the data collected through schedule A.S-2.0, estimates of yield rates of the principal crops along with its % standard error are prepared and sent to NSSO. The procedure followed to obtain such estimate at state level is as follows:

(i) Calculate the yield rate for the crop at district level in terms of green weight in grams/plot ($\bar{Y}_{ig}$) which is a simple average of sample plot yield and is given by,

$$\overline{Y}_{ig} = \frac{\sum_{j=1}^{m_i} \sum_{k=1}^{n_{ij}} Y_{ijk}}{n_i}$$

Where,

$\overline{Yig}$ = average yield rate for the crop at district level in terms of green weight in grams per plot.

Y_{ijk} = plot yield in gms. in the kth experimental plot of jth sample village in the ith district.

n_{ij} = number of experiments analysed in the jth sample village of the ith district.

n_i = number of experiments analysed in the ith district, given by: -

$$\sum_{j=1}^{mi} n_{ij}$$

m_i = number of sample villages in which experiments are analysed in the ith district

(ii) Calculate the conversion factor to convert the yield rate of green weight in grams/plot to yield rate in kg/hec. Conversion Factor (CF) is to be worked out by making use of the driage ratio at state level for the previous year and the plot size. For crop paddy also use the recovery ratio of rice from paddy.

(iii) The estimate of yield rate in kg/hec at district level

$(\overline{y_i})$ is given by, $\overline{Y}_i = Y_{ig} \times CF$

The average yield rate in kg/hec at state level ($\overline{Y}$) , which is given by

$$\overline{Y} = \frac{\sum_{i=1}^{d} a_i \times \overline{Y}_i}{\sum_{i=1}^{d} a_i}$$

Where,

a_i = area under the crop in the ith district during the previous year.

d = no. of districts in the state.

The percentage standard error of the yield rate is given by

$$\frac{\text{(Standard error of the estimate)}}{\text{estimate}} \times 100$$

The variance of the estimated yield rate is given by

$$V(\overline{Y}) = \frac{\left\{ F\sum_{i=1}^{d} \frac{a_i^2}{n_i} + (E-F)\sum_{i=1}^{d} \frac{a_i^2 \sum_{j=1}^{mi} n_{ij}^2}{\lambda_i n_i^2} \right\}}{\left\{ \sum_{i=1}^{d} a_i \right\}^2}$$

Where $V(\overline{y})$ = Estimated variance of the estimate of average yield at state level

$$\lambda_i = \frac{n_i^2 - \sum_{j=1}^{m_i} n_{ij}^2}{n_i(m_i - 1)}$$

E = mean square between villages for the state

$$E = \frac{\sum_{i=1}^{d}\left[\sum_{j=1}^{m_i}\frac{\left(\sum_{k=1}^{n_{ij}} y_{ijk}\right)^2}{n_{ij}} - \frac{\left(\sum_{j=1}^{m_i}\sum_{k=1}^{n_{ij}} y_{ijk}\right)^2}{n_i}\right]}{\sum_{i=1}^{d}(m_i - 1)}$$

F = mean square of yield within villages, which is given by

$$F = \frac{\sum_{i=1}^{d}\left[\sum_{j=1}^{m_i}\sum_{k=1}^{n_{ij}} Y_{ijk}^{\,2} - \sum_{j=1}^{m_i}\frac{\left(\sum_{k=1}^{n_{ij}} Y_{ijk}\right)^2}{n_{ij}}\right]}{\sum_{i=1}^{d}(n_i - m_i)}$$

This variance is multiplied by CF^2 to obtain the variance of the estimates in terms of kg/hec.

The standard Error (SE) is given by, SE = $\sqrt{V(\bar{Y})}$ and the percentage standard error of the yield rate is given by $\% SE(\bar{Y}) = \frac{\sqrt{V(\bar{y})}}{\bar{y}} \times 100$

Crops for which pre-stratification in planning of experiments under ICS has been adopted according to the corresponding pre-stratification under CES in the state, the estimates of yield rate and its percentage standard error is prepared separately for each category of a crop. The estimates for different categories at state level is then combined as under:

Let $\bar{Y}_1$ be estimated average yield rate for 1st category.

$\bar{Y}_2$ be estimated average yield rate for 2nd category.

A_1 to the area under the crop in the state for 1st category.

A_2 to the area under the crop in the state for 2nd category.

Then the combined estimate of yield rate is given by

$$\bar{Y}(_{1+2}) = \frac{\bar{Y}_1 A_1 + \bar{Y}_2 A_2}{A_1 + A_2}$$

And the estimate of its variance is given by

$$V\left[(\overline{Y})_{1+2}\right] = P_1^2 Var\left(\overline{Y_1}\right) + P_2^2 Var\left(\overline{Y_2}\right)$$

Where $P_1 = \dfrac{A_1}{A_1 + A_2}$ & $P_2 = \dfrac{A_2}{A_1 + A_2}$

V $\left(\overline{Y_1}\right)$ = the estimate of variance of Ist category.

V $\left(\overline{Y_2}\right)$ = the estimate of variance of IInd category.

The estimate of yield rate and its percentage standard error is prepared separately for central and state samples and these estimates are then pooled together as:

Let $\overline{Y_c}$ & $\overline{Y_s}$ be the estimated average yield rate for central and state sample respectively.

And V_c & V_S be the estimate of variance for central and state sample respectively.

Calculate

$$e_c = \frac{1}{V_c} \qquad \text{and} \qquad e_s = \frac{1}{V_s}$$

The pooled estimate of yield rate is given by

$$\overline{Y_p} = \frac{e_c\overline{Y_c} + e_s\overline{Y_s}}{e_c + e_s}$$

And an estimate of its variance is given by

$$V(\overline{Y_p}) = \frac{1}{e_c + e_s}$$

4. RESULTS OF THE SURVEY

A. AREA STATISTICS

4.1 Table - 1 shows the details of receipt of schedules as A.S.1.0, 1.1 and 2.0 during the years 2011-12and 2012-13 and their response in respect of the receipt of schedules were 100 % during the year 2012-13. It is observed that 91% of A.S.1.0 schedules were received within the cut off date during this year. With regard to schedule A.S.1.1, 82% of schedules for state sample were received within cut off date. As far as A.S-2.0 concerned 97% of schedules were received within the cut off date.

4.2 The phasewise total no. of schedules received with 'A' entries (entries made by the supervisor) and 'B' entries (entries made by the primary worker i.e., VAO in the village records) during the year 2011-12 and 2012-13 were analysed in Table – 2 and found that all the schedules were received with both the entries.

4.3 Table - 3 provides the detail regarding the up-dation of village maps, their availability and usability. It may be seen that maps are usable and more than 20 years old in all the 520 villages planned for pooled sample.

4.4 The villages selected for the sample check on area enumeration during the year 2012-13 has been classified according to geographical area and shown in Table – 4. It is observed from the table of pooled samples that out of 520 villages analysed, only 19 villages (3.65%) possessed the lowest geographical area of up to 50 hectares, while 15villages (2.88%) had the highest geographical area extending more than 3000 hectares each. It may be seen from the table that a maximum number of 133 villages (25.58%) fell within a group of which the geographical area ranged between 1001 and 3000 hectares.

4.5 Details of the work load of the V.A.O's were measured in terms of villages in their respective jurisdiction. Average workload of VAO's in terms of survey / sub-survey numbers and geographical area for the years 2012-13 and 2011-12 are shown in Table - 5. It is evident that the average workload of the Village Administrative Officers in terms of villages as well as survey numbers / geographical area are reasonable.

4.6 The particulars of completion of girdawari by Village Administrative Officers for the years 2012-13 and 2011-12 are furnished in Table - 6. On comparison of the position of timely completion of area enumeration work during 2012-13 with that of previous year, it is observed that the timely completion of area enumeration work was found to be of the order of 100% for Phase-I, Phase-II and Phase-III.

4.7 Information on the workload of Village Administrative Officers were measured in terms of number of villages allotted per V.A.O is given in Table – 7. It is observed that 96% of the V.A.O's had 1-5 villages in their jurisdiction. But only 4 % of Village Administrative Officers covering 6-10 villages range.

4.8 SUBMISSION OF TRS STATEMENTS

The details of submission of TRS statements during 2012-13 and 2011-12 are presented in Table - 8. It reveals that TRS statements were submitted in time which accounts for 100% of villages in Phase-I, II and III respectively during the year 2012-13. The corresponding figures of submission of TRS statements in time for 2011-12 were 100%, for Phase-I, Phase-II and Phase-III respectively. The percentage submission of TRS statements in time during the reference year shows an upward trend in all the three phases.

4.9 RECORDING OF AREA UNDER DIFFERENT CROPS IN ADANGAL

During the course of sample check on area enumeration under various crops carried out in the selected survey / sub-division numbers in the sample villages and the corresponding entries made in the adangal maintained by the village administrative officers, several errors have been noticed. The number of serial / survey numbers under different type of errors for the years 2012-13 and 2011-12 are furnished in Table - 9. The sample checks reveal that during Phase-I, II and III of 2012-13, only in 79%, 84% and 73% respective survey numbers crop and crop areas reported by the two agencies tallied as against 73%, 85% and 65 % in the corresponding phases of the last year.

4.10 Sample check programme envisages information reported by supervisors and primary workers by irrigation in Table - 10 and details of crop area and seed variety are furnished in Table - 11.

4.11 ESTIMATION OF AREA

The area reported by primary worker in the adangal form is the basis for TRS as well as final estimates of crop areas. The Improvement of Crop Statistics analysis enables to judge the deviation in estimates of area under different crops based on area reported by supervisor and the primary workers . The crop wise estimates of area under 8 principal crops are furnished in Table - 12.

4.12 PAGE TOTALING OF KHASRA REGISTER (A.S-1.1)

The estimated area based on the village papers as checked by the supervisors and as recorded by the Village Administrative Officers in adangal for various crops for the year as a whole are furnished in Table - 13. It may be seen that there is only minor difference between the estimated area of different crops.

4.13 YIELD CHECK AT HARVEST STAGE(A.S-2.0)

Apart from the Sample check on area, the supervisor is present during the conduct of crop cutting experiments. He observes that the extent of the primary workers adhere to the prescribed procedures and mistakes if any, are corrected on the spot. For this purpose, a sample of 780 crop cutting experiments covering 9 principal crops, viz. Paddy, Jowar, Bajra, Ragi, Cotton, Groundnut, Sugarcane , Gingelly and Maize were selected for intensive supervision separately by central and state staff for the year 2012-13.

The programme envisages locating an experimental plot for harvesting and weighing the produce of specified area in randomly chosen survey numbers and villages. The agricultural officers are conducting the experiments. Sample check on crop cutting experiments are carried out in the sub-sample of General crop estimation survey villages by the Central and State staff with a view to assess the extent to which the methodology, techniques and procedures prescribed for the conduct of crop cutting experiments are adopted and practices in the field conditions. Conduct of crop cutting experiments on objective basis is a complex task and as such it is imperative that primary workers assigned with the task to receive adequate training. Such training to primary workers is organised by the Department of Economics and Statistics at the beginning of each agricultural year.

4.14 In the field programme of sample check on crop cutting experiments, special emphasis has been given to ensure that technical personnel are invariably present at the harvest stage to observe the techniques and procedures adopted by the primary workers and provide support and guidance wherever necessary. The extent of participation at harvest stage is evident from the information presented in Table - 14. It may be seen that 99% of experiments were checked by the supervisors at harvest stage under the pooled sample.

4.15 Estimates of yield rates of the principal crops based on sample check on crop cutting experiments along with percentage standard error are presented in Table - 15.

4.16 Generally, villages are substituted for the reason, viz., crop not sown, crop harvested with out intimation etc., The number of experiments for which no substitution was not made for sampling units at village and field level are presented in Table - 16 for the year 2012-13 and 2011-12.

4.17 Particulars gathered during the visit of the technical personnel are used to assess the extent to which the procedural guidelines prescribed for the conduct of crop cutting experiments is observed by the state primary workers. The type of deviation from prescribed procedures for conducting crop-cutting experiments of state primary workers is summarized in Table - 17.

4.18 SUPPLY & USE OF EQUIPMENT'S

Position of supply and use of equipments such as tapes, balances, set of weights and pegs are furnished in Table - 18. The usage of equipment like tapes, balances, weight and pegs while conducing the crop cutting experiment in 2013-14 were 98%,98% and 93% .This brings an element of subjectivity and standardisation in the process of arriving at average yield rate.

4.19 DELEGATION OF WORK BY PRIMARY WORKERS

Number of experiments conducted by primary worker and delegated workers are furnished in Table - 19 in 2012-13 . All the 1552 experiment were conducted by trained workers.

5.UTILITY OF THE SCHEME

The sample checks reveal that the field work done at primary level are intended to effect improvement in the quality of primary data in respect of both enumeration of crop area and crop estimation survey. This factor helps both Central and State Governments in planning agricultural policies and programmes with accuracy.

TABLE 1

RECEIPT OF SCHEDULES

Year	Schedules	Season	Sample	No. of villages / experiments planned	No. of villages / experiments for which schedules received			
					by cut off date	%	after cut off date	%
2012-13	A.S.1.0 (Villages)	Phase - I	Central	260	260	100	0	0
			State	260	233	90	27	12
			Pooled	520	493	95	27	5
		Phase - I I	Central	260	259	100	1	0
			State	260	231	89	29	13
			Pooled	520	490	94	30	6
		Phase -III	Central	260	258	99	2	1
			State	260	212	82	48	23
			Pooled	520	470	90	50	11
	A.S.1.1 (Villages)	Whole year	Central *	--	--	--	--	--
			State	260	212	82	48	23
			Pooled	--	--	--	--	--
2011-12	A.S.1.0 (Villages)	Phase - I	Central	260	260	100	0	0
			State	260	257	99	3	1
			Pooled	520	517	99	3	1
		Phase - I I	Central	260	258	99	2	1
			State	260	256	98	4	2
			Pooled	520	514	99	6	1
		Phase -III	Central	260	257	99	3	1
			State	260	252	97	8	3
			Pooled	520	509	98	11	2
	A.S.1.1 (Villages)	Whole year	Central *	--				
			State	260	250	96	10	4
			Pooled	--				
2012-13	A.S.2.0 (Expt)	Whole Year	Central	780	765	98	15	2
			State	780	743	95	37	5
			Pooled	1560	1508	97	52	3
2011-12	A.S.2.0 (Expt)	Whole Year	Central	780	764	98	16	2
			State	780	754	97	26	3
			Pooled	1560	1518	97	42	3

Note :

* - The field work of A.S-1.1 Schedules has been suspended for central sample till further order as per the NSSO. Faridabad (Lr.No:A-0013 / Workload / ICS / 2008-AS, dated:08.12.2008)

TABLE 2

RESPONSE IN SAMPLE CHECK ON ENUMERATION OF AREA

Season	Sample	Number of villages planned		Total number of schedules received		Number of schedules analysed: With 'A&B' entries together		With 'A&B' entries separately		With 'A' entries only		Total	
		2012-13	2011-12	2012-13	2011-12	2012-13	2011-12	2012-13	2011-12	2012-13	2011-12	2012-13	2011-12
Phase -I	Central	260	260	260	260	260	260	0	0	0	0	260	260
	State	260	260	260	260	260	260	0	0	0	0	260	260
	Pooled	520	520	520	520	520	520	0	0	0	0	520	520
Phase -II	Central	260	260	260	260	260	260	0	0	0	0	260	260
	State	260	260	260	260	260	260	0	0	0	0	260	260
	Pooled	520	520	520	520	520	520	0	0	0	0	520	520
Phase -III	Central	260	260	260	260	260	260	0	0	0	0	260	260
	State	260	260	260	260	260	260	0	0	0	0	260	260
	Pooled	520	520	520	520	520	520	0	0	0	0	520	520

A -Supervisor

B - Patwari

TABLE 3

INFORMATION REGARDING UPDATION OF VILLAGE MAPS AND THEIR USABILITY

Number of years since updated	No. of villages where information available			
	2012-13			
	Central	State	Pooled	Percentage to pooled sample
(I) Total No.of villages analysed	260	260	520	100
(a) 1-5	0	0	0	0.0
(b) 6-10	0	0	0	0.0
(c) 11-20	0	0	0	0.0
(d) more than 20 years	260	260	520	100
(e) information not available	0	0	0	0.0
(2) Availability of maps with patwari				
(a) maps available	260	260	520	100.0
(i) usable maps	260	260	520	100.0
(ii) unusable maps	0	0	0	0.0
(b) maps not available	0	0	0	0.0

TABLE 4

BI-VARIATE FREQUENCY DISTRIBUTION OF SAMPLE VILLAGES COVERED BY THE SCHEME DURING THE YEAR 2012-13 ACCORDING TO TOTAL NUMBER OF SURVEY /SUB-DIVISION NUMBERS AND GEOGRAPHICAL AREA
(Pooled Sample)

Class intervel of Serial / Survey Numbers (code)	Class intervals of Geographical Area(ha)									Not Reported	Total	Percentage to selected villages
	up to 50	51 -100	101-200	201-400	401-600	601-800	801-1000	1001-3000	above 3000			
1 - 200	3	4	0	0	1	1	0	0	0	1	10	1.92
201 - 400	4	7	5	4	1	0	0	0	0	0	21	4.04
401-600	1	5	7	0	2	1	0	0	0	1	17	3.27
601 - 800	3	2	7	4	2	2	0	1	0	0	21	4.04
801 - 1000	0	0	9	4	3	1	1	1	0	0	19	3.65
1001-5000	7	4	11	82	75	46	46	79	4	0	354	68.08
More than 5000	1	0	0	0	0	5	9	52	11	0	78	15.00
Information not reported	0	0	0	0	0	0	0	0	0	0	0	0.00
Total	19	22	39	94	84	56	56	133	15	2	520	100.00
Percentage	3.65	4.23	7.50	18.08	16.15	10.77	10.77	25.58	2.88	0.38	100.00	100.00

TABLE 5

WORKLOAD OF VILLAGE ADMINISTRATIVE OFFICERS IN THE SELECTED VILLAGES

Sample	Average number of villages alloted per patwari				Average workload per patwari in the selected villages in terms of			
	Total		Trs		No. of survey / sub-survey numbers		Geographical area (in hec.)	
Year	2012-13	2011-12	2012-13	2011-12	2012-13	2011-12	2012-13	2011-12
Central	2.3	2.4	1	1.1	2652	2594	589	799
State	1.8	2.3	1	2.3	2676	2398	835	786
Pooled	2.0	2.4	1	1.7	2664	2496	712	792

TABLE 6

TIMELINESS IN COMPLETION OF TRS AREA ENUMERATION

Year	Sample	No. of villages analysed	No. of villages where girdawari completed														
			Phase-I					Phase-II					Phase-III				
			In time	Late	Partially completed	Not yet started	Total	In time	Late	Partially completed	Not yet started	Total	In time	Late	Partially completed	Not yet started	Total
2012-13	Central	260	260	0	0	0	260	260	0	0	0	260	260	0	0	0	260
	State	260	260	0	0	0	260	260	0	0	0	260	260	0	0	0	260
	Pooled	520	520	0	0	0	520	520	0	0	0	520	520	0	0	0	520
2011-12	Central	260	260	0	0	0	260	260	0	0	0	260	260	0	0	0	260
	State	260	260	0	0	0	260	260	0	0	0	260	260	0	0	0	260
	Pooled	520	520	0	0	0	520	520	0	0	0	520	520	0	0	0	520

TABLE 7

FREQUENCY DISTRIBUTION OF PATWARI OF THE SELECTED VILLAGES ACCORDING TO TOTAL NUMBER OF VILLAGES ALLOTTED FOR THE YEAR 2012-13

(Pooled Sample)

Total			TRS		
Total number of villages allotted per patwari	Frequency	Percentage	Total number of villages allotted per patwari	Frequency	Percentage
1 to 5	500	96.15	1	517	99.42
6 to10	18	3.46	2	2	0.38
11 to15	2	0.38	3	0	0.00
Above 15	0	0.00	Above 3	1	0.19
Information not available	0	0.00	Information not available	0	0.00
Total	520	100.00	Total	520	100.00

TABLE 11 *(Concld)*

CROP WISE COMPARISION OF ENTRIES BY SUPERVISOR AND PATWARI OF CROP AREA AS PER SEED VARIETY

(in ha.)

Season	Year	Groundnut						Cashewnut					
		Supervisor			Patwari			Supervisor			Patwari		
		High Yielding	Local	Total	High Yielding	Local	Total	High Yielding	Local	Total	High Yielding	Local	Total
Phase-I	2012-13	82	8	90	68	15	83	4	11	15	1	6	7
	2011-12	50	15	65	43	23	66	8	9	17	8	10	18
Phase-II	2012-13	41	6	47	27	8	35	0	0	0	0	4	4
	2011-12	44	19	63	27	21	48	1	0	1	0	1	1
Phase-III	2012-13	10	0	10	7	1	8	0	0	0	0	0	0
	2011-12	4	1	5	3	1	4	0	0	0	0	0	0

TABLE 12

ESTIMATED AREA UNDER DIFFERENT CROPS BASED ON THE DATA RECORDED BY THE SUPERVISOR / PATWARI

(In '00 ha)

Season	Year	Paddy			Jowar			Bajra			Ragi		
		Supervisor (a)	Patwari (b)	% Variation $\frac{b-a}{a} x100$	Supervisor (a)	Patwari (b)	% Variation $\frac{b-a}{a} x100$	Supervisor (a)	Patwari (b)	% Variation $\frac{b-a}{a} x100$	Supervisor (a)	Patwari (b)	% Variation $\frac{b-a}{a} x100$
Phase-I	2012-13	2721	2413	-11.32	528	437	-17.2	57	50	-12.3	115	96	-16.5
	2011-12	2347	2078	-11.46	520	446	-14.2	112	167	49.1	46	40	-13.0
Phase-II	2012-13	1828	1696	-7.22	229	216	-5.7	31	37	19.4	29	24	-17.2
	2011-12	1806	1713	-5.15	111	101	-9.0	18	18	0.0	28	28	0.0
Phase-III	2012-13	275	245	-10.91	53	28	-47.2	0	0	0.0	0	0	0.0
	2011-12	181	163	-9.94	63	34	-46.0	0	0	0.0	0	0	0.0

Cont...

TABLE 17

CROPWISE DISTRIBUTION OF EXPERIMENTS ACCORDING TO THE MISTAKES OBSERVED DURING THE YEAR 2012-13

POOLED

Crop	No .of Experiments checked at Harvest /Post Harvest	e0	e1	e2	e3	e4	e5	e6	e7	e8	e9	e10	e11	e12	e14	e15	e16
Paddy - Kar / Kuruvai	118	53	3	3	0	37	0	58	52	34	13	6	2	3	0	1	0
Paddy - Samba	280	145	4	6	4	45	6	105	75	81	15	7	0	0	0	0	0
Paddy - Navarai	80	35	0	0	0	20	3	36	32	30	4	0	0	0	1	0	0
Jowar - I	60	36	0	1	7	4	0	10	11	2	3	1	0	0	0	1	0
Jowar - UI	60	48	0	0	0	3	0	5	9	0	0	0	0	0	1	0	0
Bajra - I	32	17	0	0	0	4	0	8	6	2	2	0	0	0	0	0	0
Bajra - UI	44	28	0	0	0	6	0	9	19	0	0	0	0	0	0	0	0
Ragi - I	44	26	0	0	0	12	0	15	11	1	1	0	0	0	0	0	0
Ragi - UI	36	34	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
Cotton - I	72	36	0	0	3	4	0	30	26	26	1	1	0	0	0	2	0
Cotton - UI	168	90	0	0	12	6	0	51	47	37	4	2	0	0	2	0	0
Groundnut - I	112	47	0	0	3	25	0	50	38	31	3	4	3	0	0	0	0
Groundnut - UI	166	87	1	1	7	32	0	20	39	23	7	5	0	0	2	1	0
Sugarcane	100	35	0	0	3	24	0	46	27	8	4	4	0	0	0	0	0
Gingelly (I)	52	26	0	0	4	6	0	10	5	9	5	5	0	0	0	1	0
Gingelly (UI)	48	35	0	0	6	0	0	7	5	4	0	1	0	0	0	0	0
Maize(I)	32	17	0	0	1	4	6	9	8	0	3	1	0	1	0	0	0
Maize(UI)	48	31	0	0	1	1	0	10	10	6	0	2	0	1	0	0	0
Total	1552	826	8	11	51	233	15	479	422	294	65	39	5	5	6	6	0

e0 = No. of experiments for which no mistakes observed
e1 = Error in selecvtion of Survey / Sub Number
e3 = Error in reporting seed variety
e4 = Error in reporting seed rate
e5 = Error in reporting irrigation particular
e6 = Error in reporting application of fertilizers
e7 = Error in reporting application of manures
e8 = Error in reporting application of pesticides
e9 = Error in mersurement of field
e10 =Error in checking random number for location of plots
e11=Error in locating plot
e12=Error in plot dimension
e15 =Error in reporting proportion of experimental crops in mixture / wrong reporting constituents in mixtures
e16 = Any one of the item missing

Cont...

TABLE 17 *(Concld)*

CROPWISE DISTRIBUTION OF EXPERIMENTS ACCORDING TO THE MISTAKES OBSERVED DURING THE YEAR 2011-12

POOLED

Crop	No .of Experiments checked at Harvest /Post Harvest	e0	e1	e2	e3	e4	e5	e6	e7	e8	e9	e10	e11	e12	e10	e15	e16
Paddy - Kar / Kuruvai	117	74	3	5	0	37	0	2	0	0	8	3	0	0	0	0	0
Paddy - Samba	279	230	4	5	0	36	0	0	0	0	14	4	0	0	0	0	0
Paddy - Navarai	80	49	0	0	0	29	0	0	3	1	2	2	0	0	0	0	0
Jowar - I	42	37	0	0	0	0	0	0	0	0	3	2	0	0	0	0	0
Jowar - UI	75	61	0	0	2	6	0	2	1	0	2	0	0	0	4	1	0
Bajra - I	32	29	0	0	0	0	0	0	0	1	2	1	0	0	0	0	5
Bajra - UI	68	59	0	0	0	7	0	0	0	0	2	0	0	0	0	0	0
Ragi - I	56	53	0	0	0	0	0	0	1	1	2	0	0	0	0	0	0
Ragi - UI	43	40	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0
Cotton - I	60	48	0	0	0	3	0	0	0	0	8	1	0	0	0	0	0
Cotton - UI	180	151	0	0	0	16	0	2	0	0	7	3	0	0	2	0	0
Groundnut - I	112	82	7	0	0	22	0	0	0	0	3	0	0	0	0	0	0
Groundnut - UI	168	121	0	0	0	42	0	1	0	0	6	2	0	0	0	0	0
Sugarcane	117	103	0	0	0	8	0	0	0	0	3	3	0	0	2	0	0
Gingelly (I)	60	53	0	0	0	0	0	0	0	0	5	1	0	0	2	0	0
Gingelly (UI)	60	58	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
Total	1549	1248	14	10	2	206	0	7	5	3	70	24	0	0	10	1	5

e0 = No. of experiments for which no mistakes observed
e1 = Error in selecvtion of Survey / Sub Number
e3 = Error in reporting seed variety
e4 = Error in reporting seed rate
e5 = Error in reporting irrigation particular
e6 = Error in reporting application of fertilizers
e7 = Error in reporting application of manures
e8 = Error in reporting application of pesticides
e9 = Error in mersurement of field
e10 =Error in checking random number for location of plots
e11=Error in locating plot
e12=Error in plot dimension
e15 =Error in reporting proportion of experimental crops in mixture / wrong reporting constituents in mixtures
e16 = Any one of the item missing

TABLE 18

YEAR-WISE POSITION OF SUPPLY AND USE OF CROP CUTTING EQUIPMENTS

Year	Sample	Equipments supplied								Equipments not supplied							
		Tape	%	Balance	%	Weights	%	Pegs	%	Tape	%	Balance	%	Weights	%	Pegs	%
2012-13	Central	778	99.74	770	98.72	776	99.49	687	88.08	2	0.26	10	1.28	4	0.51	93	11.92
	State	756	96.72	756	96.92	756	96.92	758	97.18	24	3.08	24	3.08	24	3.08	22	2.82
	Pooled	1534	98.33	1526	97.82	1532	98.21	1445	92.63	26	1.67	34	2.18	28	1.79	115	7.37
2011-12	Central	762	99.09	755	98.18	755	98.18	657	85.44	7	0.91	14	1.82	14	1.82	112	14.56
	State	756	96.92	756	96.92	756	96.92	756	96.92	24	3.08	24	3.08	24	3.08	24	3.08
	Pooled	1518	98.00	1511	97.55	1511	97.55	1413	91.22	31	2.00	38	2.45	38	2.45	136	8.78

TABLE 19

STATEMENT SHOWING THE DETAILS OF YEAR-WISE CROP CUTTING EXPERIMENTS CONDUCTED BY THE DESIGNATED PRIMARY WORKERS (TRAINED) AND DELEGATED WORKERS

Year	Sample	Total no. of Experiments checked at harvest and post harvest stage	No. of Experiments conducted by				
			Trained			Untrained	Total
			Non-designated equivalent / senior persons	Delegated workers (Junior)	Designated Persons (No change in primary workers)		
2012-13	Central	780	772	0	0	0	772
	State	780	780	0	0	0	780
	Pooled	1560	1552	0	0	0	1552
2011-12	Central	769	5	15	738	11	769
	State	780	11	2	751	16	780
	Pooled	1549	16	17	1489	27	1549