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## Technology Assessed and Transferred

### Crop yield estimation at smaller area level using farmers' estimates

At present the estimates of average yield and crop production in the country are available at somewhat higher levels such as a state or district. With the growing demand for micro-level planning the need for building reliable estimates of crop yield at smaller area level (say, tehsil/block or even gram panchayat) is imperative. One alternative for meeting the requirement of building up precise estimators at smaller area level is to increase the number of crop cutting experiments. However, this is usually not possible due to cost constraints. Therefore, a new cost effective technique needs to be developed which could be adopted by the State Governments for estimation of yield of various crops at the smaller area level and also which is easy to handle by local agencies with marginal additions in the field work and the associated processing of data. Further, a need is being felt to review the present methodology

being used for crop yield estimation and to explore the possibilities of simpler and cheaper alternatives. The study entitled Crop yield estimation at smaller area level using farmers' estimates funded by the Ministry of Statistics & Programme Implementation, Central Statistical Organization, was taken up with the objective of developing precise block level estimators of crop yield and to compare the farmers' eye estimates and the crop-cut estimates of yield.

As a part of this study a sample survey was carried out in Bhiwani and Sirsa districts of Haryana State in Rabi season (2002-03) on Mustard, Wheat and Bajra and in Kharif season (2003-04) on Cotton and Bajra in Bhiwani district and Cotton, Bajra and Paddy in Sirsa district.

To compare the estimates of yield obtained through the crop-cut approach vis-à-vis the corresponding estimates obtained from the farmer by inquiry, the

closeness of the two sets of estimates was examined vis-à-vis the actual production figures. Based on the results obtained from this study, it can be seen that the crop-cut estimates are closer to the actual production figures for the crops which are harvested in multiple rounds, in this case cotton. However, for the other crops covered in this study it is not possible to recommend one method of estimation of crop yield over the other.

### Design for AICRP on STCR

- A design for fitting response surface for the AICRP on Soil Test Crop Response Correlations that shall incorporate the effect of both the inorganic and organic fertilizers into the models has been developed. The experiment is a symmetrical factorial of the type  $3 \times 3 \times 3$  and the number of runs is 24. The design has been approved in the National Workshop of AICRP on STCR held at Bhopal during January 23-24, 2005. All co-operating centres will now adopt the design. The design points finalized are given as follows:

S.No.	N	P	K	S.No.	N	P	K
1	1	2	2	13	3	3	3
2	2	2	2	14	3	3	2
3	3	2	2	15	3	2	3
4	2	1	2	16	0	0	0
5	2	3	2	17	0	0	0
6	2	2	1	18	0	0	0
7	2	2	3	19	3	1	1
8	1	1	1	20	3	2	1
9	2	1	1	21	3	3	1
10	1	2	1	22	2	2	0
11	1	1	2	23	2	0	2
12	2	3	3	24	0	2	2

For organic manure, 3 levels of OM and 3 strips are as:

	Strip 1	Strip 2	Strip 3
OM1	A	B	C
OM2	B	C	A
OM3	C	A	B

Where A, B, C comprise of 8 design points each. The composition of A, B, C is the following:

A	B	C
0 0 0	0 0 0	0 0 0
3 1 1 and 2 2 0	3 2 1 and 2 0 2	3 3 1 and 0 2 2
Any of the 5 points from 1 to 15	Any of the 5 points from the remaining 10 points (of 1 – 15)	Remaining 5 points