Technology Assessed and Transferred

National Research Centre on Rapeseed and Mustard

In 2007-08, 24 initial varietal trials were conducted using α-designs. The parameters of these designs are

(i) $v = 12$, $b = 12$, $r = 3$, $k = 3$, A-efficiency = 0.9241;
(ii) $v = 15$, $b = 15$, $r = 3$; $k = 3$, A-efficiency = 0.9067;
(iii) $v = 24$, $b = 12$, $r = 3$, $k = 6$, A-efficiency = 0.9699;
(iv) $v = 28$, $b = 12$, $r = 3$, $k = 7$, A-efficiency = 0.9603 and
(v) $v = 36$, $b = 12$, $r = 2$, $k = 6$, A-efficiency = 0.9074.

The data were analyzed. It was observed that in 8 trials there were transcription errors such as exchange of treatments. In 3 trials blocks within replication differences were found to be significant and in other 10 of the trials, CV% reduced in comparison to a RCB design.

The data from initial varietal trials conducted by National Research Centre on Rapeseed and Mustard, Bharatpur was analyzed and it was seen that in all the trials location × genotype interactions were highly significant. Therefore, a single strain cannot be promoted for all the locations in a given zone. Hence, the strains promoted may be different for different subset of locations. Further, the entries giving 10% higher yields than the best performing check may not be significantly different from the best performing check. Therefore, it was suggested that an entry should be promoted only when it is statistically significant from the best performing check. It was also shown that variability in plant population also play a role in the variability in yield. If analysis of covariance was performed using plant population as covariate, there might be an improvement in the precision of treatment comparisons.

Following α-designs for 30 entries were recommended for initial varietal trials to be conducted by AICRP on Rapeseed and Mustard at 22 research centres. Separate randomized layouts for all the centres were provided. Centres may choose a design

depending upon the nature of variability in the experimental units.

i)   v = 30, b = 15, r = 3, k = 6,   A-efficiency = 0.9536, D-efficiency = 0.9778

ii) v = 30, b = 18, r = 3, k = 5, A-efficiency = 0.9478, D-efficiency = 0.9745

iii) v = 30, b = 9,   r = 3, k = 10, A-efficiency = 0.9683, D-efficiency = 0.9857

Web Material on "Lattice Designs" was developed and deployed at Institute's website (http://iasri.res.in/Lattic_designs/main.htm).

This web page contains list of Lattice designs. These designs have been constructed using various methods available in the literature, compiled and made online for easy accessibility of the experimenters. The number of treatments (v), number of blocks (b), number of replications (r), block size (k) and average efficiencies along with the layout of these designs have been presented for v up to 150 and r not exceeding 10. The steps for randomization and analysis (using SPSS & SAS) have also been described.

Web Material on "Circular Designs"

Circular designs http://iasri.res.in/Circular_Designs.

A web page has been developed that generates layout plan of Circular designs that form an important class of incomplete block designs and is available for all number of treatments with smaller number of replications. The randomized layout of these designs can also be generated, if required. Circular designs are particular types of Partially Balanced Incomplete Block (PBIB) designs. A special case of Circular designs form a series of Balanced Incomplete Block (BIB) designs. These designs offer more flexibility in terms of their availability for any block size.

Developing Remote Sensing Based Methodology for Collection of Agricultural Statistics in Meghalaya

The study was taken up in collaboration with Space Application Centre (SAC), Ahmedabad and North East Space Application Centre (NE-SAC), Shillong. The main objective of this study was to develop methodology for estimation of area and production of the crops for Meghalaya. Initially, only Rhi-bhoi district was selected for development of the methodology. This methodology was validated in the same district as well as Jantia hills. The methodology for estimation of area under paddy crop developed in the project was implemented in the whole State by NE-SAC and accepted by the State Government.

Adoption and Impact of Resource Conservation Technologies (RCT) on Farm Economy in Indo-Gangetic Plains of India

Under the study, it was found that the RCTs had advantage over conventional techniques in terms of time saving, increase in the number of tillage saved, water saving, decrease in the incidence of weeds and decrease in yield losses. Regarding impact of adoption of RCT on environment, most of the adopters in Punjab, Rajasthan, Bihar and Haryana were of the opinion that the soil temperature decreased due to adoption of RCT, and there was also an increase in the ground water level.

Impact Assessment of Fisheries Research in India

Under the study, fish farmers of Punjab State were apprised about the benefits of fresh water prawn culture technology over traditional fish farming.