

ON RARM TRIALS

CONCEPT, FEATURES, PROBLEM CAUSE ANALYSIS AND STEPS

Lakhan Singh¹ & Jitendra Chauhan²

Technologies generated at the research stations were thrust upon the farmers in the technology transfer programmes without understanding their real life situations in past. In most of the cases the farmers reject research recommendations as they hardly solve their problems. While designing the research project, researchers ignore the view of extension workers and farmers, which ultimately leads to rejection of technologies. Therefore, the villagers require a complete reversal of the TOT approach with participatory approach where village people are actively involved in all stages of appropriate technology development. Fortunately, a world bank funded project viz. National Agricultural Technology Project (NATP) is emphasized on active people's involvement and participation through On Farm Trials (OFT) for solving the specific problems of particular farming situation. The idea behind OFT is to respect the farmers understanding of knowledge of existing farming system which help in designing trials and solving problems. The OFT takes into account not only technical but also socio-economic and cultural circumstances of farmers of that farming situation where it is being carried out.

OFT takes existing new technology and tailors it to defined areas and defined group of farmers. OFT is essentially problem solving research with farmers' perspective and a need for assessment of technologies and test whether applicable in real farming situation or not. OFT is at the management level of the farmers. It is a kind of participatory approach. Innovative ideas are generated and try to test, refine, modify as per their need and fitted in farming situation.

Participation of farmers in On Farm Trials is certainly not new. There is, however, new emphasis on the level and mode of participation :-

- | | |
|---------------------------------------|------------------------------------|
| 1. To involve in problem definition | 2. Trial design and implementation |
| 3. In recording and analysing results | 4. In decision making |
| 5. In trial conception | 6. Recording of results |
| 7. Final evaluation | |

Objectives : To identify existing practices that may help solve major problems of many farmers in a defined area.

Farming system perspective to OFT : Farming system perspective employees seeing things from the farmers view point. It means that OFT should :-

1. Be sensitive to farming systems interactions.
2. Understand how the farming system operates.

Farmers' rationality :-

- | | |
|-----------------------------------|--|
| 1. Increase their income. | 2. At reasonable level of risk |
| 3. In a given complex environment | 4. Compatible with current farming system. |

Steps in On Farm Trial :-

- | | |
|----------------------------|----------------------------------|
| 1. Diagnosis | 2. Planning (setting priorities) |
| 3. Experimentation | 4. Assessment |
| 5. Extrapolation/Extension | |

1. Senior Scientist (Agril. Extension), Zonal Coordination Unit, Zone IV (ICAR), CSAUAT Campus, Kanpur-208 002
 2. Reader, Agril. Extension, R.B.S. College, Bichpuri Agra.

Diagnosis : It implies to studying farmers circumstances and farmers practices in order to

1. Understand the farming system and system interactions.
2. Identify possible productivity problems
3. Begin to develop hypothesis on possible solutions.

Farmer's circumstances include :

- | | |
|----------------------------------|-------------------------|
| 1. Climate and weather | 2. Soil and topography |
| 3. Pests, weeds, etc | 4. Institution (credit) |
| 5. Markets (Inputs and products) | 6. Farmers own goals |
| 7. Farmers own resources | |

Understanding of farmer's circumstances helps in judging

1. What kind of technologies farmers will probably reject.
2. What kind of technologies farmers might be willing to use.

Planning : OFT should be conducted on the following :

1. Problems that cause a large productivity loss.
2. Problems that occur frequently.
3. Problems that affect many farmers.
4. Problems affecting major crops/enterprises.

Steps of Planning :-

- | | |
|------------------------------------|---|
| 1. Identify the problems | 2. Rank the problems |
| 3. Identify the causes of problems | 4. Diagram problem and causes |
| 5. List possible solutions | 6. Screen possible solutions for the feasibility. |

Step-I : Identify the problems :

OFT should recognize four kinds of problems :

1. Agro climatic and biotic factors that directly reduce crop yields
2. Inefficient use of inputs by farmers.
3. Inefficient cropping pattern
4. Farmers' practices those are not sustainable.

For example : Uneven plant stand in early and mid season moisture stresses, nutritional deficiencies, etc.

Steps-II : Ranking of problems :

Problems should be ranked so that higher priorities problem can be clearly distinguished from lower priority problem.

1. Focus should be on those problems which if solved, would lead to very large benefits for the farmers.
2. The prioritization should follow the criteria given by the farmers.
3. The priority of a problem should be fixed by the farmers, not by the researchers.
4. The role of researchers as facilitators.

Step-III : Identify the causes of problems : Problems and causes should not be confused by the investigators :-

1. A particular problem exist because of many causes.
2. Causes related to different problems should be listed separately.

Step-IV : Diagram Problem and Causes :-

1. Before drawing a lot of thought and effort is required.
2. Initial draft of problems cause diagram should be refined and re drawn from time to time.

3. Each problem and each cause in a diagram represents a hypothesis. Each of the hypothesis can be tested.
4. The diagram should indicate relationship between socio-economic and biophysical factors.

Step-V : List Possible Solutions : List of possible solutions of well defined problems whose causes are fairly well understood. At this stage all the possible solutions should be listed.

Step-VI : Screen Possible Solutions for Feasibility Testing : Use following criteria for screening possible solutions :-

- | | |
|----------------------------------|--|
| 1. Technical feasibility | 2. Expected profitability |
| 3. Expected risk | 4. Simplicity and divisibility of the solution |
| 5. Sustainability | 6. Farmers safety |
| 7. Farming system compatibility. | |

Experimentation :-

OFTs are of three types

I. Exploratory trials :-

1. Some OFT are conducted to properly defined problems (e.g. Is phosphate deficient or not)
2. Exploratory trials tend to be small plot.
3. Managed by researchers

II. Determinative trials : This kind of trial is needed to identify profitable cultural practices. These trials are also researcher managed trials.

III. Verification trials : These trials are conducted to confirm that improve practices and inputs are consistently and reliably profitable :-

- | | |
|---|-----------------------------------|
| 1. These are farm managed | 2. Use large plots |
| 3. Are replicated over locations | 4. Are conducted at farmers field |
| 5. The results of the trials are to be transferred jointly by scientists and extension workers. | |

IV. Assessment : Assessing results imply four kind of analysis :-

1. Making agronomic evaluation of results for each location.
2. Assessing statistical significance of trials location by location
3. Using economic analysis to estimate profitability of new technologies.
4. Using the analyzed data to test hypothesis developed during diagnosis.
5. The farmers evaluation as per his perception should be considered final.

V. Extrapolation/Extension : Extension of OFT result is enhanced by close cooperation of researchers and extension workers.

The results obtained from OFT should be shared among the farmers of same farming situation in which OFT has been conducted.

Problems in Conducting OFT :

1. Poor Maintenance
2. Incompatible treatment
3. Varying levels of farmer's and researcher's interest in and ability to interpret the outcomes.
4. Trials modified/simplified according to farmer's requests

5. Lacks much use of statistical measurement
6. Lacks uniformity of conditions between treatments
7. Lacks adequate no. of treatments, replications and plot size.
8. Lacks recording procedure
9. Lack of seriousness and scientific look
10. Lack of intra institutional linkages among the staff and division/units.
11. Joint visit needed but due to several reasons not performed which affect the concept of multi disciplinary approach.
12. Farming situation analysis not done properly and OFT not designed accordingly.
13. Not trained in data recording and experimentation.
14. Farmers are considered as resources provider only.
15. Local check (farmers' practices)–data is taken by simply asking from the farmers.

Features of OFT :

1. Farmers' field
2. Problem solving
3. Generate appropriate technologies
4. Farmers' perspective
5. Multi-disciplinary team's involvement
6. Managed by farmers
7. Monitoring and evaluation by farmers
8. Analysis of results jointly by farmers and scientists (both)
9. Main focus in interlinking enterprises
10. Consultative/collaborative farmer's participation (active involvement of farmers)
11. Participatory approach
12. Proven technology tested
13. Holistic in nature
14. Gender sensitive
15. Complements On farm Research respect farmer's wisdom
16. Emphasis on feedback
17. In-built mechanism of dissemination.

METHODOLOGY :

Much emphasis is not given on statistical analysis. Farmers' assessment criteria are regarded. Qualitative parameters given more weightage in this process. Here replications represent no. of farmers and locations for OFT :—

1. Number of treatment 3 to 4.
2. Replications : 4-5 (Locations/ No. of farmers)
3. Farmers' practice compared and used as local check
4. Plot size : 0.1 to 0.2 ha
5. Cost of critical inputs.

PERFORMANCE INDICATORS :

1. Technological observations
2. Agronomic
3. Economical
4. Farmers' assessment criteria