ON FARM TRIALS
Concept, Problem Cause Analysis and Steps

Lakhan Singh
ICAR-ATARI, Pune

- On Farm Trial (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.

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

Farmer's rationality

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

Steps in On Farm Trial

- Diagnosis
- Planning (setting priorities)
- Experimentation
- Assessment
- Extrapolation / Extension

2. Diagnosis

It implies to studying farmers' circumstances and farmers' practices in order to

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

Farmers' circumstances include:

- Climate and weather
- Soil and topography
- Pests, weeds, etc
- Institution (credit)
- Markets (Inputs and products)
- Farmers' own goals
- Farmers' own resources

Understanding of farmers' circumstances helps in judging

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

Planning:

OFT should be conducted on the following:

- Problems that cause a large productivity loss.
- Problems that occur frequently.
- Problems that affect many farmers.
- Problems affecting major crops/enterprises.

Steps of Planning

- Identify the problems
- Rank the problems
- Identify the causes of problems
- Diagram problem and causes
- List possible solutions
- Screen possible solutions for the feasibility.

Step-I: Identify the problems

- OFT should recognize four kinds of problems:
- Agro climatic and biotic factors that directly reduce crop yields
- Inefficient use of inputs by farmers.
- Inefficient cropping pattern
- 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.

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

Step-III: Identify the causes of problems

- The investigators should not confuse problems and causes.
- A particular problem exists because of many causes.
- Causes related to different problems should be listed separately.

Step-IV: Diagram Problem and Causes

- Before drawing a lot of thought and effort is required.
- Initial draft of problems cause diagram should be refined and re drawn from time to time.
- Each problem and each cause in a diagram represents a hypothesis. Each of the hypothesis can be tested,
- The diagram should indicate relationship between socio-economic and biophysical factors.

Step-V: List Possible Solutions

- List 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:

- Technical feasibility
- Expected profitability
- Expected risk
- Simplicity and divisibility of the solution
- Sustainability
- Farmers' safety
- Farming system compatibility.

3. Experimentation

OFTs are of three types

I. Exploratory trials

- Some OFTs are conducted to properly defined problems (e.g. Is phosphate deficient or not)
- Exploratory trials tend to be small plot.
- 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

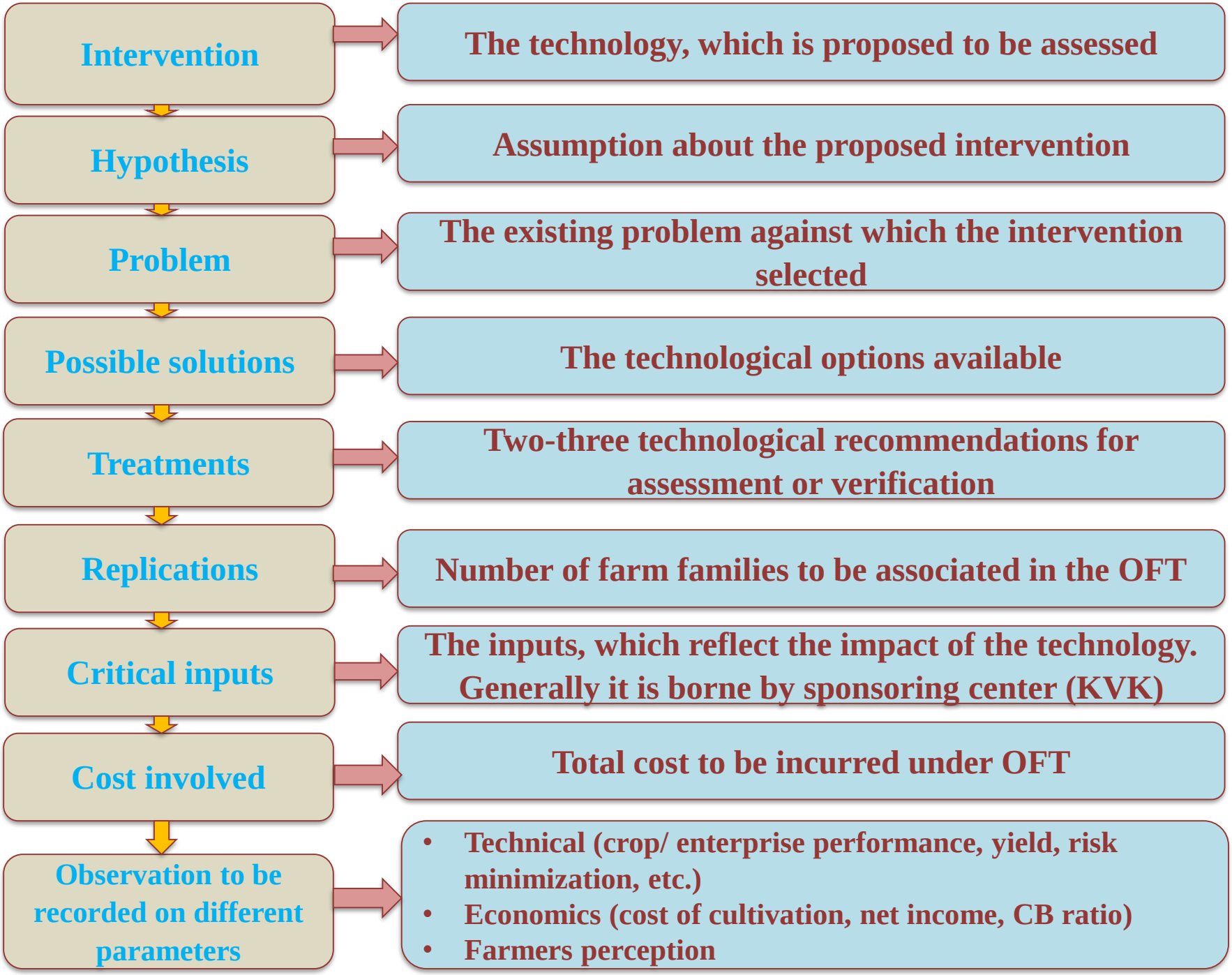
- These trials are conducted to confirm that improved practices and inputs are consistently and reliably profitable.
- These are farmer managed
- Use large plots
- Are replicated over locations
- Are conducted at farmers' fields
- The results of the trials are to be transferred jointly by scientists and extension workers.

IV. Assessment

- Assessing results imply four kind of analysis.
- Making agronomic evaluation of results for each location
- Assessing statistical significance of trials location by location
- Using economic analysis to estimate profitability of new technologies.
- Using the analyzed data to test hypothesis developed during diagnosis.
- The farmers' evaluation as per their 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.


Intervention
The technology, which is proposed to be assessed
Hypothesis
Assumption about the proposed intervention
Problem
The existing problem against which the intervention selected
Possible solutions
The technological options available
Treatments
Two-three technological recommendations for assessment or verification
Replications
Number of farm families to be associated in the OFT
Critical inputs
The inputs, which reflect the impact of the technology. Generally it is borne by sponsoring center (KVK)
Cost involved
Total cost to be incurred under OFT
Observation to be recorded on different parameters
• Technical (crop/ enterprise performance, yield, risk minimization, etc.)
• Economics (cost of cultivation, net income, CB ratio)
• Farmers perception

THANK YOU