Research Planning Methodology

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Research

Research refers to a search for knowledge. One can also define research as a scientific and systematic search for relevant information on a specific topic. In short, the search for knowledge through objectives and systematic methods of finding the solution to a problem is research.

Characteristics of Research

- Research originates with a question or a problem.
- Research requires a clear articulation of a goal.
- Purpose is understanding
- Oriented toward discovery
- Research follows a specific plan of procedure.
- Research usually divides the principal problem into more manageable sub-problems.
- Research is guided by the specific research problem, question, or hypothesis.
- Research accepts certain critical assumptions.
- Focus is holistic

Types of Research

The various kinds of human science research can be subdivided according to three criteria:

1 The measure of generality and applicability:
   - basic research
   - applied research
   - in-service research
   - action research

2 The level of ordering:
   - descriptive research
   - prophetic research
   - diagnostic research

3 The measure of control by researchers:
   - library research
   - field research
   - laboratory research

Agricultural research can be categorized into three types:

1. Basic research: It deals with the development of the principles and concepts of major technological advances. Basic research is the generation of knowledge. Example – Study of the genetic resistance of rice plants to insects.

2. Applied research or development research: It is the application of basic research to immediate problems. Applied research is the generation of technology. Example – Insect resistance high yielding rice variety, hybrid maize, recommendation of fertilizer doses for some variety of crops, etc.

3. Adaptive research: Adaptive research is repetitive developmental research under varied conditions. Examples – Development of a specific variety of rice for Aus or Aman or Boro season, fertilizer recommendation for a specific location or land type or soil type.

Purpose/Objectives of Research

The purpose of research is to discover answers to questions through the application of scientific procedures. The main aim of the research is to find out the truth which is hidden and which has not been discovered as yet. Though each research study has its own purpose, we may think of research objectives as falling into a number of following broad groups:

- To gain familiarity with a phenomenon or to achieve new insight into it.
- To attain the goal.
- To solve the problem
- To maintain the system or to improve the system
- To portray accurately the characteristics of a particular individual situation or a group
- To determine the frequency with which something occurs or with it is associated with something else.
- To test a hypothesis of a causal relationship between variables.

Requirements of Research:

For successful research 4Ms (Man, Money, Masonry and materials) are required.

Research Planning

A plan is a predetermined course of action. Planning is defined as the act or process of making a plan which is termed as a program, a project, or a schedule. The purpose of planning is to evolve a sound, defensible and realistic program of action. The plan gives a detailed answer to all pertinent questions involved in conducting a project.

Characteristics of a Research Programme

The research program should have the following characteristics –

- Clear and understandable
- Impact-oriented and measurable
- Within the nation's development goals and mandate
- Within capabilities of resources
- Flexible and adjustable

Strategies in Research Planning

1. Plan should cover a period of time
2. Plan of action should be flexible.
3. Bottom to top levels of hierarchy should be involved in the planning process. Senior scientists give more time in planning due to their critical views and experience.

Research Planning Methodology (Scientific Method)

1. Identification of the problem

2. Prioritization of the identified problem
3. Present status of the problem
4. To set goals, objectives or targets for the research
5. To formulate an operational hypothesis for undertaking the research
6. To select research/experimental materials to work out the hypothesis to achieve the goal/objective/target
7. To select a method for testing the hypothesis
8. To put the materials and methods in operation
9. To collect relevant predetermined data from the materials in accordance with the hypothesis
10. To compile and analyze the data and interpret
11. To draw a conclusion about the hypothesis with references to the objective(s)
12. Communication of the results to the desired audience (publication, demonstration, workshop, etc.)

Research Problem

A problem is a deviation from some standard of performance. The problem may be defined as a result of constraints that prevent them from reaching their goal. An agricultural problem may be defined as any difficulty in converting efforts into economic agricultural production. A problem may be the result of one or several causes and one cause may result several problems. A problem may be **national**, **regional,** or **local**. For example, nutrition deficiency is a national problem, flood is a regional problem and Ufra disease of rice is a local problem.

Steps for identifying a research problem

1. Statement of the problem in a general way
2. Understanding the nature of the problem
3. Surveying the available literature
4. Developing the ideas through discussion
5. Rephrasing the research problem into a working proposition

Factors to be considered in determining the priority of researchable problems

1. Economic importance of the problem
2. Technology/innovation available to overcome such a problem
3. Cost and time needed to carry out the research
4. Availability of the resources
5. The ease of implementing the new technologies (probability of adoption of the new technology)
6. Probable distribution of benefits within the society