

A TASK FORCE APPROACH  
TO ASSIST IN  
DEVELOPING RESEARCH PROGRAMS

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## INTRODUCTION

I have taken the liberty of expanding the concept of an Institute of Soils and Conservation to include air (or climate) and forests in addition to soils, geology, and water and have called them a "natural resources science area". It is understood that this institute or science area is to serve as a nucleus or model for the future development of a broader agricultural research program.

Many of these remarks are general and likely will be relevant to other agricultural science areas such as crops, entomology, agricultural engineering, animal science, food science, economics, and sociology.

### I. RESEARCH

Research involves an attitude and a way of thinking; it is the living and working application of the scientific method. As such it does not train artists, musicians, or poets — nor does it intend to. Research looks for problems and solutions to these problems. It commonly develops new technologies, and by applying them it changes our understanding, our capability, and our environment. These results may be good or bad, helpful or harmful — and so we also wish to become scientists with consciences and to have goals worthy of the trust and support that is given us.

The development of a viable agricultural research program depends primarily on several phases of problem solving.

1. The problems must be identified in each specialty of concern. sometimes this is common knowledge in local areas and only needs to be synthesized into an overview of the different kinds of problems.
2. The problems then need to be defined and critically evaluated as to their importance and extent relative to the agriculture of the region.
3. Through the process of definition and evaluation come many ideas about possible solutions to the problems. These ideas need to be tested.

4. Some solutions may require the development of new facts, whereas others may only need supporting evidence of suitability under given conditions. Such research efforts may be field research or may require laboratory work under controlled environments.
5. With the selection of ~~satisfactory~~ solutions there arises the need to apply the findings so that the final results are in keeping with the problems identified and defined.

## II. RESOURCE INFORMATION

A small group of specialists in a science area should get together as a "Task Force" and develop a report about their science area. In the Natural Resources area there are several important aspects that need to be considered. Under the title of natural resources are included soils and geology, water, air, and forests. The aspects of the resources which should be considered are:

- a) kinds and their classification
- b) characteristics and qualities
- c) distribution and extent
- d) uses, both actual and potential, and
- e) management for development and conservation.

## III. WORK OF A TASK FORCE

The job of a Task Force is to develop a status report about what is known about each aspect of the resource and based on this information, the Task Force should list research needs. There are two types of research needs that should be discussed. The first kind is that of "mission-oriented" research where the problems identified and defined are rather broad and require the interaction of a number of specialists to affect a solution. For example, if one problem is to develop a viable agriculture in the Quibor Basin it will need the assistance of specialists in many disciplines to synthesize a potential solution to the physical, social, and economic problems related to the agriculture of such a region.

The second kind of research need is that of "problem-oriented" research which commonly is conducted within a given speciality or competence and is usually carried out by an individual or small group of scientists. For example, if an area of soils to be irrigated contains soluble salts, a soil specialist may conduct experiments on whether or not the salts can be leached to a greater depth in the soil to reduce the hazards to crop production.

The Natural Resource science area is more tangible in some respects than are other areas important to agriculture because much of the information about these resources can be readily displayed on maps. The landscape of the region can be divided into small units which have similar characteristics (such as slope, drainage system, and climate) and have a unique set of conditions favoring or limiting its development and use. Consequently, it would be desirable for a Task Force to develop a map of resource areas to help locate problems and to assist in evaluating the significance of the problem or condition to the whole region. It may be that such an attempt to make a resource area map may indicate the need for additional information about the climatic patterns throughout the region, and this could lead to some problem-oriented research. It likely is of interest to know the limits of salt-influenced soils and whether they occur in regions where water resources are more important for human use than for the reclamation of soils for crop production.

It is well known that research effort can be expended on thousands of unanswered questions and that such effort will lead to the advancement of knowledge. However, human needs and financial resources indicate that attitudes and goals need to be flexible enough to meet the challenges of making the world a better place to live, now and in the immediate future. This implies that priorities must be developed to help us channel our efforts in the best directions. As individuals and as institutions we should be concerned with what we can do for agriculture and science in the region — and not what they can do for us!

Within each area of science it is important to develop, test, and transmit the best judgement values we can because not only the development of Venezuela is at stake — the future of generations of human beings on an ecological distressed globe is also at stake.

If a Task Force in the Natural Resources could develop a status report about what we seem to know and what we need to know about soils, water, air and forests relative to agriculture in the arid zone of Centro Occidente, it would be demonstrating how to recognize, define, and critically evaluate problems which then suggest ideas for the solution of the more important problems. The actual research and solution of the problems will be up to the imagination, ingenuity, and perseverance of the scientists, individually as well as collectively.

#### IV. RECOMMENDATION

In summary, the steps proposed are:

1. Designate a Task Force for Natural Resources.
2. The Task Force should develop a Resource Area map of the region which locates and identifies problems (scale approx. 1:250,000).
3. Define the more important features or problems of each Resource Area as well as possible.
4. Outline and discuss major problems or conditions requiring mission-oriented research.
5. List the more important research needs for each resource--soils and geology, water, air and climate, and forest.

If possible, this report should be done in about six (6) weeks time so that research proposals can be developed, approved, and projects initiated as soon as possible.

A Task Force report is, by necessity, partly fact and partly opinion so that it needs periodic review and revision.