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REPORT

to

INSTITUTE FOR PUBLIC SERVICE
INSTITUT PERTANIAN BOGOR
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by

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Report on Review and Discussion of Projects to be Implemented

in South Sukabumi for Institut Pertanian Bogor, (IPB)

by

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FOREWORD

The consultancy with the Institute for Public Service (LPPM), Institut Pertanian Bogor, has given me an opportunity to work in LPPM's field programs and to become better acquainted with LPPM staff. It has been an interesting and enjoyable assignment.

The potential of the LPPM-IPB to play a significant role in agricultural development in Indonesia is great. However, its role in providing feedback required to maintain relevancy in IPB's programs of instruction and research may be even greater. Continued attention of IPB administration is needed to strengthen LPPM's internal and external roles in development. Perhaps the most critical problem of the LPPM at this moment is the difficulty in organizing and "capturing" IPB resources, especially departmental support, for the execution of its programs.

I would like to thank Dr. Kooswardhono, Director of LPPM; Ir Muntoha, Soils Specialist; Ir T. Hanafiah, MADE, Rural Sociologist; Dr. Soleh Solahuddin, Chairman, Dept. of Agronomy; Ibu Elly Risnawati Syam, Head, LKMD; other LPPM staff; and community leaders for their cooperation in this activity.

INTRODUCTION

During the period March 17 to May 15, 1984, I worked with the LPPM, IPB in the review and discussion of projects being developed for implementation in two Kecamatan in South Sukabumi. The review included field trips to demonstration sites in the villages of Cicantayan and Cihamerang. Following are recommendations to be considered in the continuation of these activities.

IPB'S PUBLIC SERVICE PROGRAM

Since its organization as an autonomous institution in 1963, the Institut Pertanian Bogor (IPB) has participated in the development of many extension concepts. Most notable of these is the mass guidance program for increasing the production of food crops known as BIMAS.

As IPB has developed institutionally, its extension or public service structure has been modified several times but its importance as one of IPB's three primary programs or "Tridarma" has continued. The most recent re-structuring of IPB's public service program came with the formation of the Institute For Public Service (LPPM) which now has the responsibility for developing and implementing public service programs. These programs support the achievement of IPB objectives:

1. To serve as a center of modernization and development of agricultural science and technology.
2. To extend science, technology, and culture to the community.

The LPPM has the responsibility of consolidating the potential of IPB in the execution of innovative public service activities and to assist the government in its national development programs. It must also make use of available resources to produce public service concepts that are basic to the support of national development.

In order to establish a base for testing concepts and implementing its public service activities, the LPPM has signed cooperative agreements with five Kabupaten in West Java. Within these agreements the LPPM has developed the nuclear village concept of public service.[1] This program has the following objectives:

1. To find a holistic model for village development which builds continually.
2. To make the nuclear village a center of innovation for the villages in its area, especially in the execution of programs of the IPB National Student Service (KKN).
3. To provide a system of feedback which will increase the role of IPB in village development.
4. To use the nuclear village as a location for applied research for the IPB Institute for Research (LP) and for practical instruction of students of IPB faculties.
5. To use the nuclear village as a center for expansion and a source for distribution of physical resources to fulfill the needs for the execution of KKN.

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[1]Translated from the mimeographed paper: Pembinaan Desa Inti Sebagai Pusat Pengembangan Dan Difusi Inovasi Dalam Pembangunan Desa, LPPM, 1983.

6. To develop a model village where students, staff, and advisers of KKN can be trained.
7. To provide a place where students can work during vacation periods and for student work-camp activities.
8. To provide a place of training and work for staff of IPB who execute public service activities.
9. To provide a location for developing a more concrete program of cooperative activities between IPB and other governmental and private agencies.

In the development of the nuclear village concept, a multidisciplinary or holistic approach to rural productivity (as opposed to a commodity approach) was developed.

For the purposes of the pilot study, two villages--Cicantayan and Cihamerang--were selected and background information was collected by multidisciplinary teams of IPB staff. The background included:

1. Location and potential of the village.
2. Typology of the village.
3. Plans of the local government (PEMDA) associated with agricultural development.
4. Resources available from LPPM-IPB and PEMDA, Sukabumi.

After discussing the proposed program with community leaders and PEMDA a decision was made to concentrate initial activities as follows:

A. Cicantayan

1. Improvement of upland food crops, especially the introduction of soybeans.

2. Improvement of fish culture.
3. Improvement of livestock production through improved forages:
   a. Elephant grass (*Pennisetum purpureum*)
   b. Lampung grass (*Setaria sp*)
   c. *Stylosanthes gracilis*

B. Cihamerang

1. Assist the village youth in their plans to develop small farm supply stores for vegetable crop production.
2. Develop plans for a cheaper means of transporting vegetables to market.
3. Provide extension training to improve soil and water conservation through an integrated conservation program.

The IPB team selected to carry out these projects were as follows:

1. Ir Moentoha - Soils
2. Ir A. Djamil Hasjmi - Animal Husbandry
3. Ir Saddon Silalahi - Fisheries
4. Ir Otjim W. Wiradinata - Soils

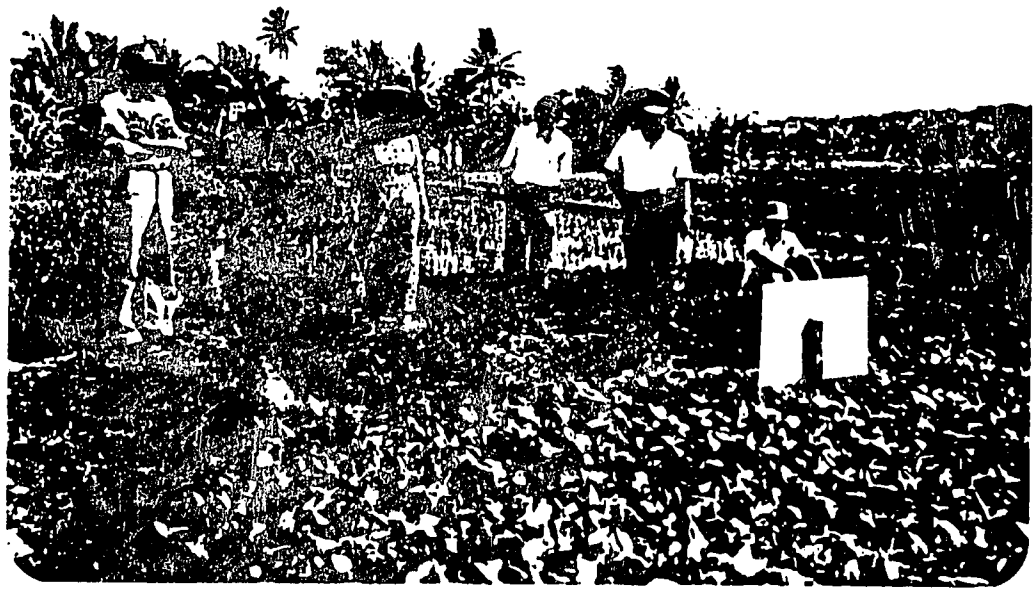
Local staff from BAPEDA Sukabumi were:

1. Drh. Iskandar
2. H. A. Ramadhan
3. Ir Ichwanuddin

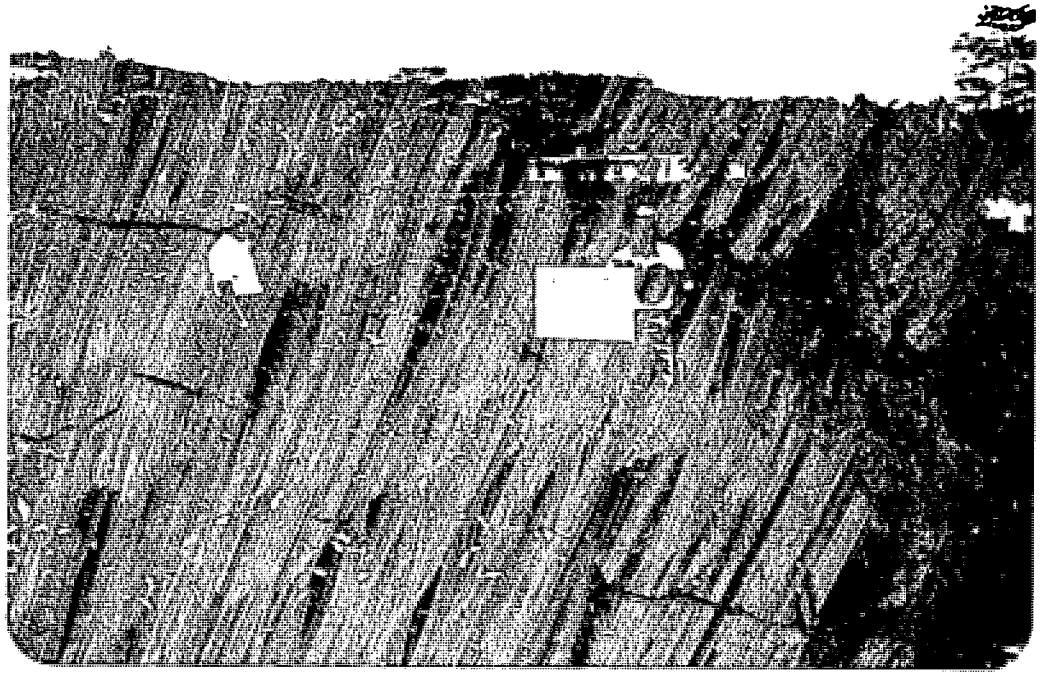
The team prepared plans and schedules for implementation of activities in the two villages in early March. These plans were reviewed by the entire team including the consultant and were modified accordingly.

Since this consultancy is in the area of food crop production, major attention is given to the program in Cicantayan where soybean production is an

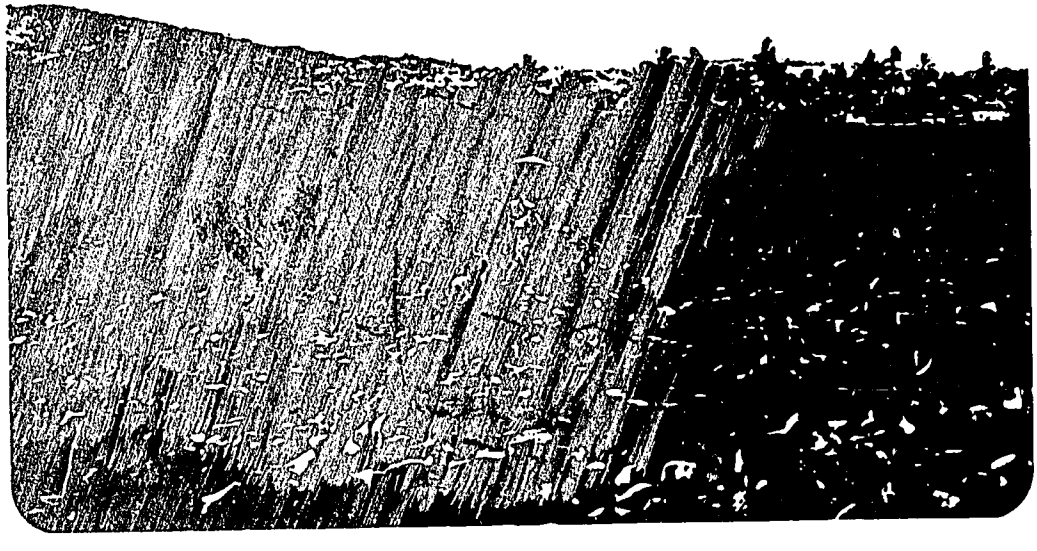
important part of the total program. Two introductory plots have been established in this village. One site is in a lowland rice area where soybeans are being studied as a crop to be used during the dry season when water for rice irrigation is inadequate. The other site is on an upland soil which has been highly eroded. Soybeans are being studied in this area as an alternative or additional row crop to be used in combination with cassava, corn, and peanuts. Each site will be used as a demonstration area where farmers and local leaders can see the potential for this crop which is new to the area. Comparisons will be made between common practices and recommended practices for soybean production. This activity is well underway. Following are photos of the Lowland Demonstration area.



The farmer's wife and IPB Specialists from the LPPM, Soils and Agronomy departments study demonstration results.



Plots foreground check, right background fertilizer only, left background fertilizer and limestone show differences in growth and color, yield were 700, 1,400 and 2,400 Kg/ha, respectively.



An excellent field of soybeans - A viable cropping alternative for the Dry Season??

SUGGESTIONS FOR FURTHER DEVELOPMENT

Based on the experience of the past few months I would like to suggest a more detailed outline for the LPPM, IPB, to consider in expanding the crop production portion of its activities to promote rural productivity in the Kabupaten of Sukabumi. The following outline was developed with particular emphasis on a "crop system" as opposed to a single commodity. The suggestions are as follows:

1. Develop and/or organize complete background information. Establishing a rural productivity program which addresses the whole production system requires a substantial amount of information.

   a. What is the farmers' view of the problem?

      If farmers are to adopt new practices they must feel a need for them and understand the potential of these practices to improve the quality of life for their family--without undue risk. The following reasons were cited by Beatty, et al, for a successful rural development program with small farmers in Brazil.[1]

      1) It showed small farmers how to do something they felt a strong need to accomplish--namely, increase crop yields markedly.

      2) The increased yields were economically profitable for the average participant under the prevailing prices and credit terms.

      3) Inputs such as lime, fertilizer, moderately responsive crop varieties, and technical assistance were available to provide the maximum possible positive interaction on small fields.

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[1] Beatty, M.T., Murdock, J.T., Rohweder, D.A. and Freire, J.R. An Integrated Extension Program for Promoting Rapid Change in Traditional Agriculture on Oxisols and Ultisols in a Subtropical Climate. Journal of Agronomic Education, Vol. 1, Oct. 1972.

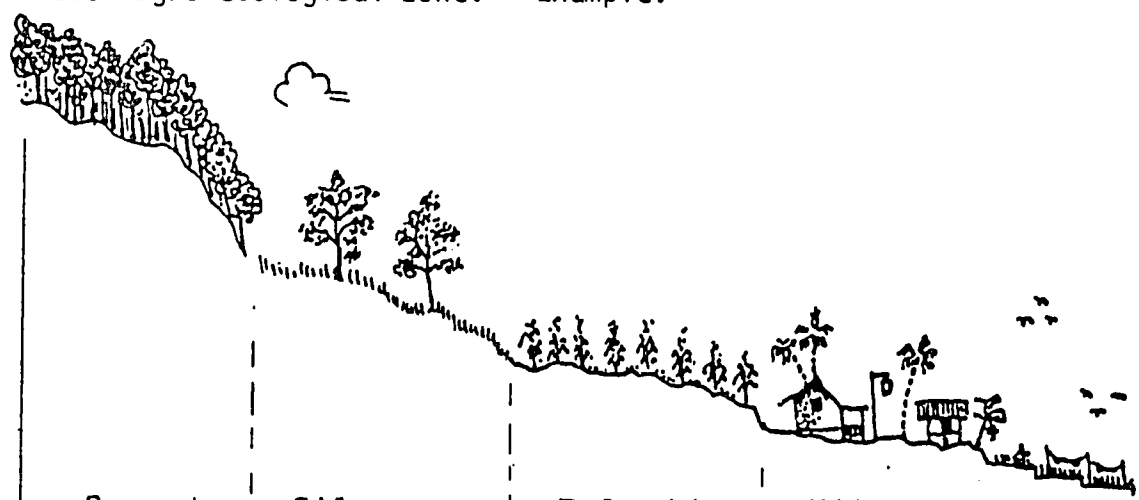
4) Farmers were able to apply the integrated program reasonably well on small tracts of land.

5) Communications media aided in the rapid dissemination of results throughout rural areas.

6) Leadership of at least three state-level agencies was sufficiently progressive to make staffing and budget changes in support of the program.

7) The program is based on sound research results. It is supported and constantly refined by results of continuing research and field experience.

b. Natural resource base - There is a need to develop a more definite description of the land resources of the area which would include a diagram of a "typical" transect of the area with resource information about each agro-ecological zone.[2] Example:

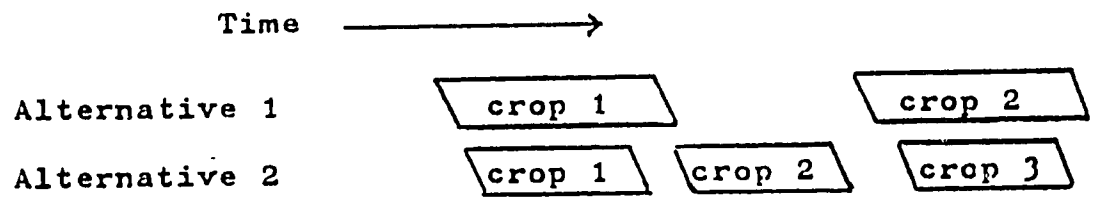


Zone	Forest	Silva Pasture	Palawija	Village	Sawah
Soils					
Crops					
Problems					

2 Conway, G.R., Agrosystems Analysis. Imperial College Centre for Environmental Technology, Series E No. 1, 1983.

It would also be useful to have a graph of monthly rainfall and other pertinent information including, topographic and soil maps, land tenure patterns, land use, yield potential, soil tests, etc.

c. Agronomic data - Data in this area would include suggested cropping pattern for each zone diagrammed in the typical fashion as follows:

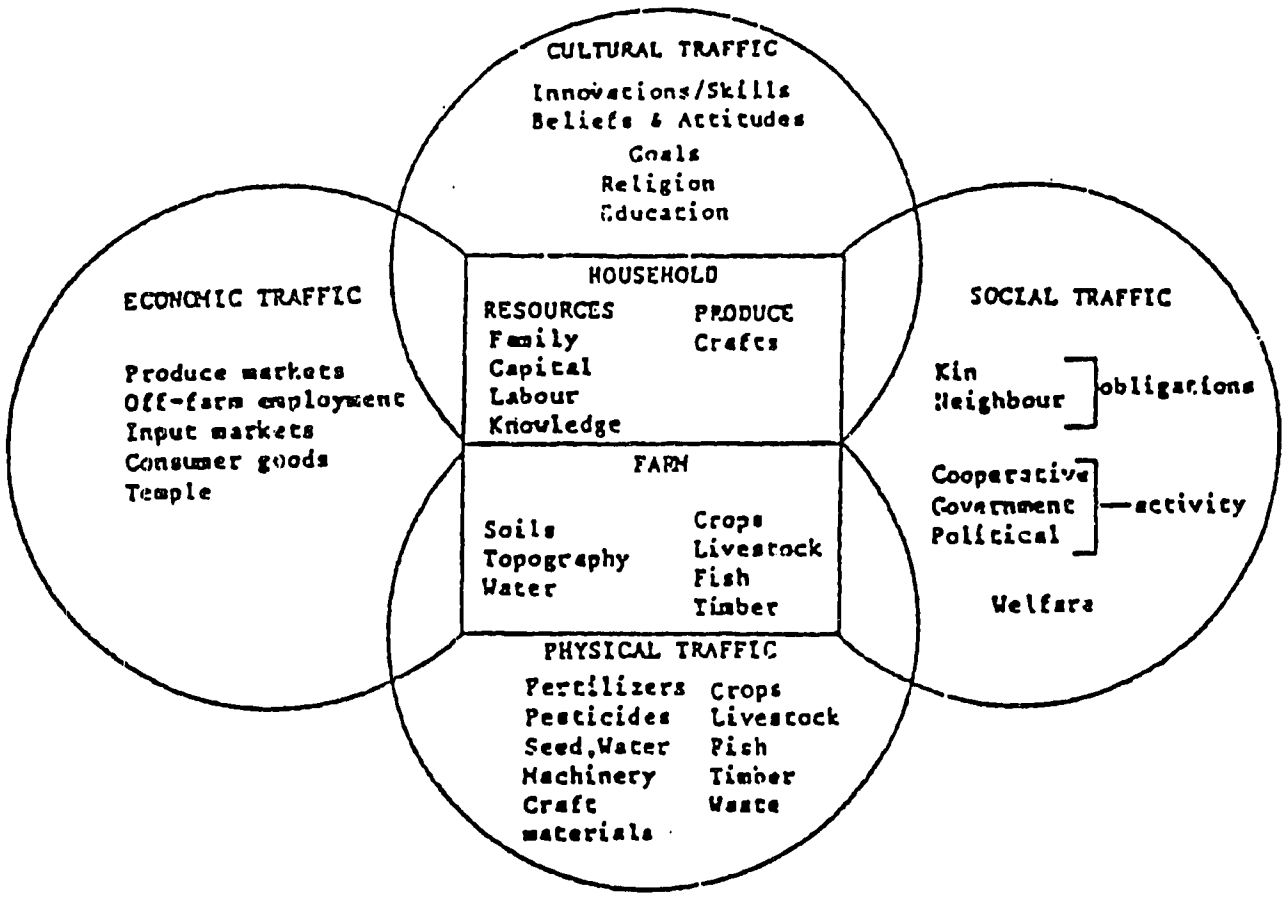


It should also include information regarding adapted varieties, cultural practices, pest control, harvesting, storage, and marketing.

d. Agroecosystem properties - After consideration has been given to various production alternatives, it will be useful to consider agroecosystem properties of productivity, stability, sustainability, and equitability. Conway, in the paper referenced earlier, suggests that these properties be evaluated for each development alternative. Example follows on top of next page.

	Productivity	Stability	Sustainability	Equitability
A Swidden cultivation	LOW	LOW	HIGH	HIGH
B Traditional cropping system	MEDIUM	MEDIUM	HIGH	MEDIUM
C Improved	HIGH	LOW	LOW	LOW
D Improved	HIGH	HIGH	LOW	MEDIUM
E ?Ideal (best land)	HIGH	MEDIUM	HIGH	HIGH
F ?Ideal (marginal land)	MEDIUM	HIGH	HIGH	HIGH

e. The system under consideration should be examined in relation to its linkages with other systems. Conway outlines the linkages as follows:



2. Develop "best estimate" recommendations for a cropping system for each agro-ecological zone.

3. Carefully plan demonstration areas and educational programs needed to introduce recommended practices.

   a. Decision should be made regarding demonstrations to be used including:

      1) Proximate location desired

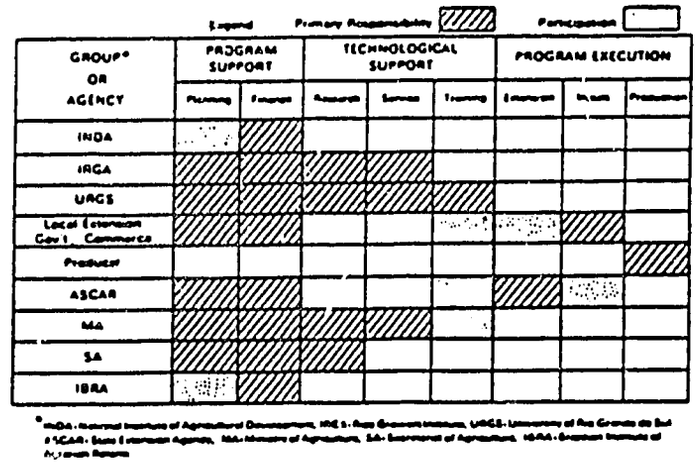
      2) Agro-ecological zone where work will be concentrated

      3) Size

      4) Treatments

      5) Material to be provided

      6) Responsibilities of all concerned, i.e., LPPM, PEMDA, BPLPP, Farmer, etc. Following is an example of such an assignment for a rural development project in Brazil.[3]



Agency responsibilities and participation in Operacao Tatu in Rio Grande do Sul, Brazil.

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3 Murdock, J.T., Stammel, J.G., Erven, B.L., and Kussow, W.R. Institutional Organization For Promoting Rapid Change in Traditional Agriculture. Journal of Agronomic Education, Vol. 1, Oct. 1972.

b. Select Key Farmers - based on:

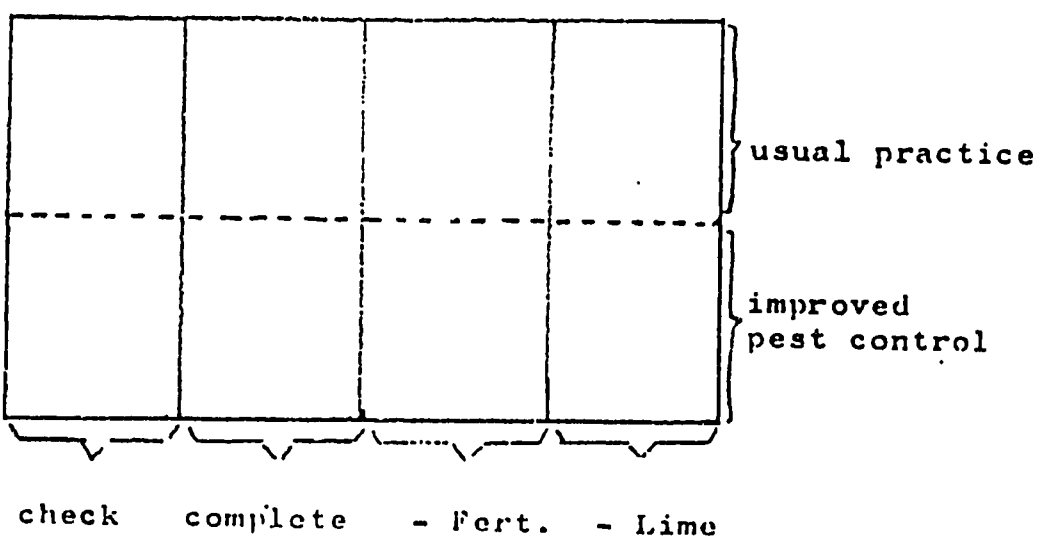
1) Location

2) Ability to carry out instructions

3) Willingness and ability to influence other farmers

c. Carefully design field demonstrations

1) Layout of demplots - Demonstration plots should be laid out with specific attention being given to the possibility of visual comparison between major treatments. They may be set up to show comparisons between the farmers' practice, recommended practice, and high technology practices; or they may be developed to show the effect of individual cultural or management practices such as fertilization, liming, and pest control. In any case there should always be a comparison between a "check" and complete treatment. A typical layout might be as follows:



Demonstrations to be established by farmers should be simple, but should also provide for visual comparison. Usually this would be a comparison between the farmers' usual practice and recommended practice. Plots should be clearly labeled so visiting farmers can see the effects of various treatments.

2) Schedule of field meetings - Meetings should be held at least two times during the growing season and at harvest. At these meetings the extensionist would explain:

   a) The importance of the crop in the farming system

   b) Soil management problems

   c) Cultural practices

   d) Conservation, storage, and marketing of the product

   Since there is too much material to be covered in a single meeting, the first meeting would be used to explain the importance of the crop, soil treatments, and planting practices. In the second meeting, stress would be placed on weed and insect control practices and information presented at the first meeting would be reviewed. In the third meeting, at harvest time, stress would be placed on the yield's harvesting, storage, marketing, and processing practices. An economic analysis of yield data would also be presented. It would also be useful to prepare very simple "hand outs," brochures, or leaflets, addressing the material covered at each demonstration meeting.

3) Make continuing use of the plots. It should be recognized that the first crop will be one crop in a system and that soil

treatments, expecially lime and higher levels of fertilization, have a significant carry-over to the next crop. Thus, plans need to be made to follow through on treatments for other crops in the rotation. The "check" plots should be protected to avoid treatment which would "mask" the demonstration treatments. These activities will also provide additional information needed to build recommendations for a "crop system" as opposed to a single commodity.

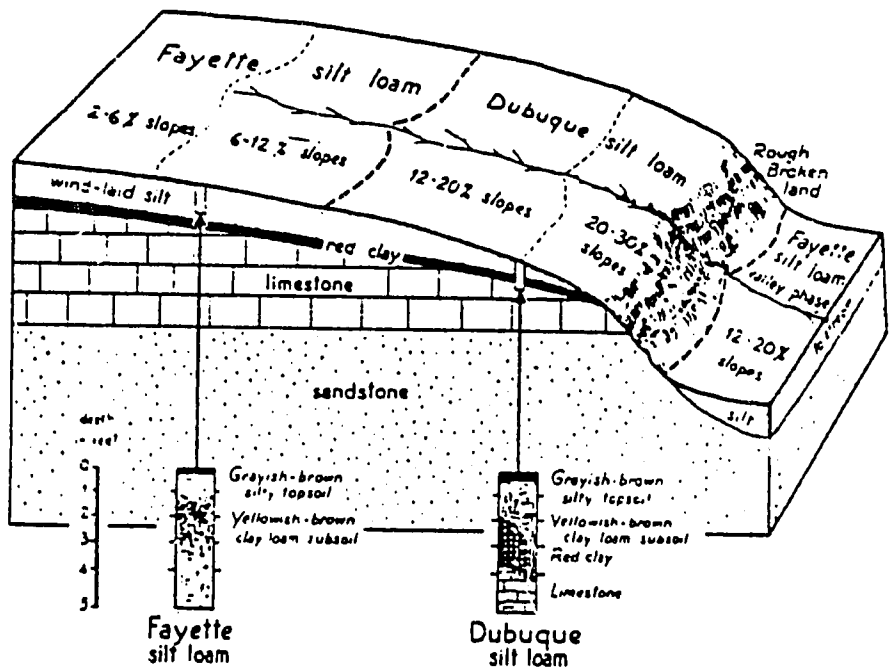
d. Develop simple illustrated instruction for all practices especially new practices.

1) Soil management
   - Soil testing
   - Fertilization
   - Liming

2) Crop management
   - Place in system - planting dates, etc.
   - Seed - variety
   - Innoculation
   - Planting - density, depth, etc.
   - Insect control
   - Weed control
   - Irrigation
   - Harvesting
   - Storage
   - Marketing

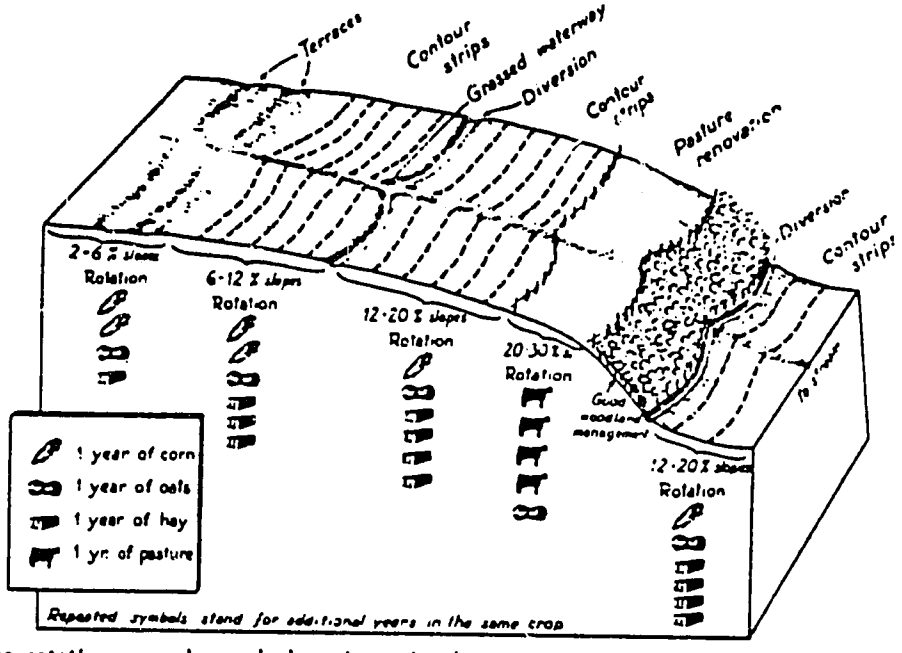
From this simple approach it may be possible to develop more comprehensive publications such as those used by the University of Wisconsin for its rural productivity programs in the late 50's and 60's. At this time a series of bulletins were developed to relate agronomic and soil and water management recommendations to specific "landscapes" and soil types.[4] Examples of recommendations made for soils in this region are as follows:

THESE ARE THE LIGHT-COLORED SOILS OF THE RIDGES



4 Beatty, Marvin T. and Murdock, John T., Farming the Soils of Southwestern Wisconsin Wisely, Department of Soils, University of Wisconsin, College of Agriculture, Madison, Wisconsin, 1958.

THE ROTATIONS AND CONSERVATION PRACTICES SHOWN HERE WILL PROTECT THEM FROM EXCESSIVE EROSION



These rotations may be made less intensive by growing more hay and pasture and fewer row crops. Other row crops or grain crops may be substituted for those listed here.

THESE ARE THE YIELDS THEY WILL PRODUCE

SOILS			
Fayette	100 bu.	75 bu.	4.5 tons
Fayette Valley Phase	100 bu.	70 bu.	4.5 tons
Deep Dubuque	90 bu.	65 bu.	4.0 tons
Shallow or steep Dubuque	60 bu.	45 bu.	2.5 tons

These yields are long-time averages to be expected with excellent management and fertilization practices. In good years yields will be considerably higher than these. In poor years yields will be lower. To get these yields follow the liming and crop management suggestions below and the soil testing and fertilizer recommendations on the back of this page.

Crop management, lime, and fertilizer recommendations were made for each soil type and cropping system and were included as an integral part of this publication.

e. Conduct annual program review and evaluation. This activity will not only provide a forum for improving the performance of action programs but will also help to give them continuity. If programs are improved each year, the tendency to discard existing programs and start new ones should be substantially reduced.