NEPAL

PROGRESS REPORT

for the period

1 January - 30 June 1981

DEVELOPMENT OF IAAS

Project 367-11-110-102

Contract AID/NESA-C-1197

Agency for International Development

in cooperation with

Midwest Universities Consortium for International Activities, Inc.*

*Members are: University of Illinois, Indiana University, University of Iowa, Michigan State University, University of Minnesota, The Ohio State University, and the University of Wisconsin.

MUCIA Team

Two team members arrived in Nepal in January 1981 to begin long-term assignments at the Institute of Agriculture and Animal Science in Rampur. Dr. Garland Wood, Professor, Agricultural Economics Department at Michigan State University, was designated Team Leader. He will also serve as Advisor in Rural Development when Dr. Paul Kaplan finishes his two year assignment in September 1981. Dr. Henry Foth, Professor, Department of Crop and Soil Science at Michigan State University, is the Plant and Soil Science Advisor. Their arrival brought the MUCIA team to four Advisors.

During early May Dr. Jesse Williams, Animal Science Advisor, completed his two-year assignment. Dr. Williams returned to the University of Minnesota where he is a professor in the Dairy Science Department.

Dr. Harry Schwarzweller of Michigan State University arrived in Nepal in mid-March as a short-term consultant to provide assistance to the Rural Development Division. He worked with the Extension Committee and Dr. Paul Kaplan on the IAAS Pilot Extension Project. Dr. Schwarzweller also reviewed the progress of Mr. Kailash Pyakuryal who was in Nepal collecting data for his Ph.D. dissertation.

Activities at IAAS

The Tribhuvan University continues to be plagued by strikes of both students and faculty. Faculty and support staff at IAAS went on strike about the time students were returning. With this provocation, the students again went on strike in sympathy in July 1981. This situation continues to hamper the work of the MUCIA team in some of their institution building activities. Progress does continue however.

In February the Institute organized a very successful Farmers' Field Day on the Rampur Campus. Some 222 farmers and four District Officers were registered. Thirty staff members and senior students of the IAAS were involved in the demonstrations presented at 15 locations which included wheat trials, horticultural plots, machinery instruction and nutritional information. The farmers requested that more Field Days be held in the future.

A week-long Summer Crops Workshop was held at IAAS and the Maize Farm jointly.

Rural Development Division

The Rural Development Division was involved in the Farmers' Field Day activities. Students of the RD 401 course acted as guides for the farmers, assisted in demonstrations and later wrote evaluation essays. The essays were summarized and distributed to the staff for use in the organization of future Field Days.

Dr. Harry Schwarzweller, short-term advisor, worked with the Rural Development staff and the Extension Committee to help evaluate the Pilot Extension Project. This project is being carried out in a nearby panchayat and include the following activities:

1. Provide advise on plant protection to farmers
2. Provide veterinary advise and service to the project area farmers at cost
3. Provide agricultural product marketing information to farmers
4. Introduce new crops, grasses and animals in the project area.

At a general meeting in May of the Extension Committee, the Dean and MUCIA Advisors, the plan was approved and given the go-ahead. In June a Farmers' Information Office was opened in the Rampur Bazar near the IAAS campus.

A copy of the pilot extension program is attached to this report.

The Rural Development advisor worked with the Assistant Dean in editing and preparing materials for the next issue of the IAAS Journal which should be ready for distribution soon.

The Rural Development advisor, accompanied by various IAAS staff members, visited the branch campuses with teachers and students; and attended several conferences held at different locations in Nepal.

Plant Science Division

The Plant Science advisor was involved in orientation and language training during the early part of 1981. However, once this was completed he has been actively involved with his counterparts in the Plant Science Division.

A considerable amount of research continues to be done within the Division. Several faculty are involved in research which include maize plot experiments, chemical pineapple ripening, plant grafting and soil testing.

Accompanied by IAAS staff, visits were made to various national research farms including Kumatar, Kakani and Pumhi Bhundi. During the visits to the research farms they collected horicultural plants, soil samples for further testing, and bought nursery stock. They also reviewed research being done in the hill areas.

During the time of student strikes a seminar was presented to the staff, "Increasing Effectiveness of Teaching and Learning." Considerable time was spent working on and installing equipment in the laboratories. Photographs were taken of staff research to be used for teaching. These included wheat field plots, fungus disease on jack fruit and eggplant-tomato-potato stem grafts.

Extension demonstration plots were set up to illustrate maize response to zinc. Additional extension activities included the zinc trial in Shadanager, cassava planting in hills, visits to local farmers, and visits to farms of students.

Animal Science Division

The MUCIA Animal Science Advisor completed his long-term assignment in early May. A replacement is not anticipated to be in Rampur before early 1982. In the meantime, short-term consultants in Animal Science are planned.

During the early part of the year visits were made to government livestock farms at Gavdaki, Khairanitar, and Khumaltar. Arrangements were made for purchase of Yorkshire and Landrace boars, Border Leicester rams and possibly goats. Visits were made to the branch campuses at Lamjung and Paklihawa to assess needs in the livestock area and to assist in stocking their laboratories.

The Animal Science extension activities included inoculating animals for disease control, blood testing pigs for Brucella and providing artificial insemination for local farmers' cows.

Other Activities

The Team Leader spent considerable time in meetings with the Campus Development Committee, the Library Committee and in organizing the new Research Committee. Procedures and Guidelines have been reviewed and approved for use of the anticipated research funds which will be available when the contract is extended. Planning for the Joint Annual Review to be held in December 1981 was begun.

New candidates for degree training were selected and decisions made on where and when they would go. Commitment was finally made for six M.S. trainees to the Philippines and one Ph.D. to the U.S.

Major progress was made in the library area -- including cataloging, repair of books, ordering furniture, etc. Mrs. Wood has been actively involved in this work.

A visit to the U.S. was arranged for both the Vice Chancellor of Tribhuvan University and the Dean of IAAS. The Vice Chancellor's visit was supported by several sponsors in addition to the MUCIA contract. Michigan State University was his only stop at a MUCIA institution.

Dean Basnyat toured several MUCIA universities and had an opportunity to interact with all the participant trainees in the U.S. En route back to Nepal, the Dean stopped at the University of the Philippines - Los Banos to visit with participant trainees there and to discuss the placement of six additional IAAS staff.

Staff Development

The participant trainee program continues to be an important component in the institution building process. During the reporting period one new participant arrived in the U.S., Mr. Dilli Ram Baral. Mr. Baral is in a Master's degree program at The Ohio State University in Horticulture (temperate fruits).

Mr. Nav Raj Khatri-Chhetri completed his one-year non-degree program at the University of Minnesota-Waseca campus and returned to Nepal. En route he made stops at the University of the Philippines - Los Banos, Universiti Pertanian Malayia and Kasetsart University in Thailand where special programs had been arranged by the Campus Coordinator's office.

Mr. Fanindra Neupane returned to Nepal from the University of Wisconsin in April 1981 to gather additional data for his Ph.D. thesis. He will return to Madison later this year to complete his analysis and final defense of his dissertation.

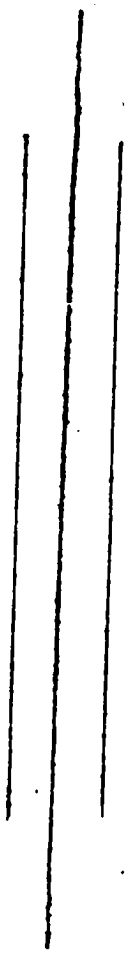
Project Coordinator's Office

The Campus Coordinator traveled to Nepal in May 1981 where he worked with the MUCIA staff, USAID and met with Nepalese officials. Discussions were continued on the extension of the project and the contract beyond the June 30, 1981 ending date. Agreement was made that it should proceed and in mid-June an amendment was signed by MUCIA and AID/W to extend through September 30, 1984.

The staff carried out the usual logistical and administrative support of the project and participant trainees and maintained liaison with the MUCIA organization, the MUCIA team and AID/Washington.

ATTACHMENT A

A PILOT EXTENSION PROGRAM FOR IAAS



IAAS Extension Committee
and
Dr. Paul F. Kaplan
Rural Development Specialist
IAAS/MUCIA*

May 13, 1981
Baishakh 31, 2038

*Additional staff members were co-opted in this work: PP Sharma, Asst. Dean for Academic Affairs, Kailash Pyakural, Reader at IAAS, Bhola Pokharel, and Tara Nepal, Lecturers at IAAS, Garland Wood, Team Leader; Henry Foth and Jesse Williams, MUCIA team members; Peter Rood, former PCV at Pampur has also made extensive suggestions.

Introduction

It is always mentioned that the Institute, as a College of Agriculture for Nepal, has teaching, research and extension functions which it must perform. Thus far, in the short history of IAAS, the first two have been emphasized and the last has been almost completely neglected (Kaplan, 1980). The time has come when neither of the first two functions can be properly performed if we don't move seriously into performing the third. The IAAS is the Nepal agricultural training institution which is to produce all JTA's and JT's for extension work, as well as most of the BSc level subject matter specialists (SMS) to back them up. Therefore without a focused attempt to do extension with farmers, our students will not get the practical skills they will need. Furthermore, without focused extension work no feedback mechanism from farmers fields will be present, and the Institute's teaching and research activities will take on a more and more academic focus. Most Institute staff, trained to the MS level, have returned from training and many are now beginning to do research. Research and teaching at present will be focused, by default, by the experiences abroad of the staff members and book learning will only produce more book learning.

Furthermore, as the Institute grows and is seen to be growing by farmers' in the surrounding region, the realization that it has done very little to help them increase the productivity of their farming will more and more be apparent. Were this not just a practical expedient, the growing awareness of Nepal's deficit production of foodstuffs adds weight to this argument. Both surrounding farmers and HMG may begin to ask the same questions, but HMG will be able to make budget decisions based on the answers that could well affect the growth and development of the Institute.

A pilot extension program would mean providing Agricultural extension services to rural residents in a given locality or set of localities: (Mosher, 1978). There is an underlying assumption that HMG's extension programme through the Dept. of Agriculture is not yet working well for

farmers. All evaluation reports written in recent years point to this fact (Kaplan 1960). But different opinions exist as to what needs to be done to correct these faults. As a product of an IAAS Pilot Extension Project, a new model for effective extension methods should emerge. Yet the primary emphasis of such a program has to be the role it plays in teaching and research as well as the developmental impact it makes on farming in areas worked by on the project.

Objectives of IAAS Pilot Extension Program

The broad objective of an IAAS Pilot Extension Program is to provide a channel of disseminating applicable scientific knowledge to the project area farmers, which has been generated by IAAS, Department of Agriculture, Department of Livestock and Animal Health and other national and international institutions and to have an effective teaching and research program at IAAS which will meet present demands. To meet these broad objectives the following specific objectives will be carried out.

1. To provide plant protection advise to the farmers
2. To loan the plant protection equipments to the farmers at their cost
3. To provide veterinary advise and service to the project area farmer's at their cost
4. To provide facilities for upgrading animals of the project area by providing breeding facilities at IAAS Livestock Farm.
5. To provide agricultural product marketing information to the farmers
6. To provide agricultural input marketing information to the farmers
7. To provide vegetable seeds to the farmers at their cost
8. To train the farmers from the project area
9. To introduce new crops, grasses and animals in the project area
10. To organize Farmer's Field Day, Fair and Farmer's visit to other progressive farms in the project area itself.

Where should such a pilot extension project be set up ?

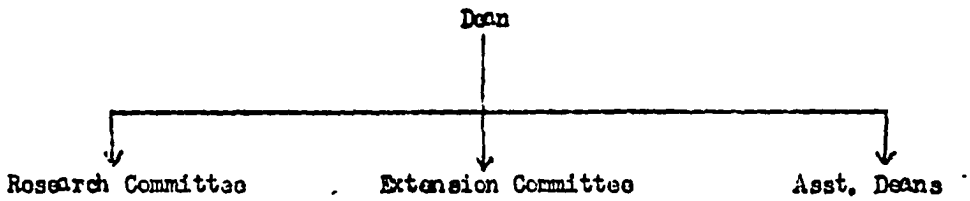
The Institute's pilot extension area should be close enough to the campus so staff and students can get to all parts of it by walking or by bicycle in a relatively short time. It should contain a diversity of farm situations and farmers so as to be somewhat representative of the Inner Tarai region in which the Institute's main campus at Rampur sits. Sharadanagar is such a Panchayat area. It has real diversity of ethnic groups, differences in size of holding and a real mix of progressive to backward farming methods being applied. (A demographic of this Panchayat is provided in Appendix A of this proposal).

A certain amount of research on this Panchayat has already been done. The role of livestock in farming systems has been studied (Shivakoti et al 1977). A complete census of the Panchayat has recently been taken by Rural Development Project course students from records kept by the field workers of the Malaria Control Office. A key informant survey of larger and most important institutions is underway at present. Unanalized data on marketing of grain crops is on file. Sample interviews with farmers from a number of villages in the Panchayat have been analized and is presently being written up. Thus we know more about this Panchayat than any of the others in the region which surrounds the Institute. Our students have been continuously going to farmers in Sharadanagar over the last few years and have taken much from them. Now it is time for us to begin to help them in ways which effect the productivity of their farms.

Program Organization at IAAS

Some new organizational format both inside IAAS and for field activities needs to be proposed for pilot extension project work. The placing of the convenor of the IAAS Extension Committee under the Rural Development Division

of the Institute during this last year has short-circuited the role of the other divisions. If the pilot Extension Project is to be largely an "action project" as opposed to having primarily a "research focus" then extension must have some location in the structure that is Institute wide. The following new set-up is therefore proposed.



The new Extension Committee would be convened by a coordinator of Extension Activities appointed by the Dean. While the Dean would head this committee, in most instances the coordinator would call meetings and chair them as secretary and member of the committee. Other members of the committee would be the three Assistant Deans, all Department Heads, and the MUCIA advisors. The committee will function as a policy making body for all the IAAS extension activities including the Pilot Extension Program. (Under the present Division set up of the Institute, including the new Asst. Deans, each Division will have at least two representatives on the committee).

For the pilot extension work in Sharadanagar Panchayat the set-up would be as follows*. The coordinator would maintain an office and record keeping unit at Rampur Bazaar. His office would be staffed by one SLC level clerk-typist-record keeper. The Coordinator would be the contact man for any farmers with problems. When he comes to campus for classes he would bring requests for information and/or help. All IAAS staff would serve as subject matter specialists (SMS'S) on call in their area

*The details and budget for this program are given in Appendix B.

of specialization. They would go to see the farmer making the request with the coordinator and on returning would fill out a report on problem of farmer & solution/s suggested, or help given. These request for help reports will form the basis of a file on the farmer and his farm. After a short period of time the Coordinator will visit the farmer again and ask about the outcome of solutions suggested or help given and write a short note on on this. Only at that time will he also take from the farmer basic information about his household. Before any next request received from the same farmer is answered, the coordinator and relevant SIS can check the file and go forearmed with information to see the farmer.

This program and its organization can begin first as soon as it can be set up. At the same time IMAS should begin to do training of farmers from Sharadanagar Panchayat. This training will mainly involve what the Institute and other agencies, farms etc can provide by way of new technology for farming. Such farmer training programs should be done perhaps once or twice a year with a new group of farmers each time. After returning to their villages, such trainees become contact people who IMAS staff can easily visit and talk with about aspects of farming or in whose fields trials can be done.

This organizational set up does not at the present time consider establishing any new organizations in the villages. It only proposes to bring additional information to farmers and then to help farmers to organize themselves if that is a need which they begin to feel is necessary.

Resources

This program can move ahead with expenditure of funds indicated in Appendix B. Some resources and manpower might have to be redesignated or delegated from present assignment or use to new assignment or use, depending on the needs of the program as it developes.

Record Keeping and Research

While it is obvious that this Pilot Extension Project is primarily action oriented, without any research component, careful and complete records must be kept. All research associated with this data or generating new data from Sharadanagar farmers will hereafter become part of the same record system. But any research activity using these records will have to pass the Research Committee for approval and funding.

Calendar

It is hoped that this program will begin at IAAS with the start of classes in late July or early August 1981. To make such a start personnel to be involved must be selected and put in place. Meetings should be held with Panchayat leaders and village leaders from all of Sharadanagar. It is envisioned that things will move slowly during the first year but that once benefits to farmers in terms of productivity begin to appear, we will get lots of requests for information and help.

Conclusion

The role of IAAS cannot be fulfilled without a sound action and research based extension program. The time has come and if such a program is not now begun the growth and development of the Institute will be stunted and skewedin an improper direction. But the plan and implimentation of a pilot extension program must be from the bottom up, but also must be practicable and able to be picked up by government extension services acutually. The country needs higher agricultural productivity and effective extension is a major missing link (Stavis, 1979).

References

Benor, Daniel and Harrison, James Q Agricultural Extension: The Training and Visit System Washington DC: World Bank, 1977.

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Mosher, A.T. An Introduction to Agricultural Extension, New York: Agricultural Development Council, 1978.

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Stavis, Ben "Agricultural Extension for Small Farmers" East Lansing, Michigan: Michigan State University, Department of Agricultural Economics, June 1979 (Draft: for Discussion only).

APPENDIX A

POPULATION TABLE OF SHARADANAGAR

(MARCH 1981)

Sr. No.	Panchayat	Ward No.	Name of village	Numbers of family	Adult*		Young*		Infant*		Total		Total Population
	Sharadanagar				Male	Female	Male	Female	Male	Female	Male	Female	
1	"	6	Beluwa	22	48	55	48	43	5	3	101	101	202
2	"	2	Baruwa	19	32	33	30	34	3	2	65	59	124
3	"	4	Mardichaur	16	23	22	19	17	1	1	43	40	83
4	"	4	Bangai	38	69	83	56	59	1	5	126	147	273
5	"	3	Haraiya	55	126	114	78	81	2	6	206	201	407
6	"	1&2	Sharadanagar	285	432	485	346	376	15	17	793	878	1671
7	"	7&8	Kiranganj	172	269	288	237	229	7	15	533	532	1065
8	"	5	N.Chandranagar	135	230	249	185	189	9	6	424	444	868
9	"	9	S.Chandranagar	147	256	253	225	182	10	11	491	446	337
			TOTALS	889	1505	1582	1224	1240	53	66	2782	2848	5630

*NOTE - Adult - above 14 yrs. old
Young - 1 - 14 yrs. old
Infant - 1 month - 11 months

APPENDIX B

THE PROGRAM ORGANISATION AND BUDGET

IAAS Pilot Extension Program will be coordinated through the Extension Coordinator's Office which will be located in a street level, rented room in Rampur Bazaar. The reason for keeping the office in Rampur Bazaar instead of inside IAAS complex is that farmers may be hesitant to come inside the fence. They go to Bharatpur and Narayanghat from Rampur by tempo, taxi and bus and the location at Rampur will serve as an easy contact place. The location of co-ordinator's office in Rampur instead of Saradanagar Bazaar is also justified by the fact that it is easily accessible for / the coordinator to take classes as well as contact IAAS administration and subject matter specialists on campus. Neccessary furnitures for the office should be taken from the campus.

For the office of the coordinator a typist-cum-clerk should be appointed. His main responsibilities will be to attend the office, keep records for each farmer's informations regarding the type of problems he has faced and the recommendation or services provided to him. When the coordinator is not in the office, and farmers need to see the Coordinator the clerk will either direct the farmer to the Coordinator or the subject matter specialists. He will also provide pamphlets and printed materials to the farmers which relate to their problems and interests.

Transportation :

One MUCIA motorcycle should be loaned to the coordinators office for the use of the Co-ordinator and subject matter specialists. The fuel for that motor cycle should be provided by IAAS. Another motorcycle and a Jeep should be made available from MUCIA on request as has already been done for emergency extension visits to farmers.

Organization and Administration of the Program

All the requests for the advice and services for farmers will be received by the Coordinator. The type of services provided by the different departments

are given below in this appendix. For specific services, the Coordinator will make a request to the department or the individuals and the subject matter specialist will make the farm visit or advise farmers on campus. The subject matter specialist will also fill a form about the nature of the problem and the recommendations given. After some time either the coordinator or the farmer will make a return visit and record the improvement. That information will be kept in each farmer's file.

For the services, there will be no charge to the farmers. But there will a charge for renting the equipments, the costs of insecticides, fungicides and rodenticides. The chemicalswill be provided from IAAS only when they are not available in the Sajha. The stock of inputs will be maintained at IAAS from a running fund. The estimated costs of these chemicals for the running fund are given below.

Budget Summary

The total cost of the project, excluding the regular costs which are being incurred by IAAS and MUCIA, can be divided into two parts. First the current expenditures and the revolving fund.

Current Expenditures

1.	Room Rent	Rs. 900.00
2.	Typist salary	Rs.3,900.00
3.	Stationary	Rs.33000.00
4.	Farmer's training	Rs. 2600.00
		Total Rs. 10,400.00

Revolving Fund

a)	Animal Health Medicines	Rs.5,825.00
b)	Plant Protection Chemicals and equipment	Rs.7,500.00
c)	Demonstrations	Rs. 600.00
		Total Rs.13,925.00
	Grand Total -	24,325.00

FARMER TRAINING PROGRAM

The objectives of the Farmer's training program for the Saradanagar Pilot Extension Pregram is to provide a chance to the farmers for use of improved technology without taking their own risk and help in the adoption of new technology by them. Besides this they can also work as the channal between LAAS Pilot Extension Program and the other villagers. To meet these objectives the following specific objectives will be drawn.

1) To train farmers on how to use chemical fertilizers for each crop
2) To train farmers on nursery bed preparation fre crops and vegetables
3) To train farmers on the application of insecticides, pesticides and rodenticides including making different concentrations of insecticides, pesticides and rodenticides, how to operate sprayers and dustors.
4) To train farmers on feeding animals with respect to nutrients available in different foed stuffs
5) To train farmers to diagnose simple and most common animal diseases of Saradanagar Panchayat along with their prevention and control.
6) To train farm women in vegetable & fruit nursery management.

Organization of Training Program

The pregram will be organised through the coordinator's office and will be conducted by each of the departments or divisions. For this purpose the Coordinator will select 2 farmers from each ward. The selection of the farmers will be based on regional representation of the ward, progressive farmers will be chosen; especially, the farmers of the small and medium size of holdings will be given preference over big farmers.

Duration of Training

For each objective one day will be taken and all together 5 dayswill be taken to run the program.

Time of Training

Since the main planting season will start only after 15th of Asadh, the training should be conducted before that date. It is preferred to have about 5 hours training each day so that farmers come to IAAS and return back to their home in evening time.

Expenses

The trainees will be given Rs. 10/day as a per diem to cover their expenses. All together Rs. 180/day will be spent for 5 days Rs. 900.00. For other expenses such as stationary and others Rs. 400 will be spent. Total cost will be Rs. 1300.00. It is recommended that this type of program should be run twice a year (Cost per year Rs. 2600). This cost should be born by IAAS. IAAS staff should participate on voluntary basis as teachers in the program.

At the end of the training program farmers will receive the certificate. They will be asked to provide voluntary service of contact between IAAS and their fellow farmers. If the demonstrations and trials are conducted the trained farmers will be given preference. If further training on a specific subject is desired, the farmers' will be again trained in future but for at least three years, there will be no retraining of the same farmers.

Plant Protection

Plant Protection services include renting sprayers and dusters, offering technical and consultancy services regarding the most prevalent diseases and pests, and sales of fungicides and insecticides to the farmers.

If incidences of disease & pest attacks are noticed in any part of the project site or the neighboring localities, information with appropriate means of communication will be passed to farmers to take precautionary measures. A program costing around Rs. 7500.00 for one year has been developed. Fungicides and insecticides will be purchased from the revolving fund.

A tentative budget work out of the Plant Protection (Entomology)

The followings are the recommended pesticides in Chitwan for the most prevalent insect pests and rodents (Neupane). The prices of these pesticides and sprayers are obtained from the ADO, Bharatpur. Based on this, a tentative budget requirement is provided below to begin with the extension program in the plant protection (entomology) area:

Pesticide/Sprayer & duster	Quantity to be aquired	Price (in Rs)	Total Amount (in Rs)
1. BHC 5% Dust	50 kgs	204.15/quintal	102.07
2. Chlordane 5% Dust	50 kgs	450.00/"	225.00
3. Malathion 5% Dust	50 kgs	569.00/"	284.50
4. Metacid - 50	2 liters	160.00/litre	320.00
5. Sevin 50% WP	20 kg	88.00/kg.	1760.00
6. Metasystox 20% EC	2 litres	150.00/lit.	300.00
7. Zinc Phosphide	5 kgs	80.00/kg	400.00
8. Celphos tablets	5 packs	60.00/pack	300.00
9. Malathion 50% EC	2 litres	100/lit.	200.00
10. Hand compression sprayer (9 litre Capacity)	5 units	456/unit	2280.00
11. Hand Duster	2 units	200/unit	400.00
		Rs.	6571.57

The Diseases and the Fungicides

The following diseases are reported to be the most prevalent diseases for the Chitwan area. The name of the disease, the chemicals used to control it and the approximate cost for the revolving fund is given below:

Name of the Disease	Recommended chemical	Approximate cost Revolving fund
Rice diseases		
a) Blast	Blasticidin-s kasugamycin	Rs. 140.00
b) Brown spot	Agrosan or ceresan	Rs. 40.00
c) Bacterial blight	Agrimycin, streptocycline	Rs. 125.00
Wheat Diseases		
a) Brown Rust	Sulphur dust	Rs. 20.00
b) Leaf Blight	Bayleton kitazin	Rs. 80.00

Corn Diseases

a) Leaf blight	Captan or Zineb	Rs.	35.00
b) Downey mildew	Vitavax Bavistin	Rs.	45.00

Other Crop Diseases

a) Damping off seedlings	Formaldehyde, Bordeaux mix	Rs.	30.00
b) Late blight of Potato & Tomato	Maneb, Mideric	Rs.	80.00
c) Root knot nematodes	DD clorepicrin	Rs.	45.00
d) Early blight of potato	Cuprarikh or Zineb	Rs.	30.00
e) Tikka disease of Groundnut	Cuprarikha or Maneb	Rs.	35.00
f) Anthracnose	Difolatan	Rs.	45.00
g) Powdery mildew of Pea	Karathena	Rs.	80.00
h) Citrus cankar	Streptomyces sulphate	Rs.	100.00
	Total cost for fungicides	Rs.	930.00

Generally the fungicides are not used by the farmers and they are also not readily available in cooperatives. If the farmer will demand plant protection service the diagnosis of the disease, and the proper chemical will be provided to the farmers from LAAS. There will be no charge for service but the cost of chemicals will be realized from the farmers.

Extension Activities of Animal Science

The followings are the regular ongoing extension activities of livestock section.

1) Distribution of piglet to the farmers
2) Distribution of Buffalo calves
3) Sale of adult animals at auction
4) Up grading local buffaloes by pure Murrah bull
5) Up grading local cows by Jersey bull
6) Distribution of fodder seeds available in the farm
7) Up grading goats by Jamunapari Buck
8) Advisory service to the farmers on animal health and production

These on going extension activities will be strengthened for the LAAS pilot extension program. For the extension activities some veterinary medicines and equipments will be purchased and kept as stock at LAAS. The cost will be realized from the farmers. The list of a six months' supply of these medicines, as well as vaccines and equipments and their cost is given below:

S.N.	Description	Quantity	Approx. cost	Remarks
A.	Medicines			
1.	Avil Inj.	10mlx20	150/-	Allergy
2.	Anoreman tab.	50x20	750/-	Avonxia
3.	Carbon Tetrachloride Liq.	400x10	150/-	LiverFluke(Lt)
4.	Distodin tab. 1 bm	50x10	400/-	LFinlable
5.	" " 100 mg	50x10	150/-	LFin sheep & goat
6.	Vermex liq.	450x20	1000/-	Roundworm
7.	Magnesium sulphate	20 kg	50/-	Laxative
8.	Himalayan Batisa	10 kg	100/-	Avonxia
9.	Inj. Terramycin	30mlx20	500/-	Infection
10.	Terramycin Tab (A.F.)	20x20	200/-	Infection
11.	Tincture of Iodine	400mlx5	150/-	Topicaluse
12.	Potassium per maganate	400gmx5	75/-	Antireptic
13.	Turpentine oil	400mlx5	100/-	Maggot
14.	Phenyl Liq.	10 litres	100/-	FMD
15.	Calboral or Mifex	450mlx6	200/-	Cudeficiency
			2875/-	
B.	Equipments			
1.	Clinical thermometer	12	100/-	Temp. record
2.	Hypodermic syrings 10 ml(glass)	12	150/-	Priyectio
3.	" " 20 ml(")	12	250/-	"
4.	Hypodermic needles 16 gauge	12x2	25/-	"
5.	Burdi " " 16 gauge	12x2	25/-	"
6.	Burdizzo castrator for goat	4	500/-	Castration
			1050/-	
C.	Vaccines			
1.	Rinder pest vaccine	500 dose	free supply	R.P.
2.	H.S. vaccine	1000 dose	" "	H.S.
3.	Anti rabils vaccine	500 dose	" "	Tsbils
4.	Ranikhet vaccine (F, Strain)	1000 dose	" "	R,K,D
5.	FMD vaccine (Hoochst)	10 vials	1500/-	
			1500/-	

Extension Activities of Soil Science

The services of Soil Science personnel will mostly include advisory services on request. The soil ammendments and fertilizers recommended to farmers will be purchased by the farmers. Commonly unavailable micro-nutrient supplements may have to be kept in stock by the institute, but the estimation can not be done unless the needs are assessed by actual farm visits. Soil testing facilities will be provided to the farmers cost free after our labs are well equipped to do so. Presently, the soil science faculty can help the farmers in the following ways:

a) Visit farm areas, observe crop and soil management practices and suggest possible improvements in the existing farmers' systems
b) Observe macro and micro-nutrient deficiency symptoms on crops and recommend use of proper amendments
c) Encourage compost making, proper use of farm yard manures, crop residue and mulches
d) Estimate pH of soils and recommend liming if neccessary
e) Co-ordinate with economists to recommend optimum level of fertilizers for major crops
f) Co-ordinate with plant protection personnel to help control soil born diseases and insects
g) Co-ordinate with agronomy and horticulture personnel to suggest suitable cropping systems to control soil erosion
h) After soil-testing facilities are developed at the Institute run routine soil analysis services for the farmers.

Extension Activities of Crop Management

Demonstrations on newly released crop varieties, on their cultivation practices such as planting, fertilizer application, irrigation and weed control can be set up in farmer's fields at different localities. At the beginning of the program, such demonstrations will be limited to only a few farms. With increased research output in these areas at this institute, demonstrations will

be focused to showing farmers the profitability of adopting the recommended cultivars, cultivation practices and cropping patterns over their traditional ways of raising crops.

This winter, we can put demonstration plots in different wheat varieties. One farmer will be selected in each ward. Farmers will supply labor for field preparation and planting. They will be responsible for management of the crop. The approximate cost involved will be as follows:-

Seeds	-	40 kgs.	Rs. 200/-
Fertilizers			Rs. 300/-
Posticides			Rs. 100/-
			Rs. 600/-

Extension Activities of Horticulture

Programs such as rendering technical services to farms regarding vegetables & fruit growing (such as identification of diseases and pests and their control measures, various propagation technics, etc.) will be launched.

Distribution of seasonal vegetable seeds, ornamental plants & few species of fruit plants will also be its other aspect. After a reasonable understanding of the training needs of farmers (specially the farm women) regarding fruit & vegetable nursery management, course content for this aspect will be developed & incorporated in the overall training program of the Pilot Project.

The above mentioned program derives from many of the things already being done in the three divisions of IAAS. They are the natural extensions of our regular activities. As requests for information and help begin to come to the coordinator from farmers, new ideas for program help will emerge. They will be proposed and budgeted as that occurs.

APPENDIX C

THE ROLE OF STUDENTS IN THE PILOT EXTENSION PROGRAM

The Pilot Extension Program of LMS is primarily designed to improve teaching/learning and research at the Institute while at the same time improving production on farms in the surrounding area. Researchers/teachers, acting as Subject Matter Specialists will be visiting farmers and making in-depth studies of their problems. They will come to know more about farmers' crops, livestock, soils, insects, pests and diseases as well as social and economic constraints to improved farm production. Very quickly this new information will have direct impact on the classroom teaching.

The Pilot Extension Program area in Sharadanagar Panchayat will act as a practical out-door laboratory for students in many different course areas. Individual teachers, in consultation with the Coordinator for Extension and the Academic Assistant Dean will be asked to review plans for practical work in terms of this new program, in order to minimize conflicts between practicall course requirements for different courses. Such work will be mostly for diploma level students. Some practical work in the Pilot Extension Program area, can be envisaged for all the courses listed in this three year program, yet obviously some courses are more adaptable to this than others. (See LMS Annual Course of Study pp 5-6). It is also true that we will move into this work slowly and steadily as diploma level classes are annualized. Still teachers can be trying out different approaches to farm based practicals while their courses are still on the old semester system. Of special importance will be the task in practical classes of developing "problem diagnostic skills" in the students which will carry over in to their careers.

Of note also are the work/experience programs of Plant Science the Research Oriented Work/Experience Programs of all three divisions and the Project Work of Rural Development on In Depth Study of Farming Households. Since all of these will come only in the second and third years of the annualized diploma program, there will be some time yet to work out the details about how at least some students can work in the Extension Pilot Project area. Once again the slow advent of the annualized system will be helpful with regard to meshing the teaching/learning program with the extension program (See LMS Annual Course of Study pp. 44-51).

Because the Extension Pilot Program will attempt to serve a limited farming community it is important that the services it provides are not in any way tied to and limited by the Institutes academic time-schedule. This is especially true as regards, Vacations and breaks. Some thought will have to be given regarding keeping at least a "Skeleton" SMS force on campus during these times. The quite numerous student strikes and "spontaneous" days-off also call for careful planning in terms of how to involve students in the Pilot Program.