PD-ABZ 845
95315

TIPAN

Transformation and Integration of the Provincial Agricultural Network

Northwest Frontier Province, Pakistan

Office of International Agriculture
University of Illinois at Urbana-Champaign

In collaboration with
Southern Illinois University at Carbondale

PD-AB1-335

CONSULTANTS REPORT

RESEARCH STATION MANAGEMENT

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17 NOVEMBER-22 DECEMBER, 1993

Submitted to the
Northwest Frontier Province
Agricultural University
Peshawar, NWFP, Pakistan

and

The U.S. Agency for International Development
Mission to Pakistan

A Report of Contract
The transformation and Integration of the Provincial
Agricultural Network (TIPAN) Project

by

Office of International Agriculture
University of Illinois at Urbana-Champaign
Southern Illinois University at Carbondale

I. INTRODUCTION

It is appropriate by way of introduction to describe previous assignments in the career of this consultant which contribute to the approach, evaluation and recommendations made in this report. Those assignments were:

1. Associate Professor, Forage Crop Production and Pasture Management (Split appointment, 60% research, 40% outreach), 1985-1993

2. Director, University of Illinois Agricultural Center (Institute), 1973-1985

3. Superintendent, Purdue University Southern Indiana Forage Farm (Station), 1957-1968

4. Military assignments in Active Duty, Reserve, and National Guard status, including completion of various military schools and the Command and General Staff College, 1949-1990.

II. SCOPE OF WORK (SOW) AS CONSULTANT FOR RESEARCH STATION MANAGEMENT

The consultant worked with the Directors, Farm Managers and researchers of the Research Institutes, Research Stations and Campus Farm to improve research management and operations by

1. Assisting with the improvement of the procedures by scientists for providing the following: land for experiments, land preparation, equipment, labor, fertilizer, chemicals, supplies and transport.

2. Assisting with the maintenance and improvement of the following records: financial records for regular and special project research, information on experimental fields, equipment inventory, and supply inventory.

3. Assisting with the planning for the development of technology and technology transfer to extension officers and farmers: budget for Outreach activities, Farmer Field Days, on-farm Adaptive Research, demonstrations, and mass media.

III. INTERVIEWS AND CONFERENCES

One or more formal visitations were made with many key individuals in the process of gaining information about the Research Station Management at the Northwest Frontier Province Agricultural University (NWFPAU).

1. The staff of the Transformation and Integration of the Provincial Agricultural Network (TIPAN).
   Dr. Oval Myers Jr., Team leader
   Dr. Farrel Olsen, Crops Science Specialist
   Dr. Don Kuhlman, Extension/Commo Specialist

2. Vice Chancellor Syed Basit Ali Shah of NWFPAU meet me at entry and exit of my stay.

3. I met with Director of Research Abdul Qadim Syed of NWFPAU at entry and exit as well as infrequently both formally and informally during my stay.

4. I met with the Director of Outreach at the NWFPAU and his staff at entry and exit as well as infrequently both formally and informally during my stay.

   Mr. S. Iqbal Shah, Director of Outreach (also Head of Animal Science Department)
   Syed Mehfooz Ali Shah, Outreach Consultant (Retired NWFPAU)

Baz MohammadRegional Program Leader, Peshawar
Mr. Mohammad Akram KhanRegional Program Leader, South
Mr. Gulfam Khan JehangireRegional Program Leader, Dhodial
Mr. Qazi AqiqullahRegional Program Leader, Malakand
Ms. Ejaz BegumWomen's Program Leader

5. I met with the Director of Budget and Finance of NWFPAU at entry and exit during my stay.

   Dr. Gulzar AhmadDirector of Budget and Finance
   Sher AfzalResearch Accounts

6. I met with the Director of Planning for NWFPAU and his staff at entry and exit as well as infrequently both formally and informally during my stay.

   Abdul Haq, Director of Planning
   Mohammad Anwar, Deputy Director of Planning
   Nasir Ali, Program Officer
   Abdur Rashid, Coordinator of IPM
   M. Asim, Monitor and Evaluation Officer
   Dr. Gulzar, Coordinator of Adaptive Research

7. I met with the Director of IDS of NWFPAU and his staff at entry and exit as well as infrequently both formally and informally during my stay.
   Mr. A. Khan, Director, IDS
   Dr. Farman Ali, IDS
   Janbaz Khan, Associate Professor, IDS

8. I traveled to the Research Institutes and Research Stations and visited with the Directors and some of their Section Heads and Scientists.

   Mr. Sherin Khan, Professor, Malakandher Farm Manager
   Dr. Saifullah Khattak, Director, Tarnab, ARI
   Mr. Abdul Wadud Khattak, Director, Pirsabak, CCRI
   Mr. Ghulam Sarwar Khan, Director, Mardan, (Sugar Cane)SCRI
   Mr. Mohibullah Khan, Director, Mingora, ARS
   Mr. Syed Razi Haider ZaidiDirector, Surezai,(Livestock) LRS
   Mr. Bashir Ahmad, Director, Karak, ARS
   Dr. Nazir Hussain Shah, Director, Serai Naurang, ARS
   Mr. Allah Bakhsh Khan , Director, D.I.Kahn, ARI
   Mr. Abdul Malik Lughmani, Director, Abbottabad (Potato) PRS
   Mr. Gulfam Khan Jehangir, Director, Dhodial, ARS
   Dr. Jamshad Khan Jadoon, Director, Jabba (Sheep) SRS
   Mr. Mohammad Amin, Director, Kohat, Barani ADP

9. Farm managers were also contacted for visiting at the Research Institutes and Research Stations. The duty of Farm Manager was shared among two or more scientists at many of the stations. Farm Managers with whom I met at the stations or attend the Farm Managers Workshop are listed here:

   Dr. Sohail Akhtar, Farm Manager (Dairy), Malakandher
   Mr. S. Asghar Hussain, Farm Manager (Hort), Malakandher
   Mr. Mohammad Jamal Khan, Farm Manager, Tarnab, ARI

Mr. M. Ismail Khan, Farm Manager, Pirsabak, CCRI
Mr. Dawa Khan, Farm Manager, Mardan, (Sugar Cane)SCRI
Mr. Munawar Khan, Farm Manager, Mingora, ARS
Mr. Fazal Rahim Bangash, Farm Manager, Surezai,(Livestock) LRS
Mr. Ghani ur Rehman, Farm Manager, Karak, ARS
Mr. Khan Bahadar, Farm Manager, Serai Nauranag, ARS
Mr. Ghulam Hussain , Farm Manager, D.I.Kahn, ARI
Mr. Dinsarwar Wazir, Farm Manager, D.I.Kahn, ARI
Mr. Khaliquz Zaman, Farm Manager, Abbottabad(Potato)PRS
Mr. Sahibzadar Qayyum Ahmad, Farm Manager, Dhodial, ARS
Dr. Beradar Mian, Farm Manager, Jabba (Sheep) SRS
Dr. Mohammad Jamal, Farm Manager, Kohat, Barani ADP

IV. WORKSHOPS

1. A full day's workshop (Appendix A through L) was held for Farm Managers on Wednesday, 15 December 1993. Background information was presented in introducing each of six work assignments aimed at everyday problems of the Farm Manager. The group of Farm Managers were divided into three discussion groups for completing the work assignments. Following the presentation of each group an open discussion period was held with summary by the consultant. A short slide presentation of outlying Stations and field locations terminated the day-long workshop. The workshop was video-taped by the Outreach section.

2. A full day's workshop was held for the Institute/Station Directors. A special set (Appendix M through R) of administration and leadership assignments was presented following background information by the consultant. Discussion groups, group reporting, and summary methods were similar to those followed for the Farm Management workshop. A short slide presentation of outlying Stations and field locations terminated the day-long workshop. The workshop was video-taped by the Outreach section.

V. EXPERIMENT STATION OPERATIONS (SOW 1)

PRESENT SITUATION

Responsibilities of Farm Managers for the operations of Research Stations farm operations were divided into 42 responsibilities (Appendix D). Each farm manager was asked to evaluate his research station and identity the responsibility of each staff member at his station. Land preparation and irrigation control was identified as the responsibility of the farm manager at all stations (Table 1). Frequencies 8 through 12 (Table 1) identify the station farm managers as the person with primary responsibility for land, power, labor, and machinery. Frequencies 6 and 7 separate specialized responsibilities between the farm manager and other station personnel. Those frequencies at 5 and below are the responsibilities of others as often as they are the responsibilities of the farm manager. Low frequencies also indicate that some stations do not have the specialized responsibility.

Table 1. Farm Operations responsibilities (SOW 1) actually performed at NWFP Agricultural University Research Institutes and Stations ranked by performance of the Farm Manager. Frequency of Farm Operations responsibilities performed by the Director and Most Frequent Other are noted (12 Farm Managers surveyed).

Responsibility	Farm Manager	Director	Most Frequent Other
Land preparation	12		
Irrigation control	12		
Crop rotation plan	11		Agronomist
Land assignments	11	1	
Tractor assignments	11		
Labor assignments	11	1	
Land leveling	11	1	
Seed processing	10		Storekeeper
Watch and Ward	10		Watchman
Seed production	10		Specialist
Muster (roll)	10		Watchman
Seed storage	10		Storekeeper
Fence maintenance	9	2	
Bullock assignments	9		
Machinery maintenance	8	1	Mechanical Supervisor
Produce sales	8	2	Concerned Section
Contract sales	8	1	Agronomist
Equipment maintenance	7	1	Farm mechanic
Fruit & Vegetable labor	7		Concerned Section
Seed purchasing	7	2	Breeder
Milking schedule	7		Senior Research Officer
Colony maintenance	7	1	Director of Works
Landscape maintenance	6		Special Man
Fertilizer purchasing	6	1	Purchasing Officer
Milking labor	6		Senior Research Officer

Seed sales	6	1	Second Farm Manager
Building maintenance	5	4	Director of Works
Sheep shearing labor	5		Specialist
Electrical maintenance	5	1	Electrician
Well & pump maintenance	5	1	Supervising Engineer
Soil sampling	5		Soil Scientist
Livestock feed purchasing	5		Director of Purchasing
Milk delivery (sales)	5		Senior Research Officer
Stores purchasing	5	1	Purchasing Committee
School children transport	5	2	Administrative Officer
Vehicle assignments	5	2	Pool Officer
Pump maintenance	5	1	Director of Works
Tea service	4	1	Operator
Hostel service	4		Director of Works
POL purchasing	4	4	Pool Officer
Hostel maintenance	4		Director of Works
Ferry boat operations	3	1	Director of Works
Cropping system management*			
Weather station*			

* Additional duties assigned by the Director to the Farm Manager not listed in the questionnaire. Frequency of the duties is not available.

RECOMMENDATIONS:

A job description be prepared for each farm manager.

VI. EXPERIMENT STATION RECORD KEEPING (SOW 2)

PRESENT SITUATION:

Responsibilities of Farm Managers for the record-keeping of the Research Stations farm operations were divided into 13 responsibilities (Appendix D). Each Farm Manager was asked to evaluate his research station and identify the responsibility of each staff member at his station. Field, crop, feed, labor, watch and ward, and seed, frequencies 9 through 12, was identified as the responsibility of the Farm Manager at all stations (Table 2). Frequencies 6 and 7 separate specialized responsibilities between the farm manager and other station personnel. Budget and economic analysis were identified as additional responsibilities the some Farm Managers have.

Table 2. Institute/Station record-keeping responsibilities (SOW 2) actually performed at NWFP Agricultural University Research Institutes and Stations ranked by performance of the Farm Manager. Frequency of record-keeping responsibilities performed by the Director and Most Frequent Other are noted (12 Farm Managers surveyed).

Responsibility	Farm Manager	Director	Most Frequent Other
Field map	12		
Crop register	12		
Feed register	11		Senior Research Officer
Field record	11		
Labor record	11	1	
Manure record	11		Chemist
Watch and ward record	10		
Crop residue record	10		
Seed register	9		Storekeeper
Produce sales register	7		Store Officer
Cow/buffalo milk record	7		Senior Research Officer
Soil test record	6		Soil Scientist
Stores inventory	6	2	Senior Research Officer
Budget*			
Economic analysis*			

* Additional duties assigned by the Director to the Farm Manager not listed in the questionnaire. Frequency of the duties is not available.

RECOMMENDATIONS:

A job description be prepared for each Farm Manager.

VII. EXPERIMENT STATION BUDGETING FOR OUTREACH ACTIVITIES (SOW 3)

PRESENT SITUATION:

Responsibilities of Farm Managers for budgeting and outreach of Research Stations farm operations were divided into 4 responsibilities (Appendix D). Over half (Table 3) of the station Farm Managers have some responsibility for a annual report on farm management activities and for field day preparations. The Station Director, Senior Research Officer, and Director of Outreach also share in these responsibilities. The Farm Managers indicated during the workshop the responsibility for research and research reports, teaching, public relations, preparation of journal articles and outreach activity.

Table 3. Budgeting and Outreach responsibilities (SOW 3) actually performed at NWFP Agricultural University Research Institutes and Stations ranked by performance of the Farm Manager. Frequency of Budgeting and Outreach responsibilities performed by the Director and Most Frequent Other are noted (12 Farm Managers surveyed).

Responsibility	Farm Manager	Director	Most Frequent Other
Annual report (farm management	8	1	Senior Research Officer
Station field day service	7	1	Director of Outreach
Entrance and Project sign	5	2	Senior Research Officer
Station tour service	5	5	
Research reports*			
Teaching responsibility*			
Research responsibility*			
Public relations*			
Journal articles (technical)*			
Outreach activity			

* Additional duties assigned by the Director to the Farm Manager not listed in the questionnaire. Frequency of the duties is not available.

RECOMMENDATIONS:

A job description be prepared for each Farm Manager.

VIII. MALAKANDHER FARM (CAMPUS) DAIRY RESEARCH, TEACHING, OUTREACH (SOW 1,2,3)

PRESENT SITUATION:

Recommendations for the physical operation of the dairy itself, and for rations that maximize the use of daily in-season hand-harvested forages (fodder) on a year-round basis form the 78 acres of Malakandher Farm allocated to dairy production. At present, there is no grazing or field tethering of dairy animals; all milking animals are tethered at the stall for milking, feeding, watering, and maintenance.

At the present daily hand-harvested in-season green forages are berseem clover, *Trifolium alexandrinum,* (a winter annual) often seeded with other crops, e.g., maize, sorghum and millet. For example, I observed berseem clover being hand-harvested from a fall planting of sugar cane during my visit to Malkandher. Chopped wheat straw is stored in mud covered "heaps" and manually mixed with the green chopped forage. Chopping is done by a stationary chopper run by an electric motor at the stall area). The chopper has the capacity of chopping one single maize stalk at time. At Surezai I observed a fall seeding of maize and berseem clover being hand-harvested together, chopped and mixed with chopped wheat straw for the dairy herd. This seeding of maize-berseem clover will be harvested by hand 3 to 4 more times. Maize is a part of only the first harvest. Maize is used to increase the tonnage of the first harvest. In another field, berseem clover only was seeded and will receive its first harvest after the maize-berseem clover is harvested. Afterwards, this second field will be followed by 3 to 4 more harvests in concert with the first field of maize-berseem clover. Cotton seed cake is also available for the ration.

HAY PRESERVATION

Sugar cane leaves are dried and stored as bundles in vertical form; rice straw is hand stacked in long form (unchopped) and stored in handmade stacks. Maize fodder is dried and stored in horizontal stacks or bundles and available. Stored feed, e.g., hay is only used when green fodder is not available. Some green feed is available almost every day of the year from some source (various species); quantity of green feed hand harvested is not always enough.

FEED PRESERVATION (SILAGE)

1. Continue the present system of fodder production in the short run.

2. Began planning for a silage system to consist of 3 upright concrete silos (14'x 30'). Silage and silage making is not a part of the system. I have frequently asked about silage. Silage will allow for a means of continuous storage of surplus green feeds in season and at the highest quality (energy and protein). It likewise allows for quality feed as silage supplementation to be made to the daily green harvest. The diameter of silos is small in size to minimize spoilage due to a likely low daily usage rate; many times there may be no need for daily silage usage. One silo is planned for high energy feeds (maize) and a second for high protein feeds (berseem clover, or alfalfa). A third silo is to be used when feeding is occurring from either of both of the other two so as to allow for fermentation time of the silo being filled. In practice, the silo being filled could be any of the three silos depending on the fodder being harvested and ration needs of the milking herd.

3. A small skid mounted stationary chopper-blower (with blower pipe and deflector hood) powered by electricity should be installed at the silos. The chopper-blower would be skidded to each of the silos in turn at filling time.

No additional mechanization is recommended. Cutting in the field should be continued by hand; hauling to silo as is now done to the barn; feeding the chopper-blower as is now done at the chopper

near the stall. Feeding to be done by hand, by climbing to the top of the silo and pitching the silage down the outside chute into the same feed carrier now used to take the green-chopped straw ration to the stall. Silage to be mixed with the green fodder at this time if supplement is needed.

SILO MANAGEMENT

Seepage is likely to be a problem with the protein silage (berseem clover and alfalfa). The available chopped wheat straw in limited amounts may be added at the blower and mixed with green material is it goes into the silo. Because that filling will likely be slow, seepage may be minimized; however, filling should be fast enough so that spoilage will be prevented at the filling face (top of silo).

AGRONOMY (CROP SYSTEMS)

Recommendation for the 78 acres of land devoted to dairy feed production at Malkandher. In the short term, while moving animals to the new facilities the present stall feeding system of forages properly supplemented should be continued. In the long term, research should be done with perennial forage species for continuous sustained production of high quality forage and for improving the organic matter and fertility of the soil.

1. Continue the present system in the short run.

2. Plan for the following rotations:
   a. Maize-berseem clover
   b. Sorghum-berseem clover
   c. Continuous alfalfa (alfalfa for 5-7 years, then to maize and back to alfalfa). At this time the new seeding of alfalfa should go to a field which has not recently been in alfalfa.

3. Maize and sorghum silage to be stored in the silo that contains mostly similar fodder (energy feeds).

4. Berseem clover and alfalfa silage to be stored in the silo that mostly contains similar fodder (protein feeds).

5. Increase the present acreage of perennial sorghum-x-sudangrass hybrid grass for daily in-season harvesting and for storage as hay or silage.

Dairy-Forage-Grazing Research

Research suggestions for sustained dairy/forage (fodder) production should begin immediately. (forage species established for latter use). The following year-round dairy-forage systems are suggested:

System 1. The present system of stall feeding of maize and maize-berseem clover supplemented with wheat straw and cotton seed cake.

System 2. Perennial sorghum-x-sudangrass hybrid (sorghum bicolor-x-sorghum sudanese) interseeded with berseem clover or the perennial elephantgrass (Pennesitum purpeurum) interseeded with berseem clover hand harvested and stall feed daily with additional energy and protein from the silo if needed.

System 3. Perennial alfalfa (Medicago sativa) and the local weed species of bermudagrass (Cynodon dactylon) or in improved variety if available, hand harvested and stall fed daily with additional energy and protein from the silo if needed.

System 4. Perennial alfalfa (Medicago sativa) and the local weed species of bermudagrass (Cynodon dactylon) or in improved variety if available (same as system 3), rotationally grazed with a new area each day and supplemented with additional energy and protein the silo if needed.

If the complete forage ration in treatments 2, 3, and 4 is not balanced for protein and/or energy, through the feeding of hay and silage (forage) supplements; additional supplemental highly concentrated protein and/or energy supplements should be added.

SOIL FERTILITY

Soil fertility is to be maintained at a high level through the addition of animal manures and commercial fertilizers. The level of soil fertility should be continuously monitored by soil fertility testing. Special attention is to be given to reducing any losses of fertility into the environment by way of leaching or erosion.

OTHER CONSIDERATIONS

Individual daily animal production records: A system should be established to record individual daily animal records by the use of a computer spread sheet such as "Lotus 123" or currently available software available from Dairy Herd Improvement Associations (DHIW).

Hand milking and or mechanical milking: Consideration should be given to the future use of mechanical milkers. If mechanical milkers are to be used in future plans, the hardware should be made so that it can be incorporated into the milk house while construction is still underway. (I was unable to determine if there is presently a milk house or a place for milk handling at the barn.)

Colony: Movement of the cows and buffalos to the new dairy facility is being delayed because of the lack of housing for the dairy herders and milkers at the new facility; this issue should be immediately resolved.

Security: Watch and Ward plans need to be developed for the new area. This issue may also be delaying the move into the new facilities.

IX. Immediate Operational Problems

With only one exception Station/Institute Directors identified the delay in the receipt of funds at the beginning of the fiscal year (1 July) as the most difficult problem affecting the performance of their Stations. The funds for the first 4 months (1/3 of the annual funds) for fiscal year 1993-94 were released by the Director of Finance on 26 October 1993. This is well into the planting of the Rabi season. Among the many ways Station Directors have dealt with this problem have been by paying expenses from their own personal funds, borrowing, asking vendors to delay receiving their money for several months and many more. The delay affects the conduct of timely plantings of research experiments and the morale of the scientist. This mismanagement of resources is multiplied as it trickles down to the scientists and finally impacts on reduced results and on the usefulness and accuracy of the results finally obtained.

X. Discussion

Research Station Management at the NWFPAU was studied by this consultant through the many interviews, conferences and workshops during the period of 17 November through 22 December 1993.

The objectives of TIPAN were used to evaluate the progress or status of the Research Station Management system.

Other reviews provide the national and provincial background in which the NWFPAU functions today. Azam, Evenson and Bloom (18) stated in 1991 that "Pakistan is at a critical point in its development. Its population is growing rapidly, as is its demand for food. Population will increase 50% to 148 million within a decade. At the same time, agricultural growth is being restrained by drought, increase in saline and water logged soils, and the varied climate and topography of the country." Historically countries like Pakistan that have increased food production through converting arable lands into food production turn to increasing productivity for expansion of agricultural production. Increased agricultural productivity during the period 1958 to 1985 has had a high payoff for Pakistan. However, Azam et al (18) found that "current budget cutting is in danger of stifling the research system".

The 1992/93 Annual Report of the Malakand Fruit & Vegetable Development Project (9), a joint Pakistan/Swiss Government venture made some very frustrating observations of the NWFP system of Research-Outreach-Extension. "The link between the research and extension systems appears even less effective than it was before the TIPAN Project started. Attempts by Outreach to bridge this gap appear to have failed. Outreach's objective, however, of ensuring that research staff allocate a sufficient proportion of their time to listening to the needs of farmers and to passing on the information that they have gathered to organizations in contact with farmers (the 'split assignment') still has to be pursued to its logical conclusion."

The external evaluation of the effectiveness of the NWPFAU research system provided by Azam, et al., (18) goes to the heart of the concerns of this consultancy. These economists found, using yield indexes for sugarcane, maize, bajra, jowar, wheat, rice, cotton, barley gram, and mung, the following. "In the pre-green revolution (1965-66), productivity grew 1.7 to 2.7 percent a year in the three Pakistan provinces (including NWFP) and the Indian Punjab. In the green revolution period (1967-72) productivity in the Sindh grew by over 5 percent annually, in the Pakistan Punjab it grew by 2 to 3 percent, and in NWFP it had zero or negative growth. In the post-green revolution period, growth in NWFP continued to be negative."

These external observations give us a "wake-up call": population expected to increase by 50% by 2001; new land is unavailable for future expansion of agricultural production; extension/outreach is not as effective as it is possible to be and the hoped for increased agricultural production through research is not taking place; indeed by some evaluations it is decreasing.

XI. Conclusions and Recommendations

Shock treatment is needed for the NWFPAU faculty of Research-Outreach-Teaching. The window of opportunity is still open. This opportunity could very well be the dedication of the new Agricultural University Science Building in early 1994. The following recommendations are made:

1. Reorganize the chief administrative team of NWFPAU into a corporate configuration with one CEO, the Vice Chancellor, and a supporting staff of Associate Vice Chancellors for each function, research, outreach and teaching. The responsibility for all three functions to flow through the Vice Chancellor, through the Deans, to the Department Heads. At the department level assistant departments heads for research, outreach and teaching assist the department head in executing these three functions in "split appointments" with faculty members.

2. Departmentalize the research system of NWFPAU with outreach and teaching under the departments. At the "front lines" the critical mass of research, outreach and teaching must be

mobilized. Having one chain of administrative responsibility from the Vice Chancellor to the "front line" faculty members must be achieved. Through that one chain flows the responsibility for research, outreach and teaching of disciplinary orientated subject matter.

XII. List of Appendices

Appendix A
Appendix B
Appendix C
Appendix D
Appendix E
Appendix F
Appendix G
Appendix H
Appendix I
Appendix J
Appendix K
Appendix L
Appendix M
Appendix N
Appendix O
Appendix P
Appendix Q
Appendix R
Appendix S
Appendix T
Appendix U
Appendix V

Appendix A

WORKSHOP

NWFP AGRICULTURAL UNIVERSITY
RESEARCH STATION/INSTITUTE MANAGEMENT
Farm ManagerS WORKSHOP
15 December 1993
IDS Conference Room

a.m.		
9:00	Recitation from The Holy Quran	
9:10	Welcome, Introductions	Mr. Abdul Qadim Syed, Director of Research
9:20	Introduction, Purpose, Objective	Dr. C.J. (Jim) Kaiser, Station Management (TIPAN)
9:30	Assignment #1, Group Conferences	
9:45	Group verbal reports follow by discussion	
9:55	Summary	Dr. C.J. (Jim) Kaiser
10:00	Assignment #2, Group Conferences	
10:15	Group verbal reports follow by discussion	
10:25	Summary	
10:30	Tea (hallway)	
11:00	Assignment #3, Group Conferences Assignment #4, Group Conferences Assignment #5, Group Conferences Assignment #6, Group Conferences	
11:15	Group verbal reports follow by discussion	
11:55	Summary	Dr. C.J. (Jim) Kaiser
p.m.		
12:00	Open discussion (any subject)	Group
12:15	Scenes from the University of Illinois Dixon Springs Agricultural Center	Dr. C.J. (Jim) Kaiser
12:45	Final comments Closing remarks	Dr. C.J. (Jim) Kaiser Mr. Abdul Qadim Syed
1:00	Adjourn Box Lunch at Conference Room	

Appendix B

WORKSHOP

NWFP AGRICULTURAL UNIVERSITY
RESEARCH STATION/INSTITUTE MANAGEMENT
Farm ManagerS WORKSHOP
15 December 1993
IDS Conference Room

RESEARCH INSTITUTES/STATIONS	Farm ManagerS
Agricultural Research Institute, Tarnab	Jamal Khan
Cereal Crops Research Institute, Pirsabak	Mohammad Ismail Khan
Sugar Crops Research Institute, Mardan	Zainullah Khan
D.I. Khan Research Station	Ghulam Hussain
Mingora Research Station	Abdul Majid Khan
Mansehra (Dhodial) Research Station	Haider Karar
Potato Research Station, Abbottabad	Khaliq Uz Zaman
Serai Naurang Research Sub-Station	Khan Bahadar
Karak Research Station	None
Livestock Research & Development Farm, Surezai	Dr. Iqbal A. Yousaf
Sheep Livestock Experimental Station, Jabba	Dr. Bradar Mian
Malkandher Research Farm, AU Peshawar	Professor Sherin Khan Dr. Sohail Akthar Saeed Asghar Hussain
Chitral Research Station	Mohammad Riaz
Barani ADP, Kohat	Mr. Mohammad Jamal

Appendix C

NWFP AGRICULTURAL UNIVERSITY
RESEARCH STATION/INSTITUTE MANAGEMENT
FARM MANAGERS WORKSHOP
ASSIGNMENT # 1

Inherent in the responsibilities of the Institute/Station Director are many direct and implied responsibilities. Certain of these responsibilities may be retained by the Director and others may be delegated to a Farm Manager or to two or more Research Officers who share specific duties of the Farm Manager for the Station.

Part I
Respond to the questions of Table 1. (attached) as they apply to your station.

Part II
Add additional duties assigned by the Director to the Farm Manager at your station in the spaces provided on page 3. Please retain the second copy of Table 1 for your use and provided the completed copy to the Workshop teacher for summary.

Part III
As a group discuss your responses in two categories:

1. Farm management responsibilities listed in Table 1, which are generally not delegated to a Farm Manager.

2. Farm management responsibilities added by members of your group to those listed in Table 1.

Part IV
Select from your group a discussion leader and a person who will present the consensus of your group to the class. These two duties are to be rotated to others in the next assignment.

List key points:

Table 1. Responsibilities of Station/Institute Management assigned to the Farm Manager (Managers).

#	Farm Manager Responsibility	Farm Manager's Responsibility (yes) or (no)	Responsibility If no, whose responsibility is it?	Rate in order of importance 1= most 2= next, etc
1	Field Map			
2	Land Assignments			
3	Continuous Field Records			
4	Take Soil Samples for Testing			
5	Soil Tests Results Record			
6	Manure Applied			
7	Land Leveling			
8	Land Preparation			
9	Irrigation Control			
10	Fence and Wall Maintenance			
11	Crop Rotation Planning			
12	Crop Register			
13	Seed Production			
14	Seed Processing			
15	Seed Storage			
16	Seed Register			
17	Crop Residue Disposition			
18	Feed Register			
19	Permanent Labor Daily Assignments			
20	Muster			
21	All Labor Records			
22	Watch and Ward			
23	Watch and Ward Journal			
24	Milking Schedule			
25	Milking Labor			
26	Dairy Herd Record System (lifetime)			

27	Fruit and Vegetable Picking Labor			
28	Sheep Shearing Labor			
29	Horse, Mule, Donkey Care			
30	Bullock Assignments			
31	Vehicle Assignments			
32	Tractor . .ssignments			
33	Transportation for School Children			
34	Ferry Boat Operation			
35	Tube Well and Pump Maintenance			
36	Building Maintenance			
36	Machinery Maintenance			
38	Equipment Maintenance			
39	Electrician Service			
40	Pumping Service			
41	Stores Purchasing			
42	Livestock Feed Purchases			
43	Fertilizer Purchases			
44	Seed Purchases			
45	POL Purchases			
46	Stores Inventory			
47	Colony Maintenance			
48	Hostel Maintenance			
49	Hostel Service			
50	Tea Service			
51	Produce Sales			
52	Milk Delivery (Sales)			
53	Seed Sales			
54	Contract Sales			
55	Produce Sales Register			
56	Entrance and Project Signs			

57	Lawn and Landscape Maintenance			
58	Station Tour Service			
59	Station Field Day Service			
60	Annual Report (Farm Management)			
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Table 2. SUMMARY OF INSTITUTE AND STATION MANAGEMENT INFORMATION

Location	Posts >16	Farm Manager	Acres	Tractors	Bullocks	Vehicle	Live stock
Pirsabak Nowshera	29	Mr. M. Ismail Khan	437	5		8	
Mardan Sugar Crops	18	Mr. Zainullah Khan	96	1	9	5	
Tarnab Peshawar	100	Mr. Mohammad Jamal Khan	150	4	7	20	
D I Khan	47	Mr. Ghulam Hussain and Mr. Dinsarwar Wazir	270	3		9	
Mingora Swat	42	Mr. Abdul Majid Khan	32	2		3	
Dhodial Mansehra	12	Mr.Sahibzadar Qayyum Ahmad	50	2		4	
Abbottabad	9	Mr. Khaliquz Zaman	100	2			
Serai Naurang Bannu	19	Mr. Khan Bahadar	25	1		3	
Ahmad Wala Karak	4	Mr. Ghani ur Rehman	30	2		1	
Surezai Peshawar	12	Mr. Fazal Rahim Bangash	178	3	6	6	127
Jabba Mansehra	4	Dr. Beradar Mian	579	2		3	601
Malkandher Agronomy	1	Mr. Sherin Khan	260				
Malkandher Dairy	1	Dr. Sohail Akhtar	87				50
Malkandher Horticulture	1	Mr. S. Asghar Hussain	80	1			
Chitral	4	Mr Mohammad Riaz				1	
Barani ADP Kohat	1	Dr. Mohammad Jamal	10			2	
Total							

Appendix F

NWFP AGRICULTURAL UNIVERSITY
RESEARCH STATION/INSTITUTE MANAGEMENT
FARM MANAGERS WORKSHOP
ASSIGNMENT # 2

Generally there are two ways that the position of Farm Manager may be displayed in an organizational chart.

1. The Farm Manager is in the direct line of responsibility. This is normally the case where the farm management responsibility rests with one individual whose only responsibility is that of Farm Manager. The nature of the Farm Management duties are specified in a Job Description in the hands of all Station personnel. This arrangement may be diagrammed on the Station organizational chart in this manner:

2. The Farm Manager duties are delegated to one or more Research Officers who perform these duties in the name of the Director. In this case it is best to think of these duties as being a staff responsibility and acting FOR the Research Director for these specific delegated duties. The Job Description will specify the limited duties as additional responsibilities of the Research Officer(s). This arrangement may be diagramed on the Station organizational chart in this manner:

Part I
Select from your group a discussion leader and a person who will present the consensus of your group to the class. These two duties are to be rotated to others in the next assignment.

Part II
Discuss these two examples of the Farm Manager. Which is the appropriate method for an Institute and a station? Are their other arrangements that are more appropriate? Provide an example.

List key points:

Appendix G

ASSIGNMENT # 3

A Job Description is of critical importance for the efficient and professional operation of a Research Station. Job Description should clearly state responsibilities All major responsibilities should be specific, others may be more general. Additional duties may be assigned in general.

Part I
Select from your group a discussion leader and a person who will present the consensus of your group to the class. These two duties are to be rotated to others in the next assignment.

Part II
Discuss Job Descriptions from the view point of the two Farm Manager examples used in Assignment #2. Write a Job Description for the Farm Manager as an additional duty. Present your solution verbally to the workshop.

List key points:

Appendix H

NWFP AGRICULTURAL UNIVERSITY
RESEARCH STATION/INSTITUTE MANAGEMENT
FARM MANAGERS WORKSHOP
ASSIGNMENT # 4

A current Map of the Research Station is essential for previous crop information, planning, assigning of land, and permanent recordation of field history. A permanent and historical record should be available not only for current Research Station use, but also for reference of other professional who use the Station's data. The publication of the Station Map together with the current use of each field (project number and title) is valuable to the readers and users of the Annual Report. The outside of the back cover of the Annual Report is in excellent location for easy reference by the user. An example of a Station Map is provided:

Main Trunk Road									
1	2	3	4		Research Station Cantonment Area 5		6	7	8
9	10	11	12				13	14	15
16	17	18	19		20	21	22	23	24
25	26	27	28		29	30	31	32	33
34	35	36	37		38	39	40	41	42
43	44	45	46		47	48	49	50	51
52	53	54	55		56	57	58	59	60
61	62	63	64		65	66	67	68	69
70	71	72	73		74	75	76	77	78

Part I
Select from your group a discussion leader and a person who will present the consensus of your group to the class. These two duties are to be rotated to others in the next assignment.

Part II
Discuss the Field Map example and how it may be used as a guide in developing a Field Map for all Stations.

Part III
Present to the Workshop how your group suggests using a standard format for the development and use of a Station Map.

List key points:

Appendix I

NWFP AGRICULTURAL UNIVERSITY
RESEARCH STATION/INSTITUTE MANAGEMENT
FARM MANAGERS WORKSHOP
ASSIGNMENT # 5

A permanent and historical Field Record should be available not only for current Research Station use, but also for reference of other professional who use the Station's data. Specific types of information should be recorded annually and accumulate with time in the record. A general format for recording and keeping the Station's data of Field Records is needed. Types of date to be recorded by each Field Number is:

1. Description of field
2. Access to irrigation water, amount, when available
3. Soil test results (pH,N,P,K, OM, etc), date tested
4. Rotation of crops (1 July to 30 June)
5. Reference to Experiment Number, and page in Annual Report
6. Fertility applied (including manure) uniformly to plot, date applied, location of fertility treatments
7. Disposition of crop residue (removed/incorporated), amount
8. Yield of each crop (refer to Experiment results)
9. List problems limiting future use of field as an experimental plot

Part I
Select from your group a discussion leader and a person who will present the consensus of your group to the class. These two duties are to be rotated to others in the next assignment.

Part II
Discuss the permanent recordation of Field Records. Add to or take from the list of data to be recorded. Develop a format that could be adapted by all Research Stations for the permanent recordation of data. Present your format for Field Records to the Workshop

List key points:

Appendix J

NWFP AGRICULTURAL UNIVERSITY
RESEARCH STATION/INSTITUTE MANAGEMENT
FARM MANAGERS WORKSHOP
ASSIGNMENT # 6

The Farm Manager should meet in a group with the section heads on a routine and frequent basis. An agenda of routine items should be considered each time in planning for a (weekly) meeting. Not all issues will necessarily be discussed at each meeting. The important point is to have a set time and place for the meeting of all section heads with the Farm Manager. The Farm Manager should conduct the meeting. Where the farm manager duties are separated and delegated to different individuals, each farm manager should consider for discussion the issues he has been delegated to handle.

Part I

Select from your group a discussion leader and a person who will present the consensus of your group to the class. These two duties are to be rotated to others in the next assignment.

Part II

Plan the agenda for weekly staff meeting to coordinate research/station operations including job request, equipment maintenance, land assignments, soil tests, tractor requirements, bullock requirements, labor request, stores purchases, field days signs, and other appropriate issues.

Part III

Present to the Workshop how your group suggest using a standard format for the development and use of a Station Map.

List key points:

Appendix K

Map of Malkandher Farm (University Farm)

Appendix L

A Standard Request for Service Form

Appendix M

WORKSHOP

NWFP AGRICULTURAL UNIVERSITY
RESEARCH STATION/INSTITUTE MANAGEMENT
ADMINISTRATORS WORKSHOP
16 December 1993
IDS Conference Room

a.m.		
9:00	Recitation from The Holy Quran	
9:10	Welcome, Introductions	Mr. Abdul Qadim Syed, Director of Research
9:20	Introduction, Purpose, Objective	Dr. C.J. (Jim) Kaiser, Station Management (TIPAN)
9:30	Assignment #1, Group Conferences	
9:45	Group verbal reports followed by discussion	
9:55	Summary	Dr. C.J. (Jim) Kaiser
10:00	Assignment #2, Group Conferences	
10:15	Group verbal reports followed by discussion	
10:25	Summary	
10:30	Tea (hallway)	
11:00	Open discussion (any subject)	Group
11:15	Scenes from the University of Illinois Dixon Springs Agricultural Center	Dr. C.J. (Jim) Kaiser
11:45	Final comments Closing remarks	Dr. C.J. (Jim) Kaiser Mr. Abdul Qadim Syed
12:00	Adjourn Box Lunch at Conference Room	

Appendix N

WORKSHOP

NWFP AGRICULTURAL UNIVERSITY
RESEARCH STATION/INSTITUTE MANAGEMENT
ADMINISTRATORS WORKSHOP
16 December 1993
IDS Conference Room

RESEARCH INSTITUTES/STATIONS	DIRECTORS/DIRECTOR GENERAL
Research Planning Cell	Dr. Abdul Haq Mohammad Nazir
Agricultural Research Institute, Tarnab	Dr. Saifullah Khattak
Cereal Crops Research Institute, Pirsabak	Mr. Abdul Wadud Khattak
Sugar Crops Research Institute, Mardan	Mr. Ghulam Sarwar
D.I. Khan Research Station	Mr. Allah Bakhsh Khan
Mingora Research Station	Mr. Mohibullah Khan
Mansehra (Dhodial) Research Station	Mr. Gulfam Khan Jehangire
Potato Research Station, Abbottabad	Mr. Abdul Malik Lughmani
Serai Naurang Research Sub-Station	Dr. Nazir Hussain Shah
Karak Research Station	Mr. Bashir Ahmad
Livestock Research & Development Farm, Surezai	Mr. Syed Razi Haider Zaidi
Sheep Livestock Experimental Station, Jabba	Dr. Jamshad Khan Jadoon
Malkandher Research Farm, AU Peshawar	Professor Sherin Khan
Chitral Research Station	Dr. Hidayatullah Khan
Barani ADP, Kohat	Mr. Mohammad Amin

Appendix O

NWFP AGRICULTURAL UNIVERSITY
RESEARCH STATION/INSTITUTE MANAGEMENT
DIRECTORS WORKSHOP

ASSIGNMENT # 1

The most common concerns of Institute/Station Directors are: (1) the receipt of an adequate annual budget and (2) receiving the first quarter funds in a timely fashion. Both issues may have their solution in the perception that policy makers have of research accomplishments. If research results are perceived by policy makers to be difficult to find, are not well known, receive little comment in the news media, only a maintenance budget is likely. On the other hand, if policy makers perceive research results as effective in producing changes in agriculture, results are will known, the news media extols results research of NWFP Agricultural University, outsiders inquire about the results; then, adequate funding of research is likely.

A review of the Research administration of the NWFP Agricultural University identifies two outstanding documents:

1. Administrative Memorandum No 1, dated 21 September 1988 deals with the preparation, review and routing of research projects (attached).

2. Administrative Memorandum No 2, dated 1 November 1988 describes the procedure for the Annual Research Report of each Research Institute and Station (attached).

However, in a cover letter limiting the distribution of the Annual Research Report the following comment occurs, "no copies will be distributed to any individual or organization outside the University without prior approval".

Part I

Select from your group a discussion leader and a person who will present the consensus of your group to the class. These two duties are to be rotated to others in the next assignment.

Part II

Consider ways of improving the quality of the annual report within the format of Administrative Memorandum No 2 by:

1. Presenting the data in more tables with less information per table.
2. Include statistically data within the table including means separation with Least Significant Difference (LSD), or Duncans Multiple Range Test, etc.
3. Strengthen and expand the Summary and Conclusion section by including recommendations based on these data.
4. Discuss the relevance of the data to solving problems of the local areas.
5. Other innovative methods.

List key points:

Appendix P

Administrative Memorandum No. 1
11 pages

Appendix Q

Administrative Memorandum No. 2
8 pages

Appendix R

NWFP AGRICULTURAL UNIVERSITY
RESEARCH STATION/INSTITUTE MANAGEMENT
DIRECTORS WORKSHOP

ASSIGNMENT # 2

The report of the Design Team for NWFP Dated Jun 28, 1983, Page 93-94 recommends the following relationship between Research, Outreach, and Teaching at the NWFP Agricultural University. " At the campus level, it is proposed that about 20% of total faculty resources be devoted to outreach, while on research stations and institutes, outreach should command about 35% of all total professional staff time". Thus, "about 30% of the University resources be devoted to the outreach activities".

A study of the disposition of the Agricultural University today (Table 2) shows that no formal reallocation of faculty resources has occurred. My interviews with Institute/Station Directors, however, indicate that Outreach does occur by Research faculty participating in the Station Field Days and in the formal training sessions conducted by Extension. And that the research Station faculty does write research recommendations (bulletins) in local languages for use with farmers and other users of research information.

Part I

Select from your group a discussion leader and a person who will present the consensus of your group to the class. Chose individuals who did not previously perform these duties.

Part II

(1) Suggest a method whereby the transformation and integration of the NWFP Agricultural University network of Research Institutes/ Stations and the campus teaching faculty can be integrated into one Research-Outreach-Teaching faculty.

(2) How would the combined faculty at the current Institutes/Stations look after transformation and integration into one Research-Outreach-Teaching faculty of the NWFP Agricultural University?

List key points:

Organization of the Agricultural Research Institute, Tarnab

Director General (20) Agricultural Research Institute, Tarnab,			
Director (20) Soils and Plant Nutrition	Director(19) National Oilseed Development Project	Director(19) Horticulture Federally Administrated Tribal Areas	Non Directorate Sections

DIRECTORATE OF SOILS AND PLANT NUTRITION Agricultural Research Institute, Tarnab
DIVISIONS
Soil Fertility and Plant Nutrition
Soil Chemistry
Soil Physics
Land Reclamation
Soil Microbiology
Agricultural Bio-chemistry

SOIL CHEMISTRY Agricultural research Institute, Tarnab
SOIL AND WATER TESTING LABORATORIES
Parachinar (FATA)
D. I. Kahn
Bannu
Kohat
Tarnab
Charsadda
Mardan
Mingora (Swat)
Haripur
Mansehra

SOIL AND WATER TESTING LABORATORIES	
Location,	Soil Samples Tested 1992
Parachinar (FATA)	
D. I. Kahn	
Bannu	
Kohat	
Tarnab	
Charsadda	634
Mardan	
Mingora (Swat)	457
Haripur	
Mansehera	
Total	1,091.00

DIRECTORATE NATIONAL OILSEED DEVELOPMENT PROJECT Agricultural Research Institute, Tarnab
SECTIONS
Sunflower
Soybean
Pathology

NON DIRECTORATE SECT'ONS Agricultural Research Institute, Tarnab,
SECTIONS
Entomology
Plant Pathology
Plant Physiology
Horticulture
Tobacco Botany
Food Technology
Vegetable Botany
Termite
Seed Testing and Certification
Statistics
Farm Management

Appendix T

RESEARCH STATION MANAGEMENT
(Seminar questions)
Farm management/Farm superintendent

1. Standard record set of field (plot) history.
   CROP REGISTER
   FEED REGISTER
   SOIL TEST RESULTS
   AVAILABILITY OF FIELD (PLOT) INFORMATION TO RESEARCH PERSONNEL

2. Work order request
   or
   Job order request
   or other written communication requesting services form the
   Farm Manger.
3. Watch and Ward reports that communicates events to others.

4. Develop an appropriate job description for the Research/Institute Farm Manager.

5. Plan the agenda for weekly staff meeting to coordinate research/station operations including job request, equipment maintenance, land assignments, soil tests, tractor requirements, bullock requirements, labor request, stores purchases, field days signs, front (entrance sign) gate maintenance and other coordination needs.

Appendix U

RESEARCH STATION MANAGEMENT
(Seminar questions)
Research Station Administration

1., Research Station Administration Style (Centralized)

2., Research Station Administration (Decentralized)

3., Research Station administration/farm management

Common Issues

1. How can "Outreach" be institutionalized into Research Station administration?
2. "Outreach" should be a lime item in the non-developmental budges of Research Stations.
3. Develop an appropriate job description for "Outreach" for the Research Station Director, , ,
4. Develop an appropriate job description for the Research/Institute Director.
5. Develop a plan for using the services of the Planning Directorate in the management of your station/institute.

6. Develop a plan for using the services of the Institute of Development studies NWFP Agricultural University in the management of your station/institute.

7. Plan the agenda for one meeting per month of all station/institute directors to include date, location, issues, budget, planning, internal evaluation, external evaluation, outreach, extension, field days, equipment sharing, and general station/institute management.7.

8. Develop an organizational chart for your station.

9. Describe the station/institute Director's responsibilities as a "marketeer of his station" to the public and to University Administrators.

10. The role of the station/director in planning for, conducting, and follow up of station field days, to include budget, multi-disciplinary vis single subject, how many per field days per year.

11. How are the following groups used to assist you in processing developmental (new) research proposals:
    a. Research Planning, monitoring, and evaluation group
    b. Research Technical Review Committee
    c. Research Technical Working Group.

12. Propose a standard format for the annual report, cover, forward, table of contents, Director General of Research Page, sub headings for each report, divide for separate use, station history, station organization, station roster,station map, most recent soil test information by field, station weather information, annual report coordinator and editor, uniformity of statistical information, outreach activities.

13 Describe the library facilities, books, and journals that should be available at Research/Institutes Stations.

14. Describe a career track than would best fit a future Research/Institute Station Director.

15. Describe a process of moving money to the Research/Institutes by the 1st of July each year.

16. Who should participate in the seasonal planning meetings at Research Station/Institute: Director, Section heads, project officer, Outreach personnel, Extension personnel, farmers, business leaders, etc.

Appendix V.

References

The following references were located from various sources by the TIPAN personnel for review by this consultant. Information has been lifted from these Pakistani publications for this report. The publications were excellent for familiarizing myself with the background, previous Station Research and current activities of the NWFPAU., Each Institute or Station Annual Report was reviewed prior to the visit and interviews at the Station location.

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2. Annual Report for 1990-91, Directorate of Soils and Plant Nutrition, Agricultural Research Institute. Tarnab, 24330, Peshawar, N.W.F.P. Pakistan. pp. 291.

3. Annual Report for 1991-92, Potato Research Station. Abbottabad, N.W.F.P. Pakistan. pp. 110.

4. Annual Report for 1991-92, Agricultural Research Station. Mingora, Swat, N.W.F.P. Pakistan. pp.179.

5. Annual Report for 1991-92, National Agricultural Research Center, Pakistan Agricultural Research Council, Islamabad. pp. 301.

6. Annual Report for 1991-92, Cereal Crops Research Institute. Pirsabak, Nowshera N.W.F.P. Pakistan. pp.101.

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9. Annual Report for 1992/93, Malakand Fruit & Vegetable Development Project. pp 76.

10. Annual Report for 1992-93, Gram Research Station. Ahmad-Wala, Karak, N.W.F.P. Pakistan. pp. 58.

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