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PATHOGENIC VARIABILITY OF AND BACTERIOCIN PRODUCTION PROJECT

SEMI-ANNUAL REPORT NO.1

(July 1, 1987 through December 31, 1987)

WINROCK INTERNATIONAL INSTITUTE FOR AGRICULTURAL DEVELOPMENT
INSTITUTE OF AGRICULTURE AND ANIMAL SCIENCES,
MINISTRY OF EDUCATION AND CULTURE

AND

NATIONAL RICE IMPROVEMENT PROGRAM,
MINISTRY OF AGRICULTURE,
HIS MAJESTY'S GOVERNMENT OF NEPAL

(USAID OFFICE OF SCIENCE ADVISOR
GRANT NO. 367-5542-G-00-7020-00)

Prepared by:

Dr. A. John De Boer

Mr. S .M. Shrestha

Dr. G. L. Shrestha

Mr. Krishna Khanal

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INTRODUCTION

This grant was made to Winrock International from the Office of Science Advisor, USAID, Washington D.C. to support "Pathogenic Variability of and Bacteriocin Production by *Xanthomonas pv. oryzae* in Nepal (PVBP PROJECT) under USAID Grant No. 367-5542-G-00-7020-00 as of May 8, 1987. A technical advisory role is provided by the International Rice Research Institute, Manila, Philippines.

WHEREAS, bacterial leaf blight (BLB) caused by *Xanthomonas Campestris pv. oryzae* a destructive and widespread rice disease has been reported in Japan, India and Indonesia during the past two decades. In Nepal the disease has been widespread in the Tarai region (plains) where it has become a menace to rice cultivation in recent years. " THE PATHOGENIC VARIABILITY OF AND BACTERIOCIN PRODUCTION PROJECT " represents the first major effort in Nepal towards controlling bacterial leaf blight in rice.

The operational base of the project is the Institute of Agriculture and Animal Sciences, the Ministry of Education and Culture while the collaborating Institute is the National Rice Improvement Program, the Ministry of Agriculture. The total grant to carry out this research Project is estimated at US \$ 120,000 for a period of three and a half years starting from July 1, 1987. The grant will finance salaries, honorariums, equipment, training, consultation, and other direct costs, partial funding of certain operating costs and management fee. The major changes of the funding from the original budget categories are supplemented by the Memorandum of Understanding between the Subgrantee, the collaborators and Winrock International. These Memorandum of Understanding are attached to this report.

During the past six months (July 1, 1987 through Dec. 31, 1987), project activities have accelerated and report No.1 provides examples of commendable progress, details of which are presented in the following chapters.

PROJECT AIMS AND SPECIFIC OBJECTIVES

Project Aim:

The project aims to manage bacterial leaf blight of rice through host resistance and development of a bio-control agent.

Specific Objectives

Attempts will be made to investigate the *Pathogenic Specilization in X.C. pv. oryzae* which will help the project to develop differential varieties against the Pathogenic Bacterium in Nepal.

Those monogenic differentials could be efficient and ideal. Subsequently, this breakthrough would be very useful to the plant pathologists and plant breeders to utilize them as diverse resistance donors and then to develop an international set of differentials on a functional gene basis under the auspices of the International Rice Research Institute (IRRI) and several other national rice research programs.

Conversely, if the bacteriocin could be commercially cultured and supplied to the markets its use could greatly benefit rice growing countries. It is likely that this technology would be simple, cheap, pollution free and effective. A successful project, thus, would benefit many countries and people. With wide application of these research findings, one of the crucial problems in rice and rice based farming systems will be solved. Thereafter food production of the countries will be augmented, which ultimately helps to fulfill the objectives of AID.

Project Purpose

The most unique aspect of this project is to develop for commercial use, a specific bacterial strain/ bacteriocin to control the bacterial blight of rice. This could be achieved by establishing high numbers of the non-pathogenic plants. Commercial manufacture of this strain would assist in the introduction of biological methods for controlling bacterial leaf blight in rice fields.

Description of Specific Project Activities

In line with the above goals and purposes, the tasks to be accomplished include the following supporting functions:

- establishment of a laboratory at IAAS with the capacity to conduct appropriate studies.
- procurement of locally available equipment, chemicals, and glassware.
- procurement of required equipment from overseas.
- repair of the existing facilities at IAAS and collaborating institute, NRIP.
- construction of greenhouse applying the latest technology at IAAS.
- furnish the greenhouse with all the requirements for the research.
- planning for long-term development of research stations for research on pathogenic variability and neck blight on rice.
- technology generation and verification through rice research programs.

Other aspects are:

- to administer grants for research projects and assist with publications.
- extension of the research program and dissemination of the research findings.

Technical work plan

In order to achieve the goals above the technical work plan is for:

- collection of bacterial strains.
- collection of rice germplasm.
- isolation, purification and maintenance of the organism.
- pathogenicity test.
- screening of rice germplasm.
- infectivity titration test.
- pathogenic variability studies of *X.c.pv.oryzae*.
- selecting pathogenic races and differential varieties.
- comparison of virulence of *X.c.pv.oryzae* in Nepal and the Philippines.
- bacteriocin production and its application on disease management.

Bacterial Isolates

Media:

- production and detection of bacteriocin in solid media.
- production and detection of bacteriocin in liquid media.
- composition of culture media that will be used for isolation of the organism and bacteriocin production.
- Bacteriocin purification.

Use

- control of BLB by bacteriocin producer strain.
- control of BLB by bacteriocin preparation.

For the use of bacteriocin for disease management, the following media will be practiced.

- dipping seedlings in purified bacteriocin.
- inoculation of bacteriocin preparation to plants.

OVERVIEW OF PROGRESS:

The researchers have been made an excellent start in implementing the project work plan as per the grant agreement. The Principal Investigator of this project is under a fellowship to study in IRRI for a period of 2 years starting from May 1987. In his absence, the Acting Principal Investigator, Mr. Sundar Man Shrestha and the Collaborator, Dr. Gyan Lal Shrestha, have been made an encouraging start on this research project. A draft work-plan circulated to the researchers gave a clear outline to establish a benchmark for the research work.

Regarding the operational side, Winrock International employed the support staff, administered the budget items, initiated procurement action, initiated construction and repairs and monitored project progress.

The WI Supervisor concentrated on developing programs and implementation strategies which directed the whole project staff to carry out the activities. In addition to this, WI facilitated the researchers by providing transportation and communication required for project activities.

WI covered the total expenditures to repair the existing facilities including green- and nethouse at Parwanipur Agriculture Station and repair of a vehicle and an air cooler for the Institute of Agriculture and Animal Sciences which is shown more clearly under "construction and repair of facilities".

The Dean, Dr. K.N. Pyakuryal, The Institute of Agriculture and Animal Sciences, Rampur encouraged the project by providing a separate room to establish a research laboratory as well as providing an office room for the Admin. Asst. working under this project based at IAAS.

Other significant progress is summarized below:

1. A research Laboratory has been established.
2. Repair of existing facilities has been completed.
3. Glassware and chemicals have been supplied.
4. Locally made isolation chambers have been supplied.

5. Positions of the local hire have been filled.
6. Office supplies including furnitures have been supplied.
7. Collection of rice germplasm and BLB for the priliminary tests are collected.
8. Isolation of BLB is in process.
9. Construction of greenhouse is started and is in progress.
10. Procurement order for equipment is placed to WI,HQ.
11. Act. Principal Investigator has been visiting Dr. T.W. Mew in IRRI to consult on isolation and purification of BLB.
12. USAID has allowed the Principal Investigtor to attend a conference on Plant Pathology to be held in Kyoto, Japan from 20-27 Aug. 1988.

Memorandum of Understanding

Memorandum of Understanding between WI, IAAS and NRIP have come into force starting from July 1, 1987.

The three parties mentioned above have reached agreement on the following points:

(See the next page)

MEMORANDUM OF UNDERSTANDING No.1

BETWEEN

MR. SUNDAR MAN SHRESTHA

HEAD, DEPARTMENT OF PLANT PATHOLOGY

THE INSTITUTE OF AGRICULTURE AND ANIMAL SCIENCES (IAAS)

TRIBHUVAN UNIVERSITY

MINISTRY OF EDUCATION

HIS MAJESTY'S GOVERNMENT OF NEPAL

ACTING PRINCIPAL INVESTIGATOR,

PATHOGENIC VARIABILITY OF AND

BACTERIOCIN PRODUCTION PROJECT, (PVBFP)

AND

DR. GYAN LAL SHRESTHA

COLLABORATOR

ASSISTANT AGRONOMIST NATIONAL RICE IMPROVEMENT PROGRAMME (NRIP)

DEPARTMENT OF AGRICULTURE

MINISTRY OF AGRICULTURE

HIS MAJESTY'S GOVERNMENT OF NEPAL

AND

A. JOHN DE BOER

WINROCK INTERNATIONAL

INSTITUTE FOR AGRICULTURAL DEVELOPMENT (WI)

This is the first Memorandum of Understanding covering implementation of the Winrock International grant from USAID for "Pathogenic Variability Of And Bacteriocin Production by Xanthomonas Campestris pv. oryzae in Nepal ("PVBP Project"). The Institute of Agriculture And Animal Sciences ("IAAS") is designated as "Subgrantee." The Memorandum Of Understanding resulted from discussions held between Mr. Sundar Man Shrestha, Head, Plant Pathology Department, Institute Of Agriculture and Animal Sciences, Acting Principal Investigator, PVBP Project, Dr. Gyan Lal Shrestha, Asst. Agronomist, (Rice Breeder), Parwanipur Agriculture Station, Collaborator, PVBP Project, Ms Anjali Sherchan, Project Officer, PDIS/USAID/N, Dr. John De Boer, Winrock International, Mr. Krishna Khanal, Program Specialist, WI-PVBP Project, on July 23- 24, 1987, at IAAS Rampur. The scientific workplan remains the same as in the Original Project Proposal (July 6, 1986). The major revisions to the initial grant proposal are thus limited under the Budget Summary, Honorariums, Equipment and Supplies, Travel and Per diem.

WHEREAS, bacterial leaf blight (BLB) caused by Xanthomonas campestris pv oryzae is the most destructive and wide spread rice disease in Asia. Major epidemics of the disease have been reported in Japan, India and Indonesia during the past two decades. In Nepal the disease has been widespread in the Tarai region (plains) where it has become a menace to rice cultivation in recent years. "The PATHOGENIC VARIABILITY OF AND BACTERIOCIN PRODUCTION PROJECT" represents the first major effort towards controlling bacterial blight in rice.

The three parties mentioned above have reached agreement on the following points:

Article I

WI will administer the grant including local and oversea procurement, salaries, local and international travel and per diems, training, consultants and reporting. WI will provide, subject to personnel and budgetary limitation, and as may be mutually agreed upon:

- A. A full time Research Assistant to support the research efforts of PVBP Project in selected activities, based at IAAS.
- B. A full time Administrative Assistant to administer the daily activities of the Project including accounts, record keeping, management of local travel and communication with WI Kathmandu Office.
- C. WI will construct a green house at IAAS as per the schedule and the original cost estimate attached.

- D. WI will revise the original budget estimate for equipment as per the present quotes and the balance will be used for additional procurement including locally made isolation chambers, Stavols, Volt guards and office equipments for IAAS and Parwanipur Agriculture Station. Please, refer to the attached revised budget which gives more detail.
- E. WI will order a microcomputer for IAAS from the revised budget. This Computer will be used to edit the FVBP Project reports and documents.
- F. WI will provide short term computer training for the Admin.Asst at Rampur.
- G. WI Kathmandu office will arrange ARPP vehicle for the research activities for IAAS and NRIP. The PVBP budget will be charged for such use based on current USAID/N rates. For this purpose researchers need to request a vehicle at least a week in advance.

Article II

- A. WI will provide a sum of Rs 24,188 (Twenty four thousand, one hundred and eighty-eight rupees) from PVBP Project funds to repair the existing net house at Parwanipur Agriculture Station It is mutually agreed that the net house will, among other things, be used for the research activities of the PVBP project.
- B. Office facilities for Dr. G.L. Shrestha with the revised project budget and one Ice box and 8 Ice packs for his technical work.
- C. Dr. Shrestha is authorized to hire a Field assistant cum office helper as per the letter dated July 30, 1987.
- D. Dr. Shrestha will use HMG vehicles from Parwanipur Agriculture Station for the travels required for research activities related to FVBP Project and submit the bills for fuel expences and T.A./ D.A. for driver to WI for payment. Travel allowances and Daily Allowances to the driver will be paid as per HMG/N Policy.
- E. Casual laborers will be employed at the local rate and a detail of the employment will be submitted to WI Kathmandu Office for reimbursement.

Article III

- A. Research findings, as a result of the joint cooperative work of the three Parties, will be published in the public interest as mutually agreed upon:
- B. Research findings published by either party will give due credit to other party's contribution, and at the same time, the conclusions and interpretations reported will be the sole responsibility of the party publishing the findings.

Article IV

Honorarium and per diems for the Investigators and Collaborators will be as given below.

- A. Principal Investigator will not be paid while he is at IRRI for study.
- B. Acting Principal Investigator will be paid a monthly honorarium at the rate of Rupees 6600 (Six thousand and six hundred Rupees only) per month for a period of 24 months starting as of July 1, 1987.
- C. Collaborator will be paid a monthly honorarium at the rate of Rupees 6600 (Six thousand and six hundred Rupees only) per month for a period of 18 months starting as of July 1, 1987.
- D. Research Assistant will be paid on the basis of Rupees 1779 (One thousand seven hundred and seventy-nine Rupees only) a month for a period of six months on a renewable basis.
- E. Per diems are Rs 200 a day while the investigators are away from post on official business. For Kathmandu and Pokhara the per diems are paid as Rupees 300. per day.
- F. Beside the Honorarium and per diems researchers are not entitled to other benefits.

Article V

- A. Institutional authority will be invested with Dr. A. John De Boer or Mr. S. S. Bal, Winrock International.
- B. This Memorandum of Understanding may be supplemented by work plans developed jointly, which describe more specifically the activities to be carried out under this cooperative research programme and which set forth the envisaged contributions of each party as well as any such revisions in budget, timing of work, etc. that may be needed for timely execution of this project.

This Memorandum of Understanding shall come into force upon the date of July 1, 1987 and shall remain in force for a period of 4 years or until terminated by either party by giving to the other party six months' prior notice in writing.

Signed in -----, in duplicate, this
-----day of-----1987

Dr. A. John DeBeor
Winrock International
Institute for Agricultural Development

Mr. Sundar Man Shrestha
Head, Plant Pathology Department
Institute Of Agriculture And Animal Sciences
Acting Principle Investigator
PVBP Project, Rampur.

Dr. Gyan Lal Shrestha
Asst. Rice Breeder
National Rice Improvement Programme
Collaborator
PVBP Project
Parwanipur, Bara.

WI/KK:kk

MEMORANDUM OF UNDERSTANDING NO. 2

BETWEEN

MR. SUNDAR MAN SHRESTHA
HEAD, DEPARTMENT OF PLANT PATHOLOGY
THE INSTITUTE OF AGRICULTURE AND ANIMAL SCIENCES (IAAS)
TRIBHUVAN UNIVERSITY
MINISTRY OF EDUCATION
HIS MAJESTY'S GOVERNMENT OF NEPAL
ACTING PRINCIPAL INVESTIGATOR,
PATHOGENIC VARIABILITY OF AND
BACTERIOCIN PRODUCTION PROJECT (PVBPP)

AND

DR. GYAN LAL SHRESTHA
ASSISTANT AGRONOMIST, NATIONAL RICE IMPROVEMENT PROGRAMME (NRIP)
DEPARTMENT OF AGRICULTURE
MINISTRY OF AGRICULTURE
HIS MAJESTY'S GOVERNMENT OF NEPAL
COLLABORATOR, PVBP PROJECT

AND

DR. A. JOHN DE BOER
WINROCK INTERNATIONAL
INSTITUTE FOR AGRICULTURAL DEVELOPMENT (WI)
P.O BOX 1336
KATHMANDU, NEPAL

This is the second Memorandum of Understanding covering implementation of the Winrock International grant from USAID/ office of the Science Advisor for "Pathogenic Variability of and Bacteriocin Production by *Xanthomonas pv Orizae* in Nepal (PVBP Project). This second Memorandum of Understanding resulted as per the additional requirements presented by Mr. Sundar Man Shrestha, to Winrock International during a visit to IAAS by Krishna Khanal on Sept. 17, 1987. Please refer to MOU No. 1 which gives more detail about the budget revision and the work plan.

The remaining amount from the revised budget will be used for the additional procurement and the vehicle repair.

The three parties mentioned above have reached agreement on the following points:

Article I

Winrock International will provide, subject to personnel and budgetary limitation, and as may be mutually agreed upon :

- A. An Air Cooler and a 3KVA voltage stabilizer to the Institute of Agriculture and Animal Sciences, Rampur to be installed at the lab cum office of the researchers.
- B. Vehicle repairing, cost maximum of Rupees 1500 (one thousand five hundred rupees only) and actual fuel expences required for travel for BLB and Germplasm collections during the project period.

C. Per diems to the driver from IAAS, assigned to Principal and Acting Principal Investigators for the field work will receive @ Rupees 75 a day for Pokhara and Kathmandu and for the rest of the areas @ Rupees 60 per day.

Article II

This article will be supplemented by MOU No.1, article V .

Signed in -----, in original.

Date:-----

Dr. A. John De Boer
Winrock International
Institute of Agricultural Development

Mr. Sundar Man Shrestha
Acting Principal Investigator
PVBP Project

Dr. Gyan Lal Shrestha
Collaborator
PVBP Project

WI/KK:kk

FINANCE AND BUDGET

The following is the budget for this grant, including local cost items.

Cost Element	US \$
Winrock management fee	13830
 <u>IAAS items</u>	
Salaries	46470
Equipment	22300
Training	3600
Consultation	4500
Travel and Per diem	15000
Other direct costs	14300

Total IAAS sub-grant	106170

Grand total	120,000

Summary of expenditures

The following expenditures are included as of Dec. 31, 1987.

Expenditures up to date:	<u>Rupees</u>	<u>US \$</u>
1. Salaries and wages	130979.47	5980.70
2. Equipment	347783.77	15880.50
3. Training	2000.	91.30
4. Consultation		
5. Travel and per diem	39134.21	1786.95
6. Other direct cost	243269.88	11108.20
	-----	-----
Total	763167.30	34847

Proposed expenditures for construction of a greenhouse
 1. Total estimate US \$ 19310

Construction

Winrock International has designed a greenhouse to construct at IAAS under FVBP Project as shown below: At present the construction work is in progress. Estimated cost is shown below:

1. Civil work and Materials	US \$ 13557
2. Vehicle operating cost	US \$ 914
3. Technical Support	US \$ 273
4. Corrugated Plastic roof	US \$ 4566

Total	US \$ 19310

This cost will exceed the budgeted amount and additional funding has been requested from USAID to cover the excess.

Repair of Facilities

Winrock International has been supporting the researchers by providing facilities to carry out their research activities at their stations and laboratory. Regarding repair of facilities, WI provided financial and technical support to repair the existing greenhouse and nethouse at Parwanipur Agriculture Station where Dr.Gyan Lal Shrestha, the collaborator on this project, is proceeding with his research work.

WI has assisted the Acting Principal Investigator by repairing an IAAS vehicle, so he could use it for travel to collect the BLB and rice germplasm. WI provided the travel costs for his driver and the fuel expenses. The recent laboratory at IAAS got a new air cooler and the existing one has been repaired for the investigators during summer season.

Project Administration

Grant agreement does not include any expatriates to administer this grant. The Winrock supervisor Dr. A. John De Boer has been constantly monitoring the whole grant with close supervision and directions to the Program Specialist hired to administer the whole grant. The institutional authority to this grant is invested in Dr. A. John De Boer or Mr. S.S. Bal, the WI Chief of Party and Deputy Team Leader respectively under the Agricultural Research and Production Project.

Consultant Dr. T. W. Mew

The IRRI advisor Dr. T. W. Mew, advisor to this project has been regularly corresponding to the investigator and the Acting Principal Investigator. A trip by the latter person is planned to consult on BLB isolation and purification.

International Scientific Interaction

PVBP Project is continuing to strengthen and expand existing linkages with the International Rice Research Institute by coordinating with Dr. T.W. Mew, the IRRI advisor. the Principal Investigator, Mr. Tika B. Adhikari is under a fellowship in IRRI, working with Dr. Mew and the other investigators in this project are visiting him to coordinate with the problems and the research findings.

Personnel (local)

Recruitment of a Program Specialist to administer the grant was made on June 15, 1987 and most of the administrative and research Assistant staff appointment for PVBP Project were completed by Dec.31,1987 in line with AID-approved salary scale. Research and office Assistant are appointed on a temporary and renewable basis to assist the Investigator. The Investigator have been using daily labour for their required work.

List of the existing office staff:

Main office

Program Specialist (Kathmandu) -- 1

Project Office

Administrative Assistant (IAAS) 1

Office Assistant Cum Typist 1

Research Assistant 1

Logistic Support

In order to provide strong support in this research activity, Winrock International has been contributing all the facilities required to support the project. The WI accountants have been handling all the accounting for the Project. In addition to this, WI has been providing logistic support services and the transportation facilities to the Investigators and the office staff on a cost reimbursable basis using AID/N rates.

Commodity Procurement And Inventory

2.(A) Equipment (local Procurement)

- | | | |
|-----------------------|---|---------------------|
| 1. Isolation Chambers | 2 | (local procurement) |
| 2. Air cooler | 1 | (local procurement) |
| 3. Stovol | 3 | (local procurement) |
| 4. Volt guards | 2 | (local procurement) |

2.(B) Equipment (WI HQ Procurement)

- | | | |
|---------------------------------|----|---------|
| 1. Spectrophotometer | 1 | |
| 2. Tungsten lamp | 2 | |
| 3. Cuvette adapter | 1 | |
| 4. Didymium filter | 1 | |
| 5. Light shield cap | 1 | |
| 6. Hot Plate | 1 | |
| 7. Pippet | 1 | (case) |
| 8. Pollystyrene, sterile falcon | 1 | (case) |
| 9. Drying oven | 1 | |
| 10. Incubator | 1 | |
| 11. Centrifuge | 1 | |
| 12. Adapter for Cetrifuge | 1 | |
| 13. Test Tube Rack | 5 | (case) |
| 14. Verical steam sterilizer | 1 | |
| 15. Biohazard Autoclave gloves | 1 | (case) |
| 16. Dauble hanging pan balance | 1 | |
| 17. pH Meter | 1 | |
| 18. ATC Probe | 1 | |
| 19. Elctrodes | 1 | |
| 20. Reciporcal Shaker | 1 | |
| 21. Flask holder | 10 | (cases) |
| 22. Carrier plate | 1 | |
| 23. Shaking rack | 1 | |
| 24. Camera with zoom lens | 1 | |

Work plan

Winrock International circulated a work plan to the researchers to start up the project as shown below:

Act. Principal Investigator Mr. Sundar Man Shrestha and the Collaborator Dr. Gyan Lal Shrestha visited the following districts to collect the BLB and rice germplasm during the last six months period.

Mr. S.M. Shrestha

Dr. Gyan Lal Shrestha

Districts Visited in

Mid Tarai Region:

Rupandehi
Dang
Banke
Bardiya
Surkhet
Kailali
Kanchanpur

Eastern Tarai region:

Jhapa
Morang
Sunsary
Saptary
Dhanusa
Udayapur
Sindhuli
Sarlahi

Hilly region:

Gorkha
Tanahun
Lamjung
Syangja
Kaski

Mid Tarai Region:

Rautahat
Bara
Parsa
Makawanpur
Chitawan
Nawalpur
Kapilbastu

Vally/Hilly region:

Kaski
Kathmandu
Bhaktapur
Patan
Nuwakot
Dhankuta
Kabhre

Please refer to the technical report submitted by the researchers.

INSTITUTIONAL DEVELOPMENT HIGHLIGHTS

Current status of the main Institutions under the Winrock International/ PVBP Project is supporting is shown below:

Institutions:

The Institute of Agriculture and Animal Sciences, Rampur.

National Rice Improvement Program, Parwanipur.

Status:

This has been already discussed in the chapters above.

Future Work-Plan:

Project will continue the study on Pathogenic Variability of and Bacteriocin Production including studies on inheritance of resistance sources in cooperation with plant breeders. The Project will monitor disease incidence on differential varieties grown in different locations in Nepal and will spread and distribution of the Pathogenic races and possibility of new races occurring will be examined. Also, Project will test stability of the bacteriocin in vitro.

SEMI - ANNUAL REPORT ON
PATHOGENIC VARIABILITY OF AND BACTERIOCIN PRODUCTION BY
XANTHOMONAS CAMPESTRIS pv. ORYZAE

JULY THROUGH DECEMBER 1987

PREPARED BY:

SUNDAR MAN SHRESTHA
ACTING PRINCIPAL INVESTIGATOR,
INSTITUTE OF AGRICULTURE AND ANIMAL SCIENCES, RAMPUR

Collection of Bacterial Isolates

The infected leaf samples with bacterial blight were collected from different varieties and locations of 35 districts, mainly from the Tarai region of the country covering from East to West. Field reaction of the disease was observed from medium susceptible to highly susceptible in most of the local as well as improved varieties. It was observed that the disease is already distributed throughout the Tarai belt which is the main rice growing area of the country. This gives an idea about the importance of this disease in the country. All the districts, locations, varieties and field reaction observed are given below:

Table 1 - Collection of infected leaf samples from different locations and their field reactions

<u>Sr. No.</u>	<u>District</u>	<u>Location</u>	<u>Rice Variety</u>	<u>Field Reaction</u>
1.	Jhapa	Shiva Ganj	Improved	MS
2.	"	Gahira Bari	Local	S
3.	"	Urla Bari	Masuli	MS
4.	"	Shiva Ganj - 1	Masuli	S
5.	"	" "	BR - 51	MS
6.	Morang	Sundarpur	Local Forma	HS
7.	"	Bel Basi	Janaki	S
8.	"	Sukuna Khorsane-2	Bhadaiya	HS
9.	"	Indrapur - 2	B 44 B	HS
10.	Sunsari	Etahari	Improved	MS
11.	"	Sunwari - 4	Bindeshwari	S
12.	"	Tarahara	B 39810	S
13.	"	Etahari	Improved	MS
14.	Dhankuta	Bhedetar	Barkha Dhan	MS
15.	"	Pakharibas	Improved	MS
16.	"	Pakharibas	Improved	MS
17.	Saptari	Kanchanpur	Dalle Bhadaiya	S
18.	"	Beruwa	" " (Black)	S
19.	"	Kanchanpur	Local	HS
20.	Dhanusa	Baniniya	Auns	S
21.	"	Lalgard	Improved	MS
22.	"	Jamuniya	CH - 45	HS
23.	"	Naktajhil	CH - 45	S
24.	"	Kamal river	Local	HS
25.	"	Ramdaiya	Masuli	S
26.	"	Janakpur - 4	Masuli	HS
27.	Sirha	Padariya	Auna	MS
28.	"	Padariya	Laxmi	MS
29.	"	Sirha	Dhuma Kherah	S
30.	"	Lahan town - 3	Auns	S
31.	"	Lalchandpur	Auns	MS
32.	"	Lhan - 6	Masuli	MS
33.	Mahotari	Pipara	Local Auns	S
34.	"	Suwa Village	Local lats	S
35.	"	Jaleshor - 13	Local lats	HS

36.	"	Akrahya	Local lats	S
37.	"	Bindhi	Local lats	HS
38.	"	Bardibas	Local	MS
39.	Sarlahi	Lal Bandi	Local	MS
40.	"	Lal Bandi	Local	MS
41.	"	Hapur	Masuli	S
42.	"	Hariwan	Masuli	S
43.	"	Kaudaniya - 1	Pankaj	HS
44.	Rautahat	Paurahi	Gadar Bhadaiya	S
45.	"	Chandranigahapur	Local	S
46.	Bara	Simroungard	Maturi	HS
47.	"	Simroungard	Bhadaiya	MS
48.	"	Tajpur	Parsol	HS
49.	"	Chhota Pipora		
		Baluwa - 9	CH - 45	HS
50.	"	Rampur Tokani-6	Nakhi	HS
51.	"	Rampur Tokani-9	CH - 45	HS
52.	"	Chhota Pipara-9	Gamadi	HS
53.	"	Rampur Tokani-3	Bindeshori	HS
54.	"	Buniyad - 3	CH - 45	HS
55.	"	Feta - 1	Improved	MS
56.	"	Feta - 1	Bindeshori	HS
57.	"	Nijgard	Improved	HS
58.	"	Parwanipur	Masuli	HS
59.	Parsa	Bhaubari - 4	CH - 45	MS
60.	"	Jagarnath	Muturi	HS
61.	"	Pokharia	Muturi	S
62.	"	Jagarnath-7	Masuli	MS
63.	"	Jagarnathpur	CH - 45	HS
64.	"	"	Masuli	MS
65.	"	Lippani Birte-2	CH - 45	S
66.	"	"	Nakhi	S
67.	"	"	Jhali	HS
68.	"	Lippani Birta-10	Ghaiya - 2	HS
69.	"	"	CH - 45	HS
70.	"	Lippani Mal	Lanjeer	HS
71.	"	"	Kataujhar	HS
72.	"	"	Sankharika	HS
73.	"	"	Bindeshori	HS
74.	Chitawan	Saradanagar - 9	Masuli	MS
75.	"	"	Anadi	MS
76.	"	Bharatpur	Masuli	S
77.	"	Bhandara	Masuli	S
78.	"	"	Himali	HS
79.	"	Gauriganja	Improved	HS
80.	Nawal Parasi	Gaidakot	Anp Jhutta	MS
81.	"	"	Masuli	MS
82.	"	Tharu Bhagar	Masuli	S
83.	"	Basabasai	Sarju	HS
84.	Rupandehi	Sidarthnagar	Masuli	MS
85.	"	"	Durga	MS
86.	"	"	Sarju	S
87.	"	Madauliya	Sarju	HS
88.	"	Paruwa - 5	Masuli	S

89.	"	Parsari - 5	Masuli	S
90.	"	"	Sarju	HS
91.	Kapilvastu	Sivapur - 6	Sarju - 49	S
92.	"	Motipur - 5	Kalakantha	S
93.	"	Bade - 8	Sarju - 49	HS
94.	"	"	Kala Nimak	S
95.	Dang Deukhuri	Tribhuvan -11	China - 4	HS
96.	"	Tarigown - 3	Gurdi	MS
97.	"	Manpur - 9	Simthari	HS
98.	"	"	Taichung	HS
99.	"	Dhikpur - 7	Tilki	MS
100.	"	"	Taichung	S
101.	"	Tribhuvan - 10	Simjira	S
102.	"	Tribhuvan - 11	Simbhari	S
103.	Banke	Monkapur - 6	Janaki	MS
104.	"	"	Top - 9	S
105.	"	Khajura Khurdi - 5	Purple	HS
106.	"	Nepalganja - 13	Local	MS
107.	"	Khajura Khurt	Local	MS
108.	Bardia	Guleriya - 1	Masuli	HS
109.	"	Mahamadpur - 2	Dadawa	S
110.	"	Kalika - 6	Dudhraj	HS
111.	"	Taratal - 5	Sanu Anadi	S
112.	"	Mathurahar - 7	Sattari	HS
113.	"	Khairapur - 1	Tharu Anadi	MS
114.	Kailali	Jhanjatpur - 2	Birendraphut	HS
115.	"	Munuwa - 1	Sothari	S
116.	"	Dhangardi - 1	Karangi	S
117.	"	Tikapur	Gopal	S
118.	Kanchanpur	Mahendra Nagar - 4	Laxmi	S
119.	"	"	IR - 24	S
120.	"	"	Anjana	HS
121.	"	"	Basti	HS
122.	"	Mahendra Nagar - 3	Thima	HS
123.	"	"	Masuli	S
124.	"	Mahendra Nagar - 13	IR-24	S
125.	"	Mahendra Nagar - 16	Janaki	HS
126.	"	"	Andhi	HS
127.	"	"	Masuli	S
128.	"	Mahendra Nagar - 18	Anjana	HS
129.	"	"	Indrasan	HS
130.	"	"	Jaya	MS
131.	Palpa	Pipal Danda	Manamari	MS
132.	"	"	Thapachini	S
133.	Shyanja	Belghari	Gurdi	MS
134.	"	"	Kalo Jhinuwa	MR
135.	"	Bayarghari	Masuli	S
136.	Kaski	Syalghari	Pahale	S

137.	"	Gangangauda	Seto Masino	S
138.	"	Pundi	Gurdi	MS
139.	Tanahu	Satrasaya	Dataka	HS
140.	"	Dhayare Tari	Battisara	HS
141.	"	Rani Gaun	Masuli	S
142.	"	"	Anp Jhutte	HS
143.	"	"	Anadi	MR
144.	Gorkha	13 Kilo	Anp Jhutte	MR
145.	Kathmandu	Jorpati	Himali	HS
146.	"	Gongabu	Taiwanan	HS
		Samakhusi		
147.	"	Dilli Bazar	Himali	S
148.	"	Sita Paila	Pokhreli	LS
			Masino	
149.	"	Dilli Bazar	Taiwanese	HS
150.	Bhaktapur	Bhaktapur - 2	Himali	MS
151.	"	Bageshori - 1	Khumal - 3	LS
152.	"	Kausaltar - 3	"	MS
153.	"	Dadhikot	Local	MS
154.	"	Surya Binayak	Local	MS
155.	"	Nalinchok	Improved	MS
156.	Lalitpur	Harisiddi - 9	Hyoun Machha	LS
157.	"	Khumaltar	Tainan - 2	LS
158.	"	Chapagown	Khumal - 3	LS
159.	"	Bhakhundol	Taiwanese	S
160.	Nuwakot	Battar Bazar	Himali	HS
161.	"	Khampacamp - 6	Janaki	LS
162.	"	Dumki Batrar - 8	Local	MS
163.	"	Gauribis - 9	Himali	MS
164.	"	Maharaudi - 6	Alam Ghati	
			Ghaiya	HS
165.	"	Battar Phanti-5	Rato Ghaiya	HS
166.	Kabhre	Dhulikhel	Local	S
167.	"	Fanchkhal	Parwanipur-1	MS
168.	"	Banepa	Pokhreli	S
			Masino	
169.	"	Mahadev	Improved	S
170.	Sindhuli	Bhiman - 1	Dargilings	LS
171.	"	Sindheshor - 6	Masuli	MS
172.	"	"	Dargilings	MS
173.	"	"	Masuli	LS
174.	"	Sindheshor - 4	Sabitri	MS
175.	"	"	Bindeshori	HS
176.	"	"	Sabitri	HS

Isolation and Purification of *Xanthomonas Campestris* PV *oryzae*.

The leaf samples of rice cultivars collected from different locations were brought to the laboratory for isolation of the bacteria. Following two media were used for isolating the bacteria. They were PSA which was prepared by using peptone (gr) sucrose (10g) and agar agar (17.5 gr) as well as NA (bee extract (3 gr) and agar agar (20 gr) plus distilled water (10 ml).

After sterilization of these media in an autoclave (at 15 psi for 15 minutes) they were poured (15ml/plate) aseptically in the petri dishes preserilized in an oven (180°C for 30 minutes).

One ml of distilled water was taken in each test-tube and sterilized in an autoclave. These tubes was used to get bacterial ooze. For this, the infected leaf(about an inch) was cut into small pieces with sterilized scissors over the flame with frequent dipping in the spirit. The cut pieces were kept in the test tubes and left for half and hour to let the bacterial ooze exit. Then one loopful of this bacterial suspension was streaked over the medium of each petri dishe aseptically. Five plates were streaked for each. They were kept in an incubator at 28 + 1°C for 48 hours. Then the plates were observed for the presence of Xanthomonas campestris pv. oryzae. Yellow, shining single colonies were selected and isolated in the test-tubes containing serilized PSA medium aseptically which were inoculated for 48 hours at 28 + 1°C and were preserved as pure culture. So far 133 such pure cultures are prepared and preserved. The isolates were designated as No.1, No.2 No. 133. Details are given in the following table.

Table 2 - Isolate Designation of *Xanthomas campestris* pv. *oryzae* purified from the infected leaf samples of rice cultivars.

<u>Sr.No.</u>	<u>Isolate Designation</u>	<u>District</u>	<u>Rice Variety</u>
1.	N 01	Jhapa	Improved
2.	N 102	"	Masuli
3.	N 02	Morang	Local forma
4.	N 99	"	Janaki
5.	N 100	"	Bhadaiya
6.	N 101	"	B 44 B
7.	N 03	Sunsari	Improved
8.	N 98	"	B 39810
9.	N 107	"	Improved
10.	N 04	Dhankuta	Barkhe Dhan
11.	N 106	"	Improved
12.	N 107	Saptari	Dalle Bhadaiya Kalo
13.	N 92	Bhanusa	CH 45
14.	N 93	"	Local
15.	N 158	"	Masuli
16.	N 159	"	Masuli
17.	N 09	Sirha	Laxmi
18.	N 10	"	Dhuma Kheraha
19.	N 94	"	Auns
20.	N 95	"	Auns
21.	N 160	Mahotari	Local late
22.	N 161	"	Local late
23.	N 162	"	Local late
24.	N 163	"	Local late

25.	N 164	"	Local
26.	N 14	Sarlahi	Local
27.	N 165	"	Masuli
28.	N 166	"	Masuli
29.	N 109	"	Local
30.	N 38	Sarlahi	Pankaj
31.	N 16	Rautahat	Local
32.	N 40	Bara	Bhadaiya
33.	N 83	"	CH - 45
34.	N 85	"	CH - 45
35.	N 86	"	Gamadi
36.	N 88	"	CH - 45
37.	N 89	"	Improved
38.	N 90	"	Bindeshori
39.	N 110	"	Improved
40.	N 45	Parsa	CH - 45
41.	N 46	"	Muturi
42.	N 47	"	Muturi
43.	N 48	"	Masuli
44.	N 75	"	Nakhi
45.	N 76	"	Jhali
46.	N 77	"	Ghaiya - 2
47.	N 78	"	CH - 45
48.	N 80	"	Kataunjhar
49.	N 82	"	Bindeshori
50.	N 17	Chitawan	Masuli
51.	N 18	"	Anadi
52.	N 50	"	Masuli
53.	N 155	"	Masuli
54.	N 156	"	Himali
55.	N 157	"	Improved
56.	N 69	Nawal Parasi	Anp Jhutte
57.	N 70	"	Masuli
58.	N 72	"	Sarju
59.	N 65	Rupandehi	Masuli
60.	N 66	"	Durga
61.	N 67	"	Surju
62.	N 68	"	"
63.	N 119	"	Masuli
64.	N 120	"	Masuli
65.	N 121	"	Sarju
66.	N 123	Kapilvastu	Kalakantha
67.	N 124	"	Sarju - 49
68.	N 125	"	Kala Nimak
69.	N 127	Dang Deukhuri	Gudri
70.	N 128	"	Simthari
71.	N 129	"	Taichung
72.	N 130	"	Tilki
73.	N 131	"	Taichung
74.	N 132	"	Simjira
75.	N 133	"	Simthari
76.	N 134	Banke	Janaki
77.	N 135	"	Top 9
78.	N 42	"	Purple
79.	N 43	"	Local

80.	N 44	"	Local
81.	N 167	Bardia	Masuli
82.	N 168	"	Dedawa
83.	N 169	"	Dudharaj
84.	N 170	"	Sanu Anadi
85.	N 173	"	Tharu Anadi
86.	N 172	Kailali	Birendraphul
87.	N 174	"	Sothari
88.	N 175	"	Gopal
89.	N 136	Kanchanpur	Laxmi
90.	N 137	"	IR - 24
91.	N 138	"	Anjana
92.	N 139	"	Basti
93.	N 140	"	Thima
94.	N 141	"	Masuli
95.	N 142	"	IR - 24
96.	N 143	"	Janaki
97.	N 144	"	Andhi
98.	N 145	"	Masuli
99.	N 146	"	Anjana
100.	N 147	"	Indrasan
101.	N 148	"	Java
102.	N 63	"	Manamuri
103.	N 64	"	Thapachini
104.	N 60	Shyanja	Gurdi
105.	N 61	"	Kala Jhinuwa
106.	N 62	"	Masuli
107.	N 58	Kaski	Seto Masino
108.	N 59	"	Gurdi
109.	N 53	Tanalu	Battisara
110.	N 55	"	Anp Jhutte
111.	N 19	Kathmandu	Himali
112.	N 149	"	Taiwanese
113.	N 154	"	Taiwanese
114.	N 22	Bhaktapur	Himali
115.	N 23	"	Khumal - 3
116.	N 24	"	Khumal - 3
117.	N 26	"	Local
118.	N 27	"	Improved
119.	N 34	Lalitpur	Tainan - 2
120.	N 35	"	Khumal - 3
121.	N 150	"	Taiwanese
122.	N 32	Nuwakot	Tato Ghaiya
123.	N 151	"	Himali
124.	N 37	Kabhre	Parwanipur - 1
125.	N 152	"	Pokhreli Masino
126.	N 153	"	Improved
127.	N 112	Sindhuli	Dargilinge
128.	N 113	"	Masuli
129.	N 114	"	Dargilinge
130.	N 115	"	Masuli
131.	N 116	"	Sabitri
132.	N 117	"	Bindeshori
133.	N 118	"	Sabitri

Administrative Support

Winrock International personnel are constantly involved in this research project. The Program Specialist, Mr. Krishna Khanal, is very helpful for smooth execution of the project. He had supplied some of the immediately needed equipments, chemicals and other necessary items in time which made me comfortable to work on the project. The prompt and positive actions of Winrock personnel are highly appreciated. A research assistant, an administrative support staff and a labourer were hired for this project. They are working with me in the project at the Institute of Agriculture and Animal Science, Rampur, Chitwan, Nepal.

PATHOGENIC VARIABILITY OF AND BACTERIOCIN PRODUCTION CAUSED BY

Xanthomonas campestris p.v oryzae in Nepal

SEMI - ANNUAL REPORT

No. 1

Duration: July to December, 1988

Reported by: Dr. G.L. Shrestha

Collaborator

NRIP, Parwanipur

GENERAL BACKGROUND:

A project proposal "Pathogenic Variability of and Bacteriocin Production caused by *Xanthomonas campestris p.v. oryzae* in Nepal" submitted jointly in 1985 by Mr. Tika Adhikary, Plant Pathologist and Mr. Sundar M. Shrestha, Plant Pathologist and Head of the Department of Institute of Agriculture and Animal Science (IAAS) Rampur as principle investigator and principle collaborator respectively, and Dr. Gyan L. Shrestha, Assistant Rice Breeder of National Rice Improvement Program (NRIP), Parwanipur Agriculture Station, Bara as collaborator, to the United States Agency for International Development (USAID), was passed through all the concerning University and ministries of Nepal for its legal approval, and on that basis it was awarded to those investigators. Accordingly, this project came into function for a period of 3 years and 6 months starting from July 1987 to January 1991. It was authorized by USAID to start this project from June and onward under the supervision of Dr. A. John DeBoer, Chief of the Party, Winrock International, Agricultural Research and Production Project (ARPP), Kathmandu.

Accordingly, the principle collaborator took over the responsibility of the principle investigator as Acting Principal Investigator. On the basis of the above conditions, three separate agreements were signed by Dr. A. John DeBoer, Mr. Sundar M. Shrestha and myself during last six months in connection to this project. They are attached in this semiannual report No.1. Similarly, Mr. Krishna Khanal and Mr. Durga B. Zoowa were appointed as Program Specialist for Kathmandu, Administrative Assistant cum Secretary for IAAS respectively.

PROJECT DEVELOPMENT

Some basic technical guidelines on project work were developed by Mr. Tika Adhikary before he left for the Philippines, and these guidelines were further developed with some modifications jointly by Mr. Sundar M. Shrestha and myself on the basis of the project activities outlined in the original proposal and further suggestions from the principle investigator. Further details of the field plan were finalized on the basis of the joint meeting with the Chief of the Party Dr. A. John DeBoer on July 23-24 in IAAS Rampur. Accordingly, almost all laboratory work will be done in IAAS, and pathogenecity and screening tests of the project work in both Rampur and Parwanipur. As part of the functions of the project in Parwanipur for the field and glasshouse cum nethouse work, a minimum requirement of the office cum laboratory facility along with glasshouse and nethouse maintenance was developed.

PROGRESS IN NRIP, PARWANIPUR:

In NRIP Parwanipur, this project work was started from the month of June itself on the basis of approval by the Chief of Party, as the seed of the susceptible rice variety of the bacterial blight disease Taichung Native - 1 (TN1) had to be seeded in the nursery bed during that month for this experiment. So, the first monthly report of this project work in Parwanipur was of June 1987. The monthly reports of each last 7 days have been attached in this report.

During the month of June, a field plan was made for field experiment of TN1 to conduct the pathogenecity test under the condition that the isolates of the bacterial blight (BB) of the rice from the different targeted districts of Nepal (Table 1) would be collected and the culture of each BB isolates would be ready by August. So, the nursery of TN1 was planted in that month. Necessary revolving funds, materials and equipments were made available for its establishment in NRIP.

During the month of July, field experiment of TN1 was planted in the field as well as in the glasshouse for pathogenecity test. Program for nethouse repairment in NRIP was fixed and estimated the cost of repairment. Necessary fund for that was also made available at the end of this month.

During the first week of August, a field trip for bacterial blight isolates collection was arranged in eastern and central regions. However, it was found that the natural infection in the farmers field was very poor, most probably due to late monsoon onset and unfavaourable environmental condition including unfavourable host plant. So, it was felt that the BB isolates collection would be better only in the last week of August to September. Maintenance of the field experiment was done as needed.

Major activities of BB isolates collection was done in the month of September. A complete list of BB isolates collected from different districts of eastern and central regions is given in the table 2. However, the maintenance of the field experiment and pot culture of TN1 was continued to harvest enough seed that would be utilized for next years pathogenicity test. In the same month, early maturing local rice varieties from different districts were also collected. All the collected samples of BB isolates were deposited in the IAAS pathological laboratory for its pure culture that would be ultimately used for pathogenicity test in both Parwanipur and Rampur. Due to long leave by the local engineer of Parwanipur, nethouse could not be repaired although some of the materials for that were procured.

In the month of October, local rice germplasms from different districts of the hilly regions were collected as scheduled in the original proposal. However, very few local rice germplasms were available in the farmers field due to coverage of large area of the rice field by the improved varieties. So, some of the improved rice varieties were also collected from those farmers field. Regarding pathogenicity test of those BB isolates, S.M. Shrestha and myself discussed this problem in Rampur. Naturally due to late collection of BB isolates and consequently late pure culture isolation in the laboratory, those TN1 plants planted in the field as well as in the glasshouse and nethouse in the both locations could not be utilized for pathogenicity test due to very late stage of the TN1 plants. The nethouse repairment work could not be done because of no engineer and overseer. Harvesting of the TN1 was done and seed was secured for next year use.

In the month of November, Mr. Hari M. Shrestha, overseer from ARP Project came down to Parwanipur to start the repairing work of the nethouse. At the same time Mr. Sundar M. Shrestha also visited Parwanipur to see the structure and condition of the Parwanipur glasshouse for winter season (1988) TN1 planting for pathogenicity test. On the basis of discussion that time it was decided that the glasshouse must be repaired immediately. So, the overseer estimated the glasshouse repairment, and the work was started from the same fund supposing that the necessary fund for that would be arranged or nethouse work will be partially repaired. Accordingly the glasshouse as well as nethouse was repaired under the supervision of the overseer.

In the month of December, the collection of the local rice germplasms of late maturing groups (December maturing) was done from different districts. The complete list of the collected rice germplasms has been attached in this report. One set of the germplasm was set for IAAS for next year resistance test. The nethouse and glasshouse repairment was completed.

Table No.1

Local rice germplasms collected from Different Targetted District of Central and Eastern Development Regions for bacterial screening under PVBP Project.

Name of the district.

S.No.	District	Farmers Name	Variety	Village Panchayat	Date of collection	Remark
1.	Dhanusha	--	Auns	Baniniya Village	Sept. 20	
2.	"	--	CH - 45	Nakatajhija	Sept. 19	
3.	"	--	CH - 45	Jamuniya	Sept. 19	
4.	"	Hari Shankar Rao	Seto ghusari	Mahuwa - 8	--	
5.	"	Ram Lakhon Mandal	Katika	Mahuwa - 8	--	
6.	"	Dev Narayan Shahu	Shah Mavdan	Shaphai - 5	--	
7.	"	Ram Lakhon Shahu	Jashwa	Shapahi - 5	--	
8.	"	Ram Chandra Thaku	Jhhalari	Janakpur	--	
9.	"	Anrud Mandal	Bakho	Suganaudhkarahi	--	
10.	"	Pulket Mandal	Basmati Mahi	Shonigama	--	
11.	"	Shree Narayan Mandal	Balam shari	Shonigama W, N6	--	
12.	"	"	Lalshar Mahi	Shonigama	--	
13.	"	"	Khhoieichhapati	Shonigama	--	
14.	"	Raj Kumar Mandal	Motaka	Suganaudhkarahi	--	
15.	"	Randav Mandal	Kalamshari	Suganaudhkarahi	--	
16.	"	Shree Wati Sharni Davi	Dolang	Suganaudhkarahi	--	
17.	"	Reejhhan Mandal	Jashwa	Shonigama W, N6	--	
18.	"	"	Motakadudhwa	"	--	
19.	"	Shree Biswa Nath Mandal	--	Rajbiraj V,P, Shonigama	--	
20.	"	"	Dudhsha ri Dolang	"	--	
21.	"	Keesun Shah	Wajir	Suga Madhu Karahi	--	

Table No.2

Local rice germplasms collected from different targeted districts of central and Eastern development regions for bacterial under PVBP project.

Name of the district.

S.No.	District	Variety	Date of Collection	Village	Farmers Name	Remarks
1.	Kavreplan Chok	Tauli (tall)	Oct. 8, 1987	Supagaon		
2.	"	Pahenlo Marsi	"	"		
3.	"	Taiwanise	"	"		
4.	"	Local, Dhan	"	Belkot		
5.	"	Pokhreli Masino	"	"		
6.	"	Tauli	"	Nala		
7.	"	Himali	Oct. 9, 1987	Panchkhal		
8.	"	Pokhreli Masino	"	Nala Bhandari		

BEST AVAILABLE DOCUMENT

9.	-	Taichin	-	Shanga gaon
10.	-	China Dhan	-	Nala
11.	-	Khumal - 3	-	Shanga
12.	-	China Dhan	-	Banepa
13.	-	Pahenio Marsi	-	Nala

Table No.3

Local rice germplasms collected from different targeted districts of central and Eastern Development regions for bacterial screening under PVBP project.

Name of the district.

S.No.	District	Variety	Date of Collection	Village	Farmers Name	Remark
1.	Chitawan	Japani Masuli	Oct. 11, 1987	Gauriganj		
2.	Chitawan	Masuli	Oct. 11, 1987	Bhandara		

Table No.4

Local rice germplasms collected from different targeted districts of central and Eastern development regions for bacterial screening under PVBP project.

Name of the district.

S.No.	District	Variety	Date of Collection	Village	Farmers name	Remarks
1.	Shirha	Aunsha		Padariya		
2.	"	"		Lahan		
3.	"	"	Sep. 20, 1987	Lalchandrapur-5		
4.	"	Laxmi		Padariya		
5.	"	Ganhunwa Matka	044-8-22	Lahan N.P.	Inar Chaudhry	
6.	"	Kanakjeer	"	"	Lagan Lal Chaudhry	
7.	"	Sehwana	"	Sinrahi	Dhaupat Chaudhry	
8.	"	B.O.O. 58	"	"	Jhallu Mahato	
9.	"	Khenti	"	"	Koshi Lal Chaudhry	
10.	"	Panjhhali	"	"	Moti Lal Chaudhry	
11.	"	Sungaha	"	"	Nanda Lal Chaudhry	
12.	"	Basmati mehi	"	Lahan N.P.	Kameshwar	
13.	"	Kariya Kanod	"	"	"	
14.	"	Kankirwi	"	"	Krishna Kumar Chaudhry	
15.	"	Bakai	"	"	"	
16.	"	Nanhiya	"	"	"	
17.	"	Harinkor	"	"	"	

Table No. 5

Local rice germplasms collected from different targeted districts of central Eastern development regions for bacterial screening under PVBP Project.

Name of the district.

S.No.	District	Variety	Date of Collection	Village	Farmers Name	Remarks
1.	Kathmandu	Taiwani	Oct. 3, 1987	Dilli Bazar		

Local rice germplasms collected from different targetted districts of central and Eastern development regions for bacterial screening under PVBP Project.

Name of the district.

S.No.	District	Variety	Date of Collection	Village	Farmers Name	Remarks
1.	Sunsary	Basmati	044-8-20	Itahari	Jay Prakash Khadka	
2.	"	B. 44	"	"	Musru Dhami	
3.	"	Chengul (Kale Marixe)	"	"	"	
4.	"	Chanaghur	"	"	"	
5.	"	Katkonal	044-8-21	Hanskesa	Ratna Bahadur Khadka	
6.	"	Jeerasari	"	"	Kasi Nath Dungal	
7.	"	Karma	"	"	Laxmi Khadka	
8.	"	Biraapul	"	"	Birshha Bahadur Kiswkana	

Table No. 6

Local rice germplasms collected from different targetted districts of central and Eastern development regions for bacterial screening under PVBP Project.

Name of the district.

S.No.	District	Variety	Date of Collection	Village	Farmers Name	Remarks
1.	Bhaktapur	Kumal-3		Bageswari vi-pt.		
2.	"	Marsi	Oct 9, 1987	Nalik chok		
3.	"	Jangali themu Dhan	"	"		
4.	"	"	"	"		
5.	"	"	"	"		
6.	"	Jangali Dhan	"	"		
7.	"	"	"	"		

Table No.7

Local rice germplasms collected from different targetted districts of central and Eastern development regions for bacterial screening under PVBP Project.

Name of the districts.

S.No.	District	Variety	Date of	Village	Farmers name	Remarks
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Collection

1.	Jhhapa	IR 8423	044-4-22	Kankai	
2.	"	Champharari	044-8-19	Sivganj	Sundar Lal Rajbansi
3.	"	Mehi Masina	"	Dangi	Chandra Dhan Lal Rajbansi
4.	"	Biramful	"	"	"
5.	"	Kisan Dhan (B 44)	"	"	"
6.	"	Kale Niniya	"	"	"
7.	"	Najeer	044-8-18	Sivaganj	Chiharu Lal Rajbansi
8.	"	Harifer	"	"	"
9.	"	Panikalna	044-8-19	"	Shree Prasad Rajbansi
10.	"	Chhoti Masina	"	"	Bod Prasad Mainali

Table No.8

Local rice germplasms collected from different targetted districts of central and Eastern development regions for bacterial screening under PVBP Project.

Name of the district.

S.No.	District	Variety	Date of Collection	Village	Farmers Name	Remarks
1.	Morang	Bhadaiya	044-4-28	Indrapur Khorsane		
2.	"	Local parna	"	Sundarpur		
3.	"	Sne Madesi	044-8-21	Biratnagar Nagar Pant	Ran Lal Rajbansi	
4.	"	Handiful	"	"	"	
5.	"	Basmati	"	"	Dobi Prasad Rajbansi	
6.	"	Ganhunwa	"	"	Ghansyam Adhikary	
7.	"	Aginsayar	"	"	"	
8.	"	Pakhar	"	"	Ran Prasad Koirala	
9.	"	Basmati	"	"	"	
10.	"	Satraj	"	"	Sebu, Rajbansi	
11.	"	Najir	"	"	Dhanik Lal Rao	
12.	"	Rupkalam	"	"	"	
13.	"	Jahar Dhan	"	"	Ganesi Rajbansi	

Table No.9

Local rice germplasms collected from different targetted districts of central and Eastern development regions for bacterial screening under PVBP Project.

Name of the district.

S.No.	District	Variety	Date of Collection	Village	Farmers Name	Remarks
1.	Lalitpur	Taichung	Oct. 7, 1987	Bakhundol		

Table No.10

Local rice germplasm seems collected from different Targetted districts of Conraland and Eastern Development regions for bacterial blight screening under PVBP project.

Name of the district.

S.No.	District	Variety	Date of Collection	Village	Farmers Name	Remarks
1.	Shaptary	Bhadaiya Kalo	044-4-24	Banuwa pt.		
2.	"	Panjhhali	044-8-22	Madhupati vi. pt.	Shury Narayan Chaudhry	
3.	"	Bakai	"	"	"	
4.	"	Kanakjeer	"	Kadnala	Jashi Lal Chaudhry	
5.	"	Khewti	"	"	Kharga Narayan Chaudhry	
6.	"	Nanhiya	"	"	Mukti Narayan Chaudhry	
7.	"	Sihmaua	"	"	Pitamber Chaudhry	

Table No.11

Local rice germplasms Collected from Different Targetted districts of Contraland Eastern Development Regions Forbacterial Screening Under PVBP Proejct.

Name of the District.

S.No.	District	Variety	Date of Collection	Village	Farners Name	Remark
1.	Parsha	CH-45	Sept. 18, 87	Kaniyari	Brahmandev Rout	
2.	"	CH-45	Sept. 18, 87	Jagarnathur Lipanivirta Tajpur	Bhawan Shah	
3.	"	MW-10	Sept. 18, 87	"	"	
4.	"	CH-45	Sept. 18, 87	"	Abdul Dewan	
5.	"	Jhhali	Sept. 18, 87	"	Kari Dewan	
6.	"	Nokhi	Sept. 18, 87	"	Islam Dewan	
7.	"	Kasturi	Nov. 21	" W.D.1	Shitaram-Mahato	
8.	"	Ram Jawain	Nov. 21	" W.D.1	Anwatmahato	
9.	"	Handi Ful	Nov. 21	" W.D.3	Byash Mahato Koiri	
10.	"	Seto Katika	Nov. 28	" W.D.3	Mooni Lal Prasad Yadav	
11.	"	Ram Jawain	Nov. 28	" W.D.3	Mooni Lal Prasad Yadav	
12.	"					

Table No.12

Local rice germplasm collected from differnt targetted districts of Control and Eastern Development Regions for bacterial screening under PVBP Project.

Name of the District.

S.No.	District	Variety	Date of Collection	Village	Farmers Name	Remark
1.	Bara	Seto Katika	Dec. 5	Lipanimal	Tula Rahim Mansuri	
2.	"	Loh Jeer	"	"	"	
3.	"	Rato Basmati	"	" 5	Hirday Narayan Yadav	
4.	"	Seto Basmati	"	Bahuwari	Siva Nandan Prasad Yadav	
5.	"	Anandi	"	Lipani Mal	Ingrasan Prasad Yadav	
6.	"	Darvi or Silan	Dec. 12	Buniyad	Shatya Narayan Mahato	
7.	"	Mahajogin	"	Buniyad	Mahendra Shah	
8.	"	Kasturi	"	Nautan Parsuni	Chawan Shah	
9.	"	Kataujhhar	Sept. 18, 87	Lipani Mal	Randeve Prasad Yadav	
10.	"	Shan Kharika	"	"	"	
11.	"	Bindeswari	"	"	"	
12.	"	Muturi	"	Buniyad	Bhola Mahato	
13.	"	CH-45	"	Chhata Pipara -9	Viswanath Shah	
14.	"	Nokhi	"	Rampur Tokani	Jawahir Taut	
15.	"	Bindeswari	"	Rampur Tokani -5	"	
16.	"	Ganadi	"	Chhatapipara -9 Baluwa	Shankar Mahato	
17.	"					
18.	"					
19.	"					
20.	"					

Table No.13

Local rice germplasms collected from different targetted district of central and Eastern Development Regions for bacterial screening Under PVBP Project;

Name of the district.

S.No.	District	Farmers Name	Variety	Village Panchayat	Date of Collection	Remarks
1.	Mahotari	Assarfi Mandal	Kanau Dudh- Kalan	Jalayshwar Ward, No.6		

Table No14

Local rice germplasms collected from targetted district of control and Eastern Development regions for bacterial screening under PVBP Project.

Name of the District.

S.No.	District	Farmers Name	Variety	Village Panchayat	Date of Collection	Remark
1.	Sharlahi	Panchu Shahu	Khehora	Fulgana -6		

2.	"	Kapildev Chau- dhary	Kariyakamudh	Haripur -2	
3.	"	Vira Chaudhary	Harinker	Haripur -1	
4.	"	Yoga Narayan Shing	Rajeli	Bhaktipur	
5.	"	"	Shilot	"	
6.	"	Ramchandra Shah	Dudh Kalam	Shishauriya	
7.	"	Krishna Kant Jhha	Balamsair	Shishapuri	
8.	"	Bikau Shah	Morowgiya Ghusari	"	
9.	"	Shyam Kishor Shah	Shatariya	Bhawanipur	
10.	"	Ram Prasad Raut	Chhuma Kkahera	"	
11.	"	Narayan Subedi	Kkahera	Jabdi-1	
12.	"	Jhher Prasad Neu Pane	Barcha Bahadur	Jabdi6	
13.	"	Rambir Barai	Mansari	Goraita-3	
14.	"	Dasratha Baniya	Panjhhali	" -7	
15.	"	Dasratha Das	Khera	" -7	
16.	"	Suresh Mishra	Kanakjira	Balara	
17.	"	"	Kalam Khora	"	
18.	"	Shukhal Ray	Najir Kalami	Malangya	044/9/3
19.	"	"	Balanshar	Malangya	"
20.	"	"	Murule	"	"
21.	"	Shewa Chandra Singh	Malida	Hapijhhoul	"
22.	"	"	Changgaul	"	"
23.	"	"	Murla	"	"

Table No 15

Local rice germplasms collected from targeted district of central and Eastern Development Regions for bacterial screening Under PVBP Project.

Name of the district.

S.No.	District	Farmers Name	Variety	Village Panchayat	Date of collection	Remark
1.	Rautahat	Ranpeertee Yadav	Kala namak	Gour		
2.	"	Kamayshwar Singh	Biranphul	Birhat puri		
3.	"	Bishwa Nath Shah	Gola Basmati			
4.	"	Rameswar Singh	Chandan Youn	Birahat Puri		
5.	"	Shewa Nath Shah	Basmati	Katar wag		
6.	"	"	Balansar	Chandra Nigah Pur.		

Progress Report No. 1
Month/Year: June, 1987.
Reported By: Dr. Gyan L. Shrestha, Collaborator

On May 22, 1987, I was informed by the Principal Investigator Mr. Tika Adhikary that the project "Pathogenic Variability of and Bacteriocin Production caused by Xanthomonas campestris Pv. oryzae in Nepal" submitted jointly by the principle investigator, principle collaborator Mr. Sundar M. Shrestha of Institute of Agriculture and Animal Science (IAAS), Rampur, and myself in 1985 was finalized and decided by United States Agency for International Development (USAID) to allow us to conduct it under management of Winrock/Agriculture Research and Production Project (ARPP) Chief of Party Dr. A. John DeBoer.

On June 10, 1987, Dr. DeBoer formally informed me of starting this project. At the same time, Mr. Khrishna Khanal, the Project Program Officer helped me in obtaining some experimental materials mentioned in Commodity Issue Voucher 1-87 issued to Dr. G.L. Shrestha, NRIP, Parwanipur on June 19, 1987. On this basis, the necessary work on planning of this experiment was initiated from June 12 and onward.

Accordingly, seeding of Taichung Native 1, TN(1), was done in the field condition in Parwanipur with necessary field labour as allowed by this project. Similarly, field preparation for transplanting of that variety in the main field was done during the same month. TN(1) is the internationally recognized susceptible rice variety for all the known bacterial blight (BB) races in the rice world. This rice variety will be transplanted in the field as well as in the plastic pots in order to test the pathogenic test of all the isolates of BB from different districts of the country that will be collected in this rice growing season of June to October. The same TN(1) was to be transplanted in the plastic pots as well as in the fields for inoculation of isolates under both conditions. On June 29, a total amount of Rs. 8000. (Rupees Eight Thousands Only) was received from the same project as advancement for field labour charge and local tour as and when necessary. During this month a total amount of Rs. 370 (Rupees Three Hundred and Seventy Only) was spent for different field work as indicated below:

1. Seed bed preparation	- 5 labours	- total Rs. 50 @ Rs10/labour
2. Seeding on June 15	- 2 labours	- total Rs. 20 @ Rs10/labour
3. Seed bed take care	- 15 labours	- total Rs.150 @ Rs10/labour
4. Seed bed irrigation	- 5 labours	- total Rs.100 @ Rs10/labour
5. Field preparation	- 10 labours	- total Rs.100 @ Rs10/labour

Total Rs.370 (Three Hundred & Seventy only).

A brief communication was established with Mr. Sundar M. Shrestha of IAAS regarding this project in this month.

Gyan L. Shrestha
NRIP, Parwanipur, Birganj

Progress Report No.2
Month/Year: July, 1987.
Reported by: Dr. Gyan L. Shrestha. Collaborator

Monthly Report

During 1st week of July, a working schedule for this month was submitted to the Chief of the Party of Winrock/ARP Project Dr. A. John DeBoer through Mr. K. Khanal. The major items in that working schedule were regarding establishment of laboratory cum office of this project in NRIP, Parwanipur, field preparation for transplanting and maintenance of susceptible check TN(1) plot, preparation of planting and maintenance of TN(1) in the pot culture in the nethouse and glasshouse in NRIP, repairment of nethouse for pot culture and part of bacterial blight strains collection from the eastern and central region of Nepal as decided by both collaborators. The working schedule of July is attached in this report.

During July 2 to 5 all these aspects were discussed with Mr. Khanal in ARP Project in Kathmandu, and one copy of this work schedule was prepared. On July 5, I carried different commodities of this project from ARP Project Kathmandu as mentioned in Commodity Issue Voucher 2-87 issued to Dr. G.L. Shrestha, NRIP, Parwanipur. At the same time, similar commodities were also brought in the same vehicle for Mr. S.M. Shrestha, IAAS, Rampur.

Field planting of TN(1) in 500 sq. meter was done on July 11, 1987 in the field with necessary field preparation and other inputs. Similarly, it was planted in the plastic pots on July 7 for early inoculation in the nethouse. Another set of TN(1) was seeded on July 6 and transplanted in the next sets of plastic pots on July 26. These plants have been maintained in the field and in the plastic pots. One regular daily labourer was kept for overall care of the total experimental materials. Similarly, a regular daily labour was kept for night duty in the experiment and office. During the month of July, a amount of Rs.1761 (One thousand, seven hundred and sixty one only) was spent on field preparation, planting and maintenance. The detail of expenditure on these items is given below:

Labour cost for different field works

1. Main field plot irrigation before transplanting-2 labours-Rs.20 @Rs10/lab
2. Main field plot preparation for transplanting-10 labours-Rs.100 @Rs10/lab
3. Seedling uprooting for transplanting-2 females-Rs18 @Rs9/lab
4. Transplanting in the main field -10 females -Rs90 @Rs9/lab

5. Irrigation after transplanting -5 labours - Rs50 @Rs10/lab
6. Weeding in the main plot -7 females - Rs77 @Rs11/lab*
7. Soil preparation for plastic pots with organic matter during first week of July -5 labours - Rs50 @Rs10/lab
8. Soil filling in the 100 pots -5 labours - Rs50 @Rs10/lab
9. Soil filling in the next 100 plastic pots in July 17 (upto July 16, labour cost was Rs.10,9 and 8 for male, female and small - labours - Rs60 @Rs12/lab
10. Transplanting in plastic pots (1st lot) -2 labours - Rs20 @Rs10/lab
11. Transplanting in plastic pots (2nd lot) -2 labours - Rs24 @Rs12/lab
12. Pots irrigation every day day from July 7-16 -10 labours - Rs100 @Rs10/lab
13. Pots irrigation every day day from July 17-31 - 15 -Rs180 @Rs12/lab
14. One labour for overall take care of the expt. from July 1 July 31 (from 6 am to 1 pm) -31 labours Rs340
15. One night watch man daily labour for expt. and office from July 1 to July 31 (from 1 pm to 7 pm) -31 labours - Rs340

Material costs for different items

- | | |
|--|----------------|
| 1. Fertilizer cost Total Rs. | -180/ |
| 2. Coconut rope for field lay-out. Total Rs. | - 62 |
| | ----- |
| | Total Rs. 1761 |

From July 17 the labour cost increased

Bacterial blight collection in the month of July was not performed because of least natural infection in the farmers field around Bara and Parsa districts most probably due to late monsoon rain and consequently relative humidity and lack of favourable or suitable host plant. So, the collection of BLB will be done in the month of August and September.

Gyan L. Shrestha
Assistant Rice Breeder
NRIP, Parwanipur, Bara.

Progress Report No.3
 Month/Years: August, 1987
 Reported by: Dr. G.L. Shrestha, Collaborator

Monthly Report

Maintenance of TN-1 in the field as well as in the pots in the greenhouse and nethouse in Parwanipur has been done with necessary field labourers. Similarly, a daily wages night watchman labourer was arranged for office and experiment. A field helper was arranged for field trip to collect the bacterial blight isolates whenever field trip was done. The total account spent on different field labours is given Table 1.

During the month of July, a meeting was held with the acting Principle Investigator Mr. Sundar M. Shrestha on bacterial blight isolates collection program. Accordingly, I was allowed to collect the BLB isolates as well as rice germplasms from the field from the eastern and central development regions on the basis of the program mentioned in the original project draft. The following areas of collection have been allocated.

For Dr. G.L. Shrestha						
Development Region	Districts	Tarai	Inner Tarai	Midhills		
Eastern		<u>Jhapa</u>	<u>Udaipur</u>	<u>Dhankuta</u>		
		<u>Morang</u>				
		<u>Sunsari</u>				
		<u>Saptari</u>				
		<u>Siraha</u>				
Central	<u>Dhanusha.</u>	<u>Mahottari.</u>	<u>Makwanpur.</u>	<u>Kavre Palanchok</u>		
	<u>Sarlahi.</u>	<u>Rautahat.</u>	<u>Bara.</u>	<u>Chitwan.</u>	<u>Kathmandu.</u>	<u>Bhaktapur</u>
	<u>Parsa</u>		<u>Sindhuli</u>	<u>Lalitpur.</u>	<u>Nuwakot.</u>	
				<u>Dhading.</u>		

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For Mr. Sunder M. Shrestha

Development Region	Districts	Tarai	Inner Tarai	Midhills
Western	<u>Nawal Parasi.</u> <u>Rupendehi.</u> <u>Kapilbastu</u>		=	<u>Tanahu. Lamjung.</u> <u>Gorkha. Kaski.</u> <u>Syangja</u>
Mid-western	<u>Banke. Bardiya.</u>		<u>Surkhet. Dang.</u>	
Far-western	<u>Kailahi. Kanchanpur</u>		-	

Accordingly, a field trip for bacterial blight isolates collection was arranged from August 6 to 10, 1987 in the eastern and central regions. A total number of 25 BLB isolates were collected from various districts. However, the natural infection of BLB in the farmers' field was very low, most probably due to late monsoon onset. It was felt that a trip during third to last week of September seemed to be more appropriated. Accordingly, most of the BLB collection work was shifted to the month of September. A total amount of money spent on experiment and field trip helper is given below.

Table 1. Cost involved in maintenance of experiments and office in August

1. Night watchman	Total: 31 days labour	Total labour charge	Rs372
2. Day watchman	Total: 31 days labour		Rs372
3. Daily labour for pot irrigation & greenhouse maintenance	Total: 31 days		Rs 372
4. Labour charge weeding main field	Total: 5 days		Rs 55
5. Field assistant labour charge during Aug 6-10 during BLB collection	Total: 5 days @Rs30/day		Rs 150
6. One field assistant Aug 12	Total: 1 days		Rs 30
7. Agri. Chemicals & office materials cost			Rs 188
Total cost			Rs1539

Note: This cost excludes the cost of field trip charge and fuel cost.

Gyan L. Shrestha
NRIP, Parwanipur

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Progress Report No. 4
Month/Year: September, 1987.
Reported by: Dr. G.L. Shrestha, Collaborator

Monthly Report

Maintenance of TN1 in the field as well as in the pots in the greenhouse and nethouse has been continued with necessary field labours. For that one night watchman labour and a field labour for daytime were arranged for necessary care of the office and the experiments in the greenhouse, nethouse and field. The total expenditure for that has been shown in the next page.

September month became the busiest month with the collection of bacterial blight isolates from different districts of Central and Eastern Development regions as scheduled. A list of BLB isolates collection has been attached herewith. As soon as these BLB isolates were collected from the field, they have been handed over to the acting principle investigator Mr. Sundar M. Shrestha at IAAS, Rampur for isolation of BLB pathogen from each collected field sample. Similarly, isolation of BLB pathogen from the field collected samples by Mr. Sundar M. Shrestha will also be done in IAAS, Rampur. The isolation of each BLB pathogen from the field collection, will be inoculated to the TN1 plants maintained in Parwanipur in pot culture as well as in the field and in Rampur whenever there will be favourable environmental condition. All the laboratory work regarding BLB isolation and related aspects will be done in Rampur.

Originally, the collection of BLB isolates from different districts was scheduled. However, the field infection of BLB in the rice plants was quite delayed under natural condition, mainly because of, very late onset of monsoon rain. Field occurrence of BLB in the farmers field needs high humidity and high temperature along with the favourable host plants. All these conditions appear quite late (nearly one month late) because of late transplanting due to delayed rain.

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The total expenditure made during September is shown below:

Night watchman to take care office and expt.	30 days Total Rs 360
Day watchman labour for office and expt.	30 days Total Rs 360
Labour charge for pot watering and greenhouse care (maintenance)	30 days Total Rs 360
Field assistant labour charge during BLB collection from the farmers field (@Rs30/day)	16 days Total Rs 480
Total labour charge in this month	----- Rs1560/-

This cost excludes the field trip charge and fuel, driver cost etc.

Gyan L. Shrestha
Assistant Rice Breeder
NRIP, Parwanipur, Bara

Collection of bacterial leaf blight isolates from different districts of central region of Nepal

Duration:- August 28, September 1st to 2nd week, 1987.

District	Village Panchayat	Variety from which it was collected	Plant stage	BLB score	Date of collection
Parsa	Bhaubari Panchayat ward no. 4	CH 45	Heading	MS	August 28
"	Jagarnath	Muturi	"	HS	"
"	Pokharia	"	"	HS-S-MS-MR	"
"	Jagarnath 7	Masuli	Vegetative	MS	"
"	Jagarnathpur (N)	CH 45	Heading	HS	"
Sarlahi	Kaudenia W.1	Pankaj	"	HS	September 2
Banke	Khajura Khurdi ward no.5	Purple rice	"	HS	September 1
"	Nepalganj ward no. 13	Local variety	"	MS	"
"	Khajura Khurely	"	"	MR-MS	"
Kavre	Dhulikhel	"	"	S	September 5
Palanchok	T.P. area	"	"	"	"
"	Panchkhal Village	Parwanipur 1	Late vegetative	MS	"
Bhaktapur	Surya Binayak	Local variety	Heading	MS	"
"	Nalinchok	Improved var.	"	MR-MS	"
"	Bhaktapur town ward no. 2	Himali	"	MS	September 6
"	Bageshori ward no.1	Khumal 3	"	MR	"
"	Kaushaitar	Khumal 3	"	MS	"
"	Dadhikot	Local variety	"	MS	"
Kathmandu	Jorpati, Baudha	Himali	"	HS	"
Nuwakot	Khampa camp	Janaki	"	MR	September 10
"	Bidur town panchayat ward no.6	"	"	"	"
"	Damki Batar	Local variety	"	MS	"
"	B.T.P. ward no.8	"	"	"	"
"	Gauri Bis	Himali	"	MS	"
"	B.T.P. ward no.9	"	"	"	"
"	Maharanidi	Alan Ghat	Maturity	HS	"
"	B.T.P. ward no. 6	Ghaiya	"	"	"
"	Batter Phant 5 ward no. 5	Rato Ghaiya	"	HS	"
Lalitpur	Harishidhi Vil. Pan.	Hyoum Machha	Heading	MR-MS	September 10
"	Khumal, Lalitpur	"	"	"	"
"	T.P.	Tainan 2	"	MR-MS	"
"	Chapa gaon	Khumal 3	"	MR-MS	"
Kathmandu	Dilli Bazar	Himali	"	HS	September 11
"	Sita Paila	Pokhareli Masi	"	MR	"
Parsa	Tajpur	CH 45	Maturity	HS	"
Bara	Simroungadh	Muturi	"	HS	September 12
"	"	Bhadaiya	"	MS	"
"	Tajpur	Local variety	"	HS	"

Sindhuli	Bhiman	Dargilinge	MR-MS	September 22
-	Sidheshore	Masuli	MS	September 23
-	ward no.4			
-	"	Dargilinge	MS	-
-	"	Masuli	MR	-
-	Sidheshore	Sabitri	MR-MS	September 24
-	Ranikhola 6			
-	"	Bindeshori	HS	-
-	"	Sabitri	HS	-
Parsa	Parwanipur	Masuli	HS	September 25

Collection of bacterial leaf blight isolates collection from different districts
of Eastern and Central regions of Nepal

Duration:- September 18 to 25, 1987.

District	Village Panchayat	Variety from which it was collected	Plant stage	BLB score	Date of collection
Parsa	Jagannathpur,	Masuli	Late tiller	MS	September 18
"	Baniyari		ring		
"	Lippani Birta,	CH 45	Maturity	S	" 19
"	Tajpur				
"	"	Nakhi	"	S	" "
"	"	Jhali	"	HS	" "
"	"	Gabiya-2	"	HS	" "
"	"	CH 45	"	HS	" "
"	Lippani Mal	Lanjee	"	HS	" "
"	"	Kataunjhar	"	HS	" "
"	"	Sankharika	"	HS	" "
"	"	Bindeshori	"	HS	" "
Bara	Chhata Pipara,	CH 45	"	HS	" "
"	Baluwa				
"	Rampur Tokani	Nakhi	"	HS	" "
"	"	CH 45	"	HS	" "
"	Chhata Pipara	Gawadi	"	HS	" "
"	Rampur Tokani	Bindeshori	"	HS	" "
"	Buniyad	CH 45	"	HS	" "
"	Feta	Improved	Heading	MS	" 18
"	"	Bindeshori	Maturity	HS	" "
Dhanusha	Januniya	CH 45	"	HS	" 19
"	Naktajhiz	CH 45	"	S	" 20
"	Kanala River area	Local variety	"	HS	" "
Siraha	Lahan town area	Auns variety	"	S	" "
"	Lalchandpur	"	"	MS	" "
"	Lahan	Masuli	Late tiller	MS	" "
Sunsari	Sunwari	Bindeshori	Booting	S	" "
"	Tarahari	B39810	"	S	" 21
Morang	Belbasi	Janaki	Heading	S	" "
"	Sukuna Khorsane	Bhaidaiya	Booting	HS	" "
"	"	B44b	"	HS	" "
Jhapa	Gahira bari	Local variety	"	S	" 22
"	Orlabari	Masuli	"	MS	" "
"	Shiba ganj	"	"	S	" "
"	"	BR 51	"	MS	" "
Dhankuta	Pakhribas	Improved	Heading	MS	" 24
Sunsari	Itahari	"	"	MS	" 25
Saptari	Kanchanpur	Local	"	HS	" "
Sarlahi	Lalbandi	"	Maturity	MS	" "
Bara	Nijgadh	Improved	Heading	HS	" "

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Progress Report No.5
Month/Year : October, 1987.
Reported by : Dr. G.L. Shrestha, Collaborator.

Monthly Report

In the month of October, local rice germplasm collection was done from the farmers' field of hill districts as well as Tarai districts of the central development region of Nepal as scheduled in the original workplan. However, most of the rice fields of these districts of this region have been covered by improved rice varieties. So, number of local rice germplasms collected was rather less than expected. The collection from Tarai region this time was of early maturing rice varieties. These early maturing local rice varieties from the eastern development region were collected during the month of September. A complete list of total local rice germplasms collection will be submitted in the monthly report of December, since the strongly photo-period sensitive local rice germplasms mature only in the month of December. Total collection will be completed in the month of December only. All these collected local rice germplasms will be planted for screening against all those collected and pure cultured bacterial blight strains.

It was expected earlier that the pure culture of bacterial blight isolates collected from different districts would be made available from IAAS, Rampur in the month of September for pathogenicity test in the TN1 plants planted in the field as well as in the pots. However, due to late natural occurrence of bacterial blight in different farmers' field because of late onset of monsoon rain and consequent effect on host plant, collection of blight became late. Similarly, the process of pure culture making in the laboratory in IAAS became late for pathogenicity test in the TN1 plants. Mr. Sundar M. Shrestha, Acting Principal Investigator and myself discussed on this problem and decided that the pathogenicity test in the TN1 plants planted in the field and pots would be postponed, and would be conducted in the early part of 1988 in the Parwanipur glasshouse. So, the TN1 planted in the field and pots were harvested, threshed, dried and stored for next year planting. A total number of 30 labours were used for these processes.

The repairment of nethouse and greenhouse in Parwanipur was postponed because of no engineer nor overseer in Parwanipur, although some of the materials were already purchased for this. This work will be done as soon as the engineer or overseer will be available in Parwanipur.

The following stationary goods were purchased from the local market for field and laboratory work of PVBP project in Parwanipur. They were:

1. Paper bags -- 500 bags
 2. Clip pin -- 1 packet
 3. Pin -- 1 packet
 4. Type paper -- 2 rims
 5. Carbon paper -- 1 packet
 6. Plastic tag -- 500 pieces
 7. Liquid gum -- 1 bottle
 8. Stapler pin -- 2 packets
 9. Rubber ring -- 2 packets
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The bill of these materials will be submitted along with other bills.

Dr. G.L. Shrestha.

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Progress Report No. 6.
Month/Year : November, 1987.
Reported by: Dr. G.L. Shrestha, Collaborator.

Monthly Report

Up to the month of October, the nethouse repairment work was not started because of no engineer or overseer in Parwanipur. In this month nethouse as well glasshouse repairment work was started after visit and supervision by the Overseer Mr. Hari Mohan Shrestha of ARP Project stationed in Rampur, IAAS. Initially, the estimate of only nethouse repairment was done and accordingly, a sum of Rs 24,188.- was made available. However, visit by Sundar M. Shrestha, acting principle investigator, Mr. Durga B. Zoowa, Administrative assistant cum Secretary and Mr. Hari Mohan Shrestha, overseer, in this month from Rampur IAAS decided that the glasshouse must be repaired first to plant TN1 material in January for pathogenecity test in the early part of 1988. So, the overseer allowed one local contractor Mr. Mohan Hajara to repair both glasshouse and nethouse. At the same time the overseer estimated the repairing cost of glasshouse for its submission to PVBP project. So, for the time being, the same amount of money was used first to repair the glasshouse and nethouse. If possible, the overseer feels, both the nethouse and glasshouse will be repaired from the same amount of money. This repairment work will be completed within December, since the overseer has to look after the major work of new glasshouse construction in IAAS, Rampur.

The earlier collected local rice germplasms from various districts of eastern and central regions were properly dried and sorted out for Rampur and Parwanipur. These collected germplasms will be tested in both Rampur and Parwanipur for screening against different bacterial blight isolates. Tarai region has some weekly photo-period sensitive rice varieties that mature in the month of October November (Kartika group). In order not to miss them from the bacterial blight resistance point of view, a field collection of those weekly photo-period sensitive varieties were collected specially from those Tarai districts of central and eastern regions. Those strongly photo-period sensitive rice varieties will be collected in the next month as they mature in the month of December by nature. Field collection of these local rice germplasms is much more assured than collection from the store, because the store collection becomes mostly mixed with different varieties as the farmers field as well as threshing yards are mostly mixed with different varieties. In many cases such collection from the store leads to poor or no seed viability because of old seed stock. In order to avoid all these confusions, field collection is always assured.

Dr. G.L. Shrestha

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Progress Report No. 7
Month/Year: December, 1987
Reported by: Dr G.L. Shrestha, Collaborator

Monthly Report

During the month of December, all the collected local rice germplasms from different districts of eastern and central regions, according to schedule, were properly dried and arranged for two sets. One set is for Parwanipur and the other is for IAAS, Rampur. A complete list of the total local rice germplasms collected from those districts is attached in this report. These local rice germplasms are not up to the required in number due to unavailability in the farmers field. It is because of the fact that most of the rice areas have been covered by the improved rice varieties. However, NRIP, Parwanipur have stock of local rice germplasms collected from 57 districts of Nepal. Those stocks can be utilized for this project. All these collected local germplasms will be utilized for next year resistance test against those collected isolates of the bacterial blight disease. For drying, assortment and arrangement of those local germplasms, a total number of 20 labours were spent in the month of December.

Nethouse and glasshouse reparation work was continued under the supervision of the overseer, Mr. Hari M. Shrestha. Mr. Raj Kumar Ray was appointed as the Field Assistant cum Typist for this project in NRIP, Parwanipur after discussion with Dr. A John DeBoer and Mr. Krishna Khanal. I travelled to IAAS, Rampur to discuss with Mr. Sundar M. Shrestha and the overseer on construction of the glasshouse, and suggested to expand the attached working room and some other aspects. I also discussed with the overseer to help in completing the reparation of the nethouse and glasshouse as early as possible.

Dr. Gyan L. Shrestha

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