

Screening against Diseases: In the study diseases were classified, according to severity, into major and minor diseases. Die-back, Citrus canker and gummosis were found to be major diseases. While September-November was found to be peak time for the appearance of die-back, July-November was favourable for that of gummosis. Mandarin and sweet oranges appeared to be less susceptible to citrus canker, whereas lemon, lime and trifoliolate oranges were more susceptible to it. Maximum incidence of the disease occurred in May-November.

Root-stock Selection: In an observational trial, it was found that root-stocks local pummelo and exotic Yuzu having extensive root system were more suitable for citrus production than trifoliolate orange root-stock with poor root system or plants propagated by cuttings or air-layering. Grafting and multiplication of citrus plants on pummelo and Yuzu root-stocks may be helpful to protect them from die-back. The study is in progress.

#### Physical (first phase)

- \* As per provision of the first phase, laboratory-cum-office building including fittings, equipment and furniture, glass house, net house and Jabara house were constructed at the central station at Joydebpur. However, the cost exceeded that of scheme provision due to rise in prices of construction materials (table, page 10)
- \* Construction of laboratory-cum-office building at the three sub-centres as envisaged during the first phase could not be done due to unavailability of Japanese assistance.
- \* The procurement of laboratory equipment and farm machinery for the central station at Joydebpur as proposed in the first phase have been completed with Japanese assistance. However, those for the sub-centres could not be procured because of lack of Japanese assistance.

#### Physical (revised phase)

- \* In the revised scheme, there is provision of Tk. 11.383 million of which Tk. 9.455 million as grant from Japan Govt. for various constructions and Tk. 4.50 million for land development and

internal roads at the regional station and three sub-centres. The external Resourcee Division vide their Memo.No.ERD.GAP-11/35/81/201 dated 29.12.81 (appendix-III) has already moved the Govt. of Japan for assistance. The request is expected to be finalised very soon.

\* The procurement of laboratory equipment and farm machinery for the regional station and three-sub-centres as covered under the Second Record of Discussion is expected to be completed smoothly with Japanese grant.

### Financial

\* The following table will reveal financial progress made during the period from 1977-78 to 1980-81.

Heads of A/C	(Lakh taka)			
	1977-78		1978-79	
	Provision	Actual	Provision	Actual
Pay & allowances	3.38	0.48	3.56	2.69
Contingencies	0.53	0.80	1.31	1.50
Capital	64.00	39.60	14.00	11.17
Project aid	75.04	44.96	9.66	162.01

  

Heads of A/C	1979-80		1980-81		Total	
	Provision	Actual	Provision	Actual	Provision	Actual
	Pay & allowances	3.74	4.25	7.31	4.01	17.99
Contingencies	2.17	2.95	6.95	5.03	10.96	10.28
Capital	-	44.50	68.13	20.00	146.13	115.27
Project aid	5.66	31.82	110.63	57.42	200.99	296.27

\* As per revised scheme

\*\* Excess expenditure under project aid was due to rise in prices of construction materials.

### Training and Publications

- \* The Japanese side did not agree to degree programme even though there was provision for the same in the first phase of the scheme. Instead, they provided six short-term training and three study tour facilities. Under the arrangement 10 scientists have already received training from Japan and three senior scientists completed study tour to Japan.
- \* In the Note of Understanding made under Second Record of Discussion (November, 1980- November, 1983), the Japanese side agreed to provide six short-term training and three study tour but did not agree to degree training programme. Under this agreement, two scientists were sent for training in the beginning of this year and the Head of Horticulture Division, BARI completed the study tour. The remaining part of the training programme is expected to be completed smoothly as per Note of Understanding.
- \* Furthermore, local and expatriate scientists of the project imparted training to Thana Extension Officers and Production Specialists of the Directorate of Agriculture (Extension and Management). Recently, a training was organized at Joynagar, Pabna for the citrus growers. In the programme, major emphasis was given on the methods of production and seed production of vegetables/citrus fruits.
- \* Besides, the project was able to publish bulletins on citrus fruits and vegetables, a progress report till 1981 and a news letter - all highlighting the various activities of the project.

### Personnel Status

The following table will show the status of technical manpower under the scheme.

<u>Technical personnel</u>	<u>Scheme provision</u> (second phase)	<u>In position</u>
Principal Scientific Officer	4	2
Senior Scientific Officer	8	5
Scientific Officer	9	4

Recruitment of remaining scientists is in progress.

#### BOTTLENECKS

- \* The release of local funds has been irregular and this affected normal activities of the project.
- \* Fund under CDST was inadequate and not available in time. This caused delay in releasing materials received under Japanese grant from Chittagong Port.
- \* Since there was no provision of degree programme, it has not been possible to build up manpower with leadership capability that is vital for running an independent project.
- \* Even though there was provision of funds for the development of regional and sub-centres, no funds were available for the purpose. As a result, scientists could not be placed to initiate research at these places.
- \* Since the Head of the project is not in the status of a Project Director, it has been difficult on his part to handle some major activities independently and effectively.

#### FUTURE PROGRAMME

##### Vegetables

- \* Development of high yielding, disease resistant and early and late varieties of tomato, egg plant, cauliflower, cabbage, carrot, onion, bean and cucurbits suitable for different agro-climatic zones.

- \* Development of high yielding, open pollinated and photoinsensitive radish varieties with ability to produce seeds under the climate of Bangladesh.
- \* Development of high yielding, open pollinated, disease resistant and good quality watermelon varieties.
- \* Development of varieties of more rainy season leafy vegetables and appropriate techniques for their seed production.
- \* Collection and evaluation of local and exotic germplasm.
- \* Studies on the development of appropriate seed production methods, seed processing and storage technologies of selected cultivars of important vegetables.

#### Citrus Fruits

- \* Collection and evaluation of both local and exotic germplasms to develop high yielding, regular bearing and quality varieties adaptable to different agro-climatic zones.
- \* Selection of suitable root-stocks for different citrus species for both plain and high land and the performance of different lines of citrus grafted on these root-stocks.
- \* Development of appropriate nursery techniques for propagation and multiplication of different citrus species.
- \* Development of management practices for citrus plantation both in hill sides and plain lands.
- \* Studies on the performance of various citrus species under different light intensities.
- \* Screening of local and exotic citrus cultivars against major diseases and pests.

## ANALYSIS AND RECOMMENDATION

- \* The members of the evaluation team expressed satisfaction on the progress in research made under the project and development of physical facilities at the main station at Joydebpur. However, the members strongly felt that tempo of this progress can be sustained and the main centre would be better utilized provided the physical facilities such as construction of Office-cum-laboratory, residential units and land levelling are developed at the regional station and sub-centres immediately.

### Recommendation

To make effective utilization of the main centre at Joydebpur and sustain the present progress of work, both local and foreign funds should immediately be made available to develop these physical facilities at the regional station and sub-centres.

- \* Team members observed that scientists of the project have so far received only short-term training but no long-term academic training even though such provisions were made in the first and revised phases of the project. The members also noticed that the training under the project has thus far been limited to areas like production and pathology of vegetables and citrus fruits. The programme left out some vital areas of research such as breeding, seed production and seed storage in vegetables and propagation of fruit species. It was felt that long-term training is essential to provide leadership to the project and strengthen various studies in these areas.

### Recommendation

To provide leadership to the project and strengthen research programme in plant breeding, seed production and seed storage in vegetables and propagation of various fruit species, it is imperative that long-term training programme leading to M.S. and Ph. D. degrees as proposed in the revised scheme be taken up with various agencies for funding and early implementation.

- \* It was revealed to the members that there is only one Japanese long-term expert in vegetables who is again a production specialist and not a breeder. The members strongly felt that provision should be made to provide a few long-term vegetable breeders in the project

#### Recommendation

To further improve the various research activities in the area of vegetable breeding and give guidance to local counterparts, JICA should be requested to provide at least two long-term vegetable breeders with leadership capability, to the project.

- \* Team members appreciated the fact that crop research, particularly that in fruits is a continuous process and time-consuming. The team apprehended that it may not be possible to achieve desired results by October, 1983 when the present Record of Discussion expires. This is particularly so when physical facilities at the regional station and sub-centres are yet to be developed.

#### Recommendation

To maintain continuity in research and achieve desired results, it is expected that the present Record of Discussion that expires on October, 1983 be extended for another period of five years beyond this expiry date. However, extension of Record of Discussion beyond June, 1985 when Second Five Year Plan ends should relate to expert services and manpower development only.

Appendix - I

Abstract of Fund Provision in the First Phase of the scheme  
(1977-78 to 1980-81 )

Heads of A/C.	In lakh taka				Total
	1977-78	1978-79	1979-80	1980-81*	
<u>Local Currency</u>					
A. Capital	64.00	14.00	-	-	78.00
B. Revenue	3.91	4.87	5.91	6.51	21.20
Total:	67.91	18.87	5.91	6.51	99.20
<u>Foreign Currency</u>					
A. Capital	72.28	4.00	-	-	76.28
B. Revenue	2.76	5.66	5.66	5.66	19.74
Total:	75.04	9.66	5.66	5.66	96.02
Grand Total:	142.95	28.53	11.57	12.17	195.22

\* The expenditure in this financial year has been shown as per revised scheme i.e. second phase.

Appendix - II

Abstract of Fund Provision in the Second Phase of the Scheme  
(1980-81 to 1984-85)

Heads of A/C	1980-81	1981-82	1982-83	1983-84	1984-85	Total
<u>Local Currency</u>						
A. Capital	68.13	37.15	10.00	-	-	115.28
B. Revenue	14.26	16.56	17.37	17.79	18.19	84.17
Total:	82.39	53.71	27.37	17.79	18.19	199.45
<u>Foreign Currency</u>						
A. Capital	110.63	79.92	21.00	6.50	6.50	224.55
Grand Total:	193.02	133.63	48.37	24.29	24.69	424.00



Appendix - III

External Resources Division  
Ministry Finance

.....

From : M. Saiful Haque,  
Deputy Chief.

ERD/JAP-II/35/81/201

29-12-81.

Dear Mr. Iwanami,

As you know that the scheme for Citrus and Vegetable Seed Research Centre under Bangladesh Agricultural Research Institute has been operating since 1977-78 in collaboration with the Govt. of Japan. The scheme was originally prepared for three years. During this period, only main centre of the scheme at Joydebpur could be developed to provide research facilities there. However, physical facilities in other three sub-centres as envisaged in the scheme could not be developed. Moreover, it was felt necessary to shift Jaintiapur sub-centre to Akbarpur, Sylhet. To expand the activities of the project to the citrus growing South-East region of the country, establishment of a new sub-centres at Pahartoli, Chittagong was proposed. Accordingly, a scheme under the title, "Strengthening of the on-going Citrus and Vegetable Seed Research Centre and Establishment of a Regional Citrus and Vegetable Station at Akbarpur, Sylhet and a new centre at Pahartoli, Chittagong" was prepared for the Second Five Year Plan. The scheme has been finally approved by the ECNEC in its meeting held on 23rd July, 1981.

In this newly approved scheme, an amount of Tk. 22.455 million has been stipulated to be received from the Govt. of Japan as grant. It may be mentioned here that an agreement has already been signed with the Japan International Cooperation Agency (JICA) on 3rd November, 1980 wherein they agreed to provide machineries and equipment, consultancy and books and journals worth Tk. 8.500 million (as per scheme provision)

For implementation of the project an estimated amount of Tk.13.955 million is required for land development, functional and residential buildings, internal road and fencing etc. The break-up of funds as shown in the scheme against these items is given below:-

<u>Item</u>	<u>Taka in million</u>
1. Functional building	6.000
2. Residential building	3.445
3. Internal Roads	1.000
4. Fencing	2.500
5. Land Development	1.000
	<u>Total - 13.955</u>

We should be grateful if you could kindly move your Government to extend an additional grant assistance of Tk.13.955 million as required for implementation of the above new scheme under Technical Assistance Programme of JICA.

With kind regards.

Sd/- M. Saiful Haque

Mr. T. Iwanami,  
Counsellor,  
Embassy of Japan,  
House No.110, Road No.27  
Banani, Dacca

Copy forwarded for information to:-

1. Ministry of Agriculture and Forests,  
(Mr. Emdadul Huq, Deputy Chief) Sectt., Dacca.
2. The Director, BARI, Joydebpur, Dacca.
3. Dr. A.H.M. Altaf Mli, Section Chief,  
Planning Commission.
4. Mr. Mozammel Haque, Economic & Commercial Minister,  
Embassy of Bangladesh, Tokyo, Japan, (BY BAG).

Sd/- M. Saiful Haque  
Deputy Chief.

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH  
MINISTRY OF FINANCE AND PLANNING  
PLANNING COMMISSION  
AGRICULTURE DIVISION (CROP SECTION)  
SHER-E-BANGLA NAGAR, DACCA.

No. PC/Ag/398/BARI/77-80/194

Dated: 27th April, 1982

From : Md. Hamidur Rahman,  
Research Officer,

To : Director,  
Bangladesh Agricultural Research Institute (BARI)  
Joydebpur, Dacca.

Subject: Evaluation of the scheme for "Citrus and  
Vegetable Seed Research Centre, BARI".

Planning Commission strongly feels that an evaluation is required on the performance of the above mentioned scheme since its inception with special reference to the utilization of the project aid from Japanese Govt. for the project. An evaluation team with members from Agriculture Division, Planning Commission, External Resources Division (ERD), Project Monitoring Bureau, BARC, Ministry of Agriculture and other concerned agencies may kindly be constituted by Director, BARI for the purpose.

The evaluation report of the team may please be submitted to Agriculture Division, Planning Commission by the May 30, 1982 in order to determine future investment on the project.

(Md. Hamidur Rahman)  
Research Officer.

No. PC/Ag/398/77 & 80/

Dated: 27th April, 1982.

Copy for information necessary action to:-

1. P.S. to Member (Agriculture,  
Planning Commission;  
Sher-e-Bangla Nagar, Dacca.
2. Secretary,  
Ministry of Agriculture,  
Bangladesh Secretariat, Dacca.

(Md. Hamidur Rahaman)  
Research Officer.

Appendix - V.

Bangladesh Agricultural Research Institute  
Joydebpur, Dacca.

OFFICE MEMORANDUM

No.PA/T/BARI/76

Dated: 3.5.1982.

In pursuance of the letter No.PC/Ag/398/BARI/77-80/194 dated 27.4.1982 of the Ministry of Finance and Planning, Evaluation Team is constituted with the following members to evaluate the performance of the Scheme for "Citrus and Vegetable Seed Research Centre, BARI", since its inception with reference to utilisation of the Project Aid from the Japanese Government.

1. Dr. M.H. Mondal,  
Assoc. Director(Res.), BARI  
Convener
2. Mr. M. Abdul Momin,  
Deputy Chief, Agriculture  
Division, Planning Commission  
Sher-e-Banglanagar, Dacca  
Member
3. Mr. M. Saiful Haque,  
Deputy Chief, ERD,  
Ministry of Finance and  
Planning, Sher-e-Banglanagar, Dacca  
Member
4. Mr. Rabiul Hossain,  
Addl. Director,  
Project Monitoring Bureau,  
Planning Commission,  
Sher-e-Banglanagar, Dacca.  
Member
5. A representative of the  
Agriculture & Forests Division,  
Ministry of Agriculture  
and Water Resources.  
Member
6. A representative of the BARC,  
Dacca  
Member

P.T.O.

7. Dr. A.K.M. Amzad Hossain,  
Principal Scientific Officer, Member-Secretary  
Citrus and Vegetable Seed  
Research Centre, BARI, Joydebpur.

The Team shall submit its report to the Director,  
BARI by 25.5.1982.

Sd/- Kazi M. Badruddoza  
Director  
Bangladesh Agricultural Research Institute.

DISTRIBUTION

(All Members of the Team - with copy of letter No. PC/Ag/398/BARI/  
77-80/194 dated 27.4.1982)

Copy for information  
to:

- 1) The Member(Agriculture), Planning Commission, Dacca.
- 2) The Secretary, Agriculture & Forests Division, Ministry of Agriculture & Water Resources, Dacca to kindly nominate by name.
- 3) The Secretary, ERD, Ministry of Finance and Planning, Dacca.
- 4) Executive Vice-Chairman, Bangladesh Agricultural Research Council, Dacca to kindly nominate by name.
- 5) Associate Director, (TCP), BARI.
- 6) Head, Horticulture Division, BARI.
- 7) Md. Hamidur Rahman, Research Officer, Agriculture Division (Crop Section), Planning Commission, Dacca.
- 8) Principal Scientific Officer, Citrus and Vegetable Seed Research Centre, BARI.

Sd/- Illegible  
Director  
Bangladesh Agricultural Research Institute.









JICA