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Brief Report of the Japanese Project Consultation Team for the Strengthening of Legumes in Relation to Cropping System Research Project (ATA - 218)

The Japanese Project Consultation Team (herein after referred to as " the team "), Organized by the Japan International Cooperation Agency and headed by Dr. Yoshiharu TOKUNAGA, visited the Republic of Indonesia from 12 to 26 November, 1980 for the purpose of getting the recognition about the substance and consultation of the tecnical cooperation program concerning the Strengthening of Legumes in Relation to Cropping System Research Project (ATA - 218) in the Republic of Indonesia.

To achieve the purpose, the team carried out the following items ;;

1. The Team visited LP3 in East and Central Jawa - Mojosari Exp. field, LP3 Malang, Kendal payak Exp. field, Muneng Exp. field and Lp3 Yogyakarta - for the purpose of the observation of agriculture in these regions.

2. The Team had a talk, with the Director and his staffs of CRIA about the Project.
   In this talk, (1) The Team had a information about new organization of CRIA, and confirmed that the goverment of Indonesia give the formal notice to the goverment of Japan when the new organization will be official.
   (2) The Team and CRIA's staff recognized that the cooperation of the project in East Jawa was carried out in accordance with the Record of Discussion of the Project. (ATA - 218).
   (3) The Team exchanged opinions about the project with CRIA's staffs.

3. The Team conferred with the Chief of AARD, and exchanged the opinions about the circumstances of the agricultural research in Japan and Indonesia.

4. The Team had a talk with the counterparts about the problems of trainning and living in Japan.

5. The Team visited four division of CRIA in Bogor - Breeding Div. Plant Physiology Div. , Diseases Div., and Agronomy Div., and discussed about the cooperation of the Project with staffs of these divisions.

6. The Team discussed about the exchange of members of Japanese Experts, further development of the research and technical equipments from Japan with Japanese Experts.

The Team was able to observe the behavior of the project activity and has a series of discussion with Indonesia staffs concerned, their counterparts and Japanese Experts during its stay in Indonesia.

The Team would like to express hearties gratitude to all who are concerned with the project for the most cordial cooperation and hos - pitality.

November 25, 1980

Y. Tokunaga

Yoshiharu TOKUNAGA
Team Leader, The Japanese Project Consultation Team for the Strengthening of Legumes in Relation to Cropping System Research Project

CENTREDIFに関する資料

CENTRAL RESEARCH AND DEVELOPMENT INSTITUTE FOR FOOD CROPS

Ministry Of Agriculture
Agency For Agricultural Research And Development
Bogor, Indonesia
1980

GENERAL INFORMATION

Indonesia's major goal in agricultural development is to supply its 140 million people with 2100 calories/person/day nutrient equivalence including carbohydrates, proteins, vitamins and minerals needed to provide a balanced diet.

Of Indonesia's total area of 202 million hectares, only 15 million are now cultivated by approximately 15 million farmers. It is technically feasible to bring 15 million hectares of potential cropland into production and double the area under cultivation. At the same time, the lowland rice cropping index is only 1.3 and a large portion of the upland area is only cropped once during the whole year. Hence, there is ample potential to meet the challenge of increasing food production through increasing output on existing cropland (intensification), opening new cropland (extensification) and, developing appropriate farming systems (diversification) with the associated required agricultural services.

To succeed intensification, extensification and diversification programs must be supported by modern technology such as improved crop varieties, more productive cropping systems and improved management practices with due regard to the long-run environmental stability and improvement.

CENTRAL RESEARCH AND DEVELOPMENT INSTITUTE FOR FOOD CROPS

The Central research and Development Institute for Food Crops (CENTREDIF) is one of the Central Research Institutes organized under the Agency for Agricultural Research and Development (AARD) of the Ministry of Agriculture.

CENTREDIF, which resulted from merging the Central Research Institute for Agriculture (CRIA) and the Research Institute for Horticulture (RIH), was officially established in June 1980.

The main tasks of CENTREDIF are to : (1) develop packages of technology which can be used by farmers and are best suited to the existing conditions and resources, (2) generate information which can be used for policy formulation, and (3) produce new and original knowledge through research.

Research to accomplish these tasks is conducted at seven Food Crops Research Institutes (FCRIs) located in Bogor, Sukamandi, Lembang, Malang, Sukarami, Banjarmasin and Maros. In addition, there are 42 experimental farms located throughout Indonesia.

RESEARCH PROGRAMS

To support agricultural development, CENTREDIF has developed six research programs. **The programs are :**

1. **Rice Program**
   It includes research on lowland, upland, tidal swamp and deep water rices. An integrated approach in varietal improvement called GEU (Genetic Evaluation and Utilization) has been established. In this program breeders, pathologists, entomologists, agronomists, physiologists agricultural economists, and post harvest technologists work together as a team.
2. **Palawija Program**
   It includes corn, sorghum, grain pulses (soybean, peanut and mungbean) and tuber crops (sweet potato and cassava). This program also employs the GEU approach for palawija crops.
3. **Fruits Program**
   It includes citrus, banana, mango, apple and rambutan. Besides crop production, emphasis is also given to processing and marketing.
4. **Vegatables Program**
   Priorities have been given to potato, cabbage, tomato, chilli pepper, onion, string bean and peas. Besides stressing production, emphasis is also given to harvesting, packaging and storage.
5. **Cropping Systems Program**
   This program attempts to develop cropping patterns that optimize farmers in-

come and maintain soil fertility through efficient use of land and agricultural resources in each ecosystem.

6. **Seed Technology**

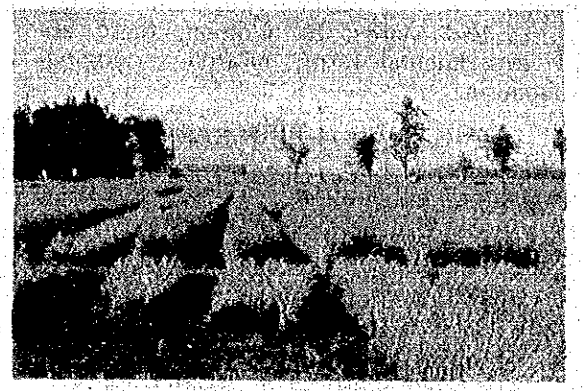
This program focuses on research in seed technology such as seed storage and processing.

SOME RESEARCH FINDINGS

Improved Varieties

A. **Rice : BPH (Brown Planthopper) Resistanse**

A sudden and serious hopper burn outbreak occured in 1974 adversely affecting national rice production. Pelita, one of the CENTREDIF's improved varieties which had been widely adopted bv farmers, proved susceptible to BPH.



Field screening of several lines for BPH resistance.

To cope with brown planthopper infestation, CENTREDIF immediately screened resistant varieties from IRRI (International Rice Research Institute) which, after field trials. were released in 1975. Then, a comprehensive research program was established in conjunction with the international network to cope with brown planthoppers which threatened production in many of the rice growing countries in Asia. Through the GEU program, high yielding rice varieties resistant to brown planthopper were identified and released (Table 1). By the 1979/80 wet season, 59% of Indonesia's lowland rice area was planted to BPH resistant varieties. In Java and Bali alone where 60% of the rice was planted, 69% of the area was covered by BPH resistant varieties.

Table 1. Reaction to BPH, eating quality and yield potential of varieties released in Indonesia.

Variety	Reaction to BPH (Biotype 1)	Reaction to BPH (Biotype 2)	Eating quality	Yield potential t/ha
I. Developed by CENTREDIF				
Lowland :				
Pelita I-1	S	S	good	8
Pelita I-2	S	S	good	8
Serayu	R	S	poor	6
Asahan	R	S	good	6
Brantas	R	S	poor	6
Citarum	R	S	good	6
Cisadane	R	R	good	6
High elevation :				
Adil	S	S	poor	5
Makmur	S	S	poor	5
Gemar	S	S	poor	5
Semeru	R	R	poor	6
Upland :				
Gati	S	S	good	4
Gata	S	S	good	4
II. Introduced from IRRI				
Lowland				
IR 20	S	S	poor	5
IR 22	S	S	poor	5
PB 26	R	S	poor	6
PB 28	R	S	poor	5
PB 30	R	S	poor	5
IR 32	R	R	poor	6
PB 34	R	S	poor	5
IR 36	R	R	poor	7
IR 38	R	R	poor	7

S = Susceptable R = resistant

B. Palawija

Several improved varieties of palawija crops have been released. These varieties are generally resistant to pest and disease problems and have high yield potential.

* Harapan baru, a corn variety which has a yield potential of 4-5 ton per hectare is resistant to downy mildew Scelerospora maydis, a major corn disease in Indonesia.
* Orba, a soybean variety, has a yield potential of 2 ton per hectare and mature early.
* No. 129, an introduced mungbean variety from the Philippines, is able to yield 1.5 tons per hectare. In addition, this variety matures uniformly so it can be harvested simultaneously.
* Adira I and Adira II varieties of cassava have yield potential of 30 tons per hectare, while Daya, a variety of sweet potato, can yield 25 tons per hectare.

C. Fruits

In recent years, citrus has been severely damaged by the bacterial like organism called CVPD (Citrus Vein Phloem Degeneration). Comprehensive research has been conducted to overcome this disease and a recommendation on prevention was recently produced.

Research on apple shows that variety Room Beauty grows well in highland areas

D. Vegetables

Research on Irish Potatoes shows that the bred lines - Thung 151c and Rapan 106 - can produce more than the standard varieties.
Cipanas, a cross between Thung 151c × Desiree has already been released as a high yielding and good quality potato.

Two tomato varieties, Intan and Ratna, with high yield potential, considerable resistance to wilt disease and well adapted to lowland areas, have also been released.

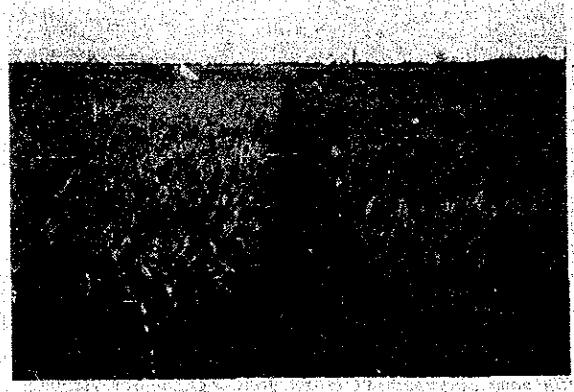
Cropping System

Lowland Areas

From the 5.8 million hectares of lowland areas in Indonesia, approximately 2 million hectares are rainfed.

Through appropriate management of crops, soil and water, the intensity of famers' traditional cropping patterns can be increased. In fully irrigated areas three rice crops (rice - rice - rice) or two rice crops and one palawija crops(rice - rice - palawija) can be obtained per year.

On the other hand, in the rainfed and 5 months irrigated areas, farmers usually grow only one rice crop per year. This can be intensified by sowing a direct seeded rice crop under upland condition which is flooded later in the season as rainfall increases (**gogo rancah**), followed by a second rice crop with no land preparation (**walik jerami**) and, finaly, followed by one palawija crop. Another alternative is to grow one transplanted rice crop followed by two palawija crops (rice - palawija - palawija).



"Gogo rancah" (left) permits planting and harvesting earlier than the traditional method of transplanting (right).

Upland Areas

Upland area production is constrained by the red yellow podsolic soils outside Java having low fertility, excessive drainage and low pH. However, annual rainfall and its distribution are suitable for a year-round crop production.

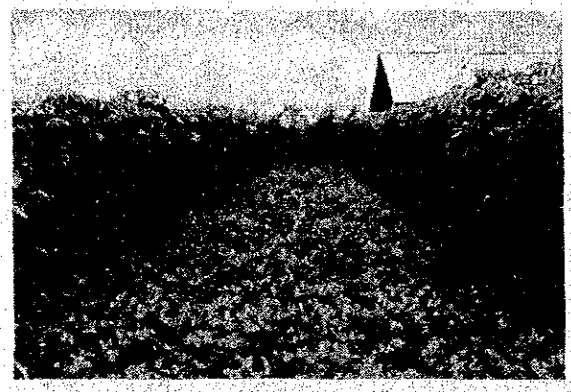
Cropping systems research has indicated that this soil is responsive to fertilizers. Through apropriate crop management such as intercropping and relay cropping of rice, corn, cassava and legumes, production in terms of both calorie and protein can be made comparable to irrigated lowland areas (Table 2)

Table 2 . Calorie and protein yields in cropping system experiment in Bandarjaya, Lampung.

Cropping pattern 1)	Without fertilizer			With fertilizer		
	yield t/ha	calorie Kcal (000)	protein kg/ha	yield t/ha	calorie Kcal (000)	protein kg/ha
Corn +	0.5	1.8	46	1.4	4.9	128
Upland rice -/-	0.8	1.9	54	2.7	6.5	184
Cassava -/-	14.6	17.5	102	23.2	17.8	162
Peanut --	0.2	0.9	51	0.6	2.7	153
Rice bean	0.1	0.4	25	0.6	2.7	150
Total		22.5	278		44.6	777
Equivalent rice t/ha/year 2)		9.4	4.1		18.7	11.4

1) + = intercropping ; -/- = relay cropping; -- = sequential

2) One kg of rice contains 3.6 (0.665) Kcal and 6.8% protein.



With good management crops grow well on red-yellow podsolic soils. The above photo shows peanuts growing after upland rice.

DISSEMINATING RESEARCH FINDINGS

Research findings generated by research institutes must be rapidly disseminated to policy makers, extension workers, educators, students and farmers who need and use them. For this purpose, CENTREDIF, has developed channels for disseminating its research findings including publications, training programs, seminars, workshops and informal communications.

Table 3 . Some publications produced by CENTREDIF.

Title	Written in
Contributions	English
Annual Report	English
Bulletin Teknik	Indonesian
Informasi Khusus	Indonesian
Edisi Khusus	Indonesian
Bulletin Penelitian Hortikultura	Indonesian

CENTREDIF also carries out training for extension Subject Matter Specialists through cooperation with SP BIMAS (Board of Mass Guidance) and BPLPP (Agency for Agricultural Education, Training and Extension).

COOPERATIVE PROGRAMS

National

CENTREDIF maintains cooperative program with the Board of Mass Guidance (BIMAS), the Agricultural Extension service, the Agency for Agricultural Education, Training and Extension (AAETE), the Directorate General for Food Crops, the National Agricultural Extension Project, Universities and the Directorate General of Transmigration

International

CENTREDIFparticipates in the International Rice Network of the International Rice Research Institute (IRRI), conducts cooperative research programs with the International Institute for Tropical Agriculture (IITA), Asian Vegetable Research and Development Center (AVRDC), and the International Maize and Wheat Improvement Center (CIMMYT).

Through agreements with the Netherlands and Japan, scientists from these two countries work at CENTREDIF on programs of mutual interest.

MANPOWER DEVELOPMENT

Manpower is one of the most important factors in any research institute. Therefore, in recent years CENTREDIF has increased both the quality and quantity of its manpower, especially researchers.

Many researchers are now participating in degree and on the job training programs, both in Indonesia and abroad. At present more than one thousand researchers (senior, junior and research assistants) are working in the institute as shown in Table 4.

Table 4 : Number of researchers and technicians at CENTREDIF [a)]

Education	Number
Ph.D	19
MS	29
Drs/Ir.	312
BS	65
SLA (High School)	680
TOTAL	1103

a) Situation as of July 1980.

主 な 機 材 の 供 与 計 画

附属資料 3

機材	数量	利用部門				54年度					55年度					56年度					57年度					58年度					計	
		作物	植物生理	植物病理	昆虫	団長	作物	植物生理	植物病理	昆虫	団長	作物	植物生理	植物病理	昆虫	団長	作物	植物生理	植物病理	昆虫	団長	作物	植物生理	植物病理	昆虫	団長	作物	植物生理	植物病理	昆虫		
実験機器類 Machinery and Equipment																															
1. 直示天秤 Analitical balance	4	1			3				1	1(小)					3(小)		1	②		①			1					1	1	11
2. 冷凍冷蔵庫 Refrigerator	9	2	2	2	3		1	1											1	1	1			1				1	1	9
3. 空調機 Air Conditioner	7	2		2	3				1	3							1	1					2			1	1			10
4. 写真機及び付属品 Camera	6	1	2	2	2		3	1	2									1		1	2							1	1	12
5. 引伸機 Enlarger	1				1										1															1
6. 実験顕微鏡 Stereoscopic Microscope	8	1		2	5		1		1	3				1	1			1	1	1										10
7. 生物顕微鏡 Microscope	4			2	2				1					1	1					①				1						5
8. 原子吸光光度計 Atomic Absorption Spectrophotometer	2		2					1																			1			2
9. 高圧蒸気殺菌機 Auto crave	3	1		2			1		1															1						3
10. 照落相対照度計 Illumenance meter	3	2	1				1				1																			2
11. クリーン・ベンチ Clean bench	3	1	1	1														①			1							1		3
12. 低温恒温器 Incubater	11	1	4	2	4										1			1		①				1		1			1	6
13. 振とう機 Shaker	2		1	1							1																			1
14. 分光光度計 Spectro photo meter	1		1										1																	1
15. PH メーター PHmeter	2		2					1										1												2
16. 電導度計 Electric conductivity meter	1		1					1																						1
17. 乾燥機 Drying oven	3		2	1				1													1									2
18. 通風乾燥機 Drying oven(mechanical convection)	2		2															1								1				2
19. 生物環境調節装置 Plant growth cabinet	1			1																										0
20. 遠心分離機 Centrifuse	4		2		2					1								1						1						5
21. 透水性測定装置 Water permeability test apparatus	1		1																		1									1
22. 葉面積計 Leaf area meter	2	1	1								1	1	1																	3
23. 粉砕機 Crusher	3		2		1			1		1			1								1									4
24. 電圧調整機 Voltage regulator	24	8	9	3	4		1	1	1	3			1				3	1	2	1	2	1			2	1				20
25. オーバーヘッド・プロジェクター Overhead projector	3	2	1								1	1									1									5
26. ウォーター・バス Water bath	2				2					1																			1	2
27. ロータリー・エバポレーター Rotary evaporator	3				3					2										1										5
28. ガス精製装置 Gas purifier	2				2					1														1						2
29. 自動微量注射装置 Automatic micro syringe	6			2	4					2										1				1						4
30. ピペット乾燥機 Pipett Dryer	2			1	1					1																				1
31. 発電機 Generator	2	1		1			1																							1
32. マントルヒーター Mantle heator	10				10					8														2						10
33. 組立架台 Supports	4				4				2	2																				4
34. ホモジナイザー Homogenizer	3			2	1					1					2					1										4
35. 乾熱滅菌機 Hot air sterilizer	3			2	1																		1							1
36. 冷凍庫 Freezer	1			1												1							1					1		3
37. 試験管洗浄機 Test tube washer	2			1	1									1						1										2
38. 電気泳動装置 Electrophorasis apparatus	1			1										1																1
39. イオンコーダー Ion coder	1			1																			1							1
40. 土壌恒温槽 Water bath for soil temperature	1			1																										0
41. ダイヤモンドナイフ Diamond knife	2			2					2																					2
42. 実験台 Experimental desk	2			2					2		4																			2
43. 穀類水分計 Grain moisture meter	5	5					2														1									7
44. PF メーター Soil PF meter	1		1														1				1									1
45. 酸素拡散率測定機 Oxygen diffusion rate meter	1	1															1													1
46. 赤外線水分計 Infra red moisture meter	1	1																												1
47. 超遠心機用ローター Rotor for ultra centrifuse	2			2																										0
48. 恒温恒湿器 Thermo-hygrostat	1				1																			1						1
49. 走査線電子顕微鏡 Scanning electro microscope																												1		1
50. ドラフト(チェンバー) Draft																		①					1							2
							11	8	14	30		8(7)	5	5	9	1	7	12	4	11		7	8	8	8		4	4	5	5	(174)	

機種	数量	利用部門				54年度					55年度					56年度					57年度					58年度					計	
		作物	植物生理	植物病理	昆虫	団長	作物	植物生理	植物病理	昆虫	団長	作物	植物生理	植物病理	昆虫	団長	作物	植物生理	植物病理	昆虫	団長	作物	植物生理	植物病理	昆虫	団長	作物	植物生理	植物病理	昆虫		
圃場用機械器具 Farm Machineries and Materials																	（1台モジョサリ）														
1. 耕転機・小型トラクター Small Tractor Power tiller	9	8	1				7					3					③	1				1					2				1	17
2. 中耕・管理機 Weeding tillar	8	8					2										2					2					2				2	8
3. 薬剤散布機 Spray	32	4	1	2	25		2			7(1)				5	10(1)		1	1		5		1			5					5	3	42
4. 畑作用脱穀機 Thresher for Upland Crops	6	6					2					3					2					2									4	9
5. 稲用脱穀機 Rice thresher	6	6					4					1					1														5	6
6. 穀類乾燥機 Dryer for grain	2	2					2					1																			6	3
7. 刈払機 Jet Cutting for weed	8	4	1	1	2				1			1				2	1		1	1	1	1	1			1	1			1	7	13
8. 防鳥網 Bird net	19	10		4	5		2					2					2			2		2			2		2			1	8	15
9. 試験用籾搗機 Rice Huller for testing	1	1										1																			9	1
10. コンクリートミキサー Soil mixer	1		1															1													10	1
プレハブ網室 Green house																																
1. プレハブ網室 Green house	3	1		1	1							1							①	①											1	3
2. ステンレス網 Stainless wire cloth	30			10	20															5					10					5	2	20
3. Workshop 用工作機械器具																											1式				3	1
4. 潅漑用機材											1式																				4	1
車輌 Vehicles																	（1台モジョサリ）														
1. マイクロバス Miero bus	5	3	1	1			2						1							1											1	4
2. ジープ Jeep	5	1	2	1	1										1	①	②	①	①			1		1				1	1		2	10
3. 小型トラック Small truck	2		1	1																			1								3	1
4. 単車 Motar cycle	16	6	3	3	4							3	1	1	1		2	1	1	1		1	1	1	1					1	4	16
事務用品 Official supplies																																
1. 電子複写機 Copyer	4	1	1	1	1	1	1						1						①	①											1	5
2. 英文タイプライター Type writer	10	3	2	2	3	1			1							①	①	1		1		1	1	1	1		1			1	2	12
3. 計算機 Calcubator	8	2	2	2	2	1	1											1		1			1	3			1			1	3	10
4. 輪転機 Printer	3	1		1	1												①			①				1							4	5
その他						3	25	0	2	7	0	17	3	6	12	4	18	7	5	19	1	12	5	8	19	1	10	1	1	15		(201)
1. 事務机・椅子						1																									1	1
2. 応接セット						1																									2	1
3. スライドプロジェクター																①															3	0
4. 測量機器																①式															4	1
5.																															5	1
						2										2																(4)
						5	25	0	2	7	0	17	3	6	12	6	18	7	5	19	1	12	5	8	19	1	10	1	1	15		(205)

専門家派遣計画及び実績

（協力期間：1978 10.23～1983 10.22）

専門分野	年 1979 / 月 3 6 9	1980 / 6	1981 / 6	1982 / 6	1983 / 6 10
1. 団長	松実成忠 2/22 ― 11/30	戸田 節郎 4/1 ―		3/31	
2. 畑作栽培・育種	中山 兼徳 2/15 ―	高城 英雄 7/18 ― 8/25（畑作栽培）	5/14 ― 6/24	北条良夫（栽培） 6 ― 11（大豆育種）	6/23 ― 6 ― 10（栽培）
3. 稲作栽培	2/15 石倉 教光 ―		2/14 ― 3/4 小林広美	3/3 ―（栽培）	
			12 ― 2（稲作雑草）	12 ― 2（稲作栽培）	
4. 植物生理	藤本 堯夫 3/28 ―	桑原 真人 10/4 ― 11/28（植物生理）	3/27 ― 4/8 中島田誠	4/7 ―（植物生理） 6 ― 11（植物生理）	6 ― 10（土壌微生物）
5. 植物病理	2/22 山口 武夫 ―		8/21 ― 7/22 吉野嶺一	成沢信吉 7/21 ―（ウイルス病）	8 ― 10（植物病理）
	西山 幸司 2/27 ― 5/26（細菌病）		2/25 ― 5/23 6 ― 11（稲いもち病）（線虫）		
6. こん虫	3/28 岡田 斉夫 ―	白石 哲 12/8 ― 3/7（熱帯野鼠）	3/27 ― 7/3 6 ― 11（分類）	内藤 篤 6 ― 11（生態）	7/2 ― 6 ― 10（毒物）
7. 連絡員	5/14 土生 幹夫 ―		5/13 ― 5/1	二瓶義宗 ―	10/22
8. 学位取得	藤井 溥 3/6 ― 3/15				
	馬場 超 ―				
9. かんがい設計	水之江政輝 4/28 ― 6/27		（施工管理）	3月 ― 6月	
	森 季雄 ―			3月 ― 4月	
10. 機材据付	桜井 軍治 2/27 ― 3/17				
	小川 昭治 ―				
11. 機機修理	前島 勝 2/12 ― 2/22		12月 ― 1月		
		川久保才男	4/23 ― 6/7		
12. 化学分析指導		阪田 米造 ―		（cd分析）	

（注） 本計画は、わが国が単年度予算制度にあることから、当該計画は、協力期間にわたって必要な予算が確保され、かつ、インドネシア側が当該プロジェクト実施のために遅滞なく必要な措置をとることを前提とした見込みの計画である。

専門家派遣実績一覧

（長　期）

指導科目	氏　名　（所属）	派遣期間	氏　名　（所属）	派遣期間
団　　長	松実成忠（東北農試）	54．2.22～54.11.30	戸田節郎（元農事試）	55．4．1～57．3.31
畑作栽培・育種	中山兼徳（農　事　試）	54．2.15～56．5.14	北条良夫（農　技　研）	56．6.24～58．6.23
稲作栽培	石倉教光（四国農試）	54．2.15～56．2.14	小林広美（中国農試）	56．3．4～58．3．3
植物生理	藤本堯夫（東北農試）	54．3.28～56．3.27	中島田誠（北海道農試）	56．4．8～58．4．7
植物病理	山口武夫（北海道農試）	54．2.22～56．8.21	成沢信吉（熱研センター）	56．7.22～58．7.21
こ　ん　虫	岡田斉夫（四国農試）	54．3.28～56．3.27	内藤　篤（草　地　試）	56．7．3～58．7．2
業務調整	土生幹夫（ＪＩＣＡ）	54．5.14～56．5.13	二瓶義宗（ＪＩＣＡ）	56．5．1～58.10.22

（短　期）

指導科目	氏　名　（所属）	派遣期間	備　　考
畑作栽培	高城英雄（北海道農試）	55．7.18～55．8.25	大豆の乾物生態
植物栽培	桑原真人（　〃　）	55.10．4～55.11.28	大豆の栄養生理
植物病理	西山幸司（農　技　研）	55．2．7～55．5.26	キャッサバの細菌病
〃	吉野嶺一（農　事　試）	56．2.25～56．5.23	稲いもち病
こ　ん　虫	白石　哲（九州大学）	55.12．8～56．3．7	熱帯野鼠生態
学位取得	藤井　博（東京農大）	55．3．6～55．3.15	Ir.Mukelar Amir指導（植物病理 マングビーンそうか病）
〃	馬場　赳（　〃　）	〃	Ir．Mas．Sundaru指導（雑草防除 2.4Dと水稲品種） 56.3.20学位取得
機材据付	桜井罫治（シマノ工業）	55．2.27～55．3.17	網室組立据付
	小川昭治（　〃　）	〃	〃
かんがい設計	水之江政揮（太陽コンサルタント）	55．4.28～55．6.27	ＣＩＫＥＵＭＥＵＨ圃場かんがい施設
	森　季雄（　〃　）	〃	〃
機械修理	前島　勝（池田理化）	55．2.12～55．2.22	実験器具修理
〃	川久保才男（久保田鉄工）	56．4.23～56．6．7	農業機械修理
〃	阪田米造（　〃　）	〃	〃　※予算上、材料維持管理チームにて派遣

研修員受入計画及び実績

専門分野	年度 1970		1980	1981	1982	1983
	4月 10	10/23	4 10	4 10	4 10	4 10
畑作栽培・育種		3/13 Sutor 9/12 ○——× (ソルガム栽培)		Tateng 6/5 12/4 ○——× (大豆・育種)	5 10 (大豆栽培)	5 10 (甘庶栽培)
			Sutarto 5/8 ○——× 11/7 (落花生栽培)			
稲作栽培				Ruchiat 6/5 12/4 ○——× (水稲育種)	5 10 (水稲栽培)	5 10 (かんがい)
植物生理	Soekirno 5/1 ○——× 12/20 (植物生理 水稲)		Nanang 4/24 ○——× 10/23 (化学分析)	Irwan 8/3 ○——× 2/2 3 (水稲)	Murtado 8 ○——× (落花生)	5 10 (大豆)
植物病理	Herman 5/1 ——— 10/31 (線虫)		Masdiar 5/1 ○——× 10/30 (トウモロコシ・ベト病)		4 10	
こん虫	J Kilin 5/1 ——— 10/31 (農薬分析)			Agus 6/5 12/4 ○——× (昆虫生態)	6 11 (殺虫剤抵抗性)	5 10 (大豆害虫)
高級研修	Paransih ○—× 5/20 6/10		Soehardjan ○—× 7/31 8/20		7 8	7 8
	Djamai —× 5/20 6/10		Bambang ○—× 5/14 6/3		7 8	7 8
	6/27 9/26 ○——×		6/1 11/30 Sundaru ○——×…◎	3/20 (学位取得)		
学位取得	6/27 9/26 ○——×		Mukelar		Mukalar (緑豆)	Mukalar (緑豆)
計	7	1	6	5		

注1. 学位取得研修については、現在のところ試行ケースであり、その推移をみて実施する。

2. 本計画は、わが国が単年度予算制度にあることから、当該計画は、協力期間にわたって必要な予算が確保され、かつ、インドネシア側が当該プロジェクト実施のために遅滞なく必要な措置をとることを前提とした見込みの計画である。

研修員受入れ実績一覧

年度	研修員氏名	受入時研修員役職名	受入期間	研修の態様	備考
54年度	Ir. Sutor Harjosutarno	育種部研究員	55. 3.13～55. 9.12	育種、ソルガム育種 (個) 中国農試	現職は前職と同
55年度	Ir. Sutarto Darmosaputoro	作物部研究員	55. 5. 8～55.11. 7	栽培、落花生 九州農試 (個)	〃
	Mr Nanang Priatna	作物生理部研究員	55. 4.24～55.10.23	化学分析、九州農試 (個)	〃
	Dr. Masdiar Bustaman (女性)	植物病理部研究員	55. 5. 1～55.10.30	トウモロコシ、ベトン病 農技研、熱研	〃
	Dr Ir Soehardjan	植物病理昆虫部長	55. 7.31～55. 8.20	農試 昆虫学界出席 (準高)	工芸作物研究所長
	Mr Bambang Suyeto	研究開発庁国協課長	55. 5.14～55. 6. 3	農試、筑波、京都 (準高)	研究開発庁研究計画課長
	Ir Mas Sundaru	作物部長待遇(調査役)	55. 6. 1～55.11.30	東京農大、馬場教授 (個) Dr取得研修 (テーマー 雑草防除)	56.3.20日学位取得 2.4Dがインドネシア稲品種および水田除草の生育生理におよぼす影響
56年度	Mr Tateng Sutarman B.S.C.	育種部研究員	56. 6. 5～56.12. 4	育種 大豆育種 東北農試大曲支場	
	Ir Ruchiat Damahuri	作物部研究員	56. 6. 5～56.12. 4	水稲栽培 農事試験場	
	Ir Agus Igbal	植物病理こん虫部研究員	56. 6. 5～56.12. 4	大豆害虫、農事試畑作研究センター	
	Ir Irwan	作物生理部研究員	56. 8. 5～57. 2. 2	泥炭地水田の水稲高位生産に関する研究 北海道農試	
	Mr Murtado	植物生理部研究員	57. 3 ～57. 9		1981.12現在受入れ手続き中