REPORT
OF
THE MASTER PLAN STUDY
ON
MULTIPLICATION AND DISTRIBUTION OF IMPROVED SOYBEAN SEED AND SEED POTATO
IN
THE REPUBLIC OF INDONESIA

APPENDIX

December 1987

JAPAN INTERNATIONAL COOPERATION AGENCY

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C O N T E N T S

APPENDIX A

Scope of Work

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FOR
THE MASTER PLAN STUDY
ON
MULTIPLICATION AND DISTRIBUTION OF IMPROVED SOYBEAN SEED AND SEED POTATO
IN
THE REPUBLIC OF INDONESIA

AGREED UPON BETWEEN
THE GOVERNMENT OF THE REPUBLIC OF INDONESIA
AND
JAPAN INTERNATIONAL COOPERATION AGENCY

Jakarta, March 30,1987

Soetatwo Hadiwigeno
Director,Directorate of
Planning,Ministry of
Agriculture

Hideo Endo
Resident Representative
JICA Indonesian Office

I. INTRODUCTION

In response to the request of the Government of the Republic of Indonesia, Government of Japan has decided to conduct the Master Plan Study on Multiplication and Distribution of Improved Soybean Seed and Seed Potato(hereinafter referred to as "The Study") and in accordance with the relevant laws and regulations in force in Japan, Japan International Cooperation Agency (hereinafter referred to as "JICA"), the official agency responsible for the implementation of the technical coopreation programs of the Government of Japan, will undertake the Study in close cooperation with the authorities of Indonesia.

The present document sets forth the scope of work with regard to the Study.

II. OBJECTIVES OF THE STUDY

The objectives of the Study are;

(1) to formulate an integrated plan on multiplication and distribution system of soybean seeds and seed potatoes

(2) to identify priority projects and work out their development concepts

III. SCOPE OF THE STUDY

1. Study Area

The study will cover the following provinces,

Soybean : Jambi, South Sumatera, East Jawa, Bali and North Sulawesi;

Potato : Jambi, West Jawa, Central Jawa, East Jawa and South Sulawesi;

2. Outline of the Study

The study to be undertaken will comprise the following.

2-1 Data Collection and Field Survey

To collect and review available data and information relevant to the Study and to carry out a field survey on the following items.

(1) General condition

a) Topography

b) Meteorology

c) Soil

d) Population

(2) Soybean and Potato production

a) Relevant development plans
b) Harvested area
c) Yield and production
d) Varieties
e) Cultivation method
f) Agricultural supporting system
g) Relevant infrastructure including irrigation and drainage

(3) Agro economy and marketing related to soybean and potato

a) Farm economy
b) Pricing mechanism
c) Regional demand and supply balance
d) Marketing system
e) Post-harvest technique

(4) Existing multiplication and distribution system of soybean seeds and seed potatoes.

a) Relevant laws and regulations
b) Institution
c) Location and conditions of major seed farms, processing centers and storage centers
d) Experts and technical level
e) Farmer's response to using improved seeds
f) Pricing of seeds
g) Seed demand and supply

2-2 Plan formulation

Based on the results of data collection and the field survey, the following will be carried out.

(1) To estimate the demand for improved seeds

(2) To formulate an integrated plan for multiplication and diustribution of improved soybean seed and seed potato, taking into consideration such components as follows,

a) Improved seed production system and testing technology

b) Improved seed distribution system

c) Seed storage system

(3) To identify priority projects and to work out their development concepts

IV. STUDY SCHEDULE

The Study will be executed in accordance with the attached tentative work schedule.

V. REPORTS

JICA shall prepare and submit the following reports in English to the Government of Indonesia.

(1) Inception Report

Thirty (30) copies at the commencement of the field work

(2) Field Report

Thirty (30) copies at the end of the field work

(3) Draft Final Report

Thirty (30) copies within one (1) month after the end of the home office work.

The Government of Indonesia is requested to provide its comments on the draft final report with one (1) month after its receiving.

(4) Final Report

Fifty (50) copies within one (1) month after receiving the comments on the draft final report.

VI. UNDERTAKING OF THE GOVERNMENT OF INDONESIA

1. To facilitate smooth conduct of the Study, the Government of Indonesia shall take necessary measures:

(1) To secure the safety of the Japanese study team,

(2) To permit the members of the Japanese study team to enter, leave and sojourn in Indonesia for the duration of their assignment therein, and exempt them from alien registration requirements and consular fees,

(3) To exempt the members of the Japanese study team from taxes, duties, fees and other charges on equipment, machinery and other materials brought into Indonesia for the conduct of the Study,

(4) To exempt the members of the Japanese study team from income tax and other charges of any kind imposed on or in connection with any emoluments or allowance paid to the members of the Japanese study team for their services in connection with the implementation of the Study,

(5) To provide necessary facilities to the Japanese study team for remittances as well as utilization of the funds introduced into Indonesia from Japan in connection with implementation of th Study,

(6) To secure permission for entry into private properties or restricted areas for the conduct of the Study, unless prohibited by laws/regulations,

(7) To secure permission to take all data and documents related to the Study incldiuing photographs out of Indonesia to Japan by the Japanese study team, and

(8) To provide the medical services as needed. Its expenses will be chargeable on the members of the Japanese study team.

2. The Government of Indonesia shall bear claims, if any arises, against the members of the Japanese study team resulting from, occurring in the course of, or otherwise connected with the discharge of their duties in the implementation of the Study, except when such claims arise from gross negligence or willful misconduct on the part of the members of the Japanese study team.

3. The Ministry of Agriculture shall act as counterpart agency to the Japanese study team and also as coordinating body to other relevant organization for the smooth implementation of the Study.

4. The Ministry of Agriculture shall, at its own expense, provide the Japanese study with the following, in cooperation with other agencies concerned, if necessary.

(1) Available data and information to the Study,

(2) Counterpart personnel,

(3) Suitable office with necessary equipment,

Ⅶ. UNDERTAKING OF JICA

For the implementation of the Study, JICA shall take following measures:

1. To dispatch, at its own expense, study teams in accordance with the attached tentative work schedule, and
2. To pursue technology transfer to the Indonesian counterpart personnel in the course of the Study.

Ⅷ. OTHERS

JICA and The Ministry of Agriculture will consult with each other in respect of any matter that is not agreed upon in this document and may arise from or in connection with the Study.

APPENDIX B

PERSONS CONCERNED

PERSONS CONCERNED

1. Indonesian

(1) Ministry of Agriculture

Secretariat General

Mr. Soetatwo Hadiwigeno	Director, Bureau of Planning
Mrs. Sumartini	Head, Planning Division, Bureau of Planning
Mrs. Ade Tunus	Bureau of Planning
Mr. Lukman Hakim	Bureau of Planning
Mr. Suharyo Husen	Head, Bilateral Division, Bureau of Foreign Relation
Mrs. Mirah Ratna Dewi	Bureau of Foreign Relation

Directorate General of Food Crops Agriculture

Mrs. Soelbijati Soebroto	Director, Directorate of Food Crops Program Development
Mr. Budiman (- Sep. '87) Mr. Harjanto (Sep. '87 -)	Head, Subdirectorate of Programme and Project Foreign Cooperation, Directorate of Food Crops Program Development
Mr. Kusnandar	Directorate of Food Crops Program Development
Mr. Satta WS	Directorate of Food Crops Program Development
Mr. Achmad Fuadi	Directorate of Food Crops Program Development
Mr. Setyarso	Directorate of Food Crops Program Development
Mr. S. Sihotang	Directorate of Food Crops Program Development
Mr. Widjatmiko	Directorate of Food Crops Program Development
Mr. Don Abner Sihonbing (- Sep. '87) Mr. Bashari M. Ed. Thamrin (Sep. '87 -)	Director, Directorate of Food Crops Production Development

Mr. Suparman Hamid	Head, Subdirectorate of Seed Production, Directorate of Food Crops Production Development
Mr. Soemardhi	Head, Subdirectorate of Seed Quality Control and Certification Service, Directorate of Food Crops Production Development
Mr. R. Mangitua H. Manurung	Directorate of Food Crops Production Development
Mr. A. Chatib	Directorate of Food Crops Production Development
Mrs. Sri Daryasih	Directorate of Food Crops Production Development
Mr. Abuhaeah (- Sep. '87) Mrs. Rini Soerojo(Sep. '87 -)	Director, Directorate of Horticulture Production Development
Mr. Sutrisno	Head, Subdirectorate of Seed Production for Horticulture, Directorate of Horticulture Production Development
Mr. Supangat	Directorate of Horticulture Production Development
Mr. Muhammad	Directorate of Horticulture Production Development
Mrs. Lily Waliyah Chalidin	Directorate of Horticulture Production Development
Mr. Ilyasir Ilyas	Directorate of Horticulture Production Development
Mr. A. Pudjo Tjiptono	Directorate of Horticulture Production Development

Agency for Agricultural Research and Development

Dr. Subiyanto	Director, Research and Development Centre for Horticulture
Mrs. Hartiningsih	Centre for Horticulture Research and Development
Dr. Aziz Azirin	Director, Lembang Research Institute for Horticulture
Ir. Sudjoko Sahat	Research Staff, Lembang Research Institute for Horticulture

(2) Provincial Government

Mr. Murtedjo. S	Chief, Provincial Agricultural Service, Jambi Province
Mr. H.M. Idris Musa	Chief, Provincial Agricultural Service, South Sumatra Province

Mr. Mono Syamsuddin	Chief, Agricultural KANWIL, South Sulawesi Province
Mr. R.A. Basir	Chief, Provincial Agricultural Service, South Sulawesi Province
Mr. Cokro	Chief, Agricultural KANWIL, North Sulawesi Province
Mr. Oka Ranuh	Agricultural KANWIL, Bali Province
Mr. Sugianto	Head, Sub Dinas Programming Development, Provincial Agricultural Service, East Jawa Province
Mr. Seerardjo Dirdjowinoro	Chief, Provincial Agricultural Service, Central Jawa Province
Mr. Syamsu Sobar	Agricultural KANWIL, West Jawa Province
Mrs. Ida Noordijah	Horticulture, Provincial Agricultural Service, West Jawa Province

2. Japanese in Indonesia

Mr. Makoto Asami	Councilor, Embassy of Japan, Indonesia
Mr. Shoji Suzuki	First Secretary, Embassy of Japan, Indonesia
Mr. Hideo Endo	Resident Representative, JICA Indonesia Office
Mr. Kanji Sato	Vice-Resident Representative, JICA Indonesia Office
Mr. Manabu Aiba	Assistant Resident Representative, JICA Indonesia Office
Mr. Shiro Okabe	Director, ESCAP CGPRT Centre
Mr. Torao Goto	Team Leader, Japan-Indonesia Agricultural Research Strengthening Project
Mr. Michio Irie	Team Leader, Center for Development of Appropriate Agricultural Engineering Technology
Mr. Etsuro Kagai	JICA Expert, DGFCA, MOA
Mr. Kiyoshi Sawada	JICA Expert, DGFCA, MOA
Mr. Harunobu Inoue	Plant Physiologist, Central Research Institute for Food Crops (CRIFC)
Mr. K. Kimura	Irrigation Expert, Directorate of Planning and Programming, Ministry of Public Works

3. Advisory Committee

Mr. Setsuro Toda	Technical Advisor, AICAF
Dr. Taruo Ishige	Research Coordinator, Ministers Secretariate, MAFF
Mr. Katsuya Sago	National Centre for Seed and Seedling, MAFF

4. Study Team

Mr. Makoto Yamada	Team Leader
Mr. Takesi Sasaki	Expert of Seed Multiplication and Distribution
Dr. Noburo Takase	Expert of Potato
Mr. Isamu Yamazaki	Plant Engineer for Seed Processing and Storage
Mr. Harunobu Yoshino	Expert of Seed Inspection and Plant Quarantine
Dr. Hisao Mori	Economic and Financial Analyst

APPENDIX C

BBI/BBU

List of BBI/BBU Palawija

Province	Name	Location	Area (Ha)			
			Paddy Field	Upland	Building/ facility	Total
D.I. ACEH	BBI Palawija Peureulak	Aceh Timur, Peureulak	-	10	-	10
	BBU Palawija Paru	Pidie, Bandar Baru	-	7,5	0,5	8
NORTH SUMATERA	BBI Palawija Tanjung Selamat	Kodya Medan, Medan Sunggal	1	15	1	17
	BBU Palawija I Asam Kumbang	Kodya Medan, Medan Tuntungan	-	8	2	10
	BBU Palawija II Sibura-bura	Dairi, Sidikalang	2	17	1	20
WEST SUMATERA	BBI Palawija Ladang Lawas	Tanah Datar, Rambatan	1	15	2	18
	BBU Palawija Sukamenanti	Pasaman, Pasaman	5	140	5	150
	BBU Palawija II Kinali	Pasaman, Pasaman	-	49	1	50
RIAU	BBI Palawija Batu Gajah	Indragiri Hulu, Pasir Penyu	-	15	5	20
	BBU Palawija Sepuruk	Bengkalis, Sei Apit	-	4,5	0,5	5
JAMBI	BBI Palawija Sebapo	Batang Hari, Jambi Luar Kota	-	8	5	13
	BBU Palawija Singkut	Sarolangun Bangko, Sarolangun	3	4,5	0,5	8
BENGKULU	BBI Palawija Kurotidur	Bengkulu Utara, Lais	20	75	5	100
	BBU Palawija Ibul	Bengkulu Selatan, Mana	-	5	0,75	5,75
SOUTH SUMATERA	BBI Palawija (LPUT) Muara Enim	Muara Enim, Muara Enim	2	28	3	33
	BBU Palawija Betung	Musi Banyuasin, Sei Lilin	-	4,5	0,5	5
LAMPUNG	BBU Palawija Tanjung Iman	Lampung Selatan, Abung Selatan	-	11	1	12
	BBI Palawija Tegineneng	Lampung Selatan, Natar	5	21,50	2	28,50
	BBU Palawija Pekalongan	Lampung Tengah, Pekalongan	-	30	1	31

Province	Name	Location	Area (Ha)			
			Paddy Field	Upland	Building/ facility	Total
WEST JAWA	BBI Palawija Plumbon	Cirebon, Plumbon	18	4	3	25
	BBU Palawija Cempaka	Purwakarta, Cempaka	-	7,50	0,50	8
	BBU Palawija Karangpawitan	Garut, Karangpawitan	-	4,50	0,50	5
CENTRAL JAWA	BBI Palawija Kalinyamat	Jepara, Pecangaan	-	12	2	14
	BBU Palawija I Winong I + II	Pati, Pati	14	-	0,60	14,60
	BBU Palawija II Srima dono/ Sriwidodo	Kebumen, Prembun	5,80	3,45	0,40	9,65
	BBU Palawija III Sonobijo	Sukoharjo, Palur	-	14	0,32	14,32
	BBU Palawija IV Harjosari	Tegal, Adiwerna	6,20	-	0,40	6,60
D.I. YOGYAKARTA	BBI Palawija Gading	Gunung Kidul, Playen	-	6	2	8
	BBU Palawija Gesikan	Bantul, Pandak	2,90	2,30	0,10	5,30
EAST JAWA	BBI Palawija Bedali	Malang, Lawang	-	12	0,50	12,50
	BBU Palawija II Tanggul	Jember, Tanggul	5	-	0,60	5,60
	BBU Palawija III Sejati	Malang, Gondanglegi	9,50	0,65	0,24	10,39
	BBU Palawija IV Tejo	Jombang, Mojo Agung	10	-	0,50	10,50
	BBU Palawija V Tugu Rejo	Kediri, Gompeng Rejo	3,90	-	1,80	5,70
	BBU Palawija VI Tasman	Bondowoso, Grujungan	-	4,50	0,50	5
	BBU Palawija VII Kendalrejo	Trenggalek, Durenan	-	7,67	0,50	8,17
BALI	BBI Palawija Banyupoh	Buleleng, Grogak	4,36	0,44	0,72	5,52
	BBU Palawija Tulikup	Gianyar, Gianyar	1,54	-	0,40	1,94
WEST KALIMANTAN	BBI Palawija Sintang	Sintang, Sepauk	-	29	1	30
	BBU Palawija Rasau Jaya	Pontianak, Sei Kakap	-	49	1	50

Province	Name	Location	Area (Ha)			
			Paddy Field	Upland	Building/ facility	Total
CENTRAL KALIMANTAN	BBI Palawija Netampin	Barito Selatan, Dusun Tengah		15	1,62	16,62
	BBU Palawija Penda Asem	Barito Selatan, Dusun Selatan	9	1	1	11
SOUTH KALIMANTAN	BBI Palawija Pabahanan	Tanah Laut, Plei Hari	-	10	1	11
	BBU Palawija Batu Tungku	Tanah Laut, Jorang	-	13	1	14
EAST KALIMANTAN	BBI Palawija Barong Tongkok	Kutai, Barong Tongkok	-	36	2	38
	BBU Palawija Sepaku	Balik Papan, Balik Papan Seberang	-	5	0,25	5,25
NORTH SULAWESI	BBI Padi and Parawija Tambun Dumoga	B. Mangondow, Dumoga	15	25	10	50
	BBU Palawija Paguyaman	Gorontalo, Paguyaman	-	8,50	1,50	10
CENTRAL SULAWESI	BBI Palawija Toili	Luwuk Banggai, Batui	-	9	1	10
	BBU Palawija Kilo	Poso, Poso Pesisir	2	7	1	10
SOUTH SULAWESI	BBI Palawija Batukaropa	Bulukumba, Bulukumba	-	47,3	4,3	51,6
	BBU Palawija Canru	Wajo, Sabamparo	-	11	1	12
	BBU Palawija Panincong	Soppeng, Mario	-	12	1	13
SOUTH-EAST SULAWESI	BBI Palawija Lasehao	Muna, Kabawo	-	10	0,35	10,35
	BBU Palawija Balantete	Kolaka,	5	5,50	0,60	11,10
WEST NUSA TENGGARA	BBI Palawija Puyung	Lombok Tengah, Jonggat	9,60	1	1	11,60
	BBU Palawija I Alas	Sumbawa, Alas	-	4,50	0,50	5
	BBU Palawija II Tanjung	Lombok Barat, Tanjung	-	1,02	0,35	1,37

Province	Name	Location	Area (Ha)			
			Paddy Field	Upland	Building/ facility	Total
EAST NUSA TENGGARA	BBI Palawija Noelbaki	Kupang, Kupang Tengah	5,50	20	1	26,50
	BBU Palawija Mangepanda	Sikka, Nita	1,50	8	0,50	10
	BBU Palawija Oenimat	T.T.U., Kopeta	-	6	1	7
	BBU Palawija Lewa	Sumba Timur, Lewa	13	30	3	46
MALUKU	BBI Palawija Acango	Maluku Utara, Jailolo	-	8	2	10
	BBU Palawija Ohoinol	Maluku Tenggara, Kai Kecil	-	6,50	0,50	7
IRIAN JAYA	BBI Palawija Besum	Jayapura, Genyem	-	39,50	0,50	40
	BBU Palawija Syaribo	Monokwari, Monokwari	-	9,50	0,50	10

Source: PETA LOKASI Balai Benih Induk (BBI) & Balai Benih Ulama (BBU), DIREKTORAT BINA PRODUKSI TANAMAN PANGAN

List of BBI/BBU Horticulture

Province	Name	Location	Area (Ha)			
			Paddy Field	Upland	Building/ facility	Total
D.I. ACEH	BBI Hortikultura Saree	Aceh Besar, Seuliumeum	-	46	1	47
	BBU Hortikultura Payatumpi	Aceh Tengah, Kota	-	3,5	0,5	4
NORTH SUMATERA	BBI Hortikultura Kutagadung (DT)	Tanah Karo, Kabanjahe	-	9	1	10
	BBU Hortikultura Gabe II (DR)	Tapanuli Utara, Sipoholon	-	16	1	17
	BBU Hortikultura Gedung Johor	Kodya Medan, Medan Johor	-	7	1	8
WEST SUMATERA	BBI Hortikultura Lubuk Minturun	Kodya Padang, Kota Tangah	0,5	9	0,5	10
	BBU Hortikultura Padang Mangatas	Lima Puluh Kota, Luhak	-	9,5	0,5	10
	BBU Hortikultura Padang Sibusuk	Sawah Lunto, Sawah Lunto	-	9,5	0,5	10
RIAU	BBI Hortikultura Padang Marpuyan	Kampar, Siak Hulu	2	33,5	1	36,5
	BBU Hortikultura Kuok	Kampar, Bangkinang	-	10	1	11
JAMBI	BBI Hortikultura Sei Tiga	Batang Hari, Jambi Luar Kota	-	11	0,5	11,5
	BBU Hortikultura Arang-Arang	Batang Hari, Kumpeh	-	5,5	0,5	6
BENGKULU	BBI Hortikultura Talang Aling	Bengkulu Utara, Talang Ampat	-	24	1	25
	BBU Hortikultura KM-9	Bengkulu Utara, Talang Ampat	-	3,5	0,5	4
	BBU Hortikultura Air Dingin	Rejang Lebong, Lebong Selatan	-	4	1	5
SOUTH SUMATERA	BBI Hortikultura Jarai	Lahat, Jarai	-	18	2	20
	BBU Hortikultura Pagar Alam	Lahat, Pagar Alam	-	17,0	0,5	17,5

Province	Name	Location	Area (Ha)			
			Paddy Field	Upland	Building/ facility	Total
LAMPUNG	BBI Hortikultura Sekincau	Lampung Utara, Sumber Jaya	-	4	1	5
	Unit BBI Hortikultura Ampera	Lampung Tengah, Pekalongan	3	52	3	58
	BBU Hortikultura Way Ratay	Lampung Selatan, Pantai Cermin	-	4	1	5
DKI JAKARTA	BBI Hortikultura Ciganjur	Jakarta Selatan, Pasar Minggu	-	5,40	-	5,40
	BBU Hortikultura Lebak Bulus	Jakarta Selatan, Cilandak	-	1,46	-	1,46
	BBU Hortikultura Ragunan	Jakarta Selatan, Pasar Minggu	-	6,45	0,50	6,95
	BBU Hortikultura Cibubur	Jakarta Timur, Cibubur	-	19	1	20
WEST JAWA	BBI Hortikultura (DT) Pasir Banteng	Sumedang, Cikeruh	-	27	2	29
	BBU Hortikultura Pasir Jati	Bandung, Ujung Berung	-	14	1	15
	BBU Hortikultura Margahayu	Bandung, Lembang	-	8	0,50	8,50
	BBU Hortikultura Cimangkok	Sukabumi, Cimangkok	-	17,50	0,50	18
CENTRAL JAWA	BBI Hortikultura Salaman	Magelang, Salaman	-	7,70	1	8,70
	BBU Hortikultura I Karang Anyar	Pekalongan, Karang Anyar	-	2,50	0,50	3
	BBU Hortikultura II Tohudan	Karang Anyar, Culo Madu	-	2,50	0,50	3
	BBU Hortikultura III Banteran	Banyumas, Wangon	-	7,10	0,50	7,60
	BBU Hortikultura IV Sidokerto (DR)	Pati, Pati	-	9,50	0,50	10
	BBU Hortikultura V Kledung (DT)	Temanggung, Parakan	-	14	1	15
D.I. YOGYAKARTA	BBI Hortikultura Ngipiksari	Sleman, Pakem	-	2	0,80	2,80
	BBU Hortikultura Tambak	Kulonprogo, Wates	-	1,50	0,25	1,75

Province	Name	Location	Area (Ha)			
			Paddy Field	Upland	Building/ facility	Total
EAST JAWA	BBU Hortikultura Tosari	Pasuruan,	-	2	0,50	2,50
	BBI Hortikultura Pohjentrek	Pasuruan, Pohjentrek	-	17	1	18
	BBU Hortikultura I Jampirogo	Mojokerto,	-	2	0,90	2,90
	BBU Hortikultura II Jiwan	Madiun	-	3	0,30	3,30
BALI	BBI Hortikultura Luwus	Tabanan, Baturiti	-	4,50	0,50	5
	BBU Hortikultura Sukasada	Buleleng, Sukasada	-	2,10	0,50	2,60
	BBU Hortikultura Singarate (Unit)	Karang Asem, Rendong	-	3,00	0,50	3,50
	BBU Hortikultura Kembang Merta	Tabanan, Baturiti	-	1,70	0,30	2
WEST KALIMANTAN	BBI Hortikultura Anjungan	Pontianak, Sei Pinyuh	2	6	1	9
	BBU Hortikultura Simpang Poteng	Sambas, Singkawang	-	1,70	0,30	2
CENTRAL KALIMANTAN	BBI Hortikultura Ramban	Kota Waringin Timur, Mentaya Ilir Selatan	-	19	1	20
	BBU Hortikultura Anjir Serapat	Kapuas, Anjir Membulan Barat	-	9	1	10
SOUTH KALIMANTAN	BBI Hortikultura Madurejo	Banjar, Simpang Empat	-	3,50	0,50	4
	BBU Hortikultura Hikun	Tabalong, Tanjung	-	3,75	0,25	4
EAST KALIMANTAN	BBI Hortikultura Loa Janan	Kutai, Loa Janan	-	33	2	35
	BBU Hortikultura Pulau Atas	Kutai, Tanjung	-	2,10	0,30	2,40
NORTH SULAWESI	BBU Hortikultura Kalasey	Minahasa, Pineleng	-	34	1	35
	BBI Hortikultura Madoinding	Minahasa, Madoinding	-	5,75	0,25	6
	BBU Hortikultura Limbongo	Gorontalo, Suwawa	-	19,50	0,50	20
CENTRAL SULAWESI	BBI Hortikultura Sidera	Donggala, Sigi Biromaru	-	10,80	1,50	12,30
	BBU Hortikultura Palolo	Donggala, Sigi Biromaru	-	4,50	0,50	5

Province	Name	Location	Area (Ha)			
			Paddy Field	Upland	Building/ facility	Total
SOUTH SULAWESI	BBI Hortikultura Bonto-Bonto	Gowa, Bonto Maru	-	8,20	1	9,20
	BBU Hortikultura Sudiang	Kodya Ujung Pandang, Biring Kanaya	-	4	0,80	4,80
	BBU Hortikultura Malakaji	Gowa, Tompo Bulu	-	10	0,50	10,50
	BBU Hortikultura Lajongga	Sidrap, Poncalautan	-	8,50	0,50	9
	BBU Hortikultura Malino	Gowa, Tinggi Moncong	-	1,20	0,30	1,50
SOUTH-EAST SULAWESI	BBI Hortikultura Amoito	Kendari, Ronomeeto	-	10	1	11
	BBU Hortikultura ka-Ongke[2]	Buton, Ka-Ongke[2]	-	4,50	0,50	5
WEST NUSA TENGGARA	BBI Hortikultura Sedau	Lombok Tengah, Pringgarata	-	10,32	1,25	11,57
	BBU Hortikultura Santong	Lombok Barat, Gangga	2,35	7	0,55	9,90
	BBU Hortikultura Timbanuh	Lombok Timur,	-	6,50	0,50	7
	BBU Hortikultura Lapelopok	Sumbawa,	-	1,50	0,50	5
EAST NUSA TENGGARA	BBI Hortikultura Nonbes	Kupang, Amarasi	-	7	1	8
	BBU Hortikultura Waimanu	Sumba Barat, Katiku tana	5	6	2	13
	BBU Hortikultura Detubapa	Ende, Detusoko	-	3	0,50	3,50
	BBU Hortikultura Oelbubuk	T.T.S., Molo Selatan	-	3,00	0,30	3,30
MALUKU	BBI Hortikulture Telega Kodok	Maluku Tengah, Leihitu	-	14	1	15
	BBU Hortikulture Haruru	Maluku Tengah, Amahey	-	4	0,50	4,50
IRIAN JAYA	BBI Hortikultura Wirmarker	Teluk Cendrawasih, Biak Utara	-	14	1	15
	BBU Hortikultura Sentani	Jayapura,	-	2,50	0,50	3

Source: PETA LOKASI Balai Benih Induk (BBI) & Balai Benih Utama (BBU), DIREKTORAT BINA PRODUKSI TANAMAN PANGAN

National Standards of BBI Palawija and Present Conditions of BBI Bedali, Lawang, East Jawa Sept. 1987

NO.	Items	National Standards for BBI Palawija	Existing in BBI Bedali	Raquested by BBI Bedali	Present Conditions		
					Good	Repairable	Un-repairable
1.	LUAS TANAH SELURUHNYA	10 Ha	23.43 Ha	-	-	-	-
	- Sawah/Tegal	8 Ha	17.7 Ha	-	-	-	-
	- Bangunan/Pekarangan	2 Ha	5.73 Ha	-	-	-	-
2.	PAGAR KEBUN	Keliling Kebun	Keliling Kebun		-	K. Baik	-
	- Drainage	Baik	-	-	-	-	-
	- Pengairan	Baik				K. Baik	-
3.	PENINGKATAN PRODUKSI LAHAN						
	- Replotting	Sesuai dengan kebutuhan	-	-	-	-	-
	- Perbaikan Drainage	sda	-	-	-	-	-
	- Perbaikan Pengairan	sda	-	-	-	-	-
4.	BANGUNAN						
	- Gudang Benih	1 buah (150m2+50m2)	154.56 m2	50 m2	-	-	-
	- Gudang alat traktor	1 buah/150 m2	-	1 buah/150 m2	-	-	-
	- Gudang Saprodi	1 buah/ 20 m2	68.88 m2	-	-	-	-
	- Werkloods	1 buah/100 m2	354 m2	-	-	-	-
	- Kantor	1 buah/200 m2	761.97 m2	-	-	-	-
	- Laboratorium	1 buah/ 20 m2	-	1 buah/ 20 m2	-	-	-
	- Asrama	1 buah/600 m2	-	1 buah/600 m2	-	-	-
	- Ruang Perpustakaan	1 buah/100 m2	-	1 buah/100 m2	-	-	-
	- Aula	1 buah/150 m2	-	1 buah/150 m2	-	-	-
	- Rumah Pimpinan	1 buah/Type C/70 m2	197.37 m2	-	-	-	-
	- Rumah Kabag	5 buah/Type D/50 m2	654.05 m2	1 buah/ 50 m2	-	-	-
	- Rumah Staf lainnya	10 buah/Type E/36 m2	-	10 buah/Type E/36 m2	-	-	-
	- Less/Quest House	1 buah/Type E/36 m2	-	1 buah/Type E/36 m2	-	-	-
	- Gardu jaga	1 buah/10 m2	-	1 buah/10 m2	-	-	-
	- Garase Mobil	1 buah/72 m2	60.85 m2	1 buah/11,15 m2	-	-	-
	- Kandang ternak	1 buah/30 m2	143.69 m2	-	-	-	-
	- Ruang Kompos	1 buah/30 m2	-	1 buah/30 m2	-	-	-
	- Gardu listrik	3 buah a 150 m2	-	-	-	-	-
	- Lantai jemur		1084,49 m2	-	-	-	-
5.	PERALATAN/PERLENGKAPAN PRODUKSI						
	- Mini traktor	1 buah/25 PK	1 buah	-	-	-	-
	- Hand traktor	1 buah/ 7-8 PK	4 buah	-	-	2 buah	-
	- Kerbau/Sapi	3 pasang	4 pasang	-	-	-	-
	- Bajak	3 buah	2 buah	1 buah	-	-	-
	- Garu	3 buah	2 buah	1 buah	-	1 buah	-
	- Cangkul	40 buah	38 buah	2 buah	-	19 buah	-
	- Climatologi Intrumen	1 unit	-	-	-	-	-
	- Parang	20 buah	-	-	-	-	-
	- Arit	20 buah	10 buah	10 buah		5 buah	-
	- Hand spayer	5 buah a 10 L	-	5 buah	-	-	-
	- " otomatis	5 buah a 10 L	3 buah	2 buah	-	3 buah	-

NO.	Items	National Standards for BBI Palawija	Existing in BBI Bedali	Raquested by BBI Bedali	Good	Repairable	Un-repairable
	- Roll meter	2 buah	2 buah	-	-	-	-
	- Garpu	20 buah	5 buah	15 buah	-	2 buah	-
	- Skop	20 buah	7 buah	13 buah	-	-	3 buah
	- Cangkul	20 buah	5 buah	15 buah	3 buah	-	2 buah
	- Land planer	20 buah	-	20 buah	-	-	-
	- Gunting pagar	5 buah	-	5 buah	-	-	-
	- Linggis	10 buah	2 buah	8 buah	-	-	-
	- Mesin potong rumput	1 buah	-	1 buah	-	-	-
	- Counter Taksiran	5 buah	-	5 buah	-	-	-
6.	PERALATAN PENGOLAHAN PENYIMPANAN						
	- Drayer 4 PK (KAP 1,6 Ton)	4 buah	4 buah	-	2 buah	-	2 buah
	- Corn Sheller	5 buah	2 buah	3 buah	-	-	-
	- Air Screen Cleaner	2 buah	2 buah	-	2 buah	-	-
	- Aspirator Cleaner	2 buah	-	2 buah	-	-	-
	- Thresher Kedele Kap 500	2 buah	2 buah	-	-	-	-
	- Cleaner	5 buah	-	5 buah	-	-	-
	- Timbangan gantung 100 Kg	2 buah	-	2 buah	-	-	-
	- Duster	1 buah	-	1 buah	-	-	-
	- Alat pengukur ubinan	1 buah	-	1 buah	-	-	-
	- Alat pembuat beras jagung	1 unit	-	1 unit	-	-	-
	- Pompa irigasi 8,5 PK	2 buah	2 buah	-	-	-	-
	- Pengupas Sargum (Bullser)	1 unit	-	1 unit			
	- Alat pembuat gaplek/Chip	1 unit	-	1 unit	-	-	-
	- Gerobak dorong	2 unit	-	2 unit	-	-	-
	- Timbangan KP 500 Kg	1 buah	-	1 buah	-	-	-
	- Timbangan KAP 100 Kg	1 buah	-	1 buah	-	-	-
	- Timbangan KAP 25 Kg	1 buah	-	1 buah	-	-	-
	- Timbangan KAP 5 Kg	1 buah	-	1 buah	-	-	-
	- Bag Closer	2 unit	-	2 unit	-	-	-
	- Platik Shealer	2 unit	2 unit	-	2 unit	-	-
	- Silo KAP 2 Ton	20 buah	7 buah	13 buah	7 buah	-	-
	- Blak	500 buah	7 buah	493 buah	7 buah	-	-
	- Forklift	1 buah	-	1 buah	-	-	-
	- Dehumidifier	4 buah	3 buah	1 buah	3 buah	-	-
	- Rak tempat blek benih	7 buah	-	7 buah	-	-	-
7.	PERALATAN LABORATORIUM						
	- Geminator	2 buah	1 buah	1 buah	1 buah	-	-
	- Moisture tester	2 buah	1 buah	1 buah	-	-	1 buah
	- Timbangan halus	1 buah	-	1 buah	-	-	-
	- Rak benih	3 buah	-	3 buah	-	-	-
	- Meja lab	1 buah	-	1 buah	-	-	-
	- Filling cabinet	2 buah	-	2 buah	-	-	-
	- Meja tulis/Kursi	2 set	-	2 set	-	-	-
	- PH Tester	2 buah	1 buah	1 buah	-	-	1 buah

NO.	Items	National Standards for BBI Palawija	Existing in BBI Bedali	Raquested by BBI Bedali	Good	Repairable	Un-repairable
	- Mechanical Devider	1 buah	1 buah	-	-	1 buah	-
	- Soil Devider	1 buah	-	1 buah	-	-	-
	- Trier	10 buah	-	10 buah	-	-	-
	- Pinset	10 buah	-	10 buah	-	-	-
	- Thermo hyigrograph	1 buah	1 buah	-	-	1 buah	-
	- Thermometer biasa	1 buah	-	1 buah	-	-	-
	- " basah kering	1 buah	-	1 buah	-	-	-
	- Petridish	50 buah	-	10 buah	-	-	-
	- Loupe/Lensa pembesar	10 buah	-	10 buah	-	-	-
	- Microscope						
	- Binaculer	1 buah	1 buah	-	1 buah	-	-
	- Stereo	1 buah	-	1 buah	1 buah	-	-
8.	MOBILITAS						
	- Jeep	1 buah	1 buah	-	1 buah	-	-
	- Truk	1 buah	-	1 buah	-	-	-
	- Pick Up	1 buah	1 buah	-	1 buah	-	-
	- Sepeda motor	5 buah	1 buah	4 buah	-	1 buah	-
	- Sepeda	10 buah	-	10 buah	-	-	-
	- Tool Kit	2 buah	-	2 buah	-	-	-
	- Mini Bus	1 buah	-	1 buah	-	-	-
	- Dongkrak buaya 3 ton	1 unit	-	1 unit	-	-	-
	- Compressor	1 unit	-	1 unit	-	-	-
9.	PERSONALIA						
	- Pimpinan	1 orang	1 orang	-	-	-	-
	- Kepala Bagian	5 orang	5 orang	-	-	-	-
	- Kepala Sub Bag	13 orang	13 orang	-	-	-	-
	- Lain-lain	29 orang	39 orang	-	-	-	-
10.	MACAM-MACAM PERLENGKAPAN						
	a. Kantor						
	- Mesin ketik						
	. Long wagon	1 buah	-	1 buah	-	-	-
	. Biasa	1 buah	4 buah	-		4 buah	-
	. Fortable	1 buah	-	1 buah	-	-	-
	- Mesin stensil	1 buah	-	1 buah	-	-	-
	- Calculator	1 buah	-	1 buah	-	-	-
	- Mesin hitung	1 buah	-	1 buah	-	-	-
	- Brandkast	1 buah	1 buah	-	-	1 buah	-
	- Filling cabinet	6 buah	-	6 buah	-	-	-
	- Jam dinding	1 buah	-	1 buah	-	-	-
	- Meja tulis/Kursi	16 set	20 set	-	20 set	-	-
	- Meja kursi tamu	2 set	2 set	-	-	-	2 set
	- Telepun	1 buah	-	1 buah	-	-	-
	- Aipone	1 set	-	1 set	-	-	-

NO.	Items	National Standards for BBI Palawija	Existing in BBI Bedali	Raquested by BBI Bedali	Good	Repairable	Un-repairable
	b. Ruang kelas						
	- Papan tulis	2 buah	-	2 buah	-	-	-
	- Meja/kursi belajar	45 set	-	45 set	-	-	-
	- Podium	1 buah	-	1 buah	-	-	-
	- Meja giru	1 buah	-	1 buah	-	-	-
	c. Perpustakaan						
	- Lemari pustaka	4 buah	-	4 buah	-	-	-
	- Meja kursi perpustakaan	5 set	-	5 set	-	-	-
	- Jam dinding	1 buah	-	1 buah	-	-	-
	d. Asrama						
	- Tempat tidur (Kasur bantal)	40 buah	-	40 buah	-	-	-
	- Sprei + sarung bantal	80 set	-	80 set	-	-	-
	- rak handuk	20 buah	-	20 buah	-	-	-
	- Alat dapur	macam-macam	-	macam-macam	-	-	-
	- Kursi teras (a. 2 Kursi+1 meja)	10 set	-	10 set	-	-	-
	e. Ruang makan						
	- Meja makan	10 buah	-	10 buah	-	-	-
	- Kursi makan	60 buah	-	60 buah	-	-	-
	- TV berwarna	1 buah	-	1 buah	-	-	-
	- Radio transistor	1 buah	-	1 buah	-	-	-
	f. Audio Visuil						
	- Projektor 8 mm	1 buah	-	1 buah	-	-	-
	- " 16 mm	1 buah	-	1 buah	-	-	-
	- Slide prijektor	1 buah	-	1 buah	-	-	-
	- Layer	1 buah	-	1 buah	-	-	-
	- Overhad projektor	1 buah	-	1 buah	-	-	-
	- Sound sistem	1 buah/set	-	1 set	-	-	-
	- Foto tustel	1 set	-	1 set	-	-	-
	- Megaphone	1 buah	-	1 buah	-	-	-
	- Movie camera	1 buah	-	1 buah	-	-	-
	g. Mess						
	- Kursi tamu	1 set	-	1 set	-	-	-
	- Kursi meja makan	1 set	-	1 set	-	-	-
	- Lemari pakaian	3 buah	-	3 buah	-	-	-
	- Meja tulis berlemari + kursi	40 set	-	40 set	-	-	-
	- Tempat tidur	6 buah	-	6 buah	-	-	-
	- Kasur bantal	6 set	-	6 set	-	-	-
	- Sprei dan sarung bantal	12 set	-	12 set	-	-	-
	- Lemari makan	1 buah	-	1 buah	-	-	-
	- Alat-alat dapur	macam-macam	-	macam-macam	-	-	-
	- Kulkast	1 buah	-	1 buah	-	-	-
	- TV berwarna	1 buah	-	1 buah	-	-	-
	- Radio transistor	1 buah	-	1 buah	-	-	-
	- Rak handuk	6 buah	-	6 buah	-	-	-

NO.	Items	National Standards for BBI Palawija	Existing in BBI Bedali	Raquested by BBI Bedali	Good	Repairable	Un-repairable
11.	FASILITAS AIR MINUM/MANDI	Pompa & intalasi unit	intalasi	-	-	-	-
12.	FASILITAS LISTRIK	PLN/Home light	PLN	-	-	-	-
13.	LAIN-LAIN/KEKURANGAN						
	- Weeding machine			5 unit	-	-	-
	- Seed planter			3 unit	-	-	-
	- Mini traktor (smsll)			2 unit	-	-	-
	- Big traktor			2 unit	-	-	-
	- Air Screen seed cleaner			1 unit	-	-	-
	- Seed grader (satake)			1 unit	-	-	-
	- Irigation system			2 unit	-	-	-
	- Pagar keliling kebun						belum terpe nuhi

Source: BBI Bedali, Lawang, East Jawa

APPENDIX D

BPSB

LOCATION AND WORKING AREA
OF BPSB AND WORKING UNIT

No.	SCCA/Working Unit	Location	Working Area
1	2	3	4
1.	BPSB I	Bandung	West Java DKI Jakarta
	- Working Unit SCCA I Jakarta	Jakarta	DKI Jakarta, Bekasi, Bogor, Tangerang, Serang, Lebak and Pandeglang
2.	BPSB II	Tegalgondo	Central Jawa D.I. Yogyakarta
	- Working Unit SCCA II Yogyakarta	Yogyakarta	D.I. Yogyakarta
3.	BPSB III	Surabaya	East Java
4.	BPSB IV	Medan	North Sumatera
5.	BPSB V	Bukittinggi	West Sumatera Riau Jambi
	- Working Unit BPSB V Riau	Kampar	Riau
	- Working Unit BPSB V Jambi	Jambi	Jambi
6.	BPSB VI	Maros	South Sulawesi, Southeast Sulawesi Maluku and Irian Jaya
	- Working Unit BPSB VI Southeast Sulawesi	Kendari	Southeast Sulawesi
	- Working Unit BPSB VI Maluku	Ambon	Maluku
	- Working Unit BPSB VI Irian Jaya	Jayapura	Irian Jaya
7.	BPSB VII	Denpasar	Bali
8.	BPSB VIII	Bandar Lampung	Lampung
9.	BPSB IX	Palembang	South Sumatera and Bengkulu
	- Working Unit BPSB IX Bengkulu	Bengkulu	Bengkulu
10.	BPSB X	Mataram	West Nusatenggara, East Nusatenggara and East Timor
	- Working Unit BPSB East Nusateng-gara	Kupang	East Nusatenggara
	- Working Unit BPSB East Timor	Dilli	East Timor

1	2	3	4
11.	BPSB XI	Banjarbaru	South Kalimantan, West Kalimantan, Central Kalimantan and East Kalimantan
	- Working Unit BPSB XI West Kalimantan	Pontianak	West Kalimantan
	- Working Unit BPSB XI Central Kalimantan	Palangkaraya	Central Kalimantan
	- Working Unit BPSB XI East Kalimantan	Samarinda	East Kalimantan
12.	BPSB XII	Banda Aceh	D.I. Aceh
13.	BPSB XIII	Manado	North Sulawesi and Central Sulawesi
	- Working Unit BPSB XIII Central Sulawesi	Palu	Central-Sulawesi

Source: BPSB

NUMBER OF STAFF OF BPSB, 1986/87

No.	BPSB / Province	Number of Staff		Total
		Non Technical	Technical	
	BPSB I			
1.	DKI Jakarta	5	20	25
2.	Jawa Barat	28	62	90
	BPSB II			
3.	Jawa Tengah	26	71	97
4.	D.I. Yogyakarta	2	25	27
	BPSB III			
5.	Jawa Timur	23	89	112
	BPSB IV			
6.	Sumatera Utara	18	54	72
	BPSB V			
7.	Sumatera Barat	10	43	53
8.	Riau	2	17	19
9.	Jambi	4	18	22
	BPSB VI			
10.	Sulawesi Selatan	20	51	71
11.	Sulawesi Tenggara	1	12	13
12.	Maluku	2	10	12
13.	Irian Jaya	3	15	18
	BPSB VII			
14.	Bali	12	48	60
	BPSB VIII			
15.	Lampung	14	49	63
	BPSB IX			
16.	Sumatera Selatan	23	63	86
17.	Bengkulu	5	5	10
	BPSB X			
18.	N.T.B.	8	65	73
19.	N.T.T.	-	3	3
20.	Timor Timur	-	-	-
	BPSB XI			
21.	Kalimantan Selatan	16	57	73
22.	Kalimantan Barat	-	4	4
23.	Kalimantan Tengah	-	3	3
24.	Kalimantan Timur	-	3	3
	BPSB XII			
25.	D.I. Aceh	12	59	71
	BPSB XIII			
26.	Sulawesi Utara	14	55	69
27.	Sulawesi Tengah	-	30	30
	Total	248	931	1.179

Source: BPSB

BPSB's LABORATORY EQUIPMENT INVENTORY
1985/86

No.	Equipment	S C C A												
		I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1.	Divider													
	Mechanical divider	5	8	5	2	2	2	3	3	3	4	2	2	2
	Soil Divider	5	4	1	1	1	2	1	–	1	1	1	–	1
	Electrical divider	–	1	–	–	–	–	–	–	1	–	–	–	–
2.	Oven and implement													
	Oven (105°C, 130°C)	7	4	4	2	3	3	2	1	2	2	2	2	2
	Exicator	4	6	4	1	3	2	2	–	3	2	2	2	1
	Decicator	5	6	2	3	4	3	2	1	4	3	3	1	1
	Grinder dan saringan	9	3	6	1	7	2	1	1	12	1	2	1	2
	Cawan (crucible)	56	48	15	54	72	61	6	–	5	24	36	24	12
	Asbest pinch	11	13	6	15	5	20	1	–	4	3	6	–	6
	Glove (asbest and rubber)	20	5	3	16	5	2	1	–	–	4	8	5	4
3.	Moisture Tester													
	Brabender (oven moisture tester)	–	–	–	–	–	4	–	–	–	2	1	–	–
	Electric moisture meter	4	7	1	4	1	1	1	–	–	1	2	2	–
	DC (Battery moisture meter)	2	–	3	–	3	1	2	2	1	–	2	–	–
4.	Balance													
	Balance (5-10 kg)	4	2	2	2	3	2	3	3	2	2	2	2	1
	Analitical Balance	5	4	4	2	3	2	1	1	2	3	3	2	1
5.	Purity analize equipment													
	Purity desk	4	8	4	5	–	–	–	–	–	10	6	5	–
	Diaphonoscope	–	8	–	–	–	–	–	–	2	10	–	–	–
	Pinset	33	24	33	36	44	10	5	5	13	18	5	–	–
	Scalpel	12	30	12	3	2	5	–	–	–	24	–	4	–
	Loupe	38	29	17	22	33	19	–	–	11	6	–	8	7

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
6.	Microscope													
	Microscope stereo	4	3	3	2	2	2	1	-	2	1	1	1	1
	Microscope riset	3	-	-	2	1	-	-	-	1	2	4	1	-
7.	Germinator													
	Germinator electric	-	1	1	-	1	-	-	-	-	1	-	-	-
	Germinator non electric	8	7	6	4	6	5	-	4	3	2	4	2	3
	Germinator kamar	-	-	-	-	-	-	-	-	-	-	-	-	-
8.	Camera (close up lence)	-	-	-	-	1	-	-	-	-	1	1	-	-
9.	A.C.	2	4	4	3	1	1	-	-	-	-	-	-	-
10.	Calculator													
	Calculator electric	-	-	-	-	-	-	-	-	-	3	-	-	-
	Calculator mini	5	4	-	-	2	1	2	2	3	3	6	-	-
	Counter	19	39	10	29	32	11	12	5	10	4	13	10	3
11.	Blower	1	1	1	-	-	-	-	-	-	1	-	-	5
12.	Typewriter	-	-	-	-	1	1	1	-	-	-	-	-	1
13.	Glass													
	Beaker glass	122	36	10	10	36	36	3	36	121	68	3	33	12
	Glass ukur	8*)	8*)	8*)	4*)	25	11	5	29	50	11	9	7	12
	Petridish	80*)	144*)	72*)	48*)	96*)	96*)	48*)	48*)	90	-	100	-	-
	Erlemeyer	20*)	50*)	257	20*)	30*)	102	20*)	36	96	50	35	2	12
	Pipet	24	48	27	-	-	50	-	-	-	-	-	-	-
	Hook kaca bengkok	-	-	-	-	-	12	-	-	-	-	-	-	-
14.	Cupboard													
	Seed Arsif Cabinet	2	1	1	1	-	1	-	1	-	-	-	-	-
	Equipment	2	1	1	1	-	1	-	1	-	-	-	-	-
	Kulkas	3	5	4	5	6	2	-	4	1	-	-	-	-

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
15.	Deep Freezer	1	4	-	-	-	-	1	-	-	-	-	-	-
16.	Incubator	-	-	-	-	-	-	-	-	1	-	-	-	-
17.	Autoclave	1	1	1	-	-	1	-	1	-	-	-	-	-
18.	Steril chamber	1	1	1	-	-	1	-	1	-	-	-	-	-
19.	Colony counter	1	1	1	-	-	1	-	1	-	-	-	-	-
20.	Magnetic Stirrer	1	1	1	-	-	1	-	1	-	-	-	-	-
21.	Mixer	1	1	1	-	-	1	-	1	-	-	-	-	-
22.	Jarum Ose	-	-	5	-	-	12	-	-	-	-	-	-	-

*) one dozen

Source: BPSB

NUMBER OF CULTIVAR EVALUATION BY PROVINCE BY BPSB
1974/1975 - 1984/85

No.	Province	Jumlah Pengujian										
		74/75	75/76	76/77	77/78	78/79	79/80	80/81	81/82	82/83	83/84	84/85
1	2	3	4	5	6	7	8	9	10	11	12	13
1.	West Java	21	0	20	30	30	45	52	33	20	25	40
2.	DKI Jakarta	0	2	5	5	5	6	-	2	2	6	5
3.	Central Java	19	10	20	30	45	45	49	37	30	45	46
4.	DI Yogyakarta	8	6	5	10	15	25	38	15	20	21	20
5.	East Java	10	7	20	30	45	45	46	36	46	45	45
6.	North Sumatera	22	10	10	20	25	25	20	19	30	6	15
7.	West Sumatera	13	7	10	20	30	30	30	17	30	35	21
8.	Riau	7	0	0	6	6	10	18	10	8	3	8
9.	Jambi	0	0	0	6	6	10	18	10	8	3	8
10.	South Sulawesi	17	10	5	10	20	20	29	25	21	20	20
11.	Central Sulawesi	0	0	0	5	5	5	10	7	6	4	2
12.	Maluku	4	0	0	4	5	10	16	5	-	7	2
13.	Irian Jaya	-	-	-	-	-	5	-	-	-	-	2
14.	Bali	1	7	5	10	20	20	16	5	-	7	2
15.	Lampung	7	0	10	15	20	22	20	29	20	25	25
16.	South Sumatera	0	15	5	10	5	20	20	20	23	20	20
17.	Bengkulu	0	0	0	5	6	8	12	8	5	8	10
18.	West Nusatenggara	5	5	4	10	15	15	9	18	15	20	10
19.	East Nusatenggara	5	0	0	4	5	8	-	9	11	6	6
20.	East Timor	-	-	-	-	-	-	-	-	-	-	-

1	2	3	4	5	6	7	8	9	10	11	12	13
21.	South Kalimantan	0	15	5	10	5	15	21	18	15	10	10
22.	West Kalimantan	3	0	0	6	6	10	10	10	10	1	5
23.	Central Kalimantan	0	0	0	3	4	5	-	5	-	4	8
24.	East Kalimantan	4	0	0	5	5	10	-	5	6	4	4
25.	D.I. Aceh	4	10	5	10	15	15	15	19	10	10	25
26.	North Sulawesi	0	4	5	10	10	10	15	2	8	12	20
27.	Central Sulawesi	0	0	0	4	5	4	7	5	10	8	8
	T o t a l	156	113	144	288	273	443	472	379	341	383	396

Source: BPSB

LIST OF VARIETIES OF REGULATED SEED
AND CERTIFICATION BY BPSB

	Kind	Varieties	Year of establish	Varieties	Year of establish
	1	2	3	4	5
I.	Paddy	PB5	1971	C4-63	1971
		Pelita I/1	1971	Pelita I/2	1971
		PB 20	1974	PB 26	1976
		PB 28	1976	PB 30	1976
		PB 36	1976	Gata	1976
		Gati	1976	Adil	1976
		Makmur	1976	Gemar	1976
		Semeru	1980	Cisadane	1980
		Cimandiri	1980	Ayung	1980
		PB 42	1980	PB 50	1982
		PB 52	1982	PB 54	1982
		Cipunagara	1982	Barito	1982
		Krueng Aceh	1982	Batang Agam	1982
		Atomita I	1983	PB 56	1983
		Sentani	1983	Mahakam	1983
		Atomita II	1983	Bahbolon	1983
		Tondano	1983	Klara	1984
		Bogowonto	1984	IR-46	1984
		Citanduy	1984	Porong	1984
		Singkarak	1984	Batang Ombilin	1984
		Kapuas	1984	Ranau	1984
		Arias	1984	Cikapundung	1984
		Cisokan	1985	Progo	1985
		Cimanuk	1985	Bah Butong	1985
		Tuntang	1985	Batang Pane	1985
II.	Soybean	Orba	1984	No. 29	1984
		Galunggung	1984	Wilis	1984
		Lokon	1984	Guntur	1984
		Kerinci	1985	Dempo	1985
III.	Mungbean	No. 129	1984	Merak	1984
		Bakti	1984	Nuri	1984
		Manyar	1984	Betet	1984
		Walet	1985	Gelatik	1985
IV.	Peanut	Gajah	1984	Banteng	1984
		Kidang	1984	Rusa	1984
		Anoa	1984	Tupai	1984
		Planduk	1984	Tapir	1984
V.	Maize	Bromo	1980	Arjuna	1980
		Harapan Baru	1983	Parikesit	1983
		Hibrida C-1	1984	Hibrida Pioneer-1	1985
		Hibrida CPI-1	1985		
VI.	Citrus	-	1980		
VII.	Tomato	Ratih	1980	Barlian	1984
		Ratna	1984	Intan	1984

1	2	3	4	5
VIII.	Potato	Cipanas	1984	Cosima	1984
IX.	Onion	Bima	1984	Brebes	1984
		Medan	1984	Keling	1984
		Maja Cipanas	1984		
X.	Garlic	Lumbu Hijau	1985	Lumbu Kuning	1985
XI.	Spinach	Giti Hijau	1984	Giti Merah	1984

Source: BPSB

INSPECTION AND CERTIFICATION OF SEED BY BPSB

(TON)

Year	Seed class				Total
	FS	SS	ES	LMJ *)	
Paddy					
1971 / 1972	-	43.882	441.444	-	485.326
1972 / 1973	-	-	693.200	-	693.200
1973 / 1974	-	-	166.661	-	166.661
1974 / 1975	26.623	133.032	2,328.505	-	2,488.160
1975 / 1976	33.960	273.258	1,464.627	-	1,771.845
1976 / 1977	29.497	625.451	3,377.917	-	4,032.865
1977 / 1978	26.088	203.378	3,492.839	956.033	4,678.338
1978 / 1979	32.186	418.847	2,653.675	1,662.739	4,767.447
1979 / 1980	42.799	926.879	7,357.872	901.657	9,229.207
1980 / 1981	104.010	1,067.413	9,230.232	1,642.103	12,043.758
1981 / 1982	94.065	1,859.725	12,867.942	780.884	15,602.616
1982 / 1983	184.163	2,251.663	15,749.148	151.455	18,336.429
1983 / 1984	136.742	2,791.619	18,451.264	3,524.951	24,904.576
1984 / 1985	159.354	2,815.265	24,572.645	5,457.009	33,004.273
Total:	869.487	13,410.412	102,847.970	15,076.831	132,204.701
Maize					
1982 / 1983	2.186	-	-	-	2.186
1983 / 1984	84.567	47.774	118.062	35.163	285.566
1984 / 1985	45.869	47.425	2,510.722	233.816	2,837.832
Total:	132.622	95.199	2,628.784	268.979	3,125.584
Soybean					
1983 / 1984	-	-	-	237.158	237.158
1984 / 1985	9.574	1.950	6.510	423.615	441.649
Total:	9.574	1.950	6.510	660.773	678.807
Peanut					
1983 / 1984	-	-	-	3.525	3.525
1984 / 1985	2.044	1.100	4.807	31.051	39.002
Total:	2.044	1.100	4.807	34.576	42.527
Mungbean					
1983 / 1984	-	-	-	6.658	6.658
1984 / 1985	1.511	1.380	-	29.575	32.466
Total:	1.511	1.380	-	36.233	39.124
Vegetable					
1984 / 1985	0.044	-	-	49.300	49.344

*) LMJ: Pink Lable

Source: BPSB

NUMBER OF SEED PRODUCER AND
SEED MERCHANT

No.	Year	Inventory			Registered
		Producer	Merchant	Total	
1.	1975 / 1976	141	71	212	37
2.	1976 / 1977	2,474	378	2,862	128
3.	1977 / 1978	1,225	478	1,703	189
4.	1978 / 1979	1,255	530	1,785	438
5.	1979 / 1980	1,180	546	1,726	132
6.	1980 / 1981	1,313	493	1,806	930
7.	1981 / 1982	1,084	787	1,871	489
8.	1982 / 1983	1,025	1,166	2,191	966
9.	1983 / 1984	1,547	1,355	2,902	1,163
	- Paddy	: 1,041	: 1,148	: 2,189	
	- Secondary crops	: 152	: 99	: 251	
	- Horticulture	: 354	: 108	: 462	
10.	1984 / 1985	1,274	1,303	2,577	1,439
	- Paddy	: 786	: 1,102	: 1,888	
	- Secondary crops	: 118	: 58	: 176	
	- Horticulture	: 370	: 143	: 513	

Source: BPSB

MARKETING CONTROL ON PADDY BY BPSB
1976/1977 - 1984/1985

(TON)

No.	Year	Quantity of cheked seed	label			
			true		false	
1.	1976 / 1977	567.675	501.589	(88.4%)	66.086	(11.6%)
2.	1977 / 1978	6,733.518	4,430.382	(65.8%)	2,303.136	(34.2%)
3.	1978 / 1979	4,936.850	3,861.841	(78.2%)	1,075.009	(21.8%)
4.	1979 / 1980	2,912.854	1,705.184	(58.5%)	1,207.670	(41.5%)
5.	1980 / 1981	2,454.860	1,485.110	(60.5%)	969.750	(39.5%)
6.	1981 / 1982	2,115.755	1,462.722	(69.1%)	286.432	(30.0%)
7.	1982 / 1983	10,080.113	7,012.421	(69.6%)	3,067.692	(30.4%)
8.	1983 / 1984	4,279.919	2,558.330	(59.8%)	1,721.589	(40.2%)
9.	1984 / 1985	7,010.579	3,595.055	(51.3%)	3,415.524	(48.7%)
	T o t a l	41,092.123	26,612.634		14,112.888	

Source: BPSB

MARKETING CONTROL ON SECONDARY AND HORTICULTURAL CROPS BY BPSB
1979/1980 - 1984/1985

(TON)

No.	Year	Quantity of checked seed	Result			
			on standard		off standard	
1	2	3	4		5	
	Maize					
1.	1979 / 1980	237.615	233.715	(98.4%)	3.900	(1.6%)
2.	1980 / 1981	859.190	812.450	(94.6%)	46.740	(5.4%)
3.	1981 / 1982	683.545	677.265	(99.1%)	6.280	(0.9%)
4.	1982 / 1983	970.076	866.678	(89.3%)	103.398	(10.7%)
5.	1983 / 1984	1,799.196	1,413.970	(78.6%)	385.226	(21.4%)
6.	1984 / 1985	1,059.927	897.076	(84.6%)	162.851	(15.4%)
	Total:	5,609.549	4,901.154		708.395	
	Soybean					
1.	1979 / 1980	316.147	271.442	(85.9%)	44.705	(14.1%)
2.	1980 / 1981	401.580	329.060	(81.9%)	72.520	(18.1%)
3.	1981 / 1982	258.933	223.063	(86.1%)	35.870	(13.9%)
4.	1982 / 1983	671.305	233.448	(34.8%)	437.857	(65.2%)
5.	1983 / 1984	1,707.396	1,259.749	(73.8%)	447.647	(26.2%)
6.	1984 / 1985	1,009.885	662.525	(65.6%)	347.360	(34.4%)
	Total:	4,365.246	2,979.287		1,385.959	
	Peanut					
1.	1979 / 1980	180.345	176.830	(98.1%)	3.515	(1.9%)
2.	1980 / 1981	338.650	193.820	(57.2%)	144.830	(42.8%)
3.	1981 / 1982	72.107	59.807	(82.9%)	12.300	(17.1%)
4.	1982 / 1983	133.117	117.782	(88.5%)	15.335	(11.5%)
5.	1983 / 1984	659.443	605.930	(91.9%)	53.513	(8.1%)
6.	1984 / 1985	447.451	310.331	(69.4%)	137.120	(30.6%)
	Total:	1,831.113	1,464.500		366.613	

1	2	3	4		5	
	Mungbean					
1.	1982 / 1983	51.455	51.440	(99.9%)	0.015	(0.1%)
2.	1983 / 1984	78.474	72.974	(93.0%)	5.500	(7.0%)
3.	1984 / 1985	8.190	7.425	(90.7%)	0.765	(9.3%)
	Total:	390.329	363.130		27.199	
	Horticulture					
1.	1979 / 1980	3.574	2.714		0.860	
2.	1980 / 1981	5.685	4.804		0.881	
3.	1981 / 1982	41.899	30.018		11.881	
4.	1982 / 1983	5.257	3.524		1.733	
5.	1983 / 1984	1.079	0.745		0.334	
6.	1984 / 1985	18.490	7.248		11.242	
	Total	75.984	49.053		26.931	

Source: BPSB

BPSB MONITORED SEED DISTRIBUTION
1976/1977 - 1984/1985

(TON)

No.	Year	Label		Without label	Total
		Certified	Non Certified		
	Paddy				
1.	1976 / 1977	-	18,825.425	6,598.622	25,424.047
2.	1977 / 1978	-	27,630.056	9,591.454	37,221.510
3.	1978 / 1979	-	27,716.515	18,336.683	46,053.198
4.	1979 / 1980	6,565.195	24,166.696	14,756.632	45,488.523
5.	1980 / 1981	9,082.967	50,711.853	4,040.350	63,765.170
6.	1981 / 1982	11,735.596	16,204.739	34,371.658	62,311.993
7.	1982 / 1983	10,421.718	23,180.782	12,768.750	46,371.250
8.	1983 / 1984	27,082.942	14,405.678	20,883.830	62,372.450
9.	1984 / 1985	31,947.621	11,990.378	-	43,937.999
	Total:	96,766.039	214,832.120	121,347.970	432,946.120
	Secondary Crops *)				
1.	1983 / 1984	186.083	1,475.052	-	1,661.135 *)
2.	1984 / 1985	308.907	1,037.268	-	1,346.175 *)
	Total:	494.990	2,512.320	-	3,007.310
	Horticulture **)				
1.	1984 / 1985	-	41.182	-	41.182
			575,228 batang	-	575,226 btg **)

*) : Consist of seed Maize, Soybean, Peanut, and Mungbean

**): Consist of seedling Citrus, Manggo, Rambutan etc.

Source: BPSB

BPSB SEED TESTING REALIZATION
1974/1975 - 1984/1985

No.	Year	Purpose of test				Total
		Certification	labelization	quality control	Services	
1.	1974 / 1975	391	-	119	382	892
2.	1975 / 1976	765	-	207	1,060	2,032
3.	1976 / 1977	2,356	-	1,781	9,081	13,218
4.	1977 / 1978	2,158	-	4,311	29,690	36,159
5.	1978 / 1979	4,562	360	4,849	32,932	42,703
10.	1979 / 1980	4,414	6,691	4,196	13,950	29,251
11.	1980 / 1981	7,491	12,151	3,485	23,617	46,744
12.	1981 / 1982	8,942	11,137	3,177	25,444	48,700
13.	1982 / 1983	9,338	9,197	5,532	28,774	52,841
14.	1983 / 1984	14,779	10,404	8,817	33,875	67,875
15.	1984 / 1985	20,029	11,457	10,453	54,056	95,995
	Total	75,225	61,397	46,927	252,861	436,410

Source: BPSB

Form for Seed Certification I

No : . . . . . x)
Planting season : . . . . . .
Signature: . . . . . .

Dear:

Mr. . . . . .

at

. . . . . .

Application of Seed Certification

No. . . . . .

Name of applicant : . . . . . .
Address : . . . . . .
Certification for
Planting area : . . . . . Planting date : . . . . . .
Kinds of crop : . . . . . Planting date : . . . . . .
Seed class : . . . . . Variety : . . . . . .
Address xx)
Block : . . . . . .
Village : . . . . . .
Sub district : . . . . . District : . . . . . .
Previous crop :
Kinds of crop : . . . . . Variety : . . . . . .
Harvested date : . . . . . Seed class : . . . . . .
Field inspection : Pass/Not pass xxx) Certification : Yes/No xxx)
Seed origin
Seed source : . . . . . Seed amount : . . . . Kg.
Seed class : . . . . . .
No. of Seed lot (attachment: remark/label of source of seed)

We realize that:

Our crop will not be accepted for certification if the indicators for certification are not followed and the crop cleaned from other crop/variety in order to meet the field standard.

We have to inform the Seed Inspector for field inspection at the latest 7 days before the inspection is carried out.

We are not allowed to change the crop location without informing the Seed Inspector.

The guidance of the Seed Inspector must be obtained in the management of the Seed.

The certificate will be given after having passed the field inspection and test in the laboratory.

The government has no obligation to buy the certified seed.

. . . . . .

Applicant

. . . . . .

Original :

Duplicate :

Triplicate:

x) To be filled by Seed Controller.

xx) Attach Field Map

xxx) Cancel where irrelevant

Form for Seed Certification II

No. : . . . . . .
Planting season : . . . . . .

REPORT OF FIELD INSPECTION

Name of Seed grower : . . . . . .
Address : . . . . . .

Location

Block : . . . . . .
Village : . . . . . .
Sub-district : . . . . . District : . . . . . .

Seed used

Seed sourse : . . . . . .
Variety : . . . . . Seed class : . . . . . .
No. of seed lot : . . . . . .

Planting detail

Kind of crop : . . . . . Variety : . . . . . .
Planting date (Broad-casting date) : . . . . . Size : . . . . . ha.
Planting date : . . . . . Seed class : . . . . . .

Field history

Planting area : . . . . . Variety : . . . . . .
Seed class[x] : . . . . . Fallow : . . . . season/month

Isolation

West : . . . . . North : . . . . . .
East : . . . . . South : . . . . . .
Result : Fulfill/Does not fulfill the condition for areal certification[xx]
Note : . . . . . .
. . . . . .
. . . . . .

. . . . . .

Applicant

. . . . . .

Seed Inspector

. . . . . .

Original :
Duplicate :
Triplicate:

x) last field inspection only
xx) cancell where irrelevant

Form for Seed Certification III

No. : . . . . . .
Planting season : . . . . . .

REPORT OF FIELD INSPECTION . . . . . .

1. Name of seed grower : . . . . . .
   Address : . . . . . .
2. Location
   Block : . . . . . .
   Village : . . . . . .
   Sub-district : . . . . . District : . . . . . .
3. Kinds of crop : . . . . . Variety : . . . . . .
   Planting area : . . . . . ha. Planting date : . . . . . .
   Seed class that will produced : . . . . . .
4. Inspection Result
   Previous crop : . . . . . .
   Isolation : North : . . . . . East : . . . . . .
   South : . . . . . West : . . . . . .
   Crop characteristics suitable with its variety : Yes/No x)
   Pest disease condition: . . . . . .
   Level of purity in the field: . . . . . .
   Planting population per inspection sample : . . . . . tillers/hill

Others varieties mixing off types		Explanation
Sample :		
1 =	7 =	
2 =	8 =	
3 =	9 =	
4 =	10 =	
5 =	11 =	
6 =	12 =	
Average :	%	

Condition : . . . . . .
Valuation of produce: . . . . . ton/ha.

5. Result : PASSED NOT PASSED

. . . . . .

Applicant Seed Inspector

. . . . . .

Original :

Duplicate :

Triplicate:

x) Cancell where irrelevant

Form for Seed Certification IV

No. : . . . . . .
Planting season : . . . . . .

REPORT OF PEST/DISEASE

Name of seed grower : . . . . . .
Address : . . . . . .
Location
Block : . . . . . .
Village : . . . . . .
Sub-district : . . . . . District : . . . . .
Kinds of crop : . . . . . Variety : . . . . .
Planting area : . . . . . ha. Planting date : . . . . .
Seed class : . . . . . .
Inspection result :

	Pest/Disease					
	. . . . .	. . . . .	. . . . .	. . . .	. . . .	. . . .
Sample:						
1=	. . . . .	. . . . .	. . . . .	. . . .	. . . .	. . . .
2=	. . . . .	. . . . .	. . . . .	. . . .	. . . .	. . . .
3=	. . . . .	. . . . .	. . . . .	. . . .	. . . .	. . . .
4=	. . . . .	. . . . .	. . . . .	. . . .	. . . .	. . . .
5=	. . . . .	. . . . .	. . . . .	. . . .	. . . .	. . . .
6=	. . . . .	. . . . .	. . . . .	. . . .	. . . .	. . . .
7=	. . . . .	. . . . .	. . . . .	. . . .	. . . .	. . . .
8=	. . . . .	. . . . .	. . . . .	. . . .	. . . .	. . . .
9=	. . . . .	. . . . .	. . . . .	. . . .	. . . .	. . . .
10=	. . . . .	. . . . .	. . . . .	. . . .	. . . .	. . . .
11=	. . . . .	. . . . .	. . . . .	. . . .	. . . .	. . . .
12=	. . . . .	. . . . .	. . . . .	. . . .	. . . .	. . . .
Average						
	. . . . .%	. . . . .%	. . . . .%	. . . .%	. . . .%	. . . .%

Explanation : . . . . . .
. . . . . .

. . . . . .

Applicant

. . . . . .

Seed Inspector

. . . . . .

Original :
Duplicate :
Triplicate :
Quadruplicate:

Form for Seed Certification V

No. : . . . . . .
Planting season : . . . . . .

SEED SAMPLES FOR LAB. INSPECTION
(CERTIFICATION)

Name : . . . . . .
Address : . . . . . .
Kinds of crop : . . . . . .
Harvest Date : . . . . . .
Seed class : . . . . . .
Seed group : . . . . . .
Field origin : . . . . . .
Seed amount : . . . . . tray, ...ton.
Seed weight : . . . . . kg.
Transportation route : from . . . . . to . . . . . .
Management of seed by : . . . . . .
at : . . . . . .
Taking of seed sample
at : . . . . . .
Date : . . . . . .
From whom : . . . . . .
Address : . . . . . .
Testing required : ☐ Moisture Contents
☐ Purity
☐ Amount of other seed variety
☐ Growth potential
☐ Uniformity
☐ Seed health

Seed Producer,

. . . . . .

Sample Taker,

. . . . . .

Mark V each item when applicable

Form for Seed Certification VI

No. : . . . . . .
Planting season : . . . . . .

SEED SAMPLES FOR LAB. INSPECTION
(CERTIFICATION)

Testing required :

- ☐ Moisture Contents
- ☐ Purity
- ☐ Amount of other seed variety
- ☐ Growth Potential
- ☐ Uniformity
- ☐ Seed health

Date of sample taking : . . . . . .
Kinds of seed : . . . . . .
Harvest date : . . . . . .
Seed class : . . . . . .
Seed weight : . . . . . Kg.
Note : . . . . . .
. . . . . .
. . . . . .

. . . . . .

Sample Sender,

. . . . . .

Mark V each item when applicable

Form for Seed Certification VII

No. : . . . . . .
Planting season : . . . . . .

COMPLETE REPORT OF SEED INSPECTION RESULT FOR CERTIFICATION

Name of producer: . . . . . No. Laboratory : . . . . . .
Address : . . . . . No. of seed group : . . . . . .
. . . . . Class of seed : . . . . . .
Kinds of crop : . . . . . Harvest date : . . . . . .
Variety : . . . . . Date of receiving sample: . . . . . .
Seed amount : . . . . . Date of completion of test: . . . . . .
Date of Report : . . . . . .

"Fulfill field conditions based on field inspection report."
No.: . . . . . .

Result of Laboratory Test

Moisture Contents	: . . . . . %	Seed with different colour	: . . . . %
Pure seeds	: . . . . . %	Germination Rate	: . . . . %
Other variety of seed	: . . . . . %	Seed class	: . . . . %
Seed Dirt	: . . . . . %	Disease	: . . . . %
Other crop seed		. . . . .	: . . . . %
and weed seeds	:	. . . . .	: . . . . %

Fulfill / Does not fulfill condition of certificate x)
Color of : . . . . . .
Regarded / Not regarded as certificate up to this date: . . . . . .
Note : In related matters with this report please attach report number.

. . . . . .

. . . . . .

Original :
Duplicate :
Triplicate :
Quadruplicate:

x) cancell where irrelevant.

Soybean Seed Certification Manual of BPSB

1. Land requirement for certification
   Land which will be used for seed production, on the last season must be fallow or ex other crop or the land is ex soybean which is the same variety and if the land is ex soybean with another variety it must be rested during 3 months.

2. Isolation
   a) Seed production field which will be inspected for seed certification must be separated from soybean with another variety at least 8 m.

   b) If there is two different variety and their plot side by side; the planting time will be arranged so the time of flowering is different at least 15 days. By the way crossing will not happen.

3. Announcement for field inspection
   Announcement for field inspection must be informed the SCCS at least one week before inspection.

4. Crop maintenance before field inspection
   a) On the vegetative stage with the age of plant $\pm$ 12 days, the field crops must be cleaned from weeds and conducted roguing for other varieties and off type before the first field inspection have been done.

   b) In the time of flowerings are being started; so the roguing must be done before the second field inspection.

   c) Roguing must be also done after the first and second field inspection, if on the inspections the field crops do not fulfill the field standard.
   If on the field inspection repeatedly, the field crops do not fulfill the field standard, so the certification process is not continued.

   d) The points which will be observed in the roguing time are the uniformity of hypocotyl colour, flower colour, and hair of stem.

5. Equipment cleaning
   Planter, cart, harvesting tools, silo and others supply which will be used in the seed multiplication must clean and free from the possibility of mixing with others varieties.

6. Checking of processing equipment
   Seed which will be certified must be processed with the tools or equipments which is checked and approved by SCCS about its cleanliness.

7. Seed sample for testing
   a) Seed sample which is representative for seed testing will be taken from every seed lot which have been finished processed for certification.
   b) Seed sample which is taken from the bulk of seed before processing, it can be allowed for germination test only.
   c) Seed inspector will take official seed sample by requesting of seed producer.

8. Taking of seed sample
   a) Seed lot
      1) Every seed lot not more than 20 tons.
      2) Bowls or containers of every group must be heaped up in one formation so the number of them can be easy counted and easy to take the seed sample.
   b) Taking of seed sample
      1) Taking of seed sample is done agreed with manual which is issued by the Sub Directorate of SCCS.
      2) From every seed lot must be taken at least 1,000 grams.

9. Labelling
   Period of label is valid will be let maximum for 3 months after harvesting. During the period of label is valid should be tested again for checking.

10. Standard

a) Field Standard

Seed class	Isolation distance	Other variety and off type (max.) %
Foundation seed	8 meter	0.1
Stock seed	8 meter	0.2
Extension seed		
- with blue label	8 meter	0.5
- with green label (ES_1 - ES_4)	8 meter	0.7

b) Laboratory testing standard

Seed class	Moisture content (max) %	True seed (min) %	Foreign material (max) %	Other varieties (max) %	Germination (min) %
Foundation seed	11.0	98.0	2.0	0.1	80.0
Stock seed	11.0	98.0	2.0	0.2	80.0
Extension seed with blue label	11.0	97.0	3.0	0.5	80.0
Extension seed with green label ES_1 - ES_4	11.0	97.0	3.0	0.7	70.0

Seed Potato Certification Manual of BPSB

1. Land requirement for certification
   Land which will be used for seed production, on the last season must be fallow or ex other crop and if the land is ex potatoes or tomato it will be rested during 1 year.

2. Isolation distance
   Seed production area must have the distance to the other potatoes plant at least 350 m.

3. Announcement for field inspection
   Announcement for field inspection must be informed the SCCS at least one week before field inspection.

4. Crop maintenance before field inspection
   During growing stage in the field, the crop should be cleaned from weeds and conducted roguing continuously from infected crop, off type, and others varicty.
   The points must be considered in the time of roguing are uniformity of crop growing type; shape of leaf; size of leaf; colour of stem; colour of leaf; colour of flower; colour of tuber and health of crop.

5. Equipment cleaning
   Planter, seed bowl, harvester equipment and others equipment which will be used in seed production must be clean and free from the possibility of disease and variety mixed.

6. Checking of processing equipment
   Seed which will be certified must be processed with the tools or equipments which is checked and approved by SCCS, about its cleanliness.

7. Selection and grading of tuber in warehouse
   After tubers have been stored in warehouse should be graded based on the tuber size as follows:
   a) 30 - 45 grams/tuber or diameter 35 - 44 mm
   b) 45 - 60 grams/tuber or diameter 45 - 55 mm
   c) 60 - 80 grams/tuber, especially for variety which has big tubers.

8. Seed sample for testing
   a) Seed sample which is representative for doing of tuber test at laboratory will be taken from every seed lot which have been finished processing for certification.
   b) Seed inspector will take the official seed sample after requesting of producer.

9. Taking of seed sample
   a) Seed lot
      1) Every seed lot not more than 20 ton.
      2) Bowls or containers of every seed group must be heaped up in one formation so the number of them can be easy counted and easy to take the seed sample.
   b) Taking of seed sample
      1) Taking of seed sample is done agreed with manual which is issued by the Sub Directorate of SCCS.
      2) From every seed lot must be taken at least 5 kg.

10. Labelling
    Period of label is valid will be let maximum for 6 months after harvesting. During the period of label is valid should be tested again for checking.

11. Standard
    a) Field Standard

	Foundation Seed	Stock Seed	Extension Seed
1. Minimum isolation distance(m)	350	350	350
2. Other varieties and off types (Maximum)	0.0%	0.5%	1.0%
3. Diseases (maximum)			
- Phytopthora infestas	1.0%	3.0%	5.0%
- Xanthomonas Solanacearum	1.0%	2.0%	3.0%
- Black leght	0.5%	0.5%	1.0%
- Ring rot	0.0%	0.0%	0.1%
- Nematode	0.5%	1.0%	1.0%
- Virus (leaf roll , X, Y)	0.5%	0.5%	1.0%

b) Laboratory Standard

Checking in laboratory is emphasized on the Seed health; while standard and kinds of diseases which is inspected, same with the field standard as mentioned.

DECREE OF THE PRESIDENT OF THE REPUBLIC OF INDONESIA
NO.: 72 YEAR 1971

CONCERNING
THE GUINDANCE, AND REGULATION OF SEED MARKETING AND THE CERTIFICATION OF SEED

THE PRESIDENT OF THE REPUBLIC OF INDONESIA

CONSIDERING: a. That within the framework of maintaining and in the efforts to increase agricultural production, seed plays a very important role, and therefore steps are required to insure the provision of seed of high quality regular and continually.

b. That to achieve the objective as refered to in paragraph a it is necessary to prescribe regulations concerning guidance, the control of seed marketing and the certification of seed.

IN VIEW OF : 1. Article 4 paragraph (1) of the constitution of 1945;
2. Law Number 2 Year 1961 (state gazette of the Republic of Indonesia Year 1961 Number 9, supplement to state gazette of the Republic of Indonesia Number 2147);
3. Presidential Decree Number 319 Year 1968;
4. Presidential Decree Number 27 Year 1971.

HEREBY DECIDES:

TO STIPULATE: DECREE OF THE PRESIDENT OF THE REPUBLIC OF INDONESIA CONCERNING THE GUIDANCE, AND REGULATION OF SEED MARKETING AND THE CERTIFICATION OF SEED.

CHAPTER I
GENERAL TERMS AND DEFINITIONS

Article 1

In this Presidential Decision, the meaning of terms used shall be as follows:

a. "Seed" means the seed used for sowing of crops and includes also vegetative parts and/or organs used for propagating same.
b. "Agriculture" includes all activities in the cultivation, production and marketing of crops.
c. "Minister" means the Minister of Agriculture.
d. "Seed Marketing" refers to the transport, distribution and sale of seed and includes storage of seed in transit and at the market place.
e. "Certification of Seed" means the certification in such forms as may be prescribed that the multiplication, production, and distribution of seed lot was in accordance with the procedures, regulations and standards promulgated by the Department of Agriculture.
f. "Import or Importation" means bringing in to Indonesia seed from a place outside Indonesia.
g. "Kind" means one or more related species or subspecies which singly or collectively is known by one common name; for example paddy, corn, cabbage, orange.
h. "Variety" means a subdivision or kind which is characterized by plant, growth, flower, fruit, seed, or other characterized by which it can be differentiated, from other sorts of the same kind.
i. "Registration" means the official listing of persons, firms, or agencies involved in seed marketing.
j. "Label" means the display of written, printed or graphic information on seed quality and source affixed to or accompanying any seed lot whether in bulk or in containers.
k. "Seed Lot" or "Lot of Seed" means a definite quantity of seed every portion or container of which is uniform for the quality factors represented on the label within permitted tolerances.

1. "Seed Produser" means any person or corporation engaged in the production of seed for marketing and sowing purposes.

CHAPTER II
REGULATION OF THE GUIDANCE AND SEED MARKETING

Article 2

The Minister (of Agriculture) is here by empoweres to regulate the guidance, the marketing and seed control of specific kinds and/or varieties of seed, in certain provinces of Indonesia or subdivisions therefore including.

a. Registration of distributors and marketing of seed the kinds and/or varieties, and in provinces or subdivisions there of, is stipulated under this Degree.
b. Requirements for the compulsory labelling of seed offered for sale as composition, quality and source of the seed.
c. Establishment of minimum quality standards for seed offered for sale, and minimum sizes of seed lots.
d. Procedures that must be followed by all persons and/or agencies engaged in marketing or seed controlled by this decree to obtain the information required for labelling of seed.
e. Such procedures and actions as are necessary for the effective implementations and enforcement of seed marketing regulations.

Article 3

1. To implement such authority prescribed under. Article 2, the Minister will obtain the advice of the National Seed Board promulgated under the Presidential Decree Number 27 year 1971.
2. The kinds and/or varieties of seed (crops) that are to be regulated, and the provinces or subdivisions of the country there of this Presidential Decree, will be determined by the Minister.

CHAPTER III
SEED CERTIFICATION

Article 4

1. The Minister is hereby empowered to regulated seed certification including:
   a. Adopt and prescribe administrative and technical regulations standards and procedure for seed certification.
   b. Determine the seed of crop kinds and/or varieties that are to be eligible for certification.
   c. Determine the provinces in the country or subdivisions there of in which the certification services is to be offered.
2. Establishing fees as may be necessary for services provided to seed procedures, is promulgated by the Minister.

CHAPTER IV
STANDARDS FOR IMPORTED SEED

Article 5

The Minister is hereby empowered to establish reasonable quality standard for imported seed, taking into account provisions as are already in effect under the plant Quarantine Regulations (Act No.2 year 1961).

Article 6

In establishing minimum quality standards for imported seed the Minister will consult with the National Seed Board and other related agencies as deemed necessary.

CHAPTER V
TRANSITIONAL PROVISION

Article 7

All matters not sufficiently covered in this Presidential Decision shall be determined by the Minister.

Article 8

This letter of Decision in force as from the date of enactment.

Enacted: in Jakarta
Date : 25 October 1971

THE PRESIDENT OF THE REPUBLIC
OF INDONESIA

(S O E H A R T O)

THE MINISTER OF AGRICULTURE'S DECREE
No.: 460/Kpts/Org/XI/1971

CONCERNING
THE IMPLEMENTATION OF THE PRESIDENTIAL
DECREE NUMBER 72 IN THE YEAR 1971

THE MINISTER OF AGRICULTURE,

CONSIDERING: That within the framework of implementing the provisions decree under the Presidential Decision Number 72 of the year 1971, it is necessary to prescribe regulations for the guidance, the control of seed marketing and certification of seed.

IN VIEW OF:
1. The Presidential Decision Number 183 of the year 1968;
2. The Presidential Decision Number 184 of the year 1968;
3. The Presidential Decision Number 27 of the year 1971;
4. The Presidential Decision Number 72 of the year 1971;
5. The Letter of Decision of the Minister of Agriculture Number 284/Kpts/Org/8/1969;
6. The Letter of Decision of the Minister of Agriculture Number 126/Kpts/Org/OP/4/1969;
7. The Letter of Decision of the Minister of Agriculture Number 174/Kpts/Org/4/1971.

HEREBY DECIDES

TO STIPULATE: The following provisions on the Guidance, regulation and control of seed marketing and the certification of seed.

CHAPTER 1
GENERAL TERM AND DEFINITIONS

Article 1

In this letter of Decision and annexes, unless otherwise specified, the meaning of terms used shall be as follows:

a. Hybrid means the first generation of seed produced by controlling the pollination and combination.

b. "Seed Producer" means any person, or corporation engaged in the production of seed for marketing and sowing purposes.

c. "Seed merchant" means any person, or corporation engaged in the marketing of seed.

d. "Regulated Seed" means the kind and/or varieties or crops, whose seed are declared as subject to marketing regulation and control pursuant to the provisions of this Decision.

e. "Origin" means the place, where the seed were produced.

f. "Treated" means that the seed have been given an application of substance or subjected to a process designed to destroy of repel certain desease organism, insects, or other pests attacking or infesting seed or seedlings grown therefrom to improve their planting value or to serve any other purpose.

g. "Records" means information which related to the origin, germination, varietal identity and purity of each lot of regulated seed sold, offered for sale or exposed for sale, and includes seed sold, offered for sale testing reports. Declaration or records pertaining to the seed, labels, sales, cleaning, blending, treating, and storage, and a representative sample of the seed.

h. "Minimum Standards" for seed marketing means the minimum standards of seed quality adopted for regulated seed pursuant to the provisions of this Decision.

i. "Breeder Seed", "Foundation Seed", "Stock Seed", and Extension Seed are as defined in Annex 3 to this Decision.

j. "Processing" of seed means all activities including drying, cleaning, treating and packaging and other operations where in seed are prepared for marketing.

k. "Pure Seed" means all seeds of the kind and variety or strain under consideration, whether shriveled, cracked or otherwise injured, and pieces of broken seeds large than one-half of the original size.

l. "Other Crop Seed" means the seed of all kinds or varieties of seed, which is not declared on the label or tag.

m. "Mixed seed" means seed consisting or more than one kind or variety, each in excess of 5 percent of the whole.

n. "Inert matter" means all matter not seed, and includes, among others, broken seeds, sterile florets, chaff, stones, etc.

o. "Weed Seed" means seed of all plants generally recognized as weeds.

p. "Germination" means the precentage of seeds capable of producing normal seedling under ordinarily favorable conditions.

q. "Hard seed" means the percentage of seed which, because of hardness or impermeability, do not absorb moisture or germinate under prescribed tests, but remain during the period prescribed for germination of the kind of seed concerned.

r. "Regulated Province/Subdivision" means province or subdivision thereof in which control and regulation of seed marketing will be exercised.

Article 2

The Minister after consultation with the National Seed Board will specify the kinds and/or varieties of regulated and the regulated provinces or subdivision, thereof.

CHAPTER II
GUIDANCE, CONTROL AND REGULATION OF SEED MARKETING.

Article 3

The Minister will carry out the guidance related to seed program, and activities related there to, especial on research extension, production, distribution and control.

Article 4

1. Every Seed Merchant shall be registered with the Seed Control and Certification Service.
2. Registration specified under Article 4, paragraph (1) consist of a listing of the name address of the seed merchant and the regulated seed merchandized.

Article 5

1. Each container of regulated seed to be merchandized offered for sale shall bear there of or have attached there to in a conspicuous place a plainly written or printed label or tag in Indonesia Language, giving the following informations:
   a. The commonly accepted name of kind and variety of the seed;
   b. Lot number or indentification mark;
   c. Origin (the place, where produced);
   d. Percentage (%) by weight of seed of the labelled kind and variety present in the lot this portion shall be known as the pure seed;
   e. Percentage (%) by weight of the seed of other varieties and/or kinds in the lot;
   f. Percentage (%) by weight of seed of weeds present in the lot;

g. Percentage (%) by weight of inert matter present in the lot;

h. Percentage (%) of germination by number if present;

i. The calendar month and year in which the test was completed to determine germination and/or hard seed percentage (%);

j. The name and address of the person, or corporation who labelled or sells, offers or exposes for sale such seed.

2. For seed treated with fungicides, insecticides, or other chemicals needs:

a. A statement on the seed label or separate label that the seed have been treated;

b. The commonly accepted name of the substance used in such treatment;

c. A clean caution statement if the substance used in treatment in the amount residual on the seed is harmful to human or other vertebrate animals; In addition, the accepted and easily understood symbol for a poisenous substance will be printed on the tag if the substance is very toxis, along with the words "DO NOT USE FOR FOOD OR FEED".

3. The seed label will be in the general form as indicated in the rules and regulations promulgated by the Seed Control and Certification Service.

Article 6

Each seed merchant handling regulated seed will maintain for 1(one) year a complete records of each seed lot handled and or merchandized, such records to include seed, testing report, declarations on information pertaining to the seed, labels and records of sale, cleaning, blending, treating, and storage and a representative sample of the seed.

Article 7

1. It shall be unlawful for any seed merchant to merchandized seed of any regulated kind and/or variety in regulated Provinces or subdivisions, thereof it.

   a. The seed merchant has not been registered in accordance with Article 4;

   b. The test to determine the percentage of germination and/or hard seed required under Article 5 (1) a. and Annex I of this Decree have been completed;

   c. The seed are not labeled in accordance with provision of Article 5;

   d. Having misleading lebeling;

   e. Misleading advertising;

   f. It does not conform, to the provision defined in Article 1.k. of the Presidential Decision Number 72 year 1971;

   g. The quality does not meet the minimum standards prescribed in Annex I of this Decree.

2. It shall be unlawful for any person within the regulated Province or subdivision thereof:

   a. To detach, alter, or destroy any provided for;

   b. To disseminate false advertisements;

   c. To sell any seed labeled as "Foundation Seed", or "Extension Seed" unless it has been produced in labeled in accordance with the prosedures and in compliance with the existing rules and regulations;

   d. To sell seed represented as hybrid unless such seed conforms to the definition of a hybrid as defined in Article 1.a of this Decree.

   e. To hinder or obstruct the authorized agent of the Seed Control and Certification Service in the performance of his duties to enforce the provisions of the existing rules and regulations;

f. To fail comply with a "stop sale" order for selling seed.

Article 8

Seed of regulated kinds and varieties shall be exempt from the provisions of this Decree when:

a. Produced by a farmer, or several farmers of a village for marketing and sale with in the village;

b. Marketed or sold for purposes other than seeding or sowing;

c. Transported to or be storaged for processing.

Article 9

1. For the purpose of carrying out the control of seed marketing and the certification of seed, the Minister or his designated staff will establish seed testing laboratory in central office in the province as an apparatus of the Seed Control and Certification Service
2. The information required for labeling of seed mentioned in this Decree must be determined by testing of seed that will be based upon seed test conducted at the seed laboratory above.

Article 10

1. The principal penalties for violations of the provisions of this Decree, Article 4, 5, 6, 7 and 9, shall be "Stop sale" orders which will prohibit sale of the lot of seed in violition for seeding or sowing purpose.
2. In the case of violations of stop sale orders by the only person, corporation, or seed merchant, the registration, required under Article 4 for marketing of regulated seed may be cancelled.

CHAPTER III
CERTIFICATION OF SEED

Article 11

1. The purpose of seed certification shall be to maintain and make available to the farmers, seed of supervisor crop varieties so multiplied, produced and distributed as to maintain a high decree of varietal purity and quality.
2. Certification of seed shall be service to seed producer/ growers and dealers.
3. Certification of seed be confirmed to superior varieties of crops listed on the list of varieties eligible for certification maintained by the National Seed Board and provinces in the country or subdivisions thereof, in which the certification service is to be offered.

Article 12

1. The Seed Control and Certification Service established pursuant to be terms and provisions of the letter of Decision of the Minister of Agriculture number 174/Kpts/4/ 1971 will be the official Seed certifying Agency in Indonesia, and no other agency, person, institution, or corporation in Indonesia will be permitted to certify seed.
2. Considering the existing rules and regulations, seed certification may recognized for imported seed.

Article 13

The rules, regulations of standards and procedures for certification of seed are as specified in Annex II/of this letter of Decision.

Article 14

1. Certification of seed shall not be compulsory for seed producers of other persons who handle and market of seed.
2. Seed producers or seed merchants may apply to the Seed Control and Certification Service for seed certification in accordance with the rules and regulation, specified by the Seed Control and Certification Service.
3. The certification of any lot of seed may be revoked if the Head of the Seed Control and Certification Service or his agents later determine that essential facts were misrepresented, or procedures were not complied with, during the certification process.
4. Certification seed of any class will conform to the provisions established in chapter II, Article 3, 4, 5, 6, 7, 8 and 9 of this Decision.

CHAPTER IV

TRANSITIONAL PROVISION AND EFFECTIVE DATA

Article 15

The Seed Control and Certification Service is hereby authorized to carry out the implementation and enforcement of the provisions this Decree.

Article 16

1. Detail duties of the Seed Control and Certification Section will be specified in Annex IV of this Decisions.
2. Detail duties mentioned in Paragraph (1) of this Article are subject to amendments by the Director General of Agriculture and as approved by the Minister.

Article 17

Enforcement of standards for imported seed will be the responsibility the Seed Control and Certification Service of the Directorate General of Agriculture.

Article 18

1. In case of disputes arising the implementation of any of the provision contained herein, the Minister has the right to decide, which is abiding.
2. All matters not sufficiently covered in this Letter of Decision shall be as interpreted and determined afterwards.

Article 19

This Letter of Decision is in force as from the date of enactment.

Enacted: in Jakarta
Date : November 2, 1971

MINISTER OF AGRICULTURE

(Prof. Dr. Ir. Tojid Hadiwidjaya)

ANNEX I

TO LETTER OF DECISION BY MINISTER OF AGRICULTURE
NUMBER: 460/Kpts/Org/XI/1971

The regulation and procedures for the control and the marketing of seed as may be designated under Article 7 Chapter II Letter of Decision of the Minister of Agriculture Number: 460/Kpts/Org/XI/1971 are as follows:

1. Sampling and Analyzing Seed
   The methods of taking, handling, analyzing and testing samples of seed and the tolerance and methods of determination shall be arranged further by the Seed Control and Certification Service and shall be no less stringent than those presently in use by the International Seed Testing Association (I.S.T.A.).

2. Germination Test Date
   No regulated seed shall be sold, exposed for sale or marketed when a period of more than six (6) callendar months has elapsed between the germination test date and the time the seed is offered or exposed for sale; as for vegetables and period is 9 (nine) months.

3. Minimum Standards for Regulation Seed
   No regulated seed shall be sold, exposed for sale or marketed that is lower in quality than the standards stipulate below:

a. Paddy	minimum % pure seed	95%
	minimum % germination	60%
	minimum % weed seed	2%
b. Corn	minimum % pure seed	95%
	minimum % germination	60%
	maximum % weed seed	2%
c. Horticultural Crops	minimum % pure seed	98%
	minimum % germination	75%
	maximum % weed seed	1%

4. Identification and size of samples

Seed samples submitted to the Seed Testing Laboratory shall be of at least the following size:

a. Paddy	1000 gram
b. Corn	1500 gram
c. Peanut	1000 gram
d. Soybean	1000 gram
e. Mungbean	1000 gram

5. Fees for Testing

Seed samples submitted to the Seed Testing Laboratory exclusive of samples taken by inspections in enforcement of seed marketing regulations shall be assessed fee for testing.

Plan to Supply the Equipment for Strengthening Inspection Function of BPSB

Equipment \ Province	Jambi	S. Sumatera	Bali	S. Sulawesi	Total
1. Motorcycle	1	4	3	4	12
2. 4WD vehicle	1	1	1	1	4
3. Screen house (150 m2)	1	1	1	1	4
4. Germinator	1	1	1	1	4
5. Precision scale	1	1	1	2	5
6. Double beam scale	1	1	-	2	4
7. Infrared grain moisture meter	1	1	1	1	4
8. Electric grain moisture meter	1	1	1	1	4
9. Handy-type grain moisture meter	1	3	2	3	9
10. Sieve set	1	2	1	2	6
11. Magnifier with lamp	1	3	2	3	9
12. Seed inspection board	1	3	2	3	9
13. Auto seed counter	1	1	1	1	4
14. Grain micrometer	1	3	2	3	9
15. Double grain trier	1	3	2	3	9
Estimated Cost (X1,000 Yen)	20,158	22,312	21,348	23,110	86,928

APPENDIX E

AGRICULTURAL QUARANTINE OFFICE

LIST OF AGRICULTURAL QUARANTINE OFFICE

Name	Address
1. Central Office	Jl. Salemba Raya 16 Jakarta Telp. 881596, 881130 Tromol Pos 352
2. Medan Office	Jl. Karya Yasa Gedong Johor Telp.514246, Medan
Belawan (a)	Jl. Sulawesi 11 - Belawan, Sumut
Polonia (b)	d/a. Pelabuhan Udara Polonia P.O.Box 449 Telp.326974, Medan
Sabang (b)	Jl. Malahayati No.2 Telp.21203, Sabang
Kureng Raya (b)	Jl. T. Nyak Arief Km. 3,5 Lingke P.O.Box 36 Telp.23201, Banda Aceh
Teluk Bayur (a)	Jl. St. Syahrir No.348, Padang
Pel. Sungai Pekanbaru (a)	Jl. Patimura 10 Telp.22171, Pekanbaru
Pel. Laut Tanjung Pinang (b)	Jl. Samudra Pelabuhan 1 Tanjung Pinang
3. Palembang Office	Jl. Kol. H. Barlian Km. 6 Telp.25990 Kotak Pos 255 PALEMBANG
Boom Baru (a)	Jl. Perintis Kemerdekaan No.11 Boom Baru Telp.23361, Kotak Pos 255
Pangkal Pinang (b)	Jl. Komodor Yos Sudarso no.133 P.O.Box 55 Pangkal Pinang
Pel. Laut Tanjung Pandan (b)	Jl. Pel. Laut Tanjung Pandan Belitung
Pel. Sungai Jambi (b)	Jl. Sultan Taha (Tanah Timbun) Telp.24730 Jambi
Panjang (a)	Jl. Jawa 3, Pel. Laut Panjang Telp. 31305, Panjang
4. Jakarta Office	Jl. Pemuda No.64 Telp. 484877, Jakarta
Tanjung Priok (a)	Jl. Banda Telp. 491511 Tanjung Priok, Jakarta
Pasar Ikan (b)	Jl. Baruna Pel. Sunda Kelapa, Jakarta Utara
Cirebon (b)	Jl. Maluku 1 P.O.Box 81 Telp.2946, Cirebon
Halim Perdanakusuma (a)	Pel. Udara Internasional Halim Perdanakusuma Telp.801108, Jakarta ext. 355
Bogor. (b)	Jl. Sambu No.1 Telp. 23379, Bogor
Pel. Laut Semarang (a)	Jl. Benoa 1 Komplek Pelabuhan Telp.024 20940 Semarang
Cilacap (b)	Jl. Selat Madura 3 Telp.21920, Cilacap
Pel. Laut Pontianak (a)	Jl. Pelabuhan P.O.Box 44 Telp.2995, Pontianak
Banjarmasin (b)	d/a Pel. Laut Trisakti P.O.Box 50 Telp.3980 Banjarmasin
5. Surabaya Office	Jl. Letjen. Suprapto, Kepuh Kiriman Waru Tromol Pos 12 Waru, Telp.818589, Surabaya
Tanjung Perak (a)	Jl. Prapat Kurung Utara No.6 Kotak Pos 182 Telp.291273, Surabaya
Ngurah Rai (b)	Jl. Tolotio 3 Ngurai Rai Air Port Telp.5061-161 P.O.Box 1006, Denpasar
Singaraja (b)	Jl. Pel. Laut Buleleng Telp.961 Singaraja
Tenau (b)	Jl. Yos Sudarso Pel. Tenau No.21 Telp.21311 P.O.Box 4 Kupang
Mataram (b)	Jl. Suprapto 23, P.O.Box 30 Telp.22730, Ampenan-Mataram
Pel. Sungai Samarinda (a)	Jl. Kebaktian P.O.Box 92 Telp.1164, Samarinda
Balikpapan (b)	Jl. Achmad Yani Telp.22560, Balikpapan
Pel. Laut Tarakan (b)	Jl. Yos Sudarso Pel. Lungkas Telp.214, Tarakan
6. Ujungpandang Office	Jl. Kapasa Raya 21, Km. 14 Daya Kotak Pos 360, Telp.3318, Ujungpandang
Pel. Laut Ujungpandang (a)	Jl. G. Bawakaraeng Karuwisi Telp.22542 Upg.
Pel. Laut Ambon (b)	Jl. Karang Panjang P.O.Box 2 Telp.92 Ambon
Pel. Laut Bitung (a)	Jl. Jakarta, Kompl. Pelabuhan, Bitung
Pel. Laut Jayapura (a)	d/a Dinas Pertanian Rakyat DOK 11, Jayapura

Remarks:

(a) Station

(b) Sub-station

THE LETTER OF DECISION OF THE MINISTER OF AGRICULTURE
No.: 431/Kpts/Um/7/1977

CONCERNING

CONDITIONS AND ENTERING PERMIT OF SEED TO THE TERRITORY OF THE REPUBLIC OF INDONESIA

THE MINISTER OF AGRICULTURE

CONSIDERING: with the implementation of provision for entering seed to the territory of the Republic of Indonesia, it is necessary to issue the Regulations for entering procedures.

IN VIEW OF :
1. The Act No.: 2 the year of 1961 (copy of Indonesian Republic the year of 1961 No.: 9)
2. The Presidential Decision of Republic of Indonesia No.: 27 the year of 1971
3. The Presidential Decision of Republic of Indonesia No.: 72 the year of 1971
4. The Regulation of Minister of Agriculture No.: 7/PMP/1961
5. The Letter of Decision of Minister of Agriculture No.: 461/Kpts/Org/IX/1971
6. The Letter of Decision of Minister of Agriculture No.: 460/Kpts/Org/IX/1971
7. The Letter of Decision of Minister of Agriculture No.: 190/Kpts/Org/5/1975

TO PAY ATTENTION: (NOTE) The proposal of the Head of National Seed Board with letter No.: 50/AK/II/BBN/V/1977.

HEREBY DECIDES

TO STIPULATE: Conditions and entering permit of seed to the territory the Republic of Indonesia.

Chapter 1

Seed entering in to the territory of the Republic of Indonesia can be provided for after being agreed to by the Minister of Agriculture.

Chapter 2

The number or quantity of seed which will be entered is decided by the Minister of Agriculture.

Chapter 3

Entering of seed for research purposes can only be executed by Research Institute or Institution which should be approved by the Minister of Agriculture.

Chapter 4

Entering of seed for the purpose of using them directly in the field can only be approved if it is stated by authorized Research Institute which clarifies that the seed multiplication can not be done in Indonesia for reasons of technical or non technical factors consideration.

Chapter 5

Each plant and seed import (entering of propagation material) must fulfill the plant quarantine regulations and procedure.

Chapter 6

Request of seed import should be submitted in writing to the Minister of Agriculture through the chairman of National Seed Board.

Chapter 7

After having the opinion of the chairman of the National Seed Board, the Minister of Agriculture may approve or reject the import request for the plant or seed under consideration.

Chapter 8

If it is of utmost importance to the Republic the Minister of Agriculture may give permit for importing the plant or seed which deviate from or not fulfill the procedure.

Chapter 9

The points which have not been provided for or mentioned in this decision letter will be later ruled separately as appropriate.

Chapter 10

This letter of decision in force the date of enactment

Enacted: in Jakarta
Date : 29 July 1977

Minister of Agriculture,

(Prof. Dr. Ir Toyib Hadiwijaya)

THE LETTER OF DECISION OF THE MINISTER OF AGRICULTURE
No.: 491/Kpts/Um/7/1980

CONCERNING

REGULATION OF PROCEDURES OF SEEDS AND PLANTS ENTERING THE TERRITORY OF THE REPUBLIC OF INDONESIA

THE MINISTER OF AGRICULTURE

Considering: that, in implementation of the letter of Decision of Minister of Agriculture No.: 431/Kpts/Um/7/1977, it is proper to establish Regulation of Procedures of seeds and plants entering the territory the Republic of Indonesia.

In View of :
1. The Act No.: 2 the year of 1961 (copy of Indonesia Republic Country No.: 2147)
2. The Presidential Decision of Republic of Indonesia (ROI) No.: 27 the year of 1971.
3. The Presidential Decision of ROI No.: 44 the year of 1974 jo No.: 45 the year of 1974.
4. The Presidential Decision of ROI No.: 59/M the year of 1978.
5. The Regulation of Minister of Agriculture No.: 7/PMP/1961.
6. The Letter of Decision of Minister No.: 730/Kpts/Um/2/1976.
7. The Letter of Decision of The Minister of Agriculture No.: 431/Kpts/Um/7/1977 jo No. the letter of Decision of the Minister of Agriculture No.: 22/Kpts/Um/1/1978.
8. The Letter of Decision of The Minister of Agriculture No.: 307/Kpts/OP/5/1980.
9. The Letter of Decision of The Minister of Agriculture No.: 308/Kpts/OP/5/1980.

10. The Minister of Decision of The Minister of Agriculture No.: 309/Kpts/OP/5/1980.
11. The Letter of Decision of The Minister of Agriculture No.: 310/Kpts/OP/5/1980.

HEREBY DECIDES:

To Stipulate: Regulation of procedure of seeds and plants entering the territory of the Republic of Indonesia.

Chapter 1

1. Before seeds or plants enter the territory of the Republic of Indonesia, a permit request must be submitted in writing to the Director General which is concerned with through the National Seed Board with a copy to the Directorate of Plant Quarantine.
2. The permit request shall provide the following information; name, address and profession of the applicant; plant species, variety/clone/hydrid; quantity of seed; country and place of origin; name, address and profession of exporter (sender); means of transportation; port of entry; and objective seed entering.
3. If the applicant fails to provide the required information (as mentioned in 2. above partially or entirely) the permit request procedures will be delayed or rejected.

Chapter 2

In case seeds of a particular species is never before introduced into the territory of the Republic of Indonesia, the National Seed Board shall obtain the opinion of the Research Institute which is concerned with the issue whether a particular species is suitable or

not for introduction into the Republic of Indonesia.

Chapter 3

The National Seed Board shall with all pertinent facts and relevant information onward the request to the Director General which is concerned for closing decision on the matter.

Chapter 4

The applicant shall upon grant of entering permit, obtain the plant Quarantine guidance on the plant quarantine procedures.

Chapter 5

Granting or rejecting of entering permit by the Director General (which is concerned with), is effected by the National Seed Board to the applicant.

Chapter 6

Seeds of plants entered into the territory of the Republic of Indonesia, procedures in this letter of decision omitted, shall be extinguished by the Plant Quarantine or returned to the exporter; except where permit is granted, based on the provision in Chapter 8 letter of decision of Minister of Agriculture No.: 431/Kpts/Um/7/1977 jo letter of decision of the Minister of Agriculture No.: 22/Kpts/Um/1/'78.

Chapter 7

All costs due to the Plant Quarantine requirements shall be borne by the applicant.

Chapter 8

This letter of decision in force from the date of enactment

Enacted: in Jakarta
Date : 7 July 1980

Minister of Agriculture

Prof. Ir. Soedarsono Hadisaputro

CC. 1. Minister/state Secretary of REpublic of Indonesia.
2. Director General of Custom Duties.
3. Secretary General of the Ministry of Agriculture.
4. Inspector General of the Ministry of Agriculture.
5. For the Directors General and Heads of Agencies in the Ministry of Agriculture.
6. Secretary of Mass Guidance Agency.
7. Head of the National Seed Board.
8. Director of Plant Quarantine.

THE LETTER OF DECISION OF THE MINISTER OF AGRICULTURE
NO.: HK.310/763/Kpts/10/1983

CONCERNING

CONDITIONS THAT SHOULD BE FULFILLED BY THE IMPORTER OF PLANT OR SEED PLANT TO THE COUNTRY OF REPUBLIC OF INDONESIA

THE MINISTER OF AGRICULTURE,

CONSIDERING: a. That plants constitute an integral part of the Indonesian natural wealth which should be protected from the threat of many kinds of non-indigenous, harmful pests and diseases;

b. That plants in any stage of expression viable or dead, entering the territory of the Republic of Indonesia are potential sources of harmful pests and diseases;

c. That the prerequisites for plant materials entry, permit to the territory of the Republic of Indonesia is ruled in the Letter of Decision of the Minister of Agriculture No. 431/Kpts/Um/7/1977 jo No. 491/Kpts/Um/7/1980;

d. That the regulation of Minister of Agriculture No. 7/PMP/1961 is nolonger adequate and should be revoked to counter adverse development;

e. That based on the above considerations and in order to implement the act No. 2 the year of 1961, the Minister concludes the need for regulation of appropriate conditions for introduction or entry of plant materials in to the territory of the Republic of Indonesia.

IN VIEW OF : 1. Indonesische Comptabiliteits wet (staatsblad 1964 No. 106) as has been final changed to the Act No. 9 the year of 1968.

2. The Act No.: 2 the year of 1961 (Official gazette of Republic of Indonesia No.: 9 the year of 1961.
3. Ordinance 27 September 1926 (Staatsblad No.427).
4. The President of Republic of Indonesia, decree No.: 44 the year of 1974
5. The President of Republic of Indonesia's decree No.: 45 the year of 1974 : as have been changed several times, finally with the President of Republic of Indonesia's decree No.: 24 the year 1983.
6. The President of Republic of Indonesia's decree No.: 45/M the year of 1983.
7. Besluit van de secretaries van staat voor landbouw en Visserij No.: 365/HAD/LV the year of 1948 as have been changed, finally with the letter of Decision of the Minister of Agriculture No.: 04/Kpts/Um/1/1978.
8. The Letter of Decision of the Minister of Agriculture No.: 431/Kpts/Um/7/1977 jo No.: 22/Kpts/Um/1/1978.
9. The letter of Decision of the Minister of Agriculture No.: 453/Kpts/Org/6/1980.
10. The letter of Decision of the Minister of Agriculture No.: 491/Kpts/Org/12/1980.
11. The letter of Decision of the Minister of Agriculture No.: 861/Kpts/Org/12/1980.

TO PAY ATTENTION: The letter of Secretary General of Minister of Agriculture No.: 179/SDDP/66 dated 5 November 1966.

HEREBY DECIDES:

TO STIPULATE : Conditions that should be fulfilled by the importer of plant materials into the Republic of Indonesia.

Chapter 1

Definitions:

a. The letter of entering permit is the permit letter which is signed by the Minister of Agriculture or on his behalf by the officer in charge for every occasion of entering or importing of plant materials into the territory of the Republic of Indonesia.

b. The letter of Plant Health Certificate is the letter of certificate which states that the plant material mentioned in that letter of certificate has been examined and is not considered free as the case may be from specified harmful pests and diseases.

c. "Jasad pengganggu" or Pests are all kinds of organisms able to disturb, retard or destroy cultivated plant life and consists of pests, diseases and weeds.

d. "Jasad pengganggu" which is "harmful" consists of:
   1. Pests and diseases which are epidemic and have high potential to cause damage.
   2. Weeds which affect crop plants adversely and which persist control or eradication.

e. Port of entry is sea port, riverport, airport, post office, post border with other country and any other place which is considered by the Minister of Agriculture as a place of entering plant materials into the Republic.

f. Officer in Charge of Plant Quarantine is a government official ref. the act No.: 2 the year of 1961, appointed to carry out quarantine duties.

g. Quarantine actions are all measures to prevent harmful pests and diseases to enter the territory of the Republic of Indonesia. This action consist of: health inspection, treatment, rejection, expulsion, treatment in post entering quarantine station, eradication, exemption.

h. Health inspection is to examine the plant materials to assess presence of harmful pest and diseases.

i. Treatment is any measure to purge plant materials from harmful pests and diseases including desinfection and desinfectant.

j. Post entry quarantine station is the institution for isolation or custody, to conduct the inspection (examine, and identification) treatment and post inspection of the plant materials.

k. Entering Permit Letter is the document issued by Head of station or Head of the Plant Quarantine which with statement that specified quantity of plant materials, imported from abroad, inspected and or quarantined at the port of entry is deemed free from harmful pests and diseases, thus permitted entry into the territory of the Republic of Indonesia.

Chaper 2

Plant materials entering the territory of the Republic of Indonesia shall fulfill the requirements of plant quarantine regulations.

Chapter 3

1. Plant materials entered into the territory of the Republic of Indonesia shall carry a valid "Entry Permit Letter" from the Minister of Agriculture and a Plant Health Certificate issued by a qualified institution in the country of origin.
2. Plant material imported into the territory of the Republic of Indonesia without valid Entry Permit Letter mentioned in paragraph (1) of this chapter shall be rejected or eradicated.

Chapter 4

1. Fresh and viable plant materials, other than seed, imported to Indonesia shall carry a Plant Health Certificate issued by a qualified institution in the country of origin.
2. Non-viable plant materials entering the territory of the Republic of Indonesia need not carry the Plant Health Certificate mentioned in paragraph (1) of this chapter.

Chapter 5

Plant materials imported into the territory of the Republic of Indonesia can only be released from the port of entry after such decision by the Minister of Agriculture.

Chapter 6

1. Head of Station and Head of Plant Quarantine at ports of entry mentioned in Chapter 5 are Quarantine Officers in Charge responsible for plant material health inspection as well as other Quarantine procedures.

2. If the quarantine officers in charge mentioned in this chapter have conducted their duties intensively but is caused loss or damage for the plant or seed of the plant or time delaying for plant or seed of plants demolition from transport facilities, so the government or the quarantine officers in charge free from any kinds of compensation.

Chapter 7

When plant material has arrived or is due to arrive in a port of entry, the importer or his authorized agent shall notify the quarantine officer in charge to initiate health inspection and submit the plant material together with the relevant and required documents.

Chapter 8

1. Entering Permit Letter shall be issued for such plant material, identified by accompanying official Plant Health Certificate, that is found to be free from harmful pests and diseases after quarantine inspection.
2. Entering Permit Letter may also be issued for such contaminated plant material that is found to be non-contaminated after appropriate treatment and quarantine inspection.
3. Entering Permit Letter shall not be issued for contaminated plant material which can not be proved, with reasonable certainty, to be free from hamful pests and diseases after treatment. Said plant material shall be effectively eradicated.

Chapter 9

1. Plant material suspected to harbor harmful pests and diseases shall be quarantined and not released with Entering Permit Letter unless quarantine inspection proves said material to be free, after appropriate treatment if applicable, from pests and diseases.
2. Plant material not provided for in paragraph (1) of this capter shall be effectively eradicated.

Chapter 10

Plant material arriving without accompanying official Plant Health Certificate shall be dealt with mutatis mutandis as provided for in Chapter 9.

Chapter 11

1. Fresh, viable plant material imported in minor quantity for specific and important purposes may on these grounds be granted Entering Permit Letter.
2. Fresh, viable plant material other than provided for in paragraph (1) of this chapter be granted Entering Permit Letter only if
   i. accompanied by an official Plant Health Certificate or
   ii. dispensation is justified in the opinion of the Head of the Central Plant Quarantine Office.
3. Fresh, viable plant material other than provided for in paragraphs (1) and (2) of this chapter shall be rejected for entry or effectively eradicated at the option of the owner or his authorized agent.

Chapter 12

Plant material which is damaged, decayed or otherwise denaturated beyond a stage where plant health inspection is possible shall be effectively eradicated.

Chapter 13

Rejection or eradication of plant material shall be reported in 3 copies; the first copy is for the owner or his authorized agent; the second copy is for the officer in charge of customs or post office; the third copy is for the official mentioned in Chapter 6.

Chapter 14

Actions and decisions of agencies or officials as provided for in chapter 3, 8, 9, 10, 11 and 12 of this Letter of Decision shall not constitute any grounds for owner of plant material or his authorized agent to claim compensation, appeal or sue to court.

Chapter 15

1. All costs relevant to inspection, treatment, custody in a Post Entering Quarantine Station, rejection or eradication are to be borne by the owner of the plant material or his authorized agent.
2. Fees to be levied for inspection, treatment and eradication are listed in the attached Fee Scheme to this Letter of Decision. Rejection is at cost of the owner or his authorized agent.

3. The quarantine fee in a Post Entering Quarantine Station is stated in "Besluit van de Secretaries van Staat voor Lanbown en Visserij No.: 365/HAD/LV the year of 1948.

4. Income from fees except eradication fee shall be deposited with the government treasury.

Chapter 16

Government official in terms of Chapter 6 in this Letter of Decision is as well Officer in Charge entrusted investigation of criminal action as provided for in Act No. 2 the year of 1961.

Chapter 17

1. This Letter of Decision supersedes the Regulation of the Minister of Agriculture No.: 7/PMP/1961.

2. This Letter of Decision becomes in force as from the date of enactment.

Enacted: in Jakarta
Dated : 19 October 1983

Minister of Agriculture

Ir. Achmad Affandi

CC: 1. The Minister/Secretary of State.
2. The Minister of Finance.
3. Directorate General of Customs duties, Ministry of Finance.
4. Directors General and Heads of Agencies in the Ministry of Agriculture.
5. Secretary General of the Ministry of Agriculture.
6. Inspector General of the Ministry of Agriculture.

7. All Heads of Ministry Representative in every province in Indonesia.
8. The Head of Police of Republic of Indonesia.
9. All Directors General in the Ministry of Communication.
10. All Province Governors.
11. The Head of Central Plant Quarantine Office.

THE MINISTER OF AGRICULTURE DECREE
No.: 798/KPTS/TP.830/10/1984

CONCERNING
THE FIXING OF HARMFUL PEST AND DISEASE FOR PLANT
THE MINISTER OF AGRICULTURE

CONSIDERING: In order to protect the plants in Indonesia from pest and disease which come from abroad it is necessary to list the pests and diseases and the actions of protection to prevent them entering to the territory of the Republic of Indonesia.

IN VIEW OF :
1. Ordonnance 8 July 1920 (Staatsblad No.: 516)
2. Ordonnance 27 September 1986 (Staatblad No.: 427)
3. Ordonnance No.: 2,1986 (copy of Indonesian Republic Country No.: 9)
4. The Presidential Decision, Number 44 of the year 1974
5. The Presidential Decision, Number 2 of the year 1977
6. The Presidential Decision, Number 45/M of the year 1983
7. The Presidential Decision, Number 15 of the year 1984
8. The Letter of Decision of the Minister of Agriculture Number OT.210/706/Kpts/9/1983
9. The Letter of Decision of the Minister of Agriculture Number HK.310/763/Kpts/10/1983

TO PAY ATTENTION: Convention of International Protection of
(NOTE) the year 1951

HEREBY DECIDES

TO STIPULATE : THE LETTER OF DECISION OF THE MINISTER OF AGRICULTURE CONCERNING THE FIXING OF HARMFUL PESTS AND DISEASES FOR PLANTS.

Chapter 1

The pests and diseases which is listed in the attachment of this letter of decision are to be considered as harmful pests and diseases.

Chapter 2

Entering of listed harmful pests and diseases of plants into the territory of the Republic of Indonesia is as mentioned in Chapter 1 is prohibited.

Chapter 3

Harmful pests and diseases as mentioned in Chapter 1 which have been entered into the territory of the Republic of Indonesia must be annihilated by the Quarantine Service at the port of entry.

Chapter 4

Not with standing the implementation of the regulations or acts concerning the entering of seeds and plant materials to the territory of the Republic of Indonesia, the seeds and plant materials which will be examined by the Quarantine Service and which eventually are

found to contain harmful pests and diseases as referred to in Chapter 1 will be subjected to the actions as follows:

a) if the harmful pest and diseases of plant can be extinguished by means of proper and recognized treatment of the seeds or plant materials hosting them, the seed or plant materials concerned shall be treated accordingly.

b) if the harmful pests and diseases of plants are not susceptible to proper and recognized treatment the hosting seed or plant materials shall be rejected for entering the territory or shall be annihilated.

Chapter 5

Following the extinction as provided for in Chapter 3 and Chapter 4 a report shall be completed in 3 copies.
The first copy is for the owner of materials which have been annihilated for reasons of containing the pests and/or diseases; the second copy is for the Customs Duties Office or the Post Office at the port entry; the third copy is for the Plant Quarantine Office at the port of entry.

Chapter 6

Every person or institution which enters materials containing harmful pests and/or diseases has forfeited any compensation for extinction of the material as mentioned in Chapter 3 and Chapter 4.

Chapter 7

This letter of decision in force as form the date of enactment.

Enacted: in Jakarta
Date : October 15, 1984

Minister of Agriculture

Ir. Ahmad Affandi

cc.

1. Minister of Coordinator for Economic Finance, Industry and Development Control
2. Minister of State Secretary
3. Minister of Finance
4. The Director of Finance and Development Control Agency
5. Director General of Custom Duties, Ministry of Finance
6. For Every Director General & The Head of Agency in Ministry of Agriculture
7. Secretary General of the Ministry of Agriculture
8. Inspector General of the Ministry of Agriculture
9. Every Head of the Ministry representative in Every Province in Indonesia
10. The Head of the Republic of Indonesia Police
11. Every Director General in the Ministry of Communication
12. Every Governor in every Province in Indonesia
13. The Head of the Central Plant Quarantine.

APPENDIX TO THE DECREE OF THE MINISTER OF AGRICULTURE
Date: 15 October 1984
Concerning: DECLARATION OF DANGEROUS PLANT PESTS

Pest	Main Host	Common Name
VIRUS		
Abaca mosaic virus	Sugarcane	Abaca mosaic
African mosaic virus	Cassava	African mosaic
American mosaic virus	Cassava	American mosaic
Andean potato latent virus	Potato	-
Apple mosaic virus	Apple	Apple mosaic
Artichoke Italian latent virus	Grape	-
Bunchy top virus	Banana	Bunchy top
Cacao red mottle virus	Cocoa	Red mottle
Cacao swollen shoot virus complex	Cocoa	Swollen shoot
Cacao vein clearing virus	Cocoa	Vein clearing
Cassava brown streak virus	Cassava	Cassava brown streak
Cassava latent virus	Cassava	-
Cassava witches' broom	Cassava	Super brotamento
Chat fruit virus	Apple	Chat fruit
Chlorotic leaf spot virus	Apple	Chlorotic leaf spot
Coffee blister spot virus	Coffee	Coffee blister spot
Coffee ring spot virus	Coffee	Coffee ring spot
Cotton leaf curl virus	Cotton	Leaf curl
Cotton leaf roll virus	Cotton	Leaf roll
Dwarf virus	Sugarcane	Dwarf
Fiji disease virus	Sugarcane	Fiji disease
Flat limb virus	Apple	Flat limb
Green crinkle virus	Apple	Green crinkle
Leaf pucker virus	Apple	Leaf pucker
Maize chlorotic dwarf virus	Maize	Maize chlorotic mosaic
Maize dwarf mosaic virus	Maize	Maize dwarf mosaic
Maize stripe virus	Maize	Maize stripe
Mottle virus	Soybean	-
Platycarpa dwarf virus	Apple	Platycarpa dwarf
Platycarpa scaly bark virus	Apple	Platycarpa scaly bark

Pest	Main Host	Common Name
Rice dwarf virus	Rice	Dwarf
Potato virus X	Potato	-
Potato virus Y	Potato	-
Potato virus T	Potato	-
Rice hoja blanca virus	Rice	White leaf (Hoja blanca)
Rice stripe virus	Rice	Rice stripe
Ring spot virus	Apple	Apple ring spot
Rosette virus	Apple	Apple rosette
Rough skin virus	Apple	Rough skin
Soybean dwarf virus	Soybean	-
Soybean mosaic virus	Soybean	-
Stem pitting virus	Apple	Apple stem pitting
Sweet potato internal cork virus	Sweet potato	Internal cork
Sweet potato mosaic virus	Sweet potato	Mosaic
Transitory yellowing virus	Rice	Transitory yellowing
-	Banana	Abaca mosaic
-	Grape	Arabic mosaic
-	Grape	Fanleaf disease
-	Grape	Grapevine leaf roll
-	Grape	Grapevine corky bark
-	Grape	Grapevine stem pitting
-	Grape	Grape-vine 'legno riccio'
-	Grape	Hungarian chrome mosaic
-	Coffee	Mancha mantecosa
-	Papaya	Papaya mosaic dieback
-	Papaya	Papaya ring rot
-	Potato	Potato spindle tuber
-	Tea	Phloem necrosis
-	Soybean	Soybean yellow mosaic
-	Papaya	Waialua disease
BACTERIA		
Agrobacterium tumefaciens	Wide host range	Crown gall
Corynebacterium flaccumfaciens	Bean	Bacterial wilt
Corynebacterium sepedonicum	Potato	Bacterial ring rot
Erwinia amylovora	Apple, Stone fruit	Fireblight

Pest	Main Host	Common Name
Erwinia stewartii	Maize	Bacterial wilt
Erwinia tracheiphila	Cucurbits	Bacterial wilt
Pseudomonas garcae	Coffee	Bacterial leaf spot
Pseudomonas mangiferae	Mango	Black spot
Pseudomonas solanacearum	Banana, Solanaceous plant	Moko disease Bacterial wilt
Pseudomonas tabaci	Tobacco	Wildfire
Xanthomonas ampelina	Grape	Bacterial blight
Xanthomonas campestris pv malvacearum	Cotton	Bacterial blight
Xanthomonas manihotis (X. campestris pv manihotis)	Cassava	Cassava bacterial blight
Xanthomonas rubrisubalbicans	Sugarcane	Mottled stripe
Xantomonas vasculorum	Sugarcane	Gumming disease
MYCOPLASMA, MLO AND THE LIKE		
Mycoplasma	Coconut	Cane St.Paul wilt
Mycoplasma	Tobacco	Aster yellows
Mycoplasma	Maize	Corn stunt
Mycoplasma	Coconut	Kaincope
Mycoplasma	Coconut	Kribi
Mycoplasma	Coconut, Oil palm	Lethal yellowing
Phytomonas sp	Coconut	Hart rot
MLO	Papaya	Papaya bunchy top
MLO	Grape	Flavescence doree
MLO	Sweet potato	Sweet potato witches' broom
MLO	Sugarcane	White leaf
MLO	Sugarcane	Grassy shoot
Virus/MLO	Banana	Cameroon marbling disease
BLO	Sugarcane	Rotoon stunting disease
BLO	Grape	Pierce's disease
Spiroplasma	Maize	Corn stunt
FUNGI		
Ascochyta gossyoii	Cotton	Ascoschyta blight
Calonectria rigidiuscula	Cocoa	Cushion gall disease

Pest	Main Host	Common Name
Ceratocystis fimbriata	Cocoa	Mal de Machete
Cetatocystis paradoxa (Thielaviopsis paradoxa)	Coconut	Leaf-bitten disease/ stem bleeding
Cercospora elaeidis	Oil palm	Freckle
Claviceps gigantea	Maize	Ergot
Clitocybe tabescens	Banana	Root rot
Colletotrichum truncatum	Soybean	Anthracnose
Colletrotichum sp.	Coffee	Blister spot
Coniothyrium diplodiella	Grape	White rot; Dieback
Deuterophoma tracheiphila (Phoma tracheiphila)	Citrus	Mal Secco
Elsinoe mangiferae	Mango	Mango scab
Erysiphe polygoni	Mango	Powdery mildew
Exobasidium reticulatum	Tea	Leaf gall
Fusarium moniliforme	Mango	Mango malformation: Bunchy top
Fusarium oxysporum f. conglutinans	Cruciferae	Wilt; Yellows
Fusarium oxysporum var cubense	Banana	Wilt
Fusarium oxysporum f. elaeidis	Oil palm	Fusarium wilt
Fusarium oxysporum f. pisi	Pea	Fusarium wilt
Gibberella xylarioides	Coffee	Tracheomycosis
Guinardia bidwellii	Grape	Black rot
Hemileia caffeicola	Coffee	Powdery rust
Helminthosporium maydis	Maize	Corn leaf blight
Marasmiellus coconhilus	Cocoa	Lethal bole rot
Marasmius perniciosus	Cocoa	Witches' broom
Microcyclus ulei	Hevea	South American Leaf Blight
Moniliophthora roreri (Monilia roreri)	Cocoa	Monilia pod rot
Mycosphaerella fijiensis	Banana	Leaf streak
Mycosphaerella fijiensis var. diformis	Banana	Black sigatoka
Mycosphaerella musicola	Banana	Sigatoka
Omphalia flavida (Mycena citricolor)	Coffee	American leaf spot
Oncobasidium theobromae	Cocoa	Vascular streak dieback
Pellicularia koleroga	Coconut	Blight

Pest	Main Host	Common Name
Peronosclerospora philippinensis	Maize	Downy mildew
Peronospora manshurica	Soybean	Downy mildew
Peronospora tabacina	Tobacco	Blue mold
Phaeolus manihotis	Cassava	Root rot
Phomopsis theae	Tea	Canker; Dieback
Phomopsis sp	Mango	Twig blight
Phymatotrichum omnivorum	Cotton, Groundnut	Texas root rot
Phytophthora palmivora	Coconut	Bud rot; Leaf droop; Wilt
Polyscytalum pustulans (Oospora pustulans)	Potato	Skin spot
Sphaceloma arachidis	Groundnut	Scab
Sphaceloma manihoticola	Cassava	Superelongation
Synchytrium endobioticum	Potato	Black wart
Tanatephorus cucumeris (Pellicularia filamentosa)	Hevea	Target leaf spot
Trachysphaera fructigena	Cocoa, Coffee	Trachysphaera pod rot; Trachysphaera fruit rot
Uromyces musae	Banana	Rust
Verticillium alboatrum	Groundnut	Verticillium wilt
NEMATODE		
Aphelenchoides besseyi	Rice	White tip nematode
Ditylenchus angustus	Rice	Rice stem nematode
Ditylenchus destructor	Potato	Potato rot nematode
Ditylenchus dipsaci	Garlic, Onion	Stem and bulb nematode
Dithylenchus myceliophagus	Mushroom	Mushroom nematode
Globadera rostochiensis	Potato	Golden nematode
Globodera pallida	Potato	Potato cyst nematode
Heterodera avenae	Cereals	Cereal cyst nematode
Heterodera cacti	Cactus	Cactus cyst nematode
Heterodera carotae	Carrot	Carrot cyst nematode
Heterodera cruciferae	Cruciferae	Cabbage cyst nematode
Heterodera fici	Fig	Fig cyst nematode
Heterodera glycines	Soybean	Soybean cyst nematode
Heterodera goettingiana	Pea	Pea cyst nematode
Heterodera graminis	Cereals	Cereal cyst nematode

Pest	Main Host	Common Name
Heterodera humuli	Hop, bean, etc.	Hop cyst nematode
Heterodera oryzae	Rice	Rice cyst nematode
Heterodera sacchari	Sugarcane	Sugarcane cyst nematode
Heterodera schactii	Sugar beet	Sugar beet cyst nematode
Heterodera trifolii	Trifolium (Clover)	Clover cyst nematode
Heterodera vigni	Cowpea, Pigeon pea	-
Heterodera zeae	Maize	Corn cyst nematode
Pratylenchus coffeae	Coffee	Root nematode
Pratylenchus loosi	Tea	Root lesion nematode
Radinaphelenchoides cocophilus (Aphelenchoides cocophilus)	Coconut	Red ring nematode
Rotylenchus reniformis	Coffee	Stubby root nematode
WEEDS		
Alternanthera philoxoroides	-	Alligator weed
Baccharia halmifolia	-	Groundsel bush
Chandrilla juncea	-	Skeleton weed
Parthenium histerophorus	-	Congress grass
Rottboellia exaltata	-	Itch grass
INSECTS		
Acrocercops cramerella	Cocoa	Cacao pod moth
Anastrepha fraterculus	Citrus	South American Fruit fly
Anastrepha ludens	Citrus	Mexican fruit fly
Anastrepha oblique	Citrus	West Indian fruit fly
Antestiopsis sp.	Coffee	Pentatomid bug
Anthonomus grandis	Cotton	Mexican cotton boll weevil
Anthonomus vestitus	Cotton	Peruvian cotton boll weevil
Caliothrips masculinus	Cassava	Thrips
Ceratitis capitata	Citrus	Mediterranean fruit fly
Ceratitis rosae	Citrus	Natal fruit fly
Clemona smithi	Sugarcane	White cane grub
Coclaenomenodera elaeidis	Coconut	Leaf miner
Dacus tryoni	Citrus	Queensland fruit fly
Diaprepes abbreviatus	Sugarcane	Sugarcane root-stalk borer (weevil)

Pest	Main Host	Common Name
Diatraea saccharalis	Maize, Rice, Sugarcane	Stalk borer
Distantiella theobroma	Cocoa	Capsid bug causing dieback
Earias fabia	Cotton	Spiny boll worm
Ephestia elutella	Tobacco	Tobacco moth
Eryophyes guirreronis	Coconut	Mite
Euscepes postfasciatus	Sweet potato	West Indian sweet potato weevil
Frankliniella williamsi	Cassava	Thrips
Helopeltis bergrothi	Cocoa	Capsid bug causing canker
Hercinothrips bicintus	Banana	Red rust thrips
Leptinotarsa decemlineata	Potato	Colorado potato beetle
Leptopharsa heveae	Hevea	Lace bug
Leucoptera coffeella	Coffee	White coffee leaf miner
Lissorhoptrus oryzaphilus	Rice	Rice water weevil
Melittoma insularis	Coconut	Wood borer
Monalonium sp.	Cocoa	Mirid bug
Mononychelles tanajoa	Cassava	Mite
Olygonychus peruvianus	Cassava	Mite
Oryctes boas	Coconut	Beetle
Oryctes monocerus	Coconut	Beetle
Pachymerus lacerdae	Oil palm	Kernel borer
Pachymerus nucleorum	Coconut, Oil palm	Kernel borer Coconut borer
Pimelephila ghesquierei	Oil palm	Pyralid
Planococcus kenyae	Coffee	Mealy bug
Popillia japonica	Tung	Japanese beetle
Pseudotheraptus wagi	Coconut	Coreid bug
Quadraspidiotus perniciosus	Citrus	San Jose scale
Rhagoletis pomonella	Apple and stone fruit	Apple maggot
Rhyncophorus palmarum	Coconut	Palm weevil
Sacadodes pyralis	Coconut	False pink boll worm
Sahlbergella singularis	Cocoa	Capsid bug causing dieback
Sesamia cretica	Mango	*Durra stalk borer*
Sigatodes oryzacola	Rice	Rice plant hopper
Sigatodes cubana	Rice	Rice plant hopper

Pest	Main Host	Common Name
Stenoma decora	Cocoa	Cacao fruit and shoot borer
Sternochaetus mangifera	Mango	Mango seed weevil
Trogoderma granarium	Stored grain and other hosts	Khapra beetle
Xyleborus sp.	Cocoa	Bark beetle
DISEASES OF UNKNOWN ETIOLOGY		
-	Coconut	Awka
-	Coconut	Blast
-	Coconut	Bristle tip
-	Coconut	Bronze leaf wilt
-	Coconut	Coconut wilt
-	Coconut	Dryout rot or stem necrosis
-	Cassava	Frog's skin
-	Coconut	Head droop
-	Coconut	Kerala wilt
-	Oilpalm	Leaf mottle
-	Coconut	Leaf scorch
-	Coconut	Little leaf
-	Coconut	Socorro wilt
-	Coconut	Thatipaka

Jakarta, 15 October 1984

THE MINISTER OF AGRICULTURE

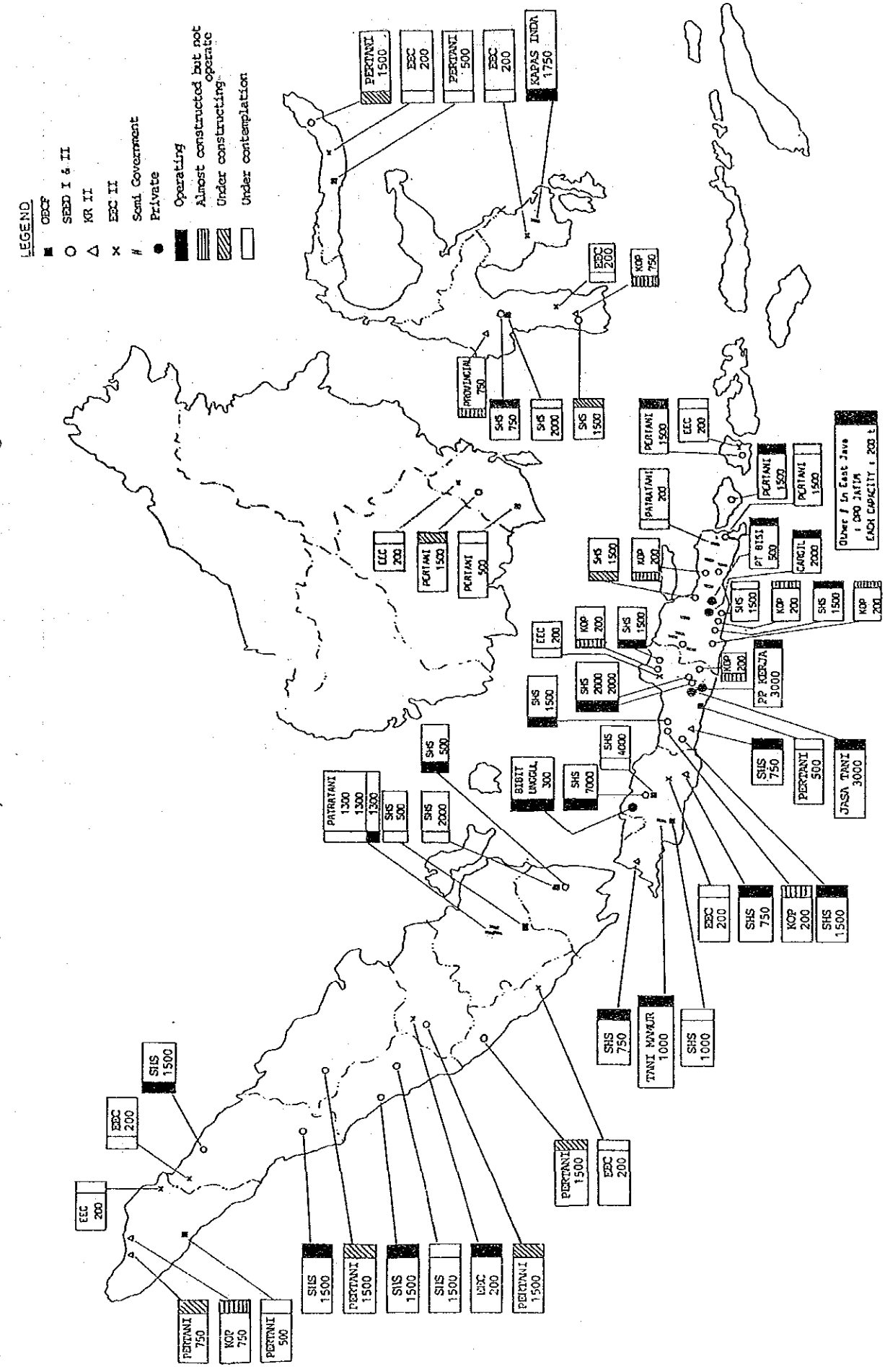
(SGD.)

(ACHMAD AFFANDI)

APPENDIX F

SOYBEAN

Seed Processing Center in Indonesia
(Established, under Construction and Planning)



Seed Processing Center in Indonesia

(Established, under Construction and Planning)

Sept. 21, 1987

No	Executive Agency/Present Stage	Location				Source of fund Grant/Loan	Year's of establishment	Year's of Operation Started	Nominal Capacity	Commodity				
		Province	Kabupaten (District)	Kecamatan (Sub-district)	Desa (Village)					A	B	C	D	E
I.	SEED II/LOAN, SPC.	WORLD BANK							ton/year					
	Perum. SHS													
1	Existing	Central-Java	Tegal	Warurejo	Kedung Kelor	Seed II/ IBRD Loan	1984	1985	1000-2000	x	x	x	x	x
2	"	"	Pati	Margorejo	Bumirejo	"	"	"	"	x	x	x	x	x
3	"	"	Klaten	Jogonalan	Prawaton	"	"	"	"	x	x	x	x	x
4	Under construction	East-Java	Nganjuk *)	Loceret	Tempel Wetan	"	1987	-	"	x	x	x	x	x
5	"	"	Pasuruan *)	Pacar Keling	Pacar Keling	"	"	-	"	x	x	x	x	x
6	"	"	Jember *)	Bangsalsari	Bangsalsari	"	"	-	"	x	x	x	x	x
7	Construction soon	North Sumatera	Tapanuli Selatan			"	-	-	"	x	x	x	x	x
8	"	West Sumatera	Solok			"	-	-	"	x	x	x	x	x
9	"	South Sulawesi	Maros			"	-	-	"	x	x	x	x	x
10	"	Central-Java	Purwokerto			"	-	-	"	x	x	x	x	x
11	Rehabilitation	West Java	Subang			"	1984	1985	"	x	x	x	x	x
12	"	Central Java	Klaten			"	"	"	"	x	x	x	x	x
	PT. PERTANI													
1	Existing	Bali	Badung	Mengwi	Munggu	Seed II/ IBRD Loan	1984	1985	1000-2000	x	x	x	x	x
2	"	West Nusa Tenggara	Lombok Barat	Kediri	Kediri	"	"	"	"	x	x	x	x	x
3	Under construction	South-Kalimantan	Hulu Sungai Selatan	Sungairaya	Hariti	"	1987	-	"	x	x	x	x	x
4	"	Riau	Kampar	Bangkinang	Ganting	"	"	-	"	x	x	x	x	x
5	"	Bengkulu	Bengkulu Utara	Arga Makmur	Sukasari	"	"	-	"	x	x	x	x	x
6	"	North Sulawesi	Bolaang Mongondow	Dumoga	Bumbungon	"	"	-	"	x	x	x	x	x
7	Construction soon	Jambi	Bungo Tebo	Muara Bungo	Muara Bungo	"	-	-	"	x	x	x	x	x
	COOPERATIVE													
1	Existing	Central Java	Tegal	Margasari	Margasari	Seed II/ IBRD Loan	1984	1986	100-200	x	x	x	x	x
2	"	"	Sukoharjo	Sukoharjo	Sukoharjo	"	"	"	"	x	x	x	x	x
3	"	East Java	Probolinggo	Sukomulyo	Pagarakan	"	"	"	"	x	x	x	x	x
4	Under construction	Central Java	Demak	Sluweng	Karanggedang	"	1987	-	"	x	x	x	x	x
5	"	East Java	Kediri	Pagu	Pagu	"	"	-	"	x	x	x	x	x
6	"	"	Ngawi	Ngawi	Gredo Ngawi	"	"	-	"	x	x	x	x	x
7	"	"	Lumajang	Tempeh	Tempeh Tengah	"	1984	1985	1000-2000	x	x	x	x	x

A = Rice B = Corn C = Soybean D = Mungbean E = Peanut

*) = Building had been constructed but equipment have not installed.

No	Executive Agency/Present Stage	Location				Source of fund Grant/Loan	Year's of establish-ment	Year's of Operation Started	Nominal Capacity	Commodity				
		Province	Kabupaten (District)	Kecamatan (Sub-district)	Desa (Village)					A	B	C	D	E
II.	SEED I/LOAN, SPC WORLD-BANK								ton/year					
	Perum. S.E.S.													
1	Existing	West Java	Subang	Sukamandi	Ciasem Girang	Seed I/ IBRD Loan	1971	1971	7000	x				
2	"	Central Java	Klaten	Ketandan	Jokopuring	"	1971	1971	2000	x				
III.	PRIVATE COMPANY (PT. PATRA TANI)													
1	Existing	South Sumatera	OKI	Serdang	Serdang	Private Co.	PT. Patra Tani	-	4000	x				
2	"	South Sumatera	"	"	"	"	"	-	2000		x	x	x	
3	"	East Java	Jember	Gumelar	Gumelar	"	"	-	200			x		
4	"	Central Java	Klaten	Jogovalen	Perawatan	"	"	-	200			x		
5	"	"	"	Tegalgondo	Karangduren	"	"	-	1000	x				
6	"	"	"	Tegalgondo	Karangduren	"	PP. KERJA	-	1000	x				
7	"	East Java	Malang	Nongkojajar	Nongkojajar	"	PT. CARGILL	-	2000		x			
8	"	"	Kediri	Plaso Klaten	Sumber Agung	"	PT. BISI	-	500		x			
9	"	Central Java	Klaten	Batu Ceper	Klepu	"	PT. BIBIT UNGGUL	-	300		x			
10	"	West Java	Majalengka	Cilopo	Cilopo	"	"	-	300		x			
IV.	LOCAL GOVERNMENT													
	Perum SBS													
1	Existing	North Sumatera	Deli Serdang	Tanjung Morawa	Pardamean	Local Govert.	1981/1982	1982	1500	x				
2	"	West Sumatera	Pasaman	Lubuk Alung	Jambak	"	"	"	1000-2000	x				
3	"	Central Java	Pekalongan		Ampera	"	"	"	"	x				
4	"	West Java	Sukamandi	Sukamandi	Sukamandi	"	"	"	1000	x				
5	"	Central Java	Klaten			"	-	-	1000	x				
6	"	East Java	Malang	Kepanjen	Kepanjen	"	1976/1977	1978	500	x				
7	"	"	Banyuwangi	Centeng	Setail	"	"	"	500	x				
8	"	"	Mojokerto	Puri	Jabon	"	"	"	500	x				
9	"	"	Kediri	Pesantren	Tugurejo	"	"	"	500	x				
10	"	"	Probolinggo	Keratesaan	Semampir	"	"	"	500	x				
11	"	"	Bojonegoro	Talun	Talun	"	"	"	500	x				
12	"	"	Ngawi	Kedung Kelor	Sooko	"	"	"	500	x				
13	"	"	Ponorogo	Babadan	Canten	"	"	"	500	x				
14	"	Lampung	Lumpung Vengah	Metro	Pekalongan	"	-	-	1500	x				
15	"	South Sulawesi	Sidrap	Soreang	Pangkajene	"	-	-	1500	x				

A = Rice B = Corn C = Soybean D = Mungbean E = Peanut
*) = Building had been constructed but equipment have not installed.

No	Executive Agency/Present Stage	Location				Source of fund Grant/Loan	Year's of establish-ment	Year's of Operation Started	Nominal Capacity	Commodity				
		Province	Kabupaten (District)	Kecamatan (Sub-district)	Desa (Village)					A	B	C	D	E
V.	JAPAN GRANT													
	Perum. S.E.S.													
1	Existing	North Sumatera	Asahan	Simpangemport	Simpang	JAPAN GRANT	1984/1985	1985	750	x				
2	"	West Java	Serang	Pabuaran	Sindangsari	"	"	"	750	x				
3	"	"	Ciamis	Pamarican	Binangun	"	"	"	750	x				
VI.	OTHER GRANT *)													
1	Existing	Bengkulu	Bengkulu utara	Kuro Tidur	Kuro Tidur	Ducth Grant	1985	1985			x	x	x	x
2	"	Central Java	Klaten	Batu Ceper	Klepu	German Grant	-	-	500-750	x				
3	"	"	Sragen			"	-	-	300-500	x				
Note *): No.1 : Local Government No.2 & 3: KUD/PUSKUD (Cooperative)														
4	Existing No.4. Govert. Project	Jambi	Bungo Tebo	Alai Hilir	Alai Hilir	EEC Grant	1982/1983	1983	2000		x	x	x	
VII.	JAPAN LOAN-OECF													
	SHS/PT. PERTANI/ OR OTHER GOVERNMENT AGENCIES													
1	Under Planning or Restudy	DI. Aceh				JAPAN/ OECF Loan				x	x	x	x	
2	"	South Sumatera				"				x	x	x	x	
3	"	"				"	implementa-			x	x	x	x	
4	"	Lampung				"	tion periode			x	x	x	x	
5	"	"				"	1988-1990	1990-2014		x	x	x	x	
6	"	Central Java								x	x	x	x	
7	"	DI. Yokyakarta				"				x	x	x	x	
8	"	South Kalimantan				"				x	x	x	x	
9	"	South Sulawesi				"				x	x	x	x	
10	"	North Sulawesi				"				x	x	x	x	
11	"	West Java				"				x	x	x	x	

A = Rice B = Corn C = Soybean D = Mungbean E = Peanut
*) = Building had beem constructed but equipment have not installed.

Source: Direktorat Bina Produksi Tanamon Pangan

Comparison of operation expenses for low temperature storages for soybean seeds between lowlands and highlands

1) Fixing conditions

(1) It is necessary to keep seeds under 19 - 20°C of temperature and 60% of humidity in order to maintain the germinability of soybean seeds for 8 - 10 months.

(2) To compare the lowlands (the suburbs of Pasuruan city near SPC) and highlands of a cool weather (Tosari at the altitude of 1,777 m, 42 km from Pasuruan city) in Kabpaten Pasuruan, East Java Province in order to decide the place for the construction of a storage.

(3) It is needed to use heat insulating material to build storages for air-conditioning and air-conditioning machines are required in lowlands. On the other hand, air-conditioning machines are not needed in highlands, but transportation up to high-lands is needed. There is not big difference in other expenses between the two. (Special humidity control is not needed when seeds are dried up to 9 - 10% of moisture content and packed tightly.)

(4) Annual dealing amount should be 500 tons, the maximum storing period 6 months, and the scale of storages 400 tons (320 m^2 x 4 mH).

2) Additional operation cost of soybean seed storages at low land or high land

(RP/Kg)

Additional Cost	Low Land (Suburbs of Pasuruan)	High Land (Tosari)
Heat Insulation for Building	2.1	nil
Depreciation for Air Conditioners	11.8	nil
Electric Charge	3.0	nil
Transportation Charge	nil	7.1
Total	16.9	7.1

References:

Altitude from sea level	50 m (esti.)	1,777 m
Temperature	27°C (average in Surabaya)	6-24°C (Chandi Kening)
Relative Humidity	64 - 79% (")	n.a.
Rain Fall	1,285 mm (")	1,740 mm (Chandi Kening, 1986)

Notes:
Additional expenditures for building management and inspection by BPSB to be probably taken place for the high land storage.

3) Basic figures for comparison

(1) Construction cost of Buildings

Price difference between the method to use heat insulating material and the normal method:	200,000 Rp/m^2
Life of the building:	30 years

(2) Air-conditioner

Required calorie	9 Kcal (35 Btu)/m^3/hr
Price	2,000,000 Rp/machine (2,200 Kcal/hr)
Life	10,000 hr
Consumed electric power	0.91 kw·hr/machine
Rating	58%

(3) Electricity rates (Perusahaan Umum Listrik Negara, Distribisi Java Timur) 115 Rp/kw/hr

(4) Transportation charges (DOLOG Java Timur) 85 Rp/ton/km

Economic Price for Soybean

Items	US$/t	Rp/kg
Price C.I. F Indonesia in 1986	186	305
Port handling and losses		15
Transport to wholesaler		12
Price at wholesaler		332
Less: Transport and marketing cost		20
Economic farmgate price for consumption		312
Plus: Mark-up		31
Economic farmgate price for uncertified seed		343
Plus: Mark-up		31
Economic farmgate price for material seed		374
Plus: Mark-up		156
Economic price for certified seed		530

Project Income and Direct Economic Benefit by ES Production

Project Year	Seed Supply (ton)	Project Income (1000 Rp)	Direct Economic Benefit (1000 Rp)
1			
2			
3			
4	200	170,000	106,000
5	600	510,000	318,000
6	1,000	850,000	530,000
7	1,000	850,000	530,000
8	1,000	850,000	530,000
9	1,000	850,000	530,000
10	1,000	850,000	530,000
11	1,000	850,000	530,000
12	1,000	850,000	530,000
13	1,000	850,000	530,000
14	1,000	850,000	530,000
15	1,000	850,000	530,000
16	1,000	850,000	530,000
17	1,000	850,000	530,000
18	1,000	850,000	530,000
19	1,000	850,000	530,000
20	1,000	850,000	530,000
Total	15,800	13,480,000	8,374,000

Note: Project Income = Seed Supply x Market Price (850 Rp)

Direct Economic Benefit = Seed Supply x Market Price (530 Rp)

Seed Supply Volume and Planted Area in cases of with project and without project

Project Year	With Project												Without Project	
	Seed Supply (ton)						Planted Area (ha)						Seed Supply (ton)	Planted Area (ha)
	ES	ES_1	ES_2	ES_3	ES_4	Total	ES	ES_1	ES_2	ES_3	ES_4	Total		
1														
2														
3														
4	200					200	4,000					4,000	200	4,000
5	600	200				800	12,000	4,000				16,000	800	16,000
6	1,000	600	200			1,800	20,000	12,000	4,000			36,000	1,800	36,000
7	1,000	1,000	600	200		2,800	20,000	20,000	12,000	4,000		56,000	2,800	56,000
8	1,000	1,000	1,000	600	200	3,800	20,000	20,000	20,000	12,000	4,000	76,000	3,800	76,000
9	1,000	1,000	1,000	1,000	600	4,600	20,000	20,000	20,000	20,000	12,000	92,000	4,600	92,000
10	1,000	1,000	1,000	1,000	1,000	5,000	20,000	20,000	20,000	20,000	20,000	100,000	5,000	100,000
11	1,000	1,000	1,000	1,000	1,000	5,000	20,000	20,000	20,000	20,000	20,000	100,000	5,000	100,000
12	1,000	1,000	1,000	1,000	1,000	5,000	20,000	20,000	20,000	20,000	20,000	100,000	5,000	100,000
13	1,000	1,000	1,000	1,000	1,000	5,000	20,000	20,000	20,000	20,000	20,000	100,000	5,000	100,000
14	1,000	1,000	1,000	1,000	1,000	5,000	20,000	20,000	20,000	20,000	20,000	100,000	5,000	100,000
15	1,000	1,000	1,000	1,000	1,000	5,000	20,000	20,000	20,000	20,000	20,000	100,000	5,000	100,000
16	1,000	1,000	1,000	1,000	1,000	5,000	20,000	20,000	20,000	20,000	20,000	100,000	5,000	100,000
17	1,000	1,000	1,000	1,000	1,000	5,000	20,000	20,000	20,000	20,000	20,000	100,000	5,000	100,000
18	1,000	1,000	1,000	1,000	1,000	5,000	20,000	20,000	20,000	20,000	20,000	100,000	5,000	100,000
19	1,000	1,000	1,000	1,000	1,000	5,000	20,000	20,000	20,000	20,000	20,000	100,000	5,000	100,000
20	1,000	1,000	1,000	1,000	1,000	5,000	20,000	20,000	20,000	20,000	20,000	100,000	5,000	100,000
Total	15,800	14,800	13,800	12,800	11,800	69,000	316,000	296,000	276,000	256,000	236,000	1,380,000	69,000	1,380,000

Production Volume of Soybean and the Increased volume of it in cases of with project and without project

Project Year	With Project						Without Project	Production Increase
	Production (Ton)						Production (ton)	(ton)
	ES	ES_1	ES_2	ES_3	ES_4	Total		
1								
2								
3								
4	4,400					4,400	4,000	400
5	13,200	4,280				17,480	16,000	1,480
6	22,000	12,840	4,160			39,000	36,000	3,000
7	22,000	21,400	12,480	4,080		59,960	56,000	3,960
8	22,000	21,400	20,800	12,240	4,040	80,480	76,000	4,480
9	22,000	21,400	20,800	20,400	12,120	96,720	92,000	4,720
10	22,000	21,400	20,800	20,400	20,200	104,800	100,000	4,800
11	22,000	21,400	20,800	20,400	20,200	104,800	100,000	4,800
12	22,000	21,400	20,800	20,400	20,200	104,800	100,000	4,800
13	22,000	21,400	20,800	20,400	20,200	104,800	100,000	4,800
14	22,000	21,400	20,800	20,400	20,200	104,800	100,000	4,800
15	22,000	21,400	20,800	20,400	20,200	104,800	100,000	4,800
16	22,000	21,400	20,800	20,400	20,200	104,800	100,000	4,800
17	22,000	21,400	20,800	20,400	20,200	104,800	100,000	4,800
18	22,000	21,400	20,800	20,400	20,200	104,800	100,000	4,800
19	22,000	21,400	20,800	20,400	20,200	104,800	100,000	4,800
20	22,000	21,400	20,800	20,400	20,200	104,800	100,000	4,800
Total	347,600	316,720	287,040	261,120	238,360	1,450,840	1,380,000	70,840

Note: Yield per Unit (with Project): 1.10 ton/ha (ES), 1.07 ton/ha (ES_1), 1.04 ton/ha (ES_2), 1.02 ton/ha (ES_3), 1.01 ton/ha (ES_4)

Yield per Unit (without Project): 1.00 ton/ha

Effect of Increasing production, Income Effect and
Indirect Economic Benefit by Using Improved Soybean Seed

Unit: 1000 Rp

Project Year	Production Increase (ton)	Income Effect			Indirect Economic Benefit		
		Gross Income	Additional Cost	Net Income	Gross Income	Additional Cost	Net Income
1							
2							
3							
4	400	200,000	60,000	140,000	137,200	37,400	99,800
5	1,480	740,000	180,000	560,000	507,640	112,200	395,440
6	3,000	1,500,000	300,000	1,200,000	1,029,000	187,000	842,000
7	3,960	1,980,000	300,000	1,680,000	1,358,280	187,000	1,171,280
8	4,480	2,240,000	300,000	1,940,000	1,536,640	187,000	1,349,640
9	4,720	2,360,000	300,000	2,060,000	1,618,960	187,000	1,431,960
10	4,800	2,400,000	300,000	2,100,000	1,646,400	187,000	1,459,400
11	4,800	2,400,000	300,000	2,100,000	1,646,400	187,000	1,459,400
12	4,800	2,400,000	300,000	2,100,000	1,646,400	187,000	1,459,400
13	4,800	2,400,000	300,000	2,100,000	1,646,400	187,000	1,459,400
14	4,800	2,400,000	300,000	2,100,000	1,646,400	187,000	1,459,400
15	4,800	2,400,000	300,000	2,100,000	1,646,400	187,000	1,459,400
16	4,800	2,400,000	300,000	2,100,000	1,646,400	187,000	1,459,400
17	4,800	2,400,000	300,000	2,100,000	1,646,400	187,000	1,459,400
18	4,800	2,400,000	300,000	2,100,000	1,646,400	187,000	1,459,400
19	4,800	2,400,000	300,000	2,100,000	1,646,400	187,000	1,459,400
20	4,800	2,400,000	300,000	2,100,000	1,646,400	187,000	1,459,400
Total	70,840	35,420,000	4,740,000	30,680,000	24,298,120	2,954,600	21,343,520

Note: Additional Cost = (Price of Certified Seed - Price of Un-certified Seed) x Seed Requirement

(Market Price : 300 Rp/kg
Economic Price: 187 Rp/kg)

STUDIES ON THE GERMINATION OF SOYBEAN SEEDS

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ABSTRACT

Experiments were conducted to elucidate the effects of internal and external factors related to the germination of soybean seeds.

Changes of the seed viability as affected by the place of production and storage were investigated with the seeds stored in 3 substations of CRIFC, namely Pacet, Kuningan and Muara (Bogor). The maximum and the minimum temperature in the storeroom were 27-19, 29-23 and 32-26°C, respectively. It was clarified that the seed longevity was influenced by the place of storage and the varietal difference in the seed longevity was recognized.

For practical use, the limit of seed storage was supposed to be 4 months in Bogor, 6 months in Kuningan for 3 varieties tested. In Pacet, it was 8 months for Orba and No. 945 and 10 months or more for No.29. Effect of the place of production on the seedling vigor was recognized.

Factors influencing the seedling emergence were investigated. The relative placement of fertilizer to avoid the salt injury was at least 5 cm below the seed level and 2 cm aside the seed.

INFLUENCE OF STORAGE CONDITIONS ON THE SEED LONGEVITY

INTRODUCTION

Rapid decrease of the seed longevity is one of the serious problems in soybean cultivation in Indonesia. In the tropics, the seed viability of soybeans deteriorates rapidly within several months. The maintenance of soybean seed quality during storage in these hot and humid environments has been recognized as a limiting factor in soybean production (2).

In farmer's fields, it was often observed uneven growth of soybean plants with a number of missing hills. Aside from the damage due to insect

and disease, it seems that there exist many problems related to the germination of soybean seeds which are supposed to be a cause of the uneven growth of soybean plants in farmer's fields.

The problems related to the germination of soybean seeds should be studied from two sides; the problem of the seed itself and the effect of factors influencing the germination of the seed. The former is the problem of the seed quality which is known to be influenced by several factors, of which temperature and relative humidity during seed storage are the principal external factors that affect the seed longevity (1). The latter is the problem of environmental factors which affect the process of the seedling emergence.

Several experiments were carried out to investigate the seed longevity under different storage conditions and the effect of factors affecting the germination of soybean seeds. The main purpose was to find out practical and economical way for storing soybean seeds in the tropics.

MATERIALS AND METHODS

Experiment 1: The effects of temperature and relative humidity on the seed longevity of soybeans

In order to investigate the effect of temperature during the storage period, soybean seeds were stored under different storage conditions, namely in refrigerator and in the storeroom of Plant Nutrition Subdivision of CRIFC, Bogor and Pacet substation. Soybean varieties used were Orba and Ijo. After 5 months, the seeds were sown in vats and grown for 10 days in greenhouse. The growth of the seedlings was investigated. One hundred seeds were used for germination test for each treatment.

To investigate the effect of relative humidity on the seed longevity, soybean seeds were stored under 3 levels of relative humidity. Saturated salt solutions of chemicals were used to attain different relative humidity levels using closed containers. The theoretical values of the relative humidity in equilibrium with potassium chloride, sodium chloride and potassium carbonate at 30°C are 85, 76 and 44%, respectively. Seeds were

stored for 5 months and germination percentage of the seeds was investigated. Soybean varieties, Orba, Americana and No.29 were tested.

Experiment 2: Storage condition and seed longevity of soybeans

From the results of Experiment 1, it was supposed that the seed viability could be kept well if stored in cool place like Pacet in sealed condition to minimize the change in moisture content. In Indonesia, to store soybean seeds in cold facilities is practically impossible in present circumstance. The second-best way to keep the seed viability longer may be to store seeds in the place with high altitude.

In order to study the limit of the storage period, experiments were carried out. Three soybean varieties, Orba, No.945 and No.29 were grown in 3 substations of CRIFC, i.e. Pacet, Kuningan and Muara (Bogor). The seeds produced in each substation were distributed respectively to the three substations for the storage experiment. The seeds stored in the storeroom of each substation were brought to Bogor every 2 months for the investigation.

The germination percentage was determined by the percentage of germinated seeds in petri dishes after 2 days. For the seedling vigor test, seeds were sown in Neubauer pots, grown in greenhouse without fertilizer application and the dry matter weight of the top was measured 10 days after sowing.

The altitude and the maximum-minimum temperature in the storeroom were as follows: Pacet; 1100 m, 27-19°C, Kuningan; 550 m, 29-23°C, Bogor; 260 m, 32-26°C.

RESULTS AND DISCUSSION

Experiment 1.

It is known that the seed viability disappears quickly in the tropics and the main cause of the short seed longevity is supposed to be high temperature and high relative humidity. Preliminary experiments were conducted to investigate the effects of temperature and relative humidity during the storage period on the seed longevity of soybeans.

Temperature: The maximum and minimum temperature in refrigerator and in the storerooms of Bogor and Pacet were 10-5, 32-26 and 27-19°C, respectively. As the seeds were kept in sealed plastic bags, the changes in the moisture content of the seeds were not recognized.

The influence of storage condition on plant growth was clearly observed as shown in Table 1. Orba stored in Bogor showed very poor growth compared with those stored in refrigerator and Pacet. Germination percentage of the seeds stored in Bogor was 40%, while that stored in refrigerator and Pacet was 90 and 80% respectively. The varietal difference was apparently observed. In case of Ijo, a small sized seed, the difference in the initial growth among treatments was smaller than that found in case of Orba. The germination percentage was 100% for the seeds stored in refrigerator and Pacet and 80% for that in Bogor. The initial growth of Bogor seeds was slightly inferior to the others.

Relative humidity: Effects of relative humidity on the germination percentage are presented in Table 2. It was recognized that the germination percentage was kept higher when stored under low relative humidity. The seeds lost viability entirely at 85% and at 75% the germination percentage was very low. At 44% relative humidity, the varietal difference was clearly observed. The germination percentage of Orba and Americana decreased to 51 and 63% respectively, while that of No.29 was 97%.

Table 1. Effect of storage condition on the initial growth of soybeans

Variety		ORBA			IJO		
Place		Pacet	Bogor	Refrigerator	Pacet	Bogor	Refrigerator
Dry matter	Top	110	64	121	75	70	86
Weight (mg)	Root	32	19	35	23	15	19
Length	Top	10.8	9.3	12.3	12.3	11.3	12.3
(cm)	Root	20.6	15.6	19.1	16.0	11.6	16.2

Table 2. Effect of relative humidity on germination percentage and moisture content of soybean seeds

(%)

Relative humidity	Germination percentage			Moisture content of seeds		
	Orba	Americana	No.29	Orba	Americana	No.29
85%	0	0	0	21.7	21.3	23.4
76%	18	11	32	15.6	14.7	14.9
44%	51	63	97	7.7	6.9	8.0

The sum of the percent relative humidity plus the temperature in degrees Fahrenheit should not exceed 100 for safe storage. For safe storage from 1 to 3 years, this combined total may be as high as 120 as long as the temperature contributes no more than half the total (1). In this experiment, the lowest value of this combined total was 130 at 44% relative humidity and the contribution of the temperature exceeded half the total. However, for safe storage of No.29 for half year, the combined total of 130 proved to be sufficient.

Ravalo et al (2) reported that one of the most important factors affecting the rapid loss of germination in storage is the moisture content of the seeds. It is not only essential to have low initial seed moisture contents, but even more important is the requirement to maintain the low initial moisture content of the seeds throughout the storage periods. The results obtained in these experiment suggested also that the high temperature and humidity environments caused the rapid loss of seed longevity.

Experiment 2.

Experiments were carried out to know how long the seed viability is maintained if stored in the place with high altitude.

Figure 1 gives the germination percentage of the seeds stored in each place with different altitude. The data show that the germination percentage was influenced by the place of production and storage and the varietal difference were also recognized. The changes in the moisture content of the seeds were negligibly small throughout the storage period in every places as they were stored in a tin can. Therefore, the temperature in the store-room

is considered as the main cause of the differences found in the germination percentage and the seeding vigor.

The germination percentage of the seeds stored in Pacet was kept higher compared with those stored in Kuningan and Bogor. They showed different declining tendency due to variety. That of No.29 produced in Bogor and Kuningan was especially high, more than 90% even after 10 months, while that produced in Pacet was slightly lower being 80% at 6 months. Changes in the germination percentage of Orba and No.945 stored in Pacet showed gradual decrease. The germination percentage of Orba and No.945 decreased to 50 - 60% after 8 months. The germination percentage of No.29 stored in Kuningan and Bogor was more than 95% at 2 months, however it showed rapid decrease from 4 months on. In contrast to the seeds stored in Pacet, all the seeds stored in Bogor showed rapid decrease in germination percentage after 4 months and they decreased to almost zero at 8 months.

The seedling vigor is defined as the potential for rapid uniform germination and fast seedling growth under general field conditions (1). In this experiment, the seedling vigor is expressed as the dry matter weight of the seedlings taken 10 days after sowing. The seeds stored in Pacet, Kuningan and Bogor were sampled five times at intervals of 2 months. It is hard to compare the seasonal changes as the climatic conditions were not quite the same at each testing time. We can compare its difference among the place of production and storage at each testing time.

The seedling vigor as expressed by the dry matter weight of the top 10 days after sowing is shown in Table 3. The seedling vigor of Orba was, on the whole, in the order of Kuningan > Pacet > Bogor, the difference between Pacet and Kuningan was small compared with that between Bogor and Kuningan or Pacet. In case of No. 945, it was in the order of Pacet > Kuningan > Bogor. The influence of production place on the seedling vigor was not recognized for No.29.

Table 3. Effect of the place of production and storage on the seedling vigor of soybean

(mg/plant)

Variety	Storage period (month)	Place of production and storage							
		P-P	K-P	B-P	P-K	B-K	P-B	K-B	B-B
Orba	2	113	119	96	98	129	111	113	83
	4	101	98	75	89	75	88	108	73
	6	92	99	65					
	8	108	112	85	111	82			
	10	98	137	64					
No.945	2	122	107	103	137	103	127	108	99
	4	122	98	91	85	70	103	96	68
	6	112	104	103					
	8	115	106	89					
	10	118	112	65					
No.29	2	67	73	64	66	72	65	69	62
	4	55	64	57	51	48	50	50	51
	6	50	53	51					
	8	61	62	66	47	54			
	10	83	87	54					

P: Pacet, K: Kuningan, B: Bogor

From the results mentioned above, it is supposed that cool climate region is suitable for better seed production of Orba and No.945, while in case of No.29 the place of seed production does not influence the seedling vigor.

The germination percentage should be 60% or more for practical use, that means, of 5 seeds dibbled to a hole one can satisfy with 3 seedlings emergence. Roughly speaking, the limit of storage period of soybean seeds for practical use is summarized as follows; 4 months in Bogor for all varieties, 6 months in Kuningan for all varieties and 8 months for Orba and No.945 and 10 months or more for No.29 in Pacet.

FACTORS INFLUENCING THE SEEDLING EMERGENCE OF SOYBEANS

INTRODUCTION

The seedling emergence is influenced by environmental conditions. Under field condition, the moisture content of the soil is of primary importance. In Indonesia, they never practice plowing for soybean cultivation. The method of seed sowing is either broadcasting or dibbling depending on the moisture content of the soil. If it is wet enough or surface water still remaining, soybean seeds are broadcasted. If it is dry, seeds are dibbled.

The relationship between soil moisture content and seedling emergence was investigated using latosol soil.

Another problem that affect seedling emergence is the salt injury. As long as the field is not plowed, the method of fertilizer application is limited to broadcasting or application to the same hole or close to the hole of seeding. Salt injury sometimes occurs. Experiments were carried out to investigate the degree of salt injury caused by fertilizer application and to find out the optimum placement to avoid the salt injury.

MATERIALS, METHODS AND RESULTS

Influence of soil moisture content; The moisture content of the soil was adjusted from 30 to 100% of the maximum water holding capacity at intervals of 10%. As shown in Table 4, the speeds of the seedling emergence was influenced by the moisture content of the soil. The best germination was found in a moisture content of 60% to the maximum water holding capacity. Below 40%, seeds did not germinate due to the lack of water. Above 70%, the higher the moisture content the lower the germination percent due to the overhumidity and lack of air. The time course of water imbibition was investigated. When the soil moisture content was kept at 60% of the maximum water holding capacity, the moisture content of the seeds (fresh weight basis) was 47% after 12 hours and 53% after 24 hours while at 40% soil moisture content it was 27% after 24 hours. Soybean seed begins to germinate at a moisture content of 50% (fresh weight basis), being higher than corn (31%) and rice (26.5%) (3).

Table 4. Effect of soil moisture content on the germination of soybean seed

Germination percentage (%)

Days	Moisture content of the soil (% of maximum water holding capacity)							
	100	90	80	70	60	50	40	30
2	9	22	41	50	45	14	0	0
3	14	48	67	83	95	17	0	0
4	20	58	78	86	98	50	0	0

At a moisture content of 60% to the maximum water holding capacity, the seeds could absorb enough water for germination within a day.

Salt injury; The influence of fertilizer placement on the seedling emergency was investigated. The treatment in the experiment was a combination of 3 levels of fertilizer and 3 levels of its placement. Urea and TSP were applied at the rate of 0, 0.2 and 0.5g N and P_2O_5 each per pot. The placement of fertilizer was 0, 2 and 5 cm below the seed placement.

Fertilizer application at a rate of 40 kg/ha with a plant spacing of 20 hills/m^2 is equal to 0.2 g/hill.

Germination did not occur when fertilizers were applied at the same level (0 cm) as the seeds. When applied 2 cm below the seed level at the rate of 0.2g N and P_2O_5 per pot, the plant height was very low and the root development stopped at the fertilizer level. The dry matter weight of the top was 225 mg per plant. In case of 0.5g application, the root did not develop. When urea and TSP were applied 5 cm below the seed placement, the plant height was the same as no fertilizer, however the root development was limited to 0 - 5 cm below the seed level and the dry matter weight of 0.2 and 0.5 treatments were 335 and 270 mg per plant, respectively.

In this experiment, urea and TSP were applied at the same time and it is not clear which is the main cause of the salt injury. Urea or TSP was applied at the rate of 0.1, 0.2, 0.4, 0.6 and 1.0g as N or P_2O_5 per 100g soil, 1 cm below the seed level. In case of urea treatments, germination did not occur at all in every treatments. In case of TSP, seedling emergence was observed in all treatments, but the growth of the seedlings of 0.4 to 1.0g P_2O_5 was inferior to the control.

In another experiment, where urea was mixed well with soil, germination was observed up to the rate of 0.25g N/100g soil. However, in 0.25g N plot the development of the lateral roots was very poor, in 0.1g N plot the growth of the root was the same as the control.

The seedling emergence did not occur at P_2O_5 level higher than 0.5g.

In the experiments mentioned above, fertilizer was applied at the same level or below the seed placement. In order to investigate the effect of urea application in relation to horizontal placement, an experiment was conducted using latosol soil.

Urea was applied at the center of Neubauer pots at the rate of 1.0g N/pot and soybean seeds were sown 1, 2 and 5 cm aside the urea spot. The results were as follows.

When sown at 1 cm aside the urea spot, the seeds did not germinate at all, at 2 cm the root development was only slightly inferior and at 5 cm the growth of the seedlings was the same as no urea treatment.

The salt injury caused by urea is well known. It is caused by the toxic action of biuret contained as an impurity in urea or by ammonia gas evolved from urea. In these experiments, the reagent chemicals of urea was used, so the cause of the salt injury is considered due to ammonia gas.

From the results mentioned above, the relative placement of fertilizer to avoid the salt injury should be at least 5 cm below the seeds level and 2 cm aside the seeds.

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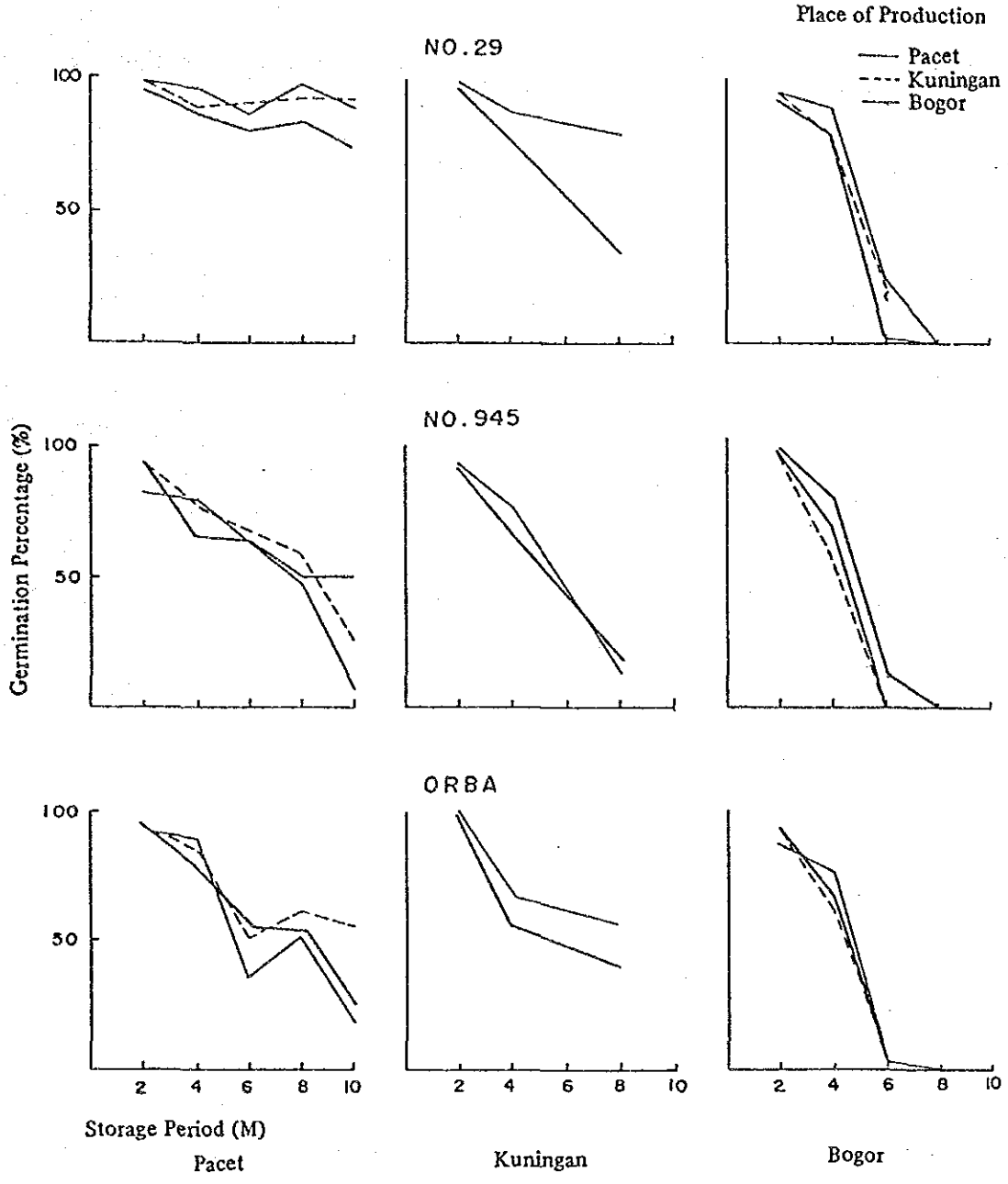

Fig. 1 Effect of the place of production and storage on the germination percentage of soybean seeds.

Cargo Transportation Rate (1986-87)

Province (Area)	Transportation Rate (ton/km)	Agency to be applied
Sematra	Rp66	Lampiran Keputusan Menteri Perhubungan (LKMP)
Jawa	66	"
Jawa Timur	85	DOLOG
Bali	66	LKMP
Kalimantan	90.75	"
Sulawesi	96	"
Sulawesi Utara	120	DOLOG
Maluku	130	LKMP
Nusa Tenggara Barat	102.06	"
Nusa Tenggara	102.06	"
Irian Jaya	126	"