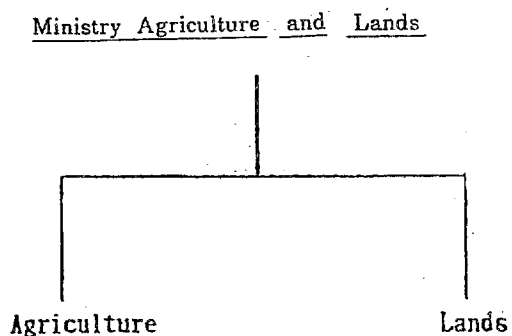


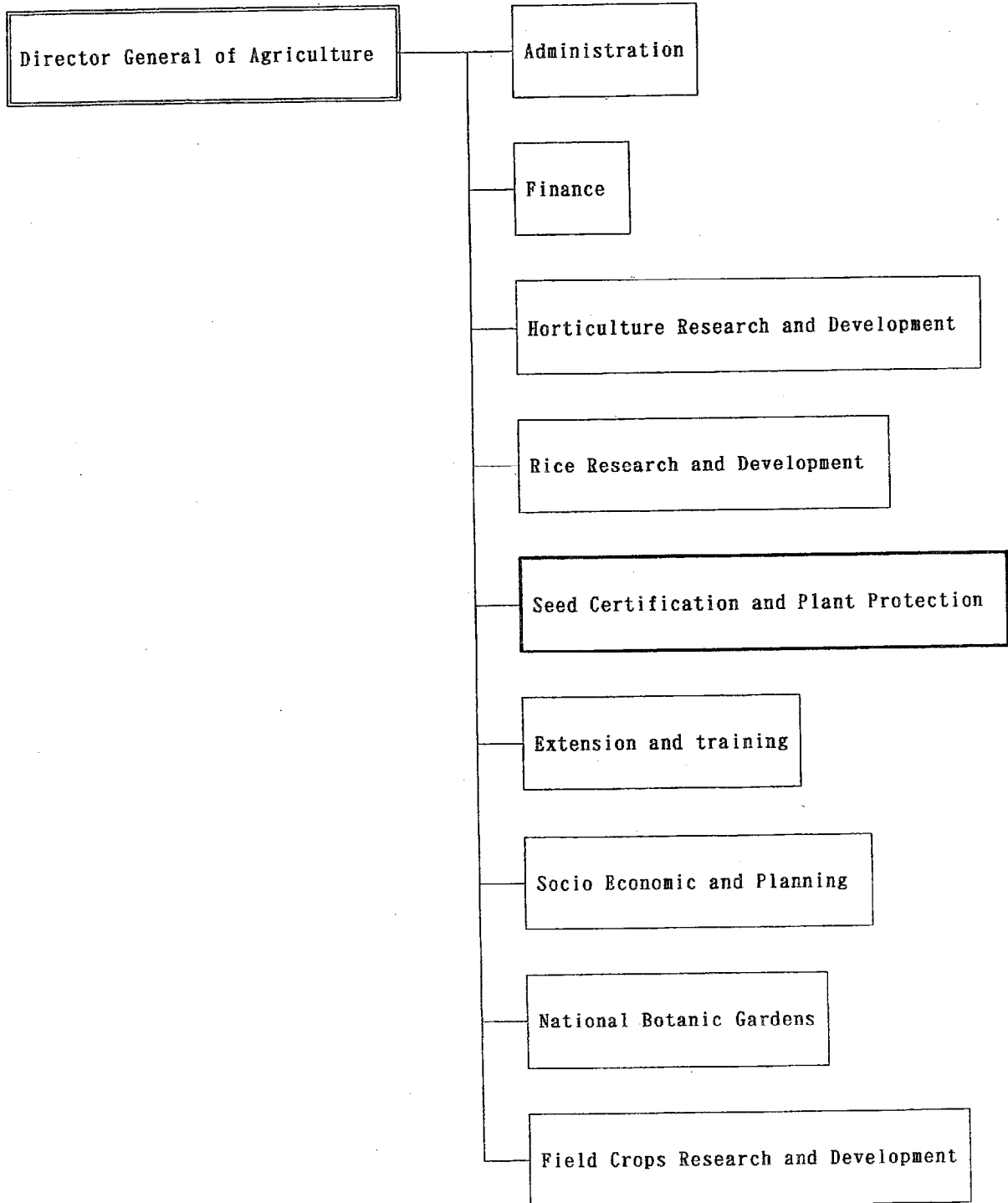
2 関連機関組織図

(1) 農業土地省



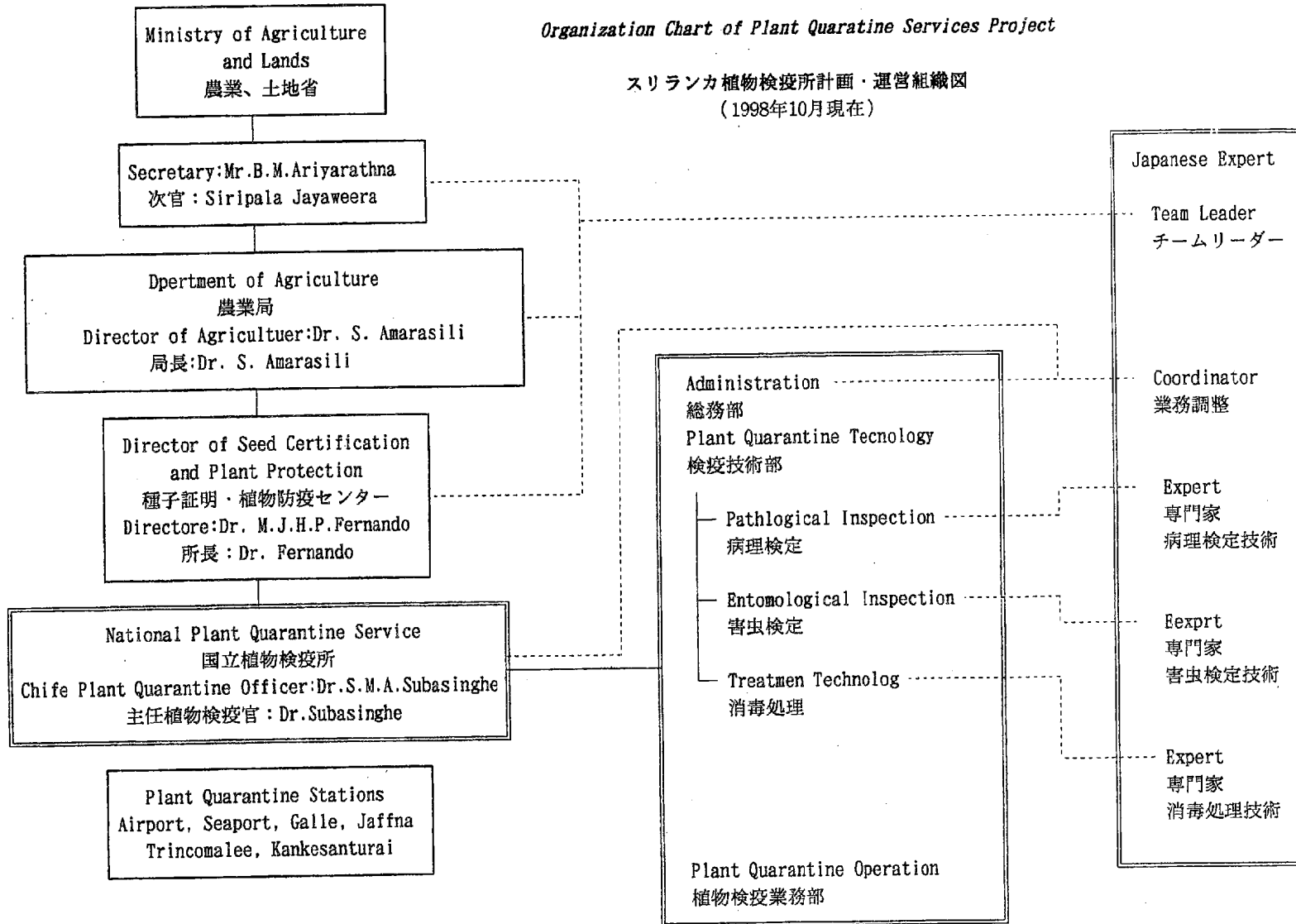
- |                                     |                     |
|-------------------------------------|---------------------|
| * Dept. of Agriculture              | * Land Commission's |
| * Dept. of Export Agriculture       | Dept.               |
| * Dept. of Agriculture Services     |                     |
| * Council for Agricultural          | * Land Settlement   |
| Research Policy                     | Dept.               |
| * Agrarian Research &               | * Survey Dept.      |
| Training Institute                  |                     |
| * National Agricultural             |                     |
| Diversification and Settlement      |                     |
| Authority                           |                     |
| * Agricultural Insurance Board      |                     |
| * National Freedom from Hunger      |                     |
| Campaign Board                      |                     |
| * Agricultural Development          |                     |
| Authority                           |                     |
| * Fertilizer Corporation Ltd.       |                     |
| * Paddy Marketing Board             |                     |
| * Marketing Development Board       |                     |
| * Perineal Crop Development Project |                     |
| * National Fertilizer Secretariat   |                     |
| * Commercial Fertilizer co. Ltd.    |                     |

(2) 農業総局組織図 (1998年4月17日改変)



Organization Chart of Plant Quarantine Services Project

スリランカ植物検疫所計画・運営組織図  
(1998年10月現在)



(3) 農業局

3 カウンターパート配置一覧

平成10年度 第3四半期現在

分野	配置状況	配置状況						本邦研修		備考 (技術移転・技術修得状況等に関するコメント等)	
		予算年	1994年	1995年	1996年	1997年	1998年	1999年	年度		主な研修先
		月	5 7 10 1	5 7 10 1	5 7 10 1	5 7 10 1	5 7 10 1	5 7 10 1			
リ 1 ダ 1	B. M. Ariyaratna (次官) Jayaweera (次官) Dr. M. J. H. P. Fernando (農業局長=兼務) Dr. Amarasiri (農業局長) Dr. M. J. H. P. Fernando (種子証明・植物防疫セ ンター所長)		—————			—————			97 96	横浜植物防疫所 横浜植物防疫所	(檢疫行政個別研修) (檢疫行政個別研修)
調 整 員	Dr. S. M. H. Subasinghe S. P. Dharmawardena V.A.C.de Mel		————— (空港PQ)						93	横浜植物防疫所	
病 理 検 定	Y. de Silva Dr. P. Jayanandarajah J. S. Jayasekara L. B. Hettimulla W. G. S. Perera S. M. T. K. Samaratunga A.R.W.M.M.U.M.Amarakoon Malika P.G.Yasamali					————— (退職)			97 95 95	横浜植物防疫所他 横浜植防調査研究部 横浜植物防疫所大和園圃部	(走査電子顕微鏡個別研修) (植物病原糸状菌個別研修) (植物ウイルス病学個別研修)
害 虫 検 定	H. M. J. Bandara Hewage R. P. D. W. Rajapakse A. S. P. Weerasinghe U. C. Kahawatta G. B. J. P. Rajapakse K. G. I. Fernando S. A. H. Sundarapperuma K.S.Pushupakanthi					————— (退職)			93 97 97 95 96	横浜植物防疫所 那覇植物防疫事務所 横浜植物防疫所 横浜植物防疫所調査研究部(線虫) 横浜植防・那覇植防	(ミバエ殺虫技術集団研修) (鱗翅目害虫同定個別研修) (線虫学個別研修) (ミバエ殺虫技術個別研修)

(注1) 配置状況はバーチャート方式により ————— 配置実績 ————— 本邦研修。(----- 直接専門家の指導を受けていないカウンターパート)  
 (注2) 分野は原則として、日本人専門家の担当分野(指導科目)に対応させる。

(続き)

平成10年度 3 四半期現在

分野		配置状況						本邦研修		備考 (技術移転・技術修得状況等に関するコメント等)	
		予算年	1994年	1995年	1996年	1997年	1998年	1999年	年度		主な研修先
		月	5 7 10 1	5 7 10 1	5 7 10 1	5 7 10 1	5 7 10 1	5 7 10 1			
検 疫 処 理	L. Senanayake		—————						94	横浜植物防疫所	( 燻蒸危害防止個別研修)
	C. H. Iddagada		—————						95	横浜植物防疫所	( 検疫処理技術個別研修)
	D. K. Arachchi								95	那覇植物防疫事務所 (集団)	( ミバエ殺虫技術集団研修)
	R. P. R. Malkanthi										
	K. D. Ariyaratna										
	J.D.Weerasooriya								96	横浜植物防疫所	( 検疫処理技術集団研修)
	G.G.Saparamadu										
検 疫 業 務 部	K.P.B.Sunilchandra										
	H.B.S.Bandara										
	C. P. Siripala		-----						94	横浜植物防疫所	( 空港検疫個別研修)
	W. D. L. Stanley		-----								
	K.A.D.Ariyaratne										
	V. A. C. de Mel										
	Sunil Chandra										

(注1) 配置状況はバーチャート方式により ————— 配置実績 ———— 本邦研修。( ----- 直接専門家の指導を受けていないカウンターパート)

(注2) 分野は原則として、日本人専門家の担当分野(指導科目)に対応させる。

4 供与機材利用・管理状況表

(無償資金協力 160万円超及び車輛類)

供与年度	番号	機材名(メーカー・型式)	価格	数量	利用(保管)場所	利用状況	管理状況	備考(特記事項)
無償資金	C-239	ピックアップ(いすゞ TFR54H-29)		1	ガレージ	A	A	(54-8050)
	C-239	ピックアップ(いすゞ TFR54H-29)		1	ガレージ	B	A	(54-8051)
	C-241	四輪駆動車(いすゞ ツールーパー UBS68G-18)		1	作物保護種子証明センター	A	B	
	C-241	ボックスバン		1	ガレージ	B	A	
	C-159	オートバイ(川崎/bajaji 100RTZ)		5	ガレージ	E	B	車輛登録未了
	C-179	耕耘機(KUBOTA K120XRK105)		1	ガレージ	B	A	

(無償資金協力 10万円以上160万円以下の機材)

供与年度	番号	機材名(メーカー・型式)	価格	数量	利用(保管)場所	利用状況	管理状況	備考(特記事項)
無償資金	C-007	オートクレーブ(TOMY SS-325)		3	害虫、組織培養、ミバエ準備室	B	A	
	C-008	土壤滅菌器(UDONO SRSP-11-Y-18-S)		1	土壤消毒庫	C	B	土壤消毒用
	C-027	カメラ(NIKON F-40LX AF)		2	病理検定室、害虫検定室	C	A	材料のある時
	C-031	高速遠心器(HITACHI CR21)		1	ウィルス検定室	C	A	材料のある時
	C-040	液体冷却装置(YAMATO BL-51)		1	器機分析室	E	A	材料無し
	C-055	コピー機(CANON NP-3325)オートシートフィーダー付き		1	アドミニストレーション	E	B	故障中
	C-059	超低温冷凍庫(SANYO MDF-729AT)		1	ウィルス検定室	A	A	
	C-072	電気泳動装置(KATAGAKI CEP-3)		1	ウィルス検定室	B	A	短期専門家派遣時
	C-080	ドラフトチャンバー(YAMATO FHS-15OSBZ)		4	病理、ウィ、組培、器分	A	A	
	C-082	薫蒸庫 30㎡(KANTOH KOGYOU)		1	薫蒸室	A	A	
	C-083	減圧薫蒸庫 6㎡(KANTOH KOGYOU)		1	薫蒸室	A	A	
	C-086	ガスクロデータ処理装置(HITACHI D-2500)		1	薫蒸検査室	E	A	庫内濃度測定
	C-087	ガスクロ FID付き(HITACHI D-2500)		1	薫蒸検査室	B	A	庫内濃度測定
	C-108	焼却炉(BN-600)		1	屋外設置	A	A	
	C-109	インキュベーター(SANYO MIR-552)		1	線虫検定室	B	A	
	C-110	低温恒温器(YAMATO IN-81)		5	病理(3)、害虫、薫蒸検査	B	A	
	C-134	インキュベーター(SANYO MDF-U331)		1	病理検定室	B	A	
	C-144	生物顕微鏡(NIKON Y2F-21)		3	病理、組織培養、害虫	B	A	
	C-145	生物顕微鏡 カメラ付き(NIKON X2F-21, AFX-DX-35)		1	病理検定室	B	A	
	C-146	顕微鏡 カメラ付き(OLYMPUS BHS-313, PM16-35APS-2)		1	線虫検定室	B	A	

(無償資金協力 10万円以上160万円以下の機材)

供与年度	番号	機材名(メーカー・型式)	価格	数量	利用(保管)場所	利用状況	管理状況	備考(特記事項)
無償資金	C-147	位相差顕微鏡(NIKON X2F-ph-21)		1	線虫検定室	B	A	
	C-148	金属顕微鏡(NIKON XPF-UBD)		1	害虫検定室	B	A	
	C-154	凍結マイクロトーム(SAKURA CM-501)		1	病理検定室	C	A	毎日使うような機材ではない
	C-171	パソコン(IBM PS/1/2133-X51)		1	検疫業務室	E	C	故障中
	C-172	パソコン(IBM PS/1/2133-X51)		1	アドミニストレーション	E	C	故障中
	C-174	ファイトトロン(NIPPON LH-200-RDCT)		2	組織培養室	D	A	電力消費大
	C-180	プレハブ冷蔵庫(SANYO PCU-S3000)		1	冷蔵庫	A	A	
	C-181	プレハブ冷蔵庫(SANYO MCU-1160-F)		1	冷蔵庫	A	A	
	C-191	冷凍冷蔵庫(SANYO SR-32VF)		7	病理、ウ、組織、害虫、線虫、ミバ準、検	A	A	
	C-194	クリーンベンチ(HITACHI PCV-1303 BNG3)		1	病理、ウィルス、組織培	B	A	
	C-206	ソフテックス(SOFTEX ISTV-25, IMAGE Σ II)		1	害虫検定室	C	A	材料のある時
	C-208	分光光度計(SHIMAZU FTIR-8101)		1	器機分析室	D	A	材料無し
	C-209	分光光度計(UV-VIS HITACHI U-3210)		1	器機分析室	D	A	材料無し
	C-230	低温処理装置(TABAIPU-45SP)		2	消毒処理室	B	A	
	C-238	蒸熱処理装置(SANSHUU SANGYO BHK-1000D)		2	消毒処理室	B	A	
	C-242	ビデオカメラ一式(JVC GR-AX107E)		1	研修室	C	A	頻りに使う機材ではない
	C-243	ビデオ一式(JVC C-4-05)		1	研修室	C	A	必要なときのみ



(供与機材 160万円以上の機材)

供与年度	番号	機材名(メーカー・型式)	価格	数量	利用(保管)場所	利用状況	管理状況	備考(特記事項)
平成6年	94H001	ピックアップトラック(トヨタ・ハイラックス4WD)	1,606	1	ガレージ	B	A	
	94H002	4輪駆動車(三菱パジェロハイルーフワゴン)	2,321	1	ガレージ	A	A	
	94H003	4輪駆動車(三菱パジェロハイルーフワゴン)	2,321	1	ガレージ	E	D	テロにより大破
平成7年	95H001	走査電子顕微鏡(日本電子JSM-5310LV)	13,405	1	走査電顕室	B	A	
平成8年	96H001	超遠心器(日立CP100A)	13,500	1	分析機器室	C	A	必要なときのみ

(供与機材 10万円以上160万円以下の機材)

供与年度	番号	機材名(メーカー・型式)	価格	数量	利用(保管)場所	利用状況	管理状況	備考(特記事項)
平成6年	94L001	コンピューター(コンパック KONTOURA 4/25)	210	1	リーダー室	C	A	OSやソフトが古い
	94L002	コンピューター(コンパック KONTOURA 4/25)	210	1	リーダー室	E	A	故障中
	94R001	コピー機(キャノン NP 4050)	988	1	専門家室	A	A	
	94R002	エアコン(サンヨー SAP=K 243 GS5)	160	2	専門家室	A	A	
	94L003	コンピューター(富士通 FMV-433SD2)	925	1	調整員室	A	A	
	94L004	コンピューター(富士通 FMV-433SD2)	925	1	専門家室	A	A	
	94L005	酸素吸入器(KOKEN 843 HV)	345	1	処理準備室	E	A	中形を起こした時のみ使用
平成8年	96R001	エアコン(富士電機 FH/100-FVE+R100-FY1)	251	1	害虫実験室	A	A	
	96R002	除湿器(P・S工業 DH-10A)	248	1	害虫実験室	A	A	
平成7年	95L001	自動分注器(柴田科学オートマクロ2555-25)	370	1	病理実験室	B	A	
	95L002	ホットスターラー(HS-5LH)	101	1	病理実験室	A	A	
	95L003	簡易水質検査機(東洋計量器WSA-D2R)	148	1	ストアークeeper保管	E	A	水質検査の必要なし
	95L004	実体顕微鏡(ニコンSMZ-10A-1)	374	1	処理倉庫	C	A	微小害虫検査時
	95L005	実体顕微鏡(ニコンSMZ-10A-1)	374	1	処理倉庫	C	A	微小害虫検査時
	95L006	実体顕微鏡(ニコンSMZ-10A-1)	374	1	処理倉庫	C	A	微小害虫検査時
	95L007	防爆型冷蔵庫(日本フリーザー-3557-1)	652	1	処理準備室	A	A	
	95L008	記録温度計(チノLE1252ONNN)	2,025	3	処理室	A	A	
	95L009	CABソフトウェア(CAB-CD)	850	1	害虫実験室	A	B	
	95L010	コンピューター(IBM6873JCP)	171	1	害虫実験室	B	B	
平成8年	96K001	走査電顕用カメラ(MP35060)	230	1	走査電顕室	B	A	

## (供与機材 10万円以上160万円以下の機材)

供与年度	番号	機材名(メーカー・型式)	価格	数量	利用(保管)場所	利用状況	管理状況	備考(特記事項)
平成8年	96K002	対物レンズ(NCEPLANAPO60X)	246	1	病理実験室	C	A	材料がある時のみ使用
	96K003	対物レンズ(NCFPLANAPO40X)	220	1	病理実験室	C	A	材料がある時のみ使用
	96K004	スターラー(55-4039-01 IGITAL)	123	1	病理実験室	B	A	
	96K005	検定付き温度計 0℃～50℃	118	1	燻蒸検査室	C	A	庫内温度調整用
	96K006	検定付き温度計 -50℃～0℃	149	1	燻蒸検査室	C	A	庫内温度調整用
平成9年	97K001	水素発生装置	600	1	燻蒸検査室	E	A	庫内ガス濃度測定用
	97K002	ポテンションメーターボックス	365	1	蒸熱処理機	A	A	
	97K003	ポテンションメーターボックス	365	1	蒸熱処理機	A	A	
	97K004	イオン交換樹脂	100	3	蒸熱処理機	A	A	
平成8年	96L001	冷蔵庫(MPR-311DR)	200	1	病理実験室	A	A	
	96L002	冷蔵庫(MPR-311DR)	200	1	病理実験室	A	A	
	96L003	冷蔵庫(MPR-311DR)	200	1	病理実験室	A	A	
	96L004	倒立顕微鏡(NIKON TE300-2)	1,600	1	病理実験室	B	A	
	96L005	オートドライデシケーター(NBG-1KM:本体+ADDLA-S)	163	1	病理実験室	A	A	
	96L006	オートドライデシケーター(NBG-1KM:本体+ADDLA-S)	163	1	病理実験室	A	A	
	96L007	オートドライデシケーター(NBG-1KM:本体+ADDLA-S)	163	1	病理実験室	A	A	
	96L008	恒温水槽(B601)	216	1	病理実験室	B	A	
	96L009	超音波洗浄機(8210DTH+アクセサリー)	276	1	病理実験室	A	A	
	96L010	超音波洗浄機(8210DTH+アクセサリー)	276	1	病理実験室	A	A	
	96L011	超音波洗浄機(8210DTH+アクセサリー)	276	1	病理実験室	A	A	

(供与機材 10万円以上160万円以下の機材)

供与年度	番号	機材名(メーカー・型式)	価格	数量	利用(保管)場所	利用状況	管理状況	備考(特記事項)
平成8年	96L012	超音波ピペット洗浄機(AW-31+アクセサリ)	274	1	病理実験室	A	A	
	96L013	超音波ピペット洗浄機(AW-31+アクセサリ)	274	1	病理実験室	A	A	
	96L014	超音波ピペット洗浄機(AW-31+アクセサリ)	274	1	病理実験室	A	A	
	96L015	オートクレーブ(SS-325+アクセサリ)	392	1	病理実験室	B	A	
	96L016	オートクレーブ(SS-325+アクセサリ)	392	1	病理実験室	B	A	
	96L017	オートクレーブ(SS-325+アクセサリ)	392	1	病理実験室	A	A	
	96L018	実体顕微鏡(SMZ-10A-5+アクセサリ)	692	1	処理準備室	B	A	
	96L019	実体顕微鏡(SMZ-10A-3+アクセサリ)	1,252	1	処理準備室	B	A	
	96L020	実体顕微鏡(SMZ-10A-3+アクセサリ)	1,252	1	処理準備室	B	A	
	96L021	実体顕微鏡(SMZ-10A-6+アクセサリ)	484	1	処理準備室	B	A	
	96L022	ウォーターバス(BH-500)	328	1	処理準備室	B	A	
	96L023	位相差顕微鏡(X2F-Ph-21+アクセサリ)	738	1	処理準備室	B	A	
	96L024	空気呼吸器(843HVP+スミアマスク)	206	1	処理準備室	E	A	事故対策用
	96L025	ガス検知器(Model-18)	168	1	燻蒸庫	B	A	
	96L026	ガス検知器(Model-21)	232	1	燻蒸庫	B	A	
	96L027	カメラ(F50D)	230	1	処理準備室	C	A	処理実験に使用
	96L028	恒温器(IS-800)	408	1	処理準備室	B	A	
	96L029	冷却器(BE-200)	184	1	処理準備室	C	A	処理実験に使用
平成9年	97K005	キャビネット(CC-80/J)	127	1	害虫実験室	A	A	

## PLANT PROTECTION ACT

AN ACT TO MAKE PROVISION AGAINST THE INTRODUCTION INTO SRI LANKA AND THE SPREADING THEREIN OF ANY ORGANISM HARMFUL TO, OR INJURIOUS TO OR DESTRUCTIVE OF PLANTS, AND FOR THE SANITATION OF PLANTS IN SRI LANKA: FOR THE REPEAL OF THE PLANT PROTECTION ORDINANCE (CHAPTER 447): AND FOR MATTERS CONNECTED THEREWITH OR INCIDENTAL THERETO.

### PART I

#### AUTHORITY

- 1 This Act may be cited as the Plant Protection Act, No. of 1998.
- 2 The Director General of Agriculture here in after in this Act referred to as Director General shall be in charge of general administration of this Act by performing the functions assigned or transferred to him by or under this Act.
- 3 (1) There shall be Authorised Officers appointed by the Director General as may be necessary for the purpose of this Act.  
(2) Any power, duty, or function of the Director-General under this Act, may be exercised, performed, or discharged by any public officer either generally or specifically authorised in writing on that behalf by the Director-General.

### PART II

#### PROCEDURE

Entry on premises for purpose of inspection

- 4 1) It shall be lawful for the Director-General or an Authorised Officer with or without assistants, to enter, at all reasonable times, upon any premises suspected to harbour a pest or pests for the purpose of inspecting and examining whether a pest or pests exist therein, and the importer, the owner or the occupier, as the case may be, of such premises or of such organisms shall afford all reasonable facilities for inspection and examination. The identity

of the Authorised Officer shall be shown to the owner or occupier before entry into the premises .

- (2) After inspection and examination referred to in subsection (1), if the Director General or the Authorised Officer is reasonably satisfied that a pest or pests exist in any premises, having regard to the nature of the pest or pests and the likelihood of its or their spread, the Director-General or the Authorised Officer shall communicate his decision, in writing with the reasons therefore, to the importer, owner or occupier, directing the importer, the owner or occupier, as the case may be, of such organisms or premises to carry out appropriate measures for the prevention or spreading of such pest or pests.
- (3) It shall be the duty of the importer, the owner, or the occupier, as the case may be, of the premises, to comply with the direction made by Director-General or Authorised Officer under subsection (2). unless such importer, owner or occupier prefers an appeal against such direction in a manner prescribed by section 8.

Director  
General or  
Authorised  
officer or  
person  
assisting  
them not to  
be deemed  
trespasser  
by reason of  
entry etc

- 5 Neither the Director General nor any authorised officer, or any person assisting them shall be deemed a trespasser by reason of any entry or destruction of plant and plant products or action taken or thing done under this Act or any Regulation made thereunder, or be liable to any damage or prosecution occasioned by carrying out any of the provisions of this Act or of any Regulation made thereunder unless the same was occasioned maliciously or without reasonable and probable cause.
- 6
  - (1) Where any importer, owner, or occupier is required or directed under this Act or under any of its regulations to carry out any measures or to execute any work in or upon any premises, and if such person fails, neglects, or refuses to comply with such requirement or direction, the Director-General or Authorised Officer with or without assistants may enter such premises for the purpose of carrying out such measures or executing such work.
  - (2) The Director-General or Authorised Officer entering any premises under subsection (1) above may take with him such equipment, machinery, and vehicles as are necessary for the purpose of facilitating the exercise of his powers under that subsection.
  - (3) All reasonable expenses incurred by the Director General or Authorised Officer for the purpose of carrying out any measures or executing any work in or upon any premises under subsection (1)

and government charges shall be payable by the person who was required or directed under this Act or under any of its Regulations to carry out such measures or execute such work, and shall be recoverable from that person in the manner hereafter provided.

- (4) Any reasonable expenses payable by any person under subsection (3) may be recovered, upon application made by the Director General to the Magistrate's Court having jurisdiction in the place where such person is resident or where the measures were carried out or where the work was executed, in like manner as a fine imposed by that court, notwithstanding that the amount of such expenses and government charges may exceed the amount of the fine which such court may in the exercise of its ordinary jurisdiction impose.
- (5) Imposition of a fine under subsection (4) shall not relieve such person from any penalty he may have incurred by reason of his failure, neglect, or refusal to comply with requirement or direction made under this Act or under any of its Regulations.

### PART III

#### OFFENCES AND PENALTIES

Penalty for  
contravention  
of Ordinance  
or Regulation  
thereunder.

- 7 (1) If any person, without lawful authority or excuse (proof whereof shall lie on him), contravenes any regulation made under this Act, or does or omits to do anything which under the provisions of this Act or of any regulation made thereunder he ought not to do, or omit to do, or if he molests, obstructs, or impedes, or assists in molesting, obstructing, or impeding, or if he provokes people to molest, obstruct, or impede, the Director-General, or any Authorised Officer, or any Customs Officer, or any person assisting them, in the execution of any provisions of this Act or any Regulation made thereunder, he shall be guilty of an offence against this Act.
- (2) Any person who is guilty of an offence under this Act or any Regulation made thereunder, shall be liable on conviction before a Magistrate to imprisonment of either description to a term not less than one month and not exceeding six months, or to a fine not less than ten thousand rupees and not exceeding one hundred thousand rupees, or to both such fine and imprisonment.

- (3) It shall be lawful for a Magistrate to summarily try any offence against this Act or any Regulation made thereunder, notwithstanding that the punishment specified for such offence is in excess of the ordinary jurisdiction of such Magistrate.
- (4) Any vehicle or carrier or other instrument, contrivance, appliance, or thing used in, for the commission of any offence against this Act or any Regulation made thereunder, may by reason of that conviction be forfeited to the State.
- (5) Every person who shall under pretence of performing any Act under the authority of this Act or any Regulations made thereunder be guilty of any unnecessary violence or cause unnecessary loss to anyone or unnecessary annoyance shall be guilty of an offence against this Act.
- (6) Where an offence against this Act or any Regulation made thereunder has been committed by a body of persons then;
  - a) If that body of persons is a body corporate, every director, manager, secretary, or officer of that body corporate; or
  - b) If that body is a firm, every partner and every manager of that firm;

Shall be guilty of that offence unless he proves that the offence was committed without his consent or concurrence and that he exercised all due diligence to prevent the commissioning of such offence.

#### PART IV

#### APPEALS

- 8 (1) There shall be established an Appeals Panel consisting of three scientists for the purpose of hearing and adjudicating of appeals from any person or persons aggrieved by any decision made by the Director General of Agriculture or the Authorised Officers under section 4(2) of this Act.
- (2) The Appeals Panel shall be appointed by the Secretary from a pool of scientists qualified in the fields of Entomology, Plant Pathology, Microbiology, Mycology, Virology, Nematology and of any other pest organism.



- (3) Any person who is aggrieved by the decision of the Director-General or Authorised officer under section 4 (2) of this Act may within 24 hours of the communication of such decision to him, appeal in writing against such decision to the Secretary giving reasons. The appeal shall accompany a monetary deposit specified by the Minister in the form of a Bank Draft or Money Order in favour of the Director General of Agriculture. The deposit shall be refunded only if the appeal nullifies the decision of the Authority.
- (4) The Appeals Panel appointed under subsection 8 (1) shall provide their decision within five working days after the appeal is received by the Secretary. The decision of the Appeal Panel shall be final and conclusive and shall be communicated immediately by the Secretary to the Appellant and the Authority.
- (5) The members of the Appeals Panel shall be remunerated per sitting by the Secretary based on current rates of local consultancy services.

## PART V

### QUARANTINE PESTS

- 9 (1) The Minister may, from time to time by notification in the Gazette, declare Quarantine Pests which shall not be imported into Sri Lanka as themselves or as infestations on any plant or plant product except if imported under the provisions of the subsection (6) given below.
- (2) If any person has proof for the presence of a Quarantine Pest or Pests declared by the Minister under subsection (1) above within any area in Sri Lanka not specified by the Minister, he shall forthwith report in writing the presence of such pest or pests to the Director General.
- (3) No person shall knowing keep, sell, plant, release, deliver, or otherwise dispose of, or knowing cause or permit to be kept, sold, planted, released, delivered, or otherwise disposed of any plant or plant product infested with the pests declared by the Minister under subsection (1) above, unless such person has specific written instructions from the Director General to do so.

- (4) Nothing in subsection (3) above shall prohibit the destruction, or the delivery to the Director General and to an Authorised Officer of any plant or plant product referred to in that subsection.
- (5) If the director general receives information on the presence of any Quarantine Pests in any area within Sri Lanka, he shall forthwith take actions deemed necessary by him to control such pests.
- (6) Notwithstanding the provisions of this Act, any Quarantine Pest or Pests declared by the Minister under subsection (1) or any plant or plant product infested by such pest or pests may be imported into Sri Lanka strictly for scientific studies by the Government of Sri Lanka after giving notice to the Director General, under the authority of an import permit issued previously by the Director General, and in accordance with the conditions and adequate safeguards (which shall include facilities and trained personnel for the proper quarantine of the material imported) specified by the Director General).
- (7) The importation of Quarantine Pest or Pests, or plants or plant products infested by such pests under subsection (6) shall be done only by government organization involved in scientific research and only if proper facilities including the trained personnel specified by the Director General are available with such organization for the containment and quarantine of such pests or such plants or such plant products in such government organization.

## PART VI

### GENERAL

- 10 (1) The Minister may make Regulations in constitution with the respect of any matter required by this Act to be prescribed or in respect of which Regulations are authorised to be made.
- (2) In particular and without prejudice to the generality of the powers conferred by subsection (1), the Minister may make Regulations:
- (a) for the prevention of introduction into Sri Lanka, or for the eradicating, or for the preventing, of spreading therein of pests, and for the export of plants, plant products or organisms from Sri Lanka;
  - (b) for restricting or prohibiting the importation into Sri Lanka of any plants, plants products and organisms and for restricting or prohibiting the entry points at which they may be landed;
  - (c) for restricting or prohibiting the landing in Sri Lanka of plants, plant products and organisms either absolutely or conditionally;
  - (d) for providing for the importation of organisms under special license and conditions;
  - (e) for inspecting and or testing plants, plant products and organisms at, before or after the time of landing;
  - (f) for testing, cleaning, fumigating or disinfecting, at the expense of the importer and owner and if expedient, destroying at, before or after landing and with or without compensation, as the case may be, all plants, plant products and organisms, or the packages, cases, pots, or coverings in which they may be packed, which shall be found or found to be infected with any pest or pests and for the recovery of prescribed fees from the importer and or owner.

- (g) for requiring the quarantine of plants, plant products and organisms imported or to be imported, in special areas, and for fixing the conditions of such quarantine and the fees to be charged therefor;
  - (h) for preventing the outbreak or dissemination of any pest within Sri Lanka;
  - (i) for declaring any area to be an infested area, and for the proper quarantine of an specified area declared as being infested with any pest;
  - (j) for testing, treatment and or destruction and proper disposal of plants, infested plants, or the family of the plants within Sri Lanka affected or likely to be affected with any pest;
  - (k) for restricting or prohibiting the cultivation of any plant or plants for a specified period or periods within any specified area or areas in Sri Lanka;
  - (l) for regulating the transfer of plants, plant products or organisms from one locality to another;
  - (m) for the constitution of committees to advise the Authority and the Authorised Officers, and to take such other action as may be necessary to ensure the effective administration of the provisions of this Act;
  - (n) for ensuring the phytosanitary status of plants, plant products or organisms exported from Sri Lanka;
  - (o) for charging fees for implementing the provisions of this Act and the regulations made thereunder;
- (3) Every Regulation made by the Minister shall be published in the Gazette and shall come into operation on the date of publication or on such later date, as may be specified in the regulation.
- (4) Every Regulation made by the Minister shall as soon as convenient after its publication in the Gazette be brought before Parliament for approval. Any such regulation which is not so approved shall be deemed to be rescinded as from the date of its disapproval, but without prejudice to anything previously done thereunder.

- (5) Notification of the date on which any Regulation made by the Minister is so deemed to be rescinded shall be published in the Gazette.
- 11 (1) The Plant Protection Ordinance (Chapter 447) is hereby repealed.
- (2) Notwithstanding the repeal of the aforesaid ordinance every Regulation made under the repealed ordinance as in force on the date of coming into operation of this Act in so far as they are not inconsistent with the provisions of this Act be deemed to be a regulation made under this Act and may be amended or rescinded by Regulation made under this Act.

## PART VII

### INTERPRETATION

- 12 (1) In this Act and any Regulations made thereunder, unless the context otherwise requires;
- “Authorised Officer” shall be an officer appointed by the Director General;
- “Director General” shall be the Director General of Agriculture;
- “Importer” shall be (a) any person whether as importer consignor, consignee, agent, broker, or otherwise is in possession of or in any way entitled to the custody or control of the plant, plant product and organism; and (b) any person by whose action the plant, plant products or organism has been landed in or entered into Sri Lanka;
- “Minister” shall be the Minister in charge of the subject of Agriculture;
- “Occupier” shall include the proprietor, lessee, superintendent, manager, captain of a ship or vessel or other person in actual charge of any premises;
- “Organism” shall include any active, infective, or dormant stage or

life form of an entity characterised as living, including plants, bacteria, algae, fungi, phytoplasmas, mycoplasmas, mycoplasma – like entities, protozoa, vertebrate and invertebrate animals, as well as entities such as viruses, viroids, plasmids, phages or any living entity, related thereto, whether natural, genetically modified, or otherwise;

“Owner” shall mean holder or possessor of plants, plant products or organisms.

“Pest” shall mean any biotic agent capable of causing injury or damage or economic losses to plants or plant products;

“Plant” shall mean all members of the plant kingdom, whether living or dead, or any part or parts of such, or seeds or preserved plants or plant products;

“Plant product” shall mean all unprocessed material of plant origin including grain and those products of plant origin that by their nature or that of their processing, may create a risk for the spread of pests;

“Premises” shall mean any land, water reservoir, building, establishment, stores, freight container, vehicle, vessel, aircraft, or conveyance wholly or partly used for keeping, storing, transporting, or growing plants or for keeping, storing, or transporting plant products;

“Quarantine pest” shall mean a pest of potential economic or environmental importance to any area within Sri Lanka and not yet present there, or present but not widely distributed and being officially controlled.

“Secretary” shall be the Secretary of the Ministry of Agriculture;

“Weed” Plant which is competitive, persistent, pernicious and interfering with man.

- (2) Any reference in this Act or Regulations made thereunder to a scientific name of any organism shall be construed as a reference to all synonyms used or proposed to be used for that particular organism.

(3) Any reference in this Act and Regulations made thereunder to a particular pest shall be construed as a reference to that pest in any stage of its existence.

13 In the event of any inconsistency between the Sinhala, Tamil or English texts of this Act, the Sinhala text shall prevail.

# OCCURRENCE OF PAPAYA RING SPOT POTYVIRUS STRAIN P IN SRI LANKA



**W. G. S. PERERA, T. SUETSUGU AND N. SAITO**

**NATIONAL PLANT QUARANTINE SERVICES PROJECT  
JAPAN INTERNATIONAL COOPERATION AGENCY**

KATUNAYAKE, SRI LANKA

(MARCH, 1998)





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# National Plant Quarantine Services Project

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1998年11月 日

殿

日本国際協力事業団(JICA)  
スリ・ランカ/国立植物検疫所計画  
プロジェクト・チーム

## 故末次哲雄専門家の遺著の贈呈

ここに標記の遺著2冊を贈呈致します。

末次氏は、横浜植物防疫所調査研究部長御在職中の1993年6月に当プロジェクトの事前調査団のメンバーとして、また同年12月には実施協議調査団団長として当国を訪問され、プロジェクト成立前からこれに深く関わってこられました。

1994年5月に農林水産省を停年前に退職され、同年7月のプロジェクト発足時から御専門の「植物病害検定技術」の長期派遣専門家として参加されました。

それ以来、植物病理学に関するあらゆる分野に関して、誠心誠意、文字通り智力・体力を傾けて尽くし技術移転に精励されました。その範囲は、実験室での高級技術のみに止まらず、ある時は隔離検疫用の圃場整備に率先して汗を流し、またある時は検定植物栽培用土の調整に自ら土の扱いを伝授されるなど、その真摯な姿は、当然スリ・ランカ側カウンター・パートの心を捉え、プロジェクト関係者全員の敬愛を集めておいででした。

更に、当時スリ・ランカ医学研究所にJICAの長期専門家として派遣されていた渡邊比等志専門家を通じて、これも以前同研究所に派遣されていたプロジェクト・チームの成果として飼育されていた実験用動物(家兎)を利用して戴いて、スリ・ランカで始めて、植物病原性細菌の抗血清の作成技術移転に成功したことは、当国の植物病理学技術の歴史の上で、特記されるべきことでありました。

当プロジェクトの基本目的は「検疫技術の移転」であって、所謂「研究プロジェクト」ではありませんが、ここに贈呈致します2編は、末次氏がカウンター・パートと協力して取りまとめられていたもので、氏の目指された「個々の技術移転でなく、それらをどう組合わせて病原体を同定するか」の成果が遺憾なく示されていると考えます。

1997年11月19日に病を得て急逝された故末次哲雄専門家の、途半ばにして倒れられた無念さを偲び、氏の霊よ安かれ、と念じつつ。 = 以上 =

National Plant Quarantine Service Project, JICA,  
Canada-Sri Lanka Friendship Road, Katunayake,  
Sri Lanka

## **To pay tribute in memory of late Mr. Tetsuo Suetsugu**

Mr. Suetsugu was a JICA expert on Plant Pathology Inspection Technology at the National Plant Quarantine Services Project in Sri Lanka.

Since the project has started, he has made great efforts to establish and improve the Pathological work at the National Plant Quarantine Service of Sri Lanka, and his contributions to the project were invaluable.

Unfortunately, he passed away after a brief yet serious illness, at a moment his widely admired service at the N.P.Q.S. was at its best, making a great loss to the project.

Here we published a series of his achievements during his service to the project, and trust you may find this paper interesting and useful.

**Yasuharu Ikegami**

Team Leader

National Plant Quarantine Services Project

Japan International Cooperation Agency

March, 1998

# OCCURRENCE OF PAPAYA RING SPOT POTYVIRUS STRAIN P IN SRI LANKA

W. G. S. Perera,\* Tetsuo Suetsugu\*\* and Norihiko Saito\*\*\*

## INTRODUCTION

Among the several viruses which caused severe damage to papaya cultivation in the world, only Papaya Ring Spot Potyvirus (PRSV) has been recorded in Sri Lanka (Shivanathan and de Silva, 1989). Papaya plants in wet and intermediate zones of Sri Lanka are widely infected with this virus while scattered plants with the infection of this virus can be seen in dry zone also.

Papaya ring spot virus belongs to potyvirus group. This virus is transmitted naturally by aphids and mechanically by inoculation of sap. However host range is limited to the plants in the families Caricaceae, Cucurbitaceae and Chenopodiaceae. Two strains of PRSV are recognised. They are strain P (designated PRSV-P) and strain W (designated PRSV-W). PRSV-P infects both papaya and cucurbits but PRSV-W infects only cucurbits but not papaya. Both strains cause lesions on *Chenopodium amaranticolor* and *C. quinoa*.

The PRSV-P is one of the most destructive viruses infecting to papaya plants. Infected plants show range of symptoms, which include mosaic, mottling, filiform leaves and spots on petioles, stem and spots or rings with water soaked appearance on fruits (Fig. 5). Infected plants show growth and yield reduction.

Though the occurrence of PRSV in Sri Lanka was reported, it had not been identified as strain P. Therefore we attempted to identify the strain of PRSV and its characteristics.

This is the first report of detailed study of PRSV-P in Sri Lanka.

## ISOLATION OF VIRUS

*Virus isolate:* A sample of young leaves from papaya plants showing viral disease-like symptoms were collected from Gampaha District (Fig. 1). A young infected leaf was used for making the inoculum. The virus was isolated from single local lesion on *Chenopodium quinoa* and designated as NPQS-S. The isolate was propagated in papaya seedlings and the inoculated plants were maintained in greenhouse.

*Symptoms:* The diseased plant showed ring spot on leaves, and mosaic symptoms on the leaves with blister like patches of green tissue, distributed all over the yellowish green lamina. The younger leaves were chlorotic and reduced to filiform shape (Fig. 1). Elongated water soaked spots and streaks were visible on petiole and stem (Fig. 2). Clear watery like ring spots appeared on the fruit skin (Fig. 5).

\* National Plant Quarantine Service, Sri Lanka

\*\* National Plant Quarantine Services Project

\*\*\* Yokohama Plant Protection Station, Japan

*Mechanical inoculation:* An infected papaya leaf was ground with 1/15 M potassium phosphate buffer 1:10 dilution (pH 7.1) and the plant sap was mechanically inoculated to three seedlings of test plants using carborundum (400 mesh) as the abrasive. The plants were maintained in a greenhouse and observed for more than three weeks after inoculation. Infection of the virus was confirmed by back inoculation to papaya seedlings.

## HOST RANGE

Twenty two species of herbaceous plants belonging to seven families were used for host range study (Table 1).

Three plants from each species were mechanically inoculated with the isolate NPQS-S. The inoculated plants were maintained in a greenhouse and observed for more than three weeks after inoculation. Symptomless plants were back-inoculated to papaya and *Chenopodium quinoa*. The isolate infected *Carica papaya*, *Cucumis sativus*, *C. melo* and *Chenopodiaceae* plants. *Carica papaya* showed mosaic symptoms with ring spot (Fig. 3), distortion induced in leaves (Fig. 4) and numerous oily spots on the stem (Fig. 2) similar to symptoms seen in naturally infected *C. papaya*. *Cucumis sativus* and *C. melo* showed mosaic, while *Chenopodium amaranticolor*, *C. murale* and *C. quinoa* developed local lesions.

*Transmission by aphids:* Aphid species reared on *Eupatorium orderatum* (common weed of Compositae family) were used in vector transmission test. After starvation for 2-3 hrs, aphids were allowed acquisition feedings for 10 min. on a tender papaya leaf infected with isolate NPQS-S. Five aphids fed with isolate were placed on a healthy papaya seedling at 3-5 leaves stage. After 24 hrs. the insects were killed by spraying insecticide. Transmission was detected by comparing with the control three plants fed with similar manner with healthy aphids. The inoculated plants together with control plants were kept in the greenhouse and observed for symptoms. After one week, symptoms appeared in 2 seedlings (Fig. 6).

## STABILITY IN SAP

Infected papaya leaves were ground in 1/15 M potassium phosphate buffer (pH 6.98, 1/10 w/v dilution). The sap was centrifuged at 5,000 rpm at 18°C for 10 min. and the supernatant was used as the inoculum. *C. papaya* seedlings at 2-3 leaves stage, was used as the test plants.

Thermal inactivation point test was done by 5ml of sap with each small test tube, exposing to the different temperatures in a water bath for 10 min. Immediately after heat treatment, all tubes were placed in ice water at 10°C till the inoculation was done. Dilution end point test was done by using the supernatant in same buffer dilution series. For storage stability test, the supernatant was stored at 18°C. From these tests it was found that the thermal inactivation point was 53-54°C, dilution end point lies between  $10^{-3}$  –  $10^{-4}$  dilution, and the longevity in papaya sap lost in 24 to 48 hr. at 18°C (Table 2).

## VIRUS PARTICLES AND SEROLOGICAL RELATIONSHIP

The infected papaya leaves were directly ground and stained with 2% phosphotungstic acid (PTA), pH 7.0 and observed under electron microscope. The isolate reacted with P strain Papaya Ring Spot Potyvirus antiserum (supplied by Dr. T. Maoka) by serologically specific electron microscopy (SSEM) (Fig. 9), flexuous rod shaped particles about 700-800nm length were detected by measuring the electron micrographs (Fig. 8).

## DISCUSSION

Papaya is very important, popular and widely cultivated in Sri Lanka. It grows relatively easily from seed.

Papaya Ring Spot Potyvirus is one of the most destructive diseases of papaya, and widespread in Sri Lanka. Two types of Papaya Ring Spot Potyvirus are recognized, PRSV-P and PRSV-W. Both types cause local lesions on *Chenopodium amaranticolor* and *C. quinoa*. PRSV is rapidly spread naturally by several aphid species in non-persistent manner. Many cucurbits are susceptible to PRSV-P, but they are not important alternative hosts, because the dominant strain in cucurbits is PRSV-W. Stability of this virus is similar to PRSV. There is no record of seed transmission.

Papaya leaf distortion mosaic virus was discovered in Japan, which gives similar symptoms on papaya. It is a member of potyvirus group, but the hostrange is narrower than PRSV-P.

From the results of the host range study, symptomatology, aphid transmission, particle morphology, virus stability, serology and electron microscopy, the Sri Lankan isolate is identified as P-Strain of Papaya Ring Spot Potyvirus (PRSV-P).

This is the first record of PRSV-P in papaya in Sri Lanka.

Authors wish to thank Dr. M. H. J. P. Fernando, Director, Seeds Certification and Plant Protection Centre, Department of Agriculture, Dr. S. M. C. Subasinghe, Head of National Plant Quarantine Service and JICA Sri Lanka office for providing the opportunity for this study. We sincerely express our profound thanks to Dr. T. Maoka for supplying antiserum of Papaya Ring Spot Potyvirus P Strain. We would also like to thank Dr. A. Kawai, Yokohama Plant Protection Station, MAFF, Japan and Mr. R. S. Y. de Silva, Head of Division of Plant Pathology, National Plant Quarantine Service, for their useful suggestions.

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**Table 1. Host Range and Symptomatology**

Plant family/Species	Symptoms	
	NPQS-S	PRSV-P
Amarantaceae		
<i>Gomphrena globosa</i>	-	-
Caricaceae		
<i>Carica papaya</i>	DM	DM
Chenopodiaceae		
<i>Chenopodium amaranticolor</i>	L	L
<i>C. murale</i>	L	
<i>C. quinoa</i>	L	L
<i>Beta vulgaris</i>	-	-
Cruciferae		
<i>Raphanus sativus</i>	-	-
Cucurbitaceae		
<i>Cucumis sativus</i> (cv. "Gabajes")	M	M
<i>C. melo</i> (cv. "Cantaloup")	M	M (cv. "Kuromon")
<i>Cucurbita maxima</i> (cv. "Ebisu")	-	-
<i>C. pepo</i> (cv. "Diner")	-	-
<i>Luffa acutangula</i>	-	-
<i>Luffa</i> (wild type)	-	
<i>Zucchini marrow</i>	-	
Solanaceae		
<i>Nicotiana benthamina</i>	-	-
<i>N. debuneyi</i>	-	
<i>N. glauca</i>	-	
<i>N. glutinosa</i>	-	-
<i>N. rustica</i>	-	
<i>N. tabacum</i> (cv. "White burley")	-	- (cv. "Bright yellow")
<i>Petunia hybrida</i>	-	-
<i>Phaseolus vulgaris</i>	-	-

NPQS-S: Isolated in Sri Lanka (Perera, et al.)

PRSV-P: Isolated in Japan (Maoka, et al.)

DM: Distortion and Mosaic, L: Local lesion, M: Mosaic,

-: No infection.

**Table 2. Description of Papaya Virus**

Item	NPQS-S	PRSV-CMI	PRSV-J	
Particles	flexuous	flexuous	flexuous	
	rod-shaped	rod-shaped	rod-shaped	
	700 x 800nm	700 x 800nm	760 x 800nm	
Stability				
	heating	53-54°C 10 min.	54-56°C 10 min.	54-55°C 10 min.
	dilution	10 <sup>-3</sup> – 10 <sup>-4</sup>	10 <sup>-3</sup>	10 <sup>-3</sup> – 10 <sup>-4</sup>
	storage	24-48h at RT	8h at RT	8h at RT

NPQS-S: Isolated in Sri Lanka (Perera, et al.)

PRSV-CMI: Report of CMI (Purcifull, et al., 1984)

PRSV-J: Report of Disease of Tropical Fruit Trees (Imada, 1995)





**Fig. 1** Papaya plant naturally infected with Papaya Ring Spot Potyvirus P strain, showing symptoms of leaf distortion and malformation.



**Fig. 2** Water soaked spots on stem.





**Fig. 3** Mosaic and ring spot induced in papaya leaf.



**Fig. 4** Distortion induced in papaya leaf, showing lobes reduced to veins and small portion of laminar tissue.

