

Impact of powdery scab on seed potato production in Sri Lanka

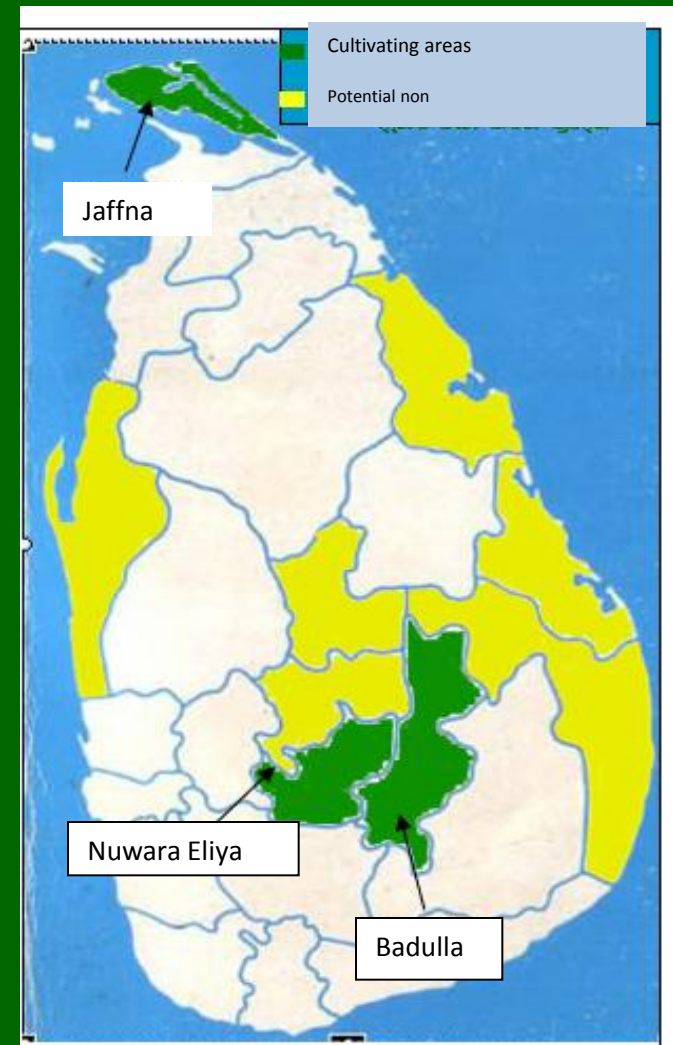
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Introduction

- **Total area : 65,610km²**
- **Major Agro ecological Regions:**
 - Dry Zone
 - Intermediate Zone
 - Wet zone
- **Major Potato growing districts:**
 - Nuwara Eliya
 - Badulla
- **Major Seasons:**

	<i>Yala</i>	<i>Maha</i>
Nuwara Eliya	Feb. July	Sept. – Jan.
Badulla	June – Sept.	Oct. – Feb.

Map of Sri Lanka



Potato production in Sri Lanka

<i>District</i>	<i>Area (ha)</i>		<i>Production (mt)</i>		<i>Seed requirement (mt)</i>
	<i>Yala</i>	<i>Maha</i>	<i>Yala</i>	<i>Maha</i>	
Nuwara Eliya	1,250	750	18,600	11,400	5,000
Badulla	2,000	2,000	50,000	50,000	10,000
Total	3,250	2,750	68,600	61,400	15,000

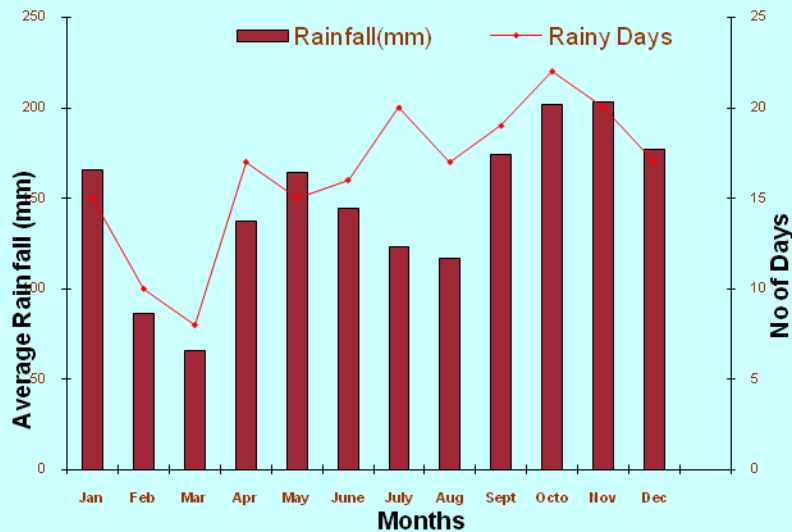
Supply of Seed Potato

- Total Extent - 6000ha/yr
- Seed requirement - 15000 t
- Annual seeds supply
 - DOA - 500 t
 - Private – 500 t
 - Importation – 1000 – 5000 t
 - Informal seeds – 9000 – 13000 t

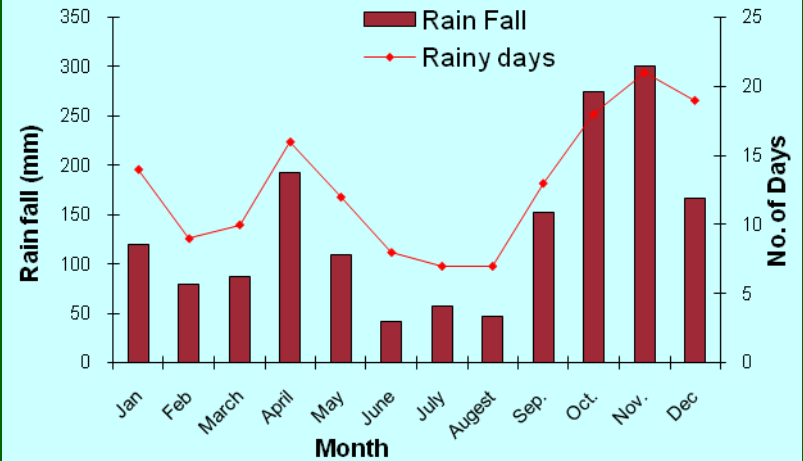


Maximum Minimum temperature & rainfall

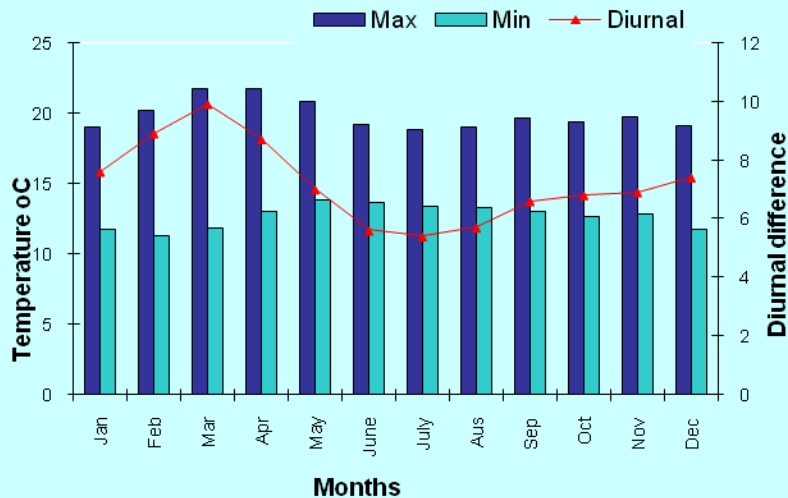
Average Rain fall and number of Rainy days-NELIYA



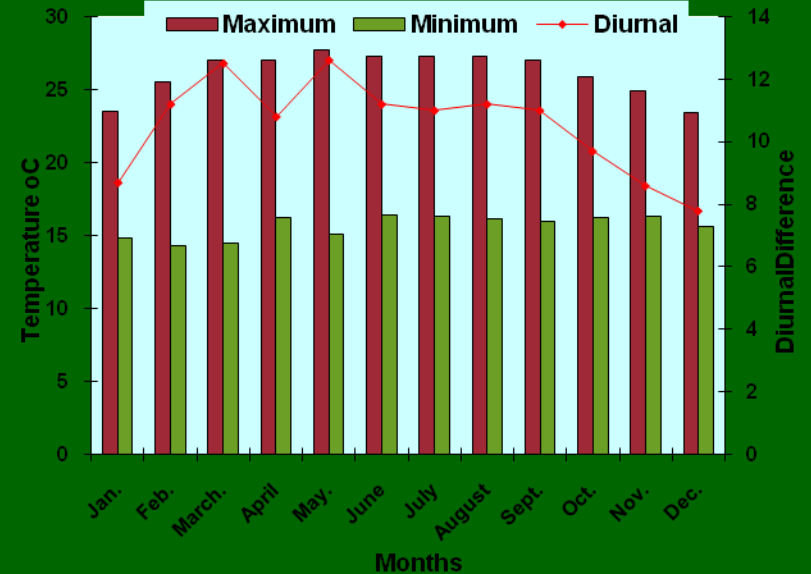
Average rainfall and number of rainy days-Badulla



Maximum, minimum & diurnal difference in temperature-



Maximum, Minimum & Diurnal difference in Temperature-Badulla



Soils

- Soil properties of seed potato producing area
 - Acidic pH 4-5.5
 - Deep, moderately well drained soil
 - Sandy to clay loam structure

Addition of organic matter



Seed production methods

- Imported Certified seed
 - Multiplied
 - Govt.seed production farms (C_2)
 - contract growers (C_2)
- Local seed production
 - TC based seed production - 1998



Tissue culture laboratory



In vitro mother plants



Micro tubers



RSC production in Net houses



Seed production in polytunnels

G₀ Seed production in poly tunnels



Geoponic seed production



Aeroponic Seed Production



Hydroponic seed production



History of powdery scab in Nuwara Eliya Sri Lanka

- **1st Observation**

- Post control fields of SCS - 2002/03

- Dura, Desiree, Roko,
- Cykoda, Delawae

- **Private seed potato farms, Diagama & Bopathalawa -2006-07**

- Granola

- **Govt. seed potato farm Prdru -2007-2010**

- Granola

- **Research Fields 2009,2010**

- Calwhite, Keuka Gold, Red La Soda, Chieftain, breeding lines



....contd

- G_0 production poly tunnels 2010 - 11



Observations

High Organic matter

Root galls

No symptom on tuber

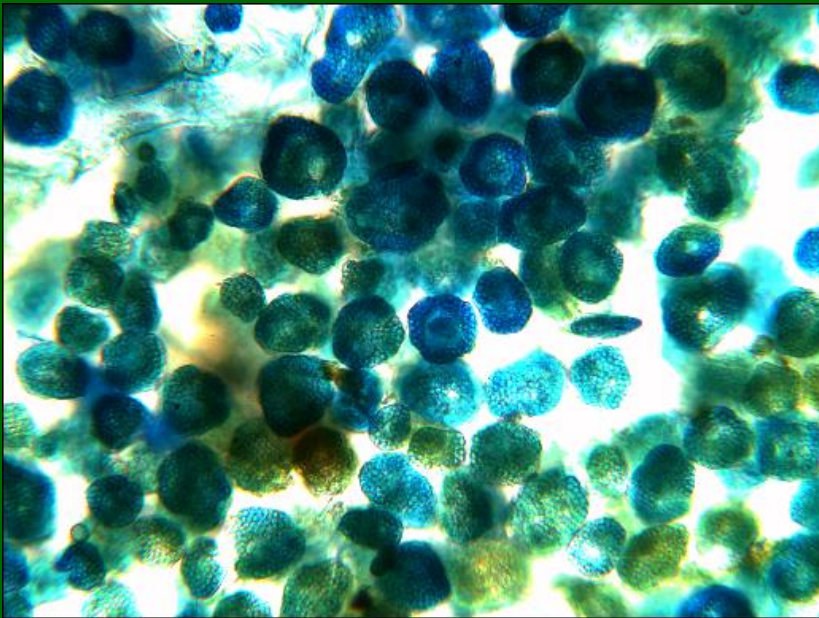


Findings

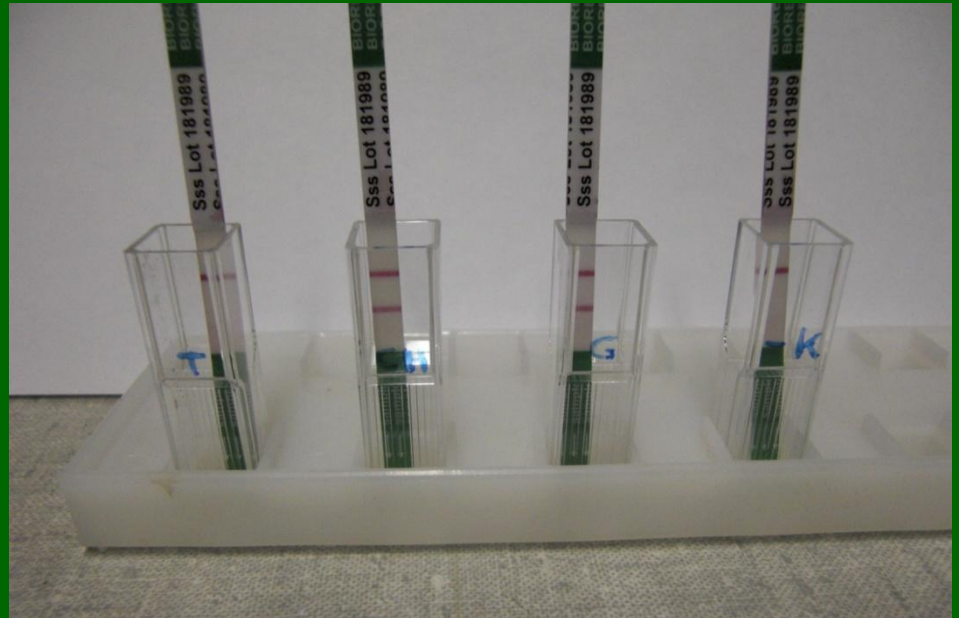
Bio assay at ARS sita Eliya -2003

•Roko, Cykoda, Delawae & Isna

Confirmation of ss by Ulei Merz



Spore balls



T-Tuber SL, G-Galls SL, CH -Tuber Check, K - Negative

Problems & threat

Loss of elite seed material

Farm	Year	Grade	Yield t	Remarks
Pedro	2009	G ₃	51.4	
	2010	G ₁	29.3	Rejected
		G ₂	30.3	
		G ₃	25.0	
		C ₁	31.7	
Bopathalawa	2009	C ₁	60.0	
Diagama	2006	C ₁	3.0	Rejected
Sita Eliya	2011	G ₀	50,000tubers	Rejected

Problems & threat ...

Threat

Topography, Irrigation, Land preparation



Spread of PMTV

Future !

- Survey & Mapping of seed production lands
- Screening of new potato varieties
- Impose preventive measures
- Effect of environment
 - Micro & Macro
- Development of management strategies
 - Chemical
 - Biological
 - Integrated

Present practices for G₀ production

- Clean water for irrigation
 - Chlorinated 4ppm
- Steam sterilization for growing media
 - 65-75°C for 3 hours
- Chemicals used
 - Metham sodium 600ml/m³, Basamid 40g/m³
 - Mancozeb – 8kg/ha
- Other
 - Regular monitoring – roots

Thank you