

Fruit production: emerging economic sector in Sri Lanka

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Sri Lanka



Sri Lanka

Population: in million

Year

2000

2007

2014

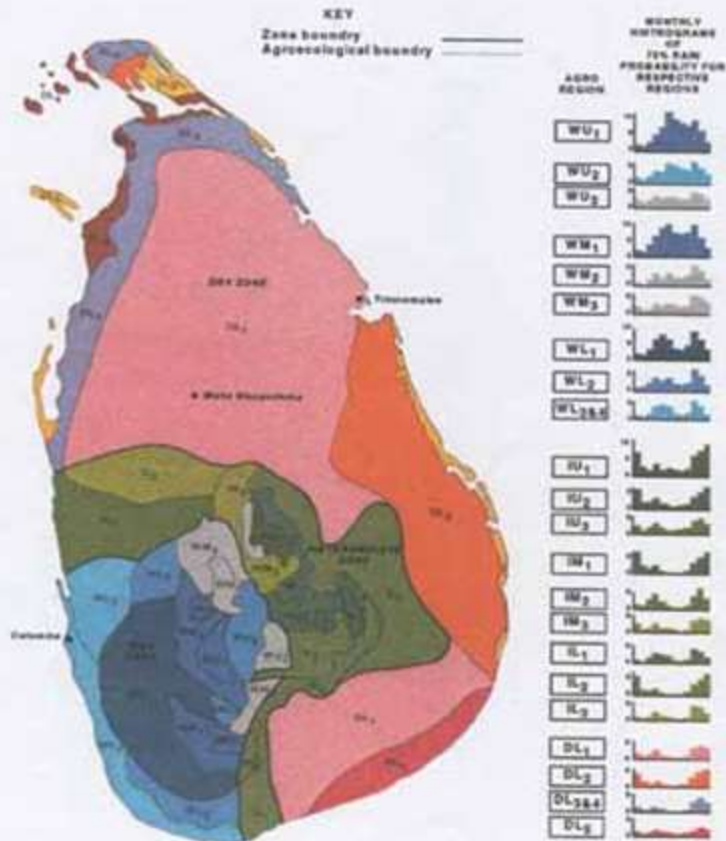
19.2

20.9

21.9

Agro-ecological zones

Agro-ecological regions of Sri Lanka



Scale 1:2,000,000

- Basic: dry, wet and intermediate zones
- 46 different zones
- Diverse crops and different crop seasons
- All types of crops

Sri Lanka Agriculture in 2013

- Total land area – 6.56 m ha

	ha	%
• Tea	229,261	3.5
• Rubber	207,628	3.1
• Coconut	295,551	4.5
• Paddy	922,151	14.0
• FRUIT CROPS	150,000	2.3
• Forest	1187,728	18.1

Fruit crop at a glance

- Rich diversity: 250 edible fruit crops;
- Majority **SUPER FRUITS!**
- 50 common fruits
- Tropical – subtropical – temperate
- Traditional commercial to super fruits
- 90% in home gardens and 10 % in commercial scale
- < 5% of total > 5 acre
- Few medium to large orchards e.g. pineapple, papaya, mango and banana
- Postharvest loss- 20- 35%
- 3-5% export to EU, Mid –East, Maldives

Fruit exports- mt

Fruit	2000	2007	2014
Banana	03	808	20,356
Pineapple	2,392	1,513	2,200
Papaya	1.2	113	3,229
Lemon	48	397	644
Avocado			74
Strawberry			67
Mango	21	41	157
Guava			18
Sweet orange			12
Export earning			1,514
Total production			785,000

Fruit exports value – Rs. m

Fruit	2000	2007	2014
Banana	0.7	360	2,005
Pineapple	108	190	642
Papaya	0.2	24	241
Lemon	6.3	9	84

Fruit imports- Value LkRs.m

Fruit	2000	2007	2014
Apple	459	626	2,185
Grape -table	196	327	1,075
Grape-raisin	111	79	248
Sweet orange	195	159	596
Strawberry			455
Mandarin	366	91	246
Grapefruit			194
Pear	13	23	9.3
Dates	148	99	402

Research thrust areas

- Production and productivity enhancement
 - Varietal improvement (breeding/selection)
 - Management /agro-techniques (nutrition, water.)
 - Manipulation of flowering, fruitset, fruit growth
 - Phenology
 - Harvesting indices
- Quality enhancement (pre harvest)
- IPM and biological techniques
- IPNS and foliar nutrition
- Organic production technology
- Postharvest techniques (pest & diseases, ripening, storage, shelf-life physiol., packaging)
- Value addition/ products

Research thrust....

- Use of machinery
- Adaptability to non traditional zones
- Disorders of banana
- Hard Fruits of citrus
- Best soil management practice for Rambutan
- Gamboge and Translucent disorders of mangosteen
- Micronutrient deficiencies of papaya
- Bumpy fruit formation of guava & papaya
- Use of rock phosphate for banana



Recommended Fruit Varieties



Jak fruit (*Artocarpus heterophyllus*)



**Farther long
Local selection**



**Kothmale
Local selection**



KANTHI

Kanthi
yield- 18.2 (mt/ha)



Horana Red
yield- 18 (mt/ha)



Horana White
yield- 18.2 (mt/ha)

Wax apple (*Syzygium samaranginse* spp)

Lindula Green



Golden Pink



Passion fruit (*Passiflora edulis*)

- Purple variety (*Passiflora edulis edulis* L.)
- Yellow variety (*Passiflora edulis flavicarpa* L.)



Sapota (*Achras zapota*)



HoS 12



HoS 13



Weralu: *Flacourtia inermis*

Horana Weralu



Horana Weralu

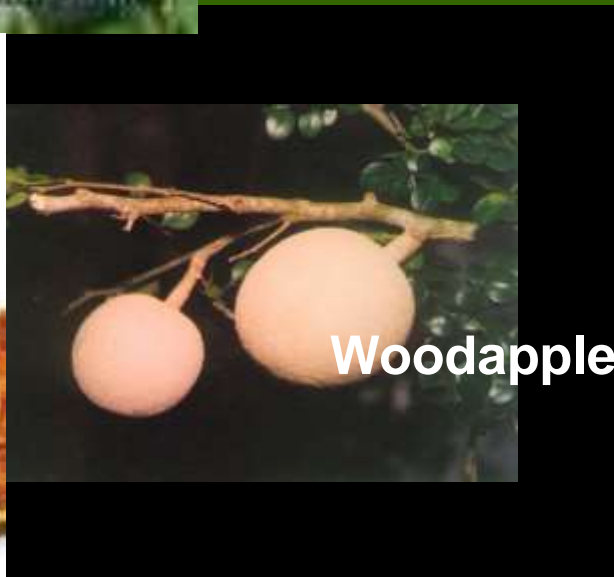




Nelli: (*Phyllanthus emblica*)



Beli (*Aegle marmelos*)



Woodapple : (*Feronia limonia*)

Ambarella (*Spondius cythera*)



Sour guava- *Psidium*
fredrichthalianum



Soursop (*Anona muricata*)



Pomegranate (*Punica granatum* L.)



Nimali



Nayana



Daya

Carambola (*Averrhoa carambola* L.)



Honey Sweet



Kasun:
100-200 fruits/year
1.5-2 kg



Ambathanna
100-200 fruits/year
1.5-2 kg

Horana Jumbo



3.1 kg

Horana Gold



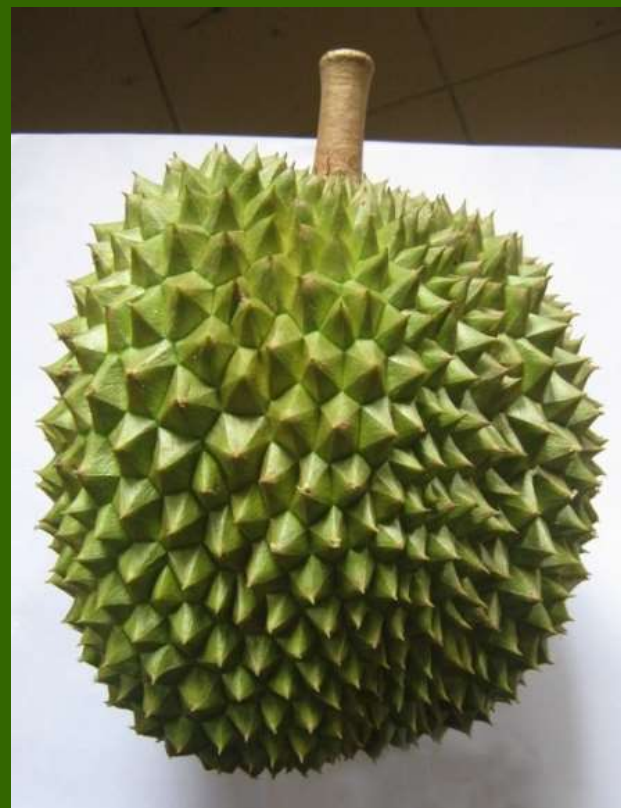
2.8 kg

H-32 (HoranaTikiri)



**Yield/Tree – 150-200
fruits, 1.6 kg**

B-3 (Horana Yellow)



**Yield/Tree – 150-200
fruits, 1.6 kg**

Rambutan (*Nephelium lappaceum* L.)

Malvana Special

Local selection

Average yield- 10 mt/ha

age to bearing- 3yrs





Malawana special



Malayan Red



Malayan Yellow

Orange (*Citrus sinensis* (L.))



Bibile Sweet

- **Bibile Sweet Seedless**
- **MKD**
- **Arogya**

Arogya: Selection of Navel orange



Madhu mandarin: selection of Clementine mandarin



Mandarin (*Citrus reticulata*)

INDU

**Yield- 300
fruits/tree/year**



- **Papaya var- Ratna**
- **yield: 32 mt/ ha**



Mango (*Mangifera indica* L.)

- TomEJC
- Dampara
- Karutha Kolomban
- Ambalavi
- Chembatan
- Peter Passand
- Willard
- Vellai Kolomban
- Betti Amba
- Gira Amba
- Malwana



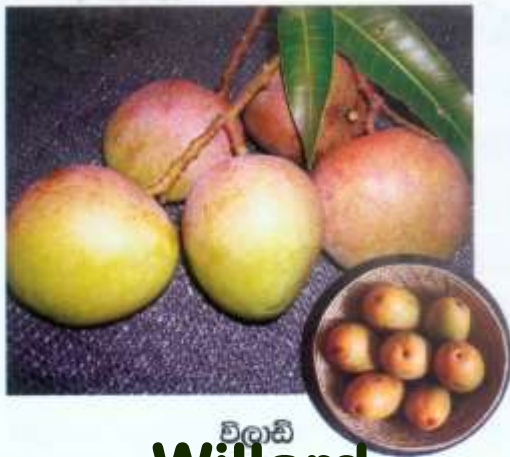
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Malwana



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karutha Kolomban



විලාඩ්
Willard



ටොම් රොජර්ස්
TomEJC



Vellai Kolomban



Betti amba

Avocado (*Persea americana* Mill)

Pollock



Fuerte



Tower II



Hass



Water melon (*Citrullus lanatus*) Thilini



Recommended varieties of banana (*Musa* spp)

- Nadee- Embul
- Kandula-Dual purpose
- Pulathisi-Cooking banana
- Prasad-Ash plantain
- Aggra-Kolikuttu
- Parakum-Seeni Kesel

Banana Millewa Suwandel



**Bunch weight 13.7 –
14.6kg**





Red banana

Recommended Technologies

Double roots-stocked Mangosteen



Artificial flower induction of durian and mango by paclobutrazole

Semi micro grafting technique to produce virus free citrus plants.



Improved technologies

Double roots-stocked Mangosteen



Use of Boron to control gamboge disease in mangosteen fruit

Improved techno....

Flower induction of durian and mango



**Paclobutrazol + K+ foliar
nutrition**

Quality improvement

- Fruit tree pruning and training program
- Area wide integrated fruit fly control



Development and extension trends

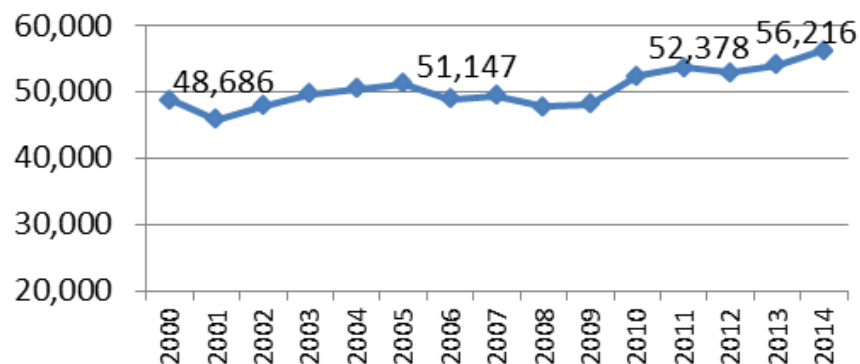
- Increase planting material availability (production and availability/supply)
- Crop zoning/ Productivity villages
- Commercial fruit orchards; subsidy 50%
- Import substitute production programmes
- Extend cultivation into plantation sector (tea, rubber and coconut)
- Home gardening
- Bio-diversity conservation and recreation
- Tree rehabilitation/ rejuvenation
- Self employment in fruit sector (cultivation, service providers. Farmer societies/ companies)

Development.....

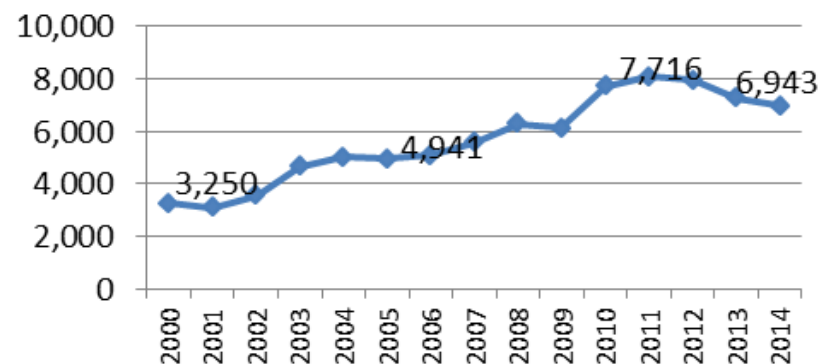
- Area wide fruit fly control
- Agri-tourism –on farm
- Food safety/ traceability establishment
- Establishment of quality standards
- Packaging and branding
- Promotion of fruit consumption through schools
- National Fruit Promotion week (promotion of fruit consumption to 200g/day⁰ in July
- Crop clinics/ consultation/ toll free call service
- Technical consultation/ printed material on technology

Fruit extent trend

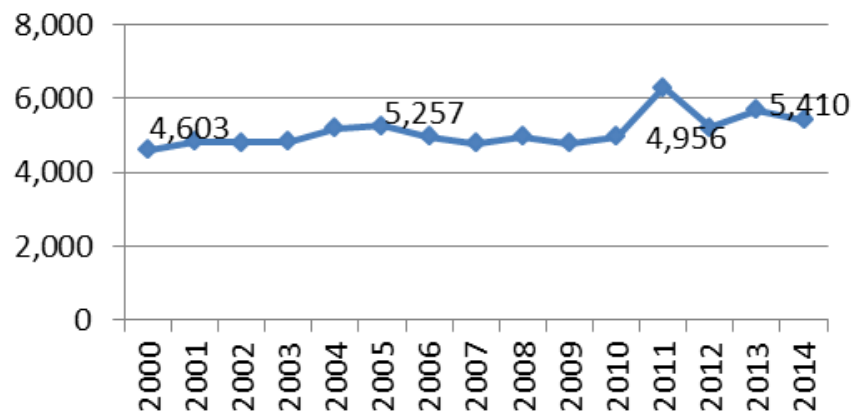
Extent of Banana (Ha.)



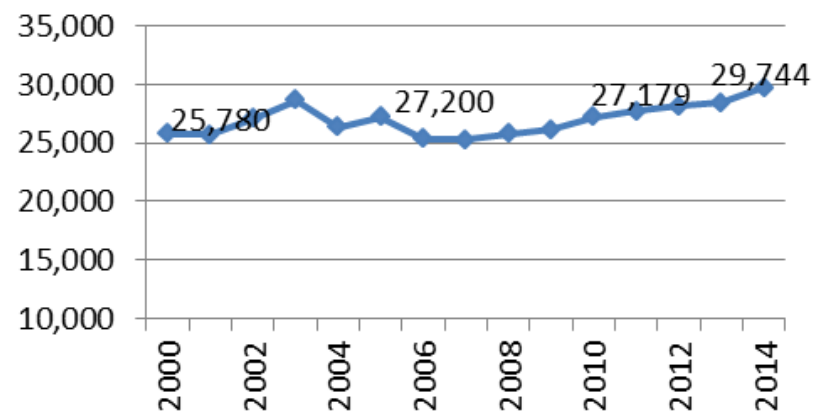
Extent of Papaya (Ha.)



Extent of Pineapple (Ha.)



Extent of Mango (Ha.)



...Year-round Cultivation of Fruit

Year-round cultivation example: Rambutan



Traditional Potential

1. Establishing five off-season fruit zones

2. Different induction techniques

Irrigation

Plant growth regulators

Fruit crop zoning

- **G 1.**Banana, passion fruit, pineapple, mangosteen, papaya, mango and rambutan
- **G 2.**Banana, passion fruit, citrus, papaya, mangosteen, rambutan, durian and avocado
- **G 3.**Strawberry, pear and apple
- **G 4.**Banana, passion fruit, citrus, papaya, pineapple, mango and woodapple
- **G 5.** Banana, passion fruit, citrus pineapple and papaya
- **G 6.** Banana, passion fruit, citrus, papaya, mango, woodapple and pomegranate

Intercropping Fruit Crops in Plantation Sector

Strategies

- Suitable crop combinations/ intercropping systems
 - Under coconut
 - Early stage of rubber plantings
 - Home gardens
- Suitable crops under shady
 - Mandarin, Sweet Orange, Soursap, Rambutan, Durian, Pears (up country lands)



Extension & Training

Training

School children

Students of higher education

Other state holders



Extension

News paper articles

Radio/TV Programme

Magazines

Leaflet/ books

CD/DVD



Establishment of cottage level fruit processing units

Beli, woodapple, banana, passionfruit, anona etc



Marketing and awareness trends

- Mass media (print and electronic) for education and awareness
- Value chain involvement (supporting stake holders): tax free nursery and irrigation equipment
- Database on all stake holders
- Networking the stake holders
- Promotion of export

Policy trends

- Strengthening NPQ System (HRD and infrastructure)
- Adapting EU standards, FAO/WTO regulations
- Set compulsory requirements for production and export
- Minimizing use of agro-chemicals
- Ban on selected agro-chemicals
- Pest Risk Analysis procedures on export (product and packaging)
- E- extension promotion- legal framework
- Bilateral/ multilateral agreements (China, India, Pakistan, Nigeria etc.)

HRD trends

- Special training programmes/ courses (formal/ informal)
- International resource person conducted exposure programmes
- Electronic media training



Thank You

