230th Experiments & Extension Forum
Keynote Address

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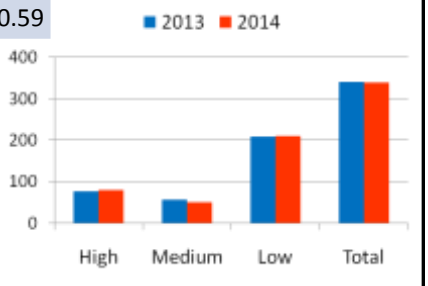
Tea Production in Sri Lanka

Elevation	Production (Mn kg)			
	2013	2014	Change (Mn kg)	Change (%)
High	75.78	78.87	3.10	3.93
Medium	56.13	49.21	-6.92	-14.07
Low	208.12	209.95	1.83	0.87
Total	340.03	338.03	-1.99	-0.59



World Tea Production

Country	2013 MnKgs	2014 MnKgs	2013 vs 2014 MnKgs
Sri Lanka	340.0	338.0	-2.0
Bangladesh	66.3	64.5	-1.8
Kenya	432.5	445.1	12.6
Malawi	46.5	45.9	3.3
North India	958.6	943.6	-15.0
South India	241.8	241.2	-0.6
Indonesia	24.1	24.8	0.7

Tea Exports

2013	2014	2013 vs 2014
319.6mnKgs	327.8mnKgs	8.2mnKgs
199.4bnRs	212.9bnRs	13.5bnRs

In 2014 : Turkey - No. 1 Importer
Russia and Iran

"Year of Adoption of TRI Recommendations"

2015 - Soil Conservation and Fertility Improvement"

Soil loss under different levels of management

Level of Management	Soil loss (mt/ha/yr)
Poorly managed OST	51
Well managed OST	15
VP tea	2
Poorly managed VP	20

Yield loss due to soil erosion

	Yield loss (kgMT/ha/yr)	
Elevation	@ Soil loss 75mt/ha/yr	@ Soil loss 150mt/ha/yr
High	28.1	207.1
Mid	15.6	102.4
Low	6.3	56.6

Yield loss at different levels of management

Elevation	Poorly managed OST	Well managed OST	Poorly managed VP	Well managed VP Tea
Soil loss	51	15	20	2
	Yield loss (kg/ha/yr)			
Up	69	20.7	27.6	2.76
Mid	35	10	14	1
Low	19	6	19	1

Extent of tea lands (ha)

Elevation	Poorly managed OST	Well managed OST	Poorly managed VP	Well managed VP tea	Total
Up	4774	14323	1849	20977	41923
Mid	10112	10112	5639	17955	43818
Low	1309	3423	33483	60045	98260
Total	16195	27857	40971	98977	184000

Annual crop loss due to soil erosion (MT kg/yr)

Elevation	Poorly managed OST	Well managed OST	Poorly managed VP	Well managed VP tea	Total
Up	329427	296484	51029	57896	734835
Mid	350679	103141	76690	24419	554928
Low	25184	19371	644350	45314	734220
Total	705290	418996	772069	127629	2023983

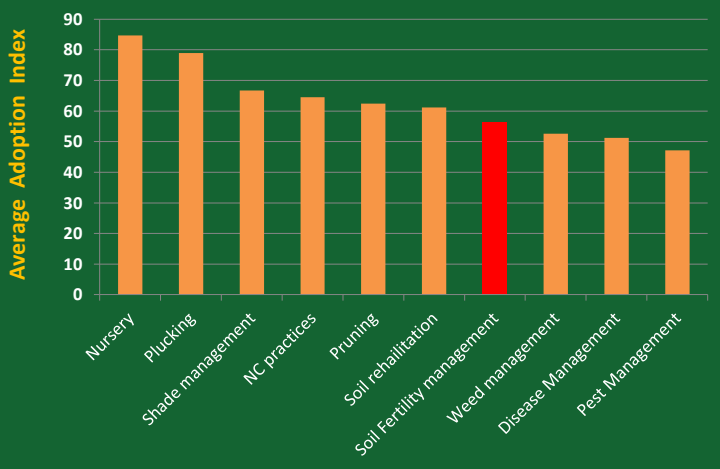
Loss of export earnings – Rs Mn 1262.78

Time taken to reduce yield (Yrs) (soil loss: 150mt/ha/yr)

Elevation	Average productivity in VP tea (kg/ha/yr)*	Reduction of yield by 10 %	Reduction of yield by 25 %	Reduction of yield by 50 %
Up	2070	8	19	37
Mid	1799	13	33	42
Low	1693	22	56	112

Diagnostic survey, 2008

Diagnostic Survey Results
Adoption Level of Major Cultural Practices



Source: Diagnostic Survey in RPC tea Plantations; 2008/9
Advisory & Extension division, TRI

Extension Activities related to the "Year of Adoption of TRI Recommendations"

RPC Sector - A survey to find out the following was completed

- ✓ To identify the current status of the adoption of soil fertility management practices in RPC estates
- ✓ To identify the information and training needs related to soil fertility management

TSH Sector – Fertiliser Quality Monitoring and Extension Programmes already started under 100 day programme

Update on MRL Issue

MRLs For Tea

Chemical	EU	Japan	USA	China	Canada	Australia
Bitertanol	0.10	0.10				
Copper Hydroxide	40	Exempted				
Copper oxide	40	Exempted				
Copper Oxychloride	40	Exempted				
Hexaconazole	0.05	0.05				
Propiconazole	0.10	0.10			4	
Tebuconazole	0.05	50				
2,4-D	0.10	0.01				
Diuron	0.10	1.0				
Glufosinate Ammonium	0.10	0.30		0.5		20(T)
Glyphosate	2	1.0	1.0	1.0		2
MCPA	0.10	-				
Oxyfluorfen	0.05	0.01				
Paraquat	0.05	0.30				0.5(T)
Carbofuran	0.05	0.20				
Chlorfluazuron	0.01	10				
Diazinon	0.02	0.10				
Dazomet	0.02	0.10				
Imidachloprid	0.05	10		0.5		
Fipronil	0.005	0.002				
Metam Sodium	0.02	0.10				
Sulphur	Exempted	Exempted				
Anthraquinone	0.02	-				

Residue Contaminations / Detections in Sri Lankan Origin Teas

No.	Chemical	Type	Country of Detection	Remarks
1	Glyphosate	Herbicide	Japan	Detection of 0.52 ppm (MRL=1ppm)
2	Diuron	Herbicide	EU	Detection of 0.34 ppm (MRL=0.1ppm)
3	Fipronil	Insecticide	Japan	Detection of 0.05ppm in (Oolong tea) (MRL=0.002)
4	Chlorfluazuron	insecticide	EU	Detection of 0.3ppm(MRL=0.01ppm)
5	Anthraquinone	Unknown	EU	Up Country estate– 0.023ppm (MRL= 0-.02ppm)
6	Anthraquinone	Unknown	EU	Uva Estate
7	Anthraquinone	Unknown	EU	Low Country Estate
8	Indoxacarb	Insecticide	Japan	
9	Pentachlorophenol	Biocide	EU	

Anthraquinone

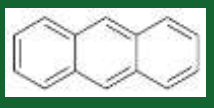
- Anthraquinone residues were detected in Sri Lankan origin teas

No.	Possible source of contamination	Action taken
1	Pesticide – Bird Repellant	Checked with ROP -Not an agrochemical in use or banned
2	Additive – 1.Papermaking by Alkline process (Kraft) – To protect pulp from alkaline degradation 2.Dyestuff Precursor – best for fibres	Checked with customs -No record of imported into the country
4	Glue in paper sacks	Results Negative -Testing was done by a company
5	Smoke	Research done so far suggests that smokey teas could contain anthraquinone.

Polycyclic Aromatic Hydrocarbons (PAHs)

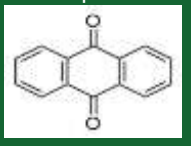
PAH	Smokey Teas (ppb)
Phenanthrene	>100
Fluoranthene	>100
Pyrene	>100
Benzo(a)Pyrene	10-20
Benz(a)Anthracene	10-20
Benzo(k)fluranthene	10-20

Antharcene



Oxidation

Anthraquinone



Anthraquinone and other oxygenated PAHs are formed from direct combustion process or the degradation of PAHs by atmospheric oxidants

FAO/IGG Working Group on MRL

IGG priority chemicals:

- IGG priority list includes 62 pesticide (17 TRI recommended chemicals are included in the list)
- Major achievement of IGG was the acceptance by CODEX of a list of priority chemicals detailing the correlation between field trial protocol and good laboratory practices (GLPs) supervised protocol.
- **MRL standards had much larger effect on trade than import tariffs.**

eg: MRL limits applied by importing countries significantly reduce tea exports from china

Thank you