

Key Note Address:

Retrieving Mid Country Tea through Collective Efforts

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Kandy RSC Seminar 2024, 20th February 2024, ISTI, Gannoruwa
Jointly Organized by TRI Mid Country Advisory & Research Center & Regional
Scientific Forum IV Kandy District Planters' Association



Tea Research Institute of Sri Lanka

Sri Lanka Tea Production (MT)

	2017	2018	2019	2020	2021	2022	2023
Orthodox	282,662	277,340	273,907	252,367	270,571	227,117	231,138
CTC	21,794	23,902	23,585	24,099	26,195	22,571	22,617
Green	2,624	2,601	2,642	2,023	2,572	1,809	2,283
Total	307,080	303,843	300,134	278,489	299,338	251,499	256,039

Source: <https://teasrilanka.org/statistics>



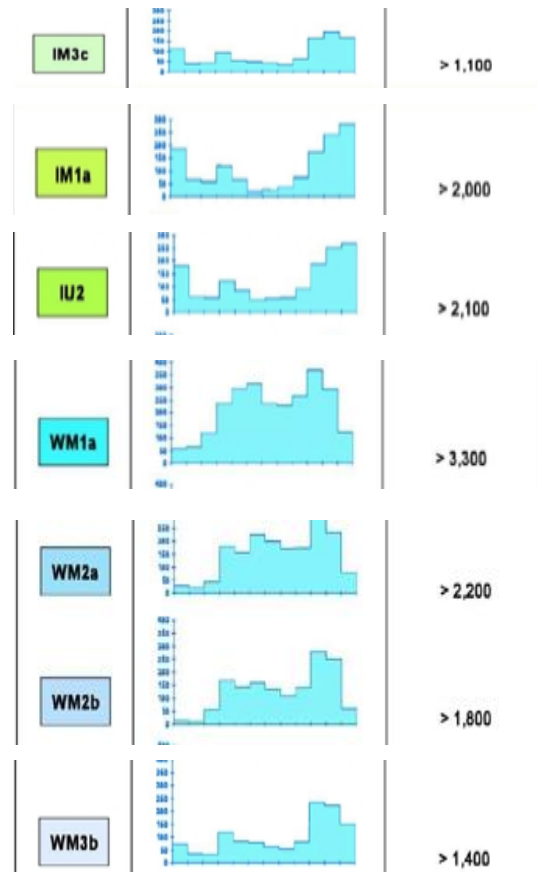
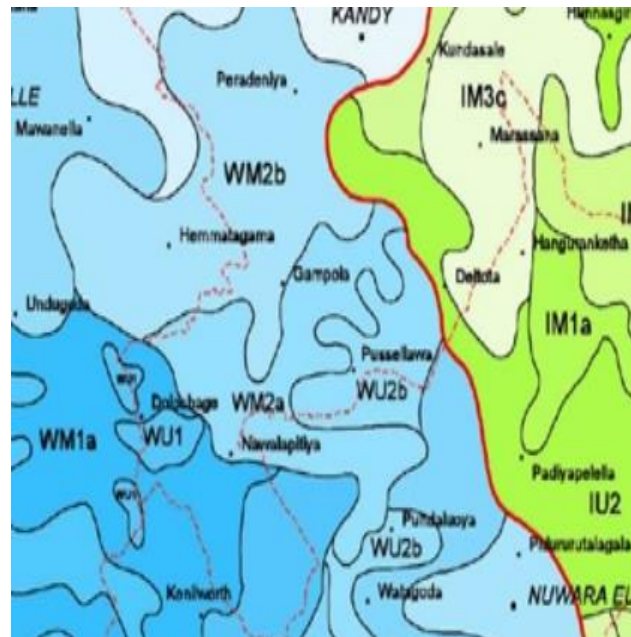
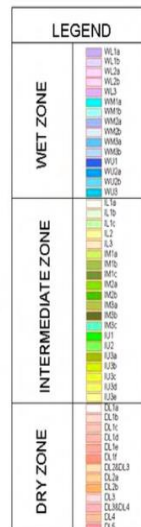
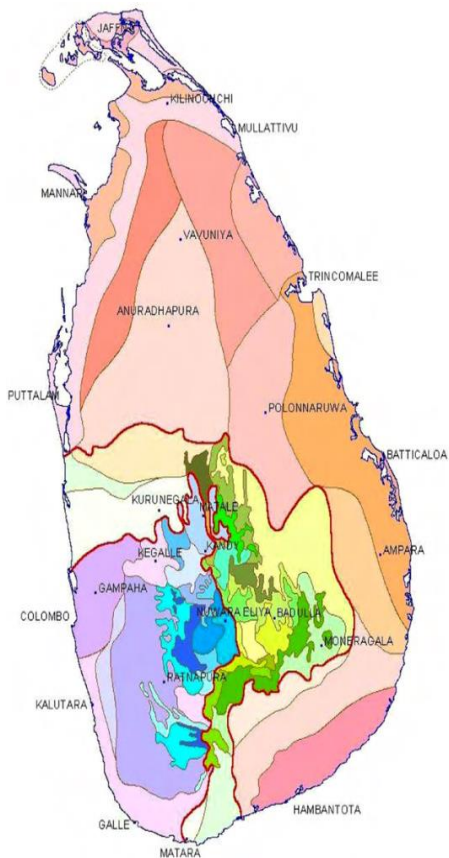
Region Profile of Mid Country Tea

	Category	No.	Extent (ha)	Districts
State owned	SLSPC	15	4,147	Kandy, Matale
	JEDB	16	2,779	Kandy, Matale, Nuwara Eliya (Hanguranketa)
	Elkaduwa PL	06	703	Matale
RPC	Pussellawa PLC	11	2,003	Kandy, Nuwara Eliya (Hanguranketa, Kotmale)
	Kahawatte PLC	06	1,573	Kandy
	Elpitiya PLC	02	504	Kandy
	Udapussellawa PLC	02	709	Kandy
	Kegalle PLC	01	192	Kandy
	Maturata PLC	01	182	Kandy
	Total	60	12,792	
	Medium scale	200	2000	Kandy, Matale
	Smallholdings	30,402	12,051	Kandy, Matale



Agro- Climatic Regions

**IM 3c,IM1a,IU2,
WM1a, WM2a,WM2b ,WM 3b**



Why Mid Country for R&D and Tea Industry

1. Key GIs
2. Renowned garden marks with medium quality sought after blends for High-end / elite markets in Japan and EU
3. Climate change and droughts
4. Conventionally small, medium and large (RPC & State) grower representation
5. Inferior land productivity / inadequate genetic diversity
6. Facilitating Organic tea production & exports
7. Scope of tea tourism / tea trails / history & heritage tea
8. Repeated product quality violation reports



Proceedings of RSC Mid Country: Optimizing Productivity & Profitability

"Optimizing the Productivity and Profitability of Mid-Country Tea"



R S C SEMINAR 2024

on

20th FEBRUARY 2024, 8.30 am

at

ISTI Auditorium, Gannoruwa, Peradeniya



Topics

- *Planting, aftercare and drought mitigation in tea*
- *Recent developments in plant propagation in tea*
- *Energy saving in tea processing*

Jointly organized by

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Mid-Country Regional Centre, Tea Research Institute, Kandy.

&

Regional Scientific Committee-IV Kandy District Planters Association

W.B.K



Tea Research Institute of Sri Lanka

Proceedings of RSC Mid Country: Optimizing Productivity & Profitability

	Presentations	Resource person/s
1	Retrieving Mid Country Tea through Collective Efforts	Dr. K Mohotti
2	Planting, After Care & Drought Mitigation	Dr. N P S N Bandara
3	Recent Development in Tea Propagation	Dr. K K Ranaweera
4	Energy Saving in Tea Processing	Mrs. S Weerawardena
5	General Discussion on Hybrid mode	TRISL subject specialists
6	Sponsors	



TRISL Interventions

No.	Requirement	R&D Intervention/s
1	Key GIs	TRISL-SLTB-AEBSL collaborated project
2	Tea quality	Research evidences on biochemical parameters for SLTB regulation, Two day Certificate Course
3	Conventionally small, medium and large grower representation	Extension research with TSHDA and TSHF
4	Inferior land productivity / inadequate genetic diversity	Conservation, propagation and multiplication
5	Renowned garden marks sought after blends	Monitoring biological, chemical and physical quality status
6	High-end / elite market dependence: Japan and EU	
7	Scope of tea tourism / tea trails / heritage tea	R&D for promotion and new avenues



1. Maintaining “Pure Ceylon Tea” Quality: MRL Issues

Chemical residue detections in teas exported from Sri Lanka to important destinations such as Germany, Japan, Taiwan, China, France and Saudi Arabia

Cautions:

Chemicals with TRISL recommendations: MCPA, Glyphosate, Diuron

Chemicals not recommended by the TRISL: Transfluthrin, Fenarimol, Acetamiprid, Salicylic Acid, 2-6 DIPN, Tofenpyrad, Cyhalothrin, Benzopyran, Nicotin

Unintended chemicals: Pyralizidin Alkaloids (PA), PAHs, Anthroquinone, Pyrrolizidine Alkaloids (PA), Trimesium (trimethylsulfonin), Pentachlorophenol (PCP)



Cautionary Note on Safe and Rational Use of Agro chemicals in Tea Cultivation

Communication to all stakeholders

06th February 2024

Urgent and important for internal circulation only

Cautionary Note on Safe and Rational Use of Agro chemicals in Tea Cultivation

Sri Lankan teas are considered as the cleanest teas in the world with respect to pesticide residues. Nevertheless, very frequent notifications were reported in the recent past on chemical residue detections in teas exported from Sri Lanka to important destinations such as Germany, Japan, Taiwan, China, France and *Saudi Arabia*. The alleged chemical compounds include the following as reported by the exporters and regulatory authorities in such market destinations.

Chemicals with TRISL recommendations: MCPA, Glyphosate, Diuron

Chemicals not recommended by the TRISL: *Transfluthrin, Fenarimol, Acetamiprid, Salicylic Acids, Transfluthrin, Fenarimol*

Unintended chemicals: Anthroquinone, Pyrrolizidine Alkaloids (PA), Trimesium (trimethylsulfonin), Pentachlorophenol (PCP)

In view of curtailing the border entry violations, immediate remedies are solicited from Sri Lanka ensuring strict compliances to the import and quarantine regulations applicable to such exports. As (i) majority of such alleged detection levels are either reaching the MRLs set by the EU, *Saudi Arabia* and / or Japan, (ii) some are violations by exceeding the Maximum Residue Limits (MRLs) and (iii) the chances of getting such residues in made tea are not possible under the guidance given by the TRISL, TRISL and SLTB are not in a position to justify the cases raised by the regulatory authorities of the importing countries.

As such, all growers and producers are strictly advised to adhere to the following practices in a responsible manner in view of safe guarding the image and reputation maintained by Sri Lanka with respect to its cleanliness in pesticide residues in made tea.



Recent Changes of EU MRLs

Tea and Herbal Infusions Europe

Maximum Residue Limits as per EU Legislation

Reference: Regulation No. 396/2005/EC in its current version Commission Regulation (EU) 2023/1783 of 15 September 2023.

Based on the above regulations, amendments are being made to the Maximum Residue Limits (MRLs) for five (05) Tea Research Institute of Sri Lanka (TRISL) recommended PPPs as follows.

No.	Common name / a.i. (active ingredient)	Type	E U MRL (ppm)
1	Chlorantraniliprole	Insecticide	0.05 (0.02)
2	Diuron	Weedicide	0.01 (0.05)
3	Emamectin Benzoate	Insecticide	0.01 (0.02)
4	Methyl Isothiocyanate/ Metam	Nematicide	0.05 (0.02)
5	Propiconazole	Fungicide	0.05 (0.10)



2. Maintaining Quality of “Pure Ceylon Tea”: Alternatives

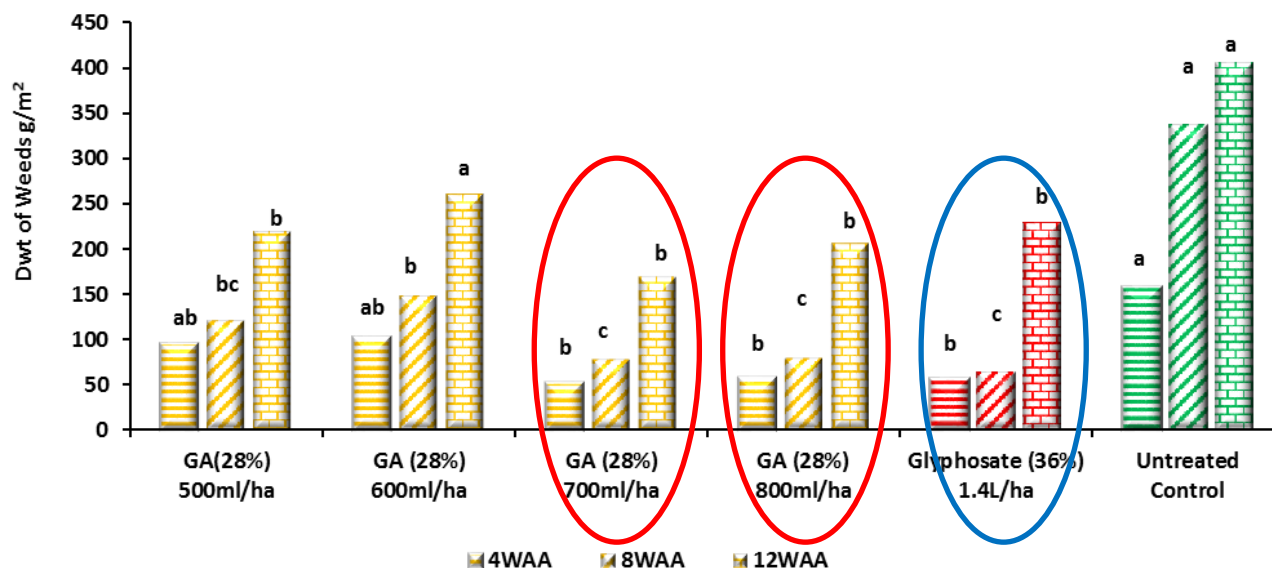
1. For Glyphosate, Glufosinate Ammonium
28% 280g/L SL (Lifeline; Class III product) @ 700 ml/ha
15% 150g/L SL (Zagro; Class III product) @ 1.4L/ha

2. For MCPA and Glyphosate, RAPID

Active ingredient (a.i.)	ROP Registration No.	Dosage/hectare	Remarks
Glyphosate Iso propyl Amine 29.3% + MCPA Iso propyl Amine 5.8%	Q380000	2.5 L in 500 L of water (22.5 ml in 4.5 L of water)	Avoid spraying for new clearings and pruned fields

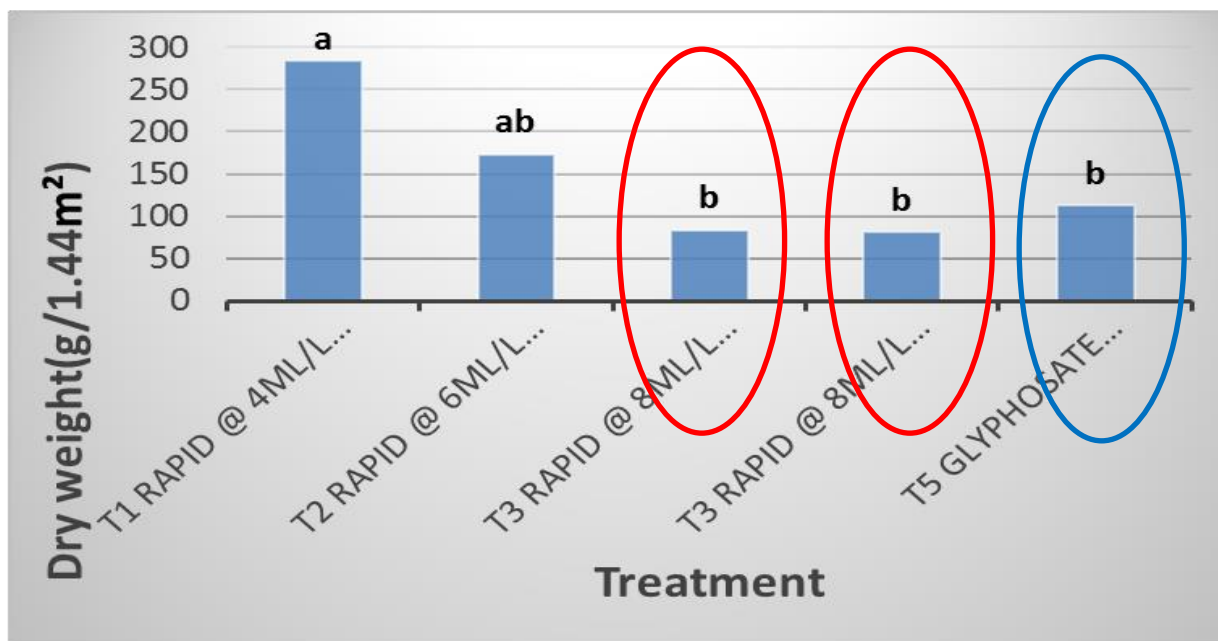


Glufosinate Ammonium (Lifeline)



Herbicide	MRL [ppm] (Japan)	MRL [ppm] (EU)	Test value (ppm)
			7 days ★
Glufosinate ammonium 28%	0.3	0.1	Non detected

RAPID: Glyphosate IPA (29.3%)+ MCPA IPA (5.8%)



Test value (ppm) with RAPID at 7 days ★		Japan MRL [ppm]		EU MRL [ppm]	
Glyphosate	MCPA	Glyphosate	MCPA	Glyphosate	MCPA
0.01	<0.01	1	0.06	2	0.1

Revision of Advisory Circulars PU 1 & PU 2



T.R.I. ADVISORY CIRCULAR

No. PU 1

Issued in: February 2024

Serial No. 01/24

PESTICIDE (PLANT PROTECTION PRODUCT) USE IN TEA

(This Circular supersedes Advisory Circular No. PU 1, Serial Nos. 03/08, 01/12, 01/15, 01/17, 01/19, 01/20, 01/22 and 01/23, issued in October 2008, June 2012, February 2015, February 2017, July 2019, November 2020, August 2022 and March 2023 respectively)

1. Introduction

Diseases, insect, mite and nematode pests and weeds occur in tea, in different stages of the crop, and at different times of the year. Therefore, an integrated approach (Integrated Pest Management: IPM) is recommended for efficient and timely management of pests in tea, which consists of various agronomic, cultural, biological and chemical strategies in a rational and environmental friendly manner. Rational use of fungicides, insecticides, acaricides, nematocides, fumigants and weedkillers is a part of integrated management of diseases, insects, mites, nematodes and weeds respectively.

In parallel, it is necessary to strengthen biological systems and improve cultural practices in order to promote the build-up of tolerance in plant and biological-control organisms in the environment, and to prevent the introduction and dissemination of pests, diseases and weeds in tea fields. Also, use of tea cultivars resistant / tolerant to the different diseases and pests is the prime component in the IPM.

As tea is a food commodity for human consumption, there is a growing concern among health-conscious consumers on pesticide residues that may be present in tea.

Therefore, it is advisable to use pesticides in tea fields carefully, in order to minimize the residues in made tea, effects on workers and non-target organisms in the eco-system. Moreover, the cost-effectiveness and the social acceptance of pesticide usage also have to be considered for the sustainability of the tea industry.

The chemicals and their use in tea as Plant Protection Products (PPPs) are subjected to change periodically to meet the requirements of consumers, social and environmental acceptance etc. It is extremely necessary to ensure that the pesticide residues in made tea at levels below the Maximum Residue Limits (MRLs) set for different pesticides by different countries.

When PPPs are applied to tea cultivations, it is necessary to strictly adhere to specific Pre-Harvest Intervals (PHI) and bulk green leaf from the sprayed and unsprayed fields or made tea at a ratio of 1:10. This would help dilute and minimize the pesticide residues in the made tea. Proper record keeping and monitoring on rational use of the PPPs are made mandatory for traceability and regulatory purposes.

2. List of Recommended PPPs

The active substances recommended for control of diseases, insects, mites and nematode pests and weeds in tea plantations by the Tea Research Institute of Sri Lanka, as at March, 2023 and respective MRLs of Japan and the EU are given in the Table 1.

Growers are advised to use only the PPPs listed in Table 1 and as per TRI recommendations given in Advisory Circulars PU 2, PU 3 and PU 4 for management of diseases, weeds and insect, mite and nematode pests respectively.



T.R.I. ADVISORY CIRCULAR

No. PU 2

Issued in: February 2024

Serial No. 02/24

CHEMICAL CONTROL OF DISEASES

(This Circular supersedes the Advisory Circular PU2 Serial No. 02/23 issued in March 2023 and previous related circulars and links with Circular Nos. DM1, DM2, DM3, DM4, DM5, DM6 & DM7)

1. Introduction

For disease management in tea, an integrated approach inclusive of cultural, biological and chemical methods is recommended as specified in Advisory Circulars DM1 – DM7.

Two fundamental groups of fungicides are used to control tea diseases. They are either contact or systemic. Contact fungicides can kill a pathogen (fungus) only upon contact and are not absorbed into plant tissues. Systemic fungicides on the other hand have the ability to be absorbed into plant tissues and therefore may leave behind residues for a longer period with better controllability. This can become counterproductive when it comes to residues in the final product (made tea). Therefore, this makes necessary to take all the precautions in resorting to control diseases using systemic fungicides. It is very important to use only the recommended fungicides as per TRI guidelines following the required Pre Harvest Interval (PHI).

2. Blister Blight Disease

2.1 Nursery

Active ingredient (a.i.)	Trade name/s	ROP Registration No.	Dosage/30,000 plants using Knapsack sprayer	PHI (weeks)
Contact Fungicides: at 4 day spray intervals				
Copper oxide	CIC Copper 50% WP	N230000	120 g/45 L water	n/a
Copper hydroxide	Champ Copper Hydroxide 37.5% WDG	N690000	45 g/45 L water	
Copper sulphate	Cuproxat @ 345 g/ L SC	P750000	200 ml/ 45 L water	
Systemic Fungicides: at 10 day spray intervals				
Hexaconazole	Eraser EC	F020100	25 ml/45 L water	n/a
Tebuconazole	Folicur 250 EC	9370100		
Propiconazole	Bumper	N750000		

2.2 Fields not in plucking (immature/pruned until tipping)

Active ingredient (a.i.)	Trade name/s	ROP Registration No.	Dosage/hectare using Knapsack sprayer	PHI (weeks)
Contact Fungicides: at 4 - 5 day spray intervals				
Copper oxide	CIC Copper 50% WP	N230000	450 - 560 g/ 170 L water*	n/a
Copper hydroxide	Champ Copper Hydroxide 37.5% WDG	N690000	136 -170 g in 170 L water*	
Copper sulphate	Cuproxat @ 345 g/ L SC	P750000	700-850 ml in 170L water*	



Revision of Advisory Circular PU 3



T.R.I. ADVISORY CIRCULAR

No. PU **3**

Issued in: February 2024

Serial No. 03/24

CHEMICAL CONTROL OF WEEDS IN TEA LANDS

(This Advisory Circular supersedes the Advisory Circular PU 3, Serial No. 03/23 issued in May 2023 and previous related circulars and links with Circular No. WM1, Serial No. 24/24 issued in February 2024)

Integrated Weed Management (IWM) approach includes manual, mechanical, cultural and chemical methods (in rotation) as specified in TRI Advisory Circular WM 1. The use of herbicides has some advantages, such as selectivity and cost-effectiveness, but sometime, causes crop damages, residue issues and environmental problems that need to be avoided by limiting the number of applications to two rounds per annum and strictly adhering to the recommended rate.

When using herbicides, the TRI recommendations should always be followed along with a minimum of one week Pre-Harvest Interval (PHI). Precautions should also be taken to avoid spray drift onto the tea foliage and green stems.

1. Common Weeds

A volume of 450 - 500 L of herbicide solution is required to cover one hectare of tea field when using a Knapsack sprayer fitted with a nozzle having a swathe of 0.5 - 1 meter at 1 - 2 bars pressure, while holding the nozzle at 35 - 50 cm above the ground.

1.1 Fields not in plucking (new clearing/pruned until tipping)

Active Ingredient (a.i.)	Trade name/s	ROP Registration No.	Dosage/hectare	Remarks
Oxyfluorfen (24%)	Goal 2E	H260000	1.2 L in 500 L of water (10 ml in 4.5 L of water)	Apply to bare moist soil.
Oxyfluorfen (48%)	Goal 4F	M550000	700 ml in 500 L of water (6 ml in 4.5 L of water)	



4. Quality Improvement: Certificate Course on Scientific Basis of Tea Processing and Factory Operations for Enhanced Profitability

Programme	1 st	2 nd	3 rd	4 th
Place	Talawakelle	Talawakelle	Rathnapura	Talawakelle
Date	30 th -31 st May 2023	17 th -18 th August 2023	17 th -18 th October 2023	13 th -14 th February 2024
No. of Participants	33	37	32	29





Thank you