BANGLADESH TEA RESEARCH INSTITUTE

Srimangal-3210, Moulvibazar

Monthly Report- August, 2018

(A) Director's visit

Date	Purpose
2nd – 4th August	Attended the meeting on budget for the financial year 2018-2019 of BTB, Chattogram.
7th – 10th August	Attended the 103rd coordination meeting of BTB, Chattogram.
27th August	Visited Burjan T.E for solving emergent problems of tea plantation.
31st August	Visited Kashipur T.E.

(B) Divisional Research and services/ activities

Activities	Agro	Bot	Biochem	Ento	Plant Path	Soil Sci	Stat & Eco	Tea Tech	**Total**
Number of experiments	08	32	-	07	06	07	03	-	**63**
No. of experimental visits	17	13	-	04	02	07	02	-	**45**
Advisory visits	→								**04**
Correspondences	-	-	-	01	01	13	-	-	**15**
Official visits	03	02	-	01	01	04	-	-	**11**
Workshops	→								**02**
Tea Tasting Session	-	01	-	-	-	-	-	-	**01**
Tea sample Tasting	-	-	-	-	-	-	-	-	-
MTC Modules (hrs)	-	-	-	-	-	-	-	-	-
Publications	-	-	-	-	-	-	-	-	-
Soil analysis for nutrient	-	-	-	-	-	09	-	-	**09**
Soil analysis for nematode	-	-	-	04	-	-	-	-	**04**
Fertilizer analysis	-	-	-	-	-	07	-	-	**07**
Compost analysis	-	-	-	-	-	-	-	-	-
Water analysis	-	-	-	-	-	05	-	-	**05**
Pesticide efficacy analysis	-	-	-	-	-	-	-	-	-
Fungicide efficacy analysis	-	-	-	-	-	-	-	-	-
Herbicide efficacy analysis	-	-	-	-	-	-	-	-	-
Residue analysis (Expt.)	-	-	-	-	-	-	-	-	-
Residue analysis (garden)	-	-	-	-	-	-	-	-	-

General comments: Divisional research and activities are satisfactory.

C. Research

Division: Agronomy **Total number of experiments : 08**

Total experimental visits : 17

Sl. No.	Name of the experiments	No of visits	Activities during the reporting month
1	Effect of different pruning cycles on the yield of different mature clonal tea	-	Three round of data were collected during the reporting month.
2	Comparative study on yield and yield related parameters of different clones released from BTRI	-	Data on harvested green leaf yield of two rounds were collected.
3	Development of tools for easy and effective transplanting of tea saplings in the nursery.	-	It is going on under the supervision of SSO.
4	Effect of integrated nutrient management for raising of clonal tea plants through direct poly-bag planting method.	-	Root cuttings of BT 2 clone shifted in poly bag from primary bed and regular data collection is going on.
5	Effect of different types of pruning on yield and	-	100 shoot fresh and dry

	quality of clonal tea.		weight, number of plucking point/bush and green leaf yield data of three round has been collected.
6	Study on different climatic parameters to observe the impact of climate change in relation to tea production in Bangladesh.	-	Rainfall, temperature and Relative humidity data of last 15 years of Balisera valley is collected.
7	Effect of different types of plucking policies on yield and quality of tea.	-	Three round of Plucking data were collected.
8	Effect of different types of compost on growth and development of clonal tea.	-	Another set of morphological data from each treatment will be collected in a short period of time.

N.B: All of the above 8 experiments are conducted at the BTRI main Farm, Srimangal. So, all of the experimental visits were accomplished at BTRI Farm by the divisional scientists at different dates to collect data and for intercultural operations.

Division: Botany **Total number of experiments : 32**
Total experimental visits : 13

Sl. No.	Name of the experiments	No of visits	Activities during the reporting month
1	Selection of Vegetative Clones at Shumshernugger T. E., Section Main Div. Sec. No. 9		1. Selection has been continued. 2. Cuttings in the nursery are kept under observation in order to find out their rooting ability.
2	Selection of Vegetative Clones at Amo T. E., Section No. 1		1. Selection has been continued. 2. Cuttings in the nursery are kept under observation in order to find out their rooting ability.
3	Selection of Vegetative Clones at Baraoorah T. E., Section No. 8	-	1. Selection has been continued. 2. Cuttings in the nursery are kept under observation in order to find out their rooting ability.
4	Yield and Quality Trial of Test clones Selected from Shumshernugger and Amo T. Es., Test clones Sh/D/11/313, A/8/8, A/17/7 and A/22/39 against Control BT1.		Weekly data has been recorded.
5	Yield and Quality Trial of Test clones Selected from Amo T. E. Test clones A/8/01, A/17/22, A/22/27 and A/22/40 against Control BT1.		Weekly data has been recorded.
6	Yield and Quality Trial of Test clones Selected from Chandpore, Shumshernugger and Amo T. Es.; Test clones C/J1/10, Sh/B/6/59, Sh/B/6/62 and A/8/24 against Control BT2.		Weekly data has been recorded.
7	Yield and Quality Trial of Four Test clones Selected from Shumshernugger T.E.; Test clones Sh/B/6/36,		Weekly data has been recorded.

	Sh/B/6/38, Sh/B/6/55 and Sh/B/6/67 against Standard BT1.		
8	Yield and Quality Trial of Six Test clones – MZ/39, E/4, D/13, B2T1, BR2/97 and SDL/1 against Standard BT2.		Weekly data has been recorded.
9	Yield and Quality Trial of Four Test clones Selected from Amo T. E.; Test clones – A/8/37, A/8/55, A/8/62 and A/8/66 against Standard BT2.		Weekly data has been recorded.
10	Yield and Quality Trial of Four Test clones Selected from Phulcherra, Amo and Shumshernugger T. Es.; Test clones – A/17/16, Ph/9/1, Ph/9/9 and Sh/B/6/46 against Standard BT1.		Weekly data has been recorded.
11	Yield and Quality Trial of Four Test clones Selected from Phulcherra and Hybrid Progeny; Test clones– Ph/9/4, Ph/9/25, Ph/9/40 and BS/67 against Standard BT5.		Weekly data has been recorded.
12	B2-44: Yield and Quality Trial of Three Test clones Selected from Amo and Phulcherra T. Es.; Test clones– A/8B/1, Ph/9B/1, Ph/9/11 and against Standard BT1.		Weekly data has been recorded.
13	Yield and Quality Trial of Three Test clones Selected from Amo, Phulcherra and Shumshernugger T. Es.; Test clones- A/8/61, Ph/9/68A, Sh/D/11/18 (retrial from Expt. B2-26) and One Introduced Clone SC/12/28 against Standard BT2.		Weekly data has been recorded.
14	Yield and Quality Trial of Four Test clones Selected from BTRI Farm (Dulia Section); Test clones – D1/18, D/6, D/10 and D/12 against Standard BT5.		Weekly data has been recorded.
15	Yield and Quality Trial of Four Test clones Selected from Phulcherra T. E. and BTRI Germplasm Bank; Test clones-Ph/9/92, BS/3, Ph/9/108 and G/61/8 against Standard BT15.		Weekly data has been recorded.
16	Yield and Quality Trial of Four Test clones Selected from Shumshernugger and Amo T. Es. Test clones – A/8/124, Sh/10/2, A/8/125 A/11/38 against Standard BT2.		Weekly data has been recorded.
17	Yield and Quality Trial of Four Test clones Selected from Shumshernugger T.E. (Sh/10/5, Sh/D/13/4and Amo T. Es. Test clones – A/8/128, BS/91/6, against Standard BT2.		Weekly data has been recorded.
18	Yield and Quality Trial of Four Test Clones Selected from Baraoorah T.E., Shumshernugger T.E. and Amo T. Es. Test Clones – B/8/79, Sh/9/43 and A/8/194 against Standard BT2 and BT17.		Weekly data has been recorded.
19	Yield and Quality Trial of Two Test Clones Selected from Baraoorah T.E., and Shumshernugger T.E. Test Clones – B/8/79 and Sh/9/71 against Standard BT2, BT17 and BTS1.		Weekly data has been recorded.
20	Yield and Quality Trial of Two Test Clones Selected from Baraoorah T.E., and Shumshernugger T.E. Test Clones – B/8/66 and Sh/8/61, against Standard BT2, BT17 and BTS1.		Weekly data has been recorded.
21	Yield and Quality Trial of Four Test Clones Selected from Baraoorah, Shumshernugger and Mirzapure T.E. (T1, T2, T3 and T4 against Standard BT2.		Newly established long term experiment.
22	Controlled Pollination between Selected Clones/Agrotypes and Selection of Generative		-

	Clones for the Establishment of Clonal Seed Reserve.		
23	Establishment of a Biclonal Seedbarie with Clones TV18 and BT3.		-
24	Comparative Yield and Quality Trial of BTRI Released Biclonal Stock BTS1, Biclonal Stock T18B3, Allynugger Polyclonal Stock (ANPS), Phulbari General Seed Stock (PBS) and Clone BT1.		Weekly data has been recorded.
25	Comparative Trial of 4 Biclonal Seed Stocks (BTS1, BTS3, TV18 × BT3 & TS463) and 3 Parental Clones (BT1, TV1 & TV19).		Weekly data has been recorded.
26	Survey and Conservation of Gene Resources of Tea in Bangladesh.		Plucking is continued and kept under observation.
27	Morphological characterization of BTRI released clones, some test clones and wild genotypes.		Data has been recorded.
28	Developing a sustainable and cost effective protocol for manufacturing health benefitted green tea and its derivatives (value added green tea).		Data has been recorded.
29	Study on seasonal effect and different clonal effect on recovery percentages of green tea.		Data has been recorded.
30	Screening of drought tolerant variety of tea at the nursery level.		Weekly data has been recorded.
31	Screening of drought tolerant variety of tea in the field condition upto 3 years of planting.		Weekly data has been recorded.
32	B4.4. Effect of different types of mulching materials on morpho-physiological characteristics of tea.		This experiment will be started very soon (upcoming drought period)

N.B: One (01) experimental visit was accomplished at Amo T.E and twelve (12) experimental visits were accomplished at BTRI Farm by the divisional scientists at different dates to collect data and for intercultural operations.

Division: Entomology **Total number of experiments : 07**
Total experimental visits : 04

Sl. No.	Name of the experiments	No of visits	Activities during the reporting month
1	Evaluation of sticky traps against Thrips & Looper caterpillar	-	Yellow sticky trap had been set against thrips in residue plot of BTRI farm. Data on no. of Thrips captured in those traps are being collected. Yellow traps captured less number of non targeted species.
2	Evaluation of some indigenous plant extracts against thrips in tea	-	Five indigenous plants viz., Akonda, Castor bean, Garlic, Nishinda and Tobacco were evaluated against thrips at 5.0, 7.5 and 10% (w/v) conc. Among them, Tobacco showed maximum mortality percentage.
3	Evaluation of commercial biopesticides against red spider mite in tea	-	Two Entomopathogens: *Metarhizium anisopliae* and *Pseudomonas fluorescens* were tested against red spider mite at 24, 48 and 72 HAT in laboratory condition. *M. anisopliae* showed highest efficacy on mortality than *P. fluorescens* over control. The rate of mortality increased with the increasing of time and dose.

4	Screening of tea clones for major insect pests in tea	-	Studies were done through monitoring and observing the degree of infestation against *Helopeltis* & RSM in tea clonal block (BT1-BT20) at BTRI. *Helopeltis* infestation was found comparatively less in BT1, BT2, BT5, BT9 & BT17. Whereas BT5, BT6, BT14 & BT 17 were found less infested by RSM.
5	Screening of pesticides against *Helopeltis*, Red spider mites, Termites, Nematodes and Thrips in tea	-	Trail for *Helopeltis* had been initiated during reporting month
6	Determination of residue level of commonly used pesticides in tea	-	The pesticides named Deltamethrin & Quinalphos had been sprayed in the exp. plots & samples were made at different interval after spraying.
7	Study on the compatibility among different pesticides in tea	-	To find out the combined effects for both *Helopeltis* and red spider mite. Tundra and Magister were applied singly against *Helopeltis* and red spider mite, respectively. Combination of these two insecticides was also applied against to these pests. More than 70% efficacy was found in combined application plot against those pests in separately.

N.B: All of the above 7 experiments are conducted at the BTRI main Farm, Srimangal. So, all of the experimental visits were accomplished at BTRI Farm by the divisional scientists at different dates to collect data and for intercultural operations.

Division: Plant Pathology **Total number of experiments : 06**
Total experimental visits : 02

Sl. No.	Name of the experiments	No of visits	Activities during the reporting month
1	Management of tea diseases (Black rot and Red rust) with Plant Growth Promoting Rhizospheric microbes.	-	There are four microbes like *Bacillus, Pseudomonas, Streptomyces, Trichoderma* were applied on Red rust disease. Among these microbes less disease severity are being observed in *Trichoderma* treated plots.
2	Advent and Economic Importance of Epiphytic Red Rust of Tea: Assessment, Causes and Remedies.	-	Causal organism of the disease, dissemination of pathogen, infection site of the disease were identified. Severity of the disease was observed by applying penetrating fungicides rather than simple contact fungicides.
3	Identify the potential source of infection of different tea diseases and capabilities for disease development.	-	Source of infection of both parasitic and epiphytic Red rust was seen old aged unproductive banji branches of tea plant remaining after LP and DS pruning. Maximum disease severity was observed in sections that were not cleaned properly.
4	Identification of VAM and determination of their potentiality in tea cultivation.	-	20 plant species were investigated for mycorrhizal colonization, among them 8 plant species like *Leucas aspera* (Setodron), Marigold, *Albizzia lebbek,*

			Derris robusta, Guatemala, *Albizzia odoritissima, Mimosa invisa* and *Indigofera sppare* found responsive.
5	Screening of new fungicides and herbicides against different diseases and weeds in tea	-	Received fungicides and herbicides from different pesticide companies through PTASC were applied against respective diseases and weeds in BTRI and BEF farm. Data are being recorded on severity of diseases and weeds. Primarily, the efficacy was observed as similar as standard.
6	Studies on Integration and Economics of Nitrogen fertilizer and Integrated Weed Management in young mature tea.	-	The experiment was set up in section no 8 of BEF. Different doses of N, P, K were applied as main treatment and different methods of weeding were practiced as second treatment in following Split plot design. Data are being recorded on growth and development of young tea plant.

N.B: All of the above 6 experiments are conducted at the Bilashcherra Experimental Farm, Srimangal. So, all of the experimental visits were accomplished at BTRI Farm by the divisional scientists at different dates to collect data and for intercultural operations.

Division: Soil Science **Total number of experiments : 07**
Total experimental visits : 07

Sl. No.	Name of the experiments	No of visits	Activities during the reporting month
1.	Response of dolomitic lime and its effect on the changes of soil properties and yield of mature tea	-	Data are being collected
2.	Effect of vermicompost on soil properties , growth and yield of mature tea	-	Data are being collected
3.	Status of Micronutrients (B, Mo, Zn, Mn, Fe & Cu) in some selected tea soils & its effects on the growth and yield of young Tea and mature tea	-	Zinc, Iron, Manganese and copper analysis of the collected soil samples has been completed. Soil samples collection are under process.
4.	Studies on physical properties of some selected tea soils of Bangladesh and their influence on chemical properties and yield of tea.	-	Soil sample collection and laboratory analysis is going on.
5.	Present status of toxic heavy metals (Pb, Cd, Hg, Cr) in tea soils, green leaves and made tea in Bangladesh	-	Not started yet due to the technical error in Atomic Absorption Spectrophotometer.
6.	Uses of Bio char as a soil amendment and its effect on tea soil properties	-	Biochar application has been done in the experimental plots and yield data are being collected.
7.	Determination of critical values of nutrients in tea soil and plant leaf in Sylhet, Chittagong and Panchagarh region.	-	Nutrient status of different valley circles has been complied. Soil samples collection and analysis is going on.

N.B: Three (03) experimental visits were accomplished at BTRI farm and four (04) experimental visits were accomplished at Bilashcherra Experimental Farm by the divisional scientists at different dates to collect data and for intercultural operations.

Division: Statistics and Economics **Total number of experiments : 03**
Total experimental visits : 02

Sl. No.	Name of the experiments	No of visits	Activities during the reporting month
1	Economic efficiency of some selective test clones and standard clones at BTRI farm	02	The experiment has started for the analysis of economic performance of the test clones and standard clones at BTRI farm. The data collection of the experiments has running.
2	Adoption and comparative performance of BTRI innovative technologies	-	Out of 164 gardens (T.Es.) 88 have sent the field-up questionnaires and the data of other T.Es. were collected from the monitoring report of PDU. Partial of the data was compiled and presented in the 74th RSC meeting. The rest of the data are being under compiling.
3	Economics of some selected bought leaf factories at Panchagarh	-	The preparation of data collection sheets, questionnaire is now under supervision and in progress.

D1. Advisory Visit: 02

SL. No.	Name of T.E.	Date of visit	Nature of problem(s) observed	Suggested remedies/ recommendations	Name of Scientist(s)
1.	Sathgao T.E.	05/08/18	Infestation with Die back & Black rot diseases and Helopeltis & Redspider mite. Less sprouting of new shoots, desiccation of some plants by draught effect, dark black- greenish in colour in sections 1, 2, 4, SB 2006, SB 2008, 6- RPL of Makricherra division), Isamoti 2, Isamoti 2 (11), Isamoti 2 (Tillah), Isamoti 3 (12) no 2-A, 2-B, 5 and 10.	Control measures suggested	Mr. Md. Syeful Islam, SSO
2.	Burjan T.E	27/08/18	Weed infestation in tea plantations	Control measures suggested	Dr. Mohammad Ali, Director

D2. Advisory activities under substation: 02

Date of Visit	Name of the T.E/ Small grower	Name of Scientist(s)	Nature of problem observed	Suggested remedies / recommendations
20/08/2018	Mr. Abul Kalam Azad	Dr. Mohammad Shameem Al Mamun	*Helopeltis* infestations and vacancy in tea plantations	Control measures suggested
25/08/2018	Mejbahul Alam Basunia	Dr. Mohammad Shameem Al Mamun	*Helopeltis*, Red spider mite infestations and improper shade condition	Control measures suggested

E. Correspondence

Name of the Division	No. of Correspondence	Date of Correspondence	Name of the T.E (s) / Organization	Official visit
Agronomy	-	-	-	**03**
Botany	-	-	-	**02**
Biochemistry	-	-	-	**-**
Entomology	01	29.08.18	Lalchand T.E.	**01**
Plant Pathology	01	14.08.18	Sathgao T.E	**01**
Soil Science	13	01.08.18	Ootterbhag & Indarnugger T.E	**04**
		01.08.18	Mertinga T.E	
		01.08.18	Srigobindpur T.E	
		01.08.18	CCDB	
		01.08.18	Director, PIU, NATP-II, BARC	
		02.08.18	Secretary, BTB	
		07.08.18	Moulvi T.E	
		07.08.18	Marina T.E	
		07.08.18	Saif T.E	
		07.08.18	Hossainabad T.E	
		28.08.18	Marina T.E	
		28.08.18	Member (Finance & Trade), BTB	
		29.08.18	Srigobindpur T.E	
Stat. & Econ				-
Technology	-	-	-	-
Total	**15**			**11**

F. Reports on soil and fertilizer analysis

Name of T.E	No of soil analyzed	No of fertilizer analyzed	No of water analyzed	Date of reporting	Recommendation
Ootterbhag & Indarnugger T.E	-	-	01	01.08.18	Quality assessment
Mertinga T.E	-	-	03	01.08.18	Quality assessment
Srigobindpur T.E	-	Urea-01	01	01.08.18	Quality assessment
Moulvi T.E	09	-	-	07.08.18	Fertilizer Recommendation
Marina T.E	-	Urea-01	-	07.08.18	Quality assessment
Saif T.E	-	Urea -01 MOP-01	-	07.08.18	Quality assessment
Hossainabad T.E	-	Urea -01	-	07.08.18	Quality assessment

Marina T.E	-	MOP-01	-	28.08.18	Quality assessment
Srigobindpur T.E	-	MOP -01	-	29.08.18	Quality assessment
Total	**09**	**07**	**05**		

G. Distribution of planting materials and production of BTRI

Distribution from	Distribution of planting materials			Production		
	Fresh cuttings	Rooted cuttings	Improved seeds (kg)	Green leaves (Kg)		
BTRI	1700	10480	-	BTRI	15134	174695
Fatickcherri	730500	-	-	BEF	159561	9094
Kaliti	20000	-	-			4947
Total	**752200**	**10480**	-			**188736**

General comments: Distribution of planting materials depends on the demand of the tea estates/ tea growers

H. Balance sheet of made tea (Black Tea)

Month	Reserve (Kg)			Consumption (Kg)				Present Balance
	BF	Production	Total	Local	BTB Sales Centre	Invoiced	Total	
Aug, 2018	7737	39230	46967	202	-	22000	22202	24765
Aug, 2017	24602	19200	43802	207	200	22000	22407	21395
Jan – Aug, 18	22625	71250	93875	7715 (TW=4700)	70	61325	69110	24765
Jan – Aug, 17	19386	110435	129821	2996	600	104830	108426	21395

I. Balance sheet of made tea (Green Tea)

Month	Received green leaf (kg)	Produced green tea (kg)	Progressive total (Kg) (January to Aug' 2018)
Aug, 2018	381.5	61.04	240.75

J. Balance sheet of made tea (White Tea)

Month	Received green leaf bud (kg)	Produced white tea (kg)	Progressive total (Kg) (January to August' 2018)
August, 2018	-	-	0.31

K. Weather report for meteorological station, Srimangal

Month	Temperature (°c)		Rainfall of the month (mm)	Nos. of rainy days	Total rain fall up to the month (mm)	Evaporation of the month (mm)	Sun shine Hrs	R.H. %	Dew point (°c)
	Max^m	Min^m							
August, 18	33.8	25.5	366	20	1832	146.4	4.44	79.57	25.72
August, 17	32.8	25.7	452	25	2816	126.1	3.86	80.83	25.5

General comments: Weather report varies from season to season

L. Delivered lecture hours for postgraduate diploma / certificate course at MTC

Divisions	**Date of lecture**	**Course Title**	**Resource Person**	**Time of the month (hrs)**
Agronomy	-	-	-	-
Biochemistry	-	-	-	-
Botany	-	-	-	-
Entomology	-	-	-	-
Plant Pathology	-	-	-	-
Soil Science	-	-	-	-
Stat. & Econ	-	-	-	-
Technology	-	-	-	-
Total				

M. Training workshops for small tea grower: -

Sl. No.	Date	Venue	Subject matter	Resource person	Participants	How tea industries will be benefited
-	-	-	-	-	-	-

N. Workshops conducted:02

Sl. No.	Date	Venue	Subject matter	Resource person	Participants	How tea industries will be benefited
1	07/08/18	Rangapani T.E	Plucking in tea cultivation	Dr. Mohammad Masud Rana, SSO & Mr. Mohammad Riyadh Arefin, SO	The Managers, Asst. Managers, Tillah babu and Sarders of Rangapani, Elahinoor and Baramasia Tea Estates were the participants . A total of 38 participants from the three tea estates were present in the workshop.	The participants got better understanding about the plucking technique, plucking standard, plucking round, and creep height control. Thus implementing the knowledge gained through this workshop, they will be able to manage their field more accurately and this would lead increased tea production in their gardens.
2	12/08/18	Ootterbagh Indanugger T.E	Soil & Fertilizer, Disease and Insect pests management in tea	Mr. Abdul Qyyuum Khan, PSO Mr. Md. Syeful Islam, SSO Mr. Md. Jahangir Alam, SO	Senior Manager, Manager and assistant Manager of all tea estate of Lungla valley.	Managers, Assistant managers and other staff personnel of tea estates gain theoretical & practical knowledge about soil fertility, fertilizer and their application methods and time as well as how tea production will be increase with the improvement of soil condition. They were also gain knowledge regarding source of infection, dissemination of pathogens, time of infection, favorable

						environment of the diseases; so that they are able to take necessary actions for controlling different tea diseases in proper time and proper ways. Speaker also discussed on the major insects pests of tea- *Helopeltis*, Red spider mite, thrips. The managerial staff of the tea estates also shared their field experience and asked different questions on insect pests management. They gathered knowledge on their seasonal abundance, reasons for pest outbreak, management which will help them for better management of insects in tea.

(Dr. Mohammad Ali)
Director