

**Supplementary Table S1:** Area, production, temperature, rainfall, relative humidity of tea garden in Bangladesh during 25 consecutive crop years (1995-2020). **Source:** NASA/POWER CERES/MERRA2 Native Resolution (Annual) and Bangladesh Tea Board (BTB), 2020.

Year	Area (ha)	Production (kg/ha)	Temperature (degree celcius)	Rainfall (mm)	Relative Humidity (%)
1995	47749	998.34	25.32	1612	65
1996	48097	1110.46	25.55	1503	68
1997	49388	1022.92	24.98	2246	69
1998	49389	1130.21	25.01	2649	75
1999	49210	938.63	25.61	2177	70
2000	49910	1064.91	24.51	2854	75
2001	50150	1133	24.72	2682	74
2002	51150	1048.28	24.81	2758	76
2003	52200	1116.85	24.58	2618	78
2004	52719	1062.23	24.55	3176	77
2005	53250	1129.38	24.86	2850	78
2006	53350	1001.12	25.15	2490	75
2007	53450	1088.68	24.53	3272	76
2008	53518	1096.07	24.84	2155	77
2009	54000	1110.92	25.29	2570	75
2010	55000	1091.63	25.08	3272	79
2011	56846	1040.17	24.82	2283	76
2012	57210	1092.81	24.73	2850	76
2013	58719	1128.42	25.1	2696	77
2014	59609	1071.65	25.44	2656	76
2015	60179	1119.65	25.05	3272	79
2016	62500	1360.8	25.44	4532	81

2017	60830	1297.87	25.01	6742	82
2018	62579	1312.42	24.53	4168	81
2019	67096	1431.82	25.01	5098	79
2020	67096	1287.55	24.76	5173	81

**Supplementary Table S2:** Last five years fertilizer doses (Urea, TSP, MOP) and production of tea leaves at BTG, NTG, FTG, LTG and MTG tea garden. Source: Bangladesh Tea Research Institute (BTRI), 2020.

Fertilizer Name	Year	Garden Name				
		BTG	NTG	FTG	LTG	MTG
Urea (kg/ha)	2015	279	293	291	281	276
	2016	292	279	273	297	281
	2017	288	288	267	283	296
	2018	269	285	286	311	305
	2019	297	277	308	274	315
TSP (kg/ha)	2015	54	48	43	47	43
	2016	49	51	52	55	62
	2017	56	53	51	43	57
	2018	57	44	55	56	56
	2019	42	55	48	58	47
MOP (kg/ha)	2015	118	120	118	105	136
	2016	126	117	126	123	128
	2017	142	138	147	141	132
	2018	158	149	133	132	105
	2019	107	111	156	140	148
Production(kg/ha)	2015	8324	6892	7118	6698	5912
	2016	8256	7423	6873	6938	6043
	2017	7434	7121	7619	7712	6671
	2018	7037	8156	7734	7370	7121

	2019	9401	8421	8376	6934	6857
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**Supplementary Table S3:** Age of five different tea garden in Bangladesh, Source: Bangladesh Tea Research Institute (BTRI), 2020.

Garden Name	Establishment	Age (Years)	pH (2020)
BTG (BTRI tea garden)	1957	64	4.24
NTG (Nurjahan tea garden)	1879	142	4.07
FTG (Finlay tea garden)	1932	89	4.17
LTG (Lakkatora tea garden)	1875	146	3.95
MTG (Malnichara tea garden)	1854	167	3.87