

সার্কুলার নং- ১৪০  
Circular No. 140



তারিখ: ৬ আশ্বিন ১৪২৩  
September 23, 2016

## ক্লোন বিটি২০ এর অবমুক্তি RELEASE OF CLONE BT20

বাংলাদেশ চা গবেষণা ইনস্টিটিউট  
অঙ্গ প্রতিষ্ঠান, বাংলাদেশ চা বোর্ড  
শ্রীমঙ্গল-৩২১০, মৌলভীবাজার।

# evsj v\` k Pv M\`tel Yv Bbwi÷UUDU

k\`g\`2j -3210, \`g\`šj f\`xevRvi

m\`K\`švi bs : 140

Z\`m\`i L: 23 tm\`šP\`af, 2016 uL.ª

## tKvb ve\`U20 Gi Aeg\`š

### f\`g\`Kv

evsj v\`k\`i Pv Ave\`m\` G\`jv\`Kvi ep\`vskB `f\` Drcv\`b\`ŋg exR P\`riv Øv\`iv Ave\`KZ. I I\`vUra©eq\`tmi c\`šj v\`bv Ab\`šz Pv M\`vQ | Z\`vB Drcv\` Z P\`tqi Ÿ YMZgvb\` Av\`k\`v\`j\`æc bq | ve\`j\`c Ave\`m\`I qv\`R\`ibZ K\`vi \`Y Drcv\` b n\`tm, tm\`B m\`t\`2 ewa\`Z Drcv\` b LiP Pv v\`k\`š\`i `f\` c\`š\`K A\_ŋ\`ov\`ZK j\`v\`fi Ab\`Zg K\`vi Y | Gme K\`vi \`YB P\`tqi b\`žb ev c\`y: Ave\`m\` \`Z A\`w\`K dj b\`k\`j | Db\`žg\`vb m\`=cbæGes tm\`B m\`t\`2 Liv I t\`i v\`M- evj\`vB m\`nbk\`j Db\`žR\`v\`Zi P\`tqi P\`riv e\`envi Ac\`m\`i nv\`ŋ\`tq c\`t\`o\`Q |

Pv Drcv\`b\`K\`vix me t\`\`k\`B tKvb\`j v\`m\`t\`j K\`kb c\`š\`u\`qv t\`g\`v\`U\`v\`G\`K\`B ai\`š\`bi | Bbwi÷UUD\`š\`Ui tKvb\`j v\`m\`t\`j K\`kb I m\`s\`Kiv\`q B\`m\`el Yv K\`v\`ŋ\`t\`gi Av\`I Zv\`q G ch\`š\`I 18u\` D\`P\`dj b I Ÿ YMZ gv\`bm\`=cbæDb\`ž R\`v\`Zi tKvb ve\`U\`AviAv\`B n\`Z Pv v\`k\`š\`i i R\`b\` v\`eg\`š Kiv n\`t\`q\`t\`Q | Z\`b\`š\`a\` A\`w\`Kv\`skB Pv v\`k\`š\`i h\`\_ó R\`b\`v\`c\`š\`Zv t\`c\`t\`q\`t\`Q | G\`K\`B av\`i ve\`m\`K\`Z\`v\`q evsj v\`k\` Pv M\`tel Yv Bbwi÷UUDU Zvi D\`m\`e\`Z t\`K\`v\`m\`g\`š\`i m\`t\`2 be\`Zi m\`š\`h\`v\`R\`b v\`m\`t\`m\`te G/8/8 m\`v\`š\`K\`w\`Z\`K b\`v\`t\`g t\`i K\`W\`ŋ\`ž I c\`wi v\`P\`Z t\`K\`v\`b\`i\`t\`K ve\`U20 b\`v\`t\`g Av\`I G\`K\`u\` D\`P\` dj b\`k\`j I Ÿ YMZ gv\`bm\`=cbæ\`K\`v\`š\`i Aeg\`š\` t\`N\`v\`Yv Ki\`t\`Q |

### ve\`U20 Gi Dm\` I cix\`ŋ\`Y

ve\`U20 tKvb\`u\` W\`v\`b\`K\`vb e\`i\`v\`m\`©(evsj v\`k) v\`j v\`g\`t\`u\`š\`Wi e\`e\`v\`x\`b Av\`g\`y\`Pv ev\`M\`š\`bi 8bs tm\`K\`kb n\`Z ev\`Q\`v\`B Kiv n\`q | Pv ev\`M\`v\`b\`u\` j `i\`c\`y f\`v\`j\`ž Aew\`Z, hv\` Liv\`c\`ø\`Y G\`jv\`Kv b\`v\`t\`g c\`wi v\`P\`Z | tm\`K\`kb\`u\`š\`Z 1993 m\`š\`b c\`š\`u\`g\`K v\`m\`t\`j K\`k\`š\`bi K\`v\`R `i\`æ\`Kiv n\`q | v\`be\`ŋ\`P\`Z gv\`Ze,ŋ, t\`j\`vi Ab\`Zg G/8/8 m\`š\`K\`Z\`h\`š\` M\`v\`Q\`u\` me\`š\`u\`g 09.05.1994 Z\`m\`i t\`L v\`P\`v\`y\`Z Kiv n\`q |

v\`be\`ŋ\`P\`Z M\`v\`Q, t\`j\`vi `x\`N\`©ch\`ŋ\`q\`u\`g\`K Qv\`K\`vb c\`š\`u\`qv\`š\`I 1996 m\`š\`b Av\`t\`j\`v\`P\` t\`K\`vb, m\`=ŋ\`eb\`v\`g\`q Av\`I v\`Z\`b\`u\` t\`K\`vb Ges G\`K\`u\` ve\`š\`k\`x t\`K\`vb (u\`U\`v\`f\`1) gv\`b v\`b\`q\`v\`g\`K v\`m\`t\`m\`te ve\`U\`AviAv\`B L\`v\`g\`v\`ti c\`wi m\`s\`L\`v\`m\`B v\`b\`q\`t\`g `v\`w\`c\`Zi G\`K `x\`N\`©g\`q\`v\`x Drcv\` v\`b I Ÿ YMZgv\`b v\`b\`Y\`ŋ\`x cix\`ŋ\`vi A\`š\`f\`ž Kiv n\`q | `x\`N\`©12 e\`Q\`ti i v\`b\`ix\`ŋ\`v\`q G/8/8 m\`š\`K\`Z\`f\`ž t\`K\`v\`b\`u\` c\`š\`B eq\`v\` Ae\`v\`q Drcv\` b, Ÿ YMZgv\`b, b\`v\`m\`ŋ\`i, Liv m\`m\`v\`c\`š\`v\` B\`Z\`v\` v\`g\`v\` ch\`ŋ\`e\`ŋ\`t\`Y m\`=ŋ\`eb\`v\`g\`q t\`K\`vb v\`m\`t\`m\`te v\`b\`v\`š\`Z c\`š\`x\`q\`gv\`b n\`t\`q\`t\`Q |

### m\`v\`i\`Y `e\`i\`k\`o\`

t\`K\`v\`b\`u\` g\`j\`Z Av\`m\`v\`g R\`v\`Zi | Gi K\`v\`Ū m\`Y\`v\`g I m\`v\`e\`b\`~\`/ M\`v\`š\`Q\`i M\`V\`b K\`v\`v\`t\`g\`v\` gv\`S\`v\`i Av\`K\`u\`Zi I K\`v\`L\`v\`- c\`k\`v\`L\`v\`v\`v\` Mo\`š\`bi | Q\`v\`v\`B D\`E\`i b\`Z\`b v\`K\`k\`j\`t\`qi Av\`M\`g\`b I e\`v\`x h\`\_ó m\`š\`š\`i\`R\`b\`K | M\`v\`Q\`u\`Ji c\`v\`Zi is

ga'g meR, gvSmi n'Z eo AvKwZi Ges gmy| cvZv Kt'Ui m'z Lvov Ae'vb wekó (Erect leaf pose)| cvZvi AMFVM c'j'Z (Pointed apex) Ges cwimxgv myg LvBKvUv| PqbZj tek Nb Ges myg we'Z.c'Z' Pqb'hm' c'j' e wekó| Pqbcj' e t'Kvgj I gvSmi AvKwZi |

**mviv 1. weU20 I uUvf1 Gi Z'bv'g-j-K Avw'zK 'enkó"**

$\mu.bs$	'enkó"	G/8/8 (tU÷ t'Kvb)	uUvf1 (gvbw'bv'gK)
1.	100 meR i'Z'Ui I Rb- Fresh weight of (g) 100 shoot- (2L+B)	92.25	77.5
2.	i'U WB g'v'Ui - Shoot dry matter (%)	21.80	17.10
3.	i'Z'Ui ^N' - Shoot length (cm)- (2L+B)	9.50	6.35
4.	cwi YZ cvZvi t'q'Idj -Mature leaf area (cm <sup>2</sup> )	63	36.50
5.	c'Idj t'Ki ^N' - Leaf lamina length (cm)	14.25	11.69
6.	c'Idj t'Ki c' - Leaf lamina breadth (cm)	6.5	5.50
7.	c'Z c'Idj t'K e'j kb mL'v - No. of bullation/leaf	16.50	12.10
8.	c'Z c'Idj t'K Lv'Ri mL'v - No. of serration/leaf	88.35	81.00
9.	t'dg di't'gkb c'ubs G c'Z QvUvBKZ. Wt'j i mL'v- No. of pruning sticks/bush at FFP (Av. of 10 bush)	14.50	15.10
10.	t'dg di't'gkb c'ubs G c'Z QvUvBKZ. Wt'j i I Rb- Wt(kg) of pruning litter/bush at FFP (Av. of 10 bush)	1.25	1.10
11.	c'w'ks c't'q'Ui NbZ' - Number of Plucking point /bush/year	470	395
12.	u'c'Diem't'v' - Pubescence (4 ×10x)	1565	1580

**bwm'v'Z t'Kv'v'Ui 'enkó"**

bwm'v'Z t'Kv'v'Ui t'kKo MRv't'v'v' q'gZv D'eg| ZvQvov bwm'v'Z P'v'v'v' e'x I W'j c'v'v'v' we'v' tek m't's't' RbK|

**mviv 2. weU20 I uUvf1 Gi Z'bv'g-j-K t'kKo MRv't'v'v' q'gZv**

t'Kv't'v'v' m's't'Kw'ZK b'v'g	bwm'v'Z t'kKo MRv't'v'v' q'gZv
G/8/8 (tU÷ t'Kvb)	90-95%
uUvf1 (gvbw'bv'gK)	75-80%

t'kKo MRv't'v'v'v' = Lv' F'v'j = >90%, F'v'j = >75% - <90%, ga'g = <75%

**Drcv`ubK`enkó`**

tKvb weU20 Ges gvbbqvgK uUwf1 Gi Drcv`ubK`enkó` 3bs I 4bs mviwYtZ c0É nj | cixqY c#U AcwiYZ Ae`vq (1g ntZ 5g ermi; mviwY -3), tKvbUj eml R Mo Drcv`b uQj tn±i c0Z 1509 tKwR (1g erm#i i Drcv`b we#qRb K#i), Ges 1257 tKwR (1g erm#i i Drcv`b msthvRb K#i) | Z#bvgj-Kf#te GKB mg#q, gvbbqvgK uUwf1 tKvbUj eml R Mo Drcv`b uQj tn±i c0Z 1625 tKwR (1g erm#i i Drcv`b we#qRb K#i), Ges 1341 tKwR (1g erm#i i Drcv`b msthvRb K#i) |

cwiYZ eqmKv#j tKvbUj 12 eQ#i i (60 - 17Zg ) Mo Drcv`b uQj c0Z tn±i 3685 tKwR `Zwi Pv, Acic#q Z#bvgj-Kf#te GKB mg#q gvbbqvg#Ki t#t# Zv uQj 3281 tKwR `Zwi Pv | tivcb cieZ# 12Zg erm#i tKvbUj tn±i c0Z Drcv`b uQj 4,589 tKwR `Zwi Pv | hv uQj weU20 tKvbUj cixqY PjvKvjxb tKvb GKK erm#i #i KWRZ.m#e#P Drcv`b | uUwf1 gvbbqvg#Ki #i KWRZ.m#e#P Drcv`b uQj tn±i c0Z 4274 tKwR `Zwi Pv H GKB erm#i | weU20 Gi Mo Drcv`b AcwiYZ eqmKv#j gvbbqvg#Ki t#q hv I Kg uQj ciewZ#Z cwiYZ Ae`vq 12 eQ#i i Mo Drcv`b gvbbqvg#Ki t#q 12% tekx uQj |

**mviw 3.** weU20 I uUwf1 Gi Z#bvgj-K Drcv`b (`Zwi Pv tKwR/tn±i) AcwiYZ Ae`vq (1g-5g ermi)

tKv#bi mvstKwZK bvg	AcwiYZ (1g - 5g ermi)					Mo
	1g w-#mUw#s /te#Ks	2q c#bsKZ.	*3q w`d c#bs	4` GdGd#C c#bs	5g w`d c#bs	
G/8/8 (tU÷ tKvb)	248	692	1036	1580	2727	1257/1509**
uUwf1 (gvbbqvgK)	225	636	1168	1701	2976	1341/1625**

\*Livi ermi, \*\*c0g erm#i i dj b msthvRb K#i /we#qRb K#i |

**mviw 4.** weU20 I uUwf1 Gi Z#bvgj-K Drcv`b (`Zwi Pv tKwR/tn±i) cwiYZ Ae`vq (60-17Zg ermi)

cwiYZ (60-17Zg ermi)												
tKvb	60 Gj #C	7g w Gm	8g Gg Gm	9g Gj Gm	10g Gj #C	11 Zg w Gm	12 Zg Gg Gm	13 Zg Gj Gm	14 Zg Gj #C	15 Zg w Gm	16 Zg Gg Gm	17 Zg Gj Gm
G/8/8	2531	3499	4253	4243	2102	3382	4589	4423	3498	3647	3755	4301
uUwf1	2404	2893	3389	3852	1739	2828	4274	3988	3191	3365	3465	3979

**mviw 5.** *weU20 I uUwf1 Gi cwI YZ Ae`vq (6ô-17Zg ermi) 3 uU cãbs Ptiui Mo Zj`bvgj-K `Zwi Pr Drcv`b (tKwR/tn.)*

tKv`bi mvs`KwZK bvg	12 eQti 3 uU cãbs Ptiui c`K c`K cãbs Acviti k`bi Mo Drcv`b				Mo	`YMZgvb
	j vBU cãbs (Gj wC)	wC w`d (wWGm`K)	wg w`d (GgGm`K)	j vBU w`d (Gj Gm`K)		
G/8/8 (tU ÷ tKv`b)	2710	3509	4199	4322	3685	DËg
uUwf1 (gvbwbqvgK)	2445	3029	3709	3940	3281	AwZ DËg

**`YMZgvb**

*weU20 Gi `YMZgvb L`B mt`Sli RbK | Gi QvKwbcvZvi eY`L`B D`4j | wj Kvi D`4j i`0i, mRxe I Mvp | Gi migqZvl Fij | mwieRgvb wePviti weU20 Gi `YMZgvb ðDËg0 (ðAbove average) gvb wntmte MY` | tckv`vi Pr Av`r` KMYI (Professional Tea Tasters`) Abjfc gZ cKvk Kti`0b |*

**tKv`bi tkw**

*Drcv`b I `YMZgvb gj`vqtb weU20 tKvbu`K GKwU ðAv`k`Kv`b0 wntmte MY` Kiv hvq | tKv`bi DËg Drcv`b Ges DËg `YMZgvb`K (Above average yield & quality) A`P, tn±i c0Z Mo Drcv`b >3000 - 4000 tKwR `Zwi Pr Ges 32 ntZ 34 Gi gta` (50 gvtbi gta`) Av`r` bx gvb gj`vqtb`K ðAv`k`Kv`b0 wntmte MY` Kiv nq |*

**Liv mnbkxj Zv**

*tKvbuU ht`ó ewj ô Ges Kóminòz` cix`YKvtj Mtel Yij ä c0B Z` we`kd`Yi wfwËtZ t`Lv tMt0 tKvbuU Liv minòz` (Drought tolerant)*

**mviw 6.** *Livq (drought stress) weU20 I uUwf1 Gi Zj`bvgj-K kvi xi eËxq Ae`v*

µ. bs	`ewkó`	G/8/8 (tU ÷ tKv`b)	uUwf1 (gvbwbqvgK)
1.	3q eQti tKktoi Mo Mfxi Zv (tm.wg)	35	28.75
2.	ial-iU AbgvZ	0.32	0.24
3.	tç0j b KbtuU -Proline content (µmol/g fr. wt)	0.65	0.55

4.	<i>ij d I qvUvi c#Ubwkqvj</i> -Leaf water potential (LWP*-bar)	9.10	10.30
5.	<i>tgvU tK#i vcdj Gi cwi gvY</i> -Total chlorophyll (mg g <sup>-1</sup> )	1.96	1.95
6.	<i>tK#i vcdj ÷ "wevj uU Bb#W.</i> (CSI%)	94	88.00
7.	<i>mv#j vKms#k# Y Gi cwi gvY</i> -Photosynthesis ( $\mu\text{mol m}^{-2} \text{s}^{-1}$ )	9.50	8.95
8.	<i>c#^-^b Gi cwi gvY</i> -Transpiration ( $\text{m.mol m}^{-2} \text{s}^{-1}$ )	1.25	2.15
9.	<i>cmb e"en#i i #lgZv</i> -Water use efficiency ( $\mu\text{mol/m mol}$ )	5.33	4.85
10.	<i>vi #j uUf ij d I qvUvi Kb#Uu</i> (RWC%)	62.0	69.00

\* *ibggvib D"PZi Liv min#Zv ub#`R K#i*

### ***t#vKvkvKo, ti vMej vB c#Z#iva #lgZv***

*evQvB I `xN#qqr`x gvV cir#YKv#j tK#vUvU iefb#e t#vKvkvKo I ti vMej vB c#Z#iva #lgZv m#s#i RbK etj g#b n#q#Q|*

### ***Dc#hvMx c#Zc#vj x***

*tK#vUvU umuUvm (Crush-Tear-Curl) c#Zc#vj #Z me#P#q Dc#hvMx| Z#e A#\_#W. c#x#Z#Zi c#Z Kiv h#e|*

*mvv #7. ievU20 I uUvf1 Gi Dc#hvMx c#Zc#vj xi Z#bv*

<i>tK#v</i>	<i>1g AM#vKvi (1st preference)</i>	<i>2g AM#vKvi (2nd preference)</i>
<i>ievU20</i>	<i>umuUvm</i>	<i>A#_#W.</i>
<i>uUvf1</i>	<i>A#_#W.</i>	<i>umuUvm</i>

### ***Dc#hvMx Avev# Gj vKv***

*##nZ#tK#vUvU m#s#i RbK Liv c#Z#iva #lgZv m#v#eZvB Pv Avev` Dc#hvMx me Gj vKvq GuU Avev`#vM`| tK#vUvU Avev` i Rb` uUj vi me Xij Ges mgZj Gj vKv Dc#hvMx n#e|*

## megy<sup>3</sup> Ges meZiY

evsj v<sup>3</sup> k Pr M<sup>3</sup>elYv Bbiv÷uUD<sup>3</sup>Ui M<sup>3</sup>elYv Dc-Kig<sup>3</sup>uUi m<sup>3</sup>m<sup>3</sup>e<sup>3</sup> MZ 03-11-2015 uL<sup>3</sup> Bbiv÷uUD<sup>3</sup>U  
Abv<sup>3</sup>Z 71Zg mfvq G/8/8 ms<sup>3</sup>KZh<sup>3</sup> tK<sup>3</sup>v<sup>3</sup>uUi gvV ch<sup>3</sup>qi Dr<sup>3</sup>cr<sup>3</sup>b, „YMZg<sup>3</sup>vb, bvm<sup>3</sup>u<sup>3</sup>i<sup>3</sup>Z<sup>3</sup> e<sup>3</sup>mk<sup>3</sup>ó<sup>3</sup>“  
Ges Ab<sup>3</sup>vb<sup>3</sup> u<sup>3</sup> K ch<sup>3</sup>q<sup>3</sup>vP<sup>3</sup>bv K<sup>3</sup>ti Pr u<sup>3</sup>k<sup>3</sup>i<sup>3</sup>i Rb<sup>3</sup> megy<sup>3</sup>i m<sup>3</sup>x<sup>3</sup>v<sup>3</sup>š<sup>3</sup>i c<sup>3</sup>ú<sup>3</sup>vb I Ab<sup>3</sup>g<sup>3</sup>v<sup>3</sup>b K<sup>3</sup>ti b| tm  
c<sup>3</sup>vi t<sup>3</sup>c<sup>3</sup>ú<sup>3</sup>q<sup>3</sup>t<sup>3</sup>Z G/8/8 ms<sup>3</sup>KZh<sup>3</sup> tK<sup>3</sup>v<sup>3</sup>uUi GLb u<sup>3</sup>u<sup>3</sup>20 b<sup>3</sup>v<sup>3</sup>g m<sup>3</sup>v<sup>3</sup>g<sup>3</sup>u<sup>3</sup>q<sup>3</sup>K Aeg<sup>3</sup>v<sup>3</sup> t<sup>3</sup>N<sup>3</sup>v<sup>3</sup>i Y<sup>3</sup>v K<sup>3</sup>iv hv<sup>3</sup>t<sup>3</sup>Q| t<sup>3</sup>k<sup>3</sup>Koh<sup>3</sup>  
c<sup>3</sup>ú<sup>3</sup>Z<sup>3</sup>u<sup>3</sup> Pr<sup>3</sup>vi gj<sup>3</sup> 20.00 U<sup>3</sup>v<sup>3</sup>K<sup>3</sup>v<sup>3</sup> av<sup>3</sup>h<sup>3</sup>K<sup>3</sup>iv n<sup>3</sup>t<sup>3</sup>q<sup>3</sup>t<sup>3</sup>Q| Av<sup>3</sup>Z k<sup>3</sup>u<sup>3</sup>N<sup>3</sup>B G t<sup>3</sup>K<sup>3</sup>v<sup>3</sup>uUi Pr<sup>3</sup>iv Av<sup>3</sup>b<sup>3</sup>g<sup>3</sup>u<sup>3</sup>mb<sup>3</sup>K meZiY K<sup>3</sup>iv n<sup>3</sup>te|  
u<sup>3</sup>b<sup>3</sup>D<sup>3</sup>u<sup>3</sup>K<sup>3</sup>q<sup>3</sup>vm t<sup>3</sup>K<sup>3</sup>vb c<sup>3</sup>ú<sup>3</sup> m<sup>3</sup>P<sup>3</sup>bvK<sup>3</sup>t<sup>3</sup>i c<sup>3</sup>ú<sup>3</sup> u<sup>3</sup>g<sup>3</sup>K<sup>3</sup>f<sup>3</sup>ite c<sup>3</sup>ú<sup>3</sup>Z<sup>3</sup>u<sup>3</sup> ev<sup>3</sup>M<sup>3</sup>v<sup>3</sup>b<sup>3</sup>t<sup>3</sup>K m<sup>3</sup>te<sup>3</sup>PP u<sup>3</sup> k<sup>3</sup>u<sup>3</sup> K<sup>3</sup>ti Pr<sup>3</sup>iv mi<sup>3</sup>ei<sup>3</sup>vn K<sup>3</sup>iv n<sup>3</sup>te|  
Pr<sup>3</sup>iv ms<sup>3</sup>M<sup>3</sup>h<sup>3</sup>K<sup>3</sup>v<sup>3</sup>t<sup>3</sup>j gj<sup>3</sup> bM<sup>3</sup>t<sup>3</sup> ev<sup>3</sup> c<sup>3</sup>vi P<sup>3</sup>v<sup>3</sup>j K, u<sup>3</sup>u<sup>3</sup>Av<sup>3</sup>i Av<sup>3</sup>B ei<sup>3</sup>ve<sup>3</sup>ti t<sup>3</sup>PK/M<sup>3</sup>u<sup>3</sup>d<sup>3</sup>u g<sup>3</sup>va<sup>3</sup>tg c<sup>3</sup>vi t<sup>3</sup>k<sup>3</sup>va K<sup>3</sup>iv hv<sup>3</sup>te|



(W. gyBbDvii b Avntg<sup>3</sup>)  
c<sup>3</sup>vi P<sup>3</sup>v<sup>3</sup>j K



(tgrt BmgvBj tnvmb)  
c<sup>3</sup>ú<sup>3</sup>vb e<sup>3</sup>Á<sup>3</sup>v<sup>3</sup>mb<sup>3</sup>K Kg<sup>3</sup>R<sup>3</sup>Z<sup>3</sup>  
D<sup>3</sup>v<sup>3</sup>M<sup>3</sup>c<sup>3</sup> me<sup>3</sup>Á<sup>3</sup>vb me<sup>3</sup>f<sup>3</sup>v<sup>3</sup>M

# **Bangladesh Tea Research Institute**

Srimangal-3210, Moulvibazar

Circular No. 140

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## **RELEASE OF CLONE BT20**

### **Introduction**

A large portion of Bangladesh tea area is covered with seedling plants which are over 60 years old and are of unimproved jats of poor productivity. As a result yield of tea is quite low and poor quality. Besides this due to adverse climatic conditions decreases yield, causes higher cost of production, has led to marginal economic return to the industry. All these factors increased the need to replant and extend new tea areas with improved planting materials of higher yield and quality potentials as well as better tolerant to drought, pests and diseases.

Clonal selection process is fairly similar to the all tea producing countries. Under the clonal selection and hybridization programme of this institute, BTRI so far, released 18 high yielding and quality clones in the BT- series to the industry. Most of them have got considerable popularity in our tea industry. To augment the process, the institute now announces the release of another improved standard clone in the name BT20 in its released series of vegetative clones. The accession number of this clone during selection and trial period was A/8/8.

### **Source and selection of BT20**

The clone BT20 was originally selected from Section 8 of Amo Tea Estate of Duncan Brothers (Bangladesh) Limited. The tea estate is situated at drought prone area of Luskerpore Valley. Clonal selection work was initiated during 1993 under the “selection programme” of Botany division. The particular bush A/8/8 was selected on 9th May, 1994.

After rooting trial in the nursery the selected bush, namely A/8/8 along with three other test clones were put to long term yield and quality trial during 1996 at BTRI Farm. The experiment was laid out in a proper statistical designed plot. Tocklai released clone TV1 was used as a standard control for yield and quality comparison. The test clone coded as A/8/8 appeared quite potential in respect of yield, quality, nursery rooting, tolerant to drought and other field performances during its long term selection and field trial periods.

### **General characteristics of BT20**

Morphologically, the plant falls under light-leaved Assam agro-type. The clone has heavy girth with quite satisfactory spread. The plant has medium bush with orthotropic growth habit. Leaves are quite



dark green, medium to large in size and smooth with erect leaf pose. Leaf apex is pointed with uniformly serrated margin. The plucking shoots are soft, medium sized, dense and evenly distributed on the plucking table.

**Table-1.** Comparative study of morphological characteristics of BT20 and TV1

Serial No.	Characteristics	A/8/8(Test clone)	TV1(control)
1	100 shoot weight wt(g)- (2L+B)	92.25	77.5
2	Shoot dry matter (%)	21.80	17.10
3	Shoot length (cm)- (2L+B)	9.50	6.35
4	Mature leaf area (cm <sup>2</sup> )	63	36.50
5	Leaf lamina length (cm)	14.25	11.69
6	Leaf lamina breadth (cm)	6.5	4.50
7	No. of bullation/leaf	16.50	12.10
8	No. of serration/leaf	88.35	81
9	No. of pruning sticks/bush at FFP (Av. of 10 bush)	14.50	15.10
10	Wt(kg) of pruning litter/bush at FFP (Av. of 10 bush)	1.25	1.10
11	Number of Plucking point /bush/year	470	395
12.	Number of Pubescence (4 ×10x)	1565	1580

### Nursery performance

The clone BT20 strikes very well in the nursery. The clone exhibits uniform and vigorous growth in the nursery.

**Table-2.** Nursery performance of BT20 and TV1

Accession number of the clone	Rooting ability of clone
A/8/8 (Test Clone)	90-95%
TV1 (Control)	75-80%

Rooting ability: Very good= >90%, Good= >75% -<90%, Medium=<75%.

### Yield performance

The comparative yield performance of the clone BT20 and control TV1 is shown in Table-3 and Table-4. In the experimental plot average yield at immature stage (1<sup>st</sup> -5<sup>th</sup> year) was recorded to be 1509 kg (excluding 1<sup>st</sup> year yield) compared to 1625 kg for the control TV1. Whereas, the average yield of BT20 was 1257 kg (including the 1<sup>st</sup> year yield) made tea per hectare compared to 1341 kg for the control TV1.

At mature stage, twelve years' average (6<sup>th</sup> – 17<sup>th</sup> year; Table-4) yield of the clone was 3685 kg /ha compared to 3281 kg for the control. In the 12<sup>th</sup> year after planting the yield of the clone BT20

was recorded to be 4589 kg made tea per hectare. This was the highest yield so far for the clone BT20 in the trial field. The highest yield of the test clone TV1 was recorded to be 4274 kg made tea per hectare at the 12<sup>th</sup> year after planting. Though the average yield of BT20 was lower than that of control at immature stage, but 12% higher yield was observed of an average of 12 years' yield at the maturity.

**Table-3.** Comparative yield of BT20 and control TV1 (made tea kg/ha) at immature stage (1<sup>st</sup>-5<sup>th</sup> year)

Accession number of the clone	Immature(1 <sup>st</sup> -5 <sup>th</sup> year)					Average
	1 <sup>st</sup> De-centering	2 <sup>nd</sup> Pruned	3 <sup>rd</sup> * Skiff	4 <sup>th</sup> FFP Pruning	5 <sup>th</sup> Skiff	
A/8/8 (Test Clone)	248	692	1036	1580	2727	1257/1509**
TV1 (Control)	225	636	1168	1701	2976	1341/1625**

\* Drought year, \*\* Including/Excluding of 1<sup>st</sup> year yield.

**Table-4.** Comparative yield of BT20 and control TV1 (Made tea kg/ha) at mature stage (6<sup>th</sup> – 17<sup>th</sup> year)

Clone	Mature (6 <sup>th</sup> – 17 <sup>th</sup> year)											
	6th LP	7th DSK	8th MSK	9th LSK	10th LP	11th DSK	12th MSK	9th LSK	10th LP	11th DSK	12th MSK	9th LSK
BT20	2531	3499	4253	4243	2102	3382	4589	4423	3498	3647	3755	4301
TV1	2404	2893	3389	3852	1739	2828	4274	3988	3191	3365	3465	3979

**Table-5.** Comparative yield of 3 pruning cycle of BT20 and control TV1 (made tea kg/ha) at mature stage (6<sup>th</sup> – 17<sup>th</sup> year)

Accession number of the clone	Yield of 3 pruning cycle at 12 years				Average	Quality
	LP	DSK	MSK	LSK		
A/8/8 (Test clone)	2710	3509	4199	4322	3685	AA
TV1 (Control)	2445	3029	3709	3940	3281	E

## Quality performance

BT20 possesses a satisfactory standard of liquor quality. It gives bright infusion. It also gives coloury liquor with useful strength and briskness. It's creaming down quality is also good. The quality of BT20 can be categorized as 'Above average' (having 32 to less than 34 quality score out of 50 is considered as above average quality). Professional tea tasters' comments are also in agreement with the above conclusion.

## Clonal category

On the basis of yield and quality performances the clone BT20 can be categorized as a Standard clone. The clone having above average yield and quality i.e. >3000-4000 kg made tea per hectare and 32 to less than 34 quality score out of 50 is considered as standard clone.

## Tolerance of drought

The clone is quite strong and hardy. It has been observed to be highly tolerant to drought.

**Table-6.** Physiological condition at drought stress of BT20 and TV1

Serial No.	Characteristics	A/8/8(Test clone)	TV1(control)
1.	Avrg. depth of root at 3 <sup>rd</sup> year (cm)	35	28.75
2.	Root Shoot Ratio	0.32	0.24
3.	Proline Content ( $\mu\text{mol/g fr. wt}$ )	0.65	0.55
4.	Leaf Water Potential (LWP*-bar)	9.10	10.30
5.	Total Chlorophyll ( $\text{mg g}^{-1}$ )	1.96	1.95
6.	Chlorophyll Stability Index (CSI%)	94	88.00
7.	Photosynthesis ( $\mu\text{mol m}^{-2} \text{s}^{-1}$ )	9.50	8.95
8.	Transpiration ( $\text{m.mol m}^{-2} \text{s}^{-1}$ )	1.25	2.15
9.	Water Use Efficiency ( $\mu\text{mol/m mol}$ )	5.33	4.85
10.	Relative Leaf Water Content (RWC %)	62.0	69.00

\*Lower value indicates higher degree of drought tolerance.

## Tolerance of pests and diseases

It has been observed to be fairly resistant to different pests and diseases during selection and trial period.

## Manufacturing preference

The clone will be best suited to CTC (Crush-Tear-Curl) manufacturing process.

**Table-7.** Comparative quality study of BT20 and TV1

Accession number of the clone	1st preference	2nd preference
A/8/8 (Test clone)	CTC	Orthodox
TV1 (Control)	Orthodox	CTC

## Planting preference

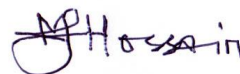
It will be suitable for planting in all tea zones at all faces of tillah slopes as well as in the flat areas.

## **Release and distribution**

The members of the BTRI Research sub-committee in its 71<sup>th</sup> meeting held on 3<sup>rd</sup> November, 2015 critically reviewed yield, quality, nursery performances and other aspects of the clone coded as A/8/8 and approved its release for the industry. Therefore, the clone coded as A/8/8 is now hereby released as BT20. The price of each rooted plant has been fixed at Tk. 20.00. The distribution will start very soon and initially each estate will be supplied with a maximum of 50(fifty) rooted plants. Initially each estate will be supplied with a maximum of ten rooted sapling to initiate their nucleus clone plot. Interested estates are therefore, requested to place their demand as soon as possible. Payment will be accepted in cash or by check/draft in favour of the Director BTRI at the time of delivery the plants.



**(Dr. Mainuddin Ahmed)**  
Director



**(Md. Ismail Hossain)**  
Principal Scientific Officer  
Botany Division



weUJ20 (G/8/8) Gi Pvi gym eqłmi tkKohŹ Pvi v



weUJ20 (G/8/8) Gi 8 gym eqłmi tkKohŹ Pvi v



bvmŹi łZ tmtKŪvi x tełW weUJ20 (G/8/8) Gi Pvi v



weUJ20 (G/8/8) Gi cvZv PqbZj