

SHORT COMMUNICATION

DOIYANG (CoBln 02173) – A HIGH CANE AND SUGAR YIELDING MIDLATE SUGARCANE VARIETY SUITABLE FOR AUTUMN PLANTING IN NORTH EASTERN INDIA**G.C. Bora, D.D. Singha and B. Bordoloi****Abstract**

A promising midlate maturing sugarcane variety viz., Doiyang (Co Bln 02173) was developed at the Sugarcane Research Station, Buralikson from the general collection of Co 88039GC through clonal selection. The variety was tested in the state varietal trials, AICRP trials and onfarm trials in the different agroclimatic zones of Assam. Under normal spring planting Doiyang showed an average cane yield of 75.27 t/ha and sugar yield of 11.27 t/ha with an improvement of 25% for cane yield and 8% CCS yield over the best standard CoSe 92423 in the plant crop. The ratooning ability was 24% and 32% better for cane yield and sugar yield respectively than the check. The variety was moderately resistant to red rot and borers (early shoot, top and plassy borer). The performance of the variety under autumn planting was excellent with an average cane yield of 102.8 t/ha and 85.3 t/ha under plant and ratoon crop conditions respectively and hence was recommended for autumn planting in the North Eastern India and was released by the Assam State Seed Sub Committee..

Key words: *Sugarcane, midlate, variety, cane yield, sugar yield and autumn planting*

Sugarcane is an important cash crop which is planted in the month of March/April under rainfed conditions of Assam and North East India. The crop is harvested even after twelve months of planting. The crop is gaining popularity in the river bank and char chapori areas where the crop is planted in the autumn season after recession

of flood. Under such situation the residual moisture is utilized for germination, growth and vigour of the crop. The crop duration is also longer and hence the farmers could reap a good harvest of cane and sugar in terms of gur from his crop. Doiyang is one such variety having tolerance to prevailing pest and diseases particularly red rot, early shoot, top and plassy borer and its important characteristics are highlighted

The general collection of fluff of Co 88039 was obtained from Sugarcane Breeding Institute, Coimbatore and clonal selection was carried out at the Sugarcane Research Station, Buralikson. State varietal trials were conducted from 1999 to 2001-02 along with the check varieties. The best clone was identified as 22/94 and later named as CoBln 02173. On-farm trials were conducted from 2002 to 2006-07 in a number of districts representing different agroclimatic zones of Assam. The variety was tested in the AICRP zonal trials during 2004 to 2007. It was also tested for its reaction to red rot and different pest and diseases. The variety has recently been released with the popular name 'Doiyang'.

The performance of the variety 'Doiyang' in comparison to the check varieties Co 740 and CoSe 92423 is presented in Table 1. The data on quantitative characters revealed that the average cane yield over six years was 75.27 t/ha and sugar yield was 11.27 t/ha, accounting for an improvement of 25% and 8% respectively over the check variety CoSe 92423 in the plant crop. In the ratoon crop, the cane yield and sugar yield were 62.43 and 8.04 t/ha respectively, with an improvement of 24% and 32% over the check variety. Goswami et al (1996) and Bora et al (2002) made similar observations when this clone was evaluated with a set of clones. The variety is of midlate duration which could be harvested beyond 360 days after planting. The variety showed 20.15%

and 19.51% sucrose content in plant and ratoon crops respectively which were 0.93% and 2.67% over the best check. Similarly, CCS was also higher in this variety by 0.1 to 0.21% than the best check. This variety was rated as moderately resistant to red rot, early shoot borer and Plassey borer

The average jaggery recovery was 11.42% which was 2.42% higher than that of the best check Co 961 (9.00%). The colour of the jaggery was brown which was highly consumer preferable. Singha et al (2006) reported a very high jaggery recovery from this variety in comparison with a group of sugarcane clones.

Table 1. Performance of Doiyang (CoBln 02173) in comparison to check varieties under normal spring planting

Characters	Doiyang		Co 740 (Check)		CoSe 92423 (Check)
	Plant*	Ratoon	Plant	Ratoon	Plant
Cane yield (t/ha)	75.27(25%)	62.43(24%)	59.75	50.35	60.26
CCS (t/ha)	11.27(8%)	8.04(32%)	10.42	6.05	8.29

*values in parentheses denote percent improvement over the standard CoSe 92423

The plant and ratoon crop performance of the variety 'Doiyang' under autumn planting in comparison to the checks is presented in Table 2. CoBln 02173 yielded 102.8 t/ha and 85.3 t/ha cane yield under plant and ratoon crop conditions respectively. The average CCS of 12.29 t/ha recorded in Doiyang was 50% higher than that of the best check Co 740. Bora and Singh (2005) observed highest sugar recovery in CoBln 02173 amongst a group of varieties evaluated under autumn planting. The sucrose content of 20.24% at 360 days was 13% higher than that of the best check variety Co 740 under autumn planting. Jayachandran et al (2004) also made similar observation for the variety Si 96125 among a group of midlate maturing clones.

Cane yield of 'Doiyang' in four different farmers' fields covering two different districts of Assam in comparison to the check varieties viz. Co 740 and CoBln 9104 ranged from 85.20t/ha to 90.20 t/ha with an average yield of 87.84 t/ha and showed an improvement of 27.20% over the better standard. In the agronomy trials, the variety performed well with 125% recommended dose of NPK i.e. 135: 70: 60 kg/ha (Table 3), yielding 87.36 t/ha of cane, 11.49 t/ha of sugar and 19.47% sucrose.

In six centres of North Central and North East Zone where the variety was tested in two plant crops and one ratoon crop under All India Co-ordinated Research project on Sugarcane, CoBln 02173 showed better

Table 2. Plant and ratoon crop performance of Doiyang under autumn planting

Characters/ Varieties	CoBln 02173			Co 740 (Check)			Co 961(Check)		
	P	R	M	P	R	M	P	R	M
Cane yield (t/ha)	102.80	85.30	94.05	65.30	61.20	63.25	65.40	58.30	61.85
CCS (t/ha)	13.36	11.22	12.29	6.85	5.88	8.19	5.56	5.36	5.46
Sucrose (%)	19.86	20.61	20.24	18.45	17.50	17.98	17.95	17.65	17.80
CCS(%)	13.00	13.26	13.13	10.50	9.60	10.05	8.50	9.20	8.85
Germination (%)	51.10	-	-	37.20	-	-	41.50	-	-
Cane height (cm)	2.86	2.83	2.85	2.68	2.75	2.72	2.79	2.75	2.77
Cane diameter(cm)	2.78	2.81	2.80	2.63	2.54	2.59	2.55	2.46	2.51
NMC ('000/ha)	88.62	85.63	87.13	75.20	76.40	75.80	68.20	64.50	66.35

P: Plant

R: Ratoon

Table 3. Performance of CoBln 02173 in the Agronomical trials

Fertility Levels	Cane yield (t/ha)			Sucrose (%)			CCS (t/ha)		
	2002– 03	2003– 04	Mean	2002 – 03	2003– 04	Mean	2002– 03	2003– 04	Mean
75% recommended* NPK	86.15	79.14	82.66	19.24	19.23	19.23	10.84	11.07	10.95
100% recommended* NPK	90.07	83.50	86.78	19.88	19.53	19.70	11.71	11.17	11.44
125% recommended* NPK	90.80	83.93	87.36	19.57	19.37	19.47	11.76	11.23	11.49
CD (5%)	1.76	1.00	-	NS	NS	-	NS	NS	-

* Recommended NPK is 135:70:60 Kg/ha

Table 4. Overall performance of CoBln 02173 in the North Central and North East zone of AICRP(S): Mean of two plat and one ratoon crops

Varieties/ Characters	Seo-rahi	Bethua-dhari	Gora-khpur	Pusa	Buralikson	Moti-pur	Mean	(%) increase over best std CCS (t/ha)
CoBln 02173	4.41	8.92	6.50	3.57	10.90	-	6.86	1.48
CoSe 92423	8.62	6.62	8.07	6.04	7.43	3.77	6.76	-
Cane yield (t/ha)								
CoBln 02173	40.08	73.70	61.52	32.86	75.55	-	56.74	3.05
CoSe 92423	73.91	49.68	69.63	52.72	52.77	31.65	55.06	-
Sucrose (%)								
CoBln 02173	16.04	18.48	15.41	16.40	20.35	-	17.34	-
CoSe 92423	18.49	17.82	16.87	17.44	19.44	17.73	17.97	-

performance in Buralikson and Bethuadhari for cane yield, sugar yield and sucrose content than the best check (Table 4). The variety showed 1.48% increase in sugar yield and 3.05% increase in cane yield across the centres.

On the basis of the above results, this variety has been recommended by the Package of Practice Workshop held at AAU, Jorhat in 2009 and was recently released by the Assam State Seed Sub Committee in August, 2011 (Anonymous, 2011). The variety has spread fast throughout the state of Assam and in the entire North East India.

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