

Co 0238 (KARAN 4)

PROMISING EARLY VARIETY FOR NORTH WESTERN ZONE

Co 0238 is a selection from the progeny of the cross CoLk 8102 x Co 775. This clone was identified from seedling ratoon nursery raised at Sugarcane Breeding Institute, Regional Centre, Karnal and was tested under the Pre Zonal Varietal Trial as K96-450. It was selected as an early clone as it had pol % juice higher than CoJ 64 during November, January and March. The cane yield and sugar yield of Co 0238 was higher than that of CoJ 64.

Salient characteristics

Co 0238 had medium thick green yellow canes with cylindrical internodes, pentagonal buds, deltoid auricle and shallow bud groove. The clone is free from splits, spines on leaf sheath, pith and bud cushion. The fibre % is about 13.05 %. The jaggery is of A₁ quality with light yellow colour. This clone is MR to the prevalent races of red rot pathogen by plug method of inoculation. However, it showed resistant reaction by nodal method of inoculation. Leaf drying during summer is common in this variety but farmers need not worry as it will not reduce cane yield.

Performance of Co 0238 in North Western Zone

This clone was evaluated under All India Co-ordinated Research Project in the North Western Zone. It ranked 1st for cane yield, 2nd for sugar yield and 5th for sucrose % in juice in the zone. Average cane and sugar yields, and sucrose % recorded in 2 plant and 1 ratoon crops at 7 research stations in the zone in comparison with standards are presented in Table 1. In comparison to the major check CoJ 64, it showed about 20 %, 16 % and 0.50 % improvement in cane yield, sugar yield and sucrose % in juice, respectively.

Table 7. Comparison of Co 0238 with standards in coordinated trials

Item	Co 0238	CoJ 64	CoPant 84211
Cane yield (t/ha)	81.08	67.59	66.84
% increase or decrease over checks		19.96	21.30
Sugar yield (t/ha)	9.95	8.59	8.28
% increase or decrease over checks		15.83	20.17
Sucrose %	17.99	17.90	17.65
% increase or decrease over checks		0.50	1.93

Performance of Co 0238 under abiotic stresses

Co 0238 was evaluated under water stress and water logging conditions at DSCL Sugar, Ajbapur and Simbhaoli Sugar Mills Ltd., Simbhaoli. Performance of Co 0238 with respect to cane yield and pol % in cane is presented in Tables 2 & 3. Under normal conditions Co 0238 had 12 t/ha higher yield than CoJ 64. Improvement in cane yield under water stress and water logging conditions was higher by more than 20 t/ha over respective standards. Pol %

in cane in Co 0238 was slightly better than respective standards under normal and abiotic conditions.

Table 2. Cane yield of Co 0238 at DSCL Sugar, Ajbapur (UP) under normal and abiotic stresses

Clones	Condition	Cane Yield (t/ha)
Co 0238	Normal	97.56
	Water stress	89.31
	Water logging	84.75
<i>Standards</i>		
CoJ 64	Normal	85.45
CoS 97261	Water stress	61.94
	Water logging	66.58
CoS 96268	Normal	67.68

Table 3. Pol % in cane in Co 0238 at DSCL Sugar, Ajbapur (UP) under abiotic stresses

Clones	Condition	November	January	March
Co 0238	Normal	11.27	13.29	14.53
	Water stress	9.96	14.41	14.91
	Water logging	10.67	12.33	13.91
<i>Standards</i>				
CoJ 64	Normal	11.73	13.05	14.41
CoS 97261	Water stress	9.98	11.37	14.21
	Water logging	8.65	11.77	13.13

Performance of Co 0238 in ISMA trials

Co 0238 was tested at 17 sugar mills in Uttarakhand, Uttar Pradesh and Bihar (Table 4). Its juice quality (pol % in cane) was better than respective local checks in all the regions. The pol in cane was higher by more than 1% during Feb over respective standards in these states.

Table 4. Pol % in cane during February 2008 in Co 0238 in sub-tropical India (ISMA Trials)

Clone	Pol % in cane during February 2008			
	Uttarakhand (1)	Central & Western UP (9)	Eastern UP (3)	Bihar (4)
Co 0238	15.10	15.24	14.87	13.38
<i>Standards</i>				
CoJ 64	14.19	14.58	12.98	-
CoS 767	14.00	13.55	13.00	-
BO 130	-	-	-	12.42
BO 91	-	-	-	11.51

Figures in parenthesis indicate the number of sugar mills in each region/state

This clone was tested at Simbhaoli Sugar Mills Ltd., Simbhaoli under normal and waterlogging conditions. The improvement in cane yield of Co 0238 was 85 % over CoJ 64 under normal condition whereas it was 322 % under waterlogging condition. Pol % in juice was also higher in Co 0238 than CoJ 64 in both conditions (Table 5).

Table 5. Performance of Co 0238 at Simbhaoli Sugar Mills, Simbhaoli (UP)

Clone	Cane Yield (t/ha)		Pol % (December)	
	Normal	Water logging	Normal	Water logging
Co 0238	106.9	89.5	17.62	16.92
CoJ 64	57.8	21.2	17.39	15.72

Ratoonability during winter

Co 0238 has been evaluated for ratoonability during winter. It is suitable for harvesting during winter as it gives good ratoon crop when harvested during winter. The reduction in cane yield of Co 0238, when harvested during winter, was just 4.66 % in comparison to cane yield recorded in spring harvested during spring. Whereas this reduction in cane yield in CoJ 64 was 41.29 %. Hence, it is suitable for taking 2nd ratoon crop under sub-tropical conditions of the country.

Package and Practices for Co 0238 for NWZ

1. Application of 100 kgDAP (2 bag) per acre before planting in furrows.
2. Application of 25 kg/acre M.O. Potash before planting in furrows.
3. Placing of setts in furrows. Seed rate 12 buds / meter or 6 setts of 2-buds each.
4. Covering of setts by soil with spades (1 – 2 inches).
5. Light irrigation – water logging should be avoided.
6. Spraying of Atrazine @ 2.0 kg/acre on 3rd day of planting.
7. Fields may be irrigated as when need felt.
8. Application of urea @ 50 kg/acre after 45 days of planting.
9. Application of urea @ 50 kg/acre + 25 kg MOP after 90 days of planting followed by light earthing up.
10. Application of Furadon @ 13 kg/acre during last week of June to 1st week of July.
11. Earthing up during June – July depending upon growth of crop.
12. First propping during August.
13. Second propping during September.
14. For seed crop apply urea @ 32.5 kg/acre during September
15. For autumn planted cane apply 100 kg DAP + 25 kg MOP as basal, 100 kg urea in Feb/March and 100 kg urea + 25 kg MOP in June

Recommendation

Co 0238 was released by the Central Sub-Committee on Crop Standards, Notification and Release of Varieties for Agricultural Crops in 2009. These varieties would prove as high quality early maturing clones under assured irrigation, water stress or water logging areas. This variety is a suitable substitute for CoJ 64.

For further details contact

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Source: Ram, B. and Nair, V. 2009. New early maturing and high yielding sugarcane varieties for the sub-tropical India. Technical Bulletin No. SBIRC 01/2009, Sugarcane Breeding Institute, Coimbatore-640 007.

