

GENETIC STOCK

SBI 1148-11-13-2-255 (INGR13071), a fourth generation self of Co 1148 improved for sucrose content and red rot resistance

SBI 1148-11-13-2-255 is a fourth generation self of Co 1148, a promising subtropical commercial variety which was under cultivation for over 50 years. Co 1148 is high yielding with drought tolerance but has medium sucrose content and susceptibility to red rot disease. SBI 1148-11-13-2-255 was developed at Sugarcane Breeding Institute (ICAR), Coimbatore, through repeated selfing of Co 1148, followed by selection for better sucrose content and red rot resistance while maintaining the yield potential of Co 1148. The characters for which the self is registered are:

1. A rare self at fourth generation developed from the popular subtropical variety of sugarcane viz. Co 1148.
2. Possesses high sucrose and red rot resistance in addition to the other agronomic traits of Co 1148 - improved by repeated selfing of the medium sucrose and red rot susceptible Co 1148.

Morph-agronomic characters: This self is identified for registration as a genetic stock based on its *per se* and progeny performances.

***Per se* performance:** Performance of this self in clonal trials showed significant improvement in sucrose content (19.44 %) over Co 1148 (17.14 %) and moderate resistance reaction to red rot, while being on par with Co 1148 for other yield parameters.

Progeny performance: Among eight crosses involving the inbred derivatives as parents evaluated in plant and ratoon crops, the cross involving 1148-13-11-2-255 as female was the most promising with improvement in Brix, number of millable canes, cane diameter and cane length. Subsequent evaluation of the progeny in the clonal trials led to the identification of two Co canes viz. Co 2010-11 and Co 2010-20 from the cross 1148-13-11-2-255 x Co 775, thus demonstrating its value as a donor parent for important agronomic traits of sugarcane. The genotype has attained high level of homozygosity after four generations of selfing as proved by the use of molecular markers. Sugarcane being a complex polyploid, parents like this self are needed to improve the precision of breeding programmes.

The genotype flowers during the first fortnight of November and has low pollen fertility of 30% unlike the original parent (>60%), and, hence can be used as a female parent. The clone is characterized by erect, medium thick canes with long internodes and long bud grooves, small flat buds, nearly closed green canopy with light green leaf sheath, lanceolate ligular process and yellow wax band.

This genetic stock, improved over a proven parent through selfing, is probably the first of its kind developed in sugarcane and owes promise in breeding varieties for subtropical India to develop varieties as good as Co 1148 with stability in yield and wide adaptability across the subtropical states with the additional benefits of red rot resistance and high sucrose.

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