

## 22. 99WL-379 (IC0612061; INGR15035), a Sugarcane (*Saccharum* Spp. hybrid) Germplasm with High Juice Quality Under Water Logged Condition

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99 WL 379 is a high sugar clone developed from cross between Co 7313 (Female parent) with high juice quality, and Co 96011 (Male parent) with waterlogging tolerance from the first selection cycle through a simple recurrent selection scheme. The hybrid is distinct from its female parent for cane thickness and from its male parent for high sucrose content. It is characterized by thick (3.1 cm girth) semi erect stem with cylindrical and zigzag arranged internodes. The exposed internode is yellowish green in colour, without ivory and weather marks but with a few shallow cracks. The buds are generally small ovate with apical germ pore and bud cushion but without bud groove. It has open semi-drooping canopy with green coloured lamina. The leaf sheath colour is green with light coating of wax, hard spines and medium loose clasping on the stem.

The clone showed significantly higher juice brix, sucrose % and commercial sugar yield per plot compared to control (Table 1) under waterlogged stress. Excess moisture stress/waterlogging stress is one of the major constrains in sugarcane agriculture. About 2.2 Lakh hectares sugarcane is getting affected by waterlogging

across the sugarcane growing states in the country (Nair 2012) and this clone can be cultivated under such situation. It also showed high stem nitrogen content (0.493%), a physiological trait highly correlated with waterlogging tolerance with 32% and 24% higher over the standard varieties (Gomathi and Chandran, 2010 and & 2012).

The real potential of this genetic stock is as a parental clone for yield and quality. The clone shows moderate flowering with 40 to 50% pollen fertility and hence has the potential to use as both male and female parent. By using as female parent one hybrid clone (WL 05-499) with high juice quality and sugar yield entered in pre-zonal varietal trial, and as a male parent one hybrid clone identified as Co cane (Co 12015) with high juice quality.

### References

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- Gomathi R and K Chandran (2012) Physiological markers for screening waterlogging resistance in Sugarcane. Proceedings of international symposium on new paradigms in sugarcane research 15-18 Oct. 2012, SBI, Coimbatore, India: 12-130.
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**Table 1. Commercial sugar yield and quality traits of 99 WL 379 under waterlogged condition**

Character	Average over three years	Percentage improvement over control	
		Co 62175	Co 8231
Juice brix (%)	20.88	10.73	On Par
Sucrose %	18.88	14.6	2.1
Commercial cane sugar (%)	13.3	18%	1.5%
Commercial sugar yield/ plot	5.86	2.1%	20.5%
Purity	84.02	6.9%	On par