Registration of ‘CP 98–1029’ Sugarcane

‘CP 98–1029’ (Reg. no. CV-128, PI 642156) sugarcane (a complex hybrid of *Saccharum officinarum* L., *S. barbieri* Jeswiet, *S. spontaneum* L., and *S. sinense* Roxb. amend. Jeswiet) was developed through cooperative research conducted by the USDA-ARS, the University of Florida, and the Florida Sugar Cane League, Inc. and was released to growers in October 2005. CP 98–1029 was selected from the cross CP 91–1980 × CP 94–1952 made at Canal Point, FL, in January 1997. The female parent, CP 91–1980, was advanced to the final testing stage of the Canal Point cultivar development program (Glaz et al., 1998). The male parent, CP 94–1952, was not advanced beyond an early selection stage.

The leaf sheaths of CP 98–1029 are green and those closer to the apex may have a moderate wax bloom at their base. The ligule is green on young leaves and dark brown on older leaves. Auricles and hairs are generally absent. The zig-zag stalks of CP 98–1029 are medium in diameter and covered with a moderate wax bloom. Stalks are yellow where covered by the leaf sheath and green where exposed to the sun. However, the stalks are not generally exposed to the sun as both young and old leaf sheaths adhere tightly to the stalk. A distinguishing feature of the internodes of CP 98–1029 is the presence of corky cracks. Internodes are cylindrical with reduced or absent bud grooves. A small percentage of the internodes have growth cracks. The buds of CP 98–1029 are pale yellow, round, and usually extend onto the growth rings.

CP 98–1029 was fingerprinted with six sugarcane-derived microsatellite primer pairs (mSCIR26, mSCIR73, SMC650CS, SMC795BS, SMC1282FL, and SMC1490CL) developed under the International Consortium of Sugarcane Biotechnology (Cordeiro et al., 2003). Its microsatellite marker profile was compared with profiles of ‘CP 70–1133’ (Rice et al., 1978), ‘CP 78–1628’ (Tai et al., 1991), ‘CP 72–2086’ (Miller et al., 1984), ‘CP 89–2143’ (Glaz et al., 2000), ‘CP 97–1989’ (Glaz et al., 2005), and ‘CP 97–1989’ (Glaz et al., 2005), which collectively span two decades of sugarcane cultivars in Florida. A combination of nine fragments of mSCIR26 [113–142 basepairs (bp) in size], eight fragments of SMC1490CL (123–154 bp), five fragments of SMC650CS (172–187 bp), 13 fragments of mSCIR73 (130–210 bp), seven fragments of SMC795BS (361–388 bp), and eight fragments of SMC1282FL (347–397 bp) discriminate CP 98–1029 among these sugarcane cultivars.

Stalk weights of CP 98–1029, averaged over the plant-cane, first ratoon, and second ratoon crops, were 7.1% (*P* < 0.05) and 3.8% (NS) lower on organic and sand soils, respectively, compared with the corresponding stalk weights of CP 72–2086, the commercial reference. CP 98–1029 and CP 72–2086 have average fiber contents of 10.2 and 9.0%, respectively.

On organic soils, a total of 19 evaluations of CP 98–1029 were conducted at seven locations in the plant and first ratoon crops and at five locations in the second ratoon crop. Each planting had six replications. The mean cane yield (Mg cane ha\(^{-1}\)) of CP 98–1029 was 18.1% higher (*P* < 0.01) than that of CP 72–2086. The individual crop cane yields of CP 98–1029 were 12.7, 9.8, and 21.7, and 25.8% higher (all at *P* < 0.01) than those of CP 72–2086.

The mean cane yield of CP 98–1029 on sand soil was 7.1% higher (NS) compared with CP 72–2086; and the cane yields of CP 98–1029 were 35.5% (*P* < 0.01) higher than those of CP 72–2086 in the plant, first ratoon, and second ratoon, respectively. The economic index on the sand soil for CP 98–1029 was 1.5% lower (NS) and sucrose yield was 2.4% higher (NS) for CP 98–1029 compared with CP 72–2086. The economic index on the sand soil for CP 98–1029 was 1.7%, 2.1, and 3.8% higher (*P* < 0.05) than that of CP 72–2086.

CP 98–1029 has shown field resistance in Florida to leaf scald [caused by *Bipolaris sacchari* (E.J. Butler) Shoemaker], mosaic virus [caused by *Ustilago scitamineum* Syd.], and to sugarcane yellow leaf [caused by *Xanthomonas albilineans* (Ashby) Dower]. It is moderately susceptible to brown rust (caused by *melanocephala* Syd.). Sugarcane mosaic virus stunting disease (caused by *Leifsonia xyli* Evtushenko et al.), and is susceptible to *S. officinarum* virus. Moderate susceptibility to ratoon stunt is based on the presence of colonized vascular tissues in related tests.

CP 98–1029 was released because of its high cane yields, favorable growth rates during the summer, vigorous ratoon regrowth, and its ability to resist or tolerate to the major and minor diseases in Florida.

Requests for vegetative planting materials should be directed to the USDA-ARS at the Sugarcane Field Station, Canal Point, FL where CP 98–1029 will be maintained for future releases.

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References


