

Registration of 'HoCP 96-540' Sugarcane

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'HoCP 96-540' sugarcane (a complex hybrid of *Saccharum officinarum* L., *S. spontaneum* L., *S. barberi* Jeswiet, and *S. sinense* Roxb. amend. Jeswiet) (Reg. no. CV-123, PI 635995) was selected at Houma (Ho), Louisiana from progeny of the cross 'LCP 86-454' (Martin et al., 1996) × 'LCP 85-384' (Milligan et al., 1994) made at Canal Point (CP), FL, in 1991. HoCP 96-540 is a product of cooperative research by the USDA-ARS, the Louisiana Agricultural Experiment Station of the Louisiana State University Agricultural Center, and the American Sugar Cane League of the U.S.A., Inc. HoCP 96-540 was released in the spring of 2003.

HoCP 96-540 has a moderate population of medium-sized stalks that turn amber when exposed to sunlight. Its leaf curvature at the apex in a crop canopy is distinctively pointed, similar to parental clone LCP 86-454, rather than rounded. Unlike LCP 85-384, its leaf sheath pubescence is negligible. Newly exposed sheaths prominently display a white waxy coating. The dewlap is pale, and auricles are seldom more than one cm long.

Stalk number of HoCP 96-540 is 90% and stalk weight is 125% of Louisiana's principal cultivar, LCP 85-384, when averaged over plant-cane, first-ratoon, and second-ratoon crops. Similar to LCP 85-384, HoCP 96-540 is a very good ratooning cultivar. Yield data from a total of 58 mechanically harvested, replicated yield trials on both light- and heavy-textured soils indicate that HoCP 96-540 consistently produces 10 to 15% greater total recoverable cane and sugar per hectare than LCP 85-384 in plant-cane, first-ratoon, and second-ratoon crops. HoCP 96-540 is a midmaturing cultivar that produces levels of recoverable sugar per ton of cane and fiber content comparable to those of LCP 85-384. Field observations suggest that stalks of HoCP 96-540 are more erect and less brittle than LCP 85-384. In addition, leaf sheaths may be less tightly adhered to the stalks than LCP 85-384. These characteristics should minimize yield losses associated with both whole-stalk and combine harvesting.

HoCP 96-540 is resistant to *Sugarcane mosaic virus* (strains A, B, and D) and *Sorghum mosaic virus* (strains H, I, and M). The cultivar is resistant to smut (caused by *Ustilago scitaminea* Syd. and P. Syd.) and leaf scald [caused by *Xanthomonas albilineans* (Ashby) Dowson] diseases, and moderately resistant to rust (caused by *Puccinia melanocephala* Syd. and P. Syd.) under natural field infection conditions. Similar to essentially all sugarcane cultivars released in Louisiana, HoCP 96-540 may sustain significant reductions in yields of total recoverable sugar and cane in ratoon crops from ratoon stunting disease (caused by *Leifsonia xyli* subsp. *xyli*). It is essential that seed cane of this cultivar be free or nearly free of this disease to maximize its yield potential. Based on field observations and laboratory tests, HoCP 96-540 does not appear to be any more susceptible to the *Sugarcane yellow leaf virus* than current commercially grown cultivars. Like LCP 85-384, HoCP 96-540 is susceptible to the sugarcane borer (*Diatraea saccharalis* Fabricius) and should not be grown in areas where insecticides cannot be applied. Field observations also suggest that HoCP 96-540 is not any more susceptible to herbicides commonly used for the control of problematic weeds than LCP 85-384. HoCP 96-540 has good cold tolerance and is as responsive to glyphosate [isopropylamine salt of N-(phosphonomethyl) glycine] (Polado L, Monsanto, St. Louis, MO) as LCP 85-384, based on cold tolerance and ripener studies conducted thus far.

The following microsatellite markers were produced from HoCP 96-540 with the ABI PRISM 310 Genetic Analyzer (PE Applied Biosystems, Foster City, CA) for identification purposes: two fragments of SMC334BS [145 and 162 base pairs (bp) in size], four fragments of SMC336BS (166, 169, 171, 177 bp), six fragments of MCSA068G08 (177, 180, 183, 186, 188, 194 bp), four fragments of SMC286CS (129, 132, 135, 144 bp), four fragments of SMC713BS (119, 357, 360, 369 bp), three fragments of MCSA053C10 (143, 147, 150 bp), five fragments of MCSA042E08 (123, 135, 151, 155, 197 bp), four fragments of mSSCIR5 (145, 168, 373, 378 bp), and three fragments of mSSCIR33 (320, 326, 335 bp). A more detailed description of primers and protocol has been published (Cordeiro et al., 2003)

Seed cane of HoCP 96-540 will be maintained at the USDA-ARS Southern Regional Research Center's Sugarcane Research Unit, located at Houma, LA, for five years. Application for variety protection through plant or utility patents will not be pursued.

References

- ↵ G.M. Cordeiro. Sugarcane microsatellites for the assessment of genetic diversity in sugarcane germplasm. *Plant Sci.* 2003. 165:181–189. [\[View Article\]](#) [\[Web of Science\]](#)
- ↵ F.A. Martin. Registration of 'LCP 86–454' sugarcane. *Plant Dis.* 1996. 80:206. [\[View Article\]](#) [\[Web of Science\]](#) [\[View Abstract\]](#)
- ↵ S.B. Milligan. Registration of 'LCP 85–384' sugarcane. *Crop Sci.* 1994. 34:819820. [\[View Article\]](#) [\[Web of Science\]](#) [\[View Abstract\]](#)

Footnotes

Registration by CSSA.

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