

# Sugarcane Cultivar Descriptive Fact Sheet: CPCL 05-1102 and CPCL 05-1791<sup>1</sup>

Hardev Sandhu, Matt VanWeelden, and Wayne Davidson<sup>2</sup>

Sugarcane cultivars CPCL 05-1102 (Glaz et al. 2013) and CPCL 05-1791 (Davidson et al. 2013) were commercially released in 2012 for cultivation in Florida. CPCL 05-1102 was released for muck soil and CPCL 05-1791 for sand soil. Both cultivars are the products of research initiated by the United States Sugar Corporation (USSC) and completed cooperatively by USDA-ARS, UF/IFAS, and the Florida Sugar Cane League (FSCL), Inc. Sugarcane growers in Florida showed interest in expanding acreage under both varieties. Currently, CPCL 05-1791 is planted on 7,005 acres and CPCL 05-1102 on 1,630 acres. Given the vegetative propagation of sugarcane and availability of plentiful seed cane in recent years, these cultivars (especially CPCL 05-1791) may further expand in acreage in the near future.

This fact sheet provides basic information (Table 1) and yield and disease information (Table 2) for CPCL 05-1102 and CPCL 05-1791 to assist growers in a decision-making process of whether to further expand acreage of these cultivars with a clearer understanding of potential insect pest and disease issues that may need to be addressed through pest management strategies. The intended audience is sugarcane growers, farm managers, researchers, and Extension agents. The yields of these cultivars are compared with reference cultivars (CP 89-2143 for muck and CP 78-1628 for sand) planted in the same field trials.

CPCL 05-1102 has high cane and sucrose yields on muck soil and excellent freeze tolerance (Table 1). CPCL 05-1102

is also completely or moderately resistant to most common and economically important sugarcane diseases in Florida such as brown rust (caused by *Puccinia melanocephala* H. & P. Sydow), orange rust (caused by *Puccinia kuehnii* E.J. Butler), smut (caused by *Ustilago scitaminea* Sydow and P. Sydow), leaf scald (caused by *Xanthomonas albilineans* Ashby, Dowson), and *Sugarcane mosaic virus* strain E (mosaic) (Table 2). There are concerns regarding this cultivar's moderate susceptibility to ratoon stunt (caused by *Leifsonia xyli* subsp. *xyli*) and susceptibility to *Sugarcane yellow leaf virus* (SCYLV), but the use of clean seed cane may reduce the risk of these diseases. This cultivar is also susceptible to sugarcane rust mite. CPCL 05-1102 may start flowering in early to mid-December. Further information on CPCL 05-1102 can be found in Glaz et al. (2013).

CPCL 05-1791 has high cane and sucrose yields on sand soil (Table 1) and showed complete or moderate resistance to orange rust, smut, ratoon stunt, and mosaic (Table 2). However, CPCL 05-1791 is susceptible to brown rust, and growers may have to use fungicides to avoid yield losses due to brown rust infection. This cultivar is also susceptible to leaf scald. CPCL 05-1791 has moderate to poor freeze tolerance which may limit its cultivation to the zones with lower chances of getting hard freezes. Further information on CPCL 05-1791 can be found in Davidson et al. (2013).

Overall, both cultivars are high yielding and have some level of resistance against most of the major sugarcane

1. This document is SS-AGR-460, one of a series of the Agronomy Department, UF/IFAS Extension. Original publication date March 2022. Visit the EDIS website at <https://edis.ifas.ufl.edu> for the currently supported version of this publication.

2. Hardev Sandhu, assistant professor, UF/IFAS Everglades Research and Education Center; Matt VanWeelden, Extension agent III, Ph.D., crops, UF/IFAS Extension Palm Beach County; and Wayne Davidson, agronomist, Florida Sugar Cane League; UF/IFAS Extension, Gainesville, FL 32611.

diseases in Florida. However, susceptibility to some diseases and freeze may become the limiting factors in expansion of these cultivars on larger acreage.

## References

Davidson, R. W., D. Zhao, J. C. Comstock, H. S. Sandhu, B. Glaz, S. J. Edmé, S. Sood, R. A. Gilbert, S. B. Milligan, and C. J. Hu. 2013. "Registration of 'CP 05-1791' Sugarcane." *Journal of Plant Registrations* 7:312–320.

Glaz, B., S. J. Edmé, R. W. Davidson, D. Zhao, J. C. Comstock, H. S. Sandhu, N. C. Glynn, R. A. Gilbert, S. Sood, K. McCorkle, S. B. Milligan, and C. J. Hu. 2013. "Registration of 'CPCL 05-1102' Sugarcane." *Journal of Plant Registrations* 7:296–304.



Figure 3. CPCL 05-1102 mature stalks.  
Credits: Wayne Davidson



Figure 1. CPCL 05-1102 at early growth stage.  
Credits: Wayne Davidson



Figure 4. CPCL 05-1102 top with auricles.  
Credits: Wayne Davidson



Figure 2. CPCL 05-1102 at late growth stage.  
Credits: Wayne Davidson



Figure 5. CPCL 05-1102 bud.  
Credits: Wayne Davidson



Figure 6. CPCL 05-1102 stalk cross-section (diameter compared to quarter).  
Credits: Wayne Davidson



Figure 9. CPCL 05-1791 at late growth stage.  
Credits: Wayne Davidson



Figure 7. CPCL 05-1791 at early growth stage.  
Credits: Wayne Davidson



Figure 10. CPCL 05-1791 top with auricles.  
Credits: Wayne Davidson



Figure 8. CPCL 05-1791 mature stalks.  
Credits: Wayne Davidson



Figure 11. CPCL 05-1791 bud.  
Credits: Wayne Davidson



Figure 12. CPCL 05-1791 internode cross-section (diameter compared to quarter).

Credits: Wayne Davidson

Table 1. Basic information on CPCL 05-1102 and CPCL 05-1791.

Trait	CPCL 05-1102	CPCL 05-1791
Release date	June 2012	June 2012
Soil type	Muck	Sand
Parents	CL 89-5189 x CL 88-4730	CP 96-1252 x CL 90-4725
Freeze tolerance	Excellent	Moderate to poor
Flowering	Light to moderate beginning in early to mid-December.	None to light beginning in late December.
Best features	Resistant to smut and mosaic. Good CRS.	High tonnage; resistant to smut and mosaic, and moderately resistant to orange rust and RSD.
Limiting features	Tonnage is not significantly greater than the reference check.	Susceptibility to brown rust and leaf scald; lower tonnage in second stubble.
Other issues	Light to heavy ring spot symptoms; susceptible to sugarcane rust mite; moderate to heavy lace bug damage.	Light to moderate levels of PokahBoeng, moderate ring spot, and sometimes light lace bug damage.

Table 2. Yield parameters and disease reactions of CPCL 05-1102 and CPCL 05-1791.

Trait	CPCL 05-1102 (yields are compared to CP 89-2143)	CPCL 05-1791 (yields are compared to CP 78-1628)
Tonnage or tons of cane per acre (TCA)	61.1 (+2%)	49.5 (+23%)
Commercially recoverable sucrose (CRS) in lb/ton of cane	240.6 (+1%)	241.3 (+3%)
Tons of sugar per acre (TSA)	7.4 (+3%)	6.0 (+29%)
Economic index <sup>1</sup>	\$1189 (+5%)	\$934 (+40%)
Fiber	10.2%	12.3%
Brown rust	MR	S
<i>Bru1</i> <sup>2</sup>	-	-
Orange rust	MR	MR
Leaf scald	MR	S
Smut	R	R
SCMV <sup>3</sup>	R	R
RSD <sup>4</sup>	MS	MR
SCYLV <sup>5</sup>	S	S

<sup>1</sup> Economic index is the dollar value of crop on per acre basis. It is calculated based on sugar yield, price of raw sugar, and harvesting and milling cost.

<sup>2</sup> *Bru1* is the gene that provides resistance against brown rust disease.

<sup>3</sup> SCMV—Sugar Cane Mosaic Virus, the cause of sugarcane mosaic disease.

<sup>4</sup> Ratoon Stunt Disease.

<sup>5</sup> Sugar Cane Yellow Leaf Virus, which causes yellow leaf disease.

Other abbreviations: R=Resistant, MR=Moderately resistant, S=Susceptible, MS=Moderately susceptible.