

# Sugarcane Cultivar Descriptive Fact Sheet: CP 06-2400, CP 06-2042, and CP 07-2137<sup>1</sup>

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Sugarcane cultivar CP 06-2400 was commercially released for muck soil in 2013, while CP 06-2042 and CP 07-2137 were released in 2014. CP 07-2137 was released for sand soil, and CP 06-2042 was released for both muck and sand soils. Due to their high tonnage and moderate to high resistance against most of the local sugarcane diseases, CP 06-2400 and CP 06-2042 were quickly adopted by local sugarcane growers. In the 2017–2018 planting season, CP 06-2400 and CP 06-2042 were adopted on approximately 3,600 and 1,500 acres, respectively, on muck soil. Growers like the high sugar concentration in CP 07-2137. However, its susceptibility to smut may limit the increase of its acreage on sand soil.

All three cultivars were developed through the cooperative agreement between the United States Department of Agriculture (USDA) Sugarcane Field Station at Canal Point, the UF/IFAS Everglades Research and Education Center at Belle Glade, and the Florida Sugar Cane League. These cultivars were crossed at the Sugarcane Field Station and evaluated through the cooperative breeding and selection program. This fact sheet provides basic information (Table 1) and yield and disease information (Table 2) for CP 06-2400, CP 06-2042, and CP 07-2137 to assist growers in better selection and management of these cultivars. The intended audience is sugarcane growers, farm managers, researchers, and Extension agents. The yields of these cultivars are compared with those of reference cultivars (CP

89-2143 for muck and CP 78-1628 for sand soils) planted in the same field trials.

## CP 06-2400

CP 06-2400 was released in 2013 for muck soil in Florida. High tonnage, complete resistance to brown rust (caused by *Puccinia melanocephala* H. & P. Sydow), and moderate resistance to orange rust (caused by *Puccinia kuehnii* E. J. Butler) resulted in the cultivar's adoption on approximately 3,600 acres in just a few years after its commercial release. It has the *Bru1* gene that provides resistance to brown rust. Rust resistance is very important in Florida sugarcane due to most of our current commercial cultivars' susceptibility to one or both of the rust diseases and expenses associated with chemical control. CP 06-2400 also has moderate to good freeze tolerance and generally no flowering under field conditions, which is typically favored by growers. Growers should be aware of a few of the limitations of this cultivar, such as poor germination in wet conditions, relatively lower sucrose concentration, and susceptibility to ratoon stunting disease (RSD) (caused by *Clavibacter xyli* subsp. *Xyli* Davis). More information on CP 06-2400 can be found in Zhao et al. (2015).

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Figure 1. CP 06-2400 at early growth stage in muck soil.  
Credits: Wayne Davidson, Florida Sugar Cane League

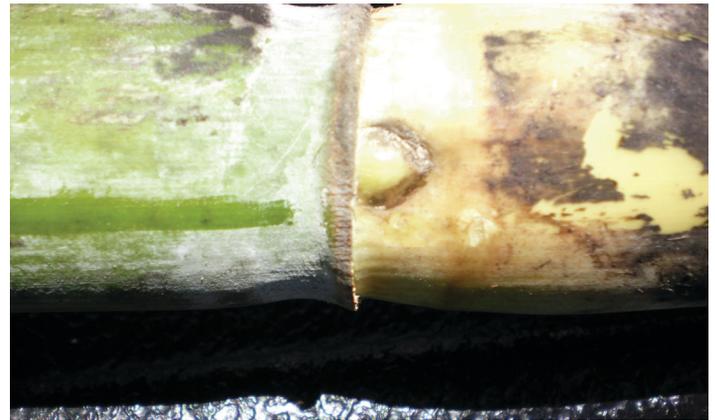


Figure 4. CP 06-2400 bud.  
Credits: Wayne Davidson, Florida Sugar Cane League



Figure 2. CP 06-2400 at late growth stage in muck soil.  
Credits: Wayne Davidson, Florida Sugar Cane League

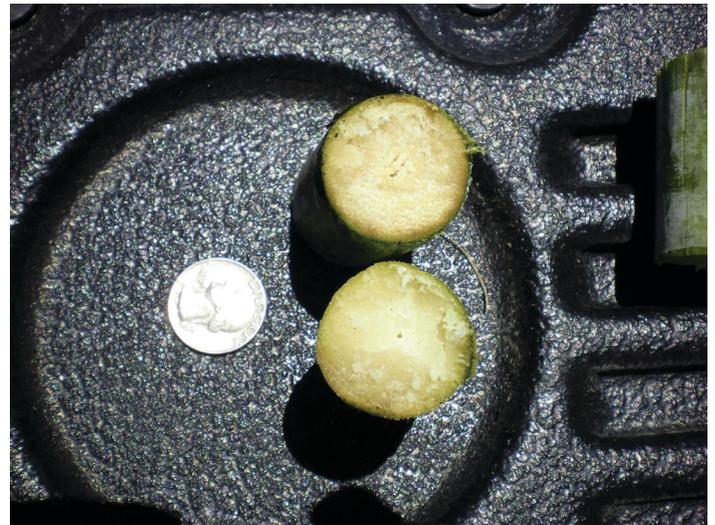


Figure 5. CP 06-2400 internode cross-section (diameter compared to quarter).  
Credits: Wayne Davidson, Florida Sugar Cane League



Figure 3. CP 06-2400 top with auricles.  
Credits: Wayne Davidson, Florida Sugar Cane League

## CP 06-2042

Although CP 06-2042 was released in 2014 for commercial cultivation on both muck and sand soils in Florida, it is currently adopted on approximately 1,500 acres only on muck soil. CP 06-2042 had higher tonnage than check cultivars (CP 89-2143 on muck and CP 78-1628 on sand) (Table 2), but the difference on muck was much higher than on sand soils. CP 06-2042 has the *Bru1* gene that provides resistance against brown rust, but it is susceptible to orange rust. High tonnage, no flowering, early sucrose, and brown rust resistance are favorable attributes of CP 06-2042 on either soil type, but growers need to monitor the crop for orange rust and RSD and follow appropriate control measures. Low freeze tolerance of this cultivar can be another concern during severe winters. Additional information on CP 06-2042 can be found in Davidson et al. (2017).



Figure 6. CP 06-2042 at early growth stage in muck soil.  
Credits: Wayne Davidson, Florida Sugar Cane League



Figure 7. CP 06-2042 at early growth stage in sand soil.  
Credits: Wayne Davidson, Florida Sugar Cane League



Figure 8. CP 06-2042 at late growth stage in sand soil.  
Credits: Wayne Davidson, Florida Sugar Cane League



Figure 9. CP 06-2042 top with auricles.  
Credits: Wayne Davidson, Florida Sugar Cane League



Figure 10. CP 06-2042 bud.  
Credits: Wayne Davidson, Florida Sugar Cane League

## CP 07-2137

CP 07-2137 was released in 2014 for commercial cultivation on sand soil. It is currently adopted on 17 acres. Susceptibility to smut (caused by *Sporisorium scitamineum* (Syd.) M. Piepenbring et al.) may pose a major challenge to the adoption of this cultivar on sand soil because smut is normally more severe on sand than muck soils. High tonnage, rust resistance, and no flowering in Florida conditions are the major positive attributes of this cultivar. CP 07-2137 does not have the *Bru1* gene, but it still shows moderate resistance to brown rust disease. CP 07-2137 has moderate to low freeze tolerance based on deterioration of sucrose content after exposure to freezing temperatures. More information on CP 07-2137 can be found in Sandhu et al. (2016).



Figure 11. CP 07-2137 at early growth stage in sand soil.  
Credits: Wayne Davidson, Florida Sugar Cane League



Figure 12. CP 07-2137 at late growth stage in sand soil.  
Credits: Wayne Davidson, Florida Sugar Cane League



Figure 13. CP 07-2137 tops with auricles.  
Credits: Wayne Davidson, Florida Sugar Cane League



Figure 14. CP 07-2137 bud.  
Credits: Wayne Davidson, Florida Sugar Cane League



Figure 15. CP 07-2137 internode cross-section (diameter compared to quarter).  
Credits: Wayne Davidson, Florida Sugar Cane League

## References

Davidson, W., H. Sandhu, P. McCord, J. Comstock, S. Edme, D. Zhao, S. Sood, N. Glynn, R. Gilbert, M. Singh, M. Baltazar, and K. McCorkle. 2017. "Registration of 'CP 06-2042' sugarcane." *J. Plant Reg.* 11: 121–128.

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Table 1. Basic information on CP 06-2400, CP 06-2042, and CP 07-2137.

Trait	CP 06-2400	CP 06-2042	CP 07-2137
Release date	2013	2014	2014
Soil type	Muck	Muck and sand	Sand
Parents	CP 94-1100 x 03 P 29	CP 96-1252 x 01 P 04	CP 01-2390 x CP 84-1198
Freeze tolerance	Moderate to good	Low	Moderate to low
Flowering	Generally none	Generally none	Generally none
Key features	Resistant to brown rust, smut, and SCMV <sup>1</sup>	High tonnage, high early sucrose, resistant to brown rust and moderately resistant to smut and SCMV	High tonnage, high sucrose level, resistant to orange rust, and moderately resistant to brown rust, leaf scald, and RSD <sup>2</sup>
Limiting features	Poor germination in wet conditions, susceptible to RSD and YLD <sup>3</sup>	Susceptible to orange rust, moderately susceptible to leaf scald and RSD, and susceptible to YLD	Susceptible to smut and YLD, moderately susceptible to mosaic
Other issues	Light to moderate ring spot, light to moderate rust mite damage, and occasional light lace bug infestation in the fall	Light to moderate ring spot, light rust mite damage, and sometimes light lace bug infestation in the fall	Light ring spot, light to moderate rust mite damage, and some light to moderate purpling of the leaves in late winter and early spring caused by cool temperatures

<sup>1</sup> SCMV: Sugarcane Mosaic Virus.

<sup>2</sup> RSD: Ratoon stunting disease.

<sup>3</sup> YLD: Yellow leaf disease.

Table 2. Yield parameters and disease reactions of CP 06-2400, CP 06-2042, and CP 07-2137.

Trait	CP 06-2400 (yields are compared to CP 89-2143)	CP 06-2042 (yields are compared to CP 89-2143 in muck and CP 78-1628 in sand)	CP 07-2137 (yields are compared to CP 78-1628)
Tons of cane per acre (TCA)	Muck = 85.8 (+36%)	Muck = 78.4 (+26%); Sand = 50.6 (+13%)	56.2 (+33%)
Commercially recoverable sucrose (CRS) in lb/ton of cane	Muck = 218.9 (-8%)	Muck = 233.2 (-2%); Sand = 248.5 (+2.6%)	262.9 (+3%)
Tons of sugar per acre (TSA)	Muck = 9.5 (+24%)	Muck = 9.2 (+22%); Sand = 6.3 (+14%)	7.6 (+37%)
Economic Index <sup>1</sup>	Muck = \$1,421 (+17%)	Muck = \$1,442 (+21%); Sand = \$1,003 (+15%)	\$1,359 (+46%)
Fiber	10.7%	11.4%	10.8%
Brown rust	Resistant	Resistant	Moderately resistant
<i>Bru1</i> <sup>2</sup>	+	+	-
Orange rust	Moderately resistant	Susceptible	Resistant
Leaf scald	Moderately resistant	Moderately susceptible	Moderately resistant
Smut	Resistant	Moderately resistant	Susceptible
SCMV <sup>3</sup>	Resistant	Moderately resistant	Moderately susceptible
RSD <sup>4</sup>	Susceptible	Moderately susceptible	Moderately resistant
SCYLV <sup>5</sup>	Susceptible	Susceptible	Susceptible

<sup>1</sup> Economic index is the dollar value of the crop on a 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 stands for Sugarcane Mosaic Virus, the cause of sugarcane mosaic disease.

<sup>4</sup> Ratoon stunting disease.

<sup>5</sup> SCYLV stands for Sugarcane Yellow Leaf Virus, which causes yellow leaf disease (YLD).