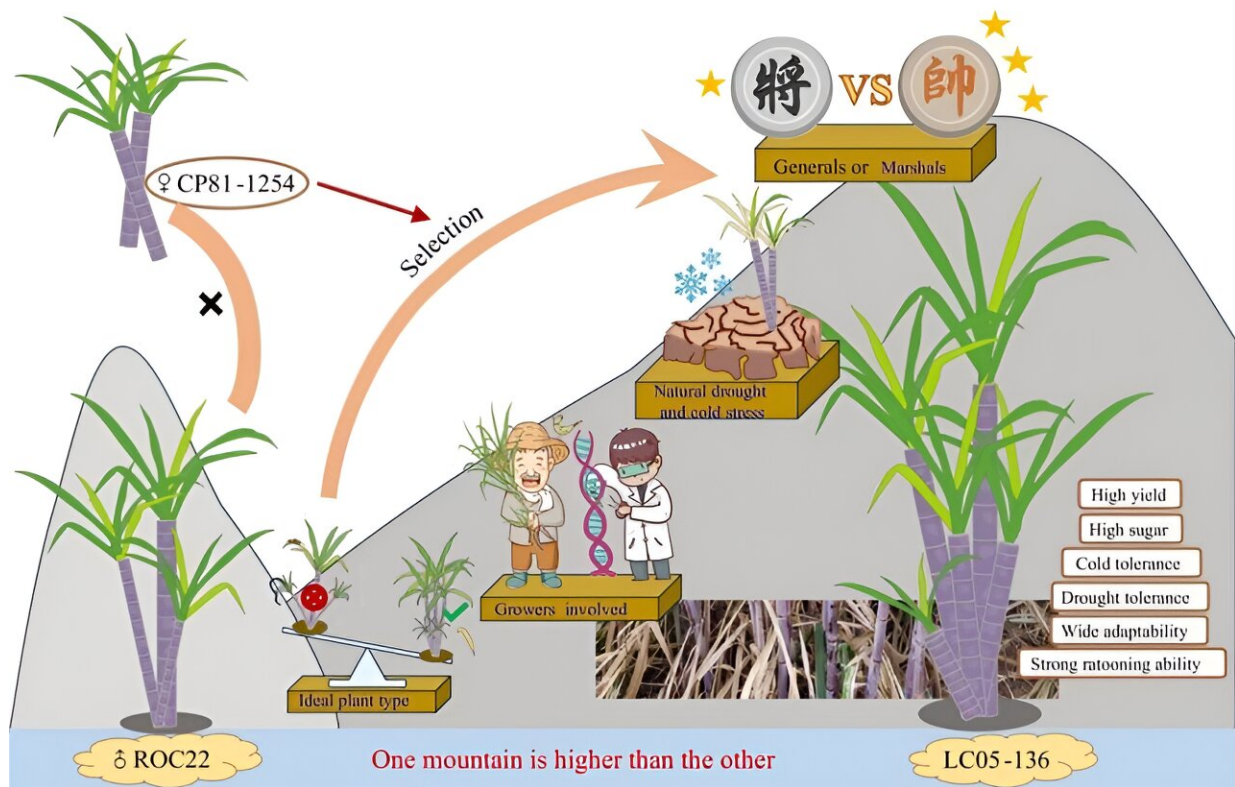


The pioneering sugarcane variety transforming China's sugar industry

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Green LC05-136 originates from blue ROC22 and surpassing blue. Credit: *Tropical Plants* (2024). DOI: 10.48130/tp-0024-0027

A research team at the Liucheng Sugarcane Research Units (LC-SRU) developed the fifth-generation sugarcane variety LC05-136, which has become a flagship in China due to its high yield, high sugar content, and

strong tolerance to drought and cold stress.

This variety's success, cultivated on more than 1.67 million hectares up to 2023, underscores the value of breeding sugarcane with a balanced combination of desirable traits. Its continued development promises to enhance the efficiency and sustainability of China's [sugar industry](#), benefiting both growers and enterprises.

Sugarcane, contributing approximately 90% of China's total sugar output, is vital to the agricultural economy and livelihoods. In 2023, sugarcane was cultivated across approximately 1.11 million hectares in the primary cultivation regions of Guangxi, Yunnan, Guangdong, and Hainan provinces in China.

Despite five rounds of sugarcane variety improvements, which have bolstered yields and sugar content, challenges remain, particularly in the northernmost sugarcane region of Liuzhou, Guangxi, where harsh ecological conditions persist.

The [study](#), published in *Tropical Plants* on 25 July 2024 reports on region-specific sugarcane varieties, like LC05-136, tailored to thrive in these challenging environments, ensuring stable sugar production.

In 2005, Wenxiang Lu, director of LC-SRU, developed the sugarcane variety LC05-136 from over 100,000 seedlings, originating from the crossing between CP81-1254 and ROC22. This variety, known for its tall, compact, and moderate growth, features medium to large, erect, uniform, and solid stems, cylindrical internodes, straight leaf posture, green leaf color, purple-red leaf sheaths, and easy defoliation.

LC05-136 offers several key advantages, such as [high yield](#), [high sugar content](#), high tolerance to drought and cold, strong ratooning ability, and wide adaptability, making it ideal for cultivation in moderately fertile

lands across China's major sugarcane regions like Guangxi, Guangdong, Yunnan, and Hainan.

By 2023, LC05-136 emerged as a flagship of the fifth-generation sugarcane varieties and has been accumulatively cultivated across more than 1.67 million hectares in China. However, LC05-136 has some limitations, such as inadequate resistance to lodging, weak ratooning ability in specific regions, and vulnerability to sugarcane smut.

Overall, the successful breeding of LC05-136 shows that using ROC22 as a model and subjecting it to natural local field conditions is effective. In addition, involving growers in the [selection process](#) effectively uses their experience to quickly identify promising sugarcane varieties.

According to the study's lead researcher, Youxiong Que, "Wenxiang Lu won the first prize in the Science and Technology Awards issued by the People's Government of Guangxi Zhuang Autonomous Region. That is the highest confirmation of the acceptance of sugarcane growers, the satisfaction of sugar enterprises, and the increasing efficiency of the sugar industry which it truly deserves."

Despite LC05-136's achievements, ongoing challenges like sugarcane smut resistance highlight the need for continued improvements. As the saying goes, "there is no perfect crop variety, only better ones." LC05-136 may eventually be replaced by a new sugarcane variety, reflecting inevitable progress. This is why most [sugarcane](#) breeders persist in selection and breeding work.

More information: Qibin Wu et al, LC05-136 originates from ROC22, green arising from blue and surpassing blue, *Tropical Plants* (2024). [DOI: 10.48130/tp-0024-0027](https://doi.org/10.48130/tp-0024-0027)

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