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A widely commercialized two-line super hybrid rice, Liangyoupeiiju

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A two-line hybrid, Liangyoupeiiju, was released by the Jiangsu Academy of Agricultural Sciences (JAAS) and the China National Hybrid Rice Research and Development Center (CNHRRDC) from the cross Peiai 64S/9311 (no. 65002). The female parent, Peiai 64S, was an environment-sensitive genic male sterile (EGMS) javanica line bred by CNHRRDC with the wide compatibility gene *S5-n* from Padi, a variety from Indonesia, and the temperature-sensitive male sterility character from an EGMS line, Nongkeng 58S, a mutant from japonica cultivar Nongkeng 58. The male parent was an elite line developed from Yang Dao No. 6, an indica cultivar released by JAAS.

Liangyoupeiiju is an improved plant type with erect uppermost leaves. Compared with the widely grown indica check hybrid, Shanyou 63, it has a higher light transmission rate and a lower light extinction coefficient from middle to late growth stages. With a high level of heterosis and plant ideotype, the hybrid showed high yield potential, good grain quality, and strong resistance to bacterial leaf blight and blast. The hybrid has a maturity of 150 ± 24 d, 15–16

Table 1. Growth and yield characteristics of Liangyoupeiiju using data averaged from 19 testing plots in southern China in 1999 and 2000 multilocation trials.

Plant height (cm)	Maturity (d)	Grain yield (t ha ⁻¹)	Panicles ha ⁻¹ (no. × 10 ⁴)	Spikelets panicle ⁻¹ (no.)	Seed set (%)	1,000-grain weight (g)
112 ± 19	150 ± 24	8.4 ± 2.6	2.6 ± 0.5	166 ± 59	76.5 ± 18.8	26.2 ± 2.4

leaves on the main stems, and an average grain yield of 8.4 ± 2.6 t ha⁻¹ (data obtained from 19 testing sites of the multilocation trials in southern China in 1999 and 2000). During the 1999-2000 national test for super hybrid rice in Hunan and Jiangsu, Liangyoupeiiju was grown at 38 testing sites (at each site, the hybrid was grown in a test field of 6.7 ha). Its grain yield averaged 10.5 t ha⁻¹. A grain yield as high as 15.3 t ha⁻¹ was obtained in Binchuan County, Yunnan Province, in 1999. Table 1 shows the growth and yield characteristics of the hybrid. Liangyoupeiiju has good grain quality (most of its quality parameters met the high-quality standards set by the China Rice Research Institute) (Table 2). As a result of the two-line system of seed production, the hybrid has consistently achieved a seed yield of 2–3 t ha⁻¹ (seed of 98% purity) in the last 5 years.

For yield potential and grain quality, Liangyoupeiiju is well

Table 2. Evaluated grain quality characteristics of Liangyoupeiiju compared with the standard.

Characteristic	Liangyoupeiiju ^a	Standard ^b
Brown rice (%)	81.1 ± 2.7	>81
Milled rice (%)	73.6 ± 3.7	>72
Head rice (%)	55.5 ± 9.7	>59
Length (mm)	6.75 ± 0.39	>6.5
Length/width	3.0 ± 0.15	>3.0
Chalk rice (%)	27.7 ± 22.0	<10
Chalkiness (%)	3.94 ± 3.46	<5
Transparency	1.67 ± 1.02	<2
Alkali spreading value	5.67 ± 1.29	>4
Gel consistency (mm)	72.1 ± 8.0	>60
Amylose content (%)	20.3 ± 6.2	<22
Protein content (%)	9.78 ± 1.39	>8

^aTested by CRRI in 1998-2001 at seven different testing sites.
^bStandard values for high grain quality (class I) indica rice in China.

known as the prototype of the “super hybrid rice,” its discovery hugging the headlines in 2000. The hybrid has been registered as the first two-line hybrid. It had spread to more than 2.5×10^6 ha during 1999-2002 in southern China and in Southeast Asia, including Vietnam and the Philippines.