

Table 1 Major agronomic characteristics and yield-related performance of Zhongzu 100

Trait category	Official indicator for Zhongzu 100	Practical interpretation
Approval number	Zheshendao 2020003	Approved for Zhejiang early-rice cultivation
Growth duration	111.7 days	Slightly earlier than the control; useful for field turnover
Comparison with control	1 day shorter than Zhongzao 39	Modest but practical earliness
Plant height	86.5 cm	Shorter plant type, generally favorable for standability
Effective panicles	212,000 per mu	Reflects relatively strong tillering and panicle formation
Total grains per panicle	126.4	Moderate panicle size
Filled grains per panicle	108.2	Indicates good grain filling
Seed-setting rate	85.7%	One of the main contributors to yield stability
Thousand-grain weight	26.3 g	Medium grain weight for production-oriented early rice
Regional-trial yield	567.9 kg/mu average	Equivalent to about 8.52 t/ha
Production-trial yield	558.8 kg/mu	Equivalent to about 8.38 t/ha
Milling quality	52.9% head milled rice	Acceptable but not elite
Blast resistance	Leaf blast 2.9; panicle blast 8; index 5.1	Moderate susceptibility overall, with panicle blast concern
BLB resistance	7.1	High susceptibility to bacterial leaf blight

Note: Hectare equivalents were calculated as yield (kg/mu) \times 15 \div 1000. Source: compiled from the official variety dossier and trial materials

3.1 Growth duration and maturity characteristics

Maturity is the first trait that gives Zhongzu 100 its production identity. In the two-year Zhejiang provincial regional trials, the average whole growth duration was 111.7 days, which was one day shorter than the control variety Zhongzao 39. On paper, one day may look minor. In practice, however, timing in early-rice systems is often decided at the margins. A cultivar does not need to be dramatically earlier to be useful; it only needs to ripen early enough, consistently enough, to relieve pressure on harvest scheduling and the transition to the next crop. That is particularly true in double-cropping contexts, where delayed harvest of the first season can compress the management window of the second (Li et al., 2017).

The approval opinion classifies Zhongzu 100 as a mid-maturing conventional early indica rice. That wording deserves attention. It implies the variety is not an extremely ultrashort type, which can sometimes sacrifice biomass accumulation or sink capacity, but a moderate-duration early cultivar that still keeps the field calendar favorable. This middle position may be part of its practical attraction. In early-rice breeding, extremely short duration can create its own problems, including lower biomass, weaker panicle size, or narrower adaptation. Zhongzu 100 instead appears to occupy a more balanced maturity class—early enough for production needs, but long enough to support stable panicle formation and grain filling (Peng et al., 2009).

The company dossier also notes good color conversion and a later-stage “green stem, yellow maturity” appearance. This harvest phenotype is not just cosmetic. In production terms, a variety that ripens more evenly and shows a clearer transition toward harvest maturity is easier to judge in the field and less likely to create confusion about cutting time. For early rice, where the farm calendar can be tight, synchronized maturity can save labor and reduce the risk of mixed-moisture harvesting. Zhongzu 100’s maturity value therefore lies not only in raw days-to-harvest, but in the more complete package of field timing and harvest readiness.

3.2 Plant morphology and population structure

Zhongzu 100 is described in the official dossier as a relatively short-statured plant with erect flag leaves, green foliage, and a medium panicle type. It is also awnless, with yellow lemma tips and culms. The average plant height in provincial testing was 86.5 cm. This stature is agronomically meaningful. In early-rice systems, a shorter plant type often supports better standability and more manageable canopy structure, especially under fertilization regimes that could otherwise push vegetative growth too far. A medium-height, compact canopy does not guarantee lodging resistance on its own, but it generally gives breeders and farmers a better starting point than a tall, top-heavy phenotype (Islam et al., 2007).