

Xa38, and even genome-editing approaches targeting SWEET-related susceptibility pathways. The fact that Zhongzu 100 remains highly susceptible suggests that resistance to this disease was not a major strength selected into the released line, or at least not a strength maintained strongly enough in the final phenotype (Oliva et al., 2019; Varshney et al., 2019).

From a production standpoint, this matters in three ways. First, it limits the ecological breadth at which the variety can be promoted with confidence. Second, it raises the management threshold for growers in humid, blight-prone regions. Third, it narrows the room for low-input cultivation, since disease risk may demand more careful monitoring and intervention. For a practical early-rice cultivar, high susceptibility does not erase all value, but it does redefine where and how that value can be realized. Zhongzu 100 should therefore be described as agronomically promising but pathologically incomplete—a productivity-oriented line that still needs stronger disease protection in future improvement work (Nino-Liu et al., 2006).

4.5 Comprehensive evaluation of stress resistance

When grain quality and disease resistance are considered together, Zhongzu 100 emerges as a typical example of a useful but not all-around variety. Its strengths are clear: orderly plant type, moderate earliness, solid yield components, and repeatable production performance. Its weaknesses are equally clear: grain quality is only general rather than premium, and disease resistance—especially to bacterial leaf blight—is not strong. This pattern is not unusual in practical breeding. Many varieties reach the field not because they are flawless, but because they solve the most urgent production problem of a particular region more effectively than the alternatives (Peng et al., 2009).

In Zhongzu 100, the main production problem being addressed appears to be the need for an early conventional indica rice that yields well, matures neatly, and can be multiplied and extended reliably through an established seed enterprise. That orientation helps explain why the variety was still commercially advanced despite its resistance limitations. In other words, its stress-resistance profile does not make it unsuitable; it simply means that its deployment requires management awareness. The variety is best suited to farmers and extension systems that can match timely cultivation with timely disease control.

A balanced academic evaluation should therefore avoid two extremes. It should not dismiss Zhongzu 100 because it lacks premium quality or broad disease resistance, and it should not overpraise it as though those deficiencies did not matter. The more accurate conclusion is that Zhongzu 100 is a production-effective early-rice cultivar with a clear agronomic identity and equally clear breeding room for improvement. That position—useful, promotable, but still improvable—is precisely what makes it worth discussing in a review-style paper (Custodio et al., 2019; Varshney et al., 2019).

5 Analysis of Production Application Advantages of Zhongzu 100

5.1 Significance of early maturity in double-cropping rice systems

In double-cropping rice regions, maturity is not an isolated trait. It is a scheduling tool. A variety that matures on time helps create space for land preparation, residue management, and the timely establishment of the following crop. This is why even modest reductions in growth duration can have meaningful value in production systems, especially under unstable weather or labor shortages. Early maturity also reduces the chance that the first crop will collide with the seasonal requirements of the second crop, which is one of the oldest and still most practical reasons why fast-ripening rice remains agronomically important in East and Southeast Asia (Peng et al., 2009; Li et al., 2017).

Zhongzu 100 fits this logic well. Its 111.7-day growth duration and one-day advantage over the control do not make it an ultra-short variety, but they do support a smoother seasonal transition. The approval description of good color conversion and orderly maturity strengthens this point. In practice, the value of an early-rice cultivar is not just how soon it can theoretically be cut, but how uniformly and predictably the stand reaches harvest readiness. Zhongzu 100 appears to offer exactly that kind of “usable earliness,” which may be more meaningful for farmers than a nominally shorter duration with unequal ripening.