

In the Mashan case, the internal materials note regular training sessions and field guidance activities, especially during periods of frequent pest occurrence. This suggests that the center's service model already combines machinery with agronomy, which is precisely what a modern operational platform should do.

5 Practical Effects of Modern Agricultural Service Centers in Rice Production

5.1 Improvement of rice production efficiency

The first and most visible practical effect of a modern agricultural service center is improved production efficiency. But efficiency should be understood broadly. It includes labor saving, of course, but it also includes timeliness, continuity across operations, and reduced coordination risk. A well-functioning service center makes it easier to complete production steps within the correct agronomic window and with fewer gaps between stages.

This broader understanding is supported by existing literature. Agricultural socialized services have been found to improve technical efficiency among smallholder rice producers, partly because they replace irregular household arrangements with more standardized and professional support (Cai et al., 2024). Other studies show that mechanization and machinery-based services improve land productivity and production efficiency when machinery access is timely and well matched to field conditions (Yang and Li, 2022; Liu and Li, 2023).

Mashan's organizational structure helps explain why. The center combines centralized seedling supply, dedicated operation teams, drying capacity, machinery repair, technical guidance, and regional dispatch. Each of these reduces a different form of production friction. The result is not only faster operations, but a more stable production chain. A farmer no longer has to negotiate each link separately at peak season. That reduction in coordination failure is a genuine efficiency gain, even if it does not always appear directly in yield statistics.

5.2 Reduction of labor pressure and farming costs

The second major effect is the reduction of labor pressure and farming costs, especially for households facing labor outflow or aging. In current rural China, the question is often not whether labor is expensive, but whether sufficient labor is available at the right moment. Socialized services turn this structural challenge into an organizational problem that can be handled collectively rather than privately.

Several studies are helpful here. Research on aging agricultural labor force and outsourced pest-control services in rice areas of Fujian shows that outsourcing has become an important response to the aging of the agricultural labor force and can influence input use behavior in greener directions (Shen et al., 2024). Work on labor migration and fertilizer use among smallholders further suggests that socialized services can mediate or offset some of the production difficulties created by labor transfer (Li et al., 2023). In practice, a service center lowers the demand for family labor not by replacing the farmer entirely, but by taking over the most time-sensitive, equipment-sensitive, or physically demanding parts of production.

This also affects costs in a deeper way. A household that would otherwise need to purchase or maintain expensive machines, temporary drying arrangements, or separate labor contracts instead buys service when needed. This reduces fixed-cost pressure and allows smallholders to access scale advantages through the service system. For households that still want to remain in grain production but do not want to bear the full capital and management burden, this is one of the strongest benefits of the service-center model.

5.3 Enhancement of disaster prevention and emergency response capacity

The value of a service center becomes especially visible when weather no longer cooperates. Under typhoon threats, heavy rain, or compressed harvest windows, the difference between ordinary service provision and real emergency capacity becomes obvious. A center with machines, drying space, operators, and coordination ability can protect grain already grown. One without postharvest linkage may only move the risk from field to yard.

This is important because climatic risk to rice production is increasing. Recent climate projections for China's rice regions suggest that extreme climate challenges, especially heat stress and some forms of wet-period risk, are likely to intensify (Chen et al., 2025). At the same time, the practical literature on rice harvest losses shows that loss control depends heavily on timing and postharvest handling, both of which become more difficult under abnormal weather (Qu et al., 2021).