Table 2 Core operational cases from Mashan Agricultural Service Center

Case	Main content	Practical significance
Centralized seedling cultivation services	More than 200,000 seedling trays supplied annually; technical guidance reportedly improved seedling establishment by about 20%	Strengthens the basis for machine transplanting and reduces household nursery burden
Emergency mechanized harvesting during "double rush"	More than 20 harvester operations deployed; over 12,000 mu harvested; over 14,000 tons dried	Demonstrates disaster-response and harvest-loss-reduction capacity
Grain drying capacity improvement	Eight dryers added; batch capacity raised to 400 tons; annual drying increased from 10,000 to 18,000 tons	Converts mechanized harvesting into stable postharvest management
High-quality rice brand development	"Xinfeng" rice won Silver Award in "Zhejiang Good Rice 2024"	Connects mechanized services with local branding and value-added products

5.1 Case of centralized seedling cultivation services

The centralized seedling cultivation case is important because it shows how a service center can intervene at the earliest and often most fragile stage of rice production. According to the case materials, Mashan relies on its seedling cultivation center and mechanized sowing arrangements to provide unified seedling services for surrounding farmers, supplying more than 200,000 seedling trays annually. This is not a small support activity attached to the center. It is one of the enabling conditions of full-process mechanization.

The practical effect of such a service is straightforward. Farmers who receive standardized tray seedlings do not need to manage seedling preparation individually at household scale. That lowers labor requirements, reduces technical unevenness across farms, and makes machine transplanting easier to schedule. The internal materials further note that technical guidance linked to the center helped raise seedling establishment rates by around 20%, which suggests that the service is not purely material supply, but a combination of production input and agronomic support.

This case also reflects conclusions from recent agricultural mechanization studies. Research has shown that centralized seedling cultivation not only supports machine transplanting but also improves seedling-field efficiency and helps release land and labor resources under crop rotation systems (Ruan et al., 2025). In the Mashan case, the local lesson is simpler but equally important: professionalized seedling supply makes later mechanized stages more reliable and improves the overall rhythm of rice production.

5.2 Case of mechanized emergency harvesting during the "Double Rush" period

Among the four cases, the emergency harvesting case most clearly demonstrates the social value of regional agricultural service centers. During the overlap of the "double rush" farming season and typhoon weather, Mashan mobilized more than 20 harvester operations, completed emergency harvesting on more than 12,000 mu of early rice, and carried out more than 14,000 tons of grain drying afterward. The combination of harvesting and drying is especially important.

What makes this case analytically meaningful is not only the scale, but also the timing. During normal years, mechanization improves production efficiency. During abnormal years, it protects grain that has already been produced. Research on rice harvest losses repeatedly emphasizes that poor harvest management and weak infrastructure can significantly increase grain losses, while timely harvesting is one of the most important conditions for effective loss reduction (Qu et al., 2021). The Mashan case transforms this general conclusion into a concrete operational example. Harvesting machines alone would not have solved the problem. Without sufficient drying capacity, much of the rescued grain would still have remained vulnerable under humid conditions.

This case also aligns closely with Zhejiang Province's agricultural modernization policy. Zhejiang's 2024 policy documents specifically encouraged modern agricultural service centers to establish emergency operation teams and participate in regional agricultural disaster-response systems. Therefore, Mashan's emergency harvesting