

consistency in production, handling, storage, and output. A center with seedling supply, machinery service, drying, processing, and storage is better positioned to support that consistency than a service provider limited to a single operation link.

This case also suggests a broader development path in eastern China. In higher-income regions, the future of rice production may depend less on low-cost volume and more on the ability to combine service efficiency with local brand value. Mashan's brand case therefore shows a shift from service as production assistance to service as production-plus-market support.

## **7 Current Problems in the Operation of Agricultural Service Centers**

### **7.1 High operational and equipment maintenance costs**

One of the clearest challenges for modern agricultural service centers is the heavy capital and maintenance burden of integrated service provision. Mashan's own case illustrates the point well. Project investment exceeded RMB 6 million; machinery assets were reported at about RMB 8 million; and the center operates drying, nursery, storage, processing, and service-support spaces together. This is precisely why such centers are effective, but it is also why they are financially demanding.

The pressure continues after construction. Equipment depreciation, electricity for drying, fuel, repairs, spare parts, storage management, operator certification, and facility upgrades all create ongoing costs. Research on mechanization and production efficiency confirms that machinery can improve output and efficiency, but it also shows that capital intensity remains a serious barrier where scale or service volume is insufficient to absorb fixed costs (Liu and Li, 2023; Ruan et al., 2025). In practice, service centers succeed only when utilization is high enough and fees, subsidies, or linked business functions together support long-term sustainability.

This means that service centers are vulnerable to underuse. A modern center may look impressive, but if service demand becomes unstable or if newer technologies rapidly raise upgrading pressure, the center can face financial stress. Capital investment is therefore not just a construction issue. It is a continuing operational issue.

### **7.2 Insufficient professional and technical personnel**

Another major problem is the shortage of multi-skilled technical personnel. Mashan's seven fixed workers and specialized teams show organizational capacity, but they also hint at how much is expected from a relatively small technical core. Modern service centers need more than tractor or harvester drivers. They need people who understand scheduling, machinery maintenance, drying control, field conditions, agronomy, safety, records, and increasingly digital tools.

This challenge appears repeatedly in the recent literature. Digital agricultural technology services can only function well when users and service providers have adequate literacy, training, and confidence (Gong et al., 2024). The broader review literature on agricultural socialized services also points out that access and delivery problems often stem not only from equipment shortages, but from measurement problems, coordination gaps, and service-quality inconsistency (Zeng et al., 2025). Technical personnel are therefore not simply labor inputs; they are part of the service model's credibility and adaptability.

In rural areas, attracting and retaining such personnel is not easy. Young people may prefer urban sectors, while older experienced operators may have limited capacity to shift into digital management or more formalized service systems. The more a center expands toward quality-oriented and smart-service functions, the more serious this human-resource constraint becomes.

### **7.3 Difficulties in coordinating services across different farmer groups**

Although service centers are often promoted as bridges between smallholders and modern agriculture, farmers are not identical service users. They differ in plot conditions, road access, irrigation convenience, income expectations, quality preferences, willingness to pay, labor availability, and openness to standardized management. This heterogeneity creates a coordination challenge for service centers.