

Table 1 Main operational models of socialized rice production services

Operational model	Core content	Main organizational carrier	Main practical value
Centralized seedling cultivation service model	Unified nursery preparation, tray seedling production, delivery to farmers or service teams	Seedling center+technical team	Improves seedling uniformity, supports machine transplanting, reduces household nursery burden
Full-process trusteeship service model for rice production	Bundled services from pre-production to postharvest, partly or fully entrusted by farmers	Service center+cooperative+specialized operation teams	Reduces coordination costs and timing failures across stages
Agricultural machinery scheduling and cross-regional operation model	Seasonal dispatch of machinery across villages and towns, including emergency tasks	Operation team+repair team+service booking	Raises machinery utilization and supports timely peak-season operations
Grain drying and postharvest service model	Centralized drying, temporary storage, grain processing and preservation	Drying center+storage+processing line	Reduces postharvest loss and supports quality retention and branding
Technical guidance and farmer training service model	Agronomic advice, pest diagnosis, training, production guidance	Technical team+training space+external experts	Improves service quality, green production, and farmer trust in standardized management

4.1 Centralized seedling cultivation service model

Centralized seedling cultivation is one of the clearest examples of how service organization can change the economics of rice production (Figure 2). In household-based production, raising seedlings is not only laborious; it is also highly variable. Timing, tray preparation, seed quality, temperature, and management consistency all affect later field performance. Once labor becomes scarce and machine transplanting becomes more common, this stage turns into a serious coordination problem. Centralized seedling services address that problem by moving the work into a specialized facility.

Recent research on machinery rice transplanting and centralized rice seedling cultivation in China argues that these systems do more than save labor. They improve the efficiency of seedling supply, raise the space-use efficiency of nursery land, and even create a “seedling field saving” effect that can release time and land resources under crop rotation systems (Ruan et al., 2025). That finding is conceptually important because it shows that a service center can affect production before the crop even enters the main field.

Mashan’s materials are consistent with that logic. The center reportedly supplies more than 200,000 trays of early- and late-rice seedlings per year and provides associated technical guidance to nearby farmers. In practical terms, such a model does three things. It standardizes the starting point of the crop. It reduces household-level technical unevenness. And it makes machine transplanting much easier to coordinate. When many households receive seedlings from the same center, later operations can be scheduled with much greater confidence.

There is also a subtle institutional effect here. Seedling service often serves as the first point of deeper farmer-center cooperation. A household that begins by purchasing seedlings may later purchase transplanting, harvesting, drying, or even partial trusteeship. In that sense, centralized seedling supply is not a minor entry service. It can be the organizational gateway into the wider service system.

4.2 Full-process trusteeship service model for rice production

The full-process trusteeship service model is perhaps the most important modern form of socialized rice production service. Under this model, farmers do not surrender land rights, but they rely on the service center or related provider to complete part or all of the production chain. The crucial point is not whether every farmer purchases every link. It is that a bundled service option exists, and that the burden of cross-stage coordination shifts away from the household.