Rocky road for direct-seeded rice: understanding the adoption barriers of this climate resilient technology

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Direct-seeded rice (DSR) offers several advantages over puddled transplanted rice (PTR), yet inconsistent adoption persists due to systemic gaps in farmer knowledge, skills and institutional support. Key challenges include imprecise land levelling, high seed rates, inefficient herbicide application and improper irrigation practices. Manual broadcasting and delayed weed control result in uneven crop geometry, increased production costs, yield penalty and reduced farmer confidence. Irrigation methods like sprinklers or alternate wetting and drying are recommended for DSR, yet farmers often replicate PTR's continuous flooding, negating water-saving benefits. DSR feasibility is region-specific, contingent on soil texture, water availability and agroclimatic suitability. Scaling DSR requires targeting ecologically suitable regions and integrating technical, educational and policy interventions. Farmer-centric strategies (on-farm training, field demonstrations and peer learning) can address knowledge gaps. Policy measures, such as subsidies for seed drills, laser levellers, and weeders, alongside custom hiring centres, can enhance access to critical equipment. Financial incentives linked to water savings or emission reductions (carbon/water credits) may further motivate adoption.