

Smallholder farmer innovation: Replacing transplanted rice monoculture with direct seeded rice based cropping systems

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Abstract

We describe our experience working with smallholder farmers on the East India Plateau to develop more diverse and intensive farming systems. What at first appears as a relatively small change in rice establishment agronomy, turns out to be a key to unlocking a range of development opportunities including increasing crop productivity, farm profitability, and climate resilience, enhanced human nutrition, and empowerment of women. The approach is illustrated with a local farmer innovation in rice establishment systems. Transplanted rice is very risky in this environment due to lack of irrigation, erratic rainfall, soil type and undulating landscape. Farmers have developed a direct seeded rice system that is different, perhaps unique, from previous direct seeded systems. Here the soil remains unpuddled, seed and fertiliser are manually sown in lines, and weed control is achieved with small manually operated implements. In addition to improved yield stability, early sowing and early harvesting, and using residual soil water for a second crop, the new system releases women from labour drudgery (no transplanting or hand weeding), is more climate resilient (avoids rice crop failure due to lack of ponding needed for transplanting), and is nutrition sensitive (harvesting the rice crop earlier in the 'hunger window', and enabling a second oilseed, pulse or vegetable crop). The new system is popular with farmers and adoption is expanding rapidly.

Key words: Sustainable intensification, crop diversification, participatory action research, climate resilience, nutrition sensitive, gender friendly.