mDSR + FDP: Mechanized Rice Row Seeder with Deep Fertilizer Placement

Sow and fertilize rice in one pass.



Mechanized Direct Seeding with Fertilizer Deep Placement (mDSR-FDP) combines row seeding and fertilizer deep placement to help rice farmers reduce input use, labour needs and production costs. Development programs can make it accessible to smallholders through cooperatives and service providers, supported by financing, training, suitable machinery, field preparation and maintenance services.

International Rice Research Institute

CGIAR

International Rice Research Institute (IRRI)

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This technology is pre-validated.

8·7 Scaling readiness: idea maturity 8/9; level of use7/9

Inclusion assessment 4 3 5

Climate impact 7

Problem

- **Low returns:** High costs and uneven fields reduce income.
- **Heavy workloads:** Establishment requires several demanding operations.
- **High entry cost:** Equipment costs about USD 7,000, excluding the tractor.
- **Unequal access:** Underserved farmers may receive late or unaffordable services.
- **Participation gap:** Only 53 of 512 trained farmers were women.

Solution

- **Raise returns:** Pilot net profits increased by 26–79%.
- **Reduce costs:** Total input costs fell by 18–36%.
- **Lower workloads:** Complete several field activities in one pass.
- **Share the investment:** Use cooperative and custom-hire models.
- **Improve inclusion:** Target women and resource-poor farmers with finance and fair scheduling.

Key points to design your program

mDSR + FDP can support smallholder productivity, inclusive mechanization, rural employment, and efficient input use when delivered through shared services.

- Finance shared equipment and combine it with operator training, field preparation, maintenance, and spare parts.
- Use fair pricing, targeted finance, and transparent scheduling to reach women, youth, resource-poor farmers, and remote communities.
- Partner with government extension, research organizations, cooperatives, machinery suppliers, service providers, and financial institutions.
- Track operational machines, hectares served, repeat and paid use, input use, yield, income, service quality, and beneficiary inclusion.

Separate the machine's direct contribution from benefits created by finance, infrastructure, water management, and other program support.

Expand only when demand continues, recurring costs are covered, inclusion targets are met, and local support services are reliable.

8750 USD	16000 USD	7250 USD	83 %
Cost per year	Revenue per year	Net income per year	ROI per year

IP

No formal IP rights

Commodities

Rice, Maize

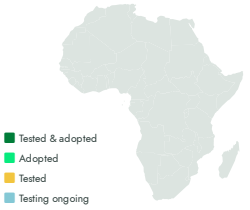
Sustainable Development Goals



Categories

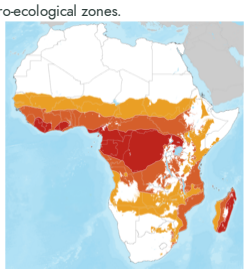
Production, Pre-production, Practices, Water management, Fertilizer management

Tested/adopted in



Where it can be used

This technology can be used in the colored agro-ecological zones.



Target groups

Farmers, Seed companies, Cooperatives and Agribusinesses