# Pulse rotations in rice fallow systems

Turn unused rice land into more pulses, higher farm income, and stronger food security.



ICARDA
Science for resilient livelihoods in dry areas

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Pulse rotations in rice fallow involve cultivating short-duration pulses such as lentil, grasspea, chickpea, field pea, mungbean, and blackgram on rice land that would otherwise remain fallow during the dry season. The practice uses residual soil moisture after the monsoon rice harvest. Farmers can relay-sow pulses into standing rice shortly before harvest or sow them immediately afterwards, preferably using zero tillage.

This technology is **not yet validated**.

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

Inclusion assessment 12 10 17

Climate impact 4 1

## Problem

- **Underutilization of agricultural land:** Large areas of rice land remain uncultivated during the dry season, limiting potential agricultural production.
- **Dependence on pulse imports:** Domestic pulse production is insufficient to meet demand, contributing to reliance on imports.
- **Low agricultural productivity:** Existing rice-based farming systems do not fully use available land and growing seasons.

## Solution

- **Brings unused agricultural land into production:** Promotes short-duration pulses on rice-fallow land, making better use of existing farmland. In Odisha, the Comprehensive Rice Fallow Management program brought approximately 257,000 hectares into dry-season cultivation.
- **Increases domestic pulse production:** Supports the production of lentil, chickpea, grasspea, field pea, mungbean, and blackgram to help meet national demand. The cited NITI Aayog report estimates that cultivating one-third of rice-fallow land across ten Indian states could add 2.85 million tonnes of pulses.
- **Strengthens food and nutritional security:** Increases the availability of protein-rich pulses for household consumption and local markets.

## Key points to design your project

**Pulse Cropping in Rice-Fallow Systems** creates business opportunities across the pulse value chain. Growing pulses on otherwise uncultivated rice land can increase demand for quality seeds, agricultural inputs, mechanization services, and pulse processing and marketing. Businesses can capitalize on these opportunities by connecting with village seed hubs, farmer groups, traders, and processors, while assessing local production conditions, market demand, and commercial viability.

IP
Open source / open access

Technology from

PRMS

Commodities

Rice, Legume

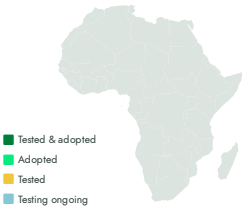
Sustainable Development Goals




Categories

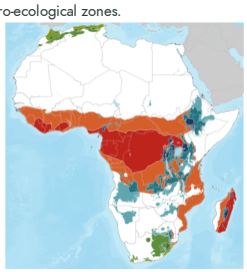
Production, Practices, Production system, Soil restoration

Tested/adopted in




Where it can be used

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



Target groups

Farmers, Governments, Seed companies, Advisory and Extension Services