

## Agriculture transition through productive biodiversity

### The challenge

The intensification of agriculture through monocropping, excessive use of chemical inputs, and unsustainable water management has led to biodiversity loss, soil degradation, and declining farm productivity. In Jharkhand and Madhya Pradesh, smallholder farmers—especially from tribal communities—struggle with water scarcity, declining soil fertility, and increasing pest pressures. Traditional knowledge and practices that once promoted biodiversity are being lost, making agricultural systems more vulnerable to climate change and economic instability.



### Our approach

The project adopts a two-pronged approach to promote biodiversity-driven sustainable agriculture:

1. **Local-Level Interventions:**
  - ✓ Implementation of Hedges as Green Corridors to improve water retention, prevent soil erosion, and enhance biodiversity.
  - ✓ Adoption of Ecologically Based Rodent Management (EBRM) to reduce pre- and post-harvest losses sustainably.
  - ✓ Promotion of Pest Control through Water Management, optimizing water use to regulate pests and reduce reliance on chemical pesticides.
2. **Systemic Engagement:**
  - ✓ Collaboration with key government departments, NGOs, and self-help groups (SHGs) to scale nature-based solutions (NbS).

- ✓ Policy integration and advocacy for regenerative agricultural practices.
- ✓ Knowledge dissemination through training modules, community-driven monitoring, and stakeholder engagement.

### The goal

The Productive Biodiversity initiative aims to create a resilient, food-secure, and ecologically sound farming system in Jharkhand and Madhya Pradesh. Through a mix of field interventions, learning exchanges, and institutional engagement, the project seeks to restore biodiversity in agricultural landscapes, improve farmers' adaptive capacity through nature-based solutions and strengthen the local economy by promoting sustainable farming enterprises.

Project name	Agriculture transition through productive biodiversity
Project region	India
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Implemented by	MetaMeta Research B.V.
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Partners	PRADAN

### Key highlights

- ✓ Hedges as a green corridor: Strengthening biodiversity-rich agricultural systems through:
  - Reviving and planting hedges as green corridors for biodiversity conservation.
  - Promoting usage of bio-fertilizers for enhanced soil health.
  - Promoting conservation strategies to mitigate soil erosion and creating a positive microclimate effect.
  - Partnering with government institutions to align with policies and for broader buy-in
  - Collaboration with research centres to understand the impact of hedges on the overall biodiversity of the area
- ✓ Ecological Rodent Management:

- Reduction of at least 50% rodent-related agricultural losses through non-toxic management techniques.
- Development of rodent control training modules, manuals and community workshops.
- Training of community resource persons for monitoring in fields
- ✓ Pest and water Management:
  - Promotion of water-smart agricultural techniques like Alternate Wetting and Drying (AWD) and Direct Seeded Rice (DSR) to conserve water and control pests naturally.
  - Alignment with broader work on SRI and its impact on water management and pest management

### Examples of our success

Within the first 11 months of the project:

- ✓ a field pilot test on Ecologically Based Rodent Management (EBRM) was successfully conducted in Mahuatand village. The results showed more than 10% reduction in post-harvest losses.
- ✓ More than 600+ rodent burrows closed through community-led burrow mapping and ecological control practices, marking a major milestone in proactive rodent management.
- ✓ More than 100+ hedge beneficiaries identified for planting pigeon pea and babool with the active support of local government institutions
- ✓ Successful collaboration established with District and Block Agriculture Officers and Krishi Vigyan Kendra (KVK) officials to support hedge-based interventions and scale-up.

### Voices from the field

*"Several NGOs came in our area but no one has talked about Rat Management though it is a big problem in our area". -Shanti Murmu, Farmer, Jharkhand*

*"We used to lose 20-30% of our grain to rodents. After implementing Ecological-Based Rodent Management, losses have reduced significantly."—Master Murmu, Farmer, Jharkhand*

### Impact story



In Mahuatar village, Jharkhand, Santhal farmers struggled with severe rodent infestations that destroyed their crops and grain storage. Nearly 20% of their harvest was lost each year, impacting food security and livelihoods as well as posing a serious risk to their health.

Through the Ecologically Based Rodent Management (EBRM) approach, community was made aware of eco-friendly approaches that could be used to tackle the issue. The engagement was strengthened through regular meetings and discussions with farmers. Farmers received training in rodent control techniques, including better grain storage, cleaner fields, and natural deterrents. Early adopters, like farmer Birsa Tudu, saw a sharp drop in losses—from 20% to just 5%, encouraging wider adoption. Also, activities like burrow mapping and filling of the burrows followed which was appreciated by the community.

The active role of village institutions, community resource persons and knowledge-sharing among farmers has fostered a community-led movement for sustainable rodent management, empowering Mahuatar farmers to take control of their future.