

Zai Pits: Water Harvesting and Soil Improvement



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Zai pits are a traditional Sahelian technique for restoring degraded land by capturing rainwater and nutrients. Farmers dig small basins (20–40 cm wide, 10–20 cm deep) during the dry season, creating 12,000–25,000 pits per hectare to enhance water retention. Organic matter and 5–6 g of NPK or DAP per pit improve soil fertility, supporting millet and sorghum growth. This metho...

✓ This technology is **TAAT1 validated**.
🌍 Scaling readiness: idea maturity unknown; level of use unknown

Gender assessment 👍 4

Climate impact 👍 7

- ### Problem
- **Low rainfall and frequent droughts** in the Sahel reduce crop yields and threaten food security.
 - **Soil degradation and crust formation** limit water infiltration and plant growth.
 - **Nutrient-poor soils** hinder crop productivity, making farming unsustainable.
 - **Runoff and erosion** lead to further soil loss and reduce available moisture for crops.

- ### Solution
- **Increases crop resilience** by improving moisture availability during dry periods.
 - **Boosts yields** by 60–90% for millet and sorghum compared to flat cultivation.
 - **Restores degraded lands**, making marginal soils productive again.
 - **Optimizes local resources** by incorporating organic and mineral fertilizers.
 - **Is cost-effective and easy to adopt**, requiring only manual labor.

60 - 90 %
Yield Improvement
💡 **IP**
Open source / open access

Commodities
Sorghum/Millet

Sustainable Development Goals

Categories
Production, Practices, Water management

Tested/adopted in

Where it can be used

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

Target groups
Farmers

