Self-reliant Farming System for Rainfed Areas under High Rainfall Zone

Self-reliant farming system at ICAR-IIWM research farm

Developed by

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RELEVANCE

- Climate change, water scarcity, and the use of high doses of chemical fertilizers, along with weather variability, are the major problems of rainfed farming.
- Thus, a self-reliant farming system for water and nutrients could address these problems in the rainfed ecosystem.

DESCRIPTION

- A Self-reliant Farming System (SRFS) in a 1.584 ha area was developed comprising rice followed by the green gram, cowpea, and spring maize in 1 ha, water harvesting farm pond in 3894 m^2 for Indian Major Carps and lotus, and dyke around the pond in 1946 m^2 for papaya and banana.
- Water security was achieved by water harvesting and adopting conservation measures such as drip irrigation for dyke crops, pipe conveyance in field crops, and multiple uses of water.
- The plant nutrient requirement was met using 18 t ha^{-1} of fresh *Sesbania rostrata* (*in situ*) and 8 t ha^{-1} of dry vermicompost produced in 3 batches.

BENEFITS

- Net return of ₹ 70141 ha^{-1}, 2.3 times higher than the prevailing practice of rice-fallow in rainfed areas.
- Improved net water productivity to ₹ 6.94 m^{-3} *i.e.* by 2.1 times.
- The agro-ecological benefits from the system include an increase in earthworm population by 147%, soil organic carbon stock by 25%, dehydrogenase activity by 30%, and microbial biomass by 34%.