Seeding the Green Future – Participatory organic cotton breeding

Background

Worldwide, India is the most important country for organic cotton production with 67% market share. In India, organic cotton production is challenged by 95% genetically modified (GM) cotton cultivation. Public breeding and seed multiplication were neglected and local non-GM seeds supply were eroded.

With the continuous growth of the organic market it is important to maintain non-GM germplasm, to enlarge the offer of organic cultivars with a better performance that meet the demand of the market, and to rebuild the seed sovereignty of organic smallholder cotton farmers.

Participatory breeding of Gossypium hirsutum and traditional G. arboreum cotton offers a great opportunity for developing locally adapted cultivars for increasing genetic diversity.

Objectives

• Secure seed availability for organic cotton farmers in India.
• Develop a portfolio of new cotton cultivars including traditional G. arboreum cotton with:
  • improved agronomic performance,
  • high fiber quality (fiber length of more than 28 mm),
  • adaptations for various growing conditions,
  • high resilience to climate change.
• Achieve high adoption rate by farmers and address anticipated changes in cultivation (mechanization).
• Improve integrity of organic cotton by capacity building and close collaboration of actors along the supply chain.

Milestones

• Local facilitator installed to coordinate the activities among 7 partners and timely implementation of the project.
• Special focus on involvement of female farmers and Indian tribes with marginal growing conditions.
• Training and local capacity building in breeding and seed multiplications.
• Crosses and single plant selection of early and advanced generations.
• Establishment of 5 on-station and 150 on-farm field trials in 6 Indian states testing promising cultivar types (G. hirsutum, G. arboreum, hybrids and inbred lines).

The project is open to involve more farmers associations and serves as model to safeguard organic cotton seed on global scale.