

Green Cotton: Participatory Cotton Breeding for Organic Farming and Securing of Genetic Diversity of non-GM Cotton in India



Background

Up to 80 % of the global organic cotton was produced in India. Today the organic cotton production is severely threatened as the propagation of non-GM cotton seed has been stopped by private seed companies. Bt cotton hybrids cover more than 90 % of the cotton growing area, while endemic desi cotton are almost extinct and many hirsutum cultivars are genetically contaminated by Bt. Already in the season 2011/12 the area under organic cotton production decreased by about 20 % in India.

Current activities

- Workshop with all stakeholders in March 2013 as a follow up of the Dharwad Workshop in 2011.
- 60 different non-GM cultivars provided by the UAS Dharwad are being tested 2013 under organic growing conditions and different irrigation regime in Madhya Pradesh and Odisha. *G. hirsutum* is compared with *G. arboreum* (desi cotton) and *G. barbadense* species, as well as hybrids vs. varietal lines. Assessment of yield, resistance traits, and fiber quality according to market demand.
- Developing new crosses to combining the robustness of traditional desi cotton with the high fiber quality of modern varieties
- Utilization of farmers knowledge to define most important traits and ideal cotton genotype under different growing conditions.
- Farmers workshops on cultivar testing, crossing techniques, selection of segregating material and cultivars and seed propagation.
- Farmer managed on farm cultivar testing in different soil types with and without irrigation.
- Socioeconomic evaluation of different models for the establishment of a seed supply chain for non-GM cotton in India.



Fig.1: Farmers workshop on crossing techniques and on cultivar evaluation



Fig.2: Boll diameter measurement



Fig.3: Pest and disease assessment

Objectives

The short term aim of the project is to provide organic cotton farmers with high quality seeds. In the mid term new cultivars need to be developed that fit the needs of organic cotton farmers and processors. Seed sovereignty and autarky of smallholder cotton farmers shall be improved by capacity building and establishing decentralized participatory breeding initiatives. Farmers' experience and breeders' knowledge is combined to develop cotton cultivars adapted to local conditions of organic cotton farmers. To achieve this goal following objectives were defined:

- (i) Networking with all stakeholders in the organic cotton value chain to achieve coordinated cooperation.
- (ii) Collection and conservation of genetic resources.
- (iii) Testing of existing cultivars under organic conditions.
- (iv) Training farmers in seed multiplication, crossing and selection.
- (v) Establishing participatory cotton breeding programs and
- (vi) re-establishing the non-GM seed chain.



Fig.4: *G. arboreum* (desi cotton)



Fig.5: *G. hirsutum*

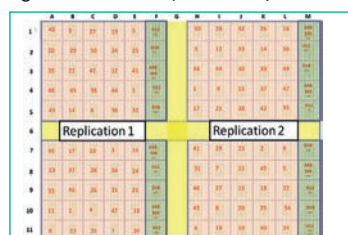


Fig.6.: Cultivar Trial Layout



Fig.7: Workshop on Breeding and Seed Supply of non GM cotton in Kasrawad in March 2013

Safeguarding the organic cotton production by securing non-GM seed supply

Are you interested to obtain more information, to join the project or to support us financially?

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