

## Publication

### Extent of Bollworm and Sucking Pest Damage on Modern and Traditional Cotton Species and Potential for Breeding in Organic Cotton

#### **JournalArticle (Originalarbeit in einer wissenschaftlichen Zeitschrift)**

**ID** 4638442

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**Year** 2019

**Title** Extent of Bollworm and Sucking Pest Damage on Modern and Traditional Cotton Species and Potential for Breeding in Organic Cotton

**Journal** Sustainability

**Volume** 11

**Number** 22

**Pages / Article-Number** 6353

Resistance against cotton bollworm is one of the main arguments for the use of genetically modified (GM) Bt cotton around the globe. The use of GM is prohibited in organic systems and thus the remunerative value of organic cotton cultivation depends on effective bollworm control. In this study, we investigated the extent of bollworm and sucking pest damage in 68 different hybrid and varietal lines of *Gossypium hirsutum* and varietal lines of *G. arboreum* at two different locations with contrasting soil fertility and water dynamics. The damage potential of bollworms was assessed from open capsules at two time points. Sucking pests were assessed at three time points using a scoring method. *G. arboreum* varietal lines and *G. hirsutum* hybrids were on average significantly more tolerant than *G. hirsutum* varietal lines to bollworm under fertile and irrigated situations. For sucking pests, the *G. arboreum* varietal lines were clearly more tolerant than *G. hirsutum* hybrids and varietal lines. Since, recently, pink bollworm (*Pectinophora gossypiella*) became resistant against Bt cotton and pressure of sucking pests severely increased, screening of genetic resources and systems-based cotton breeding for bollworm and sucking pest tolerance will improve sustainability of organic and conventional cotton production.

**ISSN/ISBN** 2071-1050

**edoc-URL** <https://edoc.unibas.ch/86922/>

**Full Text on edoc** No;

**Digital Object Identifier DOI** 10.3390/su11226353

**ISI-Number** 000503277900166

**Document type (ISI)** Article