Research to Impacts Map: **Ecological Pest Management**

Sahel IPM 2006-2019

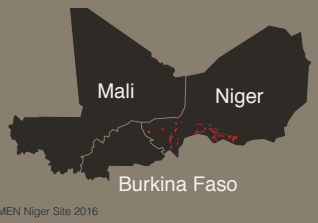
Farmers with their parasitoid release bags in the Tahoua region of Niger.
Photo credit: Laouali Amadou

Summary: The Sahel IPM project aims to develop agroecological technologies for reducing insect pest losses and increasing the yields of three rainfed crops (pearl millet, sorghum, and cowpea) in the project target Sahelian agricultural zones.

The Sahel IPM project, active since 2018, builds on the GIMEM project (2006-2019)

For more information see:
https://www.ccrp.org/grants/sahel-ipm/

West Africa
Community of Practice



Project Partners

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COLLABORATIVE CROP RESEARCH PROGRAM

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Strategic prioritization: tackle pests that affect the crops of interest to CCRP in selected contexts

The millet head miner (also known as millet head worm or MHW) is one of the **most important pests of pearl millet**, a key crop in Sahelian West Africa. The MHW became a major pest in the West African Sahel during the droughts of 1972–1974, and has since remained a threat in the region.

Develop research technologies

The naturally occurring parasitoid wasp, *Habrobracon hebetor Say,* identified as potential biological control for MHW.
2010: Research led to innovation of being able to **raise the wasp in easily distributed jute bags.**

Refine management options

- Up to a **90% MHW larval mortality** rate can be achieved using the bags.
- The results indicate that 7 cm × 10 cm jute bags containing 50 g of millet grains, 30g of millet flour, 25 *Corcyra cephalonica* larvae, and two mated *H. hebetor* females are the most effective option for on-farm delivery of the parasitoid. A distribution of **15 bags per village can cover a radius of 5 km 3-4 weeks after release.**
- 2013: The parasitism by *H. hebetor* was significantly higher in villages where parasitoid bags were placed than the control villages (DF=1; F=20.76; P<0.05).
- 2019: Identification of MHW-tolerant varieties.
- 2019: Identification and use of MHW *esophageal parasitoid* to increase pest mortalities.

Test management options, including working with farmers

Assessment of the effect of the release of 1605 bags across 107 villages by **monitoring 33,600 millet spikes.**

Strengthen capacity in Ecological Pest, Disease, and Weed Management

23 students have been trained on biological control as part of this project, two at the PhD level.

Changes in policies and practices among various actors

Biological control has attracted the interest of **politicians in Niger:** in 2012 and 2013, 6426 release bags for coverage of more than **two million hectares** were produced and distributed. Several **international NGOs** such as Mercy Corps, CARE, HEKS-EPER, Cadec, CRS, World Vision, and CONCERN introduced biological control in their field program.

Scaling via commercializationon

- 17 **Community based private** units (CPU) were established in the three project countries and are managed by 66 trained farmers.
- A study revealed that the CPUs, which often, **include women**, have **22-187% profits.**
- In 2016 production units produced 7331 parasitoid release bags to cover 2.3 million ha of pearl millet. It is expected to increase millet production by 235,000 tons.
- 2019: in Mali 510 bags were released to cover 170 000 ha; in Niger the 6 private units produced a total of 5862 release bags for the coverage of 1,954,000 ha of millet in five regions. 35% of the purchases were made by the public services, 29% by projects, 14% by municipalities and 22% by individual producers.