Cotton topping as a way to reduce farmer’s reliance on insecticides in Mali

Bollworms such as Helicoverpa armigera, Diparopsis watersi and Earias sp., are a major constraint of cotton production in Mali. Up to now, their control has primarily relied on chemical sprays. Finding ecologically-based alternatives to control these pests is a strategic issue for cotton production. We, here, report results from field experiments on cotton topping, as a promising technique to control bollworms.

**First study in 2014**

- **villages**: Benguéné, Ziguéna, Nafégué
- **5 cotton fields per village**
- **3 replications per cotton field**
- **Implementation per cotton field**

In 2014, bollworm abundance was significantly lower (−60.7% for all species) on topped plants vs non-neighboring non-topped plants, except for D. watersi. Bollworm abundance was also lower (−37.2% for all species) on neighboring non-topped plants vs non-neighboring non-topped plants, but this was only significant for *H. armigera*.

**Second study in 2015**

- **villages**: Benguéné, Kafara, Katanbantankoto, Kokélé, Ziguéna
- **2 sets of agronomical improvements/village**
- **5 cotton fields/set of agronomical improvements**
- **Implementation per cotton field**

Proportion of plants with freshly damaged squares or bolls was greater with FP (3.4%) compared to T100 (2.4%) and T20 (2.6%). Except at one location, bollworm control was significantly improved regardless of the villages and the agronomical improvements.

Compared to farmer practices (FP), in average 64.4% and 62.4% of sprays were saved with T100 and T20 respectively.

Seed-cotton yield was significantly improved with T100 and T20 in 3 and 2 out of 10 location x agronomical improvements, respectively.

These results show a significant effect of topping on the incidence of bollworms, not only on topped plants, but also on neighboring non-topped plants. They also underline the potential of topping to reduce insecticide use in cotton in Mali.