

An Integrated Pest Management Strategy for the Control of the Coffee Stem Borer, *Bixadus Sierricola* White (Coleoptera: Lamiidae)

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SUMMARY

The larva of the coffee stem borer *Bixadus sierricola* White (Coleoptera: Lamiidae), is a very severe pest of coffee in the whole of West and Central Africa, reaching as far as Uganda. It has, in recent times, been recorded as a serious pest in all the coffee growing areas in Ghana. The adult beetle feeds on dewdrops on leaves and on the bark of green shoots and lays its eggs on the bark of the tree. Attacked trees are ring-barked by young larvae but older larvae, measuring up to 5 cm long x 8 mm wide, bore into the heartwood, producing large quantities of powdery frass which collect at the base of the tree. Borer holes occur exclusively on the main tree trunk up to a height of about 3 metres from ground level. In severe cases, as many as 80% of trees can be attacked. Young trees are completely ring-barked and die. Older trees survive very enfeebled and are often broken by wind or attacked by termites or fungi.

A four-replicated Randomized Complete Block Design (RCBD) experiment was conducted on a farmer's farm at Brofoyedru in the Ashanti Region of Ghana to investigate the effectiveness of Gastoxin (Aluminium Phosphide) paste, to control the larvae. The trapping of adult beetles using sugar-baited traps was also investigated.

Gastoxin was applied by squeezing the paste into fresh borer holes and sealing off the hole with plasticine. Ten transparent plastic bottles containing 10% sugar solution and having two holes on the sides were suspended on branches of randomly selected borer-infested trees to lure and trap the adult beetles.

100% control of the larvae was achieved within 15 days after the Gastoxin treatment. Only two of the total of 3,200 trees, one found two months and the other five months after treatment, were re-infested by larvae and were treated. Thereafter, no fresh re-infestations by larvae were recorded on the experimental farm nine months after the first Gastoxin treatment. On the other hand, the sugar-baited traps caught no adult beetles but rather caught several species of ants.

Other control methods, including the use of commercial formulation of the nematode *Steinernema* sp. to control the larvae and various designs of traps for catching adults, will be investigated in future experiments.