

LAND USE PATTERNS AND ABUNDANCE OF *Stictococcus vayssierei* ON CASSAVA IN CENTRAL AFRICA

Rachid Hanna, Maurice Tindo, and Georg Goergen

Biological Control Center for Africa, International Institute of Tropical Agriculture, 08 BP 0932, Cotonou, Benin

Land use patterns vary considerably in the forest zone of Central Africa, depending on the degree of deforestation caused by logging and population pressure, and could have substantial effects on arthropod abundance in crop fields. We investigated the effects of various types of land use patterns on the abundance and distribution of the subterranean scale insect *Stictococcus vayssierei* Richard. This insect is restricted to the humid forest zone of Central Africa, where in the last two decades it has become a major pest of cassava, *Manihot esculenta* Crantz, a staple food crop in Central as well as in much of sub-Saharan Africa. Our research showed that *S. vayssierei* abundance was affected substantially by land use patterns prevalent in the forest zone of Central Africa. Scale densities were higher in cassava fields planted after short fallow than in fields planted after long fallow or secondary forest. Host plants such as *Dioscorea* spp. (Dioscoreaceae), *Aframomun daniellii* (Zingiberaceae), *Costus afer* (Costaceae), *Haummania danckelmanniana* (Zingiberaceae), and particularly volunteer cassava were more common in short fallow vegetation compared with long fallow and forest vegetation, and apparently served as reservoir for *S. vayssierei* infesting cassava fields planted after short fallow. Moreover, scale abundance in cassava fields was positively related to the degree of disturbed forest cover in the area; this also coincided with increasing abundance of a closely associated ant, *Anoplolepis tenella* (Santchi), in the short fallow vegetation in those areas. This ant tends the scale for its honeydew secretions, moves the scale crawlers to new feeding sites, and probably protects the scale from natural enemies. With the exception of a yet to be identified nematode, no parasites have been identified in association with the scale, but efforts are continuing in search for arthropod predators and other natural enemies of the scale. While cause and effect is yet to be determined experimentally for some of the factors affecting scale abundance, potential management tactics, such as removal of host plants in fallow fields, have been already identified as a result of this research.