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**Report on the critical situation in East and
Central Africa caused by black coffee twig
borer (BCTB): case of Uganda**

The Executive Director presents his compliments and following the approval of Resolution 453 concerning the critical situation in East and Central Africa caused by the outbreak of black coffee twig borer, attaches a report on the situation.

CRITICAL SITUATION IN EAST AND CENTRAL AFRICA CAUSED BY BLACK COFFEE TWIG BORER (BCTB): CASE OF UGANDA

In Uganda, coffee is a major source of livelihoods for over 3.5 million households and contributes on average 20% to 30% of annual foreign exchange earnings. Approximately US\$0.4 billion were realized from exports in 2011/2012. Annual average production is around 3.2 million bags. Two coffee species are grown in Uganda, Robusta which contributes approximately 80% of the total production/export volume, and Arabica.

Just as the hope for controlling the **coffee wilt disease (CWD)** through improved management practices and the adoption of resistant Robusta clones is gaining momentum, the threat of yet another destructive pest, *Xylosandrus* sp (Coleoptera: Scolytidae), known as the **coffee black twig borer (BCTB)**, has emerged. The BCTB was first detected in Uganda in 1993 in the Bundibugyo district, the same period and area where CWD was first recorded, although it has taken a longer time to cause economically significant losses to the crop than the CWD disease. Unlike CWD which infects only Robusta coffee in Uganda, BCTB also attacks Arabica coffee although it seems to prefer Robusta. As it can be seen in Figures 1 and 2, CWD kills one stem after another and eventually the entire tree, leaving no leaves on the stems, while BCTB randomly attacks young twigs, killing them in a few weeks but the dry leaves normally do not fall off the twigs.



Figure 1: A Robusta coffee tree infected by the coffee wilt disease (CWD)



Figure 2: Black Coffee Twig Borer (BCTB) damaged branches and its brood

The confirmatory evidence of CWD infection is the presence of a blue-black strip on the stem after removing the bark; while that of BCTB attack is the presence of a tiny hole mostly at the base of the affected twig with a mother beetle normally guarding the entrance to the gallery. Exposure through dissection of an active BCTB gallery reveals either different stages of the brood or a single mother beetle.

In Uganda, 48 plant species including among others *Mangifera indica*, *Senna occidentalis*, *Albizia coriaria*, *A. chinensis*, *Artocarpus heterophyllus*, *Eucalyptus* spp., *Grevillea robusta* and *Camellia sinensis* have been identified by the research institution as alternate hosts of BCTB. This pest tunnels into the piths of host seedlings, shoots or twigs interrupting transmission of water and nutrients thereby causing wilting of the plant/plant part within weeks. The pest uses the tunnel galleries for growing ambrosia fungus which the brood solely feeds on until adult females disperse to infest new twigs.

A survey was conducted in December 2012 and January 2013 in 26 districts located in central Uganda (Butambala, Kayunga, Kiboga, Mpigi and Wakiso), southern Uganda (Bukomansimbi, Kalungu, Lwengo, Lyantonde, Masaka, Rakai and Sembabule), southwestern Uganda (Ntungamo, Kanungu, Rukungiri, Bushenyi and Mitooma), western Uganda (Kibaale, Buliisa, Masindi and Hoima) and mid-eastern Uganda (Buyende, Namutumba, Namayingo and Iganga) with the aim of (1) determining the extent of spread of BCTB and its impact on coffee production, and (2) documenting farmers' knowledge on BCTB and their coping strategies. This information forms the basis for mapping out the spread and impact of BCTB clearly identifying the 'frontline' districts. This aims to guide a national spray programme by the Uganda Coffee Development Authority (UCDA), National Coffee Resources Research Institute (NaCORRI)/National Agricultural Research Organisation (NARO) and the Ministry of Agriculture, Animal Industry and Fisheries (MAAIF). The data also form a baseline national database that would guide research and other agenda aimed at addressing BCTB problem in Uganda.

Approximately 70% of coffee farms in Uganda are currently infested by the coffee twig borer with almost 10% of coffee berry bearing branches destroyed. The loss of this number of coffee bearing branches is estimated to cause an equivalent reduction of coffee yield which translates to approximately US\$40 million per year (based on coffee export values for 2010 – 2012) and this keeps on increasing as the pest continues to spread within the plantations and nationally. A preliminary study clearly reveals that though BCTB is a relatively new pest of coffee in Uganda, it is enormously spreading to more Robusta coffee growing areas; particularly the central, southern, southwestern, western and mid-eastern regions. The 8.6% death of berry-bearing twigs reported in this study implies an 8.6% reduction in coffee production and export volumes.

Recent trends in agricultural research and development show increasing interest in incorporating farmer's knowledge and experience into research agendas and programmes. Understanding the potentials and drawbacks of farmers' knowledge (ethno-entomology) may form a basis for constructive collaboration between farmers, scientists, extension and policy makers in terms of definition of priorities and setting-up crop protection strategies.

Currently, there exists few control strategies for BCTB in Uganda and elsewhere, varying in their effectiveness and sustainability. Overall, 46% of the farmers were employing phyto-sanitary measures to control BCTB. On the other hand, 14.9% of the farmers were cutting off the infested materials but leaving them in the field. This practice causes management implications for the pest as it leaves important sources of BCTB re-infestation in the fields. There is a call for more sensitization of farmers and other stakeholders on the recommended control measures for BCTB. All in all, this method is labour intensive and it might also be ineffective and uneconomical. Secondly, to be effective, collective efforts by all farmers at community level are needed in order to avoid re-infestation from neighboring farmers who are not controlling BCTB.