

The ABC of Trench Warfare

Every three or four years, farms from northern Namibia and southern Angola, through southern Zambia and Zimbabwe and down into Botswana are invaded by armoured bush crickets (ABC) – large, grotesque-looking insects that cause serious yield loss to sorghum and pearl millet. A survey revealed that more than 50% of farmers in eastern Botswana attempt no control measures against ABC and there is a widespread perception that there is nothing that can be done. Farmers have also expressed strong reservations concerning the safety of insecticides, which are seen as expensive, hazardous and environmentally damaging.

Against this background, CPP-funded project based in Botswana R7428 has developed a new ABC control method that combines indigenous technology with minimum pesticide use – the 'baited trench'. Small quantities of granular bait are sprinkled in trenches at field margins, particularly in areas that border onto *Acacia* scrub from where ABC invade the fields when the crop starts to head. Up to 90% mortality resulted when small quantities of bran/carbaryl bait were sprinkled into the trench, which the hungry ABC quickly located and consumed. The optimum dimensions were established as 30 cm deep and 20 cm wide, which retained 80% of ABC for 24 hours.



Most farmers fear the armoured bush cricket, here devouring sorghum – it bites, squirts a repulsive yellow liquid, and can screech in a most threatening way if disturbed

The problem with this control method, however, is that a substantial amount of labour is needed to dig and maintain the trench. Working with agricultural engineers at Sebele Research Station, a simple mechanical trench digger has been developed that produces a vertical sided trench ideal for ABC retention. The device is mounted on a Massey Ferguson 265 – the most common tractor in Botswana. A donkey-drawn plough has also been developed with a modified mould board that cuts a furrow whose inside face (on the field side) is nearly vertical. Although the furrow is less effective than a trench, it nevertheless impedes the crickets sufficiently for them to seek out any bait that is sprinkled inside, which results in high mortality.

By combining defensive earthworks with environmentally acceptable, small applications of bait, the project believes it may have found a fatal chink in the armour of the ABC. This form of trench warfare could become the farmers' salvation during ABC outbreaks.



Tractor-mounted trench digger



Anti-ABC trench – although the crickets are good climbers, their feet (tarsi) cannot grip onto a vertical soil face

Trench diggers and other control methods will be demonstrated at a farmers' day at Shoshong in April 2002, which is to receive coverage on national television.

R7428: *Biology and control of armoured bush crickets in Southern Africa*

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