

PROSTEPHANUS TRUNCATUS (HORN), THE LARGER GRAIN BORER,
IN EAST AFRICA: THE DEVELOPMENT OF A CONTROL STRATEGY

by

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INTRODUCTION

In 1981 a survey was undertaken to determine the extent of the distribution of Prostephanus truncatus (Horn) and the damage it was causing in Tanzania (Golob and Hodges, 1982). At that time the beetle was well established on smallholder farms throughout the Tabora region in Western Tanzania and in the Kahama district of neighbouring Shinyanga region. The beetle was also identified in markets of several trading towns in Mwanza and Morogoro regions. In the succeeding 18 months the beetle was confirmed as present on farms throughout Mwanza and Morogoro regions as well as in Kilimanjaro and Tanga regions (Magazini, personal communication). Unconfirmed reports suggest the beetle is present in a further seven regions Kigoma in the extreme west, Arusha in the north, Dar es Salaam and Pwani in the coastal regions, and in Singida in the centre of the country. In May of this year P. truncatus was identified in the Taveta district of southern Kenya, an area close to the Tanzania border (Muhihu, personal communication).

During the survey of 1981, samples of maize cobs which had been stored for up to 6.5 months exhibited as much as 80% damage grain and, frequently, all the cobs in samples collected from farmers were damaged (Hodges, et al., 1983). Such high levels of damage were often associated with weight losses of above 30%, rendering the maize unfit for human consumption. The mean weight loss was 8.7%, a level which is very much higher than would normally occur on farms in E. Africa. In Zambia, Kenya and Malawi, where climatic conditions are similar to Western Tanzania, maize storage losses range from 2-6% (Adams, 1977), 3-5% (De Lima, 1979) and 2-4% (Golob, 1981) respectively, and these losses occurred over the entire storage season of ten months and longer.

The severity of the damage caused by P. truncatus was recognised very quickly by the farmers and the government of Tanzania. Nationally, the potential loss of maize has been estimated at 543,000t per annum, having a value of US \$86.6 million (Autrey & Cutcomb, 1982). Although it is generally accepted that it is now too late to attempt to eradicate the beetle (ANON, 1983), a programme of control to reduce the damage to economically acceptable levels is certainly feasible. The following sections describe the traditional method of storage and the constraints of this system upon any control programme.

The traditional system of food storage

Prostephanus truncatus is of primary importance as a pest of smallholder storage. In this it is unlike Trogoderma granarium (Everts), the Khapra beetle, a pest which caused much concern in the late 1950's in E. Africa which