

# Small-scale farmer utilisation of diatomaceous earths during grain storage Project newsletter

October - December 2002 Issue no. 1

**Background** Welcome to the first issue of the project newsletter, which aims to update those individuals and institutions interested in the findings of the 'Small-scale farmer utilisation of diatomaceous earths during storage' research project. If you have not already seen the project flier that summarises the project please contact us for a copy.

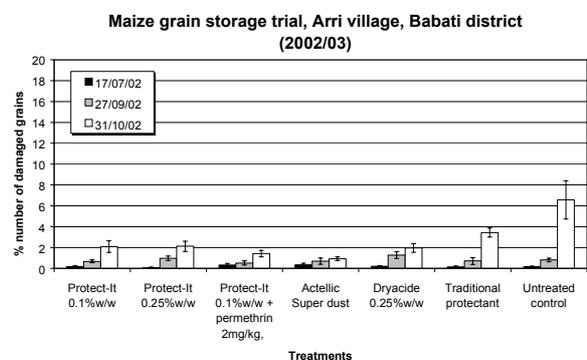
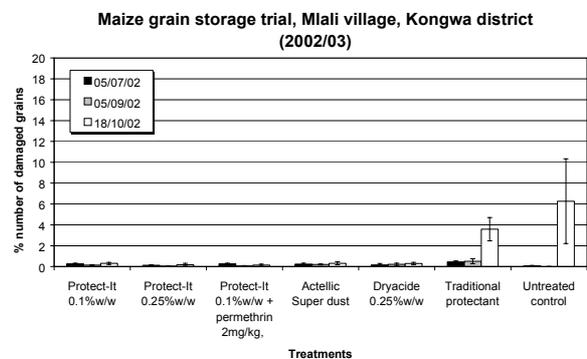
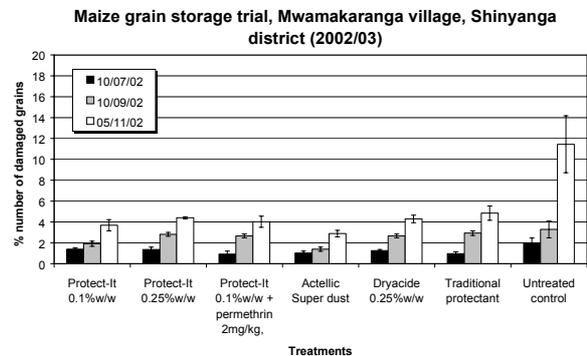
The 'small-scale farmer utilisation of diatomaceous earths during storage' project has been designed to explore and identify safe, effective and affordable grain protection treatments for rural householders. To do this community-based research trials were set up in three regions of Tanzania (Shinyanga, Dodoma, Manyara) to test and compare the effectiveness and acceptability of different treatments for protecting grain from insect damage during storage. These initial comparative tests are being run for the 8-month storage season from July 2002 - March 2003. The treated commodities include maize, sorghum and beans. The treatments include:

- the diatomaceous earths' (DEs), Protect-It® and Dryacide® at two concentrations 1g/kg and 2.5g/kg (these concentrations were chosen based on laboratory studies with *P. truncatus*)
- Protect-It® (1g/kg) in combination with permethrin (2mg/kg)
- Actellic Super dust (100g/90kg)
- Traditional local grain protectant practice, which varies between each trial site but is typically an admixture of unwinnowed grain with rice husk or animal dung ash or a mixture of ash and dried plant material,
- Untreated control

**How are the field trials progressing?** The data collected during the first 16 weeks of storage show that insect damage increased rapidly from September to November and is now higher in the untreated control and traditional protectant treatments than in the DE or Actellic Super dust treatments (see graphs). Farmers appeared impressed by the differences in numbers of insects (mainly *Sitophilus* spp.) seen crawling on the outside of the sacks of the different treatments and in the samples themselves.



Brighton and Mr Mang'ondi sampling maize at Mwamakaranga village, Tanzania

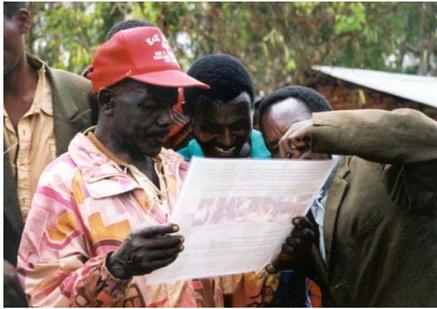


These early results are encouraging and it is likely that as the storage season continues the differences between the treatments will increase. Field days are planned in April/ May 2003 during which the communities involved will evaluate the different treatments using their own criteria.



Mr Mngara analysing a grain sample, 336, 337....





Arri village farmers enjoying the visual noticeboards on display in vernacular and English at trial sites

**Are DEs registered in sub Saharan Africa?** In Zimbabwe a private company has made an application for temporary registration of Protect-It as a grain protectant following the success of the projects field trials in Zimbabwe from 1998 to 2000. It is hoped that the private sector in Tanzania will also be keen to get involved following the first season field trials. Awareness raising visits have been made to Monsanto, Mukpar Ltd, Twiga Chemicals, Balton Tanzania Ltd and the Tropical Pesticide Research Institute (TPRI).

**What about regional deposits of DEs?** Although the DEs, Protect-It and Dryacide come from America and Australia respectively, DE deposits have also been located in East and Southern Africa. Samples from: Kagera river, Tanzania; Zambezi valley and Beitbridge, Zimbabwe; and South Africa have been collected and sent to Canada for analysis of their potential efficacy as insecticides. Attempts are still being made to obtain a sample from the Bahi area of Dodoma in Tanzania.



Tanzanian diatomite from Kagera river basin

**Where are the uptake pathways?** To optimise the eventual uptake of DEs and other effective grain protectant treatments account will be taken of the manner in which different farmers (e.g. by gender, education, wealth) access and share storage knowledge, and of the capacity of intermediate agencies to share information with rural households and influence policy. Key grain storage stakeholders at the project locations have been identified, and a preliminary analysis of the quality and quantity of networks and information flows between intermediate users in Shinyanga was undertaken during the recent Grain Storage Stakeholder Workshop (a full report of the workshop is available).



Stakeholders discussing linkages



Grain storage stakeholders in Shinyanga, Tanzania

The project is keen to ensure that the knowledge generated is promoted as widely as possible. To facilitate this a website is currently under development (<http://www.nri.org/de/>). Articles have been written in PhAction and Ukulima wa Kisasa newsletters, and reports on the Zimbabwean DE field trials were published in the journal Crop Protection (Vol 21). If you know of other information sources, which might be interested in the project, or you would like to receive further information in order to promote awareness of the project, please contact us. To help make this newsletter more relevant to you please send us comments and suggestions.

**Who is participating in the project?** The project believes in team-work and participation, and involves collaboration between: the Tanzanian Ministry of Agriculture and Food Security (Mr Riwa, Mr Kitandu, Mr Katua, Mr Mungara, Ms Moshia (Plant Health Services), Mr Mathias (Post Harvest Management Services); the UK Natural Resources Institute (Ms Stathers, Mr Morris); the University of Zimbabwe (Dr Mvumi); the Zimbabwean Institute of Agricultural Engineering (Mr Chigariro); EcoMark Ltd (Mr Zinyengere); Diatom Research and Consulting (Dr Korunic); members of the communities in Mlali village in Dodoma region, in Mwamakaranga and Mwataga villages in Shinyanga region, and in Arri and Singe villages in Manyara region; and the NGOs - Africare, Farm Africa, Care, Oxfam, World Vision and the Catholic Diocese of Shinyanga Agriculture Programme. The project is funded by the Crop Post Harvest Programme of the UK Department for International Development (DFID). The views and opinions expressed are not necessarily those of DFID.

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