

## Appendix I. Workshop participants and contact details

Name	Post / Expertise	Organisation	Address
Mr Lazaro KITANDU	IPM Technology Development & Liaison Officer	Zonal IPM Project / Plant Protection Services	P.O. Box 476, Shinyanga Tel +255 28 2762731 Fax +255 28 2762731 <ipmlz@africaonline.co.tz>
Mr Henry KOLOWA,	IPM Monitoring & Evaluation Officer, Post Harvest Management Lake Zone Coordinator		
Mr Pius P. KAREGA	District Plant Protection Officer	Kilimo, Shinyanga Kijijini	P.O. Box 113, Shinyanga Tel +255 28 2762146 Fax +255 28 2762731
Mr G.S. MFANGA	Stockist	Mfanga Agrovet Agent	P.O. Box 564, Shinyanga
Mr A.A.S NGOYE (Tyson)	Agricultural District Extension Officer	Municipal Council	P.O. Box 28, Shinyanga
Mrs DIXON	Stockist	Dia Mimea Agrovet	P.O. Box 28, Shinyanga
Mrs N.W. LEVIRA	Municipal Plant Protection Officer	Municipal Council	P.O. Box 28, Shinyanga
Mr Amon MDUMA		World Vision, Shy	P.O. Box 78 Shinyanga
Prof. Denash GIGA	Reviewer	Independent	P.O. Box 629, Bulawayo, Zimbabwe
Mr William RIWA	IPM National Coordinator and DE national project leader	MAFS	P.O. Box 9071, DSM <wilriwa@kilimo.go.tz>
Ms Tanya STATHERS	Project Leader & post harvest entomologist	Natural Resources Institute (NRI)	Central Avenue, Chatham Maritime, Kent ME4 4TB UK. Tel: +44 1634 883734 Fax: +44 1634 883567 < <a href="mailto:t.e.stathers@gre.ac.uk">t.e.stathers@gre.ac.uk</a> >
Mr Mike MORRIS	Social and institutional development specialist	Natural Resources Institute (NRI)	Tel +44 1634 883129 Fax +44 1634 883377 < <a href="mailto:m.j.morris@gre.ac.uk">m.j.morris@gre.ac.uk</a> >

## Appendix II. Recognising farmer diversity, mainlining and optimising their different inputs

**Farmers as beneficiaries:** The Project Memorandum identifies various rural households as the potential beneficiaries of the project. These include small-scale farmers in semi-arid areas in general and poorer households and individuals in particular.

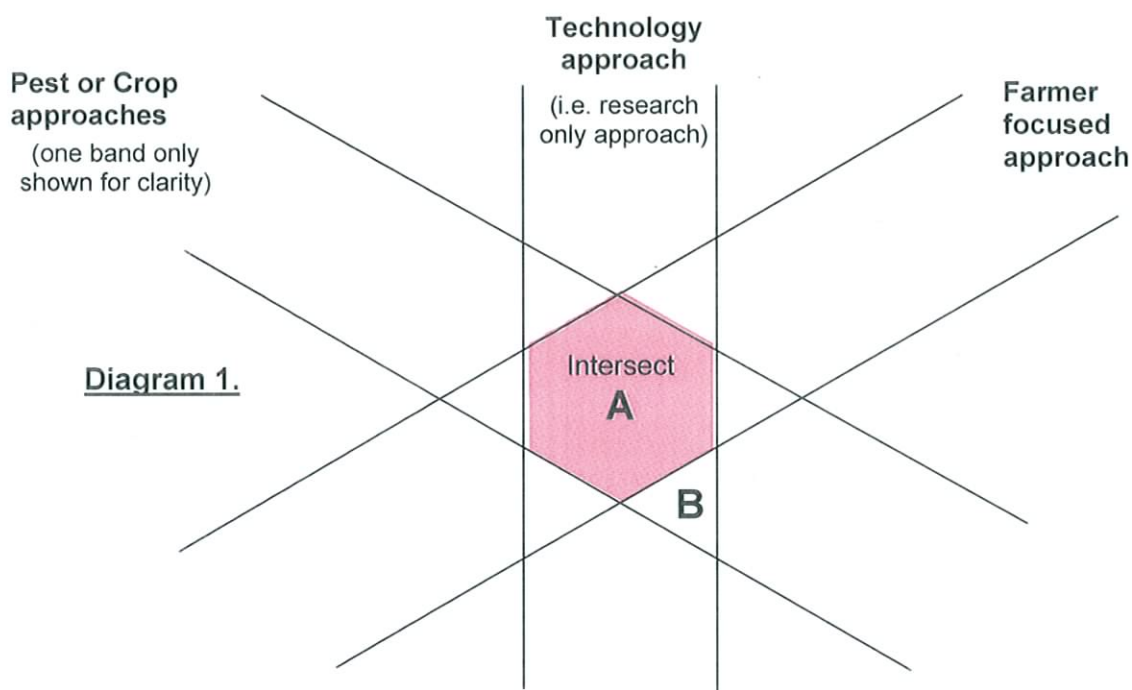
**Technology's acceptability to farmers:** The research hypothesis relates not only to scientifically testing whether DEs are effective grain protectants, but also to establishing their acceptability to small-scale producers for on-farm storage in areas where the large grain borer is endemic.

**Farmers as project stakeholders:** Project processes to date have included stakeholder identification and the rolling analysis of their multiple interests in the project. The project moreover has sought to actively engage diverse stakeholders (i.e. both intermediate and end-users - farmers) in its implementation from an early stage.

**Farmers as partners:** Groups and individual farmers from seven villages in Tanzania (5) and Zimbabwe (2) will have been engaged in the research process, from the needs assessment phase, hosting and evaluating the grain storage activities, eventually through to contributing to the promotion of the findings - new knowledge and practices - through for example, farmer field days and workshops.

**Exploring farmer diversity:** Reasons for and ways of disaggregating rural communities have been sought from the literature, from our own organisational experiences and that of intermediate stakeholders, and most recently in the farmer evaluation exercise, from key informants and farmers themselves at the different trial locations, where 'wealth ranking' was utilised.

**The measure of this project will not only be determined by good science, but also and essentially by whether people make use of the technology.** From the literature we note that analytical approaches with respect to post harvest issues have tended to adopt a technology, crop or pest focus, and rarely a farmer (or livelihood) focus.



Conceptually the different approaches may be represented by intersecting bands as in Diagram 1. The challenge with respect to farmer up-take is to focus our attention on the area where technological, crop, pest and farmers' concerns all intersect, which is represented in the diagram by area A. Areas such as B,



outside the farmers band, may be of relevance to those with an interest in investigating a given technology, for example, but are not directly relevant to farmers' and their livelihoods<sup>10</sup>.

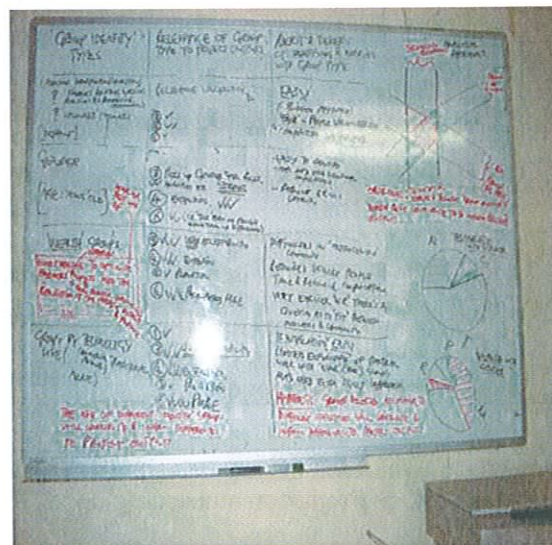
From a farmer-centred approach, and with the area of maximum overlap A in mind, the initial challenge<sup>11</sup> is to ensure that we give consideration to the diversity of farmers as represented by the breadth of the *farmer focused approach* band in Diagram 1. This would for example optimise our understanding of the relevance of a given technology (and/or crop, pest) to all farmer types, which in turn would have greater merit for informing policy and promotion, targeting extension and dissemination. Working with a narrower group of farmers (e.g. progressive farmers) would not be expected to provide the same breadth of analysis (i.e. only a slice of area A along the farmer-focused axis would be in focus).

**Farmer group selection objective:** Our objective then in exploring different group identity types may be expressed in terms of seeking to optimise the inputs (e.g. knowledge, practices, experiences) of different farmer types in the realisation of the project outputs and purpose. And the underlying hypothesis would be that participating farmers, selected according to different identities, will inform and contribute differently to project outputs.

Table 4 was devised as a tool to explore the potential implications of farmer diversity and the selection of group identity types for the project. The entries are based on discussions held in the IPM office, Shinyanga, between Mr Riwa, Mr Kitandu and Mr Morris (see Figure 4), but it is envisaged that other team members will repeat and elaborate the exercise. Other possible identity types to be considered might include self sufficient and food insufficient households, male and female-headed households etc. It is conceivable that different identity groups might be used at different locations (i.e. Dodoma, Manyara and Shinyanga).

The conclusion that was drawn from this initial exercise was that group identities determined by existing technology use (i.e. commercial products, traditional practices only, none) scored most favourably in terms of relevance to project outputs, a position which remained unchanged when the merits and demerits of the process were taken into account. It was also concluded that gender (and possibly age) be incorporated into the selection process as a cross-cutting theme i.e. men and women (youths and the elderly) would be sought from each group. The comparison between wealth and technology user groups proved very interesting, with the clear emergence of the latter group, which spans all farmers and has most obvious overlap with the project focus, coming nonetheless as a surprise. It was noted that while technology use does not explicitly relate to wealth or poverty status, there may well be an implicit relationship with key determinants of people's livelihoods (e.g. farming strategies, resources, knowledge, access to services), which could form the basis of further study.

Figure 4. Farmer identity work as originally recorded



<sup>10</sup> The use of 'traditional' treatment materials in the research led trials, but without the incorporation of traditional practices (e.g. intermittent winnowing and reapplication), might be considered to fall into area B.

<sup>11</sup> We need first to better understand the diversity of the rural communities with which we are working. With this knowledge, we might subsequently choose to focus our efforts on a particular group (e.g. target extension where needs and potential benefits look greatest).

**Table 4. Relevance of farmer identity types to project outputs, and implication of identification and selection methodology and of implementation**

Group identity type	Relevance of group type to project outputs*	Merits & demerits of identification & selection, & of working with group type
Earlier project approaches: In line with existing office practice (e.g. progressive farmers) ? Favouring volunteer / opportunistic farmers ?	1. ✓ 2. - 3. ✓ 4. ✓ ✓ 5. - 6. ✓	Relevance uncertain. Omits many farmer types Composition unspecified Easy approach, but unknown bias Non-representative of farming community
Gender (could be treated as cross-cutting identity i.e. in addition to selected type. 'Age', which is also of great significance, might be treated similarly, but was not assessed on this occasion)	1. ✓ 2. - 3. ✓ ✓ Will pick up on gendered divisions of labour. 4. ✓ ✓ ✓ Strong implications for gender aspect of extension. 5. ✓ strong but indirect message for policy etc 6. ✓ ✓ Would pick up on procedural differences.	Easy to make identification Cultural norms and practices might impede selection Require particular skills & capacity Would not necessarily be representative (e.g. poor widows and rich women very different)
Wealth groups	1. ✓ 2. - 3. ✓ ✓ ✓ Would reflect diverse aspects of acceptability. 4. ✓ ✓ ✓ Strong implications for extension 5. ✓ Some farmers might also be intermediate stakeholders 6. ✓ ✓ ½ Would pick up on procedural differences	Wealth ranking requires skills & capacity & would involve training. It would demand time of village working group. Important that it's participatory to ensure indicators are location-specific; recent exercise points to difficulties. May be challenged in heterogeneous communities. Good representation of farmers
Groups by storage technology use (i.e. users of commercial products; of traditional practices only; none)	1. ✓ ✓ see activity 2.1 2. - some may be aware of local DEs? 3. ✓ ✓ ✓ Would reflect diverse aspects of acceptability, including contrasting technology perceptions. 4. ✓ ✓ ✓ Technology-linked implications for extension 5. ✓ Some farmers might also be intermediate stakeholders 6. ✓ ✓ ✓ Would pick up on procedural differences	Identification relatively easy. Limited experience of working with non-users and traditional users. May require different approach and new skills. Selection key, as conceivably could degenerate to earlier or 'default' selection mode Good representation of farmers (may incorporate wealth, innovation, etc indicators) Technology focused.
Other group identities?		
*1. Optimising treatment method; 2. Evaluation of local DEs; 3. Evaluation of user acceptability; 4. Development of extension materials; 5. Promotion and scaling up; 6. Participatory evaluation of procedures		



## Appendix III. Storage stakeholder questionnaire - Draft 1

### Small-scale farmer utilisation of diatomaceous earths during storage

A project which aims to improve the food security of poor rural households through the development and promotion of an efficient, cost-effective and safe grain storage protectant.

### Grain Storage Stakeholder Profile Questionnaire

#### A. Information about the enumerator

1. Name of Enumerator		3. Date completed	
2. Her/his organisation		4. Location/region	
5. Do you or your organisation have regular contact with the respondent or her/his organisation ? ( <i>Specify</i> )	<i>No/Yes: If yes give details</i>		

#### B. Questionnaire rationale and objective

To maximise the project's contribution to the improvement of food security amongst poor rural households the knowledge and potential benefits suggested by the project's findings need to be widely promoted. Several dissemination products (e.g. information flyer, newsletter, website) are currently being shared with and/or available to known storage stakeholders, however if we (the project partners) are to optimise the impact of the project's findings then we need to build on and improve linkages with these existing stakeholders and solicit the support of other stakeholders. The project has throughout its evolution actively engaged with a spread of stakeholders, both to ensure that the research is relevant to poor rural households in differing circumstances - potential end users - and that the diversity of intermediary stakeholders (e.g. policy makers, service providers, input suppliers) who process research findings and/or facilitate its uptake by end-users, are alerted to and inform our research process.

Specifically the questionnaire seeks to identify the different roles, interests and capabilities of intermediate stakeholders in storage and/or post harvest issues - a stakeholder analysis. The questionnaire - and this may need explaining / facilitating by the enumerator - seeks to differentiate between the individual stakeholder (agent or actor) and what s/he brings to her/his post, and the organisational stakeholder (structure, agency) and posts as set out in any organisational plan or organogram. The information collected will help us better tailor dissemination products and contribute to the development of the project promotional strategy.

#### C. Individual Storage Stakeholder details

1. Name of Respondent:		3. Tel (w)		4. Mobile	
2. Position / Job Description:		5. Fax		6. E-mail	
7. Post to which individual reports:		8. Post-holder / line manager (optional):			
9. Individual's main role/s or function? ( <i>Shortish answer - here to give context to 10, the storage focus</i> )	<i>Check list?</i>	<i>Column to provide space for answers</i>			
10. Individual's main role or interest with respect to storage / post harvest issues?	<i>Check list?</i>	<i>Could be developed through colleagues brainstorming, or when Q pre-tested. Or is a check list too prescriptive? See section E - should we reproduce something similar?</i>			
11. What are the main constraints to carrying out these storage related aims / interests?	<i>Check list?</i>				

12. How could an understanding of DEs contribute to your work?	<i>Check list?</i>	
13. How and with whom would you share this knowledge?	<i>Check list?</i>	

<b>D. Organisational Storage Stakeholder details</b>			
1. Name of Organisation (i.e. the organisational storage stakeholder):		2. Address	
3. Parent body or affiliation if applicable (e.g. ministry, directorate):		4. Nature of linkage with parent body	<i>Check list?</i> <i>Maybe this should be covered in the communication section?</i>
5. Date Organisation was formed / constituted:		6. Any key Organisational changes in recent history?	<i>E.g. decentralisation, merger, privatisation</i>
7. Does the Organisation have clear objective/s (as set out in a logo or mission statement), and what is it?	<i>Yes/No/Don't know</i>	<i>Write out objective in long hand (indicate 'status', and secure copy of organisational literature)</i>	
8. Characterise the Organisation's objectives	<i>Check list? Poverty reduction, increasing production, maximising profit, human development..</i>	<i>Other, or qualification</i>	
9. How many people does the Organisation employ?		10. How many of these are employed on storage or post harvest issues?	
11. How is the organisation funded?			

<b>E. Organisation's main role/s or function with respect to storage / post harvest issues?</b>					
Tick relevant boxes	✓	Elaborate (e.g. for/with/to whom, what, how, example)	Tick relevant boxes	✓	Elaborate (e.g. for/with/to whom, what, how, example)
1. Funding agency			11. Producer (of what? For whom)		
2. Policy adviser (to whom?)			12. Consumer (of what?)		
3. Policy maker			13. Implementing/ development agency		
4. Lobbying agency (who? for whom?)			14. Networking (with or for whom?)		
5. Research (in? for whom?)			15. Representation (of whom?)		
6. Education (of whom, for what?)			16. Marketing (of what? for/to whom?)		
7. Training (who? for whom/what?)			17. Communication		
8. Planning (what?)			18. Enforcement		
9. Service provider (of what? to whom?)			19.		



10. Input supplier (of?)	20. Other (specify)
Note: Brackets above are only prompts, elaborate as useful; note any unofficial/informal but key functions with respect to storage (e.g. a school may be formally (on curriculum), informally, or not at all involved in storage education).	

<b>F. Sector with which Organisation is associated (✓)</b>					
<b>State sector</b>  <i>Tick box;</i>  <i>Add any comments below:</i>	1. Line Ministry		<b>Voluntary sector</b>  <i>Tick box;</i>  <i>Add any comments below (e.g. gender, social identity):</i>   <i>Typology needs developing</i>	17. Development NGO - Local	
	2. Education / Training			18. Development NGO - International	
	3. Research			18. Faith-based organisation	
	4. Politician			19. Trade Union	
	5. Parastatal			20. Community-based organisation	
	6. Project			21. Cooperative	
	7. Media (specify print, radio, TV etc.)			22. Professional association	
	8. Other (specify)			23. Networking organisation	
<b>Private sector</b>  <i>Tick box;</i>  <i>Add any comments below:</i>   <i>Typology needs reviewing</i>	9. Manufacturer		24. User group		
	10. Retailer		25.		
	11. Wholesaler		26.		
	12. Processor		27. Other (specify)		
	13. Vendor		<b>Regional (countries) and International players</b>  <i>Tick box;</i>  <i>Add any comments below:</i>	28. IARCS	
	14. Producer			29.	
	15. Media (specify print, radio, TV etc.)			30.	
	16. Other (specify)			31.	

<b>G. Operational level / areas of Organisation (✓) and Individual (✗)</b>					
Mark relevant boxes:	✓ ✗	Indicate focus & size of coverage, project / program	Tick relevant boxes	✓ ✗	Indicate focus & size of coverage, project / program
1. Village			6. National		
2. Ward			7. Regional (SADC)		
3. District			8. International		
4. Region			9.		
5. Zone			10. Other (specify)		
Notes: The individual may focus, say, on activities in a single district, whereas the organisation may operate across all districts in a region; numbers of wards, districts, regions etc might be cited.					

<b>H. Knowledge networks and communication context</b>			
<b>Organisation</b>		<b>Individual/Respondent</b>	
Section E identifies the Organisation's main role/s or function with respect to storage / post harvest issues. For each role in turn answer the following questions:		Section C10 identifies the Respondent's main role/s or function with respect to storage / post harvest issues. For each role in turn answer the following questions:	
First role ( <i>write in</i> ):		First role ( <i>write in</i> ):	

1. Who are the organisation's <b>main</b> sources of information? ( <i>Give sources according to categories &amp; No. in section F</i> )		11. Who are the individual's <b>main</b> sources of information? ( <i>Give sources according to categories &amp; No. in section F</i> )	
2. What type of information is received?	<i>Check list? E.g. awareness raising and understanding, operational skills (e.g. practice), technical knowledge (e.g. treatments), marketing information, policy, promotional</i>	12. What type of information is secured?	
3. <i>Question about quality of information flow and content - any ideas?</i>	<i>(e.g. telephone call, electronic communications, regular meetings, workshops, printed material, field days)</i>	13. <i>Question about quality of information flow and content - any ideas?</i>	
4. What are the constraints to the organisation receiving quality information?	<i>Check list? E.g. infrequent contact, poor electronic communications, skills shortage, staff shortage, limiting physical resources</i>	14. What are the constraints to the individual receiving quality information?	<i>Check list? E.g. infrequent contact, poor electronic communications, skills shortage, staff shortage, limiting physical resources</i>
5. With whom does the organisation share / extend its information - the <b>main</b> recipients? ( <i>Give sources according to categories &amp; No. in section F</i> )		15. With whom does the individual share / extend her/his information - the <b>main</b> recipients? ( <i>Give sources according to categories &amp; No. in section F</i> )	
6. What type of information is shared?	<i>Check list? E.g. awareness raising and understanding, operational skills (e.g. practice), technical knowledge (e.g. treatments), marketing information, policy, promotional</i>	16. What type of information is shared?	<i>Check list? E.g. awareness raising and understanding, operational skills (e.g. practice), technical knowledge (e.g. treatments), marketing information, policy, promotional</i>
7. <i>Question about quality of information flow, pathways and content - any ideas?</i>	<i>(e.g. telephone call, electronic communications, regular meetings, workshops, printed material, field days)</i>	17. <i>Question about quality of information flow, pathways and content - any ideas?</i>	<i>(e.g. telephone call, electronic communications, regular meetings, workshops, printed material, field days)</i>
8. What are the constraints to being able to share quality information?	<i>Check list? E.g. infrequent contact, poor electronic communications, skills shortage, staff shortage, limiting physical resources, poor attendance, dishonesty etc.</i>	18. What are the constraints to being able to share quality information?	<i>Check list? E.g. infrequent contact, poor electronic communications, skills shortage, staff shortage, limiting physical resources, poor attendance, dishonesty etc.</i>
Format repeated for each main role			

<b>I. Operational perception / identification of farmers and the rural community</b>			
<b>Organisation</b>		<b>Individual/Respondent</b>	
1. Does the organisation have direct contact with farmers or groups from rural communities? ( <i>cross</i> )	<i>No / Yes - specify nature of contact</i>	11. Does the individual have direct contact with farmers or groups from rural communities in the course	<i>No / Yes - specify nature of contact</i>



<i>reference with H above)</i>		of her/his work?	
2. Does it in the context of its work actively differentiate between farmers or farmers groups according to any social identity or other characteristic?	<i>Check list? E.g. by livelihood, farming system, gender, age group, wealth status, group membership, denomination, progressive farmers, ethnicity etc.</i>	12. Does the individual in the context of her/his work actively differentiate between farmers or farmers groups according to any social identity or other characteristic?	<i>Check list? E.g. by livelihood, farming system, gender, wealth status, group membership, self selection, progressive farmers etc.</i>
3. What is the rationale for this differentiation (e.g. established practice, target group, self selection etc)?		13. What is the rationale for this differentiation (e.g. established practice, target group, self selection etc)?	
4. What are the benefits of working to/with/through these particular groups?		14. What are the benefits of working to/with/through these particular groups?	