



Improving delivery of technical information to farmers in North - Western Cambodia

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Abstract This paper presents the results of a survey of farm households carried out in North-Western Cambodia in early 2012 to gather baseline data for a new agricultural production and marketing research project. One of the objectives of the survey was to refine dissemination and communication strategies for project outputs and delivery of planned impacts. The survey gathered information about maize production issues, sources of information, training needs, as well seeking to identify ways to improve the delivery of relevant technical information and research findings to individual farmers. The survey revealed that farmers rely almost completely on each other for information about maize inputs especially seed for sowing and herbicides. The majority of training (68%) was provided by Non-Government Organisations (NGOs) with Provincial Departments of Agriculture (PDAs) providing 10% and input suppliers 7%. We put forward a conceptual communication and dissemination strategy that could be used to promote adoption of project results. It involves integrated roles based on comparative strengths for public, private and non-government organizations to achieve adoption of new technologies and better practices by farmers.

Keywords dissemination, communication, impacts, adoption, pathways

INTRODUCTION

Historically, in developing countries, governments assumed responsibility for agricultural extension but during the last 10-15 years, governments and international donors have reduced their investment in agricultural extension. Filling the void, non-government organisations and the private sector have become important alternatives to public agricultural extension (Swanson and Samy, 2002). This is also the case for agricultural extension in Cambodia.

In Cambodia, public sector agricultural extension is focused on the provision of an extension system rather than an extension service with a system being put in place by the Ministry of Agriculture, Forestry and Fisheries (MAFF) down to the District level (Anon., 2000). Transfer of information at the Commune and Village level is expected to occur through farmer to farmer links with District extension staff acting as facilitators in the process. However, there is evidence to suggest that this system is not functioning (Anon., 2010).

Such a system would require strong links between the extension department and other providers such as other government departments, private sector organizations, farmer organizations, international donors and NGOs (Anon., 2000). According to Cambodia's Strategy for Agriculture and Water (Anon., 2010), MAFF lacks the facilities and networks to disseminate technologies, and the linkages between research, development and extension remain weak. Hence, extension services

are weak overall, and farmers have limited awareness of and access to agricultural management technologies, and poor skills in agricultural production.

OBJECTIVES

This paper presents the results of a survey of farm households carried out in North-Western Cambodia in early 2012. One of the objectives of the survey was to refine dissemination and communication strategies for outputs and delivery of planned impacts in a new research project funded by the Australian Centre for International Agricultural Research (ACIAR).

METHODOLOGY

The survey gathered information about maize production issues, sources of information, training needs, as well as examining ways to improve the delivery of relevant technical information and research findings to individual farmers. The survey involved 832 farm households in Samlout District in Battambang Province (455 households) and Sala Krau District in Pailin Province (377 households). Three Communes were selected in each District on the basis of the density of households growing maize. In Samlout the Communes selected were Mean Chey, Samlout and Sung encompassing five Villages in each Commune. In Pailin the Communes selected were Sala Krau, Stueng Kach, and Ou Andoung and five villages were surveyed in each Commune (Fig. 1).

The farmers were interviewed individually based on invitations referred to by the Commune Chief in each Commune within each District and through collaboration with the previous ACIAR project partners. The farmers were assembled at a common area each day and the interviews were performed by a team of two interviewers per farmer.

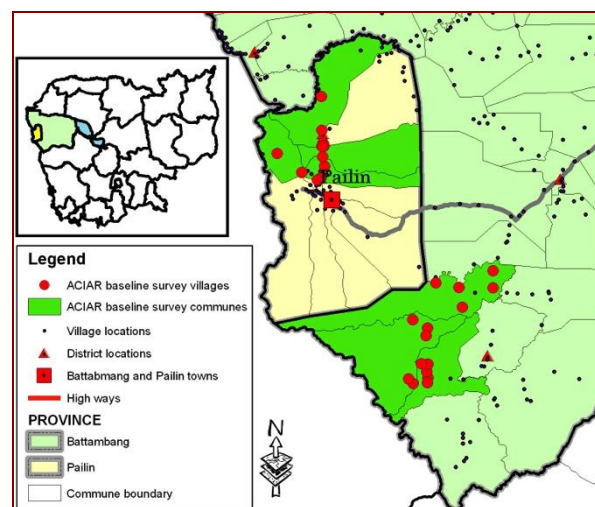


Fig. 1 Geographic location of communes and villages included in the survey

RESULTS AND DISCUSSION

Household profiles

On average in the study population, there were 5.25 people per household, of which 3.13 were working age adults. The average area of cropped land per farm was 4.21 ha (4.04 ha in Sala Krau and 4.35 ha in Samlout). In terms of wealth ranking, only 11% of the interviewed households considered themselves as 'better-off', 64% as 'average' and 25% 'as poor'. Female-headed households tended to be marginally poorer and more economically vulnerable and among them 32% were poor, 60% average and 9% were better off. 65% of households have not had any

technical training, while 33% said they have had some training in maize production.

Cropping practices

Samlout and Sala Krau had distinctly different cropping patterns. Both had a similar proportion of the farm under maize (62-63%). However the crop diversity was much greater in Samlout with 25% of the cropped area planted to legumes (mungbean, soybean, peanut). In Sala Krau, these desirable rotation crops have been largely replaced by expansion of cassava (26%) since 2009. The reasons behind the diverging cropping practices between the two Districts will be studied in the new project.

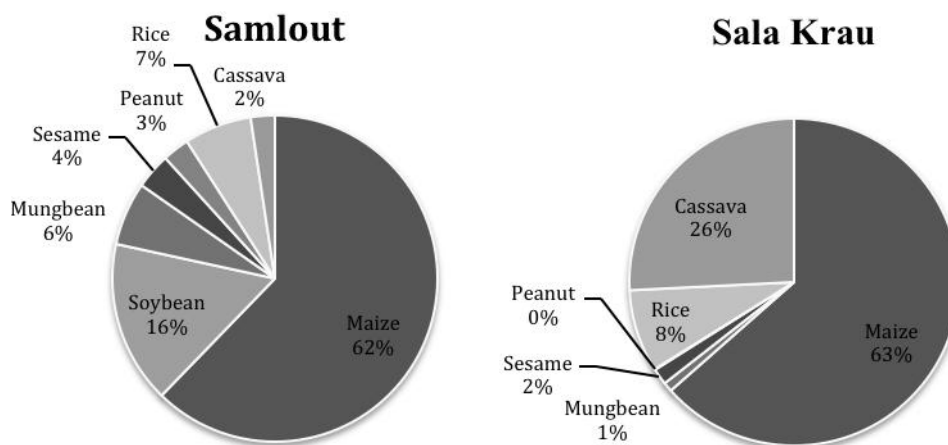


Fig. 2 Area devoted to different crop species on the farm (%)

Source of information about maize production inputs

Close to 100% of the farming households in both Samlout and Sala Krau purchased both seed and herbicide for the main wet season (MWS) crop in 2011. Very few farmers used fertilizer, fungicide or insecticide. In both Samlout and Sala Krau farmers are most likely to source their crop inputs from “Village sellers” or “Outside sellers” with seed companies registering a response from a limited number of farmers. Seed companies provided 11.8% of farmers with seed directly.

The choice of seed (crop species or variety) is an important ‘strategic’ decision and once this decision has been made, most of the decisions that follow in growing the chosen crop are ‘tactical’ with regard to the farmer’s demand for advice and information. The technical advisor needs to intervene at the ‘strategic’ level if the objective of the intervention is a change in farming practices.

For maize production inputs (seed, fertilizer, pesticide) most farmers rely on their own knowledge (45%) or seek information from neighbouring farmers (45%). Therefore 90% of farmers relied on their own knowledge or that of a neighbouring farmer to apply input technologies. Six percent of farmers sought information from sellers of inputs. Advice on crop inputs sought from the Provincial Department of Agriculture (PDA) or NGOs was negligible.

Farmer training and information needs

The survey participants were asked whether they had participated in any training in 2011, who provided the training, what the training was about, was it beneficial and what subjects they required training in.

An average of 33% of farmers received training related to maize and this was provided by various institutions and sector actors. The majority of training was provided by NGOs (68%) with PDA providing 10% only. Input suppliers provided maize training to 7% of farmers (Fig. 3). It should be noted that the PDA provided more training in Sala Krau in Pailin Province (13%)

compared to Samlout in Battambang Province (7%). In Pailin, the PDA provided training to 23% of farmers not affiliated with the previous ACIAR project. Pailin is a much smaller Province than Battambang and the PDA office is in close proximity to the Communes and Villages targeted in this survey.

In Samlout and Sala Krau, 35% and 39% of survey respondents respectively said they were participants in the previous ACIAR project. The previous project was active in formation of farmer cooperatives and in the provision of training to farmers. This is reflected in the partner membership of cooperatives (74-79%) compared to non-partners (35-45%). Similarly, project partners (53-65%) were more likely to participate in training compared to non-partners (14-22%).

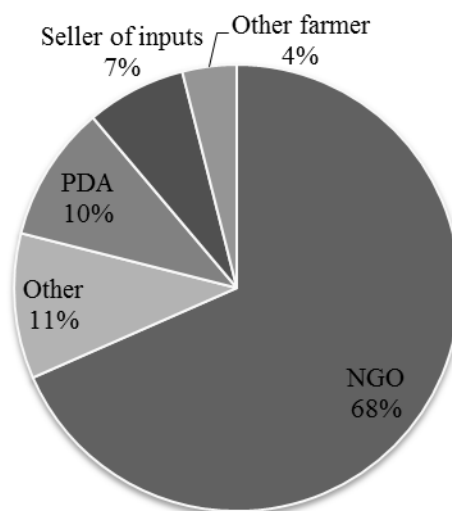


Fig. 3 Providers of training for maize farmers

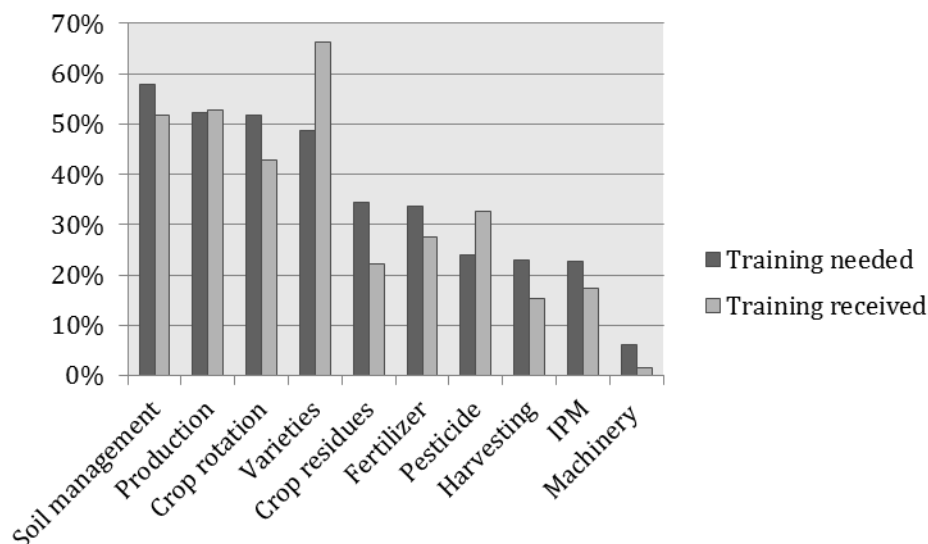


Fig. 4 Farmer training needs in relation to training received

Ninety percent of farmers indicated that they needed more training in specified subject areas. They ranked soil management, crop production and crop rotation as the top three priority training needs (Fig. 4). Other priority subjects were crop residue management, fertilizer, harvesting and Integrated Pest Management (IPM). Training needs for varieties and pesticides were ranked lower than for training received in these subjects.

Farmers were also asked if they changed practices after the training and whether they shared the information with other farmers. As a result of training 88% of farmers reported they had

changed their maize practices and 79% of those trained in new maize practices shared their acquired knowledge and skills with their neighbours. However, results show that while in Samlout 76% of maize farmers shared their ‘know-how’; in Sala Krau only 62% did the same.

Importance of factors in farmer adopting new practices

Farmers were asked to rank the importance of different factors for adopting new practices. The three biggest constraints to adoption of new practices were lack of capital (89%), availability of labour (68%) and knowledge (61%). Because of the capital constraint, new technologies requiring additional input costs are not likely to be adopted unless the economics can be demonstrated. Herbicides represent an input cost but result in a labour cost saving so have been readily adopted. Farmers are aware of the economic advantage of using hybrid maize seed so hybrids have been readily adopted.

Discussion

Farmers claimed to know how to deal with biotic impacts on their maize crops such as from insect pests, diseases and weeds but few said they had solutions to deal with abiotic impacts such as flood or drought. The survey revealed that farmers rely almost completely on each other for information about crop inputs especially seed for sowing and herbicides. The sellers of the inputs accounted for only 5% of information sourced. Similarly PDA and NGOs were not sources of information for use of crop inputs.

Decisions such as changing maize variety or replacing hand-weeding with herbicides is a relatively simple process (Pannell et al. 2006). Simple substitutions are often easily adopted if they have a high ‘relative advantage’, are readily ‘trialable’ or easy to test and learn about before adoption. Changing management practice to improve water-use efficiency as a drought management strategy for example is more complex and the farmer is likely to seek more information to be certain about the consequences of adopting it (Pannell et al. 2006). A participatory action research approach is more likely to be successful in achieving crop management practice change.

Table 1 Strengths, weaknesses, opportunities and threats for potential extension partners

Strengths	Weaknesses	Opportunities	Threats
<i>Government Extension</i>			
Infrastructure at District level and staff available	Lack of funds to mobilise District staff	Strengthen links with NGOs and private sector	Lack of credibility – no farmer feedback mechanism
Integral part of the wider government agenda	Lack of networks to deliver technologies	Become warehouse of public good extension information	Diversion of extension staff to regulation
<i>Non Government Organisations</i>			
Projects participatory and based at community level	Narrowly focused short-term agendas	Rollout of research findings to other communities	Conflicting missions and messages
Staff well resourced often seconded from PDA	Insular, unwilling to share with other NGOs	Provision of strategic longer-term support to PDAs	Lack of long-term objectives and follow-through
<i>Government Education</i>			
Infrastructure and teachers at Village level	Lack of training and resources in rural subjects	Develop and implement ‘Life Skills’ for agriculture	Lack of government investment in ‘Life Skills’
<i>Input Supply Network</i>			
Outlets at Village level with 1:1 contact with farmers	Lack of training and potential lack of credibility	Trained to become Village extension ‘retailers’	Focus on sales and not on information delivery

Swanson and Samy (2002) observed that in other developing countries, alternative organizations have emerged to fill the information and training void left by withdrawal of government extension services. Similarly, in this survey, NGOs were the most important actors in the provision of training and delivered 68% of all training to farmers. However, NGO programs can be short-term in nature and can cause confusion among farmers by inadvertently delivering conflicting messages. If better resourced, the public sector extension service has an important potential role as an independent broker and warehouse of information that can provide continuity as well as a filter to reconcile conflicting messages being delivered by NGOs and the private sector.

Generally, farmers' training needs recorded in the survey were in line with the subject areas in which training was provided. However, farmer training needs in sustainable management practices such as soil management, and crop rotation took precedence over needs for training on simple inputs such as varieties, and pesticides. Input sellers were minor providers of training (7%) and might also have concluded that farmer training would not increase product sales.

In an earlier study in the research target area, Martin et al., (2010) highlighted the importance of primary schools as a fourth avenue of delivery of agricultural information into rural households. As with input suppliers, primary schools are likely to reach almost all farm households. Based on strengths, weaknesses, opportunities and threats (Table 1), we put forward a conceptual framework that suggests roles based on comparative strengths for public, private and non-government organizations to better integrate delivery of technology information to farmers.

CONCLUSION

This paper puts forward a conceptual framework that suggests roles based on comparative strengths for public, private and non-government organizations to better integrate delivery of information of new technologies and better practices to farmers. We conclude that there are four main avenues for reaching farmers in NW Cambodia —through provincial government extension offices, NGOs, the local agricultural input sellers and the local primary schools. They all have different strengths and weaknesses but collectively, the four groups have all of the elements required for integrated technology transfer. The challenge is to find a mutually beneficial or symbiotic framework for integrated delivery of new technologies and better practices to farmers via these pathways.

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