



# Developing agricultural solutions with smallholder farmers

How to get started with participatory approaches



**Peter M. Horne and Werner W. Stür**

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## The Forages for Smallholders Project (FSP)

The Forages for Smallholders Project (FSP) is a network of smallholder farmers, development workers and researchers in Indonesia, Lao PDR, Philippines, Thailand, Vietnam and southern China. The focus of the project is to develop forage technologies in partnership with smallholder farmers in upland areas, where forages have potential to improve livestock feeding and management of natural resources.

From 1995 to 1999, the FSP was funded by AusAID (Australian Agency for International Development) and managed by CIAT (Centro Internacional de Agricultura Tropical) and by CSIRO Tropical Agriculture (the Commonwealth Scientific and Industrial Research Organization of Australia). The Asian Development Bank (ADB) is providing funding for a new phase of the Project to commence in 2003 with CIAT as the managing agent.



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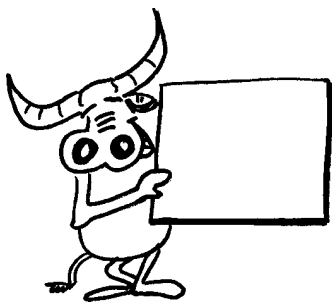
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Illustrations by Tingkham Sengaphay

This booklet is the third in the CIAT in Asia Research for Development series. The first two booklets are 'Developing forage technologies with farmers – how to select the best varieties to offer farmers in Southeast Asia' and 'Developing forage technologies with farmers – how to grow, manage and use forages'. All three booklets are available in Chinese, English, Indonesian, Khmer, Lao, Thai and Vietnamese (see contact addresses at the end of this booklet).



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## ••• Acknowledgments

This booklet is based on the experiences of researchers and farmers working with the AusAID-funded Forages for Smallholders Project (FSP) in Southeast Asia from 1995 to 1999. This project was a partnership of smallholder farmers, development workers and researchers who were using participatory approaches to developing forage technologies on farms (see inside cover for details). These initiatives are continuing through a regional project funded by the Asian Development Bank (ADB) and a bilateral project in Lao PDR funded by AusAID.

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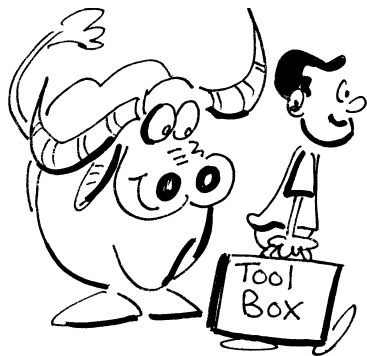
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Before you start . . .

1



## Before you start . . .



We have written this booklet to help those who want to use participatory approaches in their work, but are unsure how to begin. It is not a manual to be followed 'step-by-step' but a 'toolbox' of ideas, practical tips and basic tools to help you get started with participatory approaches.

Like a carpenter, you will need a few special skills to be able to use these tools. This booklet provides ideas to help you develop these skills. Rather than trying to offer a comprehensive list of participatory tools, we simply present a collection of ideas, experiences and approaches that have worked for us. Don't be afraid to experiment and adapt the approaches in this booklet to fit your needs.

Some development workers are 'generalists' responsible for all agricultural research or extension in their area. Their job is to promote agricultural commodities, such as rice, livestock and fruit trees. Their main challenge is to identify the technologies that are likely to give the most impact in their area.

Other development workers and applied researchers are 'specialists' in a particular field, such as livestock feed or horticulture. Their main challenge is to identify the places where their particular technologies and expertise are likely to have the most impact.



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In this booklet we describe a participatory approach that is used by 'specialist' development workers in Southeast Asia to help smallholders integrate forages onto their farms. If you are a 'generalist' development worker, the principles will be the same, but you may have fewer choices about where you will work.

2

Why should I use participatory approaches?





# Why should I use participatory approaches?

Farmers are natural experimenters. They are always trying new ideas and technologies to improve their farming practices. Before government extension services existed, farmers based this experimentation on their own knowledge and the experiences and ideas of other farmers in their area. Only in the last few decades have governments established research and extension agencies to help farmers improve agricultural production. Extension workers in these agencies usually promote technologies developed by researchers (such as new rice varieties), implement government programs (such as livestock credit schemes) and administer government regulations.

**Take Note!**



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*Farmers are keen experimenters - often all they lack is access to new technology options that have the potential to improve their farming systems and information about the potential benefits and limitations of these options.*

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In some cases, this approach to agricultural development has worked well. For example, improved rice varieties and fertilisers have helped farmers in lowland areas to increase yields. In other cases, such as for smallholder agricultural systems in upland areas, this approach has not worked well. We have to ask ourselves 'Why not?'

- Often we simply did not understand farmers' needs, assuming that improved productivity alone was enough to ensure adoption.
- The huge variation in resources, opportunities and constraints between farm households, particularly in upland areas, means that no single technology will be appropriate for all farmers.
- Farmers seldom adopt fully developed technology packages. Rather they look for 'ingredients' or 'building blocks' which they can put together in different ways to fit their particular needs. They ADAPT rather than ADOPT technologies.





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The use of participatory approaches, based on an active partnership between farmers and development workers, such as researchers or extension workers, can help you overcome these limitations.

**Take Note!**



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***In this booklet we refer to 'technology options' as the 'ingredients' or 'building blocks' which farmers use to develop their own innovative solutions. Examples of 'technology options' are crop varieties, hedgerows for erosion control and management practices to control animal diseases.***

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## What type of approach should I use?

There are many ways that you can work with farmers. These range from simply **consulting** with them to forming partnerships which result in **active decision-making** by farmers. The 'right' type of relationship between you and farmers will depend on your goals.

### Consulting with farmers

In some situations, it is appropriate for development workers to simply consult with farmers to better understand their needs or their reasons for selecting one technology option instead of another. Renting a farmer's field and asking the farmers' opinions about the trials you plant, for example, may be appropriate for screening a large number of new maize varieties to identify a smaller range of varieties for future farmer evaluation. In this kind of partnership, farmers provide information but development workers make the selection.



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## Active decision-making by farmers

In many situations, it is more appropriate for development workers and farmers to work together to solve complex problems, such as livestock feed shortages in the dry season. In these situations, you need the active, decision-making involvement of farmers to be able to combine their local knowledge with the information, ideas and technology options that the development workers have to offer. In this kind of partnership the farmers and development workers should work together to decide which technology options to test, how to test them, and how to adapt and integrate them on their farms.

*Take Note!*



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*'Active partnership' means that development workers and farmers work together to find solutions to problems identified by the village.*

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3

A participatory approach  
that has worked for us . . . .



## Preliminary work (2-4 months)



Selecting villages - see page 25



Agreeing on issues - Participatory diagnosis  
- see page 30



A participatory approach  
that has worked for us



Sharing successful technologies  
with other villages - see page 67



## Later cycles (1-3 years)



Reaching other farmers  
in the village - see page 64



Integrating promising solutions  
on farms - see page 60



## First cycle(6-12 months)



**Searching for technology options  
the with focus-group - see page 42**



**Testing options-starting small - see page 49**

The approach we describe in this booklet is based on active decision-making by farmers. An important feature of this approach is that it is a process based on a series of related activities carried out over several years, with each activity building on the previous one and leading to technology development.



**Evaluating options - see page 53**



**Reporting back to the village - see page 57**



**Focus group meetings - see page 55**





In the beginning, you will find this approach to be very challenging. It will be easier to learn the skills and methods you need if you work in a small team of 2-3 development workers. With time, as you gain confidence, you will discover that there are some activities you can do easily on your own (such as regular farmer visits) and others where it is easier to work as a team (such as facilitating a village meeting).

As you start using this approach, you will need to be aware of the large differences that exist between and within farm households, often based on wealth, social status, gender and ethnicity.

A common difference **between** farm households is that different ethnic groups often have quite different farming practices. One ethnic group may, for example, be predominantly involved in shifting cultivation while another dominates the lowland fields. A common difference **within** farm households is the division of labour. In many Southeast Asian countries, for example, women are responsible for raising small animals, while men are responsible for raising large animals.

In both cases, the different groups will have quite different perceptions of the issues they face and the potential impacts of any technology options you may be able to offer. So, in all your work with farmers, keep asking yourself:

- Who controls the resources?
- Who does each task?
- Who makes the decisions?
- Who will benefit from new technologies?

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***Make sure you work with the farmers you are targeting with your technology options.***

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***Take Note!***

The stages in this approach are summarised in the following Table (see page 24) and each stage is described in detail in the pages that follow.

## Stages in the participatory process

Stage	Description	Who decides*	
		F	DW
Selecting villages	<ul style="list-style-type: none"> <li>Collect basic information to help select villages.</li> </ul>		✓
Agreeing on issues – Participatory Diagnosis	<ul style="list-style-type: none"> <li>The village                             <ul style="list-style-type: none"> <li>identifies and prioritises issues they would like to address, and</li> <li>identifies a small number of farmers (a 'focus-group') to work with the development workers in testing possible options.</li> </ul> </li> </ul>	✓	
	<ul style="list-style-type: none"> <li>The development workers decide if:                             <ul style="list-style-type: none"> <li>there are possible solutions to these issues that are worth testing, and</li> <li>decide if these issues match the goals of the development agency.</li> </ul> </li> </ul>		✓
Searching for technology options with the Focus -Group	<ul style="list-style-type: none"> <li>The development workers and focus-group discuss possible options, select those which may be appropriate for the village and decide which to test.</li> </ul>	✓	✓
Testing options – starting small	<ul style="list-style-type: none"> <li>The focus-group farmers and the development workers discuss how to test, where to test, who will test, what to measure and when to evaluate.</li> </ul>	✓	✓
	<ul style="list-style-type: none"> <li>The focus-group farmers test the technology options on a small scale.</li> </ul>	✓	✓
	<ul style="list-style-type: none"> <li>The development workers and the focus-group monitor and evaluate the technology options.</li> </ul>	✓	✓
Reporting back to the village	<ul style="list-style-type: none"> <li>In a meeting with the village, the focus-group farmers describe what they found in their trials. The development workers ask all the farmers to decide what they would like to do next.</li> </ul>	✓	
	<ul style="list-style-type: none"> <li>More farmers in the village may want to start testing these options on a small scale.</li> </ul>	✓	
	<ul style="list-style-type: none"> <li>If none of the technology options looks promising or a new issue is identified, the farmers and development workers may need to search again for different options to test.</li> </ul>	✓	✓
Integrating promising solutions on farms	<ul style="list-style-type: none"> <li>The focus-group farmers may want to expand and integrate the technology into their farming systems.</li> </ul>	✓	
Reaching other farmers in the village	<ul style="list-style-type: none"> <li>The development workers encourage farmer-to-farmer exchange of experiences through 'local champions', farmer groups and field days.</li> </ul>	✓	✓
Sharing successful technologies with other villages	<ul style="list-style-type: none"> <li>The development workers facilitate expansion of the most promising options to new villages, through cross visits and farmer-to-farmer extension.</li> </ul>	✓	✓

\* F = Farmer DW = Development Workers



## Selecting villages

Your first decision is to choose one or more villages where you can start working with farmers. How can you do this?

In our experience, many projects have encountered problems because they selected villages for their convenience rather than considering which villages have the highest potential to benefit from the skills, knowledge and technologies that the project had to offer.

Some development workers are assigned to work in a particular village and have no choice in this matter. Others may be able to select within a small range of villages. 'Specialist' development workers need to think about site selection very carefully.



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## How to select villages

Ask yourself the following questions:

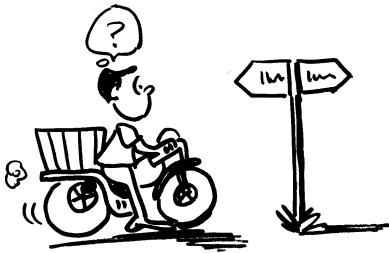
### What do I have to offer?

Most of us have particular skills, knowledge and technologies to offer farmers. We need to select villages where our expertise is relevant to farmers' needs.

Specialist livestock extension workers, for instance, need to identify areas where farmers have major problems with their livestock systems.

### Where am I likely to have most impact?

It is no use having good participatory approaches if you choose to work in a village where there is little potential for widespread impact from the technologies you have to offer. Ask yourself 'Will many families in this and nearby villages benefit from this work?'



### **What are the social goals of my organisation?**

Most of us work in organisations that have particular social goals, such as poverty alleviation. Ask yourself

- Will I be able to achieve the social goals of my organisation by working with this village?
- Could many farmers in this village benefit by working with us to improve their farming systems?
- Are there many nearby villages that could benefit from solutions developed in this village?
- Are there local partners and organisations who will actively support this work?



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To help you answer these questions, talk to local government officials, farmer groups and individual farmers and collect some basic data about the farming systems.

**Take Note!**



*Think carefully about the information that you need to collect. Often, the best information will come from your own observations in the field and discussions with farmers.*

Be sure that you talk not only with the influential people in the village but also with those you are targeting with your technology options.

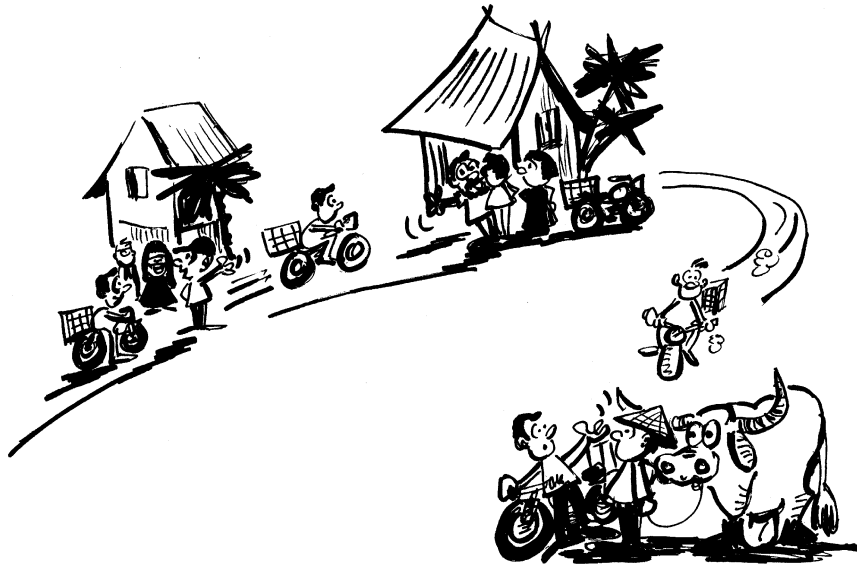


You may also need to collect some basic environmental data to be sure that the technology options you have to offer are adapted to the area.

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*Do not spend a long time collecting information that is more-detailed than you really need.*

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## Agreeing on issues – Participatory Diagnosis

You have now selected one or more villages where you would like to work, but it is only you who has concluded that there are issues that can be solved with your help. You cannot be sure that the farmers will draw the same conclusion.

They will only be interested in working with you if they feel that this issue is more important and pressing than others they face at this time.

Participatory diagnosis (PD) is a method which helps the farmers make this decision. In a participatory diagnosis, the farmers meet to

- identify and prioritise the problems to solve,
- identify who in the village is most affected, and
- nominate who in the village will be responsible for working with you to solve these problems.

Participatory diagnosis is often the first time that a village experiences being equal partners in the development process. It helps to build trust and understanding between farmers and the development worker. The outcome of a PD is an understanding between you and the village on which problems to solve, and how you will work together to find solutions.



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***Participatory diagnosis is NOT a process for extracting information from farmers so that you can draw your own conclusions. It is the first step in engaging with a village as partners in searching for ways to improve their farming systems. Don't do it unless you are committed to following up with action!***

---



**Take Note!**

## How to conduct a PD

Participatory diagnosis will help you decide if there is real potential for benefits in the village from the skills, knowledge and technologies that you have to offer. The list of questions in the table below will help you make this decision. For there to be real potential, you need to be able to answer 'YES' to each question:

### Is there real potential for working in this village?

<b>Question 1:</b>	Do farmers consider that the issues facing them are important enough to commit their time to work towards a solution?
<b>Question 2:</b>	Are there many farmers in this and nearby villages who face the same issues?
<b>Question 3:</b>	Are some farmers already trying to find solutions?
<b>Question 4:</b>	Are there potential options that you can offer farmers and which may provide substantial benefits?
<b>Question 5:</b>	Can you achieve the social goals of your organisation (e.g. poverty alleviation) by working in this village?
<b>Question 6:</b>	Are you or other active local groups able to commit the time and resources needed to work with farmers in this village to improve their farming systems?



In the following pages we describe one way to conduct a PD with the village. This is not a menu to follow step by step, but an example of the process that has worked for us. We refer to several tools that help you conduct PD (e.g. village resource maps). These tools are described in more detail in Chapter 5. To use these tools effectively, you will need to develop good communication and facilitation skills. These are described in Chapter 4.

### **Step 1: Planning for a PD**

#### ***Learn about the village***

Before conducting a PD, you should familiarise yourself with the village and farming system by walking through the area with village leaders and individual farmers, discussing the farming systems you see (see page 86). This will help you gain some first-hand experience of the problems and opportunities they face.

#### ***Decide who should attend the participatory diagnosis***

Ask yourself 'Who is my main target group in the village?' It is then essential to ensure that this 'target' group (e.g. women livestock raisers) is well represented in the PD.



***Useful tool!***  
***Village walks***





### ***Organise the participatory diagnosis***

Talk with village leaders and representatives of the groups you want to invite to arrange a convenient date and time for the PD. Participatory Diagnoses should be conducted at a time that suits farmers. They may, for example, prefer to hold the PD over one or two evenings.

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### **Step 2: Conducting the PD**

#### ***Explain your objectives and what you can and cannot offer***

As the PD is often the first time that you meet with the village, farmers may have some expectations you cannot meet, (eg. that you can provide credit). At the beginning of a PD, make sure that you explain your objectives and what you have to offer.



***Useful tool!***

***Village resource mapping***

#### ***Break the ice***

The first time farmers attend a PD, they may be expecting a typical meeting dominated by the influential people in the village. To encourage active participation by everyone who attends, you need to use tools that 'break the ice'. A good way to start is with village resource mapping (see page 88) in which the farmers draw a map of their village showing all of the features (e.g. houses, forests, farmland) that they regard as important for describing their village.

### ***Define social groups within the village***

Following mapping, you can facilitate a discussion on social groups in the village. Different gender, ethnic and wealth groups within the village are likely to have different problems and opportunities. Understanding these differences will help you target your work and monitor the impact of the innovations. Wealth analysis is a useful tool to stimulate discussion of these issues (see page 90).

Before using any tools such as wealth analysis and calendars, read about ranking, scoring and weighting techniques on page 83.

### ***Consider long-term changes in the farming system***

After wealth analysis, you can encourage discussion of major issues facing the village by asking questions such as 'How has your farming system changed over the last 30 years?' A tool that helps you do this is the historical calendar (see page 94). This is a good time to ask farmers what changes they would like to see in their farming system to lead the discussion towards 'opportunities' for development.



***Useful tool!***  
***Wealth analysis***



***Useful tool!***  
***Historical calendar***

***Focus the discussion on livelihood systems  
in the village***

Ask farmers to list the crops they grow, the livestock they raise, and the other activities that contribute to their livelihoods. You can then use ranking or scoring to show the relative importance of these activities. Although this list provides you with a good indication of the importance of different agricultural activities in this village, it can only be a rough guide as there are likely to be considerable differences between households. These should come out in the discussion.



***Useful tool!  
Seasonal calendar***

Another useful way to stimulate discussion on major issues is to ask 'How do your agricultural activities change throughout the year?' This helps you understand how issues such as labour demand, cropping cycles, human diseases, food shortages and animal management vary over time. A tool that helps you do this is the seasonal calendar (see page 96).

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***Problems or opportunities?***

***Major issues affecting villages could be either problems or opportunities for development.***

***Farmers may, for instance, want to solve the problem of low yields of upland rice. An opportunity for development may be the introduction of new cash crops with the potential for a higher income, thus allowing the farmer to buy rice.***

***Solving major problems is often the entry point for building trust between you and the farmers, while working on opportunities for development may be a second phase in working with farmers.***

---



**Take Note!**

***Identify and prioritise major problems***

This is the central part of the PD. All of the previous tools and discussions were conducted to stimulate discussion of major livelihood problems or issues facing the farmers.

You can now ask the farmers to describe the most important problems or issues in more detail. Facilitate this discussion by asking the farmers to

- list the main issues,
- discuss each issue, and
- prioritise them in order of importance using ranking or scoring.





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### **Step 3: Agree on a plan of action on how to search for solutions**

Once the farmers have agreed on a list of priorities, you will have enough information from the PD to know if there is real potential for you to work with this village. Refer to the Table on page 32 to remind yourself of the important questions you want to answer during a PD. In particular, you must confirm that there are problems or opportunities that are both a high priority for the farmers and for which there are potential solutions.

You will now need to tell the farmers which of their issues you think you can help them solve and ask them if they are ready to commit their time to this. If they are enthusiastic, you can then:

- Come to an agreement on which problems or opportunities to address.
- Form a focus-group. I identify a small group of farmers who would like to work with you on these issues. This is important since it is difficult to work effectively with more than about 10 farmers in the first year.
- Agree on a time when you will return to start working with the focus-group in searching for technology options to test.

You may find that there is not a good match between the issues the farmers consider important and what you have to offer. When this is the case, the farmers will not be willing to commit their time to work with you. It may be that there is no potential for you to productively work with this village at this time. You will not end up working in all villages where you conducted PD.



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## Practical considerations in PD

### How long should it take to complete a PD?

You can complete a PD in one day. No single session should last longer than 2 hours without a break. Farmers will lose attention if the PD takes too long.

### What skills do I need to facilitate a PD?

Facilitating a village meeting is not easy. Good facilitation skills are essential for you to be able to conduct a PD well. You need to remain neutral, sharing information with farmers but without giving your opinions or recommendations. You also need to stimulate active participation of all social groups. Often, the influential men in the village will dominate meetings at the beginning.



Always be aware of literacy and language barriers to participation of your target group. If these exist, try to find ways of working in local languages and with pictures.



It helps to have at least two facilitators in a PD, preferably one male and one female. This allows you to help each other guide the discussion and to divide the participants into different social groups (e.g. gender, ethnicity, wealth) to understand their specific problems, opportunities and needs.

Also, you can save time by conducting some of the activities (such as seasonal and historical calendars, wealth analysis) concurrently in sub-groups.

There is no simple way to develop good communication and facilitation skills. You need to 'learn by doing' and observing others who are good facilitators. These skills are described in Chapter 4.

### **Three tips . . .**

- In some cases, it may be unwise to continue a PD with the whole village if your target group is not well represented. For example, if members of the poorest households or women are not well represented, you may get a biased impression of the situation in the village. In such cases, you should consider the village resource map and wealth analysis as preliminary and use the results as a basis for planning additional, separate participatory diagnoses with these groups at a later date.

- To save time during the PD, it may be useful to split the participants into sub-groups, each focussing on different tools and reporting back to the main group.
- With all the tools used in a PD, encourage farmers to express themselves in whichever way they prefer, and provide them with the basic resources (such as pens, large sheets of paper, coloured paper, scissors, seeds) they need. Farmers must hold the pen!



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*The tools you use in participatory diagnosis (e.g. village resource maps and calendars) are not the main output! They are simply tools to help the farmers define the main issues facing the village and to help you to get some basic understanding about these issues.*

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**Take Note!**



## Searching for technology options with the focus-group

Now that you and the farmers have agreed on the issues, you need to analyse them in more detail and identify potential options to test. It is not your role to make these decisions alone! You need to work with the focus-group to understand the underlying causes of the problems and issues, so that you can look for technology options to test.

### Three principles in searching for technology options:

#### Start evaluating options with farmers as soon as possible

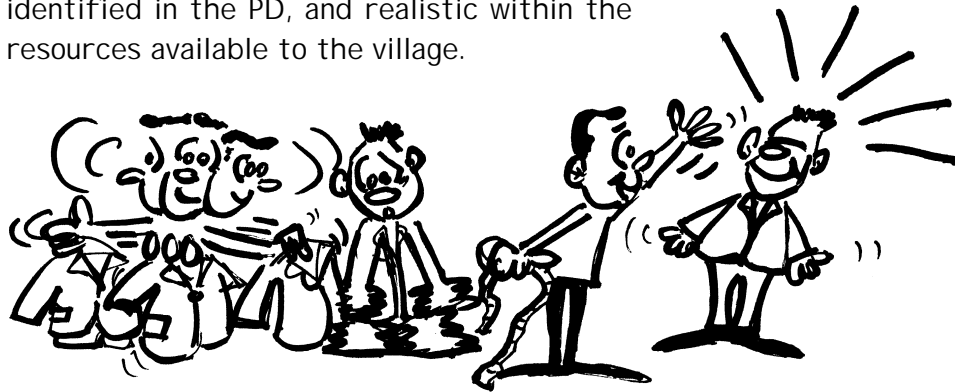
There is no need for you to wait until you fully understand the complexity of the farming system before testing technology options. With their in-depth knowledge of the farming system, farmers will quickly decide which information and technologies are likely to provide substantial benefits.



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#### Search for a broad range of technology options

Each farmer and each farm is different and no single technology will be appropriate for all farms. Make sure you do not offer only your favourite technologies but a broad range of options that are relevant to the issues identified in the PD, and realistic within the resources available to the village.





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### **Offer basic ingredients of technologies, not 'fully developed' technologies**

Often researchers and development workers feel that they cannot offer technologies to farmers until they are 'fully developed'. They may, for instance, feel reluctant to offer farmers forage varieties without also telling them exactly how these should be grown, managed and fed to animals. In practice, this is not necessary. Farmers need to develop management systems to fit their own circumstances. It is better to provide them with ideas and principles rather than specific recommendations. This will help them to make informed choices about each option.

**Take Note!**



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***Avoid promoting only your 'favourite' technologies. Make sure you offer a broad range of technology options. Farmers may see other problems they can solve or changes they can make to their farming practices to take advantage of new opportunities presented by the technology options.***

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## How to search for technology options

The following steps are an example of how you can work with a focus-group to search for solutions to particular problems.

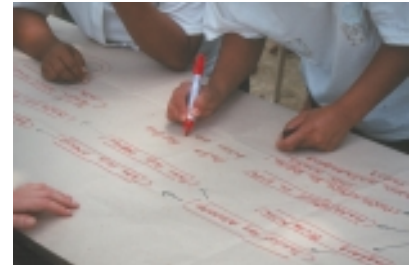
### Step 1: Analyse the problems

Summarise the outputs of the PD and confirm that the farmers in the focus-group are keen to work with you on these problems. You can then discuss the problems in detail to understand the underlying causes of each problem. A tool that will help you do this is the problem-cause diagram (see page 98).

In a problem-cause diagram you ask the farmers to describe the causes of their main problems, how they are linked and what they have done to overcome the problems in the past. Once you have completed the problem-cause diagram, you can ask the farmers to identify where in the diagram there are opportunities for introducing potential solutions.



*Useful tool!*  
*Problem-Cause diagram*



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## Step 2: Search for potential solutions

Technology options can come from many sources, not just from you! They may come from the farmers themselves, other villages that have been working to solve the same problems, research and extension literature, development projects, international organisations or non-government organisations.

Sometimes, you may already have a lot of information on relevant technology options that have worked in other areas. In this case, it may not take long to discuss these options and for the farmers to decide which ones to evaluate. In other cases, you will need to work with the farmers to search for potential solutions. This is likely to involve a literature search, visits to other villages and consulting with technical specialists.

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### Step 3: Decide which options to test

When you have a range of promising technology options, facilitate a discussion with the focus-group about the benefits, costs and limitations of each option and ask the farmers to decide which of the options to evaluate.

Sometimes it is difficult for farmers to decide which options to test until they have tried them on a small scale. If you are considering new crop varieties, it may be easy for farmers to test all the promising varieties in small plots and select the ones they like most after the first growing season. If you are considering new animal health practices, however, the decision can be more difficult. It is your role to provide as much relevant information as possible to farmers to help them in the process of deciding which options to test.



JH





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### Three tips . . .

- Often it is helpful to identify 'technology entry points' that provide early benefits to farmers, building trust and enthusiasm. You may, for example, introduce robust new rice varieties which can provide an immediate benefit while, at the same time, working with the farmers to develop forage hedgerows for soil erosion control, where the benefits are not as immediate. Entry points must not be handouts but be clearly part of the solution to the problems the farmers have identified.
- In addition to working with a focus-group as a whole, it is essential that you visit individual farms to get a better understanding of the variation in needs and opportunities between farmers.
- Farmers are keen experimenters and will want quick action once they have decided which options to test.

*Take Note!*



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*Technology 'entry points' help build trust between farmers and development workers.*

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## How to test and evaluate options - starting small

Once the focus-group has selected technology options to test, the next question to answer is 'How do we test and evaluate these options?'

### **Three guiding principles are:**

#### **Start on a small scale**

Typically, farmers will first want to test technology options on a small scale as this minimises risk and gives them the opportunity to experiment with the options.

For example, if the farmers are testing new forage varieties, small plots near the house allow them to answer questions like 'How well does each variety grow in the dry season?' 'How easy are they to cut?' and 'Do my animals like to eat these varieties?'



**Take Note!**

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***Start small and build on local successes!***

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### **Keep the trials simple**

Large numbers of technology options are difficult to manage and compare. We have found that farmers can easily handle up to 6 new technology options.

### **Encourage farmers to 'play with' the technology options**

Farmers adapt rather than adopt technologies. They are looking for 'ingredients' or 'building blocks' which they can put together in innovative ways to fit their particular needs.

### **How to test options**

#### **Step 1: Planning how to test the options**

Before starting field trials, facilitate a discussion with the focus-group to consider:



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### ***What to measure***

What characteristics of the new technologies they will need to evaluate and when are they planning to do these measurements?

### ***How do we test the technologies?***

They may decide to test the technology options as a group in one location or each farmer may want to test the technologies on their own land. Sometimes they may have a combination of both. You may want to get some more-detailed data and suggest conducting a small replicated trial in addition to the farmers' experimentation. All of these ways of testing technologies are valid. The choice of method depends on your needs and the needs and capacity of the focus-group.



### ***What is the control treatment?***

Always compare new innovations with the current farmers' practice in the same experiment.



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## Step 2: Testing the options

When farmers have started testing the technologies, you need to support them by

- providing materials needed for the technology options (e.g. seed),
- providing key technical information,
- helping farmers establish their trials,
- making visits soon after establishment, and
- making regular follow-up visits to discuss progress and help resolve the simple problems that inevitably arise at early stages.

Providing this active support to farmers will encourage them and build confidence in your working relationship.

**Warning!**



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***Don't only visit 'favourite' farmers. Each time you visit a village make sure you visit at least one or two farmers you did not visit the last time!***

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You are an important link between all of the farmers who are testing technology options. You can help them as a group by:

- discussing the experiences of other farmers who are testing the same options, and

- providing technical information on the options. Farmers may, for instance, be impressed with the early growth of some forage varieties which the development worker knows will not grow so well in the dry season. Unless the development worker gives this information to farmers they may expand these forages during the first wet season and become disappointed when the forages die back in the dry season.



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### Step 3: Evaluating the options

As farmers test and adapt new technologies they are continually evaluating them. They are looking for benefits, watching for problems and considering ways of using the technologies on a larger scale. You need to understand which technology options farmers prefer or reject and their reasons for these choices. How can you do this?





### ***Regular monitoring***

As you visit farmers you will begin to learn which technology options they like. It is important at this stage to understand why they like some options more than others. You can do this by talking to farmers about their experiences, using open-ended and probing questions, and observing the results yourself.



Using photographs to capture interesting results is a very effective way of sharing these results with other farmers and development workers. They can be a basis for discussion and monitoring of what is happening in the field. Digital cameras are particularly useful since they allow immediate review of the pictures and can be shared easily.

### ***Measurements***

Sometimes measurements, such as yield, are needed to quantify differences between the technology options.

### ***Formal evaluations***

Towards the end of the trial period (e.g. the cropping season) it is useful to conduct a more formal evaluation with each farmer in the focus-group to record which technology options they prefer and why. A tool that will help you do this is preference analysis (see page 105). Don't try to do preference analysis too soon after farmers start testing new technology options as they will not yet have enough experience with those options to make choices between them.



***Useful tool!***  
***Preference analysis***

## Focus-group meetings

Organise a focus-group meeting at the end of the trial period, in which you present a summary of the main results (e.g. yield) and the experiences of all the farmers in the focus-group (based on the results of the preference analysis). This will stimulate a discussion of experiences the farmers have had in common. This is a good time to discuss potential benefits of each option, analyse particular problems that were encountered and what they would like to do next.



### Three tips . . .

- Always plan your visits to villages carefully. Before going to the village, ask yourself: 'What are my reasons for going to the village this time?', and 'What outputs do I want to achieve during my visit?'
- Often, when you arrive at a village, things do not go according to plan. Be flexible and adjust your plans with your goals in mind. There is always something else you can do to help you achieve your goals!
- Keep a record of each visit. Summarise why you visited the village and what you have learned.





## Reporting back to the village

Once a focus-group has completed the first cycle of evaluating technology options, the rest of the village will want to know what they have learned.

If the focus-group farmers found that some of the technology options are looking promising they will want to expand and integrate these options on their farms. Other farmers in the village may also want to start evaluating these options themselves.

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***Frequent feedback to the village ensures sharing of experiences and also encourages others in the village to experiment with promising options.***

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**Take Note!**



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## How to decide what to do next

To help the farmers make these decisions, facilitate a meeting where the focus-group reports their results and experiences to the village. You may want to do this as a village meeting followed by a field day to give all farmers an opportunity to see the technology options and discuss the advantages and disadvantages of each option.

You can stimulate the discussion by:

1. Asking the focus-group farmers to tell the village
  - if there were any options they liked,
  - why they liked them,
  - if they encountered any problems, and
  - what they want to do next;
2. Asking other farmers in the meeting if some of them would like to start testing the most promising technology options.

Before you finish the meeting, you need to agree on what needs to be done next.

## Four tips . . .

- Let the focus-group farmers (not you) report their experiences to the village. This is a good way to promote 'ownership' of the technologies by the village.
- Create opportunities for new farmers to benefit from the experience of the focus-group farmers, especially through field days.
- Encourage new enthusiastic farmers to join the focus-group but don't pressure farmers to stay in the focus-group if they find that they are not really interested in the technologies.
- Sometimes farmers are reluctant to tell you that they don't like a technology because they don't want to offend you. Take every opportunity to establish trust so that farmers feel comfortable to be open with you.



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## Integrating promising solutions on farms

Once the focus-group farmers have seen the potential benefits of a new technology they will start to search for ways of expanding and integrating this technology on their farms. With forages, for example, they will begin to explore ways of planting forages in or around their crop fields or home gardens. It is only once farmers have these 'integrated solutions' that they start to receive substantial benefits from new technologies.

Helping farmers make the transition from testing technology 'building blocks' on a small scale to developing integrated solutions can be a challenging step for a development worker. Every farm and every farmer is different. No single solution will be appropriate for all farmers.



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*When farmers start to integrate and expand technology options on their farm, they will experiment with different ways of 'adapting' these options to fit their needs.*

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**Take Note!**

## How to integrate promising solutions on farms

You can support farmers by:

### Providing ideas on how technologies may be integrated on farms

As farmers move from testing options on a small scale to integrating the most-promising ones into their farms, they will have new questions for you. 'Where can I plant this variety on my farm?' 'How do I harvest seed from this variety?' One of your tasks will be to provide ideas and technical information. These ideas can come from many sources, such as innovations made by farmers in other areas, from extension and research literature and from development projects.



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### **Stimulating innovation**

Encourage farmers to experiment with new ways of integrating technologies into their farms.

### **Facilitating the exchange of experiences between farmers**

This exchange can be promoted through discussion groups and visits to other farmers who have already started to integrate technologies on their farms.

### **Overcoming bottle-necks that limit local expansion**

These could be physical limitations such as the availability of seed or institutional issues such as winning the support of decision makers.

You can use a similar process for integrating promising solutions on farms as you did when testing technologies on a small scale. This will involve focus-group meetings to plan activities, visits to individual farmers, implementation, monitoring, evaluation of results and feedback to the village.



## Two tips . . .

Once farmers start to develop successful technologies it may be time to:

- Bring your bosses and other 'stakeholders' to visit the focus-group farmers.
- Evaluate the impact of the new technologies with the focus-group. In a focus-group meeting, ask the farmers what positive and negative impacts of the technologies they are experiencing, how important these are and how best to measure them. Sometimes you may have to do a survey or carry out case studies to quantify the impacts identified by the focus-group farmers. Demonstrating impact may be the only way to convince your institution that your approach works.



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## Reaching other farmers in the village

Until now, you have been working closely with only the focus-group farmers. Inevitably, other farmers in the village will have seen what the focus-group farmers have been doing and will want to start testing these technologies themselves. Very quickly, you will find that there are more farmers testing technologies than you can visit and work with individually. How can you manage this situation?

## How to reach other farmers in the village

Some approaches that will help you work with a larger number of farmers in the village are:

### 1. Working with 'local champions'

The farmers in the focus-group have learned a lot about the technologies. They have gained confidence in how to experiment with new technologies. Often, they will be proud of their achievements and eager to share their knowledge with other farmers in the village. They can become 'local champions', helping you reach more farmers.



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*'Local champions' are good 'promoters' of technology options, but you need to ensure that they promote all promising options, not just those which worked on their farms.*

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**Take Note!**

### 2. Forming farmers' groups

You could encourage your focus-group to grow into a broader 'interest group', with many more farmers, so that new farmers can learn from the more experienced farmers. They may start to solve other problems (or new problems that have arisen) in the village. They may also start searching for opportunities for improving their livelihoods, in addition to working on solutions for immediate problems.

### 3. Conducting field days

You can organise field days to give many farmers in the village an opportunity to see the technology options and discuss the advantages and disadvantages of different options.



### 4. Supporting expansion

Be ready to support new farmers with seed or vegetative planting material (or whatever technology options are needed) of the complete range of options, otherwise they can only use those that happen to be available. With forages, we have found that planting material must be available locally, so farmers can easily access it at any time.



## Sharing successful technologies with other villages

News of your work in a village spreads quickly. Even while the focus-group is still evaluating the technology options, farmers from other villages will have heard about your work and some will want to try the new technologies for themselves. Sometimes, the technology options will spread rapidly and spontaneously as has often happened with new crop varieties. At other times you will need to actively promote the sharing of experiences between villages.

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***Don't try to expand to many new villages too early. It is better to work intensively with one or two villages, helping them become 'islands of success' which you can then use as 'learning centres' for other villages.***

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**Warning!**

It is seldom possible to take the successful technologies developed by farmers in one village and simply 'transfer' them to new villages. In most cases, new villages will have to go through a similar learning process as those in the original villages. You have a significant advantage in that you already have 'islands of success' in nearby villages and 'champions' of the new technologies. These can help you to accelerate the process of expanding to new villages.

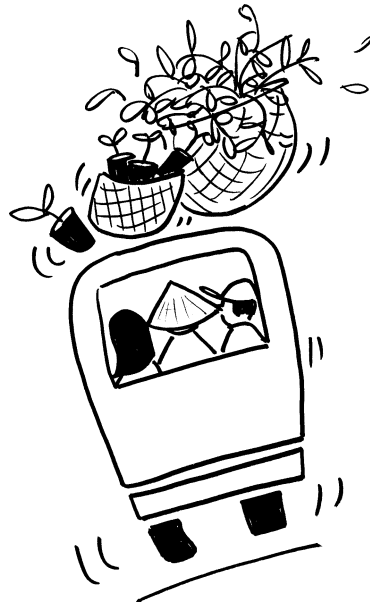
**Take Note!**



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*Successful technologies can seldom be 'photocopied' from one smallholder farm to another without the new farmers going through a learning process - starting small, gaining confidence and slowly building their own solutions.*

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## How to share successful technologies with other villages

As you expand to many new villages, you will not be able to work with every farmer individually. What strategies will help you work with farmers in many new villages?

- Form focus-groups in the new villages.
- Encourage innovative farmers to become extensionists. Make use of 'experienced farmers' from the original villages. You can arrange field visits where focus-groups from new villages visit the 'experienced farmers' to discuss the advantages and disadvantages of the technologies. You may be able to arrange for some of the 'experienced farmers' to visit the new villages and help them start testing a range of technology options.
- Develop extension materials. You can produce extension materials such as posters, leaflets and booklets, based on technical information and the experiences of farmers in the original villages.

When preparing extension materials, ask yourself: 'Who will use this material and what information do they need?' New farmers may only need a small amount of information about each technology option, while experienced farmers will be interested in more detailed information. Some people in the village may not be able to read and you may need to develop special extension material to reach them.





### **One tip . . .**

Look for opportunities to actively involve other people and organisations in your area who may have an interest in the technologies. They could be local government agencies, NGOs, traders, farmers' groups or cooperatives.



# Communication and facilitation skills

## 4



# Communication and facilitation skills



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To work effectively with farmers as partners in developing new agricultural technologies, you will need to practice some essential communication and facilitation skills. These include neutrality, positive body language, questioning skills and facilitation of group discussions.

## Why is it important to be 'neutral'?

The way you ask questions will influence the answers you get. Being genuinely interested in farmers' opinions, we do not want to influence their answers by asking leading questions.

Examples of **leading questions** are:

'This is an excellent forage variety, don't you agree?'

'What is good about this variety? It doesn't seem to have good disease resistance.'

This type of question should always be **avoided** as it tells the farmer what you would like to hear or limits the answers to a particular topic!

Your body language also influences farmers' answers. Show that you value farmers opinion through your body language. Many of the photographs and drawings in this book demonstrate positive body language.





## What type of questions should I use?

Try to use **open-ended questions** and follow these up with **probing questions**. Open-ended questions invite farmers to reply freely and openly. Probing questions help you gain more insight into the farmers' answers.

Examples of **open-ended (O)** and **probing (P)** questions are:

***What do you think about these grass varieties?" (O)***  
I like this variety the best.

***Why do you like this variety better than the others? (P)***  
Well, it has soft green leaves.

***Why is that important? (P)***  
Well, they are easy to cut and my animals like to eat soft leaves.

***Is there anything else you like about this variety?" (O)***  
It stays green in the dry season while the others turn brown quickly"

***Is there anything you don't like about this variety?" (O)***

Often the answer to a probing question requires more probing questions to fully understand the issue. Always ask for clarification.

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**Take Note!**



***Open-ended and probing questions are the key to really understanding farmers' opinions and experiences. Never assume you know the answer - always ask the farmer to explain.***

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## How do I facilitate group meetings?

As part of your work with farmers, you will need to facilitate many meetings with villages and focus-groups. This important skill takes time to learn and improves with practice. Here are some ideas which will help you become a better facilitator:

- Stop any individual from dominating the meeting
- Encourage contributions from all farmers, especially the shy ones
- Guide the meeting towards its goal
- Manage the pace of the meeting to maintain farmers' interest
- Take regular breaks to allow people to mix and relax
- Summarise the results of the discussion

... and remember to use open-ended and probing questions.

One technique that we found useful when working with groups is to use cards to 'brainstorm' and analyse ideas.





## Using cards to analyse ideas

Much of your work will involve meetings with farmers where you want to record and discuss their ideas. You can write farmers' ideas on cards that can be sorted easily into groups of similar ideas. The process of sorting ideas stimulates discussion and the sorted cards provide a good summary of this discussion.

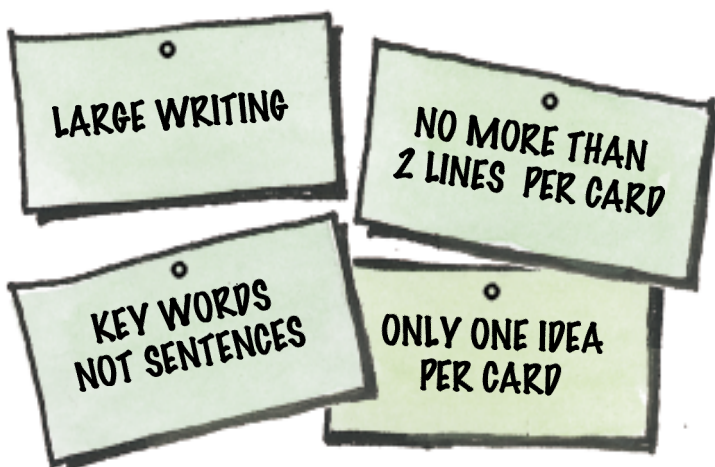
### How to use cards to analyse ideas

1. As with every discussion, make sure that everyone understands the issue (e.g. 'What are the main causes of poor cattle production in our village?')
2. Encourage everyone in the meeting to suggest ideas.
3. Write each idea on a card and stick it on the wall so everyone can see it. This will stimulate new ideas.

4. Once there are no more ideas, start organising the cards into groups of similar ideas in consultation with the farmers. It helps to use cards of a different colour to write group headings.
5. Once all the cards have been sorted, summarise the ideas and discuss them with the group.

### **Make sure that you use**

- large writing
- no more than 2 lines per card
- keywords not sentences
- only one idea per card





### **Some tips for using cards to analyse ideas**

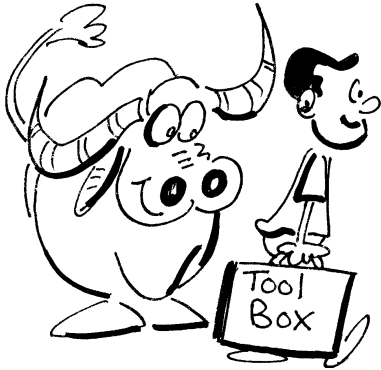
- Try using coloured cards to differentiate between types of participants. For example, give white cards to farmers with livestock and yellow cards to farmers without livestock.
- If possible, ask the farmers to organise the cards themselves.
- Be aware of literacy limitations!

# Tools

5



## Tools



There are many tools that can help you work with farmers in developing agricultural technologies. We only describe a few which we have found useful and appropriate in many situations:

1. Ranking, scoring and weighting
2. Village walks
3. Village resource maps
4. Wealth analysis
5. Seasonal calendars
6. Historical calendars
7. Problem-cause diagrams
8. Preference analysis

These tools help you to:

- Break the ice - they can break down social barriers and encourage active involvement from all social groups. They can change a boring and formal meeting into an energetic and enjoyable interaction between you and the village.
- Improve your understanding of the complexity of farming systems. Do not forget, however, that your goal is help farmers improve their livelihoods, not just to gain a better understanding of their farming systems!



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As you gain experience in the field, you may need to modify these tools or you may need additional tools to help you achieve specific goals.

### **Some tips for all tools . . .**

#### **Give the pen to the farmers!**

Holding the pen empowers farmers, encourages active participation and results in more meaningful maps.

#### **Always record the main points of the discussion.**

It is not the 'physical output' (e.g. the map or the calendar) of each tool that is the most important result, but the understanding you and the farmers gain from the discussions that are generated by using the tools. Before finishing a tool, ask one of the farmers to summarise the results of the exercise for the whole group.

#### **Try to capture the views of different social groups in the village**

Villages are never homogeneous. Different ethnic, gender and social groups within the village are likely to have very different views on many issues. It is often useful to form



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sub-groups (based on ethnic, gender or social differences), asking each sub-group to work on a separate version of the same tool. This brings out and captures the variety of views within the village and usually results in vigorous discussion when each sub-group reports its findings back to the whole group.



### **Encourage active participation**

The output of all tools is only useful if all of the participants are actively contributing their ideas and experience. This is not possible if there are too many participants working on a tool. For most tools, there should be no more than 10 to 15 people. If there are many participants, you could split the group into sub-groups with common interests working on the same or different tools.

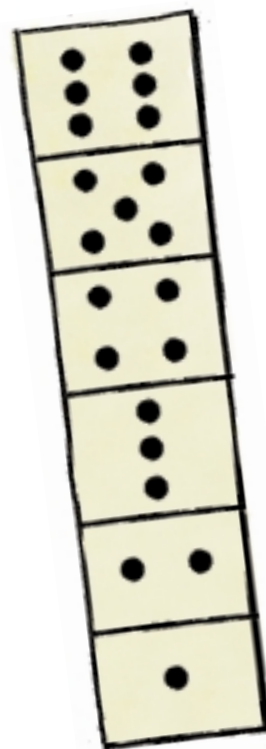


## Ranking, scoring and weighting

You will often want to understand farmers' preferences, such as which problems are most important to them or which technology options they most prefer. Three simple techniques to help you do this are 'ranking', 'scoring' and 'weighting'.

### How to use ranking

Ranking is useful when you are working with many farmers at one time. Ask the farmers to tell you their preferences in order, starting with their first preference, then their second preference and so on. To avoid getting the 'average' result from the meeting, you can give each farmer a 'ranking slip', such as the one at right, which they tear into squares to 'vote' for their preferences. In this example, there were six choices and the square with six dots meant the highest preference.



 1        5        10  OPTION 1
 1        5        10  OPTION 2
 1        5        10  OPTION 3
 1        5        10  OPTION 4
 1        5        10  OPTION 5
 1        5        10  OPTION 6

This tool is fast and allows you to analyse the data in more detail. For example, you can draw a coloured stripe on the slips that are given to men so you can tell the difference in preferences between men and women.

Two disadvantages of ranking are:

1. it forces farmers to order their preferences when they may actually like some of the choices equally, and
2. it is a relative measure of preference. That is, it does not tell you **how much** farmers prefer one choice over another.

### How to use scoring

Scoring is useful when you are working with individual farmers. Ask the farmers to assign a number between 1 and 10 to the different choices, where '1' means a very low preference and '10' means a very high preference.

An advantage of scoring is that it tells you **how much** farmers prefer one choice over another. A disadvantage is that farmers sometimes give an 'average' score to most options so as not to offend the development worker.

Scoring can also be used with groups of farmers by giving each farmer a 'scoring slip' like the one at the left. You can draw coloured lines on some slips to help you understand the opinions of different groups of farmers (eg. give slips with blue lines drawn on them to women and with no lines on them to men).



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## How to use weighting

Weighting is useful when you are working with individual farmers. Give the farmer a fixed number of 'counters' (such as 50 corn seeds). The farmer allocates all of these seeds to the different choices. The more important choices get a higher number of seeds.

Weighting helps us understand **how much** a farmer prefers one choice over another.





## Village Walks

Before you start working in a new village, you need to familiarise yourself with the geography, farming systems, natural resources, problems and opportunities of the village. Village walks are a quick way to gain these insights. Having some understanding of the village situation will help you facilitate participatory diagnosis.

### **How to organise a Village Walk**

Ask one or two farmers to take you on a walk, covering the range of farming systems and natural resources in the area. During the walk, stop when you see something unusual and interesting, ask questions about what you see, probe the farmers' answers and compare it with what you have experienced in other villages.

Be aware that you may get a limited view of village issues since you are only talking with a few farmers. You should check any interesting issues that emerge during a village walk by raising them at the participatory diagnosis.



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### Some tips . . .

- Invite farmers from different social groups in the village to join you on the walk. This will give you a broader view of the issues in the village.
- If there are two development workers, it is always useful to split up and go on separate village walks; one with the women farmers and the other with the men.





## Village Resource Maps

Village resource maps show the physical features and resources farmers consider important in their village. Often, they are the first activity you do with farmers in a participatory diagnosis. They help break down social barriers and encourage active participation of everyone in a meeting.

### How to make a Village Resource Map

Ask the farmers to draw a map of the important physical features and resources of their village. Commonly, farmers will draw features such as the village boundary, roads, houses, rivers, schools and other public buildings. You may find it useful to suggest that the farmers draw their village boundary first because sometimes they will start drawing

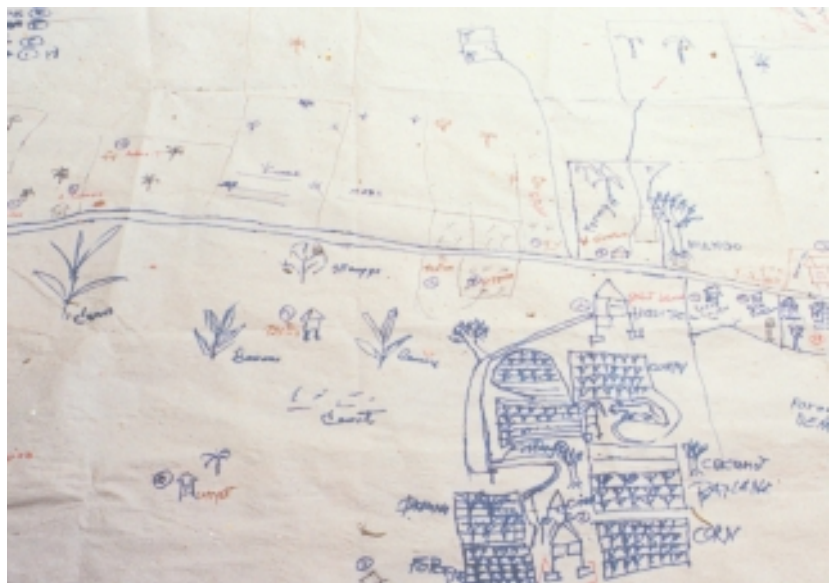
their map in a very detailed way and then find they have run out of paper to draw the rest of the village resources. Encourage them to include their natural and agricultural resources, such as cropping areas, grazing areas, forests and fish ponds.

### Make sure that . . .

- Farmers do the drawing, not you! It is their perceptions that are important, not yours.
- No one dominates the drawing of the map. It is common for a village headman to start drawing the map. You will need to actively encourage others in the meeting to draw! After only a short time you will find that many people are involved.



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## Wealth Analysis

In any village there are differences in livelihood security. Some people are poor and other people are relatively better-off. Wealth analysis is a tool that helps you

- define these 'wealth groups' in a village,
- identify who in the village belongs to each group,
- understand the main characteristics of each group, and
- understand why some people are poor while others are relatively better-off.

Using the results of wealth analysis, you can target your activities to particular groups in the village (e.g. poor households will not benefit from technologies that improve large animal production systems, if they only keep small animals).

Remember that the results of wealth analysis cannot be used to say that there are more poor people in one village than another because the definition of what is 'poor' or 'better-off' is different for each village.



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## How to do Wealth Analysis

Ask the farmers:

1. If there are different groups of people in the village based on wealth and how would they describe these groups. For instance, farmers may say there are three groups of people in the village: 'poor' (with food shortages every year), 'moderate' (with food shortages occasionally) and 'better-off' (with enough food each year with occasional surpluses).
2. To allocate all households in the village to these wealth groups. One way to do this is to mark each house on the village resource map with a colour indicating to which wealth group the household belongs.



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Allocating households to different wealth groups sometimes can be difficult and contentious to do in a large meeting. A useful alternative is to work with a small number of farmers to do the allocation and report the results back to the village for verification.

3. To describe the main characteristics of each group. These may be characteristics such as labour availability, area of lowland rice fields and literacy. See the example output of a wealth analysis in the Table opposite.
4. To discuss why some farmers in the village are poor while others are relatively better-off. For example, many of the households in the 'better-off' group may be those who settled first in the village and were able to choose the best land. Some 'poor' households may be widows with little available family labour.

### Example output from a Wealth Analysis

<p><b>'Poor' Group</b>  <b>('Food shortages every year')</b>  <b>18 farmers</b></p>	<p><b>'Medium' Group</b>  <b>('Occasional food shortages')</b>  <b>35 farmers</b></p>	<p><b>'Better-Off' Group</b>  <b>('Enough food all year round')</b>  <b>16 farmers</b></p>
<ul style="list-style-type: none"> <li>• rice shortages every year</li> <li>• no lowland rice area</li> <li>• have only chickens and ducks</li> <li>• cannot purchase replacements if animals die</li> <li>• poor housing</li> <li>• settled in the village recently</li> <li>• have to sell labour and therefore lack labour for their own farm</li> <li>• don't have money to buy medicine</li> <li>• have to borrow rice every year and have difficulty repaying their debts</li> </ul>	<ul style="list-style-type: none"> <li>• sufficient/surplus rice in some years</li> <li>• less land than the 'well-off' group</li> <li>• fewer livestock than the 'well-off' group</li> <li>• can buy replacements if animals die</li> <li>• poorer housing than the 'well-off' group</li> <li>• have many different activities for income and livelihood</li> <li>• weave cloth for sale</li> <li>• exchange labour</li> </ul>	<ul style="list-style-type: none"> <li>• surplus rice every year</li> <li>• have both lowland and upland fields</li> <li>• raise pigs, chickens, ducks and buffalo or cattle for sale</li> <li>• can purchase replacements if animals die</li> <li>• substantial house</li> <li>• have money/capital</li> <li>• have education</li> <li>• know how to utilize their resources well</li> <li>• were the first settlers in the village, so got the best land</li> </ul>





## Historical Calendars

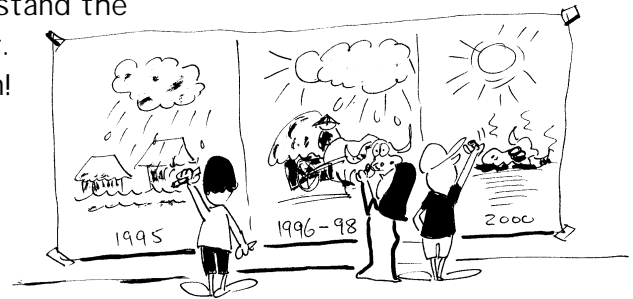
Most smallholder farming systems are experiencing rapid change. When you visit a village, all you see is a snapshot in time. Historical calendars help you to understand major trends in the farming systems and highlight major problems.

### How to make a Historical Calendar

1. Draw a matrix with time along the top row.
2. Establish a timeline for the calendar.  
To do this, ask the farmers how far they can remember back in their village. This is the starting point in the timeline. Then ask the farmers what major events they can remember happening in the village since that time (e.g. a major flood or the building of a school).

Ask them if they can remember the approximate year of each major event and write these into the top row.

3. Discuss with the farmers the main factors that have changed in their village and farming systems since the start of the timeline. These could be factors such as population, rice yields, food shortages and cattle numbers. Write these in the first column of the matrix.
4. Ask the farmers to show how these factors have changed over time, using scoring or weighting.
5. When completed, ask one farmer to summarise the historical calendar for the group. The discussion stimulated by producing the calendar will give a village story which will help you to understand the background to farmers' decisions better. Record the main points of this discussion!





## Seasonal Calendars

Farmers' problems often occur at particular times of year (e.g. dry season feed shortages). Seasonal calendars are a simple way to understand how important activities, problems or resources change throughout the year.

### How to make a Seasonal Calendar

1. Draw a matrix with months written along the top for the farmers to use in preparing their seasonal calendar. Make sure you use the local calendar to define the seasons or months. Often, these are different from the international calendar.

2. Together with the farmers, identify important activities, problems and resources that change seasonally (e.g. labour availability, cropping cycles, food availability and livestock diseases). Write these in the first column of the matrix.
3. Ask farmers to explain how each of these factors varies throughout the year. They can do this by:
  - drawing lines to show times of year when events happen (e.g. harvest time for a crop), or
  - scoring or weighting the importance of factors at different times of year (e.g. how bad are livestock disease problems in each month of the year).



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## Problem–Cause Diagrams

This is a tool to analyse the causes of the problems, identify the linkages between the problems, understand the mechanisms farmers have used to cope and identify the best possible points for introducing interventions.

### How to develop a Problem-Cause Diagram

The village has identified a main problem for the focus-group to solve (e.g. 'our cattle are thin and weak'). Write this problem on a card and place it in the middle of a board (see diagram Step 1 on Page 100 ). To better understand this problem:

1. Ask the farmers in the focus-group 'What are the causes of this problem?'
2. Write each cause on a card, stick the card above the problem and draw an arrow to show the links to the problem (or other causes).
3. Then ask the group if there are other causes of the problem, building a 'cause diagram' above the problem (see diagram Step 2 on Page 101 ).
4. Then ask the farmers "What are the effects of this problem?"
5. Write each effect on a card. Attach each of these cards below the problem and draw an arrow to show the links from the problem (or other effects).
6. Continue asking about the effects of the problem, building an 'effect diagram' below the problem (see diagram Step 3 on Page 102).
7. Ask the farmers to consider all of the causes and ask if they have been able to do anything to minimise any of these in the past; i.e. coping mechanisms (see diagram Step 4 on Page 103 ).
8. Together, discuss what other possibilities there may be to solve the main problem (see diagram Step 5 on Page 104).

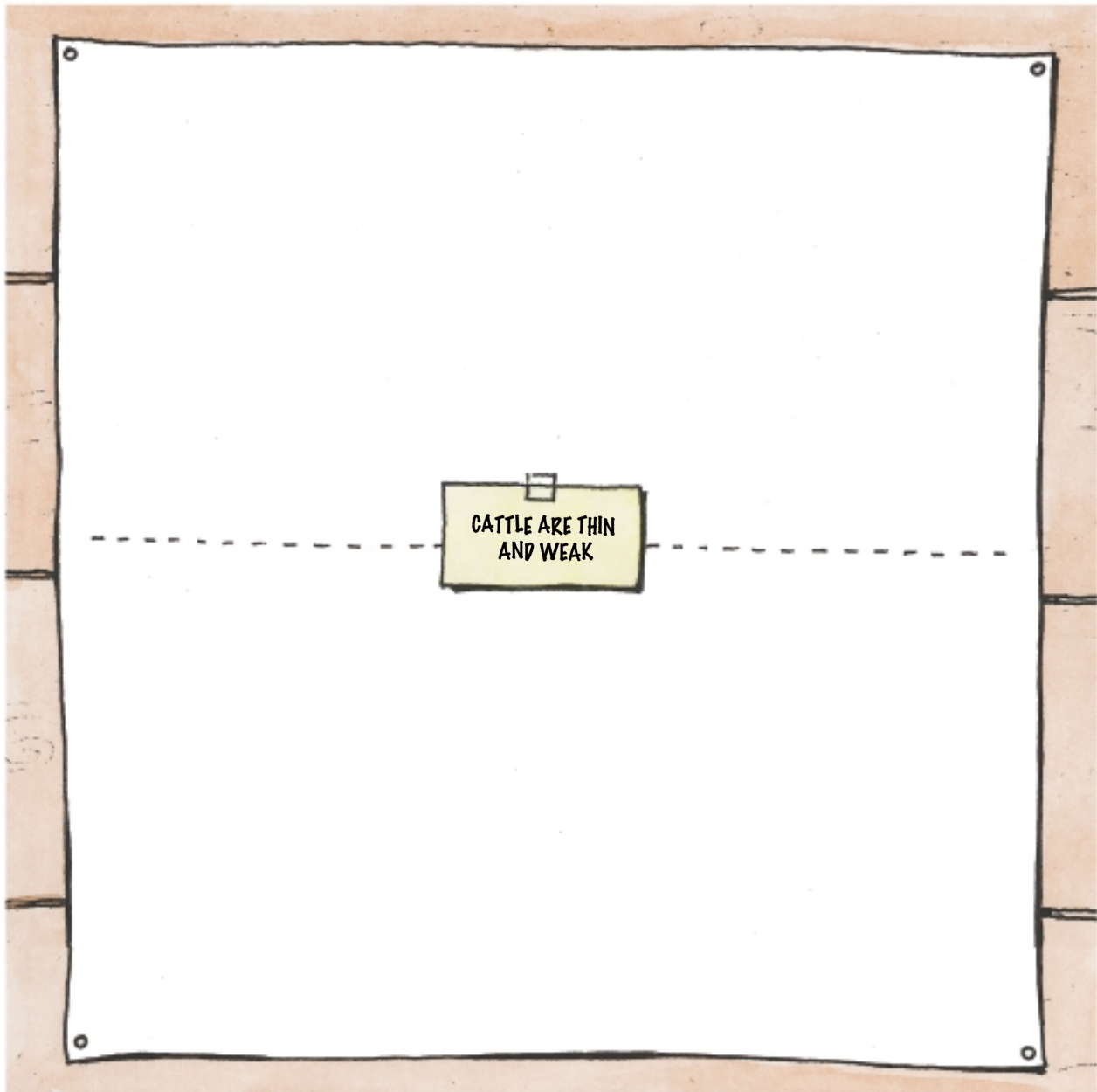


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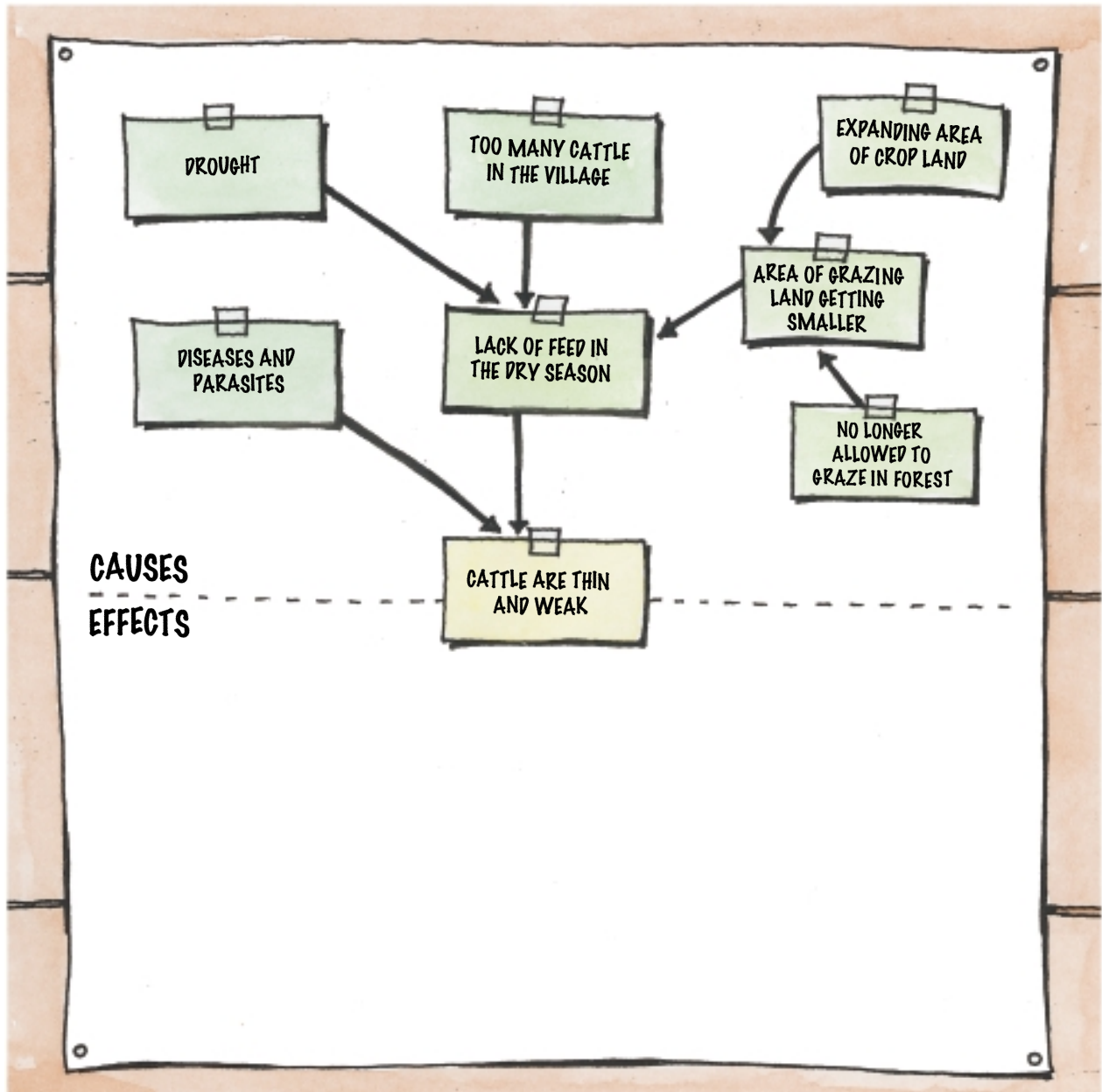


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Problem-Cause Diagram (Step 1): What is the main problem?

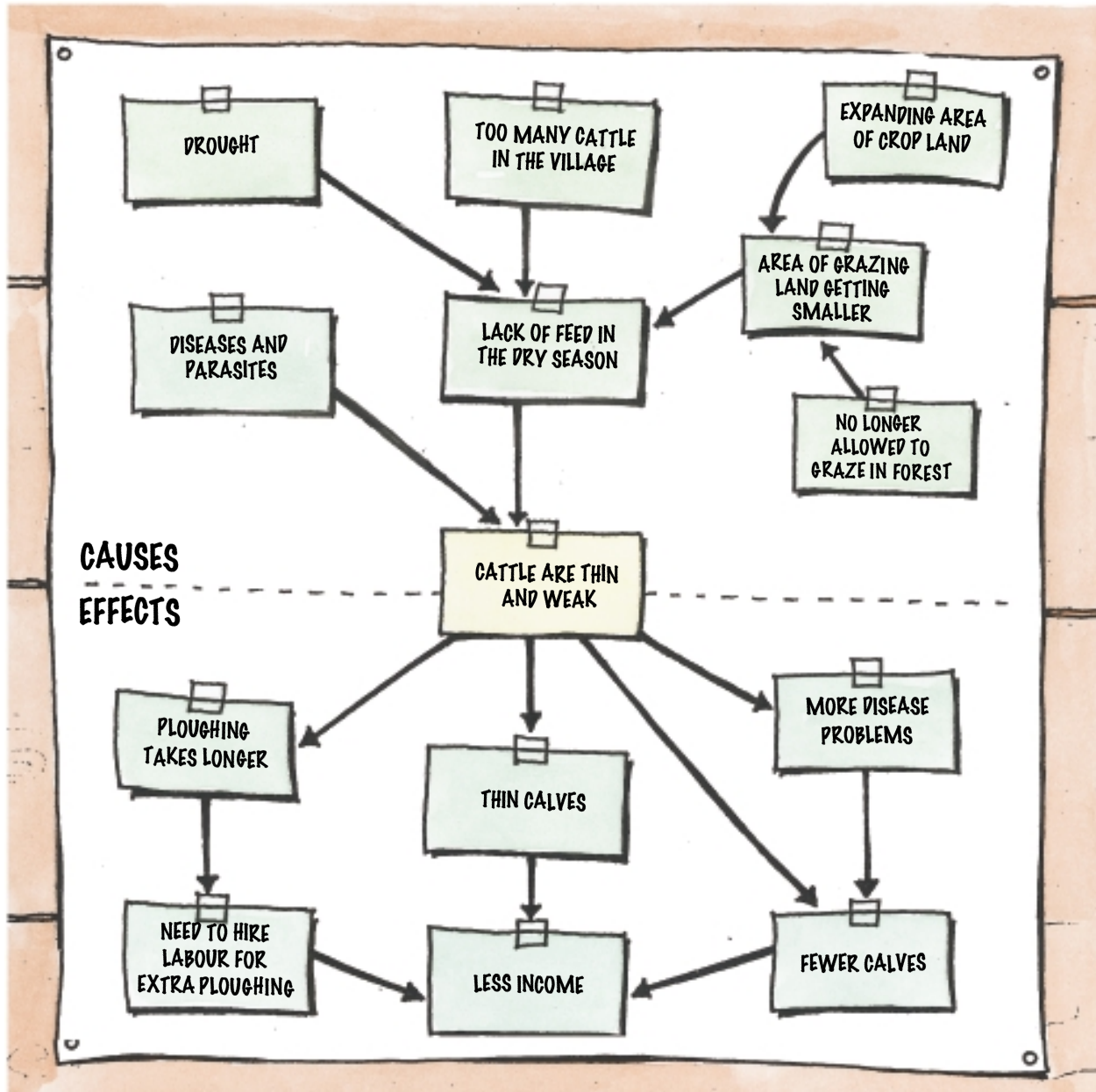


Problem-Cause Diagram (Step 2): What are the causes of this problem?

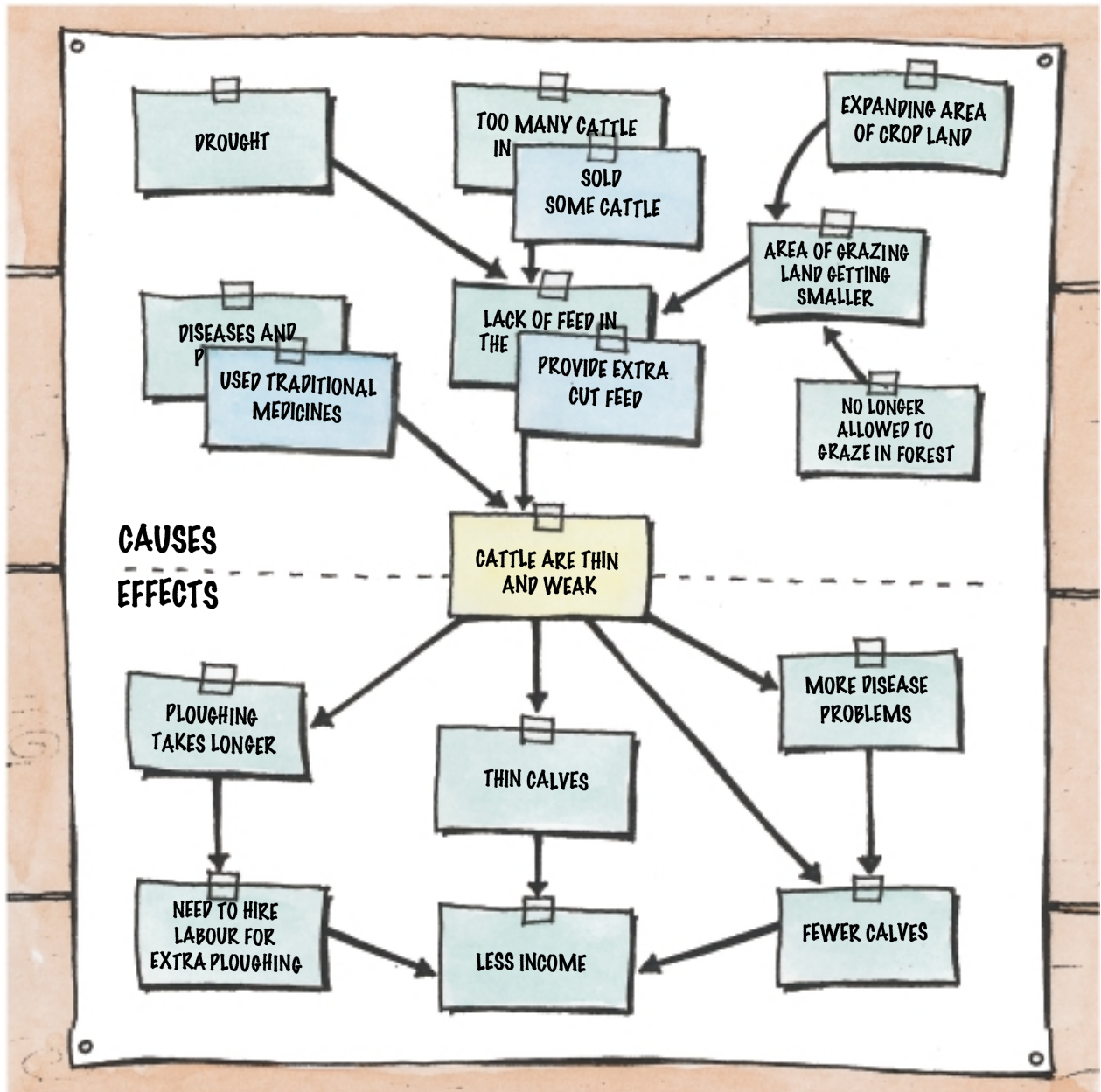




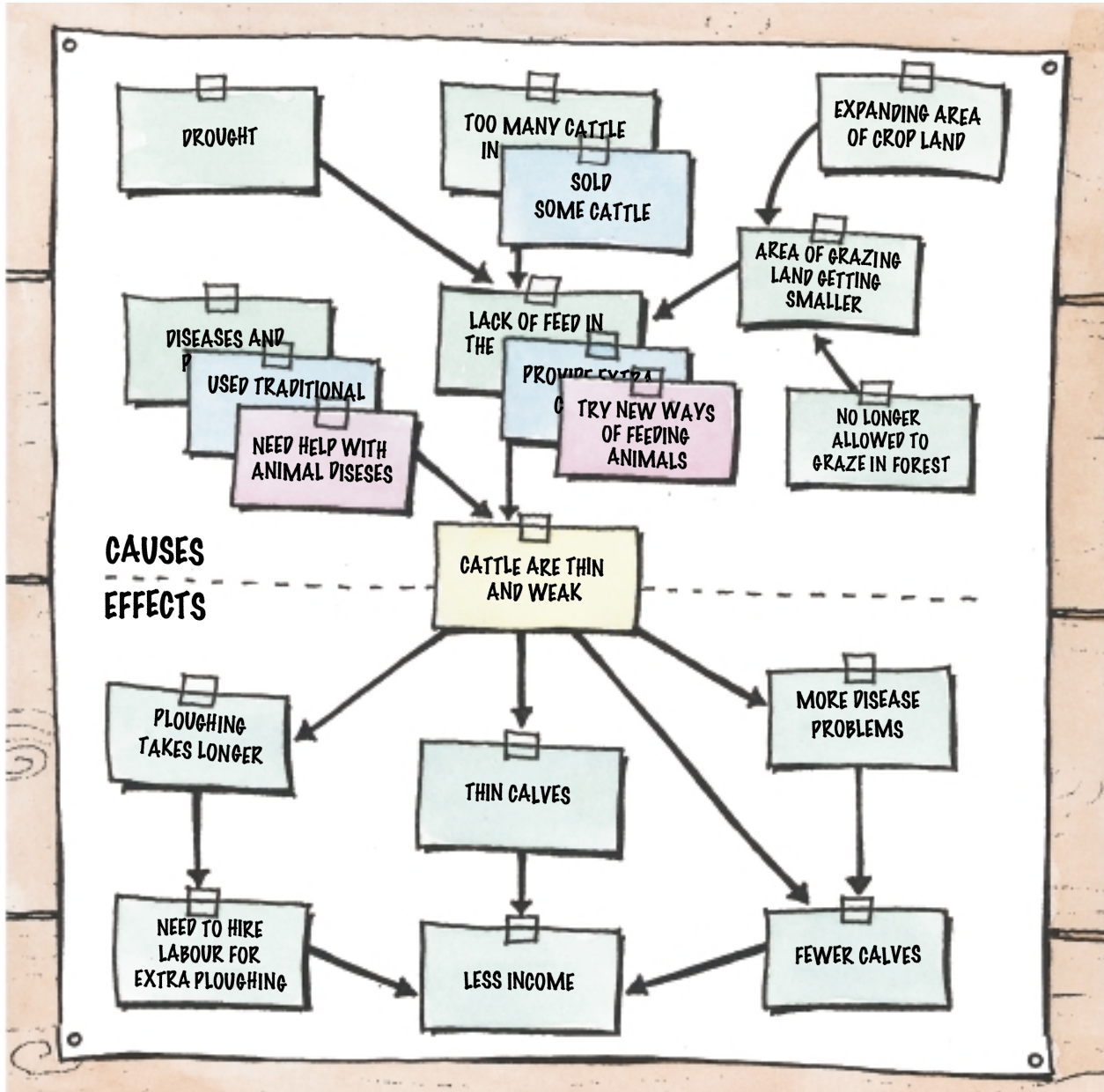
Problem-Cause Diagram (Step 3): What are the effects of this problem?



Problem-Cause Diagram (Step 4): How do farmers cope with the problem?



Problem–Cause Diagram (Step 5): How can we overcome the main problem?





## Preference Analysis

When you evaluate technologies with farmers you want to find out which options they prefer and why. You will already have some understanding of this from the discussions you had with farmers during your regular monitoring visits. Towards the end of the evaluation period (e.g. the cropping season) you may want to conduct a more-formal evaluation to record and analyse these preferences. A tool that will help you do this is 'Preference Analysis'.

### How to do a Preference Analysis

Preference Analysis has two steps:

1. collecting data with individual farmers, and
2. analysing the results with the focus-group.



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### Step 1. Collecting data with individual farmers

With each focus-group farmer:

1. Draw up a matrix like the example opposite.
2. Write into the matrix the technology options the farmer is testing.
3. Ask the farmer to allocate weights to the options (usually 50 counters).
4. Summarise the weighting and ask the farmer to confirm that this is correct.
5. Using open-ended and probing questions ask about the option the farmer liked best. For example, 'Why do you like 'Simuang' and 'Marandu' better than the other grasses?' Write the answers in the 'positive criteria' cell.
6. Then ask if there are any things the farmer does not like about this option. Write the answers in the 'negative criteria' cell.
7. Repeat these questions for all technology options.
8. Briefly summarise the positive and negative criteria and ask the farmer to confirm that this is correct.

This information will show you which technology options are promising and give you a better understanding of the criteria farmers use to choose among the technology options.

Basic matrix for evaluating five grass varieties

Farmers name: <b>MARY SUMBAWA</b> Date: <b>11 MARCH 2002</b> Interviewer: <b>PAPANG GABUNADA</b>					
Weighting	Technology options				
	<b>RUZI</b>	<b>GAMBA</b>	<b>SIMUANG</b>	<b>NAPIER</b>	<b>MARANDU</b>
	<b>3</b>	<b>6</b>	<b>20</b>	<b>2</b>	<b>19</b>
Positive criteria	<b>SOFT LEAVES</b> <b>EASY SEED PRODUCTION</b>	<b>STAYS GREEN IN DRY SEASON</b>	<b>HIGH YIELD IN THE WET SEASON</b> <b>ANIMALS LIKE IT</b> <b>GOOD SEED</b>	<b>EASY TO CUT</b>	<b>HIGH YIELD</b> <b>STAYS GREEN IN DRY SEASON</b> <b>LIKED BY ANIMALS</b>
Negative criteria	<b>TURNS BROWN IN DRY SEASON</b> <b>LOW YIELD</b> <b>COULD BE A WEED</b>	<b>BECOMES STEMMY IF NOT CUT FREQUENTLY</b> <b>LEAVES GET BROWN SPOTS</b>	<b>NEEDS FERTILISER</b>	<b>DIES DURING THE DRY SEASON</b> <b>TOO MUCH STEM</b> <b>NEEDS FERTILISER</b>	



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## Step 2. Analysing the results with the focus-group

Summarise the results of the weightings (see Table opposite) and present these results to a meeting of the focus-group. Using this example, you would:

1. Describe the main results as follows: seven farmers liked 'Marandu' and 'Simuang', while two farmers clearly preferred 'Ruzi' to all other varieties.
2. Ask the seven farmers why they chose 'Marandu' and 'Simuang'. They might explain that they selected these two varieties because 'Simuang' was the best variety for the wet season and 'Marandu' was the best variety for the dry season.
3. Then ask the two farmers why they chose 'Ruzi'. They might explain that they selected 'Ruzi' because it spreads quickly and would be a good variety to control soil erosion on their steep land.
4. Facilitate a discussion of all of the results. You may, for instance, find that some of the seven farmers think that using 'Ruzi' to control soil erosion is a good idea and they'd like to try that as well.



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This example illustrates an important point about Preference Analysis: do not dismiss the preferences of farmers who differ from the majority. They may have had an innovative idea on how to use the technology or they may have different conditions on their farms. There may be many other farmers in the village who have similar needs to these farmers.

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*You are looking for a range of technology options which suit different situations in a village, NOT an 'average' recommendation.*

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**Take Note!**

Farmers name	Weightings of technology options				
	Ruzi	Gamba	Simuang	Napier	Marandu
Mary Sumbawa	3	6	20	2	19
Andi Amala	6	7	15	5	17
Endang Kandali	27	6	8	6	3
Redwan Chalaka	4	4	19	6	17
Fatima Usaha	3	5	17	3	21
Noviati Hakim	32	6	5	4	3
Ugan Romjali	3	4	18	6	19
Asep Iskandar	5	4	17	4	20
Intan Yangindah	3	5	21	2	18



### **Some tips . . .**

- Do not ask farmers to do Preference Analysis until they have had enough time to build experience with the new technologies.
- Do not give advice during the Preference Analysis. If farmers ask for your advice, explain that you would be happy to discuss the technologies after the Preference Analysis.
- It is useful to prepare a permanent matrix on a large piece of paper and cover it with plastic. This allows you to write on the matrix with whiteboard pens and re-use the matrix with all farmers.
- It is difficult for farmers to compare more than six technology options in one Preference Analysis.

Just do it!

6





## Just do it!

If you are using the participatory approach described in this booklet, your role as a development worker will have changed from being a 'teacher' to being a 'facilitator'. Instead of promoting specific 'technology packages' you are working in partnership with farmers on issues that are important to them and which are likely to improve their livelihoods. Each of you contributes significantly to this partnership.

### **You contribute**

- your technical knowledge,
- broad experience from having worked in many different farming systems, and
- linkages with other sources of information and technology options.

### **Farmers contribute**

- their expert knowledge of the opportunities and constraints in their own farming system, and
- the ability to quickly evaluate and adapt new technology options to their situations.

**In your new role as 'facilitator' you have:**

- initiated the participatory technology development,
- facilitated village and focus-group discussions,
- supported farmers with information and technology options,
- facilitated farmer-to-farmer learning, and
- encouraged experienced farmers to help with local expansion.

You will find this new way of working with farmers to be challenging but very rewarding. Don't be afraid to make mistakes. Take a risk ... just do it... and learn from your experiences!



7

Where can I get more information?



Where can I get  
more information?



If you are looking for more information about participatory approaches and how they are being used in Southeast Asia, the best first contacts are listed below. Although these addresses and contact names will change with time, they will guide you in the right direction to find the information you want.

For general enquiries visit the CIAT web site:  
<http://www.ciat.cgiar.org>  
or contact the CIAT Asian Regional Office:

CIAT  
P.O. Box 783, Vientiane  
Lao PDR  
Tel: (856 21) 770090  
Fax: (856 21) 770091  
E-mail: [ciat-asia@cgiar.org](mailto:ciat-asia@cgiar.org)  
Current contact: Rod Lefroy

## **Thailand**

Division of Animal Nutrition  
Department of Livestock Development  
Phya Thai Road, Bangkok 10400  
Tel: (66 2) 653 4491  
Current contact: Chaisang Phaikaew

Pakchong Animal Nutrition Research Centre  
Pakchong, Nakornratchasima 30130  
Tel: (66 44) 311 612  
Current contact: Ganda Nakamanee

## **Philippines**

Livestock Research Division  
Philippine Council for Agriculture, Forestry and  
Natural Resources Research and Development  
P.O. Box 425, Los Baños 4030, Laguna  
Tel: (63-49) 536 0014  
Current contact: Ed Magboo

FARMI,  
Leyte State University  
6521-A Baybay, Leyte  
Tel: (63-53) 536 2433  
Current contact: Francisco Gabunada

## Indonesia

Subdirektorat Pakan  
Direktorat Budidaya Peternakan  
Direktorat Jenderal Produksi Peternakan  
Departmen Pertanian  
Jl. Harsono, Rm. No. 3  
Jakarta 12550  
Tel: (62 21) 781 5686

Balai Pengkajian Teknologi Pertanian  
BPTP Gedong Johor  
Jalan Karyayasa No. 1B  
Medan, North Sumatra 20143  
Tel: (62 61) 787 0710  
Current contact: Tatang Ibrahim

Dinas Peternakan TK. 1 Kaltim  
Jalan Bhayangkara No. 54,  
Samarinda, East Kalimantan 75121  
Tel: (62 541) 43921  
Current contact: Ibrahim

Maimunah Tuhulele  
Pd. Jati Murni  
Blok I/12  
Pd. Gede 17431, Bekasi  
Jakarta  
Tel. (62 21) 844 5229

## Vietnam

National Institute of Animal Husbandry  
Ministry of Agriculture and Rural Development  
Thuy Phuong, Tu Liem  
Hanoi  
Tel: (84 4) 834 4775  
Current contact: Le Hoa Binh

Tay Nguyen University  
Highway No. 14, Km 4  
Buon Ma Thuot, Daklak  
Tel: (84 50) 853 781 / 853 279  
Current contact: Truong Tan Khanh

College of Agriculture & Forestry  
Thu Duc  
Ho Chi Minh City  
Tel: (84 8) 896 3353  
Current contact: Bui Xuan An

Hue University of Agriculture & Forestry  
Centre for Rural Development in Central Vietnam  
24 Phung Hung St.  
Hue  
Tel: (84 54) 825 049  
Current contact: Le Van An



## **Lao PDR**

The National Livestock Centre Nam Suang,  
National Agriculture and Forestry Research Institute  
Ministry of Agriculture and Forestry  
P.O. Box 811, Vientiane  
Tel: (856 21) 222 796  
Email: flspvte@laotel.com  
Current contacts: Viengsavanh Phimpachanhvongsod,  
Phonpaseuth Phengsavanh

## **China**

Tropical Pasture Research Center  
CATAS  
Hainan, Danzhou 571737  
Tel: (86 890) 330 0440  
Current contact: Yi Kexian