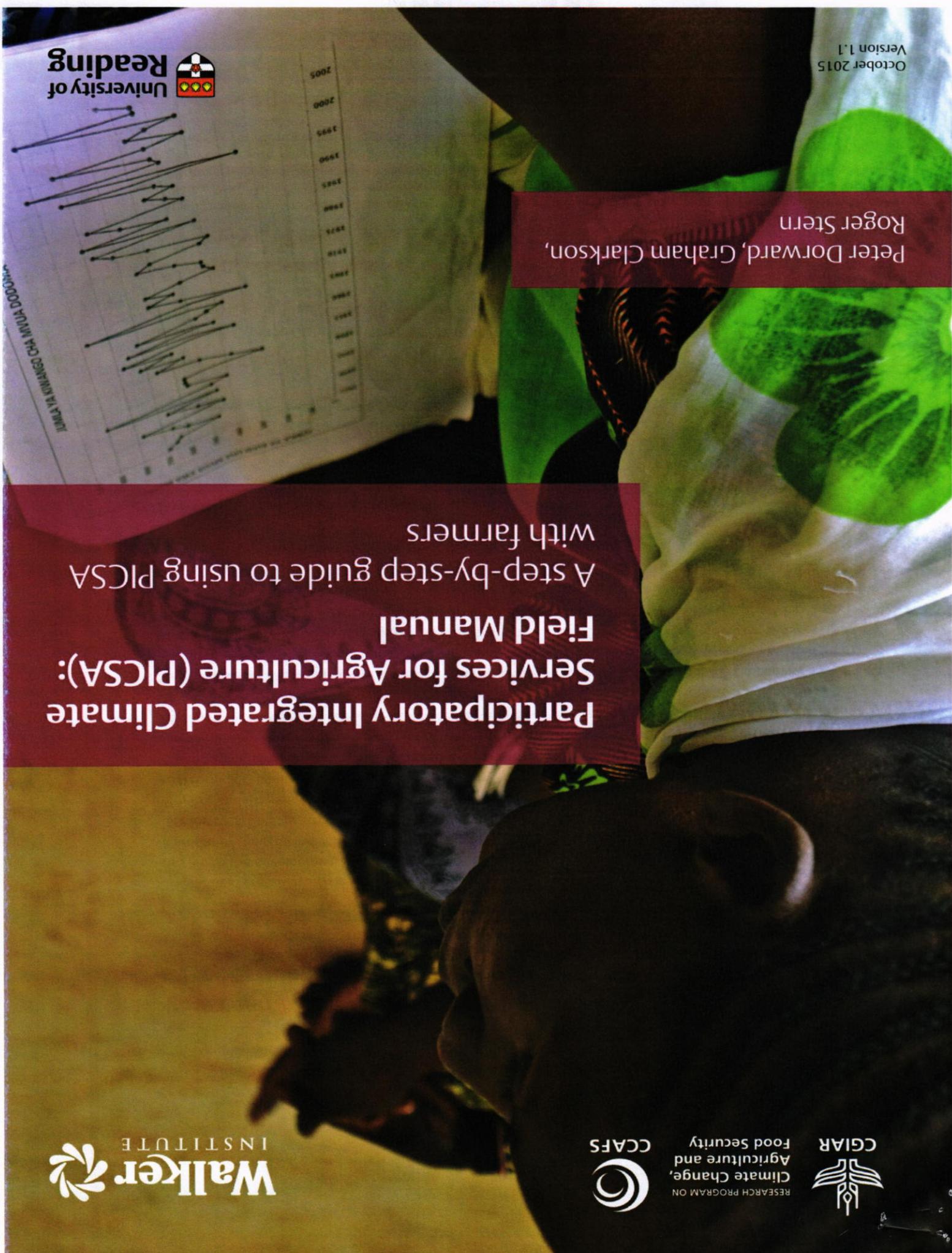


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Participatory Integrated Climate Services for Agriculture (PICSA): Field Manual

A step-by-step guide to using PICSA
with farmers



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Activity sheet G1 – Farmer decision making

Why is it important that farmers are the decision makers?

It is important that farmers are the decision makers as it is the farmers who are taking all of the risks. The PICSA approach aims to enable farmers to make better decisions but not to make decisions for them.

Up to this stage you have taken the farmers through steps that have explored the different crop, livestock and livelihood options that are relevant to their local area and climate. It is now important that the farmers individually decide what they would like to do in the next season. Given 'options-by-context' as introduced in step E, it is very likely that different farmers will choose different options. This should be encouraged. Some may decide to make no changes at all and if this is the case then they should not be pressured into making changes.

Materials

You should use the outputs from steps A, D and F.

Preparation

Ensure that each farmer brings their Resource Allocation Maps and Seasonal Calendars that were created in Step A and that the lists and Participatory Budgets from Steps D and F are available.

Procedure

1. Ask each farmer to look at their original Resource Allocation Maps and Seasonal Calendars.
2. Using the products from Steps D and F, ask each farmer to identify which options, if any, they would like to implement.
3. Ask the farmers to mark these changes on their Resource Allocation Maps and Seasonal Calendars (ask farmers to include detail on these for example the areas of the crops and the numbers of livestock).

Monitoring

It can be useful to record what, if any, options farmers decide to implement. However, it is essential that farmers do not think that you are 'checking up' on them or feel under any kind of pressure.

Step G – The farmer decides

Aims of this step:

1. For each individual farmer to identify the crop, livestock and/or livelihood options that they would like to implement in the coming season/near future.

During this step you should facilitate farmers to:

- Use the products from steps A, D and F to make informed decisions about what they intend to do in the coming season/near future (see activity sheet G1).
- Re-visit their individual Resource Allocation Maps and Seasonal Calendars and update them with their plans. It may be easier to create new ones, which is fine too.

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Long before the season - Step F

Activity sheet F1

9. Once the process of creating a Participatory Budget has been well understood, split the farmers into pairs or small groups to draw their own Participatory Budgets for the options they are interested in. Different farmers may be interested in different enterprises or options.
10. Once the group has multiple Participatory Budgets, farmers that have worked on different options should be asked to share their results and explain their budgets to each other. Through this process farmers will compare and contrast the different options, including current enterprises, to help them decide which options are best in their individual circumstances. It is important if possible to leave the PBs with the farmers who have drawn them.

Farmers may wish to compile more Participatory Budgets on their own outside of the meeting and this is to be encouraged. Please make sure, if possible, that farmers have flip chart paper and pens left with them to use.

Procedure

1. Decide upon the option that the farmers want to consider using the example Participatory Budget.
2. Draw a Participatory Budget template with as many columns for time periods as the option requires. The periods that you choose will depend on the activity you are exploring, for example tree or livestock enterprises might use years, most crops would use months and poultry might use weeks.
3. Write the option at the top of the flipchart and record the planned size (i.e. acres or herd size).
4. For each time period (column) e.g month, add the activities that are required (e.g. land preparation, planting, harvesting, veterinary services, selling livestock etc....).
5. For each activity, find out and add:
 - What inputs (e.g. seed, labour, pesticides, etc...) are required for each activity in each time period? Include the quantities of each input and prices that farmers have paid for inputs.
 - Any family labour linked to the activities, should also be added as it is important that farmers consider this in their decision making.
 - What outputs, if any, relate to each activity in each time period, including the quantity of each output and, the amounts and prices of any produce that was sold? If the price for any of the outputs is higher or lower than normal that year, farmers should use a 'typical' price so that the option does not look better or worse than it really is.
 - Produce consumed by the family or kept for consumption should be recorded as this should also be considered in decision making. However, if the household keeps produce for home consumption then it is better not to convert this into a cash value, as the farmer is not going to sell it.
6. Once the outputs and inputs for all the activities over the whole time have been accounted for, work out the cash balance (all cash income minus any variable costs) and record it in the balance row.
7. By adding and subtracting the balances in the different columns you can calculate the overall balance for this option over the production period. If the farmer has kept some produce and is not planning to sell it then record the amount of produce (e.g. 5 x 3kg bags of beans) together with the overall cash balance.
8. Now conduct 'What if' scenarios by asking farmers to identify what are the most likely things that could influence the option negatively and positively. They should adjust the Participatory Budget to see what effect these influences have on the balance. For example, in a participatory budget for a new crop, farmers might want to use the Participatory Budget to explore 'what if the price of the produce was low', 'what if the rains started late'

Dividing farmers into suitable groups: Step F will work best if each group is made up of farmers that want to examine the same options, and who have similar circumstances (eg farm size, access to resources). This needs to be done in a way that does not embarrass anyone. The easiest way is to ask farmers to a) select which options they are interested in, then b) ask them to get into smaller groups with other farmers that they think are the most similar to themselves.

Activity sheet F1: How to construct a Participatory Budget

What are Participatory Budgets used for?

Participatory Budgets are used to evaluate the resource inputs and outputs of the different crop, livestock and livelihood options. They enable farmers to identify the options that are best suited to their household and thus make informed choices about which options they may want to implement or try. They also help farmers to plan ahead and to prepare, by identifying what activities, money and resources are needed and when.⁷

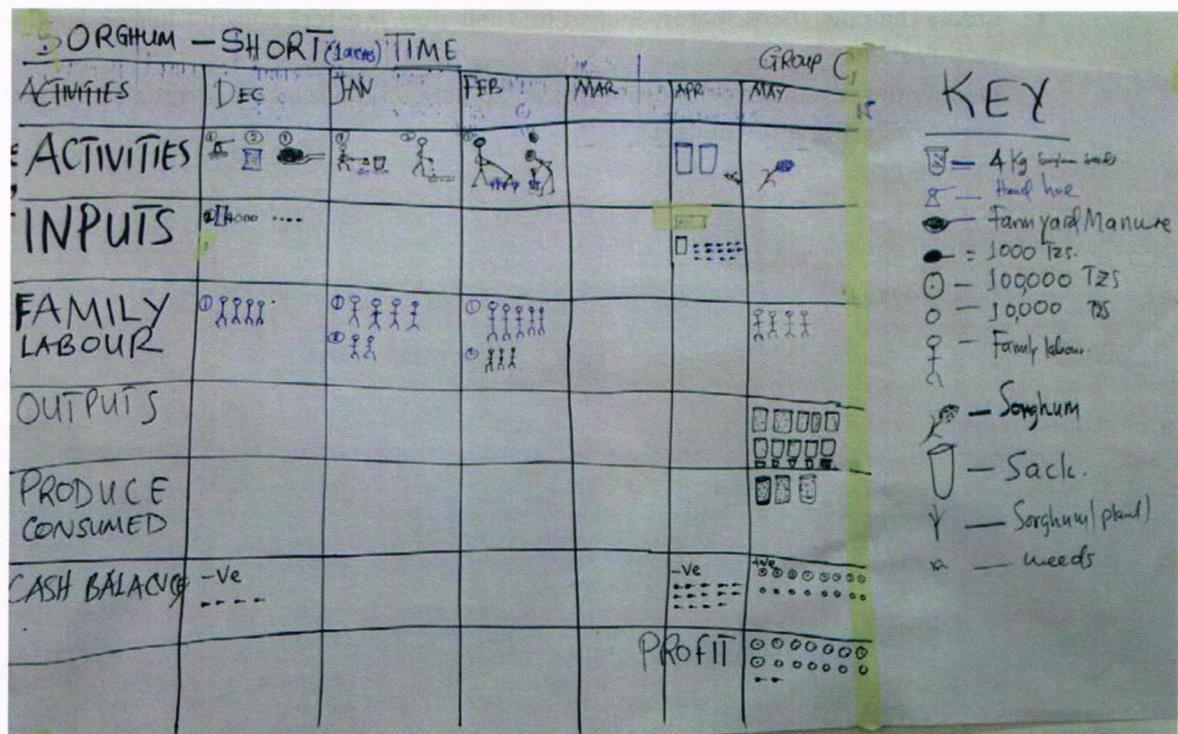
Materials

You will need a sheet of flipchart paper and a marker pen. Alternatively, a Participatory Budget can be drawn on the ground using a stick and stones, cartons or other items.

Preparation

- Discuss with farmers what the purpose of drawing a Participatory Budget is.

Example of a Participatory Budget



⁷ Participatory Budgets can be useful in a number of other applications including: planning when to do activities (e.g. plant a new crop); identify busy periods when there may be competition for time and/or resources; exploring options for introducing new activities; understanding when investment is required with a new enterprise

Step F – Compare different options and plan

By the end of this step, farmers should be ready to decide on the options that they intend to use in the forthcoming season. This requires a more detailed look at each of the options to help farmers explore which are best suited to their individual context. Participatory Budgets are a useful tool for this but are not necessarily suited to all options.

Aims of this step:

1. To help farmers select the options that they wish to try out or implement.
2. To enable farmers to use Participatory Budgets, when helpful, to be able to compare the different options that they are interested in implementing.
3. To facilitate farmers to plan how they will integrate the options that they select into their livelihoods.

During this step you should facilitate farmers to:

- Identify which of the options it would be useful to create Participatory Budgets for and which do not need this.
- Create their own Participatory Budget for their crop, livestock and/or livelihood options (see activity sheet F1).
- Identify the advantages, disadvantages and practical requirements of options that do not require a Participatory Budget.

Activity sheet E1 – Providing options by context

Why are we using 'options by context'?

All households are different and options that are best for one household are likely to be different to those that are best for another depending on the context. Options include any enterprises or management practices. Context is made up of features of the household, including wealth, size, education, availability of land, soil types, and livestock holdings etc..., as well as individual farmers' goals and attitudes to risk. It is recognised in development work that we should aim to support farmers to make their own decisions, by providing farmers with different 'options' so they can:

- choose which they think are best for them, and
- and how to adapt and implement them to their own circumstances.

As such, two neighbouring farmers may practice different options, or the same option in different ways, and both succeed.

Materials

Use the lists of crops, livestock and livelihood options drawn up in step D.

Preparation

Complete the activities in step D.

Procedure

1. Explain the idea of 'options by context' (see "Why are we using 'options by context'") and discuss with the farmers why it is important. Identify examples of practices used by some farmers and not others, and the reasons for this.
2. Refer back to the lists you made with the farmers in step D:
 - Crops and varieties options list
 - Crop practices options list
 - livestock options list
 - livelihood options list.
3. Ask all the farmers to identify options from these lists that they would like to explore further.

Step E – Options by context

By completing step D the farmers will have identified the different crop, livestock and livelihood options that may be of interest in their location.

Aims of this step:

1. To acknowledge/discuss the concept of 'options by context' with farmers.

During this step you should facilitate farmers to:

- Understand their options, based upon their individual circumstances.
- Choose which options to consider in more detail.

Procedure

1. Draw the outline of a Livelihood Options Matrix on a flipchart.
2. Ask farmers to suggest all the different livelihood activities that they are aware of.
3. Mark these on the chart (preferably using a drawing so everyone can understand it and remember which it is).
4. Add any other livelihood options that you think might be appropriate in this location. Refer to the Livelihood Options Matrix for livelihood options that are considered suitable for this location by development organisations if it is available (see appendix 4).
5. Explain each of the headings at the top of the matrix.
 - Who does the practice: Ask farmers to identify whether the labour for the livelihood option is most likely to be by women, men or both and to mark this on the matrix.
 - Benefits and who benefits: Use this column to consider with the farmers how each of the livelihood options would be likely to benefit them. Note that different options will have different benefits and aims. Then ask farmers to indicate who is likely to receive benefits from the option - men, women or both.
 - Performance in 'Low', 'Medium' and 'High' rainfall seasons / years: Use this column to consider how each of the livelihood options is expected to do in each of these different conditions in the area.
 - Investment: Use this column to consider the level of investment required for each option. Is it high (H), medium (M) or low (L). You may want to split this column into time and money.
 - Time to benefit: Use this column to consider how much preparation time a farmer would need to be able to carry out each of the options. Make sure you take into account whether farmers would need extra time to learn new skills or gather materials.
 - Other risks and disadvantages: Use this column to highlight any other risks or disadvantages involved with the livelihood.
6. Go through the livelihoods one by one, asking the farmers about each of the headings and agreeing on what should be filled in. It is important that the decisions are made by the group and not by you, the facilitator.
7. Put a star beside any of the options that any of the farmers are interested in (i.e. there doesn't have to be a consensus across the group) – you will need this list for step E.

Activity sheet D3 – How to construct a Livelihood Options Matrix

What is the Livelihood Options Matrix used for?

- To work with farmers to identify the different livelihood options that are available to them and which may be most suitable to different types of households.
- To introduce new livelihood options for the farmer so that they may consider what they are interested in and what they want to try.

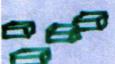
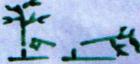
Materials

You will need a large sheet of paper and a marker pen. Alternatively, a Livelihood Options Matrix can be drawn on the ground using a stick and stones, cartons or other items.

Preparation

- Discuss the reason for constructing the livelihood matrix with the farmers.
- The Livelihood Options Matrix is designed to be carried out with a group of farmers; however, different livelihood options will be important to individual farmers depending on what skills they have, what they can afford to do, labour resources etc.... It is important to ensure that all farmers' views are represented during this activity.

Example Livelihood Options Matrix

PRACTICE	WHO DOES IT? ♀/♂	BENEFITS AND WHO BENEFITS ♀/♂	PERFORMANCE V/OK/X			INVESTMENT H/M/L	TIME TO START OF BENEFITS (MONTHS)	RISKS/ DISADVANTAGES
			LOW RF	MED RF	HIGH RF			
	♂♀	♂♀	OK	OK	OK	⊙ H # L	0	•
	♂	♂	OK	OK	OK	⊙ H # H	1	
	♂	♂♀	OK	OK	OK	⊙ H # H	3	
	♀♂	♀♂	X	OK	OK	⊙ H # H	1	•
	♂	♂♀	✓	OK	✓	⊙ H # L	0	•
	♂	♂	✓	✓	✓	⊙ H # H	0	•

Procedure

1. Draw the outline of a Livestock Options Matrix on a flipchart.
2. Ask farmers to suggest all the different livestock types that they are aware of and mark these on the chart (preferably using a drawing so everyone can understand it and remember which it is).
3. Then ask farmers to suggest the different livestock management options that may be used under differing weather conditions (i.e. moving herds to find pasture, breeding fewer animals, conserving feed etc...) and mark these on the chart.
4. Add any other livestock options that you think might be appropriate in this location. If it is available, refer to the Livestock Options Matrix for livestock options that are considered suitable for this location by development organisations (see appendix 3).
5. Explain each of the headings at the top of the matrix:
 - Who does the practice: Ask farmers to identify whether the labour for the livestock or management option is most likely to be by women, men or both and to mark this on the matrix.
 - Benefits and who benefits: Use this column to consider with the farmers how the livestock type and/or management option would be likely to benefit them. Note that different options will have different benefits and aims. Then ask farmers to indicate who is likely to receive benefits from each - men, women or both.
 - Performance in 'Low', 'Medium' and 'High' rainfall years: Use this column to consider how the livestock type or management option is expected to do in each of these different conditions in the area.
 - Investment: Use this column to consider the level of investment required for each livestock type or management option. Is it high (H), medium (M) or low (L).
 - Time to benefit: Use this column to consider how much preparation time a farmer would need to start keeping the livestock type or to be able to carry out the management option. Make sure you take into account whether farmers would need extra time to learn new skills, acquire stock, build housing or gather materials.
 - Other risks and disadvantages: Use this column to highlight any other risks or disadvantages involved with the livestock type or management option, such as lack of market, tenure issues, disease risks etc...
6. Go through the livestock types and management options one by one, asking the farmers about each of the headings and agreeing on what should be filled in. It is important that the decisions are made by the group and not by you, the facilitator.
7. Put a star beside any of the livestock types and options that any of the farmers are interested in (there doesn't have to be a consensus across the group) – you will need this list for step E.

Activity sheet D2 – How to construct a Livestock Options Matrix

What are Livestock Options Matrices used for?

Livestock are very important in dealing with climate variability. The procedure outlined below is designed to identify the key ways in which climate effects different types of livestock and therefore how climate information can be used to help plan livestock management.

Note: as there are so many types of livestock and methods of keeping them, it is not possible to provide detailed guidelines for all the different types of livestock here.

Materials

You will need a large sheet of paper and a marker pen (alternatively, the livestock options matrix may be drawn on the ground using a stick and stones, cartons or other items).

Preparation

- Discuss the reason for constructing the Livestock Options Matrix with farmers.
- Different livestock options will be important to individual farmers depending on what skills they have, and what they can afford to do, labour resources etc... It is important to ensure that all farmers' views are represented during this activity.

Example Livestock Options Matrix

PRACTICE	WHO DOES IT? ♀/♂	BENEFITS AND WHO BENEFITS ♀/♂	PERFORMANCE V/OK/X			INVESTMENT H/M/L	TIME TO START OF BENEFITS (MONTHS)	RISKS/DISADVANTAGES
			LOW RE	MED RE	HIGH RE			
	♀/♂	♀♂	OK	✓	✓	⊖ H ⊕ M	0	♀ ⊖
	♀/♂	♀♂	✓	✓	✓	⊖ M ⊕ L	5	-
	♀/♂	♀♂	✓	✓	✓	⊕ M ⊕ L	0	-
	♂	♂♀	OK	✓	✓	⊖ H ⊕ H	1	-
	♀	♀	OK	✓	✓	⊖ L ⊕ M	1	⊗ ⊗

- different benefits and aims. Then ask farmers to indicate who is likely to receive benefits from the practice - men, women or both.
- Performance in 'Low', 'Medium' and 'High' rainfall seasons / years: Use this column to consider how each of the crop practices is expected to do in each of these different conditions in the area.
 - Investment: Use this column to consider the level of investment required for each practice. Is it high (H), medium (M) or low (L). You may want to split this column into time and money.
 - Time to benefit: Use this column to consider how much preparation time a farmer would need to be able to carry out each of the practices and how long it would be before they start to see any benefits. Make sure you take into account whether farmers would need extra time to learn new skills, or acquire materials.
 - Other risks or disadvantages: Use this column to highlight any other risks involved with the crop practices (e.g. less crop residue for livestock feed as it is used for mulching).
6. Go through the crop practices one by one, asking the farmers about each of the headings and agreeing on what should be filled in. It is important that the decisions are made by the group and not by you, the facilitator.
 7. Include in your discussion identifying with the farmers which, if any, crop practices are likely to be helpful in most seasons (whether they are low, medium or high rainfall seasons) or that will still give a reasonable yield in poor seasons. Mark these with a circle.
 8. Put a star beside any of the crop practices that any of the farmers are interested in (there doesn't have to be a consensus across the group). Important - you will need this completed matrix to use again when you get to step E.

Note: *The aim is not to cover each of the practices in depth. If farmers are particularly interested in some practices that are new and that require more detailed coverage, you may need to arrange a separate session on this.*

Layout of Crop Related Practices Matrix

PRACTICE	WHO DOES IT? ♀/♂	BENEFITS AND WHO BENEFITS ♀/♂	PERFORMANCE ✓/OK/X			INVESTMENT H/M/L	TIME TO START OF BENEFITS (MONTHS)	RISKS/ DISADVANTAGES
			LOW RF	MED RF	HIGH RF			
	♀		OK	✓	OK	⊙ H # L	4	-
	♀		OK	✓	OK	⊙ H # M	6	
	♀		OK	✓	✓	⊙ H # M	36	⊙
	♀♂		OK	✓	✓	⊙ L # H	4	#

Procedure

1. Draw the outline of a Crop Related Practices Matrix on a flipchart.
2. Ask farmers to suggest all the different practices that they are aware of for improving crop production, particularly those that help address the problems and opportunities due to weather and climate. Depending on the location, examples could include soil and water conservation practices such as micro-pits, tied ridges and increasing soil organic matter. Many practices may have several benefits in addition to addressing the weather challenges. Other examples could include staggered planting, mixed cropping, use of legumes. Ask farmers to start with the practices that they think are the most useful as the list may be long.
3. Mark these on the chart (preferably using a drawing so everyone can understand it and remember which it is).
4. Introduce other crop related practices that you think might be good in this location. Refer to the Crop Related Practices Matrix if it is available (see appendix 2).
5. Explain each of the headings at the top of the matrix:
 - Who does the practice: Ask farmers to identify whether the labour for the practice is most likely to be by women, men or both and to mark this on the matrix.
 - Benefits and who benefits: Use this column to consider with the farmers how each of the crop practices would be likely to benefit them. Note that different options will have

Activity sheet D1b – How to construct a Crop Practices Options Matrix

What are crop practices matrices used for?

There are a wide range of practices that can increase the likelihood of achieving good yields. This exercise helps to identify locally known and new practices that are likely to be useful to farmers in the location. The matrix provides a way for farmers to consider which practices they want to learn more about and to try.

Some of the practices should help address climate and weather challenges and improve the crop probabilities given in the previous section e.g. soil and water conservation practices in semi-arid areas will increase the chances of a crop obtaining sufficient moisture.

Note: *it is not possible to include all possible crop related practices but rather to identify those that are likely to be most useful to farmers in the location.*

Materials

You will need a large sheet of paper and a marker pen (alternatively, the matrix may be drawn on the ground using a stick and stones, cartons or other items). You will also need to refer to the Crop Related Practices Table if one is available for your area (see appendix 2), which gives information on practices promoted by extension and NGOs.

Preparation

This step follows immediately from Step D1a which focused on identifying crops and varieties for farmers to consider for the location. Some of the practices here will help improve probabilities.

- Discuss the reason for constructing the Crop Practices Matrix with farmers.
- Different crop practices will be important to individual farmers depending on the skills they have, what they can afford to do, labour resources etc... as well as their aims and attitudes to risk. It is important to ensure that all farmers' views are represented during this activity.

Days to maturity and crop water requirement

When you calculated probabilities in Step C you used the total amount of rainfall for the whole season. Now that we are comparing crops/varieties it is important that we are more specific. Each crop/variety requires a certain amount of time to grow to maturity and each crop/variety has a certain water requirement during this period of time. Any rainfall after this period is not helpful for the crop and so should not be considered when comparing different crops/varieties. To use the total seasonal rainfall would therefore be misleading so we need to use rainfall totals that match the maturity period and crop water requirements of specific crops.

In the Crop Information Table for your location this will have been calculated for you.

3. Explain how the three probabilities calculated in Step C can be combined to produce one probability for each of the varieties on a range of potential planting dates. This information can be used to help understand which varieties are best suited to the local climate (i.e. which varieties are most likely to receive sufficient rainfall over their maturity period).

Note: As it would take a long time to work this out for each crop with the farmers, the calculations have been done in advance and the probabilities are given in the last three columns of the Crop Information Table.

4. Hand around the Crop Information Tables and explain the information that they contain. The Crop Information Tables specific to your location are in appendix 1.
5. Split the farmers into small groups and ask them to consider the probabilities of the different crops and varieties listed in the crop activity sheet, and to identify which ones are most likely to succeed in this location at different start dates.
6. Ask the groups of farmers to choose which crops and varieties they think would be the most suitable combination to plant. Discuss their choices with them. Are they what they would have expected? Why?
7. Make a list of all the crops and varieties that the farmers are interested in planting (there doesn't have to be a consensus across the group) – you will need this list for Step E.

Limitations

It is important to note that the Crop Information Tables come with limitations:

- The rainfall data is from a single point and so is not representative of individuals' farms.
- The crop water requirement is for a maximum yield (under field trial conditions) which may be unrealistic (and not what most farmers are aiming for).
- The probability is for sufficient rainfall across the maturity period and doesn't take account of when during the period the rain actually falls.
- The probabilities do not take into account other factors which may affect crops (e.g. dry spells or diseases).