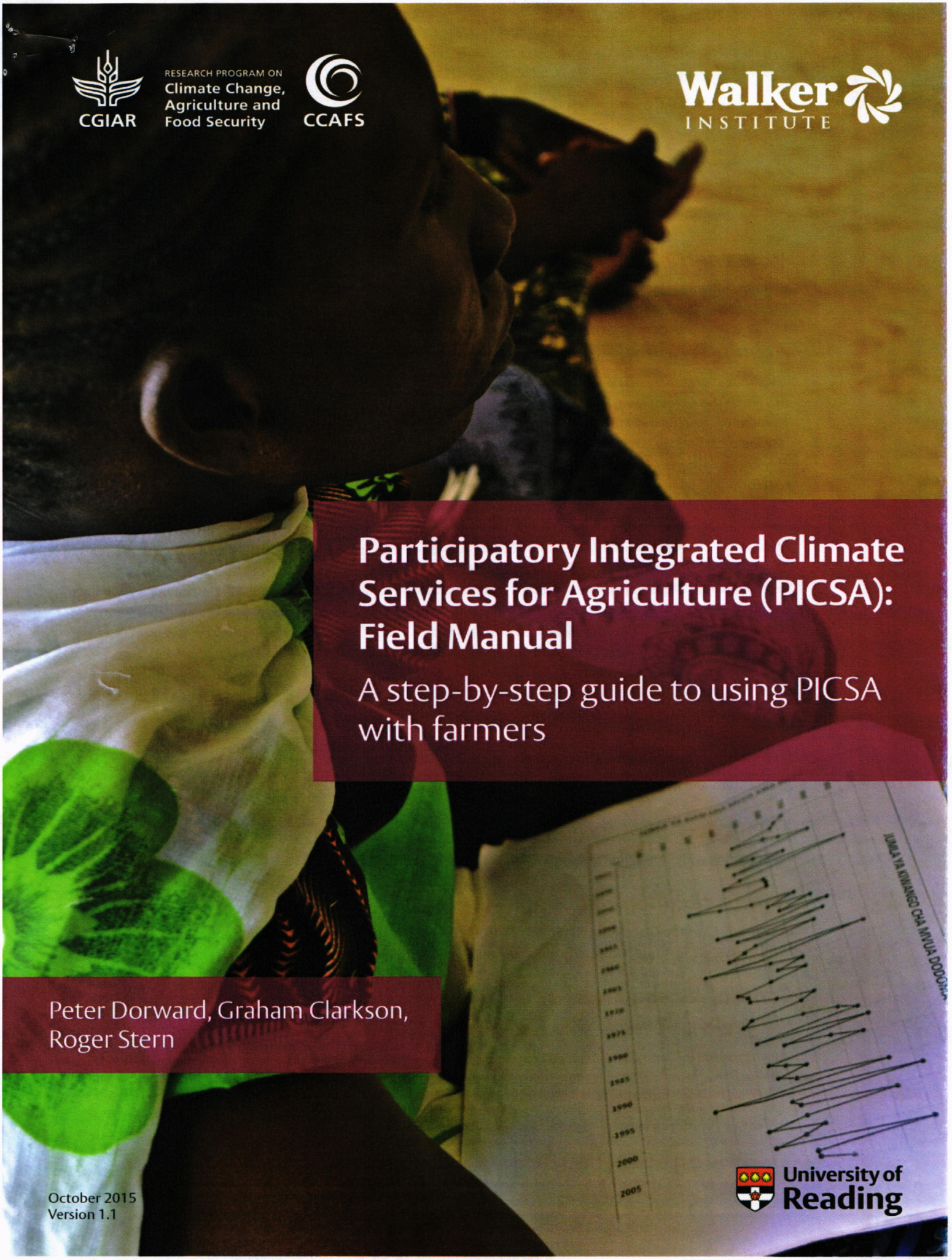

Participatory Integrated Climate Services for Agriculture (PICSA): Field Manual

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

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Activity sheet D1a – Crop Information Tables

What are Crop Information Tables used for?

Crop Information Tables help farmers to understand the requirements of specific crops and varieties which are crucial in understanding the crops that best fit the local climate. Crop Information Tables can be used to assess the climate related risks of different crops at a given location.

Materials

You will need the completed Crop Information Table.

Preparation

This step builds on the activities completed in Step C. We are now going to use the probabilities, with Crop Information Tables, to help with planning. The Crop Information Table for your location is included as appendix 1[6].

Ensure that you understand the information in the Crop Information Table (appendix 1) and that you are able to explain the information to farmers.

Example Crop Information Table

Crop	Variety	Days to maturity	Crop water requirement	Chance of sufficient rainfall if season starts on x (Early)	Chance of sufficient rainfall if season starts on x (Middle)	Chance of sufficient rainfall if season starts on x (Late)
Maize	Local	120	480	5/10	4/10	2/10
Maize	Pioneer xxx	100	350	7/10	5/10	4/10
Sorghum	Seed Co xxx	110	300	5/10	7/10	6/10

Procedure

1. Remind the farmers how they worked out probabilities for seasonal rainfall during Step C.
2. Explain the information in the Crop Information Table, beginning with the different crops and varieties and then the days required to maturity and how this differs for each crop / variety. Next, explain the crop water requirement to the farmers (see box 'Days to maturity and crop water requirement).

[6] Location specific appendices need to be prepared in advance of the training.

Step D - What are the options for the farmer?

By the end of this step, farmers should be aware of which crop, livestock and livelihood options are open to them.

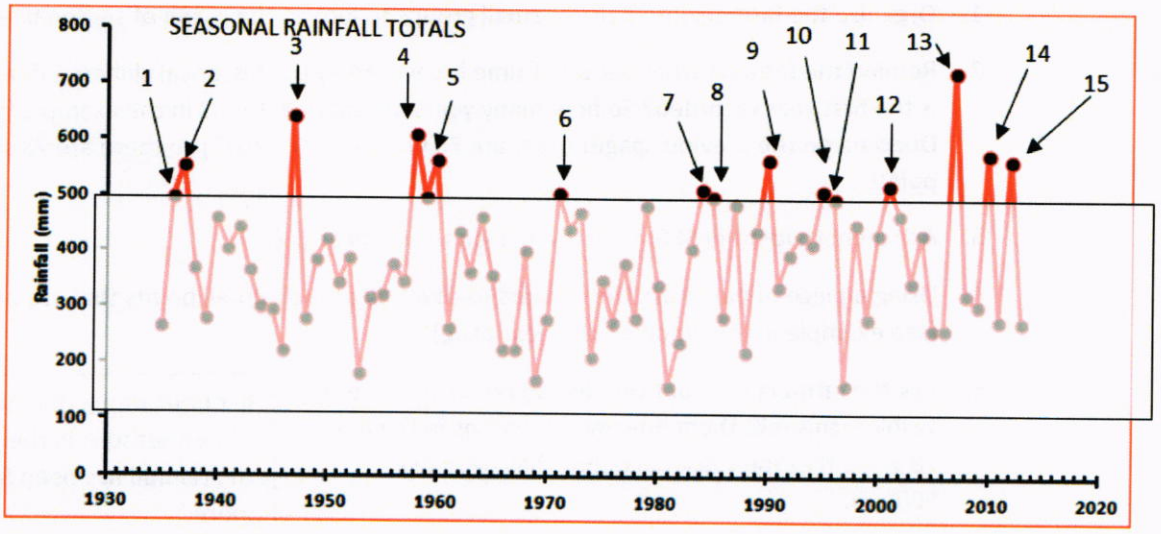
It is important to remember that what individual farmers think is best for their household may vary widely. Individual attitudes to risk and the resources of each household are both likely to influence farmers' choices. It is therefore useful to consider a broad range of options to ensure that all of the farmers you are working with, whether they are wealthy, poor, male, female etc..., are able to identify options that may be suitable for their circumstances.

Aims of this step:

- To explore existing and new crop, livestock and livelihood options that may be suitable for the local climate and weather.

During this step you should facilitate farmers to:

- Calculate the probability that the seasonal rainfall will be sufficient for specific crops and varieties (see activity sheet D1a).
- Use the Crop Information Tables (in appendix 1) to compare different crops and varieties and to identify options with farmers.
- Discuss the implications of this probability when considering risk and the farmers' planting strategies.
- Construct a Crop Practices Matrix to identify and consider other crop related practices that are suitable to the location (e.g. soil and water conservation practices which improve retention of water and chances of good yields; see activity sheet D1b).
- Construct a Livestock Options Matrix to identify and consider livestock related options (see activity sheet D2).
- Construct a Livelihood Options Matrix to identify and consider livelihood related options (see activity sheet D3).



7. Help the farmers to make this calculation with their own graphs and to work out the probability that they will receive over 500mm of rainfall in the coming season.

8. Once everyone has agreed on the probability then write it clearly on a flipchart or board for everyone to see.

9. Farmers should then use this same approach to calculate the probabilities for other weather and climate characteristics that are set out in the same format. Help the farmers to calculate probabilities for:

    - Season start date – One of the biggest decisions farmers make is when to plant so knowing the probability of the rainfall season starting for different dates can be very useful. A farmer may plan ahead for specific dates OR when it starts raining on a particular date they can use the calculation to tell them how likely it is that the rainy season has properly started (so that they can avoid planting with a 'false start').
    - Season length – Can be useful in selecting crops and varieties that require different lengths of time to mature.

    Again, once the farmers have agreed on the probabilities for these characteristics then write them clearly on a flipchart or board for everyone to see. *These probabilities can now be used by farmers to help assess their options in Step D and to plan for the coming season.*

10. Identify which other characteristics, if any, they would like to explore further (either in the session or in their own time). For example:

    - Season end date – Can be useful when considering crops that need moisture for an extended period or crops that have a specific need to 'dry-off' soon after they have matured (e.g. sunflower).

Procedure

1. Organise the farmers into pairs or small groups to look at the graph of seasonal rainfall totals.
2. Remind the farmers what period of time is covered by the historical climate information. What is the first year recorded? So how many years are there in total? In the example (graph for Dodoma on the previous page) there are 78 years (1936 – 2013) so there are 78 seasonal rainfall points.
3. Ask them to identify 500mm of rainfall on the vertical axis.
4. Using a piece of paper ask the farmers to cover all of the rainfall points that are below 500mm (see example in the graph on the next page).
5. Ask the farmers to count the rainfall points that are still visible – this tells them how many seasons in the past 78 years that the seasonal rainfall has been over 500mm.

> In our example that means that in fifteen seasons in the last 78 years the rainfall has been 500mm or more.

Photo: John Gathenya

6. The next step is to divide the number of visible rainfall points by the total number of rainfall points on the historical climate graph to work out your probability.

> In our example graph this means that the number of rainfall points, 15, is divided by the total number of years recorded, 78. 15/78 = 0.19 which is approximately 0.2 or 1 in 5. This exercise has taught us that for any season in the near future the probability of the area from the example receiving 500mm or more of rainfall is 1 in 5

Activity sheet C1 – Calculating probabilities of weather and climate characteristics

Why is it helpful to calculate the probabilities of weather and climate characteristics?

Knowing the probabilities of different weather and climate characteristics can help farmers to make important decisions about crops, varieties, planting times, livestock management and livelihood choices[4].

Materials

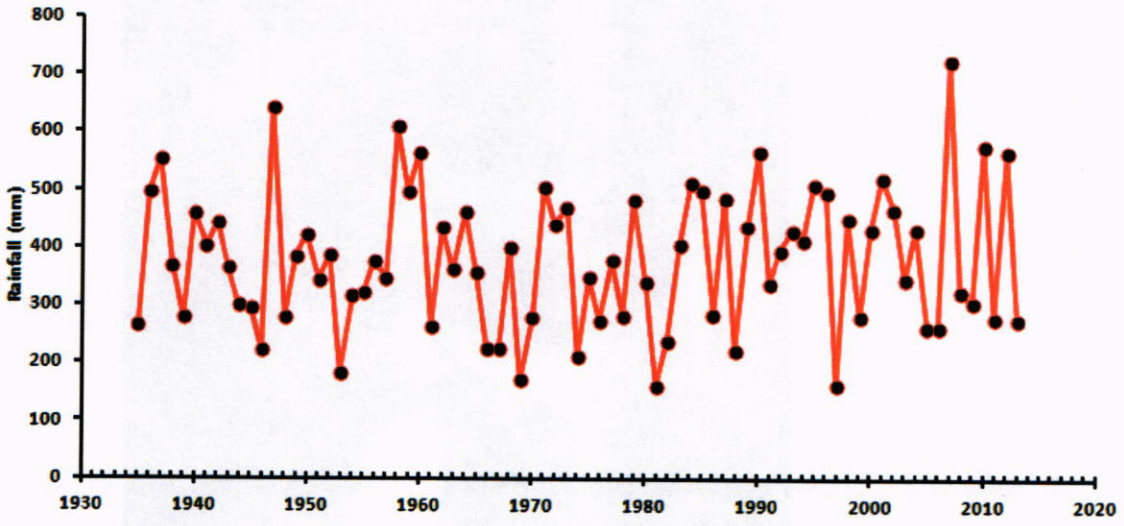
You will need multiple copies of the historical climate graphs (these should have been handed out to farmers during Step B).

Preparation

You discussed the importance of the climate graphs in Step B. Explain to farmers that you will now discuss how these graphs can be of practical use in their planning.

Example

The graph below is an example graph from Dodoma, Tanzania, showing 80 years of seasonal rainfall totals. We will calculate probabilities from this, but you will have historical climate information from your area too. In this exercise you and your group are going to use this to calculate the probability of more than 500mm of rainfall in a season[5].



[4] If there are clear trends in the graphs then you will have discussed different ways of treating probabilities during the training course you have received.

[5] You may want to use a different amount of rainfall, that is more meaningful for the farmers in your group for this exercise

Step C – What are the opportunities and risks? Using graphs to calculate probabilities

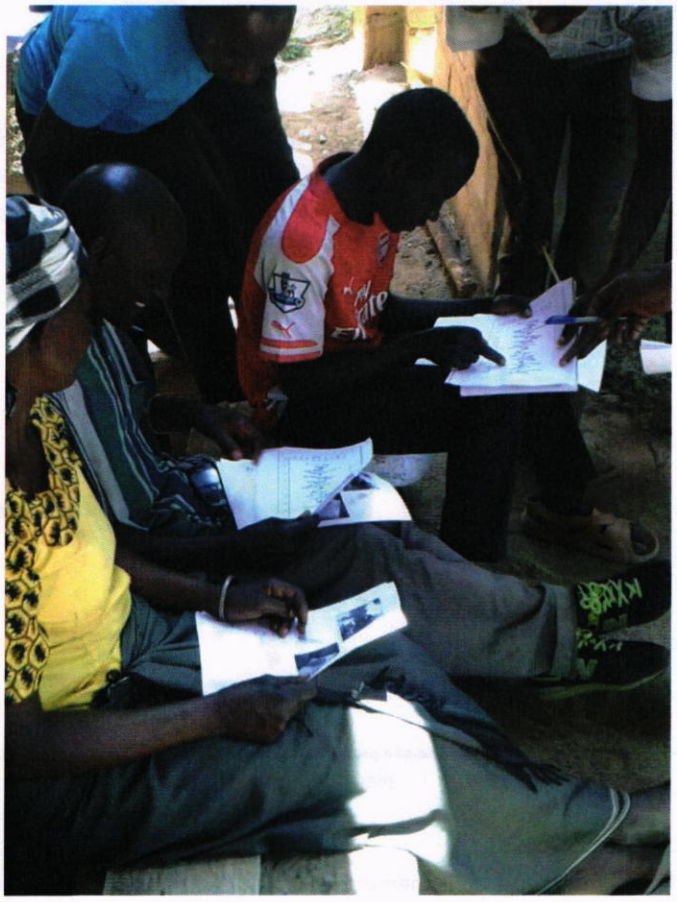
By the end of this step, farmers should be able to calculate the probabilities of weather and climate characteristics and use the information to help make informed decisions for coming and future seasons.

Aims of this step:

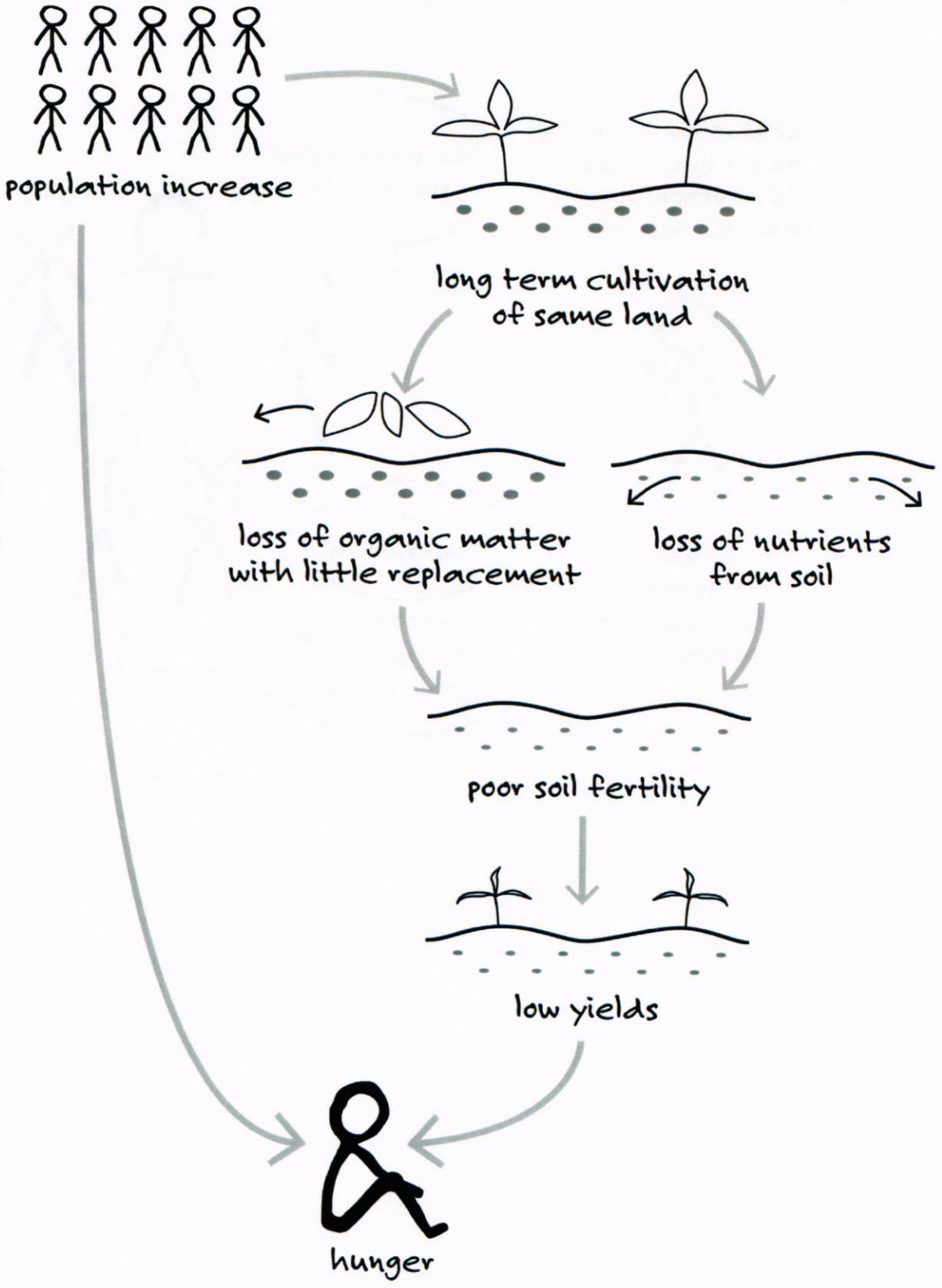
- Enable farmers to use graphs to work out simple probabilities that are of interest to them and will help them to plan.

During this step you should facilitate farmers to:

- Calculate the probability of receiving a given amount of rainfall (activity sheet C1).
- Calculate the probability of different start dates for the season (activity sheet C1).
- Calculate the probability of a season being a specified length (activity sheet C1)



Example causal diagram



Example Discussion of causation