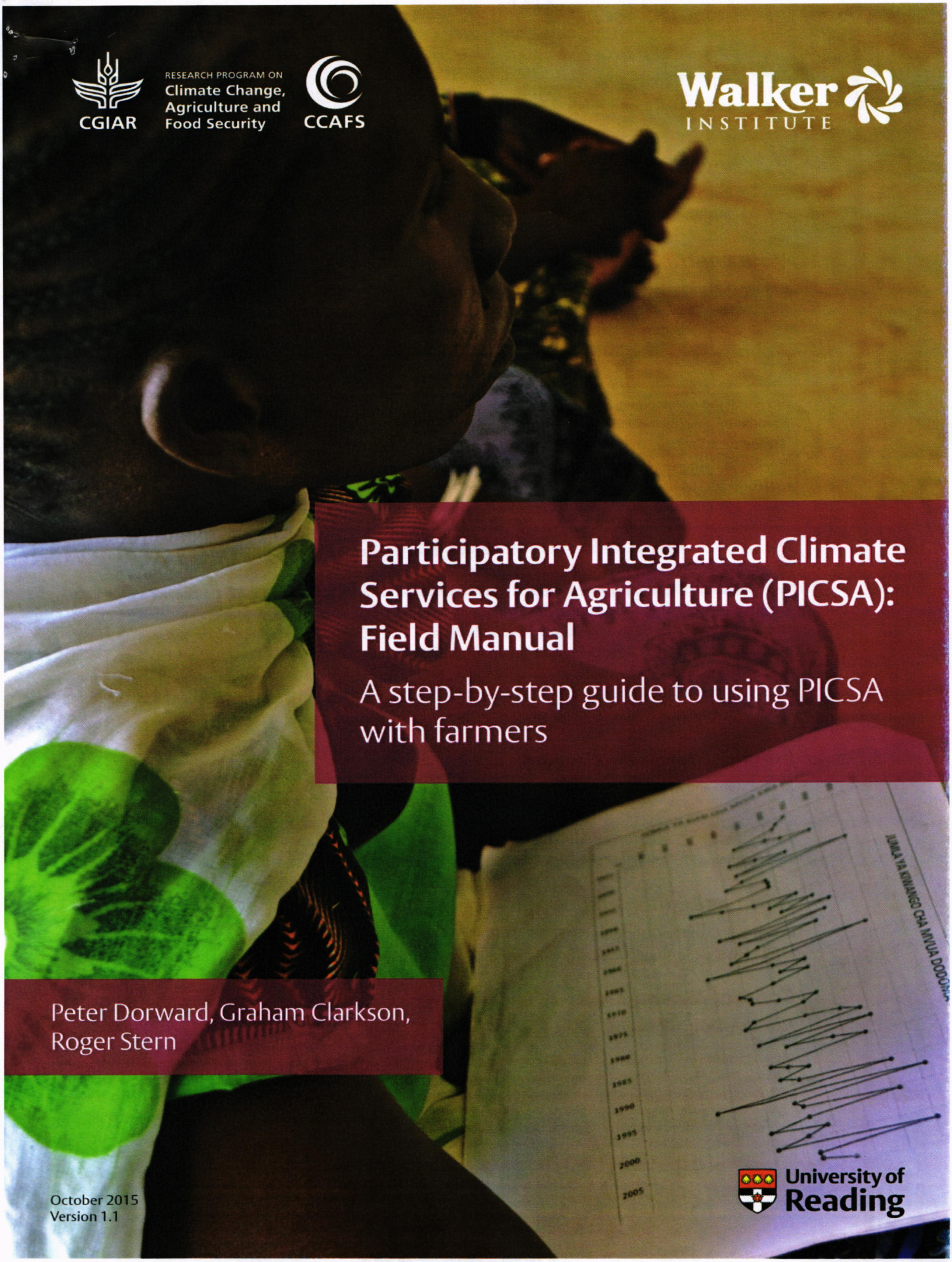
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Participatory Integrated Climate Services for Agriculture (PICSA): Field Manual
A step-by-step guide to using PICSA with farmers
Peter Dorward, Graham Clarkson, Roger Stern
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Authors

[1]Peter Dorward, [1]Graham Clarkson and [2]Roger Stern

[1]Walker Institute and School of Agriculture, Policy and Development, University of Reading
[2] Walker Institute and Statistical Services Centre, University of Reading

With contributions by

Dr John Gathenya, Jomo Kenyatta University of Agriculture and Technology , Kenya
Mr Elirehema Swai, Agricultural Research Institute, Hombolo, Tanzania

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Contact for enquiries

Peter Dorward (p.t.dorward@reading.ac.uk)

Activity sheet G2 – Facilitating implementation of farmers' choices

There may be key factors or 'bottle necks' that could stop farmers from implementing options that they have selected. A common example is that farmers may have identified specific crops and varieties they want to grow, but are unable to access seed. Your role as a facilitator is to try to help address such factors; however, this needs to be done in a sustainable way. You want to help develop solutions that will work not just this year but also in the future, and will not always require your input.

There are many different constraints to obtaining seed that will vary with location and context. Likewise, there are a wide range of possible processes and solutions. It is not possible to cover them all in this manual, but here are some general tips and ideas that have been useful elsewhere.

- Discuss the problem with farmers to clarify what it is and what the possible causes are.
- Help farmers to help themselves – encourage farmers to identify solutions and what steps they can take. For example, the group may nominate a member to visit seed suppliers and purchase seed for them.
- Consider what actions you as the facilitator can take that will lead to long-term solutions – e.g. find out cell numbers of reputable suppliers and provide these to the group, see if a seed supplier would be willing to do a demonstration plot and provide some seed for farmers to try, ask your colleagues if they know of communities that managed to get seed every year and how this was achieved.

Below are two examples of successful interventions:

- After looking at historical rainfall graphs a group of farmers in Zimbabwe identified that they needed seed of new maize varieties. Rather than wait for it to be supplied through the normal channels, which were unreliable, the group organised for members to purchase and supply it.
- In an area of Tanzania, farmers using PICSA identified new millet and sorghum varieties that they wanted to plant but could not access. The facilitator arranged for seed to be obtained from the local agricultural research station, and the farmers were able to purchase it.

Although you are likely to face many different limiting factors, try to remember these guiding principles:

1. Help farmers to help themselves.
2. Facilitate connections between farmers and other players such as input suppliers, projects and markets.

Step H – The seasonal forecast

What is the seasonal forecast?

The seasonal forecast is produced by the national meteorological agency. It is a product that is provided shortly before the season begins. By the end of this step, farmers should understand the seasonal forecast for their locality for the next season and the implications of this for the plans that they have made.

Aims of this step:

1. To disseminate the seasonal forecast in a way that farmers understand.
2. To help farmers understand what the seasonal forecast means for their location and for them as individuals.

During this step you should facilitate farmers to:

- Understand what the seasonal forecast is and where it comes from.
- Understand terciles and how they are used in the seasonal forecast and from this, how this information may be used (see activity sheet H1).
- Understand the advantages and the limitations of the seasonal forecast (what it does tell us and what it does not tell us).

Activity sheet H1 – The seasonal forecast

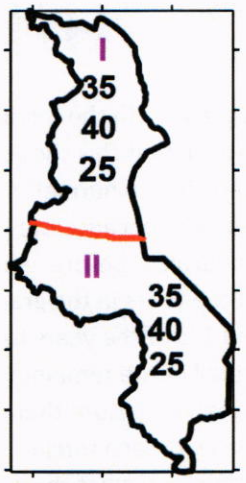
What is the seasonal forecast used for?

The seasonal forecast is a product that is provided before the season begins and then updated during the season. In many countries it is currently limited to providing probabilities of the total amount of rainfall for the season being above normal, normal or below normal, compared to previous seasons. For agriculture and livelihoods this can be used as a further source of information to help adjust existing strategies and plans.[8]

Preparation

You must understand the seasonal forecast that has been given by the meteorological agency and print out copies of the seasonal forecast for Malawi and the graph that shows the terciles for this area (e.g. the graph similar to the one on the following page but using data for your nearest met. station).

Example of a seasonal forecast

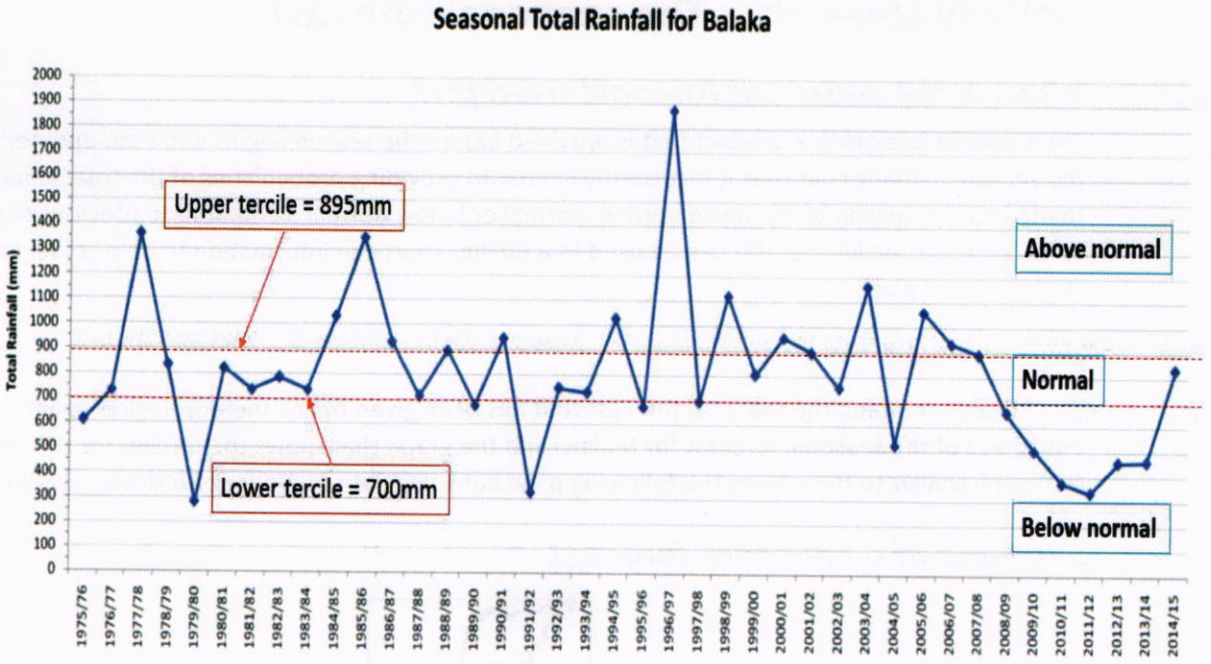


Source: Example seasonal forecast for Malawi, provided by DCCMS

Understanding the Understanding and using the seasonal Forecast:

1. Start by showing the group this example of the seasonal forecast, which provides the seasonal forecast for Malawi. Explain that you will use the figures from the north and south of Malawi to support our explanation of the seasonal forecast. Explain that for the south of Malawi, the forecast was of a 35% chance of an "above normal" season, with 40% chance of a "normal" season and 25% of a "below normal" season.

[8]Here we describe the way the seasonal forecast is currently given by many National Meteorological Services. However, they are hard at work improving both the forecast itself and the way the results are presented to you and to farmers. We will update this section as improvements are implemented.



2. Next show them the graph with the terciles (same as the one above but for the Met. station for your area) and explain that this shows what is meant by the three categories, "above normal", "normal" and "below normal" season, for one station. These categories are sometimes called "terciles" because they divide the data into three equal groups (the group may have heard of "quartiles" before, which divides a data set into 4 groups). You can see in the graph that 1/3 of the years in the graph had a rainfall total of more than 895mm, which is "above normal" and 1/3 of the years had total rainfall of less than 700mm, which is below normal. The total rainfall of the remaining 1/3 of the years fall in between 700mm and 895mm, which is normal. To ensure that this is clearly understood you could ask the farmers to count the occurrences in each tercile.
3. Once the farmers understand what the seasonal forecast means you can use the following examples[9] to illustrate how the information might be used.

[9] These calculations only work because we chose the limits as 700mm and 895mm, which were the terciles for our station. One future improvement that the Meteorological Offices are planning for the seasonal forecast is that it will permit you to adjust any risk. Until that is available, you can get an idea by assuming the risk changes just as it did for the terciles. Namely, if you knew that you needed 300mm of rain for sorghum and had worked out the risk before the seasonal forecast as 1 year in 6. Then if a risk of 1 year in 3 overall has changed to 1 year in 4 this year, then a risk of 1 year in 6 will now change to about 1 year in 8. And so on.

Example 1:

Suppose a farmer found that a crop needs 895mm of rainfall to succeed. That means it needs "above normal" rainfall at this site. The calculations you did earlier, with the historical rainfall data, show that maize would only have succeeded in 1/3 of the past years because its rainfall needs are 895mm which puts it in the upper tercile ("above normal"). Therefore, the crop risks failing in 2 years in 3. Without further information the farmer might decide this is very risky, and not plan to grow maize.

However, once he gets the seasonal forecast for the coming year he may want to re-evaluate his decision. The Seasonal Forecast says that there is an estimated 45% chance (almost 50/50) of getting an above normal year, so the risk for the crop is now less. If ever he really wanted to grow the crop, then this is a possible year. Of course it is still risky, after all, a 45% chance of success still means that there is a 55% chance that you won't get enough rain. But that is less risky than without the forecast.

Example 2

Suppose a different crop needs at least 700mm, meaning it is in the lower tercile (the line at the top of the first category) and needs "below normal" rainfall at this site. Looking at the historical data, the farmer doesn't get enough rain for this crop in 1 year of every 3, so she would have been OK in 2/3 of the past years.

With this seasonal forecast she sees that the chance of below normal rainfall is estimated at 25%, or 1 year in 4. So her risk with the crop is less than usual.

Perhaps this is therefore a good year to use more fertiliser, in order to boost the potential for an increased yield in a year where the probability of the crop being successful is high.

If you find these calculations difficult to discuss with farmers then it is often sufficient to give them an idea of the way their baseline risks have changed with the forecast.

If the forecast is in the direction of above normal, e.g. 45/30/25 then the risks of not enough rain will now be smaller.

On the other hand, if the forecast was 20/30/50 the risk of getting too little rain is now larger, so it is a good year to be cautious.

Step I – Identify and select possible responses to the forecast

By the end of this step, farmers should have reconsidered their crop, livestock and livelihood options chosen during step G and decided whether to continue with or amend their plans following the seasonal forecast provided and explained in step H.

Aims of this step:

1. To enable farmers to reconsider the plans that they have made within the context of the seasonal forecast and make suitable adjustments.

During this step you should facilitate farmers to:

- Discuss and consider the implications of the Seasonal Forecast and adjust any of their plans for the season if they wish to (see activity sheet I1).

Activity sheet I1 – Using the Seasonal Forecast and revisiting plans

Why revisit the crops, livestock and livelihood options and plans?

The plans developed by the farmers for the next season/year have so far been based on long-term climate and weather information. On the other hand, the Seasonal Forecast provides some indication of what is expected in the coming season, so farmers may want to use this additional information to adjust or revise their plans accordingly.

Materials

You should use the seasonal forecast from step H, and the plans farmers' made for their farms for the next season (step G).

Preparation

Ensure that each farmer brings the plans they made in step G:

- Resource Allocation Maps.
- Seasonal Calendars.
- Participatory Budgets.

Procedure

1. You should have just explained the Seasonal Forecast for the coming season to the farmers. Make sure that everyone understands:
    - how seasonal forecasts are produced,
    - the advantages and limitations of seasonal forecasts, and
    - what the forecast is for the coming season.
2. Ask the farmers to look at the plans that they have made for the coming season again (from step G). Remind them that their plans were created based on a good understanding of the climate and weather in their area and that this understanding comes from recordings from many past years. It is also worth reminding them that the probabilities they calculated based on historical climate information can be used in future seasons. It is important that farmers are aware that the decisions they have made so far have a strong foundation in historical climate data and that the Seasonal Forecast can add to the information base they have built, but should not necessarily outweigh it.
3. Farmers may or may not want to adjust some of these plans now that they have the seasonal forecast. Explain that whether they want to make adjustments, and the kinds of adjustments that they make, is likely to depend on two main factors:

- ***What 'skill' the Seasonal Forecast has previously had in the country and that location.*** In other words, if you compare the forecasts for each previous year with what actually happened in each year, how accurate were they? Often this information is not available from Met services.

- ***How 'clear' is the forecast for the season?*** For example, if the terciles are all equal for total seasonal rainfall (33.3: 33.3: 33.3) or similar to each other then they cannot clearly be predicting above normal, normal or below normal rainfall. It would not be sensible to adjust plans on the basis of this 'unclear' forecast. On the other hand, if the forecast showed terciles that are very different to each other e.g. 50: 30: 20, then the forecast is clearly indicating there is greater likelihood of above normal rainfall this season. This 'clearer' forecast is more useful to farmers.

4. Discuss these points with farmers to see what they think about the seasonal forecast and explore whether they think it is definitive and informative enough for them to consider changing their plans.

5. Ask the farmers to consider whether the forecast for the coming season has any implications for the crop/livestock/livelihood options that they chose and the plans that they made. For example, if the forecast is for below normal rainfall how has the probability/chance of them receiving enough rainfall for their chosen practice changed? You could refer back to the crop tables to help with this.

6. Ask the farmers to mark any changes that they wish to make to their plans on their Resource Allocation Maps and Seasonal Calendars (from step G) or make new ones if easier.

Step J – Short-term forecasts and warnings

By the end of this step, farmers should understand what short-term forecasts and warnings are, how they can be received and how they can be useful.

Aims of this step:

1. To enable farmers to understand the short-term forecasts and warnings that they receive.
2. To facilitate farmers to identify examples of the ways that they can use and respond to short-term forecasts and warnings.

During this step you should facilitate farmers to:

- Consider different types of short-term forecasts and warnings that they may receive and how they can be used (see activity sheet J1).

Activity sheet J1 – Short-term forecasts and warnings

What are short-term forecasts and warnings, and what can they be used for?

Short-term forecasts and warnings are produced by national and sometimes international meteorological organisations. These are normally for the next day or few days. Farmers can use these to make short-term decisions about their farming and livelihoods.

Materials

For this step you will need copies of appendix 5 as well as appendix 6 for your location. If you are working in a location where forecasts and warnings can be sent by text to farmers then you will also need appendix 7 to take the cell phone numbers and names of farmers who wish to sign up to receive this service.

Preparation

Make sure that you clearly understand and can explain exactly the meaning of each of the terms used in short-term forecasts and warnings.

Prepare a list of terms used in local forecasts and warnings for each farmer (see appendix 6).
Ensure that you have all of the necessary materials ready, including appendices 5, 6 and 7.

Procedure

1. Pass around the copies of appendix 5 which shows where forecasts come from and how they can be received by farmers.
2. Explain each of the pictures/diagrams in turn.
3. In different countries short-term forecasts will have different content and be presented in slightly different ways. Using the activity sheet with examples developed for your location (see appendix 8), explain to farmers:
    - How often (when) the different forecasts are produced.
    - What main aspects of the weather the forecasts cover.
    - The past 'skill' of the forecasts (if this information is available).
4. Go through the terms that are used in local forecasts and warnings for your area (see appendix 6), and agree with farmers what they each mean (including in their local language).
   ***Note**: there is likely to be information for each of the different ways of disseminating forecasts (e.g. radio, mobile phones etc...).*
5. Provide each farmer with the list of terms to take home.

Step K – Farmers identify potential responses to short-term forecasts and warnings

This step helps farmers identify how they might usefully employ short-term forecasts and warnings at the start of and during the season.

Aims of this step:

By considering different example forecasts in this exercise, farmers will be better prepared to deal with real forecasts and warnings when they receive them.

During this step you should facilitate farmers to:

- Practice responding to weather forecasts and warnings.

Activity sheet K1 – Use of short-term forecasts and warnings

Materials

For this step you will need the farmers to have their Resource Allocation Maps and Seasonal Calendars from Step I, the activity sheets giving the terms used in short-term forecasts and warnings, and the sheet giving example forecasts and warnings (appendix 8).

Procedure

1. Explain that the purpose of this exercise is to practise using short-term forecasts and warnings, and for farmers to identify how they might use actual forecasts during the season. We don't know what the forecasts will be but practising will help to improve preparedness by thinking about possible responses and learning from each other.
2. Pass around the copies of appendix 8 which gives example short-term forecasts and warnings.
3. Ask farmers to have their Resource Allocation Maps and Seasonal Calendars ready to look at.
4. Ask farmers to imagine that it is now near the start of the season (give a date e.g. about one week before the season normally starts).
5. Read out the first example forecast.
6. Ask the farmers to interpret the forecast (discuss and agree what it means). Then ask farmers to individually think about:
   - What effects, if any, the forecast could have on their farm? *Consider each of the enterprises and main options they have, and any activities they have planned for the start of the season.*
   - What actions, if any, they might take in response to the forecast?
7. Ask farmers to share and discuss examples that they have come up with.

   ***Note**: Again, remember that different farmers may decide to do very different things, depending on their circumstances, farm, aims etc. In many cases farmers may decide not to make changes or adjustments.*

8. Continue this exercise with the different examples of short-term forecasts and warnings on sheet K1a, by reading out each forecast/warning and then repeating steps 5 and 6.