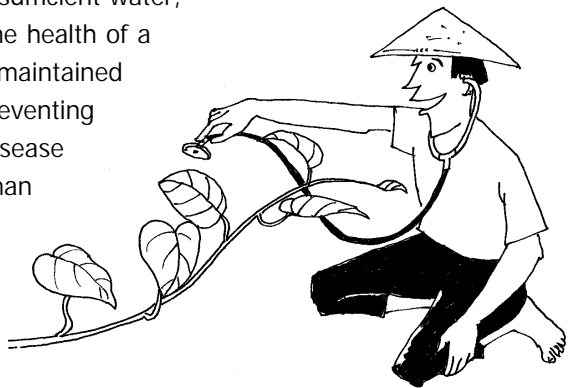


7 A healthy crop

Background

To stay healthy, we have to eat nutritious food and drink sufficiently in a regular manner. Taking unnecessary or inappropriate medicines is dangerous for our health. If a pregnant mother is unhealthy, the health of the baby is definitely affected. All these arguments also hold for crops. A healthy soil, providing good nutrition and sufficient water, and healthy seed influence the health of a crop. Crop health should be maintained by fertilizing it and preventing excessive pest and disease occurrence. Just like human health care, crop health care requires certain attention and practices.



Farmers often perceive a crop healthy if leaves look green and fresh. As long as the leaves are green, fertile and not wilted or curly, they believe the crop is sufficiently healthy. However, when symptoms of stress factors affecting crop health occur, such as a change in color or spots on the leaves, farmers find it hard to determine the cause of the problem. Any kind of spots are normally blamed on insect attack, although they might be caused by nutrient deficiency. A wrong identification of the cause of stress may trigger an inadequate action. Therefore, to make better decisions on what action is needed, farmers should be able to identify the various symptoms and factors that may affect crop health.

Objectives

After completing this activity the participants:

- Have reached a common agreement about the criteria for a healthy crop.
- Have gained knowledge about the needs of the sweetpotato crop for good growth development, and about the visible symptoms caused by stress factors.
- Have increased their skills in evaluating crop health in the field.

Materials

- Sweetpotato ICM technical manual (Part III) for pictures of nutrient deficiency symptoms.
- Pieces of string (@ 10 cm).
- Copies of the sweetpotato vine growth record form (Appendix II-E)
- Newsprint paper.
- Felt-tip markers.

Activity steps

A *What does a healthy crop look like?*

- A.1 Ask the participants for their opinion about the characteristics of a healthy sweetpotato crop. List these characteristics on a sheet of newsprint paper.
- A.2 Evaluate together leaf samples that were collected during the observation exercise, and let the group determine which are healthy and which are not. Probe for the causal factors of unhealthy leaves.
- A.3 Ask for and list the participants' opinion about what a sweetpotato crop would need for good growth. Add to this list, if necessary.
- A.4 If fertilizer is mentioned as a necessary factor, ask the participants what kind of fertilizers they would apply to the crop. Explain that NPK fertilizer contains the nutrients N, P and K, while most other chemical fertilizers contain only one nutrient. Refer to the session on a healthy soil (Field Guide 2).

- A.5 Elaborate through probing that plants need nutrients for growth, such as:
- Nitrogen (N).
 - Phosphorous (P).
 - Potassium (K).
 - Many other nutrients, but only in small quantities.
- A.6 Let the participants express their opinion about what would happen if a crop suffers from shortage of one of the nutrients mentioned above, or from water. Show leaf samples with nutrient deficiency symptoms and the pictures from Section 2.4 of the Sweetpotato ICM Technical Manual (Part III).

B *Measuring vine growth*

- B.1 Draw a column on a sheet of newsprint paper, and write the heading (“weeks after planting”) and vertically numbers from zero (planting) until 17 (harvesting). Draw another, broad column on the right side of the previous column with a heading (“indication scores”) from 1-10 (see example below). Ask the participants to illustrate the growth of sweetpotato vines from week to week by giving a score from 1 (slowest growth) to 10 (fastest growth). Compare this illustration with the sweetpotato development phases: initial phase, intermediate phase (storage root formation), and final phase (root bulking).

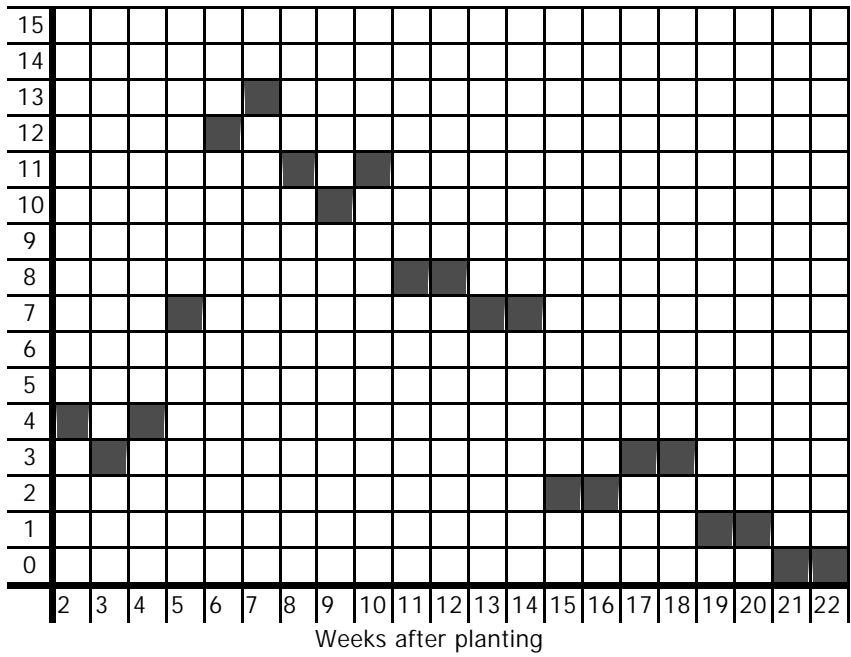
Weeks after planting	Score for speed of vine growth										Crop care practices
	1	2	3	4	5	6	7	8	9	10	
0											
1											
2											
3											
4											
etc.											

- B.2 A last column is drawn with the heading “Crop care practices”, and filled with activities needed from week to week to support a smooth crop development.
- B.3 Throughout the FFS season, the growth of the sweetpotato vines on several sample plants will be followed and measured. Each small group marks one plant with a bamboo stake. During every FFS session the participants count and write down the number of new leaves that have formed (and opened) during the previous week, and tie a piece of string on the tip of each vine just above the last leaf counted (i.e. under the first still closed leaf). The string is moved up every week after new, additional leaves have been recorded.
- B.4 Each small group is given a form copied from Appendix II-E to plot the number of leaves counted every week (see example below). The facilitator should explain the vine measurement exercise and recording method during FFS session 4. Make sure that only newly formed, additional leaves for each one- or two-week period are counted, NOT the total, cumulative growth over weeks. When the frequency of FFS sessions is once in two weeks, the vine growth should still be recorded as the number of additional leaves per week, which is the number of leaves counted after two weeks divided by two.
- B.5 The vine growth graphs of the small group are kept by the facilitator or clipped to the analysis boards, so they won't get lost or be forgotten at the next FFS session.
- B.6 At the end of the season, during the last FFS session before the crop is harvested, all groups present their vine growth graphs. The results are discussed and conclusions are drawn collectively.

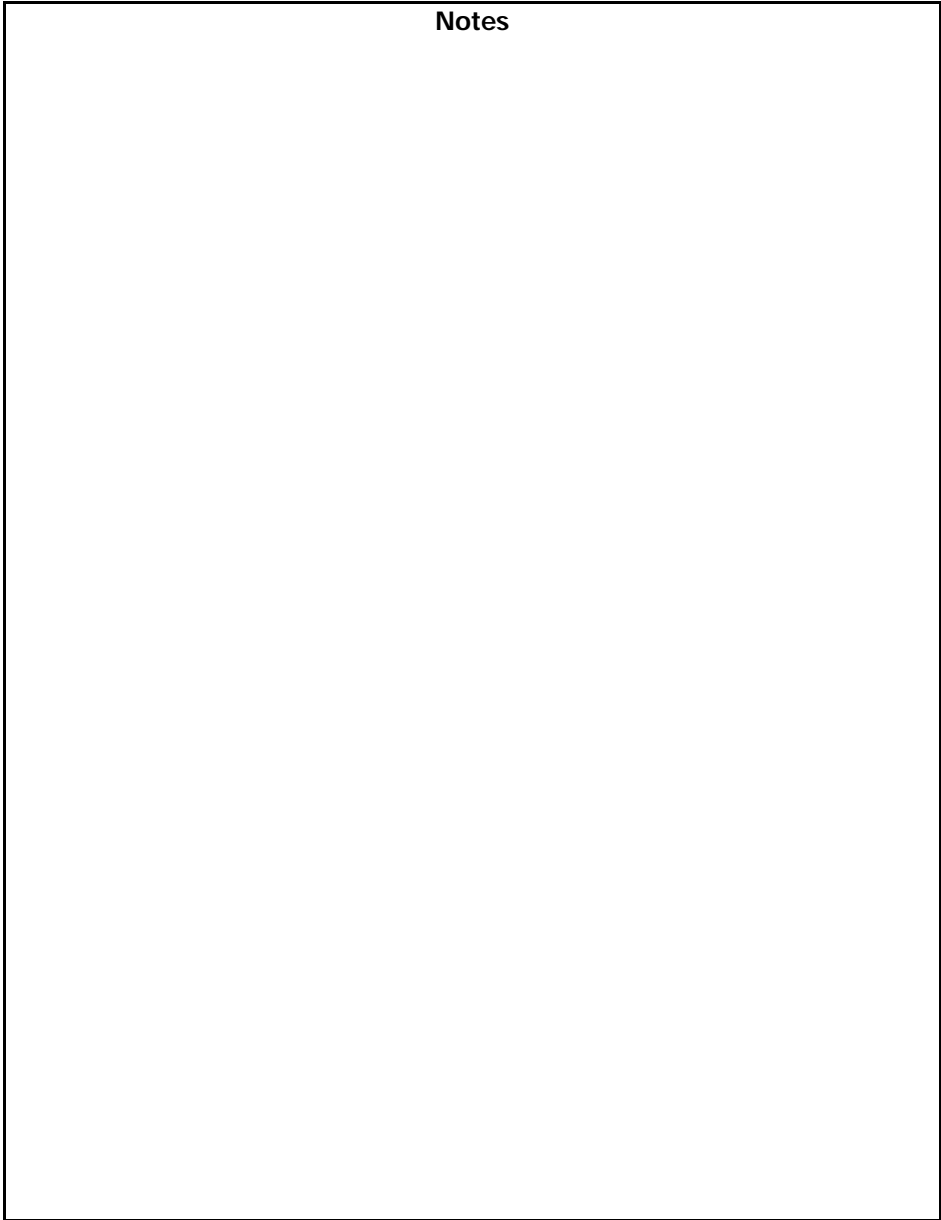
For more information see:

- A healthy crop (Part III, Section 2.4).

Number of additional leaves since last week:



Notes

A large, empty rectangular box with a black border, intended for taking notes. The word "Notes" is printed in bold at the top center of the box.