Photo: Authors

Farmers presenting and discussing results.

Documentation: an effective tool in Farmer Field Schools

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Approaches such as Farmer Field Schools (FFSs) and Participatory Technology Development (PTD) aim to promote sustainable development through learning processes based on self-discovery activities and meetings in the field. To be useful for farmers, both approaches require a well developed and organized programme. This includes the selection of topics which farmers want to know more about, the content of the meetings in the field schools, and the reflection on the activities undertaken. In the "Sustainable Coffee Project Peru", relevant and well documented data has played an important role in supporting the learning processes of the Farmer Field Schools. This is illustrated here with three examples: a survey of the coffee farmers' situation as a basis for developing the content of the curriculum for the FFSs, the development of field school leaflets to support the education process in FFSs, and the use of a field book in the evaluation and comparison of farmer practices as part of a Participatory Technology Development process. We are not suggesting that our approaches are perfect, but would like to use these three examples to show how record-keeping can strengthen learning processes.

The project is supervised by Plant Research International, Wageningen, and financed by the DE Foundation. It is carried out together with the farmers forming the *Cooperativa Agraria Cafetalera Sostenible Valle Ubiriki* and is located in the Ubiriki-Perené valley in Junin, one of the central departments of Peru. This department borders the Andes on the west and the forest on the east. Coffee production started in this region about 20-25 years ago when immigrants with a long tradition in maize and potato production came from other regions in the Andes. About 98 percent of the production is Arabica coffee, 90 percent of the coffee is shade grown, and 75 percent of the plantations are above 1000 m. Most of the farm lands are close to protected natural areas and the combination of climatic, soil, rainfall and sunlight conditions provides an excellent environment for coffee.

The project started in March 2003, targeting households dependant on coffee production. The design and implementation of the project is based on informed participation and social unity, and is specific to this region. About 190 farmer families currently participate in Farmer Field Schools (at this moment 9 in total) which are based on discovery learning, experimentation and decision-making. The project team is made up of the local project manager and three field staff facilitators. The FFS participants have recently organized themselves into a registered agricultural cooperative. After the election of their leaders in October 2004, the cooperative decided to start a certification process and in April 2005 the *Cooperativa Agraria Cafetalera Sostenible Valle Ubiriki* obtained the Utz-Kapeh certification for sustainable production. The producers hope that by gaining more control over the sale of their coffee, they will be able to improve their standard of living.

Developing the content of the FFS

In order to develop content relevant for the field school programme, 150 families were interviewed at their farms. Various tools were used to gather data, including a four-page questionnaire. The questionnaire addressed technical issues in coffee production and processing, extension and training in the region, local organisation and participation as well as livelihood security. It also included questions on the difficulties faced, such as a lack of labour or land, availability of inputs like fertilizer or pesticides, financial or supply constraints, social/gender analysis, and the lack of information as a result of extension services that were difficult to reach. The farmers themselves defined their constraints using the questionnaire. Analyses of all documented answers and initial observations in the coffee fields resulted in qualitative and quantitative data on the farmers' constraints.

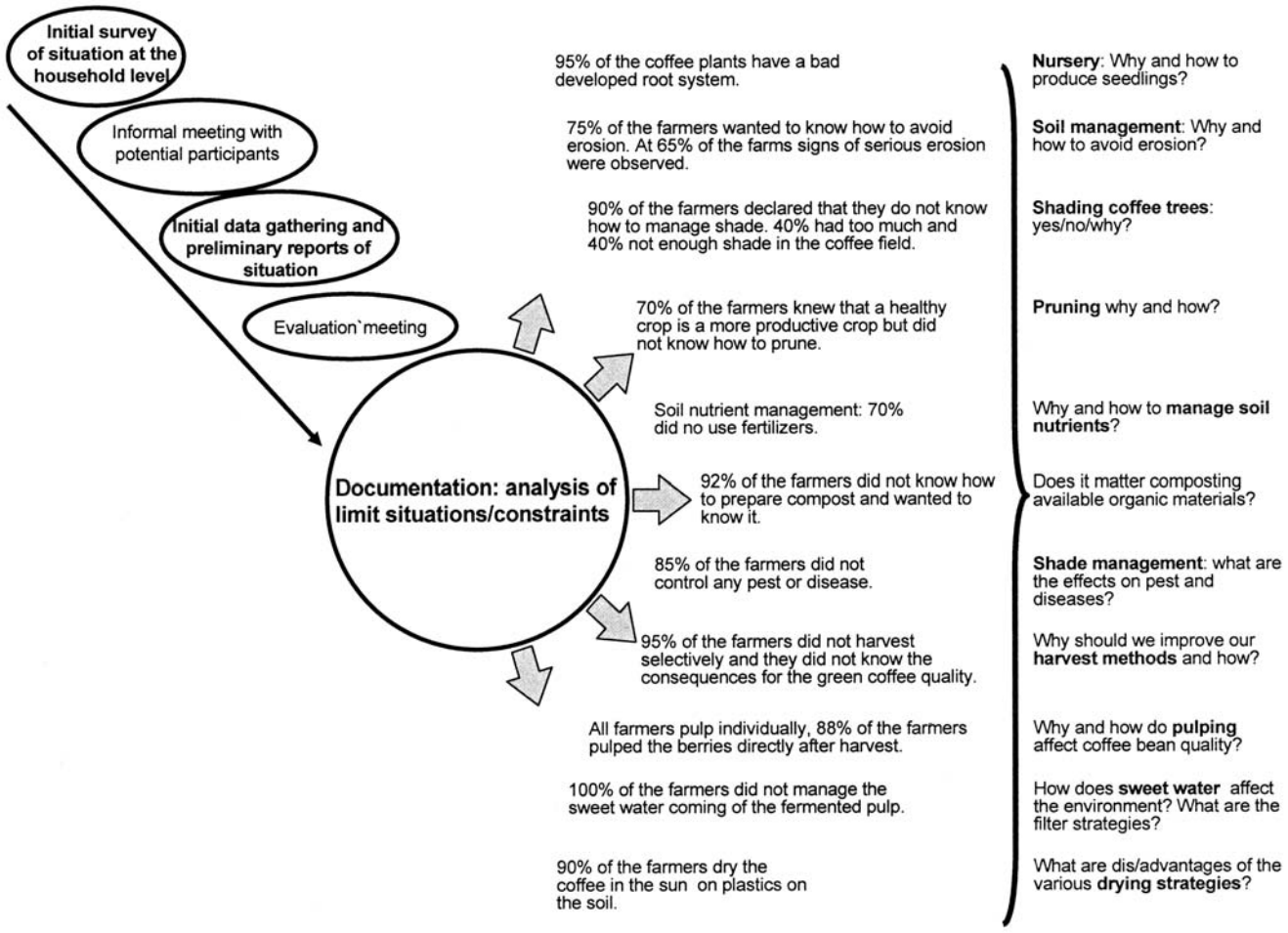
Farmers expressed their satisfaction during the follow-up workshops, saying that "I discovered that I am not the only one who has a problem in my field with *cola de chancho* " (root deformation in coffee plants); "Now we have a list with areas of new knowledge we feel we need in order to improve coffee production", or also that "Finally I have a say in what I feel I need to learn."

In this way, all potential FFS participants were involved in the development of the FFS programme. The project team and the farmers analysed the constraints in coffee production in the region, and identified relevant themes that needed to be addressed. Questions like, "How can I improve the coffee quality? How can I earn a living? How does the coffee market work?" formed the starting point for the educational programme in the Farmer Field Schools. Rather than assuming some appropriate educational topics, the early involvement of farmers helped to make sure that the programme was relevant to the farmers' understanding of their actual situation. As a result, farmers took a very active interest in the Farmer Field School.

Farmer Field School leaflets

During the field meetings, a variety of approaches were used to work together with the farmers, including diagrams, pictures, photographs, boxes, living materials, oral presentations, songs, poems, plays and leaflets. Different strategies were needed for different topics, but farmers found the leaflets the most useful. During the initial interviews, 87 percent of the farmers mentioned they would like to participate in a Farmer Field School, 60 percent of the farmers thought that information transmitted by radio as useful, while 100 percent of the farmers considered leaflets as relevant and appropriate to their needs.

The leaflets were made by the local team together with the farmers. Leaflets were written in the farmers' language with an emphasis on "why and how". They included possible technical solutions, advantages and disadvantages of the different solutions, consequences and possible obstacles. The leaflets also included the remarks made by farmers during the meetings,



Example of the role of documentation in the determination of an educational programme in a coffee Farmer Field School for Peruvian small holders in the Central Amazon region.

often written down by one of the facilitators or taken from the farmers' individual learning diaries (own reflections on what they learned from the case). Drawings made by the facilitators and photographs taken during the sessions were selected by the farmers to illustrate the leaflets.

To date, 18 technical leaflets have been written and the idea is to combine them into a small manual. In this way, farmers can re-read and reconsider the meetings, and choose solutions. Experience has shown that, together with the leaflets, field meetings provide a good basis for ongoing innovation and local adoption. The development of the technical leaflets was a joint activity carried out by farmers and facilitators. As a result, the relationship between the farmers and facilitators changed towards an attitude of joint responsibility and mutual trust, and a better understanding was built between farmers and facilitators.

The content of the leaflets varied a lot according to the needs of the participants and difficulty of the topic. For example, in pruning, a small group started to compare the development of coffee plants over a long period in an "experimentally" pruned field with that in a farmers' practice field. A small group monitored the development of the coffee plants in both "treatments". They presented results to the other participants. Various ideas were then discussed. The following questions were summarised in the resulting leaflet: "Why should we prune?"; "What happens if we do not prune?"; "How and when can we prune?"; "What happens after pruning?"

Comparing existing farmer practices

While FFSs are a useful addition to local knowledge, the strength of Participatory Technology Development lies in the evaluation of locally acceptable technological alternatives. If the daily work in the coffee fields and reflection on the choices made is documented, record keeping can be an important tool and help develop decision-making skills. In this process, the field book is essential.

Farmers used the field book to register all their expenditures and hours spent in coffee production and processing, including that of hired labour. Data was registered in a format designed in the field schools together with the project team, and collected every 14 days. If necessary, registration was guided by the facilitators. Data was summarised using a simple descriptive model developed at Wageningen University, in simple graphics in which individual farm results remained anonymous. The results were discussed every three months in the farmer field school groups. Within a short time, however, farmers often openly informed each other about their own results. These discussions allowed for comparison of different farmers' practices, farmer to

Example of leaflets produced in the Farmer Field School

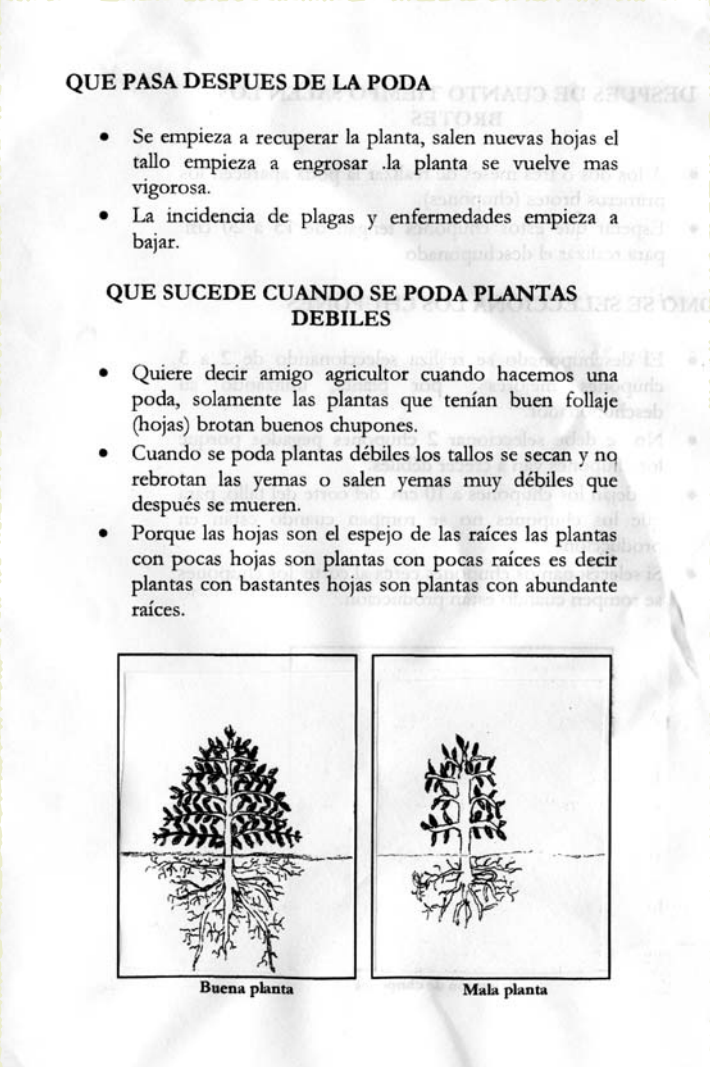
Small groups of between 5 to 8 participants were formed. Each group discussed their problems and reflected critically on their experiences, trying to answer several questions. Under the guidance of a facilitator, critical reflection on existing pruning practices and on new knowledge lead to "conclusions". The conclusions are summarised in the leaflets.

Why should we prune?

- Because an old plant becomes a young plant and produces like a young plant
- Because you may want to prevent the tree from growing too tall, which will make tasks such as harvesting easier
- It maximizes the amount of new wood for the next season's crop, you encourage the growth of new vigorous stems and branches
- Pruning results in bigger berries of higher quality than smaller berries
- It prevents overbearing and thus reduces biennial production
- It helps prevent some pest and disease problems
- So it can use the manure more efficiently
- It improves the economic situation of the farmer

What happens if you do not prune?

- It will be more difficult to prevent and reduce some pests and diseases
- It will be more difficult to harvest the berries from a tall tree with branches of 3 - 4 m
- We will harvest smaller berries with more infestations
- The worker does not want to harvest in an old field if you do not pay extra.
- Old branches will compete with young branches for nutrients



QUE PASA DESPUES DE LA PODA

- Se empieza a recuperar la planta, salen nuevas hojas el tallo empieza a engrosar .la planta se vuelve mas vigorosa.
- La incidencia de plagas y enfermedades empieza a bajar.

QUE SUCEDE CUANDO SE PODA PLANTAS DEBILES

- Quiere decir amigo agricultor cuando hacemos una poda, solamente las plantas que tenían buen follaje (hojas) brotan buenos chupones.
- Cuando se poda plantas débiles los tallos se secan y no rebrotan las yemas o salen yemas muy débiles que después se mueren.
- Porque las hojas son el espejo de las raíces las plantas con pocas hojas son plantas con pocas raíces es decir plantas con bastantes hojas son plantas con abundante raíces.

Example of leaflets produced in the Farmer Field School.

farmer information exchange, as well as comparing progress. Farmers adapted existing technologies and tried out new ideas. Comparison of existing farmers' practices gave farmers the opportunity to think about problems that were difficult to experiment with, because of high costs involved. In this way, through record-keeping, farmers developed skills that allowed them to analyse their own situation. Some examples of the skills acquired include:

- how to compare the differences in hours spent in harvesting in relation to the total harvest;
- how to compare hours of field work and total coffee harvest;
- how to compare income per hectare in relation to all expenditures on the farm.

Farmers appeared to find this type of data collection, analysis and discussion very interesting, challenging and enjoyable. This was reflected by the discipline shown by those involved and the resulting very high quality of the work. Also, it gave the farmers the opportunity to test the usefulness of this method for their needs. Initially, only six farmers per school started keeping records because this method was new for the farmers as well as for the facilitators. After the presentation of the results of the first coffee production cycle, all FFS participants wanted to complete the field book because this "diary" allowed them to analyse their own situation. The strength of this approach lies in the simple well organised record-keeping, accurate observations and of the visual presentation to the FFS groups. An important factor influencing the farmers' willingness to participate is the relevance of the field book output itself to their farm management. Of course, this method has some limitations. Not every problem can be dealt with by using the field book approach. Some problems are very complicated and need more time and guidance, such as shade management. Other problems are too dangerous for experimentation, such as diseases and pests that spread easily, like the coffee berry disease or coffee berry borer.

The FFS approach provided fertile grounds for debate on the field book results because the farmers and facilitators had already worked closely together for one year. The FFS groups had functioned well and proved to be "effective teams" with trust and respect.

Closing remarks

If learning approaches and research in farmer field schools are to achieve a real impact on farm productivity and livelihoods, methodologies for sharing information have to be developed and their use must be promoted. Documentation is a powerful tool to integrate and expand knowledge. The examples presented here show that:

- documentation of the actual production conditions together with the farmers makes it possible to identify current constraints and possible solutions. This knowledge is used to develop a relevant FFS curriculum. As the farmers are involved from the beginning, they feel that they "own", at least in part, the programme of learning which motivates them. Sensitive awareness of the issues and careful contextual, social, and institutional analysis will help to build an effective educational programme.
- documentation of the conclusions of field meetings with farmers and facilitators, as in the form of small leaflets, can help build up a relationship of mutual trust and understanding within the farmers' communities. Encouraging farmers to design the content of the leaflet helps to make the learning process more effective and will encourage them to continue.
- through record-keeping in a field book, farmers develop skills that allow them to analyse their own situation and make progress. By comparing their own farm management activities with the results of their others, farmers can adapt existing technologies and try out new ideas.

Photo: Authors

Pruning in progress.

We believe that documentation is an important tool for spreading local knowledge and local processes of innovation, and we hope that the experiences presented here will encourage others to further develop these ideas. ■

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