



Food and Agriculture Organization
of the United Nations

Methodological recommendations to better evaluate the effects of farmer field schools mobilized to support agroecological transitions



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Abbreviations and acronyms

AET	Agroecological transition
AVSF	Agronomists and Veterinarians Without Borders (<i>Agronomes et vétérinaires sans frontières</i>)
CIRAD	French Centre of Agricultural Research for Development
ESR	efficiency-substitution-redesign
FAO	Food and Agriculture Organization of the United Nations
FFS	farmer field school
NGO	Non-governmental organization
FO	Farmers' organization



1.



1. Introduction

The farmer field school (FFS) approach, based on group experimentation of innovative practices and farming systems, is in line with participatory farm advisory efforts. This approach has an ambitious goal: strengthening farmers' skills so that they can adapt their practices, or even invent new ones, and move towards more agroecological farming systems.

Evaluating such an advisory intervention poses significant challenges. The purpose of this document is to propose fresh ways to update FFS evaluation methods, in particular by studying changes in farming practices and the detailed analysis of FFS outcomes. Project designers, managers and evaluators are the target audience for this document, which may also interest lecturers, researchers, students and policymakers.

The elements of the FFS evaluation methodology presented here stem from the collaboration between three institutions, the French Centre of Agricultural Research for Development (CIRAD), FAO (Food and Agriculture Organization of the United Nations) and the NGO AVSF (Agronomists and Veterinarians Without Borders), and fieldwork carried out in cotton-growing areas of Burkina Faso and Togo between 2018 and 2019.¹

This document is divided in four parts. We first define FFS and its underlying principles, then we detail the methods commonly used to evaluate FFS and the challenges involved. We then present a comprehensive evaluation method using a case study in northern Togo. The final part of the document provides a framework for using the proposed method in the process of designing an evaluation for a project involving FFS.

¹ This paper for the evaluation of FFS is based on a field study in Togo and Burkina Faso. Between 2018 and 2021, T. Bakker completed a thesis entitled "Effects of participatory approaches on change in farming practices: the case of farmer field schools in West Africa", in collaboration with AVSF, CIRAD and the FAO (Bakker, 2021).





2.





2. Farmer field schools

This first part presents the basic principles of farmer field schools (FFS) and describes how they function. For further information, please refer to the FAO (FAO, 2016) and AVSF (Bakker, 2017) guidance documents.

2.1 DEFINITION AND HISTORY OF FARMER FIELD SCHOOLS (FFS)

FFS emerged in Indonesia in 1989 through exchanges between researchers, agricultural advisers and farmers working to manage a rice pest, the brown planthopper. By observing rice plants and analyzing the rice agroecosystem (weeds, insects that are harmful and useful to the crop, soil quality, etc.) on test plots, farmers came to realize that systematic and massive spraying of insecticides was worsening their pest problem because it destroyed all of the insects, including the beneficial ones. By comparing small test plots, farmers were able to observe and learn practices relying on a better understanding of the agroecosystem as to manage their rice systems better and reduce insecticide use. This approach was later formalized by the FAO and adopted by many development actors, including the World Bank, initially for integrated pest management (IPM).

FFS is a participatory advisory approach based on experiential learning (learning by doing). The main objective of FFS is not to disseminate new technical knowledge to farmers, but **to strengthen their capacity to identify a problem, seek solutions and experiment and adapt their practices**. By relying on exchanges within groups of peers, FFS also seek to strengthen collective action.

The FFS approach is now implemented in more than 90 countries worldwide, and the African continent has overtaken Southeast Asia in terms of the number of programmes using this approach. In some Asian countries (such as Indonesia), but also in Africa (for example, Uganda, Cameroon, Burkina Faso), the FFS approach has been more or less institutionalized and integrated into national advisory programmes.

2.2 FFS PRINCIPLES

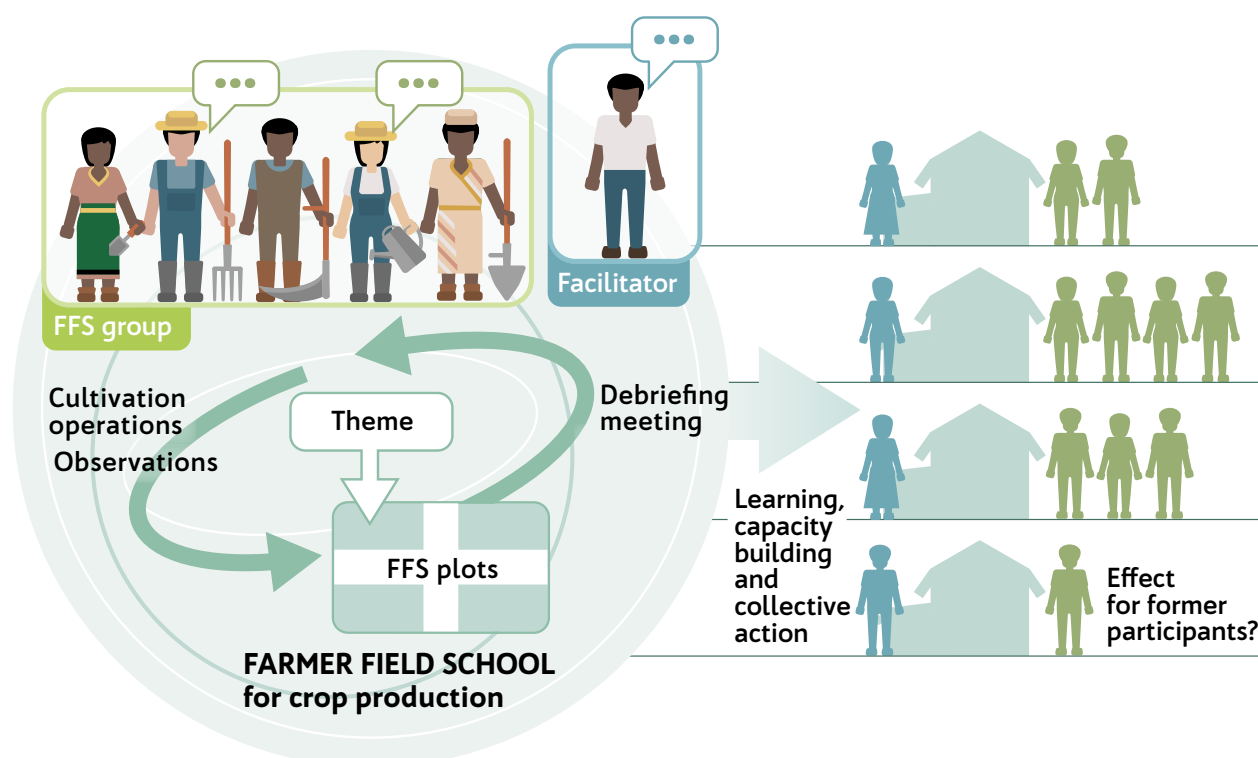
In practical terms, an FFS is based on the commitment of a group of farmers from the same community to work together to find solutions to some of their shared agricultural challenges. It is led by a facilitator (a technician or a farmer) (see [Figure 1](#)). The definition of a theme (cropping system, problem to be solved) leads the group to set up small trials on the FFS plot.² Over the course of a production cycle (of crops, livestock, etc.), the group and the facilitator meet at regular intervals to carry out agricultural operations, observe the agroecosystem and discuss how the various FFS test plots should be managed. At the end of the cropping season, harvests are weighed and a debriefing meeting is held to discuss yields and gross margins, but also other farmer-specific evaluation indicators (such as cash flow requirements, labour requirements, peak workloads, degree of drudgery). The different test plots are compared and their results discussed.

FFS is an innovative advisory approach based on adult learning principles. The main objective of FFS is not to transfer techniques to farmers for adoption. The first step is to strengthen the capacity of farmers to analyse their situations and seek solutions to their problems

² FFS are often focused on crops, but there are also FFS for livestock, agro-pastoral and agro-sylvo-pastoral systems. In order to promote AET, FFS are encouraged to address mixed farming systems (not monocropping systems) and crop-livestock integration.



Figure 1. Diagram of the elements of a farmer field school (FFS): a group of farmers, a facilitator, and FFS test plots on a jointly identified theme (issue to be addressed).



Source: Bakker, T. 2021. Effets des démarches participatives sur les changements de pratiques agricoles: cas des champs-écoles en Afrique de l'Ouest. Thèse de doctorat en agronomie. Université de Montpellier, Montpellier.

on their own by experimenting and adapting their practices. To do this, FFS rely on several principles.

- ▶ FFS focus on **experiential learning**, meaning "learning by doing", so the application of innovative technical options and observations of the agroecosystem in FFS plots are key.
- ▶ FFS recognize that innovation is not just a question of adopting a new technique, but also an **organizational and social process**. This is why the second principle is based on facilitating discussions within farmers' groups and collective action.
- ▶ FFS value **farmers' know-how**, acquired through their day-to-day experiences and empirical knowledge. Therefore, the third principle is to encourage the sharing of farmers' experiences and to consider technical options implemented by farmers.

- ▶ Research cannot develop solutions adapted to the full range of situations encountered by farmers, which is why the fourth principle of FFS is to **focus on the priorities chosen by farmers**, and to aim to develop innovative systems adapted to farmers' local conditions.
- ▶ The fifth principle is to adopt a **systemic view**. This is why FFS organize activities to put integrated agroecosystem management in practice. It also is for this reason that FFS do not simply substitute one input for another, but seek to improve the functioning of the entire production system by gradually adapting practices.



2.3 HOW FFS SUPPORT AGROECOLOGICAL TRANSITIONS

Agroecological transitions (AET) in food and agricultural systems are ambitious goals involving the different dimensions of sustainability. These are agronomic, but also environmental and economic, leading to viable and sustainable solutions and systems for both individuals and communities as a whole (social dimension), for all members (including women and youth in particular). The multidimensional objective of AET implies rethinking how the entire food and farming system functions.

FFS are a farmer support mechanism particularly well suited for facilitating AET on farms. Based on principles that seek to strengthen farmers' capacities to "solve problems by themselves" (part 2.2), FFS are, in theory, an interesting approach to help farmers make their practices more ecological. However, in striving for AET, FFS cannot limit themselves to facilitating the transfer of technological packages, or even to simply improving the efficiency of existing practices or substituting chemical inputs with organic ones. Taking part to the AET also means redesigning production systems (crops, livestock, etc.), relationships between various production units and even the entire farm as to develop systems that are truly agroecological and therefore sustainable. The key to the successful implementation of FFS is therefore to initiate a **truly participatory process of observation, experimentation and design of solutions useful to local agriculture by mobilizing** all members of a farmers' group and a facilitator (Bakker et al., 2022).

Furthermore, the notion of "transition" is used as a reminder that the move towards agroecological food and farming systems is a long and progressive process. Most FFS run for two years (a minimum of two cropping seasons), and ideally three years or more. This makes them particularly **suitable to accompany changes implemented gradually by farmers**, with the ability to address new issues if or when they arise.

Given the role of FFS as a means to support AET at the farm level, the way FFS are evaluated is important. Key considerations to make when evaluating FFS within AET programmes include:

- ▶ the type of evaluation;
- ▶ how to consider all the elements that make up a farm;
- ▶ how to design evaluations that are not limited to agronomic indicators, but include economic and social dimensions as well as indicators commonly used by farmers;
- ▶ how to capture gradual changes.

How do we evaluate FFS in relation to the objective of supporting farmers' AET? The results of an evaluation depend very much on the question that is asked and the way the evaluation is prepared. This is why the present document provides some methodological elements to diversify the themes and approaches of FFS evaluations, including considerations related to the farm and village community level, as to complement the existing array of FFS evaluation approaches.





3.



3. How to evaluate FFS?

3.1 REVIEW OF THE DIFFERENT TYPES OF EVALUATION COMMONLY USED

3.1.1 Attribution and contribution

For outcome and impact evaluation (meaning evaluations conducted after the completion of a project), a distinction is made between impact *attribution* and impact *contribution*. These two concepts are complementary.

Impact **attribution** seeks to measure and demonstrate that effects or impacts observed on the ground are attributable to and caused by the project. The aim is to **establish the causal link between the activities carried out by the project and the effects observed on the ground** (amongst beneficiaries, their neighbours and elements of the socioeconomic and natural environment). This is often done using quantitative methods with large samples of surveyed beneficiaries and advanced statistical methods.

Impact **contribution** recognizes that farmers are part of a larger whole than just the sphere of project intervention (such as the village or region) which must be considered in the evaluation. Considering the complexity of the overall situation in which any intervention operates, it is not reasonable to assume that the impacts observed after a project has taken place are solely attributable to project activities and are entirely predictable. This is why it is important to **evaluate how and why a project activities, in combination with other contextual factors, contributed to the observed impact**. Qualitative methods with small samples are often used, based on semi-structured interviews with, for example, farmers who are project beneficiaries in the first instance, but also other stakeholders (agricultural advisers, project field officers, local decision makers, etc.).

Impact attribution and impact contribution are **complementary** concepts that are not mutually exclusive. On the one hand, it is necessary to measure impact and show that a project has achieved results by providing a reliable quantification, on the other hand, it is important to analyse *how* the project has made a difference. **A combination of quantitative and qualitative methods is recommended** for all project evaluations, a combination which should be adapted depending on the purpose of the evaluation and the situation.

3.1.2 Impact pathways

Definition

The **impact pathway** (also called "theory of change") represents the logical description of an intervention and its effects and impacts, highlighting the causal links between:

- ▶ resources mobilized by the project and the beneficiaries;
- ▶ outputs of the activity (the results, such as innovative techniques tested on farms);
- ▶ changes in the actors involved, in particular technical and organizational changes on the farms (in crops, livestock, economic management, etc.);
- ▶ and the consequences of these changes: the impacts to which these changes are contributing.

Formulating the impact pathway for a project involves **stating all assumptions (implicit or explicit) about how a project is expected to generate impacts**. The impact pathway is often represented as a causal chain linking resources (*inputs*), products (*outputs*), implementation by participants (*outcomes*), and impacts (see glossary in [Box 1](#) and [Figures 2 and 3](#)).



Box 1

Impact pathway vocabulary

Inputs: resources mobilized during the activities

Outputs: direct products of the intervention

Outcomes: stakeholders appropriate the outputs of an intervention, use them, adapt them

Impacts: long-term effects of changes on stakeholders in different areas, including stakeholders not directly involved in the intervention

Timing of the evaluation:

- ▶ *ex ante* evaluation: analysis of available information to estimate the possible effects of a future project (**before** the intervention);
- ▶ monitoring and evaluation: collection of monitoring data on the implementation of activities **during** the project (to prepare for *ex post* evaluation or reorientation of project activities);
- ▶ *ex post* evaluation: evaluation after the project has been completed (at the end of the activities or a few years later).

Effects: an overall term to designate the consequences (positive or negative) in the short, medium or long-term of a project's implementation

Impacts: this term generally refers to long-term effects. *Ex post* evaluation is sometimes called impact evaluation (in which case impact and effects are synonymous).

Source: Bakker, T. 2021. Effets des démarches participatives sur les changements de pratiques agricoles: cas des champs-écoles en Afrique de l'Ouest. Thèse de doctorat en agronomie. Université de Montpellier, Montpellier.

The impact pathway helps to identify the areas that should be studied for a comprehensive and systemic evaluation of the impacts of an intervention. The analysis can be done **before the start of a project** (*ex ante* evaluation) in order to estimate the possible effects of a future intervention, and to help identify and plan its activities and develop the monitoring and evaluation system. The impact pathway also is

useful for **evaluating the effects and impacts after an intervention** (*ex post* evaluation) by detailing how the intervention was carried out and the opinions of the actors in the field.

In our study, which provided the basis for this document, we used the impact pathway as part of an *ex post* evaluation.

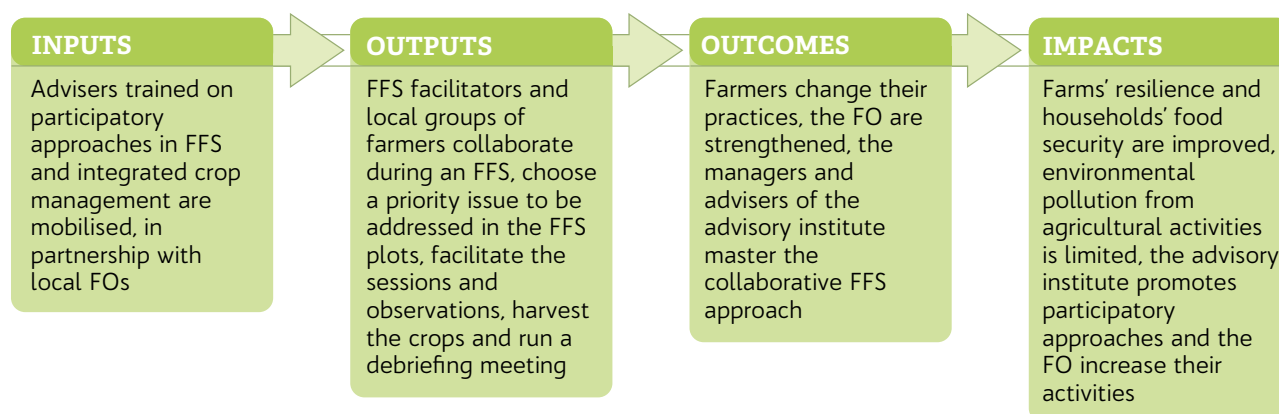




Illustration: Farmer field school impact pathways

Here is an example of an impact pathway focused on a project or activity (in this example, crop production FFS) (Figure 2).

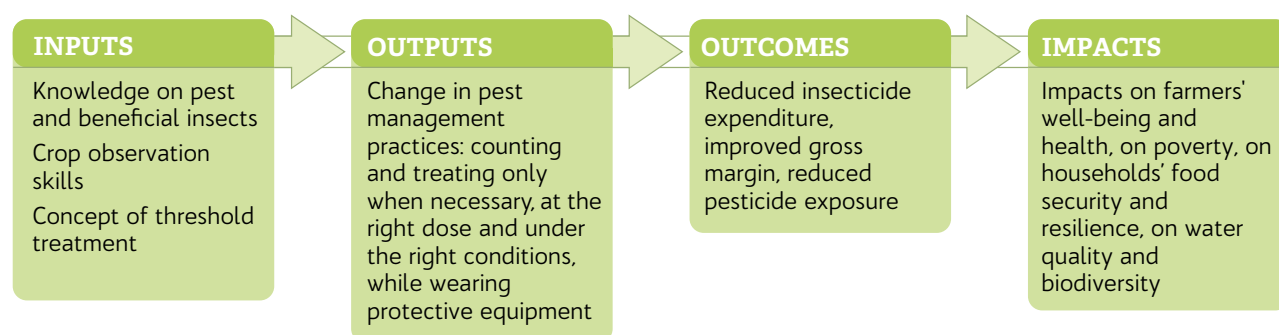
Figure 2. Example of an impact pathway for a crop production FFS programme



Source: Bakker, T. 2021. Effets des démarches participatives sur les changements de pratiques agricoles: cas des champs-écoles en Afrique de l'Ouest. Thèse de doctorat en agronomie. Université de Montpellier, Montpellier.

In the example below (Figure 3), the impact pathway focuses on farmers, and shows the causal chain regarding the use of pesticides in agriculture following participation in an FFS addressing this theme:

Figure 3. Example of the impact pathway of participants in a crop production FFS on pesticide use



Source: Bakker, T. 2021. Effets des démarches participatives sur les changements de pratiques agricoles: cas des champs-écoles en Afrique de l'Ouest. Thèse de doctorat en agronomie. Université de Montpellier, Montpellier.

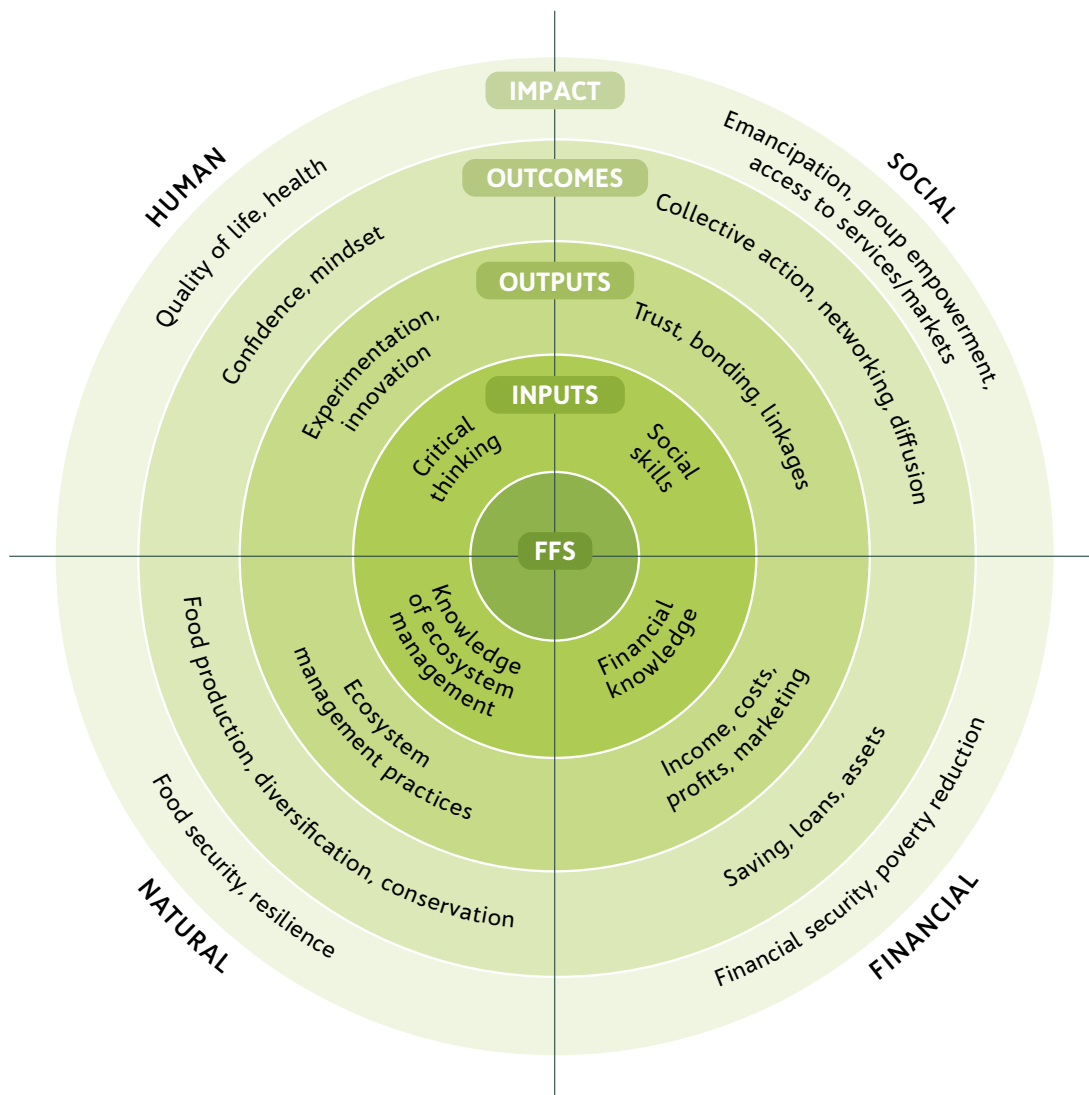


The effects and impacts of an intervention are complex and cut across different sectors. This is illustrated in Figure 4, which shows the causal chain of effects of FFS for participating farmers, broken down into financial, human, social and environmental domains (van den Berg *et al.*, 2020).

In Figure 4, farmers' participation in an FFS is the starting point (centre) and the knowledge and skills

acquired (inputs) produce different types of effects in the four domains identified (economic, environmental, social and human). The final impacts are diverse and concern quality of life, participation in the local community, access to markets, food security and poverty reduction. These impacts are complex and difficult to attribute directly and solely to FFS participation, hence the importance of evaluations focusing on impact contribution.

Figure 4. Causal chains of the impact of FFS in the financial, environmental, social, and human domains



Source: van den Berg, H., Phillips, S., Dicke, M. & Fredrix, M. 2020. Impacts of farmer field schools in the human, social, natural and financial domain: a qualitative review. *Food Security*. <https://doi.org/10.1007/s12571-020-01046-7>



3.2 CURRENT STATUS AND CHALLENGES IN EVALUATING FFS

3.2.1 Current status of FFS evaluation methods

Available meta-analyses on the effects of FFS show that FFS generally enable farmers to increase their knowledge of the functioning of agroecosystems and cropping system management practices. In addition, literature shows that FFS in most cases have positive effects on the use of agricultural practices considered beneficial for pest management and soil fertility management (van den Berg *et al.*, 2020; Bakker *et al.*, 2020).

Most evaluations available are conducted shortly after the end of an FFS (at the close of the activities or one year later). The methods and indicators used are fairly standardized. Most of these evaluations rely on:

- ▶ **knowledge tests** (farmers who have participated in the FFS are interviewed to see what they have retained);
- ▶ **measurements of the adoption rate of a "good agricultural practice"**, either direct (through a survey questionnaire of beneficiaries) or indirect (using expenditures on pesticides or fertilizers as a proxy of adoption);
- ▶ **agronomic (yield) or economic (gross margin) performance indicators.**

Almost all of the studies are constructed by comparing a sample of FFS participants with a control group that did not participate in the FFS (FFS area/non-FFS area). Various statistical methods and models are applied to compare these two populations. Alternatively studies compare the practices and performance of a single population, comparing these indicators before and after the farmers' participation in the FFS.

3.2.2 Limitations of current FFS evaluations and avenues for improvement

The majority of FFS evaluations that are currently available seek to **measure** effects in order to analyse the **attribution** of these effects to FFS. Existing FFS evaluations are important because they allow to attribute effects measured in the field to an activity (the FFS) reliably, and thus to provide quantified evidence of the effect of FFS.

However, these quantitative studies are rarely accompanied by more comprehensive evaluations and therefore provide an **incomplete picture of the situation** in the farms and village community benefiting from an FFS. Indeed, by using only indicators such as the rate of adoption (obtained by survey questionnaires) or the extent of knowledge acquisition (obtained by testing the farmers concerned), the FFS itself remains a "black box" whose **functioning is not evaluated, and the way in which it contributes to effects is not studied**. In addition, these evaluations only take limited account of the context of the intervention, which is very important for understanding how and why an FFS had a positive (or negative) effect. Lastly, the evaluations tend to focus solely on agronomic (yield) and economic (gross margin) performance.

Another limitation of most evaluations measuring adoption rates or knowledge acquisition is that these indicators only ask questions about a practice or knowledge chosen *a priori* by the evaluator and do not explore **what has actually happened to participating farmers** (either positively or negatively) at the level of their farms and families. These evaluation methods do not take into account the **experimentation and adaptation of practices by the farmers themselves**, even though the FFS approach is designed to strengthen the adaptation capacities of the farmers (this is what differentiates FFS from a technical demonstration plot, for example).



More in-depth and qualitative studies are therefore needed to **understand how and under what circumstances** FFS have achieved effects (positive and sometimes negative) and observable and measurable impacts over the medium term. **Mixed-method evaluations** that combine quantitative and qualitative methods also are few and far between, despite their value in providing a comprehensive and systemic evaluation of the effects of a complex intervention.

Finally, all of these indicators are used to measure very short-term effects, but **what happens several years after the FFS?** It is important to look at the rest of the causal chain, especially the impacts of FFS at different levels: for the cropping systems studied in the FFS, but also for all of the activities of the farms concerned by the FFS and therefore also for their organization (man/woman relationship, youth/ farm manager, projects, etc.)

Identifying the limitations of common FFS evaluation methods allows us to propose five

principles (**Box 2**) for the development of a complementary and innovative evaluation method to characterize the effects (contributions to impact) and understand the change processes of FFS interventions.

Based on these five principles, a comprehensive evaluation method needs to include open-ended questions involving former FFS beneficiaries, leaders of farmer organizations (FO) involved in the project, advisors and facilitators; complementing quantitative evaluation methods. Such a comprehensive evaluation needs to allow discussions with individuals (mainly farmers) or groups presenting their point of view, **telling their story**. **Evaluating changes and effects over a longer period of time** is also relevant, as it allows to account for adaptations of practices and to identify changes linked to specific moments in the evolution of the farm, as well as changes that are just temporary (linked to a subsidy by the project for example).





Box 2

Principles for developing a complementary FFS evaluation method aiming to characterize effects and understand change processes in FFS interventions

1. Take into account **how farmers adapt practices developed in an FFS** when the farmers implement these practices on their own farms. *For example, Mr. X participated in an FFS focused on maize-soybean intercropping in alternating rows following a four rows of maize/one row of soybean pattern. Mr. X made changes in his plots and adapted the technique by sowing six rows of maize for one row of soybeans. Previously, he did not grow soybeans with maize, so he had changed his practice. However, as he did not adopt the exact practice designed and evaluated in the FFS, will this change be included in the adoption rate? And how should his neighbour, Mr. Y, be considered? After running several tests in his plot in previous seasons, Mr. Y is now using a pattern of three seed holes of maize, one seed hole of soybeans (on the same line).*
2. Observe **whether a skill was acquired or strengthened**, in accordance with the main objective of the FFS (see section 2.2). *For example, Mrs. Y participated in the vegetable gardening FFS and learned the vegetable crop stages for transplanting (knowledge acquisition). In her plot, she did tests to compare early and late transplanting (ability to experiment and compare two test arrangements).*
3. Observe whether the intervention produced **different effects according to the farmers' situations** (their constraints and objectives, for example the availability of equipment, capital, farm assets, etc.), meaning observe **how the intervention was evaluated by the farmers based on their own evaluation criteria** (which may differ from those of agronomists). *For example, maize-soybean intercropping with a high proportion of soybeans (two rows of maize, one row of soybeans) is a very interesting combination for productivity and gross margin. However, from the farmers' point of view, it does not meet the criterion of producing enough maize for their household's own consumption.*
4. Observe whether the intervention caused any **unintended effect**, for example:
 - ▶ on other crops or farm units (livestock, product processing on the farm, etc.);
 - ▶ on the farm as a whole (reorganization of the allocation of land and work between men and women, reorganization and intensification of the use of manure and crop residues for compost production, etc.);
 - ▶ for collective initiatives associating farmers who have participated in the same FFS, such as for the purchase or production of inputs (organic fertilizer, biopesticides, etc.), the management of a territory or lowland, marketing products.
5. Study the **different dimensions of the effects of FFS**: agricultural practices and production, of course, but also economic and financial, social and human aspects. *For example, changes in cereal-legume intercropping practices may have consequences for women who lose income they were earning from legumes. Other possible consequences include increased cash flow requirements when crops are planted, increased drudgery of weeding and increased work hours during a peak in the work calendar.*

Source: Bakker, T. 2022. Unpublished.



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3.3 CHALLENGES OF FFS EVALUATIONS

Accounting for the complexity of family farms

West African family farms, usually have **collective plots** (cereals to feed the household, cotton for income), but different household members may also cultivate **individual plots** (women, for example, may cultivate lowland rice, vegetables, etc.). Ownership of livestock, their management and access to organic fertilizer also vary among household members. Despite having similar organizational arrangements common to many family farms, the functioning of family farms and the context in which they operate are evolving in most West African countries (non-agricultural activities carried out by young people and women, temporary or permanent migration of farm labourers, reduced inherited farm size, etc.). These developments are seldom studied and are poorly understood, and therefore scarcely considered in evaluations of FFS, although they would allow to **understand better the circumstances in which participation in an FFS can have an impact** on the overall activities of a family farm. It might also be interesting to evaluate which type of farm is most likely (most motivated, least constrained) to make changes favouring agroecological practices after participating in an FFS addressing AET.

Including women's and youth perspectives in evaluations

The participation of women and young people in FFS is encouraged by many institutions, particularly because of their importance in carrying out agricultural work and their difficulties in accessing advisory services. However, few studies have examined the effects of

FFS participation for these categories of the farm population. It would be particularly interesting for agronomists to **study changes in practices and transitions on farms from the angle of the gender or age** of the individual who participated in the FFS. For example, in the case of women's participation in FFS, this raises questions such as: *after participating in an FFS, how do women share the skills and know-how they have acquired with their husbands or sons? How do they negotiate changes in practices in their individual plots, but also at the level of the farm managed by their husband? Do they face constraints in changing the way they farm their own plots and market their produce? What leeway do they have concerning the division of labour between farm heads, wives and young people? More generally, in what ways has women's participation in FFS changed their economic and social circumstances (within the family and the farm, but also in the village and in the groups in which they participate)?* These questions should be adapted when applied to young people on farms.

Including evaluation criteria related to farm work (workload, peak work period, drudgery, possibility of mechanization)

The issue of work is rarely addressed in FFS and their evaluations. However, manual labour remains a key feature of agricultural production and is often performed by women and youth. In particular, the adoption of certain agroecological practices may bring changes in the management of work in family farms, as **these practices may require a greater investment of time**. These operations are most often based on human energy (production, transport and use of organic fertilizer, protection and guarding of



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reforested areas and soil cover biomass, etc.). At the scale of the FFS plot, this work can be done manually because the trial plots are small and the tools already present in the farms can suffice (and if not the project provides the appropriate equipment). It is therefore in the interest of FFS evaluators to **study the constraints related to work** (distribution of tasks among the active members of a household, nature and drudgery of the work, breakdown over the work calendar, etc.) and equipment:

- ▶ to what extent are these constraints taken into account during the implementation of FFS?
- ▶ how are these constraints managed when farmers adopt practices that require more work in their plots (increased family labour and/or use of outside labour)?

This would lead to adaptations in FFS activities by integrating a discussion on labour and needs of different practices in order to limit the extra work that most often falls on women and young people.

An evaluation consistent with the aims of AET

Agroecology is a promising way to meet the challenges of sustainable agricultural production. It combines technical principles with social, economic and organizational ones. Agroecology is also based on the need to adapt solutions and ways of producing and organizing to each specific location, which implies that there is no "recipe" or universal set of steps to follow (at any level, from the farm, to the village group, to the value chain and local food systems) (Bakker *et al.*, 2022).

From this perspective of FFS supporting AET, the evaluation must be able to **capture the agri-environmental, economic, social and human dimensions of the effects of an FFS** or a project as a whole. Evaluators must also report on the *intensity* of the effects of an intervention. Different intensities and complexities of change in effect can be distinguished going from optimizing current practices (for example, a better calculation of the mineral fertilizer dose) to, on the other hand, transforming an agroecosystem based on ecological principles (such as the use of legumes, in rotation or intercropped, or the implementation of agroforestry for the sustainable improvement of soil fertility).

One of the challenges linked to the evaluation of interventions with an AET objective concerns the capacity to capture the reorganization of a cropping system (redesign of a system) or of a unit of the agricultural landscape (hedgerow, agroforestry, erosion control) induced by the participation of farmers in these activities (such as FFS). Another problem is the evaluation of the experimentation capacity and progressive adaptation capacities developed by farmers, as well as the resulting knowledge acquired on the functioning of the agroecosystem of their own plots. These elements are of course more complex to evaluate than the rate of adoption of a new technique at a given moment, but they are essential to **understand the sustainable changes in farming systems made by farmers**. Evaluation methods and indicators must therefore be adapted to account for the overall objective of supporting AET. Lastly, these evaluations must consider the incremental nature of AET, that imply, for example, successive changes in practices over time.



4.



4. Methodological proposal for a comprehensive evaluation of FFS in relation to the agroecological transition

The following methodological proposals enable an improved understanding of the effects of FFS through a detailed analysis of the implementation of the intervention and of the changes in practices reported by the farmers themselves. However, it is important to think about the complementarity between different FFS evaluation methods (see [Appendix 1](#)). In this section, we present the analytical framework and the context of the study that serves as an illustration of such an evaluation methodology. We then describe in detail the key stages of the proposed evaluation methodology using the case study.

4.1 ANALYTICAL FRAMEWORKS FOR EVALUATING FFS IN RELATION TO THE AET OF FARMS

4.1.1 The ESR framework

The efficiency-substitution-redesign (ESR) framework (Hill and MacRae, 1996) is a way of presenting AET. It makes it possible to accurately analyse farmers' practices and their positioning in relation to agroecological principles at the scale of a cropping system or farm.

The ESR framework describes a transition to sustainable agriculture by defining three stages starting from conventional agriculture:

- ▶ increased **efficiency** and optimization of resource use (water, conventional inputs, etc.);
- ▶ **substitution**, or the replacement of conventional inputs by mechanical techniques or biological or organic inputs;
- ▶ **redesign**, or the transformation of the structure and functions of the cropping or production system based on agroecological principles (reduced inputs, recycling, synergy, diversification, etc.) (HLPE, 2019).

This framework is useful to rank practices identified by farmers (through field observation or declarative surveys). It makes it possible to **differentiate the intensity of change**, between a farmer who has only reduced the dose of fertilizer or the frequency of pesticide use, and another who has completely changed his or her way of producing, his or her of crop rotation or intercropping, who recycles organic waste into compost, etc. The analysis shows that the **input substitution strategy is often explored to a greater extent than the in-depth redesign** of a system based on agroecological principles because input substitution often represents a less risky and less complex strategy for farmers. While the substitution of inputs already constitutes progress in terms of reducing agricultural pollution, it does not address the organization and functioning of the cropping system, and in particular the lack of functional biodiversity in the system and the dependence on external "biological" inputs that must continue to be purchased and sometimes imported (e.g. *Bacillus thuringiensis*-based products for insect control or biopesticides, organic fertilizers in pellets, etc.). This drastically limits the reconsideration of the intensive agricultural model and the search for potential solutions to socioeconomic and ecological problems.

4.1.2 The study of trajectories of change over time

Field experience and scientific literature show that farmers rarely adopt an entire technological package, or change practices all at once. This would be very risky for them and above all too complex (Chantre and Cardona, 2014). Generally, the adoption and often the adaptation of agroecological practices require time to understand their effects and to master their use. In **most cases, there are several successive changes in practices** for the same cropping or production system. For example:



- ▶ during the first season in which a new practice is introduced, farmers test it on a small section of one of their plots;
- ▶ the following year, the practice is implemented on an entire plot;
- ▶ in the third year, farmers may adapt and modify the practice based on their expectations or needs.

This example shows three successive phases of change. FFS in particular encourage farmers to test and compare, to observe the state of the agroecosystem under different practices, to adapt practices to the situation, etc., and to do so during two or three successive cropping seasons. In this way, farmers learn to change gradually the practices or the whole farming system which no longer satisfy them.

These successive changes are difficult to detect with evaluations conducted at a single point in time (at the end of a project) and focused on the adoption rate (yes/no) or on a knowledge test. In contrast, an evaluation covering several successive years (such as at the end of the project and three years later) can highlight these progressive adaptations. This is the advantage of using **trajectories of change in agricultural practices**.

The reconstruction of these trajectories is based on farmers' testimonies collected during interviews (in their homes or on their plots). These interviews also help us understand how farmers initiate these changes, often using trial-and-error, given that they do not always have a precise and predetermined objective for change. Through this trial-and-error process, they seek to solve the problems they encounter. In contrast, farmers who engage in converting their farms to organic agriculture have a precise framework that guides the changes in practice, namely organic agriculture specifications. Trajectories of changes in practices also allow to analyse the stages of a farm's AET by evaluating these changes with respect to agroecological principles and by including all production units (crop and animal production). This is referred to as a farm trajectory (Moulin *et al.*, 2008).

4.1.3 Analysing changes at the farm level

Family farms are complex systems, with several household members (working and non-working), several decision-making centres and diverse activities. When analysing changes in farmers' practices, questions related to the profile of the farmer (is he or she a young person or the head of the farm? If a woman, is she married or a widow?), his or her resources (e.g. the size of the livestock unit or the labour force available) and strategy (for example, developing livestock production, vegetable gardening, or growing cotton) must be addressed to explain the changes that have occurred.

Carrying out the analysis at the farm level makes it possible to identify whether the intervention (the FFS) had an effect on:

- ▶ only the cropping system targeted by the FFS, or
- ▶ several farm production units, or
- ▶ work organization, the management of production factors or overall household income.

Based on a simplified representation of family farms in the study area (identification of the subsystems that make up the farm, such as collective rainy season crops, livestock, and individual production units), the aim is to:

- ▶ on the one hand, **study whether changes are limited to the subsystem targeted by the FFS** (e.g. the rainy season cropping system) or whether participants have modified other subsystems (e.g. livestock, by improving the straw litter of oxen to produce more manure for rainy season crops);
- ▶ on the other, **study how the profile of the participants has or has not facilitated the flow of information** between household members (for example, a woman participant in the FFS tells her husband about the practices she has learned, and he agrees to make changes in the household's collective plot), and whether certain participants encounter **specific difficulties in making changes to their practices** (for example, some women do



not have access to manure to fertilize their vegetable garden crops).

The study of the different units and the organization of the farm as a whole allows to analyse whether the FFS have had effects on the entire farm, therefore adopting the systemic vision of the farm (namely by considering the interactions between the different components of the farm) promoted by agroecology. It also provides information on whether the knowledge and skills acquired by an individual participating in the FFS are being passed on to other members of the farm. These indirect changes in other subsystems contribute to the expected effects of the FFS (for agriculture and food, as well as human, social and financial domains), but also to the unexpected effects. These unexpected effects may be negative for some production units or household members (such as increased compost production resulting in additional work for women), which should also be reported in the evaluation.

4.1.4 Analytical framework for the proposed evaluation method

We therefore propose to evaluate FFS based on the practices chosen and described by farmers. As such the evaluation is conducted from the farmer's point of view, not seeking to define a priori what constitutes a "good practice", nor to measure the rate of adoption of the technique resulting from an FFS and proposed by the project on a territorial/regional scale.

A **practice** corresponds to "a concrete way in which farmers act". This is different from a **technique**, which is a generic and transferable description, e.g. via a technical sheet. Changing practices is the most concrete level of change for farmers, and it is a frequent target of development interventions ("adopt good practices").

In short, a technique is theoretical, and a practice is what farmers actually do (Box 3).



Box 3

Example of the difference between a technique and a practice

Mr. X and Mrs. Y participated in an FFS on **integrated pest management techniques in cotton-based cropping systems**. They learned, among other things, how to: recognize beneficial insects, count pests and determine an infestation threshold for treatments, prepare and use biopesticides, apply manure in combination with the right amount of mineral fertilizer, and rotate crops integrating pure cropping of legumes.

The evaluation of changes in practices following their participation in the FFS shows that Mr X changed his pure soybean cropping practices (he stopped applying fertilizer and is spreading compost, and rotates soybeans/cereals instead of soybean/monocropping) and his fertilization practices. However, Mrs. Y has not changed her fertilization practices because she does not have many animals. The two farmers explained that the plant pest control technique of treating cotton with biopesticides does not interest them due to the associated workload and potential risks for this cash crop (very important for the farm's economic situation), so their pest management practices for this crop have not evolved.

Source: Bakker, T. 2021. *Effets des démarches participatives sur les changements de pratiques agricoles : cas des champs-écoles en Afrique de l'Ouest*. Thèse de doctorat en agronomie. Université de Montpellier, Montpellier.

The two frameworks presented so far are complementary:

- ▶ The **ESR framework** is used to rank the practices described by the farmers (substitution of mineral fertilizer by compost, redesign of a cereal-only cropping system into a legume/cereal system).
- ▶ The reconstruction of the **trajectory of change in practices** helps understanding the progressive changes made by farmers (for example, the farmer may have started by combining soybean with maize to get to know this legume, which she/he was not previously familiar with, and then opted for a maize/soybean rotation).

This complementarity is necessary to evaluate the effects of the FFS over time in relation to the objective of supporting AET. This allows to see whether farmers have acquired the skills targeted by the FFS: evaluating a situation, identifying solutions, experimenting and comparing several solutions, and analysing the results as to adapt their practices in an environment that is constantly changing (climatic

conditions varying from one season to the next, fluctuating economic conditions and market access, etc.). Finally, the analysis of **major changes at the farm level** explores whether the changes in practices and the acquisition of new knowledge and know-how have affected different subsystems that make up the farm.

We will now apply this analytical framework to evaluate the effects of FFS on cropping systems in northern Togo.³

4.2 CONTEXT OF THE CASE STUDY

The study on which this document is based was conducted based on a literature review and a field survey in villages in northern Togo where the "Sustainability and Resilience of Family Farming" project was implemented. This project was implemented by Agronomists and Veterinarians Without Borders (AVSF) and the NGO RAFIA (Research support and training for self-development

³ We present an illustration for agronomic FFS (rainy season crop or vegetable gardening systems), but these methodological elements are also interesting for adaptation to the case of agro-pastoral or agro-sylvo-pastoral FFS.



initiatives) with the FO UROPC-S (Regional Union of Cereal Farmers Organizations – Savane region), in partnership with ICAT (the Agricultural Advisory Institute of Togo). The field survey collected information on the implementation of FFS, and evaluated the effects of the FFS on cropping systems and on the functioning of studied farms based on an analysis of farmers' practices. The interviews were conducted in 2019, two years after the end of the FFS (implemented between 2015 and 2017).

The field study was conducted in the Savannah region in northern Togo, located in the cotton-growing area of West Africa. In this area, production systems rely on mixed crop-livestock farming, with a rainy season cropping system based on cereals (mainly maize and sorghum), cotton and pulses (cowpeas and soybeans). Tillage using animal traction is widespread, but the poorest farms do not own oxen or equipment and must rent them. Irrigated dry season vegetable gardening has developed considerably over the last 20 years, mainly the cultivation of tomatoes, onions and peppers.

The study area is faced with the challenge of decreasing yields due to declining soil fertility (lower organic matter content, soil erosion, etc.). Farmers have tried to compensate for the decrease in available land per worker and the drop in yields by intensifying inputs and labour, and by diversifying sources of income (off-season vegetable gardening, seasonal migration, rural exodus, etc.). The use of external inputs, chiefly mineral fertilizer, has harmful socioeconomic (high cash flow burden, exclusion of certain categories of farmers, dependence on supplier credit) and environmental (contamination of water by pesticides and fertilizer, leaching of nitrogen) effects. There are also significant social and organizational challenges due to the seasonal and permanent migration of young people, a growing urban population that needs to be fed, and inequalities between men and women, and rich and poor. The national research and advisory systems in Togo have most often favoured a top-down vision of innovation in agriculture, with little recognition of the knowledge, know-how and real expectations and objectives of farmers.

4.3 MAIN STEPS IN EVALUATING THE EFFECTS OF FFS ON FARMERS' PRACTICES: A CASE STUDY IN NORTHERN TOGO

4.3.1 Reconstructing and characterizing the FFS process

Why: At the beginning of the evaluation, it is important to **characterize how the FFS were implemented**, by whom and with what constraints or difficulties. In particular, we need to understand the level of farmers' participation, the methods and positioning of the FFS facilitators, and whether they received external support to assist them in accompanying the group of farmers. This preliminary step is essential for interpreting the evaluation data (and monitoring and evaluation data) and for drawing lessons for improving the way FFS are implemented (for future projects in the area, for example).

How: Based on project documents (annual reports and summaries) and interviews with project stakeholders and groups of farmers participating in the FFS (focus groups). This step will be easier if the progress of the FFS has been recorded in reports produced throughout the implementation of the intervention (an activity which should be part of the projects' planned monitoring and evaluation).

What: The analysis aims to understand how the FFS were implemented in relation to core FFS principles (see [section 2.2.](#)) and to the methodological guide given to facilitators for the implementation. In particular, the task is to understand when the diagnostic was carried out and the role that farmers played in it, analysing how the choices and programming of the FFS activities were made, how the annual reviews were carried out and determining the farmers' level of participation in these different stages (see [Box 4](#)).



Box 4

Questions to ask about the FFS process

- ▶ Describe what is being evaluated: how were these FFS implemented?
 - When was the diagnostic made?
 - Characterize the level of farmer participation in key stages (diagnostic, choice of topics to be addressed in the FFS and the curriculum, end-of-crop-year review) by considering three levels (Biggs, 1989):
 - **Consultative** participation: the project defines the curriculum⁴ and collects farmers' opinions on it..
 - **Collaborative** participation: the curriculum is defined through a discussion between facilitators and farmers in which everyone participates as equal. Farmers suggest topics to be addressed during the FFS.
 - **Collegial** participation: farmers define the theme of the FFS on their own and define the curriculum by involving the project team.
 - At what stages can farmers' learning be observed? The facilitators' learning?
 - What was the concern(s) raised by the farmers? How was this concern(s) reformulated by the facilitators?
- ▶ This description of the intervention process must answer the following questions: what was the role of farmers' participation in the process? Was participation a method used to facilitate the FFS, or was real decision-making power given to farmers to shape the content of the FFS (choice of topics, choice of technical options, organization of group work)?
- ▶ What skills did the facilitators draw from?

Source: Bakker, T. 2021. *Effets des démarches participatives sur les changements de pratiques agricoles: cas des champs-écoles en Afrique de l'Ouest*. Thèse de doctorat en agronomie. Université de Montpellier, Montpellier.

Illustration: Figure 5 shows the reconstruction of the FFS process for the northern Togo case study made two years after the project ended. At the start of project activities, preliminary meetings introduced the FFS approach to farmers in the area. Next, plots for the FFS were identified and FFS groups were established (due to the strong land pressure in northern Togo, the choice of a site to host the FFS was made as early as possible, before the formation of the group of volunteer farmers to participate in the FFS). For each FFS, a **participatory diagnostic** was carried out, which led to the establishment of a curriculum validated by each FFS group. The activities of the FFS then followed their course according to the cropping season, with regular sessions to carry out crop operations and observe the crops, soil and pests.

Exchange visits between FFS, where participants presented their plots and findings, were also an important opportunity for the knowledge acquired to be disseminated to a wider community.

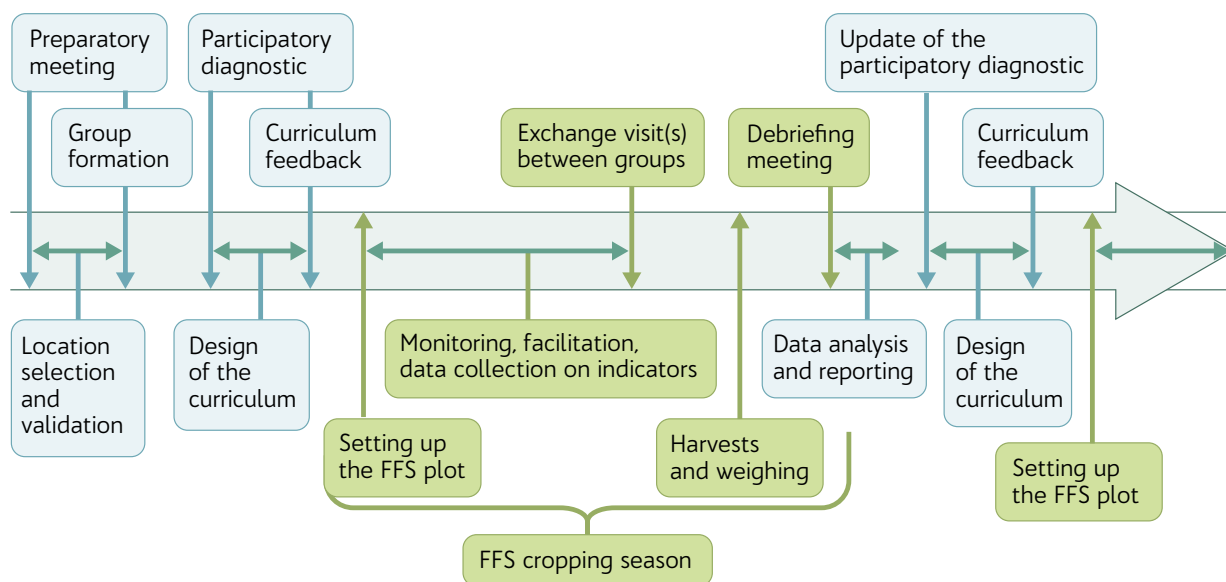
Based on the description of the implementation of FFS, farmer participation was described as **collaborative** (see Box 4). Indeed, farmers were involved in the choice of crops and topics addressed during the FFS, and the curriculum was developed based on the preferences expressed by the farmers during the **participatory diagnostic**. Farmers' feedback also was incorporated into the improvement of the FFS during the debriefing meeting.⁵

⁴ Or training/action curriculum, i.e. the technical content of the FFS based on the issues to be addressed for the selected farming systems (crops, livestock, etc.).

⁵ The way in which these FFS were conducted is detailed in the AVSF methodological guidelines (Bakker, 2017).



Figure 5. Implementation of the collaborative FFS in the "Sustainability and Resilience" project in northern Togo



Source: Bakker, T. 2021. *Effets des démarches participatives sur les changements de pratiques agricoles: cas des champs-écoles en Afrique de l'Ouest*. Thèse de doctorat en agronomie. Université de Montpellier, Montpellier.

4.3.2 Survey of a representative sample of former FFS participants

Sampling a diversity of farms

Why: The aim is to have a sufficiently diverse sample of farms to evaluate the effects of FFS for different types of participants. In cases where the FFS sought to reach a specific group (such as women or the poorest farmers), this evaluation of effects will determine whether the targeting strategy and participant selection method were successful in reaching the groups targeted and whether the intervention was able to achieve the intended effects (for the targeted group, and for other potential participants).

How: The proposed method is based on a small sample (20-30 farms with one or more members participating in the FFS), with no control group. The purpose is not to create a large sample that can be used to process the results of the evaluation using statistical methods, but rather to have a smaller sample that can be used to do an in-depth analysis of stories of farmers collected during the survey. The snowball sampling method is

well adapted for this. If used, the objectives of the sampling need to be explicitly specified to the resource persons as well as the fact that **the intention is not to meet only people who made changes in their practices following the FFS**, but rather to survey a variety of farmers who participated in the FFS evaluated (including those who have not changed their practices). Many **interesting elements for the improvement of the FFS** were provided by those who encountered **difficulties** in implementing the lessons of the FFS and by those who **proposed adaptations** of the practices tested in the FFS. It may also be useful to carry out an agro-economic survey to identify the different types of farms in the area.

What: The aim is to **investigate the different profiles of farmers who participated** in the FFS: rich/poor, with a small or large herd, small or large cropping area, with secondary activities, etc. When women, even if a minority, have participated in the FFS, it is interesting to include them to get their points of view. It is critical not to limit the survey to farmers who have tested innovative practices on their plots and succeeded in



adopting them on a significant scale, as this evaluation method seeks above all to **identify experimentation and adaptation capacities** (useful skills for farmers), sustainable changes (meaning a few years after the end of the FFS) and to identify the reasons changes are not made and the constraints encountered.

Illustration: Table 1 presents the sample of farms that were surveyed in northern Togo.

Special attention was paid to including farmers with different backgrounds, particularly poorer farmers. In addition, the sampling endeavoured to include those who have not put in practice the innovations developed in the FFS, or have done so only partially. Finally, it should be noted that since this evaluation method focuses on carrying out an in-depth survey of farmers' practices, the sample used is not representative of farmers in the area and as such does not aim to reach a statistically significant number of respondents (see part 3.1).

Survey using semi-structured interviews

Why: Semi-structured interviews aim to collect the interviewees' stories on their participation in the FFS and the consequences which they believe are linked to their family context and environment (acquisition of knowledge and new skills, change of practices, new activities and organization of family assets, etc.). The semi-structured interview method is more suitable than a closed questionnaire for achieving the objectives of this evaluation method.

How: The questions focus on:

- ▶ **the cropping system⁶ targeted by the FFS** and how the farmer manages it on his or her farm (or other systems, e.g. livestock system), by asking the respondent:
 - to describe the system before his or her **participation** in the FFS (starting point)
 - to describe changes made **during and after participation** in the FFS, trying to place these changes in time (for example, "I started using manure on maize in the second year of the FFS", etc.).
- ▶ **the entire farm**, namely practices the respondent has changed in the rest of the farm (for example, livestock, organic fertilizer production, granary management, vegetable gardening). It may be necessary to discuss with other members of the household who have made changes in their individual activities, as they may have also benefited from the learning obtained through the FFS or other channels.

By using open-ended questions, the interview guide allows to explore the different aspects of cropping system management without influencing farmers' answers (and without suggesting answers similar to the practices seen in the FFS). For example: *have you changed the way you fertilize maize? How? When possible, interviews should be conducted in the absence of former FFS facilitators so that respondents can express themselves freely (the respondent should not feel judged by their former facilitator).*

Table 1. Characteristics of the sample of farms that were surveyed in northern Togo (M: male, F: female)

FFS code	CROPS		PARTICIPANTS		SAMPLE	
	Rainy season cropping	Vegetable gardening	Rainy season cropping	Vegetable gardening	Rainy season cropping	Vegetable gardening
T1	Rice, maize, soybean	Tomato, onion	30 (21M, 9F)	18 (10M, 8F)	9 (5M, 4F)	4 (2M, 2F)
T2	Maize, soybean	Tomato	30 (28M, 2F)	8 (M)	8 (7M, 1F)	3 (M)
T3		Tomato		30 (24M, 6F)		8 (7M, 1F)
T4	Maize, soybean	Onion	23 (7M, 16F)	23 (2M, 21F)	5 (F)	6 (F)

Source: Bakker, T. 2021. *Effets des démarches participatives sur les changements de pratiques agricoles: cas des champs-écoles en Afrique de l'Ouest*. Thèse de doctorat en agronomie. Université de Montpellier, Montpellier.

⁶ Or agro-pastoral system, or agro-sylvo-pastoral system.



What: Using an interview guide instead of a questionnaire means asking open-ended questions, not limiting oneself to the practices explored/studied in the FFS, but addressing all changes in practices in the cropping system targeted by the FFS and then in the farm as a whole. It is the farmer who defines what constitutes a change in practice. With this description of successive changes in practices, the evaluation recognizes the importance of endogenous/farmer experimentation (conducted in the FFS and then on the

farms) and the adaptations of practices made over time. There is no "right" or "wrong" answer, nor is there any judgment on what the farmer reports (Sibelet *et al.*, 2013).

Illustration: Box 5 presents an excerpt from the interview guide for former rainy season crop FFS participants, and shows how to ask open-ended questions about changes in practices regarding different aspects of crop management.

Box 5

Excerpt from the interview guide for rainy season crop FFS participants

This excerpt shows how to ask open-ended questions, without suggesting answers to the respondent. The interview guide is not "ready to use"; each interview guide must be adapted to the context of the survey. The order of the questions will vary depending on what the interviewee is saying (for example, if he or she begins by talking about changes in soybean farming, the interviewer will begin by looking at that before returning to questions about maize).

**You participated in the rainy season crop FFS in village, right?
Since the FFS began in 2015, have you made any changes in the way you grow maize?
Yes, what are they?**

- ▶ **Fertilization? Did you change the organic fertilizer/mineral fertilizer/combination of mineral and organic fertilizer?**
 - **What exactly has changed?** How did you do it before? What's next? What are the doses, how are they applied... Describe this for us.
 - **Why did you make the change?** What interests you about this new technique?
 - **When did you change?** What year was it in relation to the beginning of the FFS (the same year, the year after, etc.)? Did you do a test or make the change on the entire plot? Did you adapt the technique (several successive attempts)?
 - **Do you plan to change anything next season? What are the difficulties/constraints involved in the change?**
- ▶ **Crop protection?** What has changed? Why? When? All at once? Future changes? Difficulties?
- ▶ **Intercropping?** Idem: *what, why, when...*
- ▶ **Other cropping techniques (cropping calendar, seeding rate, etc.)?** Idem: *what, why, when...*

Let's also talk about other crops, you also grow cotton, red sorghum and soybeans sown in pure crops: have there been any changes in practices? What are they? Why? How did you get the idea?

- ▶ **Crop rotation?** Idem: *what, why, when...*

Have other people in your household made changes, for example, your wife? Idem: *what, why, when...*

→ *ask to speak with her directly*

Have there been any changes in the way work is organized? In managing the livestock? etc.

Source: Bakker, T. 2021. *Effets des démarches participatives sur les changements de pratiques agricoles: cas des champs-écoles en Afrique de l'Ouest*. Thèse de doctorat en agronomie. Université de Montpellier, Montpellier.



4.3.3 Analyse and compare the trajectories of changes in practices for the cropping system targeted by the FFS

Why: The comparison of individual trajectories of change in farmers' practices after participation in an FFS is intended to analyse qualitatively **the effects of FFS on farmers' choices**. This comparison makes it possible to highlight recurring patterns (common to several farmers) in farmers' technical decisions and to highlight the progressive nature of the adaptations of practices (it is rare for farmers to adopt an entire technical package all at once).

How: The analysis of interviews aims to identify the practices used **before** the FFS, then **every change**

mentioned by the farmer, up to his or her **current practices** (Box 6). For the cropping system targeted by the FFS, the evaluator identifies the practices detailed in the interviews and classifies them by theme (for example, fertilization management, pest management, growing legumes through intercropping or in rotation with cereals, etc.). The practices related to each theme are then ranked according to the degree of ecologization of practices (using the ESR framework in our case). It is up to the evaluator to categorize the practices, **there is no standard grid, this is why the ESR framework allows to estimate the intensity of a change** (is it an optimization of the use of an already used input, a substitution of one input by another, or has this change transformed the way the cropping system is structured and functions?).

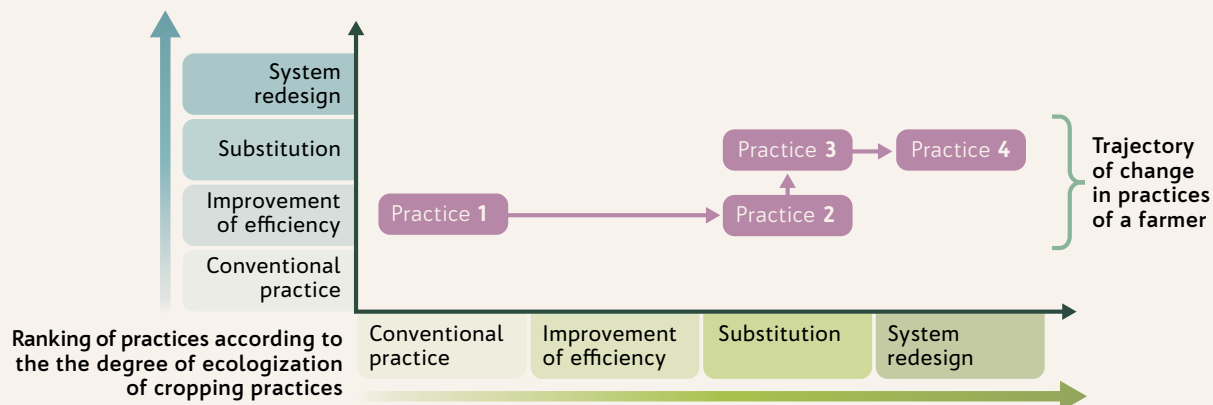
Box 6

Methodology: reconstructing a trajectory of changes in practices

The trajectory of changes in practices after participation in an FFS is reconstructed by considering that each change in a farmer's practices constitutes a stage in the trajectory (see Figure 6).

During the semi-structured interviews, farmers described their practices before the FFS, then the successive changes made in their plots and on their farms. The practices described were then ranked according to the degree of ecologization of practices used in order to reconstitute the trajectory of changes in the practices of each farmer. The degree of ecologization of practices is characterized using the ESR framework, to describe a transition to sustainable agriculture (see section 4.1.1). The trajectory of changes in practices of each farmer is thus reconstituted according to the following model:

Figure 6. Diagram of the reconstruction of the trajectory of changes in practices



Source: Bakker, T. 2021. *Effets des démarches participatives sur les changements de pratiques agricoles: cas des champs-écoles en Afrique de l'Ouest*. Thèse de doctorat en agronomie. Université de Montpellier, Montpellier.



What: This analysis answers the following question: **how does participation in an FFS transform farmers' practices?** The interpretation of the data should be done based on the explanations obtained during the interview, the contextual elements and the characterization of the implementation of the FFS. The diversity in the sample that was surveyed also explains the variability of the trajectories observed across types of farms. The change in practices decided by a farmer will depend on his or her constraints and opportunities (lack of livestock to produce compost, sudden increase in the price of mineral fertilizer, etc.) and his or her strategic choices.

Illustration: Classification table of practices (Table 2) + graphic representation of trajectories in Togo (Figure 7).

Table 2 presents the ranking of practices according to their degree of ecologisation (using the ESR framework) described by farmers for the **management of fertilization** and the inclusion of **legumes (pure cropping or intercropping)** in rainy season cereal-based cropping systems in northern Togo. The trajectories of changes in practices obtained for each participant are presented in Figure 7 (see the interpretation of the figure in the legend).

The results show that **the trajectories are long and take place in several steps**, and therefore with several stages of change that are easy to identify. Trajectories with a horizontal progression towards the production and use of more compost are observed, followed by a vertical progression in a second stage with the

inclusion of legumes in the cereal-based system, either pure cropped or intercropped. **Farmers choose highly diverse practices.** For compost production, the project had provided support for digging one pit on each farm, but some farmers went further, intensifying pit production (digging several pits), developing composting in heaps (an innovation not addressed in the FFS) and/or buying manure from Peuhls to produce more compost. For the cultivation of leguminous crops, this can involve intercropping (often maize-soybeans) with various patterns (in alternating rows or in alternating seed holes). Some farmers also increased the share of legumes in pure cropping, and five farmers started crop rotation.

In 11 cases, farmers continued to make changes to the practices implemented in the FFS, highlighted in blue in Figure 7. This demonstrates that the skills acquired during the FFS allowed farmers to adapt and experiment with practices even after the end of the project, and therefore on their own initiative.

The different trajectories and the fact that farmers implemented practices that had not been tested in the FFS demonstrate that **collaborative FFS achieve the objective of strengthening farmers' skills.** In our case study, farmers who participated in an FFS were able to experiment independently on their plots after having done so collectively in the FFS. They were thereby able to find solutions adapted to their situation. The processes operating in collaborative FFS and the way they were implemented are similar to co-designing new cropping systems adapted to local conditions.



**Table 2.** Classification of farmers' practices after participation in rainy season crop FFS in Togo

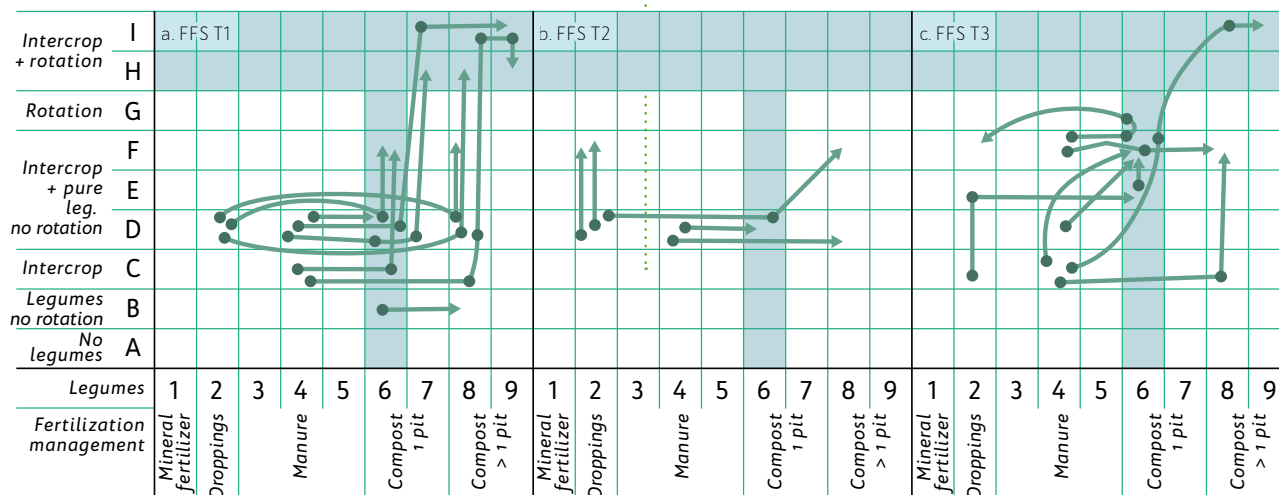
	PRACTICE		CODE	ESR level
	Legumes in cropping system	Type of cereal-legume intercropping		
SHARE OF LEGUMES IN THE RAINY SEASON CROPPING SYSTEM	No legumes		A	Conventional
	Pure legumes without rotation		B	
	Intercropping only	Traditional	C	
	Intercropping and pure legumes without rotation	Traditional	D	
		< 20% leg.	E	Redesign
		>= 20% leg.	F	
	Pure legumes in rotation		G	
	Intercropping and pure legumes in rotation	< 20% leg.	H	
		>= 20% leg.	I	
FERTILISATION MANAGEMENT PRACTICES FOR RAINY SEASON CROPS	Mineral fertilizer only		1	Conventional
	Mineral fertilizer and dump / droppings		2	
	Mineral fertilizer and occasional manure		3	Efficiency
	Mineral fertilizer and yearly manure		4	
	Mineral fertilizer, yearly manure, manure purchase		5	
	Mineral fertilizer and compost (1 pit)		6	Substitution
	Mineral fertilizer, compost (1 pit), manure purchase		7	
	Mineral fertilizer and compost (>1 pit)		8	Redesign
	Mineral fertilizer, compost (>1 pit), manure purchase		9	

Practices were categorized using the efficiency-substitution-redesign (ESR) framework (Hill and MacRae, 1996). Practices implemented in the FFS plot are highlighted in blue. The traditional cereal-legume intercropping practice consists of sowing rows of legumes (e.g. cowpeas) perpendicular to rows (ridges) every 4 to 6 metres. Alternate row or alternate seed hole intercropping are distinguished by the proportion of legumes in the plot (relative to the main cereal crop). Over 20% legumes are equivalent to 1 row of legumes for every 3-4 rows of cereals, and less than 20% is equivalent to 1 row of legumes for every 5-10 rows of cereals.

Source: Bakker, T., Dugué, P. & de Tourdonnet, S. 2021. Assessing the effects of Farmer Field Schools on farmers' trajectories of change in practices. *Agron. Sustain. Dev.*: 15. <https://doi.org/10.1007/s13593-021-00667-2>.



Figure 7. Trajectories of change in practices after three rainy season crop FFS



The practices are ranked according to the intensity by which agroecological principles are applied: fertilization management practices on the horizontal axis, and legume cultivation practices (pure cropped or intercropped with maize) on the vertical axis. The columns and rows in blue represent the practices implemented in the FFS. Each point represents a change in practice, linked together to form a trajectory of changes in practices (the first point represents the practice at the beginning of participation in the FFS, the final arrow the practice achieved at the time of the survey). The points do not correspond to successive growing seasons, but only to changes in practices. Each trajectory lasts for 5 years.

Source: Bakker, T., Dugué, P. & de Tourdonnet, S. 2021. Assessing the effects of Farmer Field Schools on farmers' trajectories of change in practices. *Agron. Sustain. Dev.*: 15. <https://doi.org/10.1007/s13593-021-00667-2>.

4.3.4 Analysing change processes at the farm level

Why?: This step analyses qualitatively **the effects of the FFS at the farm scale**, in other words, studying the changes for the different subsystems composing the farm (crop production, livestock, individual production units) and the relationships between these changes. Farms are complex systems where the different subsystems (plant production, livestock production, processing, etc.) are interconnected; for example, crop residues are used as feed and litter for cattle, which in turn generate a flow of manure for the crops. Comparing changes across subsystems makes it possible to identify changes made by the farmer in subsystems not targeted by the FFS (such as livestock in the case of an FFS targeting a specific

cropping system).⁷ In addition, it allows us to observe the flow of information between the FFS participant and household members who did not participate in the FFS.

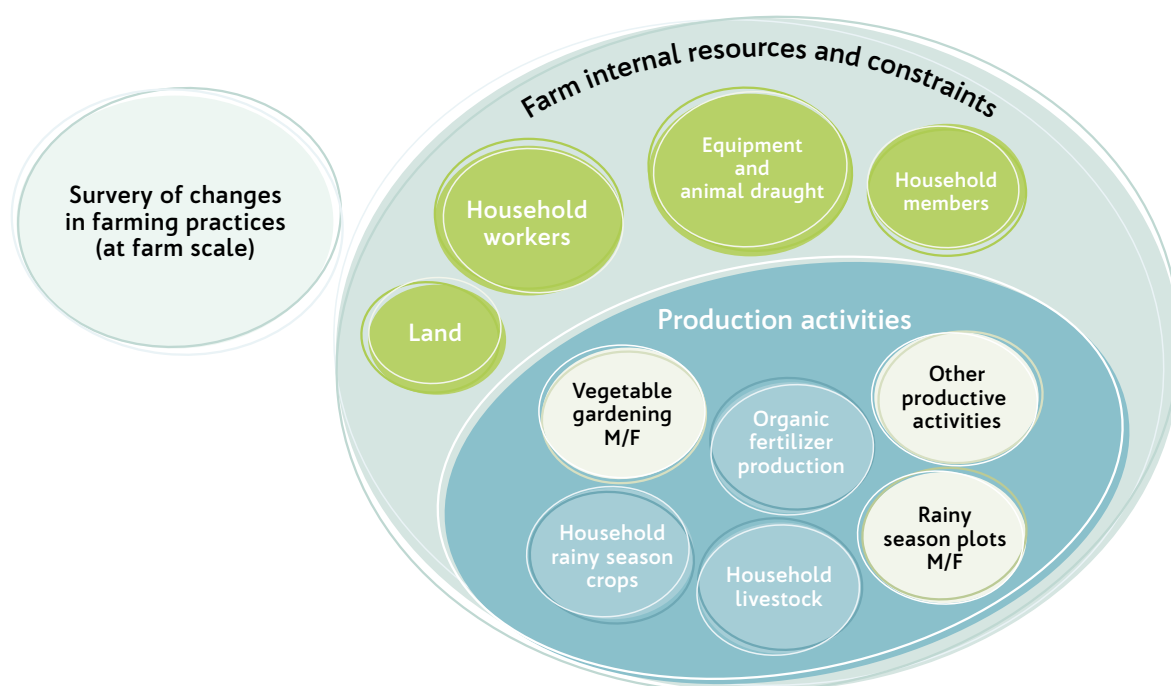
How: The semi-structured interviews also address the question of changes made by FFS participants or other members of their household in the different farm subsystems. The analysis of the farmers' stories allows us **to identify the changes mentioned and to classify them using a simplified representation of the farms** in the study area (see illustration in Togo, [Figure 8](#)).

The evaluator then observes whether **any of the innovative practices are frequently used in combination and whether the reasons given by the**

⁷ Or conversely, in crops for FFS targeting livestock, trees, etc.



Figure 8. Simplified representation of family farms in the cotton-growing areas of West Africa



Source: Brossier, J., Devèze, J.-C. & Kleene, P. 2007. Qu'est-ce que l'exploitation agricole familiale en Afrique? In M. Gafsi, P. Dugué, J.-Y. Jamin & J. Brossier, eds. *Exploitations agricoles familiales en Afrique de l'Ouest et du Centre*, pp. 73–112. Editions Quae.

farmers for these changes are similar, depending on the subsystems, the intensity of the changes, the farm profiles or the FFS followed, for example. This makes it possible to group together farms with similar change profiles (or, on the contrary, to demonstrate great variability in changes at the farm level).

What: This analysis explores the question: **how does participation in an FFS transform the farms of participants?** While taking into account in this analysis all of the changes in the farm and in its overall operations, it may be particularly interesting to explore the differences in the effects of FFS between male and female participants, young farmers and farm heads, or rich farmers and poor farmers (economic and social capital). The task is to identify:

- **changes in practices in subsystems not targeted by the FFS.** For example, regularly laying down straw litter for animals and penning at night to get

more manure, increasing vaccination to decrease mortality and maintain the herd to produce a large amount of manure;

- **changes in the overall management of the farm and its internal organization** (between household members), such as the acquisition of new equipment for tilling or the extension of the cultivated area by renting or buying land, an increase in the frequency of use of hired labour to respect the cropping calendar;
- **changes in the strategy of the farms**, for example in favour of diversification of income sources (starting a new activity) or specialization (for example in livestock breeding, vegetable gardening, cash crop, etc.). Examples include the diversification and spreading of vegetable garden production, the increase of the surface area for vegetable gardening, the purchase of equipment (motor pump) and the use of hired labour. In some cases, the expansion of



vegetable gardening may lead to a reduction in the area cultivated with rainy season crops, particularly cotton.

Illustration: For the case study in northern Togo, we considered the four main subsystems of the farms in this region (see [Figure 8](#)):

- ▶ vegetable gardening (individual plots for men or women; there are no collective household plots for this type of dry season production);
- ▶ rainy season crops in collective plots;
- ▶ livestock;
- ▶ the production of organic fertilizer, which is most often managed by the farm head.

Family farms are represented in a simplified way which does not include the individual activities of male and female household members (e.g. women's rice plots) with the exception of vegetable gardening. Participants could choose whether to participate in rainy season crop FFS, vegetable gardening FFS, or both.

The results presented in [Figure 9](#) show that participation in the FFS led to changes in practices across the entire farm in the farms that were surveyed.

- ▶ **The changes in practices were not limited to the one cropping system discussed in the FFS** in which each farmer participated (rainy season crop,

vegetable gardening or both). [Figure 9](#) shows that each type of FFS (rainy season crop, vegetable gardening or both) prompted farmers to make changes in other subsystems not targeted by the FFS. The vegetable gardening FFS had a distinct effect on the intensification of vegetable gardening (highlighted by the increase in the number of species cultivated, the area cultivated and/or the number of cycles cultivated) that is not present among farmers who did not participate in the vegetable gardening FFS. Participation in the rainy season crop FFS, on the other hand, did not produce any change specific to this FFS.

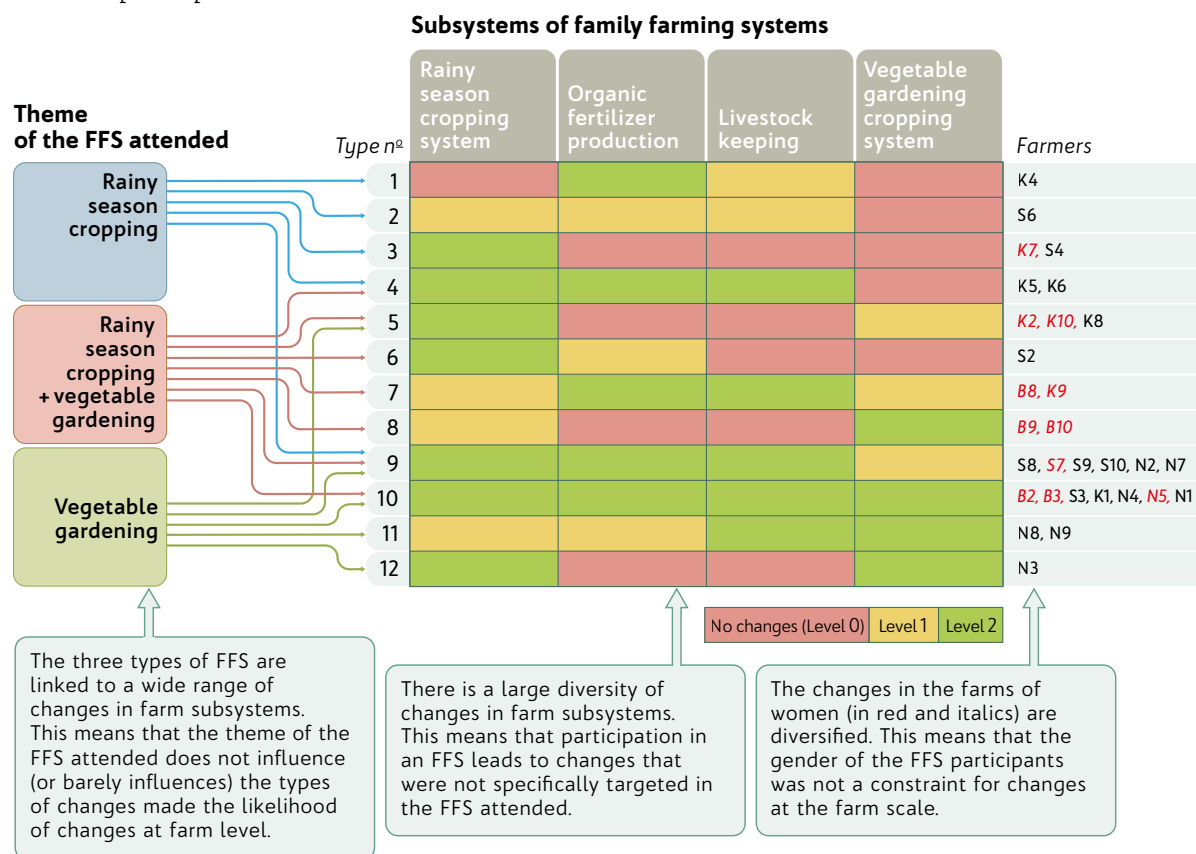
- ▶ We also observed that in the case of participation in both FFS, the changes in practices are not more numerous than in the case of participation in a single FFS.
- ▶ Finally, the analysis shows that the gender of FFS participants is not related to specific changes in practices. Half of the women who participated in the FFS were able to make changes in other units on the farm, including subsystems managed by the farm head, such as rainy season crops and organic fertilizer production.

This farm-level analysis shows that **the changes in cropping system practices** (resulting from participation in FFS) **led to significant and diversified changes in livestock and organic fertilizer production systems** at the farm level.





Figure 9. Distribution of changes in practices within family farms according to the type of FFS followed and the gender of the participants



The changes in practices of each farm surveyed in northern Togo were divided based on a simplified representation of family farms in northern Togo that included the collective household rainy season crops, organic fertilizer production, livestock and individual vegetable gardening subsystems. The farms were grouped according to the changes made in the subsystems.

1. First, we observe that the farms vary: some farms have made changes in 3 or 4 of the subsystems, while other farms have not made many changes. This shows that participation in the FFS has led to changes at the farm level, including in subsystems not targeted by the FFS followed (notably livestock and organic fertilizer production).
2. The FFS followed (vegetable gardening, rainy season cropping, or both) are linked to farms that experienced different levels and types of changes. There are no groups of farms with similar changes that all have a participant in the same FFS. For example, all the farms except type 1 (first row) made changes to rainy season crops, including participants in the vegetable gardening FFS. Thus, it appears that the main theme of the FFS followed does not influence the likelihood of changes at farm level.
3. Participant gender is not linked to specific changes in farms. There are no groups of farms with similar changes that all have a male or female participant. This shows that the participant's gender is not an obstacle to change in the farms. For example, this means that a woman who participated in the FFS and understood the value of compost was able to convince her husband (a non-participant) to diversify fertilization practices for the household's rainy season crops and to produce compost to make better use of animal dung and crop residues.

Source: Bakker, T. 2021. *Effets des démarches participatives sur les changements de pratiques agricoles : cas des champs-écoles en Afrique de l'Ouest*. Montpellier, France, Université de Montpellier. (thèse de doctorat en agronomie)





5.



5. Key proposals to improve the evaluation of FFS effects

5.1 EVALUATING TO UNDERSTAND HOW EFFECTS WERE ACHIEVED

FFS can be a relevant means of supporting farmers' AET. FFS principles include striving to improve and enhance farmers' knowledge and experience, and focusing on the priorities chosen by farmers to propose innovative systems adapted to their local conditions (section 2.2). To evaluate the effects of an FFS in relation to the AET, it is not enough to measure the adoption rate of an innovation promoted by the project and introduced in the FFS. Farmers can and should produce their own solutions, using the resources provided by the FFS.

To this end, we proposed a comprehensive evaluation that complements more common qualitative FFS evaluations. Using farmer surveys, its aim is to reconstruct the trajectories of changes in practices and to analyse changes in practices at the farm level (including in subsystems not targeted by the FFS) (section 4). The results presented for the case study in northern Togo show that farmers can move beyond the technical option chosen in the FFS. **This is why FFS evaluations must be developed to include farmer evaluation indicators and not be limited to evaluating adoption rates or the performance of practices presented in the FFS.** The unexpected effects of the FFS, and the adaptations/experiments of practices during the FFS and later on the participants' farms, must be explored.

Moreover, the effects of FFS are not only expected to be technical, as innovations can also be organizational and social. Individual or focus group interviews may be useful to study the effects of FFS on collective and social dimensions (for example, empowerment, gender relations within households, strengthening of POs, etc.). These collective initiatives can be very local and informal, such as collective biopesticide production and application groups, vegetable production planning

and marketing agreements, etc. Even on a small scale, these initiatives are useful in removing some of the obstacles to changes in farmers' practices.

5.2 INCLUDING THE DESCRIPTION OF THE IMPLEMENTATION OF FFS IN THE EVALUATION OF THEIR EFFECTS

Since their emergence and formalization by the FAO, **FFS have been implemented in diverse ways depending on the objectives of the actors involved in the intervention.** Reviews of the scientific literature have shown that different types of interventions are grouped under the same term, "farmer field schools". In some cases, the objective of the intervention is to transfer or disseminate a technique to the farmers, while in other cases, the objective of the FFS is to strengthen the participants' skills, based on collaboration between the facilitator and the farmers, as to provide answers to the farmers' questions. In the first case, the "technology transfer" FFS is more like a demonstration plot where **the participation of farmers is a method to facilitate** the acceptance or diffusion of new practices. In this case, the approach is disconnected from its **principles of strengthening individual and collective skills.**

This is why the description of how the FFS were implemented (detailed in section 4.3.1) is important and relevant to determining whether the effects (or lack thereof) are attributable to a failure in the implementation of the FFS. A good evaluation of the FFS must necessarily explain how the FFS was implemented (quality of the partnership, facilitation, level of farmer participation (are they proactive or only consulted?). Moreover, characterizing the implementation of the FFS will also allow lessons to be drawn to improve the use of the FFS in specific contexts.



5.3 GOING FURTHER: ADDITIONAL ELEMENTS FOR THE DESIGN OF FFS EVALUATIONS

The methodological proposals presented in this document are intended to complement existing methods for the evaluation of FFS, whether qualitative, quantitative or mixed (see [section 3.2.2](#)).

To contribute to the reflections of stakeholders when designing the evaluation of an intervention such as an FFS aiming to support farmers' AET in the Global South, we propose three complementary theoretical approaches in [Appendix 1](#) focusing on:

- ▶ the definition of the evaluation question;
- ▶ the use of impact pathways (*ex ante*, for monitoring-evaluation and *ex post*);
- ▶ the combination of different evaluation methods.





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A.



APPENDIX

Additional elements for the design of FFS evaluations

1. DEFINING THE EVALUATION QUESTIONS

There are many *ex post* evaluation methods with different objectives. These different methods answer different evaluation questions. At the beginning of the evaluation design process, two questions need to be answered:

► What is being evaluated? What are the project's objectives and expected impacts?

- What is the type and scale of the intervention? Is this a small pilot project for eventual scaling up? A long-term programme (succession of projects)? Is it a coherent (or even uniform, meaning focused on one type of activity) project or a collection of diverse activities? Are the activities entirely predetermined, or do they vary according to local adaptations arising from the different expectations of beneficiaries in different localities? → **This can be based on the description of FFS implementation (section 4.3.1).**
- What is the nature of the effects and impacts sought? Are they direct or indirect? Simple or complex? Will they be visible in the short term as soon as the activities are implemented or are they long-term impacts? Are they achievable in all cases, or do they depend on good project implementation and favourable conditions? → **For this purpose, an impact pathway analysis will be used, detailed in the section 5.2.2.**

► Why is an evaluation being conducted? What is the purpose of the evaluation?

- Who will receive the results of the evaluation? *What do they consider to be credible evidence (effects and impacts to be included, modes of measurement, approach to causal analysis)?*
- What are the values to be used in the evaluation? What is considered a positive or negative effect? Should we focus on the average effect, or on the effects for the poorest? → **This may be based on the targeting of participants that should be included in the project documents.**
- What is the intended use of the evaluation? *Is it intended only to justify expenditures (accountability) or is it intended to prepare for a new project or scale-up (need to understand how impacts were achieved)?*
- What logistics are available to conduct the evaluation? *How much time is available? What data are already available on similar interventions or on the current situation in the area? What data are already available from monitoring and evaluation conducted by the project? What additional resources and data are needed for the evaluation?*

The evaluation questions should be defined taking into account project's characteristics. It is often more relevant to ask "**Did the project make a difference?**" than "*How well did the project work?*" because the first question involves considering the context of the intervention, whereas the second question focuses only on the project and its implementation (understanding the project and its implementation is important, but the project does not exist in isolation, it is part of a context that must also be considered). For development actors, it is not just a matter of knowing what works, but understanding why.



The answer to the question "Did the project make a difference?" is broken down into three sub-questions:

- ▶ *What worked well?*
- ▶ *Why does it work?*
- ▶ *Under what conditions?*

→ The objective in designing the evaluation is to identify methods and formulate rigorous tests to answer these questions. To include all of these elements, evaluations using the impact pathway (presented in [section 3.1.2](#)) are most recommended. For the latter, the design of the evaluation (the stage of reflection prior to its implementation, when the methods and means available are defined) is based on an **analysis of the impact pathway and the assumptions on which the project is based**.

2. USING THE IMPACT PATHWAY

Evaluations can use an impact pathway in a variety of ways, for example:

- ▶ **identifying intermediate effects** that may indicate that long-term impacts are being achieved or are likely to be achieved in the future (these intermediate effects may be simpler or less costly to evaluate than the impacts, for example);
- ▶ **identifying the contextual factors that are critical to achieving the effects**, and therefore should be considered in the evaluation;
- ▶ enabling the **construction of a theoretical framework** that brings together several impact indicators for the evaluation of a project composed of several activities;
- ▶ over time, building and developing a theoretical framework to guide **the implementation of activities**, as well as the collection and analysis of monitoring and evaluation data for long-term programmes.

When?

- ▶ **Ex ante:** Impact pathways are increasingly used in the design of projects and programmes to encourage decision makers and stakeholders of the future project to anticipate the expected effects and impacts. The *ex ante* impact pathway is then useful for **highlighting implicit or explicit assumptions about how the intervention should achieve impact**. It also highlights the possible/planned complementarities of the FFS with other project activities (for example, support for the acquisition of materials, marketing of production, management of common property or natural resources used in common). In addition, doing this activity during the planning of the intervention ensures that all project stakeholders share the same understanding of what FFS are and how to implement them. Using the impact pathway at the very beginning of a project can therefore potentially **improve the implementation of the intervention** and of FFS activities. This is an early step which helps optimize implementation and monitoring-evaluation, and can be used to start designing the evaluation of the project.



- ▶ **To design and implement monitoring and evaluation (M&E):** the impact pathway can be used when **designing the M&E system to specify its organization, activities and choice of indicators**. It is advisable to select a limited number of indicators, and to choose those that will be essential for characterizing the effects and impacts of the project during its overall *ex post* evaluation (at the end of the project or better yet, a few years later). It is particularly important to anticipate the information that will need to be collected on how the FFS were implemented: at the diagnostic stage, during debriefing meetings, during the facilitators' debriefing, etc. These elements are also useful for improving, when necessary, the implementation of FFS under way. Finally, during the course of the intervention, it is possible to enrich the impact pathway with **unexpected effects (positive or negative)** observed in the field during the implementation of FFS or to account for noteworthy developments in the context in which the project is taking place (price fluctuations, climatic hazards, appearance of a new crop pest, etc.). In particular, this allows for the identification of some useful indicators for monitoring the progress of FFS and their initial effects, as well as *ex post* evaluation methods (and their combination) that may prove useful.
- ▶ **Ex post:** At the start of the *ex post* evaluation, it is important to review with project stakeholders and beneficiary representatives how the project has brought about changes and the effects it had in farms and even in the rural communities and village territories. For this, it is useful to use the impact pathway: *does the implementation of activities and changes in the context lead to evolutions in the impact pathway? How has farmer participation changed the impact pathway?* If the impact pathway was not used *ex ante* or at the start of the intervention, it can be **reconstructed ex post**. During the *ex post* evaluation of the intervention, the impact pathway helps to identify and clarify the objective(s) of the *ex post* evaluation. It provides a basis for identifying effect indicators and complementary evaluation methods needed to understand and measure the impacts achieved (consistent with the means available). However, the evaluation should not be limited to these predefined indicators, but **consider the possibility of observing unexpected effects**. In particular, the impact pathway and design stage of the evaluation allow to determine the sampling, the indicators to be measured, and the methods and analyses that are most appropriate for capturing and explaining variations in effects:

 - ▶ **variations in effects** explained by the profile of beneficiaries, in particular based on farm household socioeconomic status;
 - ▶ possible **complementarities** of one or more project activities with other project activities or other interventions in the area by other actors;
 - ▶ **variations over time:** results can be highly dependent on when they are measured. For example, in the case of reversible adoptions (e.g. abandoning an innovation because the support or subsidy provided by the project has ended).



3. COMBINING EVALUATION APPROACHES

To achieve a comprehensive evaluation, and if the budget allows, it is best to combine quantitative and qualitative approaches. Indeed,

- ▶ **Quantitative approaches** focus on measuring impact (based on large sample surveys or simulations) and proving that the project has achieved results (notion of attribution, see [section 3.1](#)). Quantitative approaches include experimental (randomized controlled trial), quasi-experimental and non-experimental methods and modelling.
- ▶ **Qualitative approaches** disentangle the combination of factors contributing to impact (and answer the question, "How did the project have an effect?" (see [section 3.1](#) impact contribution). Qualitative approaches include in-depth individual interviews, focus groups, sociological and anthropological surveys.

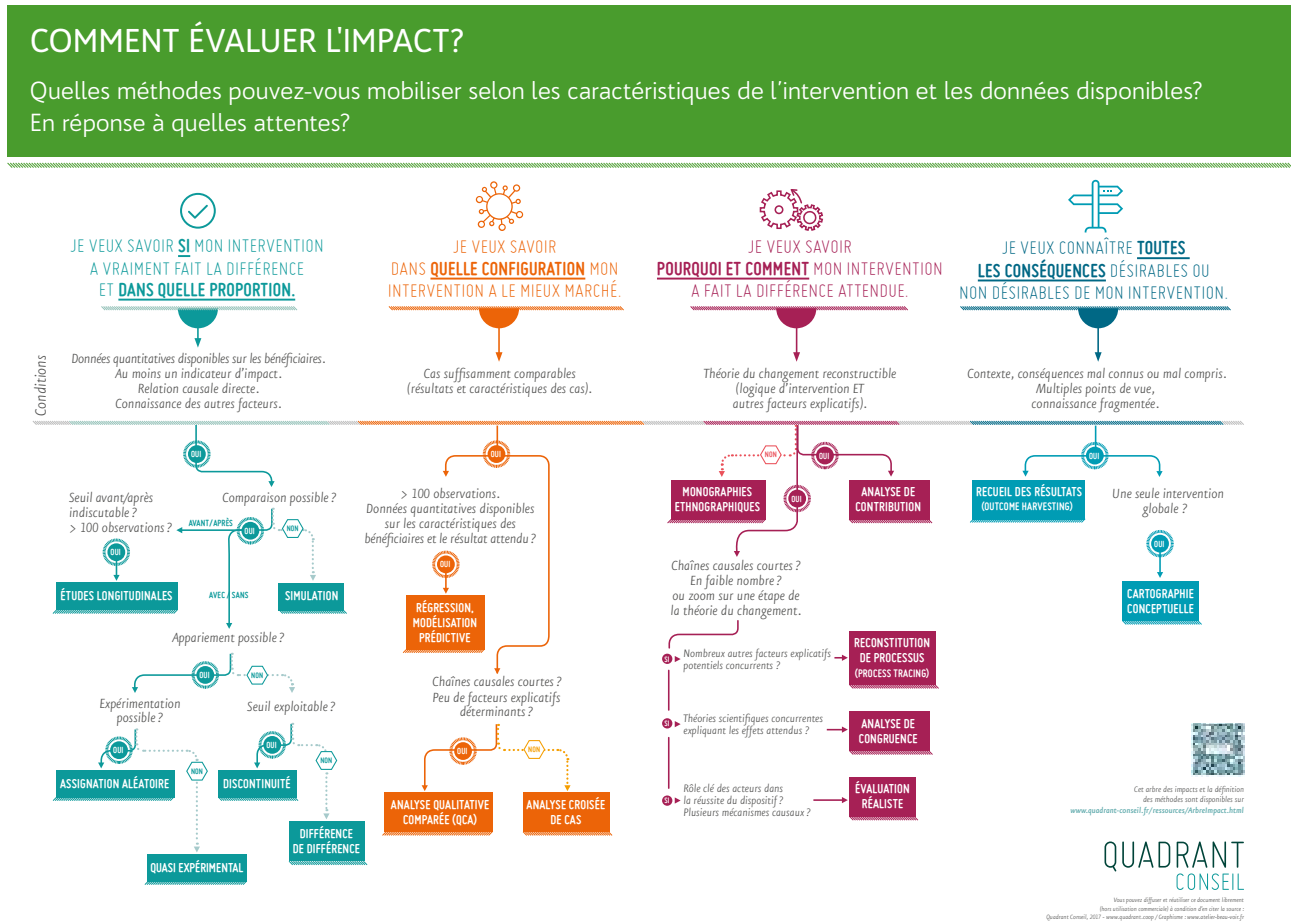
When studying the effects of a project these two approaches are complementary. However, **there is no reference method or ideal standard approach for the choice of specific quantitative and qualitative evaluation methods. What matters is the relevance of such an approach or method for a given situation (context, project characteristics and evaluation objectives).**

The right combination of methods can both demonstrate an effect (through surveys with large samples and statistical tests) and explain it and draw lessons for replication, improvement, or scaling up of the project or activity. Or conversely, more qualitative comprehensive and/or participatory methods enable an understanding of what has changed (or not), while an associated quantitative method enables a standardized comparison and thus to test the representativeness of these inferences.

Quantitative approaches are often costly and complicated to implement, as they require a large sample (several hundred, sometimes several thousand, project beneficiaries and a control sample). However, they remain essential and are required by many donors. Nonetheless, if quantitative evaluations are not combined with qualitative and comprehensive approaches, there is a risk of collecting a wide variety of indicators and large amounts of data that will not be used, especially in the case of closed questionnaires. Furthermore, there is a risk of not collecting enough elements to explain the changes measured by these surveys and observed in the field. Mixed and qualitative approaches are more informative, but require time spent in the field, in contact with beneficiary populations. They are rich in information, especially when getting away from the "showcase" areas of the project, for example by contacting farmers who have not made any changes in their practices, or in areas not directly impacted by the project (see White (2009)).

The methodological elements provided in section 4 require fewer resources, but require the mobilization of trained evaluators accustomed to conducting semi-structured interviews and mixed method evaluation approaches. These elements complement current approaches to FFS evaluation (presented in [section 3.2](#)).

Figure 10. Decision tree showing the main approaches to impact assessment



Source: Quadrant Conseil. 2017. How can impact be evaluated? [online].
Graphic design: www.atelier-beau-voir.fr. www.quadrant.coop

It is therefore up to those designing the evaluation to combine existing evaluation methods, based on the elements presented in this last section and on the resources available. The following diagram (Quadrant Conseil, 2017), presents a decision tree regarding the choice of evaluation approaches according to the goals of the evaluation, it can be used as food for thought.⁸ The design of the evaluation should reflect the nature of the project and the purpose of the evaluation.

⁸ See also Stern et al., 2012.





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