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Farmer Field Schools: building capacities to achieve a successful agroecological transition

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The agroecological transition implies rethinking the way farmers are supported in their changes in practices. Farmer Field Schools are an effective mechanism in this respect, since they build farmers' capacity to experiment, to produce knowledge and to innovate independently. However, it is essential that these advisory services are correctly implemented, which has implications for the research and development community. A study conducted in sub-Saharan Africa shows that after taking part in Farmer Field Schools, farmers are more likely to make changes on their own farms if they have been involved in the

decision-making process for the Farmer Field School. These changes can be highlighted by qualitative assessment methods centred on the contribution to impact. Farmer Field Schools also stand to gain from including women, young people and the poorest farmers, categories that are often excluded from conventional agricultural advisory services, but recognised as drivers of agroecological innovation. Finally, there must be room for the objectives of Farmer Field Schools to evolve over time, in order to adjust to local conditions, whether environmental or socio-economic.

Agroecology implies reconfiguring food and agricultural systems through participatory methods, building on sustainable management principles and the mobilisation of ecological processes. However, supporting the agroecological transition poses challenges for the agricultural advisory services. In agroecological systems, farmers engage in practices that are more knowledge-intensive and often more arduous and labour-intensive. At different levels (plot, herd, farm, territory), these systems are more complex to organise and understand, because the general principles of agroecology need to be adapted to each individual environmental and socio-economic context. To manage these complex systems, farmers need a higher level of expertise than when applying standardised technical solutions. In addition, agricultural advisors must learn to take account of the diversity of these systems and to enhance their skills in order to support local innovation processes.

A successful agroecological transition therefore requires major changes to agricultural advisory methods, in other words shifting from the classical theory of the diffusion of innovations to an approach based on supporting innovation processes (see box p. 2). This approach prioritises participatory mechanisms building primarily on the mobilisation of farmers as well as on a variety of research and development stakeholders.

Farmer Field Schools (see box p. 2) have high potential for supporting the agroecological transition because they use this interaction-based model, focusing on the cropping system and farm levels. Farmers engage in hands-on learning and enhance functional skills: identifying a problem, developing their field observation capacities, understanding the ecological mechanisms at work in the cultivated agroecosystem (relationships between

flora and fauna, soil nutrient cycle, water cycle, photosynthesis, etc.), finding solutions, and testing and adapting practices. By fostering regular peer exchanges (between farmers, with a facilitator who may be an agricultural advisor or a farmer trained in facilitation), Farmer Field Schools also strengthen local collective action, which is often an essential element in implementing innovations, facilitating individual changes and organising resource management within a territory.

A recent study conducted in Togo and Burkina Faso identified the conditions for the success of Farmer Field Schools in family farming. It led to recommendations to ensure these advisory services increase the participation of farmers and improve their ability to design agroecological systems (cropping and farming systems).

In sub-Saharan Africa, agricultural advisory services are struggling to support the agroecological transition

In the 1980s, a number of studies described the limitations of the diffusion of innovations theory (including the Training and Visit method advocated by the World Bank) and proposed alternative mechanisms. It nevertheless remains very present in the relations between farmers, advisors and researchers, especially where national advisory systems lack the resources and capacities to support farmers in participatory approaches.

At the same time, private actors have emerged with their own advisory approaches, such as agricultural suppliers

(inputs, equipment) and managers in downstream sectors (cotton companies, cocoa export companies, etc.). They have established business-type relationships, often with a prescriptive role in terms of agricultural practices, but with interests that may differ from those of farmers or rural communities. This privatisation of agricultural advisory services, which contributed to the segmentation of sectors, has been detrimental to the diversification of cropping systems and to integrated approaches that protect natural resources or foster sustainable food systems. These integrated approaches, which consider all scales of action, from the farm to the territory, have nevertheless been implemented by some non-governmental organisations and donors.

Moreover, the public and private stakeholders involved in agricultural development tend to favour the better resourced, more accessible farms, often meaning that advisory services are captured by the local economic or social elites. These advisory services do not take sufficient account of women, young people or the poorest farmers, despite the fact that these categories are recognised as drivers of agroecological innovation. However, on family farms, much of the work is done by women and young people, especially the arduous tasks. Failing to involve these categories jeopardises the application of agroecological practices, which require an increased presence in production areas (more work, more crop observations), but not necessarily an increase in resources (access to land or inputs).

In sub-Saharan Africa, Farmer Field Schools have been running since the 1990s, in this context of agricultural advisory services that are ill-equipped to support the agroecological transition. Today, the African continent is ahead of Asia in terms of the number of projects involving Farmer Field Schools. However, few studies have sought to determine how Farmer Field Schools actually contribute to the agroecological transition processes.

Farmer Field Schools have a wide range of effects

The research conducted in Togo and Burkina Faso, based on interviews with farmers involved in Farmer Field Schools, has provided some answers regarding impact analysis.

How do farmers change their practices? They do not adopt a technical package in a single change; they test and adapt their practices gradually. They also progressively alter the proposed technical solutions, taking limited risks, through a series of

changes over the years, which can be seen in their trajectories of change (see figures p. 3).

Farmers make changes that are consistent with their farm: a change in terms of crops may lead them to alter their livestock system, for example to increase the amount of manure they can spread on fields. These choices are determined by their priorities or by the specific constraints of their farm (such as the availability of family labour).

These Farmer Field Schools are also pushing the boundaries for women, while farms are mostly managed by men. Women who have taken part in Farmer Field Schools have acquired knowledge that they have gone on to apply to their own fields (for vegetable farming, for example), leading their husbands to make changes in their livestock systems or family fields (such as producing and using more compost).

The way in which the Farmer Field Schools are run influences farmers' decisions (see figures p. 3). In Burkina Faso, the Farmer Field Schools were consultative, with their content (crops, technical options to be tested, plot monitoring indicators) chosen by experts prior to implementation in the field. The farmers involved made few changes on their farms.

In contrast, in Togo, the Farmer Field Schools were collaborative, with content chosen by farmers during a diagnostic workshop at the start of each Farmer Field School, assisted by a facilitator. Subsequently, the farmers tested different practices on their farms while continuing to adapt them. The objectives were reached and sometimes even exceeded: the farmers improved their ability to experiment and implemented innovations themselves (for example, surveys revealed a wide diversity of maize-soy intercropping).

Collective actions have been initiated by groups of farmers and have removed some of the constraints preventing them from implementing agroecological practices individually. For example, vegetable farmers have begun to use biopesticides tested in Farmer Field Schools, but producing them is time-consuming (gathering plants, processing, filtering). The farmers decided to produce these biopesticides collectively in order to achieve economies of scale. They made arrangements for all vegetable gardeners in a given area to treat their crops on the same day, since these biopesticides mostly act as a repellent against insect pests and simultaneously treating all plots means none are left as a refuge for pests, which would make treatments less effective.

Supporting innovation

The theory of the diffusion of innovations was put forward by the American sociologist Everett Rogers in 1962. Applied to different sectors – here agriculture –, it considers that a transfer of knowledge and technologies, developed by researchers and disseminated by extension workers to the farmers who adopt them, will bring about changes and agricultural development. The application of this theory is still widespread, although it has shown its limitations, especially in situations in which innovation requires a context-specific design process (as with agroecology).

Support for innovation processes is a systemic approach in which innovation is seen as a technical, organisational and social process. Farmers' knowledge and strategies are recognised and underpin this approach. Using participatory methods, the goal is to develop interactions between farmers and with advisors, as well as with researchers where possible and appropriate. Farmer Field Schools are an example of this approach.

Farmer Field Schools (FFS) were launched by the Food and Agriculture Organization of the United Nations (FAO) in Southeast Asia in the late 1980s to enable farmers to understand and implement integrated pest management in rice and to thereby reduce the excessive use of pesticides.

Farmer Field Schools are in place in more than 90 countries, especially in sub-Saharan Africa, Asia and South America. They cover a broad range of crops and issues (integrated pest management, soil fertility, product diversification, water and land management, etc.). Other types of Farmer Field Schools associate crop production, livestock, aquaculture and agroforestry.

They are promoted by different actors, especially from projects implemented by the public services, non-governmental organisations and producer organisations. In some countries (Indonesia, Uganda, Cameroon, Burkina Faso, etc.), this approach has been institutionalised and is a component of national agricultural advisory programmes.

Find out more

Bakker T., 2017. Guide méthodologique des champs-écoles de la région des savanes au Togo. Lyon, Agronomes et vétérinaires sans frontières (AVSF), 60 p. <https://www.avsf.org/fr/posts/2093/full/guide-methodologique-des-champs-ecoles-de-la-region-des-savanes-au-togo>

FAO, 2016. Farmer Field School Guidance Document - Planning for quality programmes. Rome, FAO. <https://www.fao.org/documents/card/fr/c/29f9cc40-c4d0-48b6-aba5-97b3ded505db/>

Trajectories of change in farmers' practices

Diagrams A and B show several trajectories of change in agricultural practices on farms that have participated in Farmer Field Schools in south-western Burkina Faso and northern Togo.

> The cropping system concerned is rainfed (in other words relying solely on rainfall) and based on cotton, cereals and legumes.

> The practices observed are crop management (vertical axis) and fertilisation (horizontal axis).

> Each trajectory corresponds to the flow of choices regarding a farmers' practices over several years: each dot is a practice, and several dots can be joined to form a trajectory leading to the current practice.

> The further to the right and higher the dot, the more agroecological the practice is. The line and column in pale green correspond to the practices tested in the Farmer Field Schools attended.

Diagram A. The farmers took part in consultative Farmer Field Schools: the trajectories are short and limited, with few changes.

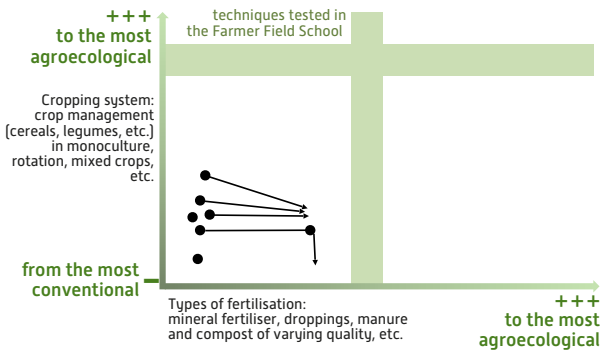
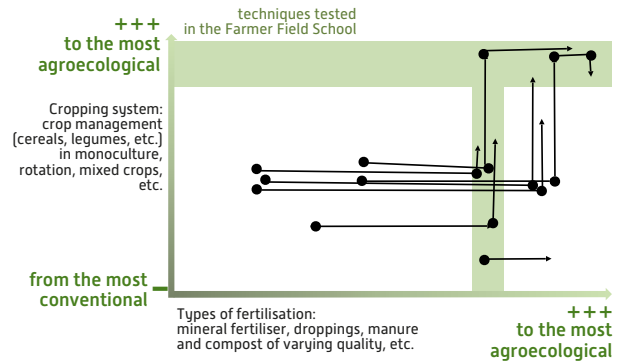


Diagram B. The farmers took part in collaborative Farmer Field Schools: the trajectories are long, with many successive and diversified changes.



[Diagrams inspired by Figure 2 of Bakker *et al.*, 2021. *Agron. Sustain. Dev.* 41: 18. <https://doi.org/10.1007/s13593-021-00667-2>]

Lessons to be drawn: farmer participation, assessment methods

Designing and implementing collaborative Farmer Field Schools to foster the agroecological transition. This is key to obtaining desirable outcomes for farmers and ensuring appropriate agroecological innovations. It implies delegating real decision-making power to farmers, in particular concerning the issues to be addressed (choice of crops, objectives of tests, technical options tested, comparative indicators, etc.). It begins with a joint diagnostic process between participants and the facilitator, covering all viewpoints, including those of women, young people and the poorest farmers. The technical options must have been discussed and approved by the farmers – unlike a consultation, where farmers simply react to proposals made by the project team. The facilitator and the project team thus ensure that these options are realistic and that they correspond to the different constraints and priorities of farmers. This approach builds their capacities: identifying a problem, developing solutions and assessing them through on-farm experiments.

Rethinking assessment methods for action to support the agroecological transition. The findings of an assessment depend very much on the question asked and the way in which the assessment is prepared. During the research conducted in Burkina Faso and Togo, the range of effects was made evident by qualitative assessment methods centred on the contribution to impact (see box p. 3). These methods build on the analysis of trajectories of change in the practices adopted by farmers involved in Farmer Field Schools. Current quantitative assessment methods, based on the attribution of impact and the achievement of predefined indicators, would not have revealed all the effects described here. Moreover, accurately characterising the level of farmer participation [consultation or collaboration] is useful in interpreting the findings of an impact assessment.

Implications for supporting actors and developing public policy

Today, the discourse in agricultural advisory systems has changed, with all stakeholders claiming to use participatory methods. However, this does not necessarily translate into advisory approaches, which often remain consultative. Farmer

Impact assessment methods for Farmer Field Schools

Farmer Field Schools are typically assessed using quantitative methods shortly after their implementation: tests of knowledge acquired (questionnaires at the end of the Farmer Field School), measurement of the adoption rate of practices promoted in the Farmer Field School, and economic or agronomic performance indicators (yield, gross margin, spending on inputs, etc.).

These quantitative assessments are used to accurately attribute effects measured on the ground to a given activity (here, a Farmer Field School); they provide quantified evidence. But they give an incomplete picture of the impacts on the situation of the farms and village communities participating in a Farmer Field School.

To assess Farmer Field Schools in terms of capacity building for farmers and support for the ecological transition on their farms, qualitative methods focusing on farmers' practices can complement quantitative assessments. For example, using surveys to reconstruct the trajectories of change in farmers' practices reveals changes that were not anticipated by quantitative assessments, such as individual and collective innovations by farmers in their own fields, resulting from the experimentation skills they acquired during the Farmer Field School.

participation is used as a way to facilitate acceptance, but farmers are ultimately given little power of decision to steer the content of Farmer Field Schools and more broadly of projects.

The agroecological transition is built on principles that must be adapted to the local context, rather than on the transfer of turnkey technologies. Development projects that integrate this dimension are therefore unable to accurately anticipate the content of Farmer Field Schools: they must foster an approach based on a variety of options and should leave room for local adjustments. Donors and stakeholders in these projects (project managers, advisors, researchers, leaders of farmers' organisations) must accept that their objectives might change over time, and that the activities in the intervention could also change.

Training for facilitators (advisors or farmers) could be improved, to ensure they understand the agroecological principles and technical options and build their capacity to support farmers' groups. But facilitators have little scope for action if their

environment is not conducive to agroecology and participatory approaches, in which the other agricultural support services and the research community are fully engaged.

Proposals for technical options must be established in collaboration with the participants in the Farmer Field School, who should themselves have power to make decisions regarding its content. Projects also stand to gain a great deal from actively targeting women, young people and the poorest farmers and encouraging their participation in discussions.

In terms of impact assessment, mixed assessments are more effective because they associate qualitative methods with conventional quantitative methods. Qualitative methods help to understand the choices made by participants in Farmer Field

Schools and identify the innovations developed by farmers themselves, whether at the individual or the collective level.

Projects of this type nevertheless face challenges. First, their costs are higher than those of a conventional diffusion approach, since they require well-trained field advisors, in sufficient numbers, who must themselves have regular support: this implies ensuring long-term financing and skills. Next, the institutional memory of participatory approaches is fragile and the agricultural advisory stakeholders tends to rapidly fall back on conventional technology transfer and diffusion. Finally, Farmer Field Schools should also be designed in accordance with the agricultural support policies conducted at different levels in order to create a conducive environment for the agroecological transition. ■

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Publications and operational documents based on this research include:

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A few words about...

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A few links

Food and Agriculture Organization of the United Nations (FAO), 2021. Agroecology Knowledge Hub.

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