# Complementary platforms for farmer innovation

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The essential factor in strengthening farmer innovation capacity is not technology *per se* but the construction of social processes supportive of experimentation and learning (see Braun and Hocdé, *in press*; Braun et al. 2000). This means going beyond individual experiences to diverse forms of experimenter groups using different approaches. Several experiences coexist along the farmer-led/interactive research continuum, inviting a multi-tiered approach in which networks of rigorous farmer researcher "experts," less rigorous community-based research networks, and large-scale individual, informal experimentation are integrated.

## Complementary approaches

In Latin America coexisting platforms include Campesino-a-Campesino (Hocdé et al, p ), DIP, PRIAG (Hocdé et al, p ), CIALs and Farmer Field Schools (FFS). Until recently there has been little interaction among them. However practitioners have begun to exchange and collectively analyse their experiences. This article focuses on FFS and CIALs, two platforms that have begun to operate within the same geographic areas, often facilitated by the same organisation. Farmers, researchers and extensionists are asking how they relate to each other and what are their comparative advantages. This article compares their essential characteristics and explores how these can best be articulated.

Local Agricultural Research Committees A CIAL (*Centro International de Agricultura Tropical*) - originally developed by CIAT-Colombia - is a permanent research service operated by a rural community. Volunteer farmers apt at experimentation make up the research team. The CIAL links farmer-researchers with formal research systems. It increases local capacity to make demands on the formal system and to access useful skills, information and research products.

CIALs have four elected members and a facilitator. Facilitators are trained agronomists from supportive research centres, universities, extension services or NGOs. They can also be trained farmers who have been CIAL members. Facilitators play a key role in developing the CIAL's research competence and they feed back farmers' priorities and research results to formal research and extension services.

## Building research capacity

Facilitators visit the CIAL regularly until the CIAL can manage the process alone. The facilitator helps the farmer research team conduct experiments that compare alternatives with a control treatment and with replicating experiments. Training familiarises farmer researchers with terminology that gives results credibility with formal researchers. Training also focuses on planning, management, the running of meetings, monitoring and evaluation, record-keeping and basic accounting. Working in and with CIALs means that profound changes in attitude and relationships are required on the part of farmers, rural communities and agricultural professionals.

The facilitator begins by inviting the community to a meeting where the purpose of the CIAL is discussed. Farmers are invited to analyse what it means to experiment with agricultural technology. They discuss local experiences and experimental results and the possibility of accessing new technologies from outside the community. A committee is elected if the community decides to form a CIAL.

### The research fund

Research risks are absorbed by a CIAL fund owned by the community. Usually seed money is a one-off donation, but it may originate from a rotating fund managed by an association of CIALs. The committee uses the fund to acquire inputs for experiments and to compensate members for losses. When an innovation proves successful, the CIAL may add to the fund by selling the harvest or research products (eg seed). As the fund grows, the CIAL can expand its research, share earnings with participants, invest in new equipment or services, or launch a small enterprise.

## The research process

An open meeting is held to determine the research topic. The first question is "What do we want to investigate?" The community prioritises topics based on the likelihood of success, who benefits, and the estimated costs.

Facilitators help the committee obtain the information required to plan experiments. Other farmers and staff of formal research and extension services are often consulted. Facilitators work with the CIALs to formulate clear objectives for each experiment. The CIAL then decides what to compare, how and when to evaluate, experimental variables, criteria for evaluating results, data needs, and measurement units.

After the experiment is completed, the CIAL draws conclusions and presents the results to the community. Analysis includes

the question: "What have we learned?" Analysis of the process is especially important when an innovation is unsuccessful, or when there are unexpected results.

### Three types of experiments

Facilitators guide the CIALs through three successive experiments. An "exploratory" trial when innovations are tested on small plots possibly with several treatments, such as different crop varieties, amounts and types of fertiliser, sowing dates or densities. Exploratory trials help eliminate options that are unlikely to succeed under local conditions. Promising treatments are tested on larger plots in a second experiment. Finally, two or three top-performing choices are planted over a still larger area in the third experiment, often called the production plot.

A small-scale beginning is essential. Small plots provide experience with applying new concepts, such as replication and control. They allow the CIALs to gain confidence before moving to larger and riskier scales. Facilitators gradually reduce the number of times they visit from two per months to once every three or four months as CIALs become more proficient. They visit mature CIALs for feedback on research priorities and results, and to provide information on technology under development by formal research services. Five years ago most CIALs were experimenting with crop varieties. Now small livestock, and pest, disease, soil, water and nutrient management are also being included.

### Farmer Field Schools

FFS were initially designed to address problems of pesticide dependency and to develop location-specific management expertise independent of the formal research system. "Classical" FFS for integrated pest management (IPM) of rice is now used for other crops and topics.

Developing agroecosystem management expertise means building up an understanding of ecological principles and processes and the impact of farmer management decisions. FFSs provide an opportunity for learning-by-doing based on principles of non-formal education. Extension workers or trained farmers facilitate the learning process, stimulating farmers to discover key agroecological concepts and develop management skills through self-discovery activities practised in the field

FFS involve 20-25 participants from an existing farmer group or a community. This group forms the basis for collective action and follow-up activities after the school ends. FFS hold regular meetings throughout the crop cycle. Improved decision-making emerges from an iterative process of *agroecosystem analysis* (AEA), making and implementing decisions accordingly, observing outcomes, and evaluating overall impact. This is combined with experimentation aimed at understanding agroecosystem patterns, interrelationships and structure as the basis for problem-solving and decision-making. Observation, evaluation of context, and identification of interactions among different elements in the system are fundamental to FFS experimentation. FFS farmers use drawings and other visual methods to help them understand key self-regulating feedback mechanisms. The FFS approach assumes farmer innovation is constrained by a lack of agroecological knowledge and by erroneous information produced by poorly focused extension programmes and agrochemical distributors.

### FFS and CIALs compared

FFS and CIALs share underlying principles. They see farmers as experts, stress respect for local values and knowledge, build capacity through hands-on experience. Both recognise and attempt to reduce the risk associated with learning and research. Outputs are seen as public goods.

Although organised differently, they have several processes in common. Facilitation styles and the role of motivation are similar. Both aim to strengthen farmer experimentation and innovation, but in different ways. CIAL experiments are relatively formal: most are controlled comparisons involving several technological options. Evaluation methods have been adapted to local levels of literacy, using symbols and simple classification and tabulation procedures. Farmers set their own evaluation criteria without influence from professional researchers.

To ensure systematic evaluation of technological options, CIALs are made up of a small group of specialised farmer-researchers, chosen for their reputation as experimenters, and trained to further develop their research skills. FFS unlike CIALs do not focus on identifying solutions from a range of technological options. They develop the communities capacity to better manage ecological relationships. FFS are not directed at a specialised group of farmer-researchers, but try to ensure a permanent learning process by targeting a relatively large and heterogeneous group.

FFS have been effective in addressing problems in agroecological systems that are well understood (eg. irrigated rice in Asia). Where understanding of system components and interrelationships is less developed (eg in the case of non-native crops which lack systemic self-regulation mechanisms), local capacity to evaluate different management options (technologies) is important, and controlled experimentation necessary. The demand for technological options implies the need for strong links with formal research. Here CIALs have a comparative advantage. In line with this demand, second generation FFS have begun to include controlled experimentation, the evaluation of technical options and have established ties with formal research.

### Complementarity and synergy

FFS focus on agroecological education while CIALs concentrate on establishing a community-based research service linked to the formal research system. FFS are limited in time to one or two cropping seasons; CIALs are permanent. FFS experimentation is mainly qualitative while CIALs concentrate on experimentation through controlled quantitative comparisons. FFS build agroecological knowledge that could make CIAL research more meaningful. CIALs can generate locally adapted technological options to strengthen the FFS. Both can be established in the same area or community, although the sequence of establishment and linkages should be carefully planned (Braun et al. 2000).

### Combining FFS and CIAL

In many countries the value and relevance of agricultural R&D for small farmers is being questioned. FFS and CIAL promote closer engagement with rural society, building local institutional structures and processes for agricultural development. They make R&D more relevant by putting farmers at the centre of development processes and make possible fundamental transformations in agricultural R&D systems. Financing and implementing organisations increasingly see them as viable new alternatives. Under these circumstances we believe that there is considerable potential for making wider use of both platforms and encouraging further evolution and synergy of both.

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