



Burkina Faso Indigenous Innovation in Farmer-to-Farmer Extension

Increasing attention is being given to indigenous innovation in agriculture – the process by which farmers develop new and better ways of doing things, primarily using local resources and on their own initiative, without pressure or direct support from formal research or development agents. In this process, farmers have developed not only better farming techniques but also better ways of organising themselves. In the Yatenga Region of Burkina Faso, local improvements on a traditional farming technique have become very widespread, largely on account of the innovativeness of farmers in developing their own forms of farmer-to-farmer extension. They have found highly effective ways of spreading their ideas and encouraging other farmers to try them out.

In the early 1980s, farmers in the Yatenga Region of the densely populated Central Plateau in Burkina Faso developed – on their own initiative – methods of rehabilitating degraded land by improving the traditional planting pits known as *zai*. Into the small pits hacked into rock-hard barren land, the farmers put organic matter that attracts termites. These dig channels and improve the soil structure, so that water can infiltrate and be held in the soil. By digesting the organic matter, the termites make nutrients more easily available to the plant roots. Most farmers grow millet or sorghum or both these cereal crops in the *zai*. Sometimes they sow seeds of trees directly together with the cereals in the same pits. In this way, the young trees also benefit from the concentration of manure and water in the pits, intended primarily for the cereals. When harvesting the grain, the farmers cut the stalks at a height of 50–75 cm. The parts of the stalks that remain standing protect the tree seedlings

from the livestock that traditionally graze the harvested fields. Thus, the *zai* are being used to establish or re-establish woodland, with a view to selling timber and other products.

Some of the farmers whose creativity and drive contributed to these improvements on the indigenous *zai* technology initiated activities to promote the spread and further improvement of this technology. The three farmer-to-farmer extension approaches developed by farmer innovators in Burkina Faso that are described here – the “Market Day”, the “Teacher-Student” approach and the “*Zai* Field School” – are, in themselves, local innovations.

The “Market Day” approach

Around 1980, in the village of Gourga, four kilometres west of Ouahigouya, the capital of Yatenga Region, Yacouba Sawadogo started improving the traditional planting pits by experimenting with a range of variations. Since 1984, Yacouba Sawadogo has been using a

IK Notes reports periodically on Indigenous Knowledge (IK) initiatives in Sub-Saharan Africa and occasionally on such initiatives outside the Region. It is published by the Africa Region’s Knowledge and Learning Center as part of an evolving IK partnership between the World Bank, communities, NGOs, development institutions and multilateral organizations. The views expressed in this article are those of the authors and should not be attributed to the World Bank Group or its partners in this initiative. A webpage on IK is available at // www.worldbank.org/afr/ik/default.htm

“Market Day” approach to give farmers an opportunity to share their adaptations and improvements on the traditional *zai* and to promote its spread. Not only he but also other farmers have been carrying out informal experiments, for example, finding the most effective ways to grow tree seedlings in the *zai*, testing the residual effects of compost on cereals grown in a second season, testing combinations of organic and inorganic fertiliser in the *zai*, and trying to grow different crop varieties in the *zai*.

At first, these events were small, but now each market day involves people from over 100 villages. The events are held twice a year. The first market day is shortly after the harvest, and farmers bring a sample of the crop varieties (millet, sorghum, maize, cowpea) they have cultivated in their *zai*. Yacouba Sawadogo stores these seeds on his farm. The second market day is held just before the wet season. From the stored seed, farmers can select the species and varieties they would like to plant in their *zai*, taking into account the improvements in growing conditions resulting from their efforts.

Each market day has a specific theme. For instance, during one market day, the focus was on growing sesame. Another theme was the use of *zai* for growing trees directly from seed. At each market day, there is also a display of the local tools used to dig the *zai*. This allows farmers from other areas to see for themselves which tools can be used and to find out where they can buy them.

The farmers involved in the *zai* markets have created an “Association of *Zai* Groups for the Development of the Sahel”, primarily in order to mobilise external financial or material support for spreading the *zai* technology. The General Assembly of this association takes place during the market days. The external support has thus far been modest. In 1997 the Association received three motorcycles, fuel and some cement from a non-governmental organisation. Before 1997, Yacouba Sawadogo used his own motorcycle and paid for his own fuel to visit villages to spread his message and encourage people to share and learn at the market days. However, the national television of Burkina Faso made a programme about the market day, and the radio made two broadcasts about Yacouba Sawadogo’s achievements in managing natural resources.

Many visitors come to his farm, and receiving them is time-consuming. The solution he has found is to request an “input” from each visitor. Those who come from abroad are asked to plant a tree seedling, which Yacouba Sawadogo raised in his own small nursery, and groups of farmers visiting from elsewhere in Burkina Faso or West Africa are asked to dig some *zai* on his land. This also functions as a

kind of on-the-job training.

What motivates Yacouba Sawadogo to spread his and other farmers’ innovations so actively? He says that he wants to prove that environmental degradation is not irreversible and that it is possible to make a living from farming in Yatenga. At the same time, he wants to be recognised as an innovator and this public recognition is a major incentive for him.

The “Teacher-Student” approach

In the village of Gourcy, Ali Ouédraogo, a very experienced farmer innovator, has invested heavily in improved *zai* in combination with applying compost, planting trees and protecting the naturally regenerating trees and shrubs. He has trained individual farmers in five villages close to Gourcy and visits them regularly to work with them directly in their fields. He does this to show how he manages *zai*, to give the farmers advice and to exchange ideas with them.

Some of the students do not simply adopt what he suggests. They carry out their own experiments based on his original idea and develop adaptations of it. For example, one farmer, Hamadé Bissiri, felt that the *zai* made by Ali are excessively large and require a great deal of time and physical strength to dig. Not everyone can do this. Hamadé Bissiri therefore modified the layout and dimensions of the *zai* to suit his capacity. Other farmers have experimented with applying different amounts of organic materials at the time of sowing or planting in the pits.

Since 1993, Ali has trained twelve farmers. His “students” in turn, train other farmers in improved *zai* techniques, at their request. These farmer-trainers are not paid for their services. Their major reward is social esteem, but this is sometimes sweetened by gifts of appreciation (chickens, kola nuts or a meal).

The “*Zai* Field School” approach

In the village of Somyanga in Yatenga Region, Ousséni Zoromé initiated the “*Zai* Field School” approach. In 1992, he started training some local farmers how to make good *zai*. He chose the poorest possible site, immediately next to the tarmac road linking Ouahigouya and Ouagadougou, the capital city of Burkina Faso. The soils on the site had been completely destroyed by bulldozers constructing the road. The farmers practised the different improvements on the *zai* technique, such as applying organic matter (compost or manure) and using adapted cereal varieties, and assessed the

results together. They managed to achieve a millet harvest of 400 kg per hectare on this very poor land. All people travelling along the main road saw this immediately, because it was a year of extreme drought and many crops had failed. Also, the Minister of Agriculture saw the plot and called in a team from national television to film it.

Ousséni Zoromé then started to organise more groups of farmers, which he calls “Zai Field Schools”. Each group is expected to rehabilitate collectively a piece of degraded land. In this way, all participants are trained on-the-job. The yields obtained on the rehabilitated land are partly shared between the members of the Zai Field School and partly used to buy the agricultural inputs and tools needed to experiment with *zai*. The experiments conceived by the farmers include comparing the impact of compost and non-decomposed manure and testing an early-maturing variety of millet that is rare in Yatenga Region.

Ousséni Zoromé and the farmer groups that formed the initial Zai Field Schools have widely promoted both the improved technology and their new extension approach. They have now formed a regional union – the “Association for the Conservation of Water and Soil in Yatenga” – which involves about 50 farmer groups in five divisions (Départements) of the region. This Association has set up a site for practical learning about *zai* in each Département. Each farmer group pays a contribution of 5000 CFA (US\$ 8) to become a member of a regional union. Ousséni Zoromé has personally received no material support for his voluntary extension work except occasionally some fuel for his motorcycle from the Regional Department of Agriculture. Usually, however, he pays for his own fuel.

The success of the Zai Field Schools have extended beyond the borders of Yatenga Region. Members of the Association have been visited by development workers from other parts of Burkina Faso who were interested in finding out more about the Field Schools, and members of the Association have hosted farmer groups that have come to learn from them. The trainees return home not only with new knowledge but usually also with some seed and/or tools to use in their own experiments with *zai*.

Formal researchers and extensionists who have witnessed the success of this initiative recognise that it is a practical model for participatory innovation development that

puts the farmers at the centre of a self-directed process of learning and sharing. This became very obvious during the “workshop fair” on farmer innovation, held in March 2004 in Segou, Mali, where Ousséni Zoromé presented the experiences of the Zai Field Schools.

Towards food security and wealth

These three approaches to farmer-to-farmer extension were all developed on the initiative of farmers who have, in fact, become public-service providers who receive no remuneration for their time. At most, they receive some limited external support for travel from local NGOs or individuals. Initially, these farmers had few links with the government extension services but, as they began to organise themselves into larger unions, such as the association of Zai Field Schools, they began to receive some support in developing proposals to acquire tools, and they have received information about relevant regional or national meetings. The Regional Department of Agriculture provides travel and a subsistence allowance to the farmers who attend these meetings.

Largely as a result of the efforts of people like Yacouba Sawadogo, Ali Ouédraogo and Ousséni Zoromé, farmers in Yatenga Region and in other parts of the densely populated Central Plateau of Burkina Faso are becoming increasingly interested in *zai*. Under such dry conditions as prevail on the Plateau, this is not surprising. The pits collect and concentrate runoff water, allowing farmers to make very efficient use of small quantities of manure or compost or – if available – chemical fertiliser. The use of *zai* allows farmers to make larger areas of land suitable for growing crops and trees, to increase production, to reduce production risks and to improve household food security. These innovative farmers do not want to monopolise their knowledge. They are generous in sharing their discoveries and experiences with others. Their benefits are primarily, as mentioned earlier, in the form of personal satisfaction and greater social recognition. These appear to have been their main motivations to develop their own extension models for giving practical training and advice to other farmers, who – in turn – are keen to learn from them and are teaching still more farmers.

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