

Three models of extension by farmer innovators in Burkina Faso

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Farmers in the Sahel zone of Burkina Faso have developed a method of rehabilitating degraded land. It is an improvement on the traditional planting pits known as “*zai*”. On barren land, the farmers hack holes into the hard soil surface, fill the holes with organic matter and sow a few seeds of grain. A specific type of termite may be transferred to the pits, to speed up the decomposition of organic matter. Sometimes a tree seedling is planted or a tree seed is directly sown in the middle of the cereal plants. When the grain is harvested, the stalks are cut off at a height of about 1 m and this protects the tree seedlings from grazing animals. Over the years, this locally-improved traditional technique has led to the establishment of well-wooded farmland (Photo 1).

Many farmers have experimented with variations on the *zai* theme, trying out different techniques to improve soil fertility and trying out various crop varieties and woody species to take advantage of the better conditions. A few farmers have taken the initiative to promote the spread of *zai* and its various improvements. Here, three “extension models” developed by farmer innovators are described. These models are, in themselves, local innovations.

“Market-day” model

In the village of Gourga, 4 km west of Ouahigouya, the capital of Yatenga Region, Yacouba Sawadogo uses a “market-day” model to promote the spread of the *zai*. He started improving the traditional planting pits around 1980. The *zai* have since become recognised - also by scientists - as the most cost- and time-efficient technique in the Sahel for rehabilitating strongly degraded land.

Since 1984 Yacouba has been organising market days to share his experiences with *zai*. These started as small events, but now each market day involves representatives from more than 100 villages. The events are organised twice a year. The first market day is held shortly after the harvest, and the farmers bring samples of the crop varieties (millet, sorghum, cowpea and maize) they have cultivated in their *zai*. Yacouba stores this seed on his farm. The second market day is organised just before the rainy season. Farmers can then select the species and varieties they would like to plant in their *zai*, taking into account the improved growing conditions.

Each market day has a specific theme. For instance, during the last market day,

the accent was on growing sesame. An earlier theme was the use of *zai* for growing trees through a system of direct seeding. At each market day, there is also a display of the local tools used to dig the *zai*. This allows farmers from outside the region to see for themselves which tools can be used and to find out where they can buy them.

Yacouba receives many visitors. This costs him a substantial amount of time. The solution he has found to this problem is to request something from each visitor. People who come from abroad are asked to plant a tree, and groups of farmers from elsewhere in Burkina Faso or West Africa are requested to dig some *zai* on his land. This works out as a sort of on-the-job training. The main problem, and one that has yet to be solved, is that Yacouba does not have very good seed storage facilities.

“Zai-school” model

In the village of Somyanga, Ousseni Zoromé initiated the “*zai*-school” model. In 1992 he started training some local farmers in how to make a good *zai*. He chose the poorest possible site, immediately next to a major road between Ouahigouya and Ouagadougou, the capital

city. The farmers managed to achieve a millet harvest of 400 kg per hectare on this very poor land. Anyone travelling along the main road saw this immediately, because it was a year of extreme drought and many crops had failed. The Minister of Agriculture also saw the plot and called in a team from national television to film it. Ousseni Zoromé, who had received no external support except some fuel for his old motor cycle from the regional department of agriculture, began to create new groups, which he calls “*zai* schools”. Each group has to collectively rehabilitate a piece of degraded land. In this way, all participants are trained on-the-job. There are currently 21 *zai* schools with a total of more than 1000 members, and their numbers are increasingly rapidly. The *zai* schools are now organised into a regional union and Ousseni is seeking external support to expand and improve them. Each group has to pay a contribution of 5000 FCFA (US\$8) to become a member of the union.

“Teacher-student” model

In the village of Gourcy, Ali Ouedraogo, a very experienced farmer innovator, has invested heavily in improved traditional

Yacouba Sawadogo has used the zai to directly seed the trees and shrubs he wants on his fields.



Photo: Chris Reij

planting pits (*zai*) in combination with compost production, tree planting and the protection of naturally-regenerating trees and shrubs. He is training individual farmers in five villages around Gourcy and visits them regularly, showing them how things should be done, giving them advice and exchanging ideas with them. His "students", in turn, train other farmers in improved *zai* techniques.

Some of the students do not simply adopt what Ali suggests, they go on to adapt and experiment with his original ideas. For example, one farmer felt that the *zai*'s Ali made were extremely large and required a great deal of work and physical strength to develop. Not everyone was able to this. The farmer therefore started to modify the layout and dimensions of the *zai* to suit his capacities.

Voluntary extension

One interesting fact is that these farmer-led extension models were all developed on the initiative of the farmer innovators mentioned above. These farmers receive no remuneration for their time. At the most, they receive some limited external support for travel from local NGOs and individuals. Yacouba, for example, received a small, new motorcycle through his "Association for the Promotion of *Zai*" (consisting entirely of farmers) so he could reach more villages. These farmers have no links with the government extension service, with the exception of Oussemi Zoromé's regional union that did receive some organisational support.

Moving towards wealth

The farmers in Yatenga Region and also in other parts of the densely populated

Central Plateau of Burkina Faso are becoming increasingly interested in *zai*. Under such dry conditions, this is not surprising. The pits collect and concentrate runoff water, and they allow farmers to use small quantities of manure and compost very efficiently.

All three of the above-mentioned farmers have many more trees on their fields than they had 20 years ago. Yacouba Sawadogo has used the *zai* to directly seed the trees and shrubs he wants on his fields. In this way, he has created a forest of 12 ha with a considerable diversity of woody species. Since he can now feed his entire family even in drought years, Yacouba has shifted the accent from growing cereals to growing trees. When Oussemi Zoromé started to reclaim a large expanse of barren land in 1983, there were only 9 trees remaining in these fields, now there are at least 2000. Ali Ouedraogo grows trees mainly alongside the stone bunds on the contours and in this way he has created windbreaks in his fields.

The use of *zai* allows farmers to expand their resource base and to increase household food security. These three farmer innovators developed their own extension models because they are keen to share their experience with other farmers who, in turn, are keen to learn.

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*Farmers started to modify the layout and dimensions of the *zai* to suit their conditions*



Photo: Chris Reiff

Pelum Association

→ GROUND UP

PELUM is a network of civil society organisations operating in East and Southern Africa. Pelum members work to facilitate learning, networking and advocacy in sustainable agriculture, natural resource management and household food security in order to secure community development amongst small holder families in the region. Members learn through linking their experiences of alternative approaches to



agriculture and participatory development.

PELUM'S key strategies are information sifting and distribution, networking, short- and long-term training,

off-farm seed saving and advocacy. It runs workshops, trains community development workers, identifies and distributes good books and articles and facilitates networking within the Association itself and among like-minded organisations.

PELUM has just begun producing a quarterly magazine **GROUND UP**. The latest edition is entitled **MAKING A DIFFERENCE WITH INNOVATIONS** and focuses on the theme of "sharing innovations". As the editorial reminds readers farmers have been innovating since time immemorial and today they are no less innovative than in the past. They contribute to innovations both as the sole creators of a final innovation and as contributors (often undervalued and unacknowledged) to improved innovations of researchers and inventors. Farmers are often the source of the (raw) information - derived from their indigenous knowledge and experiences - used by "outside" researchers, engineers and inventors in the process of developing "new" technologies. **PELUM** argues for a strengthening of partnerships between farmers and researchers making sure that farmers' contributions are openly acknowledged.

GROUND UP can be ordered from: The PELUM Association, Box MP 1059 Mt Pleasant, Harare, Zimbabwe. Subscriptions cost US\$20 per year.