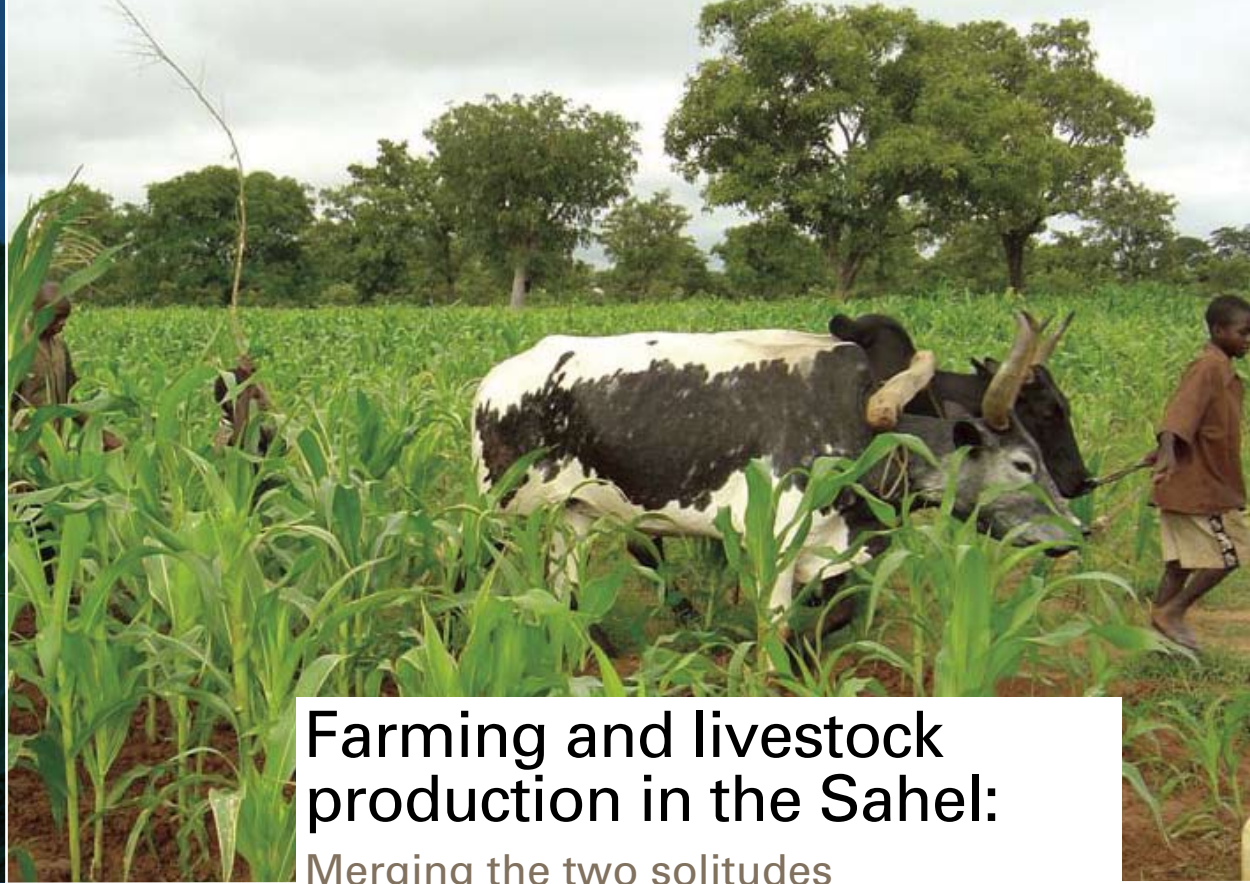


RURAL POVERTY and ENVIRONMENT



Farming and livestock production in the Sahel:

Merging the two solitudes

Jean Sibiri Zoundi

The women of Toukounous, a small town 20 km from Niamey, are participating in a new departure from the agricultural history of Niger and the Sahel. Only now is integrated farming and livestock production coming to their region, and it represents an essential step toward raising and sustaining agricultural yields.

In the Sahel, as elsewhere, livestock activity is associated with overgrazing, soil degradation, and the failure of natural vegetation to regenerate. But it does not have to be this way. In the search for higher yields, farmers in many regions of the world have shown how animals play a key role in the process of intensifying agriculture. Animals recycle nutrients and provide manure, meat, and energy, as well as capital that is indispensable to profitable farming. By recycling nutrients, they allow sustainable crop production, even where the soil is relatively poor, as in the Sahel.



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“This is especially true in semi-arid and subhumid savanna areas receiving 600 to 1200 mm of annual rainfall,” declares the International Food Policy Research Institute (IFPRI) in a report that links the development of livestock raising to “the next food revolution.”

Like the first farmers who recognized the potential for synergy between animals and crops, the women of this little village in Niger have discovered how to use wastes, byproducts, and crop residues as low-cost inputs for another activity. They have successfully integrated materials previously treated as surplus into a system that offers higher yields.

Supported by a group of researchers from the Institut national de recherche agronomiques du Niger (INRAN; national institute of agricultural research of Niger), who are financed by the International Development Research Centre (IDRC), the women of Toukounous have won a battle in the war against poverty by transforming an arid region into a flourishing sheep market. Their experience in raising small ruminants has even helped reduce conflicts over the use and management of natural

resources in this part of the country.

In Toukounous, which receives less than 500 mm of rain a year, livestock raising (cattle, sheep, and goats) has always been the second most

important activity after farming. But the two activities were completely separate. Using a herd management model, based on seasonal migration for half the herd and the use of natural forage and crop residues for the small ruminants, the women of the village have now taken a step that is crucial to local agriculture. Through the efficient use of crop residues — sorghum and millet straw, leaves and stems of cowpea (niébé) plants and sometimes peanuts, and remnants from sorrel and sesame harvests — these women can provide better feed for more animals.

Millet and sorghum straw and other types of plant residues are stored, away from the sun, in sheds or under the eaves of houses. With

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advice from the research team, the women have updated this traditional practice to develop a system for feeding sheep based on local resources.

Cattle graze on sparse vegetation in Bayakh village, Thiès region, Benin.

Anne Karine Brodeur

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To deal with problems in the supply of bran and cotton seeds needed to fatten the animals, the women discovered and experimented with new supplements.

According to the research team, in this village, for a long time “the main activity of the women and children was gathering and storing the fruits of various trees and shrubs that constitute the second traditional type of livestock feed.” “Every year,” the researchers noted, “enormous quantities of acacia pods are gathered.” Based on this practice, an experiment was launched to help the women of Toukounous improve on a method that had produced positive results in the past.

The women listed forage components that could be used as feed for sheep; they included grasses and plants as well as the leaves of shrubs and trees. The research team helped them work out a method of classification for identifying shrubs that produce the most useful leaves.

Livestock producers now have animals that ensure them real profits, instead of scrawny, sickly beasts that are hard to feed.

An emerging livestock market

The business success of these women has had positive effects in terms of making better use of natural resources and reviving an activity that earns incomes through the sale of livestock. From a dry little village of the Nigerien Sahel, Toukounous is now becoming a true subregional market, thanks to its success in producing feed for small ruminants.

The improvement in feed is arousing the enthusiasm of everyone, particularly the women. The results to date show that the women are now raising three sheep instead of just one. According to the INRAN research team, increasing numbers of livestock producers are now practising short-term fattening (3–4 weeks instead of 3 months), because they are able to buy animals that have been fed for 3–4 weeks before being sent to market. In some cases, the animals are kept in a pen or fenced field for 4 months, out of view of neighbours,



in anticipation of the *Tabaski* (the sheep festival), when sheep are in great demand. These animals sell for 40 000–60 000 CFA (CAS100–150) — two or three times the price the farmers used to get.

Another positive result for the women is that Toukounous has become a hub of trade in small ruminants in West Africa. A daily stream of trucks from Nigeria arrives laden with cereals, which they unload before driving away with a few dozen rams purchased at the market. Suddenly, the economy of the village and its region is enjoying a revival. And Toukounous is only one example of many villages that have specialized in livestock feeding, thanks to the science developed by the women and the support of the researchers from INRAN and IDRC. The region has become one of the main centres for fattening sheep for market in Niamey, the capital of Niger, and neighbouring Nigeria.

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Preparation of husks from *Acacia raddiana* to feed the sheep in Toukounous.



Agricultural residue is used as animal feed during the dry season.



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Improved feeding techniques for sheep managed by women in Toukounous: using husks from *Acacia raddiana*.

For the women who took the initiative, the success of this project has translated into better living conditions and allowed them to make some investments. One woman who raised five sheep for market sold them for 200 000 CFA (about CA\$500) each. With her proceeds, she was able to buy a refrigerator, some new clothes, and an Azawak heifer. The success of this project and the resulting increases in income represent a form of emancipation for these women.

Integration of farming and livestock production

The transformation that Toukounous has seen fits within the framework of a project financed by IDRC for integrating crop farming and livestock production and assuring sustainable management of natural resources in the districts of Sikasso and Sanankoro in Mali, Toukounous and Amassaghal in Niger, and Madougou and Ziga in Burkina Faso.

In the Sahel zones of Niger, Mali, and Burkina Faso, herders and livestock raisers face shortages of water, grass, and trees that are still producing leaves. These areas have experienced livestock feeding problems for several years,

because of the lack of water and grass of sufficient quality and quantity.

In these areas, where living standards are steadily declining, climatic change, together with overexploitation of farmland, has led to overgrazing in certain “residual” tracts, the disorderly expansion of the farming frontier, the disappearance of fallow areas, and an inevitable decline in farming and livestock productivity. For the people, this has meant a sharp drop in income.

In the wake of the 1973–1984 drought, which decimated herds and severely degraded natural resources in the Sahel, relations between farming and livestock production went through a difficult period. The traditional complementarity and coexistence of farmers and pastoralists turned to competition and even conflict between the two groups. This also led to such changes as further expansion of cultivated areas, the farming of marginal lands, and the steady transfer of livestock ownership from herders to better-off farmers, who would purchase the animals at distress prices.

The central area of Filingué in Niger is a typical example of this bitter struggle for control over natural resources. Located at the junction of the farming zone to the south and the pastoral zone to the north, it represents an area of contact between farmers and pastoralists, who have different approaches to the use of land. The research team showed that the main source of conflict was the inadequacy and poor distribution of watering points. Moreover, to reach wells and ponds, the animals had to cross fields newly planted by farmers.

In this region where fallow land, the only forage reserves still available, lies next to crop fields, the damage caused by animals was significant, and relations between the two communities suddenly collapsed.

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Participatory resource management

As part of the Conseil ouest et centre africain pour la recherche agricole et le développement (CORAF; West and Central African Council for Agricultural Research and Development) research network on drought tolerance (R3S), with support from IDRC, researchers from Burkina Faso, Mali, and Niger suggested that joint and participatory management of natural resources could reduce the risk of conflict and reverse a 20-year downhill trend in relations between farmers and herders.

The research team's main objective was to improve food production and incomes for rural communities by encouraging them to manage natural resources in a participatory way. In practice, the goals of the project were to promote techniques for sustainable management of soil fertility; to increase crop production to improve the quality of animal feed; to create a significant increase in incomes for small farmers; and to reduce problems associated with the uncontrolled expansion of crop farming. Improved output of fodder and foodstuffs has been achieved through a system of planned rotation of cereals and cowpeas, combined with optimal use of locally available off-farm resources.

The main advantage of this strategy became immediately apparent in the declining number of local conflicts. As well, new forms of cooperation between farmers and herders

emerged, and they developed the ability to negotiate with local authorities.

The network of researchers in the three countries was able to solve the key issue: how to establish understanding — an *entente cordiale* — among people in the same ecological setting. In Burkina Faso, researchers and grassroots communities established a crop rotation system around the village of Madougou over the course of 3 crop years (2001–2003). “Instead of continuous grazing,” reported the team from Burkina Faso, “the surrounding lands have been divided into sub-zones, each of which is grazed for 2 weeks.”

The rotational use of grazing lands has produced positive results in terms of the productivity of both livestock and land. One survey of 45 pastoralists showed that the general level of nutrition improved after the experiment. According to those interviewed, considerably fewer animals died or suffered from malnutrition.

Tests conducted by the various teams also showed that, in areas where the ground cover was severely degraded, particularly in Burkina Faso and Niger, local people developed more productive livestock systems. In the three countries, women and men participated, to differing degrees depending on their ethnic group, in exploiting natural resources for farming and livestock purposes. But the success of the feed aspect of the project was mainly the result of a new awareness among women, who played a critical role.

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Rotational use of wild pastures: a social innovation for resolving conflicts over pastoral resources.



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Animals play a key role in intensifying agricultural activities.



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This brief was prepared by Jean-Marc Fleury based on a case study by Mame Aly Konte and Innocent Butaré.

IDRC's Rural Poverty and Environment (RPE) program is a global program launched in 2005 to support research that meets the needs of the rural poor who live in fragile or degraded ecosystems in Africa, Asia, Latin America and the Caribbean, and the Middle East. Its goal is to strengthen institutions, policies, and practices that enhance food, water, and income security.

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