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Cropping systems and animal draught

Management of draught oxen was often a cotton farmer's first livestock rearing experience. As of the 1960s, development bodies, including national cotton companies, decided to promote a production model based on animal draught. Extension measures, e.g. provision of trained oxen, equipment credits and veterinary services, have led to a steady increase in the use of animal draught. Currently more than 80% of farms in the Malian cotton-growing area have at least one team of draught animals, as compared to around 65% in Burkina Faso, and 30% in Cameroon where the smallest farms are found.



Ploughing, northern Cameroon.
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Cotton and livestock farming in African savanna regions— competition or synergy?

Sub-Saharan savanna regions suitable for cotton growing are gradually turning into livestock rangelands. Cattle herds have been increasing in these areas since the severe droughts that affected the Sahelian region in 1973 and 1984—many Fulani herders have migrated there with their herds along with farmers who grow cotton in newly cleared areas. Land clearing has reduced populations of tsetse flies, the main vector of animal trypanosomiasis, which is a major constraint to livestock farming in these Sudanian savanna regions. In this setting, CIRAD and partners are striving to enhance the productivity of these production systems and the integration of livestock farming in agricultural areas.

Livestock on every cotton farm

Most cotton farmers have decided to invest their surplus revenue in livestock (sheep and goats, cattle and, to a lesser extent, pigs) so as to get a better return on their capital than would be possible through other sectors such as trading, crafts and bank investments. After first procuring a team of draught oxen and equipment, 10-20% of cotton farmers have thus been establishing core herds with 5-50 head of cattle or more.

This capital can be readily liberated to cover unexpected expenses or for new investments (house, vehicle, grain mill). In the Koutiala region, a traditional cotton-growing area, a cattle herd also boosts farm sustainability. In the dry season, the herd grazes and tramples on crop residue, such as cereal straw and cotton stems, thus recycling it into organic manure which in turn is essential for fertilizing subsequent cotton-maize crops in rotation. Rangeland is limited during the farming season, so many livestock herds are moved to less populated regions.

Cottonseed cake—the main cattle feed concentrate

It is crucial to preserve cottonseed cake supplies in these regions for the benefit of livestock farmers. In northern Cameroon, for instance, cottonseed cake accounts for half of the digestible nitrogen feed ration of draught oxen and suckling cows during the second half of the dry season (1 February to 15 May). The high demand for cattle feed concentrates in the dry season has prompted dealers to speculate by purchasing large quantities of cottonseed cake. Cotton and livestock farmers' organizations should offset this threat by setting up systems whereby they would purchase wholesale quantities of cottonseed cake to resell to their members at remunerative prices before this feed is exported abroad.



Fulani cattle farming in a cotton-growing area.
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Intensification and land management?

The combined development of extensive livestock farming and cotton production is possible if farmland and rangeland resources are available. Agriculture takes precedent over livestock farming once the population density rises above 50 inhabitants/km² and there is no fodder production intensification or village rangeland conservation. The livestock farming potential is still high in sub-Saharan cotton-growing areas, i.e. high protein cottonseed-based animal feed, rainfall conditions suitable for fodder crop intensification, and new markets to capture (milk for urban centres, meat for export). The livestock feed supply could thus be increased, but rangelands must be preserved for cow-calf rearing. Extension services should support local stakeholders by sketching the limits of farming and rangeland areas and creating livestock trails to minimize conflicts between crop and livestock farmers.

Further research

In cotton-growing areas, many technical references are available on fodder crops, and manure, hay and silage production processes, etc. Based on these resources, CIRAD and partners have set up projects focused on the management of resources that could be utilized in mixed farming systems (agriculture and livestock production). These projects are now under way—on both production unit (increased plant biomass production, optimal use of this biomass, herd management) and area scales—in Mali, Burkina Faso and Cameroon. Tools are proposed to help local stakeholders draw up collective management procedures concerning land and resources shared between crop and livestock farmers.



Cotton in a cart. Korhogo, Côte d'Ivoire.
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Partners

Burkina Faso: CIRDES, Centre international de recherche-développement sur l'élevage en zone subhumide

Cameroon: IRAD, Institut de la recherche agricole pour le développement

Mali: IER, Institut d'économie rurale

Chad: PRASAC, Pôle régional de recherche appliquée au développement des savanes d'Afrique centrale

For further information

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