

Enhancing the productivity and resilience of agro-pastoral systems, and income, food and nutrition security through market-oriented innovations in Niger

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Village livestock market in Torodi, Niger (Credit: Ibrahima Abdoussalam)

Why this research project matters

- Agro-pastoral systems are the main source of employment, food and income for rural households in Niger, but little attention has been paid to the development of markets and mainstreaming of inclusive and equitable policies for developing agro-pastoral systems.
- Livestock plays a crucial role in generating income, enabling the purchase of diverse diets, and paying for education, health and other basic household needs.
- Despite livestock's important role in farming, livelihood systems, and the national economy, livestock has failed to reach its full potential.
- Limited work has been done on integrated climate-smart technologies and approaches to improve inclusive crop-livestock systems and value chains.

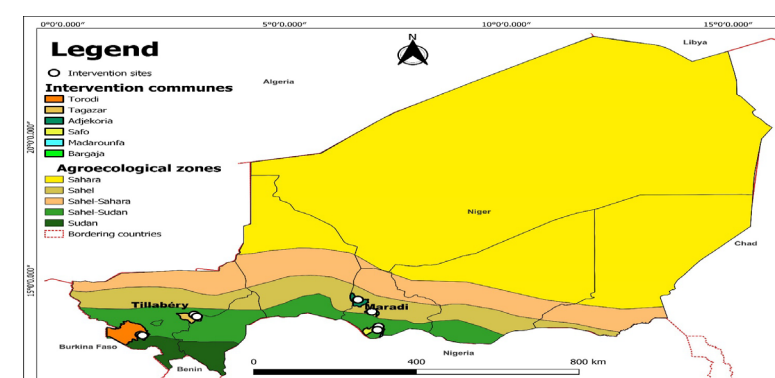
Overarching goal

To reduce multidimensional poverty through market-oriented crop-livestock integration, and specifically to improve nutrition through on-farm diversification and by enhancing income and livelihood resilience of agro-pastoral systems in Niger.

Our work is based in

Five districts in two regions:

- Torodi, and Tagaza in Tillabéri region
- Madaroumfa, Dakoro, and Guidan Roundji in Maradi region



What we have done so far

- Conducted a baseline study to clearly define the baseline situation of agro-pastoral systems and to understand the functioning of agro-pastoral systems (survey of 220 households, complemented with focus group discussion).
- Established Agro-Pastoralist Field Schools (APFS) to facilitate innovation transfer in the project sites. A curriculum was developed for each APFS based on local problems, local needs and the seasonal calendar to facilitate the learning process.
- Addressed the fodder supply deficit through :
 - Promotion of integrated systems of legumes and cereals to improve fodder production, sustainability and resilience of production systems (150 ha)
 - Introduction of forage crops [improved pigeon pea (*Cajanus cajan*), lablab (*Dolichos lablab*), mucuna pruriens, cowpeas (*Vigna unguiculata*) and maralfalfa grass (*Pennisetum purpureum*)] to improve the production of quality fodder for livestock among small-scale farmers (~10 ha).
- Conducted on-station experiments on urea treatment of pearl millet residues to assess the nutritive value of different varieties of pearl millet stover as affected by urea treatment and identify the % urea solution that offers the best nutritive value.
- Conducted a survey to document consumption patterns of animal source food (ASF), household factors impacting the selection and consumption of ASF, frequency in consumption of ASF, ASF consumption constraints, and consumption patterns of goat milk in the project sites.
- Developed a variety of awareness-raising messages and images illustrating the importance of ASF consumption.



Participation of women in village livestock market, Torodi, Niger (Credit: Abdoulaye Amadou)

Our work on the cross-cutting themes

- Built the capacity of 360 farmers (231 men and 129 women) on Integrated systems of dual-purpose Cereals-Legumes cultivars.
- Built the capacity of 157 farmers (14 men and 143 women) on Tropical Forage production.
- Provided support to 12 women's organizations.
- Delivered training on silage-making technology for small-scale farmers (119 participants (55 men and 64 women) and 20 participants from the USAID Yalwa project).
- We are engaging four students (1 PhD, 2 MSc, 1 BSc) and four interns in survey design and/or data collection.



Empowering women through dairy goat production in Maradi, Niger (Credit: Ibrahima Abdoussalam)

Early insights

Multinomial logistic regression

Knowledge and use of feed technologies	Coef.	s.e	p value	RRR
0 (non-use of ILFTs)	(base outcome)			
1 (utilize ILFTs)				
Geographical area (Maradi)	3.06	0.824	0.000***	21.66
Age of household head	0.02	0.018	0.183	1.02
Sex of the head of household (male)	-0.66	0.576	0.249	0.51
Membership in Farmer' organization	1.37	0.454	0.003***	3.93
Education level	0.96	0.237	0.000***	2.60
Household size	-0.07	0.038	0.068*	0.93
Land size	0.03	0.070	0.700	1.03
Ownership of small ruminant	1.60	0.852	0.061*	4.93
Ownership of cattle	0.30	0.431	0.483	1.35
Number of trees in the farm	0.003	0.003	0.411	1.00
Constant	-7.67	1.732	0.000	0.00

Log likelihood = -78.748958; Number of observation = 218; LR chi2(10) = 79.69; Prob > chi2 = 0.000; Pseudo R2 = 0.3360.

Table 1. Logistic Regression predicting the likelihood of utilization of improved livestock feed technologies among agro-pastoral households in the study area

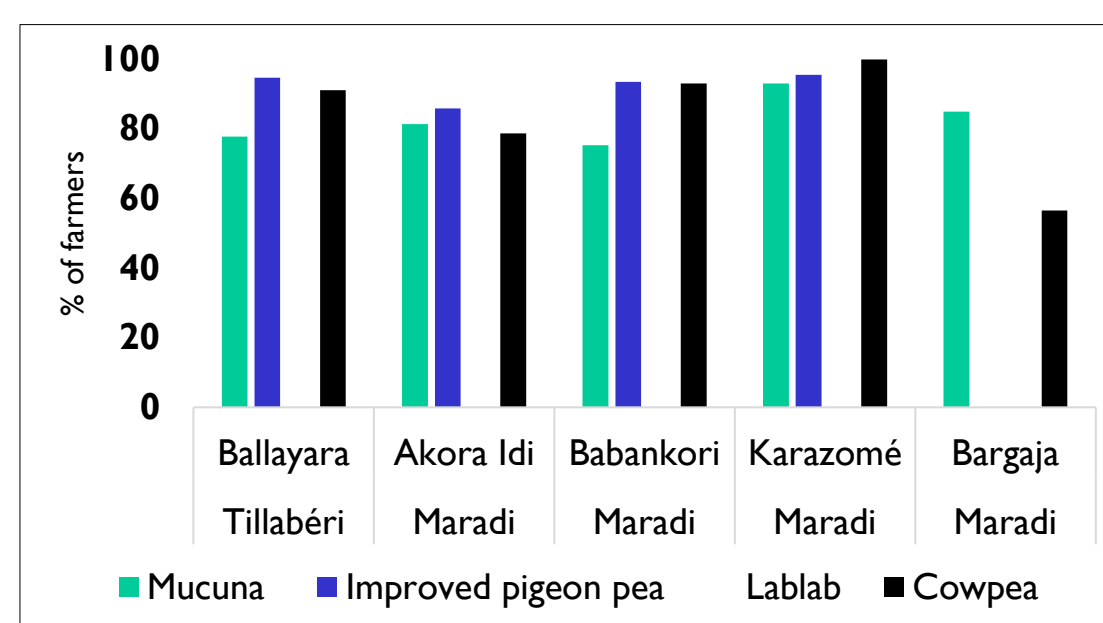


Figure 1. Farmers' Preferences index of various tropical forage legume crops introduced in the project sites.

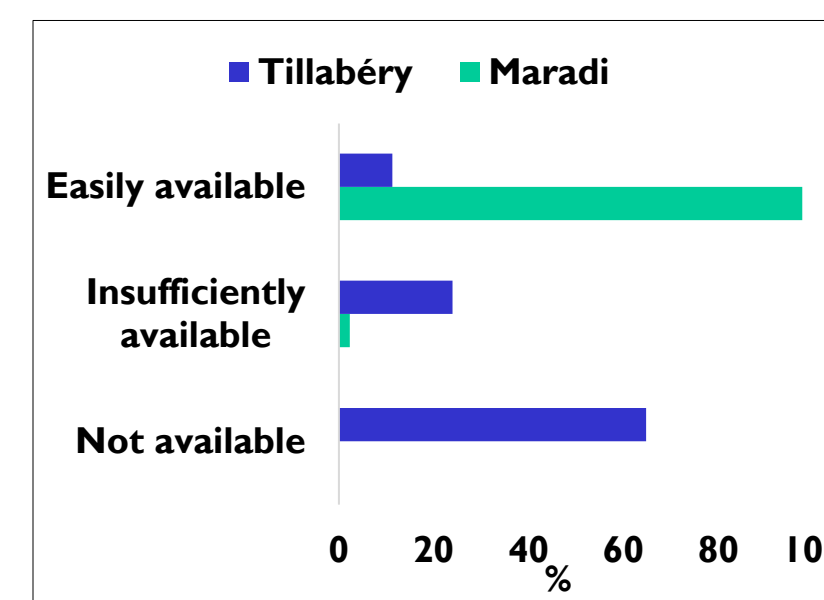


Figure 2. Perception on availability of goat milk among agro-pastoral households

Partnerships

- Participated in the market for agricultural technologies/innovations in the Maradi region organized by USAID-funded projects
- Initiated a business relationship between farmers' cooperatives in the project sites and the private feed industry « Entreprise SALMA.»