RESEARCH PROGRAM ON Dryland Systems

CGIAR

Summary report on gender preferred dual purpose crops and ex-situ conservation

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Food security and better livelihoods

for rural dryland communities

The CGIAR Research Program on Dryland Systems aims to improve the lives of 1.6 billion people and mitigate land and resource degradation in 3 billion hectares covering the world's dry areas. Dryland Systems engages in integrated agricultural systems research to address key socioeconomic and biophysical constraints that affect food security, equitable and sustainable land and natural resource management, and the livelihoods of poor and marginalized dryland communities. The program unifies eight CGIAR Centres and uses unique partnership platforms to bind together scientific research results with the skills and capacities of national agricultural research systems (NARS), advanced research institutes (ARIs), non-governmental and civil society organizations, the private sector, and other actors to test and develop practical innovative solutions for rural dryland communities.

The program is led by the International Centre for Agricultural Research in the Dry Areas (ICARDA), a member of the CGIAR Consortium. CGIAR is a global agriculture research partnership for a food secure future.

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SUGGESTED CITATION

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SECTION I – Key MESSAGES

Synthesis of Progress and Challenges

A total of 29 crop germplasm was collected from the selected sites for ex-situ conservation. Crop germplasm of sorghum, millet, seasmum, roselle, cowpea, okra, and ground nut are collected from the farmers of Milli and Gourjia.

The key challenges faced were limited budgets, motor bike accident and death of an intern, working in Maradi during the end of experiments.

Rain-fed agriculture and agro-pastoralism systems constitute the main sources of both food and incomes of poor farmers of the West African Sahel countries such as Niger which faces the vagaries of climate change that effect environment, economic, and social habits of exposed populations. Niger is the poorest country of the world where poverty affects rural areas more than urban areas, and is more pronounced among the female population. Women are generally considered to be at the lowest rung of the poverty ladder as they represent 70% of people living in poverty; also 96% of households headed by women are considered poor. Ensuring food security for small-scale, vulnerable farmers is becoming more and more challenging. Even though a good number of improved varieties of cereals and legumes have been released for different agro ecologies of Niger by research institutions. Yet the majority of farmers still prefer their own saved seeds. Women are main custodian of local seeds .And whenever the word farmers is used it is always considered as men. And yet in Niger, women represents 36% of the economically active population in agriculture (FAO, 2013). This necessitates to understand what are women and men preferences in the crops they cultivate, the varieties they chose and the constraints faced by them to better manage risks and improve their livelihoods by diversifying the farming system and rural income. Along with special emphasis on collection of farmer preferred crop germplasm for ex-situ conservation.

Against such a backdrop thus the specific objective of the study were:

1. An integrated analysis of social, economic and environmental dynamics considering the crop-livestock system.
2. An analysis of livestock biodiversity and main local crops including preferences, practices and producers' knowledge by taking gender into account.
3. A participatory analysis of local constraints to the production system, strengths and opportunities to improve the resilience of crops and livestock in local agro-ecosystems.
4. An analysis of the performance of the favorite main crops at farm level and at the analytical laboratory along with ex-situ conservation

The present paper reports the preliminary findings of details on ex-situ conservation.

Methodology:

The survey was conducted in purposive selected Milli and Gourjia villages of Niger. The criteria of selection was 0.35 aridity index (AI), 70 habitation km^2 population density (PD). The methodology utilized various mix –methods, utilizing secondary sources of information, participatory qualitative tools of socio-economic gender analysis (SEGA) approach and other tools like such rank based quotient, four square analysis, joint and separate focus group discussions with men and women farmers. A methodology was prepared for the gender survey and crop trials in the month of April. The training of enumerators was done by June 2015 on the methodology for the gender preference and crop trial. The team of consisted of one local staff, one intern from University of Maradi (for crop trial) and two surveyors (gender survey). The data on gender preference on dual purpose crops survey and farmer trials were collected between a periods July to November 2015. To test the performance for grain and fodder yield of farmer preferred varieties under farmer conditions trials were conducted on (Millet and cowpea) with two type of variety each (a local variety and improved variety) with four treatments and three replications in each two villages. The various treatments were as follows:
T1: HKP + IT90
T2: HKP + Mai HITILA
T3: EKA DAN + IT90
T4: DAN + EKA Mai HITILA

The experimental design used randomized complete block design with three replications. The distance between plant of millet was 0.8m and those between the lines of 1m. The distance between the cowpea was 0.6 m and those between the lines of 0.8m. A total of 24 farmers in two villages were selected for the farmer field trials with two crops. The data was recorded for destructive and non-destructive observations and analyzed using descriptive statics and ANOVA.

Apart from that, for ex-situ conservation of farmer preferred crop biodiversity, 100 grams of seeds were collected from the farmers for further multiplication for the coming years.

Key Findings and their Implications:

A total of 29 crop germplasm was collected from the selected sites for ex-situ conservation. Crop germplasm of sorghum, millet, seasmum, roselle, cowpea, okra, and ground nut are collected from the farmers of Milli and Gourjia. The details of the farmers are indicated in the table 1.

Further documentation is underway regarding conservation in genebank.

Figure 1: Crop germplasm for gene bank conservation

Table 1: Details of collection of local germplasm from action sites

Serial number	Collection number	Local name	Farmer name	Village
		Millet		
1	1	Dan Eka	Tsahirou Issou	Milli
2	2	Dan Eka	Abdoul Wahab Ado	Gourjia
3	3	Wiyan bijini	Tanko Kodago	Gourjia
4	4	Zango	MamanIbrahim	Milli
5	5	Dan Eka	Malam Maman	Milli
6	6	Dan Digali	Adamou Mato	Gourjia
7	7	HKP	Rabe Iro	Milli
		Cowpea		
8	1	Mai Hutila	Chapiou Maman	Milli
9	2	Dan Baouchi	Adamou Salaou	Milli
10	3	Mai Hutila	Issa Mani	Milli
11	4	Mai Hutila	Sabiou Moudi	Gourjia
12	5	Jan Wake	Maman Tsahirou	Gourjia
		Sorghum		
13	1	Dudu	Sale Kaoura	Gourjia

14	2	kerma dutsi	Sale Kaoura	Gourjia
15	3	Ja dawa	Sale Kaoura	Gourjia
16	4	Dudu	Bouniya Moussa	Milli
		Maize		
17	1	Bahaoussa	Sale Issa	Milli
18	2	El Nigeria	Nouhou Garba	Milli
19	3	El Haoussa	Ado Issa	Milli
20	4	Bahaoussa	Malan Sale	Milli
21	5	El Fao	Malan Sale	Milli
		Sesame		
22	1	farin Ridi	Salele Ranaou	Gourjia
23	2	jan ridi	Salissou Boubacar	Gourjia
24	3	farin Ridi	Malan Ado	Milli
25	4	farin Ridi	Soule Abdou	Milli
		Groundnut		
26	1	Goujia Nigeria	Tassiou Moussa	Milli
		Roselle		
27	1	Gourgouzou	Moussa Makaho	Gourjia
28	2	Gourgouzou	Moussa Iro	Milli
		Okra		
29	1	Mia gro	Abdou Maman	Milli

Conclusion:

To make more genetic biodiversity available there is a need to collect crop germplasm preferred by the farmers which can help in breeding and developing climate smart varieties requiring low input, disease and drought resistance, accessible, adapting to local taste. More work is required in ex-situ conservation and in-situ conservation.

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