Transforming Agrifood Systems in South Asia

CGIAR

Linking farm diversification, markets, and nutrition: TAFSSA's Participatory Socio-Agronomic Research

Summary protocol for research in Rangpur and Rajshahi Divisions, Bangladesh

Research Protocol 3, Work Package 2
December 2022

BACKGROUND/CONTEXT

TAFSSA's Work Package 2 (WP2) emphasizes farm- and landscape-level interdisciplinary research to identify strategies to increase farmers' profits and nutritional yields, conserve resources, and maintain or enhance ecological services, while also mitigating greenhouse gas (GHG) emissions from farms and agricultural landscapes.

Research summaries currently suggest that linkages between farm production and farming household nutrition are not well understood; integrated approaches considering household food production, nutritious diets alongside market systems development are needed. Besides TAFSSA's research platform and on-farm agricultural trials (WP2, Research Protocol 1 and 2), which generate an evidence base for sustainable diversification approaches and are learning sites for the farmer communities involved, this activity explores the influence of other factors (*e.g.* the access to knowledge on nutrition and/or to marketing strategies, for example the Small Farmer Large Field (SFLF) approach) on the potential for functional and profitable cropping systems diversification.

OBJECTIVES

- On-Farm agronomic trials: test, adapt, target, and position agronomic technologies and practices supporting crop (and animal) diversification across the region's farming systems (for more details see TAFSSA WP2 Research Protocol 2).
- Generate actionable evidence on linkages between farm production and nutrition.
- Identify pathways for improved agricultural policies and research systems in Bangladesh, with emphasis on addressing the current and primary focuses on single crops in isolation, with less emphasis on developing an evidence base multisectoral farm, market, and policy interventions, to broaden its approach.
- Explore approaches to shorten an reduce inefficiencies within value chains so that producers can generate profits from the production of nutritious foods, while assuring that consumers can purchase healthy food at affordable prices.

RESEARCH QUESTION

This activity conducts research that asks: at the farm level, can crop diversification, biofortification, and animal components be managed to increase production of nutritious foods and improve women's and men's livelihoods while conserving resources and mitigating greenhouse gas emissions?

CIMMYT International Maize and Wheat Improvement Center · IFPRI International Food Policy Research Institute · IRRI International Rice Research Institute · IWMI International Water Management Institute · CIP International Potato Center · WorldFish · ILRI International Livestock Research Institute

METHODOLOGY

Following a linked social-agronomic experiment design in four districts in Bangladesh. the four treatments displayed in Figure 1 have been randomly allocated to different villages (Table 2). In '*Control*' villages no intervention is carried out by the initiative; 60 households (HHs) will be surveyed only. In nutrition training ('*N*') villages 60 HH are surveyed, and of those 40 HH receive a nutrition training following the syllabus summarized in Table 1. In agricultural production and marketing ('*AgP+'*) villages, 60 HHs are randomly surveyed and of those 20 HH host a farmer managed crop diversification research trial; further trainings on agricultural production and marketing accompany these agronomic experiments. In '*AgP+&N*' villages, 60 HHs are randomly surveyed; of these, 20 HHs receive a nutrition training (Table 1) and 20 HH host experiments, receive trainings on agricultural production and marketing, and receive nutrition training. In all circumstances, both HH wives and husbands are always involved in experiments, surveys, and trainings.

		Nutrition Training	
		No	Yes
Agricultural production and marketing Trainings	No	Control	N
	Yes + On-farm experiment	AgP+	AgP+&N

Figure 1: Matrix of treatments tested in the social-agricultural experiment.

Table 1: Training syllabus to be covered during nutrition trainings.

Session	Topic
1	Food and nutrition: what is nutrition, nutritious food, major nutrients, types of food, balanced diets
2	Micronutrients elements: iodine & iron - food that contains these elements, deficiency symptoms & testing, management, prevention & control
3	Micronutrients elements: vitamin A & zinc - food that contains these elements, deficiency symptoms & testing, management, prevention & control
4	Importance of breast feeding, additional food supplements for children
5	Nutritious care for women- pregnant & lactating mothers, adolescent girls
6	Safe and healthy cooking for consumption: what is safe food, healthy methods of cooking, clean and healthy preservation techniques, maintaining food quality

LOCATIONS

The geographical coverage for this social-agronomic experiment is shown in Figure 2. Sixteen villages across four districts in Rangpur and Rajshahi Divisions have been selected and randomly allocated one of the four treatments described previously (Table 1). Within each district attention has been given to identify villages with similar biophysical and social characteristics (*e.g.* land type, soil type, AEZ no., predominant farm size, distance to market, etc.)

Table 2: Locations of the TAFSSA WP2 social experiment in Bangladesh, including their respective treatment allocation.

SL	Upazila	Union	Village	Treatment	
				No.	Code
Rangpur Division: Dinajpur district					
1	Birganj	Nijpara	Kolyani	1	Control
2	Birganj	Vognagar	Kalapukur	4	AgP+&N
3	Chirirbandar	Auliapukur	Indropara	3	AgP+
4	Chirirbandar	Saitara	Satnala	2	N
Rangpur Division: Rangpur district					
5	Pirgachha	Itakumari	Boro Hayat Kha	1	Control
6	Pirgachha	Chhaola	Shibdeb	4	AgP+&N
7	Kaunia	Kursha	Ramnath	2	N
8	Kaunia	Tepamadhupur	Chargonai	3	AgP+
Rajshahi Division: Rajahahi district					
9	Godagari	Mohonpur	Bautia	4	AgP+&N
10	Godagari	Deopara	Soyghati	3	AgP+
11	Tanore	Pasondor	Kachuapukur	1	Control
12	Tanore	Mundumala	Mundumala Paurosova	2	N
Rajshahi Division: Chapainawabganj district					
13	Nachole	Kasba	Kajla	2	N
14	Nachole	Kasba	Sobdolpur	3	AgP+
15	Nachole	Nijampur	Kamar Jogdoil	1	Control
16	Nachole	Nijampur	Bashbaria Bakoil	4	AgP+&N

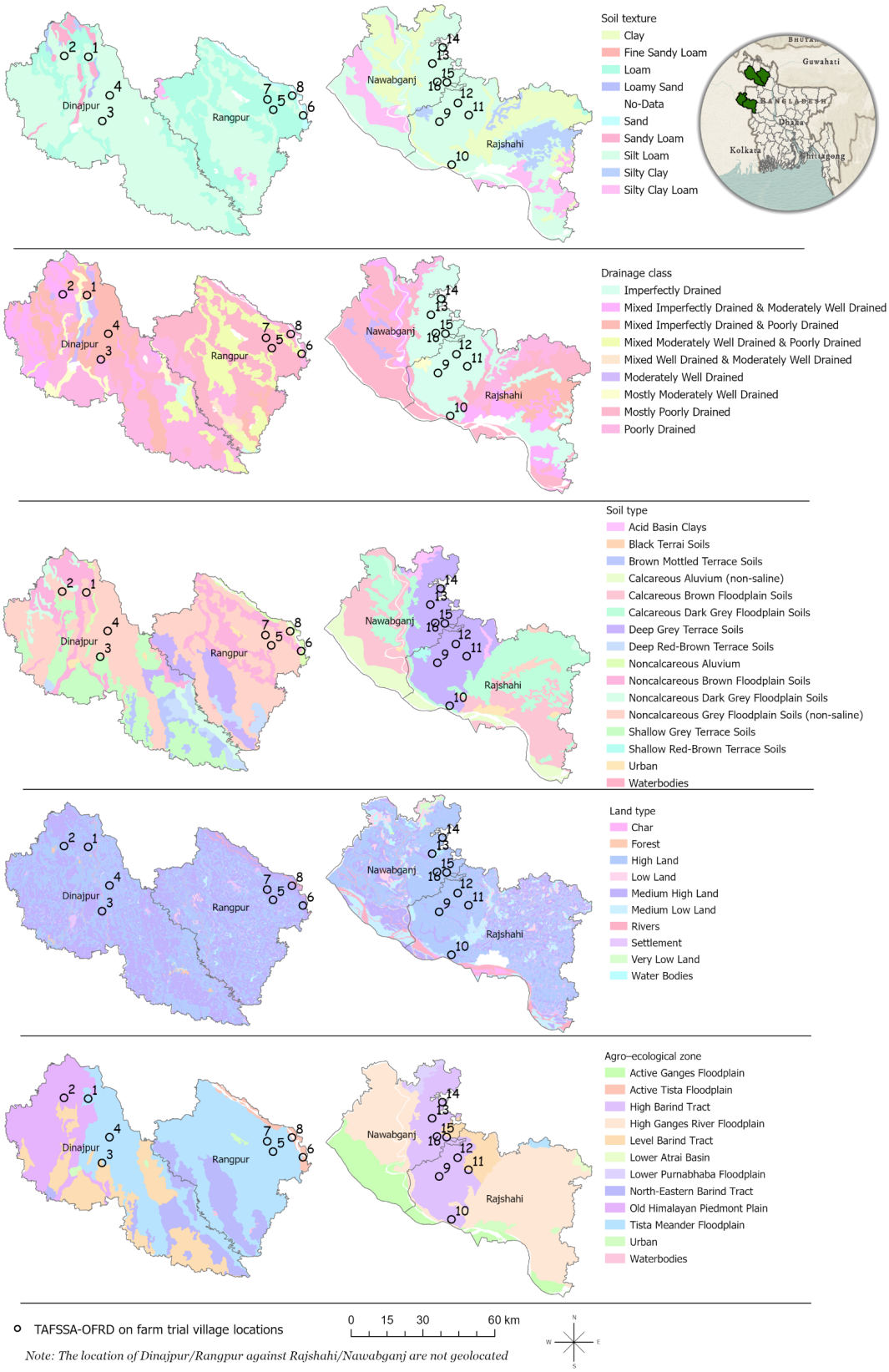

Figure 2: Geographical distribution of the research sites within Rangpur and Rajshahi division overlaied on maps of soil texture, drainage class, soil type, land type and agro-ecological zone (AEZ)

DATA COLLECTION

Scientists affiliated with TAFSSA are working with national agricultural research partners in the Bangladesh Agricultural Research Institute (BARI's) On-Farm Research Division (OFRD) and the Bangladesh Institute of Research and Training on Applied Nutrition (BIRTAN) to implement participatory research using this novel study design. Key types of data to be collected include the following:

1. Farming systems characterization data (in collaborative synergy with the CGIAR Initiative on Sustainable Intensification of Mixed Farming Systems (SIMFS)
2. Pre- and post-season farmer knowledge, beliefs, and information (KBI) data from farmers
3. Pre- and post- test scores for each training.
4. On-farm trial data collection (as described in TAFSSA WP2, Research Protocol 2).

Above: A farmer in Dinajpur, Bangladesh selling his produce along the road, Dinajpur.
Photo Credit: Abdul Momin

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ABOUT TAFSSA

TAFSSA is a CGIAR regional integrated initiative to support actions that improve equitable access to sustainable healthy diets, improve farmers' livelihoods and resilience, and conserve land, air, and water resources in South Asia.

ABOUT CGIAR

CGIAR is a global research partnership for a food secure future. Visit https://www.cgiar.org/research/cgiar-portfolio to learn more about the initiatives in the CGIAR research portfolio

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