Project partners:

NUTRiGREEN

Promoting green nutrition in the Sahel region

Biannual information sheet on project activities

December 2022 No.2

Welcome to the NUTRiGREEN project

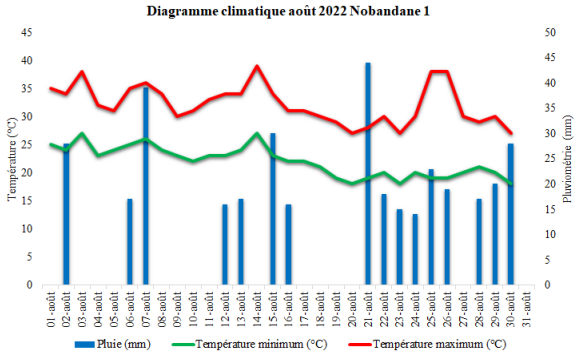
Dear partners, welcome to the second newsletter of the NUTRiGREEN project. We have completed our project first year this past June and the project half-time has just passed. In this newsletter we provide you with an overview of all the different activities that have taken place since March 2022, as well as introduce some more of the great young scientists conducting their field research in the NUTRiGREEN project. Happy reading!

Meet the new NUTRiGREEN student assistant

We welcome the SLE student assistant Islem Heraghi, who has taken over for student research assistant Malika Sarr. We will feature more about her in the 3rd edition of this newsletter .

Agro-meteorological learning

Weather data, including minimal and maximal temperatures as well as rainfall, is currently being collected daily in six villages in Burkina Faso and two villages in Senegal by the local village weather observers. They experienced two initial challenges. First, some of the thermometers had malfunctioned thermometer liquids, which were replaced in March 2022. Second, some of the weather observers initially had some difficulties reading the thermometers correctly, yet received more training through Association Koassanga and APAF staff. A *WhatsApp* group links all persons involved.



Temperature and precipitation in Nobandane, Senegal

© Maty Ndour

Thank you to Maty Ndour from APAF who has developed an easy-to-read weather graph design. While Maty prepares the graphs for Senegal herself, the data for Burkina Faso is being visualised by Islem Heraghi from SLE.

With this data we can compare the weather conditions for each village, such as the number of hot days, the beginning of the rainy season and rainfall amounts.

In exchange meetings, organised by Koassanga Association and APAF, the weather observers may discuss the graphs and share their insights with other farmers in their village, including any implications for their farming decisions and climate change adaptation strategies. To support the facilitation of these exchange meetings, the SLE provides some questions and graphs..

Climate Field School preparation

From 21 February to 16 March 2022 Dr Silke Stöber travelled to Burkina Faso and Senegal and met with the national coordinators Dr Alphonsine Ramdé-Tiendrebeogo and Prof. Aliou Guisse and partners. On 23 February 2022 a climate field school sensitization and planning meeting took place in Ouagadougou with ten partners from IRSS, Thomas Sankara University, DDEEVCC, SDEEVCC, ISMVSS, and agricultural services Zitenga. A similar meeting was held on 9 March at UCAD with students, Prof. Guisse and Dr O. Sarr.

Young men in Diofior chopping moringa pods to make goats feed

© Dr Silke Stöber

Two kinds of field research were decided on:
1. growth and productivity experiments with hibiscus, okra, moringa and baobab; and
2. a treatment study on how agroecological learning and co-research impacts the knowledge and behaviour of the women groups. A visit of the Burkina metrological office, discussions with video trainers, field trips to Boala, Nobandane and Diofior, and meeting the weather observers complemented the trip.

Prof Karantininis visits Burkina Faso & Senegal

Prof. Kostas Karantininis conducted a trip in May 2022, meeting and planning with our local partners Dr Alphonsine and Prof. Aliou Guisse.
Two PHD students have been selected for the NUTRiGREEN value chain research: Mr. Magloire Thiombiano from the University Thomas Sankara (UTS, Burkina Faso) and Mr. Dia Abourahim (UCAD, Senegal). Both are currently finalising their thesis proposals, while a 3-month visit to Sweden is being planned from January until March/April 2023.
Their PhD projects will focus on the value chain analysis in the corresponding countries. A basket scan and value chain survey is planned to begin after their return. Work has started to conceptualise and plan Living Labs in Burkina Faso and Senegal.

Household survey in Senegal

The household survey (HHS) comprises six sections, with a total of 61 questions, some with sub-questions. It was conducted to explore the food consumption patterns, including the production and consumption of traditional African plants, to understand their current status and future potential in the local agri-food system.

The HHS in Senegal was conducted between the 18 of February and the 2 of March 2022. Ten master students from the Université Cheikh Anta Diop of Dakar, led by Dr Oumar Sarr, interviewed 204 smallholders as representative for their own households in the administrative region of Fatick in Senegal.
A full report will be available on the NUTRiGREEN website. Key insights include:

The average age of the respondents was 50 years old, with three-quarters being full-time farmers and with 61% having no formal education. Incomes are low, with two-thirds of the respondents earning just up to 50,000 CFA (circa 75€) a month. Agricultural activities contribute to the income of the household of nearly all households.

The respondents had a average agricultural experience of 34.5 years and a average size of two hectares land available for cultivation. Half of the respondents produced field crops, 17% cultivated vegetables. The main cereals being produced in Senegal are millet (cultivated by 91%), sorghum (55%) and maize (25%). Main cash crops are peanuts (86%) and cowpeas (58%). Tomatoes (40%) and onions (33%) are the most common vegetables and hibiscus (49%) and mango (37%) the most prevalent fruits. The most traditional trees planted are moringa (68%) and baobab (27%). Over two-thirds of the respondents use traditional plants for medicinal purpose.

83% of the respondents do some form of processing, mainly cooking (80%), grinding (73%) or sorting their harvests (66%), before selling their produce. The biggest challenge stated by 60% of the responding farmers are the low prices, which they receive for their produce at the market, where over a three-quarter do sell their produce.

Close to all small-scale farmers interviewed stated that climate change has affected their agricultural production. They felt that day and night temperatures have increased, rainfall having decreased as well as dry periods, extremely hot days and intensified Harmattan winds have become more frequent. Adapting to these changes they try to implement better management and preservation of soils, by implementing cover crops, agroforestry, rotation of crops and causing minimum disruption of the soils, as well as mulching, installing windbreakers and planting in furrows.

Radio is by far the most crucial information sources of farmers, followed by neighbours and TV. Nearly all respondents (91%) own a cell phone, hence making it the best ways to reach them (by voice message or call), even if only 27% currently use social media.

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Get to know our students in the team

© Dr Ndiabou FAYE

Dr Ndiabou Faye

I am Ndiabou FAYE and I have a PhD in biology, physiology and vegetable pathology, with a focus on agroforestry, ecology and their applications. I am a temporary teacher at the Department of Plant Biology of the Cheikh Anta Diop University of Dakar (UCAD) and participate in the research activities of the plant ecology laboratory.
Within the framework of the "NUTRiGREEN" project, I am participating in the evaluation of the project's learning impact in Senegal, researching in Nobandane and Diofior.

© Awa Touré

Awa Touré

My name is Awa TOURÉ, I am a Master student in agroforestry, ecology and adaptation at UCAD. I finished a baccalaureate in 2016 at the Djignabo Bassène high school in Ziguinchor. Afterwards, I studied for my bachelor's degree in biology, chemistry and geosciences at UCAD.
I also did an internship in the biomedical laboratory at the Ziguinchor peace hospital, and a two-month internship at the plant protection department on market gardening techniques.
I am currently writing my thesis for the NUTRIGREEN project.

© Eric Sylvain Badji

Eric Sylvain Badji

My name is Eric Sylvain BADJI, I am 31 years old. I was born in the south of Senegal, in Ziguinchor, but my entire school career took place in the Sédhiou region.
Currently, I am a doctoral student at the laboratory of plant ecology and ecohydrology at UCAD in Dakar. My research focuses on the herbaceous stratum in the Ferlo region of northern Senegal. I am trying to highlight the dynamics of the herbaceous cover as a defence against pest, but also across a rainfall gradient.
I first joined the NUTRIGREEN project as a enumerator for the household survey. After the survey I was given the opportunity to train the women farmer in Nobandane and monitor the impact of the climate field school activities on their knowledge and adaptation strategies.

I am very happy to be part of this NUTRIGREEN adventure because in my opinion, this project is very important for women insofar as it allows them to be more resilient to the problems faced by organic market gardening. But also it allows them to improve their living conditions by providing them with healthy food and added value.

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© Robert Doulkom

Robert Doulkom

My name is Robert DOULKOM. I am a forester in Zitenga and I am continuing my Bachelor studies in environmental management.

The NUTRiGREEN project is supporting me in my studies, for a practical thesis, where I developed and conducted a fertiliser trial for the production of moringa and baobab. In detail, my study consists of comparative randomised block trial of moringa and baobab using two organic fertilizers: chicken droppings-based compost and liquid organic fertilizer and control. The objective is to improve the ecological production of these two plant species.

© Rehema Said

Saîd Chanfi Rehema

I am Saïd Chanfi REHEMA, a PhD student in plant biology with a major in agroforestry, ecology and adaptation at UCAD. I am writing my dissertation on the effect of organic fertilisation on traditional hibiscus species in Nobandane.
I am a part of the NUTRiGREEN project and the objective of my work was to assess the growth and productivity of hibiscus and also to teach the women of Nobandane how to take measurements as part of a research study.

Climate Field School - Burkina Faso

The climate field school in Burkina Faso was conducted by Robert Doulkom and Olivier Sawadogo as part of their license 3 thesis. Mr Doulkom tested the growth and productivity for baobab and moringa with three organic fertilizer treatments in a random-block trial setting.
First results of growth experiments show that the chicken droppings enriched fertiliser shows some better performance of growth and productivity in both plants.

Randomised field experiment in pots (moringa /baobab)

© Robert Doulkom

Mr. Sawadogo conducted a treatment study measuring the impact of training and co-research on agroecological knowledge and understanding of the women farmers working in the nutritive garden in Boala.

The 'Climate Field School' approach fosters the innovation potential of farmers by encouraging them to manage on-farm or garden research and investigate their most pressing research questions. Collectively, they conduct experiments and share their joint learnings.

Research is done not only about the growth and productivity about the chosen plants, but also how the farmers who manage the gardens increase their capacities through taking part in the field research with students.

Mr. Sawadogo -who was featured in our first newsletter- supported the climate field school in his work with the women farmers in the Boala nutritive garden.
First he assessed the training needs of the 31 female farmers through a survey, the results of which were presented at the Tropentag in Prag.
He then encouraged and supported the women farmers to measure a range of production parameters of the baobab and moringa plants in the garden. These included plant heights, branching, wet and dry weight of the harvests, that were measured in regular intervals.
Finally, Mr. Sawadogo conducted another survey to establish the normalised gain (n-gain*) of knowledge increase of the participants before and after the received trainings and conducted localised trials.

*The n-gain calculates the ratio of the average gain from a pre-test to a post-test to the maximum possible gain.

Two women farmer during video training in Boala

© Abel Yerbanga

Part of the climate field school were a range of trainings that the women's group received. First a training on how to use and document their research via smart phones from video trainer Abel Yerbanga.
The women farmers then participated in four additional trainings, conducted by the Sidbenewende Association of Ziniaré. The training topics included agro-ecosystem analysis, production techniques and use of bio-pesticides, simplified accounting and business management and nutrition.

Women group during training

© Sidbenewende Association of Ziniaré

During one of the trainings the women farmers learned how to make biopesticides at the local level. The basic ingredients are: neem leaves, chilli, tobacco & onions. Which have to all be crushed and mixed and then sit overnight. The next day the mixture it ready to be sprayed.

Poster at Tropentag

During Tropentag 2022 conference in Prague, we were able to present some of the results of the survey conducted by Oliver Sawadogo in Burkina Faso.

A link to the poster can be found on our website: https://www.sle-berlin.de/index.php/en/research/nutrigreen-en

Coordination and project management

Since March 2022, the NUTRiGREEN coordination team, consisting of Dr Alphonsine Ramde-Tiendrebeogo, Prof. Karantininis, Dr Silke Stöber and Dr Judith Henze, met once in 22. September 2022. Prof. Guisse could not attend.

Media coverage of the project

Dr Alphonsine Ramdé was interviewed for a podcast with LeMonde in Sept 2022: https://www.lemonde.fr/podcasts/article/2022/09/01/comment-reussir-a-nourrir-l-afrique_6139751_5463015.html

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