



Kingdom of the Netherlands



World Vegetable Center

# SafeVeg

**Making more safe and locally produced  
vegetables available for West African consumers**





Published by  
World Vegetable Center  
P.O. Box 42 Shanhua, Tainan 74199  
Taiwan

T : + 886 6 583-7801  
F : + 886 6 583- 0009  
E : info@worldveg.org

Website: worldveg.org  
Facebook: WorldVegetableCenter  
Twitter: @go\_vegetables

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SafeVeg is a partnership between the World Vegetable Center, Centre de coopération internationale en recherche agronomique pour le développement (CIRAD), Wageningen University & Research (WUR), and national partners: Institut National des Recherches Agricoles du Bénin (INRAB, Benin), Institut de l'Environnement et de Recherches Agricoles (INERA, Burkina Faso) and Institut d'Economie Rurale (IER, Mali).

Through its work packages, SafeVeg contributes to these outcomes:

- Increased vegetable consumption in West Africa.
- Increased use of agroecological farming and post-harvest practices to reduce the use of chemical inputs in vegetable production.
- Strengthened vegetable businesses by building trust between actors in the vegetable value chain.
- Evidence-basis strengthened for informed policies and interventions increasing vegetable production and consumption.
- Capacity building of national agricultural research systems in vegetable research and development.



SafeVeg is implemented by the World Vegetable Center in Benin, Burkina Faso and Mali, with WUR, CIRAD and national research and development partners INRAB, INERA and IER. SafeVeg is financed by the EU and the Government of the Netherlands.



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## SafeVeg West Africa

Safe locally produced vegetables for African consumers

Donor:

- European Union,
- Ministry of Foreign Affairs of the Kingdom of the Netherlands

Duration: 5 years (2020 - 2025)

Project location(s): Benin, Burkina Faso and Mali

Project manager: Dr Edmond Totin

The SafeVeg project which is the acronym for: «Safe Locally-Produced Vegetables for West Africa's Consumers (SafeVeg-West Africa) is an action developed within the framework of the European Union's initiative on Smart Innovation for Development and Climate through Agriculture (and Food Systems) Research in Developing Countries (DeSIRA). The project is implemented from November 2020 to October 2025 in three West African countries: Benin, Burkina Faso and Mali.

SafeVeg aims to reduce undernourishment, improve the income and productivity of small-scale food producers, particularly women and youth, and expand sustainable land use in Benin, Burkina Faso, and Mali. The project is based on the premise that promoting the role of vegetables in local food systems requires simultaneous interventions on both the supply and demand sides.

**The World Vegetable Center leads a consortium of several national and international partners, including Wageningen University & Research (WUR) and the Centre de coopération internationale en recherche agronomique pour le développement (CIRAD), and national partners: Institut National des Recherches Agricoles du Bénin (INRAB, Benin), Institut de l'Environnement et de Recherches Agricoles (INERA, Burkina Faso) and Institut d'Economie Rurale (IER, Mali).**

**The overall objective is to reduce undernourishment, improve the income and productivity of small-scale food producers, especially women and youth, and expand sustainable land use in Benin, Burkina Faso and Mali.**



**Activities and outcomes of the SafeVeg project in West Africa**



## The SafeVeg West Africa project is organized into 6 components

### Component 1:

Management and coordination

Led by World Vegetable Center

### Component 2:

Tools and policies to promote vegetable consumption

Led by Wageningen University & Research

### Component 3:

Production of healthy, climate-resilient vegetables and post-harvest practices.

Led by the Centre de Coopération Internationale en Recherche Agronomique pour le Développement

### Component 4:

Climate resilient vegetable varieties.

Led by World Vegetable Center

### Component 5:

Strengthening Vegetable Business Networks (VBN)

Led by World Vegetable Center

### Component 6:

Knowledge and evidence for policy development

Led by World Vegetable Center





# Benin

## A DELEGATION FROM THE DUTCH MINISTRY OF FOREIGN AFFAIRS VISITS ONE OF THE VBNS OF THE SAFEVEG PROJECT AT PORTO-NOVO (BENIN)

**In the early morning hours of Wednesday, 5 April 2023, a delegation of about ten officials from the Dutch Ministry of Foreign Affairs and some members of civil society visited Benin to monitor projects funded by the Dutch cooperation in Benin. At Porto-Novo, they went to the Center of local food valorization called CEVADEL-BENIN to verify the level of implementation of the Vegetable Business Networks (VBN) of the SafeVeg project**

The delegation was welcomed by the Manager of CEVADEL – Benin, located on the city's outskirts. He explained how his center functions and produces tomato puree, spice puree and other related products. A quick tour of the small production unit was made, and the packaging section was put to work to give visitors an idea of how the line work is organized. Helpful explanations were given on the size of the market, the taste of the consumers and the availability and quality of the raw material since CEVADEL Benin is the only aggregator of this Vegetable Business Network (VBN.)

The coach made available to this VBN by SafeVeg and the co-founder of the company explained in great detail how their VBN works, how business relations and trust are built between members of the same network but also and especially with external structures such as the decentralized Financial Services



which, thanks to the dynamism of the same coach, pre-financed the past tomato campaign at the rate of 500,000 CFA francs per producer.

CEVADEL Benin is a typical example of the VBNs that SafeVeg installs and operates throughout Benin through capacity-building sessions. At the end of a visit that lasted



more than an hour, the head of cooperation at the Netherlands Embassy in Benin and the head of the delegation said he was satisfied and even admired what they saw on the ground.

The implementation plan of work package 5 of the SafeVeg project is planned for 2025, During this period 70 VBN in Benin, 75 in Burkina Faso and 75 in Mali will be create and support.

## EU AMBASSADORS VISIT ONE OF SAFEVEG'S MANY VEGETABLE BUSINESS NETWORKS

**The SafeVeg Project takes the European Union Ambassadors to «Les Jardins de l'espoir», one of its flagship Vegetable Business Networks. This field visit was very much appreciated by the guests of the SafeVeg Project and is part of the activities scheduled to commemorate Europe Day in Benin**



In the early morning hours of Thursday, 11 May, their Excellencies the Head of the European Union Delegation in Benin, the Ambassador of the Netherlands, the Heads of the Belgian, German and French Cooperation, the Director of Cabinet of the Minister of Economy and Finance of Benin, the Deputy Director of Europe of the Ministry of Foreign Affairs and the delegations accompanying them were welcomed to the «Les Jardins de l'espoir» by the Regional Director of the World Vegetable Center.

Located in Abomey-Calavi, the garden named «Les Jardins de l'espoir» that SafeVeg has decided to promote was created in February 2015 to produce vegetables without chemical inputs, thus healthy and organic vegetables to satisfy the growing demand of urban and peri-urban residents where consumers only want organic vegetables.

The SafeVeg project coordinator took advantage of this high-level audience to present the SafeVeg project, which operates

in Benin, Burkina Faso and Mali, as an action developed within the framework of the European Union's initiative on intelligent innovation for development and climate through research in agriculture (and food systems) in developing countries.

From board to board and with rich explanations, the visitors went around the 1/3 hectare dedicated to the ecological production of vegetables and fruits.

Very impressed by what they saw and by the excellent work that SafeVeg is doing to convince farmers to produce healthier vegetables for increasingly demanding consumers, the ambassadors expressed their satisfaction with the efforts made to get away from conventional vegetable production relying on heavy use of chemical inputs in particular pesticides to grow healthy vegetables.

At the end of the visit, the Regional Director of the World Vegetable Center offered the diplomatic corps baskets of vegetables harvested in the area visited. The ambassadors and their suite were enthusiastic about this model garden outing.

An appointment has been made for a vegetable-tasting session soon.



## SIGNIFICANT STEPS TOWARDS THE PROFESSIONALIZATION OF THE SEED SECTOR IN BENIN

**Opening in Bohicon, a town located about a hundred kilometers from Cotonou, of the second capacity building session for the staff of seed companies on the production and marketing of quality vegetable seeds**

There are about thirty representatives of seed companies from all over Benin to participate in this second cycle of capacity building focused on creating and selecting varieties, Marketing, packaging and marketing of seeds, legislation national and sub-regional plans, financial management, etc.

After the opening ceremony, the Coordinator of the SafeVeg project, who acted in place of the Regional Director of the World Vegetable Center (WCA) unable to attend; the participants split into three working groups to facilitate the initial evaluation and the participants' expectations. Then, the overall plan for capacity building and the objectives of this second training session were presented.

The afternoon was devoted to reminders on modules 1, 2 and 3, provided almost 12 months ago and to the progress of module 5 on the Marketing of vegetable seeds.

This training session, which complemented the first and took place under the same conditions in Burkina Faso and Mali, is an initiative of the World Vegetable Center through its SafeVeg, BMZ-CGT and FRESH projects.

It is essential to point out that this capacity-building workshop is organized thanks to the support of The European Union and the Ministry of Foreign Affairs of the Kingdom of the Netherlands, which finances the SafeVeg project and the German Cooperation, without whom this capacity-building session would not have been possible.

The targeted goal is to professionalize the various actors

of the seed sub-sector of Benin and the sub-region.



## BENIN SEED GROWERS AND MARKET GARDENERS MEET IN THE FIELD

**Seed producers and the primary users of the fruits of their labour meet in the field. Some to verify the performance of their seeds in the agroecology of southern Benin, others to praise the quality of the seeds they buy and to express some grievances**



Market gardeners and seed producers met on a 4-hectare market garden plot to exchange ideas face-to-face without intermediaries. The perimeter where they meet has only been in operation for a few months. But the list of what grows here is long: tall nightshade, Vernonia, basil, carrots, cabbage, cucumber, eggplant. Participants in the capacity-building workshop for Benin's seed companies have come to meet regular consumers of their products, which they know only by name. But the real aim of the first stage of their visit was to get a feel for the realities on the ground, in particular, the conditions in which the seeds they sell are stored and handled before being sown.

An innovative and instructive visit that fulfilled the expectations of both parties.

A change of scenery a few kilometers further on. Representatives of the selected seed companies were expected to visit a seed sales boutique. Enthusiastic learners learnt how to put seeds on the shelves and other sales techniques, in fact, the practical phase of the theoretical courses they had received.

All in all, participants in this capacity-building

session for Benin's seed companies on producing and marketing quality seeds expressed their satisfaction with both the quality of the modules and the general atmosphere that prevailed during the four training days.

In a motion, they thanked the financial partners, notably the European Union, the Ministry of Foreign Affairs of the Kingdom of the Netherlands and the German Cooperation, without whom this capacity-building session would not have been possible.

A third training session on grafting techniques and seedling production will take place soon.





## FARMERS TELL OF IMMEDIATE BENEFITS FROM VEGETABLE BUSINESS NETWORKS IN BENIN

"With the support of our business coach, we have managed to get credit without a guaranteed deposit, collateral or proof of ability to re-pay," said Athanase Dangbenon from Goulossodji. "We then used part of this loan to build irrigation facilities and increased our off-season production."

Athanase is just one of the 5000 farmers who have benefitted from the implementation of vegetable business networks in Benin, Burkina Faso and Mali part of the SafeVeg project coordinated by the World Vegetable Center. After its second year of operation, some farmers share their perspectives on the initiative and how it has impacted them.

At Goulossodji, in Zê region, the project responded to farmers wanting to increase off-season production because farmers made a much better profit from their vegetables during that period. However, they had struggled to produce much because of the lack of irrigation facilities. As part of the vegetable business network activities, specialist coaches connected the group with a local bank that provided a loan of 16,808,200 XOF (about €25,000). With this, they were then able to install irrigation infrastructure that boosted yields – and profits!

The coaches also facilitated access to collective marketing outlets, and participating farmers can now aggregate their pepper harvest, for example, into bulk sales, which adds further profit to their vegetable businesses by spreading costs amongst the group. They also became more focused on the benefits of such collective marketing and selling efforts.

Athanase added that through this collective initiative, the group could now market much larger quantities of pepper and tomato than

would be possible individually. And he was so happy with the fruits of the projects after two years. "SafeVeg is a great initiative. Our coaches help us produce much, look for loans we can invest, and more remunerative outlets for collectively marketing our harvests."

Mathias Zannou, another farmer from the same vegetable business network from Zê, concurred. "SafeVeg has been of great help in this village. When the project started, we expressed our need for finance to invest in increasing our vegetable production. The project coach helped us assemble our financial plan, which we submitted to a local bank. And it was fully financed! Today, we produce more to better support our children's educational needs."



Mathias Zannou explaining to the project team the progress he has made with vegetable production

Vegetable business networks are offering a new avenue for producers, as Bienvenue Dayou noted, "Our network champion is constantly looking for new market outlets. And there is great news, that we have just signed a contract with a wholesaler to provide them with 500 kg of green pepper every week."

At Bamè, about 150 km from Cotonou, Thérèse Houessou explained that thanks to the new vegetable business network, farmers could sign agreements with large traders, which ensured them a better deal. Farmers also followed training modules on pest management, allowing them to improve yields through new management techniques. And she concluded that "the project has enabled us to move forward with off-season production".

These are just a few stories from a handful of five producers across the three project countries involved in these new vegetable business networks. And it is clear that the approach is practical and that farmers look forward to more coaching and collective benefits in the coming years.

*SafeVeg is implemented by the World Vegetable Center in Benin, Burkina Faso and Mali, in partnership with WUR and CIRAD, and the Institut National des Recherches Agricoles du Bénin (INRAB), Institut de l'Environnement et de Recherches Agricoles (INERA) in Burkina Faso, and the Institut d'Economie Rurale (IER) in Mali.*

*SafeVeg is financed by the EU and the government of the Netherlands.*



Athanase Dangbenon and Mathias Zannou showing part of the new irrigation infrastructure they have built with a loan they received from the bank



Some of the vegetable farmers from Bamè involved in the vegetable business network



# Burkina Faso

## COMPLETION OF THE SECOND CYCLE OF TRAINING FOR THE STAFF OF SEED COMPANIES IN BURKINA FASO

Opening on Monday, 17 April 2023, in Bobo-Dioulasso of the second cycle of capacity building for the staff of seed companies in Burkina Faso, a training session in which about thirty representatives of the said companies came from all over the country. It was a question during one week to complete the previous cycle by notions on marketing, management, quality assurance and regulation of seed companies.

The national fruit and vegetable center in Bobo-Dioulasso, the second largest city in Burkina Faso, hosted for four days a training session. As in an Amphitheatre, the thirty participants followed accelerated marketing, merchandising and packaging courses. They were very studious because they were eager to learn about these subjects, which are helpful for those wanting to develop their own businesses and the consultants, provide them with the various training modules.



**«These marketing and even packaging concepts are new to us, and we thank the SafeVeg project for deciding to strengthen our capacities.»**



The quality assurance modules, especially the one on regulations, were lively. Indeed, the trainer revisited the technical procedures used to test seeds and the legislative framework that governs the seed sector at the national, sub-regional and international levels before illustrating his remarks with practical cases.

In each course, participants were made aware of the need to convince their hierarchy to give a special place to vegetable seeds on their shelves and stop treating them as mere marketing products because the future of agriculture strongly depends on them.

Although weakly represented, the three women spokespersons of women working in seed companies in Burkina Faso have brought quality participation to this second training session of seed company staff in Burkina Faso which closed its doors on a note of general satisfaction and also messages of gratitude to the European Union and the Ministry of Foreign Affairs of the Kingdom of the Netherlands, financial partners of SafeVeg project.





## ENCOURAGING SEED COMPANIES TO INCLUDE MORE VEGETABLE SEEDS

**A team from the SafeVeg project in Burkina Faso made a plea to the general management of the seed company NAFASO. The aim was to convince the managers of this structure to give the importance they deserve to vegetable seeds**

During the training week for the staff of seed companies in Burkina Faso, the National Coordinator of the SafeVeg project and two of her collaborators met with the General Manager of NAFASO, one of the most important seed companies in the country. The objective of the meeting was to draw the company's CEO's attention to the importance of vegetable seeds. Indeed, the company Neema Agricole du Faso (NAFASO) is a Burkinabe company based in Bobo-Dioulasso and specializes in the production, marketing and distribution of improved seeds in Burkina Faso and the sub-region. The only problem is that NAFASO, despite its size, is only interested in cereal seeds such as rice and corn.

It is important to remember that African agriculture has always focused on a limited group of products that include food crops (cereals and pulses), oil crops (soybeans, groundnuts,

sunflowers) and industrial crops (coffee, cocoa, tea, oil palm and rubber). Vegetable crops, which are, among other things, necessary for nutritional security, employment and income generation, have yet to receive much attention.

The General manager of Nafaso group said he know the potential of vegetables and their importance in the food balance of Burkina Faso before assuring his host that a place of choice will now be given to vegetable seeds. The CEO welcomed the approach and promised to restructure the seed department of NAFASO, which will be diversify in the coming months.



Natacha Gouba Ouedraogo, National Coordinator of SafeVeg and Mr. Abdoulaye Sawadogo CEO of NAFASO



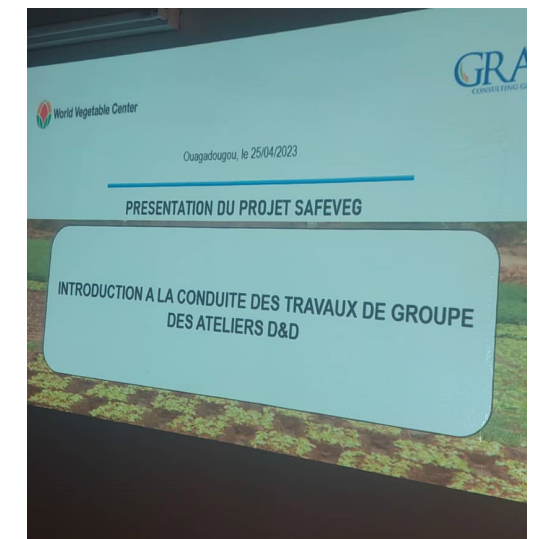
## DIAGNOSTIC AND DESIGN WORKSHOPS TO FOCUS ON THE ESTABLISHMENT OF VEGETABLE BUSINESS NETWORKS IN BURKINA FASO

***The Research and Action Group for Development has just identified 25 champions, which will revolve around as many networks of market gardening enterprises to be set up in different regions of this vast country, Burkina Faso. The Diagnostic and Design workshop in Ouagadougou, which opened on 24 April 2023, is dedicated to setting up the VBNs that will operate in this significant agglomeration where the demand for healthy, locally produced vegetables is immense***

The Ouagadougou Diagnostic and Design workshop was in a large meeting room with internal and external coaches, representatives of identified champions and input suppliers. This is the first of six seminars scheduled this year in Burkina Faso.

After the usual introductions, valuable explanations were given in Moore (the main language spoken in the country) to set the scene for this meeting better and especially reassure participants who seemed to be wondering what would happen. As a prelude, the participants were given a PowerPoint presentation of the Research and Action Group for Development and another of the SafeVeg project with the projection of a planisphere to allow everyone to locate the European Union and the Kingdom of the Netherlands geographically. The ins and outs of Vegetable Business Networks and the need to structure themselves in clusters have also been explained at length. The workshop could start in its didactic phase. Discussions in the form of questions and answers revolved around the functioning of the VBNs, the role of internal and external coaches, the provision of quality seeds, marketing, access to decentralized financial services and the need to renew the outdated working tools of some aggregators.

Overall, the Diagnostic and Design workshop in Ouagadougou allowed the actors present to get to know each other physically and, above all, to take measures of the issues and challenges at stake. After this frank success, the networks of market garden enterprises in Ouagadougou and its suburbs can now be considered installed and functional.



## RESTAURANT OWNERS AND STREET VENDORS IN OUAGADOUGOU BOOST LEAFY VEGETABLE CONSUMPTION

**The SafeVeg project's Component 2 campaign called «Eat more green leafy vegetables» is in full swing in the capital of Burkina Faso. Many consumers are adopting the slogan, which has become a trend and is even prompting the people of Burkina Faso to move from words to action. The general public in large urban areas is increasingly unanimous on the evidence that vegetables are rich in fiber, vitamins and minerals and have a favourable effect on preventing certain diseases such as cancer, cardiovascular disease, obesity, diabetes, etc**

We are in the suburbs of the Burkinabe capital at the home of a rice seller who participates in the project. Anne, 22 years old, helps her brother, the shop owner. Here, hot rice is served to passers-by at first light. Initially, the menu proposed is composed of white rice with peanut sauce. But recently, a place has been made for green leafy vegetables, and an offer is presented to consumers to balance their dishes.

A few kilometers later, we are welcomed at the «Goût du Café», a cafeteria on a

bustling street. But don't be mistaken. They don't only serve hot coffee. Most of Sylvie's (the owner) customers come here only to taste hot rice. Delicious rice with a particular flavor, according to the consumers interviewed. At the « Goût du Café » also, since the experiment launched by the SafeVeg project, vegetable sauces accompany and enrich the plates of steaming rice served to customers.

« I was sceptical when the project leaders approached me to participate in the initiative. Still, today I don't regret it because the vegetable offering has brought me new customers who have become loyal. When they order rice, and there is no more vegetable sauce, some don't eat it. Even those who were fans of peanut sauce or tomato sauce not long ago.»

**Sylvie , Cafeteria Manage**

The initiative of the SafeVeg project component 2 is making a difference in the daily eating habits of the inhabitants of Men of Integrity, the actual name of Upper Volta.





# Mali

## FOUR DAYS TO RAISE THE LEVEL OF STAFF OF SEED COMPANIES IN MALI

***Funded by the SafeVeg and BMZ Choose, Grow, Thrive (BMZ-CGT) project, this second capacity-building session, which complements the one organized in July 2022, aims to equip seed companies' staff to lift Mali's seed sector upwards. Seed companies are crucial in increasing smallholder farmers' productivity and achieving food and nutrition security. It is, therefore, useful to strengthen their capacities in many areas to become more professional and sustainable. This is the challenge that the SafeVeg and BMZ projects are trying to address in Mali. SafeVeg is funded by The European Union, the Ministry of Foreign Affairs of the Kingdom of the Netherlands, and BMZ-CGT, by German cooperation***

The World Vegetable Center conference room in Bamako housed, since Monday, 15 May 2023, the second training session for staff of seed companies in Mali on the theme of production and marketing of market garden seeds.

They were at least 32 representatives of companies and cooperatives of production and/or sale of vegetable seeds to have been carefully selected to follow this training session which registered an excellent level of representativeness of women.

After the solemn opening of the session by the Manager and Country Representative of the World Vegetable Center in Mali, Doctor John Rusagara Nzungize, with the representative of the Institute of Rural Economy and focal point of the SafeVeg project, Mohamed Dicko, the capacity-building part got off to a flying start with a succession of modules, each as animated as the other.

Creation and varietal selection, the inaugural module delivered with mastery by Dr Colette Ouédraogo, thrilled an audience very eager to know about the extraction of genes, the crossing of varieties and the latest scientific advances in the field. A visit to the center's greenhouses in the afternoon allowed these diligent learners to understand better some aspects of the theoretical teachings received by Dr Ouedraogo.

The same enthusiasm was noted the next day, Tuesday 16, with another expert practitioner who held the conference room spellbound from morning to early afternoon with his course on marketing principles applied to the seeds field. He even explained the concepts of packaging, the after-sales service, the technique of fixing prices, profit margin calculation and advertising techniques. The long debates fed in French and sometimes in Bambara, the local language, testified to the participants' interest.

Quality assurance and seed regulation is the subject of the penultimate module that Dr Dioncounda Traoré himself, head of the structure which deals at the national level with issues of seed regulation and quality assurance and which has agreed to come and make these boring notions that come under the law more accessible to our learners, who at the end of the course gave the speaker a standing ovation.

Management of a seed company was the last module taught by Dr Bandiougou Dembele, who knows how to convert into a language more accessible to an audience of neophytes' concepts such as the introduction to financial management, the profile of the good agricultural entrepreneur, the intricacies of the international seed trade, the analysis of national seed policies of Mali and so on, and the best.

In recent years, Mali has seen many entrepreneurs joining the seed sector to capture their juicy vegetable market share. Those selected and to whom I handed my microphone during this training were particularly noteworthy for their enthusiasm and vision. Helping these start-up companies become more professional, profitable and sustainable by providing them with the tools and knowledge to guarantee their growth is the main challenge that SafeVeg and BMZ have just taken up.



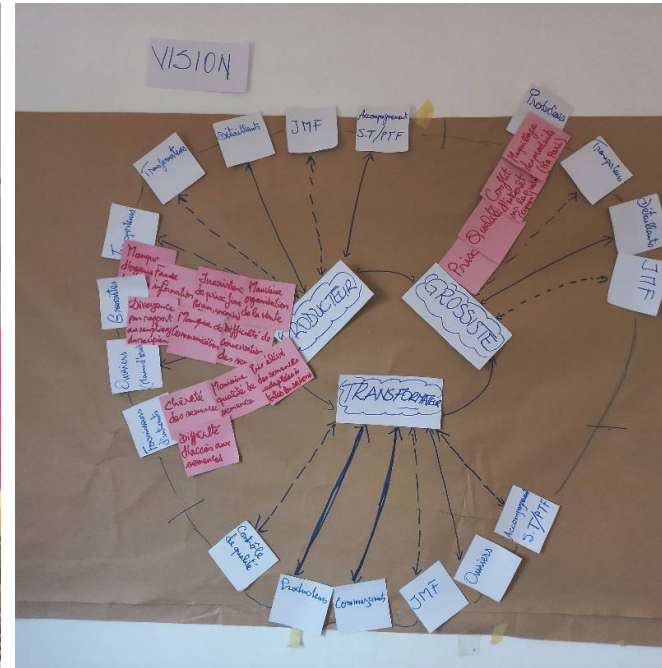




**DIAGNOSTIC AND DESIGN WORKSHOP  
OF THE VEGETABLE BUSINESS  
NETWORK IN MALI (Photo Album)**









## Next steps

Multi-location trials are ongoing to test the SafeVeg varieties under different Agro-ecologies.

Vegetable consumption tests, including labelling with vegetable farmers and trials with street food vendors, are also conducted in urban regions to stimulate safe vegetable demand.

Agroecological practices are being tested with small-scale farmers to reduce the use of chemical inputs in vegetable farming.

100 Vegetable Business Networks (VBN) are deployed to facilitate the scaling of proven innovations across the three countries (Benin, Burkina Faso and Mali).

120 new VBNs, including 50 in Burkina Faso, 50 in Mali and 20 in Benin, will be formed in 2024 to accelerate the scaling of SafeVeg technologies for improved vegetable demand in West Africa.

The advertisement features a woman in a light blue striped shirt smiling while using a smartphone. To her right is a basket overflowing with fresh vegetables, including corn, tomatoes, eggplants, and leafy greens. The background is a white, crinkled fabric.

**Jinukun store**

**Désormais fa  
votre marché e  
store.jinukun.com/**

**Li  
moins**

**Jinukun Store de la ferme à vos**

**Jinukunstore  
96550455  
60009250**



## SafeVeg published findings

## Vegetable food systems : A photo-essay

<https://avrdc.org/vegetable-food-systems-in-benin-a-photo-essay/>

... or this agroecological organic garden Les Jardins de l'Espoir saves and dries seed from different vegetables through the year for use in their small-scale organic commercial vegetable gardens.



It starts with a seed. This farmer near Grand Popo saved his onion seed from last year, and was about to plant it in between rows of tomatoes in a medium-scale commercial field...



Seed is technical and political as well as natural. My colleague Judith here is an okra breeder, she breeds improved varieties of okra that tolerate African climates and resist diseases across different local ecologies. Farmers can buy these seeds each year for better yields and tolerance of pests.

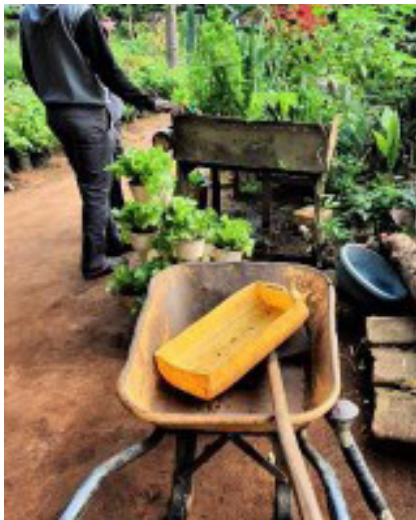


Improved seed tends to germinate more often than traditional seed... But these organic farmers see seed as their heritage, and say they would rather have seed sovereignty and control over their own seed, than higher yielding seed which they have to buy every year. Farmers have different perspectives about seed issues





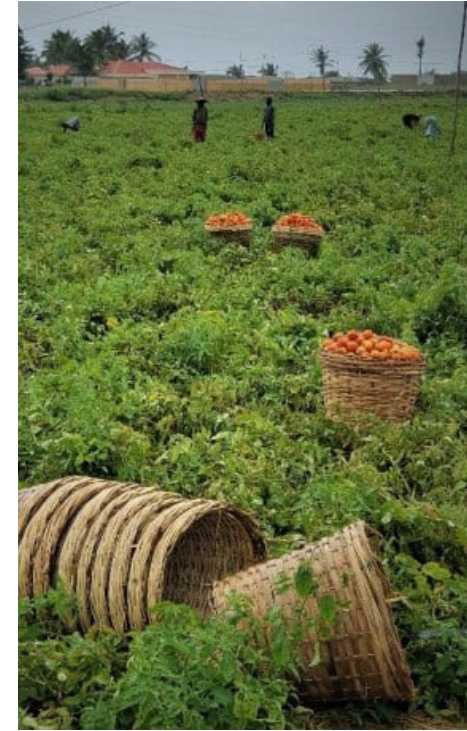
Some grow commercial organic agroecological gardens, mixing plants that bring beneficial bugs and ward off pests...



... and using hard labour to weed and compost, rather than use chemical sprays and fertilizers



Other farmers try out methods like staking their tomatoes to keep them off the ground to reduce pest damages and diseases ...



These are non-staked tomatoes, so many lay on the ground and are more susceptible to pests and diseases. So pesticide is used a lot, often more than recommended by manufacturers or extension services. So pesticide contamination (of food, and of workers) is a big problem. Some farmers say they have a separate garden where they grow food for their family without chemicals.



Some farmers may have access to irrigation...



But most farms here rely on the rainfall for water, and on poor and landless people for labour...





Weeding this carrot field is back-breaking work. A ten-hour day earns these workers around 4,000 FCFA, about 6.50 US dollars.



If the crop works, it needs to be harvested by hand. Pickers get around 400 FCFA per basket, about 0.65 US dollars. One picker can harvest 8-10 baskets in a day. In the holidays, parents might get their children to help, to bring in more baskets



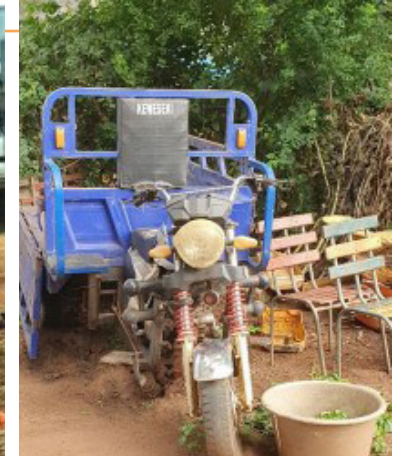
The baskets mount up by the side of the fields...



Then they need to be transported for sale. This could be on your head...



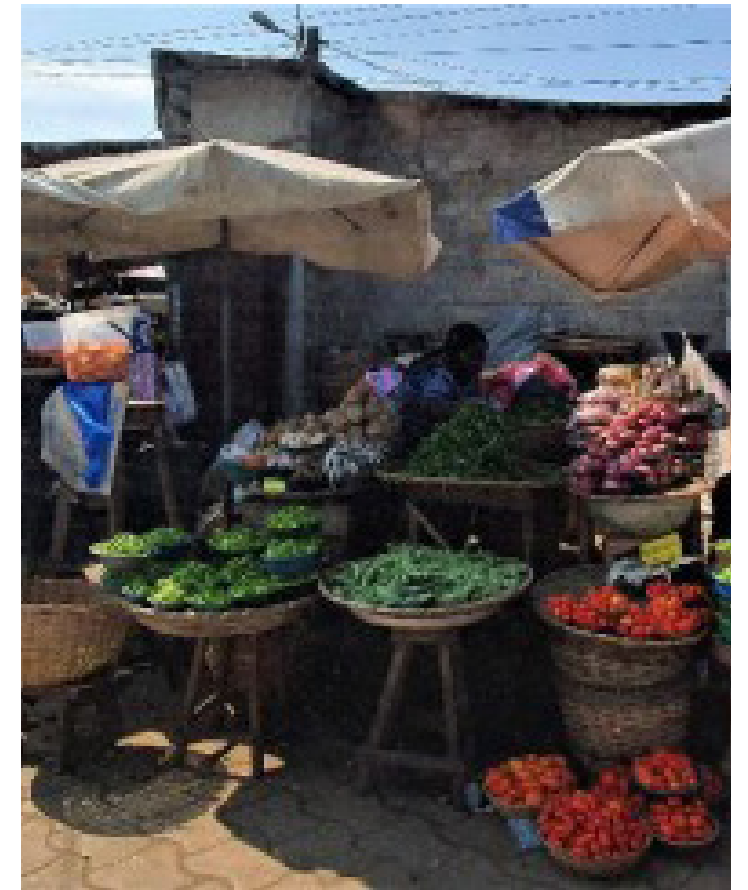
Or by motorbike...



Or in whatever this is...



Then the vegetables need to be sold. Here my colleague Aminata inspects the tomato crop as it waits by the side of the road to be picked up by traders.



Many people buy their vegetables from small vendors, who buy from the major wet-markets and bring vegetables closer to people at a small markup...





Beyond these traditional options, some emerging organic farmers markets, bringing produce direct from farmers to consumers...



Another option is supermarkets, which tend to come along with more packaging, and to be more expensive.



The aim of the farmers market is shorter value chains, meaning higher prices for farmers while making organic produce affordable for people, cutting out the middlemen (and saving on packaging and food miles, too)...



The ultimate aim is safety, quality and diversity: In the fields, and on the plate

## Why we eat what we eat: studying vegetable consumption in three African countries

<https://avrdc.org/safeveg-why-we-eat-what-we-eat/>

People talk a lot about food – what their next meal will be, the rising prices of goods, or how a particular food is 'making' them gain weight. While food is a popular topic of conversation regardless of culture or geographical location, we rarely dig deeper to understand behaviors and patterns of consumption that lead us to eat what we eat. For us working in the food, health, and agriculture space, it is crucial to gain context on people's attitudes towards food, specifically on fruits and vegetables, to better implement interventions to increase vegetable demand.

The World Food Organization recommends that a person consume 400 grams of fruits and vegetables every day. As part of the SAFEVEG Project, we conducted studies in Benin, Burkina Faso and Mali – three countries with very low consumption of fruits and vegetables – to find out the key factors that affect their daily food choices. We found that in Benin, people only eat about 96 grams of fruits and vegetables per day, while in Mali and Burkina Faso, people only consume 74 grams per day – far below recommended levels.

More than 1000 households in each country were interviewed and asked not only what and how much they eat but also where they buy their vegetables and whether they can afford them. Results show that in Bamako, for example, 88% of the consumers mainly purchased vegetables from the open 'wet' markets, with tomatoes and onions being the most popular. Although respondents said they were confident about their ability to judge the quality of vegetables, they were interested in knowing more about vegetable safety. They expressed serious concerns about the hygiene standards and pesticide residues on vegetables purchased from less reliable origins, such as peri-urban production areas. Meanwhile, households in Cotonou and Ouagadougou also share similar sentiments with those from Bamako. These findings will be further analysed to inform key stakeholders, such as policymakers, on trends and patterns in consumer behavior in the three countries and also test innovations that may 'nudge' consumers to consume more safe vegetables.



## Overuse of pesticides in vegetable production

<https://avrdc.org/overuse-of-pesticides-in-vegetable-production-in-benin/>



Clay application to manage soil texture and fertility

In Cotonou, the team started an experiment with street food vendors who increased the portion of green leafy vegetables on their menus. Do their clients appreciate it, and are they willing to pay a small extra amount for it? In Bamako, we will label the trustworthy origin of more safe vegetables and observe how customers of open 'wet' markets respond to such a label. Will they develop a preference for labeled, more safe vegetables, and will this result in more demand? Will the private sector experience the benefits and sustain the supply of more safe vegetables?

With these interventions, the team aspires to introduce innovations that can be adopted and scaled up by stakeholders in the food system, as they create added value or appeal to them. Moreover, the team intends to paint a clearer picture of food consumption in Benin, Burkina Faso, and Mali and have more evidence-based conversations on how to make vegetables more accessible and palatable to many consumers. By 2024, the results of these studies and experiments will be synthesized and presented to the public and private sectors to provide a basis for future decision-making on food policies and actions in these three countries.

### About the authors:

Amadou Sidibé, PhD, heads the research unit at the Department of Economics and Social Sciences at the Rural Polytechnical Institute for Training and Applied Research (IPR/IFRA) Katibougou in Mali. His expertise is in integrative analysis of rural development, technology studies, innovation processes and scaling, value chain, network and development studies. Dr Sidibé leads in-country strategic engagement and coordination for Workpackage2 of the SAFEVEG project.

Bart de Steenhuijsen Piters, PhD, is a senior scientist in food system transformation and ambassador for food and nutrition security at Wageningen University and Research. He has gained expertise over 35 years of research and advisory work in Sub-Saharan Africa. His areas of expertise include food and nutrition security, policy development, stakeholder participation, and the design of sustainable production and consumption chains. He is currently co-leading Workpackage2 of the SAFEVEG project.

CIRAD team leading the sustainable production component of the Safe Locally produced Vegetables for West Africa consumers (SAFEVEG) project conducted an analytical survey on vegetable production and postharvest systems in Benin. A total number of 428 farmers, which included 19.4% of women, were interviewed during the survey.

The study aimed to understand the major barriers and opportunities related to the production, storage, preservation and marketing of vegetables, assess farmers' knowledge and perceptions of agroecological practices, and identify on-farm innovations to reduce the increased use of synthetic pesticides and fertilizers and limit post-harvest losses.

A feedback workshop was organized with various stakeholders in Benin, to validate the emerging findings from the survey.

Pests and diseases, climate change, market price fluctuation, and the storage and

conservation of vegetable crops were the four major constraints reported by farmers. For instance, one pepper farmer interviewed at Karimama in Northern Benin during the survey said: "it is very difficult for me to manage pest and disease problems in my round pepper (habanero) field. Thus, I applied every pesticide my fellows advised me to get satisfaction". As such, farmers relied on hazardous pesticide utilization, especially in habanero pepper production, where farmers applied up to 48 times the pesticides during one production cycle ranging from 4 to 6 months. Although all farmers are aware of the negative impact of synthetic pesticides on human health, they keep using them because most lack alternative solutions. Fortunately, some farmers use repellent plants, crop rotation and intercropping as agroecological solutions. Some on-farm innovations, including clay application to improve soil texture and fertility in the North, and the use of fruit juices as biostimulants in the South, are good practices to promote.





Pesticides used to manage pests on habanero crops

Hence, the project team agreed that (1) capacity development on the integrated management of pests and diseases affecting vegetable crops, (2) awareness raising on pesticide compositions and their targeted pests and (3) scaling of good agricultural practices would enable safe vegetable production in West Africa.



Intercropping onion-habanero as agroecological practice to manage habanero pests

## Lessons learned in the implementation of Vegetable Business Networks in West Africa

<https://avrdc.org/104501-2/>

The project “Safe locally-produced vegetables for West Africa’s consumers” (SAFEVEG), funded by the European Union and the Ministry of Foreign Affairs of the Netherlands, aims to promote the supply and demand of safely produced vegetables in West Africa with the objective of sustainably improving livelihoods and nutrition. It is based on the recognition that just increasing the supply of vegetables is not enough to increase consumption. Vegetables should also be made more affordable, accessible and acceptable to consumers.

SAFEVEG is implementing the so-called Vegetable Business Networks (VBN) approach, which connects individual farmers, aggregators, processors, traders, and service providers to build and strengthen trust and enable sustainable and inclusive relationships. About 220 VBNs will be set up across Benin, Burkina Faso and Mali, the three partner countries of SAFEVEG.

The first batch of 20 VBNs was set up in September 2021 in Benin, and ten business coaches were selected to strengthen the business networks. A consortium of three NGOs is implementing the coaching and mentoring process aimed at strengthening technical as well as social learning capacities.

The process started with the selection of 20 business champions who expressed their interest in expanding their vegetable business. A detailed diagnosis was conducted to map the challenges and opportunities of business development. Through the diagnostic, an

impact trajectory with relevant indicators was designed to track change over time.

After the mapping, a Diagnosis and Design (D&D) workshop was organized with the key partners of each business network. The D&D workshop is a critical step of the process during which project team members interact with the business networks and help to design a portfolio of interventions that address the key business challenges.

During the D&D, partners define a vision for their business and design desired business model together with an action plan and



Tomato harvest (Benin, Sep 2022)

capacity development agenda. The capacity strengthening process comprises four Action-Learning Cycles and covers diverse topics, including best farming practices, post-harvest techniques, access to finance, and many more (management, marketing). The first Learning Cycle dealt with inclusive and trustful



relationships and business negotiation to stimulate long-term partnerships. The second cycle focused on business financing, and a joint module was designed with the support of the GIZ project – PROFINA.

After the first year of operation, the project team reflected on lessons learned to optimize the VBN process.

Although the scope of the VBN interventions was set with principles of the D&D workshop, some Champions showed interest in more



tangible support, such as credit and subsidies, which are not part of the SAFEVEG project agenda.

“A year after the implementation of the VBN approach in Benin, we see the need to keep

the process flexible to accommodate changes and address emerging needs in the network. It is also important for the support team to be proactive in building strategic alliances to meet expectations,” explains Edmond Totin, the SAFEVEG project coordinator.

“Coaches play a brokerage role in supporting the business network. Therefore, engaging experienced external coaches is valuable. Coaching differs slightly from a classical extension programme in which predefined capacity development modules are deployed. The coaching calls for a demand-driven capacity development agenda with the flexibility to include what the network needs and values. Such coaching support needs soft skills and proven experience in facilitation and mediation,” explains Toon Defoer, the VBN consultant.

The sustainability of the process is another critical element that needs careful planning right from the early stages of the process. In SAFEVEG, the external coaches work closely with internal coaches who are members of the business network members is to strengthen the capacity of internal coaches so that, gradually, they can take the lead in supporting the network.

## New disease resistant and market-preferred tomato varieties are developed in Benin for West Africa

<https://avrdc.org/new-disease-resistant-and-market-preferred-tomato-varieties-are-developed-in-benin/>

### Story and photos: Mathieu Ayenan | March 2023

Tomato is the most popular vegetable in West Africa. And more could be produced, if only we could overcome limitations, such as those of pests and diseases, heat stress, and post-harvest losses.

A particularly devastating problem is a tomato disease called bacterial wilt. In Benin, for example, bacterial wilt has caused tomato growers in many areas such as the Ouémé valley, to abandon tomato production completely. Something had to be done, but unfortunately, there are no effective phytosanitary control measures against this soil-borne disease, caused by the pathogen *Ralstonia solanacearum*. The development, testing and promotion of resistant varieties is considered to be the most efficient and environmentally friendly option.

To meet this need, WorldVeg and its partners the Institut National des Recherches Agricoles du Benin (INRAB), the Institut de l'Environnement et de Recherches Agricoles du Burkina Faso (INERA), the Institut d'Economie Rurale (IER), du Mali and the Direction de la Production Végétale (DPV) introduced 15 improved tomato varieties. Evaluation was undertaken jointly with farmers and seed producers.





Varieties were identified that had much improved resistance to bacterial wilt, and market-preferred traits such as high fruit firmness, longer shelf life, and a deep red color. Several bacterial wilt-resistant varieties even had a 100% survival rate, while all the plants of susceptible varieties died. These newly selected bacterial wilt-resistant lines raise the hope of resuming tomato production once again in areas where farmers had forsaken production, and also as part of wider efforts towards improving the safe and sustainable production of tomatoes in the whole of West Africa.



Tomato varieties resistant to bacterial wilt are clearly superior than susceptible ones (centre)

Tomato varieties resistant to bacterial wilt are clearly superior than susceptible ones (centre)

Selected varieties are now undergoing registration in the national catalog to make their seeds available and accessible to farmers. Variety registration is a prerequisite for the production and marketing of certified seed by local seed enterprises.

The anticipated impacts of the dissemination and adoption of the bacterial wilt-resistant varieties include improved tomato yields, expansion of tomato production areas, increased farmer incomes, and increased availability of tomatoes for all.

These positive outcomes have resulted from the 'Safe locally-produced vegetables for West Africa's consumers' (SAFEVEG) project, funded by the European Union and the Ministry of Foreign Affairs of the Netherlands. The project addresses demand and supply constraints in the vegetable sector in West Africa, and the activities and results reported here form part of the component that is identifying, introducing and promoting climate-resilient and disease resistant vegetable varieties and strengthening local seed systems.

**About the author** : Mathieu Ayanan is a Research Assistant at the World Vegetable Center and a specialist in plant breeding and seed systems. He is part of the SAFEVEG team, leading variety trials in Benin.





# Equity and equality in SafeVeg

<https://avrdc.org/download/project-support/safeveg/Equity-and-equality-in-SafeVeg.pdf>

Across the food system itself, we see inequalities along the lines of gender and other social groupings (for instance Indigenous peoples) in ownership and control of land and other productive assets; gendered pay and time use differentials; and different opportunities for participation across the value chain by small versus large farmholders (Land Quality Initiative Report).

**The unequal distribution in these outcomes and food system opportunities is not random but is underpinned by inequitable processes at the societal level that shape food and social systems,**

and ultimately shape outcomes differently for different people in different contexts (Nisbett Harris 2022). Inequalities are built on histories of the marginalization of certain countries, regions and populations – intergenerational inequities



from which it is difficult to break free – shaping opportunities in food systems, economies and societies (GNR 2020). In turn, food insecurity and malnutrition continue to contribute to precarious lives, disrupted livelihoods, and poor health (SOFI 2022). Thus, understanding how inequities in societies contribute to inequalities in food systems and ultimately in livelihood, food and nutrition outcomes is vital if these are to be addressed: **Food security, food system, and nutrition goals will not be met without addressing inequality and inequity.**



## How do we define inequity and inequality?

These are defined in the forthcoming **UN-CFS HLPE report** on inequality and inequity in the food system (2023):

“Inequalities can be understood broadly as differences between socially relevant groups, ie. differences in FSN outcomes or food system-related aspects (eg. land access) between individuals or groups. Inequality is understood here as an uneven distribution in an outcome, opportunity or resource. Which groups are socially relevant in terms of inequalities will vary by context, depending on which groups are most marginalized according to socio-political norms (this could be on a global scale, looking at marginalized countries, or a local scale, looking at marginalised communities).

**In many contexts marginalized groups include the poor, women, and the disabled; in different contexts there may be other socially-relevant differences based on**

**ethnicity, race, caste, religion, age, sexuality, or other issues of social position.**

Inequities, on the other hand, are the reasons for why this uneven distribution exists and accrues systematically to certain social groups, and therefore the unfair, unjust and avoidable differences in socio political, historical, cultural, social, and other driving factors that causes inequalities in FSN. For instance, the reasons why some countries are economically disadvantaged in the global order (eg. Colonialism), or the reasons why women have fewer opportunities to participate in some aspects of food systems (eg. Patriarchy), or the reasons why it is certain ethnic or indigenous groups that experience poorer FSN outcomes (eg. Racism), all of which have their basis in power relations and the marginalisation of certain groups.”

## Why equity and equality?

Globally, malnutrition in all its forms is the leading cause of poor health (GNR 2021) and food insecurity is rising (SOFI 2022). Poor quality diets are one of the leading causes of death and disability globally (GBD Diet Collaborators 2017): three billion people cannot afford to eat a healthy diet (SOFI 2022); and 63% of adolescents do not consume vegetables daily (FS Dashboard 2015). Importantly, not all populations are affected by these issues in the same ways: outcomes are unequal. Over time, food systems have made more and healthier foods available to some people – but others face increased difficulties in feeding themselves adequately, safely, and nutritiously (Global Panel 2016).

**Food security and nutrition (FSN) outcomes are unequal across regional and national boundaries**

(GNR 2021, SOFI 2022): Africa has the largest hunger prevalence at 20.2% of the population, compared to less than 2.5% in North America & Europe, for instance. **Inequalities do not end at national boundaries but are also evident among different populations within countries (GNR**

**2020):** Child stunting is far higher in rural communities globally (35.6% of children) than urban (25.6%) for instance, and achievement of minimum dietary diversity is higher when caregivers have secondary or higher education (22.4%) than primary or lower (14.8%).

## Why equity and equality in SafeVeg?

The following information is obtained from the **Food Systems Dashboard:**

**In West Africa, as elsewhere, inequalities are clear:** In Benin, 10% of adults are obese while 32% of children are stunted; in Burkina Faso, 6% of adults are obese while 20% of children are stunted; and in Mali, 9% of adults are obese while 22% of children are stunted. In Mali, 74% of the population are unable to afford a healthy diet, while in Burkina Faso it is 80% and in Benin 83%. The proportion of the population unable to come up with emergency funds in a crisis, a measure of resilience, stands at 15% in Burkina Faso, 19% in Benin, and 30% in Mali.





European union

Avenue Clozel, Bâtiment Administratif Face Ex  
Air Afrique, Ganhi 01 BP 910. Cotonou Bénin ;  
Téléphone. (+229) 21 31 26 17



Kingdom of the Netherlands

Ambassade des Pays-Bas  
Avenue Pape Jean Paul II  
derrière Tri Postal Boîte  
postale 08 BP 0783  
+22921304154  
+22921302139



Campus IITA-Benin  
Tri Postal 08 BP 0932 Cotonou , Benin  
(00229) 64 18 13 13 / 64 18 14 14



Droevendaalsesteeg 4, 6708 PB Wageningen,  
P.O. Box 9101, 6700 HB Wageningen  
The Netherlands.  
+31 317 480 100



04 BP 8645  
Boulevard des Tensoba Wam Gobi - Secteur 9  
Ouagadougou Burkina Faso  
Numéro de téléphone:  
(226) 25 34 71 12 / 25 34 02 70  
Fax: (226) 25 34 02 71  
Email: inera.direction@fasonet.bf



Centre de Montpellier  
Avenue Agropolis, 34398  
Montpellier Cedex 5. France  
+33 1 53 70 20 00 /  
+33 4 67 61 58 00



Godomey, Route de l'IITA,  
Abomey-Calavi-Bénin  
01BP 884, Cotonou  
Tél.: (229) 21 30 02 64 / 21 13 38  
70  
Fax : +229 21300723  
Website : www.inrab.org



Rue Mohamed V, BP 258, Bamako Mali  
NUMÉRO DE TÉLÉPHONE  
(223) 20 22 01 16 /20 22 26 06  
FAX 20 22 37 75  
SITE INTERNET <http://www.ier.ml>





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