

STRENGTHENING DEMAND FOR NEGLECTED AND UNDERUTILISED CROPS

A SUMMARY REPORT OF A WORKSHOP FOCUSED ON THE 'VISION FOR ADAPTED CROPS AND SOILS' INITIATIVE



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ABOUT GAIN

The Global Alliance for Improved Nutrition (GAIN) is a Swiss-based foundation launched at the UN in 2002 to tackle the human suffering caused by malnutrition. Working with governments, businesses and civil society, we aim to transform food systems so that they deliver more nutritious food for all people, especially the most vulnerable.

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SUMMARY

Overreliance on a few main crops, as well as poor soil health, reduce yields, hinder achievement of food security and nutrition objectives, and increase agricultural vulnerability to climate change. To address this, the Vision for Adapted Crops and Soils (VACS), launched by the United States in partnership with FAO and the African Union, and as part of the whole-of-government Feed the Future initiative, seeks to support soil health as well as breeding of traditional and indigenous crops in Africa. Building on U.S. government food security efforts, VACS' goal is to accelerate development of improved crop varieties that could lead to increases in both yield and nutrition, to tackle the challenges of food insecurity in the context of climate change.

To date, VACS has been largely focused on the supply side, on seed research and development. To convert this production potential into diverse diets and nourished populations, however, adaptation not just of crops and soils but also markets and consumer behaviour is required.

An online workshop by The Global Alliance for Improved Nutrition (GAIN) and The US State Department on February 7, 2024 convened researchers, development organisations, and implementing stakeholders in agriculture and nutrition sectors to discuss the role of consumer demand and value chain development in the success of VACS and reflect on two case studies that showcased different approaches to increasing the consumption of nutritious crops.

KEY MESSAGES

- VACS seeks to improve the consumption of neglected and underutilized crops, making demand-side research and interventions necessary to ensure its success.
- Localised food system analyses for VACS crop value chains and consumer perception studies are essential to identify context- and crop-specific opportunities and barriers along the value chains.
- Multisector coordination is key, as is alignment with national priorities.
- Strategies need to be developed to proactively address evolving demand dynamics.

This paper reports on the discussions and outcomes of this workshop. A key outcome of the workshop was proposing the establishment of a Community of Practice by VACS, which would organise monthly meetings on diverse topics to facilitate collaboration and knowledge-sharing among stakeholders.

BACKGROUND AND OBJECTIVE

While the world has over 50,000 edible plants, just nine of them account for two-thirds of food production, with the majority of global food energy intake coming from just three: wheat, maize, and rice (1,2). Overreliance on these few staple crops can lead to systemic vulnerability within the food system—especially in a future of climate change, when extreme weather is expected to cause increasing crop failures, reduced yields, and decreased micronutrient content in crops (3). In contrast, traditional food crops are often highly nutritious and adaptable to local conditions and erratic weather. Yet they suffer from insufficient investment in research that can make them more productive and commercially viable. At the same time, soils—upon which much of food production depends—in low- and middle-income countries (LMICs) worldwide are often degraded and continue to deteriorate. This leads to lower crop productivity (4–6).

The Vision for Adapted Crops and Soils (VACS), launched by the United States in partnership with FAO and the African Union, and as part of the whole-of-government Feed the Future initiative, has convened international public and private support to address both of these issues. It aims to change the conversation of better diets for all, good nutrition and food security, towards a return to the basics: stressing the fundamentals of good fertile soils and crops adapted to climate change.

Building on U.S. government food security efforts, VACS aims to accelerate development of improved crop varieties for a targeted set of nutritious, traditional food crops. This could lead to increases in yield and contribute to diversified diets rich in micronutrients, helping tackle the challenges of food insecurity and nutrition in the context of climate change. It also plans to increase access to knowledge about cropping and soil management practices.

VACS has identified about 60 traditional and indigenous crops in Africa with untapped potential to benefit from investment in plant breeding and agricultural technologies. The initiative has been largely focused on the supply side of the food system, i.e., on seed research and development. To convert this production potential into diverse diets and nourished populations, however, adaptation is needed not just for crops and soils but also markets and consumer behaviour.

Some common challenges to influencing food consumption include food availability, accessibility, and affordability. Even when target foods (such as fruits and vegetables) are available, accessible, and affordable, people often do not consume diverse varieties of sufficient quantities. This may be due to desirability factors that go beyond cost and availability and include perceptions, habits, time, preferences, seasonality, and food safety.

Change at a food system level requires overcoming entrenched practices of multiple stakeholders – not just farmers and consumers but also policymakers and other actors along the supply chain. For example, helping smallholders 'de-risk' their decision to diversify crops requires measures like financial support, insurance, and a secure supply chain for improved seeds.

OVERVIEW OF THE MEETING

Recognising these needs, the Global Alliance for Improved Nutrition (GAIN) and The United States Department of State (DoS) co-hosted an online workshop to bring together partners from the agriculture and nutrition sectors to discuss consumer demand and the value chain's role in the success of VACS.

The workshop set out to meet the following objectives:

1. Discuss the role of consumer demand in the success of VACS
2. Discuss case studies of demand creation through public procurement
3. Consider ways to encourage consumption of traditional and neglected indigenous vegetables via integrated value chains
4. Share thoughts on building delivery capacity around demand

The attendees of the workshop included a range of partners: government representatives; agriculture, nutrition, policy experts in the development sector; NGOs; and researchers. Geographically, representatives came from Africa, Asia, Europe, and the Americas. See Annex1 for the workshop agenda and attendees.

The following sections will outline key elements of the discussion that emerged over the course of the workshop.

CONSUMER'S ROLE IN DEMAND GENERATION

Consumer perspectives must be incorporated to make effective strategies for improving diets. These strategies could include entry points like targeting critical periods when dietary preferences and habits are being established (during pregnancy and early childhood), or are more open to change (adolescence); leveraging community and household platforms such as social assistance programmes and schools, as well as primary care interactions (e.g., prenatal visits); and combining a diversity of other approaches, including transfers, social and behaviour change communication, marketing, digital interventions, and home and community-based agricultural interventions. Different crop categories should be considered: those that are already popular and those needing demand improvement.

The form of consumption or variety of vegetables consumed maybe impacted by how well they complement staple foods in meals. Consumers may also have a preference for convenient food items, so consideration needs to be given to ease of food preparation – for example, several neglected and underutilised crops have a long cooking time (e.g., cowpea), and some have strong undesirable taste (for example many indigenous vegetables). Breeding and processing innovations are needed to address these issues.

Food quality and safety are concerns with fresh produce – including higher likelihood of decay leading to food loss and waste (as compared with legumes, for example), risks associated with agro-chemical pesticide and herbicide use, and water contaminated by microbiological pathogens. Helping smallholders 'de-risk' their decision to diversify crops requires measures like financial support, insurance, and a secure supply chain for improved seeds.

REGULATORY INITIATIVES

National food guidance and regulation can promote healthy, diverse choices for consumers as well as limit access to unhealthy processed foods. School food environments (inclusive of the private food vendors in and around schools) offer opportunities to influence more healthy food choices at district/local levels, where decision-making and enforcement of school food policies take place.

Other examples of supportive policies include:

- Ethiopia's Food-based Dietary Guidelines provide an example of multi-sectoral engagement with endorsement by Ministries of Health, Agriculture, and Education, including pledges on how the guidelines will be used in each sector to promote healthy diets. Tracking mechanisms ensure that the right kind of produce is reaching the consumer.
- Ethiopia's Productive Safety Net Programme is offering fresh food vouchers to drive demand and support local production and livelihoods.
- In Bangladesh, nationally mandated branding of biofortified zinc rice was critical in strengthening aggregation and procurement mechanisms.
- Other programmes linking social protection to production of nutritious, climate-resilient foods include the World Food Programme's Food for Assets, Homegrown School Feeding in Nigeria, and FRESH in Tanzania.

Workshop participants stressed that we also need ways to combine school feeding with community nutrition to reach pre-school age children (ages 2 - 5 y), as well as maintain policymakers' attention on the 'first 1000 days' target group (from conception to age 2 y).

DEMAND CREATION VIA PUBLIC PROCUREMENT – CASE STUDIES

School feeding programmes provide an important opportunity to impact child nutrition at scale and establish long-term improvements to dietary diversity (7). When food is purchased locally, an additional benefit is economic support for participating farmers. Two country case studies were highlighted in the workshop:

TANZANIA

In GAIN's recent work in Tanzania, government leadership was critical in changing the national school feeding guidelines to mandate inclusion of biofortified crops wherever possible. Through collaboration with local farmer cooperatives, private industry, and NGOs, this initiative helped link production and school consumption of biofortified beans and maize. It illustrated the necessity of ensuring effective interagency collaboration between relevant ministries, such as Health and Agriculture, in addition to Education— where the school feeding policy is set, potentially without decision-makers being fully informed about nutrition. Financing such initiatives at scale requires investment to establish steady and predictable supply and demand.¹

¹ The estimated cost to work with one school to ensure access to biofortified or VACS crops is close to 10,000 USD in Tanzania; each region in Tanzania has about 200 schools, which would amount to a total cost of about USD 2 million.

BANGLADESH

In Bangladesh, through intense advocacy and engagement with both public and private sectors, the Government mandated procurement of biofortified zinc rice for public distribution. This 'pull factor' attracted small- and medium-sized enterprises (SMEs) involved in milling and processing, both to service public procurement and to develop value-added products for the market, linking institutional pathways to commercial ones. As a result, over 300 SMEs in Bangladesh are now participating in the biofortified rice value chain. There are multiple channels of public procurement, from social protection programmes to other institutional clients (e.g., universities, hospitals, health centres, prisons, and the military).

It was stressed that stakeholders must identify key public procurement decision-making points to integrate fresh, diverse crops in social assistance programmes on a regular, large-scale basis.

EMOTIONS FORMING FOOD CHOICES

Emotions are important in food choices but often overlooked. Building demand for neglected and underutilised crops could tap into interest from communities on crops' climate resilience as complementary to nutritional value, especially for young people, for whom climate change is a core issue. Working with young people presents the opportunity for creative approaches to shifting demand, such as GAIN's 'pocket money pledge' in Bangladesh. Older women often influence household food consumption, and changing cooking habits can be difficult, since they are cultural. The discussion led to acknowledging that working with communities through schools or places of worship is required, to connect with consumers at a social level. In urban settings, supermarket buyers and larger formal retailers are important food decision-makers, but small vegetable retailers (e.g., 'mama mboga' street and market sellers in East Africa) are highly motivated to engage, with untapped potential and enthusiasm, but have traditionally been overlooked.

HARNESSING COMMERCIAL VALUE CHAINS

The workshop discussions also highlighted that integrated value chain work can help increase consumption of neglected and underutilised crops among the targeted low-income consumers. This essentially involves harnessing the farmer-retail-consumer value chain. GAIN's Vegetables for All project in Kenya is an example of doing this. The project draws on commercial literature, advertising, and choice science to design a brand and advertising campaign to promote nutritious vegetables. The approach targets emotional triggers, positions vegetables as desirable, and builds trust and motivation. It seeks to shift purchasing and consumption decisions of low-income consumers towards relatively affordable but under-consumed nutritious vegetables, in the face of multiple challenges like income affordability, time constraints, and accessibility.

The starting point for the Vegetables for All project was to establish a comprehensive understanding of the vegetable value chain (using systems modelling) and the attitudes of consumers (i.e., how they think and feel about food choices, what are the barriers, and emotional rewards to buying and preparing nutritious meals). This was

supported by educating consumers on preparing vegetable dishes, working closely with government at national and county levels to build an enabling environment of policies for vegetable promotion and food safety standards (as chemical residues, perishability, and handling are important), and supporting sourcing and distribution to last-mile retail by mama mbogas and the farmer producer organisations that supply the market. A paper on the systems approach has been published in *Public Health Nutrition* journal.

DECISIONS AND FUTURE PLANS

There was a strong agreement that VACS stakeholders need to consider the full range of entry points to influence demand, from policymaking through decisions at market, and from producers to the household level. Exploring the demand-side dynamics is important to ensure that the neglected and underutilised crops are consumed not just produced but also eaten. The workshop discussions also identified that VACS has an opportunity to proactively address demand in the context of shifting demographics, different food cultures, evolving consumer preferences and perceptions, and alterations in market/trade systems, especially of the VACS crops that have not been studied much. By understanding these changes, efforts can be strategically aligned on the supply side, ensuring tailored and effective approaches to meet future demands. As healthier foods are made more available, affordable, and convenient, VACS initiatives can be directed towards finding ways of changing perceptions and curbing or crowding out unhealthy foods.

The convening concluded that comprehensive food system analyses (in specific contexts) and consumer perception studies will be needed to identify the gaps and bottlenecks within the food supply chains of VACS crops. This can begin with evidence scoping and expert consultation to bring together what is already known and look at the full range of different possible entry points to influence demand. To collate and synthesise this information, the need an inventory of recent assessments and findings around nutritious foods (including VACS priority crops) was identified. This could possibly be done by engaging the African Nutrition Society for data collection and to synthesise contextual analyses. Working together, proactively leading, engaging, and linking with others are essential to achieve global nutrition and food security goals.

SUMMARY RECOMMENDATIONS:

1. Demand-side research and interventions (the 'pull') will be necessary to ensure the success of VACS.
2. Localised food system analyses for VACS crop value chains and consumer perception studies will be needed to identify context- and crop-specific opportunities and barriers along the value chains, the most promising entry points and approaches, and key stakeholders (both enablers and blockers).
3. It will be important to collate and synthesise existing information and evidence, along with expert consultation, to bring together what is already know from food and agriculture and other sectors (e.g., marketing, choice science).

4. Policymakers need to be targeted as critical actors to leverage regulation and public procurement towards consumption and align private-sector incentives with neglected crops. Multisector coordination is key, along with alignment with national priorities.
5. Now is the time to develop strategies to proactively address evolving demand dynamics – given the long-term horizon of crop development, changes must be anticipated.
6. VACS will set up a Community of Practice with monthly meetings covering different topics.

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6. US Department of States. The Vision for Adapted Crops and Soils (VACS) [Internet]. [cited 2024 Mar 15]. Available from: <https://www.state.gov/the-vision-for-adapted-crops-and-soils/>
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ANNEX 1: WORKSHOP AGENDA AND ATTENDEES**Agenda, Strengthening Demand for neglected and underutilised crops**

February 7, 2024

Time	Topic	Organisation	Speaker
8:00-8:05	Welcome and Opening Remarks	The Global Alliance for Improved Nutrition (GAIN)	Dr Lawrence Haddad, Executive Director
8:05-8:15	Brief introduction to VACS and progress to date	US State Department	Dr Cary Fowler, Special Envoy for Global Food Security
8:15-8:30	<i>Role of consumer demand in the success of VACS</i>	IFPRI	Dr Deanna Olney, Director, Nutrition, Diets, and Health
8:30-8:45	Discussants/Respondents		
8:45-9:00	<i>Linking VACS to national policy</i>	The Global Alliance for Improved Nutrition (GAIN)	Bharat Bangari, Senior Advisor, Nutrient Enriched Crops
9:00-9:15	Discussants/Respondents		
9:15-9:30	<i>Harnessing the farmer/retail/consumer value chain</i>	The Global Alliance for Improved Nutrition (GAIN)	Laura Wekesa, Marketing Advisor, Better Diets (Veg4All Kenya)
9:30-9:45	Discussants/Respondents		
9:45-10:00	<i>Next Steps: Building delivery capacity around demand</i>		

Workshop Attendees

Participant	Title	Organization
Alex Tung	Nutrition Advisor	Shamba Centre

Arlene Mitchell	Executive Director	Global Child Nutrition Foundation
Bharat Bangari (Speaker)	Lead, Nutrient Enriched Crops	GAIN
Michael J Bittrick	Senior Advisor	Department of State's Office of Global Food Security
Cary Fowler	Special Envoy for Global Food Security	Department of State's Office of Global Food Security
Colin Christensen	Global Policy Director	One Acre Fund
Corey Watts	Agricultural Advisor	Department of State's Office of Global Food Security
Deanna Olney (Speaker)	Director, Nutrition, Diets, and Health	IFPRI
Derek Headey	Senior Research Fellow	IFPRI
Dilys Sefakor Maccarthy	Associate Professor, Soil & Irrigation Research Centre	AgMip/University of Ghana
DJ Forza	Senior Officer, Partnerships	AGRA
Dr Jo Puri	Associate Vice-President - Strategy and Knowledge Department (SKD)	IFAD
Elijah Mwashanyeki	Head of Knowledge Transfer in Africa	East-West Seed
Eva Monterrosa	Programme Lead, Consumer Demand Generation	GAIN
Joseph L Forcherio	Foreign Affairs Officer	Department of State's Office of Global Food Security
Jeroen Rijniers	Senior Policy Advisor	Netherlands MoFA
Julia de Bruyn	Scientist – Healthy Diets	WorldVeg
Julia Sibiya	Acting Dean and Head of School of Agricultural, Earth and Environmental Sciences , Plant Breeding Discipline, President, African Plant Breeders Association (APBA), University of KwaZulu-Natal	African Orphan Crop Consortium (AOCC)
David Laborde	Director, Agrifood Economics Division	FAO
Laura Wekesa (Speaker)	Marketing Advisor, Better Diets	GAIN
Lawrence Haddad	Executive Director	GAIN

Lynnette Neufeld	Director of the FAO Food and Nutrition Division	FAO
Lysiane Lefebvre	Senior Policy Advisor	Shamba Centre
Marijke de Graaf	Senior Policy Advisor Food Security and Nutrition	Netherlands MFA
Bertha Mkandawire	Lead- Nutrition Sensitive Agriculture	AGRA
Namukolo Covic	Regional Director, East and Southern Africa (ESA), CGIAR, and ILRI Director General's Representative to Ethiopia, and CGIAR Country Convenor for Ethiopia.	CGIAR
Sammy Okita	Commercialisation Officer	AGRA
Tiffany Oliver	Jefferson Science Fellow	Department of State's Office of Global Food Security
Vieshnavi N Rattehalli	Foreign Affairs Officer	Department of State's Office of Global Food Security
Roseline Remans	Senior Scientist, Bioversity International	Agrobiodiversity Index
Roy Steiner	Senior Vice President, Food Initiative	Rockefeller Foundation
Saul Morris (Facilitator)	Director, Programme Services	GAIN
Simone A Passarelli	Policy Advisor	Department of State's Office of Global Food Security
Tom van Mourik	Global advisor, food systems	Helen Keller International
Vanessa Adams	CEO & Founder	Level 4 International
Catherine Gee	Head of Development Office	GAIN
Rosalia Kaluki Muia	Policy associate	GAIN

ANNEX 2: SUPPLEMENTARY RESOURCES

1. [Fruits and Vegetables for Sustainable and Healthy Diets \(FRESH\) CGIAR research initiative](#)
2. [Food Systems Dashboard](#) data on fruit and vegetable supply and consumption
3. [Harvest Plus: Crop Biofortification the pathway to scaling up](#)
4. Kaur S. Barriers to consumption of fruits and vegetables and strategies to overcome them in low- and middle-income countries: a narrative review. *Nutr Res Rev.* 2023 Dec;36(2):420-447. doi: [10.1017/S0954422422000166](#). Epub 2022 Aug 25. PMID: 36004512.
5. Helen Keller International research into consumer perceptions on nutritional value and decision making factors for purchase of nutrient dense foods in the market ([USAID Yalwa in Niger](#), [USAID Feed the Future Mali Sugu Yiriwa Activity](#))
6. Helen Keller International assessment of school food environments and consumer perceptions in Cambodia to understand student means and choices of healthy and (mostly purchased) unhealthy ultra-processed foods.
7. AUDA-NEPAD [Guidelines for the Design and Implementation of Home-Grown School Feeding Programmes in Africa](#) – school procurement to create a pull factor for production
8. [East West Seeds Farmer Extension Services](#) capacity building of smallholder farmers in Ghana, Nigeria, Tanzania, Uganda, India, Bangladesh, Myanmar, Cambodia, Indonesia and the Philippines.
9. Jaron Porciello, Notre Dame, evidence review on barriers, facilitators and interventions around VACS crops, due March 2024.
10. [School Feeding Program in Brazil](#)
11. Rockefeller Foundation experience of [shifting school meal programmes to fortified whole grains](#), showing school interventions combined with education and behavioural campaigns can be effective in changing preferences.
12. [Public procurement of biofortified Zinc Rice in Bangladesh with support from Government](#)
13. [Increasing the consumption of nutrient-dense foods through schools in Tanzania](#)
14. Global Child Nutrition Foundation [Surveys of School Meal Programs around the world](#)
15. [WFP and HKI improving school food environments in Cambodia](#)
16. [High consumption of unhealthy commercial foods and beverages tracks across the complementary feeding period in rural/peri-urban Cambodia](#)
17. [Pocket money pledge](#): an initiative aiming to promote healthy food practices in schools through a 'pocket money pledge' signed by over a million kids.
18. [Food Based Dietary Guidelines - Ethiopia](#)
19. [Fresh Food Voucher Pilot Program by WFP](#)
20. [WFP Home grown School Feeding Resource Framework](#)
21. [WFP Food for Assets Program](#)
22. [Homegrown School Feeding in Nigeria](#)
23. [Pension Program for the elderly in Mexico debit card which could be used for food](#)
24. [System dynamic modelling of vegetable consumption in Kenya](#)
25. WorldVeg communications platform [Shujaaz](#) stimulates demand for traditional vegetables among young people, including through a comic.
26. [Vegetables for All Kenya](#)
27. HKI Nigeria promotion of nutritious foods for young children using marketing approaches and committees for market actors

28. GAIN Working Paper Series 32 - How important are traditional retail outlets for sourcing healthy foods in Kenya and India