



联合国
粮食及
农业组织

Food and Agriculture
Organization of the
United Nations

Organisation des Nations
Unies pour l'alimentation
et l'agriculture

Продовольственная и
сельскохозяйственная организация
Объединенных Наций

Organización de las
Naciones Unidas para la
Alimentación y la Agricultura

منظمة
الغذية والزراعة
للأمم المتحدة

E

PROGRAMME COMMITTEE

Hundred and Thirty-seventh Session

Rome, 6-10 November 2023

Vision for Adapted Crops and Soils (VACS)

Queries on the substantive content of this document may be addressed to:

Ms Lynnette M Neufeld
Director, Food and Nutrition Division
Tel: +39 06 570 52614
Email: ESN-director@fao.org

Documents can be consulted at www.fao.org

EXECUTIVE SUMMARY

- Currently 1 in 5 people in Africa face chronic hunger, and by 2030 this may be as many as 310 million people.¹ Climate change will exacerbate this situation. Approximately 250 million people could face high water stress, and up to 700 million people could be displaced due to climate change and variability.²
- Revitalizing indigenous and traditional food crops (ITFCs) – many of which are highly nutritious – that currently are, or have been in the past, eaten regularly in Africa presents a critical opportunity. Many ITFCs may be better suited to tolerate hot and dry conditions, since they have been adapting to the local environment for thousands of years.
- To identify and mobilize ITFCs as part of agrifood systems transformation across Africa, the United States Department of State (USDoS) in collaboration with the United States Agency for International Development (USAID), and in partnership with the African Union (AU) and the Food and Agriculture Organization of the United Nations (FAO), launched the Vision for Adapted Crops and Soils (VACS) in January 2023.
- VACS is being implemented in three phases. Phase 1 (completed in May 2023) aimed to identify the most important crops for nutrition in Africa – across five subregions - through a consultative process involving a broad array of experts primarily based on the African continent. Phase 2 (ongoing) will assess (through modelling) how some of these crops will fare under climate change through the year 2050 across the five subregions of Africa. Phase 3 (beginning December 2023) will seek to mobilize resources to accelerate research, development and deployment for these crops. Ultimately, Phase 3 will deliver high-yielding, locally adapted varieties to farmers and consumers in an effort to improve food security and nutrition in the continent.

GUIDANCE SOUGHT FROM THE PROGRAMME COMMITTEE

- The Programme Committee is invited to take note of the progress made in the Vision on Adapted Crops and Soils (VACS) initiative as outlined in this document.

Draft Advice

The Committee:

- **noted with appreciation the potential of the Vision for Adapted Crops and Soils (VACS) initiative to address multiple global and national priorities simultaneously by identifying and fostering investment in, production, and consumption of nutritious crops as part of healthy diets while protecting natural resources and promoting biodiversity; and**
- **recognized that this initiative contributes to the realization of FAO's vision for its Strategy on Climate Change³ and the Vision for FAO's work in Nutrition⁴, thus exemplifying efforts across the *betters* of the FAO Strategic Framework 2022-31.**

¹ FAO, IFAD, UNICEF, WFP & WHO. 2023. The State of Food Security and Nutrition in the World 2023. FAO. <https://www.fao.org/documents/card/en/c/cc3017en>

² www.ipcc.ch/report/ar6/wg2/about/how-to-cite-this-report/

³ Agrifood systems are sustainable, inclusive, resilient and adaptive to climate change and its impacts and contribute to low-emission economies while providing sufficient, safe and nutritious foods for healthy diets, as well as other agricultural products and services, for present and future generations, leaving no one behind. <https://www.fao.org/3/cc2274en/cc2274en.pdf>

⁴ FAO's vision for nutrition is a world where all people are eating healthy diets from sustainable, inclusive and resilient agrifood systems ([PC 130/5 Rev.1](#))

I. Background and Mission of VACS

1. Currently 1 in 5 people in Africa face chronic hunger, and by 2030 this may be as many as 310 million people.⁵ Climate change will exacerbate this situation. Approximately 250 million people could face high water stress, and up to 700 million people could be displaced due to climate change and variability.⁶
2. Many factors contribute to these issues and a wide diversity of actions will be required to prevent and mitigate the impact of this situation on human and planetary health. Building more resilient agrifood systems, starting from soil health and crop selection, is a critical part of the needed transformations.
3. An important opportunity in this regard is revitalizing indigenous and traditional food crops (ITFCs) - many of which are highly nutritious - that currently are or have been in the past - eaten regularly in Africa. Many ITFCs may be better suited to tolerate hot and dry conditions, since they have been adapting to the local environment for thousands of years.⁷
4. Yet, most ITFCs in Africa have received little to no investment in plant breeding to improve their resilience, yield, or nutritional value, and lack promotional efforts to enhance their marketability and ultimately, consumption.
5. Moreover, agricultural policies have generally favored only a few crops - primarily staples such as maize, rice and wheat - to the detriment of bio- and ultimately food diversity. Thus, a true transformation of agrifood systems in Africa should begin with growing crops that can withstand more heat, less moisture, greater pest and disease pressure, and extreme weather events like droughts and floods, ensuring soil health to enable production of those crops while simultaneously favoring food security and nutrition.
6. To meet these challenges, the United States Department of State (USDoS) in collaboration with the United States Agency for International Development (USAID), and in partnership with the African Union (AU) and the Food and Agriculture Organization of the United Nations (FAO), launched the Vision for Adapted Crops and Soils (VACS) in January 2023.
7. The mission statement of VACS is: *To prepare our agrifood systems to deliver food security and improved nutrition, we need to understand how climate change will impact crops in Africa — especially the crops that are most important for a nutritious diet. We need to catalyze investments in plant breeding efforts in Africa to lay the groundwork for resilient, productive, and nutritious agrifood systems in the future.*
8. Notably, the vision of VACS is not only to focus on a small number of crops. While high priority, coined “opportunity crops” that are potentially climate resilient crops with high potential to contribute to healthy diets will be prioritized, a parallel aim is to raise awareness and garner support for investments in ITFCs, even beyond those prioritized through VACS.
9. FAO’s direct engagement in VACS offers Members and development partners in Africa an innovative way of strengthening agrifood systems transformation towards the achievement of the Sustainable Development Goals (SDGs) 1, 2, 3, 10, 12, 13, and 15.

II. Methodological approach and expected results

⁵ FAO, IFAD, UNICEF, WFP & WHO. 2023. The State of Food Security and Nutrition in the World 2023. FAO. <https://www.fao.org/documents/card/en/c/cc3017en>

⁶ www.ipcc.ch/report/ar6/wg2/about/how-to-cite-this-report/

⁷ Rudebjer, P. G., Meldrum, G., Padulosi, S., Hall, R., & Hermanowicz, E. (2014). Realizing the promise of neglected and underutilized species: Policy Brief. Rudebjer, P. G., Meldrum, G., Padulosi, S., Hall, R., & Hermanowicz, E. (2014). Realizing the promise of neglected and underutilized species: Policy Brief.

10. VACS is being implemented in three phases. Phase 1 aimed to identify the most important crops for nutrition in Africa – across five subregions - through a consultative process involving a broad array of experts primarily based on the African continent. Phase 2 will assess (through modelling) how some of these crops will fare under climate change through the year 2050 across the five subregions of Africa. Phase 3 will seek to mobilize resources to accelerate research, development and deployment for these crops. Ultimately, Phase 3 will deliver high-yielding, locally adapted varieties to farmers and consumers in an effort to improve food security and nutrition on the continent.

11. Phase 1 activities culminated in a Technical Workshop hosted by FAO on 18-19 May 2023, with two key objectives. First, the criteria for identification of priority crops were finalized and included nutritional value, climate adaptation potential, and relevance for diets across at least one of the 5 sub-regions on the continent. Second, the criteria were reviewed crop-by-crop to identify a priority of crops that should pass to phase 2. In the lead-up to the workshop a list of 174 ITFC were identified from a combination of literature review and informal expert consultation. FAO compiled food composition data including key nutrients such as energy, protein, fat, calcium, iron, zinc, vitamin A and folate as well as dietary fiber. The data were compiled from three sources: the FAO/INFOODS Food Composition Table for Western Africa (2019)⁸; the Kenya Food Composition Tables (2018)⁹; and the Priority Food Tree and Crop Food Composition Database (2019)¹⁰. Unfortunately, no food composition data was found for approximately one third of the crops, highlighting an important data gap that limits efforts such as VACS.

12. Based on the established criteria, 63 priority crops including several from each of six groups - cereals, roots/tubers, fruits, vegetables, legumes, and nuts/seeds/oilseeds – were selected to move to phase 2. Phase 2, in which the prioritized crops are being modelled to demonstrate climate resilience potential, is now underway and will culminate in an in-person workshop in November 2023.

13. The objectives of the VACS Phase 2 Technical Workshop are to 1) present and discuss the findings of climate modeling for an initial set of priority crops (less than the list of 63 given time constraints), and 2) apply these findings to inform a strategy for Phase 3. A diverse group of climate modelers, nutritionists, and agronomists will participate in this workshop hosted by the Rockefeller Foundation.

14. A variety of other activities are underway with the aim to support and enhance the communication related to VACS, and to prepare for phase 3. To name a few:

- a) exploring potential and gaining insights to enhance update and utilization: focus groups with key informants from governments, research institutions and other stakeholders across Africa to explore interest and opportunities for phase 3 (ongoing);
- b) balancing potential risks and benefits of drawing attention to crops commonly consumed in certain geographic areas/ population groups: case studies of potential scenarios for individual crops (e.g., fonio or scientifically *Digitaria exilis*) and how to balance awareness raising about the crops with the need to maintain accessible price and local availability (e.g., learning from the experience of quinoa) (ongoing);
- c) economic modelling to predict potential future production and consumption patterns in Africa under a variety of assumptions related to productivity and climate change, and considering plant breeding potential (ongoing); and
- d) identifying and eventually modelling potential impacts of the roll out of prioritized crops for indicators of diet quality (exploration and planning).

⁸ FAO/INFOODS Food Composition Table for Western Africa (2019). Rome, FAO. Available at <https://www.fao.org/infoods/infoods/tables-and-databases/faoinfoods-databases/en/>

⁹ FAO & Government of Kenya. 2018. Kenya Food Composition Tables [online]. Nairobi. Available at <https://www.fao.org/3/I8897EN/i8897en.pdf>

¹⁰ Priority Food Tree and Crop Food Composition Database: Excel data33base file. Version 1. 2019. Available at <https://apps.worldagroforestry.org/products/nutrition/index.php/home>

III. Governance structure and the role of FAO

15. A Steering Committee has been established, consisting of three institutional partners, namely the African Union (AU), the Food and Agriculture Organization of the United Nations (FAO), and the United States Department of State (USDoS) in collaboration with the United States Agency for International Development (USAID).

16. The United States Department of State (USDoS) collaborates with USAID at the strategic level, in promoting the VACS initiative, defining the work program for the technical work, with key deliverables, and clearing any official VACS publications. The inclusion of these three entities in the Steering Committee ensures coverage of three core functions (Table 1).

17. Table 1 Steering Committee of VACS

Partner	Specific role	Representative
African Union (AU)	Political process	Mr Godfrey Bahiigwa
Food and Agricultural organization of the United Nations (FAO)	Technical process	Mr Máximo Torero
Department of State of the United States Government (USDoS)	Leadership, coordination and resource mobilization	Mr Cary Fowler

18. To date, a core group including individuals from USDoS, FAO, AU, Rockefeller Foundation, The Agricultural Model Intercomparison and Improvement Project (AgMIP) and HAVOS Artificial Intelligence regularly review progress. Moving forward, FAO, through its work in the Steering Committee will propose a more formalized role for this group as a VACS technical committee. FAO considers the role of such a committee fundamental to advance the strategic direction as set by the Steering Committee, coordinates the work agenda of different subgroups and ensures the timely development of the various technical outputs.

19. To achieve its mission, VACS must be rooted in strong, robust, and transparent evidence. As such, VACS is working together with a number of knowledge partners to deliver state-of-the-art analyses at each phase, but also influence and develop new research agendas. Indeed, by their very nature, ITFCs are also understudied and new approaches are needed to address knowledge gaps.

20. VACS is intended as an inclusive effort, bringing together a variety of individuals and institutions with the common interest of achieving the potential of ITFCs for resilient agrifood systems that enable access to healthy diets. Several institutions are currently contributing to the VACS technical work: AgMIP, Columbia University, FAO and HAVOS AI. A large number of individual experts participated in the phase 1 and 2 workshops and/ or are part of three working groups – nutrition, economic modelling, and plant breeding.

21. Given the dynamic nature of VACS, several individual research or knowledge products are under development that will contribute to advancing the different phases of this work, but are not VACS publications per se. Only reports, policy briefs, and other documents, produced specifically on behalf of and endorsed by the VACS Steering Committee are recognized and labelled as VACS publications.