



# COMMITTEE ON AGRICULTURE

## Twenty-ninth Session

Rome, 30 September – 4 October 2024

### The potential of neglected and underutilized species (NUS) and crop adaptation to climate change

#### Executive Summary

Approximately 6 000 of the known 30 000 edible plants have been actively cultivated for human consumption. Of these, fewer than 30 species, of which only a handful are staple food crops, predominate. As the world contends with the challenges of sustainably feeding a growing population amidst escalating climate uncertainties, promoting the role of neglected and underutilized species (NUS) emerges as a critical opportunity to accelerate the transformation towards more sustainable agrifood systems. These species have adapted to diverse ecological niches, often in harsh and marginal environments, equipping them with physiological mechanisms to thrive under adverse conditions with minimal inputs. Traits, such as drought and salt tolerance, heat resistance, pest and disease resistance, and ecological interactions with beneficial soil-borne organisms, plus unique nutritional content, make NUS invaluable genetic resources for climate-resilient crop production. By harnessing the adaptive potential of NUS and integrating them into agrifood systems, farmers, value chain actors and countries can enhance their capacity to cope with climate change and ensure food security and nutrition for present and future generations.

Unfortunately, NUS have not received the required levels of attention by agricultural researchers, plant breeders, seed companies and policymakers. In recent years, however, there has been a resurgence of interest in NUS, as is evidenced through the various initiatives and programmes committed to promoting the conservation and sustainable use of NUS to address global challenges and build more resilient and sustainable agrifood systems. This discussion document builds upon the information document on *Neglected and underutilized crops species* presented to the 26th Session of the Committee on Agriculture (COAG) in 2018, and complements the document on *Rediscovering African foods: Promoting native foods for improved nutrition, health and food security* presented during the 33rd Session of the FAO Regional Conference for Africa, held in 2024, and also the awareness raised as a result of the International Year of Millets observed in 2023. This document highlights recent initiatives on the conservation and use of NUS, including the Vision for Adapted Crops and Soils (VACS), and summarizes areas for future focus, to ensure their potential is realized.

**Suggested action by the Committee:**

*The Committee is invited to:*

- a) *take note* of the potential contribution of NUS in the transformation to more resilient and sustainable agrifood systems;
- b) *provide guidance* on the promotion of NUS at national, regional, and global level, and on FAO's support to Members, including through the integration of NUS into the implementation of FAO's thematic strategies, such as the Strategy on Climate Change 2022–2031, the Strategy on Mainstreaming Biodiversity across Agricultural Sectors and the Science and Innovation Strategy;
- c) *encourage* Members to increase resilience and better adapt their agrifood systems to climate change through the integration and promotion of NUS into crop production systems; and
- d) *recommend* that Members and relevant stakeholders invest in the research and development of NUS and create enabling environments for the strengthening of value chains.

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

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## I. Introduction

1. The 2023 edition of the *State of Food Security and Nutrition in the World*<sup>1</sup> estimated that levels of global hunger remain high, with about 122 million more people facing hunger in 2022 than in 2019, prior to the COVID-19 pandemic. As the world contends with the challenges of sustainably feeding a growing population amidst escalating uncertainties, particularly with regards to climate, the role of neglected and underutilized crop species (NUS) emerges as a critical element contributing to sustainable agricultural development and agrifood systems transformation. Increasing farmers' access to a diverse suite of resilient, well-adapted, productive and nutrient-dense crops and varieties contributes to addressing the challenges impacting agrifood systems, including climate change, biodiversity loss and health crises.

2. NUS are plants with prospective value as crops, but which have not received the required levels of attention by agricultural researchers, plant breeders, seed companies and policymakers. NUS encompass a diverse array of plant species that have been historically marginalized in agrifood systems.<sup>2</sup> Typically, they are not traded as commodities and include cereals and pseudo-cereals, roots and tubers, fruits and nuts, vegetables, legumes, spices, condiments and food dye agents.<sup>3</sup> NUS include wild food plants, often cultivated in home gardens or collected from forests,<sup>4,5</sup> as well as local farmers' varieties/landraces, such as many minor millets, legumes and vegetables.<sup>6,7</sup>

3. NUS can play a pivotal role in crop adaptation to climate change. With the planet experiencing unprecedented shifts in temperature, erratic precipitation patterns, and extreme weather events, many crops face increasing vulnerabilities. In this context, NUS offer a sustainable solution, as many possess genetic traits that confer resilience to environmental stresses.<sup>8</sup> These species are adapted to diverse ecological niches, often in harsh and marginal environments, and equipped with adaptive mechanisms to thrive under adverse conditions. Many NUS have co-evolved with beneficial organisms in their respective environments that cycle nutrients and provide protection from pests and diseases. Traits, such as drought and salt tolerance, heat resistance, pest and disease resistance, and suitability to cultivation in a variety of soils, make NUS invaluable genetic resources for climate-resilient crop production.

4. Broadening the diversity of cultivated crop species contributes to FAO's Strategic Framework 2022-31 as endorsed by the 42nd Session of the FAO Conference in 2021,<sup>9</sup> which seeks the transformation to MORE efficient, inclusive, resilient and sustainable agrifood systems for *better production, better nutrition, a better environment and a better life*, leaving no one behind. By

<sup>1</sup> FAO, IFAD, UNICEF, WFP and WHO. 2023. *The State of Food Security and Nutrition in the World 2023*. Urbanization, agrifood systems transformation and healthy diets across the rural-urban continuum. Rome, FAO.

<sup>2</sup> FAO. 2024. *Compendium of forgotten foods in Africa – A companion publication for Integrating Africa's forgotten foods for better nutrition*. Accra. <https://openknowledge.fao.org/handle/20.500.14283/cc5044en>

<sup>3</sup> Li, X. and Siddique, K.H.M. 2018. *Future Smart Food - Rediscovering hidden treasures of neglected and underutilized species for Zero Hunger in Asia*, Bangkok, 242 pp.

<sup>4</sup> Pereira, L., Kushitor, S.B., Cramer, C. et al. 2022. *Leveraging the potential of wild food for healthy, sustainable, and equitable local food systems: learning from a transformation lab in the Western Cape region*. Sustainability Science. <https://link.springer.com/article/10.1007/s11625-022-01182-3>

<sup>5</sup> Freedman, R. L. 2015. *Indigenous wild food plants in home gardens: Improving health and income-with the assistance of agricultural extension*. International Journal of Agricultural Extension, 3(1), 63-71.

<sup>6</sup> Pudasaini, N. 2021. *Six farmer's varieties of neglected and underutilized crop species officially registered in Nepal*. <https://himalayancrops.org/2021/06/01/six-farmers-varieties-of-neglected-and-underutilized-crop-species-officially-registered-in-nepal/>

<sup>7</sup> Joshi, Bal & Shrestha, R. & Gauchan, Devendra & Shrestha, Anil. 2019. *Neglected, underutilized, and future smart crop species in Nepal*. Journal of Crop Improvement. 34. <https://www.tandfonline.com/doi/full/10.1080/15427528.2019.1703230>

<sup>8</sup> Chivenge, P., Mabhaudhi, T., Modi, A. T., & Mafongoya, P. 2015. *The potential role of neglected and underutilized crop species as future crops under water scarce conditions in Sub-Saharan Africa*. International journal of environmental research and public health, 12 (6), 5685-5711. <https://www.mdpi.com/1660-4601/12/6/5685>

<sup>9</sup> FAO. 2021. *Second Global Plan of Action for Plant Genetic Resources for Food and Agriculture*. Rome. <https://openknowledge.fao.org/handle/20.500.14283/i2624e>

harnessing the genetic diversity inherent in NUS, agrifood systems can enhance productivity while reducing reliance on external inputs and minimizing environmental impacts. FAO's Strategic Framework 2022-31 emphasizes the importance of adopting integrated approaches and solutions that enhance sustainability, resilience, and inclusivity. The conservation and sustainable use of NUS exemplify these principles, offering practical solutions to the complex challenges facing global agrifood systems. As such, the integration of NUS into agrifood systems contributes directly to the achievement of Sustainable Development Goal (SDG) 2 "end hunger, achieve food security and improved nutrition and promote sustainable agriculture". FAO's work on the climate change, biodiversity, and food security nexus, with a focus on scaling up agrifood systems solutions for more sustainable and inclusive development, is presented in a separate document to the 29th Session of COAG.<sup>10</sup>

5. Crop diversification is also aligned with the *Kunming-Montreal Global Biodiversity Framework (GBF)*,<sup>11</sup> which represents a critical milestone in global biodiversity conservation efforts. In this context, the importance of NUS is likely to gain increased recognition and attention. NUS contribute to the achievement of the Framework's goals by enhancing biodiversity, supporting ecosystem resilience, and promoting sustainable agriculture. By conserving and sustainably utilizing NUS, countries can contribute to the overarching objectives of the GBF, including halting biodiversity loss, restoring ecosystems, and promoting sustainable development.

6. This discussion document builds upon the information document on *Neglected and underutilized crops species* presented to COAG 26 in 2018<sup>12</sup> and complements the document on *Rediscovering African foods: Promoting native foods for improved nutrition, health and food security* presented during the 33<sup>rd</sup> FAO Regional Conference for Africa. This document highlights recent initiatives on the conservation and use of NUS, including the *Vision on Adapted Crops and Soils*,<sup>13</sup> and summarizes areas for future focus, to ensure the potential of NUS is realized.

## II. FAO's work in support of NUS

7. FAO supports Members in conserving plant genetic resources for food and agriculture (PGRFA), including NUS, and promoting their sustainable use to reduce hunger and poverty. However, implementations of FAO's thematic strategies, such as the Strategy on Climate Change 2022–2031,<sup>14</sup> the Strategy on Mainstreaming Biodiversity across Agricultural Sectors<sup>15</sup> and the Science and Innovation Strategy,<sup>16</sup> do not explicitly reference NUS.

8. The *Second Global Plan of Action for Plant Genetic Resources for Food and Agriculture* (Second GPA)<sup>17</sup> was developed under the aegis of the Commission on Genetic Resources for Food and Agriculture (Commission)<sup>18</sup> and adopted by the FAO Council in 2011. It is a framework, guide and catalyst for action at national, regional and international levels aimed at creating an efficient system for the conservation and sustainable use of PGRFA through better management, cooperation and coordination. In this context, FAO supports Members to:

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<sup>10</sup> COAG/2024/14 <https://www.fao.org/governing-bodies/technical-committees/committee-on-agriculture/coag-2024/>

<sup>11</sup> Convention on Biological Diversity (CBD) 2021-2022 *The Kunming-Montreal GBF* <https://www.cbd.int/gbf/>

<sup>12</sup> COAG/2018/INF/7 <https://openknowledge.fao.org/server/api/core/bitstreams/b5b34739-f864-4f24-b69b-e3885a834ed9/content>

<sup>13</sup> PC/137/INF/3 <https://openknowledge.fao.org/server/api/core/bitstreams/0c8e25e6-efdc-4a53-a30b-1b4df36942ff/content>

<sup>14</sup> FAO. 2022. FAO Strategy on Climate Change <https://openknowledge.fao.org/handle/20.500.14283/cc2274en>

<sup>15</sup> FAO. <https://www.fao.org/3/ca7722en/ca7722en.pdf>

<sup>16</sup> FAO. 2020. FAO Strategy on Mainstreaming Biodiversity across Agricultural Sectors. Rome. <https://doi.org/10.4060/ca7722en>

<sup>17</sup> FAO. Second Global Plan of Action for Plant Genetic Resources for Food and Agriculture <https://www.fao.org/4/i2624e/i2624e00.htm>

<sup>18</sup> FAO. CGRFA <https://www.fao.org/cgrfa/en>

- safeguard sources of traits through conserving, characterizing and documenting information on PGRFA diversity, including NUS, found *in situ* (natural habitats); managed on-farm and maintained *ex situ* (genebanks) with the aim of making available the full range of heritable variations that could be used in plant breeding;
- breed a diverse suite of progressively adapted crop varieties (with improved traits, production, harvest and post-harvest, nutritional content, palatability and suited to market demands and local recipes) and support their adoption; and
- enhance farmers' timely access to affordable quality seeds and planting materials.

9. FAO has developed guidelines to support Members in the conservation and sustainable use of wild PGRFA<sup>19</sup> and local crop diversity managed on-farm.<sup>20</sup> These guidelines aim to guide Members to develop National Plans for the conservation and sustainable use of these PGRFA. Many PGRFA, including NUS, are conserved in *ex situ* collections for future use by plant breeders and researchers. FAO provides support to Members to collect, conserve, regenerate, multiply, characterize, evaluate, document, and distribute crop germplasm. A series of practical guides for the application of the Genebank Standards for Plant Genetic Resources for Food and Agriculture<sup>21</sup> were published in 2022 for seed genebanks,<sup>22</sup> field genebanks<sup>23</sup> and *in vitro* genebanks.<sup>24</sup>

10. With a view to raising awareness and sharing knowledge on the conservation and on-farm management of PGRFA, FAO organized the *First International Multi-stakeholders' Symposium on Plant Genetic Resources for Food and Agriculture: Technical Consultation on in situ* conservation and on-farm management of PGRFA, held virtually in March 2021.<sup>25</sup> FAO also convened the *Global Conference on Green Development of Seed Industries*<sup>26</sup> as a virtual event in April 2021. The Conference included a review of the state of knowledge of crop diversity, including NUS, its conservation and availability, and its underpinning role in resilient and sustainable agrifood systems. This was followed by the *Global Conference on Sustainable Plant Production* in November 2022<sup>27</sup> and the *Global Conference on Sustainable Agricultural Mechanization*<sup>28</sup> in September 2023, both of which included seed systems. The COAG 28 and COFO 26 sessions, held in 2022, discussed a joint item on agriculture and forestry linkages and committed to strengthen collaboration on cross-sectoral matters, such as the scaling up of agroforestry. In November 2023, the 137<sup>th</sup> Session of the Programme Committee included an information item on *Vision on Adapted Crops and Soils (VACS)*<sup>29</sup> where the Programme Committee appreciated the progress made in advancing the VACS initiative.

<sup>19</sup> FAO. 2017. *Voluntary Guidelines for the Conservation and Sustainable Use of Crop Wild Relatives and Wild Food Plants*. Rome. <https://openknowledge.fao.org/handle/20.500.14283/i7788en>

<sup>20</sup> FAO. 2019. *Voluntary Guidelines for the Conservation and Sustainable Use of Farmers' Varieties/Landraces*. Rome. <https://openknowledge.fao.org/handle/20.500.14283/ca5601en>

<sup>21</sup> FAO. 2014. *Genebank Standards for Plant Genetic Resources for Food and Agriculture*. Rome. <https://openknowledge.fao.org/handle/20.500.14283/i3704e>

<sup>22</sup> FAO. 2022. *Practical guide for the application of the Genebank Standards for Plant Genetic Resources for Food and Agriculture: Conservation of orthodox seeds in seed genebanks*. Commission on Genetic Resources for Food and Agriculture. Rome. <https://openknowledge.fao.org/handle/20.500.14283/cc0021en>

<sup>23</sup> FAO. 2022. *Practical guide for the application of the Genebank Standards for Plant Genetic Resources for Food and Agriculture: Conservation in field genebanks*. Commission on Genetic Resources for Food and Agriculture. Rome. <https://openknowledge.fao.org/handle/20.500.14283/cc0023en>

<sup>24</sup> FAO. 2022. *Practical guide for the application of the Genebank Standards for Plant Genetic Resources for Food and Agriculture: Conservation via in vitro culture*. Commission on Genetic Resources for Food and Agriculture. Rome. <https://openknowledge.fao.org/handle/20.500.14283/cc0025en>

<sup>25</sup> FAO. 2022. *Proceedings of the First International Multi-stakeholder Symposium on Plant Genetic Resources for Food and Agriculture: Technical consultation on in situ* conservation and on-farm management of plant genetic resources for food and agriculture – 29–30 March 2021, Rome, Italy. Rome. <https://openknowledge.fao.org/handle/20.500.14283/cc3716en>

<sup>26</sup> Ruane, J., Mba, C. and Xia, J., eds. 2022. *Proceedings of the Global Conference on Green Development of Seed Industries* 4–5 November 2021. Rome, FAO. <https://openknowledge.fao.org/handle/20.500.14283/cc1220en>

<sup>27</sup> FAO. 2022. *Global Conference on Sustainable Plant Production* <https://www.fao.org/documents/card/en?details=cc2667en>

<sup>28</sup> FAO. 2023. *Global Conference on Sustainable Agricultural Mechanization* <https://www.fao.org/documents/card/en/c/CC9283EN>

<sup>29</sup> PC/137/INF/3 <https://openknowledge.fao.org/server/api/core/bitstreams/0c8e25e6-efdc-4a53-a30b-1b4df36942ff/content>

11. Support to Members is also provided through initiatives to conserve and promote the levels of crops diversity on-farm and in the wild that are being developed and implemented with assistance from the Global Environment Facility (GEF) in a number of countries.<sup>30</sup> These initiatives, *inter alia*, improve capacities of stakeholders in managing local crops and varieties, promote market-based incentive mechanisms, identify platforms for scaling successes up and out at the national level and promote enabling policy environments. The GEF-7 Dryland Sustainable Landscapes (DSL) Impact Program,<sup>31</sup> has been recently implemented to avoid, reduce, and reverse further degradation, desertification, and deforestation in drylands, through the sustainable management of production landscapes. Within this project, support is provided to six countries<sup>32</sup> to establish and strengthen community seed banks (CSBs) to operate as local innovation hubs that connect a range of activities and people to enable the discovery and use of crop diversity, with a particular focus on NUS.

12. The International Treaty on Plant Genetic Resources for Food and Agriculture (Treaty),<sup>33</sup> the major international agreement on PGRFA, aims to support its Contracting Parties to conserve, use and manage these resources. The Multilateral System (MLS) of Access and Benefit-sharing<sup>34</sup> of the Treaty provides systematic global mechanism to ensure regular and facilitated access to plant genetic resources by breeders and researchers, and a number of the Annex I crops under the MLS include NUS.<sup>35</sup> The Treaty also supports the conservation and sustainable use of NUS,<sup>36</sup> including through its Benefit-Sharing Fund (BSF).<sup>37</sup> The BSF Project – Fourth cycle (BSF-4) is currently funding a project in Bhutan that is specifically focussed on NUS.<sup>38</sup> Additional projects funded by the BSF-4 in other countries included, among their main objectives, the promotion of NUS.<sup>39</sup> In addition to these initiatives, a research project coordinated by the Treaty Secretariat included the development of a baseline study to inform strategies for the conservation and use of PGRFA.<sup>40</sup> This project, undertaken in collaboration with the Alliance of Bioversity International and the International Center for Tropical Agriculture (CIAT)<sup>41</sup> and the Crop Trust,<sup>42</sup> provided data on 355 crops, including NUS. The study comprised findings on the MLS as the primary global operational mechanism to exchange plant germplasm for research and breeding, while identifying gaps and possibilities to enable its growth.

### III. International initiatives to promote NUS

13. In recent years, the global community has increasingly recognized the importance of NUS in addressing food security, improving nutrition, and promoting agricultural biodiversity. Some examples include international days and years, dialogues and conferences, and global and regional initiatives directly related to the role of NUS for enhancing food security, including addressing issues related to climate change.

<sup>30</sup> Bolivia (Plurinational State of), Chile, China, Cuba, India, Indonesia, Mauritania, Mexico, Philippines and Tajikistan

<sup>31</sup> Project GCP/GLO/980/GFF; <https://www.fao.org/in-action/dryland-sustainable-landscapes/en>

<sup>32</sup> Angola, Botswana, Malawi, Namibia, United Republic of Tanzania and Zimbabwe

<sup>33</sup> International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA). <https://www.fao.org/plant-treaty/en/>

<sup>34</sup> FAO. 2021. *The Multilateral System of Access and Benefit-sharing* – Educational - Module IV. Rome.

<https://openknowledge.fao.org/handle/20.500.14283/cb7984en>

<sup>35</sup> FAO. 2024. Annex I: List of crops covered under the Multilateral System. Available from: <https://www.fao.org/plant-treaty/areas-of-work/the-multilateral-system/annex1/en/>. [Accessed 17 March 2024]

<sup>36</sup> IT/GB8-ACSU-Electronic Consultation 1/19/Inf 2

<sup>37</sup> International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA) Secretariat. 2022. *The Benefit-sharing Fund: 2020–2021 report*. Rome, FAO. <https://openknowledge.fao.org/handle/20.500.14283/cc2245en>

<sup>38</sup> ITPGRFA BSF-4 <https://www.fao.org/plant-treaty/areas-of-work/benefit-sharing-fund/projects-funded/bsf-details/en/c/1198870/?iso3=BTN>

<sup>39</sup> Albania, Ecuador, India, Malawi, Malaysia, Serbia and Uganda

<sup>40</sup> Khoury, C.K., Sotelo, S., Amariles, D. & Hawtin, G. 2023. *The plants that feed the world – Baseline data and metrics to inform strategies for the conservation and use of plant genetic resources for food and agriculture*. Rome, FAO. <https://openknowledge.fao.org/handle/20.500.14283/cc6876en>

<sup>41</sup> Alliance Bioversity & CIAT <https://alliancebioversityciat.org/>

<sup>42</sup> Crop Trust <https://www.croptrust.org/>

### A. *International Days and Years*

14. In order to raise awareness, direct policy attention and promote action, the United Nations (UN) designates specific days, weeks, years and decades to mark particular topics and promote awareness and action. These celebrations are declared by the UN General Assembly (UNGA) and are usually proposed by one or more Members. The following examples are particularly relevant to NUS:

- *World Pulses Day*.<sup>43</sup> The first World Pulses Day was held in February 2019 and has since been celebrated annually. It aims to support the production and consumption of pulses, many of which are NUS, as part of sustainable agrifood systems and healthy diets.
- *International Year of Fruits and Vegetables*<sup>44</sup> (IYFV). The IYFV was celebrated in 2021 to raise awareness of the important role of fruits and vegetables, including NUS, and emphasized their importance in the context of climate change and nutrition.<sup>45,46</sup>
- *International Year of Millets*<sup>47</sup> (IYM2023). Celebrated in 2023, millets (a group of small grain grass crops), many of which are NUS, are known to be resilient, as they can grow on arid lands with minimal inputs. The IYM2023 enhanced awareness of their suitability for cultivation under adverse and changing climatic conditions, as well as their nutritional value, and emphasized the need for direct policy attention.<sup>48</sup>

### B. *Dialogues and conferences*

15. FAO is a neutral broker facilitating multi-stakeholder partnerships in thematic areas. In this regard, FAO convened the *International Policy Dialogue on Future Smart Crops*, an initiative designed to unlock the potential of NUS, in January 2024 in Nepal. This event, launched by the FAO Director-General,<sup>49</sup> brought together stakeholders to share best practices, discuss policy hurdles, and create partnerships for a future where NUS significantly contribute to enhancing food security. In his opening remarks, Dr Qu Dongyu emphasized that underutilized crop species hold huge potential for a more inclusive, sustainable and climate-resilient future.

16. In February 2024, the International Center for Agricultural Research in the Dry Areas hosted the *Conference on Innovations for Sustainable Production of Neglected and Underutilized Crop Species in MENA Region*.<sup>50</sup> This event convened policymakers, researchers, scientists, extensionists, and students from research centres, universities, and national and international organizations, contributing to the sustainable transformation of dryland agrifood systems. The importance of NUS was underscored as presenting opportunities for improving agricultural sustainability and dietary diversity. Constraints to their widespread adoption were also highlighted, including limited knowledge and awareness, market access, seed availability, science-based recommendations, and research support.

<sup>43</sup> World Pulses Day <https://www.fao.org/world-pulses-day/en>

<sup>44</sup> International Year of Fruits and Vegetables <https://www.fao.org/fruits-vegetables-2021/en/>

<sup>45</sup> FAO. 2020. *Fruit and vegetables – your dietary essentials*. The International Year of Fruits and Vegetables, 2021, background paper. Rome. <https://openknowledge.fao.org/handle/20.500.14283/cb2395en>

<sup>46</sup> FAO and CIRAD. 2021. *Fruit and vegetables – Opportunities and challenges for small-scale sustainable farming*. Rome. <https://openknowledge.fao.org/handle/20.500.14283/cb2395en>

<sup>47</sup> International Year of Millets.2023 <https://www.fao.org/millets-2023/en>

<sup>48</sup> FAO. 2023. *Unleashing the potential of millets – International Year of Millets 2023*. Background paper. Rome. <https://openknowledge.fao.org/handle/20.500.14283/cc7484en>

<sup>49</sup> FAO.2024 <https://www.fao.org/director-general/news/details/Launch-of-International-Policy-Dialogue-on-Future-Smart-Crops-in-Nepal/en>

<sup>50</sup> ICARDA.2024 <https://www.icarda.org/media/news/conference-innovations-sustainable-production-neglected-and-underutilized-crop-species>

### C. One Country One Priority Product Initiative

17. The One Country One Priority Product Initiative (OCOP)<sup>51</sup> is a five-year programme that was launched by FAO in September 2021 to promote Special Agricultural Products (SAPs) at global, regional and local levels. These SAPs have unique qualities and special characteristics that can contribute to the transformation to more efficient, inclusive, resilient and sustainable agrifood systems. The OCOP has been launched in all FAO Regions. Since its inception, over 85 Members from all FAO Regions have expressed their interest in promoting the development of over 55 SAPs. Over 20 countries are promoting NUS as their SAPs, including amaranth (Mexico), jackfruit (Bangladesh), quinoa (Bhutan and the Plurinational State of Bolivia), and teff (Ethiopia), among others.<sup>52</sup> The OCOP Secretariat is working with FAO Members, development partners, research institutions, universities, farmers' associations and cooperatives, civil society and the private sector to scale up efforts and impact.

### D. Initiatives at regional level: NUS in Africa

18. The *Vision for Adapted Crops and Soils* (VACS)<sup>53</sup> is part of Feed the Future, the global hunger and food security initiative of the Government of the United States of America. It was launched in February 2023 and is a partnership with the African Union, FAO and the United States Department of State, in collaboration with the United States Agency for International Development.<sup>54</sup> VACS represents a collaborative effort to enhance agricultural productivity and resilience in the face of climate change. Central to VACS is the recognition of the importance of NUS in adapting to changing environmental conditions and promoting sustainable agriculture. VACS aims to leverage the genetic diversity present in NUS to develop climate-resilient crop varieties and improve soil health. Through research, breeding programmes, and capacity building, VACS seeks to unlock the potential of NUS to address global challenges, such as food insecurity and environmental degradation. Progress in this initiative includes the selection of 63 priority crops including several from each of six groups – cereals, roots/tubers, fruits, vegetables, legumes, and nuts/seeds/oilseeds.

19. In November 2023, a workshop was convened to develop an informed list, based on climate modelling, of the most important traditional and nutritious African crops that show significant resilience to climate change.<sup>55</sup> The *African Orphan Crops Consortium* (AOCC),<sup>56</sup> an international effort focusing on improving the nutritional value and productivity of NUS, has been active for over a decade. The AOCC aims to enhance the value and visibility of these crops, improving food security, nutrition, and livelihoods across Africa. Since its establishment in 2013, the Consortium has trained 161 crop scientists across Africa through the *African Plant Breeding Academy*,<sup>57</sup> resulting in the development of 143 improved varieties of orphan crop<sup>58</sup> plant cultivars with the potential to enhance food security in sub-Saharan Africa. The AOCC has recently partnered with FAO through a Letter of Agreement to hold a workshop to highlight its approach and successes, and to explore the applicability of the AOCC model to other regions. The workshop is scheduled to be held in association with the graduation of the African Plant Breeding Academy (AfPBA) CRISPR<sup>59</sup> class in Nairobi in October 2024.

## IV. Conclusions and next steps

20. The potential of NUS to bolster crop production under climate change scenarios is immense. In recent years, there has been a resurgence of interest in NUS, as is evidenced through various initiatives and programmes committed to promoting the conservation and sustainable use of NUS to

<sup>51</sup> OCOP 2021-2025 <https://www.fao.org/one-country-one-priority-product/en>

<sup>52</sup> OCOP 2021-2025 <https://www.fao.org/one-country-one-priority-product/ocop-countries/list-of-saps/en>

<sup>53</sup> Vision for Adapted Crops and Soils <https://www.state.gov/the-vision-for-adapted-crops-and-soils>

<sup>54</sup> PC 137/INF/3, paragraph 6

<sup>55</sup> VACS Technical Workshop.2023 <https://www.state.gov/vacs-phase-ii-technical-workshop-fact-sheet/>

<sup>56</sup> African Orphan Crops Consortium <https://africanorphancrops.org/>

<sup>57</sup> African Plant Breeding Academy <https://pba.ucdavis.edu/afpba-course-plant-breeders>

<sup>58</sup> Orphan crops is another term for neglected and underutilized crop species.

<sup>59</sup> Clustered regularly interspaced short palindromic repeats (CRISPR)



address global challenges and build more resilient and sustainable agrifood systems. By harnessing the adaptive potential of NUS and integrating them into agrifood systems, Members can enhance their capacity to cope with climate change and ensure food security for present and future generations.

21. Despite the resurgence of interest in NUS, a number of issues still persist, hampering their widespread adoption and use. It is evident that perceptions about NUS must change in order for their cultivation and consumption to increase. Additionally, human and institutional capacities must be strengthened to conduct the critically needed research and development activities to improve them and strengthen their value chains. It is recommended that NUS, given their relevance, will be considered when FAO thematic strategies are reviewed and updated. Furthermore, in order to ensure that the potential of NUS is realized, it will be necessary to focus on the following:

- **Enhanced Research and Development:** invest in research and development initiatives focused on NUS, including breeding programmes, trait discovery, and agronomic research, to unlock their full potential for crop adaptation and food security and nutrition.
- **Capacity-Building and Knowledge Sharing:** strengthen capacity-building initiatives and knowledge exchange platforms to enhance awareness and understanding of the value of NUS among stakeholders and empower them to integrate NUS into agrifood systems.
- **Policy Development and Implementation:** advocate for the integration of NUS conservation and use strategies into national agricultural policies, ensuring that supportive regulatory frameworks are in place to facilitate access to genetic resources and promote equitable benefit-sharing arrangements, as well as support to producers and value chain development.
- **Scaling Up Best Practices:** scale up successful experiences and best practices in NUS conservation and use, disseminating knowledge and lessons learned to empower stakeholders and catalyse positive change in agrifood systems.
- **Promotion of Farmer-Led Initiatives:** support farmer-led initiatives for the conservation and use of NUS, recognizing the importance of traditional knowledge and indigenous practices in preserving genetic diversity and promoting agricultural resilience.
- **Promotion of decent jobs for input suppliers, service providers and value chain actors** through market driven demand for foods and derived products from NUS.
- **Promote self-sufficiency at national, regional and global levels** by incorporating NUS into favoured food products, especially in urban markets, making them attractive to youth; and
- **Monitoring and Evaluation:** establish monitoring and evaluation mechanisms to track progress in NUS conservation and use, assess the impact of interventions, and identify areas for improvement.