



**Food and Agriculture
Organization of the
United Nations**



**International Treaty
on Plant Genetic Resources
for Food and Agriculture**

Item 16 of the Provisional Agenda

TENTH SESSION OF THE GOVERNING BODY

Rome, Italy, 20–24 November 2023

**White paper on Mainstreaming Global Crop Conservation Strategies in Plant
Treaty Processes**

Executive Summary

At its ninth session, the Governing Body recommended the Crop Trust, through Resolution 12/2022 to further enhance its collaboration and complementarity with the International Treaty on scientific and technical matters, in particular in the area of Crop Conservation Strategies; in this context it invited the Crop Trust to make available this White Paper, when finalized, to enable the Governing Body to provide policy guidance at its Tenth Session. This document contains the white paper on Global Crop Conservation Strategies developed by Global Crop Diversity Trust.

1. Introduction and background

The Governing Body of the International Treaty of Plant Genetic Resources for Food and Agriculture (henceforth referred to the Plant Treaty), at its eighth session, called upon the Crop Trust to further enhance its collaboration with the Plant Treaty on scientific and technical matters and, specifically, “*invites the Crop Trust, subject to the availability of resources, to expand cooperation with the Secretary to elaborate a dynamic system for developing, implementing and updating Crop Conservation Strategies, with a view to enhancing their use by Contracting Parties and relevant stakeholders, as practical tools to realize the implementation of the International Treaty*” (FAO 2019).

In response to the above resolution and with financial support from the German Federal Ministry of Food and Agriculture (BMEL) within the framework of a project titled “Breathing new life into the Global Crop Conservation Strategies”, the Crop Trust developed an opinion paper (Dulloo and Khoury 2022) describing options for further developing, updating, and implementing Global Crop Conservation Strategies (GCCS). The opinion paper identified how improvements to the GCCS process may help make global conservation and use of PGRFA more effective and efficient, and proposed ways to create stronger links between the GCCS and the supporting mechanisms of the Plant Treaty and its Multilateral System.

At its ninth session, the Governing Body recommended the Crop Trust, through Resolution 12/2022 (para.13) to further enhance its collaboration and complementarity with the International Treaty on scientific and technical matters, in particular in the area of Crop Conservation Strategies; in this context it invited the Crop Trust to make available the White Paper, when finalized, to enable the Governing Body to provide policy guidance at its Tenth Session. The Governing Body included the following milestone for this Session within its Multi-Year Programme of Work (MYPOW): strengthening information-based decision-making in PGRFA management: results of two new global analysis. The White Paper is one of the two global analyses mentioned in the MYPOW.

A follow-up project titled “Mainstreaming the Global Crop Conservation Strategies in Plant Treaty Processes,” also funded by the BMEL and led by the Crop Trust in close collaboration with the Secretariat of the Plant Treaty, prepared this white paper. This synthesizes the opinion paper and incorporates inputs from additional consultations with PGRFA stakeholders, with specific focus on describing options that are likely to strengthen the relevance and impact of the GCCS, including in Plant Treaty processes.

In its report to the tenth session of the Governing Body, the Crop Trust summarized several activities of the Mainstreaming the Global Crop Conservation Strategies in Plant Treaty Processes project, including: (i) a baseline survey regarding awareness of the GCCS among the delegates in the intersessional bodies of the Plant Treaty, (ii) a literature review and interviews with key stakeholders to identify entry points for the GCCS with regard to the Plant Treaty's main areas of work, (iii) a meta-analysis of published GCCS, (iv) the preparation of summaries of the GCCS tailored to Plant Treaty stakeholders, and (v) consultations with representatives of international organizations on possible options for the governance, development, and implementation of the GCCS. The report stated that “*The outcome of these activities are being summarized in a white paper with key recommendations for enhancing the use of the GCCS as sources of evidence for the further development and implementation of the Plant Treaty. The white paper will be submitted to the Secretariat of the Treaty as one of the information documents to be considered by the delegates attending the tenth session of its Governing Body.*” (FAO 2023).

2. Global Crop Conservation Strategies (GCCS)

The development of the GCCS for over 60 food crops and a wide diversity of forage crop species over the past two decades¹ represents a major step forward in understanding the current status of conservation and use of different genepools of PGRFA globally. The GCCS represent unique processes and products in their aim to compile, generate, and analyze information on the conservation and use of individual crops' PGRFA, including providing sufficient detail and specific recommendations to enable informed decision-making

¹ The published GCCS are currently available at: www.croptrust.org/pgrfa-hub/ex-situ-conservation-strategies/

toward improvements in this status. While they are meant to broadly report the state of conservation and use of PGRFA for a given crop, GCCS also prioritize actions, activities, and actors based on attributes such as urgency and long-term impact.

The GCCS acknowledge that the current status of PGRFA conservation and use is not optimal, typically recognizing both the need to increase actions in many technical areas (e.g., often regarding regeneration or safety duplication of unique germplasm), and also to reduce or redirect others (e.g., to reduce excessive duplication of germplasm among collections). The combination of these recommendations is important in the ongoing context of limited financial and other resources available for PGRFA conservation and use, and thus the pragmatic need for a more effective and efficient global system (FAO 1996).

Scope of GCCS: In line with the mandate of the Crop Trust on *ex situ* conservation and given their primary leadership in developing the strategies, the GCCS processes have historically mainly focused on *ex situ* conservation status and needs. However, several of the more recent strategies have included extensive sections on *in situ* conservation and on farm management of PGRFA. Recent strategies have also placed more emphasis on the status of use of PGRFA, perhaps in acknowledgement of the rapid advances in recent years in genetics and genomics, phenomics, and the generation and use of digital sequence information, as well as their application to plant breeding for many crops. The inclusion of these additional elements likely adds considerable value to the GCCS as holistic PGRFA conservation-use strategies, but also increases their complexity and production costs, including needing to engage a greater number and diversity of stakeholders and data sources in the process. If the GCCS continue to aim toward greater comprehensiveness in scope, focusing on information most pertinent to a strategy (i.e. how to further increase particular aspects of conservation or use of PGRFA) will be important to their effectiveness.

Format of GCCS: The mixed-methods approach of the GCCS - incorporating information from multiple sources including expert surveys, global databases, the published literature, and stakeholder meetings - represents a robust, and perhaps the best, current means by which to comprehensively compile the global state of knowledge on the status and needs of PGRFA conservation and use. The mobilization of a large crop-specific stakeholder community through the GCCS process is of particular value, not only leading to more thorough strategies but also facilitating the relationships requisite to implementing any resulting recommendations involving collaboration. The tradeoff is that GCCS processes have tended to take a long time (often more than one year) and be relatively costly in terms of contributions of time by the PGRFA community and funding (\$100,000 per strategy, on average) to produce, potentially limiting their timeliness, readership, and, ultimately, uptake.

More concise and dynamic (i.e. online) versions of the GCCS may be advisable, perhaps especially for updates, as much of the background information included may not require regular revision. Such concise versions should be focused on priorities and recommendations and could also include standardized metrics useful to quickly monitor the status of PGRFA conservation and use and to compare these metrics across crops. Draft concise versions with key metrics are currently under production by the Crop Trust for consideration by Plant Treaty stakeholders.

The degree to which existing global information systems, such as Genesys PGR, WIEWS, and the Plant Treaty's Data Store and other components of the Global Information System for PGRFA (GLIS), may be integrated into GCCS processes, so that current conservation and use information is rapidly compiled at the crop level and available for review, is certainly worth investigation and trialing. This said, the GCCS produced to date provide evidence that a comprehensive, up-to-date account of PGRFA status necessitates stakeholder surveys or other methods to supplement existing databases, as these are not yet comprehensive of all pertinent institutions and their data is not always current. It is also worth considering how GCCS processes could better complement these databases as they continue to improve, including the potential for the information presented in the strategies to be incorporated within the databases. This would likely be technically challenging and require modifications to the current agreed scope of these online systems (FAO 2021).

Timing of GCCS: Given the substantial amount of time and financial resources required to produce and update the strategies in their current format, a realistic aspiration would be an update every five to ten years. If more concise formats were successfully developed, updates could also in theory occur more frequently, even continuously. The periodic development of a comprehensive strategy over a longer period (e.g. every 10 years), with more limited and concise updates produced much more regularly (e.g., every two to three years),

might be a useful compromise. In selecting which crops with existing strategies should be updated, and in what order, consideration should be given to age, relative completeness, and the availability of new information. Based on such criteria, Williams and Drummond (2020) showed that among 26 GCCS produced to that date, ten could be identified as most in need of updating (five strategies that were already in the process of being updated were excluded a priori from the analysis).

The timing of GCCS publication could be planned to maximize impact within international PGRFA reporting and planning processes such as FAO's State of the World's Plant Genetic Resources for Food and Agriculture Reports and accompanying Global Plans of Action, Plant Treaty implementation milestones such as meetings of the Governing Body, and updates to the United Nations Sustainable Development Goals (SDGs) and the Convention on Biological Diversity (e.g., the Global Biodiversity framework). Most of these processes occur approximately every decade, although Governing Body meetings are more frequent. Given the large number of GCCS that would need to be updated to have current versions for all crops, even concise/summary versions, such an extensive updating process would need to be carefully planned, with plenty of lead time and strong connections to the intended users of GCCS information.

Priority crops for future GCCS: A total of 44 GCCS have been published, covering around 60 crops. Out of 35 food crops or crop groups listed in Annex 1 of the Plant Treaty, 31 now have published GCCS. Strategies for one pulse (pigeonpea) and three vegetable crops (asparagus, beet, and carrot) remain to be developed. Historically, discussions on crops and their contributions to food security have tended to focus on energy dense staple cereals, pulses, and roots and tubers, and these crops are well reflected in Annex 1 and in the GCCS completed thus far. More recently, the essential contributions of vegetables and other crop groups such as fruits and nuts to food and nutrition security have been more widely recognized. Preparing GCCS for the remaining Annex 1 crops would thus be fitting and timely.

Two global forage crop strategies have been developed. The tropical and subtropical forages strategy attempts to cover all forages in those environments. Regarding temperate forages, of the 29 forage genera included in Annex 1, 17 are covered by this GCCS. Alongside the GCCS covering Annex 1 food and forage crops, six additional strategies have been published thus far for non-Annex 1 crops: coffee, tea, cucurbit crops, vanilla, capsicum crops, and peanuts (groundnuts). These represent an assortment of highly economically important crops, vegetables, and one staple pulse/oil crop.

Several criteria may be considered in deciding for which crops to develop GCCS in the future, for example the crop's contribution to food and nutrition security or to economies and livelihoods, the degree of commitment from the crop's conservation and research stakeholders, perceived PGRFA conservation urgency, and data availability. This said, it is difficult to accurately predict which crops may serve important roles for society in the future (FAO 2022b), and investments in planning and research, including through GCCS processes, may partly determine their future relevance as well as encourage stakeholder interest and the generation of pertinent data. It is therefore sensible that both crops that are currently important, have high stakeholder activity, high conservation urgency, and high data availability, and also those crops not yet at that stage but indicating considerable potential, should have GCCS. A recent project implemented by the Plant Treaty compiled extensive metrics on over 350 food and agricultural plants worldwide (FAO 2022b); these data should be applied to the prioritization of future GCCS.

3. Global Crop Conservation Strategies and the Plant Treaty

The core aim of GCCS is to improve the conservation and use of PGRFA, which is in line with the objectives of the Plant Treaty. Successful implementation of strategy recommendations towards this aim directly contributes to the Plant Treaty (in particular to Articles 5 and 6, but also to several other Articles) and its MLS, for example through improved access to a greater diversity of PGRFA because of more comprehensive and secure conservation. The spirit of collaboration and sharing embedded in the GCCS process also directly aligns with the Treaty and the MLS.

A recent survey of 39 delegates that participated in intersessional bodies of the Plant Treaty indicated that the vast majority of participants had read several GCCS, had read documents citing the GCCS, were aware of colleagues and other stakeholders citing the GCCS, knew where to access GCCS, and agreed or strongly agreed that the GCCS are relevant to the processes or/and decision making of the Plant Treaty, including its Global Information System, aspects of Conservation and Sustainable Use, Farmers' Rights, the MLS, Compliance, the Funding Strategy, and the Benefit Sharing Fund. While awareness, and appreciation, of the

value of the GCCS were thus common throughout this group, respondents provided several suggestions on furthering awareness of the GCCS in Plant Treaty venues, including through webinars, presentations, and side events at Governing Body meetings.

In several capacities, the GCCS could serve even further as scientifically-based, stakeholder-peer reviewed, technical inputs to the deliberations of the Governing Body and its Contracting Parties and other stakeholders.

Exchange of information: The GCCS provide valuable information at the crop level on status and gaps in conservation and use of PGRFA, including regarding the contents and status of germplasm collections, regeneration and multiplication, safety duplication, acquisition priorities, status and accessibility of passport, characterization, and evaluation data, and distributions, as well as information regarding networks, *in situ* conservation, PGRFA use, and other aspects. These data could be further used by groups such as the Ad hoc Technical Committee on Conservation and Sustainable Use of Plant Genetic Resources (ACSU) focused on Articles 5 and 6, as well as the Scientific Advisory Committee focused on Article 17. The data can supplement information available through the GLIS, which currently mainly compiles data on distributions of germplasm with the SMTA. As of August 2023, the Toolbox for sustainable use of PGRFA available through GLIS offers access to six of the 44 GCCS produced to date. Additionally, 13 GCCS produced between 2019 and 2023 were recently submitted to the Toolbox.

Access to and transfer of technology: The GCCS could be used by the Plant Treaty as input to discussions regarding access to, and transfer of, technologies. They would need to be enhanced by more comprehensively reviewing the current state of relevant technologies as applied to each crop and the degree to which these are accessible, including to Parties. The stakeholder processes inherent to the GCCS could also be used as platforms for technical representatives from Contracting Parties to develop joint ventures for more effective access to genetic materials, technologies, research facilities, and other resources, consistent with the adequate and effective protection of intellectual property rights and Farmers' Rights (Article 9).

Capacity building: The GCCS specifically include sections focused on capacity building status and needs, which can be applied to the needs of Contracting Parties. Further, the stakeholder processes in the strategies represent a form of capacity building through consultations and sharing of information and the building of relationships and mutual learning at the crop level. These processes could be further leveraged to build capacity in PGRFA conservation and use.

The Benefit Sharing Fund: The GCCS offer the potential to contribute to strengthening the evidence base underpinning funding decisions made regarding the Plant Treaty's Benefit Sharing Fund (BSF) and other work by the Standing Committee of the Funding Strategy and the Fund for Agreed Purposes. Applicants to the BSF and other funding opportunities could be encouraged to align their proposals with GCCS recommendations to further strengthen the global system and to increase awareness of, and buy-in to, the strategies.

Annex 1: The GCCS for Annex 1 crops can be used as objective information sources outlining conservation and use needs for these gene pools. In the context of ongoing discussions around the potential expansion of Annex 1, the GCCS published for non-Annex 1 crops could likewise be a useful tool in providing information on the global use of these crops as well as the status and gaps in the conservation and use of their PGRFA. In addition, information in the GCCS on the status of *in situ* conservation of crops could be useful to discussions around the scope of Annex 1.

4. Leadership of, and funding for, Global Crop Conservation Strategies processes and implementation of their recommendations

Leadership of the GCCS process is essential to their ongoing development as well as to the implementation of their recommendations.

Leadership regarding developing and updating GCCS: Thus far, it has been the Crop Trust that has initiated, led, and coordinated the development of the GCCS. Several other organizations may be suited for this role (i.e., having an international mandate, being reputable, and having broad, productive working relationships with national, international, and other PGRFA stakeholders), including the Plant Treaty, FAO's Commission on Genetic Resources for Food and Agriculture (CGRFA), OneCGIAR, and various crop networks, each with their relative merits. Given the Crop Trust's extensive experience leading the GCCS

processes over two decades, successful fundraising for them, their role in managing long-term funding for key *ex situ* PGRFA collections, their management of pertinent information systems such as Genesys, and that the organization is considered an essential element of the funding strategy of the Plant Treaty (FAO 2004), the Crop Trust is likely to continue to be among the most appropriate organizations for leadership and coordination of the GCCS.

Leadership of the GCCS by the Crop Trust or other responsible organization could be further supplemented and enhanced through the development of an advisory committee or similar body providing input on GCCS scope, format, timing, priority crops, and other issues. Engagement of representatives of pertinent organizations, for example the Plant Treaty, CGRFA, OneCGIAR and other international agricultural research institutions, representatives of national PGR institutions from each region of the world, and organizations focused on *in situ* conservation or PGRFA use aspects, would enhance GCCS guidance and would also help to further engage these organizations in the GCCS processes and in uptake of their recommendations.

Funding for developing and updating GCCS: Funding for the GCCS has been obtained thus far mainly through projects proposed and led by the Crop Trust, with support from the Australian Grains Research and Development Corporation, BMEL, and other sources. A few of the GCCS were produced without coordinated project funding but with financial contributions from organizations such as Bioversity International, the North American Strawberry Growers Association, the US Department of Agriculture, the Centre de coopération internationale en recherche agronomique pour le développement (CIRAD), the CGIAR Research Program on Forests, Trees and Agroforestry (FTA), the Australian Centre for International Agricultural Research (ACIAR), and the Australian Department of Foreign Affairs and Trade (DFAT).

For the long-term sustainability of the GCCS processes, funding for their production would ideally be specifically allocated through stable, predictable, dedicated channels. This could include through core funding allocations to international organizations such as FAO from participating member countries, from a long-term Plant Treaty funding source, or via the endowment of the Crop Trust, among others. If such a stable funding mechanism is not secured, periodic generation of funds for the GCCS will be the next best option, possibly including via occasional allocations from the BSF, funds dedicated to the development of the FAO's Reports on the State of the World's Plant Genetic Resources for Food and Agriculture, or other sources. For crops with high commercial value, funding from private industry could be further explored, and indeed encouraged. A mixture of funding from different partner organizations may also be considered, for example via the Crop Trust for the *ex situ* conservation aspects and via the Plant Treaty or the FAO's CGRFA for *in situ* and sustainable use components.

Leadership of implementation of GCCS recommendations: The Crop Trust considers the GCCS to be important documents informing its work and has used their recommendations as inputs in the planning for global multi-genepool initiatives (e.g., the Crop Wild Relatives Project) and for crop-specific activities, such as on coffee and forage crops. The Governing Body of the Plant Treaty has repeatedly expressed an interest in the GCCS and has recommended that its Secretariat publicize and highlight strategy recommendations (FAO 2015, 2017, 2019, 2022c).

Noting these prioritizations, widespread uptake and impact of the GCCS has likely suffered from lack of clarity about who has responsibility for implementation. This may be so, at least in part, because no similar model exists, with the GCCS standing apart from long-standing and well-understood international political processes such as FAO's Reports on the State of the World's Plant Genetic Resources for Food and Agriculture and Global Plans of Action, as well as outside of international (e.g., CGIAR's multi-year work plans) and national PGRFA conservation and use planning. The GCCS are still often considered by the PGRFA community as mainly serving the purpose of informing the Crop Trust's decision-making and funding processes, despite the Crop Trust emphasizing that the strategies should be considered to be owned by, and applicable to, the entire PGRFA community. Thus, currently, no organization is clearly responsible or held accountable for taking action based on GCCS recommendations, and no dedicated enabling mechanisms (i.e., funding sources) exist specifically to implement these recommendations.

While international organizations offer the benefit of centralized coordination and promising funding sources for such leadership, the development of new, or engagement of existing, crop-specific bodies (i.e. crop networks, consortia, etc.) may represent a highly promising format for engaged ownership over the GCCS and their recommendations, assuming that funding for coordination and implementation through these bodies

can be obtained. The exact structure may be somewhat different for each crop, for example in some cases building on established national-level leadership (e.g., for sunflower PGRFA) and in others reinvigorating dormant international networks (e.g., for citrus PGRFA) or expanding existing ones (e.g., potentially the ECPGR *Brassica* network). For CGIAR mandate crops, coordination of implementation by CGIAR centers, perhaps in concert with an engaged crop network, may prove most effective.

Funding for the implementation of GCCS recommendations: Those taking on leadership of implementation of GCCS recommendations would ideally have the capacity to raise funds to invest in conservation and use actions, as well, potentially, to further support the development and updating of the strategies in the future. Many crop networks have existed over previous decades and their longevity and impact are clearly dependent on funding for coordination and action. Ideally, larger international organizations and stable financial resources could be engaged to facilitate and channel funding to the specific crop networks managing and conducting implementation.

5. Summary of recommendations

- 1) A practical arrangement for leadership of GCCS processes and of implementation of their recommendations would consist of:
 - a) the Crop Trust or other responsible organization, supplemented by an international advisory group, for primary leadership and facilitation of the GCCS processes;
 - b) a long-term funding mechanism enabling production of the GCCS; and
 - c) crop-specific networks or similar bodies supported by coordinated, long-term financing from international sources, for ownership and implementation.
- 2) As a first step toward this model, the Crop Trust and the Plant Treaty could work together to prepare a concept note detailing the specifics of the proposed international advisory group that would provide guidance on GCCS scope, format, timing, priority crops, and other issues.
- 3) GCCS could be used more than they currently are as scientifically-based, stakeholder-peer reviewed, technical inputs to the Governing Body and its Contracting Parties, related technical and scientific committees, and other stakeholders. Alongside pertinent crop-specific information and recommendations, the GCCS could be used to identify technical conservation and use matters identified as important across several gene pools and could provide technical information useful to funding decisions made regarding the Plant Treaty's Benefit Sharing Fund.
- 4) Concise/summary versions of the GCCS could be produced in stronger alignment with, and tailored to, key international PGRFA reporting milestones (e.g. State of the world Report on PGRFA, and National Biodiversity Strategies and Action Plans (NBSAPs) and planning processes (e.g. biennial meetings of the Governing Body).
- 5) Further investigation of potential integration and synergies between the GCCS and the components of the Global Information System for PGRFA (GLIS), towards the aims of greater efficiency and use of PGRFA information by Contracting Party and other PGRFA stakeholders, would be worthwhile.
- 6) The PGRFA community should consider re-invigorating crop networks, including ensuring adequate funding, to engage in the implementation of GCCS recommendations.
- 7) To increase the future value of the GCCS, the Plant Treaty could consider:
 - a) identifying experts from Contracting Party countries that can contribute to GCCS processes;
 - b) encouraging Contracting Parties and other relevant stakeholders to engage with, participate in, and take action based on GCCS, and to raise awareness regarding the GCCS in the wider PGRFA community;
 - c) encouraging GCCS to further elaborate areas of information useful to the Plant Treaty, for instance regarding transfer of relevant technologies and capacity building;
 - d) exploring the potential for contributing to funding for GCCS production, as well as for coordination and implementation of GCCS recommendations, via Plant Treaty mechanisms.

References:

- Dulloo E, Khoury CK. 2023. *Towards Mainstreaming Global Crop Conservation Strategies*. Global Crop Diversity Trust. Bonn, Germany. DOI: [10.5281/zenodo.7610356](https://doi.org/10.5281/zenodo.7610356)
- Food and Agriculture Organization of the United Nations (FAO). 1996. *Global Plan of Action for Plant Genetic Resources for Food and Agriculture*. Rome, Italy: Food and Agriculture Organization of the United Nations (FAO). www.fao.org/3/aj631e/aj631e.pdf
- Food and Agriculture Organization of the United Nations (FAO). 2004. Agreement for the Establishment of the Global Crop Diversity Trust. www.croptrust.org/fileadmin/uploads/croptrust/Documents/Policy_Documents/Establish-Agreement-english.pdf
- Food and Agriculture Organization of the United Nations (FAO). 2015. Report of the Sixth Session of the Governing Body of the International Treaty on Plant Genetic Resources for Food and Agriculture. IT/GB-6/15/Report. Rome, Italy: Food and Agriculture Organization of the United Nations (FAO). www.fao.org/3/mo938e/mo938e.pdf
- Food and Agriculture Organization of the United Nations (FAO). 2017. Resolution 10/2017. Policy Guidance to the Global Crop Diversity Trust. IT/GB-7/17/Res10. Rome, Italy; Food and Agriculture Organization of the United Nations (FAO). www.fao.org/3/mv089e/mv089e.pdf
- Food and Agriculture Organization of the United Nations (FAO). 2019. Resolution 10/2019. Policy Guidance to the Global Crop Diversity Trust. Rome, Italy; Food and Agriculture Organization of the United Nations (FAO). www.fao.org/3/nb788en/nb788en.pdf
- Food and Agriculture Organization of the United Nations (FAO). 2021. Commission on Genetic Resources for Food and Agriculture. Strengthening Cooperation among Global Information Systems on Plant Genetic Resources for Food and Agriculture. www.fao.org/3/ng848en/ng848en.pdf
- Food and Agriculture Organization of the United Nations (FAO). 2022a. Review of the Multi-Year Programme of Work of the International Treaty. IT/GB-9/22/17.1. www.fao.org/3/ni856en/ni856en.pdf
- Food and Agriculture Organization of the United Nations (FAO). 2022b. *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*. International Treaty on Plant Genetic Resources for Food and Agriculture Background Study Paper. Rome: Food and Agricultural Organization of the United Nations. IT/GB-9/22/16.2/Inf.1. www.fao.org/3/cc1988en/cc1988en.pdf
- Food and Agriculture Organization of the United Nations (FAO). 2022c. Resolution 12/2022. Policy Guidance to the Global Crop Diversity Trust. Rome, Italy; Food and Agriculture Organization of the United Nations (FAO). www.fao.org/3/nk248en/nk248en.pdf
- Food and Agriculture Organization of the United Nations (FAO). 2023. Report of the Global Crop Diversity Trust to the Governing Body. IT/GB-10/23/16.2.2. www.fao.org/3/nn311en/nn311en.pdf
- Williams DE, Drummond E. 2020. *Review of Global Crop Conservation Strategies*. Consultancy report to Crop Trust.

Acknowledgments

The development of this white paper was funded by the German Federal Ministry of Food and Agriculture (BMEL) as part of the three-year project led by the Crop Trust in close collaboration with the Secretariat of the Plant Treaty: “Mainstreaming the Global Crop Conservation Strategies in Plant Treaty Processes”. This project follows a three-year project also led by the Crop Trust: “Breathing new life into the Global Crop Conservation Strategies: Providing an Evidence Base for the Global System of *Ex situ* Conservation of Crop Diversity”, wherein an opinion paper was published: “Towards Mainstreaming Global Crop Conservation Strategies”. This white paper synthesizes the opinion paper, with additional focus on mainstreaming the Global Crop Conservation Strategies in Plant Treaty processes.

We acknowledge the extensive expertise and efforts of all participants in Global Crop Conservation Strategy efforts over the previous two decades, including the authors and facilitators, meeting participants, and those who responded to surveys. Special thanks to those authors, facilitators, and meeting participants who submitted ideas on improvements to the GCCS process for the opinion paper: C. Allender, V. Azevedo, F. Begemann, P. Bramel, H. Dabo, H. Dempewolf, S. Diulgheroff, M. Dodd, A. Ebert, M. Engbers, J. Engels, B. Furman, P. Giovannini, L. Guarino, K. Ghamkhar, M. Halewood, F. Hay, M. Haverkamp, C. Hershey, N. Jamora, S. Kresovich, S. Krishnan, V. Lebot, I. Lopez, C. Lusty, L. Maggioni, R. Madhavan, M. de Miranda Santos, M. Nagel, R. Nair, M.-N. Ndjiondjop, Sharma, S., A. Sidibé, K. Singh, S. Solberg, I. Thormann, A. Toledo, J. Valls, T. van Hintum, J. Vester, M. van Zonneveld, G. Volk, S. Weise, P. Wenzl, D. Williams, and M. Yazbek. Additional thanks to respondents of a survey regarding the Global Crop Conservation Strategies sent to Plant Treaty delegates participating in intersessional bodies.

Authors

Ehsan Dulloo

Bioversity International*, Rome, Italy

e.dulloo@cgiar.org

Colin K. Khoury

San Diego Botanic Garden, San Diego, USA

International Center for Tropical Agriculture (CIAT)*, Cali, Colombia

ckhoury@sdbgarden.org

*Bioversity International and the International Center for Tropical Agriculture (CIAT) are part of the Alliance of Bioversity International and the International Center for Tropical Agriculture (CIAT).

alliancebioiversityciat.org

Recommended citation

Dulloo E and Khoury CK. 2023. *White paper on Mainstreaming Global Crop Conservation Strategies in Plant Treaty Processes*. Global Crop Diversity Trust. Bonn, Germany.