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THE POSSIBILITY OF INTEGRATING THE REPUBLIC OF MOLDOVA INTO THE MULTILATERAL SYSTEM OF THE INTERNATIONAL TREATY ON PLANT GENETIC RESOURCES FOR FOOD AND AGRICULTURE

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Abstract. *Due to interdependence among nations regarding access to genetic materials, international cooperation through legal frameworks such as the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA) is essential. The Treaty establishes the Multilateral System (MLS) to facilitate access to PGRFA and ensure fair and equitable benefit-sharing among stakeholders. This paper explores the global significance of the ITPGRFA and evaluates the Republic of Moldova's progress in implementing the Treaty and establishing the MLS. It outlines key challenges Moldova faces, including limited financial resources, lack of integrated agrobiodiversity policies, and the absence of a approved National Programme for PGRFA. Despite acceding to the Treaty in 2015 and participating in international sessions, Moldova has yet to fully integrate its national genetic resource collections into the MLS, but intend to do this. The study emphasizes the need for strengthened national legislation, stakeholder capacity building, and the inclusion of national data in MLS. It concludes that the ITPGRFA represents a vital tool for international collaboration and that Moldova must enhance its institutional and legislative frameworks to fully benefit from this global initiative.*

Keywords: conservation, plant genetic resources, international cooperation, International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA), Multilateral System (MLS).

INTRODUCTION

Effective use of plant genetic resources is vital for increasing food security and reducing poverty. While the vast majority of countries depend on plant genetic resources originating beyond their borders, international cooperation and agreements are essential for their access and conservation. There are three main reason for international cooperation in plant genetic resource conservation [1]

In first of all plant genetic resources (PGR) are essential for agricultural development, especially for increasing food production in order to promoting economic growth. The FAO estimates that global food production must rise by 70% by 2050 to meet increasing demand, despite the strain on natural resources, that are

limited [2]. PGR holds two key types of value: immediate value, where specific genes and traits—like pest resistance, drought tolerance, or flavor - are directly useful to plant breeders, and farmers and; long-term value, where overall genetic diversity acts as a safeguard against future challenges, helping ensure the resilience of farming systems locally and globally. Continued progress in plant breeding, using diverse genetic resources, is crucial to meet the rising global demand for food. Plant breeding is essential for developing high-yield, resilient crops that can withstand pests, diseases, and extreme weather. To achieve this, conserving crop diversity and ensuring access to it for breeders and farmers is critical. Secondly, collaboration is vital because countries heavily rely on plant genetic resources from other regions, especially for major crops. Even with local conservation efforts, continued access to diversity from the centers of origin of the crop species, is necessary to maintain traits. Thirdly, cooperation is economically necessary because genetic erosion, driven by the replacement of diverse traditional crop varieties with uniform modern ones, is accelerating. As plant genetic resources are a global public good, their conservation requires international agreement and action.

Many nations around the world are facing serious food security challenges, which are further intensified by global issues such as climate change, overpopulation, poverty, and the decline of agricultural biodiversity. Despite these obstacles, there is still hope—if each country acts individually and the global community collaborates, progress can be made. Working together to conserve, sustainably use, and share plant genetic resources is essential to securing food supplies now and in the future. This collaborative approach forms the foundation of the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA), which aims to provide countries with a legal structure to support these efforts and to promote fair and equitable sharing of the benefits derived from these vital resources.

The International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA) represents a major step in global cooperation to fight hunger and poverty. It benefits various groups: consumers gain food variety and security; farmers' rights are protected; researchers will have access to vital plant genetic materials to aid in plant breeding and scientific study; international agricultural research centers (IARCs) will be acknowledged for their contributions and benefit from a legal framework supporting plant breeding, conservation, and access to their genetic collections; and both public and private sectors can use a broader genetic base for agricultural development [3]

The Treaty, adopted during the 31st session of FAO in November 2001 at Rome and came in force since June 2004 and ratified by 154 parties (data updated on April 1, 2025), aims to ensure sustainable agriculture and global food security. Its three core goals are the conservation of plant genetic resources (PGRFA), their

sustainable use, and the fair sharing of benefits arising from their use [4]. To support these objectives, the Multilateral System (MLS) was established under Article 10 of the ITPGRFA to facilitate access to PGRFA for plant breeders, scientists, and various other users and stakeholders including intermediaries as well as for fair and equitable sharing of monetary and non-monetary benefits arising from the utilization of PGRFA. This system enables the pooling and exchange of genetic materials from 64 essential food and forage crops (listed in Annex I) These crops were chosen due to their significance to global food security and the interdependence of countries, determined by historical factors like migration, trade, and climate change [5].

The MLS includes resources that are:

- Managed and publicly controlled by Contracting Parties;
- Voluntarily contributed by individuals or organizations;
- Held by international institutions with agreements under the Treaty.

Parties are required to adopt legal or suitable measures at the national level to implement the MLS and facilitate access to this global genetic pool.

The main concept behind a multilateral system for accessing and sharing the benefits of PGRFA is based on the principle, also affirmed by the Convention on Biological Diversity (CBD), in particular Article 15, that States have sovereign rights over their resources [6]. However, ITPGRFA recognizes that applying the CBD's model of negotiating access and benefits on a case-by-case and country-by-country basis is not suitable for agricultural biodiversity. This is because food crops have been cultivated, shared, and adapted across different regions of the world for thousands of years, often far from their place of origin. Modern collection and distribution practices have further spread genetic material globally, making it difficult to identify where a particular crop originated. As a result, determining benefits only based on the current location of the resource could lead to unfair outcomes. Furthermore, agricultural systems of all countries, depend on receiving genetic material from other countries and regions. Given this high level of interdependence, a multilateral approach—one that provides access to a wide pool of genetic resources—is more practical and fairer than trying to negotiate numerous individual agreements with each resource holder.

The multilateral system described in Part IV of the ITPGRFA serves two main goals: first, to provide easier access to PGRFA, thereby supporting the preservation and advancement of agricultural biodiversity; and second, to ensure that the benefits derived from using these resources are shared fairly and equitably, supporting broader sustainable development objectives [7]

The Plant Genetic Resources for Food and Agriculture (PGRFA) in the Multilateral System come from three main sources [8]:

- PGRFA listed in Annex 1 of the ITPGRFA that are publicly managed and controlled by Contracting Parties, that have ratified the treaty are automatically

included in the system (Article 11.2 of the ITGRFA).

- Natural and legal persons may voluntarily include PGRFA in the multilateral system, according to Annex 1. Contracting Parties are encouraged to promote such voluntary inclusion (Article 11.3)
- PGRFA maintained in ex situ collections held in trust by international institutions with Article 15 agreements are included. These institutions use the Standard Material Transfer Agreement (SMTA) to distribute these materials and may also use the SMTA for non-Annex 1 materials.

All materials shared through the multilateral system are transferred under the Standard Material Transfer Agreement (SMTA), adopted by the Governing Body of ITPGRFA in 2006. This agreement requires providers to offer the materials either free of charge or at minimal cost and to report all transfers to the Governing Body. It is important to follow certain conditions, including [9]:

1. Using the materials only for research, breeding, and training related to food and agriculture, not for industrial uses unrelated to food or feed (Article 12.3(a) of the ITPGRFA).
2. Not to seek intellectual property rights that would limit others' access to the materials 'in the form received' (Article 13.2(b) iii) of the ITPGRFA).
3. Contributing to the ITPGRFA's Benefit-sharing Fund if they commercialize new products using materials from the multilateral system and prevent others from using those products for further research or breeding.
4. Accepting that a third-party beneficiary, acting on behalf of the multilateral system, may request information to ensure compliance and initiate dispute resolution procedures if the terms of the SMTA are violated.

The Treaty established detailed rules and contract templates of SMTA, that can be used by individuals and organizations [10]

MLS is the largest pool of genetic resources available for exchange worldwide. According to Data Store of the International Treaty about germplasm flow within the Multilateral System through the Global Information System on Plant Genetic Resources for Food and Agriculture (GLIS), dated on 04.06.2025, 7.058.670 accessions are available. Of the total amount of material transferred, 87,7% was distributed by Contracting Parties, while 12,3% was distributed by non-Contracting Parties. Totally, 116.279 SMTA were signed, including 68 Provider Countries and 189 Recipient Countries [11]

The paper emphasizes that, alongside national conservation initiatives, globally managed collections, remain essential for safeguarding plant genetic resources on behalf of all humanity. It also highlights the need for a unified legal framework that includes international agreements, such as International Treaty on Plant Genetic Resources for Food and Agriculture, in order to enhance the collaboration at the international level for sustainable use of agrobiodiversity. These elements are important to securing both the conservation and accessibility of plant

genetic resources for food and agriculture, while also promoting fair benefit-sharing through the multilateral system of ITPGRFA. At the same time, this article analyzes the progress that the Republic of Moldova has achieved and is planning to make toward implementing the ITPGRFA and establishing the Multilateral System (MLS).

MATERIALS AND METHODS

Primary reference materials used in present work included international legal instruments such as the International Treaty on Plant Genetic Resources for Food and Agriculture and the Convention on Biological Diversity. At the national level Law No. 94 of May 14, 2015, concerning the accession of the Republic of Moldova to the International Treaty on Plant Genetic Resources for Food and Agriculture, was analyzed. Additionally, was analyzed reports on the implementation of the MLS and on the Availability of Material in the Multilateral System. issued by the Secretariat of the International Treaty for the years 2023 (IT/GB-10/23/9.1) and 2022 (IT/GB-9/22/9.1), available at https://www.fao.org/plant-treaty/areas-of-work/the-multilateral-system/implementation-mls/en/. A comprehensive review and analysis of various official documents and statistical data published by the Food and Agriculture Organization (FAO) were also conducted. To assess the current status and operational effectiveness of the Treaty, international databases such as GLIS (Global Information System), WIEWS (World Information and Early Warning System on Plant Genetic Resources), as well as the ReGen national information system, were utilized.

RESULTS AND DISCUSSIONS

The International Treaty on Plant Genetic Resources for Food and Agriculture was established in light of increasing concerns over the erosion of plant genetic diversity and the urgent need to safeguard these resources and promote their sustainable use for the benefit of future generations.

Moldova confronts with multiple obstacles in preserving its agrobiodiversity. The main problem is the absence of robust strategies to prevent agrobiodiversity loss. Financial incentives aimed at meeting biodiversity goals are limited, and both scientific and traditional conservation practices remain underutilized. Moreover, agrobiodiversity protection is not sufficiently incorporated into the country’s economic development plans or sectoral policies. During the 2016-2017 in the Republic of Moldova the FAO Project TCP / MOL / 3504 "Support to the development of a National Program for Plant Genetic Resources for Food and Agriculture (PGRFA) in Moldova" was implemented. The

main objective of the Project was to develop the National Program of the Republic of Moldova in the field of evaluation, conservation and sustainable use of plant genetic resources for food and agriculture. The aim of the program was to make the protection of agricultural biodiversity more efficient and to ensure the country's food security. Within the framework of this project, FAO provided technical support for strengthening and modernizing the capacity to conserve plant genetic resources. A large amount of analytical work has been done. As a result, the draft National Programme has been proposed. This document presents the deep analysis of existing problems and specific action plan developed for the nearest years. Unfortunately, due to some unclear reasons, the National Programme for PGRFA has not yet been approved by the decision-making authorities

In 2015, the Republic of Moldova acceded to the International Treaty on Plant Genetic Resources for Food and Agriculture (Law No. 94 of 14-05-2015). The Republic of Moldova participated in several meetings of the Governing Body of ITPGRFA. Between September 15–25, 2022, the Republic of Moldova participated in the 9th Session of the Governing Body of the International Treaty on Plant Genetic Resources for Food and Agriculture, organized by the Food and Agriculture Organization (FAO) of the United Nations. The event took place in New Delhi, India, in a hybrid format, and brought together approximately 600 participants from 150 countries that are signatories to the Treaty. During the regional consultations organized by the ITPGRFA Secretariat, the Republic of Moldova was designated as the coordinator of the European Regional Group. Among the main issues discussed at GB 9, which are critical to the future of plant genetic resources for food and agriculture, were: the enhancement of the Multilateral System (MLS) for Access and Benefit-Sharing (ABS), which had already been a central topic at GB 8; progress concerning farmers' rights, a key pillar in fulfilling the Treaty's mandate; the connection with the ongoing negotiations for a post-2020 Global Biodiversity Framework (GBF) under the Convention on Biological Diversity (CBD), which aims to put biodiversity on a fast track to recovery.

The tenth session of its Governing Body (GB 10), in which the Republic of Moldova also participated, was held in Rome, Italy, from 20 to 24 November, under the theme "From seeds to innovative solutions, safeguarding our future: contributing to the implementation of the Global Biodiversity Framework for sustainable food systems." At its 10th session, the Governing Body focused on advancing the implementation of the Treaty and its Multilateral System (MLS) for access and benefit-sharing (ABS). Key discussions included the progress and future steps in this direction. Topics addressed included digital sequence information, expanding the Annex I crop list, and revising the payment structure. The session also covered issues related to conservation, sustainable use, farmers' rights, and collaboration with international frameworks, particularly the Convention on

Biological Diversity (CBD) and the Global Biodiversity Framework.

On ratifying the Treaty, countries agree to make their genetic diversity and related information about the crops stored in their genebanks and public domains available to all through the MLS. This obligation is stipulated in Articles 10–13 of the aforementioned Treaty. A report on the compliance with the provisions of the ITPGRFA was developed in the Republic of Moldova, highlighting both the strengths and weaknesses of the Treaty's implementation in our country. One identified weakness is the non-compliance with Article 13 of the Treaty – that is, data on plant germplasm collections conserved by institutions holding such collections at the national level are not included in the Multilateral System, as outlined in Annex I of the Treaty. In this context, it is necessary to initiate the preparation and submission of available data, stored in ReGen, regarding the conservation of agricultural diversity at the national level, to the Multilateral System of the ITPGRFA, through the Standard Material Transfer Agreement (SMTA).

CONCLUSIONS

The ITPGRFA initiates a new direction in the history of international cooperation in field of sustainable conservation of plant genetic resources for food and agriculture and is an important instrument against hunger and poverty. While the Treaty is legally binding for all ratifying countries, this alone does not guarantee its effective implementation. Each country must establish appropriate regulatory frameworks to operationalize the Treaty's provisions and, where necessary, adopt or amend national laws to align with its requirements. The success in implementation of the ITPGRFA, especially of MLS depends on more than just legal measures. Expanded initiatives are required to strengthen the abilities of key stakeholders—such as plant breeders, gene banks, academic institutions, and farmers' organizations. To achieve this goal, the Republic of Moldova needs to adopt specific legislation on access to genetic resources and benefit-sharing at the national level."

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