Ministry of Agriculture and Food Industry of Moldova
NATIONAL CENTER FOR RESEARCH AND SEEDS PRODUCTION
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ORGANIZATION PROFILE

The **National Center for Research and Seeds Production (NCRSP**) was established in 2023 through the merger of the Institute of Phytotechnics „Porumbeni" (founded in 1974) and the Institute of Field Crops Research „Selecția" (founded in 1946), under the Ministry of Agriculture and Food Industry of Moldova.

Organisation details:
Country: Moldova
Name of the organisation: National Center for Research and Seeds Production
Adress: Pascani, MD-4834Criuleni, Republic of Moldova

PIC Organisation
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Organisation type
Research Organisation, Public institution
Legal representative
Spivacenco Anatolie, PhD, director

The **main objective** of the Institute's activity is to provide scientific support for the development of the agricultural sector in the Republic of Moldova, focusing on the creation of competitive varieties and hybrids, adapted to local pedoclimatic conditions and the challenges of climate change. Production of high-quality seeds in accordance with the legislation in force and the objectives of European integration.

Research directions of the National Center for Seed Research and Production are: scientific research in the field of selection and creation of hybrids and varieties of field crops, such as corn, wheat, barley, peas, soybeans, beans, sunflower, sorghum, oats, alfalfa, sugar and fodder beets and chickpeas; testing and evaluation of productive genetic potential for higher yields, plasticity, stability and resistance to diseases, pests and water and atmospheric stresses; development and elaboration of new technologies for seed production in field crops; elaboration of technological elements in the conservative tillage system; maintenance and diversification of the genetic fund as domestic and imported resources; implementation of innovative, ecological practices for sustainable agriculture.

Current institutional research programs of the National Center for Seed Research and Production (CNCPS) for 2024-2027, such as *210101: Refinement and development of the genetic base for improving germplasm in corn and sorghum crops, seed production and solving technological aspects identified in the context of climate change*; *210102: Breeding Productive varieties and hybrids of field crops resistant to pathogens adapted to stressful environmental conditions, preserving genetic diversity and yielding primary seeds*; and *210103: Sustainable management of crop productivity and soil fertility in the face of global warming is directly based on the fundamental priorities of climate change resilience and seed competitiveness*, outlined in the broader national agenda.

These programs pay special attention to domestic achievements in the field of genetic improvements, stress-resistant breeding and rational tillage methods to solve Moldova's geoclimatic problems, including trends towards drought and warming.

This **national focus** naturally extends to international cooperation, where CNCPS uses its expertise in restorative and resource-efficient agriculture to promote **EU** and **bilateral initiatives**. For example, the center participates in the HORIZON Europe-funded project **101218949-TRAILS4SOIL**: *Transformative Living Laboratories for Soil Health: Promoting Regenerative and resource-efficient agriculture across Europe* (2025-2030), which aligns with institutional programs by advancing innovations in soil health and regeneration methods through inter-European living laboratories, enhancing soil adaptability to the environment. Moldovan varieties of field crops on a continental scale.

In addition, the **MD-RO PN-IV-P8-8.3-ROMD-2023-0215** bilateral project "*Research on the relationship between regenerative agriculture and the closed-loop economy in Romania and the Republic of Moldova*" (2024-2026) further integrates CNCPS work on sustainable productivity and genetic diversity by exploring closed-loop economy models. to reduce waste and recycle resources in agriculture, to promote regional knowledge exchange between Moldova and Romania in order to enhance the impact of climate-resilient seed technologies.

Structure. The governing bodies of the Institute are:

- The Director;

- The Administrative Council.
- The Scientific Council.

The Center features 10 specialized laboratories:

1 *Porumbeni Sector Laboratories:*

- **Genetics and Gene Pool Laboratory:** Focuses on studying, maintaining and capitalizing on the genetic pool of corn; creating male-sterile and fertility-restoring pollen analogs; synthesizing inbred lines from different earliness groups; creating and evaluating corn hybrids in comparative crops.

- **The corn breeding laboratory for northern areas**: develops and creates inbred lines of early corn for areas with limited thermal regimes; the creation of inbred genetic material from different germplasm groups and evaluation under temperature deficit conditions, and assessing them based on their overall combining ability. The creation and evaluation of hybrids from the maturity group FAO 150-300 in comparative crops.

- **The corn improvement laboratory for the southern areas**: is focused on creating lines and hybrids with a late maturity period FAO 300-450 intended for areas with moisture deficit and high temperatures; creating food-purpose corn hybrids (grits and flour); improving and multiplying hybrids that are in the production process.

- **The seminology and seed quality assessment laboratory:** multiplies the seed of higher biological categories and parental forms in corn and sorghum crops; assesses parental forms according to their purity and variety in the production process; performs analyses to determine the biological quality of seed material; studies and selects hybrids from the comparative competition culture for transfer to official testing.

- **The technology laboratory has the main objective:** studying and improving the technological elements for the cultivation of corn and sorghum crops; studying various fertilizer options in crop rotation and permanent crops; studying and improving the integrated system for producing corn and sorghum crops against weeds, diseases, and pests; testing plant protection products for inclusion in the State Register.

2. *Selection Sector Laboratories:*

- **Laboratory for seed improvement and production in cereal crops:** Specialized in the development and improvement of wheat, barley and oat varieties, with an emphasis on winter wheat and winter barley; production of basic and pre-basic category seeds; the result of the laboratory's activity resulted in the approval of 20 wheat varieties and 16 barley varieties.

- **Laboratory for seed breeding and production of legume crops:** The laboratory focuses on the selection and genetic improvement of peas, soybeans, beans and cowpeas to create varieties with higher production and yields compared to existing ones and adaptability to environmental conditions.

- **Laboratory of Technical Crop Breeding and Plant Protection:** The laboratory conducts research in the field of creating sunflower hybrids and sugar and fodder beet varieties and seed production of the respective crops. The second research direction is plant protection from diseases and pests in cereal, legume and technical crops.
- **Agronomic Technology Laboratory:** develops technologies for cultivating and producing seeds for field crops adapted to the stressful environmental conditions of the Republic of Moldova; develops technological elements in the conservative system of plant cultivation, supporting long-term sustainable agricultural practices.

- **Quality Analysis Sector**: The sector performs analyses on the chemical composition of the grains of newly created varieties and hybrids and determines the biological and physical parameters of the seed material, providing breeders with accurate data in the process of creating and producing high-quality seeds.

All sectors are connected to national and international research networks, using experimental platforms and seed processing facilities

Collaborations include access to farms and resources from the Technical University of Moldova, other MAIA and MEC institutes, national economic agents. Cooperates on the basis of agreements with specialized research units (institutes and experimental stations), agronomic universities and farmers at national and international levels, including partnerships with Romania, Russia, Ukraine, Belarus, Kazakhstan for the registration and exchange of knowledge and biological material.

Services provided for economic agents/farmers:

- Consultancy and Training: Guidance on seed selection, cultivation technologies, and climate-adaptive farming practices.
- Laboratory Analyses: Seed quality testing, including germination, purity, and disease detection (bacteriological and mycological examinations of seeds, soil, and water).
- Seed Production and Certification: Development and multiplication of elite, certified seeds, including customized production plans.
- Cultivation Technology Development: Elaboration of tailored technologies for growing field crops like maize, wheat, barley, peas, soybeans, beans, sunflower, sorghum, oats, alfalfa, beets, and vetch.
- Variety Evaluation: Assessment of crop varieties for yield, resistance to diseases, pests, and abiotic stresses.
- Innovative Technologies: Implementation of environmentally friendly methods for seed storage, treatment, and production.
- Supply of Certified Seeds: Provision of high-quality hybrids and varieties at preferential rates to farmers.
- Technical Assistance: Support for farmer groups in seed multiplication and market access, including under programs like IFAD and ENPARD.

National and international research previous projects:

National Projects

1. Development of over 160 maize hybrids registered in State Registries of Moldova, Romania, Russia, Ukraine, Belarus, Kazakhstan, with 53 plant variety patents (pre-merger, Porumbeni) - 1974-2023.
2. Selection of 357 varieties and hybrids over 75 years, with 163 homologated, including 20 winter wheat varieties, 16 winter barley, 14 pea varieties, 19 soybean varieties, 13 bean varieties, 20 sunflower hybrids (pre-merger, Selection) - 1946-2023.
3. Various initiatives on field crop improvement, genetic resources management, and sustainable seed production under pedoclimatic conditions of Moldova - 20.80009.5107.15 - 2020-2023.
4. Creation and Implementation in Production of Competitive Maize Hybrids for All Favorable Maize Cultivation Zones with High Adaptability to Abiotic and Biotic Factors - 15.817.05.22A - 2015-2019.
5. Development of an Algorithm for Assessing Maize Drought Resistance through Physiological-Biochemical Diagnosis in the Conditions of the Republic of Moldova - 15.817.05.23A - 2015-2018.
6. Creation of Competitive Maize Hybrids of Different Maturity Groups and Their Implementation in the Agricultural Sector - 11.817.04.27A - 2011-2014.
7. Maintenance of Varieties, Improvement of Cultivation Technologies, and Development of Ecological Protection Methods for Tobacco - 11.817.04.28A -2011-2014
8. Implementation in Production of New Maize Hybrids - 10.824.04.124T - 2009-2010
9. Creation of Competitive Sweet Maize Hybrids and Production of Parental Forms - 08.801.04.07A - 2008-2009.
10. Study and Implementation of Rapeseed - 06-407-02-05P - 2008-2009.
11. Study and Use of Cytoplasmic Male Sterility to Improve Maize Seed Quality - 08.801.04.09A - 2008-2009.
12. Promotion in Cultivation of Maize Hybrids P375A and P458 - 07.407.46.T - 2007-2008.
13. Improvement of Protection Methods for Autumn Rapeseed Against Diseases and Pests - 07.407.45.T - 2007-2008.
14. Implementation of Populations and Products from Medicinal Plants with Hypoglycemic Properties - 07.407.49T - 2007-2008.
15. Creation of Competitive Maize Hybrids and Improvement of Cultivation Technologies - 06.407.002A - 2006-2010.
16. Creation of Competitive Vegetable Crop Varieties and Hybrids of Different Maturity Groups and Uses, and Production of Superior Category Seeds - 06-407-001A - 2006-2010.
17. Improvement and Utilization of the Productivity and Quality Potential of Tobacco Varieties through the Development and Application of High-Performance and Cost-Effective Technological Processes for Tobacco Production - 06.407.054A - 2006-2010.

International Research Projects

1. Participation in climate adaptation programs for seed sector resilience, similar to sectoral working groups (FAO/Other) – 2023.
2. Comparative Assessment of Biochemical Molecular Methods for Determining the Typicality Level of Lines as Parental Forms and the Hybridization Degree of Maize Seeds to Increase Seed Production Efficiency - 08.820.04.09BF - 2008-2009.

Other Previous Projects

1. Rural Development Programs (IFAD/UNDP): Technical assistance for seed multiplication in farmer groups, elaboration of guides on good practices for seed management and climate adaptation - 2019-2023.
2. EU/ENPARD Program: Support for Agriculture and Rural Development, involving seed quality improvement and farmer training (inherited expertise) – 2015.
3. Competitive Agriculture in Moldova (MAC-P, World Bank): Enhancement of seed sector competitiveness through technology transfer and market access facilitation, consultants from predecessor institutes - 2012-2019.
4. Ministry of Agriculture Programs: Implementation of Rural Extension Services Strategy, providing consultancy on seed selection and cultivation under Measures for subsidizing producers - 2012-2022.
5. International Registrations: Expertise in homologation of varieties across CIS and EU countries, with focus on drought-resistant and high-yield seeds - Ongoing (no specific years provided, but spans multiple decades based on context).