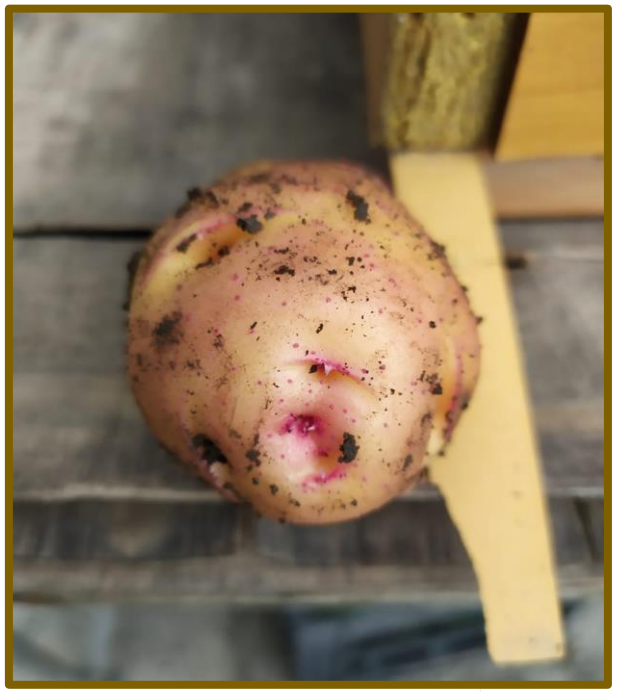


Potato collection and activities in Georgia

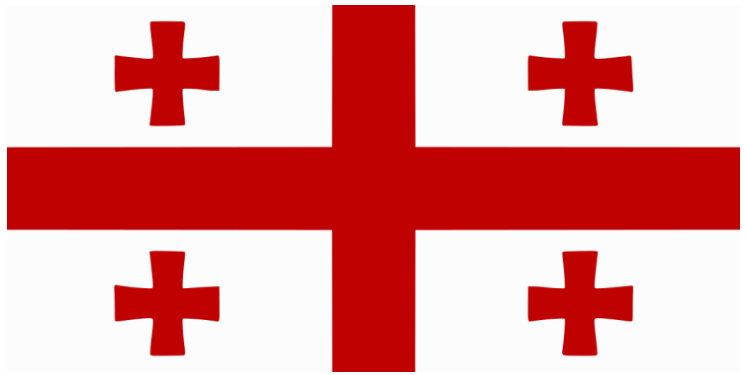
Dr. Rusudan Mdivani

Kick-off meeting of the ECPGR Activity – EURO-POTATOES

(Get Potatoes United – Collaboration Action for Updating the Virtual European Potato Collection)

19-20 March 2024, Warsaw, Poland


ძალა ერთობაშია




40°
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ABKHAZIA
Sokhumi
Och'amch'ire
Tqvarch'eli
Gali
Zugdidi
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SEA
Senaki
Tsqaltubo
Tqibuli
Kutaisi
Chiat'ura
SOUTH
OSSETIA
Tskhinvali
Vladikavkaz
Pot'i
Samtredia
Zestap'oni
Khashuri
Ozurget'i
GEORGIA
Gori
Kaspi
K'obulet'i
Borjomi
Mts'khet'a
Tbilisi
T'elavi
Batumi
AJARIA
Akhalts'ikhe
Rustavi
Gardabani
Marneuli
Akhalk'alak'i
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50
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Value and scale of potato production in the Caucasus

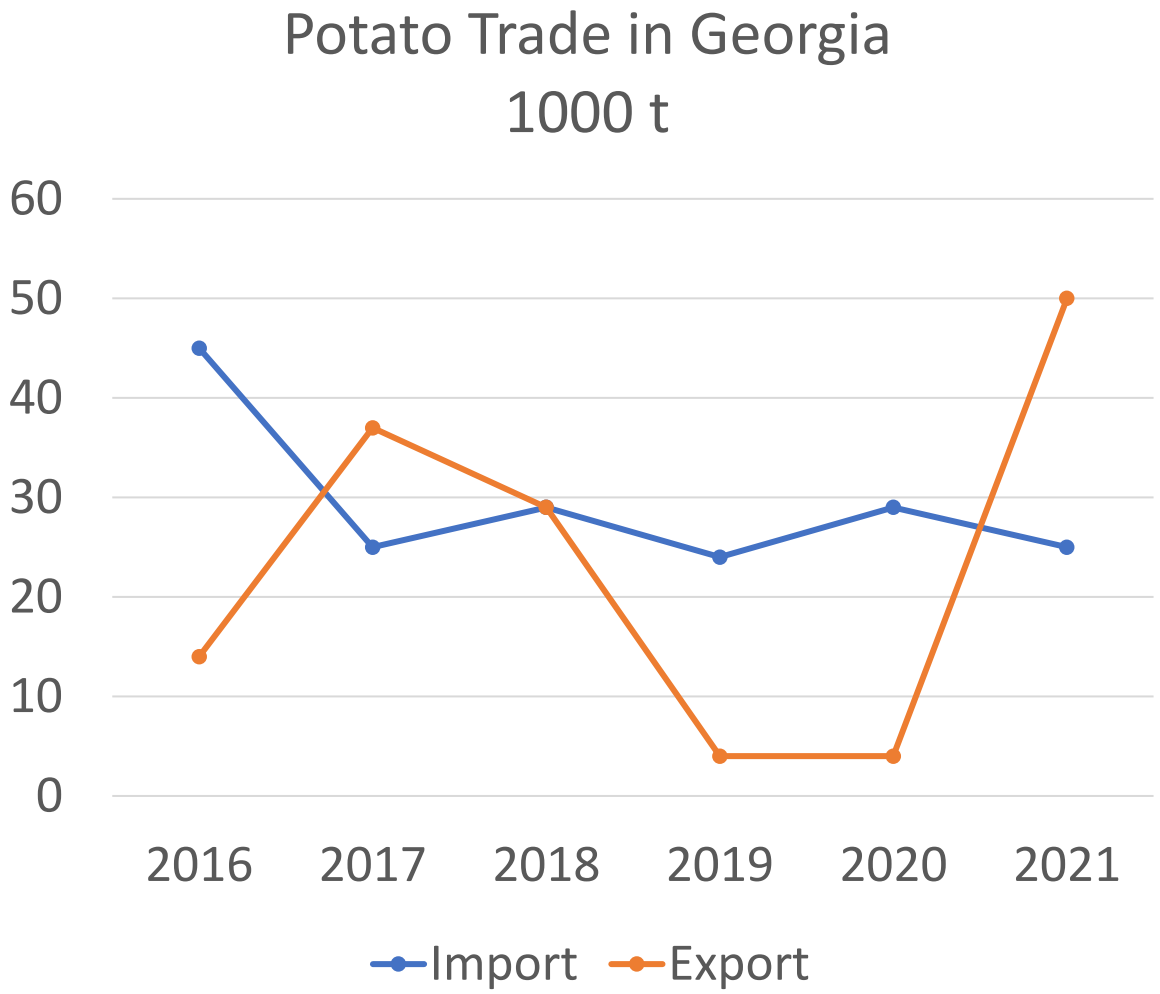
2019 production	Georgia	Armenia	Azerbaijan
Total production area ha	16,000	20,133	56,921
Total production MT	194,700	404,507	1,004,172
Average yield MT/ha	11.9	20.0	17.6
Value of production MM USD	38.9	80.9	200.8
Estimated seed need Value MM USD	16.0	20.1	56.9
Estimated seed need value MM USD (33%)	5.3	6.7	19.0

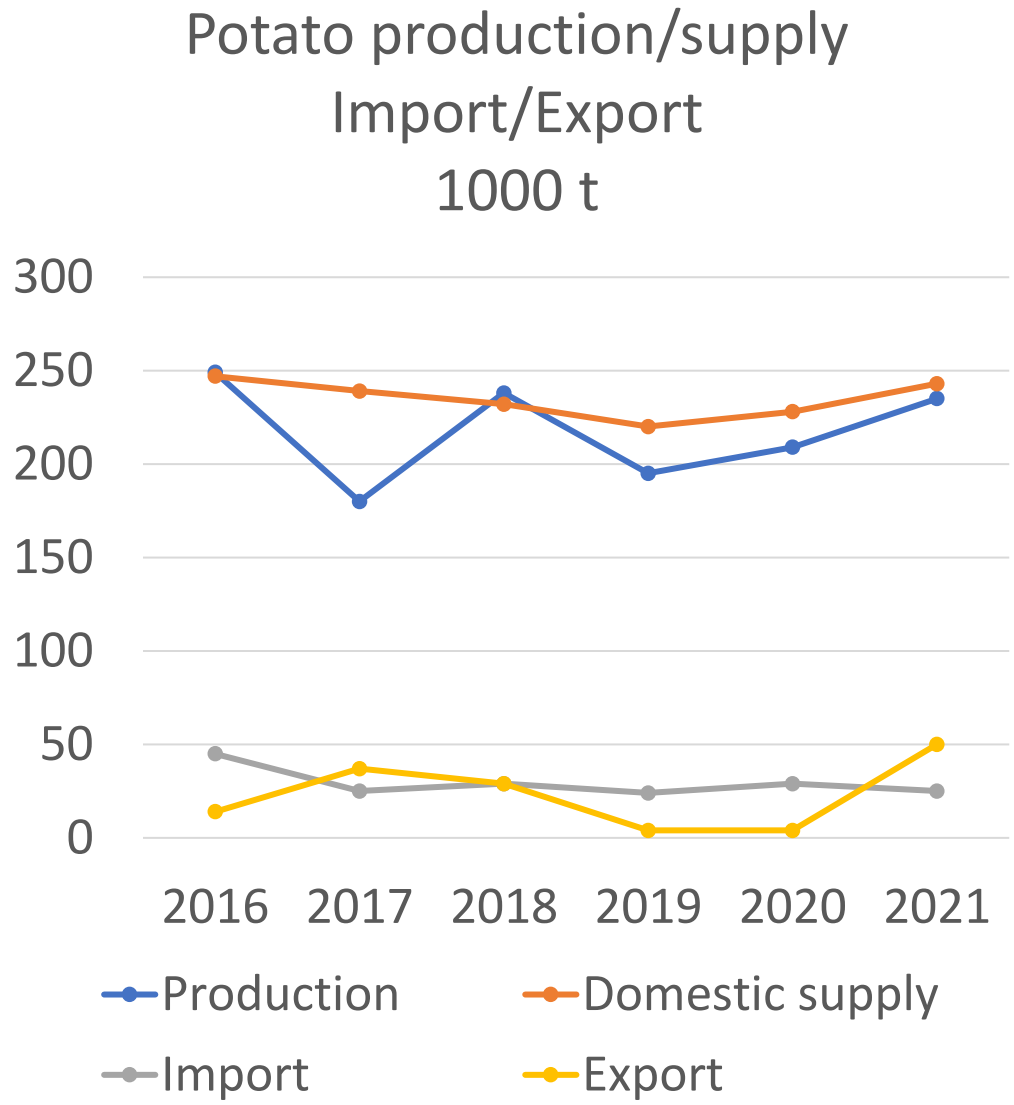
Georgia - a Seed Hub for the Central Asia and the Caucasus?

a

- Potato forms a major part of Georgian diets, culture, and heritage—“second bread”. Potato consumption is around 55 kg per person per year, mostly as fresh produce. This figure is well above the world average of around 33 kg.
- Potato is an important staple and cash crop in Georgia with great potential for improving nutrition, food security and incomes throughout the country. But current potato production (8-12 tons per hectare) are far below potential yields of as much as 30 tons per hectare.
- Potato seed degeneration is the main constraint, caused by the accumulation of pests and diseases in seed potatoes over several cycles of propagation.

Potato Production in Georgia





https://www.youtube.com/watch?v=PqE1-Y8mtzA

A lack of practical knowledge and skills among potato farmers hampers improved production

Potato – Strategic Crop
Ministry of Environmental Protection and Agriculture (MEPA)

State Potato Programs (2006-2022)

- ❑ Potato State Breeding Program
- ❑ Clonal Selection
- ❑ Seed Certification

LEPL SCIENTIFIC-RESEARCH CENTER OF AGRICULTURE


Within the framework of fulfilling the obligations taken under the EU-Georgia Association Agreement seeds and planting material will be subject to mandatory certification in 2024.

Donor funded Bilateral Programs 2017-2022

Funded by the Republic of Austria

BMF FEDERAL MINISTRY OF FINANCE

AUSTRIAN DEVELOPMENT COOPERATION

USAID FROM THE AMERICAN PEOPLE

Boosting potato production to enhance rural livelihoods—Georgia

Enhancing rural livelihoods: Introducing integrated seed health approaches to local potato seed systems

This project aims to improve the livelihoods of Georgian farmers and rural communities by increasing the profitability and sustainability of potato crops and building the capacity of national stakeholders in the seed potato value chain.

Background

Potato forms a major part of Georgian diets, culture, and heritage—"second bread," they call it. Georgians eat around 55 kg of potatoes per person per year, mostly as fresh produce. This figure is well above the world average of around 33 kg. However, yields remain generally low at approximately 12 tons per hectare (ha), a figure well below the potential 30 tons/ha. Potato seed degeneration is the main constraint, caused by the accumulation of pests and diseases in seed potatoes over several cycles of propagation.

In many locations, the introduction of certified seed systems is one option to address this challenge, but it has not proven successful in low-income countries such as Georgia. A more viable option promoted by the International Potato Center (CIP) is the 'integrated seed health' strategy. This approach combines better plant resistance with improved on-farm management practices, including seed potato selection and storage combined with strategic use of high-quality certified seed.

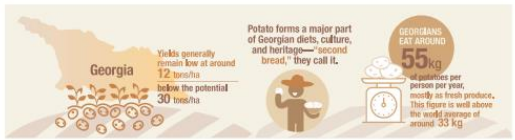
This project builds on ongoing collaboration between CIP and Georgia's Ministry of Environmental Protection and Agriculture (MoEPA) and it will guide government efforts to strengthen the potato seed systems and value chain in the country. CIP's partners in the project include the Scientific Research Center of Agriculture, Georgia's information-consulting centers, the Agricultural University of Georgia, and the University of Natural Resources and Life Sciences in Austria.

Objectives

The overall goal is to improve the livelihoods of Georgian farmers by increasing the profitability and sustainability of their potato-growing enterprises. The project also aims to increase the capacity of national stakeholders in the potato value chain to multiply and disseminate quality seed potatoes thereby improving the quality of potato seed available to farmers in the country.

Approach

In early 2016, the International Potato Center (CIP) began working with the Georgia's MoEPA in a major restructuring program designed to create a more effective, efficient, and sustainable potato seed system. The work focused on providing improved potato germplasm and technical support to enhance potato research and dissemination through breeding, plant protection, seed systems, and post-harvest technologies. This project complements these collaborative activities by addressing integrated seed health more specifically.



Project profile

The first step involved the development of a potato seed plan to incorporate integrated seed health strategies developed specifically for Georgia, and a baseline study and mapping exercise. These reports identified weaknesses in the current seed system and offered solutions, including appropriate disease detection technologies, multiplication practices, certification protocols, and primary training needs. Based on these recommendations, CIP developed a training plan for on-farm seed management, focusing on introducing best practices for the management of self-saved seed and developing farmer training plans and 'training of trainer' courses. The final stage in the implementation of the project will be the identification and promotion of new virus-resistant varieties.

Expected outcomes

Addressing potato seed degeneration will increase productivity with minimal input from farmers. The benefits accrue from the availability of new resistant varieties, application of simple on-farm practices, and enhanced access to high-quality seed at affordable prices.

CIP works with the Scientific Research Center of Agriculture of Georgia to support the improvement of seed multiplication and certification, with a focus on validating disease-detection technologies that are appropriate for the country. Activities build on the existing farmer extension service network to disseminate technologies and newly-introduced varieties. Seed system analysis and modeling are carried out by the two participating universities. In this way, the project directly supports capacity development among several institutions and provides the government with science-based evidence to inform seed policy.

Achievements to date

By November 2019, CIP had established evaluation trial plots and undertaken a field trial to test virus resistance in 28 new potato genotypes and four existing potato varieties. Consequently, four CIP clones were pre-selected and recommended to Georgia's authorities for release in the country.

As part of CIP's promotional activities, it has developed a series of training guides on integrated seed health for farmers and extension workers which have been distributed through 54 regional information-consulting centers of MoEPA. Capacity building workshops have also been delivered to nearly 600 farmers, extension trainers and scientists in Georgia on seed management, viral symptoms identification, integrated seed health, and potato seed degeneration modelling.

These activities have been supported by a series of public awareness activities on national and regional media outlets. An animation video on potato seed improvement was developed and aired on 30 regional and national TV channels for three months. Preliminary analysis of audience reach based on seven of the 30 broadcasters indicates that materials were watched by 71,000 households.

Key outcomes	By November 2019
Extension guidelines on integrated seed health improvement	four disseminated to 54 regional information-consulting centers
Capacity building training and workshops	551 farmers, extension trainers and scientists
Reach of animation video on potato seed improvement	>71,000 households
CIP clones recommended for release	4

Duration
July 2017–June 2020

Budget
EUR 500,000

Contact
Rusudan Mdivani
CIP, Georgia
r.mdivani@cgiar.org

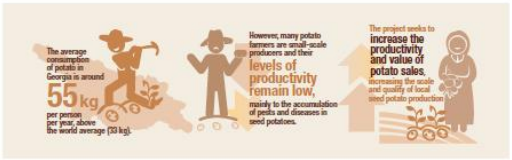
CIP thanks all donors and organizations that globally support its work through their contributions to the CGIAR Trust Fund: www.cgiar.org/funders

USAID FROM THE AMERICAN PEOPLE

CIP INTERNATIONAL POTATO CENTER

The USAID Potato Program in Georgia

This project aims to boost productivity and incomes among Georgian small-scale potato producers by providing new knowledge and locally produced, quality seed potatoes of high-yielding genotypes.



Background

Georgians love their potatoes, referring to them as a 'second bread.' The average consumption of potato in Georgia is around 55 kg per person per year, eaten mostly as fresh produce. This is well above the world average of around 33 kg. However, many potato farmers are small-scale producers and their levels of productivity remain low. The poor yields are due mainly to the accumulation of pests and diseases in seed potatoes and the consequent shortage of healthy planting materials. This lack of locally grown, quality seed potatoes of improved, high-yielding and disease-resistant varieties is currently the major constraint to improving potato productivity across the country.

Objectives

Funded by the United States Agency for International Development (USAID), the project seeks to sustainably to increase the productivity and value of potato sales among smallholder farmers in Georgia. It will do this by increasing the scale and quality of local seed potato production by addressing the root causes of low productivity and facilitating the commercial and institutional platforms that underpin a sustainable potato marketing system. The specific objectives are:

a. to build leadership within the Georgia Farmers Association (GFA) and establish a potato producers' network;
b. to establish a model farm to produce and demonstrate quality seed potatoes;
c. to introduce new potato genotypes, establish proper seed potato standards, and improve the existing seed certification system; and
d. to provide training to advisers, extension professionals, and men and women farmers in integrated potato production and seed health (ISH) management strategies.

Approach

In this project, the International Potato Center (CIP) works closely with local private sector stakeholders—a large seed potato producer, the national rural advisory service and the country's largest agricultural enterprise—to facilitate the adoption of innovative productivity-enhancing technologies to grow the value of potato sales among small-scale farmers.

The project is comprised of two main components with activities focused on key target areas. The **first component** will establish a model seed farm using 3G technology and develop a potato producer network. A supporting potato council within the Georgia Farmers' Association (GFA) will support the model farm operations. The producer network will represent the interests of farmers and act as a hub providing technical and marketing services in the target regions. Eventually, it will perform the role of supply chain manager, connecting farmers and their associations directly with buyers. This link is currently missing from local potato value chains. The network will develop its own business plan, laying the foundations for commercial sustainability and identifying key potential buyers, such as the Carrefour supermarket chain.

Establishing the model farm will involve constructing the physical infrastructure needed for large-scale seed potato production. Cutting edge science will be employed to achieve disease-free, high-yielding seed potato based on a rapid multiplication system developed by CIP.

The **second component** will introduce new potato genotypes and improved farming practices. It will ensure that farmers, extension agents and technical trainers have the knowledge they need to improve potato production practices and adopt integrated seed health management strategies. The project team will also ensure an effective seed potato certification system by adapting existing 'best practices' to the Georgian context and developing the protocols and field inspection guides needed to achieve certification. Training and other activities at the Scientific Research Center of Agriculture will build the capacity needed for it to become the key entity responsible for certification.

Expected outcomes

Seed potato producers engaging in this project are expected to increase their annual sales per hectare by 233% (from an average of USD 4,500 to nearly USD 15,000). This will happen in response to increased productivity of seed potatoes, from almost non-existent production to around 20 tons per hectare. In addition, around 1,500 farmers will receive training designed to help them improve their productivity levels. Due to enhanced access to seed potato of improved genotypes, farmers will increase their yields from an average of 12 to 25 tons per hectare.

Another key outcome is to obtain approval from the Ministry of Environmental Protection and Agriculture on the seed potato certification process and standards. This will lead to around 50% of potato farms in the project areas gaining certification as quality seed producers. These farms will provide improved seed potatoes to approximately 15,000 smallholders. In total, the average annual sales of all seed potato farms involved in the project should reach USD 8.7 million.

Key outcomes	Targets
Increased sales of seed potatoes per ha by potato farmers	233%
Average yields of seed potatoes per ha	20 tons
Proportion of seed potato farmers receiving certification	50%
Smallholders with access to locally produced improved seed potatoes	15,000
Total average annual sales of seed potato for all participating farms	USD 8.7 million

Duration
12 December 2019 –11 December 2022

Budget
USD 1.89 million

Contact
Rusudan Mdivani
r.mdivani@cgiar.org

Implementing partners: Rural Advisory Service, Marneuli Agro, Javakheti Agro Company Ltd, Association Akhalkalaki Potato.

The publication of this document has been made possible by the generous support of the American people through the United States Agency for International Development (USAID)

CIP thanks all donors and organizations that globally support its work through their contributions to the CGIAR Trust Fund: www.cgiar.org/funders/

Project profile

Potato Collection in Georgia

- 16 registered commercial varieties (including 3 CIP clones (388611.22 - Meskhuri, 388615.22 - Javakheturi, 392797.22 - Meskhuri Tsiteli)
- 3 CIP clone processed to Released (Tskriala - 398208.620, Ghvinisa – 396311.1, Kazbeguri - 309092.7)
- 28 TS advanced potato families
- 76 in vitro clones

საჯარო სამართლის იურიდიული პირი
საქპატენტი
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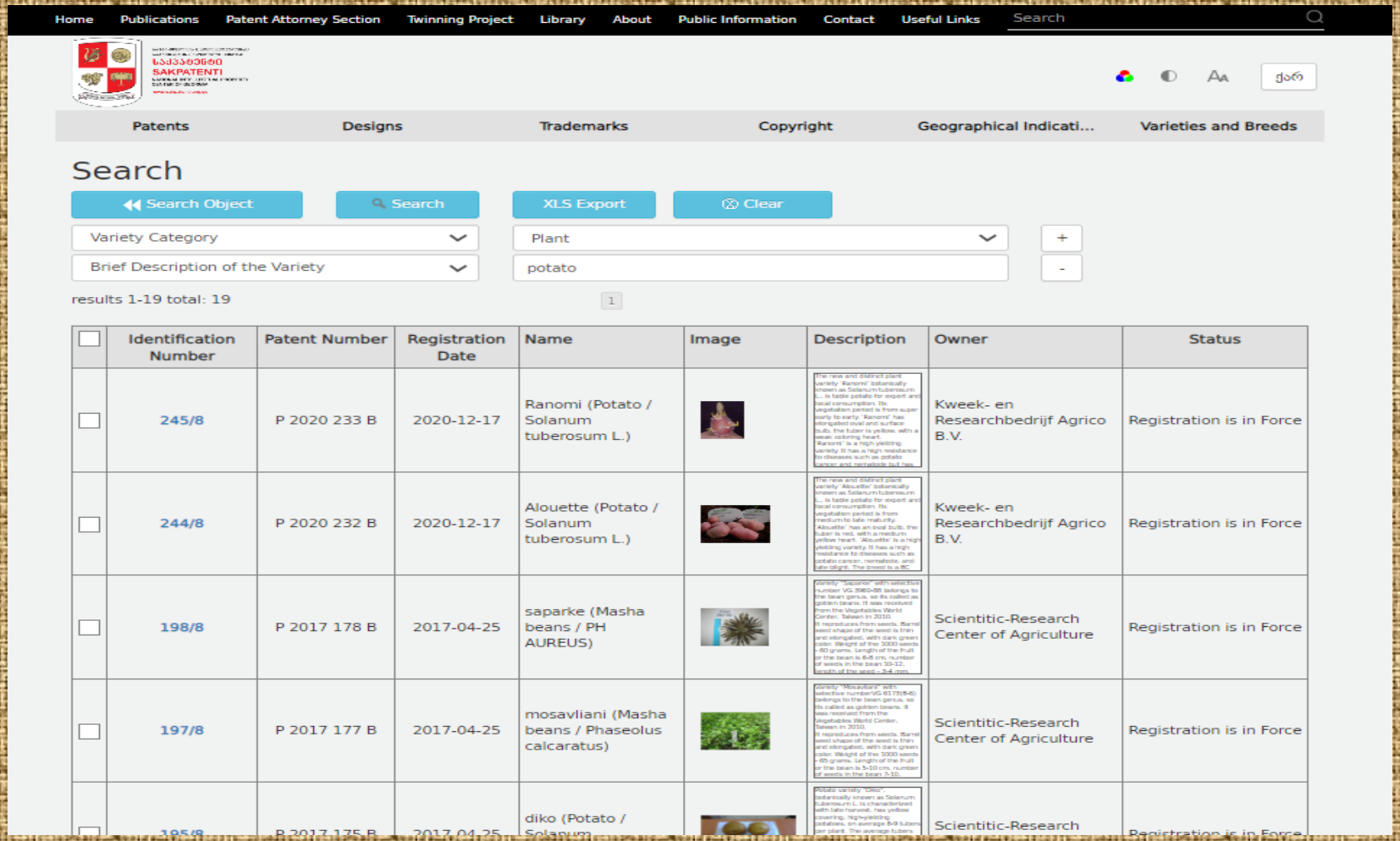
Patents

Registered potato varieties

https://www.sakpatenti.gov.ge/en/search_engine/search/8/

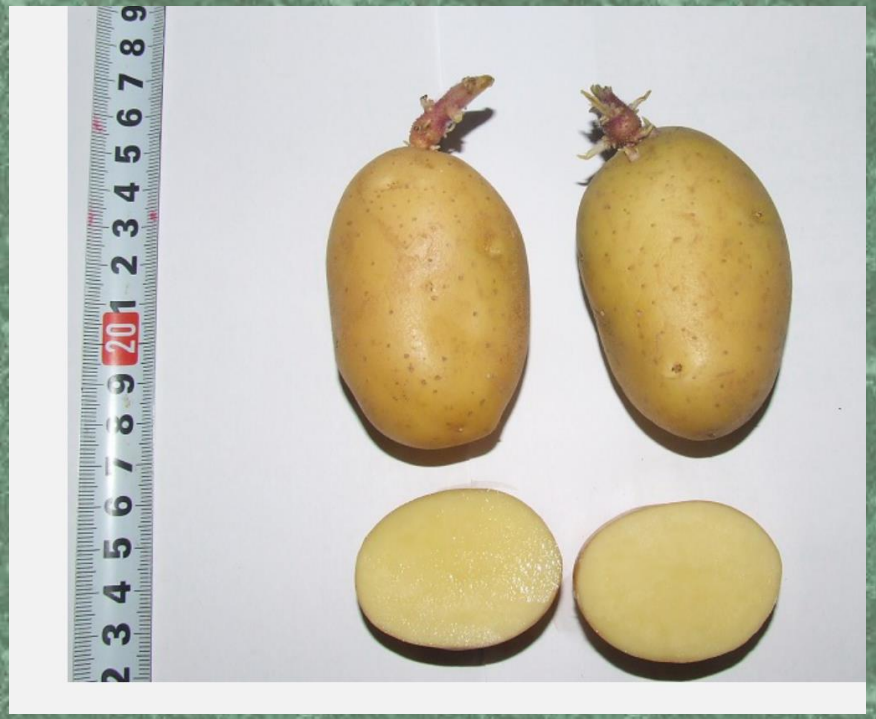


	Identification Number	Patent Number	Registration Date	Name	Image	Description	Owner	Status
☐	245/8	P 2020 233 B	2020-12-17	Ranomi (Potato / Solanum tuberosum L.)			Kweek- en Researchbedrijf Agrico B.V.	Registration is in Force
☐	244/8	P 2020 232 B	2020-12-17	Alouette (Potato / Solanum tuberosum L.)			Kweek- en Researchbedrijf Agrico B.V.	Registration is in Force
☐	198/8	P 2017 178 B	2017-04-25	saparke (Masha beans / PH AUREUS)			Scientitic-Research Center of Agriculture	Registration is in Force
☐	197/8	P 2017 177 B	2017-04-25	mosavliani (Masha beans / Phaseolus calcaratus)			Scientitic-Research Center of Agriculture	Registration is in Force
☐	195/8	P 2017 175 B	2017-04-25	diko (Potato / Solanum			Scientitic-Research	Registration is in Force

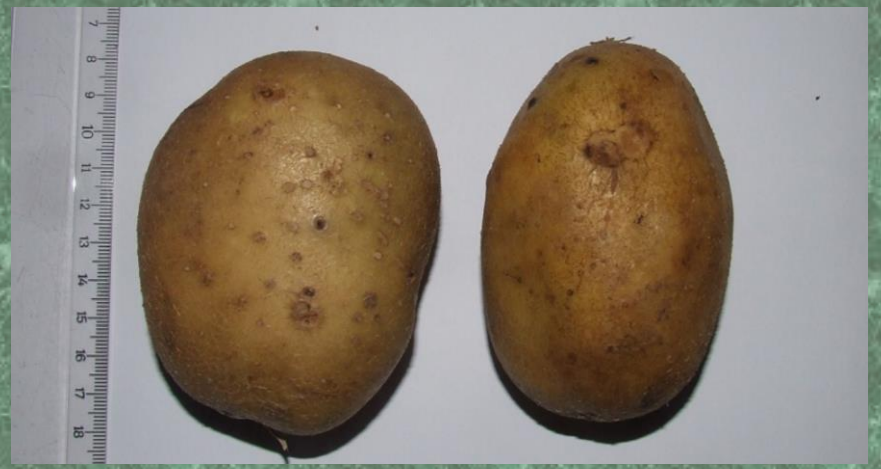
3 CIP clones Released

CIP 388611.22
Meskhuri Tsiteli

CIP 392797.22
Meskhuri



CIP 388615.22
Javakheturi



3 CIP clone processed to Released

Kazbeguri - 309092.7

Tskriala - 398208.620

Aisi - 396311.1

28 true seed (TS) families

#	CIP	Seeding Time	Seed Quantities	Emergency Start	Emergency End	Number of emerged plants	Transplanting Time	Feed Area	Height and Quantity of plantlets transplanted	Height of plantlets after 1 month from transplantation
1.	314970	30.07.2021	150	15.08.2021	18.08.2021	125	10.09.21	70/20	5-7 cm	20-25cm
2.	314954	30.07.2021	150	13.08.2021	15.08.2021	47	10.09.21	70/20	5-7 cm	20-25cm
3.	314961	30.07.2021	150	15.08.2021	17.08.2021	131	10.09.21	70/20	5-7 cm	20-25cm
4.	314950	30.07.2021	150	15.08.2021	16.08.2021	135	10.09.21	70/20	5-7 cm	20-25cm
5.	314959	30.07.2021	150	15.08.2021	17.08.2021	105	10.09.21	70/20	5-7 cm	20-25cm
6.	316396	30.07.2021	150	12.08.2021	14.08.2021	75	10.09.21	70/20	5-7 cm	20-25cm
7.	316400	30.07.2021	150	12.08.2021	13.08.2021	55	10.09.21	70/20	5-7 cm	20-25cm
8.	316401	30.07.2021	150	15.08.2021	16.08.2021	75	10.09.21	70/20	5-7 cm	20-25cm
9.	316402	30.07.2021	150	13.08.2021	15.08.2021	145	10.09.21	70/20	5-7 cm	20-25cm
10.	316404	30.07.2021	150	15.08.2021	17.08.2021	86	10.09.21	70/20	5-7 cm	20-25cm
11.	316406	30.07.2021	150	11.08.2021	12.08.2021	96	10.09.21	70/20	5-7 cm	20-25cm
12.	316419	30.07.2021	150	11.08.2021	12.08.2021	140	10.09.21	70/20	5-7 cm	20-25cm
13.	316421	30.07.2021	150	15.08.2021	16.08.2021	81	10.09.21	70/20	5-7 cm	20-25cm
14.	316424	30.07.2021	100	15.08.2021	17.08.2021	75	10.09.21	70/20	5-7 cm	20-25cm
15.	316434	30.07.2021	150	12.08.2021	14.08.2021	103	10.09.21	70/20	5-7 cm	20-25cm
16.	316435	30.07.2021	150	13.08.2021	15.08.2021	21	10.09.21	70/20	5-7 cm	20-25cm
17.	316437	30.07.2021	150	15.08.2021	18.08.2021	102	10.09.21	70/20	5-7 cm	20-25cm
18.	316448	30.07.2021	150	15.08.2021	17.08.2021	88	10.09.21	70/20	5-7 cm	20-25cm
19.	316455	30.07.2021	100	15.08.2021	18.08.2021	61	10.09.21	70/20	5-7 cm	20-25cm
20.	316459	30.07.2021	126	11.08.2021	12.08.2021	101	10.09.21	70/20	5-7 cm	20-25cm
21.	316475	30.07.2021	128	15.08.2021	18.08.2021	33	10.09.21	70/20	5-7 cm	20-25cm
22.	316478	30.07.2021	108	15.08.2021	17.08.2021	105	10.09.21	70/20	5-7 cm	20-25cm
23.	316488	30.07.2021	100	13.08.2021	15.08.2021	68	10.09.21	70/20	5-7 cm	20-25cm
24.	316490	30.07.2021	126	15.08.2021	18.08.2021	85	10.09.21	70/20	5-7 cm	20-25cm
25.	316498	30.07.2021	150	12.08.2021	14.08.2021	65	10.09.21	70/20	5-7 cm	20-25cm
26.	316501	30.07.2021	150	15.08.2021	16.08.2021	61	10.09.21	70/20	5-7 cm	20-25cm
27.	316502	30.07.2021	100	13.08.2021	14.08.2021	97	10.09.21	70/20	5-7 cm	20-25cm
28.	316507	30.07.2021	150	11.08.2021	13.08.2021	96	10.09.21	70/20	5-7 cm	20-25cm

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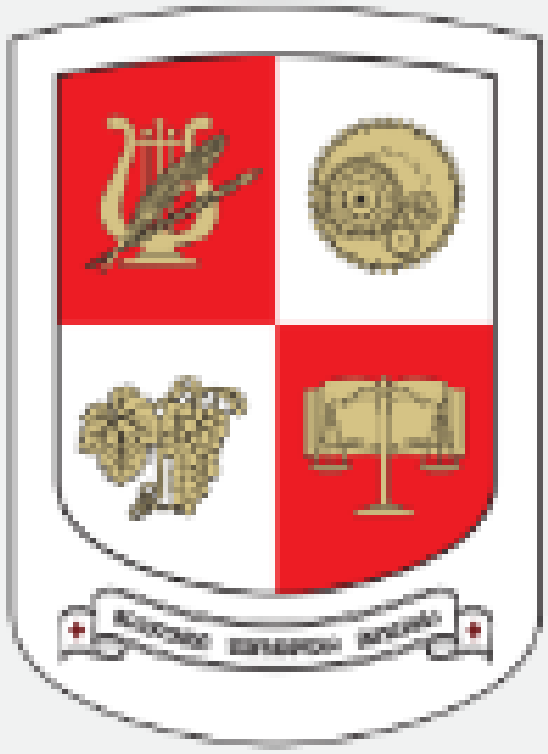
Gene Bank SRCA at the MEPA



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Patents

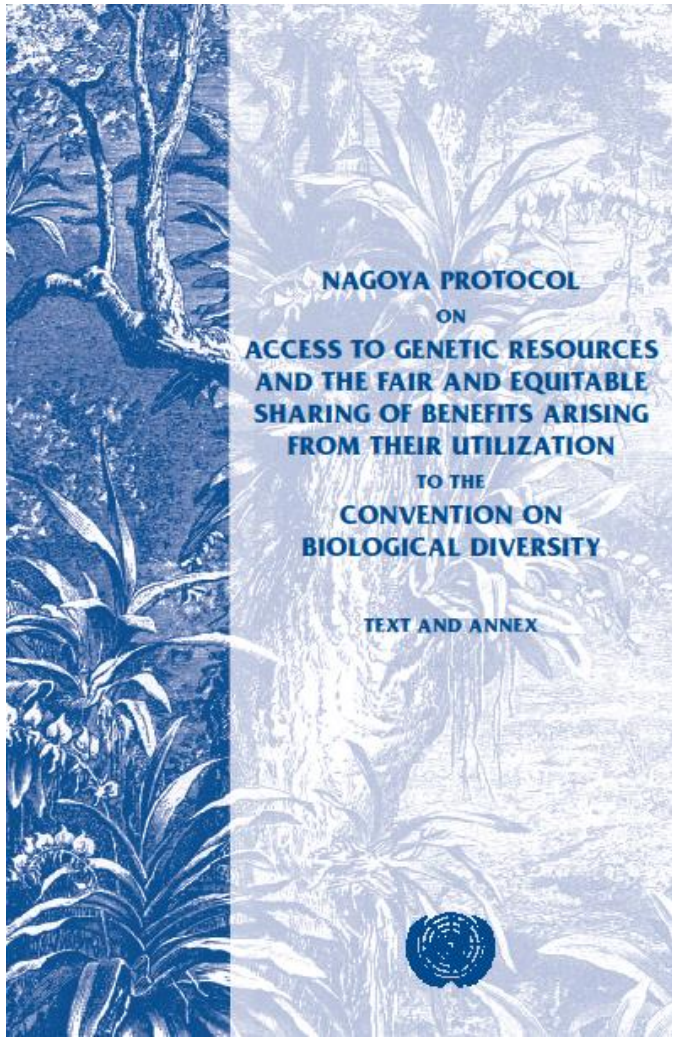
STRUCTURE

RESEARCH BASES OF SRCA

DEPUTY DIRECTOR

LABORATORY BASES

RESEARCH DIVISION OF PLANT MICRO-CLONAL REPRODUCTION (IN VITRO) AND VIRUS FREE PLANTING MATERIALS



NAGOYA PROTOCOL
ON
ACCESS TO GENETIC RESOURCES AND THE FAIR AND EQUITABLE SHARING OF BENEFITS ARISING FROM THEIR UTILIZATION
TO THE
CONVENTION ON BIOLOGICAL DIVERSITY

TEXT AND ANNEX

CONVENTION
ON BIOLOGICAL DIVERSITY

UNITED NATIONS
1992

The International Treaty
ON PLANT GENETIC RESOURCES FOR FOOD AND AGRICULTURE

International Treaty on Plant Genetic Resources for Food and Agriculture

Catalogue

UNDER TEST BY STATE VARIETY TESTING COMMITTEE
- UZBEKISTAN -

Accession Number of CIP 392797.22-UNICA
Country of Selection Peru, Lima
Country where cultivated Peru
Pedigree 387521.3 x APHRODITE

CHARACTERISTICS

Growing period, days 110

FLOWER
color pink
pedicel articulation position above the middle
inflorescence type simple
anther cone formation normal

LEAF
structure open
leaflet shape lanceolate

SPROUT
shape bulbous
color pink

TUBER
shape Oval-flattened
skin color red
flesh color yellow
dry matter, % 20
yield, t/ha 30-35
use chips

ADAPTATION
resistant to viruses, high iron and zinc content

INTERNATIONAL POTATO CENTER

		PEDIGREE				POPULATION INFORMATION	
ORD	Family Accession Number	Female Accn	Male Accn	Female Code	Male Code	Breeder	REMARKS
1	CIP314950	CIP394881.8	CIP300072.1	95.118	LR00.022	Mihovilovich, Elisa (CIP)	Base population for day neutral photoperiod
2	CIP314954	CIP388615.22	CIP300072.1	C91.640	LR00.022	Mihovilovich, Elisa (CIP)	Base population for day neutral photoperiod
3	CIP314959	CIP397039.53	CIP300072.1	C97.182	LR00.022	Mihovilovich, Elisa (CIP)	Base population for day neutral photoperiod
4	CIP314961	CIP392822.3	CIP300072.1	LR-93.073	LR00.022	Mihovilovich, Elisa (CIP)	Base population for day neutral photoperiod
5	CIP314970	CIP392822.3	CIP392820.1	LR-93.073	C93.154	Amoros, Walter (CIP)	Base population for day neutral photoperiod
6	CIP316396	CIP396311.1	CIP309093.043	C95.276	VHT-093.043	Amoros, Walter (CIP)	Virus Resistance; Drought and Heat Tolerance
7	CIP316400	CIP392820.1	CIP309022.032	C93.154	VHT-022.032	Amoros, Walter (CIP)	Virus Resistance; Drought and Heat Tolerance
8	CIP316401	CIP392820.1	CIP309050.036	C93.154	VHT-050.036	Amoros, Walter (CIP)	Virus Resistance; Drought and Heat Tolerance
9	CIP316402	CIP392820.1	CIP309056.005	C93.154	VHT-056.005	Amoros, Walter (CIP)	Virus Resistance; Drought and Heat Tolerance
10	CIP316404	CIP392820.1	CIP309103.085	C93.154	VHT-103.085	Amoros, Walter (CIP)	Virus Resistance; Drought and Heat Tolerance
11	CIP316408	CIP397073.16	CIP309093.043	WA.104	VHT-093.043	Amoros, Walter (CIP)	Virus Resistance; Drought and Heat Tolerance
12	CIP316419	CIP302476.108	CIP309112.098	LD-88.108	VHT-112.098	Amoros, Walter (CIP)	Virus Resistance; Drought and Heat Tolerance
13	CIP316421	CIP303381.30	CIP309093.043	LD-26.30	VHT-093.043	Amoros, Walter (CIP)	Virus Resistance; Drought and Heat Tolerance
14	CIP316424	CIP304349.110	CIP309103.085	LD-32.110	VHT-103.085	Amoros, Walter (CIP)	Virus Resistance; Drought and Heat Tolerance
15	CIP316434	CIP304369.22	CIP309050.036	LD-55.22	VHT-050.036	Amoros, Walter (CIP)	Virus Resistance; Drought and Heat Tolerance
16	CIP316435	CIP304369.22	CIP309093.043	LD-55.22	VHT-093.043	Amoros, Walter (CIP)	Virus Resistance; Drought and Heat Tolerance
17	CIP316437	CIP304369.22	CIP309112.098	LD-55.22	VHT-112.098	Amoros, Walter (CIP)	Virus Resistance; Drought and Heat Tolerance
18	CIP316455	CIP309028.032	CIP309050.036	VHT-028.032	VHT-050.036	Amoros, Walter (CIP)	Virus Resistance; Drought and Heat Tolerance
19	CIP316459	CIP309043.123	CIP309050.036	VHT-043.123	VHT-050.036	Amoros, Walter (CIP)	Virus Resistance; Drought and Heat Tolerance
20	CIP316475	CIP309071.037	CIP309093.043	VHT-071.037	VHT-093.043	Amoros, Walter (CIP)	Virus Resistance; Drought and Heat Tolerance
21	CIP316478	CIP309072.046	CIP309022.032	VHT-072.046	VHT-022.032	Amoros, Walter (CIP)	Virus Resistance; Drought and Heat Tolerance
22	CIP316481	CIP309092.007	CIP309093.043	VHT-092.007	VHT-093.043	Amoros, Walter (CIP)	Virus Resistance; Drought and Heat Tolerance
23	CIP316488	CIP309105.057	CIP309050.036	VHT-105.057	VHT-050.036	Amoros, Walter (CIP)	Virus Resistance; Drought and Heat Tolerance
24	CIP316490	CIP309105.057	CIP309112.098	VHT-105.057	VHT-112.098	Amoros, Walter (CIP)	Virus Resistance; Drought and Heat Tolerance
25	CIP316498	CIP309129.011	CIP309093.043	VHT-129.011	VHT-093.043	Amoros, Walter (CIP)	Virus Resistance; Drought and Heat Tolerance
26	CIP316501	CIP309131.016	CIP309050.036	VHT-131.016	VHT-050.036	Amoros, Walter (CIP)	Virus Resistance; Drought and Heat Tolerance
27	CIP316502	CIP309131.016	CIP309056.005	VHT-131.016	VHT-056.005	Amoros, Walter (CIP)	Virus Resistance; Drought and Heat Tolerance
28	CIP316507	CIP309137.095	CIP309050.036	VHT-137.095	VHT-050.036	Amoros, Walter (CIP)	Virus Resistance; Drought and Heat Tolerance

Characteristic	Measurement Standard	Threshold Level / Range
White grain	Visual; white=1	1
High grain yield	Machine harvest; grain weight at 15.5% moisture basis, expressed per unit of land	10% greater than Hybrid X (i.e. current best-yielding)
Medium maturity	Days to physiological maturity	110 – 115 day range (warm areas)
Tolerance to moisture stress	ASI (anthesis-silking interval) i.e. Days from 50% pollen shed to 50% silk emergence	-2 ≤ x ≤ 2
Stalk lodging	Estimated % affected plants/plot	≤5%
Root lodging	Estimated % affected plants/plot	≤5%
Northern corn leaf blight	1-9 scale; 1=best	Score ≤3
Gray leaf spot	1-9 scale; 1=best	Score ≤2
Diplodia ear rot	1-9 scale; 1=best	Score ≤2

SMTA

INTERNATIONAL POTATO CENTER (CIP)
Additional Terms and Conditions to the
Standard Material Transfer Agreement (SMTA)

SMTA No. SMTA-00AD19-00AL08-160701 SMTA Date. 1st July -2016

(CIP Phytosanitary Statement No. 2016-70)

Article 1 - Legal basis:
For the **Plant Genetic Resources for Food and Agriculture under Development** transferred under this SMTA, **CIP** imposes the following **Additional Terms and Conditions**, in accordance with the discretionary right accorded to the developer under Article 12(e) of the International Treaty on Plant Genetic Resources for Food and Agriculture.

Article 2 - Definitions:
Unless specified otherwise, definitions contained in Article 2 of the SMTA shall apply to these **Additional Terms and Conditions.**

Article 3 – The Material
Each **Plant Genetic Resource for Food and Agriculture under Development** listed in the Annex 1 of this SMTA is bred by CIP and shall individually and collectively constitute the **Material**. CIP retains all rights (including any current or future intellectual property rights) to the **Material.**

Article 4 – Additional Terms and Conditions
Recipient accepts to be bound and respect the following **Additional Terms and Conditions:**

1. Upon arrival of the **Material, Recipient** will inform **CIP** about the status in which the **Material** was received (survival and viability).
2. **Recipient** can do evaluations with the **Material**. **Recipient** is requested to share data obtained from evaluations with CIP in an Annual Report, by using the form provided by **CIP** (which can be modified by CIP from time to time), for inclusion in the CIP Global Trials Data Management System (https://research.cip.cgiar.org/confluence/display/GDET4RT/Home).
3. **Recipient** can do crosses and/or genetically engineer the **Material**. If **Recipient** makes crosses or genetically engineers the **Material, Recipient** must include this in the Annual Report. If **Recipient** releases a progeny or genetically engineers a product derived from the **Material** for commercial use, **Recipient** must include this in the Annual Report.
4. **Recipient** cannot transfer the Material to any other person or entity without first obtaining the prior written consent by **CIP**.
5. Upon request by CIP **Recipient** agrees to provide germplasm of the **Material** to CIP in **Recipient**'s country.
6. **Recipient** can evaluate the **Material** for variety release, and **Recipient** must first obtain a license agreement from CIP for releasing the **Material** for commercial cultivation and/or use.
7. If **Recipient** uses the **Material** for any scientific publication, **Recipient** should acknowledge CIP as the breeder and provider of the **Material** and list the CIP germplasm identifier as it appears in this SMTA.
8. **Recipient** will provide to CIP and **Annual Report** by electronic submission by end of February of each calendar year following the year the **Material** was received and for as long as the **Material** is maintained by **Recipient** . The **Annual Report** will contain at the minimum (i) the results of the evaluation of the **Material**; (ii) the list of crosses made and genetic engineering realized; (iii) the

CIP clone 392797.22

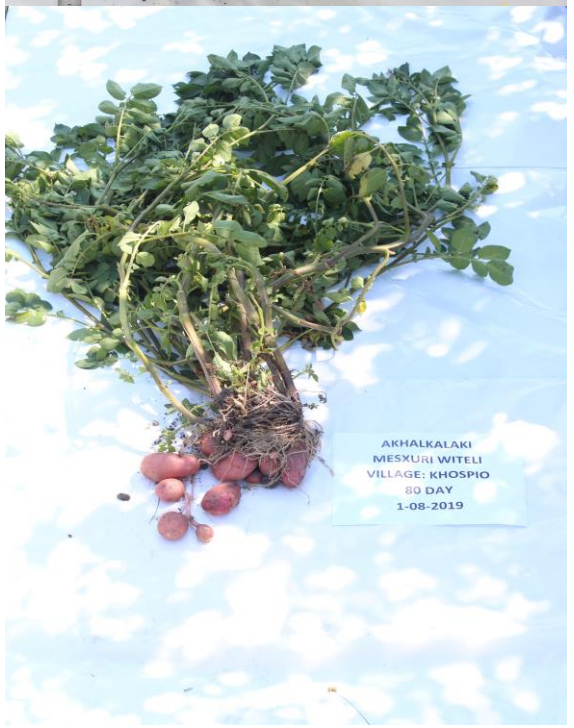
<u>Names:</u>

Peru – UNICA (1998)
Georgia – Meskhuri Tsiteli (2011)
China - Qingshu 9 (2011)
Tajikistan – Tajikiston (2013)
Uzbekistan – under process/ release

<u>Vegetation period (day neutral):</u>

Peru – 110 days
Georgia – 80-140 days (lowland/highland)
China - 120
Tajikistan – 80-90 days
Uzbekistan – 90 days

UNICA in different regions of Georgia



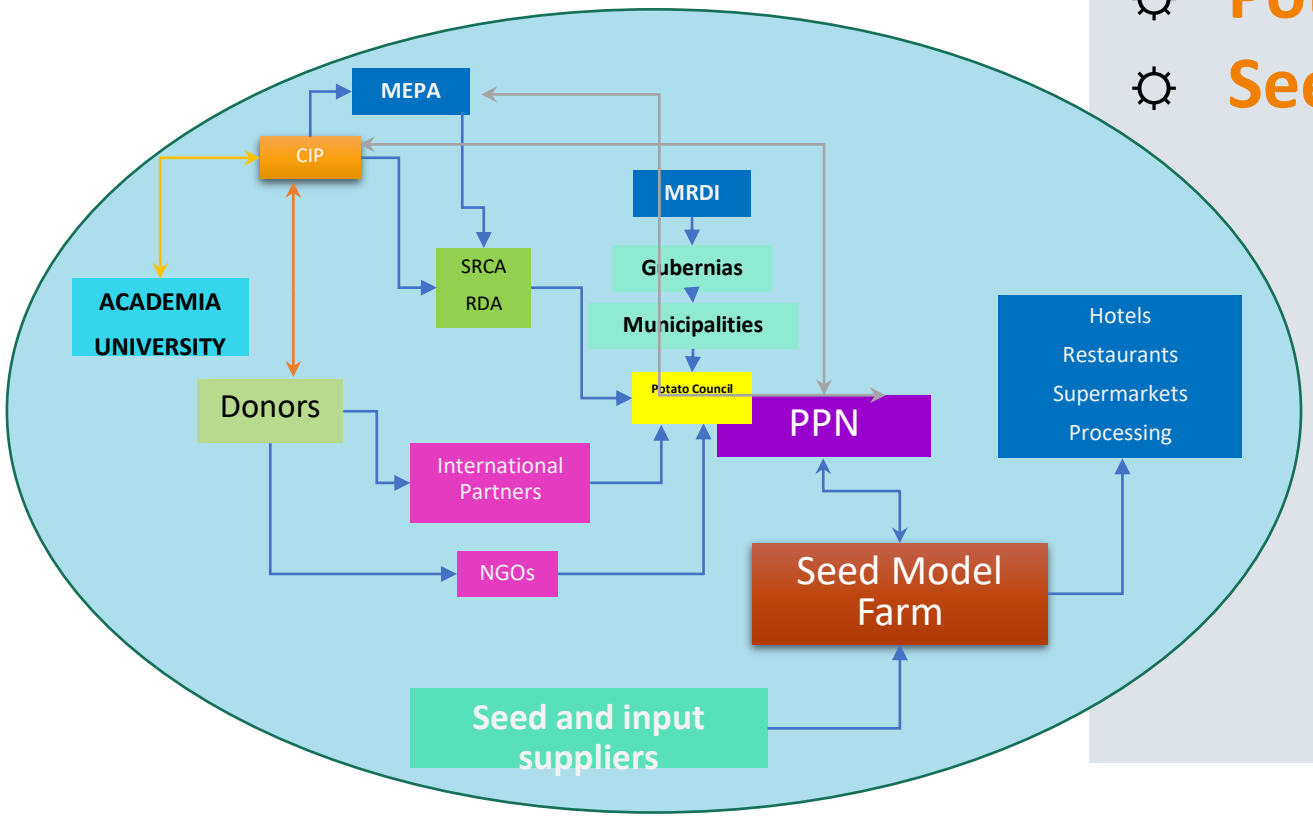
Technological Innovation

- Clonal selection –positive selection
- 3 Generation (3G) approach to seed and crop production
- Apical rooted cuttings
- True Seeds (TS)
- Breeding

Commercial Innovation

- Climate-smart varieties of potato replacing old varieties
- Seed certification
- Colored potato

Institutional Innovation

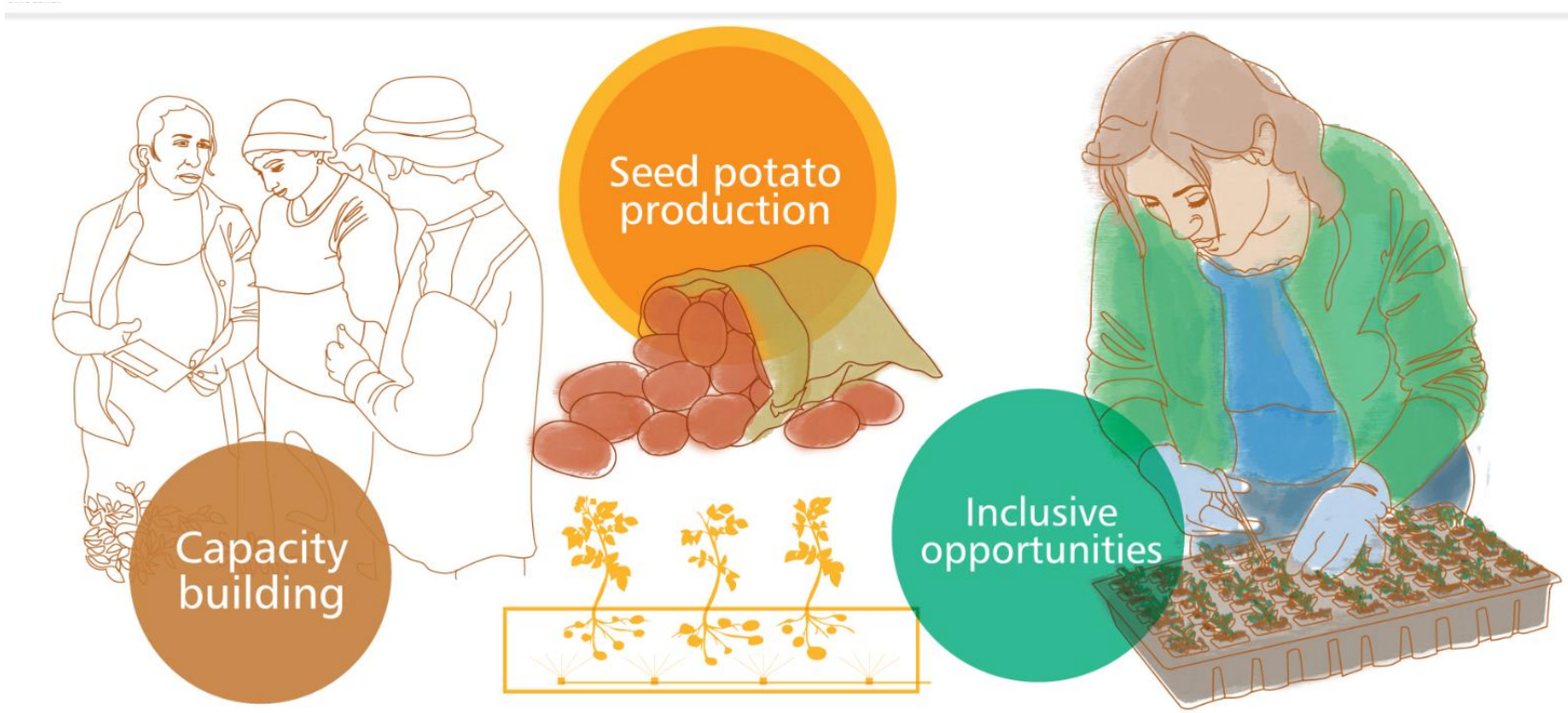


Multi-stakeholder potato platform

- Potato Producers' Network
- Potato Forum
- Potato Council
- Seed Multipliers' Union

Gender Equality

https://www.youtube.com/watch?v=WN7OxVIlA5k



Call for Action:

Development of Standards for material collection and registration considering national and international standards- Product Profiles.

Creation of online system of Product Profiles

Mapping of Existed and creation of new Centres of Excellence

Knowledge Exchange Network (KEN)


Tank you for attention