



Lomonosov Moscow State University

# Eurasian Center for Food Security



## Contents

**This Year’s Case Studies on Food Security in the Eurasian Region Have Been Published.....1**

**The Development of a Sweet Potato Fertilizer System in the Southern Regions of Russia and the Kyrgyz Republic.....2**

**Event Calendar 2020\*.....4**

*In the March newsletter, the ECFS Director talks about new case studies—one on the sustainable development of organic farmer cooperatives in Russia and one on improving the adaptive capacity of farmers and dehqan farms to climate change in the Nukus District of Uzbekistan.*

*ECFS scientists also discuss the results of the first program to introduce sweet potatoes in the southern regions of Russia and the Kyrgyz Republic.*

*New events in the field of food safety and nutrition replenished our calendar, which completes the March issue of the newsletter*

## This Year’s Case Studies on Food Security in the Eurasian Region Have Been Published

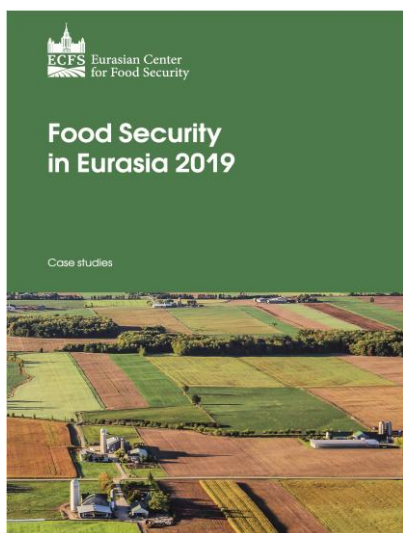
*By Sergey A. Shoba*

It has become a tradition to publish annual [compilations of case studies on various aspects of food security in Eurasian economies](#).

The Eurasian Center for Food Security (ECFS) implements this initiative and prepares materials together with the World Bank. Case study topics generally cover the most relevant food security issues on which recommendations should be made to allow prompt and effective decision making in the future. The 2019 edition contains two case studies concerned with important dimensions of food security in Eurasia.

Recently, organic agriculture has been discussed a great deal. This is a sector that aims to produce high-quality agricultural products in compliance with modern environmental standards. In Eurasian economies, this sector is beginning to develop mostly at the level of individual farms. However, to streamline the operation of the organic agriculture system, a number of steps need to be taken at the regional level: developing and supporting organic farmer cooperation, introducing efficient agricultural technologies, adopting and implementing unified regulatory legal acts, and so on.

Many of these issues and their implications are discussed in the study “The Role of Marketing Cooperatives in Developing Russia’s Organic Agriculture Value Chain” by Artur Rykalin and Sergey Meloyan.



Providing for food security in arid Central Asian countries is a matter with its own challenges. Farm activities are jeopardized by climate change, which increases drought intensity. The problem is most evident in the Aral Sea Region of Uzbekistan, where

60–80 percent of the population is rural. Agricultural production becomes a highly topical issue in the context of soil degradation and desertification. Putting in place a mechanism that would enable the population to adapt to the region’s climate challenges is matter of significance at both national and international levels. The authors of the study “Land Use Adaptation to

Prevent Adverse Effects of Climate Change on the Yield of Irrigated Croplands in the Nukus District”, *Uzbekistan* - Tatyana Khamzina, Maria Konyushkova, and Marina Nechaeva conducted an in-depth analysis of the negative implications of climate change for the agriculture sector of the Nukus District in Karakalpakstan. They propose necessary climate-smart agriculture strategies and state support measures for agricultural producers.

Case study materials have been traditionally used in management decision making at the regional level as well as in the training of various food security specialists. ECFS and the World Bank came up with the plan to organize training in food security issues for 14 young teachers from the Eurasian region based on the earlier published case studies. In January 2020, Moscow State University held a weeklong workshop under the guidance of Derrill Watson and James Gentry from the Tarleton State University (United States) and with the participation of ECFS teachers. During the training week, the trainees not only listened to lectures but also had a detailed discussion of specific study case issues - such as the application of modern technologies with a view to promoting and using case study results for practical and educational purposes.

The publication is available on the [ECFS website](#).

## The Development of a Sweet Potato Fertilizer System in the Southern Regions of Russia and the Kyrgyz Republic

*By Vladimir Romanenkov and Tatiana Bolisheva*

ECFS launched a program to introduce sweet potatoes in the southern regions of Russia and the Kyrgyz Republic in 2018. This program meets ESFC objectives in the field of natural resources and agricultural development: it includes field studies intended to clarify soil and climatic conditions and to determine technical and technological possibilities for diversifying crop production and developing climate-adapted practices and innovative methods to increase the productivity of agricultural plants in countries in the focus region.

Taking second place in the world in potato consumption per capita, the Kyrgyz Republic faces many challenges in potato growing. Among these are the lack of seed material that is virus-free, the need for new varieties, material production resources, and high price volatility for products.



Sweet potato tubers obtained at the experimental site in the Kyrgyz Republic

In 2018, field experience was established with sweet potato cultivar Pobeda in the Krasnodar Territory at the All-Russian Research Institute of Floriculture and Subtropical Crops. Field studies with sweet potato cultivar Mahalli in the Chui valley of the Kyrgyz Republic [were carried out jointly](#) (in Russian only) with the Kyrgyz Research Institute of Agriculture in 2019 in the Chui region.

In its chemical composition, sweet potato is a more valuable crop than potato. The content of sweet potato's carbohydrates, calcium, and iron significantly exceed those of potatoes, and its caloric content is 1.5 times higher. In addition, sweet potato contains inulin, which helps to reduce human blood sugar, increases bone's assimilation of calcium, is a natural immunomodulator, and has a pronounced choleric effect. Sweet potato tops are good green cattle feed. The main technological advantages of sweet potato over potatoes are that they exhibit a much higher reproductive rate. Sweet potatoes, unlike potatoes, have no specific pests and diseases, which makes them less costly to produce in terms of plant protection.



Experimental plot in the Krasnodar region before harvest

The research program on the introduction of sweet potato in the southern regions of Russia and the Kyrgyz Republic is especially relevant to the goals of accelerating the introduction of new crop cultivation technologies in the vegetable growing sector, increasing food security, and boosting the competitiveness of the sector and its attractiveness to farmers.

As a result of the studies, the following conclusions were reached:

1. Sweet potato is a crop that is responsive to mineral fertilizers. With improved mineral nutrition, productivity increased by 1.3–3.0 times. The positive effect of using a complete mineral fertilizer can be traced by looking at soil with a high level of nutrients.
2. An increase in the dose of mineral fertilizer, without affecting the yield of sweet potato tubers, can improve their quality in terms of the protein content in tubers and the above-ground phytomass of sweet potato, and tubers' inulin content and macro- and microelements content. So, increasing the dose of mineral fertilizers, as well as introducing copper and zinc fertilizers, allowed the level of inulin to increase to 11–12 percent more than it is without these mineral fertilizers.
3. The possibility of controlling the quality of sweet potato tops for use as cattle and poultry feed has been proven. The application of fertilizers had a positive effect on their protein content, as well as on their phosphorus content.
4. The effectiveness of a complete mineral fertilizer can be improved by combining zinc and copper chelated forms of micronutrient fertilizers with soil that has an insufficient content of these elements. This effect can be traced both on yield and product quality.
5. The effectiveness of the use of macro-fertilizers in doses of  $N_{60-100}P_{60}K_{60-100}$  to control the yield and quality of sweet potatoes both in rainfed cultivation and in irrigated cultivation. The effectiveness of the use of trace elements—copper and zinc—against the background of the use of a complete mineral fertilizer should be evaluated on the basis of the capacity of a soil to hold nutrients.

A full assessment of the effectiveness of macro- and micronutrient fertilizers for sweet potato will be obtained after the completion of analytical studies on plant and soil samples from the 2019 experiments. Watch the ECFS website for the publication of this assessment.

## Event Calendar 2020\*

Date	City. Country	Event
March 24–26	Krasnodar, Russia	<a href="#">International Scientific Ecological Conference "Agricultural Landscapes, Their Sustainability and Features of Development"</a> (in Russian only)
May 3–8	Vienna, Austria	<a href="#">EGU (European Geosciences Union) General Assembly</a> Registration is paused.
May 5–7	Tashkent, Uzbekistan	<a href="#">FAO Regional Conference for Europe (ERC 32)</a>
May 15–16	Simferopol, Crimea	<a href="#">Scientific and practical conference "Rational use of natural resources in agrocenoses"</a>
May 25	Moscow, Russia	International Conference on Agriculture, Food Security and Nutrition in Eurasia Featuring IFPRI's 2019 <i>Global Food Policy Report</i> (website is not available yet)
May 26–27	Moscow, Russia	Second Global Forum on Food Security and Nutrition (website is not available yet)
May 28–30	Alanya, Turkey	<a href="#">4th International Conference on Food and Agricultural Economics</a>
June 1–12	Tashkent, Uzbekistan	<a href="#">Regional Training Course (Summer School) on Applied Econometric Analysis</a>
June 1–3	Rome, Italy	<a href="#">The Global Symposium on Soil Biodiversity (GSOBI20)</a> (Registration is open until May 22)
June 4–5	Rome, Italy	<a href="#">8th session of the GSP Plenary Assembly</a> (Registration is open until March 30)
June 16–19	Montpellier, France	<a href="#">4th International Conference on Global Food Security</a>
June 24–26	Halle (Saale), Germany	<a href="#">IAMO Forum 2020 Digital Transformation: Towards Sustainable Food Value Chains in Eurasia</a>

Date	City. Country	Event
August 7–14	Syktyvkar, Russia	<a href="#">VIII Dokuchaev Congress of the Society of Soil Scientists. and the School of Young Scientists on Soil Morphology and Classification</a> (in Russian only)
August 15–23	Gorno-Altai, Russia	<a href="#">XIVth International Symposium and Field Workshop on Paleopedology (ISFWP-XIV) Paleosols, Pedosediments and Landscape Morphology as Archives of Environmental Changes</a>
August 24–28	Geneva, Switzerland	<a href="#">EUROSOIL 2020</a>
August 30–September 3	Kraków, Poland	<a href="#">16th International Conference on Soil Micromorphology</a>
September 14–19	Tomsk, Russia	<a href="#">The 7th International Scientific Conference "Reflection of Bio-, Geo-, Antropospheric Interactions in Soils and Soil Cover," held in connection with the 90th anniversary of the Soil Science and Soil Ecology Department of Tomsk State University</a>
September 22	Moscow, Russia	<a href="#">International scientific and practical conference dedicated to the 200th anniversary of the Moscow society of agriculture on the theme: "Historical heritage of the Moscow society of agriculture and modern agricultural modernization in Russia"</a> (in Russian only)
October 12–16	Tashkent, Uzbekistan	<a href="#">Global Symposium on Salt-Affected Soils</a>
October 19–20	Moscow, Russia	International Scientific and Practical Conference "Poverty of the Rural Population of Russia: Genesis, Overcoming Ways, Forecast" (website is not available yet, send questions by e-mail: nikonovskie-chtenia@mail.ru)
October 20-23	Rome, Italy	<a href="#">4th GLOSOLAN meeting</a>
November 9–13	Pushchino, Russia	<a href="#">Scientific conference with international participation "Soil as A Component of the Biosphere: Evolution, Functioning and Environmental Aspects", dedicated to the 50th anniversary of the Institute of Physico-Chemical and Biological Problems of Soil Science of the Russian Academy of Sciences.</a> (in Russian only)

\* information is current on March 12, 2020. Check the event's website for updates.