



Lomonosov Moscow State University

Eurasian Center for Food Security

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Photo Credit: Green Training Center

In the October issue of the Newsletter ECFS expert discusses malnutrition challenges in Armenia, the Kyrgyz Republic, Russia, Tajikistan and Uzbekistan. We are also happy to announce the workshop Disruptive Agricultural Meteorology for Agricultural Decision Support that will be held in Yerevan on November 1 for the Annual Eurasian Food Security Conference participants.

As always, the Newsletter ends with an updated Event Calendar.

Workshop on Digital and Disruptive Agricultural Meteorology for Agricultural Decision Support

The [Annual Eurasian Food Security Conference](#) is the major event promoting food and nutrition security in the Eurasian region. Conference participants will have many opportunities for both learning and networking. Conference includes presentations, panel discussions, thematic and poster sessions, as well as field trips, Armenian wine tasting and gala dinner. Moreover, those who would like to gain new skills are welcome to participate in the [Workshop on Digital and Disruptive Agricultural Meteorology for Agricultural Decision Support](#).

During the workshop participants will learn:

- how to interpret meteorological data and prepare recommendations for agricultural producers in order to efficiently use resources and optimize the costs of field work;
- how the high-resolution meteorological data can be accessed;
- how to use “R” – a programming language for statistical computing and graphics programming to access large data sets.

During the workshop, participants will acquire certain skills on the use of Application Programming Interface (API) and deploy R scripts along with QGIS – a free and open-source cross-platform desktop

GIS application that supports. The workshop will prepare participants to advance via additional future training to:

1. Make the high-resolution Ag Meteorological Data more easily accessible to communities of users (including Governments and companies).
2. Integrate artificial intelligence and machine learning for:
 - Ag met data checking, validation and interpolation improvements in real time;
 - Automated Ag Met data matching to crop calendar and crop phenology stages and inputs for modeling crop production;
 - Providing guidance and predict new areas for crop suitability that confer enhanced resilience to buy time.



Presentation slide example Workshop on Digital and Disruptive Agricultural Meteorology for Agricultural Decision Support

The Ag Observatory's network of virtual meteorological stations offers an opportunity to generate contiguous "weather surfaces" or layers based on daily data archive from more than 10 years (maximum and minimum temperatures, precipitation, solar radiation, relative humidity, potential evapotranspiration, and wind speed). Weather surfaces make it possible to project specific weather conditions in the approximately 9×9km. Integrating such agrometeorological data with other data - such population density, crop types, farm boundaries, distance to markets, and soil types and properties - creates a powerful mechanism for comparing and contrasting environmental variables across hyperlocal to global agricultural land and thus estimate potential crop performance factors in near real time. A seven-day forecast can be also generated for any selected region, which facilitates proactive recommendations to farmers about the optimal timing for the imple-

mentation of critical agricultural activities across the entire agricultural value chain (e.g. input supplies, sowing, fertilizing, pesticide applications, harvesting, storage and and transport, marketing).

The workshop will take place on **November 1**, in the [Armenian National Agrarian University \(ANAU\)](#).

The training in Yerevan, as well as the previous Moscow training which was held in Moscow on April 2019, will be lead by experts from the AgObservatory - a World Bank project - Erick Fernandez and Carolina Franca.



The participants of the Ag Observatory workshop, Lomonosov Moscow State University

The AgObservatory uses information from open access platforms, such as Global Crop Monitoring ([GEOGLAM](#)), the UN-FAO Global Information & Early Warning System ([GIEWS](#)), Anomaly Hotspots of Agricultural Production ([ASAP / JRC-AS](#)), etc., and with the help of a private agricultural meteorology data partner [aWhere Inc.](#), it is possible to use such digital data in a completely unique way. The application of Machine Learning helps to create a network of virtual weather stations across the agricultural land of the planet and results in the generation of 1.5 million virtual meteorological weather (5 arc-minutes grid) that results in 7 billion data points updated every six hours. In this way, a huge amount of potentially very useful agricultural weather data is generated in high resolution and in near real-time.

Conference participants are invited to participate in the workshop in Yerevan. Please see the agenda by following [link](#), video about the project is [here](#). To view the agenda updates and speakers' biographies, see to the conference website - [ecfs2019.org](#).

Malnutrition Challenges in Armenia, the Kyrgyz Republic, Russian Federation, Tajikistan and Uzbekistan

By Elena Belova

Monitoring and analysis of food security and nutrition in the countries of the focus region (Armenia, the Kyrgyz Republic, Russia, Tajikistan and Uzbekistan) is an important issue of ECFS research activity. Food insecurity in combination with other factors leads to an abnormal physiological state of the human body, which is defined as malnutrition. In this publication ECFS expert **Elena Belova** is analysing the problems of malnutrition based on data of [World Health Organization \(WHO\)](#) and [Food and Agriculture Organization \(FAO\)](#) in focus region.

Malnutrition in one or more of its three main forms – undernutrition, overweight and obesity, and micronutrient deficiencies – is present to varying degrees in all countries of the region.

An analysis of these indicators is a necessary element in assessing food security and nutrition. It is important since these indicators are the key to fulfilling and achieving [Sustainable Development Goal 2 \(SDG2\)](#).

While the overall malnutrition situation in the focus region has improved, a problem of undernourishment (hunger) in the region now constitutes a significant issue. Two indicators, based on [the Food Insecurity Experience Scale \(FIES\)](#): the Prevalence of Undernourishment and the Prevalence of moderate or severe food insecurity in the population demonstrate this fact. This problem is the most relevant in Tajikistan, Kyrgyz Republic and Uzbekistan (Table 1).

Country	Prevalence of Undernourishment (PoU)	Prevalence of severe food insecurity in the population	Prevalence of moderate and severe food insecurity in the population
Armenia	4.3	4	34.3
Kyrgyz Republic	7.1	5.1	23.9
Russia	<2.5	<0.5	6.2
Tajikistan	no data	9.6	29.6
Uzbekistan	6.3	no data	no data

Data source: [FAOSTAT](#)

One third of the population in Armenia, slightly less than a third of the population in Tajikistan, almost a quarter of the population in the Kyrgyz Republic and about 6% of population in Russia suffer from moderate and severe food insecurity.

In Armenia, the Kyrgyz Republic, Tajikistan and Uzbekistan exists creating what is called the “triple burden” of malnutrition: combination of undernutrition, overnutrition and micronutrient deficiency.

Overweight and obesity remains one of the most fundamental challenges for all countries, meanwhile the highest rates of overweight and obesity is in Russia and Armenia.

One of indicator of micronutrient deficiency is the presence of anemia among childbearing women aged 18–49 years and pregnant women. The prevalence of anemia among women in this category is very high in all countries except Russia, extremely high - among pregnant women in the Kyrgyz Republic (Table 2).

Country	Overweight	Obesity	Anemia (childbearing women)	Anemia (pregnant women)
Armenia	54.4	20.2	29.4	35.5
Kyrgyz Republic	48.3	16.6	36.2	39.8
Russia	57.1	23.1	23.3	24.0
Tajikistan	45.3	14.2	30.5	33.5
Uzbekistan	48.2	16.6	36.2	24.9

Data source: [WHO. Global Health Observatory data repository](#)

Childhood malnutrition has serious consequences on their health, physical and cognitive development, for future social adaptation and living standards. Wasting and stunting of children under 5 years associated with malnutrition diagnosed in Tajikistan, the Kyrgyz Republic and Armenia. Problem of childhood overweight exists in Armenia, in the Kyrgyz Republic nearly a half, in Uzbekistan - more than a third of young children are suffering from anemia (Table 3).

Country	Wasting	Stunting	Overweight	Anemia
Armenia	4.5	9.4	13.7	31.5
Kyrgyz Republic	2.8	12.4	7.0	49.0
Russia	no data	no data	no data	25.7
Tajikistan	5.6	17.5	5.7	31.3
Uzbekistan	no data	no data.	no data	36.6

Data source: [WHO. Global Health Observatory data repository](#)

Recent data analysis shows that the region has not yet overcome problems related to food security and nutrition, and reveals the concern remain regarding the persistence

of the triple burden of malnutrition. Also the problems of children's undernourishment deficiency in micronutrients and obesity are crucial today.

With the support of the World Bank ECFS conduct systematic research together with experts from the countries

of the focus region and develops recommendations for executive authorities on measures aimed on enhance food security. In particular, a series of [Case Studies](#) on food safety in the countries of the region are dedicated to this issue.

Event Calendar 2019/2020

Date	City. Country	Event
October 7-31	-	Soil Research Projects in the Eurasian region. Applications will be accepted from 7th October to 31 st October 2019
October 23-24	Bishkek, the Kyrgyz Republic	2019 Life in Kyrgyzstan
October 29-31	Yerevan, Armenia	The Eurasian Food Security Conference 2019
November 12-13	Shymkent, Kazakhstan	Annual Central Asian Trade Forum
November 20-21	Dubai, United Arab Emirates	Global Forum on Innovations for Marginal Environments 2019
December 2-6	Cape Coast, Ghana	RUFORUM 15th Annual General Meeting (AGM)
December 5-6	Sochi, Russia	World Soil Day - 2019
January 27-31. 2020	Moscow, Russia	Training for University Professors in the use of the Case Study Methodology in Food and Nutrition Policy teaching programmes
June 16-19. 2020	Montpellier, France	4th International Conference on Global Food Security