Anton has an international educational background in **Agronomy** and **Biotechnology**, 8 years of research experience. He has worked with Marker-assisted selection in tomato breeding, **nutraceutical product development,** and **advisory service** in crop protection. Author and co-author of 8 scientific works in plant science and agricultural policy.

Education

10/2018 – 03/2022 **Ph.D. in Agrobiosciences.** Sant'Anna School of Advanced Studies, Pisa, Italy.

In collaboration with 31 experts from 9 organizations I developed the technology, possibly allowing to prevent malnutrition. I conducted 4 field and 3 laboratory experiments on tomato biofortification, analyzed collected data, and reviled biological mechanisms triggered by selenium in plants.

Greenhouse trials: Setting up and maintenance of **hydroponic irrigation systems**, nutrient solution preparation, **fertility management** and quality monitoring (pH, EC). Plant monitoring under the **stress** (drought, temperature, salinity). Evaluation of photosynthesis and respiration: fluorimetry and CO2/H2O gas analysis (CIRASII).

Laboratory analysis: Chemical analysis of plant-based material, Mineral composition determination: Atomic Absorption (**AA**) Spectrometry; gas chromatography mass spectrometry (**GC-MS**), Assessment of **biochemical composition**: Volatile organic compounds analysis (VOCs), Carotenoids and polyphenols assays using High Performance Liquid Chromatography (**HPLC**); Near-infrared spectroscopy; basics of Nuclear Magnetic Resonance (**^{1}H-NMR**).

The results are reported at **3 scientific conferences**, in **4 peer-reviewed publications,** and in the Ph.D. dissertation.

02/2017 – 01/2018 **Agricultural Biotechnology** exchange program (Erasmus+). Szent István University, Gödöllő, Hungary.

09/2016 – 08/2018 **MSc in Agronomy** *(with honors).* Russian State Agrarian University –
09/2012 – 08/2016 **BCs in Agronomy** Moscow Timiryazev Agricultural Academy

Nucleic acids extraction and quantification, primer design and validation, **PCR** optimization, gel and capillary electrophoresis, basics of **Fragment Analysis**.

Additional training

03/2022 Seasonal school «Advancements in **Postharvest technologies** to reduce losses and improve nutritional and functional properties of fruit and vegetables». Sant'Anna School of Advanced Studies, Pisa, Italy.

09/2013 – 07/2016 Qualification of **Interpreter and Translator** (English <–> Russian).
Linguistic Educational Center of RSAU-MTAA, Moscow.

08/2015 Seasonal school «**Biotechnology in Agriculture**», RSAU – MTAA, Moscow, Russia.

Working experience

01/2022 – Present
7 months Research fellow. Life Science Institute, Sant'Anna School of Advanced Studies, Pisa, Italy.
Collaborating on the project aimed to improve **nutraceutical properties** of olive oil.

08/2021 – 12/2021
4 months Visiting researcher (Erasmus+). Laboratory of Genomics and Biotechnology of Fruit, INP-ENSAT, Toulouse, France. Discovered molecular mechanisms of selenium impact on biochemical composition of tomato using **Big Data analysis** and Gene expression analysis: Quantitative Real-time PCR (qRT-PCR), RNA-seq library preparation (Illumina NovaSeq 6000 SP). Design, implementation and operation of bioinformatics pipeline using **UNIX**-based tools for NGS applications.

07/2021 *1 week* Visiting researcher. University of Bari (Italy). Performed the trial showed that selenium decreased pathogen incidence and may **reduce postharvest losses**.

02/2018 – 08/2018
6 months Laboratory assistant. Laboratory of **Agrobiotechnology**, SINTOL Company / All-Russia Research Institute of Agricultural Biotechnology / Ilyinichna (crop breeding company), Moscow. Developed **molecular markers** allowing to faster breed F1 tomato hybrids with higher carotenoids content.

06/2015 – 09/2015
3 months Trainee. All-Russian Scientific Research Institute of Horticulture, Moscow Region.
Phenotyping, basic **metabolomic analysis** applied in F1 tomato hybrids breeding.

05/2014 – 06/2014
2 months Consultant. JSC August Inc., Moscow. **Advisory service**, sales reporting in the retail (crop protection).

Skills

Data analysis	Biological data **collection and systematization**; quality check, analytics and interpretation of large datasets coming from high-throughput technologies («omics» data) using **UNIX** and **R** programming: Differential gene expression (DGE) analysis, Gene Ontology enrichment, KEGG Pathway. Basics of Correlation-based network analysis. Results visualization and presentation.
Languages	Russian: mother tongue; English: fluent (C1); Italian: independent (B2), Hungarian: basic (A1). Providing events and text translation (EN <–> RU). **Computer-assisted translation**: Trados, PROMT.

Publications

Se-Enrichment Pattern, Composition, and Aroma Profile of Ripe Tomatoes after Sodium Selenate Foliar Spraying Performed at Different Plant Developmental Stages. Meucci A, Shiriaev A, Rosellini I, Malorgio F, Pezzarossa B. *Plants*. **2021**; 10(6):1050. https://doi.org/10.3390/plants10061050

Selenium enrichment of tomato plants with nanoparticles: improved fruit quality, physiological performance, and increased nutraceutical value. Shiriaev A., Pezzarossa B., Malorgio F., Tonutti P. *Acta Italus Hortus* 26, Catania, Italy, **2021**. ISSN 1127-3496

Use of molecular markers to study pigment and antioxidant accumulation in tomato leaves and fruits. Ignatova S, Babak O, Solovyov A, Shiriaev A, Bagirova S. *XIX EUCARPIA Meeting of the Tomato Working Group,* Naples, Italy, **2018.**

Russia's WTO accession: advantages and disadvantages. Agricultural aspects. Shiriaev A. *Economic development problems of Russian agro-industrial complex*, Moscow 2015, p 153, ISBN 978-5-94558-315-8 (in Russian).

The impact of Russia's accession to the WTO on the development of agrarian policy. Shiriaev A. *Innovative development of socio-economic systems,* Ulyanovsk, Russia 2015, p 442-447, ISBN 978-5-9795-1388-1 (in Russian).

Conferences

European Cooperation in Science and Technology (COST) Action annual meeting: Oxygen sensing a novel mean for biology and technology of fruit quality. Chania, Greece 2021.
Project: Se enriched tomato fruit: improved physiological properties and increased nutraceutical value.

XIII Giornate Scientifiche SOI «I traguardi di Agenda 2030 per l'ortoflorofrutticoltura italiana». Catania, Italy 2021.
Project: Selenium enrichment of tomato plants with nanoparticles: improved fruit quality, physiological performance, and increased nutraceutical value.

3 International student conferences at the Russian State Agrarian University – Moscow Timiryazev Agricultural Academy.
Presented projects:

2016: Molecular marker system development for genes, responsible for the lycopene synthesis in Tomato fruit.
2015: Russia's WTO accession: advantages and disadvantages. Agricultural aspects.
2014: Improvement technologies of agricultural machinery recycling.

Personal interests

Active in non-profit initiatives in the fields of public health. An author of over 100 poetry pieces in Russian and English.

Privacy statement: I hereby authorize the processing of personal data contained in my curriculum vitae.