# TECHNOLOGICAL CHANGES AND SKILLS NEEDS IN THE AGRI-FOOD SECTOR N NORTH MACEDONIA: ORGANIC FOODS

## SUMMARY REPORT

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# INTRODUCTION

This summary report[1] forms part of a broader study on the technological changes and skills needs of the Western Balkan agri-food sector, conducted by the European Training Foundation (ETF). The aim of this summary report is to examine the potential of organic food production in North Macedonia from the perspective of skills supply and demand.

The study aims to inform a foresight exercise on technological changes and skills needs in the organic food sector of North Macedonia. The purpose of the foresight exercise is to identify concrete skills related measures to support the accelerated development of the sector in preparation for the single market.

# OVERVIEW

Organic farming is an agricultural method that aims to produce food using natural substances and processes. Producing organically means respecting the rules on organic farming, which are designed to promote environmental protection, maintain biodiversity and build consumer trust in organic products. Organic farming rules also encourage a high standard of animal welfare and require farmers to meet the specific behavioural needs of animals. In 2021, the EU adopted an action plan for the development of organic production to support both production and consumption and to further enhance sustainability, in line with the European Green Deal, the Farm to Fork Strategy and the Biodiversity Strategy.

EU citizens increasingly value organic products. Based on the 2020 Eurobarometer survey on EU agriculture and the Common Agricultural Policy (CAP), citizens believe that organic products are more likely to comply with specific rules on pesticides, fertilisers, and antibiotics (82 % agreed), are more environmentally friendly (81 %) and are produced with higher respect for animal welfare (80 %). According to the survey, 56 % of citizens recognise the organic logo, up from 27 % in 2017[2]. The retail sales of organic products in the EU doubled between 2015 and 2020.

The share of agricultural land under organic farming in the EU is growing rapidly. Over the period 2012-2020, its share increased by more than 50 % and the share of total organic area in the EU's total utilised agricultural area rose from 5.9 % to an estimated 9.9 %[3]. On average, though with substantial variation across EU Member States, organic farms in the EU are bigger than conventional farms and run by younger farm managers. The European Commission has set a target of at least 25 % of the EU's agricultural land to be under organic farming by 2030.



[1] This report was prepared by Pirita Vuorinen, ETF. The contents of this summary report are the sole responsibility of the ETF and do not necessarily reflect the views of the EU institutions. © European Training Foundation, 2023 Reproduction is authorised, provided the source is acknowledged

[2] EC (2022). Europeans, Agriculture and the CAP 2022. Available here.

[3] Eurostat. Available here.

According to Eurostat, the share of land under organic farming in North Macedonia was 3.193 ha in 2017 and reached 8.724 ha in 2022. This is equivalent to 0.3 % of land, which is significantly below the EU average[4].

For the purpose of this study, the organic and functional foods market niche was analysed through four broader NACE classification groups:

- crop and animal production, hunting and related service activities (A1)
- fishing and aquacultures (A3)
- manufacture of food products (C10)
- and manufacture of beverages (C11).

The number of certified organic producers is gradually increasing in North Macedonia, with the highest total observed in 2021 with 929 producers (of which 549 were in a transition period) registered in the official Register for organic products. The agricultural producers are registered mainly for organic crop production[5].

## SKILLS DEMAND

The interviewed companies involved in the production of organic and functional foods all had only one employee each and did not have clear workforce needs for the future. Based on theoretical considerations of the interviewees, the most in-demand profiles in companies producing organic foods are:

- nutritionists (ESCO 2265.1)
- sales managers (1221.3.2.1)
- international marketing and sales managers (1221).

In the future, the demand for skilled labour in organic production is expected to increase, as awareness about organic food is rising both domestically and globally. The main pull factors for increased employment opportunities in organic food production would be internationalisation and access to foreign markets, as well as access to subsidies for incentivising production. Some of the skills in high demand in organic farming include both lower- and higher-level skills and related occupations:

- **Knowledge of organic growing practices,** which includes understanding how to fertilise, control pests and crop without the use of synthetic chemicals. In terms of ESCO occupations, these skills are covered by the following occupational profiles (yet require specific focus on organic production):
    - High-skilled: agricultural scientists (ESCO 2132.1), agronomists (2132.2), ecologists (2133.5), agricultural engineers (2144.1.2), agricultural technicians (3142.1)

[4] Eurostat (n.d.). Available here.

[5] EAAE. (2022). Report on the Status of Organic Agriculture and Industry in North Macedonia here.

- Lower-skilled: farm managers (ESCO 6130.1), crop production managers (6114.1), horticulture production managers (6113.2), field crop and vegetable growers (6111), mixed farmers (6130).

- The companies also expect that the workers taking up these occupations have the necessary **business skills**. Organic farmers need to have strong understanding of how to budget, manage finances and prepare plans in order to succeed.

- **Knowledge of soil conditions** relates to organic farmers' need to have a good understanding of soil condition and how to maintain it through sustainable practices such as cover cropping and composting. The corresponding ESCO occupation is soil scientist (2133.11).

- **Marketing and sales skills**. Organic farmers need to be able to sell their produce and sell products to consumers, markets, open green markets and restaurants. This includes understanding how to price and package their products, as well as how to effectively market them. In terms of ESCO occupations, these skills are covered by the following occupational profiles:

    - import export managers (1324.3.2), import export specialists (3331.2.1), sales representatives (2433.6 and 3322.1)
    - digital marketing managers (1221.5), marketing consultants (2431.10), marketing assistants (2431.10.3), market research analysts (2431.11), advertising specialists (2431.3).

**Communications skills** were emphasised as some of the most important horizontal skills for all occupations. Organic farmers often work closely with other farmers, customers and organisations in their localities. Strong communication skills are essential to effectively collaborate and build trust and relationships.

# SKILLS SUPPLY

## Vocational education and training

Vocational education and training in organic foods is offered as an optional subject in two VET profiles within approved qualification standards: technician in phytomedicine (the subject of technology of organic production is optional) and agrotechnician (the subject of organic production is optional). Around 200 places were offered for 2022/2023 enrolments for these two profiles.

The number of VET graduates in organic production is smaller than those graduating in agriculture and veterinary, and according to the representative from the VET school in Skopje, about 60 students graduated in 2022 with topics and subjects which have links to organic foods.

Introducing dual education (presented in the general **Error! Reference source not found.** section above) is expected to create stronger partnerships on the local level among stakeholders involved (companies, VET schools, municipalities) and adapt the workforce to the qualifications and skills demanded on the labour market. However, dual education in agriculture faces a number of barriers. Agricultural VET schools used to have dual education system in Yugoslav times, as there was enough land available for practicing farming, mechanisation, vehicles and a system to conduct practical trainings in large agri-combinates. Nowadays, agricultural VET schools have difficulties bringing students to the crop fields because there are no means for such activities. Currently, there are not enough companies within the Skopje region where students can be placed for practice. Students also

do not receive reimbursement for traveling to distant farms and farmlands, which is an additional problem for those coming from socially disadvantaged families.

As for career guidance, there was a career centre at the agricultural school Brakja Miladinovci-Skopje in the pre-pandemic period, but it is currently non-functional due to the lack of funds for personnel.

## Intermediary organisations

There are several business intermediaries dedicated to organic food production in North Macedonia, e.g. the North Macedonia Organic Producers Federation, regional organic producers' associations and the Chamber of Organic Producers KOP[6].

Non-formal training in organic production is done mainly through courses offered by organic producers' associations,[7] and to some extend by adult education centre (AEC) programmes. There are six programmes related to training in organic production in the AEC database. However, there is no data on how many students have attended such courses.

Donor-led trainings in the post-pandemic period have been far fewer. At the time of the research, the Swiss-funded Increasing Market Employability Programme (IME)[8] was training producers of organic food to obtain Swiss organic certification. Previous support under the programme included organic producers' participation in international fairs and equipment for micro-companies producing organic food.

## Higher education and research

University-level education which is relevant to the organic food niche is available at three faculties in the country[9]. However, the graduation trends demonstrate that the interest in the sector has decreased over the last period and only 138 students graduated in 2021 from all three faculties combined. The disinterest to study in the area can be related to limited job opportunities and lower than average salaries in the sector.



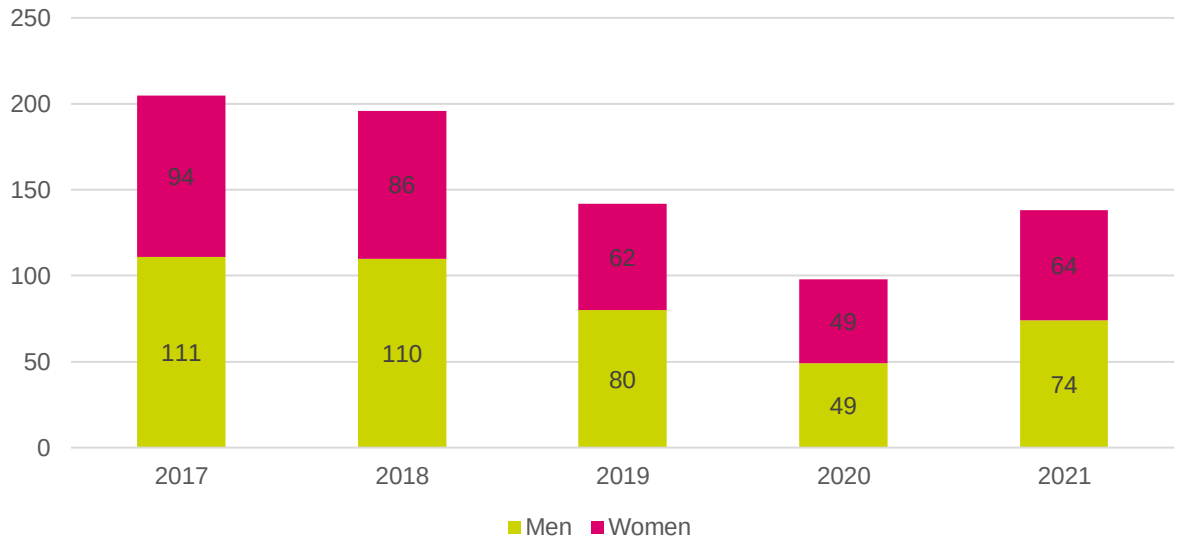
[6] KOP was founded in 2019 with the support of 60 producers and associations that operate in agri-food sector.

[7] These are usually donor-funded projects whose main activities are seminars, information sessions, workshops and similar types of events where participants can learn and gain insights about organic products, possibilities for organic production, commercialisation of organic products and similar topics.

[8] IME. Sustainable agribusiness. Available here.

[9] Faculty of Agricultural Sciences and Food-UKIM, Faculty of Agriculture-UGD, Faculty of Food Technology-UT; Faculty of Technology and Metallurgy-UKIM, Skopje also offers studies in food technology but was not included in the metrics.

**FIGURE 1. NUMBER OF GRADUATES FROM FACULTIES OF AGRICULTURE AND FOOD TECHNOLOGY, BY SEX**




Source: State Statistical Office Makstat, own representation. Available here.

The statistical bulletin issued by the largest university in the country, University of Ss Cyril and Methodious-Skopje, shows that only three students were enrolled in the Faculty of Agriculture's department of organic agriculture for the 2021/2022 academic year out of 76 total enrolled at the faculty[10].

Data on research in the field of organic food is scarce. Based on the interview data, some organic food processors use the labs at the Faculty of Technology and Metallurgy to examine the compounds and contents of food products, while there are no joint projects with the companies which can lead to product improvements and commercialisation. The weakness was spotted at the organisational level of universities, where there is not enough dedicated staff and funding for cooperation with companies. The same applies to international cooperation which negatively impacts transfer of knowledge and best practices from countries more advanced in organic food production.

The greatest skill shortages noted by interviewed companies were in the use of modern technology, communication skills, teamwork skills and English-language skills that are critical for sales, learning from foreign literature, participating in international fairs and presenting products in international markets.

[10] Available here.