



MONTENEGRO
MINISTRY OF SCIENCE

SUSTAINABLE AGRICULTURE AND FOOD VALUE CHAIN

Results of Entrepreneurial Discovery Process

Prepared by: S3 team with Marjana Majerič and Aleš Pevc from TPLJ as experts

Date: initially created on 8 June 2018, revised in July, August and September 2018



SUSTAINABLE AGRICULTURE AND FOOD VALUE CHAIN

VISION

Montenegro is recognized for agriculture based on knowledge and innovation and is developing on the principles of sustainability, preserving the tradition and values of the rural areas, complementing the beauty of the Montenegrin landscapes and forming a vital basis for the food value chain that offers a wide range of authentic products to the consumers.

SECTORAL GOALS

- Strengthening competitiveness in domestic and foreign market;
- Increase in the share of organic in total agricultural-food production;
- Increasing range of products and raising their quality;
- Strengthening the food value chain by eliminating bottlenecks and through better links between primary agriculture and the processing industry;
- Sustainable use of natural resources while preserving quality of soil, water, biodiversity and agricultural landscapes;
- Application of new technologies, innovations and standards with the aim of establishing a short value chain for locally produced and organic food;
- Establishing balance in territorial development by supporting business in agriculture and food production;
- Promotion of traditional technologies and harmonisation with EU quality schemes;
- Connecting small producers through new business models;
- Improving human resources in all segments of food production.

Strengthening the value chain of organic production

Development of new agricultural products
--

2022 GOALS

- Increase in gross food value up to 20%.
- Increase in organic food production up to 35%.
- Creating at least 100 new products and doubling the number of traditional products in the quality scheme system.
- At least two pilot projects that will introduce new value chains and new technologies.

FOCAL AREAS AND TECHNOLOGIES

Identified focal areas and technologies that have great potential:

- Meat and meat products (traditional and new products).
- Dairy products: traditional and new (including autochthonous cultures for the production of dairy products).



- Production of potatoes and related cereals and buckwheat (integral flour, a wide range of products, etc.).
- Production and processing of vegetables and fruits (figs, pomegranates, cornelian cherry, etc.), including products from wild-type fruits.
- Wine (from autochthonous and introduced grapevine varieties, new types of wine, aromatic wines, grape seed oil, dried grapes).
- Olive oil and other olive products (cosmetic products, souvenirs, etc.).
- Honey and other bee products.
- Growing and collection of medicinal, aromatic herbs and mushrooms (production of oil, cosmetic products, pharmaceuticals, spa products, spices, beverages etc.).
- Fisheries and aquaculture products.
- Innovation, creation of new products and application of new technologies for food production, including production of environmentally friendly and smart packaging, biological products, bio-pesticides and smart waste management.
- Development of organic production in all key sectors of agriculture.
- Fisheries and aquaculture.
- Smart waste management.

EMPIRICAL FOUNDATIONS AND COMPETITIVE ADVANTAGE OF MONTENEGRO

Agriculture is a sector that plays a multiple role in the development of society and economy of Montenegro. Its economic importance is reflected in the high contribution to GDP creation (more than 7%, while accounting for about 2% at the EU level). There is even greater participation of agriculture in the employment of the labour force, since almost one fourth of the total number of employed people in Montenegro are engaged in family farms. In addition, agriculture plays other important roles as well: it constitutes the basis for the entire food chain (food industry and related sectors); it supports the development of tourism in an indispensable manner; it encourages the development of many other sectors (production of equipment, machinery and packaging, transport and numerous services); it is crucial in the sustainable development and mitigation of the depopulation of rural areas; it contributes to the preservation of the environment, biodiversity and landscapes; it contributes to the fight against poverty in rural areas and is an important factor in preserving tradition and the overall cultural heritage of the Montenegrin villages.

There are a number of development opportunities offered by agriculture and the food value chain relying on it: a) creating new jobs for different professional profiles; b) huge opportunities for the placement of knowledge and innovative technologies across the entire food value chain; c) safe growth potential and generating new value through sustainable use of local raw materials; d) a wide range of local products to improve the overall tourism offer; e) favourable conditions for organic production justifying the orientation of Montenegro as an ecological state; f) a combination of tradition in the production of numerous products and innovative technologies; and g) sub-sectors producing by-products used as raw materials in energy production.

To invest in sustainable agriculture means to use investments rationally, because, in addition to synergy with numerous sectors, it brings along a number of social benefits (immaterial and immeasurable ecosystem services). Agriculture in Montenegro is characterized by diversity of production by regions (the diversity of agroecological and climate conditions results in great diversity of cultivated plant varieties and animal species), as well as by the existence of a large number of autochthonous species and varieties in plant and breeds in livestock production. Agriculture is also marked by high complementarity with other priority sectors, especially with tourism as the driver of all types of agritourism and health tourism through the presentation of



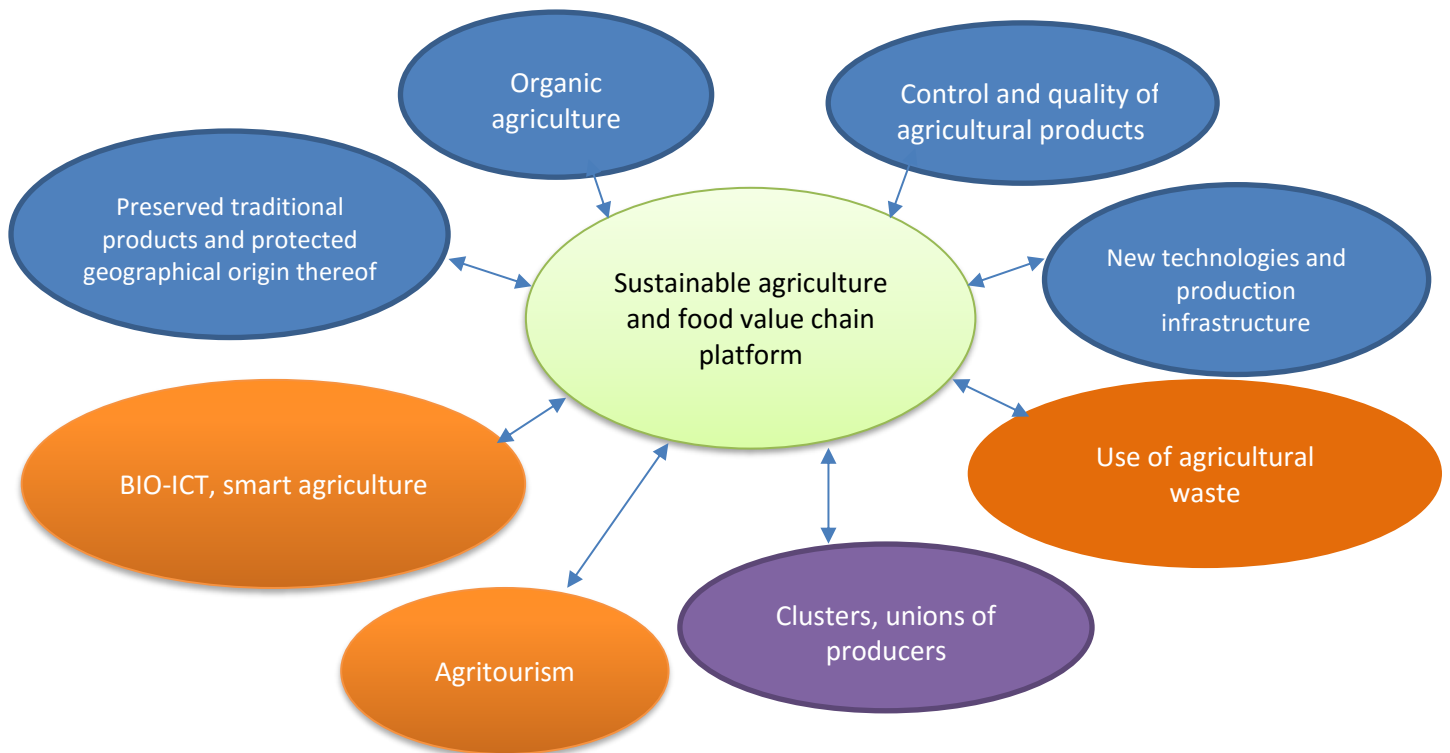
traditional gastronomy in the context of the tourist offer. Also, the sustainable development of the sector mitigates the negative demographic trends, contributes to the balance in territorial development, enables the inclusion of different groups and contributes to the mitigation of the consequences of climate change.

SYNERGISTIC EFFECTS IN RELATION TO OTHER PRIORITY SECTORS

	Sustainable agriculture and food value chain
Sustainable and health tourism	<ul style="list-style-type: none"> • Organic food production, production of food and products based on honey and medicinal herbs. • Strengthening rural and health tourism with the offer of local food and traditional specialties. • Agritourism, oenological and gastronomic tourism. • Production and sale of medicinal herbs, essential oils, cosmetics, spa and other products.
Renewable energy sources	<ul style="list-style-type: none"> • Biomass as an energy generating product for producing thermal and electrical energy. • The use of renewable energy sources in agriculture.
New materials and sustainable technologies	<ul style="list-style-type: none"> • Facilities for the needs of the processing industry. • Construction materials. • Production and processing of wood. • Recycling inorganic and reuse of organic agricultural waste. • Production of biological (biodegradable) and smart packaging for organic products. • Development of biological products and bio-pesticides.
ICT	<ul style="list-style-type: none"> • Smart and efficient management of agriculture. • Precision agriculture (application of bio-sensors, smart buoys, smart hives, etc.). • Use of pest forecasting software in agriculture. • BIO-ICT Centre of Excellence.



PROPOSED SUSTAINABLE AGRICULTURE AND FOOD VALUE CHAIN PLATFORM



The Ministry of Agriculture and Rural Development and other relevant public institutions, with the support of the Chamber of Economy of Montenegro (clusters, producer associations and cooperatives) and civil society organizations, are crucial for the creation and implementation of a strategy of sustainable food production that enables the achievement of the set development goals. Also, small producers operate more efficiently through producer organizations, having more secure product placement and accessing advisory and financial support more easily.

SWOT ANALYSIS

STRENGTHS

- Naturally preserved but under-utilized land resources.
- Various agroecological conditions in different regions give a wide range of products (wine, beer, cheese, prosciutto and other products).
- Diversity of biodiversity in agriculture (numerous autochthonous plant species and varieties and livestock production breeds) and the richness of landscapes.
- Short food delivery channels to consumers – local consumption.
- Existence of sufficient educated labour force.
- Market existence (local and through tourist offer) for domestic products.
- Growing young processing industry – the result of entrepreneurial initiatives.
- Complementarity of agriculture with other sectors (tourism, trade, transport, energy, health, pharmacy).



- Preserved values and traditions in the production of numerous products (traditional knowledge, cultural values, crafts, festivals, etc.).
- Improving the perception of agriculture in society.
- Progress in building an institutional framework for agriculture.
- Abundance of water resources for drinking consumption and irrigation.

WEAKNESSES

- Insufficient competitiveness of domestic production.
- Structural constraints (small farms, insufficient soil quality, numerous areas on slopes unsuitable for machinery use).
- Revenues in agriculture are subject to huge oscillations and are much lower on average than those in the economy as a whole.
- High production costs due to the high share of imported raw materials.
- Insufficiently affirmed “from field to table” approach.
- Poor rural and insufficiently developed market infrastructure.
- Aging of active labour force and little interest of young people to work in rural areas.
- Insufficiently developed control system throughout the food production chain.
- Poor connectivity of producers in producer organizations, inadequately affirmed and developed clusters.
- Difficult introduction of innovations and the application of new technologies (especially in small and micro enterprises).
- Numerous inherited difficulties (producers are not willing to cooperate, mutual distrust, negative image of a cooperatives).
- Limited capacity for the application of modern technologies in research.
- Poor cooperation of the economy with science due to a short-term vision of the companies and insufficient readiness of science to support the business and the introduction of innovations.
- Depopulation of rural areas.

OPPORTUNITIES

- Possibility to substitute imports by domestic products, which directly results in the reduction of the foreign trade deficit.
- Opportunities to combine traditional and new technologies.
- Tourism – the driver of agricultural and rural development through export “at home” and the ability to absorb seasonal surpluses of agricultural products.
- The regional market offers the opportunity for placement of recognizable Montenegrin products (wine, early vegetables, prosciutto, lamb meat, honey, etc.)
- Creating new jobs for different professional profiles.
- Significant opportunities for the placement of knowledge, innovations and innovative technologies.
- Local specificities in food production contributing to the promotion of Montenegro as an ecological state.
- Favourable conditions for organic production (land has been preserved; low level of application of mineral fertilizers – up to 10 times less than the EU average; orientation of Montenegro as an ecological state).
- Utilizing the benefits of the EU model of development and support from EU funds.
- Access to favourable financing instruments (EU funds, WB loans, IFAD, etc).



THREATS

- Competition of imported products.
- Insufficient support of the banking sector to family farms.
- Strengthening and monopoly of large retail chains.
- Growth in prices of energy generating products.
- Negative demographic trends.
- Migration of young people from rural areas to cities.
- Climate change (floods, droughts, fires, etc.).

SECTOR SUPPORT POLICIES

- Establishment of an agricultural guarantee fund.
- Increasing support from the agricultural budget in accordance with the principles of the Common Agricultural Policy of the EU:
 - support to investments in production capacities (production facilities in the primary sector and the processing industry, equipment and machinery);
 - direct support to producers for sustainable use of agricultural land;
 - infrastructure in the widest sense (roads, logistics, watering troughs, processing industry waste management, etc.);
 - market mechanisms for the promotion of domestic products (placement of domestic products, local agricultural fairs, supermarkets, ethno-rural tourism, hospitality and health facilities).
- Support to establishing new activities in rural areas (different crafts, wood processing, production of souvenirs and other products made of local raw materials, different forms of agritourism, etc.).
- Education and raising public awareness about the use of domestic products.
- Support for the establishment of clusters, cooperatives and producer associations.
- Support for the application of ICT in food production and processing.
- Inclusion of retail chains and hotels in the value chain – guaranteed purchase – short chain system from production to consumer – local consumption.
- Preparation of all guidelines for connecting with EU clusters in the area of food production, and thus selling products, raw materials, etc.
- Strengthening the system of controlling food production from the field to the table (accreditation of existing and opening of new laboratories).
- Strengthening cooperation between the private and the academic sector in the area of research and innovations.

EDP ACTORS

COMPANIES PER SECTORS

Meat and meat products (traditional and new products):

- Meat Industry Franca doo Bijelo Polje
- Meat Industry Goranović, doo, Nikšić
- Niksen trade, Njeguši Cetinje, including other Njeguši's prosciutto producers.
- Martex Interprodukt, Mianja, Monstate company and other producers of Montenegrin prosciutto

Dairy products: traditional and new products:

- Dairy Lazine



- Dairy Srna
- Dairy Nika.
- Cheese factories Montebianca, Katunjanka, etc.
- Miljanić farm, Ćipranić and other goat cheese producers

Production and processing of vegetables and fruits, including products from wild-type fruits:

- Veletex – Kalija (nursery, agriculture), hotel, plantation, more than 100
- Farmont – pharmacy and production of aronia and raspberry jams, teas, 30.

Wine production sector:

- AD 13. jul Plantaže
- Ravil – wine, hotel, vineyards, agritourism 50
- About 70 small family wineries

Honey and other bee products (pollen, propolis, wax, etc.):

- Independent honey producers

Olive oil and other olive products (cosmetic products, souvenirs, etc.):

- Moric DOO, Luštica
- Oil Factory Metović, Stari Bar...

Growing and collection of medicinal, aromatic herbs and mushrooms (production of oil, cosmetic products, pharmaceuticals, spa products, spices, beverages etc.):

- AgroLife – distillery of aromatic oils, immortelle
- Herbal Montenegro – immortelle, purchase, essential oils.
- Flores Mojkovac
- Eko promet Bijelo Polje
- Interfood Rožaje

Production of potatoes and related cereals and buckwheat (integral flour, a wide range of products, etc.):

- “Sjeme”, Kolašin
- KD “Tuko”, Nikšić
- ZZ “Vrbica”, Berane
- Nikšićki mlin
- Inpek
- Primat
- Dondon

Fisheries and aquaculture:

- Cogimar
- Montefish
- Školjke Boke
- Opticon
- Mareza – Plantaže

Centre for Ecotoxicological Research



BUSINESS ASSOCIATIONS

- Chamber of Economy of Montenegro, Montenegrin Employers Federation*, MBA*,
- National Beekeepers' Association, Association of Olive Producers "Boka", Ulcinj
- National Association of Grape and Wine Producers

Cluster of Registered Cheese Producers, Cluster of Small Wineries, Fisheries Cluster, Olive Producers Cluster

PUBLIC INSTITUTIONS

Ministry of Agriculture and Rural Development, Ministry of Economy, Ministry of Science, Ministry of Sustainable Development and Tourism, Monteorganica – Montenegro's certification body, IDF, local self-government, Administration for Food Safety, Veterinary and Phytosanitary Affairs, Montenegrin Accreditation Body, Intellectual Property Office.

SCIENTIFIC AND EDUCATIONAL INSTITUTIONS

University of Montenegro / Biotechnical Faculty, Institute of Marine Biology, Centre of Excellence for Research and Innovations, Faculty of Metallurgy, Faculty of Medicine

University of Donja Gorica (UDG)/ Faculty for Food Technology, Food Safety and Ecology

Public Health Institute

Simo Milošević Institute

CIVIL SECTOR

- Consumer Protection Centre.

INDICATORS

Indicator	2018	2022 target value
Certified land areas in organic production	1762 ha (2017)	3000 ha
Number of companies and holdings in organic production	91	300
Percentage of land used in relation to the available agricultural land	256361 ha 49.5%	270000 ha 52%
Gross value of agricultural production	EUR 295,472,000 (2016)	EUR 320,000,000
Number of certified products with protected geographical origin	7	15
Export to import ratio	14%	20%