



ORGANIC AGRICULTURE

TECHNOLOGY DESCRIPTION

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Organic agriculture is a production system which avoids or largely excludes the use of synthetic fertilizers, pesticides and growth regulators and promotes the use of crop rotations, green manures, compost, biological pest control and mechanical cultivation for weed control. Natural materials such as potassium bicarbonate and mulches are also used to control diseases and weeds. The most effective techniques used by organic farmers are fertilisation by animal manure, by composted harvest residues and by leguminous plants such as (soil) cover and (nitrogen) catch crops. Introducing grass and clover into rotations for building up soil fertility, diversifying the sequences of crops and reducing the ploughing depth and frequency also augment soil fertility. All these techniques increase carbon sequestration rates in organic fields, whereas in conventional fields, soil organic matter is exposed to more tillage and consequent greater losses by mineralization.

The area of organic land in Ukraine demonstrated significant growth over the last several years and reached almost half a million ha in 2019 or 1.1% of total agricultural land. Organic land is used for growing cereals, oilseeds, dry pulses, vegetables, and temperate fruits.

Organic agriculture could contribute to the economic development by increasing the added gross value of agricultural sector but some crops with high nutrient demand could demonstrate lower yields.

CLIMATE RATIONALE OF THE TECHNOLOGY

Agriculture sector is an important driver of national economic growth, expansion of export volumes, as well as food security. At the same time, agriculture sector has significant contribution to total greenhouse gases emissions in Ukraine with the total volume of emissions estimated at the level of 99 Mt CO₂-eq. for 2019. The main sources of emissions include soil organic carbon loss at cropland (51%), agricultural soils (33%), enteric fermentation (8%), fuel use by agricultural machinery (6%), and manure management (2%). Ukraine's updated NDC has a target to reduce GHGs emissions by 65% compared to 1990 levels in 2030 and support of climate technologies in agriculture would support achieving the target and sustainable development of agricultural sector.

Organic agriculture has the potential of sequestering carbon into soils at the rate of 200 - 400 kg of C per ha per year for arable crops. This corresponds to the sequestration of 0.7-1.4 tons of CO₂-eq. per ha per year. By combining organic farming with reduced tillage, the sequestration rate can be increased even further with comparison to ploughed conventional cropping systems. According to a Thünen Institute study¹, the comparison of the emissions of soil-based greenhouse gas from organic and conventional agriculture in temperate climates on the basis of empirical measurements shows positive effects from organic management with a cumulative climate protection performance of organic farming of 1,082 kg CO₂-eq. per ha per year.

In addition, a diversified crop rotation with green manure in organic farming improves soil structure and diminishes the emissions of N₂O due to the ban on the use of mineral nitrogen, although the nitrogen provided by the green manure does contribute to N₂O emissions. Soils in organic farming are more aerated and have significantly lower mobile nitrogen concentrations, which reduce the emissions of N₂O.

¹ Thünen Report 65 (2019). Leistungen des ökologischen Landbaus für Umwelt und Gesellschaft, https://www.boelw.de/fileadmin/user_upload/Dokumente/Pflanze/190121_Th%C3%BCnen-Report_65_final.pdf



AMBITION OF THE TECHNOLOGY

SCALE FOR IMPLEMENTATION AND TIME-LINE

The implementation of the technology could be scaled up significantly in the mid-term perspective. Ukraine has large potential for increasing the share of organic agriculture. National Economic Strategy for the period till 2030 approved by the Cabinet of Ministers of Ukraine in March, 2021, defines the target of 3% of all agricultural land under organic farming by 2030. In line with expert estimates, the share of organic land could be increased up to 10% of the total farmland in the mid-term perspective.

Higher target is proposed as an ambition of the TAP with the aim to achieve 3.5 Mt CO₂-eq. of additional emission reductions per year by converting 3.5 million ha of farmland to organic agriculture practices (assuming reduction of GHG's emissions at a rate of 1 ton of CO₂-eq. per ha of land under organic agriculture).

EXPECTED IMPACTS OF THE TECHNOLOGY

The implementation of the technology will have positive impact on human health due to the avoidance of chemicals and higher quality of agricultural products. Organic agriculture increases soil's water retention capacity and contributes to climate adaptation, improves soil quality and soil organic content, as well as it reduces agricultural runoff pollution. Increased soil organic content leads to carbon sequestration and avoidance of mineral nitrogen fertilizers use leads to reduction of nitrogen oxide and carbon dioxide emissions bringing climate change mitigation benefits. Co-benefits of the technology for climate adaptation would be even more significant in case of the simultaneous promotion of agroforestry practices, which have been identified as priority adaptation technology for the agricultural sector in Ukraine. Organic producers often use buffer zones between organic and inorganic fields, which can be used for agroforestry practices. Besides, organic agriculture also contributes to the achievement of sustainable development goals, including zero hunger, good health and well-being, responsible production and consumption, and climate action.

POLICY ACTIONS FOR TECHNOLOGY IMPLEMENTATION

EXISTING POLICIES IN RELATION TO THE TECHNOLOGY

One of the goals prescribed by the Law of Ukraine On the Main Grounds of the State Environmental Policy of Ukraine for the Period till 2030 (2019) is ensuring the integration of environmental policy in the decision-making process with respect to the social and economic development of Ukraine, including the task of climate change mitigation and adaptation, as well as the sustainable low carbon development of all areas of the Ukrainian economy.

The agriculture sector is reflected in the existing strategic documents related to national climate policy but there is insufficient coverage of climate change mitigation activities in sector-specific policy documents and the lack of policy tools which promote climate technologies in the agriculture sector. New policies are expected to be developed to support the transformation of agricultural sector and achievement of updated NDC target under the Paris agreement.

The Law of Ukraine On Main Principles and Requirements for Organic Production (hereafter Law On Organic Production) defines that state support for organic market's operator could be provided within national and regional programs by using the funds of budgetary programs for the support of agricultural producers development. In April 2021, the Cabinet of Ministers of Ukraine extended the scope of state support coverage and included the provision of state support for producers of organic products (e.g. partial compensation of certification cost, subsidies per area of organic land and partial compensation for the purchase of allowed agro-chemicals).



PROPOSED POLICIES TO ENHANCE TECHNOLOGY IMPLEMENTATION

The common policy measures that could streamline the diffusion of climate technologies in agriculture in Ukraine include introduction of environmental and climate related conditions for the provision of state subsidies, strengthening and improving regulatory requirements, capacity building policies, information policies and supporting the development of project-based carbon crediting mechanisms. Specific actions and activities to support the development of organic agriculture are presented in the table below.

Actions	Activities
1. State subsidies	1.1 The adoption of the Order of the Cabinet of Ministries of Ukraine On the Procedure of the Use of Funds Dedicated in the State Budget for the State Support of Agricultural Organic Goods Producers (Order for the Provision of State Support for Organic Agriculture) with annual adjustment of the procedure
	1.2 Gradual increase in the financing volume for organic agriculture support in the state program of agricultural support
2. Green procurement schemes	2.1 Developing guidance document for procurement specialists, central procurement organization and Prozorro Marketplace for the application of non-price criteria in public procurement of food products (state classification code 15890000-3) and catering services
	2.2 Market analysis study with market engagement activities and the focus on potential matches between organic product supply and food products demand in public procurement schemes
	2.3 Capacity building activities among procurement specialists on the development of tendering documentation using non-price criteria for food products and catering services and support the execution of pilot tenders
	2.4 The development of a special module on organic products procurement for the electronic education course on green public procurement for Prozorro Infobox ²
	2.5 To develop and approve the action plan for green public procurement and include the support of organic products procurement
3. Supporting the development of project-based carbon crediting mechanism	3.1 The approval of the Decree of the Cabinet of Ministers of Ukraine on voluntary carbon emission reduction projects (with the provisions for the notification of designated national authority and procedure for receiving feedback, possibility to permanently cancel national carbon units in lieu of voluntary carbon projects)
	3.2 Developing guidance for monitoring, reporting and verification of GHGs emission reductions during agricultural activities.
4. Information policies	4.1 Awareness raising campaign about environmental, climate and health benefits of organic products
	4.2 Information campaign about the best practices in organic farming, organic products manufacturers, and successful organic products procurement case studies
	4.3 The support of scientific and research projects related to organic farming
5. Soil quality monitoring system	5.1 The approval of soil quality monitoring standards with synchronization of approaches and methods for soil sampling and soil analysis.
	5.2 The development and approval of the Law of Ukraine On Soil Protection and Preservation of Fertility in line with the in the National Action Plan to Combat Land Degradation and Drought.
	5.3 The development of national soil quality database, including national soil organic content map, on the basis of soil quality studies and approved data sharing arrangements.
	5.4 The incorporation of soil quality studies in the concept of state scientific and technical program in the area of climate change and projects supported by National Research Foundation of Ukraine

² Information resource on public procurement available at <https://infobox.prozorro.org/>



COSTS RELATED TO THE IMPLEMENTATION OF POLICIES

The implementation of actions and activities included in the TAP will require capacity building support form for procurement specialists on the development of tendering documentation using non-price criteria for organic products, as well as for farmers on monitoring, reporting and verification of GHGs emission reductions from sustainable agricultural practices.

Expenses for the implementation of activities required for the creation of the enabling framework for the dissemination of technology is estimated at the level of up to UAH 560 million with the major share devoted to state subsidies for organic farmers.

USEFUL INFORMATION

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LINKS TO TNA REPORTS

Reports prepared within the TNA Project:

- Technology Needs Assessment
- Barriers Analysis and Enabling Frameworks
- Technology Action Plan

Full texts of the TNA reports are available at: <https://tech-action.unepdtu.org/country/ukraine/>

TNA Project page at the web-site of the Ministry of Environment and Natural Resources of Ukraine:
<https://menr.gov.ua/news/33450.html>