



Stakeholder mapping

DG3(Ukraine)

“Future pathways for zero pollution in the Dnipro Basin under emerging challenges and threats”



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Introduction

Policy strategies addressing water and soil pollution in the demo site of Ukraine

We distinguish between agricultural and water policies that are highly relevant to addressing water and soil pollution in the demo site of Ukraine. They include three national strategies for the soil, one for water and one overarching (environmental). For the soil, the strategies are oriented toward food security, the availability of irrigation water and systems to produce food and rural developments. For water, an important national strategy is the “Water strategy of Ukraine by 2050” which includes the integration components towards the EU regulations. The “Main principles (strategy) of the state environmental policy of Ukraine for the period up to 2030” addresses environmental aspects. All these policy documents were released in the period of 2019-2024. Together, the policy documents set directions for the environmental and agricultural development in Ukraine for the coming years. The core is to integrate into the EU policies to secure sustainable food production at lower environmental impacts. Thus, many components and directions are already based on EU regulations.

The strategies include various measures to ensure soil and water health and food security. Stakeholders at different levels are important, namely farmers, regional authorities, agricultural producers, and water supply companies.

Stakeholders addressing water and soil pollution in the demo site of Ukraine

Most relevant for the demo site are the three state/public institutions: (1) Institute of Agroecology and Environmental Management of the National Academy of Agrarian Sciences of Ukraine (NAAS), (2) The National Scientific Center “Institute of Agriculture of the National Academy of Agrarian Sciences of Ukraine (NAAS)”, (3) Institute of Water Problems and Land Reclamation of the National Academy of Agrarian Sciences of Ukraine (NAAS), and (4) Institute of Agricultural Microbiology and Agro-Industrial Production of the National Academy of Agrarian Sciences of Ukraine (NAAS). Their role is to implement balanced development of agricultural production, land use and rural areas, including climate change (institution 1), innovation of sustainable practices in the Forest-Steppe and Polissia agrozone of Ukraine (institution 2), designing water management facilities, irrigation systems of water supply in agriculture fields and drainage (institution 3), providing biological preparations in crop production for sustainable agriculture practices (institution 4).

In addition, the Ukrainian agribusiness “Agro-Oven Corporation” is a private stakeholder located in the demo site region and plays an important role in implementing and designing water management facilities, irrigation systems for water supply in agriculture fields, and drainage. Meanwhile, in the demo site region are stakeholders who produce crop production (IMC-Smart Green Company, APK-INVEST, Agro-Oven Corporation), pork production (APK-INVEST), poultry and cattle production (UkrLandFarming, Agro-Oven Corporation).

It is worth mentioning that markets play an important role in offering innovative products and technologies to farms and other stakeholders. It is worth noting the following markets that are promoting innovative technologies in agriculture and water management: (1) green chemistry that focuses on plant protection products and micronutrient fertilizers (provided by the Ukravit); (2) precision agriculture digital technologies (Cropwise Seed Selector provided by Syngenta, Arc™ farm intelligence platform – provided by FMC Ukraine, GPS devices and NDVI maps – provided by the Corteva Agriscience Ukraine, HarvestLab 3000 & AG-Data Integrator – provided by the Agrotek, StarFite™, JDLINK™, John Deere Operations Center™ – provided by RDO Ukraine, AgroDrones & UAV – provided by Titan Machinery Ukraine LLC); (3) irrigation sprinkler systems in farms to ensure water conservation, soil health, and water management (Otech irrigation systems provided by Agrotek, ZIMMATIC® & Agrodrones sprayers XAG provided by LandTech); (4) meteorological stations (Pessl iMetos IMT300, Meteobot Pro – provided by LandTech).



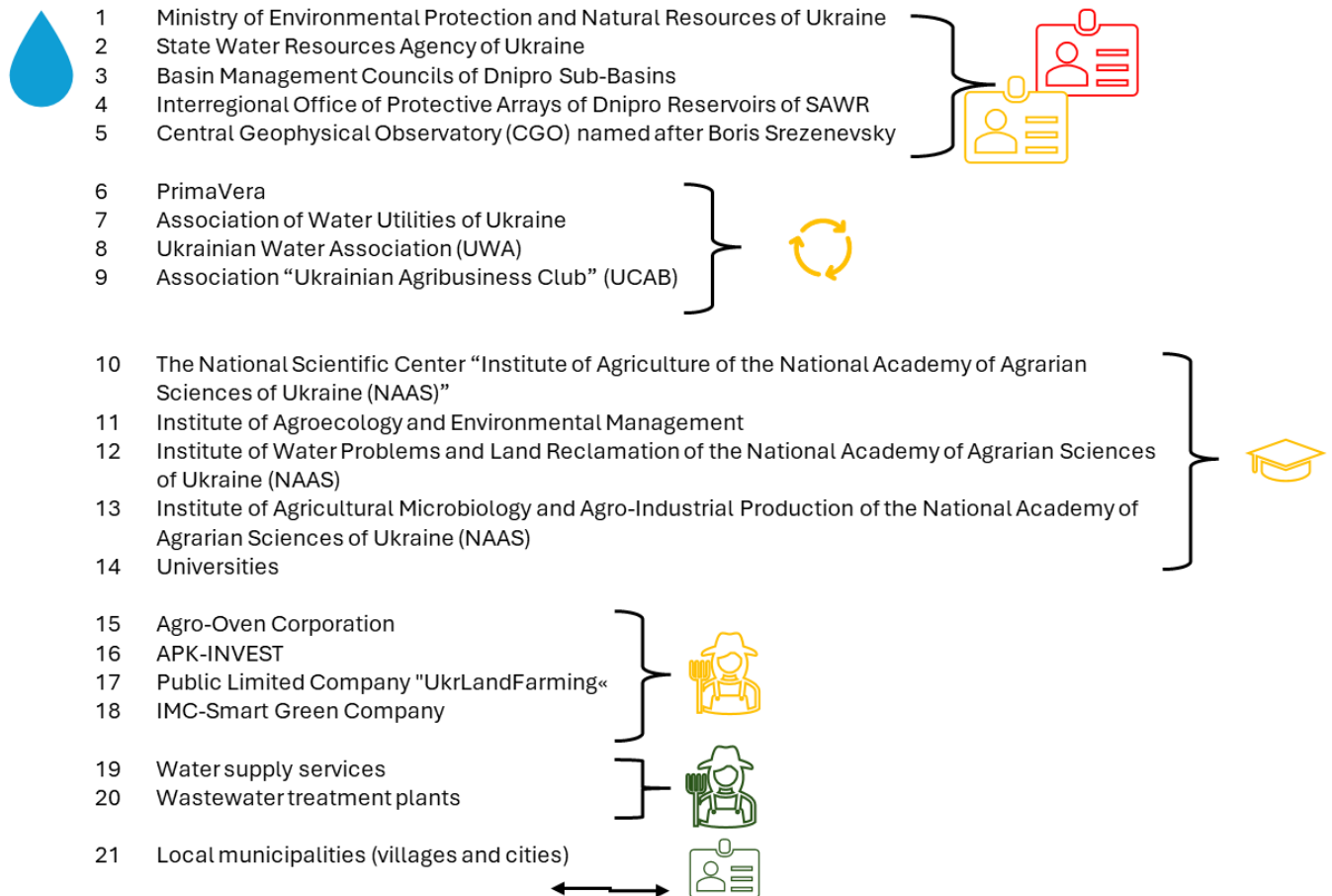
Comparative analyses and categorization of stakeholder engagement in the Dnipro River Basin (DG3 Ukraine)
Table 1. Comparative analyses and categorization of stakeholder engagement in the Dnipro River Basin (DG3 Ukraine)

| Stakeholders | Role | Distribution Level | Examples of technologies | | Examples of agricultural practices based on NBSs | | |
|-------------------------------|---|-----------------------|---|--|--|--|---|
| | | | To support Soil Management (soil health) | To support Water Management (water quality) | Soil health | Water conservation | Climate-resilience |
| Government Agencies | Provide policy strategies | National | The tree strategies are oriented toward food security, the availability of irrigation water and systems to produce food and rural developments | The one strategy includes the integration components towards the EU regulations to implement the Dnipro River Basin Management Plan | Support stakeholders to implement precision agriculture technologies | Support stakeholders to implement monitoring approaches (e.g. measure of ecological and chemical status of water) | Support municipalities to manage practices such as the restoration of meadows and pastures |
| Non-governmental organization | Support and promote implementing technologies | Regional / provincial | The modern policy strategies are oriented toward sustainable land and water use and irrigation systems | The water supply technologies and effective sewage treatment technologies | Support policymakers to implement integrated soil and water resources management | Support municipal wastewater treatment plants to implement new effective wastewater treatment technologies | Support agribusiness in implementing green technologies based on nature-based solutions |
| Markets | Distribute technologies and promote approaches | Regional / provincial | Green chemistry approaches, precision agriculture digital technologies (Cropwise Seed Selector, Arc™ farm intelligence platform, GPS devices, and NDVI maps, AgroDrones & UAV and other); irrigation sprinkler systems (Otech irrigation systems, ZIMMATIC® & AgroDrones sprayers XAG); Meteorological stations (Pessl iMetos IMT300, Meteobot Pro) | Meteorological stations (Pessl iMetos IMT300, Meteobot Pro); irrigation sprinkler systems (Otech irrigation systems, ZIMMATIC® & AgroDrones sprayers XAG); mobile platforms and FMIS systems; Maintenance of Data systems (AFS Connect™, Cartography™); water supply and drainage systems for livestock farms (CloudFarms) | Provide Maintenance of Data, irrigation systems for the maintenance of soil protection and promote restoration solutions. Use meteorological sensors to conduct remote field monitoring, pest monitoring, build crop disease models, and manage farm resources in real and remote time that support soil quality | Apply in livestock farms' innovative water supply and drainage systems to support water protection. Provide 3RIVE 3D® plant crop protection delivery platform for supplying sustainable water management | Implement drought-resistant hybrids such as corn (Optimum® AQUAmax®) and sunflower (ExpressSun®) |
| Farms | Produce products (crops, poultry, pork, cattle) | Regional / provincial | Modern technologies for high-quality harvest (soil treatment technologies, drip and sprinkler irrigation technologies, GPS-monitoring machinery), satellite monitoring | Water supply and drainage systems for livestock farms (CloudFarms), drip and sprinkler irrigation technologies, satellite monitoring technology NDVI and drones | Implement soil treatment technologies for enhancing soil fertility and safety in precision agriculture. Ensure various schemes of crop | Implement drip and sprinkler irrigation technologies that deliver water directly to the roots of the plants in a uniform manner | Provide modern technologies for high-quality harvest in sustainable agriculture practices to adapt agriculture to be more climate-resilient |

| | | | | | | | |
|--|--|-----------------------|--|--|--|--|--|
| | | | technology NDVI and drones | | rotation to improve land use and soil fertility | | |
| Research and innovation institutions | Provide new knowledge | Regional / provincial | Knowledge of the development of sustainable agricultural practices (GIS and RS, climate-resilient hybrids). Knowledge of providing biological preparations in crop production for sustainable agriculture practices. | Knowledge of the development of irrigation technologies (principles). Knowledge of the implementation of the Dnipro River Basin Management Plan (solutions and recommendations). | Support farms in implementing sustainable solutions in agriculture and land use. Support and advise local farms to implement biological preparations of crop production in sustainable agriculture practices for soil protection | Support farms to implement solutions and recommendations based on irrigation planning information systems for improving water management | Support farms in applying climate-resilient hybrids of fodder and industrial and vegetable crops by providing advice |
| Universities | Promote new knowledge | Regional / provincial | Knowledge of the development of sustainable agricultural practices | Knowledge of the implementation of the Dnipro River Basin Management Plan (solutions and recommendations). | Advise farms to use principles of implementing sustainable agricultural practices | Advise farms to use principles of integrated water management plan | Advise farms to use principles policy strategies to create more climate-resilient farms |
| Water supply services | Provide water into housing and communal services | Municipal | Innovative water supply technologies – need to be applied | Innovative water supply technologies – need to be applied | Need to implement new efficient water supply technologies oriented to safe soil | Need to implement new efficient water supply technologies oriented to safe water | - |
| Wastewater treatment plants | Treat sewage water and discharge of water into the river | Municipal | Effective sewage treatment technologies – need to be applied | Effective sewage treatment technologies – need to be applied | Need to implement new biological treatment technologies | Need to implement new biological treatment technologies | Need to implement new biological treatment technologies |
| Local municipalities (villages and cities) | Implement policy strategies and develop an urban/rural resilient action plan | Municipal | The policy strategies that are oriented toward rural/urban developments – need to be applied | The policy strategies that are oriented toward rural/urban developments – need to be applied | Need to implement sustainable agricultural practices to promote efficient soil management | Need to implement green technologies to promote efficient water management | Need to be implemented |



Overview of selected stakeholders relevant in the context of water pollution



Geographical coverage

- **Municipal stakeholders**
- **Provincial stakeholders**
- **National stakeholders**

Sectors:



Academy/Research



Non-governmental



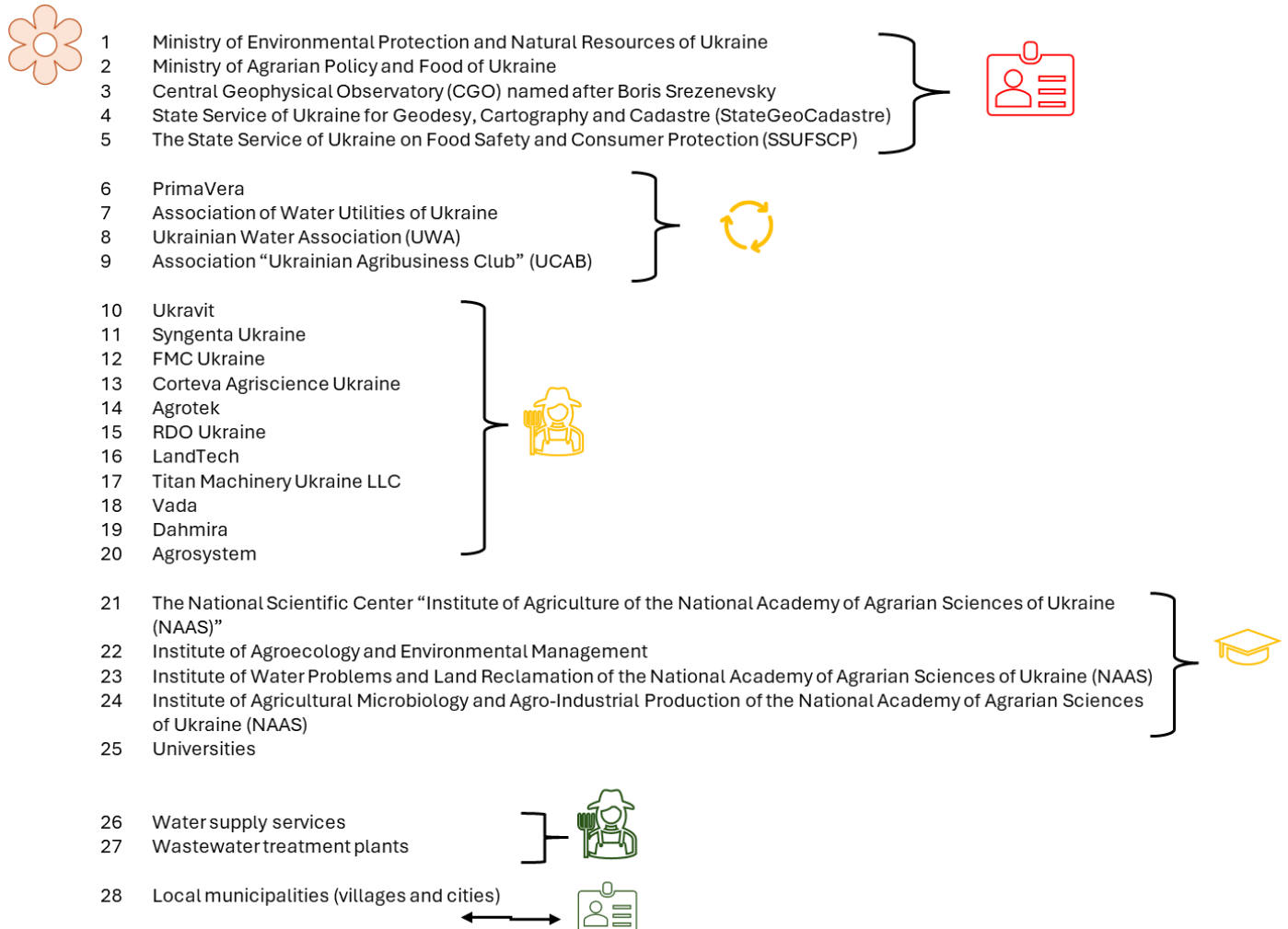
Private



Public



Overview of selected stakeholders relevant in the context of soil pollution



Geographical coverage

- **Municipal stakeholders**
- **Provincial stakeholders**
- **National stakeholders**

Sectors:

- Academy/Research**
- Non-governmental**

- Private**
- Public**



These stakeholders have different levels in terms of their knowledge and influence about the adoption and implementation of technologies (Fig. 1).

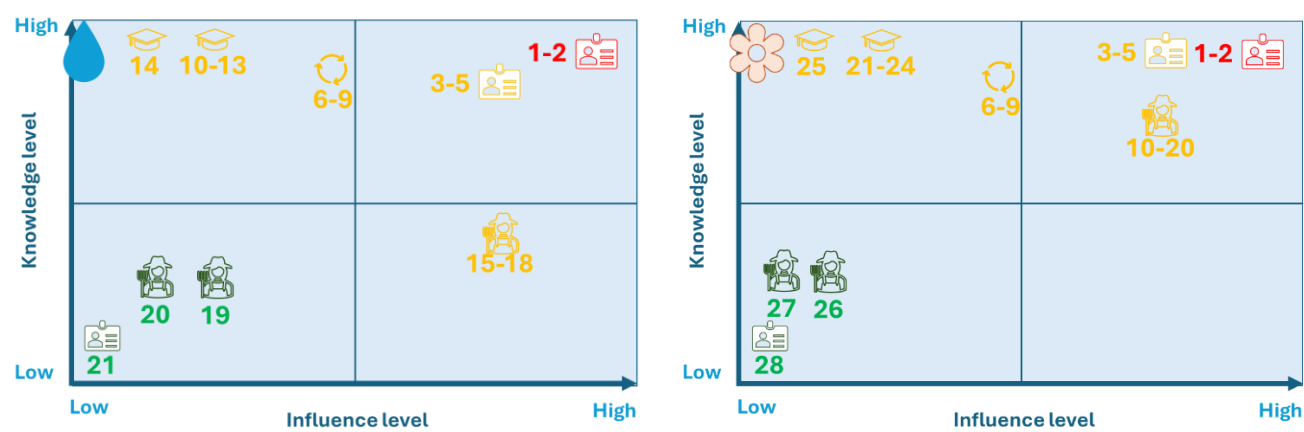


Figure 1. Knowledge and influence levels of the identified relevant stakeholders for the demo site of Ukraine including academic/research, public, private and non-governmental stakeholders.





Government Agencies

Ministry of Environmental Protection and Natural Resources of Ukraine

Name/ Designation: Ministry of Environmental Protection and Natural Resources of Ukraine (<https://mepr.gov.ua/>)

Year (constitution): 1991

Organization (Law, Agreements ...): state, public, policy.

Main Objectives: implementation of state policy in the field of environmental monitoring and reform of integrated water resources management

Scope of Action: agricultural technologies, **sustainable practices, water management, resource conservation.**

Address/offices: Kyiv city (the main office)

About

The Ministry of Environmental Protection and Natural Resources of Ukraine is the main authority in the Ukrainian central government system and is responsible for environmental monitoring and development. The Ministry forms and implements the state policy in the field of: (1) environmental protection; (2) forestry and hunting; (3) development of water management and hydro-technical land reclamation, management, use, and reproduction of surface water resources; (4) implementation of state geological control; (5) climate change regulations and adaptation to its changes.

The Ministry implements the state reform of [integrated water resources management \(IWRM\)](#), which involves achieving and maintaining a "good" ecological status of waters, ensuring their rational use, and providing the population with access to high-quality drinking water through the introduction of integrated water resources management. The reform also includes measures aimed at ensuring the implementation of the best available innovative technologies and management methods in agricultural production aimed at reducing water pollution from diffuse sources; reducing potential damage that can be caused by the harmful effects of water, reducing the negative impact of climate change, reducing damage from droughts.

The ministry is responsible for implementing the "[Water Strategy of Ukraine by 2050](#)" strategy, which was approved by the Ukrainian Cabinet of Ministers on December 9, 2022. The strategy defines the main principles of state policy in the fields of water use, protection, and reproduction. It aims to achieve mutual agreement related to water use, increase the level of water security, and reduce risks through sustainable integrated management of water resources. Expected results of the Strategy: by 2024 – 100% of the legislative framework in the water sector meets EU requirements; by 2024 – 9 river basin management plans have been created; from 2025 - the annual restoration of at least 5 km of small river beds; by 2027 – 100% of washing powder contains permitted concentrations of phosphates and other phosphorus compounds; by 2032 – up to 20% reduction in the annual amount of damage caused by floods and floods, compared to 2020; by 2030 – 100% of the urban population has quality water supply and drainage; by 2050 – 95% of the rural population has quality water supply and drainage; 2043-2050 years – 100% implementation of indicators of river basin management plans and flood risk management plans. This Strategy implements Integrated Water Resources Management (IWRM) by utilizing advanced management techniques to balance water use with conservation efforts.

Meanwhile, the ministry is responsible for supporting the implementation of the "[Irrigation and drainage strategy in Ukraine until 2030](#)" which was approved by the Ukrainian Cabinet of Ministers on August 14, 2019. Irrigation and drainage strategy in Ukraine until 2030 is a nationwide cross-sectoral policy document aimed at the application of irrigation and drainage arrangements with a view to increasing crop yields two to three times, compared to rainy conditions, irrespectively of existing weather conditions. The scope of the Strategy shall be achieved through the application of the following arrangements: (a) reforming the public administration system for irrigation and drainage through the application of integrated water resources management (IWRM); (b) preservation and restoration of soil fertility; (c) restoration and expansion of the areas of irrigated lands, drainage systems; (d) promotion of the mechanism of public-private partnership; (e) stakeholder involvement in decision-making in the relevant field of public policy; (f) creating prerequisites for enhancing national competitiveness of agricultural production on the world market; (g) improving the quality of irrigation and drainage services and transparency of

tariffs formation; and (h) support of scientific research, training of qualified personnel. The main ambition of the strategy is to increase the area of irrigated land to at least 1.5-1.8 million hectares and manage excess water on over 3 million hectares by 2030.

Also, the ministry is responsible for supporting the implementation of the “[Main principles \(strategy\) of the state environmental policy of Ukraine for the period up to 2030](#)” which was approved by the Ukrainian Cabinet of Ministers on January 1, 2020. This Strategy is a multisectoral policy document related to the protection of atmospheric air because of climate change caused by emissions, protection of water resources, soil, subsoil, and land, forest protection, prevention of disasters and mitigation of the consequences thereof, and waste management. The scope of the Strategy shall be achieved through the application of the following arrangements: (a) preservation of the state of the climate system, which makes it impossible to increase the risks to the health and well-being of people and the environment; (b) promoting balanced (sustainable) development by achieving a balanced development component (economic, environmental, social); (c) integration of environmental requirements in the development and approval of state planning documents, sectoral (sectoral), regional and local development; (d) intersectoral partnerships and stakeholder engagement; (e) prevention of natural and man-made disasters, which involves analysis and forecasting of environmental risks; (f) ensuring ecological security and maintaining ecological balance in the territory of Ukraine; (g) ensuring the inevitability of responsibility for violation of environmental legislation; (h) application of the principles of precaution, prevention, priority of elimination of sources of harm to the environment, "polluter pays"; and (i) responsibility of executive authorities and local self-government bodies for accessibility, timeliness and accuracy of environmental information.

Technologies & NbSs

Diffusion of Technologies in Water Use (Y/N): Yes

Practices in Agriculture in Water Use (Y/N): Yes

Tech TRL (*Prototype, BrandNew, Implemented*): -

Technology mane: *integrated water resources management (IWRM), strategies of water and irrigation management*

Relations with other stakeholders: collaborates with international and national government organizations, international & national non-profit water-related organizations, farmers, financial institutions, and research & educational institutions.

Innovative technology development: (1) provide the state reform of integrated water resources management to ensure water management in river basins; (2) introduce advanced irrigation technologies, such as drip and sprinkler systems, to enhance water efficiency.

Agricultural Practices and Nature-Based Solutions: (1) support state and local organizations to implement the best available innovative technologies and management methods in agricultural production aimed at reducing water pollution by nutrients and chemicals; (2) support local municipalities to implement the hydro-technical land reclamation for reducing climate change impacts on agricultural lands (droughts and floods).



Ministry of Agrarian Policy and Food of Ukraine

Name/ Designation: Ministry of Agrarian Policy and Food of Ukraine (<https://minagro.gov.ua/>)

Year (constitution):

Organization (Law, Agreements ...): state, public, policy.

Main Objectives: implementation of state policy in the field of crop management, food security, and agricultural land.

Scope of Action: agricultural technologies, sustainable practices, water management, resource conservation.

Address/offices: Kyiv city (the main office)

About

The Ministry of Agrarian Policy and Food of Ukraine is the country's central executive authority, in charge of agrodevelopment. The Ministry forms and implements the state policy in the field of: (1) development and implementation of the state agrarian policy, state policy in the field of agriculture and for food security, protection of plant varieties, livestock, agriculture, rural development, technical policy in the field of agriculture and engineering for agriculture, agricultural advisory, production and circulation of organic products (raw materials), monitoring and soil fertility on agricultural land; (2) development and implementation of the state policy in the field of fisheries and the fishing industry, protection, use and reproduction of aquatic biological resources; (3) public policy on the use and protection of agricultural land.

The Ministry ensures the implementation of organic production. With the assistance of the Ministry, the "[Organic Knowledge Platform](#)" platform has been implemented in Ukraine. The platform was created to unite all scientific, informational, and practical materials on the organic sector available in Ukraine and make them accessible to a wide range of scientists, teachers, students, practitioners, and participants in the organic movement. Also, at the initiative of the ministry, an information portal "[OrganicInfo](#)" was created, the purpose of which is to promote organic production, organic food products, and a sustainable lifestyle.

The ministry responsible for implementing the strategy "[Strategy for the Development of Agriculture and Rural Areas in Ukraine until 2030 and approved an operational plan for its implementation in 2025-2027](#)" that was approved by the Cabinet of Ministers of Ukraine on November 15, 2024. This Strategy (1) promotes practices that ensure the long-term health of soil and water resources, including crop rotation and responsible water usage; (2) creates favorable conditions for the creation of a competitive, sustainable, and diversified agricultural sector that ensures long-term food security; (3) enhances environmental protection, including biodiversity, mitigates climate change and strengthens the socio-economic structure of rural areas.

The ministry responsible for implementing the strategy "[The food security strategy of Ukraine for the period up to 2027](#)" was approved by the Ukrainian Cabinet of Ministers on July 23, 2024. The food security strategy of Ukraine until 2027 contains three key goals: (1) filling the market of agricultural products, support for producers, in particular organic products, is provided; (2) ensuring availability of food for all population groups of Ukraine; (3) strengthening food security, creating a food security monitoring system, priority demining of agricultural land, adaptation to climate change, and more.

Meanwhile, the ministry is responsible for supporting the implementation of the "[Irrigation and drainage strategy in Ukraine until 2030](#)" which was approved by the Ukrainian Cabinet of Ministers on August 14, 2019. Irrigation and drainage strategy in Ukraine until 2030 is a nationwide cross-sectoral policy document aimed at the application of irrigation and drainage arrangements with a view to increasing crop yields two to three times, compared to rainy conditions, irrespectively of existing weather conditions. The scope of the Strategy shall be achieved through the application of the following arrangements: (a) reforming the public administration system for irrigation and drainage through the application of integrated water resources management (IWRM); (b) preservation and restoration of soil fertility; (c) restoration and expansion of the areas of irrigated lands, drainage systems; (d) promotion of the mechanism of public-private partnership; (e) stakeholder involvement in decision-making in the relevant field of public policy; (f) creating prerequisites for enhancing national competitiveness of agricultural production on the world market; (g) improving the quality of irrigation and drainage services and transparency of tariffs formation; and (h) support of scientific research, training of qualified personnel. The main ambition of the strategy is to increase the area of irrigated land to at least 1.5-1.8 million hectares and manage excess water on over 3 million hectares by 2030.

Also, the ministry is responsible for supporting the implementation of the “[Main principles \(strategy\) of the state environmental policy of Ukraine for the period up to 2030](#)” which was approved by the Ukrainian Cabinet of Ministers on January 1, 2020. This Strategy is a multisectoral policy document related to the protection of atmospheric air because of climate change caused by emissions, protection of water resources, soil, subsoil, and land, forest protection, prevention of disasters and mitigation of the consequences thereof, and waste management. The scope of the Strategy shall be achieved through the application of the following arrangements: (a) preservation of the state of the climate system, which makes it impossible to increase the risks to the health and well-being of people and the environment; (b) promoting balanced (sustainable) development by achieving a balanced development component (economic, environmental, social); (c) integration of environmental requirements in the development and approval of state planning documents, sectoral (sectoral), regional and local development; (d) intersectoral partnerships and stakeholder engagement; (e) prevention of natural and man-made disasters, which involves analysis and forecasting of environmental risks; (f) ensuring ecological security and maintaining ecological balance in the territory of Ukraine; (g) ensuring the inevitability of responsibility for violation of environmental legislation; (h) application of the principles of precaution, prevention, priority of elimination of sources of harm to the environment, "polluter pays"; and (i) responsibility of executive authorities and local self-government bodies for accessibility, timeliness and accuracy of environmental information.

Technologies & NbSs

Diffusion of Technologies in Water Use (Y/N): Yes

Practices in Agriculture in Water Use (Y/N): Yes

Tech TRL (*Prototype, BrandNew, Implemented*): -

Technology mane: *encouraging the use of digital tools and platforms for farm management, weather forecasting, and market information; strategies of food security, agriculture, and irrigation management.*

Relations with other stakeholders: collaborates with international and national government organizations, international & national non-profit water-related organizations, farmers, financial institutions, and research & educational institutions.

Innovative technology development: (1) promote sustainable practices to ensure the long-term health of soil and water resources, including crop rotation and responsible water usage and providing precision agriculture technologies; (2) upgrade existing irrigation infrastructure to improve efficiency and reduce water wastage.

Agricultural Practices and Nature-Based Solutions: (1) support state and local stakeholders in implementing innovative irrigation infrastructure to improve efficiency and reduce water wastage; (2) support local farms in implementing the use of digital tools and platforms for soil management and organic production.



State Water Resources Agency of Ukraine

Name/ Designation: State Water Resources Agency of Ukraine (<https://www.davr.gov.ua/>)

Year (constitution):

Organization (Law, Agreements ...): state, public, policy.

Main Objectives: implementation of state policy in the field of management, use and reproduction of surface water resources, development of water management

Scope of Action: agricultural technologies, **sustainable practices, water management**, resource conservation.

Address/offices: Kyiv city (the main office)

About

The State Water Resources Agency is part of the Ministry of Environmental Protection and Natural Resources of Ukraine. Its main tasks are: (1) to implement river basin management plans of Ukraine (Dnipro River Basin, Danube River Basin, and others) and monitor the implementation of measures of river basin management plans; (2) implement a program of diagnostic (assessment of long-term trends in changes in the level and concentrations of pollutants in water) and operational (assessment of the level and concentrations of pollutants in water under existing environmental risks) monitoring of surface water bodies, ensure open access to water monitoring data; (3) explore the impact of military operations on the pollution of river basins; (4) implement measures related to the prevention of the harmful effects of water and the elimination of its consequences, including flood protection of rural settlements and agricultural lands and others tasks.

Technologies & NbSs

Diffusion of Technologies in Water Use (Y/N): Yes

Practices in Agriculture in Water Use (Y/N): Yes

Tech TRL (Prototype, BrandNew, Implemented): -

Technology mane: [river basin management plans of Ukraine](#) ([Dnipro River Basin Management Plan](#))

Relations with other stakeholders: collaborates with international government organizations, international & national non-profit water-related organizations, farmers, financial institutions, and research & educational institutions.

Innovative technology development: (1) provide and support the Integrated Water Resources Management Cycle (identification of impacts on water quality and mapping of protected areas) for Greening of Water Infrastructure; (2) support the implementation of Systems Design to solve water-related issues such as water scarcity for agriculture (irrigation systems) (Water Conservation and Management Technologies).

Agricultural Practices and Nature-Based Solutions: (1) implement measures related to water conservation and management practices such as restoration of meadows and pastures, transition to adapted agriculture, sustainable pasture management, agroforestry, and restoration of rivers and watercourses; (2) implement measures related to water protection such as to conduct the monitoring approaches to measure of ecological and chemical status of water, identify diffuse sources of pollution and support farms to implement agriculturally sustainable practices.



Basin Management Councils of Dnipro Sub-Basins

Name/ Designation: Basin Management Councils of Dnipro Sub-Basins (<https://www.davr.gov.ua/monitoryng-vodv2>)

Year (constitution):

Organization (Law, Agreements ...): state, public, policy.

Main Objectives: considers and approves the river basin management plans and participates in the implementation of water resources management measures in the sub-basin

Scope of Action: agricultural technologies, **sustainable practices, water management**, resource conservation.

Address/offices: Regions (depends on sub-basin)

About

The Basin Management Councils of Dnipro Sub-Basins are part of the State Water Resources Agency of Ukraine. They include (1) [Desna and Upper Dnipro River Basin Council](#), (2) [Middle Dnipro Basin Council](#), (3) [Lower Dnipro Basin Council](#), (4) [Pripyat Basin Council](#). The basin councils include regional and municipal organizations, public associations (such as the "Association of Agroecologists of Ukraine", "Ukrainian Environmental Group"), municipal water supply and wastewater utilities (housing and communal services), representatives of the state environmental inspection of the regions, and agricultural farms, research and innovation institutions (such as Institute of Hydrobiology).

The Basin Council is a consultative and advisory service within its sub-basin, the main tasks of which are: (1) to develop suggestions and ensure coordination of interests of enterprises, institutions and organizations in the field of water use and protection and reproduction of water resources within the sub-basin; (2) to promote integrated water resources management within the sub-basin; (3) to ensure coordination of stakeholders and coordination of their actions regarding water resources management in the sub-basin; (4) to promote cooperation in ensuring the achievement of "good" ecological and chemical status of surface and groundwater bodies; (5) to provide suggestions and recommendations for attracting funds from budgets of various levels and investments to implement management plan measures.

Technologies & NbSs

Diffusion of Technologies in Water Use (Y/N): Yes

Practices in Agriculture in Water Use (Y/N): Yes

Tech TRL (Prototype, BrandNew, Implemented): -

Technology mane: sustainable measures for the rational use and protection of water and the restoration of water resources within the sub-basin in accordance with the River Basin Management Plan.

Relations with other stakeholders: collaborates with international government organizations, international & national non-profit water-related organizations, farmers, financial institutions, and research & educational institutions.

Innovative technology development: (1) provide sustainable measures for the protection of rural settlements and agricultural lands from flooding; (2) ensure sustainable measures for water quality availability for the agricultural sector (crop and animal production) (Water Conservation and Management Technologies).

Agricultural Practices and Nature-Based Solutions: (1) implement sustainable measures related to water conservation and management practices such as restoration of meadows and pastures, transition to adapted agriculture, sustainable pasture management, agroforestry, and restoration of rivers and watercourses; (2) implement measures related to water protection such as to conduct the monitoring approaches to measure of ecological and chemical status of water, identify diffuse sources of pollution and support farms to implement agriculturally sustainable practices.



Interregional Office of Protective Arrays of Dnipro Reservoirs of SAWR

Name/ Designation: Interregional Office of Protective Arrays of Dnipro Reservoirs of SAWR (State Agency of Water Resources) (<https://mozmdv.gov.ua/>)

Year (constitution):

Organization (Law, Agreements ...): state, public, policy.

Main Objectives: Provide water monitoring datasets of water quality of Dnipro River Reservoirs and provide measures related to flood protection arrays

Scope of Action: agricultural technologies, **sustainable practices, water management**, resource conservation.

Address/offices: Kyiv Region

About

The Interregional Office of the Dnieper Reservoirs Protection Arrays is a part of the State Water Resources Agency of Ukraine, a government organization that implements state policy in the field of water resources management of the Dnipro River Basin. This organization operates hydraulic structures on 7 protection arrays along the Kyiv and Kaniv Reservoirs, monitors water quality, monitors coastal areas and the condition of the banks, monitors compliance with the operation regime of the Dnipro Reservoirs, and carries out measures related to flood protection of agricultural areas within the Dnipro Reservoirs protection arrays.

The office structure includes the European [Water Laboratory of the Northern Region](#), which analyzes drinking and tap water, surface water, groundwater, and drainage waters for physicochemical, biological, chemical, and radiological indicators. This lab provides water monitoring datasets that stakeholders and other scientific communities can use through the online interactive platform "[Monitoring and Environmental Assessment of Water Resources of Ukraine](#)."

Technologies & NbSs

Diffusion of Technologies in Water Use (Y/N): No

Practices in Agriculture in Water Use (Y/N): No

Tech TRL (Prototype, BrandNew, Implemented): -

Technology mane: Infrastructure of protective arrays of Dnipro Reservoirs hydraulic structures and water monitoring datasets

Relations with other stakeholders: collaborates with international government organizations, international & national non-profit water-related organizations, farmers, financial institutions, and research & educational institutions.

Innovative technology development: (1) provide monitoring analyses to protect water quality and operate measures to protect arrays of Dnipro Reservoirs that support water management solutions (Water Conservation and Management Technologies).

Agricultural Practices and Nature-Based Solutions: (1) support of protective infrastructures in the arrays of Dnipro Reservoirs to protect agriculture from flooding; (2) support stakeholders with datasets of water quality indicators to provide sustainable water management solutions.



Central Geophysical Observatory

Name/ Designation: Central Geophysical Observatory (CGO) named after Boris Srezenevsky

(<http://cgo-srezenevskyi.kyiv.ua/en/>)

Year (constitution): 1855

Organization (Law, Agreements ...): state, public.

Main Objectives: *Provide water monitoring datasets, soil quality datasets, climate and hydrology datasets in particular from water stations, soil stations, and meteorological stations*

Scope of Action: agricultural technologies, sustainable practices, **water management, resource conservation.**

Address/offices:

About

The CGO belongs to the sphere of management of the State Emergency Service of Ukraine and is subordinate to the Ukrainian Hydrometeorological Center. The organization is the main meteorological organization for methodological management of the network of observations such as meteorological, hydrological (river and lake), observations of chemical and radiological pollution of surface waters, atmospheric air, and soils.

The CGO has main responsibilities such as (1) methodological support for conducting hydrometeorological observations, including environmental pollution; (2) providing all interested scientific and other communities with information on hydrometeorological conditions and environmental pollution; (3) conducting expeditionary work to explore climate change such as floods; (4) developing regulatory documents in the field of hydrometeorology to ensure hydrometeorological observations.

The CGO has departments, in particular, the Meteorology Department includes 280 observation posts throughout Ukraine, the Hydrology Department has 328 river and 59 lake hydrological posts, the Climatology Department, the Radioecology Department, the Chemical Pollution Monitoring Department, and the Environmental Pollution Information Department.

Technologies & NbSs

Diffusion of Technologies in Water Use (Y/N):

Practices in Agriculture in Water Use (Y/N):

Tech TRL (Prototype, BrandNew, Implemented): Implemented

Technology mane: *datasets in long-term and short-term trends (water, soil, climate, hydrology, pollution of water and soil)*

Relations with other stakeholders: collaborates with national government organizations, financial institutions, and research & educational institutions.

Innovative technology development: (1) methodological support of datasets in long-term and short-term trends (water quality indicators, climate, and hydrology indicators) to ensure water management; (2) methodological support of datasets in long-term and short-term trends (water quality indicators, climate, and hydrology indicators) to climate adaptation in agricultural practices.

Agricultural Practices and Nature-Based Solutions: (1) methodological support of datasets in long-term and short-term trends (soil quality indicators, climate, and hydrology indicators) to soil protection; (2) methodological support of datasets in long-term and short-term trends (water quality indicators, climate, and hydrology indicators) to water protection.



State Service of Ukraine for Geodesy, Cartography and Cadastre

Name/ Designation: State Service of Ukraine for Geodesy, Cartography and Cadastre (StateGeoCadastre) (<https://land.gov.ua/>)

Year (constitution): 2014

Organization (Law, Agreements ...): state, public, policy.

Main Objectives: *implementation of state policy in the field of national geospatial data infrastructure, topographic, geodetic, and cartographic activities, land relations, land management, state control over the use and protection of lands and soil fertility*

Scope of Action: **agricultural technologies, sustainable practices, water management, resource conservation.**

Address/offices: Kyiv Region

About

The State Service of Ukraine for Geodesy, Cartography, and Cadastre (StateGeoCadastre) is part of the Ministry of Agrarian Policy and Food of Ukraine. It implements state policy in the fields of national geospatial data infrastructure, land relations, land management, and the State Land Cadastre. The main responsibilities are: (1) make and support geodetic surveys, topographic and hydrographic mapping, and national Spatial Data Infrastructure; (2) ensure products and services about land information, land registration, topographic and historical maps; (3) justification and ensuring the achievement of rational land use; (4) land protection from erosion, mudslides, flooding, waterlogging, secondary salinization, over-drainage, compaction, pollution by production waste, chemical and radioactive substances; (5) conservation of degraded and low-productive agricultural lands.

Technologies & NbSs

Diffusion of Technologies in Water Use (Y/N): No

Practices in Agriculture in Water Use (Y/N): No

Tech TRL (Prototype, BrandNew, Implemented): -

Technology mane: *mapping related to land management*

Relations with other stakeholders: collaborates with international and national government organizations, international & national non-profit organizations, farmers, financial institutions, and research & educational institutions.

Innovative technology development: (1) implementation of state policy in the field of national geospatial data infrastructure, and cartographic activities for protecting lands, and soil fertility

Agricultural Practices and Nature-Based Solutions: (1) support stakeholders with mapping related to land management to improve agricultural practices; (2) support stakeholders with mapping related to land management to protect agricultural practices from floods and droughts.



The State Service of Ukraine on Food Safety and Consumer Protection

Name/ Designation: The State Service of Ukraine on Food Safety and Consumer Protection (SSUFSCP) (<https://dpss.gov.ua/en>)

Year (constitution): 2014

Organization (Law, Agreements ...): state, public, policy.

Main Objectives: Implement state policy in the sphere of food quality and safety and consumer protection and supervise food quality and safety indicators and agricultural commodities.

Scope of Action: **agricultural technologies, sustainable practices**, water management, **resource conservation**.

Address/offices: Kyiv city

About

The SSUFSCP was established in accordance with the Resolution of the Cabinet of Ministers of Ukraine dated September 10, 2014. The SSUFSCP is the central executive body under the jurisdiction of the Cabinet of Ministers of Ukraine, whose operation is directed by the Minister of Agrarian Policy and Food of Ukraine and which implements the state policy in the field of veterinary medicine, safety and quality of foodstuffs, quarantine and plant protection, animal identification and registration, sanitary legislation, protection of public health, certification of seeds and planting material, state supervision in the sphere of agro-industrial complex, state control over compliance with legislation on consumer protection and implementation of radiation control over the level of radioactive contamination of agricultural commodities and foodstuffs.

The SSUFSCP performs the following functions: (1) implementation of state policy in the sphere of quality and safety of foodstuffs and consumer protection; (2) state supervision over compliance with sanitary legislation; (3) state supervision over compliance with phytosanitary legislation; and (4) supervision over the factors of human living environment.

The SSUFSCP performs supervision related to: (a) quality and safety indicators of foodstuffs and agricultural commodities; (b) compliance with sanitary legislation; (c) animal health and animal welfare; (d) application of phytosanitary measures, circulation of pesticides and agrochemicals, and use of biological agents; (e) preventive and exterminating arrangements for pest control in storage facilities for products of plant origin; (f) provisions for identification of livestock; (g) control of foodstuffs of animal origin; and (h) control of veterinary drugs.

Technologies & NbSs

Diffusion of Technologies in Water Use (Y/N): No

Practices in Agriculture in Water Use (Y/N): No

Tech TRL (Prototype, BrandNew, Implemented): -

Technology mane: Implementation of state policy in the sphere of food quality and safety and supervision of food quality and safety indicators in agriculture.

Relations with other stakeholders: collaborates with international and national government organizations, international & national non-profit organizations, farmers, financial institutions, and research & educational institutions.

Innovative technology development: (1) implementation of state policy in the field of providing food quality and safety indicators in agriculture.

Agricultural Practices and Nature-Based Solutions: (1) support stakeholders in implementing innovative agricultural practices (e.g. organic crop production) to provide food quality and soil safety.



Non-government organizations (NGO)

PrimaVera

Name/ Designation: PrimaVera (<https://primavera.pp.ua/?setlang=en>)

Year (constitution):

Organization (Law, Agreements ...): non-profit organization, association

Main Objectives: *facilitate the implementation of modern policies for sustainable land and water use, rural development, and integrated land and water resources management.*

Scope of Action: agricultural technologies, **sustainable practices, water management**, resource conservation.

Address/offices: Kyiv city

About

NGO "PrimaVera" ensures the implementation of modern policies for sustainable use of land and water, rural development, and integrated land and water resources management; moving from top-down centralized policy planning to people, planet, and profit principles in stakeholder-based policymaking. NGO has main activities that relate to (1) initiation, formulation, co-financing, and coordination of intergovernmental, international projects, and pilot projects for the development of rural areas; (2) facilitating the creation of water and land users associations, and rural cooperatives; (3) facilitating the initiation of local stakeholder dialogues and multilateral platforms at the regional and local levels; (4) facilitating the development of policy and legislation.

Technologies & NbSs

Diffusion of Technologies in Water Use (Y/N):

Practices in Agriculture in Water Use (Y/N):

Tech TRL (Prototype, BrandNew, Implemented): -

Technology mane: *principles of integrated land and water resources management*

Relations with other stakeholders: collaborates with international and national government organizations, international & national non-profit organizations, farmers, financial institutions, and research & educational institutions.

Innovative technology development: (1) facilitate the implementation of modern policies for sustainable land and water use and irrigation systems.

Agricultural Practices and Nature-Based Solutions: (1) teach and support farms to implement innovative irrigation technologies in support of sustainable agriculture; (2) support policymakers to implement integrated land and water resources management.



Association of Water Utilities of Ukraine

Name/ Designation: Association of Water Utilities of Ukraine (<https://ukrvodokanal.in.ua/>)

Year (constitution):

Organization (Law, Agreements ...): non-profit organization, association

Main Objectives: *facilitate the implementation of water supply and sewage management and support research, design, repair, and construction in municipal and enterprise wastewater management.*

Scope of Action: agricultural technologies, sustainable practices, **water management**, resource conservation.

Address/offices: depends on regions and wastewater treatment plant

About

The Association of Water Utilities of Ukraine supports the Ukrainian Association of Water Supply and Sewerage Enterprises "Ukrvodokanalekologiya." It is a voluntary inter-sectoral association of production enterprises, institutions, organizations of water supply and sewage management, research, design, repair and construction and other enterprises of various forms of ownership; united for the purpose of constant coordination and combination of production, scientific and other activities to resolve issues of providing the population with high-quality drinking water and water for industrial and economic purposes, water drainage, effective wastewater treatment, and improvement of the ecological state of water resources of the natural environment in Ukraine.

Technologies & NbSs

Diffusion of Technologies in Water Use (Y/N): Yes

Practices in Agriculture in Water Use (Y/N): No

Tech TRL (Prototype, BrandNew, Implemented): -

Technology mane: *water supply and sewage treatment technologies*

Relations with other stakeholders: collaborates with international and national government organizations, international & national non-profit organizations, and financial associations.

Innovative technology development: (1) facilitate the implementation of water supply and effective sewage treatment technologies to improve the ecological status of water resources and minimize water pollution.

Agricultural Practices and Nature-Based Solutions: (1) support municipal wastewater treatment plants to implement new effective wastewater treatment technologies that ensure stakeholders use quality gray water in agricultural practices and protect water from pollutants.



Ukrainian Water Association

Name/ Designation: Ukrainian Water Association (UWA) (<https://ukrainian-water-association.org/en/>)

Year (constitution):

Organization (Law, Agreements ...): non-profit organization, association

Main Objectives: *establish effective decision-making solutions in the water sector to support drinking water supply, wastewater management, and sewage treatment in all settlements.*

Scope of Action: agricultural technologies, **sustainable practices, water management**, resource conservation.

Address/offices: depends on regions

About

Ukrainian Water Association (UWA) is an independent, non-governmental, non-profit humanitarian organization dedicated to addressing water resource management issues in Ukraine and providing humanitarian assistance in ensuring citizens' access to drinking water. UWA's area of interest encompasses all water resources in Ukraine involved in the natural water cycle: water for agriculture, industrial water, drinking water, municipal water, wastewater, water reuse, rainwater, runoff water, 'green' water, 'virtual' water, and all other types of water participating in the natural water cycle. UWA is a public platform for seeking answers to complex water-related questions and their solutions for – experts, business representatives, government officials, and active citizens willing to engage in transparent collaboration.

The main activities are (1) implementation of drinking water supply, wastewater management, and sewage treatment in all settlements; (2) establishment of an effective decision-making tool in the water sector; (3) reparation of legislative initiatives for the implementation of transparent market mechanisms in water resource management; (4) development of effective communication with government authorities to receive requests and provide responses; (5) building a competitive and transparent market in the water sector of Ukraine and protecting business interests.

Technologies & NbSs

Diffusion of Technologies in Water Use (Y/N): Yes

Practices in Agriculture in Water Use (Y/N): No

Tech TRL (Prototype, BrandNew, Implemented): -

Technology mane: *effective decision-making solutions in the water sector to support drinking water supply and wastewater management.*

Relations with other stakeholders: collaborates with international and national government organizations, international & national non-profit organizations, and financial associations.

Innovative technology development: (1) facilitate the implementation of effective decision-making solutions in the water sector to support drinking water supply and wastewater management.

Agricultural Practices and Nature-Based Solutions: (1) support municipalities in implementing decision-making solutions in the water sector that can protect water from pollutants.



Ukrainian Agribusiness Club

Name/ Designation: Association “Ukrainian Agribusiness Club” (UCAB) (<https://ucab.ua/en/>)

Year (constitution): 2007

Organization (Law, Agreements ...): non-profit organization, association

Main Objectives: *promote efficient agribusiness by increasing the efficiency of agri-food companies and developing proposals on improving agricultural policy in Ukraine.*

Scope of Action: **agricultural technologies, sustainable practices**, water management, resource conservation.

Address/offices: depends on regions

About

Association “Ukrainian Agribusiness Club” (UCAB) is a business association that represents the interests of leading companies in the Ukrainian agro-food sector. In 2024, UCAB maintained the status of Association No.1 in the agricultural sector of Ukraine, consolidating more than 200 important representatives of the industry, including agriproducts and input suppliers, aimed at further agricultural business development in Ukraine.

The work aims to promote efficient agribusiness in Ukraine and refers to all of its processes, from recruitment and search for investment opportunities to practical tasks such as increasing agricultural companies’ efficiency and developing proposals on improving agricultural policy in Ukraine. UCAB experts provide a full range of multi-client and individual marketing and analytical services for companies in the agri-food sector; provide information on structural changes in the agri-industrial complex, foreign trade, forecast of agricultural market development, analysis of the business environment, investment climate, legislative framework and regulatory policy, state support for agricultural producers.

Technologies & NbSs

Diffusion of Technologies in Water Use (Y/N): No

Practices in Agriculture in Water Use (Y/N): No

Tech TRL (Prototype, BrandNew, Implemented): -

Technology mane: *promote consultations for professional development of personnel in agricultural companies.*

Relations with other stakeholders: collaborates with international and national government organizations, international & national non-profit organizations, and financial associations.

Innovative technology development: (1) promote efficient agribusiness by increasing the efficiency of agri-food companies for using precision agriculture technologies.

Agricultural Practices and Nature-Based Solutions: (1) support agribusiness in implementing new technologies based on nature-based solutions for providing efficient water and irrigation management.



Markets

Ukravit

Name/ Designation: Ukravit (<https://www.ukravit.ua/about/>)

Year (constitution): 1999

Organization (Law, Agreements ...): Private company, established under Ukraine law

Main Objective: Development and introduction of new crop protection products with a focus on sustainability, organicity, and environmental safety

Scope of Action: Agricultural technologies, sustainable practices, resource conservation

Address/offices: Regional offices in Dnipropetrovsk Region, Chernihiv Region, Zhytomyr Region, Poltava Region, Kyiv Region, Zaporizhia-Kyryvyi Rih Regional Trade Representative Office, Kropyvnytskyi Region, Cherkasy Region.

About

The Ukravit company offers products for micro, small, and medium producers that will provide the necessary resources throughout the agricultural production cycle. The company provides agronomic support to farms in the preparation, cultivation, and storage of agricultural products.

The company is the only one in Ukraine that has the "[Green Chemistry](#)" chemical research format, which involves reducing the production and use of harmful substances, proper processing and disposal of waste, and the use of renewable raw materials. Green chemistry, also known as sustainable chemistry, is the design of chemical products and processes that reduce or eliminate the use or generation of hazardous substances. Green chemistry applies across the life cycle of a chemical product, including its design, manufacture, and use.

The company's laboratory complex, advanced equipment from the world's best manufacturers, the latest methods, and highly qualified staff allow it to conduct a wide range of research and provide professional recommendations for implementing its results in field conditions. The Ukravit Institute is accredited in accordance with the requirements of DSTU ISO/IEC 17025:2017, "General requirements for the competence of testing laboratories."

To preserve soil fertility, the company helps small and medium-sized agribusinesses conduct agrochemical soil research for the largest number of indicators in Ukraine and develop individual nutrition systems based on research results.

To control water quality, the company can carry out comprehensive studies of drinking water and water used for irrigation and tank mixes in agriculture, and provide recommendations for improving the necessary indicators.

Technologies & NbSs

Diffusion of Technologies in Water Use (Y/N): No

Practices in Agriculture in Water Use (Y/N): No

Tech TRL (Prototype, BrandNew, Implemented): integrated crop protection systems align with modern strategies for sustainable agriculture

Technology mane: **Green chemistry** that focuses on plant protection products and micronutrient fertilizers.

Best practices regarding the technology used: own research institute and R&D center, focusing on plant protection products and micronutrient fertilizers

Relations with other stakeholders: Collaborates with government bodies, farmers, agricultural cooperatives, universities and financial institutions.

Innovative technology development: Green chemistry strategy for producing plant protection products (herbicides). Green chemistry which refers to Sustainable Infrastructure Technologies

Agricultural Practices and Nature-Based Solutions: Soil herbicide protection for corn, sunflower, and soybeans in early periods of growth (Landscape and soil protection and restoration solutions)



Name/ Designation: Syngenta Ukraine (<https://www.syngenta.ua/>): *Syngenta Crop Protection & Syngenta Seeds*

Year (constitution): 2001

Organization (Law, Agreements ...): Private company, established under Ukraine law

Main Objective: Integrating digital technologies into the agricultural sector focusing on sustainable development

Scope of Action: Agricultural technologies, sustainable practices, resource conservation

Address/offices: Dnipropetrovsk Region (a center of Research and Development)

About

Syngenta is a leading science-based agtech company committed to improving food security. Its activities aim to achieve sustainable development goals and encourage innovation in agriculture to improve modern approaches to plant cultivation. The company implements four sustainability priorities, each of which has clear objectives: (1) higher yields and less environmental impact through the use of innovative technologies; (2) soil restoration and conservation through the implementation of regenerative agriculture methods; (3) improving the well-being of rural communities by increasing the level of knowledge of farmers; (4) environmentally safe and efficient operations by increasing awareness among stakeholders. Syngenta has a center of Research and Development (R&D) that conducts research and tests of innovative technologies in field conditions.

As an agri-tech leader, Syngenta is empowering farmers with the tools they need to produce more food to feed a rising population while minimizing their impact on the environment. The company ensures [precision agriculture and crop monitoring](#), using technologies and AI-powered tools, including satellite imagery, computer vision, and machine learning algorithms. As an agri-tech innovator, Syngenta promotes the development of digital farming ([Interra®Scan](#), [Cropwise](#)) and the role it plays in sustainably supporting growers to improve their productivity. All of them are based on unmanned technologies (drones) for efficient crop management.

The company implements [Interra®Scan](#), an innovative technology that combines gamma spectroscopy and laboratory methods for agrochemical diagnostics of soil health. Interra®Scan technology provides agrochemical mapping for 28 soil health parameters with an unmatched resolution of over 800 data points per hectare, informing about general soil properties, including soil texture, organic matter and carbon content, pH, cation exchange capacity, and available macro- and micronutrient content.

The company implements the [Cropwise Operations digital platform](#), which is designed for remote control of agricultural lands and includes operational monitoring of the condition of sown areas, auto-documentation, forecasting, and planning of agricultural operations. Cropwise's digital platform provides sustainable agronomic digital solutions such as improving soil health and reducing on-farm emissions. The company has implemented the [Cropwise®Seed Selector](#) digital technology for Ukrainian farms, which helps farmers save time and reduce risks by facilitating smart agronomic decisions regarding sowing. Cropwise Seed Selector is completely free and has the necessary functionality and ease of use to provide precision for the farm. Cropwise Seed Selector helps farmers choose the ideal corn and sunflower hybrids and provides personalized recommendations based on farmers' specified needs.

Technologies & NbSs

Diffusion of Technologies in Water Use (Y/N): Yes

Practices in Agriculture in Water Use (Y/N): Yes

Tech TRL (Prototype, BrandNew, Implemented): Implemented

Technology mane: *precision agriculture tools (digital technology such as [Cropwise Seed Selector](#), innovative technology such as [Interra®Scan](#)) for efficient crop management.*

Best practices regarding the technology used: Providing water management training, using precision agriculture technologies, and promoting efficient use of resources.

Relations with other stakeholders: Collaborates with government bodies, farmers, agricultural cooperatives, universities and financial institutions.

Innovative technology development: (1) digital technology such as Cropwise Seed Selector, innovative technology such as Interra®Scan that are based on AI-soil sensors (Monitoring and Assessment Technologies); (2) digital technology such as Cropwise Seed Selector, innovative technology such as Interra®Scan that are based on GIS systems to adapt agriculture to be more climate-resilient (Climate Adaptation and Resilience-Building Technologies).

Agricultural Practices and Nature-Based Solutions: Provide remote control of agricultural lands and digital technologies to support diversified cropping systems and land restoration through sustainable practices.



Name/ Designation: FMC Ukraine (<https://fmc.com.ua/>) FMC Ukraine LTD

Year (constitution): 2017

Organization (Law, Agreements ...): Private company, established under Ukraine law

Main Objective: Innovative crop protection products and technologies, enhancing food security, and contributing to the economic recovery of the agricultural sector.

Scope of Action: Agricultural technologies, sustainable practices, water management, resource conservation

Address/offices: Regional offices in the Western region (Kyiv, Vinnytsia, Zhytomyr, Khmelnytskyi, Lutsk, Rivne), Eastern region (Chernihiv, Sumy, Poltava, Cherkasy, Dnipro, Zaporizhia, Kherson)

About

FFMC is the fifth largest agrochemical company in the world. FMC is an agricultural sciences company that advances farming through innovative and sustainable crop protection solutions. The company is fully active in Ukraine's agricultural market. It focuses its attention on the development of new, improved pesticides adapted to new environmental protection requirements. FMC's crop protection portfolio is one of the most innovative in the industry and consists of insecticides, herbicides, and fungicides, both chemical and biological. The company made a climate transition plan based on the achievement of SDGs. This [plan covers three goals](#): (1) absolute net-zero GHG emissions by 2035; (2) 100% of sites implement sustainable water practices by 2035; (3) 100% of waste to beneficial reuse. FMC is a part of a global movement to advance good water stewardship practices. AWS follows [a five-step process](#) intended to achieve specific outcomes for each site and its physical scope: (1) good water governance; (2) sustainable water balance; (3) good water quality status; (4) important water-related areas; (5) safe water, sanitation and hygiene for all.

FMC's technologies can impact key areas of sustainability on the farm: (1) climate resilience – sustainable product family of the company (biological pest control and biofertilizers) that enable farmers to better withstand and recover from climate impacts, such as extreme heat, drought, or flooding, by improving plants' stress tolerance; (2) water use efficiency that promotes farms use more efficient technologies such as FMC's 3RIVE 3D® application system and Arc™ farm intelligence platform.

FMC implemented [Arc™ farm intelligence platform](#) (in Ukraine, [this platform](#) was proved in the year 2021), an exclusive precision agriculture platform that enables growers and advisors to predict pest pressure before it becomes a problem. The innovative platform offers a full suite of features, including customized alerts through a mobile app to indicate when action is needed in a field, two-way communication with FMC agronomists, reliable data, and high-quality graphics, including graphs and heat maps.

The [3RIVE 3D® application system](#) from FMC is a revolutionary at-plant crop protection delivery platform that gives growers the freedom to farm faster. [In Ukraine, the 3RIVE 3D® plant crop protection delivery platform](#) was launched in the year 2023. The system integrates formulation technology, application technology, and active ingredients to efficiently cover more ground in less time with fewer refills, saving water, fuel, labor, and time. The lightweight system fits most major planter brands and ensures precise protection for every plant. Designed with convenience in mind, the 3RIVE 3D application system allows growers to maximize their efficiency. It combines the right amount of product and water, eliminating the need for mixing, measuring, and tank agitation. One fill protects up to 480 acres while using 90% less water than traditional liquid systems and carrying 50% less weight than granular systems. Fewer refills and less weight translate to consistent high-speed coverage and less risk of compaction.

Technologies & NbSs

Diffusion of Technologies in Water Use (Y/N): Yes

Practices in Agriculture in Water Use (Y/N): Yes

Tech TRL (Prototype, BrandNew, Implemented): Implemented

Technology mane: advanced Arc™ farm intelligence platform and 3RIVE 3D® plant crop protection delivery platform for crop management and protection.

Best practices regarding the technology used: providing farmers with access to the latest technologies and crop protection products.



Relations with other stakeholders: Collaborates with government bodies, farmers, agricultural cooperatives, universities and financial institutions.

Innovative technology development: (1) advanced Arc™ farm intelligence platform that IoT-based systems and wireless sensor networks to enable growers and advisors to predict pest pressure before it becomes a problem (Soil monitoring methods using precision agriculture technologies); (2) 3RIVE 3D® plant crop protection delivery platform that helps farms to use water efficiently (Water Conservation and Management Technologies)

Agricultural Practices and Nature-Based Solutions: (1) deliver precision agriculture using AI and IoT digital platforms providing climate-resilient strategy; (2) provide 3RIVE 3D® plant crop protection delivery platform for supplying sustainable water management; (3) provide advanced Arc™ farm intelligence platform and 3RIVE 3D® plant crop protection delivery platform for ensuring precise protection for every plant and diversified cropping systems.



Corteva Agriscience Ukraine

Name/ Designation: Corteva Agriscience Ukraine (<https://www.corteva.com.ua/>) Corteva Agriscience Ukraine

Year (constitution): 2019

Organization (Law, Agreements ...): Private company, established under Ukraine law

Main Objective: maximize productivity for farmers while ensuring sustainable practices and providing drought-resistant crop hybrids

Scope of Action: Agricultural technologies, sustainable practices, resource conservation

Address/offices: Kyiv, Poltava

About

Corteva Agriscience™ is a large, agricultural-only research and development company that leverages cutting-edge research to improve the lives of agricultural producers and consumers. The company is a world leader in creating [drought-resistant hybrids](#) (e.g., corn ([Optimum® AQUAmax®](#)) and sunflower ([ExpressSun®](#)) in Ukraine) and encourages farms to apply these hybrids to ensure sustainable agricultural practices. In Ukraine, Pioneer® brand hybrids of the Optimum® AQUAmax® line are widely distributed on the Ukrainian market and are used in soil and climatic regions that have problems with soil moisture and water scarcity. ExpressSun® is an innovative technology for obtaining high and stable sunflower yields. It is a combination of growing productive and resistant sunflower hybrids and their herbicide protection.

Corteva in Ukraine provides [AI-powered satellite analytics](#) (in the year 2023) that are based on EOS Data Analytics (EOSDA) to enhance agronomic support for farmers. AI-powered satellite analytics and EOSDA allow farms to obtain satellite field monitoring data for soil and water quality monitoring and determine the required amount of plant protection and nutrition. These innovations promote farms to maintain sustainable agricultural practices, compliance with the principles of sustainable production and consumption, reduction of climate change impacts, and enhancement of biological biodiversity resilience.

In July 2024, Corteva Agriscience launched a field monitoring pilot project for farmers in Ukraine based on the Granular Link Program – [the Granular Link digital platform](#). This platform helps farmers monitor crop quality and provide timely protection against diseases and pests. The Granular Link digital platform uses Granular Link high-resolution satellite imagery to provide farmers with detailed and accurate information about the condition of their crops, identifying areas of the field affected by diseases, pests, or weeds.

The company has developed [a mobile application "Corteva Ukraine"](#) for Ukrainian farmers. In it, they can explore the catalog of seed hybrids of the Pioneer® brand genetics and the company's advanced plant protection products, compare the yield indicators of different hybrids, and find the nearest agricultural testing ground or demonstration field where they can see the hybrids in their real climatic and agrotechnical conditions.

Corteva Agriscience also uses [innovative technologies](#) for field production, including **drones** to increase efficiency, **GPS devices** to measure field areas, and **NDVI maps** to determine plant development and the state of green mass during the growing season. These innovative technologies help hybrid seed specialists obtain high-quality images, as these devices cover hundreds of hectares in one flight. Thanks to this technology, detailed field maps are created, problem or dangerous areas of the field are identified, plant density per hectare, and sowing uniformity is determined.

Technologies & NbSs

Diffusion of Technologies in Water Use (Y/N): No


Practices in Agriculture in Water Use (Y/N): No

Tech TRL (Prototype, BrandNew, Implemented): Implemented

Technology mane: precision agriculture tools (Granular Link digital platform, a mobile application "Corteva Ukraine"), AI-powered satellite imagery analytics (drones, GPS devices, NDVI maps, EOS Data Analytics), drought-resistant hybrids of corn (Optimum® AQUAmax®) and sunflower (ExpressSun®).

Best practices regarding the technology used: providing farmers with access to the latest crop protection technologies, agronomic support, and financing tools

Relations with other stakeholders: Collaborates with government bodies, farmers, agricultural cooperatives, universities and financial institutions.



Innovative technology development: (1) AI-drones to increase the efficiency of precision agriculture in farms (Soil monitoring methods using precision agriculture technologies); (2) GPS devices to measure field areas and NDVI maps to determine plant development and the state of green mass during the growing season (Monitoring and Assessment Technologies); (3) AI-powered satellite imagery analytics based on EOS Data Analytics to maintain sustainable agricultural practices; Granular Link digital platform and a mobile digital platform "Corteva Ukraine" to provide high-resolution satellite imagery for farmers with detailed and accurate information about the condition of their crops, identifying areas of the field affected by diseases, pests, or weeds (Soil monitoring methods using precision agriculture technologies); (4) AI-powered satellite imagery analytics based on EOS Data Analytics to reduction of climate change impacts, and enhancement of biological biodiversity resilience (Climate Adaptation and Resilience-Building Technologies); (5) drought-resistant hybrids of corn (Optimum® AQUAmax®) and sunflower (ExpressSun®) to promote sustainable agriculture for Climate Adaptation.

Agricultural Practices and Nature-Based Solutions: (1) Provide in farms drought-resistant hybrids of corn and sunflower to increase resilience to Climate; (2) Provide in farms drought-resistant hybrids of corn and sunflower to improve nutrient management; (3) use precision agriculture tools (Granular Link digital platform, a mobile application "Corteva Ukraine") to implement high-resolution satellite imagery for farmers to provide landscape and soil protection and restoration solutions; (4) apply in farms AI-powered satellite imagery analytics (drones, GPS devices, NDVI maps, EOS Data Analytics) to ensure diversified cropping systems.



Name/ Designation: Agrotek (<https://agrotek.ua/>) Agrotek-Invest

Year (constitution): 2008

Organization (Law, Agreements ...): Private company, established under Ukraine law

Main Objective: provide Ukrainian farmers with modern agricultural machinery and equipment to ensure precision agriculture systems, enhancing the farm's productivity and efficiency in farming operations.

Scope of Action: Agricultural technologies, sustainable practices, water management, resource conservation.

Address/offices: the official office is located in Dnipro city

About

The company of **Agrotek-Invest** has been operating in the Ukrainian agricultural machinery market since 2008 and is the official dealer of John Deere in the Dnipropetrovsk, Zaporizhia, Kherson regions and in the territories of Donetsk region under the control of the Ukrainian authorities. The main activities of the company are sales and service of Vaderstad, Hagie, Kramer, Mazzotti, Monosem, Sulky equipment; supply of agricultural and truck tires Firestone, Michelin, NeoTerra, sales and service of OTECH irrigation systems.

The company provides farmers with precision farming equipment and soil analysis services through **Agrotek Farmsight** (innovative and integrated technologies involved in modern agricultural machinery for sustainable practices) and helps train customers with equipment with the help of Agrotek Academy specialists.

The company provides [precision agriculture systems](#) based on agriculture management solutions, which help make farms profitable and environmentally responsible. These systems are based on AI technologies, such as GIS devices, automatic tern systems, and integrated navigation in agricultural machinery. They also include systems of fill control and automatic rowsense for harvesting and systems of section control.

This company implemented [innovative technology HarvestLab 3000](#). This technology includes **the HarvestLab 3000 sensor** (developed and patented in conjunction with Carl Zeiss), which uses near-infrared (NIR) spectroscopy technology to analyze a variety of components in harvested crops, silage or manure. The sensor is mounted on a John Deere forage harvester and provides real-time, high-precision readings of crude protein, starch, crude fiber, neutral detergent fiber (NDF), acid detergent fiber (ADF), sugar and minerals. This enables farmers to sell or buy harvested crops based on quality, not quantity.

[AG-Data Integrator](#) allows farmers to manage equipment information, production data, and agricultural operations from a single website, manage field boundaries, and monitor field productivity. This technology includes mapping (NDVI, aerial and space imagery), interactive analysis of the received data with the possibility of customization (OLAP), and an integrated data transfer system.

The company provides farm services such as remote farm management with the John Deere [MyOperations mobile app](#). This app connects to the John Deere Operations Center, allowing farmers to compare expected and actual performance throughout all operations (fieldwork, harvesting, etc.) and assess the degree of machine utilization. The mobile app is a powerful and easy-to-use application designed to help farmers manage their equipment, farm, or construction. With JDLink™ connectivity, the application provides actionable insights to help you optimize logistics and increase productivity. Make confident data-driven decisions, ensuring that tasks are completed on schedule. Whether you manage a farm or oversee multiple job sites, Operations Center Mobile provides near real-time monitoring of your equipment and operations.

The company provides innovative irrigation systems, such as [OTECH irrigation systems](#). OTECH irrigation systems are both frontal and circular-type sprinklers. Their integrated approach to management aims at the optimal irrigation regime through the selection of sprinklers for irrigated crops, preservation of soil structure due to the large diameter of spraying, and an increase in crop yield by 1.5-3 times.

Technologies & NbSs

Diffusion of Technologies in Water Use (Y/N): No

Practices in Agriculture in Water Use (Y/N): No

Tech TRL (Prototype, BrandNew, Implemented): Implemented

Technology mane: modern equipment of agricultural machinery from international partners (1) for precision agriculture systems (innovative technologies HarvestLab 3000 & AG-Data Integrator) that are based on AI



technologies (GIS devices), automatic tern systems, and integrated navigation; (2) for irrigation systems (Otech Sprinkler systems) that are based on frontal and circular-type sprinklers.

Relations with other stakeholders: Collaborates with international suppliers, farmers, and local businesses.

Best practices regarding the technology used: professional service and warranty support for the machinery they sell, ensuring that farmers can efficiently use modern equipment to optimize their agricultural processes.

Innovative technology development: (1) Otech irrigation sprinkler systems that refer to Drip Irrigation Technology and to ensure water conservation and preserve soil structure (Water Conservation and Management Technologies); (2) innovative technologies HarvestLab 3000 & AG-Data Integrator that are based on AI technologies (GIS devices), automatic tern systems, and integrated navigation to enhance the farm's productivity and efficiency in farming operations (Monitoring and Assessment Technologies); (3) innovative technologies HarvestLab 3000 & AG-Data Integrator that are based on AI technologies (GIS devices) to precision agriculture systems (Soil monitoring methods using precision agriculture technologies); (4) the John Deere MyOperations mobile app to remote farm management systems (Soil monitoring methods using precision agriculture technologies).

Agricultural Practices and Nature-Based Solutions: (1) provide Otech irrigation sprinkler systems in farms to ensure water conservation, soil health, and water management; (2) use innovative technologies HarvestLab 3000 & AG-Data Integrator for soil protection and ensure precision farming; (3) apply the John Deere MyOperations mobile app to remote farm management systems and improve nutrient management.



Name/ Designation: RDO Ukraine (<https://rdo.ua/>) RDO Equipment Co.

Year (constitution): 2012

Organization (Law, Agreements ...): Private company, established under Ukraine law

Main Objective: provide Ukrainian farmers with modern agricultural machinery and equipment to ensure precision farming solutions.

Scope of Action: Agricultural technologies, sustainable practices, resource conservation

Address/offices: Regional offices in Kyiv, Vinnytsia, Zhytomyr, Cherkasy Regions.

About

RDO Equipment Co. is an official dealer of agricultural machinery in John Deere, Geringhoff, Hagie, Kramer, Mazzotti, Monosem, Vaderstad, and Lindsay in Vinnytsia, Cherkasy, and Zhytomyr regions. This company provides precision agricultural technology, from machine performance and field management to data analysis, providing farmers with the tools they need to monitor, manage, and maximize their farm operations.

The company has service centers for demonstration, sales, and repair of agricultural machinery: (1) in 2017, a service center was built in the city of Vinnytsia with a total area of 3,200 sq. m. (Vinnytsia region); (2) in 2021, a service center was built in the city of Uman with a total area of 2,203 sq. m. (Cherkasy region).

The company is a leader in the sale of agricultural equipment that provides precision farming solutions. [Agricultural equipment for smart precision farming](#) is equipped with four main components: a smart touch display (G5 Display), satellite receivers (StarFite™), connection JDLink™ (provides two-way connectivity to automatically transmit crop and machine data to John Deere Operations Center™ in real-time), and an account in the John Deere Operations Center™ (a center that stores all data about your machine and harvest). This precision agricultural technology can increase profitability and sustainability in agriculture by applying environmental sensors, infrastructure monitoring, & optical sensors, which improve crop yield and quality.

RDO Equipment Co. supports farms in implementing precision agricultural technology, providing them with knowledge of preparing this agricultural machinery with smart equipment. The company also takes stakeholders to show how advanced technology and automation can help customers grow their operations.

Technologies & NbSs

Diffusion of Technologies in Water Use (Y/N): No

Practices in Agriculture in Water Use (Y/N): NO

Tech TRL (Prototype, BrandNew, Implemented): Implemented

Technology mane: precision agricultural technology (with smart touch display, satellite receivers, connections, and operations center), precision farming solutions, and comprehensive after-sales service.

Relations with other stakeholders: Collaborates with international suppliers, farmers, local businesses, and financial institutions.

Best practices regarding the technology used: precision farming systems and specialized equipment, such as the HillMaster technology, for working on slopes.

Innovative technology development: (1) precision agricultural technology with environmental sensors, infrastructure monitoring, & optical sensors, which improve crop yield and quality (G5 Display, StarFite™, JDLink™, John Deere Operations Center™) (Soil monitoring methods using precision agriculture technologies); precision agricultural technology with environmental sensors, infrastructure monitoring, & optical sensors, which support monitoring technologies (G5 Display, StarFite™, JDLink™, John Deere Operations Center™) (Monitoring and Assessment Technologies).

Agricultural Practices and Nature-Based Solutions: (1) implement precision agricultural technology in farms to support soil protection and improve soil health; (2) provide precision farming solutions in farms by adapting smart precision machines (environmental sensors, infrastructure monitoring, & optical sensors) to proceed with sustainable practices of nutrients managements.



Name/ Designation: LandTech (<https://landtech-ukraine.com/>) LandTech Ukraine

Year (constitution): 2011

Organization (Law, Agreements ...): Private company, established under Ukraine law

Main Objective: offer advanced agricultural machinery and technological solutions to enhance productivity and efficiency in precision farming.

Scope of Action: Agricultural technologies, sustainable practices, water management, resource conservation.

Address/offices: Kropyvnytskyi Region, Mykolaiv Region.

About

LandTech Ukraine is an official dealer of global manufacturers of agricultural machinery and additional equipment. This company promotes precision farming solutions, providing weather stations and agro-drone sprayers, GPS/GNSS systems, IoT components, sensors for production control, and innovative irrigation systems. The company offers the most modern solutions for precision farming:

1. **Weather stations** that provide complete agrometeorological information in the field in real-time. They include a rain and soil temperature sensor, soil moisture sensor, wind speed sensor, temperature, air humidity, and atmospheric pressure sensor, solar panel, and mobile application for data access. Weather stations allow farmers to conduct remote field monitoring, pest monitoring, and weather monitoring (locally on the farm, in the fields), predict weather and soil moisture for irrigation, build crop disease models, and manage farm resources in real and remote time. The company offers *two types of weather stations*: [Pessl iMetos IMT300](#) (weather monitoring, evaporation, and disease, soil relative humidity, rain sensor, wind speed, leaf wetness, global radiation, solar panel, battery), [Mateobot Pro](#) (rain sensor, soil temperature sensor, soil moisture sensor, wind speed sensor, temperature, air humidity, and atmospheric pressure sensor, solar panel, battery, mobile application for access).
 2. **Agrodrone sprayers XAG** (XP2020) – this is the all-new XAG XPlanet Agricultural technology in intelligent crop & nutrients management, combining intelligent spreading and precision spraying, provides every users with a smart agriculture solution crafted to be accurate, efficient and flexible. It's autonomous flying, delivery efficiency, and reliability. They have supported various operated modules with different functions and payloads. Simply via a smartphone or intelligent control stick, it can effectively conduct seeding and fertilization. Compared with remote-controlled plant protection, it can save more than 50% of labor costs and substantially reduce spraying overlaps.
 3. **Irrigation systems ZIMMATIC®** (e.g. 9500P, 7500P, 7500WD – circular systems for irrigation of large and small fields up to 24 hectares; e.g. 9500L, 9520PL – frontal systems are capable of covering large fields up to 98%) – are circular irrigation systems that allow not only to increase yields, but also to save water and energy resources thanks to highly precise modes and operational characteristics. These systems support intelligent water management and crop production.
 4. **Mobile platforms** and FMIS systems for agricultural management – they conduct mapping and documentation, and inform farmers about productivity and efficiency in their companies. *The Operations Center mobile app* produced by John Deere Operations Center™, allows farmers to obtain information about the location of machines, information about the quality of work performed, exchange field data, automatically sort and display information about all fields and crops, make decisions faster, automatically create reports for viewing, analysis, and export.
- All these precision agricultural technologies are based on intelligent principles that provide yield and food quality, support crop, water & nutrient management, and improve sustainable practices in farms.

Technologies & NbSs

Diffusion of Technologies in Water Use (Y/N): Yes

Practices in Agriculture in Water Use (Y/N): Yes

Tech TRL (Prototype, BrandNew, Implemented): Implemented

Technology mane: (1) meteorological stations (Pessl iMetos IMT300, Mateobot Pro) for providing complete agrometeorological information in the field in real-time to improve sustainable practices; (2) Irrigation systems ZIMMATIC® & Agrodrone sprayers XAG for providing intelligent crop, water & nutrients management to proceed precision farming; (3) mobile platforms and FMIS systems (The Operations Center mobile app) for agricultural management to develop sustainable agriculture solutions.



Best practices regarding the technology used: integration of precision agriculture tools to optimize water usage.

Relations with other stakeholders: collaborates with global agricultural machinery manufacturers and local agricultural communities.

Innovative technology development: (1) mobile platforms and FMIS systems and GPS/GNSS systems that conduct mapping and documentation (Monitoring and Assessment Technologies); (2) Agrodrones sprayers XAG (XP2020) that support sustainable intelligent crop & nutrients management, combining intelligent spreading and precision spraying (UAVs or drones); (3) Irrigation systems ZIMMATIC® and Agrodrones sprayers XAG (XP2020) that support intelligent water management and crop production (Drip Irrigation Technology); (4) Agrodrones sprayers XAG that have a smartphone and intelligent control stick, which can effectively conduct seeding and fertilization (Irrigation Management Mobile Apps); (5) meteorological stations (Pessl iMetos IMT300, Meteobot Pro) are based on IoT-based wireless sensor networks that allow farmers to conduct remote field monitoring, pest monitoring, and weather monitoring (locally on the farm, in the fields), predict weather and soil moisture for irrigation, build crop disease models, and manage farm resources in real and remote time (IoT-based systems and wireless sensor networks (WSNs)).

Agricultural Practices and Nature-Based Solutions: (1) establish meteorological stations (Pessl iMetos IMT300, Meteobot Pro) and ensure implementation of FMIS systems (The Operations Center mobile app) to improve sustainable practices and support nutrient management; (2) apply Irrigation systems ZIMMATIC® and Agrodrones sprayers XAG to maintain sustainable irrigation management and water management; (3) use meteorological sensors (e.g. rain sensor, soil temperature sensor, soil moisture sensor, wind speed sensor, temperature, air humidity, and atmospheric pressure sensor) from meteorological stations (Pessl iMetos IMT300, Meteobot Pro) to conduct remote field monitoring, pest monitoring, build crop disease models, and manage farm resources in real and remote time that its support soil quality.



Titan Machinery Ukraine LLC

Name/ Designation: Titan Machinery Ukraine LLC (<https://www.titanmachinery.ua/>) Titan Machinery Inc.

Year (constitution): 2012

Organization (Law, Agreements ...): Private company, established under Ukraine law

Main Objective: high-quality agricultural machinery and equipment, enhancing their productivity and efficiency in precision agriculture.

Scope of Action: agricultural technologies, sustainable practices, water management, resource conservation.

Address/offices: Regional offices in Kyiv Region, Chernihiv Region, Zhytomyr Region, Cherkasy Region, Rivne Region, Sumy Region, Dnipropetrovsk Region, Poltava Region, Kropyvnytskyi Region.

About

Titan Machinery Inc. is one of the biggest operators of CNH machinery in the world with over one hundred full-service agricultural and construction equipment dealer locations in North America and Europe (Ukraine, Germany, Romania, and Bulgaria). Titan Machinery Inc. offers advanced technologies and equipment for precision agriculture, which helps to manage the farm using a large array of data and high efficiency. This allows farmers to increase profitability by increasing yields and reducing production costs. A wide range of solutions allows each customer to choose the necessary model and equipment to best meet the needs of the economy, among world-famous brands such as Trimble, AFS, Raven, XAG, and others.

This company has already proposed solutions that contribute to the development of modern, sustainable precision agriculture:

1. **AgroDrones & UAV** (unmanned aerial vehicle) XAG (XAG V40 & XAG P100 PRO) – machine for multiple uses in spraying, scattering of fertilizers, and mapping created on the basis of accumulated deep knowledge in the field of agricultural drones. These drones are suitable for a variety of chemicals, from oil-based solutions and suspensions to soluble powders.

XAG V40™ – drone sprayer (unmanned aerial vehicle) XAG V40 has fully autonomous flight and multi-directional radar. XAG V40™ is used for farms with waterlogged soils, when processing tall crops, in difficult terrain, when there is no access to the field, when processing local problem areas, when processing gardens and berry bushes, and when processing forests and resort areas. Using this drone in agricultural practices promotes the reduction of water needs by up to 90% and PPP (Plant Protection Products) by up to 30%.

XAG P100 PRO – is an advanced development in the field of agricultural spraying drones. The unit combines the ability to perform two operations: spraying and spreading. Reliable and simple software combines various ways to control the agrodrome. A unique function on the control panel allows you to fly over the field, creating a detailed map of the area. This drone promotes saving water and reduces the use of fertilizers, sowing and applying fertilizers simply from the air, with fully autonomous control from a smartphone.

2. **Maintenance of Data** - includes diverse data processing systems that allow farmers to control all processes on the farm, map, and create analytical reports. **AFS Connect™** – system uses a combination of GPS satellites and cellular technology to connect wirelessly equipment from Case IH AFS Pro 300 or Pro 700 displays to office computers working in online mode. This provides real-time information to help manage fleets, report on performance, manage files remotely, and communicate two-way. **Data Processing™** – software that allows farms to create enterprise field numbering, integrate ready-made layers into any data processing or storage system, and collect, process, and convert data. **Remote Sound Sensing™** – remote sensing technology that allows farm owners to solve many problems using satellite images, which in turn allows them to collect, process, and convert data according to needs and identify problem areas (for example, in homogeneous crops) using vegetation indices. **Cartography™** – the electronic software that allows farms to create field maps of different levels of detail. These maps help to plan the amount of harvest accurately, calculate the optimal rate of fertilizer application, perform the calculation of the required number of seeds, and determine the facts of irrational use of seed, helps to analyze the conditions that affect the growth of plants in a particular area / field, to carry out forecasting of crop yields.

Technologies & NbSs

Diffusion of Technologies in Water Use (Y/N): Yes

Practices in Agriculture in Water Use (Y/N): Yes



Tech TRL (*Prototype, BrandNew, Implemented*): Implemented

Technology mane: *precision agriculture equipment for spraying, scattering of fertilizers, and mapping (AgroDrones & UAV) and data processing systems to control all processes on the farm, map, and create analytical reports (AFS Connect™, Data Processing™, Remote Sound Sensing™, Cartography™).*

Best practices regarding the technology used: use of precision farming equipment to monitor and manage water usage effectively, reducing waste and improving crop yields.

Relations with other stakeholders: collaborates with international suppliers, farmers, local communities, and financial institutions.

Innovative technology development: (1) Remote Sound Sensing™ to solve many problems using satellite images, conduct remote field monitoring, pest monitoring (Monitoring and Assessment Technologies); (2) AgroDrones & UAV for spraying, scattering of fertilizers, and mapping in precision agriculture (Soil monitoring methods using precision agriculture technologies); (3) Maintenance of Data (AFS Connect™, Data Processing™, Remote Sound Sensing™, Cartography™) to make the right and sound design decisions on the location of various crops, as well as sorting technologies for their cultivation (IoT-based systems and wireless sensor networks (WSNs)); (4) to apply in farms Remote Sound Sensing™ and Cartography™ technologies to predict soil moisture for irrigation systems and promote water conservation.

Agricultural Practices and Nature-Based Solutions: (1) to involve in agricultural practices fully autonomous AgroDrones & UAV XAG (XAG V40 & XAG P100 PRO) for spraying, scattering of fertilizers, and mapping to promote precision agriculture farming; (2) to provide Maintenance of Data (AFS Connect™, Data Processing™, Remote Sound Sensing™, Cartography™) to the maintenance of soil protection and promote restoration solutions; (3) Remote Sound Sensing™ and Cartography™ to predict soil moisture for irrigation systems and promote water conservation.



Vada

Name/ Designation: Vada (<https://vada.ua/pro-kompaniyu/>) Vada LLC

Year (constitution): 2018

Organization (Law, Agreements ...): Private company, established under Ukraine law.

Main Objective: assist farmers in the poultry, pig, cattle, and rabbit sectors by offering top-quality equipment.

Scope of Action: Agricultural technologies, sustainable practices, water and livestock management, and resource conservation.

Address/offices: Kyiv city (Kyiv Region)

About

Vada LLC is a high-tech multidisciplinary company that, since 2018, has been a reliable partner of Ukrainian farmers specializing in poultry farming, pig farming, cattle breeding, and rabbit breeding. The range of equipment for poultry and animals offered by the company: ventilation and microclimate systems that guarantee optimal conditions for the health and growth of livestock; automatic feeding and watering systems that provide accurate dosing of feed and water, which allows you to save resources and improve productivity; automated manure cleaning systems - effective solutions for keeping the farm clean, which minimizes the risk of diseases; as well as uninterrupted power supply systems, irrigation/cooling, various fastenings, heat generators, etc.

Technologies & NbSs

Diffusion of Technologies in Water Use (Y/N): Yes

Practices in Agriculture in Water Use (Y/N): Yes

Tech TRL (Prototype, BrandNew, Implemented): Implemented

Technology mane: water supply and drainage systems for livestock farms

Best practices regarding the technology used: installing high-quality drinkers and water systems to maintain consistent access to clean water for animals.

Relations with other stakeholders: collaborates with international suppliers, farmers, local communities, financial institutions

Innovative technology development: (1) water supply and drainage systems for livestock farms (Pollution Reduction and Control Technologies)

Agricultural Practices and Nature-Based Solutions: (1) apply in livestock farms' innovative water supply and drainage systems to support water protection such as ventilation and microclimate systems that guarantee optimal conditions for the health and growth of livestock; automatic feeding and watering systems that provide accurate dosing of feed and water, which allows you to save resources and improve productivity; automated manure cleaning systems - effective solutions for keeping the farm clean, which minimizes the risk of diseases.



Dahmira

Name/ Designation: Dahmira (<https://dahmira.com.ua/>) Dahmira LLC

Year (constitution): 1999

Organization (Law, Agreements ...): Private company, established under Ukraine law.

Main Objective: enhance the efficiency and productivity of livestock farms.

Scope of Action: agricultural technologies, sustainable practices, water and livestock management, resource conservation.

Address/offices: Kyiv city (Kyiv Region)

About

Dahmira LLC develops technological projects for pig, dairy, and poultry farms and offers customers innovative technologies in animal husbandry. Technological projects include:

1. Innovative Equipment for pig farms that are based on [CloudFarms solutions](#) (it is a production management software such as cloud solution for large pork producers, includes high-quality storage technologies, provides the ability to trace the entire pork production process "from growing to serving in the store"), [Irrigation systems for pig farms](#) (it is a cooling system that provides comfortable conditions for pigs, in particular, under high pressure, water is sprayed into the room in small drops, which creates a fog effect that humidifies the air and prevents the risk of disease, and also allows you to use less water than traditional protection systems), [innovative drinking systems](#) (drinkers that ensure efficient water use in property time).
2. Innovative Equipment for poultry and dairy farms based on innovative drinking systems (safe for animals, providing them with the necessary amount of high-quality water, preventing dirt from entering the water).

Technologies & NbSs

Diffusion of Technologies in Water Use (Y/N): Yes

Practices in Agriculture in Water Use (Y/N): Yes

Tech TRL (Prototype, BrandNew, Implemented): Implemented

Technology mane: *innovative equipment for pig farms (CloudFarms production management software, irrigation systems, drinking systems) and for dairy & poultry farms (drinking systems).*

Best practices regarding the technology used: installation and regular maintenance of drinking systems are crucial to prevent contamination and ensure animal health and productivity.

Relations with other stakeholders: collaborates with international suppliers, farmers, local communities, financial institutions

Innovative technology development: (1) innovative equipment for pig farms (CloudFarms production management software, irrigation systems, drinking systems) and for dairy & poultry farms (drinking systems) to use water efficiently in farms and prevent the risk of disease of animals.

Agricultural Practices and Nature-Based Solutions: (1) to apply in livestock farms innovative equipment for pig farms (CloudFarms production management software, irrigation systems, drinking systems) and dairy & poultry farms (drinking systems) in order to maintain water quality, prevent water scarcity and provide sustainable nutrient management.



Name/ Designation: Agrosystem (<https://agrosystem.com.ua/>) AGROSYSTEM LTD

Year (constitution): 1994

Organization (Law, Agreements ...): Private company, established under Ukraine law.

Main Objective: supply livestock farms with high-quality cattle breeding and milking equipment.

Scope of Action: Agricultural technologies, sustainable practices, water and livestock management, resource conservation.

Address/offices: Kyiv Region

About

Agrosystem LTD was founded in 1994 in Kyiv to provide milking equipment to Ukrainian dairy farms, both small private farms and large dairy farms. The company is an official dealer of Milkrite Interpuls, a manufacturer of high-tech milking components, equipment, and sanitation systems.

Technologies & NbSs

Diffusion of Technologies in Water Use (Y/N): Yes

Practices in Agriculture in Water Use (Y/N): Yes

Tech TRL (Prototype, BrandNew, Implemented): Implemented

Technology mane: milking equipment and sanitation systems

Best practices regarding the technology used: cleaning and maintenance of milking equipment using appropriate sanitation systems.

Relations with other stakeholders: collaborates with international suppliers, farmers, local communities, financial institutions

Innovative technology development: (1) milking equipment and sanitation systems to support pollution reduction in food-water nexus.

Agricultural Practices and Nature-Based Solutions: (1) apply innovative milking equipment and sanitation systems in dairy farms to prevent water pollution and support sustainable agricultural practices.



Institute of Agriculture

Name/ Designation: The National Scientific Center “Institute of Agriculture of the National Academy of Agrarian Sciences of Ukraine (NAAS)” (<https://zemlerobstvo.com/en/strategy/>)

Year (constitution): 1928

Organization (Law, Agreements ...): state, public.

Main Objective: Implementing innovative sustainable practices in the Forest-Steppe and Polissia agro-zone of Ukraine.

Scope of Action: agricultural technologies, sustainable practices, **water management**, resource conservation.

Address/offices: Kyiv Region

About

Scientific institution in Ukraine for agriculture, development of adaptive and landscape systems of agriculture based on stabilization of land use, preservation and increase of fertility of grounds, maintenance of ecological balance in agro-ecosystems, development of the latest adaptive technologies for the production of competitive products of agricultural crops and their selection and seed production, measures of effective use of innovations and investments in agriculture – the basic branch of agricultural production in the Forest-Steppe and Polissia zone of Ukraine.

The scientific institution provides services to stakeholders: agrochemical and agroecological expertise of soils, fertilizers, plants, water; development of working land management projects for the reclamation of disturbed lands, land reclamation of low-productive lands, protection of lands from erosion, flooding, waterlogging, secondary salinization, drying, landslides, compaction, acidification, pollution by industrial and other waste; technological support for growing agricultural crops, consulting, consulting and support.

The Institute developed innovative technologies for land use, among which it is worth noting:

1. *The soil-protective adaptive-landscape system of agriculture* (developed in 2015) is an innovative model built on the principles of environmental safety. It uses the biological features of growing crops in different zones with different soil degradation processes. The model is intended for use by agricultural enterprises of various forms of ownership.
2. *Model for the formation of environmentally safe territories (land uses)* (developed in 2015-2016): the model is based on an approach to risk management in the use and protection of land resources, taking into account the environmental, social, and economic interests of agricultural producers.
3. *Solutions for optimizing the structure of land based on adaptive land use* (developed in 2023): these solutions predict that agricultural productivity will increase by 25–30% and the needs for material, financial resources, and energy will reduce by 20–25%.

Technologies & NbSs

Diffusion of Technologies in Water Use (Y/N): No

Practices in Agriculture in Water Use (Y/N): Yes

Tech TRL (Prototype, BrandNew, Implemented): **no applicable**

Technology mane: *innovative technologies in Agriculture and land use.*

Relations with other stakeholders: collaborates with international suppliers, farmers, local communities, financial institutions, and educational communities.

Innovative technology development: (1) solutions based on GIS and RS for sustainable practices to promote sustainability in farms (Monitoring and Assessment Technologies); (2) climate-resilient hybrids of fodder and industrial and vegetable crops to implement in drought zones (Climate Adaptation and Resilience-Building Technologies)

Agricultural Practices and Nature-Based Solutions: (1) support farms in implementing sustainable solutions in agriculture and land use; (2) support farms in applying climate-resilient hybrids of fodder and industrial and vegetable crops by providing advice.



Institute of Agroecology and Environmental Management

Name/ Designation: Institute of Agroecology and Environmental Management of the National Academy of Agrarian Sciences of Ukraine (NAAS) (<https://agroeco.org.ua/en/>)

Year (constitution): 2016

Organization (Law, Agreements ...): state, public.

Main Objective: Implementing balanced development of agricultural production, land use, and rural areas, including climate change.

Scope of Action: agricultural technologies, sustainable practices, **water management**, resource conservation.

Address/offices: Kyiv Region

About

The institute is the leading scientific research institution in Ukraine for determining the scientific foundations of state policy in the fields of agroecology, environmental economics, and environmental protection; the Institute is engaged in systematic monitoring of natural resources of the agricultural sphere, comprehensive assessment of their condition, development of ecological and economic foundations of mechanisms for the implementation of balanced development of agricultural production, land use and rural areas, including climate change as well.

The Institute developed innovative technologies for providing sustainable principles in agriculture and crop production, among which it is worth noting:

1. *Solutions for optimizing ecological functions and territorial distribution in Ukraine's agricultural sphere* (developed in 2025): solutions include a proposal system for improving ecological and eco-system functions, territorial distribution, use and protection, preservation, and reproduction of field protection forest plantations.
2. *The concept of rehabilitation of contaminated soils based on geographic information systems* (developed in 2023): ways to rehabilitate soils contaminated with persistent organic pesticides, which will contribute to the transition of land use to the principles of balanced development of "green growth" agriculture. This concept can be implemented by state bodies of territorial administration, specialists in the agricultural sector, public organizations, landowners and land users, and scientists.
3. *Recommendations for assessing the impact of climate change on the productivity of agroecosystems using GIS and Remote Sensors* (developed in 2021): this includes a methodology for correlation and regression analyses. Academics and specialists in the field of agriculture can implement these recommendations.

Technologies & NbSs

Diffusion of Technologies in Water Use (Y/N): No

Practices in Agriculture in Water Use (Y/N): Yes

Tech TRL (Prototype, BrandNew, Implemented): **no applicable**

Technology mane: innovative solutions and recommendations in providing sustainable agriculture practices.

Relations with other stakeholders: collaborates with international suppliers, farmers, local communities, financial institutions, and educational communities.

Innovative technology development: (1) solutions and recommendations based on remote sensing technologies and GIS (Monitoring and Assessment Technologies); (2) solutions and recommendations for adaptation of sustainable agriculture practices under climate conditions (Climate Adaptation and Resilience-Building Technologies).

Agricultural Practices and Nature-Based Solutions: (1) support farms to apply innovative solutions and recommendations in providing sustainable agriculture practices and protecting landscapes and soil productivity; (2) support farms to apply remote sensing technologies for adaptation of sustainable agriculture practices under climate conditions.



Institute of Water Problems and Land Reclamation

Name/ Designation: Institute of Water Problems and Land Reclamation of the National Academy of Agrarian Sciences of Ukraine (NAAS) (<https://iwpim.org.ua/>)

Year (constitution): 1929

Organization (Law, Agreements ...): state, public.

Main Objective: Implement designing water management facilities, irrigation systems of water supply in agriculture fields, and drainage.

Scope of Action: agricultural technologies, sustainable practices, water management, resource conservation.

Address/offices: Kyiv city

About

The institute is the leading scientific research institution in Ukraine. It conducts practices in sustainable water use, makes solutions and recommendations for the protection and reproduction of water resources, promotes technological principles of agricultural land reclamation development, and develops technologies for using reclaimed lands in humid zones.

The scientists of the institute developed the following *solutions and recommendations*: (1) recommendations on the technology of drip irrigation of vegetable crops and potatoes in the conditions of the Steppe of Ukraine (economic effect from 150 \$/ha, 2022); (2) recommendations on the technology of growing seed orchards on clonal rootstocks using drip irrigation for the conditions of the Forest-Steppe of Ukraine (economic effect from 150 \$/ha, 2022); (3) recommendations on integrated planning of the use of water and land resources in rural areas (contribute to the optimization of the use of water and land resources in the conditions of climate change); (4) recommendations on the use of urban wastewater for irrigation; (5) technical facilities and solutions for the installation of structures to protect water bodies from pollution by unsuitable pesticides and others.

Also, researchers at this institute developed *an algorithm for adjusting irrigation plans* (2012-2015) that was a part of the operational irrigation planning information system for farms. This algorithm was based on the use of remote sensing methods to determine the timing of atmospheric drought and identify fields with an unsatisfactory state of crop biomass for control measurements of soil moisture. The development has been adopted in agricultural farms such as "Freedom Farm International" and LLC "Freedom Farm Terra". In addition, researchers developed *the software package for the operational irrigation planning IS "GIS Polyv"* which was adopted in agricultural farms such as "Freedom Farm International" and LLC "Freedom Farm Terra" (2010-2012).

Technologies & NbSs

Diffusion of Technologies in Water Use (Y/N): Yes

Practices in Agriculture in Water Use (Y/N): Yes

Tech TRL (Prototype, BrandNew, Implemented): implemented

Technology mane: *Remote Sensing technologies and GIS for irrigation management*

Relations with other stakeholders: collaborates with international suppliers, farmers, local communities, financial institutions, and educational communities.

Innovative technology development: (1) solutions and recommendations based on irrigation planning information systems for farms for improving irrigation management (Irrigation Management); technical facilities and solutions based on GIS and RS to provide sustainable agricultural practices under climate conditions (Climate Adaptation and Resilience-Building Technologies); (3) recommendations on the technology of drip irrigation of vegetable crops and potatoes in agriculture (Monitoring and Assessment Technologies)

Agricultural Practices and Nature-Based Solutions: (1) support farms to implement irrigation planning information systems for providing efficient irrigation management in the farms; (2) advise and teach farms to apply recommendations on the technology of drip irrigation of vegetable crops and potatoes under different conditions (e.g., atmospheric drought).



Institute of Agricultural Microbiology and Agro-Industrial Production

Name/ Designation: Institute of Agricultural Microbiology and Agro-Industrial Production of the National Academy of Agrarian Sciences of Ukraine (NAAS) (<https://ismav.com.ua/>)

Year (constitution): 1969

Organization (Law, Agreements ...): state, public.

Main Objectives: *development of microbial preparations for agriculture, creation of crop-resilient varieties for diseases and pathogens, and development of crop-growing technologies for sustainable agriculture practices.*

Scope of Action: agricultural technologies, sustainable practices, resource conservation.

Address/offices: Chernihiv city

About

The institute is a scientific institution that implements effective technologies for manufacturing microbial preparations and scientific bases for optimizing microbiological processes in the effective functioning of agroecosystems. The Institute provides services to farmers and agribusiness in: (1) research on the number of soil microorganisms, (2) determining the amount of foreign microflora in microbial preparations, (3) developing systems for fertilizing agricultural crops taking into account the requirements for restoring soil fertility, (4) research on the biological effectiveness of fertilizers and preparations. The Institute also provides recommendations on the biotechnological improvement of potato varieties from viral and other infections and provides consultations and scientific support for its own biological developments (biological preparations for crop and livestock production).

The Institute produces biological preparations in crop production that increase the resistance of crops to adverse weather conditions, such as cold or drought, and improve the phytosanitary condition of crops. In particular, these are:

(1) POLYMIXOBACTEIN supports increasing plant phosphorus nutrition. Implementing it increases wheat yield by 15-25%, reduces fertilizer costs by 30-40%, and reduces production costs by 8-25%.

(2) RHIZOGUMIN supports improving plant nitrogen nutrition; its implementation has increased yield by 10-50%, protein content in seeds by 1.8-2.5%, reduced fertilizer costs by 30-40%, and reduced production costs by 8-25%.

(3) DIAZOBACTERIN is an environmentally safe drug that does not harm the human body, animals, or insects, including bees. It is used for pre-sowing seed treatment to increase yield and improve grain quality. It also helps increase the resistance of bacterized plants to a number of diseases. Its implementation increases yield by 15-30%, reduces fertilizer costs by 30-40%, and reduces production costs by 8-25%.

(4) BIOGRAN is used for bacterizing potato planting material to improve plant nutrition and increase crop productivity (improvement of potato yield structure – increase in tuber mass). Its implementation increases potato yield by 15-25% (while reducing the content of nitrates in the product), reduces fertilizer costs by 30-40%, and reduces production costs by 8-25%.

Technologies & NbSs

Diffusion of Technologies in Water Use (Y/N): No

Practices in Agriculture in Water Use (Y/N): No

Tech TRL (Prototype, BrandNew, Implemented): implemented

Technology mane: *biological preparations in crop production for sustainable agriculture practices*

Relations with other stakeholders: collaborates with international suppliers, farmers, local communities, financial institutions, and educational communities.

Innovative technology development: (1) solutions and recommendations based on developing systems for fertilizing agricultural crops taking into account the requirements for restoring soil fertility (Soil monitoring methods using precision agriculture technologies); (2) produces biological preparations in crop production that increase the resistance of crops to adverse weather conditions (Climate Adaptation and Resilience-Building Technologies).

Agricultural Practices and Nature-Based Solutions: (1) support and advise local farms to implement biological preparations of crop production in sustainable agriculture practices for soil protection and to adapt agriculture to be more climate-resilient.



Farmers (producers)

Agro-Oven Corporation

Name/ Designation: Agro-Oven Corporation (<https://www.agrooven.com.ua/en/home>)

Year (constitution): 1998

Organization (Law, Agreements ...): private.

Main Objectives: covers the fields of crop farming, poultry farming, livestock farming, and the storage and processing of agricultural products.

Scope of Action: **agricultural technologies, sustainable practices**, water management, resource conservation.

Address/offices: depends on region

About

Agro-Oven Corporation produces poultry meat and eggs at a European level for our Ukrainian and international partners, applies technologies to cultivate a variety of agricultural crops, and develops the livestock sector in Ukraine to supply the market with meat and dairy products.

Agro-Oven Corporation promotes [modern technologies for high-quality harvest](#): soil preparation (apply innovative soil treatment technologies that not only enhance its fertility but also ensure its safety); drip irrigation (use drip irrigation technology, which delivers water directly to the roots of the plants in a uniform manner); sprinkler irrigation (potatoes are irrigated using sprinkler machines, ensuring an even distribution of water across the entire field). Agro-Oven Corporation includes 18,000 hectares of fertile agricultural land where 600-700 hectares of vegetable crops and 300-500 hectares of cereal crops are planted per season.

[Poultry production](#) unites 3 poultry farms (with livestock of 6,000,000 birds), which has enabled full vertical integration in poultry farming and completely satisfies the company's needs for hatching eggs. Poultry houses are featured with fully automated production, equipped with the latest technology by Dutch manufacturers VDL, Roxell and Abbi Products.

Agro-Oven Corporation develops its [livestock sector](#) (pig farming - annual production exceeds 5,000 tons of pork; cattle farming in Dnipropetrovsk region – raise Ukrainian meat and gray Ukrainian breeds) to supply the market with high-quality meat and dairy products while breeding healthy, productive animal species.

Technologies & NbSs

Diffusion of Technologies in Water Use (Y/N): Yes

Practices in Agriculture in Water Use (Y/N): Yes

Tech TRL (Prototype, BrandNew, Implemented): implemented

Technology mane: *modern technologies for high-quality harvest: (1) soil treatment technologies – enhance its fertility and safety; (2) drip and sprinkler irrigation technologies - deliver water directly to the roots of the plants in a uniform manner.*

Relations with other stakeholders: collaborates with government and non-government organizations, international suppliers, markets, farmers, local communities, financial institutions, research, and educational communities.

Innovative technology development: (1) implement drip and sprinkler irrigation technologies for high-quality harvest; (2) implement soil treatment technologies for enhancing soil fertility and safety in precision agriculture;

Agricultural Practices and Nature-Based Solutions: (1) provide modern technologies for high-quality harvest in sustainable agriculture practices for soil protection and to adapt agriculture to be more climate-resilient.



APK-INVEST

Name/ Designation: APK-INVEST (<https://apk-invest.com.ua/en/#section-0>)

Year (constitution): 2006

Organization (Law, Agreements ...): private.

Main Objectives: covers the fields of crop production (seed breeding) and pork production.

Scope of Action: **agricultural technologies**, sustainable practices, water management, resource conservation.

Address/offices: depends on region

About

APK-INVEST is a vertically integrated agro-industrial company (agroholding), the largest meat producer in Ukraine, the leader in the chilled pork market. The company was established in 2006. Within the framework of the vertically integrated structure, the key business areas are seed production, crop production, feed production, elevator services, livestock farming, meat processing. As of the end of 2012, the company's total land bank is over 32 thousand hectares. The company's existing livestock complexes allow it to produce 400 thousand commercial pigs per year (or 200 thousand heads of simultaneous maintenance).

Technologies & NbSs

Diffusion of Technologies in Water Use (Y/N): No

Practices in Agriculture in Water Use (Y/N): No

Tech TRL (Prototype, BrandNew, Implemented): -

Technology mane: crop production (seed breeding) and pork production.

Relations with other stakeholders: collaborates with government and non-government organizations, international suppliers, markets, farmers, local communities, financial institutions, research, and educational communities.

Innovative technology development: (1) provide seed plants in accordance with the high environmental standards.

Agricultural Practices and Nature-Based Solutions: (1) implement innovative agricultural practices for crop production.



Name/ Designation: Public Limited Company "UkrLandFarming" (<https://www.ulf.com.ua/en/>)

Year (constitution): 2007

Organization (Law, Agreements ...): private.

Main Objectives: covers the fields of crop and cattle farming and the production of eggs.

Scope of Action: **agricultural technologies, sustainable practices**, water management, resource conservation.

Address/offices: depends on region

About

The company is located in 22 regions of Ukraine. UkrLandFarming supports Ukrainian markets for eggs and meat.

Crop farming involves growing corn, wheat, rapeseed, sunflower, and feed crops. To improve soil health, various schemes of crop rotation, fertilizer application, and crop protection products are used. The company uses the best farming machinery for land use, such as John Deere, New Holland, Claas Case Hardi, Kverneland, and Merlo. For crop protection and use of fertilizers and for developing plant nutrition strategies, the company (1) uses fertilizers that have successfully passed registration trials; (2) conducts an environmental impact assessment for pesticide application regimens; (3) combines various methods of crop protection (organizational, mechanical, physical, agrotechnical and biochemical).

Cattle farm. UkrLandFarming rears pigs, beef, and dairy cattle, and operates 125 cattle farms, including 8 breeders and two fattening complexes.

UkrLandFarming practices precision farming to optimize fertilizer and crop protection product application. It combines off-the-shelf and vendor systems with in-house-developed applications and interfaces to create a unique and tightly integrated ITC environment. The company also provides satellite monitoring technology NDVI and drones to monitor vegetation and crop development and help dynamically respond to various situations in the field.

Technologies & NbSs

Diffusion of Technologies in Water Use (Y/N): No

Practices in Agriculture in Water Use (Y/N): No

Tech TRL (Prototype, BrandNew, Implemented): implemented

Technology mane: various methods of crop protection, various schemes of crop rotation, satellite monitoring technology NDVI and drones to monitor vegetation and crop development.

Relations with other stakeholders: collaborates with government and non-government organizations, international suppliers, markets, farmers, local communities, financial institutions, research, and educational communities.

Innovative technology development: (1) provide satellite monitoring technology NDVI and drones to monitor vegetation and crop development in precision farming; (2) ensure various schemes of crop rotation to improve land use and soil fertility.

Agricultural Practices and Nature-Based Solutions: (1) implement various schemes of crop rotation to improve land use and soil fertility and soil protection.



IMC-Smart Green Company

Name/ Designation: Ukrainian agricultural company "IMC-Smart Green Company" (<https://imcagro.com.ua/en/>)

Year (constitution): 1998

Organization (Law, Agreements ...): private.

Main Objectives: covers crop production (corn, wheat, sunflower) and crop storage.

Scope of Action: agricultural technologies, sustainable practices, water management, resource conservation.

Address/offices: depends on region

About

IMC is an integrated agricultural business operating in Ukraine. The main areas of IMC's activities are the cultivation and storage of grain and oilseed crops. The company developed a "Smart Green Strategy 2023-2033". This strategy includes ambitions related to decreasing fossil fuel consumption, reducing greenhouse gas emissions, preserving soil fertility and soil health, and others.

The lands where IMC works are situated in Poltava, Chernihiv, and Sumy regions. Those are favorable regions for agriculture from the point of view of soil and climatic conditions for crop cultivation. On the fields of IMC, the system of different depth soil cultivation is applied: deep ripping, plowing, disking, and cultivation. Rotation of these cultivation methods allows for the creation of the optimal conditions for the growing and development of agricultural crops. The IMC technology for crop farming anticipates using of seeds, fertilizers, and crop-protecting products only from the best national and foreign manufacturers. The elements of precision farming are tested and introduced, such as systems for GPS-monitoring machinery, auto-piloting, satellite monitoring, variable seeding norms, and differentiated fertilization.

Technologies & NbSs

Diffusion of Technologies in Water Use (Y/N): No

Practices in Agriculture in Water Use (Y/N): No

Tech TRL (Prototype, BrandNew, Implemented): implemented

Technology mane: GPS-monitoring machinery, auto-piloting, satellite monitoring, variable seeding norms, and differentiated fertilization; the system of different depth soil cultivation in precision farming.

Relations with other stakeholders: collaborates with government and non-government organizations, international suppliers, markets, farmers, local communities, financial institutions, research, and educational communities.

Innovative technology development: (1) provide GPS-monitoring machinery, auto-piloting, and satellite monitoring for supporting precision farming; (2) provide differentiated fertilization and a system of different depth soil cultivation for ensuring precision farming.

Agricultural Practices and Nature-Based Solutions: (1) ensure GPS-monitoring machinery for diversified cropping systems in agricultural practices; (2) provide differentiated fertilization and the system of different depth soil cultivation for soil protection and restoration.



Water supply services in Ukraine provide housing and communal services. They include municipal enterprises that are located in big cities and through the Dnipro River Basin area:

- Municipal enterprise "Kyivvodokanal (Kyiv)" (<https://www.vodokanal.kiev.ua/>): water intake for drinking and its supply to the centralized water supply system of Kyiv is carried out from three sources: 30% - the Dnipro River, 60% - the Desna River (sub-basin of the Dnipro River), 10% - artesian springs;
- Municipal enterprise "Dniprovodokanal (Dnipro city)" (<https://en.uhe.gov.ua/about-company>; <https://vodokanal.dp.ua/index.php?lang=ru>)
- Municipal enterprise "Dnipro-Kirovograd" (<https://dnipro-kirovograd.com.ua/index.php?p=main>)
- Municipal enterprise "Zhytomyrvodokanal" (<https://vodokanal.zt.ua/>)
- Municipal enterprise "Regional vodokanal Zaporizhzhia province" (<https://oblvoda.zp.ua/>)
- Limited Liability Company "Bilotserkivvoda" (<https://bcvoda.com.ua/>)
- Municipal enterprise "Cityvodokanal" of Sumy city (<https://vodokanal.sumy.ua/>)
- Municipal enterprise "Chernihiv vodokanal" (<https://water.cn.ua/>)
- Municipal enterprise "Cherkasy Vodokanal" (<https://vodokanal-cherkasy.ck.ua/>)
- Rivne Regional Municipal Production Enterprise of Water Supply and Sewerage "Rivneoblvodokanal" (<https://vodarivne.com/>)
- Aulskyi Vodovid Municipal Enterprise, and Municipal Utility Company Miskvodokanal (Kamianske) (<https://mvk.dp.ua/>)

They provide consumers with information about water quality and water usage rates.

Wastewater treatment plants

All water supply services have wastewater treatment plants.

For instance, in Kyiv city, wastewater from householding and enterprises flows into the Bortnytsia Aeration Station (<https://www.vodokanal.kiev.ua/bortniczka-stancz%D1%96ya-aeracz%D1%96%D1%97>). The municipal wastewater treatment plant of the Bortnytsia Aeration Station is the main wastewater treatment facility in the capital, where the water is treated through several stages until it reaches an acceptable quality (technical and biological treatment). It is located in the Bortnychi district in Kyiv city. It serves the entire city and has a capacity of 1.2 million cubic meters per day.

For other instance, in Sumy city, wastewater from householding and enterprises flows into municipal enterprise Seredina-Buda residential repair and maintenance unit (Sumy Region) and municipal wastewater treatment plants, Shostka territorial community (Sumy Region).

The operation of all treatment plants is regulated by the Law of Ukraine "[On Water Drainage and Wastewater Treatment](#)" of 2023, the type of mechanical and biological wastewater treatment is determined by the Law of Ukraine "[On Approval of the Procedure for Wastewater Treatment Before Discharge into Vulnerable Areas](#)" of 2024.

The dominant share of wastewater in the Dnipro basin (>98%) is treated using biological treatment, which allows for the utilisation of 70% of organic matter.



Local municipalities (villages and cities)

The Dnipro River Basin covers 19 oblasts, of which Vinnytsia, Volyn, Donetsk, Zaporizhzhia, Kyiv, Kirovohrad, Lviv, Mykolaiv, Ternopil, Kharkiv, Kherson, Khmelnytskyi, and Cherkasy Regions are partially within the basin. At the same time, Dnipropetrovs'k, Zhytomyr, Poltava, Rivne, Sumy and Chernihiv Regions are 100% within the Dnipro River basin. The predominant population of the Dnipro River Basin is urban - 74%, while only 26% live in rural areas.



Government Agencies can improve their water governance, incentivize water efficiency in agriculture, adopt integrated water resource management, and enhance water infrastructure through nature-based solutions and green infrastructure. Protecting and restoring wetlands, mangroves and forests can not only improve water quality and build resilience against droughts and floods, but also save money on water treatment costs.

Policymakers in water-usage should prioritize water-prudent energy sources like solar and wind to avoid power shutdowns caused by water shortages.

Non-government organizations (NGOs) should consider strategically supporting stakeholders in providing innovative green technologies in agricultural practices that are based on nature-based solutions. These nature-based solutions can achieve positive climate and water outcomes in countries unable to afford improved water management on their own.

Farmers should use more efficient water measures, such as switching to water-efficient crops or using methods like sprinkler or drip irrigation versus flooding fields.

Local municipalities (cities and villages) should develop urban water resilience action plans. Treating and reusing wastewater could also create new water sources for cities.

