





Towards sustainable agriculture: introduction of the best agricultural practices in Ukraine

Prof. L. Moklyachuk Dr. O. Butrym Dr. I. Yatcuk PhD M. Draga PhD S. Romanova



Institute of soil protection of Ukraine (ISP

Institute of agroecology and environmental management (IAEM)







Legal regulation in Ukraine 2016-2019

Climate Change Performance Index 2019

Ukraine 2016-2019

In this year's edition of the CCPI Ukraine moved up to 18th place. Its position among 20 high performing countries is mainly a result of a relatively high rating for GHG Emissions as well as a high to very high performance in all indicators in the Energy Use category https://www.climate-change-performanceindex.org/

The Paris Agreement was ratified on July 14, 2016. Ukraine was one of the first European countries that have ratified this global Climate Agreement.

In order to implementation the Paris Agreement, conceptual recommendations on climate policy for the period up to 2030 were adopted in 2016.

The strategy of low-carbon development for the period up to 2050 has already been developed in Ukraine. The strategy is recommended for submission to the UNFCCC. Strategy has no official status yet.

Law of Ukraine: "About the protection of the environment	1991, Revision dated October 12, 2018		
Law of Ukraine: "On the Protection of Atmospheric Air"	1992, Revision dated December 18, 2017		
Law of Ukraine: On environmental impact assessment	2017, Enactment, held on December, 18, 2017		
Law of Ukraine: "On Land Protection"	2003, Revision dated December, 18, 2017		
Air Code of Ukraine	1993, Revision dated November, 4,2018		
Code of Ukraine on subsoil	1994, Revision dated April 4, 2018		
Water Code of Ukraine	1995, Revision dated December 18, 2017		
Land Code of Ukraine	2001, Revision dated August 9, 2019		
Law of Ukraine: "On animal by-products not intended for human consumption"	2015, Revision dated October 19, 2016		

Table 1. Changes in the laws of Ukraine



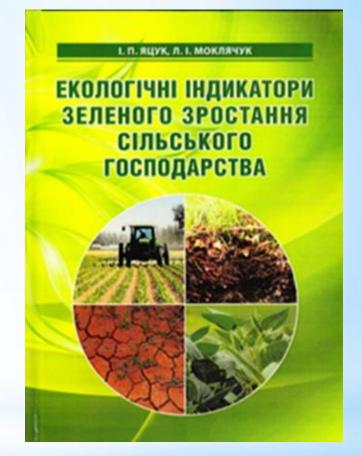




GREEN GROW OF AGRICULTURE

- 1. The OECD's Survey on Environmental Perspectives to 2050 predicts an increase in the share of agricultural land due to the need to provide food to a growing population in the coming decades.
- 2. According to the OECD, the green growth paradigm characterizes economic progress based on environmentally sustainable development.
- 3. Achieving natural balance is especially difficult for agroecosystems. As agroecosystems have a lack of self-regulation mechanism, we need to bring nutrients into them.
- 4. The use of insufficient nutrients in crop production is as dangerous as their excess.
- 5. Good Soil Condition is the basis of Green Growth of agricultural.
- 6. The main indicator of green growth, proposed by OECD is the balance of nitrogen and other nutrients.

Unfortunately, not everyone understands that the way out of the crisis in agriculture is the transition to green growth.



Igor Yatsuk, Lidiya Moklyachuk Environmental indicators of green growth of agriculture







Table 2. Assessment of soil condition by main indicators of green growth of agriculture

Indicators	Criteria	Soil condition of Ukraine		
Percentage of plowing	Percentage of plowed territory	The average share of ploughed-up lands in Ukraine is 78,4	Conclusion	
territory		%.	An analysis of	
Concentration of organic	Positive trend of soil organic matter	Organic matter content in Ukraine has decreased from 3,65	Ukrainian soils by	
matter in soil	content	to 3,17 % on average.	environmental	
*	Balance of organic matter	Balance of organic matter is deficient, making 0,13 t/ha	indicators of green	
soil during production of crop	_	estimations evidence deterioration of the condition of soils.	-	
production	production		growth confirmed	
Dynamics of content of	A sufficient amount of easily	Low nitrogen content prevails in Ukrainian soils (93.1% of	that long-term	
nitrogen,	hydrolyzed nitrogen for plant	the surveyed areas on average).	intensification and	
	nutrition		excessive plowing	
-	Balance of nitrogen concentration in	The average nitrogen balance was -33kg / ha. Insufficient	led to an alarming	
	agricultural production	application of nitrogen fertilizers has led to the	-	
		deterioration of soil conditions.	state of soils.	
	A sufficient number of movable forms	Movable phosphorus content may be considered	Measures are	
phosphorus compounds	of phosphorus to feed the plants	satisfactory, 89,6 % of the examined areas are	proposed for the	
		characterized by an average and increased phosphorus	transition to green	
Phosphorus balance	Balance of concentration of movable	content, and only 10,4 % exhibit a low phosphorus content. Estimations carried out based on statistical data evidence	agricultural growth,	
r nosphorus balance	forms of phosphorus in the process of	that for many years phosphorus as the main element of	the main condition	
	agricultural production	nutrition of agricultural crops has not been returning to the		
		soil in amounts that are removed with the harvest.	of which is to	
The content of mobile	Sufficient potassium content	More than 90% of the soils studied in Ukraine are	improve soil	
potassium compounds	Sufficient potassian content	characterized by a high content of natural mobile	fertility, balanced	
		potassium compounds. The weighted average content of	use of nutrients and	
		mobile potassium compounds in the studied areas is 120.5	stopping the loss of	
		mg / kg of soil.		
Soil solution reaction	Measures to maintain pH tolerant	In recent years, a tendency has been identified for the use of	soil organic matter.	
	plants	mainly mineral nitrogen fertilizers, which are		
	Ē	physiologically acidic and create conditions for further		
		acidification of the soil solution.	4	





5



The number of poultry in Ukraine in all categories of farms: 210.8 million (State Statistics Committee of Ukraine,).



The translation is not adapted to the conditions of Ukraine; it has a fact-finding character, and is not an official document.

The authors: Shabtai Bittman, Martin Dedina, Barbara Anton, Harald Menzi, J. Webb, Karin Groenestein, Tom Misselbrook, Nick Hutchings, Helmut Dohler, Klaas van der Hoek, Steen Gyldenkcerne, Laura Valli, Christian Palliere, Clare Howard, Oene Oenema and Mark Sutton.

Table 3. Number of poultry in EE demoregion (01.01.2019)

Region Oblast	Number of poultry,	
	thousand	
Vinnytsia	32588,6	
Ivano-Frankivsk	2172,8	
Lviv	3972,7	
Odessa	142,8	
Ternopil	2034,9	
Khmelnitsky	4830,0	
Chernivtsi	962.0	
EE Demoregion	46703,8	
Ukraine	210788,4	







INTEGRATED NITROGEN MANAGEMENT WORKSHOP Brussels, 30 September – 2 October 2019 Jointly organised by the European Commission and the CLRTAP Task Force on Reactive Nitre



Scientific bases of optimization of agro production for minimizing climate change









Reagents

Poultry

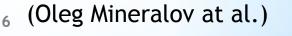
Reactor



Technology of processing poultry manure into organic fertilizers

- Economic indicators of technology:
- The cost of organic fertilizer 2,68 UAH / kg
- The content of organic matter 70-75%
- Amino acid content 7-9%
- The cost of fixed assets depending on the capacity
- (up to 700-900 thousand UAH)
- Payback period 2-3 years
- The possibility of creating a mobile complex.
- The dose of organic fertilizer use is 10-20 t / ha,
- yield growth by 25-30%





Organic and organic-mineral fertilizer from poultry wastes was tested at the Skvirsky experimental station of the organic production of IAEM while growing wheat, barley and oats. Fertilizers provided a yield increase of 25-29%.





INTEGRATED NITROGEN MANAGEMENT WORKSHOP

Brussels, 30 September – 2 October 2019 Jointly organised by the European Commission and the CLRTAP Task Force on Reactive Nitrogen











на корисну модель

№ 48369

СПОСІБ ОТРИМАННЯ ОРГАНО-МІНЕРАЛЬНОГО ДОБРИВА

Видано відповідно до Закону України "Про охорону прав на винаходи і корисні моделі".

Заресстровано в Державному ресстрі патентів України на корисні моделі 10.03.2010.

Голова Державного департаменту ИД-М.В. Паладій інтелектуальної власності







Microbiological preparations have been created to optimize the composition of the microbial community of agrocenoses by activating nitrogen fixation from the atmosphere, stimulating growth and improving the nitrogen and phosphorus nutrition of plants.







Joining up the nitrogen cycle for a more sustainable world.

"Together these issues are now being addressed in a new process established in partnership between the United Nations Environment Program (UNEP) and INI, with funding through the Global Environment Facility. It is being termed "Towards INMS" – developing the International Nitrogen Management System – a process of science evidence gathering and synthesis that can support international policy development.

INTEGRATED NITROGEN MANAGEMENT WORKSHOP

sed by the European Commission and the CLRTAP Task Force on Reactive Nitroge

30 September - 2 October 2019

It is a way of bringing issues together, of scientists working with governments, business and civil society to identify the options for change and to help overcome the barriers.

At its heart, however, this must be a process where the world learns to know nitrogen, and citizens realize why we should all care. It is amazing that nitrogen fertilizers sustain half the human population alive today, yet so few realise its importance across all aspects of our environment. Only once they do can we expect that governments and business will be empowered to make the changes necessary. From better water treatment to smart farming practices, this is exactly where the scientific guidance of INMS will help".

Mark Sutton	Clare Howard	Will Brownlie
-------------	--------------	---------------

Thanks you for your attention! (Eng.) Дякую за увагу! (ukr.)







INTEGRATED NITROGEN MANAGEMENT WORKSHOP

Brussels, 30 September - 2 October 2019

Jointly organised by the European Commission and the CLRTAP Task Force on Reactive Nitrogen

