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RESEARCH OF INDICATORS OF HUMUS CONTENT IN THE SOILS OF THE POLTAVA REGION AND TECHNOLOGIES OF ITS RESTORATION AND INCREASE

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AIM AND OBJECTIVES OF THE STUDY

Study:

In order to preserve the soil fertility, it is necessary to take the right steps today. Future generations will be grateful to us. The correct decision, but made late, is considered wrong.

Tasks:

1. The most important task set by the authors in order to solve the issue of increasing and restoration of humus content in the soil is to improve the technology and technical means for chopping and embedding green manure crops in the soil.

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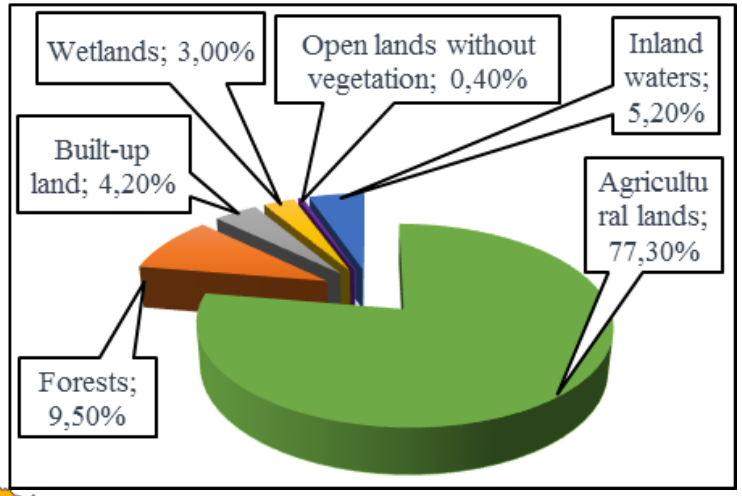
BRIEFLY ABOUT POLTAVA REGION



Structure of the Land Fund of the Poltava region

The territory – 28748 км^2;

The population is – 1419 thousand.

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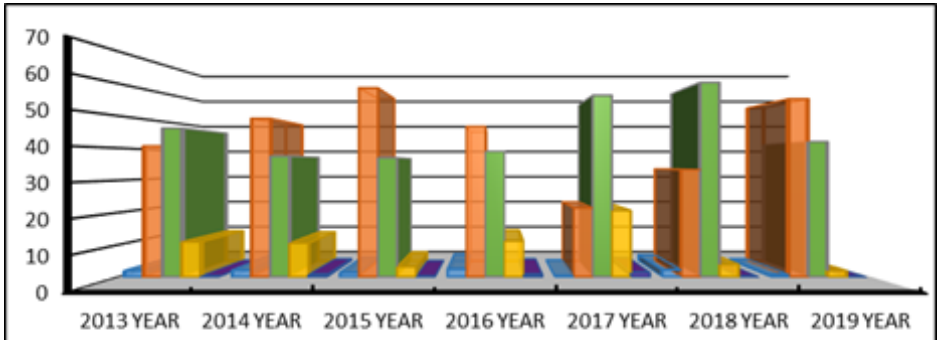
RESULTS AND DISCUSSION



	2013 year	2014 year	2015 year	2016 year	2017 year	2018 year	2019 year
low 1,1%-2,0%	2	2,1	1,3	2,4	0,3	2,2	0,7
average 2,1%-3,0%	40,7	49,2	58,7	46,7	21,4	33,3	55,3
increased 3,1%-4,0%	46,2	37,5	37	39	56,4	60,4	42
high 4,1%-5,0%	10,9	10,5	3,2	11,2	20,6	3,9	2
very high 5,0%-6,0%	0,2	0,7	0,1	0,7	1,3	0,1	0

Characteristics of soils of the Poltava region by humus content

Weighted averages of humus content of the soils in the Poltava region [7]

Рік	*Середньозважений показник (%)*
2013	3,26%
2014	-
2015	3,0%
2016	3,18%
2017	3,55%
2018	3,19%
2019	3,01%

Today, the main reasons for the loss of humus in the soils of the Poltava region are:

- heavy machinery treatment, which significantly compacts the soil;
- irrational and ill-considered use of large amounts of mineral fertilizers;
- almost complete absence of organic fertilizers (manure, humus, compost);
- absence of green manures and small number of legumes and perennial grasses in the crop rotation;
- increasing use of pesticides that accumulate in the soil and change the normal life pattern of the microbiological component of the soil ecosystem.
- non-compliance with crop rotations. Monoculture and monotonous crop rotation, the constant structure of sown areas deplete the soil, change its original structure.

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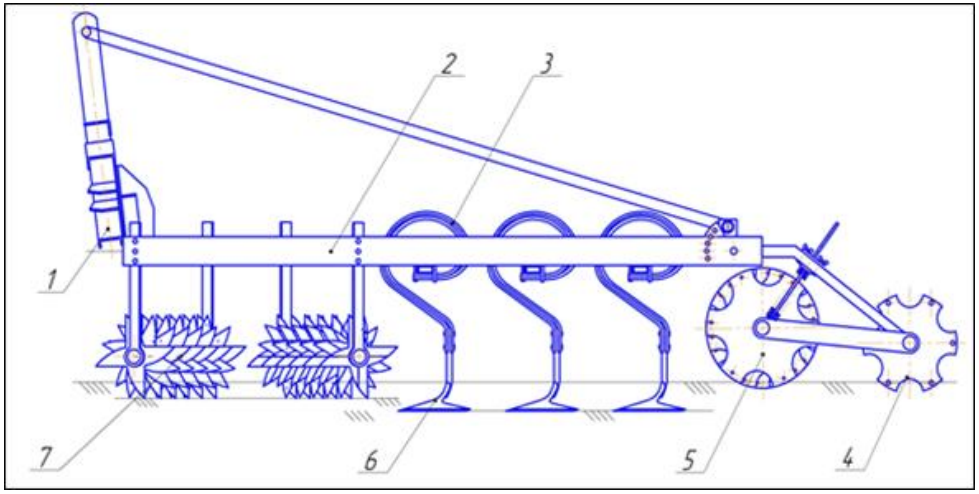
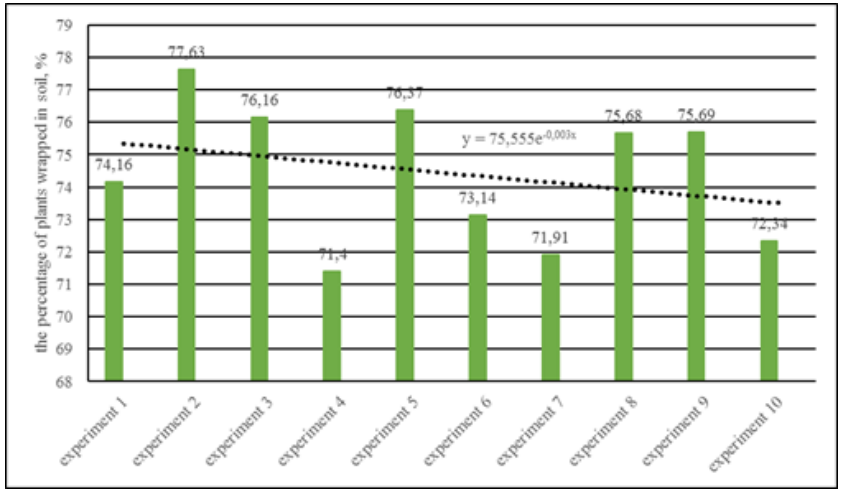
RESULTS AND DISCUSSION



Structural and technological scheme of the combined tillage unit:
1- lift hitch; 2-frame; 3-elastic rack; 4 - chopping roller;
5- compaction roller; 6-cultivator paw; 7-needle cutting disc.



The degree of embedding of plant models in the soil, determined in laboratory conditions

Photos of conducting the researches

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CONCLUDING REMARKS

Recommended technologies for restoration and increasing the humus content in the soil of the studied region are:

1. - to introduce the routing of equipment movement in the field in order to reduce the number of passes and ensure the movement on the same tracks.

- to use combined and wide-coverage units, to combine technological operations in order to reduce the number of passes of equipment.
- it is recommended to use machines of the direct seeding; this can significantly reduce the load on the soil.
- to apply green manures and perennial grasses, as well as improve and work out the culture of working with plant residues. To regulate the choppers and monitor the size of the chopping of green manure crops and crop residues. To apply the products recommended on the market that promote the biotransformation of plant residues into humus, which activate the vital activity of the microbiological component of the soil ecosystem.
- Use your experience and learn the technologies of successful farms that popularize organic farming.

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THANK YOU FOR YOUR ATTENTION!

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