Theme 1
Status and trends of global soil nutrient budget

Current state and perspective of effective use of soils of Zaporizhzha region

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INTRODUCTION

Undoubtedly, land resources are the most important object of the material world, an important national resource, the basis of food security of any country. Therefore, rational and efficient use of land resources should be a priority of Ukraine's state policy, as it means involving in the economic circulation of land and their efficient use for the main purpose, creating the best conditions for agricultural land to have high productivity and the possibility of obtaining per unit area the maximum number of products, compliance with scientifically sound production technologies.

Zaporizhzhia region occupies a favorable economic and geographical position. Zaporizhia region is one of the largest producers of agricultural products and food products among the regions of Ukraine.

METHODOLOGY

method of Medvedev V.V.

Agri-environmental assessment of land is the first stage of a set of works to determine the suitability of agricultural land for growing biologically complete environmentally friendly products and raw materials, which is based on analysis of qualitative assessment of soil fertility, environmental and chemical characteristics and meteorological factors.

Agroecological assessment of the conditions for growing crops in the Zaporozhie region was performed by the method of Medvedev V.V. The agro-ecological assessment is based on the principle of ecological correlation of environmental parameters that characterize the needs of agricultural crops for their cultivation.

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SOIL CHARACTERIZATION

The total area of land use is 99.6 thousand hectares. The main direction of development of the agro-industrial complex is to increase the pace of agricultural production, increase the profitability of enterprises. Agricultural lands in the Zaporozhye region occupy 83%, which is 2242 thousand hectares, the region produces 7% of wheat, 8% of legumes, 7.6% of sunflower, 5.6% of barley, 6.9% of honey from the total production in Ukraine.

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Arable lands of the northern and central part of Zaporizhia region are mainly represented by common and southern chernozems. To perform agri-environmental assessment, indicators of rationing of parameters of agri-environmental conditions for growing crops on the example of peas were determined. Values of ordinary and southern chernozems on arable land: thickness of humus layer 40-60 cm, particle size distribution 2-4, soil moisture 1.1 - 1.4 g/cm^3.

RESULTS

Content of mobile phosphorus 62-140 mg /kg, content of mobile forms of heavy metals 0.63 mg/kg, air temperature in the formation of generative organs, 16.8 - 18.3 ^oC, reserves of productive moisture in the soil layer 0-20 cm when the seedlings 30, reserves of productive moisture in the layer 0-100 cm during flowering or the formation of generative organs – 114.

Parameters	Pea		
	optimal	admissible	inadmissible
1. The capacity of the humus layer, cm	>63	30-62	<29
2. Granulometric composition	2,3,4	1	5,6
3. Soil density, g/cm^3	1,05-1,35	0,95-1,04 1,36-1,45	<0,95 >1,45
4. Humus content, %	>3,6	2,0-3,5	<1,9
5. Content of mobile forms of heavy metals, mg/kg	<0,6	0,61-0,65	>0,66
6. The sum of active temperatures is above 10 ^oC	>1600	900-1599	<900
7. Air temperature at emergence of seedlings	6-10	4-5	<4
8. Air temperature during the formation of generative organs	16-20	10-15	>20 <10

Table 1. Normalization of the parameters of agro-ecological conditions for growing agricultural crops (on the example of peas)

Analyzing and comparing the data obtained in our study, we see that the soils of the Zaporozhie region in most parameters are characterized by acceptable conditions, namely agrophysical, physicochemical and meteorological indicators. Intensive use of soils in the Zaporizhia region and reduction in the use of chemical ameliorants, organic and mineral fertilizers, has led to a decrease in the content of humus, mobile forms of potassium and some trace elements.

Parameters	The quantitative value of the parameter	Rating
1.The capacity of the humus layer, cm	40-60	admissible
2. Granulometric composition	2-4	optimal
3. Soil density, g/cm^3	1,1-1,4	optimal, admissible
4. Humus content, %	3,35-3,0	admissible
5. Content of mobile forms of heavy metals, mg/kg	0,63	admissible
6. The sum of active temperatures is above 10 ^oC	1460	admissible
7. Air temperature at emergence of seedlings	6	optimal
8. Air temperature during the formation of generative organs	16,8-18,3	optimal

Table 2 – Assessment of agroecological conditions for growing peas on a field with chernozems (ordinary, southern)

CONCLUSIONS

After conducting researcgrowing biologically environmentally friendly products and raw materials, which in turn will have a positive impact on public health.h, we see that the soils of the Zaporizhie region are suitable for

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