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Determination of Control Parametres of Land and Economic Development of the Region of Struga

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Abstract. Problem statement: Defining the control parameters of land, before that it be used to plant a culture is an important for the economic development of that region. **Aproch**: This paper treats the economical development for the quality of the land . Object of this study is determination of control parameters in land of Struga Region like Humus, pH -value, CaCO3, K2O, P2O5, total Azot.. **Results:** The results that were achieved in this study showed the significant difference in the quality of land . Indication for this are the smoll value of K2O which results goes from 4.81 mg/100g land to 15.22mg/100g land. **Conclusion/Recommendations:** For sowing potato culture or sun flower is necessary to preliminarily treated with organic fertilizers.

Keywords: determination, organic fertilizers, economic development.

Introduction

The land where we live and develop our activities is very important for our lifes. Just like water and air, the land is threatened by pollution.
Earth threatment for loss of upper layer, comes from the development of human agriculture and livestock. Its loss comes from the phenomenon of deforestation, erosion,. changing temperatures etc.
Land's crust is characterized by the presence of many nature organic or inorganic compounds. The introduction of pollutants in one ecosystem is of a particular importance due to the preservation of dynamic balance in the ecosystem. As, the crust of the Land is an open system, knowledge about any pollutant, from any source and any amount is of a high, worth and importance.

Economic development of the region of Struga

Struga Town is located on the north shore of Lake Ohrid. The Drini I Zi River flows through the heart of the city after it journeys from the springs near St. Naum through Lake Ohrid. The climate in Struga is temperate - continental, and it's determined by the complex relief structure depending on the height above the sea level, as well as by the penetration of the climate effects of the Adriatic Sea from the west, all the way through the river Drini I Zi and the climate effects of the Ohrid Lake, functioning as climate modifications.
Sustainable Development Strategy has three main objectives:

- ***Economic development***
- ***Equality and social cohesion***
- ***Environmental protection***

For economic development in Region of Struga it is necessary bringing and application of rigorous juridical orders and rules with international and national character.
Growth of cooperation between governmental and non-governmental organizations.
Cooperation of organs of central government (ministry) with organs of local government and cooperation of units of local self-government (Commune) between them and cooperation with Non-governmental organizations.

Experimental engagement, material gathering and working methods

The material Gathering was done during a spring 2017/2018. Object of this study is determination of control parameters in land of Struga Region like pH -value, Humus, $CaCO_3$, K_2O, P_2O_5, total Azot. This samples were taken in two different locations with 10 Ha land each. In the first 10 Ha the land is prepared for planting potatoes. The 2nd 10 Ha of land is being prepared for planting sunflowers.
To achieve this, pH - value is done with electrometric method with the help of the glass electrode, Hummus is defined with Kotzman method , the amount of carbonates is done with volumetric method, amount of potassium, K_2O and phosphorus P_2O_5 are done with Al method, total amount of nitrogen is calculated.

Experimental results

Achieved results are given in table and graphic form. Tables represent the achieved experimental results of control pollution parameters in the studied samples as well as concentration of the pH -value, Humus, CaCO3, K2O, P2O5, total Nitrogen.

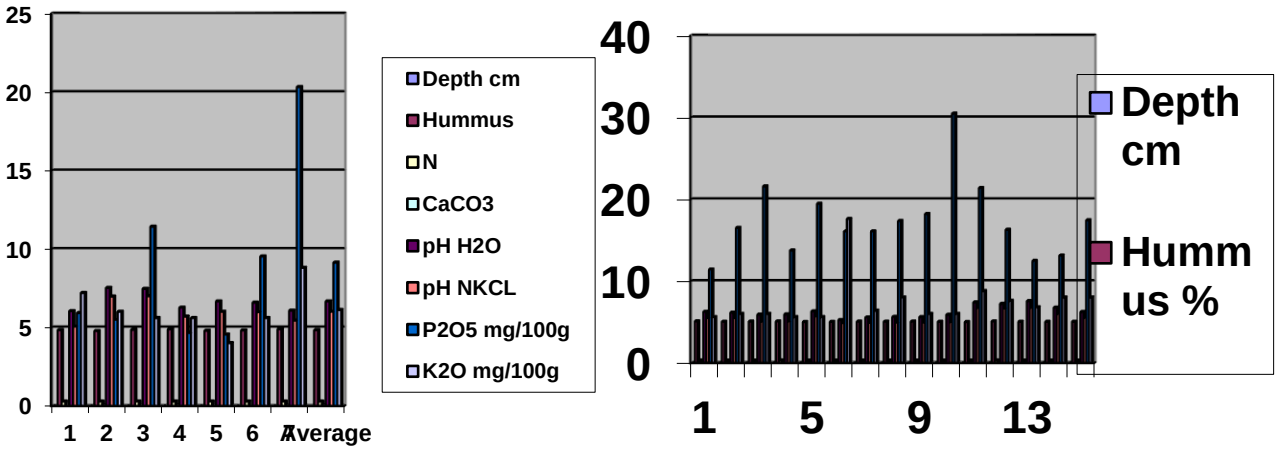
Tab. 1 - Determination of control paramethers of land for planting potatoes

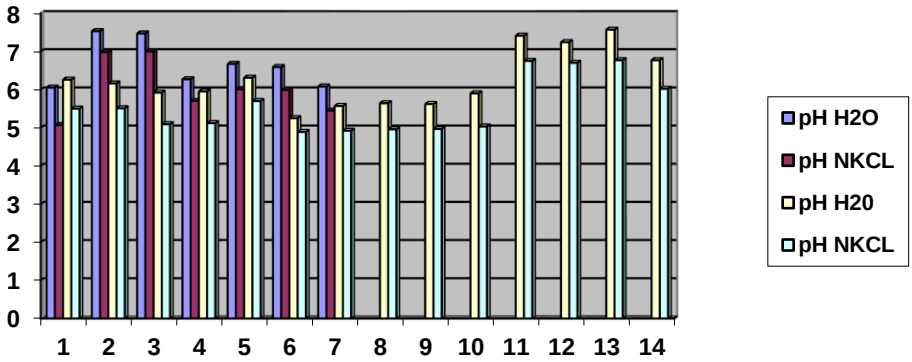
Sample	*Depth cm*	*Hummus %*	*N %*	*CaCO3 %*	*pH H2O N KCl*	*P2O5 mg / 100g*	*K2O mg / 100g*
1	0 – 30	4.84	0.29	0.00	6.05 5.07	5.93	7.21
2	0 – 30	4.78	0.29	0.00	7.53 6.98	5.51	6.01
3	0 – 30	4.86	0.29	0.00	7.47 7.00	11.43	5.61
4	0 – 30	4.89	0.29	0.00	6.27 5.70	4.66	5.61
5	0 – 30	4.80	0.29	0.00	6.67 6.01	6.56	4.01
6	0 – 30	4.82	0.29	0.00	6.59 5.99	9.53	5.61
7	0 – 30	4.90	0.29	0.00	6.07 5.45	20.33	8.81
Average	0 – 30	4,84	0.29	0.00	6.67 6.02	9.14	6.12

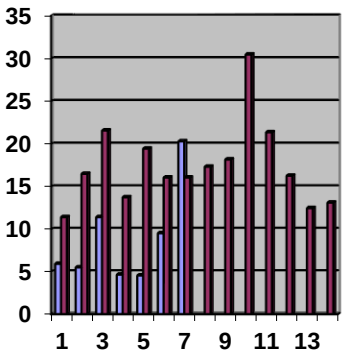
Tab. 2 - Determination of control paramethers of land for planting sunflowers

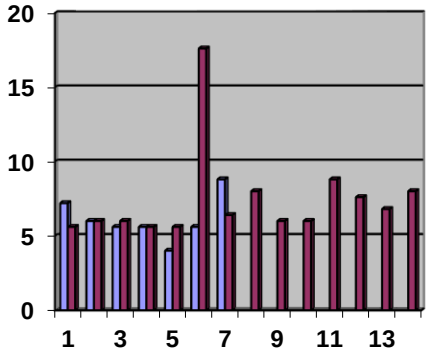
Sample	*Depth cm*	*Hummus %*	*N %*	*CaCO3 %*	*pH H2O N KCl*	*P2O5 mg / 100g*	*K2O mg / 100g*
1	0 – 30	5.10	0.31	0.00	6.26 5.50	11.43	5.61
2	0 – 30	5.05	0.30	0.00	6.16 5.51	16.52	6.01
3	0 – 30	5.07	0.30	0.00	5.92 5.09	21.60	6.01
4	0 – 30	5.09	0.31	0.00	5.95 5.12	13.76	5.61
5	0 – 30	5.02	0.30	0.00	6.31 5.70	19.48	5.61

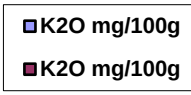
6	0 – 30	5.03	0.30	0.00	5.25 4.89	16.09	17.62
7	0 - 30	5.07	0.30	0.00	5.57 4.92	16.09	6.41
8	0 - 30	5.06	0.30	0.00	5.64 4.96	17.36	8.01
9	0 - 30	5.07	0.30	0.00	5.62 4.97	18.21	6.01
10	0 - 30	5.04	0.30	0.00	5.90 5.03	30.49	6.01
11	0 - 30	5.02	0.30	0.00	7.41 6.75	21.39	8.81
12	0 - 30	5.09	0.31	0.00	7.24 6.70	16.30	7.61
13	0 - 30	5.05	0.30	0.00	7.57 6.77	12.49	6.81
14	0 - 30	5.04	0.30	0.00	6.77 6.02	13.13	8.01
Average	0 - 30	5.05	0.30	0.00	6.25 5.56	17.45	8.01











Discussion of results

The concentration of hummus during our study was as follows:

- Minimal amount of humus 4.73 %. and maximal amount 5.1%.
- For azot we have minimal value 2.9% and maximal value 0.31%.
- In the our stady land, we have not concentration of calcium carbonates.
- pH value is 5.07 and maximal value of pH is 7.57.
- The concentration of KCl in the study samples are 5.07 minimal value and 6.98 maximal value.
- P2O5 is represented with minimal concentration 5.93 mg/100g and 30.49 mg/100g maximal concentration.
- K2O has given following results: 4.01 mg / 100g minimal value and 17.62 mg / 100g maximal

Conclusions

Regarding our results from our analyses we can conclude that:

Analyzed samples of land are acidik or neutral, becouse pH value is 5.07 and maximal value of pH is 7.57.

Humus is the most important factor of land's fertility. Humus affects physical, chemical and biological attributes of land. Humus has adhesive effects on creation of macro aggregates. With Its dark color affects soil heating and reduces erosion. In chemical terms, Humus adjusts

nutritional substances in land. Adsorption capacitiy is 2-3 times better than clay. Our results say that land is rich with humus and belongs to humus - rich soils.

Reactions on soil are very important for vital functions of plant.

Organic part of Nitrogen can be found in humus and in indissoluble plant or animal remains. The overall amount of Nitrogen in agricultural lands ranges 0.1-0.3 %. For plant feeding on vegetation period that value ranges 1-3%. Therefore fertilization with nitrogen fertilizers in modern production activities is necessary. Regarding our results nitrogen fertilizers should be added, because the land can be classified as nitrogen - poor soil.

Phosphorus role is, consisting in many processes. Plants use only in its oxidized form, like ortophosphoric acid. Regarding our analyses this land has average levels of phosphorus and should be treated.

Potassium isn't directly included in composition of organic compounds or enzymes, but affects synthesis of cellulose, affects the change of osmotic pressure and is being used in ionic form. This land belongs to poor - potassium soil and should be supplied with it. K2O has given following results: 4.01 mg / 100g minimal value and 17.62 mg / 100g maximal value. In order to obtain high efficiency this land should be treated with fertilizers like 25% K :15% P : 5% N, and the expected yield of potatoes will be 35 tons per hectar, or could be used for planting sunflowers culture, but always counting on favorable climatic conditions, which is characteristic for this region.

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