



INTERNATIONAL CONFERENCE SMART BIO

2ND International Conference „Smart Bio“

03-05 May 2018

KAUNAS

LITHUANIA

ABSTRACT BOOK

OUR SPONSORS



frazija



VYTAUTO
DIDŽIOJO
UNIVERSITETAS
Botanikos sodas



VYTAUTAS MAGNUS
UNIVERSITY
Faculty of Natural Sciences

OPTIMIZATION OF SOILS AND AGROECOSYSTEMS BY METHOD OF APPLYING PEAT AND SAPROPEL**Navumenka Natallia¹, Salahub Natallia²**

*¹BELARUSIAN STATE PEDAGOGICAL UNIVERSITY NAMED AFTER MAXIM TANK, FACULTY OF NATURAL SCIENCES, MINSK, REPUBLIC OF BELARUS, ²BELARUSIAN STATE PEDAGOGICAL UNIVERSITY NAMED AFTER MAXIM TANK, FACULTY OF NATURAL SCIENCES, MINSK, REPUBLIC OF BELARUS
NATA-N15@MAIL.RU*

Abstract

In the agroecosystem, artificially created by man, is a limited diversity of cultivated species of plants and they cannot withstand the struggle for survival without the human support. Unlike the natural ecosystem phytocenosis of the agroecosystem (fragments of the natural ecosystem, spontaneous flora and cultivated plants) receives in addition to solar an extra energy through human activity. The additional energy and substance flow in the agroecosystem are due to incomplete nutrient cycle, since a considerable part of the nutrients is taken out with the harvest from the system and the natural circulation is not carried out. One of the sources of energy and substance in the natural and manmade ecosystem is soil. Soil, as a component of the landscape, forms a long period of time, and in the agroecosystem it is rapidly depleted and destroyed. Streamlined agrotechnogenesis increases the natural fertility of soils, creating optimal conditions for the growth and development of plants. However, the direct geochemical influence of agrotechnogenesis includes the chemicalization of agriculture and agrotechnogenic of cultivation of the soil. The authors would like to take up two examples of soil optimization – the normalization of the properties of the soils, – by applying peat and spropels, as the most environmentally friendly and agroeconomically efficient ones.

Optimization by methods of applying peat and spropels increases the agricultural crop capacity, but also improves the quality: nutrients such as nitrogen, phosphorus, potassium, calcium, magnesium and microelements, which directly affect the intensity and character of the physiological and biochemical processes, so plants accumulate proteins, fats, carbohydrates and other substances that characterize the quality of products.

Optimization of light soils was realized out by applying spropels and absolutely dry peat in doses of 100, 200, 300 and 400 t/ha (tons per hectare).

Soil and climatic conditions in Belarus are the most favorable for producing high potato crops.

This is due to sufficient moisture, which creates a reserve of moisture in the zone of the main mass of roots. The main condition – light soils. High potato crops on light soils can get if organic and mineral fertilizers are applied. Using high doses of spropels is an effective agromeliorative method which rises productivity, especially row crops, by improving the properties of low-productive soil. In our experience the introduction of spropels potato crops ranged from 134 c/ha (centners per hectare) (at a dose of 100 t/ha) to 312 c/ha (at a dose of 400 t/ha) with the crops on the control area of 56 c/ha. Introduction of 100 t/ha of peat increases the crop by 4.7 %, and with the introduction of 400 t/ha of peat – by 22.6% and allows you to harvest potatoes to 400-420 c/ha.

Optimization of light soils increases the potato crop in a variety of experience in 2-5 times.

Keywords: agroecosystem, optimization of soils, peat, spropels.