UDC of 631.87: 631.153.3: 631. 582

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Influence of Biolan on productivity of crop rotation at different systems of fertilizing

Objective. To learn the effectiveness of the biologic to biofield influence on agricultural crops of short-term crop rotation of Polesye. Methods. Field, agrochemical, mathematical-statistical, photometric. Results It is well-proven that the action of biologic better in all appears at the united bringing of side products (with the indemnification of N10 on 1 ton of straw), siderate, pine, mineral fertilizers. Conclusions. Application to the biofield helps to increase the productivity, accumulation of post-drought and root bits and pieces in the soil and increase the content of chlorophyll in plants by 2-8%.

Key words: the biofield, crop rotation, root bits and pieces, maintenance of chlorophyll. Raising of the problem.

In the conditions of the slump of agricultural production, the amount of carrying of organic and mineral fertilizers has been diminished catastrophically. It has a negative effect on the fertility of the soil. Therefore, the alternative system of conduct of agriculture must be biologically based, which will help to increase the productivity of the crops and agroecosystems tightness in general [8]. By the important factor in forming a sufficiently humus of top-soil, there are vegetable bits and pieces at the deficit of the half. The growth of organic matter in the soil is assisted by the production of side products of the field cultures, in particular the straw. In addition, the cheap and effective means of fertility-improving of soil is siderate, the mineralization of that provides the permanent harvests of basic cultures [6]. The rich in nitrogen mass of post-harvest green fertilizers, plow it together with a straw, compensates for the lack of nitrogen in a straw and predetermines the high efficiency of these 2nd types of organic fertilizers. All marked measures on a background of a mineral fertilizer can provide the expected effect in a complex aggregate, where interconnection and crop rotation acts part [3]. Innovative direction in modern agriculture is the application of growth factors of plants that in small doses can purposefully regulate important processes of height and development of plants and size of root and postbreak bits and pieces [5, 8]. Analysis of the latest researches and publications. Vegetable bits and pieces of agricultural cultures are a significant factor in the influence of organic matter and nitrogen in soil. Their amount and quality composition play an important role in the processes of humification and transformation of nitrogen in the soil. They are an energy and nutrients source for many ground microorganisms [4]. It is set researches that the amount of post-dormancy and root bits and pieces that remain in agrocoenosis and enrich the soil with organic matter, increases with the increase in the productivity of agricultural crops. Additional receipt of vegetable bits and pieces and the production of organic fertilizers in the epiphases of soil influence on the efficiency of humification and redistribution of supplies of humus in the profile of soil [2]. The amount of root and post-bovine bits and pieces that act to soil depends on many factors and in the high quality features of culture, ground-climatic terms, level of productivity, and agrotechnical methods and measures [1, 9]. Methodology of researches. During the period 2001-2010. The soil was clear-gray forest sandy-loam on a loesslike loam that is underlying. fluvioglacial by water-glacial breeds. Physical and chemical and agrochemical descriptions of the top-soil are brought in a table. 1. 1. The agro-chemical description of the top-soil is before gobbing of experience (in 2001).

From 2001 a test was carried out on all areas with winter crops and clover after a leveler culture - oat. The repeat of experience is 3-valid for one occasion. Area of registration area - 25 m2 (2 12,5), a width of the protective zone is 2 m, and the width of the corridors is 8 m between the fields in the crop rotations and 5 m between the crop rotations.

In the systems of fertilizer of cultures, a part of the elements of feed of technogenic origin was compensated for the use of uncommodity products. Mineral fertilizers brought in under basic till

(superphosphate, potassium salt) and preseeding cultivating (ammoniac saltpetre). Studied iv of the crop rotation of the grain-propane of economic direction with such a rotary press of cultures: apple-oats (grain); Rye is winter-annual; Potato Variants of fertilizer: without fertilizers; Mineral fertilizers; Side products + of siderates + are a half (with the indemnification of N10 is 1 ton of straw); Side products + of siderates + are a half + mineral fertilizers (with an indemnification of N10 of 1 ton of straw). The system of soil tillage was based on a depth of 12-18 cm without rotation of the hunk. The grain-growing sowed with the width of the spaces between rows a 15 cm, the potato - 70 cm. The field and laboratory researches are carried out following generally accepted methodologies. Agrochemical indexes determined following such methods: humus - after Tyurin (GOST 26213-91); PH potentiometer (GOST 26483-85); Hydrolysis acidity - after Kappen in modification of CINAO (GOST 26212-91); Movable phosphorus and exchange potassium after Kirsanov (GOST 26207-91). The calculations of root and post-bovine bits and pieces performed on the methodology Machine [7]. Results of researches. The protracted use in the agrarian production of soils, in particular in the natural and climatic zone of Polesye, results in a significant deterioration of agroecological state and the strengthening of various types of degradation processes. Thus there is a decline in the protective properties of plants. One of the innovative directions of modern agriculture is the application of plantfactors of plants capable of small doses aimfully to regulate important genetically predetermined processes of height and development of plants. The growth factors of plants promote the firmness of plants to such unfavorable environmental factors as high and low temperatures, moisture insufficiency, pesticide phytotoxic effects, defeat and damage wreckers illnesses. The dynamics of the concentration of chlorophyll in the sheets of cultures in the variants of the systems of fertilizer was identical regardless of culture. Yes, a coefficient of chlorophyll in a variant with carrying away organic fertilizers on a background and the moderate mineral feed was most. It should be noted that in a variant without fertilizers comparatively with the variant of the system of fertilizers, where brought in organic and mineral fertilizers, this index 1-1.5 times was less.

The rate of production of chlorophyll in a plant (Table 2) depends on the terms of the climate and feed of plants [10]. The set, that application of fertilizers and the regulator of the height of the biofield, helped to increase the content of photosynthetic pigments, which testifies to the improvement of terms of feed of cultures. Yes, after treatment of cultures by the biofield already in 10-14 days, the concentration of chlorophyll rose in the average is 2-8%.

It turned out to compare the mass of post-root-bits and pieces and the productive part of the harvest, which increases the amount of vegetable bits and pieces after harvesting. Such dependence was observed in all cultures of crop rotation.

It was also found out the influence of the system of fertilizers on the productivity of crops of crop rotation (Table 3). Set, that the productivity depends on the system of fertilizer. Actually, the increase of productivity of cultures is observed for the creation of a variety of sources of receipt of nutrients.

Vegetable bits and pieces present most of the total amount of organic matter in the soil and play an important role in the provision of plant nutritives. Their influence on the productivity of the next cultures depends on the chemical composition, especially the correlation of carbon and nitrogen. For decomposition of vegetable bits and pieces by the most relation of C: N significant part of disengaged nitrogen is used by microorganisms. On maintenance of nitrogen in vegetable bits and pieces of culture take place in such sequence: rye is winter-annual> potato. From data of Bila Tserkva DHOW, the least correlation of C: N was observed in root and post-bovine bits and pieces of alfalfa (10-14), clover (12-16), a little more - at one-year herbares and winter-year Rye is a green mass that testifies to the possibility of a rapid curriculum of organic matter in the soil. Most correlation of C: N-in vegetable bits and pieces of corn (40-43), post-crop corn after winter-annual rye (38-42), barley (42-45), which confirms the weak potential of decomposition of organic mass [5].

The control of the correlation of C: N is presented according to our researches of 53: 1. In a variant with a mineral fertilizer, this correlation fell down to 21: 1, a variant with a 35: 1 organic fertilizer, in a variant with a united carriage of organic and mineral fertilizers - 27: 1. In these variants, without the treatment of plants of the correlation of C a stimulant: N has become an order higher, which testifies to the use of biologic as an enhancer of the internal products of agricultural produce.

In opinion of authors [2, 5, 8], optimal for Polesye soil is correlation within the limits of 25-35: 1. At such indexes in the best way there are processes of humification and mineralization of organic matter. In this

range there are variants of exceptionally organic and organo-mineral fertilizer with the treatment of plants by the biofield.

The productivity of agricultural culture is an important criterion for estimating any agro-investment. The productivity testifies not only to the realization of genetic potential and the adaptation of plants to weather conditions, but also to the purposeful impact on them of certain agrotechnological measures in the ontogenesis process. It should be noted that the phytoregulator has been markedly influenced by quantitative indexes

The highest productivity of agricultural cultures is achieved in the complex bringing of organic and mineral fertilizers (B-4), the maximum value of the coefficient of chlorophyll. The complex analysis of the terms of cultivating agricultural cultures showed a significant dependence on productivity from fertilizer variants and use on biofields.

It goes to show that the application of the regulator of plant height to the biofield for growing crops of crop rotation in relation to ecology is a sufficiently effective measure. At the same time, preparation is a complex factor of stimulation of plant height and development, the quality and size of harvest, the plantness rotation tensity of the vegetation period environment factors. It should be noted that biologic influences not only on the physiological processes in plants but also stimulates the accumulation of carbon in the soil due to the increase in the amount and mass of root and post-bovine bits and pieces. The firmness of soil rotation to the ecological and anthropogenic loading and the equilibrium of agroecosystem growth in the whole because of it.

Conclusions

Efficiency of action to the biofield is better in all at the united bringing of side products (with an indemnification of N10 on 1 ton of straw), siderate, pine, mineral fertilizers. Application to their biofield helps to increase harvest, accumulation of post-drought and root bits and pieces in soil and increase the content of chlorophyll in plants by 2-8%. The productivity of agricultural cultures can be controlled by optimal combination systems of fertilizers and growth factors in the biofield.

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