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AGRO-TECHNICAL MEASURES OF PROTECTION AND FERTILITY RESTORATION OF CHERNOZEMS

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In modern conditions of agriculture topical issue of rational use of soil and protecting them from degradation processes. Particular attention of both producers and scientists is paid to increasing the area of soils that undergo destructive action of wind erosion, dehumidification, soil compaction, formation of plow soles, loss of soil structure, etc. Therefore, it is necessary to explore the land treatment effects on soil fertility parameters in different soil and climatic conditions. Studies by many authors indicate climate change in Ukraine over the past decades.

The purpose of the research was to determine the impact of different systems of soil cultivation and fertilization on the fertility of chernozem typical. Investigations were conducted on the basis of the Departments of Soil Science and Soils of the Soils of them. prf MK Shikula at "NDG Velykosnitinskii im. O.V.Muzichenko "in the Fastiv district Kiev region. The soil of the experimental site - chernoxem typical. In the investigations we researches three system of tillage: plowing on the depth 25-27 cm, a different tillage without plowing and reduced tillage on the deep 10-12 cm. Also we studied the systems of fertilization.

The research was conducted in an experiment in the company "Agro-Soyuz" of the Dnipropetrovsk region. The soil of the experimental site is chernozen ordinary of the Nothern Steppe zone of Ukraine. The experiment involves three variants of growing technologies: 1) traditional with plowing on 23-25 cm; 2) soil protection with minimum soil tillage of 4-5 cm; 3) Zero tillage (NO-till).

Studies of chernozem typical showed that fertilizer systems were more influenced than tillage systems on the content of humus. The highest values were compatible version on straw, green manure and fertilizers - 3,61-3,69%. In the conditions of insufficient amount of traditional organic fertilizer (manure), this variant can be recommended as an alternative and so that reproduction of organic matter of soil. Removing straw together with mineral fertilizers also contributed to

an increase in the content of humus to 3.57-3.64% compared to control, where it was 3.41-3.48%.

Minimization of soil tillage contributed to an increase in the content of humus to 4.57 and 4.58% for soil protection technology and no-till, respectively, compared with 4.52% for traditional technology. In addition, the difference in the distribution of humus in the 0-30 cm layer is noted. Thus, in the upper 0-10 cm layer, the highest content was for direct sowing due to the accumulation of the bulk of plant residues. A similar trend was observed for reduced tillage. The application of soil protection and direct seeding technology is an effective measure to prevent soil dehumidification.

The most important is the content of aggregates in a 0-10 cm layer. For plowing without fertilizers and using straw, the content of aggregates more than 1 mm was less than 60%. Only in the variant of using straw, green manure and mineral fertilizers their content was 61%. The application of reduced tillage enhances the anti-erosion resistance of the soil by increasing the contents of aggregates by more than 1 mm. Even on a variant without fertilizers their contents comprised 67,7-78,7% in 0-30 cm.

Minimization of soil cultivation contributed to an increase in the content of agronomically valuable aggregates relative to all others, which is reflected by the coefficient of structurally. In minimum tillage it was 2.03-3.29; for deep tillage - 1,6-3,21, while for plowing - 1,36-2,54.

Soil protection against wind erosion is particularly relevant in the Steppe area where studies were conducted. The results of the studies allow us to conclude about the positive effect of soil protection and direct seeding technology on soil stability to deflation. Minimization of soil cultivation provides the formation of a windproof surface with aggregate contents of more than 1 mm more than 60%. However, in the traditional plowing layer 0-10 cm contained 49.3% of aggregates more than 1 mm.

Conclusion. Minimization of soil cultivation is an effective means of protecting chernozems from dehumidification, agro-physical degradation and wind erosion. It allows you to prevent these processes, and not to deal with their negative consequences.