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Influence of fertilizers upon photosynthetic potential and productivity of winter rye

Purpose. To study the influence of species, norms and terms of fertilization on the formation of photosynthetic potential and yield of winter rye. Methods. Field, mathematical and statistical. Results The largest photosynthetic potential was for the retail supply of nitrogen fertilizers - 4.54 - 5.10 million m2 / ha / day, or 46-64% higher than control (3.11 million m2 / ha / day). Conclusions It has been established that winter rye forms a high area of the leaf surface, which increases significantly for improving the mineral nutrition of plants.

Key words: winter rye, leaf surface, photosynthetic potential.

Winter crops give a stable yield of 2.13 to 6.25 for the introduction of P135K180N30 (II) + in the main areas of cultivation and there is enough N75 (IV) + N30 (VII). Photosynthetic potential is susceptible to the use of fertilizers. High crops of rye of winter with the increased grain yield of good quality can be obtained from 2.63 to 7.24 m2 / ha / day. Only in case of strict differentiation of doses of research - to study the effect of thinned on the basis of soil conditions and plads, norms and terms of fertilization on a fortified crop. The results of research on the regulation of photosynthetic potential and evidence that phosphoric and potassium yields of winter rye. Bay, made in a harmonious correlation Methodology of research. Grow a variety with nitrogen, contribute to the increase in the content of winter rye intensive 95 on chernozem in grain of protein and vital vital hydrogenated heavy-lubricant in the conditions of amino acids [7]. Experimental field of the Uman National One of the most effective directions of the rational university of horticulture during the use of fertilizers is the complex of 2010-2012. The experiment was laid out according to the scheme, sleep diagnostics, which involves the soil, shown in the figures. The total area of tillage and meteorological diagnostics and giving the trailing site was 72 m2, the accounting - the possibility to more accurately determine the level of mineral 40 m2, the repetition of the experiment - 3 times, the dilution at different stages of organogenesis or placement of sites - consistent. Plant phenophase with obligatory biometrics. During the growing season, the control over growth and development of winter crops was determined by the area of the leaflets during the growing season [9]. Upper methods AA Nichiporovich (for Sheet Diagnostics expands with the help of the length, leaf width and density of the forecast and contributes to a differentiated reduction coefficient, which for the cereal approach to improving the quality of the crop for precursors with a linear form is 0.67). Help with mineral fertilizers. However, the rapid harvesting of winter rye was carried out by methods of chemical diagnostics of feed by direct direct harvesting. The mathematical line is not devoid of some disadvantages, since the treatment of experimental materials in some cases, juice from plants is allocated very well by the method of single-factor dysvalko [4]. Perspective Analysis of Field Experiment with Investigations Yu.V. Tsuk [8] is installed using a package of standard programs for the formation of a leaf surface of rye "Microsoft Exel 2003". My essentially depends on the fertilizer. Yes, on VI Results of research. The photosynthetic stage of organogenesis of the rye index increased the potential of wintering rye sowing considerably from the introduction of nitrogen fertilizers (Fig. 1). The highest indicator was for retail sales of nitrogen fertilizers - 4.54 - 5.10 million m2 / ha / day, or 46-64% more than control (3.11 million m2 / ha / day). Less photosynthetic potential was due to the introduction of N30 in the spring of 90 - 3.49 - 4.37 million m2 / ha / day. It was established that the introduction of nitrogen additives significantly increased the yield of winter wheat rye. Thus, on average, over 3 years of research, the yield on unplanned areas was 2.63 t / ha, in the variant with the highest nitrogen fertilizer (background + N60 (II) + N60 (IV)) - 4.69 t / Ha, the growth was 78% (Fig. 2). In the years of research, crop yields changed significantly and in 2010, in the non-fertilized versions, it was 2.42 t / ha, with the highest nitrogen fertilizer rate - 4.69 t / ha, or 90% more than control, in 2011. - 3,07 and 4,86 t / ha, or more by 60%, in 2012 - 2,39 and 4,51 t / ha, or more by 88%, which was substantially equal to NRI05 = 0, 29 - 0.32.

Fig. 1. Total photosynthetic potential of wintering rye for the period of shrubbery - Milk rigidity of grain depending on norms and terms of taking nitrogen fertilizers: 1 - without fertilizers (control); 2 - p60K60 - background; 3 - K60 + N60 (ii); 4-60+ N60 (ii); 5- background + N30 (ii); 6- background + N60 (ii); 7- background + N90 (ii); 8- background + N0 (ii) + N30 (iV); 9 - background + N0 (ii) + N60 (iV); 10 - background + N30 (ii) + N30 (iV); 11 - background + N60 (ii) + N30 (iV); 12 - background + N30 (ii) + N60 (iV); 13 background + N60 (ii) + N60 (v). For rice 1.2

Fig. 2. Yield of grain of rye of winter is dependent on norms and terms of taking nitrogen fertilizers.

However, different terms and doses of nitrogen fertilizers perisennym influenced the magnitude of the vro-zhiznennya grain rye winter. So, the removal of 30-90 kg / ha d.r. Nitrogen fertilizers only on the second stage of organogenesis of rye winter increased yields to 3.73-4.22 t / ha. Carrying 30-60 kg / ha dp Nitrogen fertilizers in IV feed stage of organogenesis ensured the grain yield at 3.44 -3.63 t / ha. The highest grain yield of winter wheat for the retail supply of nitrogen fertilizers was in the background + N60 (II) + N60 (IV) - 4.69 t / ha, and the lowest yield was obtained in the background + N30 (II) + N30 (IV) - 4.14 t / ha. The addition of phosphorus and potassium impurities only increased the yield of grain in comparison with the control at 0.47 t / ha. In the variants K60 + N60 (II) and P60 + N60 (II), this indicator was 3.72 and 3.89 t / ha respectively, which is 20-25% higher compared to the phosphoric-acid background. Using regression analysis, we found a close correlation between grain yield of winter rye and photosynthetic potential, which is described by the following regression equation: Y = 0.99475X + 0.2723, where Y is the photosynthetic potential of sowing, million m2 / Ha / day; X - yield of grain, t / ha. On the Chaddock scale, which uses the determination coefficient for a qualitative assessment of the significance of the connection, it is 0.7-0.9, that is, it is high.

Conclusions

Formation of the area of the leaf surface The highest coefficients of the use of winter are significantly dependent on the conditions of photosynthetic active radiation of mineral nutrition of plants, first of all, provide variants of fertilization with 2-nitrogen. In this indicator, the most influential nutrition of winter rye is the retail of nitrogen fertilizers. And during the restoration of spring vegetation.

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