Annotation

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Influence of sowing methods on formation of assimilating surface of soybean varieties of various ripeness groups in the Western Forest-steppe

Like all legumes, soybean takes an important place in the structure of sown areas, grain and fodder balance, addressing the problem of protein and nitrogen balance of the soil, increase in the culture of farming. Soybean seeds are widely used in food industry, forage production, pharmaceutical, paint and varnish industry and other industries.

In recent years there has been observed an increasing interest in planting soya in Ukraine as well as a clear tendency to increase the area of crops. However, it should be mentioned that the yield is fairly low when the implementation of the genetic potential of productivity of modern varieties in terms of production is 50% or less. This is the result of insufficient study of the processes of growth and development of soybeans crops. Therefore, the study of influence of basic physiological processes on soybean crop-producing capacity is important, because it is closely connected with the improvement of the growth technology.

The article reveals the impact of efficiency of the factors which are studied (varieties, planting methods) on the parameters of growth and development, formation and "functioning" of the soybeans assimilation system. The research was carried out by means of experimental facilities of the Institute of Agriculture of Western Polissya of NAAS on typical zheropzem mildly humus lightly loam soil. There are presented the data on the effects of sowing methods on the performance of leaf surface, photosynthetic potential and net photosynthesis productivity for soybean varieties. There has been established that due to the lesser competition between plants and alimentation elements and other factors of life activity on crops where sowing was carried out by an ordinary row method, there could be observed an increase in leaf surface compared to the wide-row method. Reliable rates of photosynthetic potential form all the variants when an ordinary row method of sowing is used and they grow: during the period of stem branching - flowering by 17,9-36,0%, flowering - formation of beans – by 22,5-30,6%, formation of beans - ripening of seeds – by 23,5-27,7% with respect to the wide-row method. In the course of studies there was noted that the increase in the net efficiency of photosynthesis when an ordinary row method of planting was used constituted the range from 7.9 to 17.8% during the period of stem branching - flowering and 1,3-30,8% in the period of flowering - formation of beans. The largest area of leaf surface 77,7-80,3 thousand m^2 / ha and the increase in the photosynthetic capacity of 1,267-1,302 million m^2 days / ha was achieved during the period of beans formation - seeding under the conditions of the usual row method of sowing for early ripening varieties KyVin and Monad.

Keywords*: soybeans, variety, seeding methods, leaf surface area, photosynthetic potential, net photosynthesis productivity.*