

CORRELATION OF ELEMENTS OF SEED AND VEGETATIVE PRODUCTIVITY OF COLLECTIVE SAMPLES OF WHITE LUPINE

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Actuality. The method of correlation analysis is widely used in breeding to determine the relationships between valuable economic traits. The study of the relationship between the various traits of plant productivity is relevant, because on the basis of established patterns can determine the direction of selection of breeding material to create new varieties that can meet modern production demands. **The aim** of the study was to establish the strength and direction of the correlations between the quantitative traits that shape vegetative and seed productivity of white lupine.

Conditions, material and research methods. Field and laboratory studies were conducted in 2016-2019 at the NSC "Institute of Agriculture NAAS". Breeding crop rotation fields are located in Fastiv district of Kyiv region. The area of the field plot was 6.0 m², repeated four times. The subject of research was 50 collection samples of white fodder lupine. The generally accepted technology of lupine cultivation was used. Field, measuring-weight and mathematical-statistical methods were used during the research. Correlation analysis was performed according to the methods in of B.O. Dospekhov.

Results of research and discussion. It was found that seed productivity with most of its structural elements (plant height, number of lateral racemes, number of beans from the central and lateral racemes, etc.) had an average positive significant correlation. A strong positive correlation was established with the vegetative development of plants, weak - with the number of seeds in one bean and the weight of

1000 seeds. The high correlation of seed productivity with the green mass of plants proves that the good general development of plants causes the formation of increased seed productivity.

The productivity of plants by green mass is determined by the development of its main constituent elements. A significant positive strong correlation of vegetative productivity with such quantitative features as the mass of beans from the central racemes and the mass of leaves and stems was established. The weight of the beans from the central racemes has a stronger connection with vegetative productivity compared to the beans from the lateral racemes. Strong correlation with the mass of leaves and stems determines their influence on the formation of productivity and forage qualities of green mass. A positive correlation of medium strength was found with plant height, with the number of lateral shoots, with the number of beans from the central and lateral racemes, with the mass of beans from the lateral shoots and the mass of roots. Weak positive correlation is established with dry matter content. An important feature is the almost complete lack of correlation of vegetative productivity with protein content, which allows to direct research to create forms that can combine a high yield of green mass with high protein content. Researchers at the Institute of Forage Crops (Bulgaria) and the Research Institute of Lupine (Russian Federation) have also conducted similar studies to study the correlations between quantitative traits of white lupine. The conclusions of these scientists coincide with the results of our research and confirm their reliability.

Conclusions and prospects. Seed productivity of white lupine plants is mainly due to the development of such traits as the number of beans from the lateral racemes, the weight of leaves and roots, the number of seeds from the central and lateral racemes and the weight of seeds from the central and lateral racemes. Therefore, when evaluating breeding material, first of all, it is advisable to pay attention to the value of these traits, which will contribute to the purposeful selection of highly productive genotypes. When assessing the vegetative productivity of plants, white lupine should be selected on the basis of increased indicators of such characteristics as the weight of beans from the central racemes and the weight of leaves and stems. The second most

important in the formation of green mass are the number of beans from the plant, the mass of beans from the lateral racemes and the mass of roots. Use of the established laws of formation of productivity will allow to increase efficiency of selection of breeding material on the set parameters.

Key words: correlations, central and lateral racemes, seed weight, number of beans and seeds, number of seeds in one bean, weight of 1000 seeds.