

## *Annotation*

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### *Yield of soybean crops under Desilet herbicide application followed by seed treatment with Biolan plant growth regulator and Ryzobofit bacterial preparation*

*The aim of our research was to study the impact of Desilet herbicide, Biolan plant growth regulator and Ryzobofit bacterial preparation on the formation of soybean yield and qualitative indicators of its seeds. The objective of the study was to select the most effective composites of the mentioned preparations in soybean sowing according to soil and climatic conditions of the Forest-Steppe of Ukraine.*

*Thus, on average, crop yield in the check variant was at the level of 1.32 t/ha for three research years, while the productivity in the experiment with the application of Desilet herbicide was within 1.85-1.87 t/ha. The combined use of Desilet and Biolan helped to increase crop yield up to 2.10 and 2.11 t/ha in accordance with their application norms. However, the highest crop yield was noticed in the variant where the seed treatment with Ryzobofit was combined with Desilet application after seed germinating that in accordance with the herbicide application was 2.42 and 2.45 t/ha.*

*The number of beans was within 20.8 units with 56.0 seeds under Desilet application of 0.6 l/ha. The combined use of Desilet and Biolan helped to increase these indicators up to 24.3 units with 60.2 seeds. The number of beans was within 26.5 units with 64.0 seeds under seed treatment with Ryzobofit and Desilet application of 0.6 l/ha.*

*On average, the thousand grain weight in the check variant was 139.5 g for three years, while under Desilet application it was within 144.3-146.9g. This indicator was higher, 149.4 and 150.7g respectively, under the herbicide application together with Biolan. The thousand grain weight was the largest (154.1g) under Desilet application of 0.6 l/ha after seed treatment with Ryzobofit.*

*In our experiments the highest content of crude protein and fat in soybean grains was observed in variants with Desilet application of 0.6 l/ha after seed treatment with Ryzobofit that was 36.41% of crude protein and 20.85% of crude fat. However, these indicators depend on the varietal characteristics more than the impact of studied preparations. Content of crude protein and fat in dt/ha emphasizes more clearly the mentioned regularity and reasonability of Biolan and Ryzobofit application in soybean sowing.*

*Crude protein content was largely dependent on crop yield of soybean seeds. Application of the studied herbicide of 0.6 l/ha contributed to the improvement of yield formation and thereby increasing of crude protein by 2.03 dt/ha compared with the check variant.*

*The combined use of Desilet of 0.6 and 0.8 l/ha with Biolan helped to make soybean yield higher resulting in a total amount of protein which became greater, 0.91 and 0.95 dt/ha respectively, compared with the variants where only the herbicide was applied. The combined use of the herbicide with Biolan also increased crude fat content by 1.18 and 1.14 dt/ha respectively compared with the*

*check variant 1 and by 0.51 and 0.52 dt/ ha compared with the variants where only the herbicide was applied.*

*Desilet application after seed treatment with Ryzogumin contributed to increase the crop yield and as a result of it the content of crude protein and fat also increased. Thus, the content of crude protein in this variant was 8.78 and 8.66 dt/ ha and crude fat content was 4.98 and 4.91 dt/ ha according to the norms of Desilet application.*

*Therefore, the use of Desilet herbicide after grain treatment with Biolan plant growth regulator or Ryzobofit bacterial preparation improves the crop yield of soybeans and makes it possible to have better physical and chemical qualitative indicators of soybeans.*

**Key words:** *soybeans, herbicide, Desilet, plant growth regulator, Biolan, Ryzobofit bacterial preparation, economically valuable indicators of the yield.*