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YIELD OF BEAN (PHASEOLUS VULGARIS) DEPENDING ON VARIETY AND FERTILIZATION**УРОЖАЙНІСТЬ КВАСОЛІ (PHASEOLUS VULGARIS) ЗАЛЕЖНО ВІД СОРТУ ТА УДОБРЕННЯ**

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Today is characterized by rather insignificant volumes of production of high-protein crops, except probably soya. Therefore, protein filling of a food basket of a person should take place, including at the expense of various kinds of grain legumes crops. One of these is bean. In the grain it contains an average of 23,0-25,0% protein with a rather high flow - up to 86,0-90,0%. In this connection, we studied the grain productivity of bean depending on fertilizer and variety.

Key words: bean, grain, fertilizer, grade, height

Analytical review of literature.

In many countries of the world bean is second after soya and in great demand, especially in the quality of food [1, 2, 3].

Bean is included in the so-called "niche" cluster, where along with the nit, the lice can fully meet the needs of the person in the protein [4].

Due to its biological features along with the ability to form high crop steels in different systems of farming, bean is able to improve soil condition and as a result – economic balance in the economy [5, 6].

Phaseolus L. is a 230 species, divided into two groups: American and Asian. In bean of American origin large flat beans are formed with long antenna and great seeds, while in the Asian - narrow beans without antenna and fine seeds [7, 8].

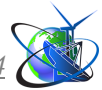
In our country, the most common is the American group, with her great demand is bean of grain [9, 10].

Bean is legumes of culture, so it is able to symbiosis together with Rhizobium. Under optimal conditions (especially pH soil and air temperature) it is able to absorb up to 200 kg/ha of nitrogen, which is quite a good indicator [11, 12]

The main factor of increase of yield of bean is introduction of mineral fertilizers, especially on poor soils [33]

Under the conditions of the country's collapse, more than 80 kg of nitrogen is applied to the ha under the beans [14].

A number of scientists have found that the introduction of fertilizers in the area of $N_{20}P_{45}K_{45}$ + Rhizobakterium + Kristalon yellow provides yield at the level of 2,05-



2,28 t/ha [15].

In the conditions Polissia found that for the fermentation of seeds together with extra-root feeding (Micro-Mineralis beans) on the background of $N_{60}P_{60}K_{60}$ variety bean Asol provides yield of 2,52 t/ha [16]

In Khmelnytsky region the best variant of fertilizer was the dose of $N_{30}P_{30}K_{45}$. The yield of bean of the multifield was 50 c/ha, which exceeded the control by 17 % [17-19].

As already noted, bean is a niche culture. Under the conditions of the Prykarpattya region for plowing (20-22 cm deep) at the application of $N_{30}P_{60}K_{60}$ it is possible to achieve profitability indicators at the level of 151 % [20].

Research methods.

Scheme of investigation: Factor A (variety): 1. Chali, 2. Eureka; Factor B (fertilization): 1. without fertilizers (control), 2. $N_{45}P_{45}K_{45}$, 3. $N_{60}P_{60}K_{60}$.

Seed wrapping depth – 5-6 cm, sowing scheme 50x20, width of the interrow – 50 cm. The standard of cutting is 350 thousand pieces/ha. The area of the accounting area is 25 m². Repetition is four-time.

Research results.

Yield is one of the main indicators of the efficiency of cultivation of agricultural plants. Therefore, we installed grain productivity growing bean grain. On the control areas grain output made 17,4-19,8 c/ha (fig. 1).

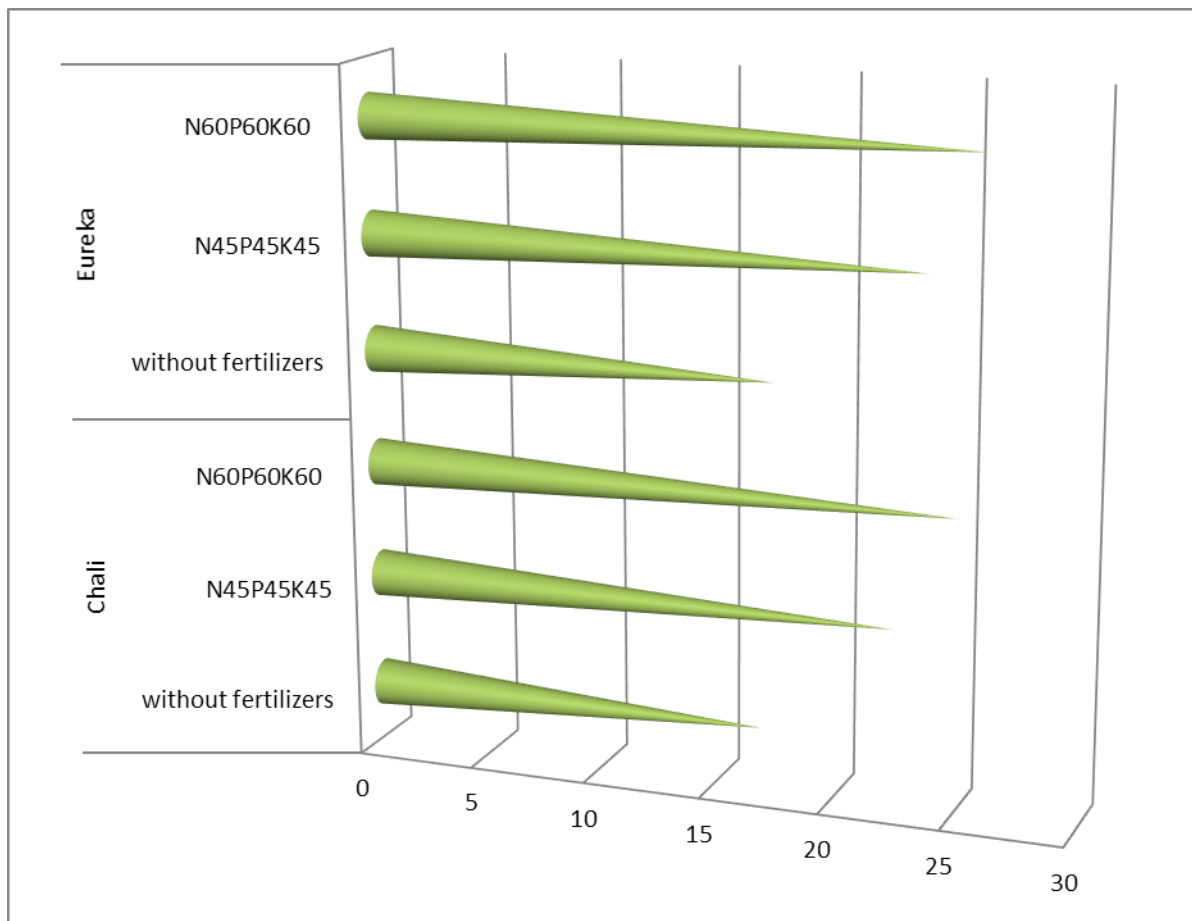
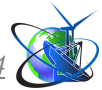


Fig. 1. Yield of bean depending on the investigated factors, average for 2020-22



Application of fertilizers at the rate of $N_{45}P_{45}K_{45}$ ensured a yield increase at the level of 8,1-9,0 c/ha.

Additional introduction of NPK at the level of 15 kg of a.s./ha ensured an increase of harvest by another 6,4-7,2%.

On the plots with the Chali variety the yield was 17,4 c/ha on the control and 26,4-28,3 c/ha on the fertilized areas, while on the plots with the variety Eureka – 19,8 c/ha and 27,9-29,7 c/ha respectively.

The largest yield of grain is marked on the fertilizer option $N_{60}P_{60}K_{60}$ together with the variety of beans Eureka – 29,7 c/ha, which is 12,3 c/ha more compared to the variety of bean Chali.

At the same time, we have established indicators of the structure of bean (fig. 2).

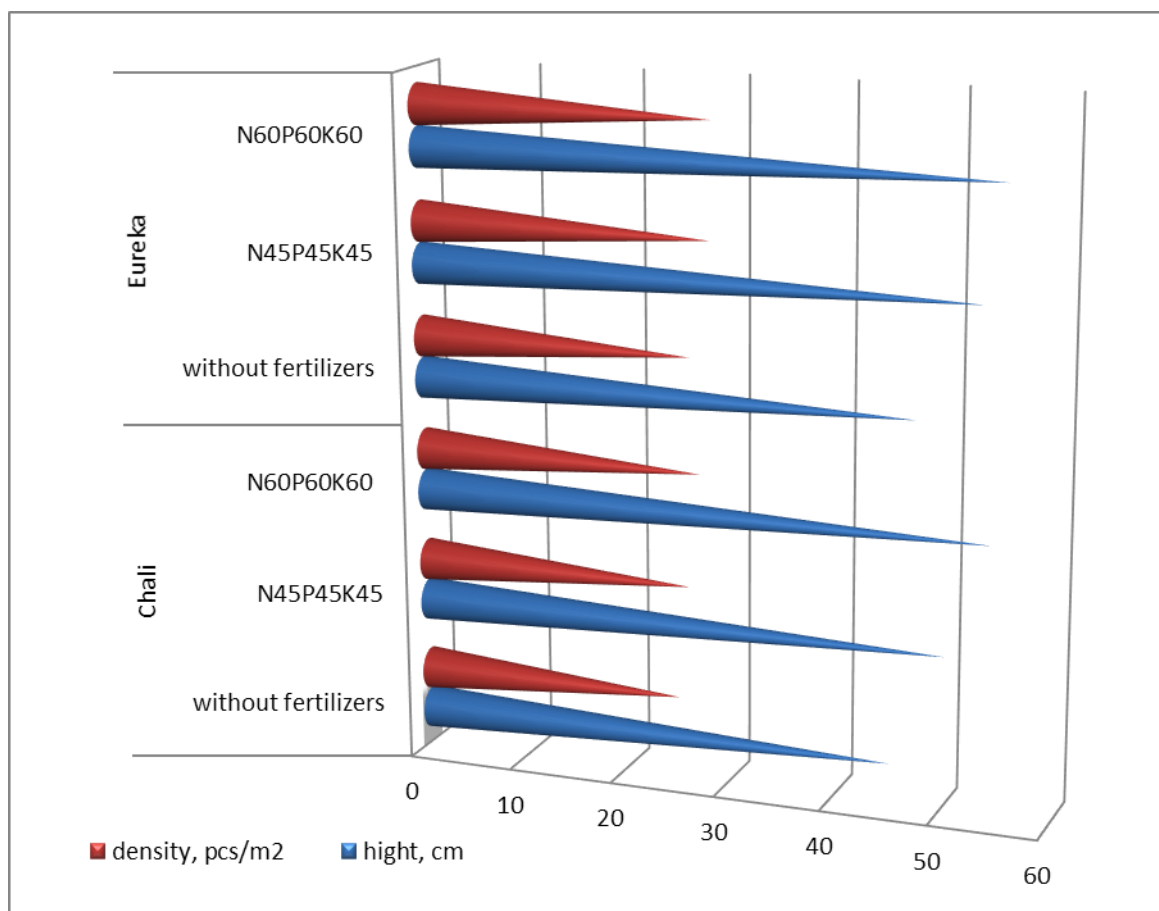


Fig. 2. The structure of the seed of bean depends on fertilization and variety, average for 2020-22

The height of plants increased to increase the fertilizer application. It was 48-50 cm on the control areas and 52-62 cm on the fertilized.

The same trend was observed in the density of crops – 25-28 pcs/m² and 27-33 pcs/m² respectively.

The largest height and density figures are marked on the fertilizer option $N_{60}P_{60}K_{60}$ with a variety of bean Eureka – 62 cm and 33 pcs/m² respectively.

Conclusion.

To obtain a grain yield of bean at the level of 29,7 c/ha in Polissia conditions optimum is the drying of beans of variety Eureka together with the carrying out of the



pre-sowing introduction of mineral fertilizers in the dose $N_{60}P_{60}K_{60}$ with the rate of 350 thousand pieces/ha.

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Сьогодення характеризується доволі незначними обсягами виробництва високобілкових культур, окрім мабуть сої. Тому наповнення протеїном продовольчого кошика людини повинно відбуватися в тому числі за рахунок різноманітних видів зернобобових культур. Однією з таких є квасоля зернова. В зерні її міститься в середньому 23,0-25,0 % білка з доволі високою перетравністю - до 86,0-90,0%. У зв'язку з цим ми вивчали зернову продуктивність квасолі залежно від удобрення та сорту.

Ключові слова : квасоля, зерно, добрива, сорт, висота