«The cultivation efficiency of new hybrids of spring rape in the conditions of the Krasnoyarsk Region»

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Problem statement

• It was established that in modern conditions the role of different kinds in increasing the production of oilseeds increases, the attention is paid to such indicators as a high level of adaptability, resistance to diseases, the stability of oilseed production, and the improvement in the fatty-acid composition of marketable seeds.

• The article deals with the effectiveness of the cultivation of new hybrids of spring rape by Rapool company selection in the conditions of the Krasnoyarsk forest-steppe.

• To study the yield and main elements of the spring rape crop in the Krasnoyarsk forest-steppe conditions.
• For research, hybrids of spring rape of a new generation were selected: Solar KL, Salsa KL, Cultus KL, Curry KL, Lumen, Miracle.

• Each hybrid was laid in replications, and its placement was in two blocks systematically, the working plot is 30 m². The rape hybrids were sown according to the vapor precursor, before planting the rape, mineral fertilizer was cut in the amount of 100 kg of Azafoska, in the summer at the beginning of budding the rape plants were fed with the microbiological preparation Azofit, Phytaprom LLC at a rate of 1 l/ha.

• Protection against harmful organisms (weed vegetation, pests and diseases) was carried out with preparations of JSC August.

• The sowing date is May 25, 2018, the seeding rate is 70 pcs / m², depth is 3–4 cm, sowing by the SSFC seed drill - 7, post-sowing rolling.

• The control variants did not use chemical methods of plant protection and microbiological preparations.
Solution methods

Methods of accounting for rape harvest: a week before the combine harvesting, test sheaves were selected from each of the four typical working plots of 0.25 m². In total, one square meter to determine the structure of the crop and biological yield. The number of plants was counted, the height of the plants was measured, the mass of the sheaf as a whole and the seeds were determined separately, the number of pods from each plant was calculated, and selectively 25 pods from each sheaf (totaling 100), and the number of seeds in the fruit was also calculated. The mass of 1000 seeds was determined after drying and bringing their moisture content to standard.

• The actual yield of various rapeseed hybrids was taken into account on October 4, 2018 by the selection harvester TERRION 2010. The yield resulted in 12% humidity and 100% purity.

Figure 1. Test sheaves to determine crop structure
Conclusions

With the use of integrated agro technology for the cultivation of spring rape in the conditions of the Krasnoyarsk forest-steppe, new breeding hybrids of the company RAPOOL showed good performance of the elements of the crop structure and high harvest and actual yield.

To determine the effect of crop structure elements on yield, a correlation analysis was performed, which showed a significantly high correlation of yield with a mass of 1000 grains (the correlation coefficient was +0.86). The high negative relationship was between the number of seeds in the pod and the number of fruits per plant - 0.89.

- The survival rate of plants for harvesting was the best on the Cultus KL hybrid — about 93%; the Currie KL hybrid had the lowest survival rate and it was 80%.
- The assessment of the biological crop yield of the main alimony of the crop structure shows that it varies by hybrids and varies greatly from 8.8 t / ha for the Currie KL hybrid to 13.8 tons for the Miracle hybrid.
- High harvest yields were formed by Cultus KL and Salsa hybrids, 6.62 and 6.60 t / ha, respectively.
- The highest actual seed yield (6.25 t / ha) was shown by the Cultus KL hybrid due to the low harvest moisture of the seeds. The lowest moisture content at seed was the Currie KL kind (13.4%).
- A high economic effect was shown by the applied technology of complex protection of spring rape: the increase in production profitability of the Cultus KL hybrid was 31%, and that of the Curry KL - 14% compared with the control variant without the use of protective equipment and growth-promoting products.
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