

Perfecting technique of cultivation of sarrazin by optimization of ways of sowing

Goal. Improving the technology of growing buckwheat by optimizing the methods of sowing in the conditions of the Western forest-steppe through the choice of row spacing and the distance between plants in a row. **Methods.** Field, laboratory, statistical. **Results** It has been established that the best way to sow Malinka's buckwheat for the conditions of the Western-forest steppe, which contributes to the improvement of the biometric parameters of buckwheat plants and the increase of the photosynthetic potential, is broad-rooted with a width of between rows of 45 cm and a distance of 1.2 cm between plants per row. **Conclusions** The optimum method of sowing for the middle-aged variety of buckwheat Malinka variety is determined.

Key words: buckwheat, yield, sowing methods, correlation-regression analysis, parabolic dependence.

The best soils for growing buckwheat are light granulometric composition and sufficient soil nutrients are provided [4, 6, 13]. Significant influence on the yield of buckwheat has a combination of its method of sowing and seeding standards. However, there is no consensus on the optimal way to sow buckwheat even in specific regions [1, 37]. The advantages of the broad-range seeding method have been confirmed by I.N. Elagina [2], K.A. Savitsky and O.S. Ovsyichuka [10], MM Sueca [12]. However, according to P.T. Korolkova [5] and I.I. Sinyagina [11], broad-leaved buckwheat sowing is only due to lack of moisture and insufficiently cultivated soils. The usual routine method gives better results on light soils for the sowing of early-seeded varieties that have little branching, in less obtrusive areas and at later sowing lines, which makes it possible to destroy weeds in the pre-planting period [3, 6 - 9 , 14].

The purpose of the research is to improve the technology of growing buckwheat by choosing the optimal method of sowing for conditions of the Forest-steppe of the West with the help of different spacing between the rows and the distance between plants in a row.

Material and methods of research. The experiments were laid on the experimental field of the Research Institute of Crops of Podolsky State Agrarian and Technical University during 2008-2011. The sowing methods related to the width of row spacings: 15 cm (common line, control), 30 and 45 were investigated. cm (wide), the distance between plants in the line of 1,0; 1.2; 1.4; 1.6; 1.8 cm for the Malinka variety. The area of the registration area is 50 m². The statistical material determining the results of experiments was studied using a correlation-regression analysis.

Research results. Observation of the process of survival of Malinka's buckwheat plants showed that during the years of research, the percentage of retained plants depended on the methods of sowing and the distance between plants in a row. A large percentage of the preserved plants was observed for a broad-sowing method of sowing with a width of rows of 45 cm and plant spacing of 1.2 cm (94.7%). On crops with a spacing of 30 cm, plant survival declined by 1.8 - 3.7% and amounted to 92.7% for the distance between plants was 1.4 cm. For conventional row sowing (15 cm), the percentage of preserved plants was 84.3-89.2%, which is 3.8-9.7% less than the broad-range seeding method (45 cm).

According to the analysis of the morphological structure of the plants of the buckwheat Malinka variety, according to the sowing methods, the following dynamics of the height of plants was noted: under the usual rooting method, the plant height was 89.2 - 94.0 cm, which is 8-14 cm smaller than broad-rows because of the larger plant density per unit area. All inflorescences in the usual routine method of sowing were 12.0 - 15.7 pc., For wide (30, 45 cm) - 7 - 9 pcs. more compared to normal string. The larger lacustrine of inflorescences was observed in the broad-range sowing method (30 and 45 cm) and amounted to 46.3 - 55.0 pc., Under the usual string (15 cm) - 20.7 - 23.7 pc.

On the morphological structure of plants, besides the sowing methods, the influence and the distance between plants in a row, which was caused by different plant density at 1 m line (table), had a small effect. More productive plants were formed under the usual rooting method of planting between plants in a row of 1.6 cm (63 rocks) and broad-rowed with a row spacing of 30 cm and spacing between plants in the row of 1.4 cm (71) and 45 cm - 1.2 cm (83). Such a pattern was observed on all biometric indices of the Malinka buckwheat plants.

Subsequent studies have shown that there is a linear correlation between the productivity of 1 plant and seeding methods, which confirms the calculated values of the correlation coefficients that exceed 0.8. Among all the studied methods of sowing, the best was broad-rows with a width of rows of 45 cm. The optimality of this method is due to the fact that it provides the highest productivity of the buckwheat plant. Our studies have shown that the largest total area of the buckwheat leaf area of plants per 1 plant and on an area of 1 hectare was achieved in the phase of the beginning of brooding of fruits for a broad-sowing method (45 cm) and the distance between plants in a row of 1.2 cm. The dependence of the yield of the buckwheat of the investigated variety on different methods of sowing is shown in the graph (figure).

The best seeding method was broad-rows with a width of 45 cm. The width of the intersections was the optimum variant of the distance of 1.2 cm between the plants in the row, where the highest yield was obtained - 1.68 t / ha, which is 0.41 ha more than control and 0.24 t / ha - from the same variant with an intermediate row width of 30 cm. For widths of spacings of 30 cm and an optimal distance between plants of 1.4 cm yields average in years of research 1, 51 t / ha, which is by 0,19 t / ha more than control of this variant. Reducing the distance between plants to 1 cm and increasing to 1.8 cm led to a decrease in yield due to the appropriate thickening and leaching of crops, which affected the lake of plants. This pattern has been traced in all years of research. By The yield of ordinary row sowing was 1.24 - 1.37 t / ha and depended on the distance between plants in a row. The largest yield was obtained at a distance of 1.6 cm between the plants. Studies have shown that the best way to sow the Malinka grapefruit for the conditions of the Forest-Steppe of the West, which provides the highest yield of 1.68 t / ha, is wide-ranging with a width of rows of 45 cm and- stand 1.2 cm between plants in a row. In particular, the yield of Malinka's buckwheat, as shown by the study, depends on the number of plants of this crop on an area of 1 m² and the number of grains per plant. As a result of the correlation-regression analysis, it has been established that there is a rather strong parabolic (quadratic) correlation dependence between the yield of this buckwheat and the above-mentioned factors. Optimum is a broad-row method of sowing with a width of rows of 45 cm. The highest yield of buckwheat Malinka variety reaches for the number of 165 grains per 1 m² and 55 grains per plant.

Conclusions

The largest percentage of the survival of Malinka's buckwheat plants, their morphological characteristics and the total area of the leaf surface of plants per 1 hectare in the phase of the beginning of birching of the fruits were due to the wide-row sowing method (45 cm) and the distance between plants of 1.2 cm per row. In this variant, the highest yield of buckwheat was obtained - 1.68 t / ha, which is 0.41 t / ha more from the control and 0.24 t / ha - from the yield in the same variant with a row spacing of 30 cm. For the widths of row spacings of 30 cm and the optimal distance between plants of 1.4 cm, an average yield of 1.51 t / ha was obtained, which is by 0.19 t / ha more than the control in this variant. In the usual row sowing, the largest yield of 1.24 - 1.37 t / ha was obtained at a distance between plants of 1.6 cm in a row. As a result of the correlation-regression analysis, it was found that there is a rather strong parabolic (quadratic) correlation dependence between the yield of this variety and the density of plants per 1 m² and the number of grains in the 1st plant (the sample correlation ratios in these cases are 0.951-0.985). The obtained parabolic regression equations give an opportunity to calculate the optimal and intermediate values of yields depending on the investigated factors.

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