THE INFLUENCE OF SOWING REGULATIONS ON SUNFLOWER PRODUCTIVITY

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With the advent in production of new sunflowers hybrids particular practical significance becomes establishing for them optimal parameters of the basic agrotechnical cultivation methods, in particular the widths between rows for different periods of sowing. Analysis of literary sources shows that for this purpose new hybrids entered in the State Register of Plant Varieties of Ukraine were not investigated in the conditions of Steppe, although they differ in duration of the growing season, morphotype, reaction to agrotechnical measures, resistance to disease and drought. Development of elements of varietal agrotechnics for new hybrids will allow them to more fully realize their potential.

The purpose of research was to study the influence of sowing dates and widths between rows for new hybrids of sunflower on quality indicators formation in conditions of Steppe on typical low-humus black soil.

The task of research was to detect the influence of such agrotechnical techniques as seeding and row spacing on oil and protein accumulation in sunflower seeds. Research was carried out in 2014-2016, in accordance with the requirements of the methodology of experiments B. A. Dospekhov. The soil cover of slots, on which the experiments were laid, represented by typical of low-humus black soils.

Cultivation technology is generally accepted for the Steppe zone of Ukraine, except the studied elements. The subject of the study was sunflower seeds of hybrids Forward, Yason, PR64F50, PR64A15, PR64A89.

Field experiments were based on the split plots method. Experiment is trifactorial. Factor A - Hybrids: Forward, Yason, PR64F50, PR64A15, PR64A89. Factor B - is width between rows: 35, 45, 70 cm. Factor C - time of sowing: 1) early - at reaching the soil temperature at a depth10 cm 6-8 ºC; 2) recommended - 10-12 ºC; 3) late - 14-16 ºC.

In our experiments in different areas of nutrition, quite close indicators incrustation of sunflower seeds has been obtained. There was no clear relationship between the indices in the studied variants. Thus, incrustation of sunflower seeds of hybrid PR64F50 was 20.0-21.5%, hybrid PR64A15 21.10-22.2%, PR64A89 - 20.3-21.5%, Forvard 21.6-22.5%, Yason - 21.0-22.5%. Difference in the figures between hybrids was within range 0.2-1.5%. It should be noted that the highest incrustation of sunflower seeds values were obtained in all studied hybrids, except PR64F50 in variants with sowing at the recommended dates and width between rows 45 cm.

The weight of 1000 seeds of studied sunflower hybrids was determined more by sowing terms than width between rows and, accordingly, plant's feeding area. Depending on hybrid, the figures ranged from 59.3 to 68.6 g.

It should be noted that 1000 seeds mass of investigated hybrids significantly varied over the years, which can be explained by the unevenness of rainfall and somewhat elevated temperatures during critical periods of seed pouring in, which resulted in decrease this indicator.

Analysis of obtained data testifies that a bigger mass of 1000 seeds in all studied hybrids was obtained by sowing in the recommended time. At the same time, a bigger mass of 1000 seeds provided variants with a width between rows 45 cm. Depending on hybrid, these variables varied from 64.3 g (Hybrid Forward) to 68.7 g (hybrid PR64F50).

Quality of sunflower seeds is mainly determined by oil and protein content in it. Therefore, for introduction of new varieties and hybrids, it is important to know not only their yield, but also content and collection of oil and protein and dynamics of their changes under the influence of growing conditions.

The analysis of our research results allows us to conclude that the most favorable conditions for accumulation of the maximum oil amount in sunflower seeds of all studied hybrids were created with sowing in late terms. Depending on genetic features of studied hybrids, oil content in the seed significantly differed. So, oil content was the lowest in hybrid Yason.

It varied depending on experimental factors and weather conditions from 41.0% to 42.9%. Then, as the highest foil content was obtained in hybrid PR64A15 with variables ranging from 48.6 to 51.7%.

It should be noted that the most unfavorable conditions for oil accumulation were conditions with sowing in the early terms. This tendency was observed in all investigated hybrids at different widths between rows, which were provided by variants of researches. At the same time, weather conditions had a significant impact on oil accumulation, which is why its content in the seeds varied over the years.

Analysis of protein content showed that this indicator varied from 13.7 to 17.9%. It characterized by inverse dependencies on oil content in sunflower achene of the studied hybrids.

Studies conducted in conditions of Steppe of Ukraine on typical low-humus black soil showed that a bigger mass of 1000 seeds was formed by all studied hybrids with sowing in recommended time (soil warming at a depth 10 cm to 10-12 ºC) in variants with width between rows 45 cm. The most favorable conditions for accumulation of maximum amount of oil in sunflower achene in all studied hybrids were created by late sowing of crop (soil warming at a depth 10 cm to 14-16 ºC) and width between rows 45 cm. The best was hybrid PR64A15 with oil content - 51.7%.