GALAXY INTERNATIONAL INTERDISCIPLINARY RESEARCH JOURNAL (GIIRJ)
ISSN (E): 2347-6915
Vol. 12, Issue 3, March (2024)

SPRING WHEAT SEEDS DIFFERENT SOWING METHODS AND INFLUENCE ON CAPSULING YIELD INDICATORS

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ABSTRACT

The researches were carried out at the experimental field of the "Shurtanboy" MFY grain and rice scientific production association, Nukus district of the Republic of Karakalpakstan. In this regard, experiments were carried out on different sowing methods and encapsulation of seeds of spring soft wheat resistant to drought and diseases, with high yield and high grain quality, in weak and medium salinity areas of the Republic of Karakalpakstan, especially in the island region.

Keywords: soft wheat, No-till technology, seed encapsulation, grain, soils of the Archipelago region.

INTRODUCTION

Today, in the world, great importance is attached to obtaining a high-quality and abundant harvest due to the use of resource-saving technologies in the cultivation of wheat. In 2016, a total of 729 mln. tons of wheat grains are grown, of which the share of soft wheat corresponds to almost 95% of the total wheat planted.

The total land area of the Republic of Karakalpakstan is 16,656.1 hectares, of which 509,500 hectares or 3.06% of the total area is irrigated, of which 53,000 hectares are cultivated with wheat.

About 75.8 percent of these irrigated areas are of varying degrees of salinity, of which 30.0 percent are weakly saline, 36.9 percent are moderately saline, and 8.9 percent are strongly saline. In many countries, in order to maintain and increase the fertility of the soils of the fields where grain crops are planted, positive results are being achieved by using resource-efficient (No-till) technology in the cultivation of grain crops.

RESEARCH METHODS

Field experiments were carried out by the Southern Agricultural Scientific Research Institute in Nukus district of the Republic of Karakalpakstan in order to ensure the implementation of the project "Selection of varieties of spring wheat with high yield and high grain quality and resource-efficient agrotechnology resistant to complex stress factors (salt, drought, disease) of the island region" It was carried out in the laboratories of "Cereal crop selection, seeding and growing agrotechnics", "Plant protection, agrochemistry and agrotechnics" in the central experimental area of the Grain and Rice Scientific Production Association. Experiments in laboratory conditions were determined in the Institute's "Phytotron and Genome Technologies" and "Grain Technological Quality Indicators and Physiology" laboratories.

During the placement of the experiment, phenological observations, calculations and analyzes were carried out according to the method of the All-Union Plant Science Institute (VIR, 1984), and biometric analyzes were carried out according to the methods of the State Variety Testing Commission of Agricultural Crops (1985, 1989) and the alpha lattice design of the Genstat program. Technological quality indicators of spring wheat grain grown in the experimental field were studied based on methodological manuals "Metodicheskie rekomendatsii po otsenke kachestvo zerna", "Metody biokhimicheskogo issledovaniya rastenii". The amount of gluten was compared according to GOST 13586-1-68, grain glassiness GOST 10987-76, grain moisture GOST 13586-5-93, grain nature GOST 3040-55, weight of 1000 grains GOST 10842-89.

RESEARCH RESULTS

The yield of spring wheat depends on the biological characteristics of the variety, climatic conditions, water, light, nutrition regime, predecessors, applied technological methods [2; 3].

External environmental factors or applied agrotechnical measures have a significant effect on yield and grain quality. It is possible to grow fruitful and high-quality grain when using the technology of cultivation suitable for the biological characteristics of spring wheat varieties. The used cultivation technology is required to optimally satisfy the demand for vital factors in the stages of spring wheat orgonogenesis. Planting methods and standards can be included among the important technological methods that significantly affect spring wheat yield and grain quality.

Productivity is the sum of the yield of plants in a given unit. If the plants in the field are sparse, the yield will be low, even though the productivity of each individual plant is high. As the thickness of the bush increases, the productivity of the individual plant decreases, but the productivity increases to a certain extent. In this case, the number of plants in a certain area is optimized, the yield is the highest, and then the yield is observed to decrease slowly. Many scientists point out that the optimal number of plants and high productivity depend on planting standards, planting methods and periods [1, 4, 5, 6].

Spring wheat productivity varies depending on many factors (planting method, rate, seed placement depth, nutrition or moisture) in addition to the biological characteristics of the variety. Most of the current wheat breeding recommendations are based on the results of single factor experiments. The optimal planting rate in such recommendations is given in

relation to other technological methods. In such cases, let's say, the effectiveness of the planting rate decreases.

In our research, it was found that the productivity indicators of spring wheat seeds varied from 21.3 t/ha to 25.8 t/ha in different sowing methods and encapsulation (Fig. 1).

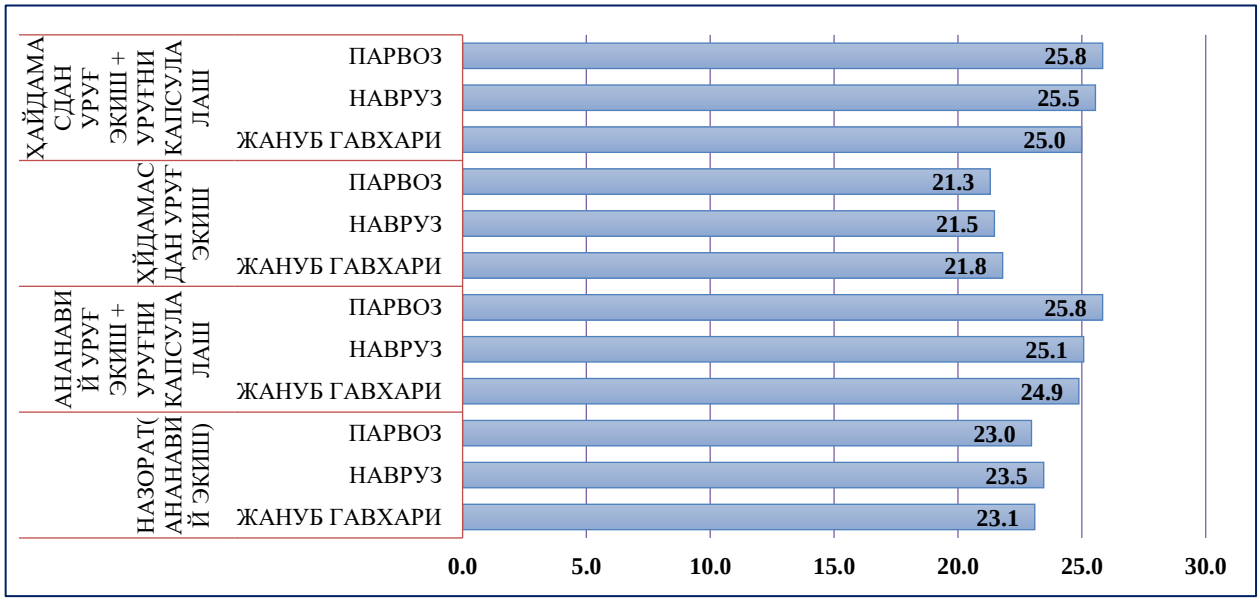

Figure 1. Yield indicators (ts/ha) of spring wheat cultivars with different sowing methods and encapsulation.

Productivity was 23.1 t/ha in the control (traditional sowing) option, in which the Janub Gavkhari variety was planted, in the same option, the Navruz variety was 23.5 t/ha, and the Parvoz variety was 23.0 t/ha. It was observed that the yield of 21.8 tons/ha was obtained in the option of planting seeds without plowing, and the yield was 1.3 tons/ha less than that of the control option. When Navruz variety was sown without plowing, the yield was 21.5 t/ha, which was 2.0 t/ha less than the control. The yield of 21.3 t/ha was obtained when the flight variety was sown without plowing, and it was 1.7 t/ha less than the control.

Productivity in the traditional seed sowing + seed encapsulation option was 24.9 t/ha in the option planted with the Janub Gavkhari variety, in the same option the Navruz variety was 25.1 t/ha, and the Parvoz variety was 25.8 t/ha. Compared to the control option, Janub Gavkhari showed a higher yield by 1.8 t/ha, Navruz variety by 1.6 t/ha compared to the control option, and Parvoz variety by 2.8 t/ha compared to the control option.

The Janub Gavkhari variety in the option of no-till seeding + seed encapsulation was 25.0 t/ha in the planted option, Navruz variety was 25.5 t/ha, and Parvoz 25.8 t/ha in the same option. Compared to the control option, Janub Gavkhari is 1.9 ts/ha, Navruz variety is compared to the control option

1.7 ts/ha, compared to the control option, the flight variety showed a higher yield of 2.8 ts/ha.

In conclusion, it can be said that no-till seeding + seed encapsulation option during spring wheat cultivation in the conditions of barren saline gray soils of the Aral Bay region allowed to increase grain yield by 1.7-2.8 t/ha.

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