ORIGINAL ARTICLE

INTERNATIONAL JOURNAL OF ARTIFICIAL INTELLIGENCE

ISSN: 2692-5206, Impact Factor: 12,23
American Academic publishers, volume 05, issue 06,2025

Journal: https://www.academicpublishers.org/journals/index.php/ijai

UDC: 633.11: 631.531.04

THE EFFECT OF SOWING DATES AND RATES ON THE YIELD OF SPRING SOFT WHEAT VARIETIES

F.B.Jabborov
Karshi State Technical University
ORCID ID: 0009-0001-2553-1890

Abstract: In this article, the effect of planting standards and timings on the productivity of spring soft wheat varieties in the conditions of gray soils in Karshi district of Kashkadarya region is highlighted. It was stated that when the grain yield obtained as a result of conducting the research was subjected to mathematical statistical processing, the reliability of the experiment was very low.

Key words: Spring wheat, variety, grain, term, norm, yield, least significant difference, experimental error, quintal, hectare.

ANNOTATSIYA. Ushbu maqolada Qashqadaryo viloyatining Qarshi tumanidagi bo‘z tuproqlar sharoitida bahorgi yumshoq bug‘doy navlarining hosildorligiga ekish meyorlari va muddatlarining ta’siri ta’kidlangan. Tadqiqot olib borish natijasida olingan don hosiliga matematik statistik ishlov berilganda tajriba xatoligi juda past bo‘lganligi aniqlanganligi ifodalangan.

Kalit so‘zlar: Bahorgi bug‘doy, nav, don, muddat, meyor, hosildorlik, eng kichik muhim farq, tajriba hatoligi, sentner, gektar.

АННОТАЦИЯ. В данной статье рассматривается влияние критериев и сроков посева на урожайность сортов мягкой яровой пшеницы в условиях сероземов Каршинского района Кашкадарьинской области. Отмечено, что при математической статистической обработке урожая зерна, полученного в результате исследований, погрешность эксперимента оказалась весьма низкой.

Ключевые слова: Яровая пшеница, сорт, зерно, период, критерий, урожайность, наименьшая существенная разница, ошибка опыта, центнер, гектар.

Relevance of the topic. Currently, cereal crops are cultivated on 340 million hectares of land worldwide, of which 57.8 million hectares, or 17 percent, are allocated to spring soft wheat. More than 90–100 million tons of wheat grain are exported annually on the global market, with spring wheat accounting for 10–15 percent of that volume.[1] For this reason, it is considered a pressing issue to develop economically efficient agro-technological measures that improve both the yield and quality of spring wheat. This includes determining the effects of different sowing dates and seeding rates on crop productivity, as well as selecting fast-maturing varieties suited

[1] https://hozir/org/jahon-qishloq-xo`jaligiga-umumiy-tarif.html?page=2hozir.org

ORIGINAL ARTICLE

INTERNATIONAL JOURNAL OF ARTIFICIAL INTELLIGENCE

ISSN: 2692-5206, Impact Factor: 12,23
American Academic publishers, volume 05, issue 06,2025

Journal: https://www.academicpublishers.org/journals/index.php/ijai

to the specific soil and climatic conditions of each region.

At present, the agricultural sector of our republic is undergoing fundamental reforms. Special attention is being paid to the modernization and accelerated development of agriculture, the deepening of structural transformations, the continuous advancement of production, the strengthening of the country's food security, and the expansion of environmentally clean product output. Furthermore, in the context of the rapid development of livestock farming, improving the cultivation techniques of forage crops like millet by establishing dedicated cultivation areas has become one of the priority tasks.

This dissertation research is being carried out within the framework of the Presidential Decree of the Republic of Uzbekistan No. PF-5742 dated February 17, 2019, "On Measures for the Efficient Use of Land and Water Resources in Agriculture," and the Cabinet of Ministers Resolution No. 806 dated September 24, 2019, "On Additional Measures to Ensure High Yields through the Phased Introduction of the Cluster System in Cereal Cultivation."

To date, scientific research on obtaining high-quality and high-yield grain from spring soft wheat varieties on irrigated lands in the southern regions of Uzbekistan — specifically in Surkhandarya and Kashkadarya provinces — has not been sufficiently conducted[2].

In many cases, our research is carried out by relying on the experiences of developed countries or based on studies from the 20th century. However, we rarely utilize the knowledge and practices of our own ancestors. The land on which we live has a long-standing agricultural tradition and is rich in experience. For example, the geographer Istakhri noted that in the 7th century, the regions around the cities of Yerqurgan and Shulluktepa (present-day Qarshi) on the right bank of Kashkadarya were considered fertile lands specialized in dryland farming, where various types of cereals and other crops were cultivated [1].

In the Middle Ages, when natural disasters occurred in the region of Mawarannahr, a culture of cultivating cereals in late periods had developed. Specific agro-technological measures were introduced for short-term grain production, which enabled the population's demand for bread and bakery products to be met [2].

Based on the above information, it is appropriate to emphasize that it is indeed possible to grow cereals in the spring season under our soil and climate conditions. Therefore, in the southern region of our republic — specifically in the light sierozem soils of Kashkadarya province — we have set the goal of studying the effects of sowing spring soft wheat varieties such as "Navro'z," "Parvoz," and "Janub gavhari" under different sowing times and seeding rates.

Research methods. Our scientific research was conducted at the central experimental site of the Southern Agriculture Research Institute. In the experiments, the spring wheat varieties "Navro'z," "Parvoz," and "Janub gavhari" were sown on February 10, February 20, and March 1 at seeding rates of 3.0 million, 3.5 million, and 4.0 million viable seeds per hectare.

Phenological observations, records, and analyses were carried out in accordance with the methodology of the All-Union Institute of Plant Industry and the guidelines for conducting field experiments.

All phenological observations were conducted at three designated points within 1 m² plots for each variant of the I–III replications in the experiment.

Research results. During the research, the impact of sowing rates and dates on the yield of the spring wheat varieties "Navro'z," "Parvoz," and "Janub gavhari" planted in the

[2] Р.О.Орипов Н.Х Халилов "Ўсимликшунослик" \\ Тошкент 2006й

ORIGINAL ARTICLE

INTERNATIONAL JOURNAL OF ARTIFICIAL INTELLIGENCE

ISSN: 2692-5206, Impact Factor: 12,23
American Academic publishers, volume 05, issue 06,2025

Journal: https://www.academicpublishers.org/journals/index.php/ijai

experimental field was determined. According to the results obtained, when sown on the first date (February 10, 2023) at seeding rates of 3.0, 3.5, and 4.0 million viable seeds per hectare, the grain yield for the "Parvoz" variety was 31.2, 33.3, and 33.5 centners per hectare, respectively; for the "Navro'z" variety, the grain yield was 32.2, 33.8, and 32.9 centners per hectare; and for the "Janub gavhari" variety, when sown at the same rates, the grain yield reached 35.1, 36.4, and 33.9 centners per hectare, respectively (see Table 1).

Table 1

The Effect of Sowing Dates and Seeding Rates on the Yield of Spring Wheat
(EF of SARI, 2023, First Sowing Date)

№	Planting date	Planting criteria	Variety name	Productivity, s/ha			Average
				Returns			
				I	II	III	
1	10,02,2023	4 mln. units/ha	Parvoz	32,4	30,1	31,1	**31,2**
2			Navro'z	32,2	32,2	32,1	**32,2**
3			Janub gavhari	33,6	36,7	35,1	**35,1**
4		3.5 mln. units/ha	Parvoz	33,7	32,4	33,7	**33,3**
5			Navro'z	33,5	34,0	34,0	**33,8**
6			Janub gavhari	36,1	36,8	36,2	**36,4**
7		4 mln. units/ha	Parvoz	32,9	34,0	33,6	**33,5**
8			Navro'z	32,7	32,9	33,0	**32,9**
9			Janub gavhari	33,4	34,4	33,8	**33,9**
Experimental error Sx							**0,452**
Mean error difference Sd							**0,639**
Least significant difference (05) s/ga							**1,309**
Least significant difference (05) %							**3,899**
Standard deviation S							**0,782**
Coefficient of variation Sv %							**2,329**

On the second sowing date (February 20, 2023), when the seeds were sown at rates of 3.0, 3.5, and 4.0 million viable seeds per hectare, the grain yield of the "Parvoz" variety was recorded as 27.7, 29.2, and 30.1 centners per hectare, respectively; for the "Navro'z" variety, the yield was 28.6, 29.9, and 29.7 centners per hectare; and for the "Janub gavhari" variety, the yield was 29.4, 32.6, and 30.4 centners per hectare, respectively (see Table 2).

Table 2

The influence of sowing dates and criteria on spring wheat yield
(EF of SARI, 2023, Second Sowing Date)

№	**Planting date**	**Planting criteria**	**Variety name**	**Productivity, s/ha**			**Average**
				Returns			
				I	**II**	**III**	
1	10,02,2023	4 mln. units/ha	Parvoz	27,3	28,2	27,6	**27,7**
2			Navro'z	28,2	29,0	28,7	**28,6**
3			Janub gavhari	28,6	30,1	29,4	**29,4**
4		3.5 mln. units/ha	Parvoz	29,9	27,3	30,5	**29,2**
5			Navro'z	30,8	28,8	30,1	**29,9**

ORIGINAL ARTICLE

INTERNATIONAL JOURNAL OF ARTIFICIAL INTELLIGENCE

ISSN: 2692-5206, Impact Factor: 12,23
American Academic publishers, volume 05, issue 06,2025

Journal: https://www.academicpublishers.org/journals/index.php/ijai

6			Janub gavhari	31,5	33,7	32,7	**32,6**
7		4 mln. units/ha	Parvoz	29,4	30,9	30,1	**30,1**
8			Navro‘z	29,8	29,8	29,6	**29,7**
9			Janub gavhari	30,7	30,2	30,4	**30,4**
Experimental error Sx							**0,516**
Mean error difference Sd							**0,730**
Least significant difference (05) s/ga							**1,497**
Least significant difference (05) %							**5,031**
Standard deviation S							**0,894**
Coefficient of variation Sv %							**3,006**

On the third sowing date (March 2, 2023), when the seeds were sown at rates of 3.0, 3.5, and 4.0 million viable seeds per hectare, the grain yield of the “Parvoz” variety was recorded as 26.4, 27.8, and 29.0 centners per hectare, respectively; for the “Navro‘z” variety, the yield was 27.2, 28.1, and 27.5 centners per hectare; and for the “Janub gavhari” variety, the yield reached 28.4, 30.6, and 29.6 centners per hectare, respectively (see Table 3).

Table 3
The influence of sowing dates and criteria on spring wheat yield
(EF of SARI, 2023, Third Sowing Date)

№	**Planting date**	**Planting criteria**	**Variety name**	**Productivity, s/ha**			**Average**
				Returns			
				I	**II**	**III**	
1	**10,02,2023**	4 mln. units/ha	Parvoz	25,6	27,2	26,4	**26,4**
2			Navro‘z	26,2	28,1	27,2	**27,2**
3			Janub gavhari	27,5	29,4	28,4	**28,4**
4		3.5 mln. units/ha	Parvoz	26,0	29,6	27,7	**27,8**
5			Navro‘z	26,9	29,3	28,0	**28,1**
6			Janub gavhari	28,5	32,5	30,9	**30,6**
7		4 mln. units/ha	Parvoz	28,2	29,7	29,1	**29,0**
8			Navro‘z	26,4	28,7	27,5	**27,5**
9			Janub gavhari	28,1	29,0	31,7	**29,6**
Experimental error Sx							**0,459**
Mean error difference Sd							**0,649**
Least significant difference (05) s/ga							**1,330**
Least significant difference (05) %							**4,701**
Standard deviation S							**0,794**
Coefficient of variation Sv %							**2,809**

The conducted research confirms that sowing rates and dates significantly influence the yield of spring wheat. In particular, if we consider the impact of sowing dates in relation to soil and climatic conditions, it becomes evident that in the conditions of Qarshi district, starting from the second ten-day period of February, the temperature becomes favorable for plant growth. Moreover, since the growing season of spring wheat begins earlier, the grain-filling phase takes place before the sharp increase in air temperature in May, resulting in relatively

ISSN: 2692-5206, Impact Factor: 12,23
American Academic publishers, volume 05, issue 06,2025
Journal: https://www.academicpublishers.org/journals/index.php/ijai

higher grain productivity.

As for the impact of sowing rates on yield, the general observation is that the higher the number of germinated seeds, the more limited each plant's feeding area becomes. The reduction in feeding area negatively affects the accumulation of dry matter in the plant. This influence, too, is largely dependent on the prevailing soil and climatic conditions.

CONCLUSION. Under the soil and climatic conditions of Qarshi district in the Qashqadaryo region, the "Janub gavhari" variety of spring soft wheat demonstrated higher yield compared to other varieties, showing superiority in terms of both sowing dates and seeding rates.

Literature:

1. Marsel Brion. Menkim, sohibqiron – Jahongir Amir Temur. / Toshkent "Yangi asr avlodi", – 2021. – 572 b.
2. Rtveladze E., Sulaymonov R., Buryakov Y., Sa'dullayev A., Mavlonov O'., Xasanov A., Yusupova M., Rajabov Q., Gyul E., Saidov A., Erkayev A., Jo'raqulov O., Qodirov M., Jumayev A., Omelchenko A., Uvatov U., Rajabova N. (2010). Qarshi 2700. Ma'naviyat.
3. R.O.Oripov N.X Xalilov "O'simlikshunoslik" \\ Toshkent 2006 y
4. O'zPITI. (2007). Dala tajribalarni olib borish uslublari. «ALBIT» MCHJ.
5. Dospexov B.A. Metodi polevogo opita – M.: Agropromizdat, 1985. – 255 s.
6. O'zbekiston Respublikasi Prezidentining 2019 yil 17 fevraldagi «Qishloq xo'jaligida yer va suv resurslaridan samarali foydalanish chora-tadbirlari to'g'risida»gi PF-5742 sonli farmoni
7. O'zbekiston Respublikasi Vazirlar Mahkamasining 2019 yil 24 sentabrdagi 806-son «Boshoqli don yetishtirishdagi klaster tizimini bosqichma-bosqich joriy etish orqali yuqori hosildorlikni ta'minlashga doir qo'shimcha chora-tadbirlar to'g'risida» qarori
8. Турдиева, Н. (2016). Совершенствование технологии вырашивания твердой пшеницы в Зарафшанской долине. Каталог авторефератов, 1(1), 1-70.
9. https://hozir/org/jahon-qishloq-xo`jaligiga-umumiy-tarif.html?page=2hozir.org