Annals of R.S.C.B., ISSN:1583-6258, Vol. 25, Issue 4, 2021, Pages. 6191 - 6197
Received 05 March 2021; Accepted 01 April 2021.

Some Agrotechnical Properties of Local Durum Wheat Variety "Istiklol"

N.D.Khojaeva
Associate Professor, Candidate of BiologicalSciences
Head of the Department of Biotechnology,
n.xodjayeva@yandex.ru

I.U.Urazbaev
Doctor of Biological Sciences, Professor
Gulistan State University, Uzbekistan
ismatulla1957@mail.ru

Z. U. Ruzikulova
Assistant
Department of "Biotechnology"
Samarkand Veterinary Medical Institute, Uzbekistan
rz960913 @ gmail.com

U.L.Gaziev
Assistant
Department of Soil Science,
Gulistan State University, Uzbekistan

Abstract: The article provides data on the influence of the norm and timing of sowing on field germination, development phases and yields of local durum wheat "Istiklol".

Sowing measures and fertilizing norms can be considered as important factors that influence amount of yield and quality of produced wheat.

According to the results of the experiment, the amount of yield with 4,5 million seeds per hectare with fertilizers NPK 180:135:90 kg/ha accounted for 76,6 cwt/ha per plot of the field, which is 44,0 cwt/ha more than in control without fertilizer lands, and 9,9 cwt/ha more in sowing norm. The lowest yield accounted for 57,0 cwt/ha in the plot of the field where 3,0 million seeds/ha with fertilizing norm of NPK 120:135:90 kg/ha where sown, which is 28,3 cwt/ha more than in fertilizer free lands. In the plot of the fields where the sowing norm was equal to 3,0 million seeds, the fertility of plants was high, crop was collected from plants that grew later, the grain and seeds were of smaller size and it led to the decrease of yield.

Keywords: local durum wheat, sowing rates and timing, development phases, growth dynamics, field fertility

Introduction

Increasing grain production is an important factor in strengthening the economy of our state and providing the people with food. World practice experiments show that only then each state is able to provide its population with the basic type of food products grown in it, it can become completely independent, both politically and economically.

Based on this idea, new varieties of wheat play an important role in increasing the efficiency of the agrarian sector of the republic. The created varieties of productive grain quality

Annals of R.S.C.B., ISSN:1583-6258, Vol. 25, Issue 4, 2021, Pages. 6191 - 6197
Received 05 March 2021; Accepted 01 April 2021.

should be resistant to abiotic and biotic factors of the external environment. Among the biotic effects is the spread of yellow rust, brown rust and rust disease epidemic has a great danger in crop yields and cultivation of products.

In our republic, grain production is steadily developing, the yield of winter wheat crops is growing. At the same time, problems are emerging in the farmer's lands in growing winter wheat. The main part of grown wheat is divided in 3-types, the rest is in 4th and 5th types. Farmer associations do not get a sufficient amount of profit from grain production due to the fact that the quality of grain is not strong and valuable (1 and 2 type) of wheat yield, i.e. does not meet the requirements [2,4].

Taking into account the soil – climatic conditions of Samarkand region, the biological characteristics of the studied varieties, the period of planting on irrigated lands, the development of field fertility, growth and development of hard durum wheat varieties, the impact on the processes of crop formation, the quality of the grain, as well as the need to develop practical recommendations based on this.

Object and methods of the research

Variety of Istiklal is aftercrop. It was created by individual selection from the Italian variety of Volgiorgio in the conditions of Samarkand region under the Department of Botany and plant physiology of Samarkand Agricultural Institute. Type is Leukomilan.

Authors: K.R. Ravshanov, H.Hamdamov. Variety was included in the State Register in 2019 and zoned for planting on irrigated lands of Samarkand and Kashkadarya regions.

The grain is prismatic,of average length, white.The spike is of medium length, oval, weakly vascular. The serration is correct. The shoulder is wide. Rupture is clear. The bristles are long, black from the grain. The grain is large, white, medium furrow, oval-oblong. The weight of 1000 grains on average 44,5 - 47,5 g.

The variety is average height. 5.0 Point resistant to lying down and spilling. Also resistant to winter.

Our experimental works were conducted in accordance with the guidelines and methods of recommendations of the Ministry of Agriculture and Irrigation of the republic, Center for science and industry, research institutes, State variety testing center, Republican state Seed Control center.

The main part of the study contains of the results obtained, their analysis based on the effect of winter durum wheat on the productivity and seed quality of planting and fertilizer standards of Istiklol variety. Field experimental work was carried out in 2016-2018.

Experimental work was carried out on 4 repetitionper tier. The surface of an area, which is taken into account each row is 50 square meter, the former crop cotton, the total area of the experimental field is 1.0 ha.

In the experiment, ammonium nitrate (34% N) from nitrogen fertilizers, ammonium nitrate (11% N, 46% P_2O_5) from phosphorus fertilizers and potassium salt (54% K_2O) from potassium fertilizers were used. In experiments, moisture in the soil was stored no less than 70% of the limited wet capacity (LWC). Before planting, irrigation was carried out in the norm of 800m^3 per hectare. Prior to land ploughthere were used phosphorus and potassium fertilizers according to the 100 % experimental methodology. The standard of nitrogen fertilizers was divided into 2 in the soil and germination phases of the plant.

Planting was carried out in the form of 3.0, 4.5, 6.0 million taking into consideration sprouting seeds. Immediately after planting, watering was carried out. Irrigation standards were

Annals of R.S.C.B., ISSN:1583-6258, Vol. 25, Issue 4, 2021, Pages. 6191 - 6197
Received 05 March 2021; Accepted 01 April 2021.

determined by the moisture deficit in the soil.

All technological methods other than those studied in the experiment were conducted on the basis of the general agrotechnics adopted by the region.

Observations and biometric measurements were carried out on modem plants in oddrepetitions. Phenological observations were conducted mainly on the methodology of variety agricultural test inspection of horticultural crops (1971).

Results and their analysis

The field fertility of winter wheat seeds will depend on the air and soil temperature, the level of moisture in the soil, the soil structure, the amount of humus in the soil, the depth of planting the seeds, the crop qualities of the seeds and many other factors. N..K.Shnik (1976) experiments showed that the yield of grain decreased by 1,2-1,5% on account of the fertility of each % of the seed.

According to a number of scientists, the effective temperature during the ripening of winter wheat is 116-139ºC [1,3,4]. The minimum temperature for the process of photosynthesis is 3-4º C. The increase in temperature and the assimilation of carbonstrengthens when other conditions are favorable. The assimilation process slows down when the temperature is 35-36ºC. Favorable temperature is 12-20º C for germination of seeds. It sprouts 5-7 days after planting when the soil is wet enough on the surface layer [2,5].

The results of our experiments conducted in 2016-2018 showed that when Istiklal variety of durum wheat is planted annually in the norms of planting and fertilizer in the conditions of meadow-gray soils of Samarkand region, field fertility is different.

The field fertility of durum wheat seeds has changed without dependence on temperature, moisture in the soil, crop qualities of seeds, planting and fertilizer plants. Seeds were sown on October 25th in the same period, as shown in Table 1 reference. Field fertility sowing norm was 3.0 million fertile seeds/ha and 262,0 pieces of lawns per 1 m^2, depending on the fertilizer standards were used in the highest soil fertility at the lowest soil fertility, that is, from 87,4% to 273,1 units of lawns at 1 m^2, that is, from 90,9%.

With the change of planting standards from 3,0 million seeds to 6,0 million seeds and the application of various soil fertilities of the standard of suitable fertilizers, the legality of the decrease in the field fertility of the seeds was observed. The highest field fertility of the seeds was observed 3.0 million seeds and N_{210} P_{158} K_{105}lawns were harvested in the planting norm at a rowof 1 m^2 273,1 units and this was 90,9%.

Table 1

Effect of planting and fertilizer standards on field fertility of "Istiklal" variety

Planting time	Planting norm, million sprouts/ha	Norm of mining fertilizers in kg/ha	Sprouted plant/pieces at 1 m^2			Fieldfertility %		
			2016	2017	2018	2016	2017	2018
October 25	3,0	Control (without fertilizer)	263.6	262.0	263,4	87.8	87.4	87,9

Annals of R.S.C.B., ISSN:1583-6258, Vol. 25, Issue 4, 2021, Pages. 6191 - 6197
Received 05 March 2021; Accepted 01 April 2021.

		NPK 120:90:60	265.2	266.5	266,2	88.4	89.8	89.2
		NPK 150:113:75	267.4	269.0	269,7	89.1	90.1	90.3
		NPK 180:135:90	269.3	269.5	270,9	89.7	89.8	90,0
		NPK 210:158:105	272.1	273.1	274,0	90.7	91.9	91,5
	4,5	Control (without fertilizer)	387.5	387.2	387,5	86.1	85.8	86,5
		NPK 120:90:60	389.8	390.1	391,0	86.6	88.0	88,2
		NPK150:113:75	392.3	392.0	392,4	87.1	87.9	87,8
		NPK180:135:90	394.1	394.9	395,2	87.5	87.9	87,8
		NPK210:158:105	396.0	395.8	396,7	88.0	89.8	89.9
	6,0	Control (without fertilizer)	513.3	512.4	513,6	85.5	85.0	85.2
		NPK 120:90:60	516.0	516.3	516,7	86.0	86.4	86.6
		NPK 150:113:75	519.1	519.8	519,9	86.5	87.0	87.6
		NPK 180:135:90	521.7	521.2	521,8	86.9	86.2	86.8
		NPK 210:158:105	523.4	523.0	523,7	87.2	88.9	90.0

On fertile soils, high-yielding plants usually form fertile stems that give 2-3 spike from 4-7 stem. Wheat stalks first form stems that have many grains.

When obtaining a rich and high-quality harvest from winter wheat, the thickness of the bottom is important. Some scientists do not believe that its collection as a positive indicator. In their opinion, a lot of water and nutrients are spent on the formation of secondary stalks in the plant, as a result of which it is believed that the water and nutrients supply of the main stalk

Annals of R.S.C.B., ISSN:1583-6258, Vol. 25, Issue 4, 2021, Pages. 6191 - 6197
Received 05 March 2021; Accepted 01 April 2021.

worsens and negatively affects productivity. Good collection of wheat providesthe bigger size of leaf surface, good soil formation, a lot of organic matter and a high yield is formed, but very high soil formation leads to the laying down of the soil, a decrease in the quality of the harvest and grain.

With an increase in the norm of planting, there is a decrease in total and productive harvesting, an increase in the norm of fertilizers. According to the results of the experiment, collection in the control version without fertilizer 3.0 million seeds kg/ha in 1 $m^2$to be collected 2.1 pieces of fertile soil 1.7 pieces, the number of productive stalks in $1m^2$ was 338.8 pieces (Table 2).

Table 2.

Plantation of winter wheat and productive collection of fertilizer norms' productivity, influence on quantity change of fertile stalks in $1m^2$

Planting norm to mln. seeds/ha	**Fertilizer norm NPK kg/ha**	**Collection, pieces**						**Number of productive stalks at $1m^2$, pieces**		
		General			**Productive**					
		2016	**2017**	**2018**	**2016**	**2017**	**2018**	**2016**	**2017**	**2018**
3,0	Control (without fertilizer)	2.1	2.0	2.2	1.7	1.6	1.6	338.8	337.3	337.3
	NPK 120:90:60	2.3	2.4	2.3	2.0	1.9	2.0	437.0	434.8	435.8
	NPK 150:113:75	2.3	2.5	2.4	2.0	2.1	2.1	443.4	442.9	443.9
	NPK 180:135:90	2.4	2.6	2.5	2.1	2.0	2.1	470.6	470.1	470.7
	NPK 210:158:105	2.5	2.6	2.6	2.1	2.1	2.1	475.8	476.2	475.2
4,5	Control (without fertilizer)	1.8	1.7	1.8	1.4	1.4	1.4	408.3	408.7	408.8
	NPK 120:90:60	1.8	1.9	1.9	1.6	1.5	1.6	510.8	511.0	511.9
	NPK 150:113:75	1.9	2.0	2.1	1.7	1.7	1.7	549.2	549.9	550.0
	NPK 180:135:90	2.1	2.3	2.2	1.8	1.9	1.9	584.1	586.0	585.0

Annals of R.S.C.B., ISSN:1583-6258, Vol. 25, Issue 4, 2021, Pages. 6191 - 6197
Received 05 March 2021; Accepted 01 April 2021.

	NPK 210:158:105	2.2	2.4	2.4	1.8	1.8	1.8	549.4	547.9	549.9
6,0	Control (without fertilizer)	1.5	1.4	1.5	1.3	1.3	1.3	463.3	460.9	462.9
	NPK 120:90:60	1.3	1.3	1.4	1.5	1.5	1.5	584.5	584.1	584.3
	NPK 150:113:75	1.9	1.9	1.9	1.5	1.6	1.5	596.1	595.0	595.9
	NPK 180:135:90	2.0	1.9	1.9	1.6	1.6	1.6	592.1	592.0	592.5
	NPK 210:158:105	2.0	2.0	2.0	1.6	1.7	1.7	577.2	575.9	576.9

3,0 mln seedkg/ha of NPK 210:158:105 kg/ha the total soil at $1m^2$ was 2,6 grains, productive soil was 2,1 grains, number of productive stalks at $1m^2$ was 472,6 grains, that is, with an increase in fertilizer standard, there was an increase in the soil and compared to the control (without fertilizer)

In $1m^2$, the total number of productive stalks increased by 0,6 pieces, productive stalks by 0,5 units.

As shown above, when 3.0 million kg/ha NPK 210:158:105 kg/ha is increased to $1m^2$, with the increase in productive stalks at $1m^2$ with the increase in productive grounding compared to the control fertiliser at $1m^2$. This indicator was also observed in the rows which were applied to seedkg/0,7, 6.0 million seeds per seeds kg/ha.

The standard of planting was observed to be 6,0 millions grains of total kg/ha in uncontrolled unfertilized land row of 1 m^2general collection is 1,4 pieces,1.3 grains of fertile soil, number of productive stalks at 460,9 pieces in seedkg/ha controlled fertiliser feed. When applied to 6.0 million seedkg/ha and NPK 210:158:105 kg/ha at $1m^2$ in relation to the controlled fertilizer feed, it was observed that the total seed yield increased to 0.7 grain, the productive seed yield increased to 0.6 grain.

In the experiment, there was a decrease in the number of total and productive soils with an increase in the sowing norm of 3,0 million grains to 6.0 million seeds.

Norm of planting 3,0 mln sprouted seeds NPK 210:158: 105 if the fertile soil 2,1 units in the applied cycle, 6.0 mln sprouted seeds NPK 210:158: 105 when applied was 1.7 units productive soil, IE decreased to 0,4 units of soil.

Important technological methods that have a significant impact on winter wheat yield and grain quality can include planting and fertilizer standards. In the field where winter wheat is planted, the yield of each separately obtained plant can be higher if the plants are sparse. With an increase in the thickness of the bush, the productivity of the separately obtained plants decreases, but the productivity increases to a certain extent. Therefore, known that in the area of the unit, the

Annals of R.S.C.B., ISSN:1583-6258, Vol. 25, Issue 4, 2021, Pages. 6191 - 6197
Received 05 March 2021; Accepted 01 April 2021.

number of plants is optimized, productivity will be the highest, then productivity will slowly decrease. Proper application of the fertilizer standard will not only increase productivity, but also ensure good grain quality and seed quality.

The results of our experiment show that the planting norm 4,5 million productive seeds/ha and fertilizer account is the highest yield was obtained from the fertilizer account is NPK 180:135:90the rows compared to 76,6 c/ha or control (without fertilizer) in the feedings applied to 90:44.0 kg/ha, additional yield from the planting norm to 9,9 c/ha, the lowest yield 3,0. The additional yield of 28,3 c/ha was obtained from the fertilizer account in relation to the fertilizer-free option. The rate of seedling of a single plant was high at the time of planting, the yield was then taken from the overgrown shrubs, the spike and seeds in these shrubs were small, which led to a decrease in the yield.

Experience shows that as a result of the increase in the number of seedlings due to the increase in the standard of planting and fertilization, the plant lay partially due to the fact that the stem is high and quiet. Since the air circulation from the thickness of the plants was not good, the degree of morbidity increased.

Conclusion

In summary, for the intensive type of Istiklol variety of winter durum wheat in irrigated lands in Zarafshan valley conditions, in high yield and high quality seedling, the planting standard 4,5 million fertile seed/ha and fertilizer standard NPK 180:135:90 kg/ha application will ensure the achievement of high economic profitability in a single cathode, galling with a positive effect.

References

1. Nurbekov S.I., “Winter wheat yield under drought conditions”. Kazakhstan Almalybak, 2010 23-28 p.
2. Khalilov N.//Influence of methods, norms and terms of sowing on the yield and quality of winter wheat grain. J: “The way of science”.№6(40), 2017 year. P.41-43
3. N.Y.Khalilov, G.S.Gaybullaev.//Norms of planting wheat and fertilizer that affect the formation of the crop composition. International scientific-practical conference on “the scientific basis of creation and prospects of development of grain growing in Uzbekistan”. Gallaorol, 24-25 may 2013.
4. Khodjaeva N. and others// Development and productivity indicators of some local wheat durum varieties. Tendencies of perspective development of the science and conditions of globalization. Pereslav-Khmelniskiy 2018. No. – 35/
5. Khodjaeva N. and others.//The effect of planting and fertilizing norms on the yield of hardwood Independence-25 varieties.
6. INTERNATIONAL SCIENTIFIC JOURNAL «GLOBAL SCIENCE AND INNOVATIONS 2020: CENTRAL ASIA» NUR-SULTAN, KAZAKHSTAN, JUNE-JULY 2020