International Journal for Innovative Engineering and Management Research
A Peer Revieved Open Access International Journal
www.ijiemr.org

COPY RIGHT

IJIEMR Transactions, online available on 10th May 2021.
Link: https://ijiemr.org/downloads/Volume-10/Issue-5

DOI: 10.48047/IJIEMR/V10/I05/5

Title: **DEVELOPING NEW HYBRIDS OF BREAD WHEAT USING SIMPLE AND COMPLEX HYBRIDIZATION METHODS**

Volume 10, Issue 05, Pages: 16-21

Paper Authors:
[1]Dilmurodov Sherzod Dilmurodovich, [2]Abdumajidov Jaloliddin Raxmatullaevich, [3]Ishankulova Gavkhar Norkulovna,

USE THIS BARCODE TO ACCESS YOUR ONLINE PAPER

To Secure Your Paper As Per UGC Guidelines We Are Providing A Electronic Bar Code

International Journal for Innovative Engineering and Management Research
A Peer Revieved Open Access International Journal
www.ijiemr.org

DEVELOPING NEW HYBRIDS OF BREAD WHEAT USING SIMPLE AND COMPLEX HYBRIDIZATION METHODS

[1]Dilmurodov Sherzod Dilmurodovich, [2]Abdumajidov Jaloliddin Raxmatullaevich, [3]Ishankulova Gavkhar Norkulovna,
[1]Doctor of Philosophy (PhD) in Agricultural Science, Senior scientific researcher,
[2]PhD student, Junior scientific researcher,
[3]Assistant teacher,
[1,2]Kashkadarya branch of the Resspikech Institute for Grain and Leguminous crops.
[3]Karshi engineering-economics institute, Department "The technology of storage and primary processing of agricultural products", Karshi city, Kashkadarya region, Uzbekistan.
E-mail: ishankulova.gavxar@mail.ru, **E-mail:** s.dilmurodov@mail.ru

Abstract: Today, as the population grows yspike by yspike, so does the demand for bread and bakery products. This problem can be overcome by creating productive varieties as a result of selection work. Creating high-quality varieties of agricultural crops every yspike, creating high-yielding varieties (hybrids) that meet the requirements of certain conditions, agriculture, in order to provide the population with abundant food products tomorrow and throughout the yspike, and the industry with sufficient raw materials, introduction plays a big role. One of the urgent tasks of selection scientists is to carry out hybridization and creation of hybrids in different directions using selected donor varieties and specimens, to supply new hybrids to the selection.

Keywords: bread wheat, population, donor varieties, breeding, crossing.

Introduction

The main goals of selection are to create varieties with a new genotype with a steady increase in yield and high grain quality, resistant to various environmental and climatic conditions, dormancy, drought, disease and pests [7, 14, 19, 28].

One of the main challenges for the breeder is to create, select and introduce varieties suitable for each region. In the creation of intensive-type wheat varieties, it is important to choose the right genotypes and parental forms for cross breeding, which are mainly high-yielding [3, 16, 26, 35, 38].

In order to create high-yielding varieties, it is important to have intra-species and inter-species hybrids of plants of biologically different quality and their geographical remoteness [5, 11, 25, 36].

As a result of the addition of two biologically different germ cells, metabolism in hybrids intensifies, growth processes develop faster, enzyme activity increases, photosynthesis and other biological processes also accelerate [9, 18, 20, 29, 37].

As a result of hybridization, the plant genotype is reconstructed. The addition of genotypes results in the formation of valuable economic traits and characteristics [1, 15, 23, 32].

The main goal of breeders is to create new local hybrid varieties with a new genotype, with a steady increase in yield and high grain quality, suitable for different soil and climatic conditions of the republic, resistant to lodging, drought, disease and pests [8, 12, 22, 30].

In the creation of intensive-type spring wheat varieties, it is important to properly select the primary sources as well as the correct choice of genotypes with high yields and parental forms for crossbreeding. This means that it is one of the important tasks for breeders to select, create and introduce varieties suitable for each region [6, 17, 24, 33].

Wheat yield depends on plant structure, metabolism, and substances in the grain. Every physiological phenomenon can change under the influence of genotype and environment, and there is an inextricable link between genotype and environment. The variability and heredity

International Journal for Innovative Engineering and Management Research
A Peer Revieved Open Access International Journal
www.ijiemr.org

of quantitative traits are not uniformly covered in the literature. A characteristic feature of this is that it depends on the external environmental conditions, which poses a great difficulty in selection [2, 10, 21, 31, 39].

The most important thing in selection is a specific genotype or homo- and heterozygous and other indicators of productivity, ie what genetic potential it has. These two factors depend on the selection of the best genotypes from hybrid mixtures in hybridization [4, 13, 27, 34].

Materials and methods. Experimental placement and experimentation are carried out according to the method of phenological observation, calculations and analyzes (All-Union Institute of Botany VIR, 1984) and biometric analyzes according to the methods of the State Variety Testing Commission of Agricultural Crops (1985, 1989).

Phenological observations are made when the beginning of each phase is formed in 10% of the plant and 75% of the total plant.

The method of replanting the hybrid. From the first generation of the hybrid (F_1), work is carried out with populations (mixtures) of all hybrids. Seeds of F1 are sown mixed. Once the F_2 crop is crushed, the seeds are mixed again before sowing. Once the process of formation of the main forms of plants in the hybrid population 3-5-inch joints (F_3-F_5) is completed, the selection of the best of them begins.

In the process of replanting hybrids and propagating seeds, undeveloped plants are discarded.

Results and Discussion. In the Kashkadarya branch of the Grain and Legume Resspikech Institute in 2018, hybridization of 250 combinations of bread wheat was carried out. For this purpose, a hybrid nursery consisting of 100 varieties and samples of bread wheat with special valuable characteristics and features was established. Taking into account the valuable characteristics of the variety and specimens, hybridization tables were developed and hybridization was carried out on the basis of the table. High-yielding varieties of bread wheat, resistant to rust diseases, external environmental factors such as heat, drought, heat, salinity, with high grain quality, were used as parent forms in crossbreeding.

The experiments were conducted in the experimental field of the Kashkadarya branch of DDEITI, located on the territory of Ya.Omonov MMTP Karshi district of the region. Using varieties and specimens from the hybridization nursery, a table of hybrid combinations was compiled by selection scientists.

Hybridization work used different hybridization methods. Simple crossbreeding, Back cross, Topcross, 3 and 4 different varieties were carried out.

Table 1

Results obtained in a simple hybridization performed.

№	Combinations			Number of spikes for hybridization	Date		Number of flowers removed	The number of grains obtained	
	♀	X	♂		Cutting flowers	Pollination		Piece	%
1	Chillaki	X	Shukrona	3	10 aprel	13.aprel	60	40	67
2	Chillaki	X	Bunyodkor	3	10 aprel	13.aprel	60	17	28
3	Chillaki	X	Kesh-2016	3	10 aprel	13.aprel	60	7	12
4	Chillaki	X	Gozgon	3	10 aprel	13.aprel	60	18	30
5	Chillaki	X	Shams	3	10 aprel	13.aprel	60	19	32
6	Jayxun	X	Kesh-2016	3	11 aprel	14.aprel	60	27	45
7	Jayxun	X	Shukrona	3	11 aprel	14.aprel	60	32	53
8	Jayxun	X	Bunyodkor	3	11 aprel	14.aprel	60	40	67
9	Jayxun	X	Gozgon	3	11 aprel	14.aprel	60	40	67
10	Jayxun	X	Shams	3	11 aprel	14.aprel	60	22	37
11	Omad	X	Shams	3	11 aprel	14.aprel	60	53	88
12	Omad	X	Gozgon	3	11 aprel	14.aprel	60	51	85
13	Omad	X	Kesh-2016	3	11 aprel	14.aprel	60	51	85
14	Omad	X	Bunyodkor	3	11 aprel	14.aprel	60	58	97
15	Omad	X	Shukrona	3	11 aprel	14.aprel	60	42	70
16	ZARRIN	X	Shams	3	9 aprel	12.aprel	60	17	28
17	ZARRIN	X	Bunyodkor	3	9 aprel	12.aprel	60	47	78
18	ZARRIN	X	Gozgon	3	9 aprel	12.aprel	60	23	38
19	ZARRIN	X	Shukrona	3	9 aprel	12.aprel	60	15	25
20	ZARRIN	X	Kesh-2016	3	7 aprel	10.aprel	60	14	23
21	Bardosh	X	Kesh-2016	3	11 aprel	14.aprel	60	11	18
22	Bardosh	X	Bunyodkor	3	11 aprel	14.aprel	60	52	87
23	Chillaki	X	Shukrona	3	5 aprel	08.aprel	60	20	33
24	Chillaki	X	Bunyodkor	3	5 aprel	08.aprel	60	17	28
25	Chillaki	X	Kesh-2016	3	5 aprel	08.aprel	60	25	42

As part of the study, simple crossing was performed in 40 combinations. Omad / Bunyodkor hybrid combination produced 97% of hybrid grains, while Chillaki / Kesh-2016 hybrid combination produced 12% of hybrid grains. In hybridization, forms of long origin, belonging to different ecotypes, were used.

Table 2

Complex hybridization carried out with the participation of different varieties.

International Journal for Innovative Engineering and Management Research
A Peer Revieved Open Access International Journal
www.ijiemr.org

№	Combinations			Number of spikes for hybridization	Date		Number of flowers prepared	The number of grains obtained	
	♀	X	♂		Cutting flowers	Pollination		Piece	%
67	Bologna/Shukrona	X	Bardosh/Shams//Bardosh	3	7 aprel	10.aprel	60	21	35
68	Bologna/Shukrona	X	Gozgon	3	11 aprel	14.aprel	60	41	68
69	Egizio/Shukrona	X	Bunyodkor	3	11 aprel	14.aprel	60	31	52
71	Egizio/Shukrona	X	Shams/Grom//Omad/Gozgon	3	11 aprel	14.aprel	60	38	63
72	Bunyodkor/Esaul//Gozgon/3/Bunyodkor	X	Gozgon	3	11 aprel	14.aprel	60	22	37
74	Bunyodkor/Esaul//Gozgon/3/Bunyodkor	X	Barhayot/Gozgon//Gozgon	3	13 aprel	16.aprel	60	39	65
78	Bologna /Bunyodkor	X	Jayxun/Shams//Shams	3	11 aprel	14.aprel	60	5	8
79	Bologna /Bunyodkor	X	Gozgon	3	11 aprel	14.aprel	60	27	45
81	Yaksart/Kroshka//Yaksart/3/Gozgon	X	Shams/Hisorak//Hisorak	3	11 aprel	14.aprel	60	22	37
82	Yaksart/Kroshka//Yaksart/3/Gozgon	X	Bunyodkor	3	11 aprel	14.aprel	60	17	28
90	Yaksart/Kroshka//Hisorak/3/Bologna	X	Shams/Hisorak//Omad/Shams	3	6 aprel	09.aprel	60	18	30
97	Yaksart/Bunyodkor//Hisorak	X	Omad/Hisorak//Omad	3	11 aprel	14.aprel	60	32	53
98	Yaksart/Bunyodkor//Hisorak	X	Gozgon	3	11 aprel	14.aprel	60	43	72
101	Yaksart/Bezostaya-1//Gozgon/3/Bunyodkor	X	Andijon-4/Hisorak//Zmina/Bunyodkor	3	14 aprel	17.aprel	60	48	80
102	Bunyodkor/Esaul//Hisorak/3/Bologna	X	Shams/Grom//Shams	3	14 aprel	17.aprel	60	49	82
109	Yaksart/Bunyodkor//Bologna	X	Omad/Hisorak//Shams/Hisorak	3	18 aprel	21.aprel	60	42	70
111	Bunyodkor/Yaksart//Bologna	X	Andijon-4/Bunyodkor//Omad/Hisorak	3	14 aprel	17.aprel	60	43	72
120	Bologna/Hisorak	X	Bardosh/Shams//Shams	3	14 aprel	17.aprel	60	11	18
121	Bologna/Hisorak	X	Bunyodkor	3	14 aprel	17.aprel	60	5	8
152	Vassa/Bunyodkor	X	Starshina/Gozgon//Gozgon	3	14 aprel	17.aprel	60	43	72
153	Lebed/Bunyodkor	X	Shams/Bunyodkor//Bunyodkor	3	7 aprel	10.aprel	60	22	37
160	Viza/Kesh-2016	X	Yaksart/Tanya//Hisorak/3/Bunyodkor	3	9 aprel	12.aprel	60	32	53
172	Yaksart/Shams//Gozgon/3/Kopernikо	X	Jayxun/Gozgon//Jayxun	3	6 aprel	09.aprel	60	24	40
220	Navrŭz/Shukrona	X	Jayxun/Bunyodkor//Zmina/Shams	3	10 aprel	13.aprel	60	28	47

When hybridization was carried out with the participation of many varieties, the varieties selected as donor varieties according to their different characteristics were subjected to complex crossbreeding over the yspikes. Crossing with the above 4 varieties is the result of 3 yspikes of work. Hybridization works were carried out in 124 combinations in this direction and hybrid grains were obtained.

Table 3

The results of complex crossing in the topcross method.

№	Combinations			Number of spikes for hybridization	Date		Number of flowers prepared	The number of grains obtained	
	♀	X	♂		Cutting flowers	Pollination		Piece	%
1	Rapsodiya/Gozgon	X	Bunyodkor	3	12 aprel	15.aprel	60	30	50
2	NS-40/Gozgon	X	Bunyodkor	3	12 aprel	15.aprel	60	11	18
3	Yaksart/Hisorak//Bologna	X	Gozgon	3	12 aprel	15.aprel	60	26	43
4	Yaksart/Shams//Bunyodkor/3/Hisorak	X	Bunyodkor	3	12 aprel	15.aprel	60	28	47
5	Yaksart/Shams//Bunyodkor/3/Hisorak	X	Gozgon	3	12 aprel	15.aprel	60	12	20
6	Koradaryo/Bunyodkor	X	Gozgon	3	13 aprel	16.aprel	60	53	88
7	Vassa/Shukrona	X	Gozgon	3	13 aprel	16.aprel	60	36	60
8	Vassa/Shukrona	X	Bunyodkor	3	13 aprel	16.aprel	60	30	50
9	NS-40/Shukrona	X	Bunyodkor	3	9 aprel	12.aprel	60	20	33
10	NS-40/Shukrona	X	Gozgon	3	9 aprel	12.aprel	60	28	47
11	Lebed/Shukrona	X	Bunyodkor	3	7 aprel	10.aprel	60	14	23
12	Lebed/Shukrona	X	Gozgon	3	7 aprel	10.aprel	60	35	58
13	Rapsodiya/Hisorak	X	Gozgon	3	7 aprel	10.aprel	60	39	65
14	Rapsodiya/Hisorak	X	Bunyodkor	3	10 aprel	13.aprel	60	43	72
15	Navruz/Shukrona	X	Bunyodkor	3	10 aprel	13.aprel	60	40	67
16	Navruz/Shukrona	X	Gozgon	3	10 aprel	13.aprel	60	37	62
17	NS-40/Hisorak	X	Gozgon	3	10 aprel	13.aprel	60	9	15
18	NS-40/Hisorak	X	Bunyodkor	3	10 aprel	13.aprel	60	31	52

Topcross hybridization was carried out in G'1 hybrid seedlings. In hybrids with high productivity and heterosis, hybridization was carried out in 40 combinations to obtain a hybrid grain.

Table 4

Results of complex hybridization in the Back cross method.

№	Combinations			Number of spikes for hybridization	Date		Number of flowers prepared	The number of grains obtained	
	♀	X	♂		Cutting flowers	Pollination		Piece	%
1	Yaksart/Gozgon//Bunyodkor	X	Gozgon	3	11 aprel	14.aprel	60	35	58
2	Yaksart/Gozgon//Bunyodkor	X	Bunyodkor	3	11 aprel	14.aprel	60	34	57
3	Yaksart/Bezostaya-1//Gozgon/3/Bunyodkor	X	Bunyodkor	3	11 aprel	14.aprel	60	38	63
4	Egizio/Bunyodkor	X	Bunyodkor	3	6 aprel	09.aprel	60	28	47
5	Bologna/Gozgon	X	Gozgon	3	6 aprel	09.aprel	60	32	53
6	Navrŭz/Bunyodkor	X	Bunyodkor	3	14 aprel	17.aprel	60	20	33
7	Vassa/Bunyodkor	X	Bunyodkor	3	14 aprel	17.aprel	60	43	72
8	Lebed/Bunyodkor	X	Bunyodkor	3	12 aprel	15.aprel	60	23	38
9	Viza/Bunyodkor	X	Bunyodkor	3	10 aprel	13.aprel	60	26	43
10	Rapsodiya/Gozgon	X	Gozgon	3	12 aprel	15.aprel	60	36	60
11	NS-40/Gozgon	X	Gozgon	3	12 aprel	15.aprel	60	31	52
12	Koradaryo/Bunyodkor	X	Bunyodkor	3	9 aprel	12.aprel	60	16	27

The project also carried out cross-breeding hybrids. G'1 hybrid offspring were intertwined with the nurturing parental form, creating new hybrid offspring.

Flowering of plants for hybridization (removal of pollen cells) began on April 5 and was completed on April 19. Pollination of plants prepared for hybridization began 3 days later, and ended on April 22nd. For hybridization, 3 heads of mother plants were used for each combination. 20-30 grains (knots) were left from each spike. In 224 of the 250 combinations, hybrid grains were obtained. The grains obtained were mostly well-filled and the stalks were observed to develop normally.

During the study, various hybridization methods were used to create new varieties of bread wheat.

The project has created 250 hybrid generations of bread wheat this yspike. Varieties and specimens with high yields resistant to heat, drought, rust and grain quality were used as donors. World collection samples of bread wheat and local varieties were involved in the crossing works.

International Journal for Innovative Engineering and Management Research
A Peer Revieved Open Access International Journal
www.ijiemr.org

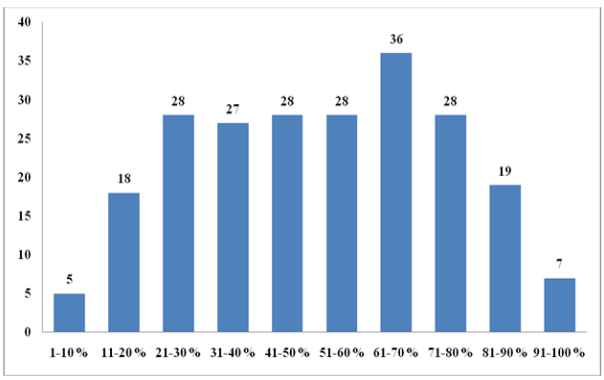

Figure 1. Obtained hybrid grains

It was found that the yield of hybrid grains in mixed combinations ranged from 5 to 60. It was observed that this figure was 8-100 per cent in percentage terms.

According to the results of our experiment, the yield of hybrid grains in 5 combinations was less than 8-10%. The highest yields of hybrid grains were observed in 7 combinations, in which 92-100% of hybrid grains were obtained. In the experiment, 100% hybrid grains were obtained in combinations such as Bunyodkor / Krasnodar-99 // Bunyodkor, INTENSIVNAYA / KKTS // Shams, INTENSIVNAYA / KKTS // Shukrona. The obtained hybrid grains will be planted next to the parent plants next year, and the selection process will continue based on selection indicators.

Conclusion. In 224 combinations of soft wheat, simple crossbreeding, complex crossbreeding with the participation of Back cross, Top cross, 3 and 4 varieties and hybrid grains were obtained, and new generations of soft wheat disease-resistant, productive, high grain quality were created.

Literature:

1. Juraev D. T. et al. To study the heat resistance features of bread wheat varieties and species for the southern regions of the republic of Uzbekistan //European Journal of Molecular & Clinical Medicine. – 2020. – Т. 7. – №. 2. – С. 2254-2270.
2. Дилмуродов Ш. Д. Подбор исходного материала для селекции пшеницы озимой мягкой для условий Узбекистана на основе изучения хозяйственно ценных характеристик //Аграрная наука. – 2018. – №. 2. – С. 58-61.
3. Хазраткулова Ш. У., Дилмуродов Ш. Д. Взаимосвязь погодно-климатических условий с продуктивностью и качеством зерна сортов озимой пшеницы //Фундаментальные основы инновационного развития науки и образования. – 2019. – С. 59-61.
4. Мейлиев Т. Х., Дилмуродов Ш. Д. Рост и развитие, урожайность и устойчивость к желтой ржавчине сортов в питомнике отбора продуктивных сортов //Приоритетные naprelавления развития науки и образования. – 2019. – С. 130-133.
5. Juraev D. T. et al. Influence of hot dry winds on productivity elements of wheat crop observed in southern regions of the republic of uzbekistan //International jurnal of applied and pure science and agriculture. ISSN. – 2017. – С. 2394-5532.
6. Sh K. N. et al. Selection of spikely bread wheat lines based on studying the time of development //INTERNATIONAL SCIENTIFIC AND TECHNICAL JOURNAL “INNOVATION TECHNICAL AND TECHNOLOGY”. – 2020. – Т. 1. – №. 2. – С. 69-71.
7. Дилмуродов Ш. Д., Бойсунов Н. Б. Юмшоқ буғдой дурагай тизмаларида ҳосилдорликнинг биометрик кўрсаткичларга боғлиқлиги //Инновацион технологиялар. – 2020. – №. 2 (38).
8. Fayzullayev A. Z. et al. SELECTION OF HIGH-YIELDING AND HIGH-QUALITY LINES OF BREAD WHEAT //INTERNATIONAL SCIENTIFIC AND TECHNICAL JOURNAL “INNOVATION TECHNICAL AND TECHNOLOGY”. – 2020. – Т. 1. – №. 3. – С. 10-14.
9. Odirovich J. F., Anvarovich A. O., Dilmurodovich D. S. VALUABLE PROPERTIES AFFECTING THE HIGH-YIELD ELEMENTS OF DURUM WHEAT //INTERNATIONAL JOURNAL OF DISCOURSE ON

INNOVATION, INTEGRATION AND EDUCATION. – 2020. – Т. 1. – №. 2. – С. 37-41.
10. Дилмуродов Ш. Д. Юмшоқ буғдойнинг маҳаллий маҳсулдор тизмалари селекцияси //Life Sciences and Agriculture. – 2020. – №. 1.
11. Juraev D. T. et al. Heritability of Valuable Economic Traits in the Hybrid Generations of Bread Wheat //Annals of the Romanian Society for Cell Biology. – 2021. – С. 2008-2019.
12. Дилмуродов Ш. Д., Жабаров Ф. О. Селекция высокоурожайных линий озимой твёрдой пшеницы с высоким качеством зерна //Молодой ученый. – 2019. – №. 31. – С. 34-38.
13. Дилмуродов Ш. Д., Бойсунов Н. Б. Отбор продуктивных линий мягких пшениц из гибридного питомника в условиях южного региона Республики Узбекистан //World Science: Problems and Innovations. – 2018. – С. 58-60.
14. Khushvaktovich M. A., Dilmurodovich D. S. THE CHOICE OF SPIKELY MATURING LINES OF SPRING BREAD WHEAT FOR IRRIGATED AREAS //НАУКА, ОБРАЗОВАНИЕ, ОБЩЕСТВО: АКТУАЛЬНЫЕ ВОПРОСЫ. – 2021. – С. 30.
15. Дилмуродов Ш. Д., Бойсунов Н. Б. Селекция местных гибридных линий мягкой пшеницы на юге Республики Узбекистан //Сборник материалов. – 2018. – С. 113-119.
16. Dilmurodov S. Some valuable properties in evaluating the productivity of bread wheat lines //INTERNATIONAL SCIENTIFIC AND TECHNICAL JOURNAL “INNOVATION TECHNICAL AND TECHNOLOGY”. – 2020. – Т. 1. – №. 1. – С. 60-62.
17. Дилмуродов Ш. Д., Зиядуллаев З. Ф. Юмшоқ буғдойда ўтказилган оддий ва мураккаб дурагайлаш ишлари натижалари //Life Sciences and Agriculture. – 2020. – №. 2.
18. Дилмуродов Ш. Д., Бойсунов Н. Б. Рақобатли нав синаш кўчатзорида юмшоқ буғдойнинг биометрик кўрсаткичларини ўрганиш //Life Sciences and Agriculture. – 2020. – №. 1.
19. Дилмуродов Ш. Д. и др. Гибридизация в различном haprelавлении и создание гибридного поколения мягкой пшеницы //Инновационное развитие науки и образования. – 2018. – С. 74-77.
20. Дилмуродов Ш. Д., Зиядуллаев З. Ф. Selection of spikely and productive lines in preliminary yield trial of bread wheat //INTERNATIONAL SCIENTIFIC AND TECHNICAL JOURNAL “INNOVATION TECHNICAL AND TECHNOLOGY”. – 2020. – Т. 1. – №. 1. – С. 55-59.
21. Дилмуродов Ш. Д. ЦЕННЫЕ СВОЙСТВА, ВЛИЯЮЩИЕ НА ВЫСОКОУРОЖАЙНЫЕ ЭЛЕМЕНТЫ МЯГКОЙ ПШЕНИЦЫ //ББК. – 2020. – Т. 60. – С. 38.
22. Dilmurodovich D. S., Bekmurodovich B. N., Shakirjonovich K. N. WINTER BREAD WHEAT GRAIN QUALITY DEPENDS ON DIFFERENT SOIL-CLIMATE CONDITIONS //INTERNATIONAL JOURNAL OF DISCOURSE ON INNOVATION, INTEGRATION AND EDUCATION. – 2020. – Т. 1. – №. 5. – С. 377-380.
23. Жураев Д. Т., Дилмуродов Ш. Д. Юмшоқ бутдойнинг бошоклаш-пишиш даврида иссикликнинг таъсири //Life Sciences and Agriculture. – 2020. – №. 2-2.
24. Жураев Д. Т. и др. Влияние суховеев, наблюдаемых в южных регионах республики узбекистан, на продуктивные элементы мягкой пшеницы //Путь науки. – 2017. – №. 2. – С. 84-92.
25. Dilmurodovich D. S., Shakirjanovich K. N. ANALYSIS OF YIELD AND GRAIN QUALITY TRIATS IN THEADVANCED YIELD TRIAL OF WINTER BREAD WHEAT //Euro-Asia Conferences. – 2021. – Т. 1. – №. 1. – С. 550-555.
26. Dilmurodovich D. S. et al. Analysis of yield and yield components traits in the

advanced yield trial of winter bread wheat //INTERNATIONAL JOURNAL OF DISCOURSE ON INNOVATION, INTEGRATION AND EDUCATION. – 2021. – Т. 2. – №. 1. – С. 64-68.
27. Дилмуродов Ш. Д., Каюмов Н. Ш. ОЦЕНКА ПРОДУКТИВНЫХ ПОКАЗАТЕЛЕЙ ЛИНИЙ МЯГКОЙ ПШЕНИЦЫ //Вестник науки и образования. – 2020. – №. 17-1 (95).
28. Dilmurodov S. D., Toshmetova F. N., Fayzullayeva D. SELECTION OF HIGH-QUALITY DONOR VARIETIES OF BREAD WHEAT FOR HYBRIDIZATION //МОЛОДЫЕ УЧЁНЫЕ РОССИИ. – 2020. – С. 55-58.
29. Дилмуродов Ш. Д., Каюмов Н. Ш., Бойсунов Н. Б. ЗНАЧЕНИЕ БИОМЕТРИЧЕСКИХ И ПРОДУКТИВНЫХ ПОКАЗАТЕЛЕЙ ПРИ СОЗДАНИИ ПШЕНИЦЫ С КОМПЛЕКСОМ ЦЕННЫХ СВОЙСТВ //Life Sciences and Agriculture. – 2020. – №. 2-3.
30. DILMURODOVICH D. S. et al. Productivity, quality and technological characteristics of bread wheat (Triticum aestivum L.) variety and lines for the southern regions of the Republic of Uzbekistan //Plant cell biotechnology and molecular biology. – 2021. – С. 63-74.
31. Dilmurodov S. D., Tukhtayeva U. A. SELECTION OF HIGH-YIELDING AND GRAIN-QUALITY DONORS OF WINTER BREAD WHEAT FOR IRRIGATED AREAS //НАУКА И ОБРАЗОВАНИЕ: СОХРАНЯЯ ПРОШЛОЕ, СОЗДАЁМ БУДУЩЕЕ. – 2020. – С. 92-95.
32. Kayumov N. S., Dilmurodov S. D. SELECTION OF HEAT AND DROUGHT TOLERANT VARIETIES AND LINES OF CHICKPEA FOR RAINFED AREAS //ВЫСОКИЕ ТЕХНОЛОГИИ, НАУКА И ОБРАЗОВАНИЕ: АКТУАЛЬНЫЕ ВОПРОСЫ, ДОСТИЖЕНИЯ И ИННОВАЦИИ. – 2020. – С. 129-131.
33. Хазраткулова Ш. У., Дилмуродов Ш. Д. Оценка жароустойчивости сортов и линий мягкой пшеницы //Наука и образование сегодня. – 2019. – №. 9 (44).
34. Dilmurodovich D. S. et al. STUDY OF MORPHO-BIOLOGICAL PROPERTIES AND RESISTANCE TO YELLOW RUST DISEASE OF NEW LINES OF WINTER BREAD WHEAT //InterConf. – 2021.
35. Shakirjanovich K. N., Dilmurodovich D. S. Analysis of yield and protein content of drought-resistant chickpea lines for rainfed areas //INTERNATIONAL JOURNAL OF DISCOURSE ON INNOVATION, INTEGRATION AND EDUCATION. – 2021. – Т. 2. – №. 1. – С. 108-111.
36. Dilmurodovich D. S., Nasirulloevna T. F. SELECTION OF SPIKELY MATURITY LINES IN AGROECOLOGICAL YIELD TRIAL OF BREAD WHEAT //НАУКА, ОБРАЗОВАНИЕ, ИННОВАЦИИ: АКТУАЛЬНЫЕ ВОПРОСЫ И. – С. 41.
37. Дилмуродов Ш. Д. и др. Сувсизликка чидамли кузги юмшоқ буғдой нав ва тизмаларининг баъзи қимматли хусусиятларини баҳолаш //Молодой ученый. – 2020. – №. 34. – С. 158-161.
38. Дилмуродов Ш. Д., Орипов Д. М. Суғориладиган майдонлар учун юмшоқ буғдойнинг F5 авлод дурагайлари селекцияси //Молодой ученый. – 2020. – №. 33. – С. 163-165.
39. Xolbazarovich K. K., Sarvarogli M. J., Nikolaevna P. M. Drought and heat tolerance of durum wheat varieties for rainfed conditions of Uzbekistan //ACADEMICIA: An International Multidisciplinary Resspikech Journal. – 2020. – Т. 10. – №. 5. – С. 599-603.