

4. Pereira HS, Melo LC, Faria LC, Di'az JLC, Wendland A (2010) Environmental stratification in Parana' and Santa Catarina to evaluate common bean genotypes. *Crop Breed Appl Biotechnol* 10:132–139.
5. Torga PP, Melo PGS, Pereira HS, Faria LC, Del Peloso MJ, Melo LC (2013) Interaction of common beans cultivars of the black group with years, locations and sowing seasons. *Euphytica*. <https://doi.org/10.1007/s10681-012-0793-y>.
6. Barili LD, Vale NM, Prado AL, Carneiro JES, Nascimento M (2015) Genotype-environment interaction in common bean cultivars with carioca grain, recommended for cultivation in Brazil in the last 40 years. *Crop Breed Appl Biotechnol*. <https://doi.org/10.1590/1984-70332015v15n4a41>.
7. Якубенко О.Е. Адаптивный потенциал перспективных образцов фасоли овощной в условиях лесостепи Приобья / О.Е. Якубенко, К.И. Попова, О.В. Паркина, К.О. Плотников // Актуальные проблемы агропромышленного комплекса: сб. трудов научно-практической конференции преподавателей, аспирантов, магистрантов и студентов Новосибирского государственного аграрного университета, Выпуск 5 / Новосиб. гос. аграр. ун-т. – Новосибирск: ИЦ НГАУ «Золотой колос», 2020. – С. 179-182.
8. Якубенко О.Е. Разработка элементов сортовой технологии и оценка коллекции фасоли овощной в условиях лесостепи Приобья: автореф. канд. ... наук. – Новосибирск, 2021 – 18 с.
9. Методические указания. Коллекция мировых генетических ресурсов зерновых бобовых ВИР: пополнение, сохранение и изучение (под ред. Вишняковой М.А.). – СПб.: ООП «Копи-Р. Групп», 2010 – 142 с.
10. Методические указания по изучению образцов мировой коллекции фасоли – Л., 1987. – 60 с.
11. Паркина О. В. Хозяйственно-биологическая оценка сортов фасоли и разработка приемов выращивания в условиях Западной Сибири: дис. канд. ... наук. – Новосибирск, 2003. – 174 с.
12. Eberhart S.A., Russell W.A. Stability parameters for comparing varieties // *Crop Sci.* - 1966. - V. 6, - № 1, - p. 3640.
13. Корзун О.С. Адаптивные особенности селекции и семеноводства сельскохозяйственных растений: пособие / О.С. Корзун, А.С. Бруйло. – Гродно: ГГАУ, 2011. – 140 с.
14. Добруцкая, Е. Г. Экологические основы селекции и адаптивного семеноводства овощных культур: автореф. д-ра ... наук. – М., 1997. – 46 с.
15. Кильчевский А.В. Оценка взаимодействия генотипа и среды в адаптивной селекции растений // Генетические основы селекции растений / А. В. Кильчевский Л. В. Хотылева. – Минск: Белорус. Наука, 2008. – С. 50-80.
16. Доспехов Б.А. Методика полевого опыта (с основами статистической обработки результатов исследований). – М., 2014. – 351 с.
17. Якубенко О.Е./ Современные принципы моделирования сортов фасоли обыкновенной для Сибирского региона / О.Е. Якубенко, О.В. Паркина, Д.А. Колупаев, З.В. Андреева. *Вестник НГАУ*. 2019;(4):15-22. <https://doi.org/10.31677/2072-6724-2019-53-4-15-22>

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**Determining the manifestation of the performances of the trait for the weight of 1000 seeds in three-generation populations of *G. hirsutum* L.varieties and lines**

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**Abstract:** The article presents the results of the research conducted in order to determine the manifestation of the performances of the trait for the weight of 1000 seeds in three-generation populations of *G. hirsutum* L. varieties and lines cultivated in the years 2020-2022 in the soil and climate conditions of Tashkent region of the Republic of Uzbekistan. At the end of the article, it was concluded that the analyzed C-6524, Bukhara-102, Sultan, Mehnat, Yulduz and C-8290 varieties differ positively compared to standard variety Namangan-77 and other genotypes.

**Key words:** cotton, the weight of 1000 seeds, performances.

The performances of the trait of 1000 seeds weight is recognized as one of the main factors determining the yield characteristics of cotton hybrids. Agricultural staff, landowners, farmers and farm officials working in the republic's agricultural production systems try to sow seeds of varieties whose trait on the weight of 1000 seeds is heavier than other hybrids on their plots of land intended for cotton planting. However, there is another side of the issue, that some cotton varieties have higher performances on the weight of 1000 seeds, but the number of bolls may be less compared to other populations. Contrarily, in the seedlings of some varieties with light seed weight, it is possible to manifest the same or in most cases higher productivity due to the large number of bolls, when compared to other genotypes with a higher indicator of 1000 seeds weight.

Breeders strive to maintain the stability of the weight of thousand seeds among all the important morphoeconomic traits and indicators in the cotton varieties created by them. In these processes, the authors and the seed production staff plant annually the high-yielding seeds of cotton cultivars involved in the agricultural production in the specific areas and monitor them in the field and laboratory conditions by selecting and isolating. Breeders also record the results of their researches in scientific sources and literatures conducted to study the processes of heredity, variability, formation and stability of the performances of the trait in hybrid generations [1-10.].

**The object of the research:** The data on the performances of the trait on the weight of 1000 seeds manifested in three-generation populations cultivated in 2020-2022 of number of varieties and lines of upland cotton are the object of this study.

**The methods of the research:** The research was carried out using methods of population analysis and comparison of genetics. Mathematical statistical processing of data was carried out according to the method of B.A.Dospekhov (M. 1985).

**The results of the research:** The information is presented in the following table on the manifestation of the general average indicators of the trait on the weight of 1000 seeds in the plants of the varieties and lines belonging to *G. hirsutum* L., which were planted and cared for in the conditions of the Tashkent region in 2020-2022:

Table 1. Manifestation of some economic traits performances in the varieties and lines of upland cotton

№	Research objects	Weight of 1000 seeds (gr)								
		2020			2021			2022		
		$\bar{X} \pm m$	$\sigma$	v	$\bar{X} \pm m$	$\sigma$	v	$\bar{X} \pm m$	$\sigma$	v
1	2	3	4	5	6	7	8	9	10	11
2	Namangan-77 (standard)	116,4±0,51	3,38	2,90	117,4±0,32	2,14	1,82	116,8±0,47	3,15	2,69
3	C-6524	129,9±0,44	2,95	2,27	130,8±0,38	2,53	1,94	131,3±0,29	1,93	1,47
4	Sulton	124,1±0,57	3,78	3,04	126,3±0,48	3,21	2,54	126,9±0,50	3,29	2,59
5	C-8290	125,3±0,58	3,84	3,06	124,1±0,41	2,75	2,22	124,4±0,38	2,49	2,01
6	Bukhara-102	130,2±0,47	3,13	2,40	130,9±0,44	2,94	2,25	130,1±0,30	1,97	1,51
7	Khorezm-127	120,5±0,40	2,68	2,22	119,4±0,35	2,30	1,92	118,9±0,41	2,71	2,28
8	Kelajak	121,9±0,40	2,66	2,18	122,3±0,35	2,30	1,88	121,7±0,36	2,41	1,98
9	UzFA-707	120,9±0,42	2,77	2,29	121,4±0,37	2,44	2,01	122,1±0,39	2,57	2,11

10	UzFA-710	112,5±0,30	2,00	1,78	110,9±0,31	2,03	1,83	110,2±0,46	3,03	2,75
11	Mehnat	125,4±0,37	2,45	1,96	126,2±0,53	3,48	2,76	125,7±0,40	2,67	2,12
12	Yulduz	124,4±0,33	2,21	1,77	124,9±0,45	2,98	2,39	125,6±0,45	3,00	2,39
13	An-Boyovut-2	124,1±0,45	2,97	2,39	124,5±0,42	2,76	2,22	123,9±0,45	3,01	2,43
14	T-19	120,9±0,35	2,34	1,94	121,4±0,37	2,46	2,03	121,8±0,51	3,36	2,76
15	T-41	121,9±0,32	2,13	1,75	121,1±0,40	2,68	2,22	121,5±0,37	2,46	2,02
16	T-1278	119,8±0,38	2,52	2,10	118,9±0,51	3,37	2,84	118,7±0,45	2,99	2,52
17	T-1326	120,5±0,34	2,26	1,87	120,1±0,40	2,65	2,21	120,8±0,37	2,46	2,04
18	T-1336	122,1±0,40	2,66	2,18	122,3±0,38	2,50	2,04	121,5±0,41	2,69	2,22
19	T-1391	118,3±0,51	3,41	2,89	117,8±0,38	2,51	2,13	117,1±0,38	2,49	2,12
20	T-1470	115,7±0,38	2,52	2,17	116,3±0,37	2,46	2,11	117,6±0,33	2,21	1,88
21	T-1477	121,5±0,32	2,11	1,73	121,1±0,45	3,00	2,48	121,7±0,42	2,79	2,29
22	T-1777	120,3±0,35	2,32	1,93	120,8±0,51	3,38	2,80	121,1±0,33	2,20	1,81
23	T-8588	118,5±0,42	2,77	2,34	118,7±0,43	2,88	2,42	118,9±0,33	2,16	1,82

According to the table, it was found that the varieties Bukhara-102, C-6524, Mehnat, C-8290 and Sultan showed the highest indicators in terms of the performances of the trait for the thousand seeds weight of the studied varieties and lines in 2020 compared to other samples, while the UzFA-710 variety showed the lowest indicators. The variability rate of the population according to the studied trait was higher in C-8290 and Sultan varieties compared to other forms, and the lowest data were obtained in varieties and lines such as T-1477, T-41, Yulduz, UzFA-710, T-1326, T-1777 and Mehnat.

The research was continued in 2021, and the obtained results showed that Bukhara-102, C-6524, Sultan, Mehnat, Yulduz, AN-Boyovut-2 and C-8290 varieties manifested higher performances than other forms, while T-1391 line showed almost the same result with standard Namangan-77 variety, the UzFA-710 variety and the T-1470 line showed low data compared to the standard and other samples. The range of variability of the population according to the trait was higher in the T-1278 and T-1777 lines compared to other samples, and the lowest values were found in the Namangan-77, UzFA-710, Kelajak, Khorezm-127 and C-6524 varieties.

In order to determine the general average indicators in terms of the trait for the weight of 1000 seeds in cotton genotypes, the research was continued, and from the data obtained based on the statistical analysis of the results of 2022, it is known that in this research year the C-6524, Bukhara-102, Sultan, Mehnat, Yulduz and C-8290 varieties manifested higher indicators compared to other forms, while UzFA-710 variety showed low indicators compared to standard Namangan-77 and all other samples. The range of variability of the population according to the trait was higher in the T-19, UzFA-710, Namangan-77, Sultan and T-1278 lines compared to other forms in the analysis, and it was low in the samples such as C-6524, Bukhara-102, T-1777 and T-1477.

In accordance with the analytical results of the data presented above, we can conclude that C-6524, Bukhara-102, Sultan, Mehnat, Yulduz and C-8290 varieties and lines among the varieties and lines analyzed in the article manifested the performances of the trait for the weight of 1000 seeds in all three years of the study. On the basis of this information, it may be beneficial to use these cotton varieties as initial sources for future genetic-selection studies in order to isolate high-performance plant families according to the analyzed trait.

#### References used:

1. Battalov A.M., Nematov Kh.Sh. "In the conditions of the Bukhara region, a new cotton variety "Bukhara-9" was created with the seeds not containing the poisonous substance gossypol." UzCRI, collection of materials of the republican scientific and practical conference on "Improving

- agrotechnologies for the cultivation of cotton plant and cotton-complex crops" (December 4-5, 2013), pp. 339-345.
2. B. Mamarakhimov "Interrelationship of some economic traits in cotton selection and seed production". AGRO ILM journal, issue 3 [23], 2012. pp. 8-9
  3. O.R. Ergashev "The effect of culture broth of fusarium fungi on germinability of the seeds of some varieties of *G.hirsutum* L. cotton plant species". International journal of Agriculture Environment and bioresearch. Volume 5. issue 3. May – June 2020.
  4. O.R. Ergashev, E.O. Alikulov, A.A. Mutalov, Sh.T. Mamadiyorov "Germinability performances of initial materials in isolating new lines from cotton varieties". A collection of materials of the Republican scientific-practical conference on the topic of modern problems of genetics, genomics and biotechnology. 2020, p.179.
  5. R.R. Akhmedov, Kh.R. Rakhimov, E.U. Khasanov "Quality of seeds grown in small areas of Bukhara region". // Collection of issues of cotton genetics, breeding, and selection. Tashkent - 1993, pp. 97-101.
  6. "Agrobiological characteristics, yield and cultivation technology of Bukhara-102 cotton variety". // A collection of materials of the international scientific conference dedicated to the 95th anniversary of Academician S.S. Sodikov on the topic "Evolutionary and selective aspects of precocity and adaptability in cotton and other agricultural plants". "FAN". Tashkent - 2005. pp. 153-155.
  7. T.E. Yaminov, S.M. Nabiev, E.Yo. Karimov, O.J. Jalilov "New promising cotton varieties and their effectiveness". Scientific and technical journal of cotton cultivation and grain growing, 2001, issue 2, pp. 5-6.
  8. Ya. Babaev, G. Orazbaeva, M. Mirakhmedov, R. Bardieva "Indicators of valuable economic traits in upland cotton lines". Agro Ilm - the agricultural journal of Uzbekistan, 2019, issue 3, pp. 12-13.
  9. Kakhkhrov I.T., Ergashev O.R., Khakimov A.E. "New breed - new features". AGRO ILM journal, issue 4 [48], 2017. pp. 8-9.
  10. Kakhkhrov I.T., Ergashev O.R., Dadajonov J.R., Khakimov A.E., Kadirova M.R. "New variety of cotton UzFA-707 and its characteristics". AGRO ILM journal, issue 3 [47], 2017. pp. 10-11.

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**Abstract:** The article presents the results of the research carried out to study the manifestation of performances of traits for cotton weight per boll, fiber yield and fiber length in the populations which were grown in 2020 in the conditions of Tashkent region and belonging to upland cotton varieties and lines created by breeders of a number of scientific research institutes operating in the Republic of Uzbekistan. At the end of the article, it was stated that forms such as Bukhara-102, T-