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REVIEW OF THE LITERATURE WITHIN THE FRAMEWORK OF THE DEVELOPMENT OF THE EFFECTIVENESS OF THE WINTER WHEAT IRRIGATION PROCEDURE

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Abstract:

As it is known, in the current era, when climate change has become a global problem due to anthropogenic factors, the period of efficient use of water resources is especially required. The reason is that in recent years, there have been frequent water shortages in the countries of Central Asia, especially in Uzbekistan. For example, until the 2000s, there was a water shortage every 6-8 years, but recently, this situation has been observed every 3-4 years. As a result of this, in 2018, the total water shortage in Uzbekistan will be 3 billion. was m^3. By 2030, this indicator will be 7 billion. m^3, and 13-15 billion by 2050. It is possible to reach m3. In addition, as a result of the increase in air temperature, it is estimated that the irrigation standards for agricultural crops will increase by 5 percent by 2030, and by 7-10 percent in 2050.

Keywords: soil, water, wheat, Krupinka, soil-climatic.

INTRODUCTION: In the speech of the President of the Republic of Uzbekistan Sh.M. Mirziyoyev to the joint session of the chambers of the Oliy Majlis dedicated to the inauguration ceremony of the President of the Republic of Uzbekistan, "The issues of agricultural reform and ensuring food security, without a doubt, remains one of the most important tasks for us. First of all, great attention will be paid to the consistent development of multi-branch farms, which are the locomotive of the agro-industrial complex, i.e., the driving force.

As it is known, in the current era, when climate change has become a global problem due to anthropogenic factors, the period of efficient use of water resources is especially required. The reason is that in recent years, there have been frequent water shortages in the countries of Central Asia, especially in Uzbekistan. For example, until the 2000s, there was a water shortage every 6-8 years, but recently, this situation has been observed every 3-4 years. As a result of this, in 2018, the total water shortage in Uzbekistan will be 3 billion. was m^3. By 2030, this indicator will be 7 billion. m^3, and 13-15 billion by 2050. It is possible to reach m3. In addition, as a result of the increase in air temperature, it is estimated that the irrigation standards for agricultural crops will increase by 5 percent by 2030, and by 7-10 percent in 2050. All this puts before us the important tasks of radically changing the attitude towards water resources, using efficient technologies in its use, implementing intensive irrigation methods, and most importantly, preventing land degradation and desertification. Regarding the improvement of agrotechnologies of winter wheat varieties in our Republic, R.I. Siddikov, A. Amanov, N. Khalilov, P. Kh. Bobomirzaev, Kh. Shomurodov, G. Ortikova, K. Joraev, I. Khoshimov, A. Dehkanov, A. Mambetnazarov, I. Abdullaev, S. Abdurakhmanov and others, and abroad Sh. Asgar, M. S. Baloch, R. Costa, M. Fazal, A. Hossain and other scientists have carried out comprehensive scientific researches.

Before studying the biology and cultivation technology of plants, it is necessary to get acquainted with some terms used in plant science, these are:

Growth is a quantitative change (height, number of leaves, weight) of plant organs.

Development is qualitative changes in a plant, the formation of generative organs, the transition of the ontogenesis process from one period to the next. The growth and development of plants is not the same. Short-day plants grow well if they are planted in the north, but the growth period is longer and the duration between periods is longer due to the lack of heat necessary for development. If long-day plants are planted in the south, the duration of the inter-period passes quickly and becomes shorter, because they get the necessary heat in a short period of time, so these plants cannot grow well and remain low in height.

Ontogeny is the period from seed germination in annual plants to the formation of new seeds, in

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perennial plants it lasts from seed germination to drying.

The growing season is the time from planting to the ripening period for annual crops. In perennial crops, the period from the formation of buds in the spring to the end of autumn growth is considered to be the growing season.

The growth period is observed in annual crops from weeding to the period of pruning, in perennial crops - from the beginning of growth in the spring to the period of pruning.

The generative period lasts from the period of harvesting of crops to the period of fiber ripening. When the generative period of plants lasts longer than the growing period, the seed yield is high. The blue mass yield is high in species and varieties with a long growing season.

Wheat (Triticum L.) belongs to the Poaceae Barhart family and is the most cultivated and widespread cereal crop worldwide, while winter wheat is one of the world's major cereal crops [4; p. 136, 5; p. 109-119, 6; p.951-961, 7. p.2415-2425, 8; b. 2341-2349]. There is a lot of evidence that wheat was adopted as a cultivated plant by Asian peoples before Christ. There are 27 cultivated and wild species of wheat [9; p.136], of which soft and hard wheats are grown in Uzbekistan. There is a strong demand for more soft wheat in the production of flour and flour products, which occupies a large part of the area under wheat cultivation. It is known from the literature that soft wheat can be divided into 20 ecological groups. When classifying into an ecological group, such characteristics as the origin of wheat, compatibility with soil and climate conditions or the ability to adapt to those conditions, degree of damage by diseases and pests, and productivity are taken into account. For example, varieties grown in arid regions, mountainous regions, semi-desert regions, lowland regions and cultivated only in that region are selected separately and included in the relevant groups [10; c.196].

It is known that in the conditions of Uzbekistan, only wheat belonging to two ecological groups is planted in production, and these are:

Varieties belonging to the group planted in dry areas;

Varieties belonging to the group that are planted in irrigated areas are included. In our country, soft wheat varieties are grown mainly in irrigated areas, and in the soil and climate conditions of our republic, wheat is adapted to get a higher yield when it is planted in the fall than when it is planted in the spring. Therefore, it is necessary to correctly determine the planting dates of each foreign and local variety of winter wheat, to determine the requirements for mineral fertilizers and water in accordance with soil and climatic conditions, in the future in our republic and also , serves as a decisive factor in the development of the grain industry in the Bukhara region and further strengthening of grain independence.

1.2. Winter wheat planting dates

Summarizing the information presented in the scientific literature, it shows that determining the sowing dates of wheat planted in autumn is one of the important factors of obtaining high and quality grain from irrigated lands. Planting periods have a significant effect on the degree of seed germination, characteristics of the formation of the wheat root system, the speed of development periods, accumulation, the level of plant resistance to cold, plant photosynthesis, resistance to diseases and pests, grain yield and its quality. affects [11; p.83-99].

Planting winter wheat V.F. Sayko [12; c.335], V.N. Garmashov, N.L. Sechenyak [13; c.50] and others, it is known that in different soil and climate conditions, it is advisable to carry out autumn vegetation 45-60 days before the end. During this period, the sum of the effective temperatures reaches 450-620 C^0, and in one bush of winter wheat A.Ye.Pshenichniy [14; c.9] up to 2-3 in studies, V.F. Saiko [15; c.335], in experiments 3-4, F.M. Prutskov,

I.P. Osipov [14; c.269] stated that up to 4-5 stems are formed. It has been proven that winter resistance and productivity of plants are high. K.N. Godunova [16; c.43] for the optimal development of wheat in the autumn period, under favorable conditions, a maximum effective temperature sum of 580 C^0 is needed, but such an effective temperature sum depends on the predecessors, moisture in the soil, and the biological characteristics of the variety. they emphasize.

V.F. Saiko [18; c.335] in his experiments determined that for the normal growth of winter wheat in the autumn period, the plant planted on a black plow requires an effective temperature of 450-500 ^0C, and 510-550 C^0 when planted on a busy plow.

F.M. Prutskov [19; c. 352, 20; c.207], the optimal planting time for winter wheat

The average daily air temperature in the North Caucasus should be 14-15 C^0, in the central black soil region about 15 C^0, around the Volga River, 16-17 C^0, in the southern and southeastern regions of Kazakhstan should be 18 C^0. Also, for the normal development of winter wheat planted on a busy plow, the sum of the effective temperatures in the autumn period should be 590-600 C^0. So, this indicator is somewhat lower in the black plow. Therefore, the most favorable planting

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period for winter wheat is observed in most soil regions when the average daily air temperature is 14-16 C^0.

In the Krasnodar Territory of the North Caucasus, the optimal planting period for the Bezostaya-1 variety after clean plowing is September 10-20 [21; c.269]. The forest-steppe region shows that the optimal planting period for winter wheat on podzol and dark brown soils of the Moscow and Orlov regions is August 25-30, and August 15-20 in the Bryansk and Kastroma regions [22; c.269].

Especially in the southern regions of Uzbekistan, Kashkadarya and Surkhandarya, due to the warm winter, wheat planting in dryland continues in December and even in January. In such cases, the difference between the planting dates of winter wheat and spring wheat becomes very conditional [23; c.335].

According to the results of the experiments conducted in Uzbekistan, the period of sowing of winter wheat in irrigated lands depends on the soil-climatic conditions and the biological characteristics of the variety. The optimal planting time for winter wheat is determined by complex factors and also by the genotypic characteristics of the variety. It should ensure the formation of a well-developed root system, a strong joint and above-ground weight [24; c.73-78].

G.K. Kurbonov and others [25; c.35-36], experiments conducted at the Samarkand variety testing site proved that it is possible to get more and better quality crops from grain planted in the fall than from the one planted in the spring. When planted in autumn, the weight of 1000 seeds increased by 9 grams in wheat and 14 grams in barley compared to spring.

G.K. Kurbonov and others [25; c.35-36], it is impossible to increase grain production without a radical improvement of seed production. In each region, they should grow their own varieties adapted to the soil and climate conditions and have reserve grains, for this purpose, the establishment of specialized seed departments in farms to obtain high-quality seeds of the 1st and 2nd classes. need

V. M. Ivanov [26; c.41-42], M.B. Yesbolova [27; c. 79-80, 28; c.56] and G. N. Potapova, M. S. Ivanovas [29; c.69-75], the yield of winter wheat and the high grain quality are closely related to the optimal planting period. The main reason for the low yield when winter wheat is planted in the late period is that the climate is not optimal and the vegetation period is incomplete under the influence of several other negative factors.

who stated that as a result.

Specialist scientists of the Agricultural Scientific Production Center of Uzbekistan and the Scientific Research Institute of Grains and Legumes on Irrigated Lands R.I. Siddikov, A. Amanov, B. Holikov, R.SH. Tillaev, N.M. Makhmudkhujaev, I.U. In the recommendations given by Egamov, T. Jalolov, B. Sulaymanov, it is emphasized that the period of planting winter wheat should be early, middle and late, taking into account its biological characteristics and soil-climatic conditions [30; pp. 20-21, 81].

R.I. Siddikov [31; p.93-102] In the Khorezm region, it is not recommended to start the early planting period from September 5 and to plant winter wheat in the late period due to the cold weather in the evening.

P. Kh. Bobomirzaev [32; p.7-10] In the scientific research carried out in the southern region of Uzbekistan, agrotechnological factors affecting the growth, development, grain yield and quality of durum wheat varieties on irrigated lands were studied, and according to the results ra, it was determined that the optimal planting date for durum wheat varieties is October 21, early planting date is October 1, and late planting date is November 11.

P. Kh. Bobomirzaev [33; p.45] reports that the growing period of the crop shortens and its development accelerates with the delay of planting dates of the "Krupinka" variety and the increase of its standards, and when it is planted late, the growing period is shortened and the productivity is reduced. The optimal planting date for "Krupinka" variety was determined to be October 11, and a high grain yield was achieved during this period, and it was noted that the early date is September 21, and the late date is November 1.

G'. Uzakov [34; p.35] stated that the planting period has a significant effect on the yield elements of winter wheat varieties. According to the results of the experiment, 6 mln. The number of productive stems per sq.m. in the options planted with germinating seeds is 600 in the early term, 588 in the middle term, 492 in the late term, 118 less productive stems compared to the early term, 96 less productive stems compared to the middle term formation was observed.

In the following years, I. Najmiddinov in Namanganda on determining the sowing dates of winter wheat varieties [35; pp. 14-15, 36; p.227-229], B. Azizov in Andijan [37; p.5-26], G. Satipov and F. Boltaev in Khorazm [38; p.186-188], G'. Satipov, S. Babajanova [39; p.190-192] and in Surkhondarya B. Dzhorakulov, I. Shomurodov [40; p.225-228], Zarafshonda N. Turdieva [41; p.13-24] and other scientists continued their scientific research work. In the experiments of E.M.S.Gheith, Ola Z.El-Badry and S.A.Wahid in the state of Egypt, the yield elements of winter wheat planted in 3 different periods: November 25, December 10 and December 25 It has been studied. When planted on November 25, the weight of 1000 grains was 52.31-

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43.41 g. When planted in the late period, the weight of 1000 grains decreased, that is, 44.08-36.59 g. The yield was high when planted on November 25, 2167.20 - 1429.13 kg/ha. , and on December 25, it was 923.30-611.13 kg/ha, and it was found that the productivity decreased in the late period [42; p.176-181]. M.M.Kamrozzaman, M.A.H.Khan, S.Ahmed, N.Sultana (2012-2014) conducted a scientific study to study the growth and development of winter wheat planted on November 5, November 15, November 25, December 5 and December 15 in Bangladesh. who conducted research. As a result of observations, high indicators of crop elements were observed when sowing on November 25, the weight of 1000 grains was 52.10 g and the yield was 4.30 t/ha. The lowest values were found when sowing on November 5 and in the late period on December 15 [43; p.147-154].

M.Z.Muhammad, A.Muhammad, M.N.Hafiz, A.Muhammad, A.Basharat (2011-2013) conducted observations in the Republic of Pakistan in order to determine the optimal period for obtaining a high yield of winter wheat varieties. November and December 1; The highest yield indicators of winter wheat varieties planted on the 11th and 21st of November were observed when they were planted on the 11th and 21st of November and were found to be 6.14-5.94 t/ha, and the highest

the optimal period was considered to be November 11 and 21 [44; p.2230-2234].

H. Sun, L. Shao, S. Chen, Y. Wang, X. Zhang [45; p.117-138] and S.M. Shirazi, N.H. Zardari, Z. Yusop, Z. Ismail, F. Othmanlar [46; p.973-982] determined that one of the most important factors that should be controlled by farmers in agriculture is the planting period.

They emphasized that the planting date is determined by the growth, development and frost resistance of the plant.

T. Muhammad, A. Asghar, A. N. Muhammad, H. Akhtar, Kh. Farhan [47; p.66-69] in the experiments, when winter wheat is planted in the optimal period, in the condition of sufficient moisture, heat and light, the plant grows well and the yield is high as a result of its development.

W.A. Shah, B. Jehan, U. Tehseen, W. Kh. Abdul, Z. Muhammad, A. Kh. Abdul [48; p.106-110], Sh. Asgar, H. Sh. A. Hossein, N. Ghorban, M. H. Eslam, M. Hamid [49; p.109-119], Kh. Vahid, Kh. N. Gholamraza, M. N. Ghasem, Y. Khatoon [50; According to p.77-82], planting time is the determining factor of winter wheat yield, two weeks late planting causes 15% yield reduction and four weeks late planting results in 30% yield reduction.

M.S. Baloch, I.T.H. Shah, M.A. Nadeem, M.I. Khan, A.A. Khakwani [51; p.239-240] and M. Fazal, A. Muhammad, M. T. Jan, A. Kawsar, M. J. Khan [52; p.83-88] in the scientific researches, according to the genetic characteristics of winter wheat in different regions, the factors in the conditions of the planting period, i.e. the maximum or minimum level of temperature, the daily radiation of the sun, and the amount of precipitation affect the growth of winter wheat. It has been found to have different effects on tumor and development.

Many foreign scientists G. Podolska, M. Wyzinska [53; p.44-51], L. Mohsen, A. Farnia, M. Shaban [54; p.89-93], A.A. Muhammad, A. Mushtaq, S. Muhammad, A. Liaqat [55; p.157-162],

M. Utpal, B. Mahfuza, S. Abdus, K. S. Shubroto [56; p.89-94], F. Omer, A. Ch. Zahid [57; p.817-825], I. Javaid, H. Khizer, H. Safdar [58; p.531-536], A. Hossain, Jaime A. Teixeira Da Silva [59; p.97-109] conducted scientific research

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