*International Journal of Modern Agriculture*
*ISSN: 2305-7246*
*Volume 10 Issue 2, Month 2021*

# The Selection of Early Ripen and High Fertility Lines of Autumn Soft Wheat

Doctor of Agricultural Sciences, **R.I.Siddikov,**

Scientific Secretary, Doctor of Philosophy in Agriculture, Senior Research, **T.A.Rakhimov,**

Candidate of agricultural sciences, senior researcher, **I.U.Egamov**

Doctoral students, **N.Kh.Yusupov, T.E.Nadjimov**

Grain and legume research institute. Andijan, Uzbekistan.

**Annotation:** It is expedient to study and create new varieties of soft wheat in different soil and climatic conditions of the republic, to create new varieties based on the assessment of early ripening, yield and flexibility. The studies analyzed the development phases of the line and varieties of winter soft wheat, which came to a constant state, planted for testing in a control seed-plot.

**Key words:** selection, line, yield, variety, control, feature, return, seed, germination, accumulation, tubing, threshing, ripening, hybrid.

**Introduction:** At present, there is only one way to provide the population with quality food products and the industry with sufficient raw materials, which is to increase the productivity of agricultural crops. The solution to this problem can be achieved, firstly, through the timely application of appropriate agro-technological measures and secondly, through the selection of hybrids as a result of cross-breeding of plants and their introduction into agriculture by creating new varieties with the desired characteristics. 75% of the wheat grown is used as food, 15% for livestock and 10% for seed. The main wheat-growing countries in the world are Australia, Canada, China, the United European countries, India, Pakistan, Russia, Turkey, Ukraine, and the United States. These countries account for 80% of the world's wheat production. If spring wheat is grown on an area of 25 million hectares. winter wheat is grown per hectare. That is, 90% of the area is soft wheat, 9-9.50% hard wheat and 0.5-0.7% triticale.

Paragraph 3.3 of the Decree of the President of the Republic of Uzbekistan dated February 7, 2017 "On the Action Strategy for the five priority areas of development of the Republic of Uzbekistan in 2017-2021" Modernization and

accelerated development of agriculture, further strengthening food security in the country urgent tasks have been set for the creation and introduction into production of new high-yielding varieties of agricultural crops with high productivity, resistant to diseases and pests, high grain quality, adapted to local soil-climatic and ecological conditions.

Today, one of the priorities of the Agricultural Development Strategy of the Republic of Uzbekistan for 2020-2030 is the development and implementation of state food security policy in the country to ensure food security and improve the diet, the production of the required amount of food products. . With the valuable economic characteristics of cereal crops, their biological properties are not physiologically correct. The high yield, early ripening, cold and heat resistance properties of the crops were found to be incompatible, and as the yield increased, the amount of gluten in the grain and the weight of 1000 grains decreased. In this article, the authors emphasize that early ripening is the best indicator for selection in terms of quantity and quality of winter wheat yield, increase in grain protein content and improvement of grain quality is achieved through inbreeding and mutagenesis [1], [8].

Based on the above, one of the main tasks is to create local varieties of winter soft wheat that are resistant to disease and external factors, and to ensure the independence of the Republic at the expense of local varieties created in the country instead of imported varieties.

**Materials.** Meadow soils of the Central Experimental Field of the Grain and Legume Research Institute, world gene pool varieties and samples of winter soft wheat of different ecological and geographical groups, as well as promising winter soft wheat varieties and hybrid populations recommended for sowing in the republic are used. The subject of research is the growth and development and yield of winter soft wheat varieties and specimens in 2010. Constant lines that retain the useful economic characteristics and traits of combinations obtained from hybridization.

**Methods.** A control nursery was established on the topic of scientific research. In control nurseries 3-4 mln. placed back in delyankas of the specified size at the expense of germinating seeds. In the control nursery, the area of each delyanka was 25 m2 in 4 turns. In phenological observations the main periods of germination, accumulation, tubing, threshing, milk, wax, full ripening phases were taken into account. In the experiments, the thickness of the grass was determined diagonally from three places marked with a length of 6 rows at intervals of two rows

on both sides of the outer row. Mathematical analysis of experimental results Dospekhov B.A. (1985) and analyzed according to the developed method [4].

**Result.** The studies analyzed the developmental phases and varieties of fall soft wheat varieties that came to a constant state planted for testing in a control nursery. The developmental periods of wheat continue in several stages. Early-maturing plants are usually characterized by low accumulation, high photosynthetic productivity, and lack of leaves. The growth period of plants is one of the main indicators that determine the suitability of a variety for cultivation in one or another condition. The duration of the growing period of a soft and hard wheat plant not only determines the yield, but also reflects the plant's resistance to drought, disease and environmental stressors. Showed a positive correlation between productivity and growth period. According to them, the productivity of early ripening forms is low, and the productivity of long-growing forms is high [5].

The seeds of the obtained varieties and lines were sown on October 29, 2014 and fully germinated on November 7 (Table-1). The study examined the lines that have become stable and the duration of the period from germination to accumulation of standard varieties. The accumulation of wheat stalks in the underground branching feature is called the accumulation of the lateral stem and the joint where the secondary root develops. Usually it appears 1-3 cm below the ground. Accumulation is the most important part of the joint, where nutrients accumulate, the strength of the root system, resistance to cold, drought depends on the location of this joint. If the accumulation joint is damaged under adverse conditions, the plant will die. One of the peculiarities of wheat is its accumulation, which produces several stalks from a single seed. The number of stems that a plant produces is called the total accumulation.

The duration of the steady-state lines planted for testing in the control nursery from germination to accumulation ranged from 111 to 115 days, and in the standard varieties it was 112-113 days (Table-1). According to the results of the analysis, the duration of the accumulation phase in the lines AC-2014-D48, AC-2014-D34 and AC-2014-D19 was 111 days earlier, which was 1-2 days earlier than in the standard varieties. Most of the other lines were 112-113 days in the same period as the standard Nodir, Uzbekistan-25, Durdona varieties.

Lines AC-2014-D41, AC-2014-D21 were 2-3 days later than the standard varieties, and 4 days later than the lines AC-2014-D48, AC-2014-D34 and AC-2014-D19.

**The duration of the spraying of konstant isolated lines and template varieties were studied (Table-2).**

In winter wheat, the post-accumulation development period is the germination period. In this case, the spacing of the joints formed by the accumulation is shortened, the initial stem flower stalks lengthen, starting from the lower joint, the lower leaves begin to rise above the stem; spikes appear in the upper joints. The plant begins to grow vigorously from the moment it wraps around the reed. Therefore, the plants should be adequately supplied with water and nutrients during this period. This period in plant life is the most responsible, i.e. the "critical period". The yield of wheat depends to some extent on how the physiological processes took place during the spinning period, the level of nutrient and moisture supply.

The duration of the steady-state lines planted for testing in the control nursery from germination to tubing ranged from 142 to 148 days, while in the standard varieties it was 143-144 days. According to the results of the analysis, the duration of the earliest tubing phase was 142 days on lines AC-2014-D48, AC-2014-D34 and AC-2014-D19, which was 2-3 days earlier than the standard varieties. Most of the other lines were 143-144 days in the same period as the standard Nodir, Uzbekistan-25, Durdona varieties.

Lines AC-2014-D41, AC-2014-D21, AC-2014-D51 and AC-2014-D72 are 3-4 days later than standard varieties, AC-2014-D48, AC-2014-D34 and AC-2014-D19 was found to have entered the tubing phase at 148 days, 6 days later than the lines. However, the collection-tube interval was 34 days.

The interval from collection to piping in the sort and lines was 31–32 days.

**The duration of the ear in the konstant isolated lines and template varieties were analyzed Table 3.** During the tubing period, as the plant begins to grow along the stem, a spike emerges from the upper leaf blade. With the formation of half of the inflorescence begins the next - the period of germination. Mass weeding has a great impact on the uniform maturation of the crop and the timing of harvest. Intensive formation of reproductive organs, rapid accumulation of vegetative mass is observed during the period from tubing to germination. High temperatures during the flowering period of cereal crops lead to a decrease in the number of grains per grain and, ultimately, a 20% decrease in yield [2], [6]. It was found that the duration of the fixed lines in the control nursery from germination to germination ranged from 171 to 178 days, and in the standard varieties it was 175-176 days. According to the results of the analysis, the duration of the earliest germination phase in the lines AC-2014-D48, AC-2014-D34 and AC-2014-D19 was 171 days, 5-6 days earlier than the standard varieties, the interval of tubing-breeding

was 28-29 days. was found to be The spawning interval of the standard varieties was 30 days, with a short day.

Lines AC-2014-D64, AC-2014-D15, AC-2014-D40 and AC-2014-D1 and AC-2014-D33, which entered the early germination phase compared to the standard varieties, also had a tube-spacing interval of 29 days. 25, Durdona varieties were found to have passed one day early.

Most of the lines that came to a steady state were 176 days, and the tube-splitting interval was found to be the shortest of 32 days compared to the standard varieties compared to the other lines.

**The maturation duration of konstant isolated lines and template varieties were analyzed (Table-4).** Temperature and humidity play an important role in the formation of grain quality, and their effects during the growing season and especially during the grain filling period are very important. During this period, high air temperatures and low humidity lead to the formation of large amounts of high-quality protein in soft wheat grains [3], [7]. In wheat grains, the ripening period begins when the water-soluble substances become insoluble in water. This period is divided into milk cooking, wax cooking and full cooking periods. The filling and ripening of the grain depends in many respects on external conditions. During this period, dry hot winds make it difficult for water-soluble nutrients to flow from the vegetative organs to the grain, and the grain does not fill well. As a result, the grain becomes empty, fine and light. This period is very important in the cultivation of abundant and quality crops. Wheat greens are retained during the milk ripening period, but the lower leaves begin to dry out. In the middle of the wax ripening period, the supply of nutrients to the grain stops. During this period, the grain size decreases and the moisture content decreases sharply. The moisture content of the grain is 40% at the beginning of the waxing period and 20% at the end. The grain turns yellow and you can dip a nail into it like wax. The grain turns yellow. During this period, most of the nutrients accumulate in the grain. During the period of full ripening, when the grain is fully ripe, the stem of the plant begins to turn yellow up to the upper joint, and the joints also turn yellow and turn brown. The grain hardens and does not sink into the nail, it cracks when bitten. During this period, the moisture content of the grain is 14-17%.

The duration of the fixed lines in the control nursery from germination to full ripening ranged from 211 to 216 days, while in the standard varieties it was 214-215 days. According to the results of the analysis, the duration of the earliest ripening phase was observed in lines AC-2014-D15, AC-2014-D39, AC-2014-D7, which matured in 212 days and matured 2-3 days earlier than standard varieties.

The ripening interval was found to be 38-39 days. The spawning interval of standard varieties was 39 days.

Productivity indicators of these varieties and lines were studied, high yields of 79.8-71.3-80.3 ts / ha were observed in lines AC-2014-D15, AC-2014-D39, AC-2014-D7, where the duration of the earliest ripening phase was observed. Yield was 76.5 t / ha for Nodir variety, 68.8 t / ha for Uzbekistan-25 variety and 76.5 t / ha for Durdona variety.

Among the lines selected in the experiment, AC-2014-D28 40.6 ts / ha, AC-2014-D40 45.2 ts / ha, AC-2014-D33 43.5 ts / ha, AC-2014-D48 40.5 ts / ha / ha, AC-2014-D34 44.4 ts / ha, AC-2014-D19 40.6 ts / ha, which is lower than other varieties and lines.

**Table 1**

**The duration of accumulation of varietal and constant lines in the control seed-plot (2020)**

| № | Sort and samples | Sprout | Growth, day | Growth phase duration, days |
|---|---|---|---|---|
| 1. | Nodir | 07.11.19 | 27.02.20 | 112 |
| 2. | Uzbekistan-25 | 07.11.19 | 28.02.20 | 113 |
| 3. | Durdona | 07.11.19 | 28.02.20 | 113 |
| 4. | AC-2014-D64 | 07.11.19 | 28.02.20 | 113 |
| 5. | AC-2014-D15 | 07.11.19 | 28.02.20 | 113 |
| 6. | AC-2014-D41 | 07.11.19 | 1.03.20 | 115 |
| 7. | AC-2014-D21 | 07.11.19 | 1.03.20 | 115 |
| 8. | AC-2014-D28 | 07.11.19 | 29.02.20 | 114 |
| 9. | AC-2014-D4 | 07.11.19 | 29.02.20 | 114 |
| 10. | AC-2014-D40 | 07.11.19 | 28.02.20 | 113 |
| 11. | AC-2014-D25 | 07.11.19 | 29.02.20 | 114 |
| 12. | AC-2014-D51 | 07.11.19 | 1.03.20 | 115 |
| 13. | AC-2014-D1 | 07.11.19 | 28.02.20 | 113 |
| 14. | AC-2014-D33 | 07.11.19 | 28.02.20 | 113 |
| 15. | AC-2014-D72 | 07.11.19 | 1.03.20 | 115 |
| 16. | AC-2014-D7 | 07.11.19 | 29.02.20 | 114 |
| 17. | AC-2014-D27 | 07.11.19 | 29.02.20 | 114 |
| 18. | AC-2014-D66 | 07.11.19 | 29.02.20 | 114 |
| 19. | AC-2014-D3 | 07.11.19 | 28.02.20 | 113 |
| 20. | AC-2014-D39 | 07.11.19 | 28.02.20 | 113 |
| 21. | AC-2014-D48 | 07.11.19 | 26.02.20 | 111 |
| 22. | AC-2014-D34 | 07.11.19 | 26.02.20 | 111 |
| 23. | AC-2014-D19 | 07.11.19 | 26.02.20 | 111 |

**Table 2**
**Duration of tubing of varietal and constant lines in the control seed-plot. (2020)**

| № | Sort and samples | Sprout | Tubing, day | Tubing duration, day |
|---|---|---|---|---|
| 1. | Nodir | 07.11.19 | 29.03.20 | 143 |
| 2. | Uzbekistan-25 | 07.11.19 | 30.03.20 | 144 |
| 3. | Durdona | 07.11.19 | 30.03.20 | 144 |
| 4. | AC-2014-D64 | 07.11.19 | 30.03.20 | 144 |
| 5. | AC-2014-D15 | 07.11.19 | 30.03.20 | 144 |
| 6. | AC-2014-D41 | 07.11.19 | 3.04.20 | 148 |
| 7. | AC-2014-D21 | 07.11.19 | 3.04.20 | 148 |
| 8. | AC-2014-D28 | 07.11.19 | 1.04.20 | 146 |
| 9. | AC-2014-D4 | 07.11.19 | 1.04.20 | 146 |
| 10. | AC-2014-D40 | 07.11.19 | 30.03.20 | 144 |
| 11. | AC-2014-D25 | 07.11.19 | 1.04.20 | 146 |
| 12. | AC-2014-D51 | 07.11.19 | 3.04.20 | 148 |
| 13. | AC-2014-D1 | 07.11.19 | 30.03.20 | 144 |
| 14. | AC-2014-D33 | 07.11.19 | 30.03.20 | 144 |
| 15. | AC-2014-D72 | 07.11.19 | 3.04.20 | 148 |
| 16. | AC-2014-D7 | 07.11.19 | 1.04.20 | 146 |
| 17. | AC-2014-D27 | 07.11.19 | 1.04.20 | 146 |
| 18. | AC-2014-D66 | 07.11.19 | 1.04.20 | 146 |
| 19. | AC-2014-D3 | 07.11.19 | 30.03.20 | 144 |
| 20. | AC-2014-D39 | 07.11.19 | 30.03.20 | 144 |
| 21. | AC-2014-D48 | 07.11.19 | 28.03.20 | 142 |
| 22. | AC-2014-D34 | 07.11.19 | 28.03.20 | 142 |
| 23. | AC-2014-D19 | 07.11.19 | 28.03.20 | 142 |

**Table 3**
**Variation duration of varietal and constant lines in control seedlings (2020)**

| № | Sort and lines | Sprout | Ear, day | Ear duration, day |
|---|---|---|---|---|
| 1. | Nodir | 07.11.19 | 30.04.20 | 175 |
| 2. | Uzbekistan-25 | 07.11.19 | 1.05.20 | 176 |
| 3. | Durdona | 07.11.19 | 1.05.20 | 176 |
| 4. | AC-2014-D64 | 07.11.19 | 30.04.20 | 175 |
| 5. | AC-2014-D15 | 07.11.19 | 30.04.20 | 175 |
| 6. | AC-2014-D41 | 07.11.19 | 3.05.20 | 178 |
| 7. | AC-2014-D21 | 07.11.19 | 3.05.20 | 178 |
| 8. | AC-2014-D28 | 07.11.19 | 1.05.20 | 176 |
| 9. | AC-2014-D4 | 07.11.19 | 1.05.20 | 176 |
| 10. | AC-2014-D40 | 07.11.19 | 30.04.20 | 175 |
| 11. | AC-2014-D25 | 07.11.19 | 1.05.20 | 176 |
| 12. | AC-2014-D51 | 07.11.19 | 3.05.20 | 178 |
| 13. | AC-2014-D1 | 07.11.19 | 30.04.20 | 175 |
| 14. | AC-2014-D33 | 07.11.19 | 30.04.20 | 175 |
| 15. | AC-2014-D72 | 07.11.19 | 3.05.20 | 178 |
| 16. | AC-2014-D7 | 07.11.19 | 1.05.20 | 176 |
| 17. | AC-2014-D27 | 07.11.19 | 1.05.20 | 176 |
| 18. | AC-2014-D66 | 07.11.19 | 1.05.20 | 176 |
| 19. | AC-2014-D3 | 07.11.19 | 30.04.20 | 175 |
| 20. | AC-2014-D39 | 07.11.19 | 30.04.20 | 175 |
| 21. | AC-2014-D48 | 07.11.19 | 26.04.20 | 171 |
| 22. | AC-2014-D34 | 07.11.19 | 26.04.20 | 171 |
| 23. | AC-2014-D19 | 07.11.19 | 26.04.20 | 171 |

**Table 4**
**Results of phenological observation of lines in control seedlings of autumn soft wheat. (2020)**

| № | Sort and samples | Full ripe | Ripe duration, day | Productivity, ts / ha |
|---|---|---|---|---|
| 1 | Nodir | 8.06.20 | 214 | **76,5** |
| 2 | Uzbekistan-25 | 9.06.20 | 215 | **68,8** |
| 3 | Durdona | 9.06.20 | 215 | **76,5** |
| 4 | AC-2014-D64 | 9.06.20 | 215 | **55,3** |
| 5 | AC-2014-D15 | 6.06.20 | 212 | **79,8** |
| 6 | AC-2014-D41 | 10.06.20 | 216 | **70,4** |
| 7 | AC-2014-D21 | 10.06.20 | 216 | **72,9** |
| 8 | AC-2014-D28 | 9.06.20 | 215 | **40,6** |
| 9 | AC-2014-D4 | 9.06.20 | 215 | **65,4** |
| 10 | AC-2014-D40 | 8.06.20 | 214 | **45,2** |
| 11 | AC-2014-D25 | 9.06.20 | 215 | **49,8** |
| 12 | AC-2014-D51 | 10.06.20 | 216 | **47,7** |
| 13 | AC-2014-D1 | 8.06.20 | 214 | **53,3** |
| 14 | AC-2014-D33 | 8.06.20 | 214 | **43,5** |
| 15 | AC-2014-D72 | 10.06.20 | 216 | **57,7** |
| 16 | AC-2014-D7 | 6.06.20 | 212 | **80,3** |
| 17 | AC-2014-D27 | 8.06.20 | 214 | **52,5** |
| 18 | AC-2014-D66 | 8.06.20 | 214 | **57,8** |
| 19 | AC-2014-D3 | 05.06.20 | 211 | **75,3** |
| 20 | AC-2014-D39 | 06.06.20 | 212 | **71,3** |
| 21 | AC-2014-D48 | 7 06.20 | 213 | **40.5** |
| 22 | AC-2014-D34 | 7 06.20 | 213 | **41.4** |
| 23 | AC-2014-D19 | 7 06.20 | 213 | **40.6** |

## Conclusion.

1. The duration of the developmental phases of lines and standard varieties in a constant state and their productivity were studied.

2. In the control seed-plot it was found that the duration of the development phases of the standard Nodir, Uzbekistan-25 and Durdona varieties was 214-215 days, compared to these lines AC-2014-D15, AC-2014-D39, AC-2014-D 7 were 212 days shorter.

3. During the development phases, it was found that the interval from ripening to ripening on lines AC-2014-D15, AC-2014-D39, AC-2014-D7 was shorter by 2-3 days compared to other lines.

4. In terms of productivity, the standard varieties Nodir, Uzbekistan-25 and Durdona are 76.5-68.8-76.5 ts / ha, on the line AC-2014-D15 79.8 ts / ha, on the line AC-2014-D7 80 , 3 ts / ha higher yields than standard varieties.

5. As a result of the studies in the control seed-plot, the AC-2014-D15, AC-2014-D39, AC-2014-D7 and AC-2014-D3 lines with early maturity and high yield were selected for testing to the next competitive seed-plot.

## LIST OF REFERENCES

1. Gulyaev V.G., Dubinin N.P. 1969. Selection and changeover of field crops. Moscow. "Kolos", 1969
2. Egamov I., Nabiev U. "Results of selection processes in the creation of high-yielding varieties of winter wheat and grain quality." Proceedings of the International scientific-practical conference "Prospects for the development of selection, seed production and agro-techniques for growing cereals and oilseeds." Andijon-2011y. Pp. 21-24.
3. Ionova S. V. - Development of the root system of soft wheat in drought conditions. -Moscow. Agriculture. 2006. No. 2. –S.12–13.
4. Dospekhov B.A. Field experiment methodology (with the basics of statistical processing of research results). - Ed. 5th, add. and revised M .: Agro-promizdat, 1985.-351 p.
5. Korenov G.V. Podgorny P.I., Sherbak S.N. Plant growing from the basis of selection and seed production Moscow "Kolos", 1973, 456-458 p.
6. Islamov S., Yodgorov N., A.Abduazimov “Vegetation period and productivity indicators of drought-resistant varieties” Agroilm magazine 2-3 (34-35), 2015y B.32
7. I. U. Egamov, T. Rahimov, H,Ysypov. Biometric indicators of newly created hybrid lines of soft winter wheat”. EPRA INERNANIONAL JOURNAL OF RESEARCH & DEVELOPMENT (IJRD) (ISSN: 2455-7838).VOL-4, ISSUE-5, May-2019. Page -27-29
8. Lukyanenko P.P. 1969. Hybridization of different ecological-geographic forms of winter wheat. "Selection of somopilated crops". Moscow. "Kolos" p. 3-21.