Influence of the Timing and Rates of Sowing Seeds on the Level of the Leaf Surface of Winter Rye

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Abstract

The leaf surface of plants varies depending on the type of crop, variety, growing conditions and applied agrotechnical measures. In particular, sowing time, seeding rates and nutrient content are factors that affect the leaf level of a plant. Rye leaves are broad-band, flat, gray with a stem. The leaf blade is 15-30 cm long and 1.5-2.5 cm wide. Under the leaf blade there is a short tongue and short naked or teenage ears covering the stem. Sometimes the upper leaves are covered with feathers, which indicates a comparative resistance to lack of moisture and flexibility with light sandy soils. The tongue and ears of rye leaves dry up early and fall off. The leaf surface of plants varies depending on the type of crop, variety, growing conditions and applied agrotechnical measures.

Key words: sheet surface, coefficient, photosynthesis, leaf blade, short tongue.

Introduction. The leaf surface of plants varies depending on the type of crop, variety, growing conditions and applied agrotechnical measures. In particular, the sowing time, seeding rates and nutrient content are factors that affect the leaf level of the plant. Rye leaves are broadly linear, smooth, gray with a stem.

The leaf blade has a length of 15-30 cm and a width of 1.5-2.5 cm. Under the leaf blade there is a short tongue and short naked or adolescent ears covering the stem. Sometimes the leaves on the upper side are covered with hairs, which indicates a comparative resistance to lack of moisture and adaptability to light sandy soils. The tongue and ears of rye leaves dry up early and fall off. [1]

The leaf level is determined by the stages of rye development. In this case: the length of the a-leaf, the width of the b-leaf, the coefficient determines the spread from 0.62 to 0.74 for different varieties. 1. If the coefficient is 065, 2. The length of the sheet is 5 cm, if the

width of the sheet is 0.3 cm, 0.65 x 5 x 0.3 = 0.975. If there are 6 leaves on the bush. 0975 x 6 = 5.85 cm per 1 plant. If there are 450 plants per 1 m2, then 5.85 x 450 = 2632.5 cm2, if we translate this into meters, we get 26.3 m2 per 1 m2. 26.3 x 10000 = 263000 m2. [2]

The studies were conducted in 2016-2019 on light gray soils of the Andijan Experimental Station of the Research Institute of Cotton, Seed and Agrotechnology (NIHSHiTI), the effect on grain yield was studied for three years with a short crop rotation of 1: 1 (cotton-grain) rotation system.

The experience of 15 variants was placed in one tier in 3-fold repetition. In the experimental field, the field width is 70 cm, length is 100 m. The area of each spring is 560 m2, the area to be accounted for is 280 m2. The total area of the experiments was 2.5 hectares. The experiment was carried out for 3 years in a 1:1 short rotation system (cotton:grain). In the experiment, the variety "Vakhshskaya-116" was planted, included in the State Register of winter rye.

In the experiment, five different sowing dates were established (September 20, October 1, October 10, October 20, November 1) and three different seeding rates (3 million, 4 million, 5 million).

Ammonium nitrate (N – 34%) from nitrogen fertilizers, superphos from phosphorus fertilizers (R2O5 – 12-14%), potassium chloride salt (K2O - 50%) from potash fertilizers were used for feeding rye. Under experimental winter rye, 70% of the annual rate of phosphorus fertilizers and 100% of potash fertilizers were applied in autumn, under plowing, during the accumulation of the remaining 30% of phosphorus fertilizers in the 1st fertilization with nitrogen fertilizers, and the 2nd fertilization was carried out with nitrogen fertilizers.

Table 2.2.1
Experience system

Variants	Seed sowing dates Seed sowing rates	Seed sowing rates
1	20-September	3 million
2		4 million
3		5 million
4	1-October	3 million
5		4 million
6		5 million
7	10-October	3 million
8		4 million
9		5 million
10	20-October	3 million
11		4 million
12		5 million
13	1-November	3 million
14		4 million.
15		5 million

For phenological observations and calculations of winter rye, the manual "Methodology of state variety testing of agricultural crops" (M. Kolos, 1964) was used.

1. During the experiment, an agrochemical analysis of the soil was carried out:

To determine the agrochemical composition of the soil at the beginning, middle and end of the application period, samples were taken from the arable (0-30 cm) and lower (30-50 cm) soil layers:

a) The content of humus (according to the method of I. V.Tyurin);

b) The total amount of nitrogen and phosphorus in the soil (according to L.P. Gritsenko, I.M.Maltseva),

c) The mobile form of nitrate nitrogen by colorimetric method; phosphorus B.P. Machigin exchange potassium was determined by the method of P.V.Protasov.

Also, using the diagonal of the experience options, determine the amount of nutrients absorbed by the plant.

We took 10 winter rye tubers from 5 points and determined the amount of nutrients in the roots, leaves and stems using the Ginizburg-Shcheglova method.

2. The following geophysical studies were carried out:

Объем The volume weight of the soil is 0-50 cm. The layer at the beginning and end of the shelf life was determined by the method of N.A. Kaczynski.

The water permeability of the soil was determined at the beginning and at the end of application by the method of N.A. Kaczynski;

In all agrophysical studies, the manual "Methodology of agrophysical research" is used (Tashkent, Allies, 1973).

3. The yield of grain and straw of winter rye is statistically processed according to the methods of P. N. Peregudov and B. A. Dospekhov.

4. The costs of cultivating winter rye per hectare, total and conditional net profit, when determining the level of profitability "Basic rules for determining the economic efficiency of using research results in agriculture, new technologies and inventions, rationalization 1987" Mloy.

Measurements and counting of subsequent agrotechnical measures in the experiment were carried out in accordance with the guidelines of the Federal State Unitary Enterprise "Methods of conducting field experiments", as indicated in the program. In particular, soil samples were taken and analyzed for agrochemical soil analysis. At the same time, the growth and development of the plant were calculated on the 1st and 2nd of each month. Agrophysical analysis was carried out at the beginning and end of the growing season.

The germination of rye is autumn, the accumulation coefficient was calculated from 3 points per 1 m2 in each variant.

Agrochemical analysis in the experimental field: the total and mobile amounts of humus, nitrogen, phosphorus and potassium were determined in the arable (0-30 cm) and subsurface (30-50 cm) layers of soil before sowing and at the end of sowing. period of application. Soil samples were taken from all variants of iterations I and III.

From the conducted agrophysical analyses, the volume mass of the soil was 50 cm from the variants specified in the work program of the I and III repetitions. every 10 cm in depth. from N.A. Kaczynski using a cylinder. The water permeability of the soil was determined and analyzed at the beginning and end of the growing season.

Phenological observations

Based on the goals and objectives of the experiments, the following phenological observations and biometric measurements were carried out on plants.

1. The germination of seedlings is determined from 3 points per 1 m^2 in all variants and returns.

2. The thickness of seedlings is determined at the rate of 3 points per 1 m^2 in each variant and vice versa. This work is done for all ages of options.

3. Germination of seedlings, the number of seedlings from winter and the thickness of seedlings at the end of the growing season are determined from 3 points per 1 m^2 of all variants of I and III repetitions.

4. In each variant and return, 100 plants are selected and determined:

* plant height (during germination, germination, flowering and maturation)
* length of the thorn (during maturation)
* Number of ears per 1 ear (during ripening)
* Number of grains in 1 grain
* Weight 1000 grains

5. The foliage of winter rye is determined from 3 points per 1 m2 in all variants and turns.

6. To calculate during the harvesting period, each option and return is removed with a sickle at five points per 1 m^2 and the height of plants, the total number of stems, the number of productive stems are calculated, the yield of crushed and grain straw is determined.

7. Analyze the chemical composition and quality of grain.

8. Economic efficiency of winter rye cultivation in light-gray soils of Andijan region.

In our 2016-2019 study, we also conducted a cross-observation to determine to what extent the timing and norms of sowing winter rye seeds affect the foliage of plants.

The data obtained show that in our studies in 2016-2017, the timing and norms of sowing winter rye seeds had a significant impact on the foliage of the plant.

In particular, as of September 20, UAH 3 million. In the 1st variant, sown on the basis of deciduous seeds, when determining the level of foliage, the average monthly yield was 15.1 cm^2/ha (367836 m^2/ha) on March 1 and 55.2 cm^2/ha (1316520 m^2/ha) on 1 Apr. and on May 1, it amounted to 105.5 cm^2/piece (2462370 m^2/ha), which is 4 million per hectare. and 5 million. When analyzing the leaf surface of seedlings in 2-3 variants sown with deciduous seeds,
14.7-14.5 cm^2/ha (503916-623935 m^2/ha) on March 1, 54.5-54.2 cm^2/ha on April 1, units 2272877 m^2/ha) and on May 1, 103.3-102.8 cm^2/piece (3377910-4198352 m^2/ha). As of October 1, UAH 3 million.When sowing due to germinating seeds, the leaf surface area of the plant was 14.7 cm^2/piece (362061 m^2/ha) on March 1 and 54.5 cm^2/piece (1307455 m^2/ha) on April 1, respectively. As of May 1, this indicator is 103.0 cm^2/piece (2405050 m^2/ha). Compared with September 20, 0.4 cm^2/ha (5775 m^2/ha) on March 1, 0.7 cm^2/ha (9065 m^2/ha) on April 1, 2.5 cm^2/ha on May 1 (57320 m^2/ha), which is less than 4 million and 5 million seeds were sown in 5-6 variants on March 1, 14.3-14.1 cm^2/ha (497497-617298 m^2/ha), on April 1, 54.1-53.8 cm^2/ha (1835072-2292956 m^2/ha) On May 1, it was 102.1-101.7 cm^2/ha (3374405-4216482 m^2/ha), and on September 1, compared to September

20, it averaged 0.4 cm^2/ha (6419-6637 m^2/ha).e) on April 1, but less than 0.4 cm^2/piece, but more than 1835072-2292956 m^2/ha, and on May 1, 1.2-1.1 cm2/piece and 3505 m^2/ha, less than m^2, but more than 18,130 m^2.

Table 3.6.1

Influence of terms and norms of sowing winter rye seeds on leaf growth, 2016-2017

Variants	Seed sowing dates	Seeding rates	Leaf height of one plant, cm^2 / pc.			Leaf surface of one plant, m^2 / ha		
			1.03	**1.04**	**1.05**	**1.03**	**1.04**	**1.05**
1	20-September	3 million	15,1	55,2	105,5	367836	1316520	2462370
2		4 million	14,7	54,5	103,3	503916	1825205	3377910
3		5 million	14,5	54,2	102,8	623935	2272877	4198352
4	1-October	3 million	14,7	54,5	103,0	362061	1307455	2405050
5		4 million	14,3	54,1	102,1	497497	1835072	3374405
6		5 million	14,1	53,8	101,7	617298	2292956	4216482
7	10-October	3 million	14,5	54,2	102,6	355830	1291586	2372112
8		4 million	14,2	53,8	101,8	492030	1806335	3308500
9		5 million	14,0	53,5	101,5	616280	2279635	4181800
10	20-October	3 million	14,0	53,7	101,3	329420	1218453	2213405
11		4 million	13,6	53,4	100,6	450704	1703460	3084396
12		5 million	13,3	53,0	100,1	564452	2163725	3924921
13	1-November	3 million	13,2	53,0	100,1	296868	1143740	2069067
14		4 million	12,7	52,5	98,7	399923	1584450	2849469
15		5 million	12,4	52,1	97,5	497984	2004548	3587025

At the beginning of the second decade of October, i.e. October 10, 3 million people. When determining the leaf level of variant 7, which was sown with deciduous seeds, 14.5 cm^2/piece (355830 m^2/ha) on March 1, 54.2 cm^2/piece (1291586 m^2/ha) on April 1 and May 1. 102.6 cm^2/ha (2372112 m^2/ha), 0.6 cm^2/ha (12006 m^2/ha), 1.0 cm^2/ha (0.6 cm^2/ha) compared to the period of September 20 (3 million/ha), 24934 m^2/ha, less 2.9 cm^2/ha (90258 m^2/ha), 4 million and 5 million. When analyzing the vastness of cultivated plants in 8-9 variants of sowing due to germinated seeds on March 1, 14.2-14.0 cm^2 / ha (492030-616280 m^2/ha), on April 1, 53.8–53.5 cm^2/ ha. units (1806335-2279635 m^2/ha), and on May 1 – 101. 8–101.5 cm^2/ units (3308500-4181800 m^2/ha) on September 1, compared with the average on March 1 to 0.5 cm^2 (11886-7655 m^2/ha) ha), and by the beginning of April up to 0.7 cm^2/ha (1887 m^2/ha) and on May 1 up to 1.5–1.3 cm^2/ha (69410-16552 m^2/ha). The analysis of the variants sown on October 20 and November 1 in the evening also showed that the above patterns were reflected in the analysis and 5 million as of March 1 to 1,1–1, 1–1,2 cm^2/ha (38416-53212-59483 m^2/ha), as of April 1 1,5–1,1–1,2 cm^2/pcs. (98067-121745-109152 m^2/ha), and on May 1, less than 4,2–2,7–2,7 cm^2/piece (248965-293514-273431 m^2/ha). When sowing on November 1 until 1,9–2,0–2,1 cm^2/ha (70968-103993-125951 m^2/ha) on March 1 and April 1, 2.2-2.0 cm Less than 2.1 cm^2/ha (172780-240755-268330 m^2/ha) and by May 1 5,4–4,6–5,3 cm^2/ha (393303-528441-611327 m^2/ha) the result is marked. It can be seen from the data that the influence of sowing dates on winter rye was significant, and the data obtained for the variants sown on October 1 and 10 did not differ significantly from the variants sown on September 20.

Literature

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