

The Importance of Autumn Rye in the National Economy

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Abstract: The article describes the morphological features of autumn rye, as well as all the nutritional products that are constantly necessary for human life in them, including protein, starch, vitamins, carbohydrates, oil, destrin, mineral salts, calcium, carbonated water and other biologically active substances. information is provided.

Key Words: Autumn rye, root, moisture, morphological, stem, variety, soil, temperature, grain, shoot, seed, grain, flower, furrow, leaf, fruit

Introduction: Autumn rye is a food crop. Flour can be made from rye grain. Rye flour is used to prepare breads that are nutritious, very tasty, and are eaten for diet. Autumn rye is an intermediate crop in Uzbekistan as and sown for grain. It is valued as the second bread crop after wheat in many countries, it contains protein rich in amino acids, especially lysine, and vitamins A, C, E and B. Therefore, rye grain is used as additive rich in lysine in the preparation of mixed fodder for cattle. Autumn rye for grain in Russia, Central Asia and the Caucasus and leguminous crops, spring barley, wheat and other crops are planted for food. Rye grain contains 8.0-18.7% protein, 51.8-69% starch, 1.6-2.6% fat.[1] Due to the abundance of lysine in the protein content, the biological value of autumn rye grain is high. Rye grain has 116 nutritional units per 100 kg. In Uzbekistan, autumn rye is widely grown as a food crop for the production of blue mass, hay meal and silage. Straw is used as roughage and is used in the production of paper, furfural, acetic acid, and lignin. According to N.I. Vavilov, cultivated rye emerged from wild rye as a result of competition between wild rye and wheat when they grew together in the mountains. Wild rye is a fairly cold-hardy plant that can push wheat out of the crop and grow on its own. Ancient farmers used this crop. In Central Asia, especially in Uzbekistan, rye has long been known and widely cultivated as "black wheat". In world agriculture, autumn rye is 7.4 mln. is planted per hectare and the gross yield is 10.5 mln. t, productivity is 14.6 s/ha. Advanced farms are getting 60-70 tons of grain per hectare on irrigated land. Newly created short-stemmed, intensive type rye is distinguished by its high yield, sensitivity to irrigation and nitrogen fertilizers. Green mass yield in early spring (April) reaches 250-300 s/h.[1]

History: The history of rye dates back to the 1st century BC in Italy and later that it was widely planted in the Kerch Peninsula in the III and IV centuries AD information about it can be found in the literature. Rye XIII in Siberia It was planted here in the 19th century by Russian immigrants it is known that he came. Varieties adapted to sowing mainly in autumn are widespread, and spring varieties yield less than autumn ones.

Botanical description. Rye belongs to the genus *Secale*, which includes seven species enters. Of these species, only one species - *S. cereale* L. is cultivated. Cultivated, that is, cultivated rye is an annual, sometimes biennial plant. It is mainly an autumn plant, but spring forms (spring rye) are also found. Due to the long stalk of rye, it is a plant prone to lying down. It grows well and forms a strong root system. The head is narrowed from both sides and has short tips directed in both directions. There is one spike in each step of the spike core. The spikes are usually two-flowered, and the third flower may have a spike. Spikelets are narrow (thin), have a spiky tip. The lanceolate outer flower shell has a hairy edge, a tip emerges from the tip, hairless or hairy. The color of the head is white (yellow), the color of the malla is red, brown and black. The grain of rye is oblong or ovoid in shape, has an elongated edge, has a cap at the end, the color varies from green to brown. The weight of 1000 pieces is from 18 g to 35 g.[2] All varieties of rye produced by selection belong to vulgare (vulgar-ordinary) species. This type is characterized by the whiteness and brittleness of the ear of rye, which is included in the season, and the fact that the grain and the outer flower shell are skinless. Varieties of rye differ according to the following main characteristics.

1. The shape of the spike: prismatic spike - this type of spike has the same width along the front and sides (the tip may be slightly narrowed); duchy - at the base of such a spike, the front side is wider than the side, elongated-elliptical spike - the front side of such a spike is slightly wider than the middle part, and narrows towards the base with the tip.

2. The density of the ear is determined by multiplying the number of spikes minus one by the length of the ear core in centimeters, as in wheat. Spike density: high - 4.0 and above; above average - 3.6-3.9; average - 3.2-3.5; low (soft spike) - below 3.2.

3. Grain: green, yellow, brown, yellow-green, gray. 1000 pieces are high in weight - 28 g and more: above average high - 24-27.9 g; average - 20-23.9 g; below the average - 15.9 g. Below is a description of the most important varieties of rye.

Kirgizskaya-1. Produced at the Agricultural Research Institute of Kyrgyzstan. Biologically, it is autumn, the growth period is 195 days, the density is 4.9, the height of the plant is 84-101 cm, the number of leaves is 60-69%. This variety is resistant to yellow rust disease, the bush is moderately resistant to lodging, and is rarely infected. The nutritional quality of blue pulp is good. Green weight and hay yield are high. It is misted in all arid regions to get green food.

Pamirskaya. At the Krasnovodopad breeding station in Kazakhstan released, biologically autumn, height 155-163 cm, leaf size 47-57 %, growth period 159-165 days. Less susceptible to yellow rust disease, the stem will lie down, the nutritional qualities of the green weight are good. Green weight and hay yield are high. Recommendation for planting on irrigated land can be achieved.[3]

Tetraploidy. Botany of the Academy of Sciences of Uzbekistan issued by selection at the institute. This variety is biological fall fruit, height 151-166 cm, foliage 53-61%, growth period 165-168 day Resistant to diseases. High blue mass and hay yield are obtained, it can be recommended for planting on irrigated lands.

Biological description. Temperature requirements - sufficient oxygen, heat and humidity therefore, the seeds of autumn rye begin to germinate. Rye seeds at 1-2 °C begins to germinate, but the most favorable temperature for germination is 20-25°C. Germination stops when the temperature exceeds 30 °C. It sprouted it absorbs 50-70% water compared to its dry mass. The effective temperature sum for germination is 50°C. The temperature is sufficient when the seeds germinate 5-8 days after planting. Effective temperature of 67°C from germination to heading of winter rye requires summation. At a temperature of 10-12°C, accumulation continues rapidly, It stops at 4-5°C. Among the autumn cereals, autumn rye is the most resistant to winter stands out. When the temperature at the junction is cold -18-21 °C also preserves plant vitality. The period of budding and flowering 14 16°C is the most comfortable temperature for it to pass. From germination of winter rye seeds to grain ripening A temperature of 1800°C is required.[3]

Moisture requirement. Autumn rye is relatively drought resistant plant But if there is enough moisture, the yield is high will give. The transpiration coefficient of autumn rye is 340-420. The most demanding period for moisture is the cob from the tuber stage until the end of the stage. In this period, the lack of moisture productivity leads to a decrease, small enrichment of ears and grain.

Soil requirement. Winter rye compared to other grain crops not very demanding on the soil. Its mechanical composition is light sand, in loam, sandy soils, as well as acidic soil environment (pN- 5.3) can be grown in fertile soils. 0 "gray, grassland" in Uzbekistan It grows well in z soils. Its roots are difficult to dissolve in the soil It also absorbs phosphorus compounds well. heavy mud, swampy, salty soils are not suitable for autumn rye.[4]

Stages of development. Falling of autumn rye is the third and third in the fall the fourth leafing begins with fruiting. Joint relative to the surface is located at a depth of 0.5-2 cm. An underground joint (mesocaty1) the shorter the boisa, the deeper the joint will settle. In very cold-resistant varieties, the mesocarp is short. Winter rye is harvested mainly in autumn, in some cases (when sown late) may continue to accumulate in the spring. Very fast in the spring grows and overshadows weeds. Foliage and tuber fall compared to wheat, it is faster, but earing and flowering are prolonged. Harvesting in autumn rye lasts 35-40 days. Autumn rye during this period undergoes a period of winterization and it lasts 20-70 days at 0-2 °C. Air temperature of 10 °C, the duration of the winterization period increases. The earing stage of winter rye compared to other grain crops longer, the duration is 10-12 days. Flowering is 7-12 days after the spike then it starts. One flower 12-30 minutes, spike 4-5 days, plant 7-8 day, the field will bloom in 8-12 days. Before

the spike, the plant is very it grows fast, 5 cm per day. In irrigated lands, mineral fertilizers are applied at high rates High rates of application, watering, planting and early planting cause the plant to go dormant. Autumn rye ripens 8-10 days earlier than winter wheat. It takes 50-60 days from the spike to ripening. The growing period is 179-240 depending on the agrotechnics applied to the variety constitutes a day.

Cultivation of autumn rye. In Uzbekistan, autumn rye is irrigated and cultivated in dry lands. Winter rye is an intermediate crop in Uzbekistan. it is grown for pulp and grain. Autumn in irrigated lands When rye is grown as an intermediate crop, the yield of blue mass is 300-350 s/ha reaches It is rarely cultivated for grain. Interval after cotton in irrigated lands, crop rotations grown as a crop. Specializes in rice and cotton farming autumn rye is grown as a siderate crop on farms. In dryland, it gives high yield when placed in a clean plow. The predecessors of winter rye compared to winter wheat low demand. Fall rye is planted as a catch crop and incorporated into the soil in early spring cotton yield when cotton is planted after being driven out increased by 3-4 centners per hectare. Placed after autumn rye Wilt disease of cotton is sharply reduced. Best predecessors for winter rye on irrigated land cotton, potatoes, vegetables, sugarcane, legumes, sugarcane.

Autumn rye is also used by many agricultural crops (potatoes, good predecessor for root crops, corn). One year two It is widely used in agrotechnical control of weeds is used. When winter rye is planted two years in a row for grain on the same field also gives a good harvest. When cultivation technologies are followed in irrigated lands, 50-60 tons of grain is grown per hectare.[5]

Fertilization. To develop a fertilization system for autumn rye with nitrogen, phosphorus, potassium using agrochemical agromaps availability of soil is taken into account. Autumn rye 1 s grain and correspondingly 3.1 to produce straw

absorbs 1.37 kg of nitrogen, 1.37 kg of phosphorus and 2.6 kg of potassium. Mineral fertilizers year of application, 65% of applied nitrogen fertilizers, 32% of phosphorus, potassium 70% is absorbed by autumn rye. Winter rye produces twice as much straw as grain. Therefore, a certain amount of biomass compared to winter wheat 15-20% less grain yield is obtained. N for winter rye, The ratio of P, K is 1:0.5:0.8. 100-120 kg of nitrogen on average to get 45-50 s grain yield per hectare,

100-110 kg of phosphorus and 60 kg of potassium are added. In this agrochemical map indicators are taken into account. 0 15-20 t per hectare under the conditions of Uzbekistan Fertilizing (on irrigated land) 8-10 s additional grain yield provides receiving. From leguminous herbs, peach, bersum, red sorrel Autumn rye is also added to the soil as a green manure significantly increases grain yield. During planting, 10-15 kg of granulated superphosphate per hectare or Applying phosphorus in the form of amphos increases productivity by 3-4 s/h. 80-85% of phosphorus fertilizers, the annual rate of potash fertilizers, organic fertilizers are applied before plowing the land. Nitrogen fertilizers are early it is given as feeding during the spring and flowering period. Nitrogen feeding in early spring at the rate of 40-50 kg/ha of vegetation with the beginning of the SZ-3,6 or NRU-05 fertilizer spreader on the machines will be held. Cereal in the second feeding NRU-0.5 machines it is held at the beginning of the tuber period. Tillage. For autumn rye in irrigated lands tillage is no different from that of winter wheat. The first crop the field emptied of crops is immediately overturned at a depth of 25-27 cm and it is plowed in one way. Chiseled before planting or 1-2 cultivation will be done.

Planting. When planting autumn rye, purity is 97%, fertility is 90% low-fat, high-quality, medicated, large seeds are used. Planting <<Mobotox>> at the rate of 1.5 kg/t with Urugiars Raksil (2%) preparation or in PS-10 machines, one ton of seeds is treated with 8-10 l water. Ripening of seeds after harvesting in autumn rye

1 painted around the moon. Fertilization of my freshly collected seeds is low paint Dry my seeds in the sun, periodically every 2-3 hours turning them over increases their elasticity.[5]

Planting periods. Autumn rye seeds 45-60 days before frost In irrigated lands, the first and second ten days of October, in the southern regions, it is optimal to plant in the third ten days of October is the planting period.

Planting method. Autumn rye in rows - row spacing 13-15 cm, narrow rows - the distance between rows is 7-8 cm and it is planted by crossing the rows. Waterable planting in rows (15 cm) in the ground gives good results.

Sowing rate. 3-4 million per hectare in irrigated lands. Unyielding seeds (100-120 kg/ha) are planted. When planting is delayed from the most favorable period, planting rate will be increased by 10-15 percent.

Watering. The regime of autumn rye irrigation consists of moisture-accumulating irrigations and irrigations during the growth period. Against the background of moisture-accumulating irrigations, 3-4 irrigations during the growth period are carried out at the rate of 500-600m/ha. Transplantation ensures high yield.

Conclusion

In short, the protein, gluten, mineral substances, pigments and enzymes contained in autumn rye vary depending on the climate, soil, applied fertilizers, applied agrotechnics, and varieties. The plant is of great importance in increasing fodder production. On irrigated land, winter barley is also grown as a cover crop for alfalfa. In Uzbekistan, winter rye is widely grown as a fodder crop for the preparation of green mass, hay meal and silage. Straw is used as roughage and is used in the production of paper, furfural, acetic acid, and lignin.

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