CULTIVATION OF WINTER WHEAT IN DASHOGUZ REGION

Cultivation of winter wheat in Dashoguz region. Scientific and production manual for grain farmers and specialists. Ashgabat. 2015.

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The scientific and production manual indicates the types of winter wheat sowing, varieties, yield, agrotechnical characteristics of cultivation in the Dashoguz region (soil treatment, fertilization, preparation of seeds for sowing, harvesting, etc.).

The guide is intended for grain farmers, landowners, professionals, teachers and students.

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INTRODUCTION

In the prosperous epoch of powerful state, our highly esteemed President pays great attention to the rapid development of agriculture, which is one of the key sectors of our national economy. Under the leadership of our esteemed President, large-scale work is currently underway to conduct agriculture on a scientific basis. The achievements of the world's advanced technologies, science and technology, advanced experience are widely combined with the centuries-old experience of our ancestors in agriculture and are widely implemented in production. All opportunities and conditions are created by the state for landowners, tenants to work effectively, create, produce a good harvest from the soil and live a prosperous life. As a result, our ancestors grow an abundant crop of grain, cotton, and other agricultural crops each year.

With the unprecedented efforts of our esteemed President, the creation of food abundance in our country, the introduction of new achievements in science, the introduction of new technologies in the production of high-yield winter wheat, the introduction of high-yield, unfavorable weather conditions for crops, disease-resistant varieties and pests. In this regard, the work of improving the agro-technical norms, which ensure a high yield of winter wheat, is also considered a scientifically important task.

Winter wheat is the most valuable food crop of sorghum in our country, which is significantly different from other sorghum crops in terms of grain quality, nutrition and yield.

Winter wheat grains are widely used in the preparation of bread, bakery and macaroni products. Wheat bran, on the other hand, is a nutritious food for livestock and poultry, and is of great importance in the development of stockbreeding and poultry. 100 kilograms of bran equals 70-80 feed units, which contain an average of 11 kilograms of digestible protein. Along with the grain, bran, and cereals of the wheat, the straw is of great economic importance. Combining wheat straw with other succulent fodder has a positive effect on the milk, meat and meat production. 100 kg of wheat straw contains 20-22 units of nutrients, containing 0.5-1.0 kg of well-absorbed nutritional protein of cattle.

AGROTECHNICS OF WINTER WHEAT CULTIVATION IN DASHOGUZ REGION

1. Types, varieties and yields of winter wheat

Today, about 30 wild and cultural varieties of wheat are known. Hard wheat (Triticum durum L.) and soft wheat (T. vulgare L.) of them are widespread in world agriculture and are widely cultivated for food. More than 4,000 varieties belonging to these types of wheat are planted in almost all countries of the world. These varieties are divided into spring and winter varieties according to their biological characteristics. Winter varieties of wheat have to undergo a growth period of 20 to 50 days at a temperature of 10 degrees Fahrenheit at the beginning of the growing season to pass the spring period. Therefore, winter varieties of wheat are planted 50-60 days before the fall of winter. This provides the necessary conditions for the winter root system of the plant to be well-branched. Winter wheat varieties thrive in the fall and form a well-developed root system and fruiting branches during the autumn and winter when care is carried out properly.

In Dashoguz region, the wheat varieties produced in the field include "Sahrayi", "Juvan", "Yoloten-1", "Yubileynaya-100" varieties, which allow the soil and climatic conditions of the region to yield a high-quality crop. In recent years, varieties such as "Batko", "Wassa", "Irishka", "Nota", which are capable of producing high yields of winter wheat in Dashoguz region, have also become widely used in production.

Sahrayi variety - was created in a single selection method from the Spartanka variety in collaboration with the Krasnodar P.P.Lukyanenko Agricultural Research Institute and the North Kuban Agricultural Experimental Station. It was launched in 1993 in Ahal, Balkan, Mary and Lebap regions. Winter soft wheat belongs to the group of “Lutescens Al” species, hairless, plant height 85-100 cm, head length 10-11 cm, growth period 181-217 days, high temperature tolerant, weight 1000 grains 42-50 grams, grain specificity 27-31% , protein 12-13%, yield 60-74 s / ha, high quality baking.

Juvan variety - in collaboration with the Krasnodar P.P.Lukyanenko Agricultural Research Institute and the North Kuban Agricultural Experimental Station created in a single selection method from 2338 hybrid offspring. It belongs to the "Lutescens Al" species group. It was launched in 1997 in all regions of the country. Winter and spring soft wheat, hairless, plant height 87-92 cm, head length 10-12 cm, growth period 187-208 days, high tolerance to cold, weight of 1000 grains 39-41 grams, grain specificity (gluten) 27-29% , 12-14% protein, 50-55 s / ha yield, high quality baking.

Yoloten-1- variety was created by the Cotton Research Institute of the Ministry of Agriculture of Turkmenistan in a single selection method from the Scythian variety and put into production in Mary province in 2004. Winter soft wheat, belonging to the genus "Lutescens Al", is hairy, has a plant height of 77-96 cm, a stem length of 11-12 cm, a growing period of 186-224 days, moderately frost-resistant, and weighs 38-51 grams per 1,000 grains, grain specificity (gluten) 30-34%, protein 12-14%, yields 45-50 s / ha, baking quality is good.

Batko variety - was created at the Krasnodar Agricultural Institute of Research named after P.P.Lukyanenko.

It is short-stemmed, 2-3 cm tall from the young variety, resistant to bedding, moderately resistant to spillage. Tizbishek matures one day late from the comparable (standard) variety. It belongs to the Lutescens species group. The grains are large, egg-shaped. The yield was 65-70 s / ha, yielding 6.4 s / ha higher than the comparable Scythian variety when studied for 3 years in the comparative variety test. In 2005, in the practice of variety agrotechnics, the yield of Batko variety was 75-80 s / ha, yielding 33.4 s / ha more than Bezostaya-1 variety. The quality of the grain meets all the requirements for "strong" wheat. It is resistant to diseases and weather conditions, very black, red and stem rust. It is moderately resistant to septoriosis, powdery mildew, and head furaziosis. Yellow rust is contagious. It is similar to the Juvenile variety, which is compared to drought and frost resistance.

Yubileynaya -100 variety - was created by a single selection method at the Agricultural Research Institute named after P.P.Lukyanenko of Krasnodar.

The plant is about 90 cm tall. It is highly stable to lie, fast to ripen. It belongs to the Erythrospermum group of species. Yields were higher than 90 s / ha, with an average yield of 79.8 s / ha in 3 years (1998-2000) in the variety competition survey, 10.4 and 4.3 s / ha, respectively, higher than the yield of the Yuna and Yugtina varieties. The variety is included in the list of "valuable" wheat. It is resistant to diseases and adverse weather conditions, highly resistant to dust storms, three types of rust, moderately contagious, drought-resistant fusariosis. The high sequence feature ensures that the variety ripens before many diseases are transmitted. For the first time in this variety, a combination of symptoms such as extreme roughness, high frost resistance, and high yields has been achieved.

Yubileynaya-100 and Batko wheat varieties - are now widely grown and cultivated in the agricultural fields of Dashoguz region. According to the results of the research, the introduction of new high-yielding, better-quality varieties can be increased from 2-3 to 8-10 s / ha per hectare without additional cost. However, some varieties have economic and biological disadvantages - i.e., winter wheat varieties have winter-cold intolerance, late ripening, tendency to sleep, instability to diseases, pests, and so on. It is possible to strengthen the resistance of varieties to adverse environmental conditions to a certain extent with the help of agro-technical measures. For example, measures such as timely sowing against rust, chemical treatment of seeds before sowing, and potassium fertilization to the crop are good.

2. Requirenments of winter wheat to growing conditions

2.1. Growth and cultivation

In Dashoguz province, the growth period of winter wheat is 210-240 days, depending on the characteristics and natural conditions of the cultivated varieties. Wheat sown in September ripens in Dashoguz

region in the second half of June. Thus, by the beginning of July, it is possible to completely clear the sown areas of wheat from the wheat and plant a second or intermediate crop. According to the climatic conditions of the districts of the region, areas such as saline and groundwater are close to the ground, and there is a risk of salinity is given.

2.2. Hot relation

Winter wheat is a frost, cold, and winter-resistant crop. But it is not a more stable crop, such as an autumn rye, in relation to these conditions. The seeds of winter wheat begin to germinate at 1-2 degrees, and germinate very well at a temperature of 12-15 degrees. Each of its shoots is branched and inflated in fall and spring. Wheat, which is fertile in fall and forms a strong root system, is resistant to unfavorable winter conditions. Winter wheat is well bred at 5-10 degrees Celsius, and when the temperature drops to 5 degrees Celsius, winter wheat does not germinate. Wheat seeds germinate in 7-8 days when soil moisture is sufficient at 14-16 degrees. The total effective temperature for the sowing and germination period of winter wheat is 166-139 degrees. The minimum (minimum) temperature for winter feeding (photosynthesis) of winter wheat is considered to be 3-4 degrees. When the heat level is in the range of 32-36 degrees, the transient rate and productivity of photosynthesis are increased. When the temperature rises to 36 degrees, the rate of photosynthesis begins to weaken.

2.3. Winter resistance

In the winter, if there is no thick layer of snow, winter wheat in cold weather with a temperature of 16-18 degrees Celsius is likely to catch cold and freeze. If a thick snow cover of up to 20 cm is kept on the wheat, the crop does not get cold even when the air temperature drops to -30 degrees. The frost and winter resistance of wheat depends on its varieties. Wheat varieties with a strong root system, high cellular juice content, rich in sugary compounds, abundant associated water, and low free water are resistant to frost and winter.

2.4. Water requirenments

The ratio of winter wheat to soil moisture is considered to be relatively high, i.e. the water evaporation rate from its leaves is 400-500 units. This unit shows how many grams of water evaporate from a plant to form a gram of dry matter. Winter wheat is bred in the fall and spring months. Its branching rate is strong at 8-10 degrees Celsius when there is enough moisture in the soil. If the air temperature drops to 3-4 degrees, the branching phenomenon does not occur. The moisture content of the soil is not adequate and the branching is weak, even if it is dry.

Typically, the roots of winter wheat grow strongly and reach a depth of 1.5 meters. Therefore, it makes good use of the moisture in the root system. In our country, normal soil is provided by moist irrigation. In the case of normal moisture retention in the top layer (10 cm) of the soil in which the wheat is sown, the sown seeds give a habitual germination. Adequate moisture must also be maintained in the soil layer for the normal transplanting of winter wheat. With the proper humidity in the autumn months, the soil, which is provided with nutrients, increases the yield of winter wheat grain. Water supplied in the spring contributes to the growth of new branches and the moderate growth of wheat growth tests.

Winter wheat uses 70% of all the water it uses throughout the growing season until it forms a sapling, and 20% of it grows from a flowering plant to a grainy sapling. In order to get a higher yield from winter wheat, it is necessary to ensure the humidity of the soil at the level of 70-75% of the water capacity.

2.5. The role of crop rotation

The crop rotation is very important in soil erosion and increase crop yields. Crop rotation has a multifaceted positive impact on various soil phenomena and crop growth. Its effectiveness depends first and foremost on scientifically selected crops for crop rotation. When selecting crops for crop rotation, special attention should be paid to the

ability of each of them to create favorable conditions for the next crop to be planted.

Winter wheat has a high requirenments for pre-sown crops. It is recommended to sow wheat after cereal crops and perennial herbs in crop rotation. Cotton-alfalfa crop rotation is recommended after planting. The yield is low when you sow wheat in the backyard. It is therefore not recommended to plant it on the back of these crops.

3. Choosing a field to plant winter wheat

In order to get a high yield of winter wheat, it is recommended to choose it for sowing soils that are clean of weeds, not salted or low saline, rich in nutrients and rot. The alkalinity of the selected soils should be moderate. To some extent, saline soils are considered unsuitable for growing wheat.

4. Preparing the soil for sowing

4.1. Control measures of perennial weeds

Perennial weeds (reeds, tares, etc.) found in the agricultural fields of our country grow well until the time of sowing wheat (in August, September). Conducting integrated measures against annual and perennial weeds during the entire period of wheat growing, growing and harvesting yields high results.

In cereals, *Sonround WR* or *Sprut extra* herbicides are sprayed at a rate of 6-8 liters per hectare against perennial weeds, especially reeds and grasses. Perennial herbicide spraying is carried out with the help of spraying equipment. Depending on the size of the field to be treated, spraying equipment is manually and tractor-mounted, and in large areas airplanes are being treated. Nowadays, sprayers OM-320, OM-630-2, OP-2000-2-01, OP-3200 are used to carry out chemical control of perennial weeds.

Cleaning the fields of weeds, crop residues. In order to prepare the sown areas for winter wheat sowing, the fields are first cleared of weeds and crop residues. For this purpose, weeds are used to weed and

cultivate crop residues, as well as to disinfect waste with disc tools in areas with cotton weeds. The holding of this event is of great importance in clearing the fields of straw, improving the level of productivity, and the quality of sowing. It also ensures soil softening, small cropping of plant residues and mixing with soil. After harvesting the crop, cereals, corn, and vegetable crops are sometimes carried out before the alfalfa herd to cut its growth. For this purpose, LDG-5A, LDG-10A, LDG-15A type tractors used on John-Deere, Case tractors are used.

The requirements for the quality of the framing include the following:

- the soil should be highly softened and the plant residues should be fully crushed and mixed with the soil;
- the depth of treatment should be marginal.

In areas where perennial weeds, especially weeds and reeds, are common, it is recommended to irrigate the soil superficially, drive it to a depth of 18–20 cm after it reaches the soil, and remove the roots by cutting it with chisel, rake, and boron.

4.2. Pre-flattening

Pre-plowing is one of the most important agricultural measures in laying the foundation for high yields.

Figure 1. **Conducting pre-plowng**

Water caught in uneven fields does not spread evenly across the area, mineral fertilizers are washed from high places and accumulated in low places, and irrigated land does not spread evenly across the area. The highest areas of the area are early in the morning, hardened, and the low areas are not up to the plateau. This situation prevents high-quality sowing. Crops do not produce uniform germination, do not grow evenly, and do not produce high yields from all over the area. In addition, salinity is high in the highlands of the farmland, and in the lowlands, the soil is degraded. For these reasons, it is recommended that the ground be leveled with a slight slope so that water flows over it at an equal thickness when leveling.

4.3. Fertilizer before plowing

Pre-plowing and phosphorus and potassium fertilizers are provided to the fields to be planted for winter wheat. During this period, 80% of the annual phosphorus norm and all potassium fertilizers should be used. If the yield to be harvested from winter wheat is 30 and 40 cents per hectare, then the nitrogen, phosphorus and potassium fertilizers should be regulated by the following method.

Winter wheat consumes an average of 35 kilograms of nitrogen in its pure form to form 1 ton of grain. The ratio of nutrients, i.e. nitrogen: phosphorus: potassium in the given mineral fertilizer should be 1: 0.7: 0.3, i.e. 70 kg of phosphorus per 100 kg of nitrogen and 30 kg of potassium should be used.

To produce 30 and 40 centners per hectare from this account, 140 kilograms of nitrogen, 100 kilograms of phosphorus, 45 kilograms of potassium and 210 kilograms of nitrogen, 150 kilograms of phosphorus and 65 kilograms of potassium, respectively, should be given as pure food.

It is advisable to use 80% of the annual amount of phosphorus (in the form of superphosphate) and all the annual norm of potassium (in the form of potassium chloride) before plowing. If a course of 20 tons per hectare is given, nitrogen norms should be reduced by 50 kg per hectare, phosphorus by 25 kg per hectare, and the use of potassium fertilizers is not recommended.

Figure 2. **Use of mineral fertilizers before plowing.**

Combining the course with mineral fertilizers is a more economically viable way to increase yield and quality. If mineral fertilizers contain only one nutrient (nitrogen or phosphorus), the course regulates the water, air, and heat regime of the soil by keeping all the nutrients needed for crops, growth factors, soil-friendly microorganisms, and large amounts of rot. One of the most beneficial ways to enrich the soil with nutrients and increase crop yields is to use organic fertilizers.

Organic fertilizers are the main source of soil rot. In the soil where regular organic fertilizer is applied, the amount of rot, humic acid increases, the water-physical properties of the soil are improved, and favorable conditions for the survival of microorganisms are created. Organics turn into minerals and serve as a food source for plants. Among all local fertilizers, the course ranks first in its importance. The course has a multifaceted impact on the soil, improves the agricultural properties of the soil, increases the yield of the crop and improves the quality of the crop. It is advisable to pour half a rotten course of nutrients on the ground.

When the subject is half-rotted, it becomes suitable for the plant to assimilate. The non-rotting subject contains the seeds of weeds, which cause the weeds to germinate en masse in the fertilized fields.

Figure 3. **Use of organic fertilizers (subjects) before plowing.**

The organic fertilizer is supplied with ROU-6 type attached to the Belarus MTZ-80H tractor, and the MWU-0.5 type agricultural equipment attached to the Belarus MTZ-80H tractor is supplied with mineral fertilizers.

4.4. The main herd

There is a need to use a variety of soil treatment methods in the cultivation of agricultural crops. Depending on the tasks facing the soil treatment, it is divided into basic soil treatment and superficial soil treatment. In addition, special methods of soil treatment have to be used, depending on the characteristics of the agricultural crops and the local soil-climatic conditions.

The main plow is carried out at a depth of 27-30 cm and the plaster layer of the soil is treated almost entirely. This method of soil treatment ensures the overturning, crushing, and softening of the coating layer. The herd is done with the help of various types of azals.

Figure 4. **Deep loosening of the soil**

In recent years, with the advent of John Deere and Case tractors, new reductions in herd use have been widely used (John Deere 975). Plow work is being carried out on Case MX 210, John-Dir DD 7720 tractors with Servo-45, Querneland-LD tractors or Belarus 1221 tractors with PLN-4-35 reductions.

The importance of basic plowing is very important in preparing the soil for sowing. It improves the composition and structure of the soil and helps the fragments of the sliding layer to break down. It ensures that plant residues, weeds, worms, and insects rot and turn into additional nutrients.

Depending on the agro-technical and biological characteristics of agricultural crops, depending on the local soil and climatic conditions, it is necessary to carry out grazing at different seasons of the year.

In areas that are free from winter wheat, it will be advisable to spend the main herd in July and August. Agricultural scientists have proven that the yield of agricultural crops increases by 10-15% due to timely and high-quality plowing, based on special scientific experiments. There are a number of agro-technical requirements for the quality of the herd depending on which soils, under what conditions and for which crops the main treatment is carried out. They consist of:

1. If the soil moisture is less than 17-18%, it should be irrigated superficially (500-600 m3 / ha). Then the soil should be plowed as soon as it arrives.

2. The depth should be the same across the entire area within the specified depth.

3. The drive belt should be straight, fully overturned, soft and flat.

4. Fertilizers and plant residues that have been pre-drained should be fully buried.

5. The edges of the plowed fields must be re-plowed.

Complete compliance with the above requirements will help to improve the quality of water retention, soil preparation, sowing and post-sowing care for crops and their abundant harvest.

The surface of the plowed area is smoother and more uneven, and the plastering and plastering work is carried out to keep the moisture in the plaster layer for a long time.

Figure 5. **Conducting an autumn (main)**

4.5. Alignment of ploughing fields

In order to correct the inaccuracies formed during the main plowing, the plaster should be leveled after the plaster. Only when well-drained areas carry out wastewater, the water is spread evenly throughout the area, and the washing of harmful salts is further increased. High-quality leveling work is very important first and foremost when grabbing and feeding growth water on crops, as well as on getting accustomed germination from sown seeds. Alignment work should be done at a depth of 6-8 cm. The ground leveling work is carried out by installing a Rome PG-16 leveler on a Case MX 210 tractor.

4.6. Washing and ripe water

The gray, pre-irrigated grassland, smooth and other soils that have spread in Dashoguz region have been salinized to some extent. Overall, more than 60% of the irrigated land in the region is to some extent saline soils. The first and second saline soils are common in the agricultural fields of the province. If the soils are salinized by the mother rocks, this salinization is called the first salinization.

Secondary salinization in production is also common. Secondary salinization of the soil is caused by improper water retention in farmland, poor use of water, poor drainage of sewers, and high levels of groundwater. In saline soils, winter wheat does not grow properly. If winter wheat is planted in moderately and strongly saline areas, their germination and yield will be significantly reduced. In saline areas, before the wheat is sown, the salts of the upper layer of the soil have to be washed with washing water.

The main task of carrying out wastewater irrigation is to irrigate the soil in large quantities and to remove groundwater from irrigated fields by draining the groundwater through drainage systems. Depending on the amount of salt in the soil, the humidity, the mechanical composition, the level of groundwater, the amount of wastewater is not the same. The more salt there is in the soil, the higher the amount of water needed to remove it. Due to the high water permeability of soils with light mechanical composition, the amount of water required to remove the

salts contained in it is less than that of soils with heavy mechanical composition. The amount of washing water needed to remove the salts of moist soil is lower than the amount needed to remove the salt from dry soils.

Washing water should be given depending on the salinity of the soil and its mechanical composition.

In heavy soils, it is best to divide the washing water into 2 and hold the 2nd water after 8-12 days from the first.

In order to conserve irrigation water in the catchment areas and to ensure the smooth flow of water to the entire area, first draw the intermediate gaps and then divide the area into parts (ponds) with a size of no more than 0.10-0.15 and release water recommended. The norm of wastewater is determined depending on the salinity of the soil. According to the rules of irrigation rules in force in Turkmenistan (1989), in areas with low salinity, 2000-2500 m3 per hectare, and in moderate and heavily saline soils, 3000-3500 and 4500-5000 m3, respectively, should be treated. This amount of water can be caught in one or two, or even three. It is recommended to keep the water in each area (pond) and transfer it to another area.

Figure 6. **The catchment of washing water by fields**

It is also planned to combine washing water with pre-sowing tap water in light and moderately saline areas with light mechanical salinity

in order to conserve water in irrigation rules of agricultural crops throughout Turkmenistan.

Ripe water irrigation In accordance with the approved irrigation rules, in Dashoguz region, the catchment of water from the ripe is carried out in the amount of 1200-1600 m3 / ha, depending on the mechanical composition of the soil. The areas where the tap water will be caught are divided into pieces with a size of 0.20-0.25 and then the water will start to be caught. In non-saline areas, throne water also compensates for wastewater. In areas where throne water is transferred, it is recommended to sow in a timely manner once the soil has reached the soil level.

5. Sowing

It has been scientifically determined that the yield of agricultural crops depends on the proper conduct of agro-technical measures, the correct selection of the varieties used and the quality of the seeds sown. The use of high-quality seeds of localized varieties in sowing increases the yield of winter wheat by 15-20%. Then the purity of the seeds of winter wheat should not be less than that in the first seed (A1 - 99%), in the second seed (A2) - 98%, and in the third seed (A3) - 97%. and the degree of contamination of broken seeds, pebbles, fine stones, pesticide residues and seeds of seeds of other varieties) - not less than 95%.

5.1. Preparation of seeds for sowing

Seed treatment Agricultural crops can infect various diseases through seeds and significantly reduce yields. Therefore, purified, sorted seeds are treated before sowing. Chemical (dry, semi-dry, wet) or thermal disinfection methods are used depending on whether the pathogen is located outside or inside the seed. Nowadays, dry seed disinfection is more widely used. In this way, the seeds are treated with a powder-like means. Dry materials do not bind tightly to the seed and do not last long. Therefore, the effectiveness of this method is low. Moisturizing the seeds gives good results. In this way, the chemical is impregnated with 10-15 liters of water and moistened with 1 ton of

seeds. 0.4 liters of Gensil or Tebu chemicals are used to treat 1 ton of seeds in 10-15 liters of water in 10-15 liters of water against dusty, hardy and root rot.

5.2. Sowing periods

The optimal sowing time for winter wheat is estimated to be in Dashoguz province from August 20 to October 15. The sowing depth of wheat seeds is good for sowing 5-6 cm in light sandy soils, medium to heavy clay and 3-4 cm deep in clay soils. If the soil moisture is low, the planting depth should be increased. Nitrogen fertilizer (urea - 100 kg / ha) should be applied to winter wheat before sowing or in combination with sowing. The supply of nitrogen fertilizers during this period enhances the growth of root systems and stems of the seedlings, ensuring a high level of future harvest.

Figure 7. **Wheat sowing**

Winter wheat sowing is recommended with a DE-3.6 grain sower attached to the Belarus MTZ-80H tractor.

6. Care for winter wheat

The main care activities of winter wheat include feeding, irrigating, controlling weeds, diseases, and pests. Timely implementation of these measures creates great opportunities for high yields from winter crops.

6.1. Feeding of crops

It is very important to regularly feed the crop with mineral fertilizers to get a high yield of winter wheat. Winter wheat should be fully supplied with nutrients, especially phosphorus and potassium fertilizers.

Under the influence of phosphorus and potassium, the formation of sugary compounds and the accumulation of carbohydrates in the root system, stem, and leaf of the lawn are intensified. The sugary solutions in plant tests do not freeze at 00C and prevent the freezing of free and bound water in the tissues, the formation of crystal ice in the cell in strong frosty weather. Therefore, these fertilizers increase the cold, frost, and winter resistance of wheat and other grain crops.

In some years, Dashoguz region has strong frosty weather in winter. Phosphorus and potassium fertilizers to a certain extent protect young plants from the unfavorable winter conditions as above. It is for these reasons that the herd is given a course of potassium and phosphorus fertilizers.

The demand for winter wheat for nitrogen is high throughout the growing season. In the plant, 70-80% of the nitrogen in the plant is accumulated in its leaves and stalks by the time it is absorbed, and the main part of the protein in the grain is produced by the accumulated nitrogen.

According to agro-technical requirements, 25% of the annual norm of nitrogen fertilizers applied for winter wheat in the form of urea in pre-sowing soil treatment, 25% in the form of urea during the sowing period, and the remaining 50% in the form of ammonium nitrate 2 and 2 It is recommended that the 2nd feeding be divided into March 15-20 and the 3rd feeding until April 15.

Figure 8. **Feeding of winter wheat with mineral fertilizers**

In Dashoguz region, it is recommended to feed the plants with ammonium nitrate in the second half of March and the first of April, depending on the weather conditions. Ammonium nitrate contains 36.6% nitrogen, 50% of which is ammonium and 50% nitrate. Ammonium nitrogen is well absorbed into the soil and nitrates are elevated by soil solution. Research has shown that during periods of strong growth and germination of grasses, nutrients are absorbed, especially nitrogen. Therefore, the balanced storage of nitrate and ammonium nitrogen in ammonium nitrate has a very good effect on wheat yield.

After winter wheat is fed, light water retention helps it to fully absorb the fertilizer. It is recommended to carry out water catchment first in saline areas and then in clayey and light soils.

Supplemental feeding of winter wheat from leaves

In recent years, experiments have shown that winter wheat has a great role to play in increasing the yield of nutrients from the leaves of the crop, in addition to basic feeding with nitrogen fertilizers. In particular, providing the crop with the required amount of nutrients

during the fertilization process helps to lay the foundation for a bountiful harvest. If nitrogen or phosphorus fertilizers are deficient during fertilization, a certain part of the crop is hit cold in winter, the number of stems at the base is low, the crop lags behind in growth, resulting in reduced yields. Supplemental feeding of wheat leaves with nitrogen, phosphorus and potassium solutions and micronutrients increases crop resistance to disease.

Therefore, in the period of winter wheat germination, especially in the early spring, when the plant begins to germinate, matures, and begins, there is a great supply of mineral and micronutrient suspension by spraying on the leaves, in addition to the main feeds.

It is considered advisable to use urea from nitrogen fertilizers along with microfertilizers in leaf feeding. This is because urea dissolves well in water. In addition, the solution of this fertilizer is well absorbed through the leaves of wheat. After spraying with the urea solution, water droplets appear on the leaves of the wheat and the water demand decreases. Experimental studies have shown that leaf feeding has a good effect on grain quality and yield, when 10-20% of urea is mixed with a solution of urea at the onset of winter wheat, and when fed through leaves, 3% of the grain contains 1.5% of the nutrient content of the grain. 4% increase.

Procedure for the preparation of a suspension consisting of urea and chemicals.

1. Preparation of pre-matched urea solution: 5 kg urea should be dissolved in 20 liters of water or 40 kg urea in 160 liters of water. You should use 20 liters per 1 ha of the finished solution.

2. Preparation of preliminary (matochny) superphosphate solution: 6 kg of superphosphate should be dissolved in 50 liters of water. To do this, the solution must be continuously poor, heated to 70 degrees, and its complete melting must be achieved. You should use 50 liters of solution per 1 ha.

3. Preparation of the suspension. For 1 hectare of winter wheat - 230 liters of water should be mixed with a pre-prepared 20-liter urea + 50-liter superphosphate solution. Sprinkle 300 liters of suspension per 1 hectare of wheat field.

Rules of feeding winter wheat from leaves It is recommended that young wheat in saline areas be fed with any type of micro-fertilizer (excluding mineral fertilizers) such as Oxygumat, Edagum, or Gumat Potassium. The use of a suspension made of urea, superphosphate and microfertilizers yields good results for 4-5-leaf wheat in clay and sandy soils.

Terms and procedure of use of the suspension: When 4-5 green leaves are formed in wheat for the first time, 400-500 grams of 1 type of chemical “Oxigumat” or “Edagum” or “Gumat potassium” and urea 20 liters, 50 liters of superphosphate solution, 300 liters of water should be used in 1 hectare. It is recommended to use the suspension for the second time during wheat germination. During this period, the amount of urea added to the suspension is increased to 7-8 kg. A solution of potassium chloride of 4-5 kg is also added to the solution. The use of the suspension for the third time during the wheat start-up yields good results. During this period, the amount of urea added to the suspension is increased to 10-12 kilograms.

It is recommended to use 100 liters per hectare when spraying with the above-prepared solutions and suspension planes, and 300 liters per hectare when spraying with surface sprayers.

Preparation of sprayers for work. Before spraying to wheat, you need to adjust the speed and width of the sprayer and the solution consumption. Sprayers should ensure proper tightening of the rings and cleanliness of the filters. Suspension should be achieved by spraying the plants evenly with small drops at a pressure of 2-4 atmospheres.

When adjusting the working width of the sprayer, its soplane should be installed at a height of 0.5-1.0 meters above the ground and at a slope of 10-120 degrees from the axis according to the height of the wheat. In order to increase the efficiency of the spraying process, it is recommended to use the spraying equipment comprehensively and to prepare the suspension in a centralized manner. For this purpose, it is considered appropriate to create a specialized technical team of 10 sprayers in the districts and to use at least 3 suspension pumps in the suspension center.

Compliance with safety measures in using suspension. When using a suspension solution, you should familiarize yourself with the

rules of occupational safety. Workers should wash their hands with soap before eating and change the clothes they use after work. Workers are prohibited from eating and drinking at work. It also prohibits the participation of minors, pregnant and lactating women under the age of 18.

6.2 Growth watering

Depending on the soil and climatic conditions of Dashoguz region, the amount of water to be used per 1 hectare of wheat during the development period should not exceed 3200 m3. In this regard, the first growth water is supplied at the rate of 900 m3 per hectare during the period of full germination of wheat - from February 15 to March 20. The second growth water is given during the period from March 15 to April 15 during the mowing season of wheat at the rate of 1000 m3 per hectare. The third growth water - after the application of nitrogen fertilizers, should be caught at a rate of 1000 m3 per hectare between April 10 and May 10 during the wheat germination period.

Figure 9. **Harvest field.**

6.3. Weed control measures

Weeds growing in wheat fields significantly reduce crop yields and grain quality. Therefore, weed control measures play a key role in growing winter wheat. Proper soil treatment and adherence to local fertilizer application rules are of great help in preventing the spread of weeds in wheat fields. However, the use of herbicides in fields where weeds are abundant yields good results.

As is well known, weeds grown in winter wheat fields are divided into groups such as 1-part and 2-part per year and perennial 1-part and 2-part.

From 1-year-old weeds, weeds such as algae and wild oats are more common. Terdok or Topik (0.5 liters per hectare) herbicides are used against them.

Terdok or Topic herbicides should be used in March during the 2-3-leaf period of weeds. The above amount of herbicides should be dissolved in 100 or 300 liters of water to prepare a working solution. When spraying with the help of planes, it is necessary to consume 100 liters of solution per hectare, and when spraying with the help of tractors, 300 liters of solution. Annual, 2-part weeds include plants such as grapefruit, spinach, squash, shatter, fruit, shepherd's bag, insect, mammary gourd, spinach, wild perch, starfish, and Gromstor or 15-20 grains against these weeds any of the herbicides should be used.

The timing, method, and amount of use of these herbicides are similar to those used in weed control. In most cases, wheat fields with 1 and 2 parts of weeds are mixed. Therefore, it is important to take appropriate measures to control weeds in one and two-sided weeds. For this, herbicides used against 1-strains should be used in combination with herbicides used against 2-strains, i.e., it is recommended that the Terdok Gromstor remedies be used poorly. If perennial weeds such as reeds and tares increase in the wheat field, after the wheat harvest, the field should be irrigated and the weeds should be greened and 4 liters of Sprut-Extra solution should be dissolved in 300 liters of water or 6 liters of Sonraund solution should be dissolved in 300 liters of water 20 days before sowing. It is recommended to use it after harvesting. It is

recommended that chemical weed control be carried out in March and April in favorable weather conditions.

6.4. Pests control measures

In case of harmful insects such as lentils, beetroot grain beetle, wheat lice, autumn cold in the fields where winter wheat is planted, Karate or Best-Alpha should use 0.15-0.2 liters per 300 hectares of water per 1 hectare.

Figure 10. **Conducting pest control measures.**

It is recommended to use a comprehensive combination of weeds in the fight against weeds, crop diseases and pests. Comprehensive integrated measures include: agrotechnical, biological and chemical measures.

7. Grain harvesting

7.1. Preparations for the grain harvesting

The importance of timely and high quality of all agricultural measures in the cultivation and harvesting of winter wheat is of great

importance, but the wheat harvest is one of the most important of these measures, as this work is the result of the hard work of the grain farmer throughout the year. High-quality and short-term quality of the wheat harvest is an important condition for harvesting and delivering the harvest to the Homeland Harvest without loss.

The harmless and short-term harvest of the harvested wheat depends on the pre-harvest situation, the preparation of the wheat fields for the harvest, the weather conditions, and the well-being of the grain harvesters and the organization of the grain harvest.

When the grain is harvested, the grain, which is usually harvested in the grain box of the grain harvesters, contains seeds of other cereals, stems and leaves of the crop, weeds, weeds, unbroken grains, soils, stones, boulders, stones, soil, stones, boulders and stones, as well as wheat.

One of the main ways to prevent this is to make sure that the wheat fields are clean of weeds and other cereals. This, in turn, prevents weeds from germinating in the wheat fields. Sprouting of seeds of weeds in wheat fields is caused by the fact that the seeds of the sprouted plants on the edge of the irrigation canals are flowing with water from the spills during last year's sowing, under the influence of the environment, with the help of wind and dust. The main way to prevent the germination of seeds of these plants is to conduct a high-quality transplanting of the herb after harvesting the wheat.

7.2. Agrotechnical requirements for grain harvesting

In order for the grain to be harvested properly, first the wheat fields must be fully prepared for the harvest, the irrigation ditches and fields in the fields should be leveled and the grain harvesters should be able to function normally.

In the direction of the combine harvesters, circular strips (8-10 meters of flat free space) are prepared along the edges of the ridges.

One of the most important aspects of the preparation process is the cleaning of wheat fields from unripe, unripe and completely dry weeds. In the grain harvest, the weeds, the fragments of the dead, wet twigs and leaves of the weeds, and the unripe grains fall into the crushed refined

crop, increasing its moisture and contributing to the damage to the crop. Therefore, the fields to be harvested must be cleared by hand of such weeds.

Proper preparation of wheat fields for harvesting, selection of suitable methods for harvesting and harvesting, regular preparation of grain combines for grain harvesting, short-term harvesting of grain harvests, harvesting of harvested crops for harvesting and harvesting and its regular holding will give full opportunity to harvest the grain grown in our country in a harmless, high-quality manner and deliver it to the threshing floor

7.3. Grain harvesting

In the conditions of Dashoguz region, during the grain harvest, due to the lack of rainy weather, the wheat crop is harvested, crushed, cleaned and cleaned in a straight-line (one-time harvester) method with the help of grain harvesters.

Figure 11. **Grain harvesting.**

The wheat crop is harvested with the help of high-yielding CLASS, Case, John-Dir grain harvesters.

Rules and terms for carrying out agrotechnical measures in the cultivation of winter wheat

№	Measures to be taken	Rules	Due date
1	2	*3*	*4*
1.	Fertilize before plowing	Manure – 10-40 t/ha. Superphosphate– 400 kg/ha. potassium chloride– 100 kg/ga.	01.07-10.08
2.	Spraying herbicides against perennial weeds	*Sprut-Extra*– 4 l ýa-da *Sonround* – 6 l/ ha	01.07-15.08
3.	Sürüm geçirmek	27-30 cm	10.07-15.08
4.	To level	Deliberately	10.07-20.08
5.	Preparation of land for pouring and irrigation (temporary canals, çilleri garden bed dividing into areas)	In light soils – 0,15-0,25 ha; In medium, heavy soils – 0,25-0,35 ha	15.07-15.09
6.	Irrigation	2000 to 5000m^3/ha (depending on salinity)	15.07-15.09
7.	Primal pouring (in areas with low salinity and non-salinity)	1200-1600 m^3/ha	15.08-30.09
8.	Pre-sowing cultivation (chisel plow, rake With a herd of cattle)	In light soils – 12-14 cm; In medium, heavy soils – 14-16 cm	25.08-10.10
9.	Fertilizing before or during sowing	Carbamide– 100 kg/ha	20.08-15.10
10	Pickle seeds	*Gensil's or Tebu's* 0,4 l-ini 10 -15 liters of water should be the progany poor	10.08-15.09
11.	Sowing	180-220 kg/ha	20.08-15.10

1	*2*	*3*	*4*
12	Feeding with nitrogen fertilizer for the first time	Carbamide – 150 kg/ga	15.02-20.03
13.	The First growth watering	900 m^3/ha	15.02-20.03
14	Spraying herbicides	*Terdok* or antineoplastic – 0,5 1itres/ha	01.03-30.03
15.	The second time feeding with nitrogen fertilizer	Ammonium nitrate– 250 kg/ha	15.03-15.04
16.	The second growth watering	1000 m^3/ha	15.03-15.04
17.	The third growth watering	1000 m^3/ha	10.04-10.05
18.	Pest control(in the case of pests, pests, leeches, wheat mites, grain pests, juices, rust)	*Karate* or *Best-Alpha* – 0,15-0,2 1/ha, insecticide *Alto super* – 03-0,5 1/ha, fungicide	During the growth period
19.	Preparing for the wheat harvest	Temporary canals, çilleri garden beds and enclosures	20.05-05.06
20.	Harvesting wheat	Collection of transport groups	05.06-25.06

CONTENT

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