
Study Of Corn Biology In Agriculture And The Technology Of Its Cultivation

Khoidarova Sevarakhon Rakhmatjon qizi
Masardinov Khushnubek Bozorboy ogli
Fayzullayeva Mubinaxon Utkirbek qizi

¹ Assistant, Andijan Institute of Agriculture and Agrotechnology.
Uzbekistan, Andijan

² 4th year student, Andijan Institute of Agriculture and Agrotechnology.
Uzbekistan, Andijan
xushnubekmasardinov@gmail.com

³ 1st year student, Andijan Institute of Agriculture and Agrotechnology.
Uzbekistan, Andijan

Abstract: The study of the biology of corn in agriculture, which allows to obtain high yields from this plant, as well as the correct organization of cultivation technology, efficient use of land.

Keywords. corn, fertility, fertilization, biological features, moisture necessity, planting, soil necessity, water necessity, growth period, qualities.

Introduction.

The agricultural sector in our country, along with other sectors, is developing rapidly. A number of measures are being taken to provide the population with quality food and fodder. It takes a lot of expertise to grow them. On April 17, 2019, President Shavkat Mirmonovich Mirziyoyev also signed a decree "On improving the system of public administration in agriculture." This is also an important focus on agriculture. There are many fodder plants in our country. Among them, the corn plant occupies a

special place. This plant is also a nutritious food for livestock. Its importance in the national economy is also invaluable. Knowledge of the biology and cultivation technology of maize allows for high yields from this plant and helps to provide the animal with the necessary nutrients. Maize is a plant that is resistant and adaptable to environmental conditions. The growth and development of corn depends on the ecological characteristics of the external conditions, the longevity of the species, water demand, soil temperature and air temperature, light, nutrient supply, the plant's relationship with other crops, etc. Corn is a very nutritious crop as a silage crop. The silage is soft and smooth. Feeding cows with this silage during the winter will increase their milk yield. According to the results of experiments conducted at the Andijan Agricultural Institute, there are 109-113 feed units per 100 kg of dry silage in the milk-wax consistency of corn, and up to 69 g of protein per

feed unit. I di. The possibility of using maize as fodder in different ways makes it possible to grow it not only as a main crop, but also as a secondary crop by growing it in a mixture with other food crops. Uzbekistan's soil climate allows irrigated lands to be planted at different times and produce high yields and nutritious crops. Numerous experiments with corn and practice have shown that in irrigated lands, the application of fertilizers to irrigate crops according to crop needs is to increase the number of plants per 1 hectare to a certain extent. further increases the efficiency of the factors.

Biological properties. Heat demand

Corn is a heat-loving plant. Currently, biotopes have been created where the seeds begin to germinate at 5-6 degrees. The growth of biomass stops when the temperature reaches 10 degrees. Corn seeds begin to germinate at 8-10 degrees, bear fruit at 10-12 degrees, and germination energy increases sharply with increasing temperature. For example, when the temperature is 15 degrees, it germinates 8-12 days after planting, if other necessary factors are sufficient. When the temperature is low and planted in moist soil, the seeds may die and the number of seedlings in the field may decrease. The optimum temperature for good growth of plants is 20-27 degrees. [8] The minimum temperature for growth is 12-15 degrees. Grass dies at 2-3 degrees. Above 30-35 degrees during the flowering phase, the pollination of the flower is lost. The total useful temperature for corn varies from 2,100 degrees Celsius to 3,000 degrees Celsius, depending on the variety and hybrid. Heat is very important during the growth and development of corn, from germination. The soil temperature at the depth of the seed burial is 10-12 degrees, which is favorable for the germination

of corn seeds. It took 27 days for the grass to germinate at a daily temperature of 9 degrees. 11 days at 16 degrees and 5 days at 23 degrees.

Humidity requirement

Drought tolerance of maize is observed in the early stages of development. Moisture requirements of corn increase during ripening and fruiting. Water frequently during this period. The young plant contains 90% or more of water. In the second half of the growing season, the amount of water decreases and does not exceed 50-60 percent during the ripening period. This amount of water in the plant requires a lot of water from the soil. In the conditions of Uzbekistan, such a high demand for water can be eliminated by irrigation. The drought resistance of corn is explained by its transpiration coefficient of 174-406.

Corn is a drought tolerant plant that saves moisture. However, it requires a lot of water to grow a good crop. [7] One well-grown corn bush evaporates 2-4 liters of water per day during the summer or 150-200 liters during the whole growing season. In the early stages of development, the average daily consumption of water is 30-40 cubic meters per hectare, and 80-100 cubic meters per hectare until the milk matures. Corn is drought tolerant until it germinates. If there is not enough moisture 10 days before and 20 days after hatching, the yield will drop sharply. For high yields, the moisture in the root layer of the soil should not be less than 70-80% relative to the soil DNS GA.

Light demand

Corn is a light-loving short-day plant. For him, the length of the day should be 12-14 hours. If the length of the day is longer, the period before ripening will be longer, it will grow stronger. Corn

requires good light, especially at a young age. If it is planted too thickly, the weeds will reduce the yield of soybeans. Light has a profound effect on the growth and development of corn, the process of photosynthesis, the formation of crop organs, and the increase in yield. Light helps to create chlorophyll, because without chlorophyll in the leaf, photosynthesis does not take place. Demand for water. During the growing season, corn needs a lot of water. Well-developed corn evaporates 4 liters of water a day when provided with an alternative amount of water. When the water content in the soil is less than 9.5%, the plant stops growing and begins to wither at 6.7%.

Demand for soil

Maize grows in almost all areas where other crops can grow well. High yields of maize are obtained in areas with a soft, porous humus layer without weeds, well-supplied with nutrients and moisture, pH 5.5-7. Manure and other organic fertilizers should be applied to light soils where corn is grown. Black soil, dark chestnut soil, as well as loamy soil are good for growing corn. It is especially good for meadows and meadows. Corn can grow well in areas with very saline groundwater, as well as in highly acidic soils. Salt resistance. Corn is a salt-tolerant crop. About 60 percent of Uzbekistan's arable land is saline. The corn plant wants the soil solution environment to be close to neutral, but in low-salinity soils it gives a satisfactory yield only when the salt is washed away or the seed is treated with an Antisol stimulator. The past tense. Corn does not choose the ground. It can be planted on any vacant land. Corn, cereals, and especially legumes are good past crops. Corn development and developmental phases. Maize seeds germinate in 4-15 days, depending on the sowing period. Sprouts after 10-15 days if sown early, 8-10 days after late sowing

and 4-5 days if sown in moist soil in summer. The grass is strong and can grow up to 12-14 cm deep. Corn grows very slowly until the first ground stem is formed. The stem grows much faster before and during the formation of the stalk. During this period, depending on the conditions, the plant grows 1-12 cm per day, depending on the height. After flowering, the stem almost stops growing. Plants accumulate up to 75% organic matter 10 days before flowering and 20 days after flowering. Corn undergoes the following stages of development: germination, tube wrapping, germination, flowering and ripening.

Fertilize

Because corn is a high-yielding plant, it takes a lot of nutrients from the soil and, unlike other plants, it requires fertilizer throughout the growing season. The bulk of the fertilizer is applied before planting, the rest at the same time as planting and during the growing season. Maize absorbs an average of 2.4-3 kg of nitrogen, 1-1.2 kg of phosphorus and 2.5-3 kg of potassium to produce 1st grain, corresponding stem and leaf mass. [4] It absorbs more than half of all nutrients in the second half of the growing season. When nitrogen is not enough for corn, it stops growing and developing. Phosphorus is essential for the early growth of the plant, when future inflorescences begin to form. Lack of phosphorus at this time leads to poor development of sorghum and improper formation of grain rows. Potassium deficiency slows down the movement of carbohydrates, the photosynthetic activity of the leaves slows down, the root system weakens, and the corn stalks lie down. In autumn, 50-80 kg of phosphorus and 30-30 kg of potassium fertilizers are applied per hectare. At planting, 10 kg of phosphorus and 10 kg of potassium are applied per hectare. When the fertilizer is applied,

the yield of corn increases by 15-20%. When corn is planted in very humid and cold soil, the seeds rot and the buds become sparse. Young corn stalks are frost tolerant. Requires nitrogen fertilizers during the initial growth period and phosphorus fertilizers in the formation of organs. Well-treated fertilized weeds are selected for planting in small areas, and selected high-yielding seeds are selected. Maize is grown for two purposes: grain and green stalks. Such seeds should have a high moisture content, typical high germination and growth energy. Some mineral fertilizers are applied at the same time as planting. In determining the rate of mineral fertilizers, the mobile nutrients in the soil, soil fertility are taken into account the planned yield. The yield of maize seeds is very high if a portion of phosphorus and nitrogen fertilizers is applied at a rate of 20 kg per hectare. Fertilizer applied in this way increases the demand for nutrients in the early stages of plant life, as well as resistance to various adverse conditions and yields. These fertilizers are applied at a distance of 3-5 cm from the seeds and at a depth of 2-3 cm from the seeds. [10] During the growing season it is fed twice with nitrogen fertilizers

Land cultivation

The land for corn is plowed in the fall. After the autumn plowing of perennial weeds in the fields, the remains of the roots are collected with the help of a spring-loaded cultivator or chisel. The soil for corn should be well prepared. The main tillage is carried out in autumn by plowing the soil to a depth of 30-35 cm with plowshares. [9] In order to reduce weeds, it is recommended to dig the soil to a depth of 8-10 cm before plowing in autumn. Cleared of weeds.

The role of crop rotation

When corn is planted after beets, phosphate uptake and nutritional conditions deteriorate. Placing corn after legumes increases productivity and improves grain quality. According to UzPITI, the combination of alfalfa with maize has improved soil fertility, followed by increased cotton yields and improved fiber quality. [7] Compared to monoculture, the yield of cotton increased by 3-4 strings after corn. Chronic planting of maize in the same field leads to an increase in the incidence of puffiness and a decrease in productivity.

Planting, care and harvesting processes

Corn seeds are cleaned, calibrated and treated before sowing. When seeds are hydrophobized, they are immersed in polymer liquids. This covers the surface of the seeds with a membrane that protects them from adverse temperatures and low temperatures. This is best done by spraying the seeds. 20-25 kg of seeds are used per hectare for grain and 30-180 kg for green table. Because the grains at the bottom and top of the soybean are not the same size, their germination rate is low. Therefore, the grains at the bottom and top of the stalk are removed. The grains in the middle of the rest of the soybean are then ground. [8] A hand-operated MKR-0.25 corn threshing machine is used to grind the grain from the husks. The milled grains are cleaned and sorted by special machines. For this purpose, grain cleaning machines OSM-3, OSMU-3U, OD-10, VS-2 are used. The purity of sown seeds should be 99-99.8%, germination rate 85-95%. A special place is given to maize as a secondary crop on the lands vacated by autumn crops. In this case, the autumn crops are harvested as soon as possible, the land is prepared for sowing and the seeds are irrigated after sowing. In general, when maize is

planted as a secondary crop, its agronomic techniques differ little from those of spring maize. Only early maturing varieties and hybrids of maize are required for replanting. Early-maturing hybrids of Perekop TV and Uzbekistan-306AMV are currently being planted in our country. These hybrids produce 35-50 str per hectare when planted as a secondary crop. The method of sowing corn and alfalfa seeds together is very common in Uzbekistan. Corn seeds are sorted and treated in special plants. But the seeds can be prepared on any farm. In this case, the corn seeds should be stored in the pot until sowing. Seed sorting allows you to use a certain amount of seed drills and avoid weeding. Humidity during storage should not exceed 14–15 percent. In fertile, well-fertilized, non-grassy areas, frost-resistant cultivars can be sown earlier. Corn is grown in rows for grain and silage. Corn is planted in the spring when the soil temperature reaches 10 degrees. It can also be planted in the summer. It is sown 15-20 times in the southern regions of Uzbekistan, 20-25 times in Tashkent, Samarkand and Fergana valleys, on April 10 in Khorezm region and the Republic of Karakalpakstan. During the growing season, corn is cultivated 3 times. When the plant produces an average of 3-4 leaves, the first cultivation is carried out using special corn or cotton cultivators KPH-4.2, KPH-5.6. The weeds around the nests are cut down and destroyed. The second cultivation is done 10-15 days after the first cultivation. The third cultivation is carried out 15-20 days later. Cultivation can be completed when the plants reach a height of 50-60 cm. When cultivating longitudinal rows should leave a protective zone of 14–15 cm. In the first cultivation, the row spacing should be 6-8 cm deep, in subsequent cultivations it should be 10-12 cm deep. Maize is irrigated 3 to 6 times, depending on navigation

and soil conditions. 1-2 drops of water are given before the plant emerges. The first water is given 20-25 days after the emergence of grass, and the second water is given 20-25 days later. Corn is usually planted at 70 cm intervals. Depth of sowing of corn seeds can be 4-5 cm, depending on the mechanical composition of the soil, soil moisture and sowing time of seeds. Corn grains are harvested in a short period of time when they are physiologically fully ripe. When sown as a secondary crop, corn for silage has to be harvested before the milk-wax ripening phase, as a slight cold will kill the plant, reducing its nutritional value. In this case, the corn is added to the crushed straw and ensiled, so that the excess moisture is absorbed into the straw. It is best to harvest corn for silage 7-10 days before the onset of frost. KSK-100, Vixr, KS-18 and other modern combines are used for this purpose. Delayed harvest leads to loss of grain yield and poor quality. Harvesting of grain with soybeans is carried out when its moisture content does not exceed 40%, and grinding of soybeans does not exceed 30%. Corn grown for grain is harvested when it is fully ripe and the husks are dry. It uses special combines "Hersines-200", "Hersones-72".

Corn hybrids and varieties developed in Uzbekistan

Avizo, Brilliant, Bemo, Bemo-182 SV, Vatan, Domingo, Kremnistaya UZROS, Moldaviskiy 425 MV, Moldaviskiy 427 MV, Uzbekistan 306 MV, Uzbekistan 420 VL, Uzbekistan 601 ESV, Uzbekskaya zubovidnaya.



Conclusion

If we summarize the above information about the biology and technology of cultivation of corn, it is not difficult to grow this crop. Only if we do the right agronomic techniques in time, follow the correct fertilization norms, study the biology well and take care of this plant, we will achieve high yields as expected. It is recommended to harvest in time for silage. When we apply fertilizer to this plant, we need to know the level of soil fertility and apply the fertilizer in moderation.

List of used literature

1. S.Tursunov "Technology of cultivation of field crops" pages 90-97, Tashkent-2013
2. HN Atabayeva, JB Khudoikulov "Botany" pages 130-137 Tashkent-2018
3. RO Aripov, NH Khalilov "Botany" pages 155-163 Tashkent-2007
4. T.S.Xudoyberdiev. B.R.Boltaboev. B.A.Razzakov. M.Sh.Kholdarov. "To The Fertilizer Knife Determination Of Resistance". //Asian Journal of Multidimensional Research (AJMR) // Vol 9, Issue 8, August, 2020. <https://www.indianjournals.com/ijor.aspx?target=ijor:ajmr&volume=9&issue=8&article=011>
5. D.Yormatova, "Biology of field crops and cultivation technology" pages 53-55 Tashkent-2000
6. OF Mirzayev, TS Khudoiberdiyev "Cultivation of fodder" pages 230-233 Andijan publishing house-2003
7. KS Rakhmatjonovna. "[THE IMPORTANCE OF MICRONUTRIENTS IN PLANT LIFE. \(IN THE EXAMPLE OF THE ELEMENTS BORON AND MANGANESE\).](#)" // World Bulletin of Public Health // 1 (1), 4-6, 2020. <https://scholarexpress.net/index.php/wbph/article/view/2>
8. Kholdarova Sevara Rakhmatjon Kizi, Masardinov Khushnudbek Bozorboy Ogli. "[The Importance of Esparset or Tall Crowfoot in Livestock and Its Effect on Soil Fertility and Its Cultivation Technology](#)",

// JournalNX // 6 (11), 104-106.

Published 2020.

<https://www.neliti.com/publications/335642/the-importance-of-esparset-or-tall-crowfoot-in-livestock-and-its-effect-on-soil>

9. МШ Холдаров. "Универсально-комбинированный культиватор
улучшенная конструкция удобрения"

// International journal of discourse on innovation, integration and education // Том 1, Номер 5, Страницы 44-48.

10. Дата публикации 2020/12/8.

<http://summusjournals.com/index.php/ijdiie/article/view/355>

11. TS Khudoyberdiev, BR Boltaboev, MS Kholdarov. "Improved Design of Universal-combined
Cultivator-fertilizer"

//International Journal on Orange Technologies// 2 (10), 83-85.

<https://www.neliti.com/publications/333419/improved-design-of-universal-combined-cultivator-fertilizer>