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INTRODUCTION OF ZINGIBER OFFICINALE L. PLANT IN THE SOIL CLIMATE CONDITIONS OF THE TERMIZ DISTRICT

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Abstract:

This article deals with the introduction of the ZINGIBER OFFICINALE L. plant in the soil and climatic conditions of Termiz district and the distribution areas and botanical description of the plant, the seasonal development pattern. Ginger (Zingiber officinale L) is a spice and medicinal plant belonging to the ginger family.

Keywords: *Zingiber officinale* L., type, world, scientific, botanical, description

During our article, *Zingiber officinale* L in the conditions of introduction . morphological characteristics of the species were as follows: the rhizomes of the plant are considered to be an underground vegetative reproduction organ and have a long spherical appearance and a yellowish skin on the outside. In the central part of the rhizomes are bundles of conductive tissue, which tend upward through the stem. The average diameter of rhizomes is 8, 10 cm and height is 10-15 cm, weight is from 40-60 gr to 100 gr (in rare cases 120 gr). At the time of harvesting, the weight and size of rhizomes increase significantly[1].

From the buds located at the bottom, rhizomes are formed, and in some cases (depending on the ecological environment) they are formed. This characteristic of the plant can be effectively used to increase the coefficient of vegetative reproduction by dividing the rhizomes into several parts, in turn increasing the amount of nutrients.

ANALYSIS AND RESULT. The leaves of the plant are up to 6-12, scabbard, ribbon-like, the central part of which is bordered with flowing green color. The upper leaves are shorter than the lower leaves.

In the experiment conducted in 2020, the formation of vegetative organs of *Zingiber officinale L. in Termiz conditions in the third month of May*

It started when he was ten days old (air temperature 24-32 ^{o}C, relative air humidity 33%). The leaves of the plant begin to appear pale green from the soil, its full formation took 15 days, and its length was 2-11 cm.

Phenological observations are one of the most convenient and effective methods for studying introduced plants. Phenological observations are important not only in determining the transition periods of different phases, but also in determining the durability and productivity of plants, as well as the rhythm of their vital processes[3]. *Zingiber officinale,* which is the object of the dissertation in this part of our scientific research . Let's focus on the seasonal development phases of type L[4].

After 17-20 days (June 21-25), the height of the above-ground part of the plant reached 6-16 cm. By July 15, the length of the main stem of the plant is between 24-32 cm, the number of leaves in one plant is 5-9 pieces, the width of the leaves taken from the 2nd joint is 2-2.5 cm, the length of the leaf and it was 9-13 cm, and the weather temperature in this month was max 39 ^{0}c min 23 ^{0}c.

In order to study the water regime in the plant (Ivanov's method) [2;76-78 b], the speed of transpiration in the plant was studied by the method of rapid weighing using a torsion balance. In this case, 10 models of each variant were cut from a 2 cm ^{2} surface of a plant leaf and measured every 2 hours (from 8:00 a.m. to 4:00 p.m.) using a quick weighing method[5]. Average water evaporation of 10 model plant leaves in option 1 according to measurement results In plants of option 1 563 (+-) mg, in option 2 this indicator is 522 (+-) mg, in option 3 - 620 (+-) mg, in option 4 - 602 (+-) mg, and in option 5 - 512 ($^{+}$ -) amounted to mg. It can be seen that in the plants planted in option 3 and option 4, the transposition process is fast.

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Table 1

			OPTIONS				
o	Time	Leaf surface	Organic fertilizer	$N_{75} P_{50} K_{50}$	$N_{125} P_{100} K_{100}$	$N_{100} P_{75} K_{75}$ + B3 +Zn6+Fe6 V4	Control
		10 plants	The weight of 10 plant leaves is in ***mg***				
	8:30 a.m	2 cm^2	735	765	635	710	620
	9:00 a.m	2 cm^2	662	700	579	674	600
	9:30 a.m	2 cm^2	615	665	542	629	588
	10:00 a.m	2 cm^2	590	645	528	610	550
	12:00 p.m	2 cm^2	537	590	480	565	440
	14:00	2 cm^2	422	525	458	531	420
	16:00	2 cm^2	380	454	435	497	370
average:			563 (+-) mg	522 (+-) mg	620 (+-) mg	602 (+-) mg	512 (+-) mg

The appearance of rhizomes in the plant began in the first ten days of June. At this time, the average air temperature was 31-41 ^{0}C.

It is known that the role of (N_2) nitrogen, (P) phosphorus and K (potassium) is very important in the growth and development of plants. Nitrogen is part of proteins, phospholipids, coenzymes, chlorophylls, phytohormones and other compounds. It can be seen that N is absorbed more than other mineral elements[7]. Mineral fertilizers play an important role in the cultivation of medicinal ginger. In the cultivation of ginger, mineral fertilizers are used taking into account the type of soil and climatic conditions. N36-225P20-115K48-200 per hectare has been applied for ginger production in different regions of India (Mohanty et al., 1990; Sahu and Mitra, 1992; Panda et al., 1993). Roy et al (1992) reported a significant increase in yield of ginger when micronutrients (Zn (0.3%) + Fe (0.2%) + B (0.2%)) were applied 2 times i.e. 45 and 75 days after planting[6].

Today, there is no information about the agrotechnology of growing the unique ginger (*Zingiber officinale) plant in our Republic.*

When analyzing the number of leaves and leaf width of ginger plant, the option using fertilizer in the amount of N125P100K100 kg per hectare and the options using macro- and micronutrient fertilizer (MMEO') had a positive effect was determined. It was analyzed that the variant with N125P100K100 kg of fertilizer per hectare increased the number of ginger leaves by 46% and the leaf width by 23% compared to the control[8]. According to the results of the analysis, it was found that the MMEO' applied variant increased the number of plant leaves by 53% and the leaf width by 30% compared to the control[9].

At this time, rapid growth of vegetative organs was observed in plants. Changes in the plants after fertilization were recorded. The results were statistically analyzed and the main conclusions were drawn. According to the results, the growth and development process of the plants in the 2nd and 4th options was accelerated. This situation continued in September. October The leaves of the plant stopped growing[10]. Yellowing of leaves in the conditions of Termiz district in the first ten days of October 2020 (18-27 ° C) is observed, and the end of the growing season is in the middle of October. At the end of October 2020, the above-ground part of the plant has completely dried up. At the beginning of November, plant rhizomes were dug up. According to the results, the quality was determined by weighing 10 model plants[11]. Option 1 without fertilizer, 480 g in the control option, option 2 - 810 g in the option of mineral fertilizer N75P50K50 kg per hectare; Option 3:

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N125, P100, K100 kg mineral fertilizer per hectare, 680 g; 720 g was obtained in option 4 of macro- and microelement fertilizers, and 510 g of organic fertilizer was obtained in option 5. At the time of planting, 10 kg of ginger rhizomes were planted in an area of 46m x 4m. As a result of our research, 47 kg of ginger rhizomes were obtained from 1 hectare. In his homeland, this indicator is 10,000 (ten thousand) kg of yield per hectare[12].

In our research conducted during 2019-2020 , the vegetation duration of *Zingiber officinale* L. It lasted 240-242 days.

The rate of transpiration of the unique ginger plant in the climatic conditions of Surkhandarya region was analyzed in 120 days. According to our results, it was observed that the evaporation of water from the leaves of the ginger plant, that is, transpiration, changed during the day. It was noted that the rate of transpiration in ginger leaves was high in the morning and low in the afternoon in all variants. The highest value was found to be at 9 o'clock in all variants.

At the end of October 2020, the above-ground part of the plant has completely dried up. At the beginning of November, plant rhizomes were dug up[15].

Ginger is a simple plant that grows in the subtropical zone, it needs abundant watering and high humidity. The presence of buds on the plant rhizome is a necessary condition for plant germination. To wake up "sleepless" buds, the rhizome can be placed in a plastic bag in warm water for two to three weeks or several hours. Before planting the rhizome, you need to buy a wide pot, not a tall one, because ginger grows wide, not deep[13]. The pot should have special drainage holes to feed the rhizome with oxygen and filter water. It is necessary to pay special attention to the soil. First, drainage material (for example, gravel) is filled with mineral-rich soil about 3-4 cm into the bottom of the container. Experts also recommend using a mixture of turf, soil, peat and river sand.

YMMurdakhaev (1992) studied the introduction of medicinal plants in the conditions of our republic, the characteristics of growth and development, the process of adaptation in relation to their floristic areas, life form and ecogeographic distribution[14]. Later, in scientific research conducted by BYTukhtaev (2009) on the subject of "Introduction of medicinal plants in the saline lands of Uzbekistan", a scale was developed to evaluate the results of the introduction of medicinal plants in saline soils, and based on it, the introduction resistance of plants, the main attention was paid to the situation with respect to moisture, high temperature, low temperature and natural reproduction[16]. In our article *Zingiber officinale L.* ni for the introductory evaluation, we followed the IVBelolipov method [3; pp. 74-89]. Also *Zingiber officinale* L . In order to organize large-scale plantations of the species of the family, we focused the main indicators on the resistance indicator of plants in the field.

Table 2[1]

o	INTRODUCTORY INDICATIONS	*Zingiber officinale L.*
	Life form	A perennial herb
	Observed in the experiment	2 years
	Delivery	From the rhizome
	Reaction to watering	4 points
	Damage from diseases and pests	Partially damaged - 2 points
	Introductory assessment	3 points

SUMMARY. In conclusion, it can be said that starting the initial vegetation of the plant from the first year shows that it was able to gradually adapt to the conditions of introduction. This in turn is Zingiber officinale. It indicates that there is a possibility to grow and cultivate L in Termiz conditions. Zingiber officinale. The total vegetation period of L lasted 180-220 days in one season.

under thermal conditions . The growth and development of L depends on weather conditions, and it was found that the increase in air temperature and decrease in relative humidity go with the decrease in vegetation in the plant. *Zingiber officinale* . The optimal air temperature for L was 23-30 ^{o} C.

Zingiber officinale . Treating the soil with enriched humus before planting L ensures good plant growth and high yield. We came to the conclusion that the first 10 days of March are the most favorable time for planting plant rhizomes in Termiz conditions.

[1]I.V. Belolipov. Evaluation of the results of the introduction of plants.

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