

THE EFFECT OF DRIP IRRIGATION ON THE INDICATORS OF THE ROOT SYSTEM AND ABOVEGROUND PART OF THE CABBAGE

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Abstract

This article provides data on the effect of drip irrigation on the root system and above-ground parameters of cabbage. It has been established that in the cabbage variety Termiz-2500 there is a close relationship between the growth and development of the above-ground part and root system, and that proper organization of irrigation has a positive effect on the development of the above-ground part part, the root system of plants and, as a result, increases productivity

Keywords: White cabbage, watering regimen, Drip irrigation, limited field wet capacity, developmental phases, growing period, ontogenesis.

Introduction

In the Republic, a lot of research has been carried out on the development of technology of the cultivation and selection of promising varieties, the timing of planting, planting schemes and other elements of cultivation technology have been developed and widely introduced. But research on the cultivation of white cabbage using the technology of drip irrigation has practically not been conducted.

From seed germination to maturation, all physiological and biochemical processes in cabbage are water-related. Also, along with water, nutrients are absorbed through the plant root.

In order for the plant to absorb water through the root system and the process of evaporation through the leaves to proceed properly, there must be enough moisture in the soil, which can be achieved by watering the plant.

In the management of the watering routine of cabbage, different water consumption in the growth phases and the environment of the watering period require strict consideration.

Therefore, in a resource-intensive method of irrigation, it is necessary to study the water demand of cabbage, taking into account the water level of sizing. It is of great importance to develop new technologies that reduce water consumption and, as a result, improve soil agrophysics.

According to scientists and researchers, one of such technologies is drip irrigation of crops.

During the period of growth and development of cabbage, the method of watering and norm timing play a great role.

In plants, the growth process takes place through the growth of cells, tissues and organs.



Development is the qualitative changes that take place in the plant and some of its parts (organs, tissues, cells) in the process of ontogenesis (A.S. Krujilin, 1977).

Since cabbage is a fast-growing plant, it is considered demanding for water. His demand for water greatly increases, especially at the formation of his reproductive organs. By ensuring an optimal water arrangement, it is possible to maximize the growth of all organs of white cabbage and, on this basis, increase its productivity.

Agrotechnical activities affect the development of whitish cabbage plants from the very beginning of the growing season, the intensity of the root system, the total area of the leaf surface and other biometric indicators.

Whitish cabbage is considered to be a very demanding crop to moisture. It is characterized by its morphological features, that is, if the large leaf surface is caused by an excessive amount of evaporation, the deep penetration of the root system into the soil does not allow the absorption of moisture in the lower layers (E.S.Karataev, 1984).

In the dry and hot climate of the Surkhandarya region, the lack of soil moisture is a factor limiting the stable high yield of white cabbage. This entails the use of water-saving technologies in the cultivation of this crop.

In this regard, within the framework of the applied project implemented at the Termez Institute of Agrotechnology and Innovative Development, studies were carried out to study the effect of drip irrigation technology on growth, development and yield of white cabbage.

The object of our research was the variety Termez-2500, suitable for the hot climate of the Surkhandarya region.

The research is based on generally accepted methodological guidelines (B.A.Dospexov, 1985; Gerald B.J., Azimov B.B., 2002. Litvinova S.S., 2011).

It is known that soil moisture plays an important role in determining the growth, development and yield of cabbage. That is why it is required to maintain soil moisture at an optimal level before watering at various phases of development. With the optimization of soil moisture, the growth and development of cabbage can be controlled.

Dynamics of growth of terrestrial and aboveground parts by phases of development of Termez-2500 varieties is given in Table 1. It has been noted that the growth rate is not uniform in the phases of tired development. That is, at the beginning of the growing season, seedlings grow more slowly because the root system is not well developed. Then there was a period of active growth of the above-ground part, and at the end of the growing season it was noted that growth slowed down again.

Table 1 The effect of drip irrigation on the root system and aboveground indicators of the cabbage Termez-2500 variety

Bullets	Watering regimes, % of CHDNS		
	70	80	90
Ball-forming phase			
Height of the aboveground, cm	20,4	21,1	21,8
Of Root length, cm	21,9	22,5	20,8
Doodle wrapping phase			
Height of the aboveground, cm	25,5	26,4	29,7
Of Root length, cm	33,4	29,3	26,6
Technical ripening phase			
Height of the aboveground, cm	38,6	40,5	42,2
Of Root length, cm	48,2	41,4	40,5



In the termez-2500 variety the process of growth of the terrestrial part in the bud-forming phase was rapidly increasing by 0.3-0.35 cm / day.

Whereas the growth rate of the root system was relatively low up to the generative organ formation phase, the stem developed at a very rapid rate from the beginning of this phase to the pencil wrapping phase. After that, the process of growth of the root system slowed down until the end of the growing season.

Thus, in plants there is a strong correlation between the aboveground part and the growth and development of the root system, so that the larger their aboveground, the more developed the root system is. Therefore, the proper organization of irrigation has a beneficial effect on the development of the aboveground part of crops and the root system, as a result, a higher yield.

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