

Use of Resource-Saving Technologies in the Cultivation of White Cabbage

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Abstract:

This article presents the results of research on the cultivation of white cabbage under drip irrigation.

Keywords: white cabbage, variety Termez-2500, drip irrigation system, planting scheme, yield.

Introduction:

The use of water-saving resources is important when growing agricultural products and vegetable crops. This requires efficient use of water, the introduction of water-saving irrigation technologies, especially the widespread use of irrigation technologies such as drip, sprinkler, subsoil, film on egates, portable flexible plastic pipes.

In our republic, a lot of research has been carried out on the selection of white cabbage varieties and the development of elements of cultivation technology, its promising varieties have been selected, planting dates, planting schemes and other elements of cultivation technology have been developed and widely implemented. However, no studies have been conducted on growing white cabbage using drip irrigation technology.

Methods: Research experiments were carried out on the basis of the Research Station of the Research Institute of Vegetable and Potato Growing in Surkhandarya region. The object of our research was the white cabbage variety Termiz-2500, suitable for the hot climate of the Surkhandarya region and created at the experimental station.

The study was conducted based on the following methods and guidelines:

- methods of field experience in vegetable growing (ed. Litvinov S.S.M., 2011);
- Methodology for conducting experiments in vegetable growing, potato growing and potato growing (Azimov B.Ya., Azimov B.B., 2002),
- Guidelines for environmental testing of vegetable crops in open ground (M., VNISSOK, 1987).

Mathematical and statistical analysis of the results obtained in field experiments was carried out according to the method of B. A. Dospheov (1985) using Microsoft Excel.

Main part. Seedlings of the cabbage variety Akbosh Termiz-2500 were grown in three periods. The seedlings were grown in 100% vermicompost in an unheated greenhouse. The seeds were sown in the first period on January 27, 2022, in the second period on May 15, and in the third period on August 5.

Seedlings planted in the first term were planted in the field on March 13, seedlings planted in the second term on June 14, and seedlings planted in the third term on September 3.

The seedlings were fed with organic and mineral fertilizers. Phenological observations, biometric measurements were carried out and preliminary results were analyzed.





Picture 1. Cabbage is grown through a drip irrigation system.

Table 1 shows the growth dynamics of the underground and above-ground parts of the Akbosh cabbage variety Termiz-2500. It was noted that growth rates are not the same at different stages of development. That is, at the beginning of the growing season, seedlings grow slowly, since the root system is not sufficiently developed. Then there was a period of active growth of the aboveground part, and at the end of the growing season it was noted that growth slowed down again. In the Termiz-2500 variety, the process of growth of the aerial part occurred at a rapid pace during the formation of the leaf ball and amounted to 0.3-0.35 cm per day.

If before the phase of formation of generative organs the growth rate of the root system was relatively low, then from the beginning of this phase to the phase of cabbage wrapping, the root developed very quickly. After this, the growth process of the root system slowed down until the end of the growing season. In the process of studying the effect of drip irrigation on the yield of white cabbage, it should be noted that the yield is the result of biological and biophysical processes occurring in the plant depending on its genetic characteristics and external environmental factors.

Table 1 The influence of drip irrigation on the root system and above-ground parameters of white cabbage variety Termiz-2500.

Indicators	Irrigation pattern, % against CHDNS		
	70	80	90
Ball formation phase			
Height above ground, cm	20,4	21,1	21,8
Root length, cm	21,9	22,5	20,8
Cabbage wrapping stage			
Height above ground, cm	25,5	26,4	29,7
Root length, cm	33,4	29,3	26,6
Technical maturity phase			
Height above ground, cm	38,6	40,5	42,2
Root length, cm	48,2	41,4	40,5

Productivity is not an absolute concept, but is the result of the relationship between the productivity of a plant and its resistance to adverse environmental factors. These



characteristics are passed on from generation to generation and not only each species, but also each variety has its own characteristics.

Table 2 The effect of drip irrigation on the yield of white cabbage Termiz 2500.

Irrigation scheme, % relative to CHDNS	Productivity, t/ha	Added crop by increasing CHDNS					
		70 →80		70→90		80→90	
		t/ga	%	t/ga	%	t/ga	%
70	52,3	-	100	-	100	-	-
80	56,8	4,5	108,6	-	-	-	100
90	58,2	-	-	5,9	111,3	1,4	102,5

Analyzing the data presented in Table 2, with an increase in the KPVS (maximum field soil moisture) from 70% to 80%, the white cabbage variety Termiz 2500 is 4.5 t/ha (8.6%) higher, it is clear that it has lost ground. A similar situation was observed when this indicator increased from 70% to 90% and when it increased from 80% to 90%, while the high yield was 5.9 t/ha (11.3%) and 1.4 t/ha (2.5%). achieved. A factor that influences productivity and is easily controlled is the irrigation method. Accordingly, when studying the effect of drip irrigation on the yield of white cabbage Termiz-2500, the highest yield was achieved with a CNC of 90% and amounted to 58.8 t/ha.

Conclusions. When studying the effect of drip irrigation on the yield of white cabbage Termiz-2500, the highest yield was achieved when the soil moisture before irrigation was 90% and amounted to 58.8 t/ha.

List of Used Literature

1. Azimov B.J., Khakimov R.A., Abbasov. A.M., Azimov. B. Fertilizing evening cabbage. //Monthly month-by-month calendar of vegetable, potato and potato growing events. Tashkent - 2008.
2. Balashev N. N., Zeman G. O. "White cabbage." In the textbook. //Vegetable farming. Publishing house "Teacher". Tashkent – 1977. 319 – 330 p.
3. Bolotskikh A. S. "Watering a vegetable plantation." V. book. // Vegetable grower's handbook. Kharkiv. "Folio". 1999. 277 p.
4. Dospheov B.A. Methodology of field experience, 5th ed., M,: Agropromizdat, 1985. - 351 p.
5. Brewers. V.F., Aramov M.Kh., Dobrutskaya E.G., Turdikulov B.T., Bakhrarov B.B., Gasanov A.R., Nadzhiev Zh.N., Kuchkarov A.M. "Cabbage planting dates." // Agriculture and horticultural culture in Uzbekistan. Moscow. 2001. – 134 p.
6. <https://agro-olam.uz/oqbosh-karam-duragaylari/>.

