EFFECTS OF CULTIVATION TECHNOLOGIES OF WHITE CABBAGE (BRASSICA OLERACEA) ON ECONOMIC EFFICIENCY

[1]Lapasov Sayfiddin Sanakulovich, [2]Shokirov Alisher Juraboevich
Doctor of Philosophy in Agricultural Sciences (PhD) Horticulture and Greenhouse Development Agency Tashkent[1], Doctor of Agricultural Sciences (DSc), docent Tashkent State Agrarian University Tashkent[2]

ANNOTATION

In this study has been reported on the research works on economic efficiency of the varieties, planting time and scheme of the white cabbage.The planting schemes 70cmЧ30cm, 70cmЧ40cm control, 70cmЧ50cm, 90cmЧ30cm and 90cmЧ40cm have been studied on Sharqiya-2 and Saratoni cabbage varieties in the soil conditions of Uzbekistan. Density of plants per hectare was as following according to their schemes: 476000; 357000; 286000; 37000 and 278000.

Keywords: white cabbage, seeds, plantlet, headed cabbage, varieties, yield.

In recent years, our republic has been able to ensure food security, fully meet the needs of the population in vegetables, cultivation of cotton, grain and vegetable crops, diversify agriculture, use land and water resources more efficiently, large-scale measures are being taken to increase the income of farmers through the cultivation of export-oriented products. In the National Action Strategy for further development of the Republic of Uzbekistan for 2017-2021, one of the important strategic tasks is "to reduce the area under cotton and cereals, and to cultivate on those empty lands potatoes, vegetables, fodder and oilseeds, as well as further optimize arable land through new intensive orchards and vineyards". Thus, it is necessary to widely introduce innovative agro-technologies in agriculture, aimed at deeply improving the quality and productivity of vegetable crops [1].

This research serves to a certain extent in the performance of assigned tasks of Resolution of the President of the Republic of Uzbekistan dated September 15, 2017 No PP-3281 "On measures for the rational allocation of agricultural crops and forecast volumes of agricultural production in 2018", March 29, 2018 "Additional measures for the accelerated development of fruit and vegetable production in the Republic of Uzbekistan" PF-5388 "On measures" and the Resolution of the Cabinet of Ministers of March 29, 2019 No 259 "On the rational placement of agricultural crops and forecast volumes of production for the harvest of 2019" and other regulations related to this activity [2, 3].

The research was conducted in 2007-2010 at the department of Vegetable Production of Tashkent State Agrarian University. There was used 6 varieties of white cabbage included in the State Register and 8 varieties and hybrids of foreign selection.Тадқиқотлар ўтказишда қуйидаги услубий қўлланмалардан фойдаланилди: Сабзавотчилик, полизчилик ва картошкачиликда тажрибалар ўтказиш методикаси [4], In our study the following guidelines were used: Methodology for experiments on growing vegetables, melons and potatoes [4], “Guidelines for the study of the collection of cabbage and leafy green crops” [5], "Planning a field experiment and static processing of its data" [6], Features of the methodology and technique of field experiment [7].

Our studies were performed to determine the optimal sowing time of white cabbage as the second crop [4.5.6.7]. Phenological observation showed that the delay in sowing from June 15 (1st period) to August 15 (2nd period) in the cultivation of white cabbage in the second crop increased the number of leaves per plant in the variety of "Sharqiya-2" to 105,3-81,3%; in the variety of "Saratoni" led to a decrease of 105,5-82,1%. In this regard, the height of cabbage in the "Sharqiya-2" variety ranges from 21,1 cm to 17,7 cm; the width of the cabbage was reduced from 25,3 cm to 21,3 cm. The height of cabbage in the 5th sowing period increased by 12.8% compared to the first sowing period in the "Saratoni" variety; cabbage width decreased by 27,1%. Outer stem thickness,

inner stem thickness, and wet root weight in both varieties from the first sowing period to the fifth sowing period decreased by 7,8; 49,3 and 15,3 %, respectively.

The weight of variety "Sharqiya-2" decreased from 2,75 kg in the 1st sowing period to 1,88 kg or 46,3% in the 5th sowing period. In the "Saratoni" variety, this indicator decreased from 2,85 kg to 2.00 kg, respectively.

Yield indicators of sowing periods were also affected as its tendences as the size and wieght of cabbage. Consequently, the yield of the "Sharqiya-2" variety decreased from the 1st sowing period (83,8 t / ha) to the 5th sowing period (48,4 t / ha) to 73.1%, while in the “Saratoni” variety this figure decreased to 56,9%, respectively, and during the 1st sowing period decreased by 86 t / ha ; during the 5th sowing period it was 54,8 t / ha (Fig. 1).

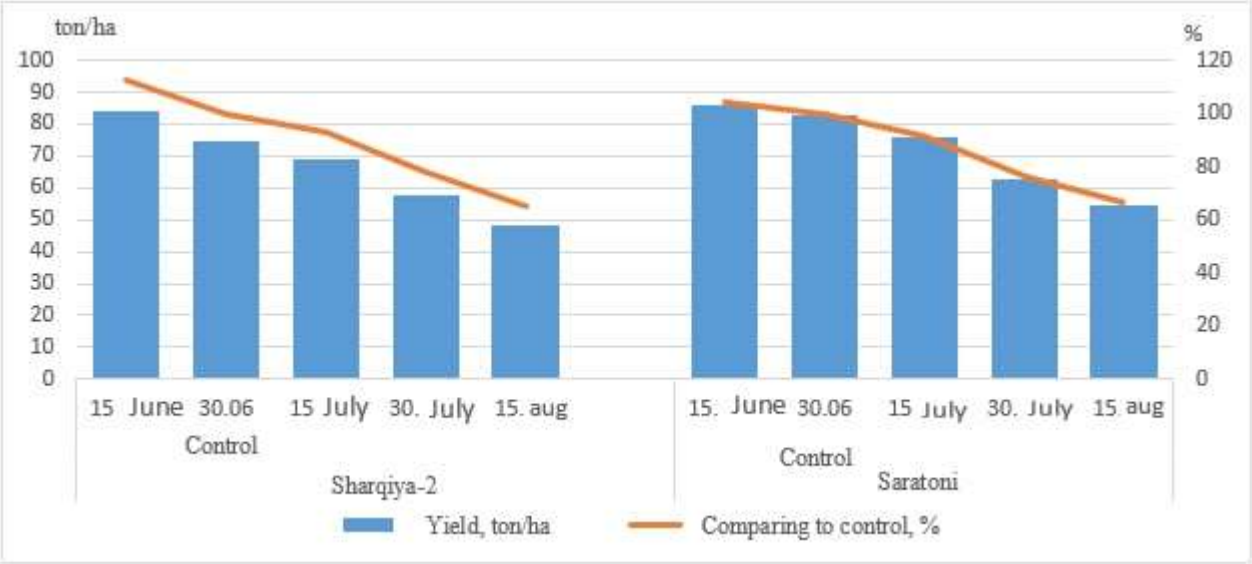

Figure 1. Yield of cabbage varieties depending on the sowing period (2009-2012)

Analysis of the effect of cross-linked traits on white cabbage yield showed that the EKMF05 A (variety) factor was 1,7–2,7 t / ha; V (sowing time) varied in the range of 2,7–4,4 t / ha.

Sowing time also had a significant effect on the biochemical performance of white cabbage yield. Consequently, the ascorbic acid content (mg /%) was 13,8–11,8 mg /% in the "Sharqiya-2" variety from the 1st sowing period to the 5th sowing period; In the “Saratoni” variety, it ranged from 12,4 to 11,6 mg /%. The amount of dry matter ranged from 7,96 to 7,03%, depending on sowing time and varieties.

Analysis of the economic feasibility of different sowing periods in the cultivation of white cabbage in the second crop showed that sowing the plants on 15.06 (1st period) gives high yields. In the experimental variant planted during this period, the cost of 1 ton of product in the variety "Sharqiya-2" was 160.0 thousand soums (UZS), while in the variety "Saratoni" its cost was in the range of 158 thousand soums. The level of profitability of cultivation by varieties was 56.5 and 58.7%, respectively [8].

Delay in sowing of white cabbage from June 15 to August 15 led to a decrease in the weight of cabbage in the "Sharqiya" variety from 2,75 kg to 1,88 kg or 46.3%, in the variety "Saratoni" it was from 2,85 kg to 2,00 kg, respectively. The yield of these varieties also decreases in the late sowing periods to 73,1 and 56,9%, and reaching 83,8 and 54,8 t / ha.

The application of 15.06 sowing period in the cultivation of white cabbage gives a high yield. At the same time, the cost of 1 ton of products in the"Sharqiya-2" variety is 160,0 thousand soums, in the "Saratoni" variety - 158

thousand soums, the level of profitability is 56,5 and 58,7%, respectively.

In our experiments on the selection of optimal planting schemes for the cultivation of white cabbage in the late periods were conducted to determine the most optimal planting scheme that allows to maximize the yield of white cabbage grown in the second crop [4.5.6.7]. Biometric calculations showed that the number of free leaves per plant in white cabbage varieties was 94,3-105,0% in "Sharqiya-2" variety according to planting schemes; In the "Saratoni" variety was in the range of 91,0-100,0%. Compared to the control option from the planting scheme of 70x30 cm to 90x40 cm, the free leaf weight on the plant increased by 22-24,2% in both varieties.

Leaf length and leaf width dimensions were 106,4% in the 70x50 cm scheme in the "Sharqiya-3" variety compared to the control; in the variety "Saratoni" it was 105,3%. Outer core thickness and root weight were not significantly affected and ranged between 7,4–4,9%.

The effect of planting schemes on free leaf weight and root weight was strong. In the 90x30, 90x40 cm and 70x50 cm it was by 119.8-142.5% in the "Sharqiya-2" variety compared to the control variant schemes; in the "Saratoni" variety it was ranged from 118,2 to 136,4%.

The analysis of the effect of the feeding area on the white cabbage weight showed that when the feeding area was 0,35 m2 (70x50 cm), this figure was 2,39 kg or 39,0% compared to the control; at 0,36 m2 (90x40 cm) - 2,45 kg or 42,4 % higher. In the "Saratoni" variety, the weight of cabbage in these variants was 34,6-44,2% higher than the control. With planting schemes of 70x50; 90x30 and 90x40 cm, the yield of the variety of "Sharqiya-2" was comparing to control 14,8; 30,6 and14,5%, respectively; in the variety «Saratoni» with 90x30 and 90x40 cm in planting schemes it was higher by 28,3–12,5% (Fig. 2).

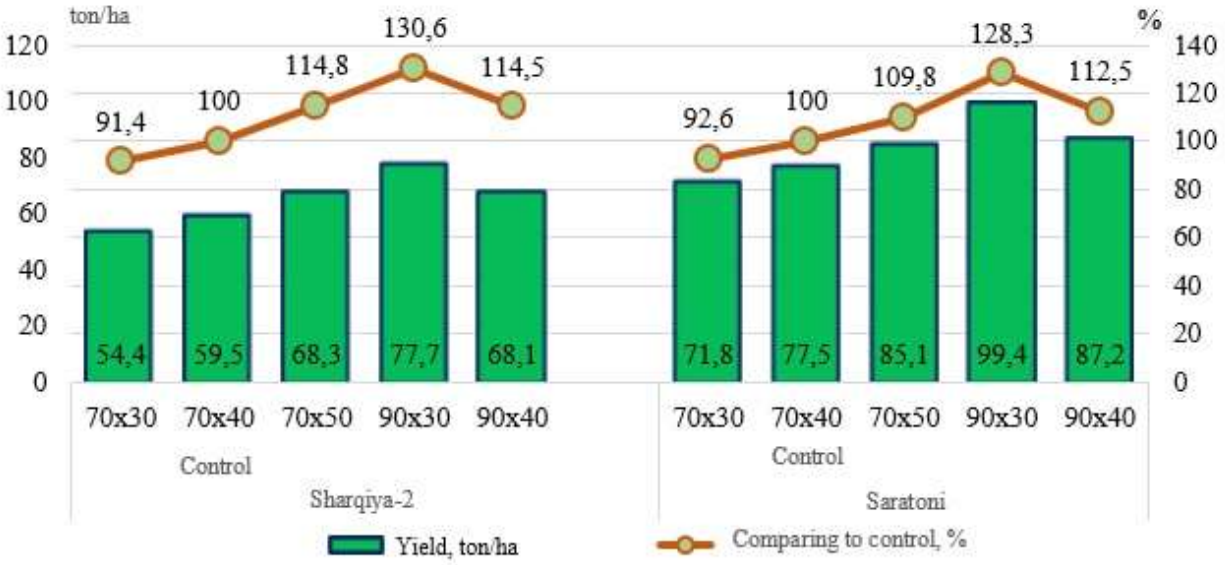

Figure 2. Yield of cabbage varieties depending on the sowing scheme (2007-2010)

Calculations of the yield of white cabbage grown in the second crop showed that the A (variety) factor (EKMT05) for the years was 1,1-5,0 t / ha; The value of factor V (sowing scheme) (EKMT05) varied in the range of 1,7-5,2 t / ha. Analysis of the economic feasibility of the sowing scheme used in the cultivation of white cabbage as the secondary crop showed that the cultivation of plants in the planting scheme of 70x30 and 90x30 cm provided 54,4 and 77,7 tons, respectively, in the "Sharqiya-2" variety. With the increase in productivity, the cost of 1 ton of products decreased to 218-165,1 thousand soums. Profitability was 48,5 and 51,4%, respectively. The yield rate in the “Saratoni” variety was in the range of 71.9% in the 90x30 cm planting

scheme [8].

Cabbage weight is 39,0 and 42,4% higher than the control in the planting scheme 70x50 cm and 90x40 cm in the “Sharqiya-2” variety and reaches 2,39 kg and 2,45 kg. In the "Saratoni" variety, the weight of cabbage in these variants was 34,6-44,2% higher than the control.

The use of 70x30 and 90x30 cm planting schemes at the secondary cultivation of white cabbage ensured the yield of 54,4 and 77,7 tons per hectare, respectively, in the “Sharqiya-2” variety. As productivity increased, the cost of 1 ton of product decreased to 218-165,1 thousand soums. Profitability was 48,5 and 51,4%, respectively. The yield rate in the variety "Saratoni" in the best planting scheme (90x30 cm) was 71,9%.

REFERENCES

1. Decree of the President of the Republic of Uzbekistan dated February 7, 2017 No PF-4947 "On the strategy of further development of the Republic of Uzbekistan".
2. Decree of the President of the Republic of Uzbekistan dated March 29, 2018 No PF-5388 "On additional measures for the accelerated development of fruit and vegetable growing in the Republic of Uzbekistan."
3. Resolution of the Cabinet of Ministers of March 29, 2019 No 259 "On the rational placement of agricultural crops and forecast volumes of production for the harvest of 2019."
4. Azimov B.J., Azimov B.B. Methods of conducting experiments in vegetable, melon and potato growing // - Tashkent, UzME. 2002. - Б. 9–11.
5. Lizgunova T.V. Methodical instructions on the study of cabbage collections and list of green cultures. Leningrad 1969. p.3-20.
6. Dospekhov B.A. “Osobennosti usloviy provedeniya polevogo opyta // Planirovanie polevogo opyta i staticheskaya obrabotka ego dannyx”. Kolos Publishing House Moscow-1972. p.41-48.
7. Sazanov V.I. “Osobennosti metodiki i tekhnik polevogo opyta // Selskoxozyaystvennoe опытnoe delo v rastenivodstve i ego metodika”. Selxozizdat-1962. p.49-60.
8. Standard technological maps for the care and cultivation of agricultural crops. 2016-2020. - Tashkent, 2016. - Part 2. - B. 22-26.
9. Khakimov R.A., Abbosov A.M. White cabbage. / Recommendations on recommended varieties and cultivation technologies of vegetable and melon crops. - Tashkent, 2006. - 11-13 p.