Volume 4, Issue 3, March - 2026
ISSN (E): 2938-3781

Web of Agriculture: Journal of Agriculture and Biological Sciences
webofjournals.com/index.php/8

THE EFFECT OF CULTIVATING KOHLRABI CABBAGE VARIETIES IN OPEN FIELDS AT DIFFERENT PLANTING TIMES ON YIELD

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Abstract
This study examines the effect of different planting dates on the growth, development, and yield of the “Qizil toj” and “Salfer” kohlrabi cabbage varieties. The results showed that planting dates significantly affected the growth and yield formation of kohlrabi cabbage. The highest yields were observed in the “Salfer” variety at 18.6 t/ha and the “Qizil toj” variety at 16.7 t/ha. The findings of this research make it possible to determine the optimal planting dates for achieving a high yield from kohlrabi cabbage.

Introduction

Kohlrabi (Brassica oleracea var. gongylodes L.) is a valuable vegetable crop belonging to the cabbage family (Brassicaceae), which forms a tuber from its thickened stem. The edible stem of kohlrabi contains 8-10% dry matter, 2-3% sugar, 1.5-2.5% protein, 40-60 mg% ascorbic acid, and essential mineral elements such as potassium, calcium, phosphorus, and iron, making it an important dietary vegetable for human health [1].

In world vegetable growing, colrabi cabbage is widely grown mainly in European countries, North America, and some regions of Asia and is used in the preparation of new food, processing, and dietary products. In recent years, as a result of the growing demand for healthy nutrition and increased interest in functional and low-calorie vegetables, the area of cultivation and consumption of colrabi are expanding in many countries. Although colrabi cabbage is one of the most common types of cabbage in world vegetable growing, it is not grown in large areas such as white head cabbage, cauliflower, or broccoli. According to FAO and international vegetable sources, colrabi cabbage is mainly grown in European countries (Germany, Poland, Czech Republic, Hungary), as well as in some regions of China and India [2; 3].

In Uzbekistan, expanding the assortment of vegetable crops, providing the population with vitamin-rich produce year-round, and increasing the variety of export-oriented vegetables are among the most pressing tasks. However, the cultivation of kohlrabi in the republic is relatively limited, occurring mainly on small farms and household plots. There has been insufficient research into scientifically-backed recommendations for selecting high-yielding, high-quality varieties suitable for the soil and climatic conditions of various regions, or for establishing optimal planting times and cultivation techniques [4;5].

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Research Method

In this study, the "Qizil toj" and "Salfer" varieties of kohlrabi were planted in open ground on four different dates: 1. March 1 (Control); 2. March 10; 3. March 20; 4. April 1. The effect of these planting dates on the plants' growth, development, and yield was examined.

Field experiments were conducted according to the methodologies described in «Methods for conducting experiments in vegetable, melon and potato farming» by B.J.Azimov and B.B.Azimov [6], and «Methodology for conducting experiments on vegetable, melon, and potato crops» by R.A.Nizomov et al. [7]. During the experiments, phenological observations and biometric measurements of the plants were carried out, and total yield indicators were determined.

Results

The study found that the growth and development indicators of kohlrabi cabbage were directly dependent on the sowing dates. Seed germination was nearly identical across all variants, lasting 5-6 days, with the formation of the first true leaf observed at 10-11 days. During the seedling stage, the biometric indicators of the plants varied depending on the variety and sowing dates. For the "Qizil Toj" variety, plants sown on March 10 reached a height of 30 cm, with a leaf length of 19 cm and a leaf count of 15. For those sown on March 1, these indicators were 28 cm, 18 cm, and 14 leaves, respectively. When sown on April 1, the plant height decreased to 24 cm and the leaf count to 12. The "Salfer" variety exhibited relatively higher biometric indicators: when sown on March 10, the plant height was 34 cm, leaf length was 21 cm, and the leaf count was 17. For the March 1 sowing date, these indicators were 32 cm, 20 cm, and 16 leaves, respectively.

Sowing dates were also significant during the yield formation stage. For the "Qizil toj" variety, when sown on March 10, the stem mass was 350 g, while for the "Salfer" variety, it was 410 g. The highest yield for the "Salfer" variety was 18.6 t/ha, recorded from the March 1 sowing, whereas for the "Qizil toj" variety, it was 16.7 t/ha from the March 10 sowing. With later sowing dates, the yield decreased, ranging from 11.9 to 13.9 t/ha (Tab. 1).

Table 1 Productivity and yield indicators of kohlrabi cabbage

Sowing dates	Seed germination from sowing	1st true leaf formation, day	At the seedling stage				At the harvesting stage							Yield, t/ha
			plant height, cm	leaf length, cm	leaf width, cm	number of leaves, pcs	plant height, cm	leaf length, cm	leaf width, cm	number of leaves, pcs	leaf weight, g	fruit weight, g	root weight, g	
Qizil toj														
01/III (cont)	5	10	5	5	4	5	28	22	18	14	260	320	21	15,3
10/III	5	10	6	5	5	5	30	24	19	15	280	350	22	16,7
20/III	6	11	5	4	3	4	26	21	17	13	180	280	21	13,4
01/IV	6	11	4	5	4	4	24	19	16	12	130	250	19	11,9
Salfer														
01/III (cont)	5	10	7	6	4	6	32	25	20	16	290	390	21	18,6
10/III	5	10	7	5	5	6	34	27	21	17	310	410	23	19,6
20/III	6	11	6	5	4	5	30	23	19	15	270	320	20	15,3
01/IV	6	11	5	4	3	4	27	21	18	14	250	290	18	13,9

Volume 4, Issue 3, March - 2026
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Figure 1. The "Qizil toj" and "Salfer" varieties of kohlrabi

Conclusion

The research results determined that the growth, development, and yield indicators of kohlrabi cabbage are dependent on planting dates. The highest biometric indicators were observed in the planting on March 10. The highest yield for the "Salfer" variety was 18.6 t/ha when planted on March 1, and for the "Qizil toj" variety, it was 16.7 t/ha when planted on March 10. For cultivating kohlrabi in open fields, the period from March 1 to 10 is considered the most optimal for planting.

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