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PRODUCTIVITY INDICATORS OF ROMAINE LETTUCE VARIETIES

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Abstract

In this article, the biochemical composition of romaine lettuce varieties, i.e. the amount of dry matter, sugar, vitamin C and nitrates contained in it, was analyzed and the yield indicators were presented. When romaine lettuce was grown as a main and repeated crop, the head yield of lettuce from 498.8 to 537.1 g was formed. The highest yield was obtained from Sladkii Khrust (28.2 t/ha), Aktina (29.0 t/ha) and Batsio (30.9 t/ha).

Keywords. Green vegetables, Romaine lettuce, variety, leaf growth, head wrapping, lettuce head, biochemical composition, dry matter, mineral salts, sugar, vitamins, nitrates, productivity.

Introduction. Today, there are more than 1200 types of vegetables belonging to 78 families around the world. More than 600 of them are cultivated vegetables, and the rest are uncultivated wild species. This variety is used in different ways in different countries of the world. For example, 180-200 types of vegetables are consumed in Japan, 80-90 in Russia, and more than 100-120 in Europe. In our country, 35-40 types of vegetables are grown, and the main edible types are 10-12 (13,17).

Vegetables are of special importance for human health, they are absorbed without changes or loss of mineral salts and vitamins contained in them (12,15). Vegetables are better and fully assimilated by people, contribute to better assimilation (fermentation) of meat, fish and other products. In this case, green vegetables such as salad are important (10,11).

Salad from green vegetables is one of the rapidly developing crops in our republic today, large-scale scientific research is being conducted on the cultivation of different types and varieties of salad, creation and introduction of new varieties. However, until now, varieties and hybrids of romaine lettuce suitable for growing in the soil and climate conditions of our republic have not been created. Therefore, it is necessary to introduce newly created varieties and hybrids of romaine lettuce, to study their growth and development, to determine the important elements of cultivation technology, i.e. to determine the optimal planting period, planting scheme, feeding standards, as well as to select suitable varieties and hybrids. [16,14].

Materials and methods. The purpose of the research is to distinguish high-yielding, disease-resistant varieties and hybrids based on a comprehensive assessment of romaine lettuce varieties and to develop some effective elements of cultivation technology.

The tasks of the research are to distinguish promising varieties and hybrids of romaine lettuce varieties in terms of early ripening, yield, resistance to diseases and pests, marketability, quality of cabbage in the cultivation of romaine lettuce varieties and repeated crops.

The research was conducted in the fields of the information consultation center of the Samarkand Institute of Agricultural Innovations and Research in 2022-2023. The information and consultation center where the experiments were conducted is located in the eastern part of Samarkand region in Okdarya district. The experimental area is located near the Zarafshan River and is characterized by high solar radiation, daily and seasonal temperature continental, dry and hot in

summer, high humidity in spring and harsh cold in winter (3, 17).

The soil of the area where the field experiments were conducted is irrigated meadow gray soils. The amount of humus in the irrigated meadow gray soils of the experimental field is 1.20%, total nitrogen is 0.08%, phosphorus is 0.11-0.13% and potassium is 1.76% at a depth of 30 cm. (6) .

The experiment consisted of 4 returns, the plot area was 5.0 m2, and the planting scheme was 70x20 cm. The researches were carried out on the basis of Methodological manuals of Methodology of agriculture and ovoshevodstve i bakchevodstve (5), Methodology of physiologic and biokhimecheskih issledovaniy v ovoshevodstve i bakchevodstve (4), Methodology of conducting experiments in vegetable growing, potato growing and potato growing (1). The statistical analysis of the research results was carried out based on the method of dispersion shown by Methodology polevogo opita (9), Statistical analysis of experimental results (2), using the Microsoft Excel program.

Results and discussion. Romaine lettuce grows large, upright, and forms a loose head of lettuce within a large vertical stem of long leaves. The growing season of romaine lettuce lasts 70-100 days between varieties and hybrids. Lettuce is a cold-resistant plant, and 12-180 C and 12-150 C at night is a comfortable temperature for leaf growth and head wrapping. Physiological minimum temperature for its growth is 50 C (Table 1).

Table 1. Biochemical composition and yield indicators of romaine lettuce variety samples, 2023

№	Varieties	Biochemical composition				Weight of one head of salad, g	Average yield, t/ha
		dry matter, %	sugar, %	vitamin S, mg%	nitrates, mg/kg		
1.	Aktina	6,05	2,91	15,71	1425	521,1	29,0
2.	Maksimus	5,86	2,88	13,88	1485	405,9	26,2

3.	Ballon	5,91	2,93	14,18	1474	416,2	27,3
4.	Sladkiy xrust	5,92	2,83	14,21	1460	498,8	28,2
5.	Dendi	4,90	2,61	12,82	1427	356,2	25,5
6.	Batsio	6, 04	2,95	14,91	1438	537,1	30,9
7.	Kvintus	4,96	2,65	14,49	1459	381,4	26,0
	∑	40,05	19,79	100,2	10168	3116,7	193,1
	Average (X)	5,66	2,82	14,31	1452,5	445,2	27,6

Romaine lettuce is usually grown for use in the spring, fall and winter. This salad is grown from seedlings or directly from seeds. Romaine lettuce is transplanted with roots in November. Its large heads are distributed to consumers in autumn. The rest are buried in cellars, nurseries or greenhouses for full cultivation and winter use. 4-6 kg of harvest is obtained from every 1 m2 of fully grown lettuce. Romaine lettuce, a head of lettuce consisting of bundles of leaves, is widely used for food purposes, therefore, during our experiments, the biochemical composition of the varieties studied, that is, the amount of dry matter, sugar, vitamin C and nitrates in it, was analyzed (Fig 1).

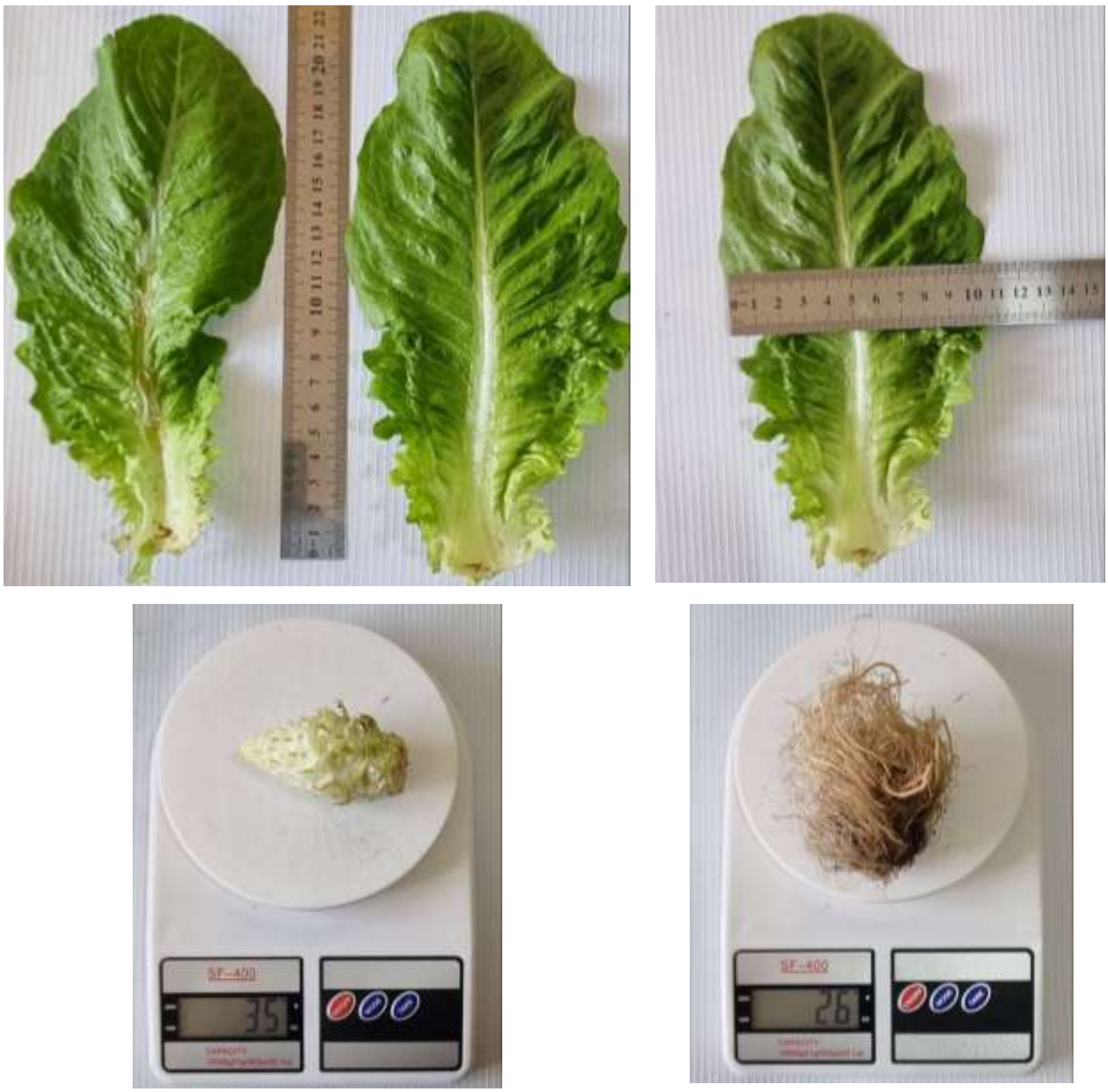

Figure 1. Indicators of leaf, long and root in romaine lettuce plant

The highest index of dry matter storage is in Aktina (6.05), Batsio (6.04), relatively high index Sladkiy Khrust (5.92), Ballon (5.91), Maximus (5 .86) in variety samples and the lowest value was recorded in Quintus (4.96) and Dandy (4.90) variety samples. Among the studied variety samples, the highest indicator of dry matter storage was recorded in the Aktina variety sample. Also, the amount of sugar in samples of this variety increased from 2.61% to 2.95%. The highest rate of sugar content was recorded in the sample of Batsio variety and made 2.95%.

A relatively high result on sugar content was shown in Ballon (2.93%), Actina (2.91%), Maximus (2.88%) variety samples. The high or low values of

vitamin C retention in the samples of romaine lettuce determines its nutritional value. It was observed that the content of vitamin C in the studied variety samples was from 12.82 mg% to 15.71 mg%.

When the amount of nitrates in romaine lettuce was also studied, this indicator was 1425-1485 mg/kg among variety samples. In our experiments, the highest rate of nitrate retention was observed in Maximus (1485 mg/kg), Ballon (1474 mg/kg), while the lower rate was observed in Aktina (1425 mg/kg), Dandi (1427 mg /kg) and Batsio (1438 mg/kg) were determined in samples of the variety. It was noted that Quintus (1459 mg/kg), Sladkiy Khrust (1460 mg/kg) varieties took an intermediate place.

The yield of romaine lettuce is mainly made up of florets, and the number of florets determines its productivity. The weight of one head of lettuce, its structure, the number of petals, the length of the petals, the width of the petals, the weight of the stem, the weight of the root were studied in the samples of the studied variety.

It was noted that in the samples of the studied variety, the length of the ball leaf was on average from 15 cm to 30 cm, and the width (diameter) of the ball leaf was from 8 cm to 12 cm. Also, in romaine lettuce plants, the formation of the center located inside the head of lettuce increased from 30 g to 45 g, depending on the varieties. In our experiments, the formation of roots was also determined in the samples of the variety, because the formation of strong roots increases the vitality of plants, its duration, and resistance to adverse factors. If the roots are strong, large vegetative and generative parts are formed. In the experiment, it was found that the root weight of the plants of the variety samples was from 22 to 26 g. According to the results of the research, it is bulky and heavy

The number of leaves, the length of the leaves, the weight of the stem, and the weight of the roots of the plants of the lettuce varieties were high (Fig 2).

Figure 2. Ready-to-harvest romaine lettuce.

In the samples of romaine lettuce studied in the experiment, the average indicators of one head of lettuce consisting of balls were also analyzed. Also, the average weight of one head of lettuce was 381.4-537.1 grams between varieties.

In our experiments, Sladkiy Khrust (498.8 g), Aktina (521.1 g) and Batsio (537.1 g) cultivars stood out for producing the highest weight of lettuce heads. In our research, the yield of romaine lettuce variety samples increased from 25.5 tons to 30.9 tons according to repetitions. The increase or decrease of productivity per hectare depends on the characteristics of the variety, and the highest yield was achieved in samples of the variety that formed a high-weight salad head.

Among the variety samples, the highest yield was observed in Sladkiy Khrust (28.2 t/ha), Aktina (29.0 t/ha) and Batsio (30.9 t/ha), while the lowest result was Dandi. (25.5 t/ha) and Quintus (26.0 t/ha) were recorded in samples of the variety.

Conclusion

When romaine lettuce was grown as a main and repeated crop in the conditions of meadow gray soils of Samarkand region, the head yield of lettuce from 498.8 g to 537.1 g was formed. Cultivation of isolated varieties such as Sladkiy Khrust (28.2

t/ha), Aktina (29.0 t/ha) and Batsio (30.9 t/ha) yielded 28.2-30.9 tons per hectare. riding.

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