Volume 2, Issue 12, December - 2024
ISSN (E): 2938-3781

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

ECONOMIC EFFICIENCY OF ICEBERG LETTUCE GROWING IN THE FUTURE PERIOD

Jamshid Sheraliev
Researcher, Research Institute of Vegetable,
Melon Crops and Potato

Shokhhusan Suvangulov
Master, Irkutsk State Agrarian University
Named After A. A. Yezhevsky, Russian Federation

Abstract
This article presents information on research, economic efficiency and productivity of lettuce varieties at the Research Institute of Vegetable, Melon Crops and Potato in 2020-2022.

Keywords: Head lettuce, productivity of varietal samples, economic efficiency.

Introduction

In China, Japan, Russia and Europe, which are leaders in the world in the field of growing non-traditional vegetables, research has been conducted on technologies for year-round cultivation, storage and processing of head lettuce. In the USA, late-ripening varieties of head lettuce are grown on more than 100,000 hectares, and its products are produced at the rate of 10.2 kg per capita per year. In Italy, the Netherlands, Belgium and Spain, lettuce is one of the main vegetables. Its share in the daily consumption of the population of Hungary, Poland and Cuba is quite large, and in these countries it is grown mainly in closed areas. In Germany, lettuce consumption is on average 3.3-3.5% of all vegetables consumed, in Spain the share of lettuce reaches 10.6%. In England, more than 800,000 tons of head lettuce are grown annually, and this average is 14.0 kg per capita. Although many achievements have been made in these countries in growing lettuce and providing the population with sufficient quantities of the product, research, the introduction of new varieties and hybrids, and intensive technologies into production continue.

There are several assumptions about the history of the origin of cultivated lettuce. The name of the salad comes from the Latin word "lactuca", which means "milk". This is due to the presence of a bitter-tasting milky juice (lactucine alkaloid) in the plant. For example, R.S. Thompson emphasizes that cultivated lettuce - Lactuca sativa, is combined with wild lettuce - Lactuca serriola in terms of species characteristics. According to researcher S.E. Durst, all the diversity of cultivated lettuce varieties is the result of spontaneous mutations and subsequent natural selection during cultivation. J. Bensink emphasizes in his works that initially there were two forms of lettuce: scissor-leaved L. Serriola and with whole leaf edges L. integrifolia. L. sativa lettuce appeared as a result of their selection.

Research Results

In the previous period, 184.9 liters of fertilizer were used to grow lettuce on one hectare of land, and the cost of fertilizer was 1,955.2 thousand soums (the price of 1 liter of fertilizer in 2023 was

Volume 2, Issue 12, December - 2024
ISSN (E): 2938-3781

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

10,574.5 soums). Also, the cost of growing lettuce per hectare was 8,878.6 thousand soums, while the cost of feeding with pure $N_{150}P_{150}K_{100}$ kg/ha of mineral fertilizers (ammonium nitrate (NH_4NO_3 – N 34.4%) – 1,740 soums/kg, superphosphate ($Ca(H_2PO_4)_2$– P_2O_5 45%) – 1,080 soums/kg and potassium sulfate (K_2SO_4 – K_2O 48%) – 5,600 soums/kg) during crop production was 2,282.7 thousand soums. Also, the price of 1,000 seeds of lettuce varieties was calculated at 80,000 soums and of hybrids at 120,000 soums. Then, it was found that the total cost of maintaining lettuce varieties was 17,116.5 thousand soums, and for hybrids - 19,116.5 thousand soums.

If the cost of harvesting 1 ton of lettuce samples was 153,192.3 soums (1 t : 0.25 t/day)×38,298.08 soums = 153,192.3 soums), harvesting, transportation and unloading costs were 4073.2 soums (1 t: 10.6 t/km)×43176.07 soums = 4073.2 soums). Based on this, the costs of harvesting the main lettuce varieties mainly depend on the yield, and in the standard Krupnokachannyy variety (21.4 t/ha) - 3,278.5 thousand soums.

It was found that the higher yielding variety Patritsiy (24.8 t/ha) and the Russian size (25.0 t/ha) varieties had higher costs than the standard variety Krupnokachanny (520.9 thousand soums) and the Russian size (25.0 t/ha) varieties. On the contrary, the costs of harvesting the remaining varieties with low yields were lower than the standard variety Krupnokachanny (3278.5 thousand soums) for the Great Laiks 659 variety (1,792.5 thousand soums), the Russian Bogatyr variety (720.1 thousand soums), the Salad Iceberg variety (750.7 thousand soums), the Kolobok variety (337.1 thousand soums), the Ice Queen variety (1,225.6 thousand soums) and the Alabama variety (199.2 thousand soums/ha). Also, the same pattern was observed in the costs of increasing, transporting and unloading the harvest as in the costs of harvesting.

According to the data in Table 1, the total cost of growing lettuce varieties in the next period was 29,699.2 thousand soums for the standard Krupnokachannyy variety, and it was found that the higher cultivation costs were 775.4 and 821.0 thousand soums for the Patritsiy and Russky razmer varieties.

Table 1 Economic efficiency of growing lettuce varieties in the future, thousand soums/ha

Indicators	Name of varieties								
	Krupno-kochanny (st)	Great Lakes 659	Patritsiy	Russkiy bogatyr	Salat iceberg	Kolobok	Russkiy razmer	Ayskvin	Alabama
Seed, seedling preparation, YOM, fertilizer, maintenance and other costs	17116,5	17116,5	17116,5	17116,5	17116,5	17116,5	17116,5	17116,5	17116,5
Harvesting	3278,5	1486,0	3799,4	2558,4	2527,8	2941,4	3830,0	2052,9	3079,3
Harvesting, transportation and unloading	87,2	39,5	101,1	68,1	67,2	78,2	101,9	54,6	81,9
Total cost	20482,2	18642,1	21016,9	19743,0	19711,5	20136,2	21048,4	19224,0	20277,7
Surcharge (25%)	5120,5	4660,5	5254,2	4935,8	4927,9	5034,0	5262,1	4806,0	5069,4
Contingency cost (20%)	4096,4	3728,4	4203,4	3948,6	3942,3	4027,2	4209,7	3844,8	4055,5
Total cost	29699,2	27031,0	30474,6	28627,4	28581,7	29197,5	30520,2	27874,8	29402,7
Productivity, t/ha	21,4	9,7	24,8	16,7	16,5	19,2	25,0	13,4	20,1
Harvest price (3500 soums/kg)	74900	33950	86800	58450	57750	67200	87500	46900	70350
Cost of 1 kg of crop, soum	1387,8	2786,7	1228,8	1714,2	1732,2	1520,7	1220,8	2080,2	1462,8
Net income	45200,8	6919,0	56325,4	29822,6	29168,3	38002,5	56979,8	19025,2	40947,3
Profitability, %	152,2	25,6	184,8	104,2	102,1	130,2	186,7	68,3	139,3

Volume 2, Issue 12, December - 2024
ISSN (E): 2938-3781

However, it turned out that the cost of growing the rest of the lettuce varieties was 2668.2-501.7 thousand soums less than the standard Krupnokachannyy variety. In the future, the selling price of 1 kg of heads of lettuce grown in the wholesale market in 2023 will be 3,500 soums, and the price of a head of lettuce grown per unit area according to the yield indicators of head lettuce varieties will be in the range of 74,900-87,500 thousand soums.

When determining the net income after deducting total costs from the price of the product, the standard Krupnokachanny variety amounted to 45,200.8 thousand soums. Compared to it, the Russian size and Patrician varieties showed a higher net income of 11,779.0 and 11,124.6 thousand soums. On the contrary, the head lettuce varieties Great Likes 659, Russian hero, Salad iceberg, Kolobok, Ice Queen and Alabama were found to be (proportionally) less than the standard Krupnokachanny variety by: 38,281.8; 15,378.2; 16,032.5; 7,198.3; 26,175.6 and 4,253.5 thousand soums.

To find the profitability level of head lettuce varieties in the future, the net profit received was divided by the total cost indicator and the resulting number was multiplied by 100. The profitability level for the standard Krupnokachanny variety was 152.2%, compared to which the Russian size and Patrician varieties had a higher profitability of 34.5-32.6%. Also, the lowest profitability of head lettuce was 126.6-83.9% compared to the standard Krupnokachanny variety, Great Lakes 659 and Ice Queen varieties (25.6 and 68.3%), while the remaining head lettuce varieties had 12.9-50.1%.

References

1. Petrov E.P., Kusainov G.S., Petrov S.E. Variety study of head lettuce // Collection of scientific papers of the International scientific and practical conference "Current directions of development of scientific research on potato and vegetable growing" dedicated to the 80th anniversary of the birth of L.G. Bobrov. – Almaty. – P. Kainar, 2008. – pp. 250-252.
2. Durst C.E. Inherritance in lettuce // IllinioisAgr.exp.sta.Bull. –1930. – № 356. – P.239-241
3. Thompson R.S. Genetik relations of some color factors in lettuce // U.S. Dept. Agris. – Washington, 1938. – № 620
4. Ipatiev A.N. Vegetable plants of the globe. – Minsk, 1998. 432 p.
5. Mukhin V.D. Technology of vegetable production in the open ground. – M.: Mir, 2004. -271 p.
6. Pantielev Ya.Kh. Cabbage salad (2nd ed., reprint. and additional). – M.: Agropromizdat, 1991. – 95 p.

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