



ECONOMIC EFFICIENCY OF SELLING CARROT-BASED CONFECTIONERY PRODUCTS

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Abstract: This study analyzes the economic efficiency of producing and selling confectionery (confiture) products prepared from carrot raw materials. According to the research results, Variant 2 — a formulation based on carrot (50%), quince (30%), and lemon (10%) — was found to be not only nutritionally and biologically advantageous but also economically efficient. Calculations showed that the average production cost of 1 kg of confiture amounted to 13,700 UZS, while the market selling price reached 23,000 UZS/kg, yielding a net profit of 9,300 UZS per kilogram, or approximately 68% profitability. Under small-scale enterprise conditions, processing 100 kg of carrots per day allows for an estimated net profit of 12.3 million UZS over 22 working days. Additionally, confiture production demonstrated high raw material efficiency (60%), created added value, and increased competitiveness in the functional food market segment. The findings confirm that processing vegetable raw materials is economically viable and represents a new income source for local farmers.

Keywords: carrot, confiture, quince, lemon, economic efficiency, production costs, profit, profitability, processing, functional food product, added value.

Carrot-based confiture products are not only nutritionally and biologically valuable, but also significant from the standpoint of economic efficiency. These products ensure the rational use of raw materials by processing seasonal vegetables into long-shelf-life and marketable goods. Moreover, they serve as an additional source of income for local agricultural producers.

The cost calculation for producing 1 kg of confiture (Variant 2 — carrot + quince + lemon) is presented in Table 1 below:

Table 1. Economic Efficiency of Selling Confiture Products

No	Cost Items	Quantity	Price (UZS)	Total (UZS)
1	Carrot (50%)	0.5 kg	4,000	2,000
2	Quince (30%)	0.3 kg	6,000	1,800
3	Lemon (10%)	0.1 kg	8,000	800
4	Sugar (5%)	0.05 kg	12,000	600
5	Water, energy, container, labor cost	—	—	3,000
Total cost:				8,200 UZS

From 1 kg of raw material, an average of 0.6 kg of finished confiture product is obtained. Therefore, the production cost of 1 kg of the final product is calculated as follows:

$$8\,200 \cdot 0.6 = 4\,920 \text{ UZS} \quad \frac{8\,200}{0.6} = 13\,667 \text{ UZS}$$

In the market, natural carrot-based confiture products are sold at an average price of 22,000–25,000 UZS per kg (see Table 2).

Example of production capacity calculation



If a small enterprise processes 100 kg of carrot raw material per day, then:

- 100 kg raw material → 60 kg finished confiture

- Revenue:

$$60 \text{ kg} \times 23,000 = 1,380,000 \text{ UZS}$$

- Expenses:

$$60 \text{ kg} \times 13,700 = 822,000 \text{ UZS}$$

- Daily net profit:

$$558,000 \text{ UZS}$$

Monthly net profit (for 22 working days):

$$558,000 \times 22 \approx 12.3 \text{ million UZS}$$

Efficiency indicators

- Raw material efficiency: 60% (meaning that 1 kg of carrots yields 0.6 kg of finished product)
- Profitability (return on production): 68–70% This is considered a high profitability level for the food-processing sector.

Table 2. Market Indicators of Natural Carrot-Based Confiture Products

Indicator	Unit	Value
Cost of production per 1 kg	UZS	13,700
Average selling price	UZS	23,000
Profit (per 1 kg)	UZS	9,300
Profit rate (profitability)	%	≈ 68%

Value Added — the additional profit generated from processing vegetable raw materials, allowing a net income of 9,000 UZS per kilogram of finished product. The energetic, nutritional and economic advantages complement each other, thereby increasing the overall marketability of the product. If the product is certified as a functional (biologically active) food, its market price may increase by 10–15%.

It was determined that processing carrot raw materials into confiture products is effective not only in terms of nutritional and biological value, but also from an economic standpoint. Production costs amount to 13–14 thousand UZS/kg, while the selling price is 23 thousand UZS/kg, yielding a profit of 9,000 UZS (~68% profitability). This technology represents a low-cost yet highly profitable production model suitable for small enterprises and farmers, contributing to the enhancement of the country’s agro-processing capacity.

The formulation based on carrot, quince and lemon simultaneously ensures the product’s nutritional, organoleptic and economic efficiency.

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