

STUDY OF THE PROFITABILITY OF CUCUMBER CULTIVATION IN BIHOR COUNTY AT STANGL VEGETABLE

Natalia-Mariana LASAC¹, Alexia-Anamaria MATEI¹, Patricia-Claudia MOLDOVAN¹, Ramona Vasilica BACTER¹, Alina Emilia Maria GHERDAN¹

¹ University of Oradea, Faculty of Environmental Protection, Oradea City, Maghru 26, 410087, Romania Institution

RESEARCH ARTICLE

Abstract

The agri-food chain has been a focus of attention, especially since 1984 when it appeared in FAO documents. Generally, the analysis of the chain involves tracing the journey of a food product from production, including the agricultural raw materials used for its manufacturing, to its use as a consumable food product. We particularly followed the entire process from the agricultural exploitation to the consumer's plate, emphasizing the supply function in the agri-food chain. When studying a chain, we consider two fundamental aspects: its identification (description) – products, paths, economic agents, operations, flows, costs – and the analysis of regulatory mechanisms (market structure and functioning, state intervention, forecasts, etc.). After following the stages of cucumber cultivation, we analyzed the main cucumber producers in the north-west part of our country.

Keywords: agriculture, development, agri-food, cucumber, profitability

#Corresponding author: gherdanalina7@gmail.com

INTRODUCTION

The cucumber (*Cucumis sativus*) is a vegetable plant from the Cucurbitaceae family, originating from India, and it is widely cultivated. Information about the cucumber plant is important. This plant is a creeping vine that grows up to 1.5 - 2 meters long, climbing trellises or other supporting structures with tendrils. The plant has large leaves that cover the fruit, which is cylindrical, elongated, and rounded at the edges. At maturity, it can grow up to 60 cm in length and 10 cm in diameter, but it usually grows about 10 cm long. Cucumbers can be eaten raw or pickled.

The plant develops from a closed seed. Scientifically, the result of cucumber plant pollination is a fruit. Its classification as a vegetable, similar to tomatoes and zucchini, is arbitrary and based mainly on its use in the kitchen. The scientific classification of

vegetables does not exist; this classification emerged for practical reasons. Thus, there is no conflict in classifying cucumber fruit as both a vegetable and a fruit. Some cucumber varieties are parthenocarpic, resulting in seedless fruits; for these varieties, pollination reduces their quality potential. Usually, these varieties are grown in greenhouses, where insect pollination is eliminated. In Europe, cucumber varieties that can produce seeds and require pollination are preferred. The pollination of these varieties is done by bees, bumblebees, and various other insect species, with beekeepers preferring to bring their hives near vegetable-seeded fields.

If pollination is unsuccessful, the resulting fruit may turn yellow, fall off, or grow crooked. Partially pollinated fruits can be green near the stem but yellow and poorly formed near the flower. When consumed as food, a raw

cucumber with skin provides 20 kcal per 100 grams, including about 3.63g carbohydrates, 0.11g fats, 0.65g proteins, 0.027 mg vitamin B1, 0.033 mg vitamin B2, 0.098g vitamin B3, traces of vitamin B6 and B9, 2.8mg vitamin C, iron, magnesium, phosphorus, potassium, and zinc.

MATERIAL AND METHOD

For this study, we used systematically collected data from both economic statistics and the records of SC Stangl Vegetable SRL. We attempted to identify the agri-food chain of cucumbers, the main cucumber-producing companies in Bihor County, and the economic situation of the company with the highest production. The interpretation of the data aimed to identify the profitability of this product.

RESULTS AND DISCUSSIONS

There are many cucumber varieties, such as MarketMore, Cornichon Crișan, Parsian Pickling, Slănic, and many others. Cucumber cultivation can be profitable in the long term, as they can be grown in different seasons, either in greenhouses for early production or outdoors during summer or autumn. The correct selection of cucumber species and varieties, along with appropriate cultivation techniques, can contribute to increased efficiency and profitability.

The establishment of the crop can be done either by seedlings for early cultivation or directly by seeds for summer and autumn crops. Additionally, cucumbers can be grown

Economic agents, both public and private, involved in various phases of the vegetable chain are presented in the table below:

on the ground or on trellises. There are varieties suitable for field cultivation and varieties that adapt better in greenhouses. Given the high nutrient requirement, cucumber cultivation can begin in May when the minimum temperature for vegetation is about 25 degrees Celsius.

To obtain profitable cucumber crops on an area of 105 hectares, whether grown in greenhouses or open fields, it is essential to create a conducive environment for the plants' metabolic processes. Control of environmental factors such as light, temperature, humidity, and ventilation is crucial. Additionally, it is important to cultivate healthy and vigorous seedlings, resistant to diseases and pests. Adhering to cucumber cultivation technology is also essential for obtaining superior yields and quality. This involves:

Planting or Transplanting: Placing seedlings in the soil or greenhouses at the optimal time, avoiding root damage.

Irrigation: Providing adequate water to maintain proper soil moisture.

Fertilization: Applying suitable fertilizers to ensure balanced plant nutrition.

Weed Control: Removing weeds to prevent competition for nutrients and water.

Protection Against Diseases and Pests: Using preventive and control measures to reduce the risk of infections and damage caused by diseases and pests.

Harvesting at the Right Time: Harvesting cucumbers at maturity to ensure optimal taste and quality.

PHASE	ECONOMIC AGENTS/ INSTITUTIONS
Production Planning	Ministry of Agriculture, Forestry, and Rural Development, Romanian Society of Horticulturists, Horticulture Directorate - Fruits and Vegetables Bureau within MAPDR, Payment and Intervention Agency, producers, research institutions
Ensuring Material Resources	Producers, UNISEM, UNICEREAL, chemical substance commercial units, irrigation, agricultural machinery, etc.
	Peasant households, agricultural associations, and

The main companies producing cucumbers in Bihor County are:

- Stangl Vegetable, Husasau de Tinca
- SIRMIS EXIM S.R.L., Valea lui Mihai
- TALABUR SRL, Dumbrăvani
- Linisagro, Oradea
- LONARDONI & ASOCIATII S.R.L., Girişu de Criş
- EMILIANDA COOPERATIVA AGRICOLA, Tulca
- ANSADA SRL, Salonta
- SCHMIDT AGRARA SRL, Oradea
- BONAGRO SRL

Stangl Vegetable is a company founded in Romania by a German and markets its products in Germany. In 2016, the factory was moved to Husasău de Tinca, which increased profits depending on the harvest, season, and uncontrollable circumstances. This is the largest company involved in cucumber production in western Romania. The farm covers 1,400 hectares of agricultural land, specializing in growing a variety of vegetables and cereals in open fields. The main vegetable

crop is cucumbers, cultivated on 131 hectares (105 hectares plants and 26 hectares seeds), followed by onions and potatoes.

The workforce is an essential factor for the company, as cucumbers are manually cultivated in the field. Currently, the company has 28 permanent employees and collaborates with over 2,000 workers in the season. Cultivation and planting are carried out with state-of-the-art equipment, with the company having 40 tractors and 25 planes. Irrigation is an essential method that facilitates work and ensures plants receive sufficient water even during drought periods. Stangl Vegetable has its reservoir fed by 8 wells. Additionally, the company has a high-precision automated and manual sorting process. Using the latest technologies for sorting and packaging, freshly harvested cucumbers are processed the same day and prepared for delivery in cold rooms, from where they continue their journey to customers. In peak season, 5-6 trucks of cucumbers leave for Germany, where cucumbers are processed and jarred.

Cultivated Area with Major Crops by Ownership Forms, Macroregions, Development Regions, and Counties

Year	Measure	Total	North-West Region	Bihor
1990	Hectares	9,402,113	1,035,433	299,437
2020	Hectares	8,263,672	827,392	307,845
2021	Hectares	8,263,827	838,819	308,475
2022	Hectares	8,005,889	806,333	300,705
2023	Hectares	8,211,163	805,007	300,531

Vegetables Cultivated in Open Fields Vegetables in Greenhouses and Tunnels

Year	Measure	Total	North-West Region	Bihor
2020	Hectares	4,265	208	9
2021	Hectares	4,19	173	11
2022	Hectares	4,307	173	10
2023	Hectares	4,6	191	28

Fresh Vegetables from Family Gardens

Year	Measure	Total	North-West Region	Bihor
2020	Hectares	86,862	10,526	-
2021	Hectares	84,128	10,509	-
2022	Hectares	78,628	9,685	-
2023	Hectares	78,246	9,612	-

As we can observe, although Bihor County is not as representative as other counties in our country in terms of vegetable cultivation, especially cucumbers, the cultivated area in Bihor compared to the other counties in the northwest region is acceptable.

CONCLUSION

From the analysis, we observed that starting with the seed used, the quality of the land, the irrigation system, and including the harvesting, this product can have high productivity and can bring profit, provided we have a secured market. We also observed that the preservation of these products results in higher profits.

The efficiency category, applied in many domains of human activity with its quasi-equivalent variant—effectiveness, in the most general terms, represents the qualitative characterization of the result of an action that involves considering a volume of physical and intellectual effort, concretized in a volume of past or present work. Efficiency is a relative term, and its correct determination and perception are extremely important for human activity. Due to this fact, efficiency will always be relative to a specific criterion. When we say that an economy or a company is more

efficient than another, we consider a comparison based on a specific criterion or indicator (production per employee, yield per hectare, or production per machine, etc.).

Beyond the processing sector, fresh vegetable distribution involves collectors (direct distributors), specialized vegetable stores that usually purchase from collectors, and supermarkets that have purchase contracts either with producers or collectors.

Regarding products sold through different channels, it is not possible to accurately quantify the volumes handled by each of these channels. It is estimated that more than half of the vegetables sold are traded through a large number of intermediaries. Generally, there are two ways: farm gate sales (the most widespread) and street commerce.

Another way of selling is direct sales to shops and supermarkets. This method relies on the daily demand from retail stores. Formal contracts are not concluded with shops and supermarkets. Regarding supermarkets, very few farmers can sell their products through this channel. It is estimated that less than 10% of the vegetables sold are through this route. Supermarkets require quality products in large quantities. But even when these conditions are met by farmers, due to the small quantities they can deliver and the discontinuity in delivery, supermarkets refuse to sign contracts.

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