EDITORIAL

Agroindustrial Importance of Fruits and Vegetables

Importancia Agroindustrial de las Frutas y Hortalizas

Fruits and vegetables are essential for life and the overall health of consumers, and they form a vital part of the nutritional foundation. In Colombia, this significant food group currently occupies approximately 700,000 hectares, accounting for nearly 10% of the country's total cultivated area.

In the case of fruits, they represent the mature ovary of the flower, which contains the seeds responsible for species propagation. Vegetables, on the other hand, can be any part of the plant, such as roots (e.g., carrots), stems (e.g., asparagus), leaves (e.g., lettuce), flowers (e.g., cauliflower), and even some fruits that, due to their usage, are classified as vegetables, such as tomatoes and pumpkins. These foods are alive while attached to the plant, continuing their metabolic processes even after harvest. This postharvest period is marked by respiration, transpiration, and the release of volatile substances, with some being more or less susceptible to ethylene, a maturation hormone that triggers the physiological events of ripening.

After harvest, fruits and vegetables present a series of important characteristics that determine their quality and agroindustrial potential. These factors make them valuable for consumption as fresh products or for agroindustrial processing. Key characteristics include: sensory attributes (appearance, color, aroma, and flavor); physicochemical aspects (soluble solids concentration and acidity); physical traits (size, shape, pulp yield, weight, and firmness); nutritional properties (vitamins and minerals); physiological factors (respiration, transpiration, and ethylene production); and functional qualities, such as phytochemicals like carotenoids, phenols, flavonoids, sulfur compounds from alliaceous plants, among others. Many of these phytochemicals in fruits and vegetables are proven to have beneficial effects on human health, positioning fruits and vegetables as functional foods.

The intake of fresh or processed vegetables in Colombia is generally below the levels recommended by the World Health Organization, which suggests a minimum of five portions of fruits and vegetables per day, each weighing approximately 80 grams, totaling 400 grams per person per day. This situation is complex, and both private and government institutions must work together to improve this scenario by promoting increased vegetable consumption across the general population.

The agroindustry, particularly applied to fruits and vegetables, is viewed as a complex and systematic cycle of operations that links inputs, raw materials, production, transformation, and marketing of agricultural products. This cycle is framed within sustainable and profitable practices designed to meet consumer needs.

The United States and several European countries are the main destinations for Colombian tropical fruits and some vegetables. Many of these products are considered exotic in these regions, as they are not locally produced and are relatively unknown and therefore scarcely consumed. This presents a significant opportunity to boost exports of products such as plantains, bananas, Hass avocados, lemons, pineapples, tree tomatoes, golden berries, passion fruit, cassava, and native potatoes, among others.

Considering land use in Colombia, where around 7,100,000 hectares are under agricultural production—representing 6.4% of the national territory—and noting that various specialized sources suggest this area could potentially triple, given the favorable soil conditions, water resources, climatic factors, thermal floors, and geographical features, the country has the potential to become a global agricultural powerhouse. This means that Colombia could emerge as a leading producer of food, ensuring national food security while generating surpluses for export to regions where these products are highly valued, even helping to address food shortages in vulnerable global populations.

Colombia has significant opportunities for the agroindustrial development of fruits and vegetables, particularly due to the variety of vegetables that can be produced. To achieve this, it is necessary to expand the agricultural frontier, optimize land use, develop and transfer technology for vegetable production and processing, and adapt the land with infrastructure for irrigation, drainage, and mechanization. Additionally, improvements in infrastructure, particularly roads and ports, are crucial. It is important to highlight that the country has the skilled human resources necessary to achieve these goals, which would help diversify the supply, expand markets, generate economic growth, and contribute to the rural sector and, by extension, the country's development.

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