FACTORS INCREASING THE ECONOMIC EFFICIENCY OF APPLE STORAGE

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Abstract.

The article discusses the process of storing agricultural products and providing the population and consumers, storing the harvested apples in cold stores, preparing means of planning and storing products for quality care, factors affecting the preservation of their properties and shelf life, as well as recommendations on income received from sales quality products.

Key words:

Relative humidity, temperature, evaporation, freezing, refrigeration, storage, prospective application.

Introduction.

In ensuring the economic stability of the country and a decent life of the population, a special place is given to the creation of a favorable business environment for farmers, dehkan farms and landowners, the efficient use of their land. As a result of the reforms, more than 99% of agricultural products have been grown on farms and dehkan farms. We know that fruits contain sugar, organic acids, proteins, fats, vitamins and other substances necessary for the human body, which, along with easy digestion, have healing properties and strengthen protection against various diseases in the human body. Today, the construction of modern energy-efficient storage facilities is important to provide the population with such natural products throughout the year and to increase the volume of agricultural exports. In this regard, our government annually develops promising programs and implements them on a large scale. Good knowledge of the biological properties of fruits, processes that occur during storage and factors affecting product quality, the correct selection of varieties suitable for storage, proper organization of harvesting, transportation and commercialization guarantee the quality of the product. The shelf life of apples depends on the ripening period after harvest.

Materials and methods.

Air temperature, gaseous environment, relative humidity play an important role in the storage of apples. They have a metabolism, which affects the taste and composition of the colour consistency of the fruit. High-quality fruits are achieved after storage for some time. After that, the metabolism is disrupted, a physiological process occurs, and the colour, taste, aroma, and composition of the apple fruit are disrupted.

Relative humidity:

The relationship of each apple variety to the relative humidity of the air is observed to vary. Thick-skinned fruits do not break down quickly, and in varieties with thin-skinned skin, withering is accelerated. When storing apples, it is recommended to keep the relative humidity in the range of 90-95%. The relative humidity of the warehouse air is monitored by a psychrometer. It is installed in the middle of the warehouse. Temperature: Different varieties of apples have different attitudes to temperature. Apples can have a good temperature of 00C with a difference of 10 0S during storage. But for unripe varieties do not fully ripen when stored at such temperatures. That is, the ripening retains its activity, the colour, taste and aroma are not good. In addition, the fruits of some varieties lose their full ripening properties as a result of prolonged storage at 0 0S, resulting in increased darkening of the skin and flesh. In contrast, the Baikal and Golden Delishes varieties, on the other hand, can withstand -1.5 0S over-cooling and their consumption qualities are maintained as the temperature gradually rises. Apples are resistant to excessive cold and increase cooling at a steady pace. The effect of change increases with abrupt cooling and high temperatures. The temperature of the refrigerated warehouse is determined by thermometers and the optimum temperature is set from 00S to 40S. Evaporation: In the first days of storage, the fruit gets rid of the free content in it, so the moisture in it evaporates quickly and the balance is equal to the moisture. Evaporation then decreases and intensifies again as the fruit ripens. A smooth course of evaporation depends on the air temperature and relative humidity in the fruit storage. Fruits sweat during transport and storage due to evaporation of water and under the influence of various other factors. To stop evaporation and keep the fruit wet, it is necessary to increase the humidity in the warehouse and lower the temperature. The temperature between the boxes is usually higher than the heat of the fruit and vegetable warehouse. Fruits spoil quickly when sweating because the moisture on their surface allows the development of spores of microorganisms. Freezing: Low temperature during storage of fresh fruit has a negative effect on them. Fruits in small containers freeze faster than in large containers, the cells are dehydrated and the fruits are destroyed during freezing as a result of irreversible coagulation of thick proteins and plasma, mechanical damage exacerbates cell death from cold and accelerates destruction. Preparing the barn for the season: Before placing the fruit, the barn should be cleaned of debris, ventilated and disinfected, sulfur incinerated, sprayed on the walls with a 5% solution of iron sulphate. Ventilation pipes are prepared, equipped with trays for the fruit set. Placement of boxes. When the crop is mainly stored in boxes, it is possible to place 400 kilograms of apples per square meter in fruit boxes number 3. The boxes are placed at a distance of 40 cm from the wall, with the main passage of 1.8–2 m and a gap of 60–70 cm between each pair of trays. There are many ways to stack boxes: right-angled, chess method, stacked in two, three, four, five. During the storage of fruits, it is necessary to regularly monitor their condition, for this, the boxes are opened and inspected, and damaged fruits are sorted and removed.

Sale of fruits.

Before removing the fruits from the warehouse, they are sorted and then stored in a deprivation chamber, where the temperature is slowly increased for 2-3 days. This improves the taste of the fruit, they become more fragrant. If the product stored in the storage chamber is taken directly out of the refrigerated warehouse, the color of the fruit will quickly turn brown and begin to spoil. Economic efficiency of apple fruit storage. Results and their analysis. A comparative analysis of the economic efficiency of apple varieties grown on a farm and then placed in storage showed that their storage could also be economically viable due to rising off-season apple prices.

In 2017, the cost of Golden Delishes apples grown on the farm amounted to 800 soums / kg. According to the prices recommended by modern refrigerated warehouses in Samarkand, in 2017 the cost of storage of 1 kg of fruit products was around 300 soums / kg. If the apples are stored in early November and sold in December, according to the prices in the markets of the country, apples can be sold this month at 3,500 soums / kg. Hence, the cost-effectiveness of storing apples for 1 month can be as follows (Table 1).

The economic efficiency of storing 1 ton of Golden Delishes apples for 1 month

Production indicators	Value
Costs: Purchase. Cost of placing the product in storage, sum	800 000 1000 000
Apple storage costs (rent, 300 sum / kg)	300000
Total cost, sum	1300 000
Sales price of the product, sum / kg	3500
Gross income, sum	3500 000
Net income, sum	2200 000
Profitability of apple storage, %	169,2

Conclusion.

Analyzing from the data in Table 1, it can be seen that the selling price of apple fruit increases during the off-season, which creates opportunities for the sale of stored fruit at higher prices and greater profits for the farm. In view of the above, we recommend that farm managers and entrepreneurs engaged in fruit and vegetable growing store their products in high-quality refrigerated warehouses to get high yields (benefits) from grown fruits and vegetables.

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