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Title **INCREASING THE EFFICIENCY OF SOLAR COLLECTORS IN RURAL CONDITIONS**

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INCREASING THE EFFICIENCY OF SOLAR COLLECTORS IN RURAL CONDITIONS

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Abstract: It is impossible to increase the efficiency of solar devices without improving solar collectors. At the same time, the existing drying methods on the farms, the level of product quality, experiments with a helio dryer, which is not suitable for the purpose, show that in the solar devices in the form of cabinets, the blues are protected from all kinds of dust and pollution. Collectors are mainly used in cabinet-type solar devices, the main function of which is to retain heat for a long time.

Keywords: Collector solar dryer, temperature, degree, convective, contact, radiation infrared chamber, cabinet, dryer.

Introduction

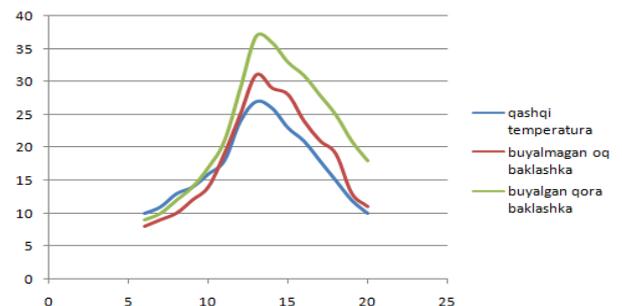
A solar collector is a device that absorbs solar energy and converts it into heat energy. Currently, Uzbekistan harvests only 15-20 thousand tons of dried fruits annually. Of course, this does not meet the growing needs of the national economy. This heat energy is transferred to the heat carrier. Typically, the classic version of the collector - a metal plate in a wooden or plastic container, equipped with a heater, absorbs solar radiation.

The possibility of using solar energy for heating was the first discovery made by the Swiss scientist Horace de Saussure in 1767, who made the first solar collector. Any solar collector has two working units: a solar radiation and a heat exchanger battery. It then deals with the conversion of radiant energy into thermal radiation. This energy is transferred to the heat carrier, the importance of which is often realized by water. The solar collector does not consume fuel and does not emit carbon dioxide into the environment. At the same time, the efficiency of such collectors reaches 80 percent. Today, various solar collectors have been developed.

There are several types of solar collectors available today, for example:

- Vacuum solar collectors
- Flat solar collectors,
- Planar solar collector
- Solar collector coming out of the refrigerator, etc.

Quick and quality drying of fruits without increasing the efficiency of solar collectors



we can't The collector mainly heats the cabinets in the evening, so the fruits continue to dry in the evening. When the efficiency of the collector is low, it does not provide heat to the inside of the cupboard in the evening, the result is that the fruits do not dry out in the evening, but attract cold, moisture from the outside. Fruit drying time is longer, it is not possible to dry many fruits in a short time. All types of solar collectors operate on the laws of thermodynamics, Stefan-Bolsman's law,

Kirchhoff's law, the law of radiation of an absolutely black body, Vin's laws of displacement, and are made on the basis of these laws. The collector we recommend to you is suitable for agriculture and is very cheap. The black surface asked for the sun's heat, which is then transferred to the water. The simplest models can be made from existing materials and do not require pumps or other electrical equipment. Antifreeze fluids - An effective solar collector can be used even in winter because antifreeze is used. The described solar collector system is passive and not dependent on electricity. It works without a pump. According to the principle of convection, the hot liquid moves between the collector and the drying cabinet. The water in the black-painted jar absorbs 7-8 degrees more heat than the unpainted jar, dissipates its heat more slowly, and keeps the cupboard at a certain temperature even in the evening. The shells are made of polycarboxide. We know the physical and chemical properties of polycarboxide. The experiment, conducted on March 2, found that a black-painted frog absorbs more heat according to Stefan-Bolsman law; The radiation of a black body is proportional to the fourth degree of its thermodynamic temperature;

$$R_e = \sigma T^4 \text{ yoki } E_T = \int_0^\infty E_{\lambda T} d\lambda = 2\pi c k T \int_0^\infty d\lambda / \lambda^4 = \infty$$

According to the results, black paint is the most effective collector, black paint is not used when painting paint, because the paint is smooth and shiny, which sends back part of it without absorbing all the light, so the water heats up less. . The most effective dye is black moth. In winter, water collectors should be used less because the water can freeze, absorbing most of the heat of the falling Sun due to the high specific heat capacity of the water, resulting in less heat going into the cabinet. In the autumn and winter, solar collectors with bodies and substances with low specific heat capacity, most of the heat is collected in the closet. According to science-based physiological nutrition standards, each person's daily diet should include at least 8-10 g of dried

fruit Designed using modern technology and modern materials. Thanks to such devices, solar energy is recycled. The energy received can be used to heat water, heating rooms, greenhouses and greenhouses. To dry the fruit in passive solar devices, it is necessary to increase the efficiency of the collector of the drying cabinet depending on the season. In summer, the outside temperature is 40-41 degrees. The temperature inside the collector is close to 75-80 degrees. Such dried fruits are of poor quality, the inside remains dry well. For good quality drying of fruits we need to ensure the temperature inside the cabinet to 60-62 degrees. When it's hot, we have to change the temperature by making a hole in the top of the cabinet. In summer, the stone is used as a collector, and the rocks are rarely used. The surface of the sharp stones is smooth and the hot air inside the collector moves well and goes to the cabinet by convection.

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