Uzbek Scholar Journal
Volume- 17, June, 2023
www.uzbekscholar.com

PERFORMANCE OF EXISTING AND PROPOSED TECHNOLOGIES IN CARROT DRYING

Docent O. N. Sulaimanov,
Ph.D, Master's Student of the Faculty of Science and Technology

Abdusamatov Abduvali

Abstract
In this article, the performance of the existing and proposed technology for drying carrots

Keywords: carrot, conveyor, vents, air, section, rectangular.

Performance of existing technology. The carrot drying line consists of three rectangular prism-shaped sections with a length of 50 meters and a width of 3 meters and a width of 2.5 meters. The distance between the sections is 3 meters, and the total length of the line is 156 meters. Inside each section, a separate 1.8 meter wide hole steel belt conveyor is placed. Carrots prepared for drying are thrown to the primary conveyor, the distributor (regulator) and the steel belt conveyor with holes. Batteries are placed inside each section and heat the air inside the section. In each section, there are holes for atmospheric air, which are designed to adjust the amount of air. The air is sucked in from the wet air vents and discharged to the outside environment through the chimney with the help of a fan.To transfer the semi-finished product from the first section to the second section and from the second section to the third section, the intermediate conveyor and the next hole steel belt conveyor are used to load the semi-finished product evenly in one measure. At the end of the third section, the finished product is loaded from the transporter to the trailer with the help of a diverter [Ostonakulov T.E. and others. 2005].The dryer works as follows: Carrots are evenly loaded into the conveyor through the primary conveyor and the rater distributor in the first section. The carrot moves in the transporter. The battery heats up the surrounding air (in the drying chamber) by steam to 95..100 degrees. Carrots release their own moisture to the air, and their humidity drops to 35%.Moist air is sucked in by the fan and released to the outside environment through the chimney. Atmospheric air enters the drying chamber instead of moist air through inlet holes. Thus, the semi-finished product is transferred to the second and third sections with the help of an intermediate conveyor and a rater-distributor. The temperature in the drying chamber of the second section is 90...95 degrees, and the humidity of carrots is reduced to 14%. The temperature in the drying chamber of the third section is 85...90 degrees, and the humidity of carrots is reduced to 3%. The construction of the third section is completed on the conveyor, the finished product is loaded onto the trailer using a conveyor [Oripov R., Sulaymanov I, Umurzokov E. 1991].During the movement of the wet carrot loaded into the dryer, the carrot dries by releasing the moisture contained in it to the air under the influence of hot air. Thus, the cost of drying carrots increases due to the waste of heat generated by consuming a large amount of carbohydrate fuel.
Steam is generated in the boiler. A steam boiler consists of lower and upper barrels, which are connected by pipes. In the process of steam generation, fuel is injected into the furnace along with atmospheric air.Fuel releases heat by burning in the oxygen in the air. Under the influence of heat, the water in the pipe heats up and turns into foam and rises to the upper barrel. Collected steam is sent to the batteries to heat the drying chamber. The disadvantage of this steaming process is that due to the high consumption of fuel resources, the cost of dried carrots is high.

Performance of the proposed technology. The difference from the existing technology is that the air heated in the solar collector is directed to the suction part of the boiler fan that generates steam.The solar collector consists of a cylindrical transparent medium, inside which an element is placed that converts solar energy into thermal energy of the air. An insulating element is placed under them, which stores the heat from the heat energy [Azimov B.J., Boriev H.Ch. 2002].

The collector is placed in a place with good sunlight (in the field, on the roof of the building, in an upright position or at an angle to the horizon). Sunlight, passing through a transparent medium, falls on an element that converts solar energy into air heat energy, and heats the air by converting solar energy into air heat energy. Transparent and insulating environments trap warm air. The heated air is sucked in by the fan and sent inside the oven

The purpose of the work is to save energy resources (gas, oil products, coal) by sending air heated by the solar collector instead of cold air into the oven.

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