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Effect of evaporatively cooled storage on potato ANJALI CHANDRA AND AJEET KUMAR SINGH

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ABSTRACT

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ANJALI CHANDRA Department of Home Science, Ram Krishan Misson Ashrama, Divyayn Krishi Vigyan Kendra, RANCHI (JHARKHAND) INDIA Potatoes contain 80% water and therefore are semi-perishable in nature. The quality of potato and its storage life is reduced by the loss of moisture, decay and physiological breakdown. These deteriorations are directly related to storage temperature, relative humidity, air circulation and gas composition. Potatoes, being a living organism, require an effective management for storage. Quality of the potatoes deteriorates gradually during storage. Bruise prevention, minimum weight loss and storage diseases prevention are the main parts which are to be looked after during storage. Many attempts have been made by researchers to investigate the suitability of various storage systems over the years for safe storage of potatoes. In this study, attempts have been made to find out an affordable and effective storage system of potatoes in rural condition. For getting it, the effectiveness of storage of potatoes in zero energy cool chamber was tested. It was found effective as compared to storage in heaps and other structures. Minimum storage losses as weight loss sprout loss and rottage have been recorded in case of its storage in zero energy cool chambers.

Key words : Potato, Storage technology, Sprouts

Potato is the most important food crop in the world after wheat, rice and maize. Potato ranks fourth in the world and third in India with respect to food production. In India, 73% of potatoes are consumed in different forms such as cooked, roasted, French dried, chipped etc. Cooking often reduces mineral and vitamin constituents. In case of processed products, it is possible to add missing or low ingredients in order to enhance overall nutritional value of the product. Potatoes contain 80% water. The high water content makes handling and storage of potatoes very difficult. It has been estimated that under tropical and sub-tropical countries, losses due to poor handling and storage amount to 40-50%. Therefore, it is of utmost importance to minimize storage losses. It makes sense to minimize storage losses to increase the availability of potatoes because it costs less to store than to produce a given quantity of potatoes. The potato is a semi-perishable commodity. Appropriate and efficient post-harvest technology and marketing are critical to the entire production consumption system of potato because of its bulkiness and perishability. Unlike in temperate regions, in India the potato is harvested in the beginning of summer. Due to inadequate cold storage facilities to hold the produce for longer periods, prices plunge at harvest time and larger quantities are spoiled before they could be disposed off. Consumers are also unable to develop a habit of consuming more potatoes because potato stocks disappear from the market within a few months of harvest and in later part of the relative prices of potato are high.

The purpose of storage of potato is to maintain tubers in their most edible and marketable condition and to provide a uniform flow of tubers to market and processing plants throughout the year. Four variables to determine storage losses are the potato variety, pre-storage conditions, storage conditions and storage duration. It must be realized that storage losses can not be avoided even by optimal storage. Good storage can merely limit storage losses in good product over relatively long periods of storage. Storage losses are often specified as weight losses and losses in the quality of potatoes, although the two can not always be distinguished. Storage losses are mainly cased by the processes like respiration, sprouting, evaporation of water from the tubers, spread of diseases, changes in the chemical composition and physical properties of the tubers and damage by extreme temperatures. These processes are influenced by storage conditions and therefore can be limited by maintaining favourable conditions in the store. However, the storability of potatoes is already determined before the beginning of storage, by such factors as cultivar, growing techniques, type of soil, weather conditions during growth, disease before harvesting, maturity of potatoes at the time of harvesting, damage of tubers during lifting, transport and filling of the store (Rastovsky, 1987 and Burton et al., 1992).

Good storage should prevent excessive loss of moisture, development of rots and excessive sprout growth. It should also prevent accumulation of high concentration sugars in potatoes, which result in dark