



Onion Processing Technologies for Entrepreneurship Development

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• Onion Grader

It is a size based grading machine in which the material is fed over the oppositely rotating diverging rollers. Along the length of rollers, the diameter is decreasing in steps, thereby the opening space between the rollers is increasing which facilitates the sorting of the moving commodities in different size lots. The grader is also suitable for spherical fruits and vegetables. The major working components of the grader includes feed hopper, feed conveyor, roller array, discharge channels. The machine has a capacity of 2 t/h and operates on 0.74 kW electric motor. Grading efficiency of the machine is 92-95% and cost around Rs. 50,000/-. It is also published in ICAR success story indicating its high performance and good economic returns.



• All Side Ventilated Onion Storage Structure

This is the improved design of conventional natural ventilated system. The structure with 1 tonne capacity fabricated using wooden strips keeping in view of all side effective aeration to the stored lot. There is reduction in rotting losses by 50% over conventional practices in 90 days of storage period. The cost of the storage unit is Rs. 15000/-.



• Modular Onion Storage Structure (Model-I, 1 tonne Capacity)

The structure is foldable modular in nature. The storage unit equipped with sensor based automated aeration system. The structure has arrangement for easy filling and discharge system. The storage system is suitable to store rabi harvest of the onion during rainy season. It is made from lightweight, corrosion and UV resistive FRP material. There is reduction in total storage losses by 56 % over conventional practice. The cost of the single storage unit (without blower) is Rs. 20000/-.



• Modular Onion Storage Structure (Model-II, 3 tonne Capacity)

The modular storage system designed and scaled-up for storage of onion up to 3 tonne. The multiple units may be arranged in array for matching the required capacity with single air station unit. There is reduction in total storage losses by 56% over conventional practice. The cost of the single storage unit (without blower) is Rs. 35000/-. A 1000 CFM capacity blower can aerate about 04 storage units. This structure is installed at Guru Gangadas Farmer Producer Company, Badi Churlai, Distt. Dewas.



• Onion bulb descaler

Removal of dry peel/scale of onion is the common practice during storage and marketing of onions. Onion bulb descaler developed to reduce drudgery in manual operation and clean the onions effectively. Soft bristle rollers simultaneously remove the dry peel and conveyed bulbs towards down. The machine is operated at 0.75kW electric motor and overall weight of machine is 70 kg. At optimum operating condition capacity of the machine is 1 t/h and fetch about 88% of descaling efficiency. The cost of the machine is Rs. 35000/-



• Onion Paste

The pilot scale facility for onion paste is established using a standardized unit operations like peeling, cutting, blanching, wet grinding, concentration, preservative addition, packaging and retorting. The paste making unit includes machines like cutting devices, paste grinder, concentrate, packaging machine and retorting. The prepared paste can be used as ingredient for various food applications. The nutritional composition of the onion paste includes 80-82% moisture content, 3.93 of pH, 1.9 g/100g of carbohydrate, 0.07g/100g of titratable acidity. The processing cost of the onion is about Rs. 3.50/kg. The capacity of the plant is 300 kg onion/day and cost of the unit is Rs. 3.5 lakhs.



• Onion dry Slices

The process for development of onion slices includes sorting, descaling, washing and peeling of matured and properly cured onions. Peeled onions then sliced and dried in tray dryer at 55°C. These dried slices may be used as ingredient for various food product applications mainly pre-mixes. The per 100 g nutritional composition of the product includes 302 Kcal of energy value, 10.2 g of protein, 0.44 g of total fat, 74 g of total carbohydrates, 12 g of dietary fiber and 47 g of sugars.



• Onion Powder

The process for development of onion powder includes sorting, descaling, washing and peeling of matured and properly cured onions. Peeled onions then sliced, dried, and grinded in to powder. The powder may be used as ingredient for various food product applications. The per 100 g nutritional composition of the powder includes 302 Kcal of energy value, 10.2 g of protein, 0.44 g of total fat, 74 g of total carbohydrates, 12 g of dietary fiber and 47 g of sugars.