IARJSET ISSN (O) 2393-8021, ISSN (P) 2394-1588

International Advanced Research Journal in Science, Engineering and Technology

State Level Conference – AITCON 2K24

Adarsh Institute of Technology & Research Centre, Vita, Maharashtra

Vol. 11, Special Issue 1, March 2024

Manufacturing of papaya slicer machine in food industry: A Review

Nikhil Chavan[1], Jaid Shaikh[2], Anish Budhawale[3], Prajyot Hasabe[4], A.B. Shaikh[5]

Student, Mechanical Engineering (poly.), AITRC, Vita, India[1-4]

HOD, Mechanical Engineering (poly.), AITRC, Vita, India[5]

Abstract: The fruit slicer machine is used for slicing various kinds of fruits and vegetables, including papaya, tomato, apple, pear, onion, chili, strawberry and carrot etc., and slicing raw materials into small diameter particles. The papaya slicer machine manufactured to slice the papaya. The papaya slicer machine is manufactured with first priority to save the employ cost and reduce manpower.

I. INTRODUCTION

The fruit crusher machine is used for crushing various kinds of fruits and vegetables, including Papaya etc., and crushing raw materials convenient the operation of the next step. It is characterized by the automatic cutting which can be combined on the production line or produced by a single machine. All places that come into contact with fruits cut by stainless steel blade and high-quality, which has good corrosion resistance, will not contaminate materials, and ensures food hygiene.

India's diverse climate ensures availability of all varieties of fresh fruits. It ranks second in fruits and. slicing of crops before drying reduces the drying time by exposing more surface area to the air. The preservation of almost all processed root and tuber products depends slicing. Papaya Sliced before cooking and steaming, either for direct consumption or as one step in a processing system.

The process of cutting or slicing gives rise to faster processing. Crops are commonly sliced and prepared by frying in hot oil or roasting. This practice of roasting food items without slicing the product takes longer time than when they are sliced. Slicing as unit operations helps in preparation of the raw material for further processing like cleaning, trimming, peeling followed by cooking, canning or freezing. Processing (canning, drying, freezing, and preparation of juices, jams, and jellies) increases the shelf life of fruits and vegetable. The papaya, a tropical fruit prized for its vibrant flavor and nutritional benefits, has gained significant popularity in global markets.

However, the manual process of cutting and preparing papayas poses challenges in terms of efficiency, consistency, and labor requirements. In response to these challenges, the development of papaya cutting machines has emerged as a promising solution to streamline the processing of this fruit. This paper explores the evolution, functionality, and impact of papaya cutting machines in the agricultural and food processing industries. We delve into the technological advancements that have enabled the design and manufacturing of these machines, ranging from simple mechanical slicers to sophisticated automated systems equipped with advanced sensors and robotics.

Furthermore, we examine the practical implications of integrating papaya cutting machines into commercial settings. From small-scale farms to large-scale processing facilities, these machines have revolutionized the way papayas are harvested, prepared, and packaged. We discuss the economic benefits, such as increased productivity and reduced labor costs, as well as the potential social and environmental implications of widespread adoption.

Moreover, this paper sheds light on the challenges and limitations associated with papaya cutting machines, including technical constraints, maintenance requirements, and compatibility with different papaya varieties. By critically analyzing these factors, we aim to provide insights into optimizing the performance and efficacy of these machines for diverse applications and contexts. In conclusion, the development of papaya cutting machines represents a significant milestone in the modernization of agricultural practices and food processing technologies. Through comprehensive research and innovation, these machines have the potential to enhance efficiency, sustainability, and profitability throughout the papaya supply chain. This paper contributes to the ongoing discourse on the transformative role of technology in shaping the future of agriculture and food production.

IARJSET ISSN (O) 2393-8021, ISSN (P) 2394-1588

International Advanced Research Journal in Science, Engineering and Technology

State Level Conference – AITCON 2K24

Adarsh Institute of Technology & Research Centre, Vita, Maharashtra

Vol. 11, Special Issue 1, March 2024

II. PRODUCT DETAILS

Use\Application	Food industry
Cutting Shape	Vertical
Brand	Shivparv food industry
Color	Blue
Capacity	1500 Kg/Hr.
Motor	3 HP
Gear box	Worm reduction gear
Cutting method	Cut in 2 piece

Image:

Components of machine:

- Motor
- Gear box
- Blades
- Pulley
- Shaft
- Bucket
- U- shape bearing

Advantages:

- Less time is required for cutting.
- To reduce manpower.
- Running cost is low.

Disadvantages:

- Noise is produce.
- High capital cost.
- Complexity

III. CONCLUSION

In conclusion, the effectiveness of a papaya cutting machine hinges on factors like efficiency, safety, cost-effectiveness, and quality of cut. User feedback and environmental impact also play roles in Determining its overall utility and value. The development and adoption of papaya cutting machines have significantly transformed the papaya processing industry, offering numerous benefits in terms of efficiency, productivity, and quality control. By automating the cutting process, these machines have reduced labor requirements, minimized waste, and improved overall production efficiency. Small-scale farmers and large-scale processing facilities alike have embraced this technology to enhance their operations and remain competitive in the market. Secondly, the technological advancements in papaya cutting machines have led to the development of more sophisticated and versatile systems.

REFERENCES

[1]. S.D. Ambatkar (2018) by tech knowledge theory of machine.
[2]. Dr.R.P. Arora (2019) by tech max, Manufacturing process.
[3]. Barth, M. M., Zhuang, H. & Saltveit, M. E., (2002). Fresh-cut vegetables. In: Kenneth C. Gross, Chien Y. Wang, Mikal E. Sattveit (Eds.), The Commercial Storage of Fruits, Vegetables, and Florist and Nursery Crops. An Adobe Acrobat pdf of a Draft Version of the Forthcoming Revision to U.S. Department of Agriculture, Agriculture Handbook 66 on the Website of the USDA, Agricultural Research Service, Beltsville Area
[4]. Singh, V., Kumar, D. & Singh, G. (2013). Development of Pineapple Peeler-cum-Slicer Popular Kheti,1(2): 21-24.

