

A STUDY OF PAPER PACKAGING INDUSTRY EMPLOYING SYSTEMS APPROACH

¹Prof (Dr) Arun Kumar Singh

Officiating Dean Students Welfare, Mechanical & Automation Engineering Amity University Greater Noida
Uttar Pradesh, India

vcdgdirector@gmail.com

ABSTRACT

The project work deals with the Study of Paper Packaging Industry-Employing Systems Approach. In the project a study of Paper Industry has been made through survey of the related industrial consumers and manufacturers of the packaging materials. The problem faced by packaging material manufacturers during purchase of raw materials from different paper mills, agencies their cost factors, reliability the production schedule and the other related problems during production have been investigated. The problems related to packaging during distribution of products in cartons have been discussed. After studying the constraints models have been developed incorporating systems approach for minimizing constraints and trouble shootings. Thus envisaging cost effective packaging system. A case study for Packaging of Guava fruit was undertaken to evaluate the suitability of models developed during the research work. Model-1 was found to have scored 8 points on a suitability index scale ranging from 0 to 1 while model 2 and three scored 7 points and 5 points respectively.

1. INTRODUCTION

Paper is one of the necessities of modern life. We cannot think of the progress made in the field of mass communication and education without the invention of paper. Paper is not only the basic raw material for written or printed communication; it also is the most important raw material for packaging industry. "The role of packaging in value enhancement is increasingly becoming important in consumer marketing today. An understanding of the packaging industry is necessary to fully appreciate the packaging revolution that has occurred in the consumer and industrial goods sectors. The packaging industry consists primarily of two distinct segments firms which manufacture the packaging materials viz. tin, paper, plastic etc and firms engaged in the formation of packaging i.e. converting the packaging materials in to unit/master packages and the marketing research agencies which conduct specialized packaging research generally for package development and adaptation. Newer materials are constantly emerging in the packaging field and in many cases have eliminated or threatened the older materials, such as wood and steel because of relative cost advantage or better performance characteristics.

-Problem Focus-

Manufacturers point of view for obtaining the raw material in Right quantity, Right quality, Right price, Right time by utilizing the production capacity, packaging and transportation, distribution and the marketing strategies.

Aim of Thesis-

In view of vast scope of Paper packaging Industry in India, the constraints pertaining to Inputs, processing and marketing need to be removed for rapid developments keeping in view the above prospective, the objective of the study have been set as follows

- 1-To study the constraints of paper packaging Industry in India pertaining to Inputs, processing as well as marketing.
- 2-To suggest measures for removing constraints and enhancing the growth of the Industry.

3-To Develop models for a prospective packaging entrepreneur by considering the size of production plant, forecasting of demand ,cost structure, investment, product mix and the linkages/agreements with suppliers.

Generally A and B flutes are in use. The functional performance of the board depends on the type and direction of flute which is related to the type and weight of the article to be packed .Normally the direction of flutes or corrugation in a box is vertical, to provide the maximum staking strength. A-flute is used when top-to-bottom compressive resistance is important as in the case of non-supporting products stacked to a great height in the ware house. Fragile articles are also packed in A-fluted corrugated box. High density products are better packed in B-fluted boxes. C-flute

construction gives a compromise between A and B- flutes with reasonable good stacking strength and a fair amount of stiffness. E-flute is used for special purposes and is not so common as A,B and C- flutes. In double-wall and multi-wall corrugated board it is possible to have two or more types of flutes combined to obtain better performance characteristics.

GUAVA-CASE STUDY

Guava is the fourth most important fruit in India after mango, banana and citrus. It is mainly grown in the states of Bihar, Uttar Pradesh, Karnataka, Madhya Pradesh, Gujarat , Andhra Pradesh & Maharashtra in the country Out of total 3659409 ha of land under fruits, guava occupies nearly 3.60% of the area. The area(131762 ha)under guava, during the year 1995-96,followed increasing trend over 1991-92,1992-93,1993-94,1994-95, respectively. The production of guava was 1484957MT during the year1995-96 ,having 3.52 per cent share in the total fruit production. The production increased by 35.59,23.30,16.62 and 7.02 per cent over 1991-92,1992-93,1993-94,1994-95,respectively. Area and production trends of last five years are shown in figure a&b. The productivity of guava was 11.27 MT/ha, whereas,

the highest(25.24 MT/ha) was of Uttar Pradesh(Hills) in the country. The area production and productivity are mentioned in figure number

(c). The major importers of guavas from India were the Netherlands, UAE, Saudi Arabia, Lebanon, Canada, Russia, Yemen.

The experiment was conducted on corrugated boxes to see the quality improvement during transportation. The first experiment was done while keeping Guava in a carton of flute height in mm 0.187 vertical height. A type flute without partitions inside the carton. The test indicates that there was bruising spots on Guava surface. The next experiment was conducted with the flute height in mm 0.22 vertical height. A type with die cut partition and by keeping paper waste inside the cartons there is small percentage of improvement i.e. 75% of the fruits were found bruised. The next experiment was carried out to see the bruising quality improvement during the distribution/transportation of Guava by keeping flute height 0.273 vertical height of flute and keeping die cut partition inside the cartons. The carton is having small for air holes that is also die cut, along with this partition the corrugated paper plates is also being kept and found that there is 98% of improvement in bruising found in Packaging of Guava. The care is being taken for the paper used by checking the bursting strength of paper. The quantity of product packed in cartons can be decided by the bursting strength of corrugated paper box. As packaging boxes are the cushioning material and prevents bruising during transportation and absorbs shock due to vibration, the fruits and vegetables kept in a box reaches to the destination fresh and free from bruising. It was found that boxes with flute height of 5mm and made of 5 ply, having capacity of 5 kg performed the best. Bruising was found to have reduced above 90-99%.The cost of package was found to be Rs. 2/Kg of Guava

2. CONCLUSIONS

-Highlights of work Done:-

Collection of all the relevant information related to the "A Study of Paper Packaging Industry-Employing Systems approach" was done by having discussions with the concerned authorities like Agricultural Processing Export Development Authority. Relevant facts and figures of fruits and vegetables have been noted and discussed. Specific information about the export of Guava and the details of Area, Production & Productivity figures have also been obtained. As agriculture is the major sector where lot of processed food goes waste due to unawareness of Paper Packaging of Fresh fruits and vegetables therefore to solve this problem a Guava Packaging is considered as a part of

the research as there is no proper attention given to Packaging of Guava for the purpose of export as well as sales in the local market. During distribution process a lot of Guava goes on waste without proper Packaging and no proper attention is given during physical distribution from one place to another. Therefore improvement of the quality of Packaging and the testing required before packing the product and different ways of manufacturing the paper are being suggested in this research. Further visited NAFED Processed Food at Lawrence Road New Delhi to see the production process of processing fruits and vegetables as all is being packed in Paper Packaging material for export and local market. As the company is involved in the manufacturing of Tomato Ketchup, Sauce, Puree, Apple juice, Mango juice, Grape juice, Guava jelly etc. Discussed about the various problems faced by the manufacturer during export of processed foods while using packing material. During discussion it has been found that no proper testing of packaging material is done for the bursting strength before packing the product inside the corrugated box /cartons due to this reason lot of cartons spoiled during distribution process during handling and there was huge loss to the product packed. While going through the problem the research was conducted to find out the ways of improvement in packaging material and suggested how to check the quality and the steps involved to solve the problem during packaging of product. The ministry has various schemes for the food processing by providing loans and complete guidance on installation of machinery, as the cost of packaging v/s damage to the goods shows that how much importance is to be given to paper packaging material. Visited National Horticulture Board Gurgaon to have the information of the fruits and vegetables production, as every thing on this earth is being packed therefore packaging plays a very important role during marketing of products. Correspondence have been made with different Agricultural Universities and the related organizations to know about the various developments and the problems related to fruits and vegetables. Correspondence have been made with various suppliers of Food Processing machinery, and the Packaging machinery to get the information related to different machines used for the production of packaging material and the latest developments in machinery and to know the kind of developments required and their quotation of machinery. Visited Micro Mechanical works Lake Road Bhandup at Bombay, the manufacturer, exporter and the award winner of packaging machinery. Further visited other manufacturers of packaging machinery. Visited various industries involved in the manufacture of raw materials like stitching wire, adhesives etc to know about the problems faced during the manufacturing process

.Visited various large scale production units manufacturing corrugated rolls, sheets and boxes of all kinds by using various types of papers, at Okhla Industrial Area, New Delhi. New Okhla Industrial Development Area ,Ghaziabad ,U.P. Kirtinagar Industrial Area, Wazirpur Industrial Area, Naraina Industrial Area etc are some of the places where Industries manufacturing Packaging materials. Observed the production process for one month continuously to find out the problems faced during the production process and the quality improvement which can be made by adjustment in the machine process and the way to improve by Method Engineering process. The way of improvement is being suggested to reduce the cost of production and improve the quality of the Paper Packaging Material. Visited various industries consuming Paper Packaging Material and discussed the problems faced after receiving the material and packing their product inside the cartons. The Industries visited are Glaxo (India) Laboratories Limited, Mohan Meakins Limited, Indian Drugs and Pharmaceuticals Limited, Handloom and Handicrafts Export Corporation Limited, Kissan Food Products U.P, Polar Fan Industries etc and other small scale Industries. It has been observed that they are facing many problems during packing of their product. Visited different paper mills manufacturing paper of all kinds like Kraft paper ,Media paper, Semi Kraft paper which are the major papers used in the packaging Industry at Sandeep Paper Mills, Grewal Paper Mills, Orient Paper Mills, Star Paper Mills, Rohtas Paper Mills, Bhadrachalam Paper Mills and the different agencies selling papers of different types used in packaging. At the Paper Mills, the production process was studied by going through the process of manufacture and tried to find out the quality improvement program and the problems faced by the manufacturers was also discussed after going through all the details respective guidelines have been developed for a prospective Packaging Industry Entrepreneur. Further the different ways of Guava Packaging have been suggested as Guava is considered as a part of the research problem.

-Limitations and Scope for Future work. Packaging Industry in India is far behind the Packaging Industry in advanced countries. There is great need to develop packaging industry in India at a rapid rate. The need for developing Industry in India can be fully understood if we realize that nearly 20-25% of fresh fruits and vegetables,30% of produce of animal husbandry including dairy and meat products,10-11% of food grains and 7-10% of cement, chemicals and manufactured articles are lost due to improper packaging annually Our economy is still largely based on agriculture. The recognition of the need to upgrade Agricultural –based Industries and in turn to give that extra impetus to the agricultural sector. A strong food

processing sector, it was felt ,would help accelerate agricultural activities, aid the diversification and commercialization of agricultural products and give it an orientation towards increased exports on the one hand and create greater opportunities to nutritional enhancement, employment and income generation in rural areas on the other. A diverse agriculture sector with varied soils and climates, provides a wide ranging and large raw material base suitable for producing a rapidly growing range of processed foods. Rapid urbanization increasing numbers of working women and rising per capita income have all contributed in the rapid growth and change in demand patterns. India provides vast opportunities for investment and growth in the processed food sectors.

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