

IMPROVE IN PRODUCTION USING QUALITY TOOLS TO REDUCE THE WASTEAGE OF MILK AND MILK PRODUCTS

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Abstract

This paper was carried out in the quality department of milk company. In order to have a better quality and sustain in market, it is important to maintain the quality and reduce the lead time. During the study one common form of waste that occurred frequently was product defects. It was found that 800 packs were rejected in a shift of 8hr and every 2hours was need to setup the process of packing unit resulted in delay the production. The project aims to improve the industrial production efficiency which is done by layout design and using suitable material handling equipment. The investigation finished up remedial activity designs concentrated on expanding abilities and attention to administrators, institutionalization size of bundling hardware, machine support. Later the usage of lean ideas diminished and dispense with the squanders that happen amid generation process. The proposed changed format gave a simple stream of material, expanding the generation effectiveness. The proposed changed layout gave a easy flow of material, increasing the production efficiency.

Introduction

One of the important step to note in an production unit is the time and waste. Waste can be called to the rejected items that cannot be reused. Milk federation unit process the milk, flavors it then goes to packing stage. 3200000 liters of milk is processes every day. This is an important to note the there will be high risk of wastage or rejection that happens in the industry. Implementation of lean concept would help in to standardize the process to reduce the waste and to decrease the cycle time. Man and automation has to work hand in hand to smooth flow of the system. Milk process takes time of 2hours in UHT treatment (Ultra High Temperature) this processed milk is then added upon the sucrose and flavors to increase the taste. Milk is the passed to packing machine that is automated to pack the tetra pack at correct angle to mark a perfect seal, then the sealed products are labeled manually with the date of manufacture and the codes which are required to distribute. It is then moved to upper shaft flour to inventory.

Literature Survey

(A Chauhan, 2016), as this idea is One of the most important in the middle of quality control is to control and to go after the completion of quality standards at all stage of process flow, in direct to assurance the best possible quality of the products at closing stages through technology advancements.

(Arnold, J. R.T and Stepea, 2004) material management techniques that helps to reduce the time required for the production and increase the productivity.

Ziegler, GR and Floros, JD,. 2008 effect of sucrose on physical properties of milk and milk products. This finds the importance of processing and effects of the contents in it. To summarize the study concluded remedial action plans focused on corrective methods like training, material handling technique, proper planning, and improved mechanism.

Aim

To reduce the amount of milk wasted, improve material flow and increase total productivity at the Ultra High Temperature Tetra packing facility at KMF.

Methodology

Early stage in this research comprise explore steps in the production problems. The data was collected previously in support of KPIs (Key Performance Indicators) such as breakdown of production machinery, machine parameter data, operational records documents, operator check sheet, and consumer complaints. The data was also collected from direct observations in the field. Discussions by conducting brainstorming sessions were held to identify losses due to reprocessing products, decreased productivity due to the addition of labour used to cut the bag, utility costs, and the possibility of contamination because of handling.

The next stage is to collect data on sealing failure. The total weights per shift and per type of product (preliminary data) were converted into the number of pouches or sachets. Other data was collected from the total counter in the filling machine. From all the data, it could be calculated the percentage of sealing failure in relation to the quantity of output. Product specification data and the use of semi-finished products were also collected from Online Reporting System of FFI. Filling machine breakdown data was obtained from the records on Online Reporting System.

The third stage is data processing and analysis. Data processing was conducted using quality tools (Rao, 1996) such as the pie chart and bar charts, run charts, cause and effect diagram (Fish Bone), and flow charts. The data scrutiny is focused on the quantity of sealing failure, product specification data and filling machine breakdown. The analyses were conducted to determine sources of high value sealing failure.

On a Count for a Day of Reject

2 shifts carry out for 8 hr. per shift

For every 2 hr. one roll gets over

Area of sheet per pack

10mm * 15 mm = 150

For 16 hr. a day = $80 \times 8 = 640$ packs

For testing

That includes seal test , ink injection

test 100 packs are taken as testing

Total failure pops up to about 740 to 800 packs per day

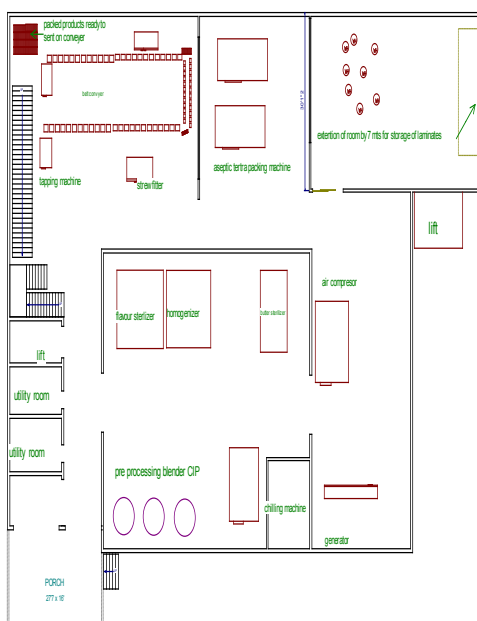
Every pack cost an about Rs.20

That makes an avg. of Rs.16000 as an indication of loss.

- Cleanliness and sharpness of the sealer knife pouch
- Lack of concern by the operators
- No adequate work instructions.
- Certain production line characteristics
- Product size variations on the production line that occur very often in changeover.
- Variations of the intermediate product specifications
- Characteristics of some intermediate product with a very fine particles.
- Standardization of empty pouch space in each product size

Proposed Layout

Payback Estimation



Since the sum of all the losses which is being approximately estimated due to inadequate storage place and also due to ineffective method involved in the process of material flow and process of packaging is observed as 4.8 lakhs 5 lakhs and per month. Hence in order to minimize the losses ,man labor costs and scrap rate and in turn increase the profit by easy flow of materials throughout the plant and in the exterior environment, the implementation of equipment are required; The total initial and setup costs, maintenance and operating costs are shown below:

1. Lift

Cost of lift: 7.5 lakhs

Maintenance cost:1500/month

Service life of the lift:2 years

2. Conveyor

Cost of conveyor: Rs.85,000

Maintenance of conveyor: 200/month

Service life : 4 years

3. Strapping Machine

Cost of machine: Rs.20,000

Maintenance cost: <150/ month

Service life: 2 years

4. Extension of Storage Section

Cost per square feet= Rs.300/-

Payback of all the infrastructural improvements undertaken to improve the material flow and the methodology involved in smooth running of the process in UHT. The office is worried about finding the most effective course of action of individual offices with unequal region

prerequisite inside a machine or office. The goal of office design is to limit the material dealing with cost and time inside an office subjected to set of requirements. These requirements incorporate.

1. Department ought not cover.
2. All division must be situated inside the office.
3. Location of office is pre settled to handling succession.
4. Some segments are not permitted to leave put connecting particular areas.
5. Floor stacking
6. Floor to roof tallness in multi-floor office.

With increasingly diverse demand in production the most of the of the manufactures are using mixed production assembly line (MAPL's). The plan of the sequential construction system needs to consider this advancement. A MPAL is a generation line fit for delivering a wide range of item all the while and ceaselessly. Stations are sufficiently adaptable to play out their separate errand on various assortments

Results and Conclusion

- Using quality tools we found that there is a defect in sealing failure for this knife alignment is needed regularly and sealing machine is recommended for flow of continuous packing roll.
- With proposed layout there is increase of efficiency in production and working space.
- Lead time is reduced and efficiency of 30% is achieved without a delay of time which was 2 hours before.
- Automation in the system has made the things much easier with less of man power.

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