

## **ABSTRACT**

"Lean manufacturing" is a leading manufacturing paradigm being applied in many sectors of the world economy, where improving product quality, reducing production costs, and being "first to market" and quick to respond to customer needs are critical to competitiveness and success. Lean principles and methods focus on creating a continual improvement culture that engages employees in reducing the intensity of time, materials, and capital necessary for meeting a customer's needs.

The current pineapple chunk processing involves a series of manual processing activities with several non-value added steps. The capacity of the cell is around 4000 jars per day, although the demand is around 6000 jars per day. This study is focused to investigate the current state of the manufacturing process and to develop the future state map by reducing the cycle times with the application of the core principles of lean manufacturing system.

Currently the processing line is capable of meeting the specifications except net weight of the finished product. Juice extraction consumes the highest cycle time in the organic pineapple chunk processing cell and was identified as the "PACE MAKER" activity of the cell, while the 1<sup>st</sup> peeling ,2<sup>nd</sup> peeling ,slicing ,de coring and cutting into chunks also exceed the takt rate of production (time given by the buyer to produce a unit of output - 4.68 seconds). Future production flow, Future state map and Implementation plan were developed to achieve takt rate of production by eliminating non-value added time of the pineapple cell. By introducing lean manufacturing tools and techniques an increase of process cycle efficiency by 15.92% was identified. This leads to a cost reduction of 9.42 million per annum although the project initiation cost is estimated as 12.56 million.