ABSTRACT

Indonesia as the world's archipelagic country. Indonesia have almost 3,7 million hectares of coconut plant. That lead Indonesia to one of the biggest countries in exporting the coconut product. One of the products that has been exported is desiccated coconut. The interest of desiccated coconut is increasing in several countries. CV Una Surya Putra Mandiri is one of the companies that producing the desiccated coconut. This company use the principle of make to stock because of the raw material that was easy to be spoiled. Due to the uncertainty of the demand fluctuations, the company was struggling in producing the righty amount of product. So, the production of the company mostly get overproduction that cause the overstock in inventory while the production must go on. Based on the problem occur, this research has an objective to minimize the overproduction and backorder. In minimized the production cost, they are needing a production planning. In the other word, production planning will be determined the forecasting demand, the resource availability, and the scheduling to fulfil the demand.

Before forecasting demand, since the product have two types of desiccated coconut, The desiccated coconut will be aggregated in one product family. Then the forecasting done by several method. The chosen method obtains by looking into the minimum error. After knowing the forecasting result, the result is being disaggregated. The result of the disaggregated product will be the master production schedule (MPS). The master production schedule needs to be verified by doing rough-cut capacity planning. The rough-cut capacity planning (RCCP) show that the MPS is feasible. Even though, the MPS is feasible it is known that the capacity is excessive. The capacity needs to be reduced. The reduction done in machine area by determining the ideal amount of machine. After knowing the ideal amount of machine, the machine is being scheduled to make the idle time of the production is decreasing. Beside the idle time is decreasing the makespan also will be decreasing.

After comparing the existing with the proposed design, the result show that the error between inventory and production in 2021 and 2022 is reduced. The error decrease around 2% using MAPE calculation. The effect of the error reduction shows in the stock inventory. the proposed inventory result that the stock is below the warehouse

capacity. The existing RCCP is being compared to ideal RCCP by determining the gap of available capacity with the required capacity. The result show that the gap of ideal RCCP is nearer to zero than the required capacity that conclude the capacity is ideal. The production scheduling reduced the existing production from 670 minutes in a day with the production of 527,74 kgs of high-fat and 1200,10 kgs of low-fat. While, the proposed scheduling, which using Campbell, Dudek, and Smith algorithm with a lot size of 80 kgs. Stated that the production in January in a day can be done within 518 minutes a day with the production of 527,74 kgs of high-fat and 1200,10 kgs of low-fat. The idle also decreased to zero. This proposed design makes a change in production cost. The existing capacity cost of production in 2021-2022 is IDR5,577,168,304 while the proposed in 2021-2022 is IDR 4,897,756,856. It reduced almost 1 billion IDR means the proposed idea is better.

Keywords: Production Planning, Demand Forecasting, Rough Cut Capacity Planning, Scheduling, Uncontrolled Production.