ABSTRACT

PT XYZ is one of the mass production tea companies in Indonesia. The production system applied is Make to Order (MTO) based on the flow shop pattern of the production process. Currently, one of the plantation units of PT XYZ faces the problem of not achieving black tea production orders, which causes delays in order fulfillment. Based on the analysis using Fishbone and 5Why's to find out the root cause of the problems that occur in the company, the root of the problem is the bottleneck that occurs in the Winnower machine, where there is a work center that has a smaller capacity than production needs. The bottleneck occurs because, in actual conditions, the order processing is carried out by FCFS (First Come, First Serve) without considering the time of order release and considering the conditions that occur on the production floor. After all, the company does not yet have an optimal production schedule, causing a build-up of the work in process. Applied scheduling using a drum buffer rope to this problem by making the Winnower work center experiencing bottlenecks as a drum, which becomes the control point for the whole system. The implementation of rope with backward scheduling on the operation before the Winnower machine with a 5% buffer time can minimize queue time and control WIP stacking. The results of ordering orders using the Campbell, Dudek, and Smith (CDS) algorithm can minimize manufacturing lead time in the dry sorting process. The results of the proposed scheduling produce an average manufacturing lead time of 64.79 minutes, which is 82.93%, reduced from the actual condition of 380.65 minutes.

Key Word – Make To Order (MTO), Fishbone, 5Why’s, Bottleneck, Drum Buffer Rope, Work In Process (WIP), CDS Algorithm