

ABSTRACT

PT Perkebunan Nusantara VIII is a company that involves the plantation sector of tea and non-tea such as rubber, palm, quinine, and cocoa. Tea quality is an important factor because high consumer demand raises consumer's expectation for higher quantity as well as quality of the product, so that need a quality improvement where the quality not only determined by the processing but also on transporting the sack of green leaf to the factory. Transportation of green leaf tea requires more attention as the quality of tea is affected by the length of time they are left in open space and exposed to wind and heat.

The issue that happened on PTPN VIII is there are queuing on the unloading process in the factory so the green leaf that hasn't been transported has to wait on the afdeling and the use of vehicle's capacity is not optimal effect total of transport time becomes longer and exceed the work hours which is 8 hours where afdeling is a part of kaleyard that have a specific wide-scale. Green leaf should be delivered to the factory and should not be attached to heat within 3 hours of plucking. The green leaf that too withered will produce a bad curling tea and turned into a powder quickly.

On this final project a proposed design of the route is made to optimize the capacity of vehicles and reduce waiting time on the unloading process that transport time will not exceed 8 hours using nearest neighbor algorithm for the initial solution and then optimized by genetic algorithm. The result of this algorithm is the proposed design of route that eliminate the queues, and increase the vehicle capacity utility.

Keywords— Transportation, Delivering Green Leaf, Designing Route, Vehicle Routing Problem, Genetic Algorithm, Nearest Neighbour Algorithm.