ABSTRACT

KPBS Pangalengan is one of the cooperatives engaged in the largest milk producer in Indonesia. Milk produced per day from breeders who are managed by KPBS Pangalengan can reach 76.078 liters in the morning production and 53.352 liters in the afternoon production. Milk is then collected in advance are available on TPK in each region. Then, the milk of TPK is distributed to CU (Cooling Unit) in KPBS Pangalengan to be cooled. After cooling for a while, the milk of KPBS Pangalengan is supplied to the IPS (Milk Processing Industry), among others, Firsian Flag Indonesia is located in Jakarta and Ultra Jaya is located in Bandung. Activities of distribution conducted by KPBS Pangalengan distribution is the distribution of morning and afternoon.

Milk has a perishable nature, so that the distribution of milk from breeders to the factories do not go through the process of storage. Milk has the endurance for 60 minutes in the tank vehicle distribution. Conditions of milk that is very easy to become stale when the distribution of milk from TPK-CU because milk is still in pristine condition. As for the distribution of milk from the CU-IPS tend to have stronger condition that has occurred since the cooling process at CU .

KPBS Pangalengan has a number of vehicles used for distribution of milk by 15 fleets to the capacity of 4.000 liters to 6.000 liters of milk used for the distribution of TPK-CU and 12 fleets to the capacity of 8.450 liters to 13.100 liters of milk used for the distribution of the CU-IPS . Number of TPK (Customer Service Place) which is used by 32 places and the number of CU (Cooling Unit) which is used to cool the milk before it is sent to 2 IPS (Milk Processing Industry) by 5 points.

Problems experienced by KPBS Pangalengan problem is categorized in Vehicle Routing Problem (VRP) The method used to solve is Genetic Algorithm. Data inputs required are the distance between the TPK with CU, the amount of milk production per TPK, the time limits milk resistence, capacities of the CU, and the volume of the vehicle carrying capacity. Data processing is done in three ways: CU clustering based on the closest TPK, optimize the transport of TPK-CU, and optimize the transport of CU-IPS.

Based on data processing, the obtained results that optimize the use of 5 CU was much better than using 2 CU just like the real conditions in KPBS Pangalengan. This can be proved that the TDT (Total Duration Time) for the morning distribution of 1867.9824 minute and afternoon distribution of 1452.7984 minutes.The RDT (Range of Duration Time) for the morning distribution of 1.57 minutes and for the afternoon distribution of 0.1776 minutes. Truck used for the distribution of TPK - CU on the distribution of morning and evening at 7 fleet of trucks. Truck used for the distribution of the CU-PS on the distribution of morning by 8 fleet of trucks and the distribution of aafternoon by 6 fleet of trucks. Distribution costs for TPK-CU on the morning distribution of Rp 806.314,5 and in the afternoon distribution of Rp 773.577, -. Distribution costs for CU-IPS on the morning distribution of Rp 3.032.000, - and in the afternoon distribution of Rp 2.253.000, -.

***Keywords** : Genetic algorithm, distribution*