

ABSTRACT

Factory down-time in the form of Out-of-Cane idle-time is a problem at the Orange Grove National Company, a Sugar Company in Trinidad and Tobago. This Out-of-Cane time is basically due to a faulty cane supply. Since transport capacity remains fairly constant during a harvesting period, then the ability of that transport to supply the factory at its optimum requirement rate must relate to the quantities of cane taken from various supply stations. This is so because these stations are located at varying distances from the factory.

A functional relationship was postulated that Out-of-Cane idle-time was a function of the supply allocations from various stations. Using Multiple Regression Analysis on data for a five-year period this assumption was validated and it was found that a linear relationship existed.

The regression equations were subsequently used in a goal programming model which was employed to obtain the allocations from the supply stations which minimized factory Out-of-Cane time. This goal programming model gave improved results over those obtained from conventional linear programming analysis.

The results showed that the allocations suggested by the goal programming model were different from the annual average allocations of the Company. The most important feature of the goal programming allocations was that it emphasised a greater supply from fewer stations per period as compared with a smaller amount taken from several stations, which was the pattern of the annual average allocations.