

ISyE 4111
Advanced Supply Chain Logistics
Fall 2010

Reading Assignment 3

Due Date: September 23, 2010

Read the materials below in preparation for discussion in class. The questions are intended to guide your reading and thoughts, but are not the only aspects that will be discussed in class.

1. Chuda Basnet and Les Foulds, “Fleet Manager Milks Efficiency out of Dairy Company”, *OR/MS Today*, vol. 32, nr. 6, pp. 36–42, December 2005, <http://lionhrtpub.com/ORMS.shtml>.
 - (a) How did the schedulers create vehicle routes before the computer-based decision support system?
 - (b) Describe the important features of the computer-based decision support system for collecting milk from farms.
 - (c) How are the milk outputs of the suppliers forecasted, and how are these forecasts used?
 - (d) How does the decision support system design the vehicle routes?
 - (e) What types of warnings does the system generate?
 - (f) What are some of the benefits of the computer-based decision support system for collecting milk from farms?

2. Golden, B.L. and Wasil, E.A., “Computerized Vehicle Routing in the Soft Drink Industry”, *Operations Research*, vol. 35, nr. 1, pp. 6–17, 1987.
 - (a) Discuss the practical issues that one has to deal with when designing vehicle routes in the soft drink industry.
 - (b) What benefits of computerized vehicle routing packages are given?
 - (c) What cost items were taken into account in the dairy industry case?
 - (d) How does vehicle routing in the driver-sell setting differ from vehicle routing in the pre-sell setting?
 - (e) What shortcomings of the TRUCKSTOPS vehicle routing package had to be rectified for use by Pepsi-Cola Bottling Group?
 - (f) Identify some additional solutions for the problem in Figure 6. Identify some feasible solutions if the distance between plant 1 and plant 4 is too long for one driver to complete subject to a constraint on route duration.

3. Sankaran, J.K. and Ubgade, R.R., “Routing Tankers for Dairy Milk Pickup”, *Interfaces*, vol. 24, nr. 5, pp. 59–66, 1994.
- (a) What aspects of the problem were deemed important in this study?
 - (b) What performance measures were taken into account?
 - (c) What constraints were taken into account?
 - (d) The initial routes let vehicles visit other milk collection centers while it traveled from the dairy to the milk collection center on the route that is farthest from the dairy. This approach had a serious disadvantage. What was the disadvantage, and how was the approach changed?
 - (e) What benefits did the computerized routing system provide?