A B S T R A C T

A systematic planning approach for managing milk supply, preparing an optimal sales-production-inventory plan and developing annual budgets is developed for one of the 'Anand Pattern Co-operative Unions' namely The Mehsana District Co-operative Milk Producers' Union Ltd.

Milk supply response functions for Mehsana District are developed based on biological and economic considerations. Since producers' milk price and balanced cattle feed prices are administered prices the union can influence milk supply by changing the prices of these two policy instruments. The milk supply response study is centered around estimating the influence of these two important variables. Besides, the objective is to predict future milk supply based on the estimated milk supply equations.

A linear programming model is developed for a typical 'Anand Pattern Co-operative Union' to provide an optimal sales-production-inventory plan for a year given milk supply, sales forecasts, production capacity and prices of milk and milk products with a prime objective to maximize producers' revenue. Sales forecasts are obtained using forecasting functions developed based on the Box-Jenkins model building approach. The model is

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developed in a way which can be used to answer several 'what if' kinds of questions. In additions, the model provides shadow prices for the constraints which are further used to identify the bottlenecks that the union faces and explain how the removal of these bottlenecks would increase the overall income. The results obtained are evaluated.

How different functional budgets and income statement can be prepared once an optimal sales-production-inventory plan is obtained, is also illustrated.

Besides, how the union level model developed in this study can be extended further at the federation level, is illustrated. In addition, the issues to be resolved at the national level and the type of model needed to analyse the policy choices is also considered.