

Stochastic production planning under supply uncertainties and deterministic demands for the agrochemical supply chain.

Main challenges in the planning of agrochemical supply chains result from their global and complex networks, production interdependencies, and uncertainties in both demand and supply. In the literature, considering only demand uncertainty in supply chain models is more prevalent, compared to articles related to supply uncertainty. However, to have a practical production plan, supply uncertainties cannot be easily ignored. Supply uncertainty may take several different forms, frequencies, and effects based on the supply network design. Therefore, it is essential to analyze possible supply uncertainties of the agrochemical supply network to determine optimal production plans.

In order to isolate the effect of supply uncertainty, demands are assumed deterministic in this study. The goal of the research is to investigate different causes of supply uncertainties in the context of the agrochemical supply chain and propose a model under this assumption. The thesis is expected to provide a comprehensive literature review on supply stochasticity and to introduce a stochastic production plan under the consideration of supply uncertainties.