Research School for Operations
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Designing and optimizing sustainable food supply chains for healthy diets in China

Yijun Li - Wageningen University & Research

This project plans to analyze the food supply system of China, and provide insight into the designs of sustainable and nutritious food supply chain networks, in their environmental, socio-economic and socio-cultural costs and benefits and the trade-offs between these in order to provide policy makers with options for decision making. When quantifying environmental sustainability, both production, processing, and transportation stages will be considered, in which nitrogen surplus, GHG emissions, and water consumption are indicators. For social sustainability, the supply amount of crucial nutrients is one of the assessed indicators. To design a nutritious and sustainable food supply chain network, the multi-objective mathematical programming model is developed that links production, transportation, and consumption. The study contains several optimization scenarios, for instance, under the structure adjustment scenario, assuming that crop management will be improved, etc. It is helpful to reveal the performance of sustainable food supply networks under different scenarios and provides insights for policy recommendations.