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"Exploring Interactive Fuzzy Linear Programming: A Case Study in Agricultural Applications"

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Abstract

Farm planning poses significant challenges for decision-makers, particularly in water management, crop selection, and implementing agricultural techniques. These challenges intertwine with socio-economic development and resource scarcity in specific regions. This study focuses on developing a farm model for Ranchi District, Jharkhand, utilizing Interactive Fuzzy Linear Programming (IFLP). The objective is to determine optimal and feasible crop combinations, allocating them strategically to enhance overall production. The study employs Zimmermann, Werners, Chanas, and Verdegay's approaches within IFLP to facilitate decision-making in fuzzy environments. The chosen method effectively models the fuzzy structure of the real world, engaging decision-makers interactively. This interactive process aims to attain the best solution, incorporating fuzziness realistically into the system. The study highlights the significance of the fuzziness concept in IFLP problems, demonstrating its application to real-world challenges and showcasing its positive effects on decision-making processes.

Keywords - Fuzzy sets theory, Fuzzy linear programming, Interactive fuzzy linear programming, Crop combination, Farm planning.