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## **A FUZZY INTELLIGENT SYSTEM FOR IMPLEMENTING THE AGRICULTURAL LAND LEVELING AND CONSOLIDATION PLAN**

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### **Abstract**

Consolidation of the land is a form of renewing the optimal allocation of factors of production based on water and soil by regrouping or integrating the land plots or transferring ownership of the land, aimed at improving the structure of property ownership and providing a basis for the productivity of new structures and modern technologies. The present research proposes the intelligent fuzzy system for land consolidation based on the combined structure to investigate the identification and determination of the factors affecting farmers' participation in implementing the plan of leveling and consolidation of agricultural lands. Researchers developed a conceptual model for the study that considered factors such as cultural, social, economic, educational, agricultural, and managerial factors, as well as how these factors affect farmers' willingness to participate in the land consolidation plan. This paper presents the results of a questionnaire answered by farmers in Abu Fazel city. According to the results of this study, land leveling and consolidation result in reduced production costs, increased productivity, increased irrigation efficiency and increased cultivated areas, reduced labor needs, reduced soil erosion and optimal land use, enhanced protection of lands, ease in implementing political, macro, and infrastructure decisions, and the ease in providing extension services.

*Key words:* cultivated area, intelligent fuzzy system, land consolidation, participation of farmers

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