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Investment modeling to optimize the technical and economic indicators of agricultural machinery utilization for the production of farm crops in Iran

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ABSTRACT:

To develop and maintain the production system of farming crops considering the power and machinery inputs, a collection of effective parameters in mechanized farm crops' production autonomous system were carried out in Iran. A modeling method based on system dynamics, have been used for simulating the real situation. To maximize technical and economic indicators of the system, optimized values for mechanized inputs of the system were calculated to get maximized outputs. Time span for modeling was defined for 70 years, since 1981 to 2051. Running the established model by simulation software, resulted in the maximum value for mean yield of 48 types of farm crop products, while the optimum value for mechanization level indicator of Iran's farm production system as input exceeded to 4.28 Kw/ha. Then considering the mechanization level indicator as input, the maximum cost effective point of production system has been appeared as 3.47 Kw/ha. Finally to reach the maximum yield and maximum profitable point of production, it was suggested that an increase by the rate of 91.0% and 85.5% in total banks loans payments respectively in a 10 year development program starting in 2015.

Keywords:
Investment, Modeling, System Dynamics, Farm Mechanization, Simulation

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