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OPTIMUM UTILIZATION OF CULTIVABLE WASTELANDS USING DECISION SUPPORT SYSTEM

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Abstract

The world economy runs on fossil fuels and the demand for it is increasing at an exponential level. This led to the quest for alternative sources of energy that can replace fossil fuel dependence. Bio-fuels are one such alternative for the international community. Production of bio-fuel from 'Jatropha curcas' plant has received much attention in India. In this paper the bio-fuel generation from Jatropha Curcas by optimal usage of cultivable wastelands using fuzzy logic decision support system has been discussed. The uncertainty lies in the Jatropha seed production due to some uncontrolled parameters. Auto Regressive Integrated Moving Average model have been used to capture the time series behavior of the data, to provide an adequate basis for optimizing the yield pattern of Jatropha using fuzzy logic and finding the cultivable wasteland for Jatropha in regions of Tamilnadu. Apart from collecting the Jatropha seeds and oil and storing them at a place can be a logistical hurdle in the supply chain network. This paper also aims at developing a decision support system to locate the optimum facilities within Tamil Nadu to store the Jatropha seeds and Jatropha oil produced and to distribute them to the next level of the supply chain.

Keywords: Jatropha, ARIMA, Fuzzy logic, Decision Support System