EVALUATION OF SOIL SUITABILITY FOR CULTIVATION BASED ON BACK-PROPAGATION ARTIFICIAL NEURAL NETWORK: THE CASE OF JIANGXIA DISTRICT

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Abstract

In this paper, a model based on Back-Propagation (BP) artificial neural network was proposed, as a tool predict the soil suitability for cultivation in Jiangxia district. The model takes the soil nutrients indicators as the input and the level of soil suitability as the output. The correlation analysis showed that the correlation coefficient between expected output and actual training result is 0.99. The simulative results indicate that the learning and generalization ability of the model performed well and can adapt to different regions and requirements of samples. Hence, the model developed through the fully trained BP Neural Network can predict the level of soil suitability of Jiangxia district by a comprehensive evaluation leading to the value of 4, which means the nutrients content of soil in Jiangxia district is lower and make innapropriate the soil for for plants growth and development as it is, withouth supplements of nutrients.

Keywords: BP neural network, classification, Matlab, soil fertility, soil nutrients,soil suitability evaluation

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