Prediction of Soil Quality in Rwanda for Ideal Cultivation of Irish Potatoes using Fuzzy Logic and Machine Learning

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Abstract:

The ability to predict soil quality has great value in supporting efficient agriculture especially in the case of low income regions with minimal agricultural and financial assistance. This prediction provides users information that is useful in determining soil quality, when is suitable or not suitable. Review of existing scheme shows dominant usage of machine learning using specific crop towards assessing various parameters linked with soil quality. Hence, the proposed scheme considers the region of Rwanda with a use case of cultivating Irish potato over some selected region within Rwanda. There is lack of information for enabling the prediction of soil quality. To solve the problem, the standard geological data is obtained which subjected to fuzzy logic based on soil scientist's expert's experience. Soil experts validate the results as reasonable for labelling ,followed up by applying ML to expand on the results, as a way to make up for the fact there are not enough experts in Rwanda. And the prediction has been verified by the soil experts. The outcome shows that artificial neural network offers better soil quality over various performance parameters in contrast to frequently used predictive scheme.

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Time:

10:00-11:00 am

Mode:

Virtual