

Nitrogen Level Measuring System for Rice Cultivation

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A major reason of the high production cost in rice cultivation is due to the fertilizer cost. Farmers apply fertilizer not based on the plant condition but on an exact date starting from seeding. This may lead to either over an application or under an application of fertilizer since the rice growth is not uniform throughout the crop area. Both of these cases would lead to nitrogen deficiency that gives a lower yield. Modern agricultural researchers discourage the use of traditional farming and encourage precision farming. Precision farming is described as the production inputs like seed, fertilizer etc. should be applied only when needed for the most economic production in order to obtain the highest output. One of the most effective tools to determine when to apply fertilizer in what amount is the Leaf Colour Chart (LCC). The colour matching is relative to the colour perception of a person. Therefore, the recommended way is to do the matching process by the same person. The usage of LCC is also limited to a certain period of a day due to the effect of sunlight. This research aims to develop a mobile application that automates the usage of LCC to overcome its limitations. The mobile application is capable of identifying a leaf sample to the LCC window it matches the most. The standard values are set according to the standards imposed by Rice Research and Development Institute. After a series of testing, it was found out that the results of LCC and the mobile application's readings show a minimum difference based on Z-test one proportion test.

Keywords: Leaf Colour Chart, RRDI, LCC, Nitrogen deficiency, Ztest one proportion