# **Field Validation by a Rapid Method to Determine Lime Requirement for Potato and Vegetable Cultivation Soils in Welimada (ADA) Segment**

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**ABSTRACT**

Liming is a common agronomic practice to mitigate the soil acidity of farmer fields. However, there is no proper estimation calculate the required amount of liming to adjust the expected level of soil pH. Therefore, a field experiment was conducted in 45 farmer fields at Welimada Assistant Director Agriculture (ADA) segment during end of the *Yala* season, 2022 to validate newly introduced rapid method to determine the site specific lime requirement under farmer field condition. Soil characteristics of initial soil pH, electrical conductivity, available phosphorous, available potassium, lime requirement using newly developed method; organic matter, cation exchange capacity, and soil pH at 14 days after lime application were tested. Site specific amount of lime through newly developed method for the fields were applied. Correlation analysis was performed through MINITAB-14 software to investigate the relationship between soil pH with other characteristics. The results revealed that out of 45 sites, 39 sites (86.7%) achieved the target pH level (6.4 ± 0.2) after lime application. Simultaneously, the calculated residual mean square error (0.07) and standard deviation (0.18) for final pH also represented higher validity of the tested model. In addition, correlation analysis confirmed that lime requirement negatively correlated with initial and final pH levels. Furthermore, Cation exchange capacity positively correlated with organic matter and initial and final pH while electrical conductivity showed negative correlation at p=0.05 level. Thus, this study concludes that newly introduced method was highly effective to determine lime requirement for farmer field to correct soil pH up to 6.4.

**Keywords**: *Cation exchange capacity, lime requirement, soil acidity, upcountry areas*