

The pilot project for soil nutrient interpolation by geostatistical method
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Abstract

This pilot project for soil nutrient prediction by geostatistical method was conducted in 2007-2009 with objective to test the geostatistical interpolation with pH, OM, P and K, investigate the spatial variability of these soil properties and produce nutrient maps. In study area, Muang district, Loei Province, 270 soil samples were taken, separated 240 samples for model generation and 30 samples for t-test comparison. The results showed that geostatistical method can be used satisfactory for nutrient interpolation because there were not significantly different between mean of predicted and real value of pH, OM, P and K at the 95% confidence level. The spatial dependences level of all properties was moderate.

Geostatistical method results on range of each soil properties that could explain, data separated by a distance larger than the range are no longer spatially correlated. The spatial variability showed the range of pH OM P and K at 911, 1392, 1984 and 1814 meters, respectively. Therefore the updating nutrient maps, soil sampling should not be taken at larger distance than these ranges. The produced nutrient maps will not only minimum error but also minimum in soil sampling budget.

Keywords: geostatistical method, soil nutrient