



Abstract

Lime and Fertiliser Applications Increase Yield of Leafy Vegetable Crops in Cambodia ⁺

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Abstract: Growing vegetables after rice harvest allows Cambodian farmers to use land that would otherwise be unproductive between rice crops. Producing vegetables on these soils is limited by low soil pH, low cation exchange capacity and limited nutrient retention capacity. Soil pH in the top 20 cm is generally low (pH 5.5 H₂O) and may limit the availability of nutrients. Farm-based trials in Siem Reap and Kampot provinces assessed the effect of lime and fertiliser on leafy vegetable crop growth and yield. At lime-only sites, lime was applied at rates of 0.5, 1.0 and 2.0 tonnes per hectare (t/ha) in conjunction with farmer practice fertiliser rates. For sites with lime and fertiliser treatments, combinations of farmer practice and optimal fertiliser rates, no lime and 2.0 t/ha of lime were applied. Two consecutive crops were planted at one site to examine the residual effect of lime on soil pH and crop yield. At lime-only sites, all crops responded to lime application with yield increases of up to 100%. For sites that assessed combinations of lime and fertiliser, the treatment of lime and optimum fertiliser rates showed the highest yield increase (92%). Application of 2.0 t/ha lime increased soil pH by approximately 1.0 unit. This effect was still evident after a second crop of Bok Choy. For the 0.5 t/ha lime treatment, an initial soil pH increase of 0.4 units had reduced to 0.2 units after the second crop. The first crop yield was higher than the second crop yield. Long-term field trials are needed to examine residual lime effects.

Keywords: soil pH; soil fertility; leafy vegetable; vegetable yield; ag lime; Cambodia; fertiliser rate

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