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Abstract

Evaluation of the Effect of Organic Fertilisers on Lettuce Yield in Lao People's Democratic Republic (PDR) †

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Abstract: Production of leafy vegetables, such as lettuce, in Lao People's Democratic Republic (PDR) is limited by low nutrient soils. Organic fertilisers or composts made from agricultural residues may provide Lao PDR farmers with economical and environmentally sustainable alternatives to chemical fertilisers. Research is needed to increase awareness and knowledge of organic fertilisers suited to vegetable production in Lao PDR. An experiment at the Horticultural Research Centre (HRC) in Vientiane assessed the effect of four organic fertilisers on growth and yield of lettuce. Two commercially available fertilisers (fermented manure compost and an organic fertiliser) were compared with a mixture of cow manure plus rice husks, and a fourth compost made from vegetable leaves, straw and cow manure at the HRC. The experimental design was a randomised block with four replicates for each fertiliser treatment. Lettuce was grown in raised beds with 10 tonnes per hectare (t/ha) fertiliser applied before seedlings were transplanted. The fermented manure compost treatment had the highest yield (1.95 kg/m^2) and was significantly higher than the other three treatments ($p < 0.001$). Growth rates were also highest for the fermented manure compost at all measured growth intervals (14, 28 and 45 days after transplanting). Rapid nutrient release from fertiliser is important for short-term crops. The higher growth rates and yields found for the fermented manure compost indicate that nutrients were released sooner and were more readily available compared to the other treatments. Mature compost releases nutrients more rapidly than compost that contains partially decomposed rice husks, vegetable leaves and straw.

Keywords: organic fertilizer; compost; leafy vegetables; lettuce; Lao PDR

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