

## Effects of amendments on improvement of aggregate stability and soil pH in salt affected and acid sulfate soils in the South of Viet Nam

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Good soil structure offers proper nutrient cycle, water and gas movement, seedling emergency, root respiration and microbial activity in soils. Calcite and compost have been used to raise soil pH, but little is known the changes in aggregate stability after application of the amendments to acid sulfate soils. This study aimed to investigate the effects of calcite and compost on aggregate stability and soil pH of salt-affected and acid sulfate soils. In this study, three soils of different types were used: Saline soil (SS), Alluvial soil (AS) and Actual acid sulfate soil (AASS) from Mekong Delta region. A 20g of air-dry soils passed through a 2mm sieve was mixed with compost and/or calcite, and then incubated in a 500ml bottle with moisture at field capacity for 45 days. Soil aggregate stability and soil pH were measured after the incubation.

Application of calcite and a combination of calcite and compost raised soil pH of all the soils. By applying compost, a remarkable increase in pH was observed in SS and AS, but an insignificant increase was observed in AASS. Both compost and the combination of calcite and compost improved aggregate stability, while calcite addition enhanced aggregate dispersion. Thus, combination of calcite and compost is recommended for soil reclamation of not only pH rise but also enhancing aggregate stability.

Keywords: Calcite, Organic amendments, soil structure, soil incubation, soil reclamation, soil degradation