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Inoculation with Arbuscular Mycorrhizal Fungi or Crop Rotation with Mycorrhizal Plants Improves the Growth of Maize in Limed Acid Sulfate Soil

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Abstract: Arbuscular mycorrhizal fungi (AMF) improve the uptake of immobile mineral nutrients such as phosphate, thereby improving plant growth. In acid sulfate soil (ASS), AMF spore density is generally low which impacts root colonization and phosphate uptake. Thus, inoculation may help increase AMF colonization of crops grown in ASS. AMF spore density decreases after cultivation of a non-host crop or bare fallow. In addition, preceding crops affect the growth and yield of subsequent crops. The production of AMF inocula requires AMF-compatible plants. The objective of the present study is to elucidate the effect of preceding crops on the persistence of inoculated AMF and growth of succeeding maize under an ASS condition with lime application. Spore density of AMF after cultivation of preceding crops (soybean or job's tears) was maintained in comparison to fallow leading to higher AMF colonization of maize and improved plant growth. Thus, maintenance of AMF spore density, either through selection of preceding crops or application of AMF inoculum, may be a viable strategy to improve maize growth in limed ASS of Thailand.

Keywords: [Acid sulfate soil](#), [Arbuscular mycorrhizal fungi](#), [Maize](#), [Preceding crops](#)

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