

12. Neutralization Experiment of Alkaline Soil by Sulfur Addition - Investigation of the Surface Layer of Soil Improved by Steelmaking Slag for Basement of Planting –

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Soil One chemical approach to improving soil for soft ground stabilization involves mixing the improving material made from steelmaking slag. However, the lime found in slag products increases soil pH to 10-12, resulting in soil unsuitable for the basement of planting. For this reason, alkaline soil is often replaced with higher quality soil. Adding a commercially available material to alkaline soil that would bring soil pH closer to neutral would make such soil more suitable for raising plants.

Working with alkaline soil (pH about 11) obtained from the humus layer improved with steelmaking slag in the actual land readjustment project, we undertook a neutralization experiment involving the addition of sulfur and a cultivation test of green leafy vegetable (komatsuna). The results confirmed that the action of sulfur-oxidizing bacteria under conditions of natural rainfall and direct sunlight reduces pH of soil suitable for planting. The optimal amount of sulfur added proved to be 12 to 24 g per 1 kg of soil improved with steel slag.

Key words: steel slag, alkaline soil, neutralization experiment, basement of planting,
sulfur oxidizing bacteria