

Sararin Klinphoklap 2006: Effect of Soil Amendments on Cadmium Uptake of Soybeans Grown in Cadmium Contaminated Soils. Master of Science (Agriculture), Major Field: Soil Science, Department of Soil Science. Thesis Advisor: Associate Professor Jongruk Chanchareonsook, D.Agr. 131 pages.
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The experiment was conducted to study the effect of soil amendments on cadmium uptake of soybeans grown in cadmium contaminated soils during July 2004 to August 2005. The experimental design was 4x6 Factorial in Completely Randomized Design with 3 replications. Treatments were composed of 2 factors ; cadmium contaminated soils and soil amendments. The cadmium contaminated soils were 13 mg/kg, 30 mg/kg, 50 mg/kg and 150 mg/kg. The soil amendments were zeolite, bentonite, marls, rice straw, rice hull-carbonized and control. Soil and plant samples were collected for analysis at planting, flowering and harvesting in the laboratory room.

This results showed that soybeans that were grown in cadmium contaminated soils with rice straw had less cadmium and zinc in seed, stem and leaf than other treatments. In the higher level of the contaminated soils, the results showed that soybeans had the higher uptake of cadmium and zinc as compared to the lower level of contaminated soils. Soybeans could take up cadmium, zinc, iron and manganese into stem and leaf more than seed.

Soybean that grown in cadmium contaminated soils with bentonite gave the highest dry weight of seed, stem and leaf and total weight but soybean that grown in cadmium contaminated soils with rice straw gave the opposite results. It was found that every soil amendments could reduced the concentration of cadmium in soil but the concentrations of cadmium were still exceed the standard level.

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