

# Benefits and Constraints for Use of FGD Products on Agricultural Land

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## **ABSTRACT**

Considerable amounts of flue gas desulfurization products (FGDs) are generated when S is recovered from coal burned at electrical generating plants to meet Clean Air standards. Beneficial uses of FGDs are continually being sought to reduce waste, decrease cost of disposal, and provide value-added products. Beneficial agricultural uses of FGDs include amendment to acidic soil to correct low pH problems such as Al and Mn toxicities; a source of plant nutrients, particularly Ca, S, and Mg; to improve soil physical properties such as water infiltration, soil aggregation, and particle stability; help alleviate soil compaction and improve aggregate stability of sodic soils; and to help reduce soil erosion. Co-utilization of FGDs with organic materials (e.g., manures, composts, sewage sludge) should also provide extensive benefits when used on land. Constraints for use of FGDs on agricultural land could be both insufficient or excess amounts of unreacted agents [e.g., CaO or Ca(OH)<sub>2</sub>] to not raise soil pH sufficiently or to raise soil pH too much; excessive Ca to cause unbalanced Ca:Mg and Ca:K ratios in soils/ plants and displace Al from soil exchange sites inducing Al toxicity to plants; high B to induce B toxicity in plants; excessive sulfite which is toxic to plants even at low levels; and excessive amounts of undesirable trace elements (e.g., As, Cd, Cr, Ni, Pb, and Se) which could potentially contaminate water, plants, animals, wildlife, and/or humans. Most of these constraints are not and do not need to be problems for FGD use on land if FGDs are used under appropriate conditions and chemistry of products are known and understood.