Environmentally Sound Usage of Sewage Sludge in Agriculture

P-Effect of Sewage Sludge in Conjuction with the P-Precipitation and Soil

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From an ecological standpoint, environmentally friendly usage of sewage sludge is a goal worth striving for. In a pot experiment, sewage sludge was compared with mineral fertilizers to evaluate their fertilizing effects and effects on soil. Three liquid and three solid samples of sewage sludge from a purification plant were examined, each using different substances for phosphate precipitation (iron salt, aluminate, iron salt plus lime). The soils used were sand and loess in the three-year crop rotation (one year each of perennial ryegrass, wheat/corn, oats/corn).

As far as the P-effect in conjunction with precipitation and soil is concerned, liquid sludge with P-precipitation by way of iron is the preferred choice. This form results in the highest yield and best P-usage when compared to fertilizing with superphosphate. No indicators showed that a different P-content from that of mineral fertilizers needs to be in the fertilizer regulations. In the interest of soil protection, precautions are being discussed which would lead to a reduction of heavy metal amounts in sewage sludge regulations („AbfKlärV“). In the case of crop production, this is not necessary, as no linear relationship exists between soil and plant contents. After weighing the facts discussed, the conclusion can be reached that, in agriculture, the environmentally sound usage of sewage sludge low in pollutants is possible.