

EIP-AGRI practice abstract

Short title:

Technology for N recovery as enriched manure with in-field acidification system using sulphuric acid

Summary:

Slurry as a fertilizer does not contain enough sulphur for the crops. The majority of slurry applications are thus completed with the use of mineral NS fertilizers in order to supply needed sulphur. This is particularly important for grass and rape, where 30 –45 kg/ha S is recommended. Sulphuric acid (SA) is a wasteproduct from industry. It is less than half price of comparable mineral ammonium sulphate fertilizers and with the exact same chemical formular. In-field acidification systems injects SA into the slurry while it is being applied to the field. 1 liter of SA contains 580 g of S. The process of injection into the slurry converts the Sulphuric acid leaving the sulphur as a plant available sulphate. The 2 H bind themselves to the ammonia in the slurry, changing the gas form ammonia to an ammonium salt HN_4 . This process increases the nitrogen utilization rate from an average 20 % to 80 % and dramatically increase the value of the slurry as a fertilizer. The farmer may stop using NS mineral fertilizer as it has more environmental benefits together with a profitable use of slurry as a fertilizer. The acidity of the slurry increases its plant available P by 40 % by breaking CA bonding of the P. The process is automatic without any possible user contact to the Sulphuric acid. It does not interfere with the slurry application logistics and it can be retrofitted to all types of slurry tankers in the market. The list price of the injection system is 65.000 € and it may be used up to +100.000 m³ slurry each season. SA price is approximately 0.15-euro cent/kg. In-field acidification has been in the market for 10 years and is being used in 8 countries in 2019. For more information:

https://nutriman.net/farmer-platform/technology/id_277