

EIP-AGRI practice abstract

Short title:

Struvite from wastewater by "PHORWater" process

Summary:

Struvite is a potentially marketable product for the P fertilizer industry. Its genuine slow release property can be more efficiently used by crops, because it meets nutritional demands of crops in a better way and prevents the burning of plant roots, even when applied in excess quantities, which guarantees a slow but steady nutrient supply. Moreover, struvite is an effective water-soluble phosphorus fertilizer in neutral and slightly acidic soils.

The amount of phosphorus and magnesium that the struvite could provide is higher than typical fertilizers (12% P and 9% Mg). However, the amount of nitrogen is lower than typical fertilizers (around 5 %N) and the percentage of potassium is very low so it is recommended to apply combined with conventional fertilizers to satisfy N and K demand. It can be easily combined with other solid fertilizers or dissolved in a slightly acidic solution.

Cd has not been detected and the amount of organic matter is very low, TOC is lower than 0.8%, thus it is a secure environmental friendly product.

The struvite recovered is highly recommended for cereal crops and grassland, although it is also useful when applied on fruits, vegetables and root vegetable as potatoes.

At Calahorra WWTP, with a population equivalent of 70.000 p.e. (24.000 inhabitants), it can be recovered about 9 t/yr of struvite. This struvite is not in the market yet but, based on market studies, the expected price would be about 200 €/t.

During the agricultural assays carried out, the application dose was 1.170 kg/ha of struvite for potatoes and 921 kg/ha for wheat.

For more information: https://nutriman.net/farmer-platform/product/id_208