Optimized analysis of slurry in agriculture

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Agrifood

What's needed for?

Sludge from animal farms and digestate from the anaerobic digestion of vegetable waste are often used as soil fertilizers. Instruments used currently to determine the concentration of key elements are not very accurate. This patented system uses data fusion techniques in order to obtain accurate data of the chemical composition of these byproducts, which are potentially pollutant.

The use of slurry from animal farming or anaerobic digestion for fertilization is beneficial for the economy of animal or biogas farms but may cause the pollution of ground or surface water if distribution is done incorrectly. Currently NIR spectrometry is mainly used for the quantitative measurement of phosphorous (P), nitrogen (N) and potassium (K), even if this instrument has significant prediction errors.

This patented method collects data simultaneously from NIR spectroscopy and other instruments. With the use of a data fusion acquisition process, values of the concentration of P, N and K will be delivered with greater accuracy. Such system can be installed directly on spreading machinery for real time supervision of threshold limit values.

Advantages

- Combines the characteristics of different analytical instruments
- Simultaneous analysis of different parameters
- Greater accuracy for threshold limit value requirements
- Can be installed directly on spreading machinery

Applications

- Optimized quantitative analysis of N, P, K
- Analysis of manure slurry and digestate for agricultural use

TRL scale

1 > 2 > 3 > 4 > 5 > 6 > 7 > 8 > 9