

TRAINING MATERIAL

Title:

High NP pelletized digestate from animal manure and organic waste digestate by "Arbio and NPirriK-project" process (ID: 270)

Training:

What is the product?

The NPirriK-pellet produced by Arbio (B) is a dark 5/3 (N/P) fertilising pellet from solid fraction of digestate backmixed with RO concentrate and has an animal manure status.

Who is the vendor of the product/technology?

Arbio (<https://www.facebook.com/arbiobyba/>) is an innovative Flemish digester located in Arendonk (B).

Which other product/technologies are provided by the vendor?

Arbio produces solid fraction digestate and/or pelleted dried solid fraction (2000 t/y) besides around 20.000 t/y effluent (from biologic treatment of liquid fraction digestate).

Which are the advantages of the product and the problems addressed?

Digestates are prime examples of a circular economy where energy is won and nutrients recuperated at the same time. The digestates in Flanders are conform strict quality requirements, have fertilizing and soil improving qualities, and are – in hygienised form – free of pathogens, insect larvae and weed seeds. Dried digestate improves soil biodiversity by increasing carbon levels – the organic carbon content of Arbio's pellet is 40%. Furthermore dried digestate by its high dry matter-content also guarantees an optimized storage, shelf life and transport. Particularly for the high N/P NPirriK-pellet of Arbio, this is a relatively low priced organic fertilizer pellet with a boosted N-content – 50% of which is mineral.

Which is the nutrient content of the product?

The nutrient contents for the NPirriK-pellet (90% dm) of Arbio are on average 5,9% nitrogen (TN dm), 3% P₂O₅ (dm), 2,5% K₂O (dm), 3% CaO (dm) and 1% MgO (dm).

Which equipment and methods can be used to apply the product?

The dried digestate pellet can be used in arable land farming, horticulture and greenhouses on crops such as potato, sugar beet, fresh vegetables and strawberries, grapes, permanent crops (fruit trees), permanent grassland, etc.

Organic fertilisers such as the NPirriK-pellet from Arbio can be broad-based or locally applied. In the case of a spread application, the fertiliser is evenly distributed over the entire field. With local application, specific point, row, belt or plant hole fertilisation is applied. Particularly for pellets an application through e.g. classic fertilizer spreaders or lime spreaders are possible.

How to use the product?

The application dose depends (in general & in particular in Flanders) on type of farm, region (N), soil (P), crop, etc.. Also elements such as application season and the cultivation of catch crops influence the application. Each digestate product from each producer has a specific composition, which is obligatory monitored at least 4 times a year for nitrogen and phosphorus. The most recent analysis values determine the maximum application rate on agricultural land. It is recommended to set up a fertilisation plan based on a recent soil analysis and the corresponding fertilisation advice. As an animal manure the application with NPirriK pellets is limited to a maximum of 170 kg N/ha/y (on non derogation farms).

Furthermore a system of counting the active nitrogen can be in place (e.g. Flanders) taking into account the amount of fertiliser nitrogen which the crop can put to good use the first year. In other words one has to count with the nitrogen use efficiency of the pellets which is 30% (solid animal manure status) in Flanders but in reality around 50 or more % for the NPirriK pellet due to the high mineral N content. Particularly for dried digestate pellets what usually defines the maximum application rate is the P-fertilisation limit: for most soils (in Flanders e.g. phosphate class III or IV) the maximum application rate will vary between 45 and 70 kg P₂O₅/ha/y (except for grassland).

For most applications, dried digestate provides a good basic fertilisation. Due to the relatively high (mineral) N content only a limited additional nitrogen fertilisation may be required. Typical doses would be 2 to 4 t/ha/y.

Which are the authority permits and in which EU countries?

All Agrogas products applied on land have the required permits from the certification body and authorities, respectively (Vlaco (certificate 1/y) & FOD (1 every 5 y)) to guarantee its quality and allow its use. In the Fertiliser Regulation – coming into force in 2022 – the dried digestate may under conditions be considered for categorisation as PFC 1 A (solid organic fertiliser) or PFC 3 A (organic soil improver).

How much does it cost?

The NPirriK-pellet is a competitively priced multi-nutrient organic fertilisers with a cost ranging between 25€/t to 45€/t.



For more information: https://nutriman.net/farmer-platform/product/id_270