BioA recycled innovative fertilizer

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MISSION

- **BioA develops and produces fertilizers from suitable industrial side flows.**

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BioA in brief

- BioA Oy has been established on the year 2017 by Cursor Oy and Eera Industrial Development Oy.
- The first plant concept was developed together with CTS Engtec Oy and BioA Oy during the year 2017 and 2018.
- Later on, the year 2018, after the finalization of project funding BioA's demonstration plant investment project started.
- Commissioning of the plant at Sunila, Kotka was in May 2019 and unit processes and plant concept have been tested during the summer 2019
- The end product quality has further developed during the autumn 2019.
- The next product will be launched at spring 2020

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2. A market need for organic-fertilizers

The vicious circle of fertilizer

- The efficient use of arable land and high harvest expectations will increase the use of fertilizers
- Production of fertilizers consumes energy and produces significant CO_2-emissions.
- The resources of mineral phosphates are limited.
- The organic material on soil has decreased and due to that the yield of the fields is decreasing.

”Recycling of nutrients is part of the bigger change in our society – a transfer from the fossil fuel based economy to the recycling- and biomaterial based economy.”

(Mikko Rahtola, Director Natural Resource Institute of Finland)

Nitrogen dependence

- Nitrogen is the nutrient that plants need most of all nutrients in quantity
- Globally, urea is by far the most used fertilizer expressed in terms of nutrients followed by nitrates.
- Nitrogen-based fertilizers have been the most traded products between the EU and third countries. More than 3 million ton are imported annually into the EU since 2015

By replacing urea with a suitable side stream it is possible to reduce natural gas dependence in EU

Challenges

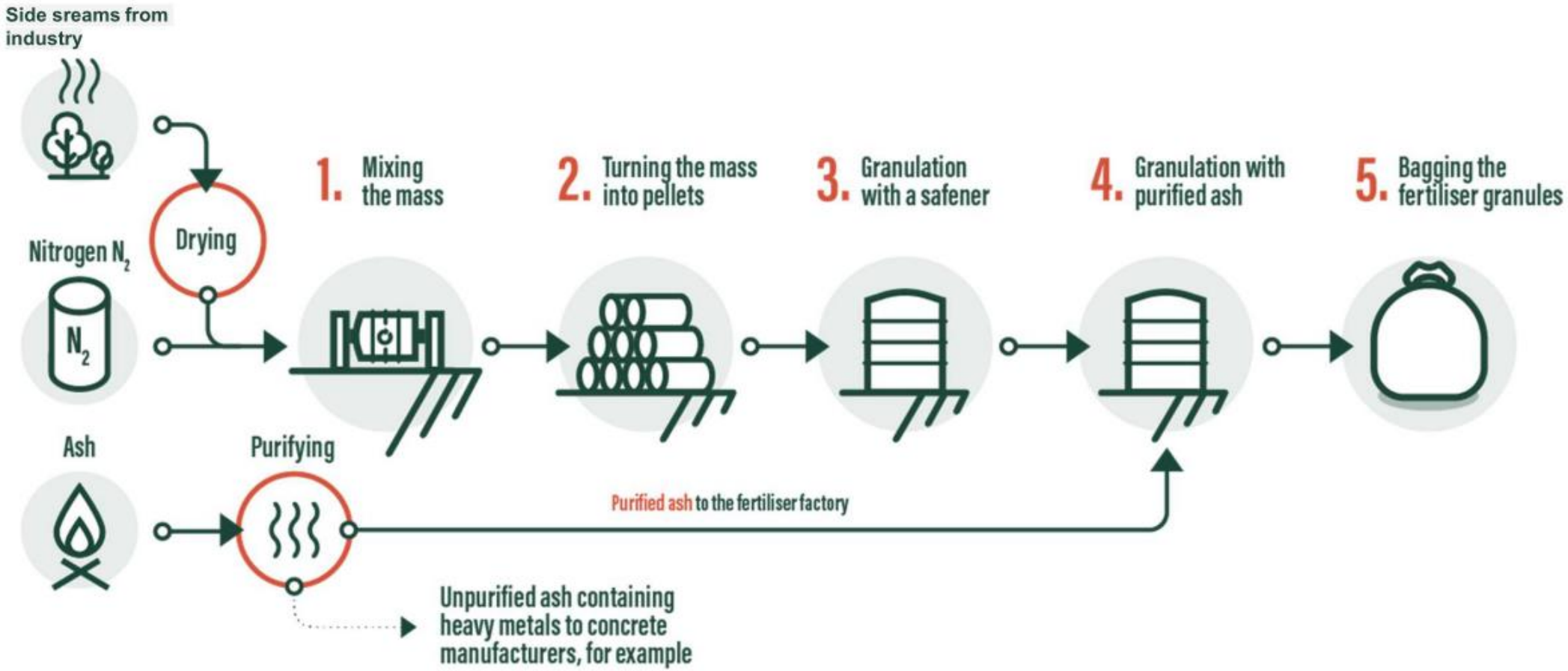
- Nutrient levels in side streams for fertilizer production.
  - For instance manure typically has high water content which limits its transportation distances
- Impurities in side streams
- Economical aspect

There is a need for innovative solutions on a market

3. BioA’s solution

A Production Concept

Process



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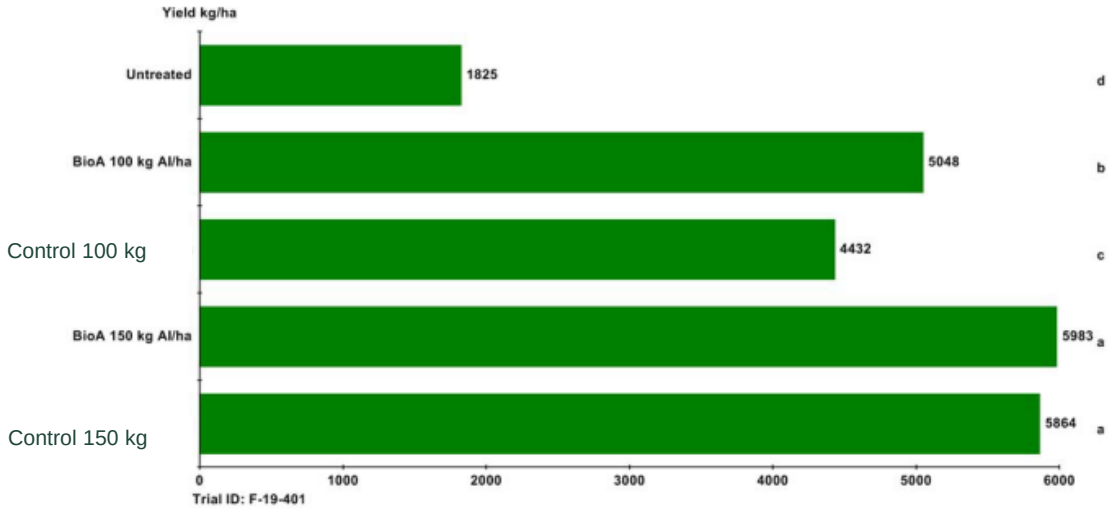
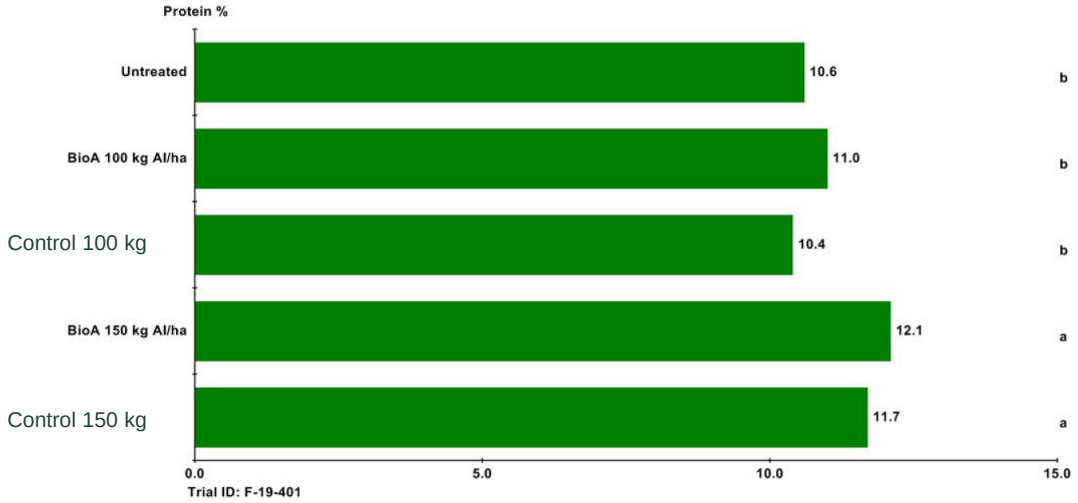
Some test results at Jokioinen, Finland

BioA NK 26-2 fertilizer



Wheat, Clay, high pH, Harvest kg/ha



Wheat, Clay, high pH, Protein %

No remarkable difference in Harvest results. A slight difference in protein content

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www.bioa.fi