NUTRIMAN congress 16-09-2021

Presentation of a selected compost (ID272) and digestate (ID264)

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Vlaco

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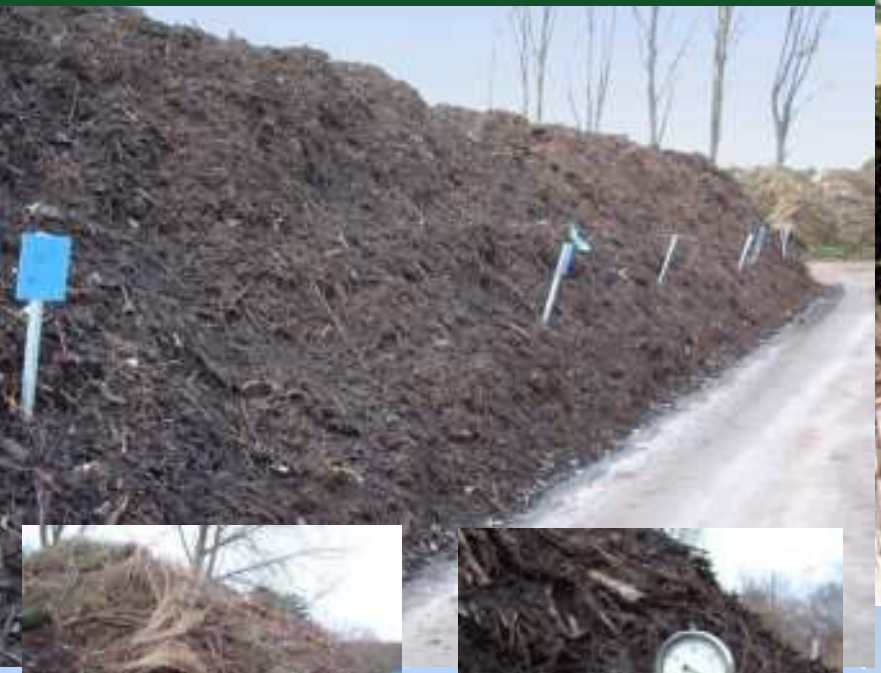
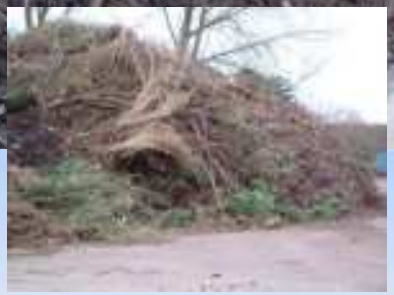
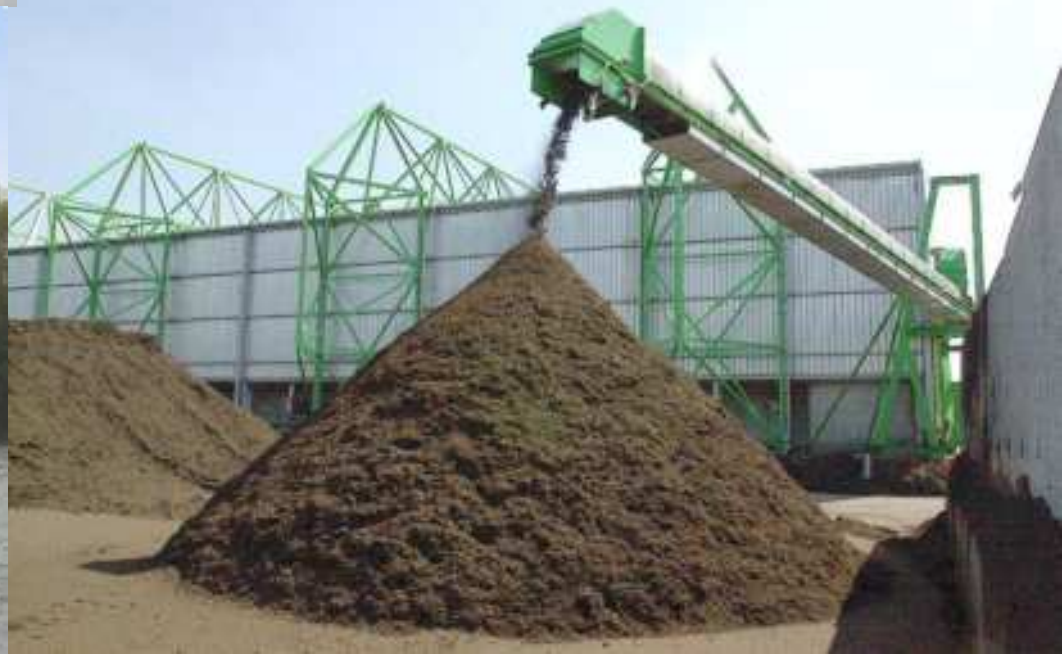
Vlaco npo

- Flemish **Compost and Digestate Quality** Organisation (°'92)
- **>100 members** active in management (3) of
  - **municipal green-/vfg-waste & (waste) streams from agriculture/food/feed**
- **Tasks**:
  - **Prevention** of biowaste
  - **Closing the cycle** of biowaste (nutrients & carbon)
    - Quality assurance (fertiliser, soil improver, growing media)
    - Support & implement biowaste policies (Materials Decree, Manure decree,…)
    - Research & demo projects
    - Knowledge centre

Compost







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FARMER SURVEY FARMER PLATFORM BOOKLET

Compost from green waste and pre-digested vegetable, fruit and garden wastes by "IOK Afvalbeheer" process (ID:272)

IOK

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

Input material
VFG-waste and green waste (incl roadside cuttings...)

Nutrient content info
1.79-2.1% N% (dm), 0.8-1.2% P_2O_5 % (dm), 1.1-1.8 K_2O% (dm)

Status
Available on the market

Recommended crops
potato, wheat, cabbage, pumpkin, cucumber, tomato, leafy vegetables, celery, leek and other crops in agriculture - also use in horticulture, floriculture and arboriculture

Application dose
10-15 t/ha (depending on soil, season, crop...)

Type of farming
conventional low input organic

Keywords

soil improver carbon rich hygienised stabilised slow-acting fertilizer

Product description

VFG-compost is the stable, hygienic and humus-rich end product of the composting of organic biological waste streams (vegetable-fruit-garden). It is a secondary raw material containing the stable organic material, called humus, and the inorganic mineral fraction (i.e. of the VFG-waste the composting

Basic information

Vendor:
- Name: IOK Afvalbeheer
- Contact: Thomas Van Nooten
- Vendor website

Country:
Belgium

Product main category:
Compost and Digestate (and biomass)

Product subcategory:
Compost

Languages

DEUTSCH
FRANÇAISE
ESPAÑOL
ITALIANO

https://nutriman.net/farmer-platform/product/id_272

NUTRIMAN

IOK Afvalbeheer (Beerse (B)) composting process (T-ID 271)

- 60.000 t/y selectively retrieved vfg- and green waste ➔ 4-phase composting (https://nutriman.net/farmer-platform/technology/id_271)
  (a) pre-treatment vfg-waste: shredding, sieving and de-ironing,
  (b) pre-heated + dry thermophilic AD: °biogas (CHP) + °biomethane
  (c) indoor composting of digestate + green waste: 4 weeks
  (d) sieving (<16mm) + outdoors composting & maturation: 8-10 weeks

- After sieving: 25.000 t/y hygienised vfg-compost (0-12,5 mm) ('other manure')

Compost from green waste + pre-digested vfg-waste (IOK Afvalbeheer) (P-ID 272)

- Dry matter: avg 65%
- Total N: 1,7-2,2% (dm)
- P_2O_5: 0,8-1,2% (dm)
- K_2O: 1,1-1,8% (dm)
- CaO: 2,5-4% (dm)

- MgO: 0,5-0,8% (dm)
- Plant available nutrient content %: N (15%), P_2O_5 (50%), K_2O (80%)
- Organic carbon: 21-23% (dm)
- EC: avg 2000-3000 µS/cm
- pH (H_2O): 8,7-9
- FPR: PFC3A / CMC3

Key characteristics/advantages of certified compost

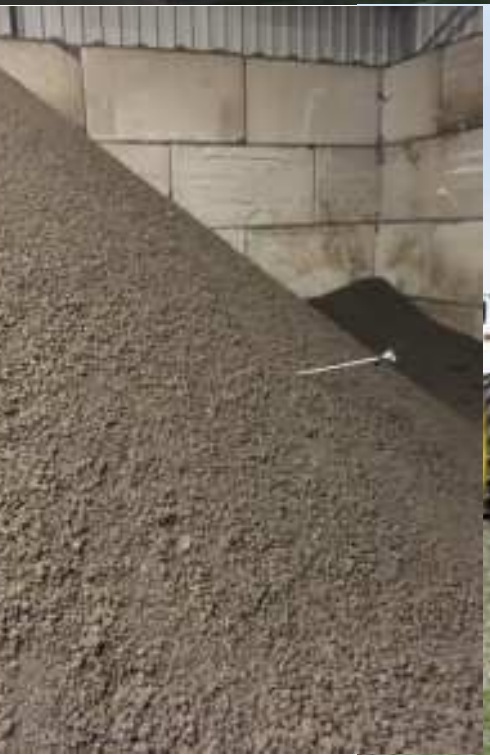
- Closing material and nutrient cycle
- Inputs & output controlled – stabilised & hygienised
- Resupplying carbon to soil
  - Improves soil biodiversity by increasing microbiological fauna & flora
  - Improves rootability
  - Slow release of nutrients
  - Increases cation exchange capacity of soil
  - Increases water retention capacity/decrease vulnerability to erosion & droughts
  - Reduces leaching

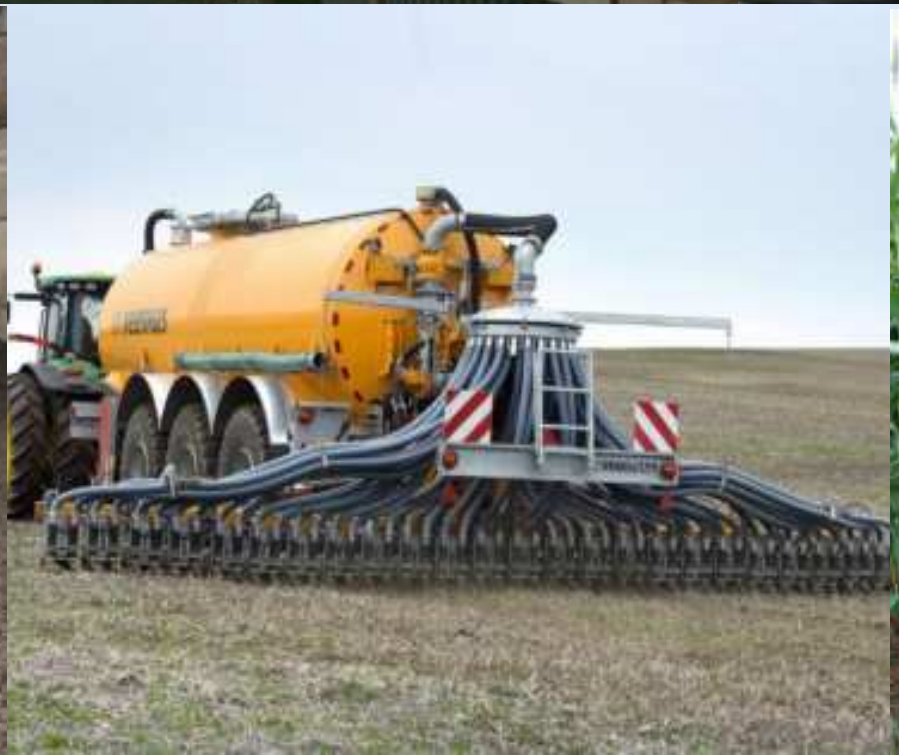
- **Compost is part of sustainable fertilising practice**

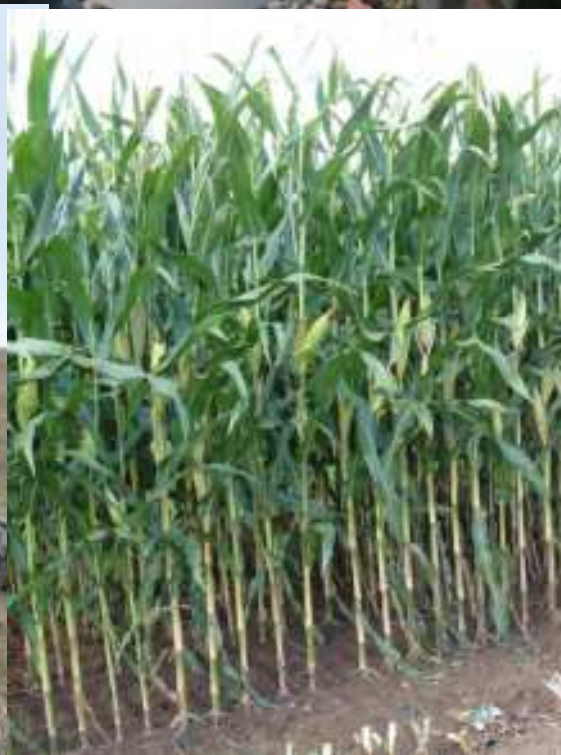
Key facts compost-use

- **In agriculture:**
  - Arable crops, grasslands, viticulture, horticulture/green houses, arboriculture
  - Broad-based (classic lime/manure spreader) or locally applied
- **Application** (Flanders):
  - Type of farm, region (N), soil (P), crop, season, catch crops?
  - use **standard manure code** (nutrient content) for green/vfg-compost
  - Nitrogen use efficiency: 15% for certified green-/vfg-compost
  - **Typically 10-15 t/ha/y** (restricting parameter usually P)
  - Recent soil analysis & corresponding fertilisation advice
  - Soil improvement & basic fertilisation ←→ extra N required

Digestate products







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Liquid and solid (dried) fraction digestate from manure and energy maize by "Agrogas" process (ID:264)

AGROGAS

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

Input material
manure, organic wastes (cfr Vlaremа (Flanders) and positive list FOD (BI)) and/or energy maize

Nutrient content info
Dried solid fraction: 2.4-3.1 N% (dm), 3.7-5.5% P_2O_5 (dm),1.5-4.2% K_2O (dm) ; Liquid fraction 5.7-9.9 N% (dm), 2.1-6.4% P_2O_5 (dm), 5.4- 8.9% K_2O (dm)

Status
Available on the market

Recommended crops
cereals, fresh vegetables and strawberries, potatoes, sugar beet, fresh vegetables and strawberries, grapes, permanent crops (fruit trees), permanent grassland...

Application dose
Liquid fraction: on average 30 tonnes/ha (depending on soil, season, crop,...). Dried solid fraction digestate: on average 2 t/ha (depending on soil, season,

Type of farming
conventional low input

Basic information

Vendor:
- Name: Agrogas bvba
- Contact: Sven Bogaerts
- Vendor website:

Country:
Belgium

Product main category:
Compost and Digestate (and biomass)

Product subcategory:
Digestate

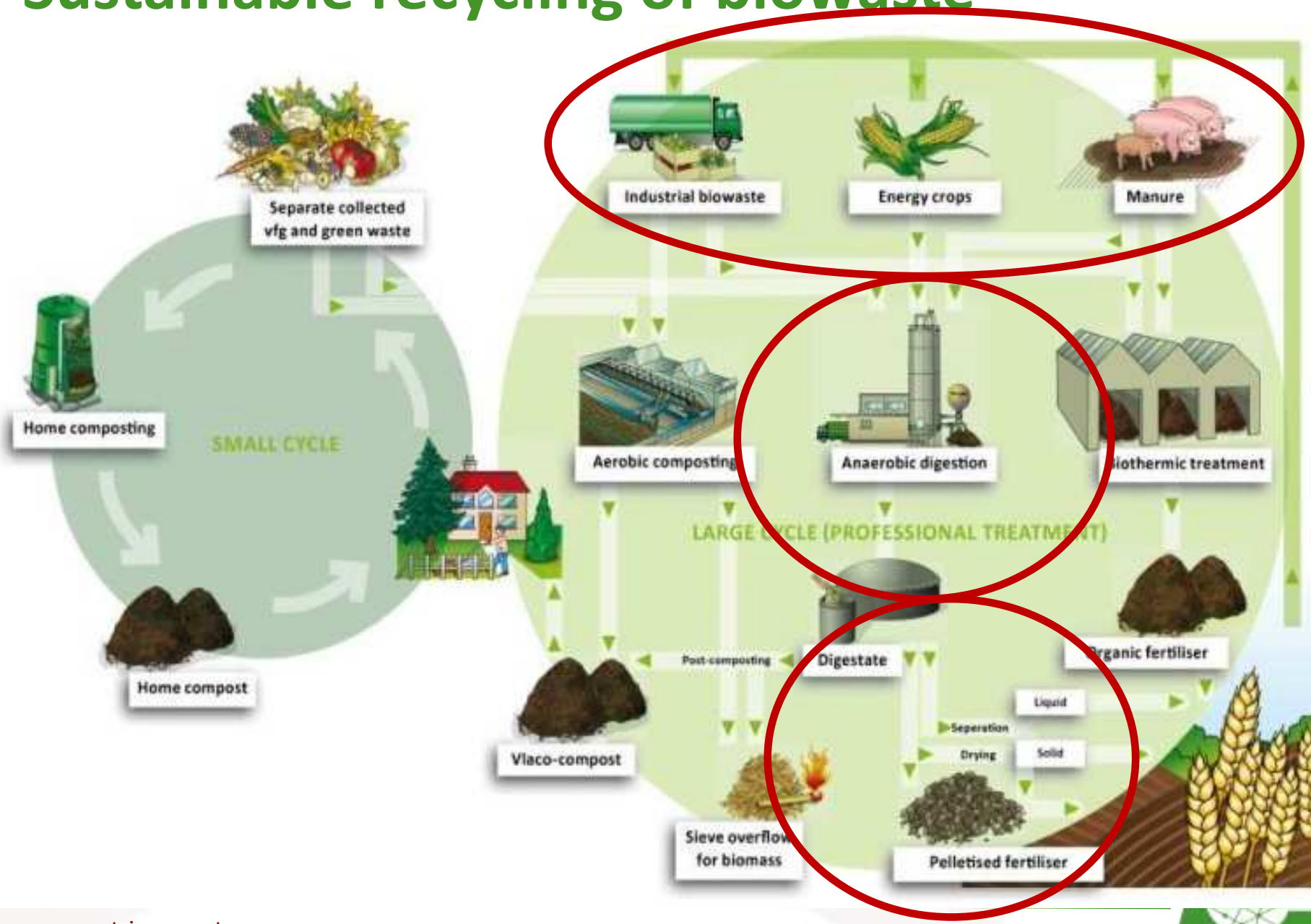
Languages

DEUTSCH

FRANÇAISE

https://nutriman.net/farmer-platform/product/id_264

Sustainable recycling of biowaste



Digestate products

- Use of digestate products (in general):
  - Raw digestate and liquid fraction ➔ fertiliser in local agriculture
  - Solid fraction ➔ organic fertiliser/soil improver (often export)
  - Dried digestate ➔
    - landscaping,
    - organic fertiliser in agriculture (often export),
    - as an ingredient for organic fertilisers (often export)

Agrogas (Geel (B))
AD + post-treatments (T-ID 263)



➔**2 separate lines** of co-digestion + digestate post-treatments (separation, drying, MBR, RO and/or evaporation) : 70.000 t/y (biowaste from plant or animal origin (incl manure) and energy crops): 'animal manure' vs 'other manure' status

➔ 50.000 à 55.000 t/y raw digestate/solid fraction/(evaporated) liquid fraction (incl concentrated/effluent)

➔ up to 2.000 t/y dried digestate (animal manure status): from AD + thermophilic post-digestion (hygienisation) + separation (sieve belt) + thermal drying

Dried digestate – Agrogas (P-ID 264)

- Dry matter: 80-90%
- N: 2,4-3,1% (dm)
- P_2O_5: 3,7-5,5% (dm)
- K_2O: 1,5-4,2% (dm)
- Plant available nutrient content %: N (30%), P_2O_5 (50-70%), K_2O (80-100%)

- CaO: 2,9-4,4% (dm) - SO_3: 1,9-2,8% (dw) - MgO 1-1,6% (dm)
- OC: 34-40% (dm)
- pH (H_2O): 8,5-9,3
- FPR: PFC1A/PFC3A; CMC4/CMC5

Key facts dried digestate products (1)

- **General characteristics/advantages:**
  - Inputs/output monitored (QA)
  - Conform strict requirements (limit values for organic & inorganic/physical contaminants) (ARC (Flanders))
  - Homogenised & hygienised (cfr ABPR): free of pathogens, insect larvae and weed seeds
  - Energetic recuperation & closing material and nutrient cycle
  - Containing macro-/micro-nutrients (fertilising) & carbon (soil improving)
  - High % dm: optimized storage/transport & longer shelf life
  - Export P (←→ also C & N)

Key facts dried digestate products (2)

- **Agricultural use:**
  - Arable land farming, horticulture, …: cereals, maize, potato, sugar beet, grapes, permanent crops (fruit trees), grassland,..
  - broad-based (e.g. classic lime or manure spreader) or locally applied (e.g. top dresser).
  - May be best applied in rainy weather for non-pelletised dried digestate

- **Application** (Flanders):
  - Type of farm, region (N), soil (P), crop, season, catch crops?
  - Each digestate produc(t)/(er): specific composition ➔ **ask/use representative analysis**
  - Recent soil analysis and corresponding fertilisation advice
  - < 170 kg N/ha/y (if animal manure/non derogation farms)
  - Nitrogen use efficiency (plant availability): 30% (←→ 60% for 'other manure'
  - **Typically 2-4 t/ha/y** (restricting parameter (in flanders) is P)
  - Good basic fertilisation (incl. C) ←→ extra N usually required

Thanks for your attention!

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