Vermeulen Geert

04-06-2015

Topic 1:emmission of pig-stables
Topic 2:validation of residual feed
Topic 3:smartmanure (nutrient recovery)

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Emission in pigs stables

Most important types of emmissions

- ammoniac
- odeur
- Green house gases (methaan, nitric oxide and carbon dioxide)
- Regulations about ammoniac and odeur(in flandres part of belgium)
- Regulation of GHG in the future (year ????)

Most importend Solutions

- End of pipe solution(scrubber)
- Source-directed solution
- Reduction by feed

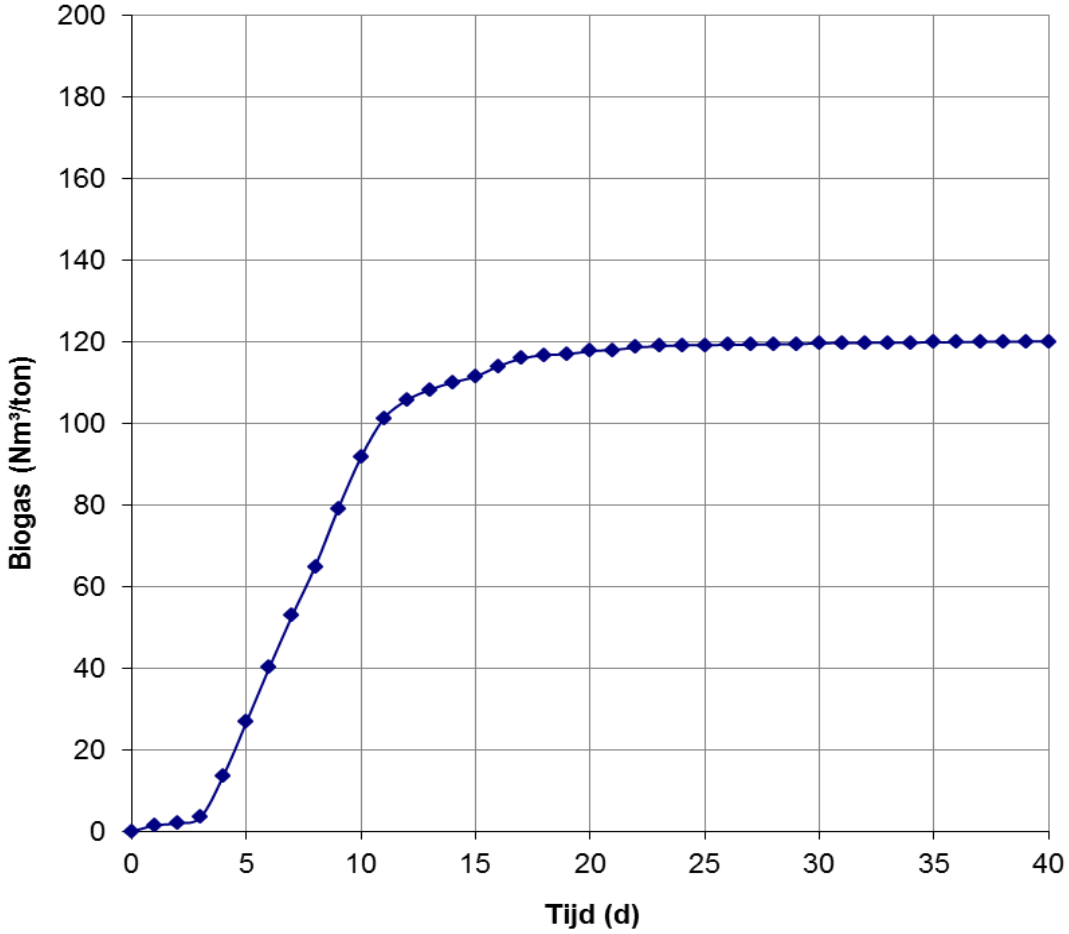
Source-orientend way

- Most important source of emmission=mix manure stock
- Vision:keep the solid and liquid fraction separated (NH3)
- Remove the manure asap
- Liquid fraction in closed stock
- Solid fraction into a biogas plant

Source-oriented way

Removing the solid fraction by mechanical scraper

Biogas profit off fresch manure



120 nm³ off biogas / ton max:30% dm

65% methaan

4-5 times more energy versus old manure

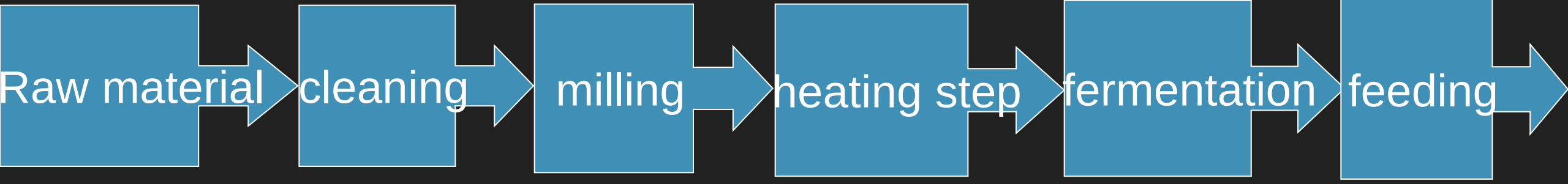
Conclusion (most imported)

- Min 60% reduction off amoniac and GHG
- Min 75% reduction off odeur
- Solid fraction is energy source instead off waste
- Better working conditions
- Sustainable solution

Validation off residual feed

- Flanders=process waste of residual vegetable flows
- Dumping is difficult (nitrate regulations)
- Contains protein (up to 25% of 100% dm)
- Problem:not digestible for pigs
- Contains contaminations (bac, minerals etc.)

Flow chart off validation



Removing contamination
0% digestable

50-60% digestable

80-85% digestable

Illustration input

Input of raw materials

Vegetables
potatoes

Illustration cleaning, milling and heating

Cleaning
By water flow

Own design
Wet Milling system

Heating until 90-95°c
Tube in tube system
With heating recovery

Illustration off fermentation using agriton product

Introduction of bacteria and ferment into the isolated fermentation unit
Production of lactic acid

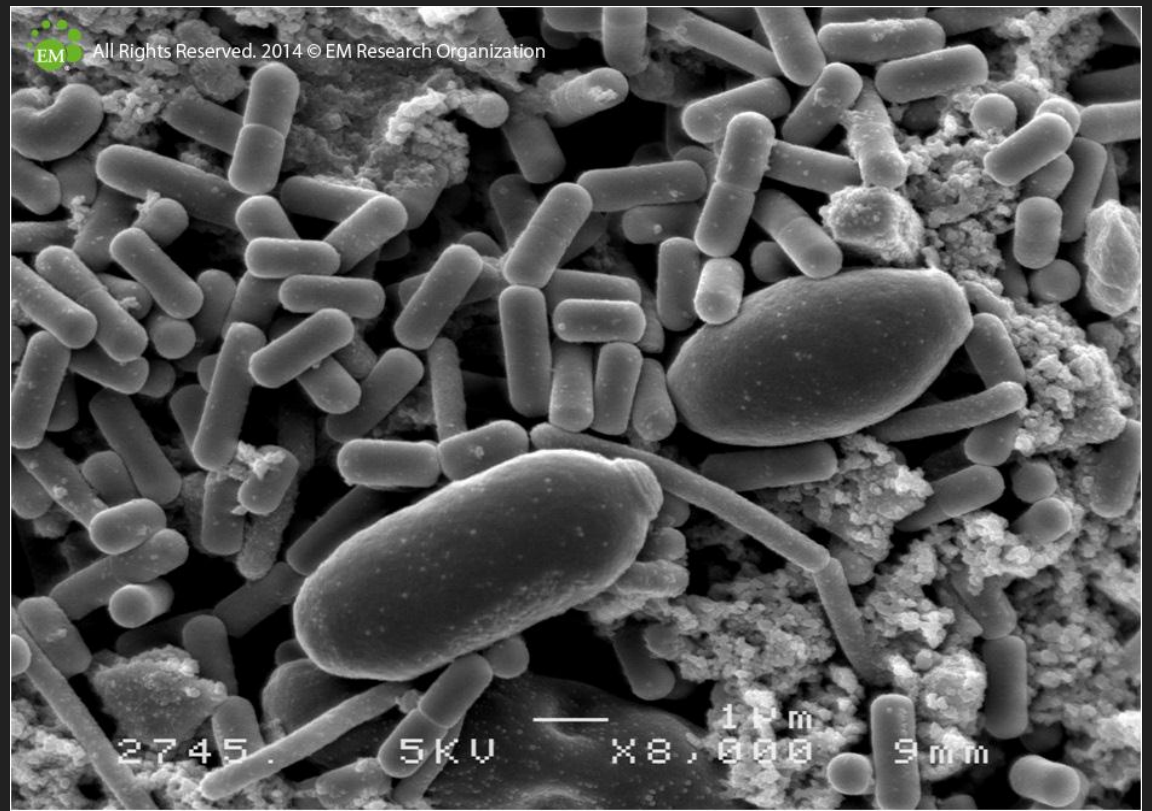
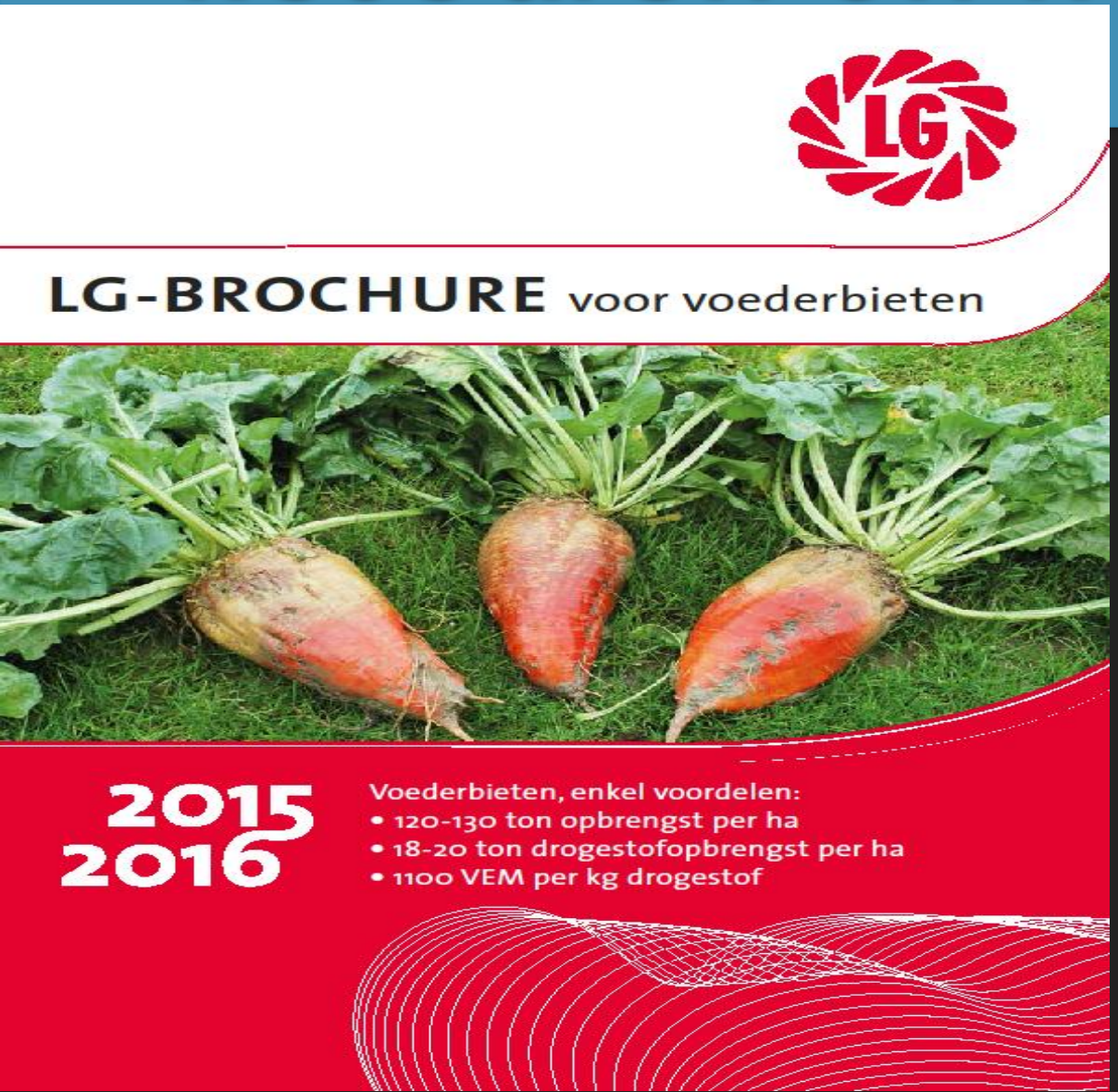


Illustration of storage

Storage tank after min:
24h of fermentation
Check point PH=3

Research on new crops



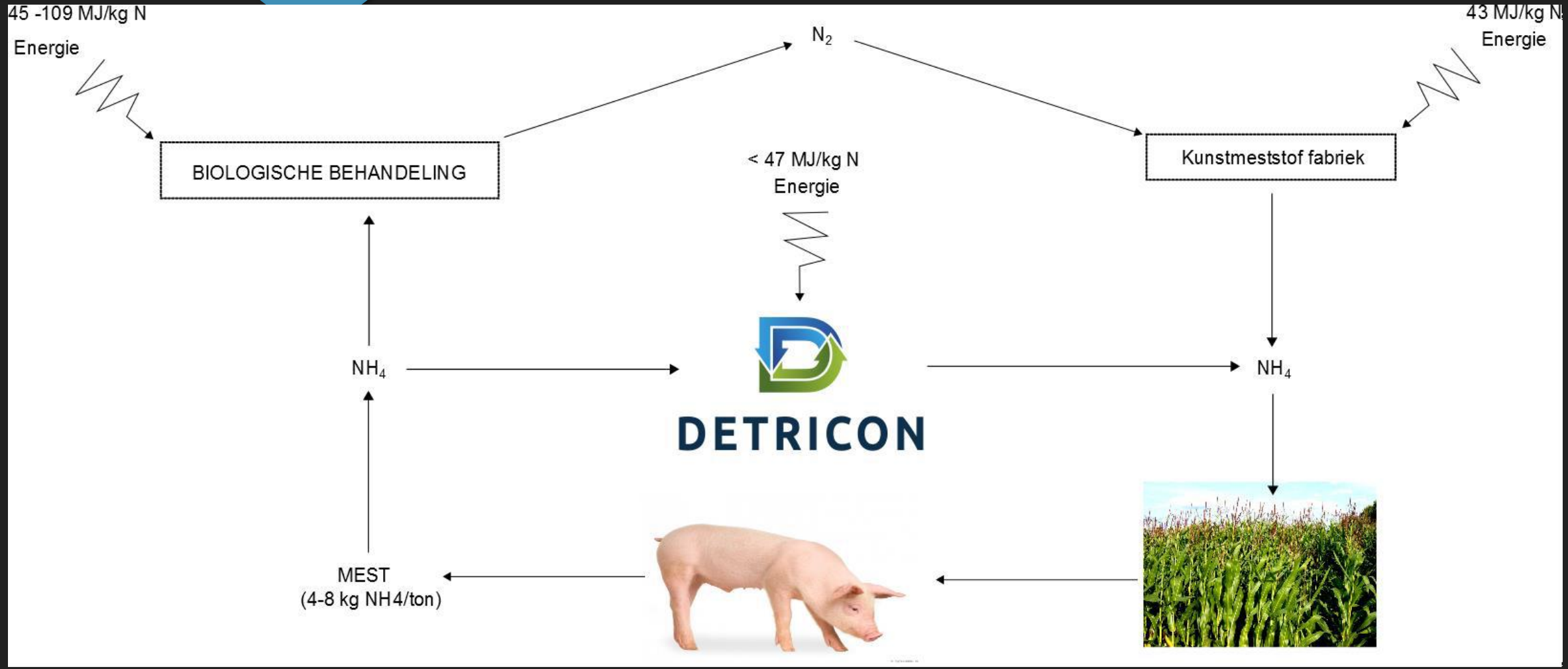
Type of crop : Tarine and brizar
120-130 ton each ha
18-20 ton of dry matter
High energy value

1ha is sown this year for pig feed

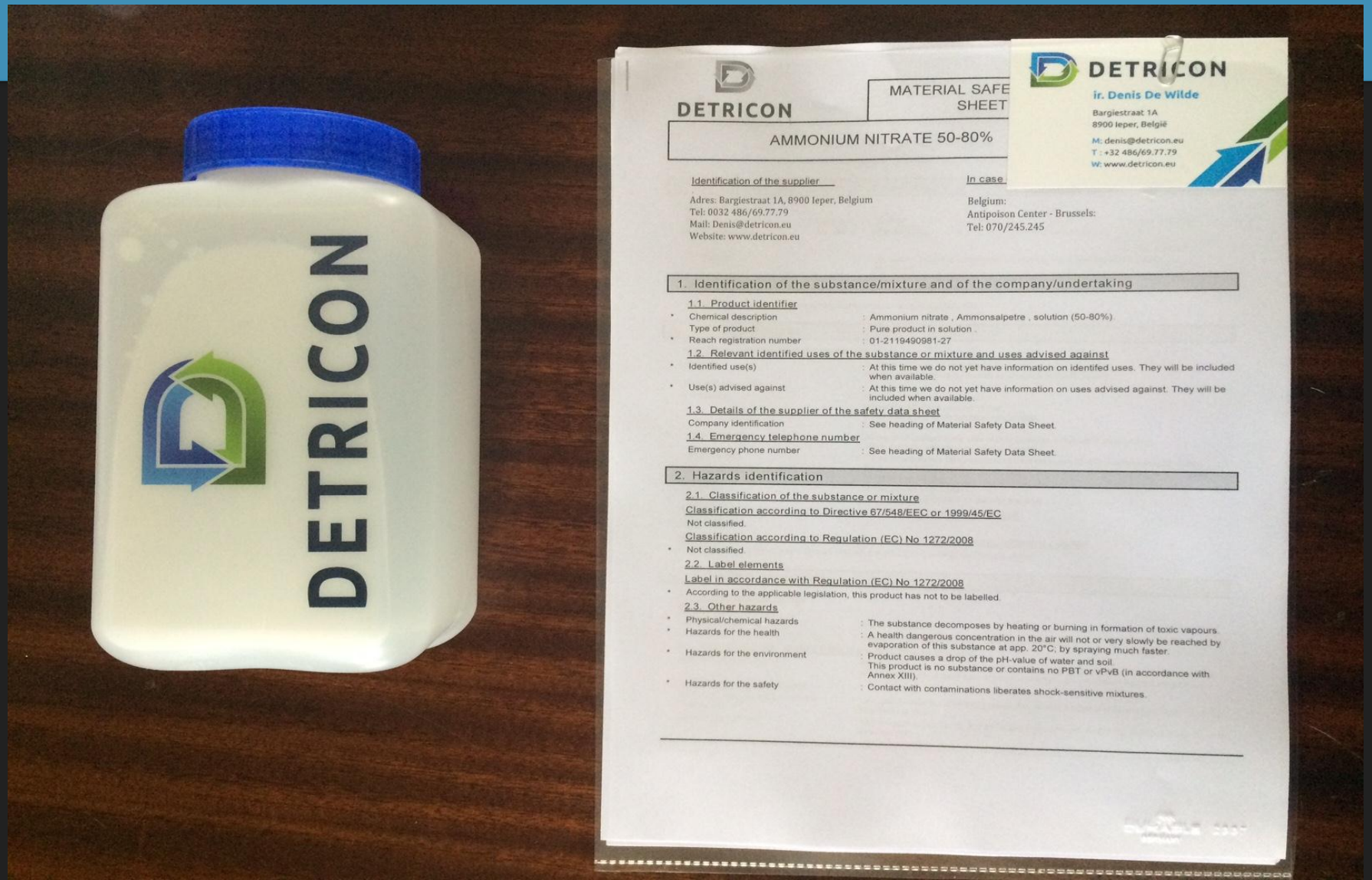
conclusion

- Solution for residual or waste food
- Solution on environmental level
- Clean and pasteurized food
- Fermented food
- Healthy food

smartmanure



Commodity explanation of biobased fertilizer



Field test biobased fertilizer

End of session

Thx !
Questions?
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