



Technology for N recovery as urine from pig manure with "VeDoWS" adapted stable construction system

Keywords: • VeDoWS • adapted stable construction • primary separation

Key facts



- **Category of the technology:** Physic-chemical nitrogen recovery from manure: primary separation
- **Input:** raw pig manure
- **Output product(s):** organic fertilizer
- **Available capacity:** dependent of the scale (numbers of pigs)
- **Focusing geographical areas:** Flanders (Belgium)
- **Technology status:**TRL 9

Summary of the technology

Underneath the slatted floor of the VeDoWS stable system a shallow cellar is constructed which enables the **primary** separation of urine and solid manure. The cellar consists of two inclining parts with in its middle an opening of 18 to 22 mm. Using a scraper, the solid manure is removed from the manure gutter daily. This **primary** separation of manure in the cellar is the basis of lower ammonia emissions. There is no need for chemicals by using this technique.

By adaption of a stable system, pig manure is being **primary** separated in solid manure and urine in the stable. The main advantage of this separation technique is that there are less ammonia, GHG emissions and odour in the stable. The hydrolysis of urea to carbon dioxide (CO₂) and ammonia (NH₃) is catalysed because of urease, an enzyme which is found in solid manure. Therefore when solid manure and urine are collected separately there is less NH₃ emission because urine is less in contact with urease.

Another advantage is that this technique implies a better biogas potential for the solid manure, because it is removed on a daily basis and therefore remains fresh. Moreover, the urine is better suitable as a fertilizer because it contains most of the nitrogen and potassium and is not phosphorus limited.

Competitive position and advantages

- VeDoWS tackles the problems **at the source**.
- By **primary** separation there is a better climate in the stable for both farmer and animal.
- With a VeDoWS stable construction the pig-farmer gets a good fertilizer (pig urine) for free.
- At minimum economical industrial scale: The cost per pig place is independent of scale, so there is no minimum economical industrial scale.
- When calculating total costs, this technology would not be more expensive than a classic stable system (with grid floor) and an end-of-pipe technique (such as an air washer).

Contact
Name: Geert Vermeulen
Company: Vermeulen construct
Web: www.vermeulenconstruct.be
e-mail: n.v.vermeulen@skynet.be

