

TRAINING MATERIAL

Title:

Technology for N recovery as urine from pig manure with "VeDoWS" adapted stable construction system (ID:323)

Training:

What is the technology?

By adaption of a stable system, pig manure is being primary separated in solid manure and urine in the stable.

Who is the vendor of the technology?

Vermeulen Construct (Belgium) is specialised for barn equipment for pigs and poultry. They fulfill complete building of stables in terms of electricity, ventilation, air washing, feeding systems or manure separation. Vermeulen Construct is developer and distributor of the unique VEDOWS stable system for manure separation.

Which other technologies are provided by the vendor?

None.

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

During construction of pig stable, there is special construction of the floor. The urine flows directly into a separate cellar and the faeces falls on a flat-belt conveyor and then goes into an other cellar. The main advantage of this primary separation technique is that there are less ammonia, GHG emissions and odour in the stable which is better for the health of the farmer and animals. 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 not phosphorus limited. So with a VeDoWS stable construction the pig-farmer gets a good fertilizer (pig urine) for free. The input material is raw pig manure which is subsequently separated. The cost per pig place is estimated around 80-90 euros (one pig place ~ 0.75 m²). The input and output (tons/year) is dependent of the scale (number of pigs). You can find an example of the plant in Figure 1.

How does the technology work?

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. 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.

How/where to use the technology?

There is no need for chemicals by using this technique. This primary separation of manure in the cellar is the basis of lower ammonia emissions.

Which are the authority permits and in which EU countries?

Approved in MS Belgium: Flanders.

List EU-FPR Product Function Category or Component Material Category.

How much does it cost?

The cost is about 80-90 euros per pig place and Operational Expenditure: maximum 1.50 euros per pig place yearly.



Figure 1. Plant for N recovery as urine from pig manure with "VeDoWS" adapted stable construction system.

For more information: https://nutriman.net/farmer-platform/technology/id_323