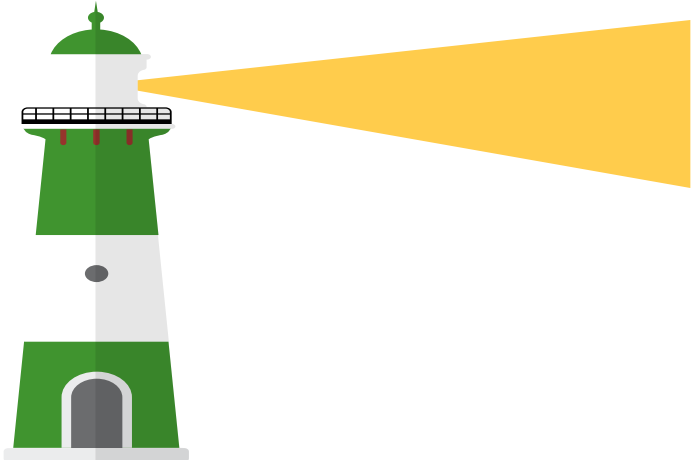
Nutri2Cycle

Transition towards a more carbon and nutrient efficient agriculture in Europe



Ammonia recovery from raw pig slurry in a vacuum evaporation field plant

Míriam Cerrillo, August Bonmatí
IRTA

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Description of the solution

The present demo investigation develops a process based on low temperature vacuum evaporation to recover ammonia from livestock manure (AMMONEVA), to obtain a salt that can be used as a fertiliser.

The pilot plant is placed in UPB GENETIC WORLD, S.L. farm at Vilalba i Serrateix (Catalonia, Spain)

Patent ES-2676622_A1 and Brand M4107648 OEPM in the name of Mr. Roberto Estéfano Lagarrigue (intellectual property owner/ industrial and brand)

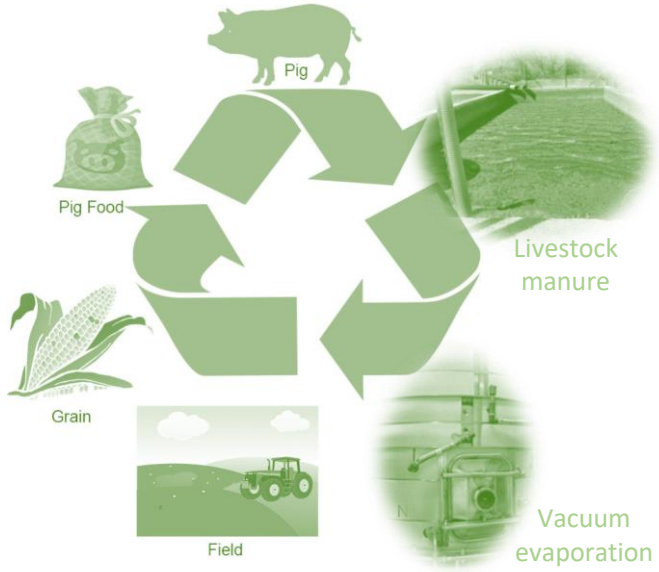
Introduction

High nutrient content in livestock manure

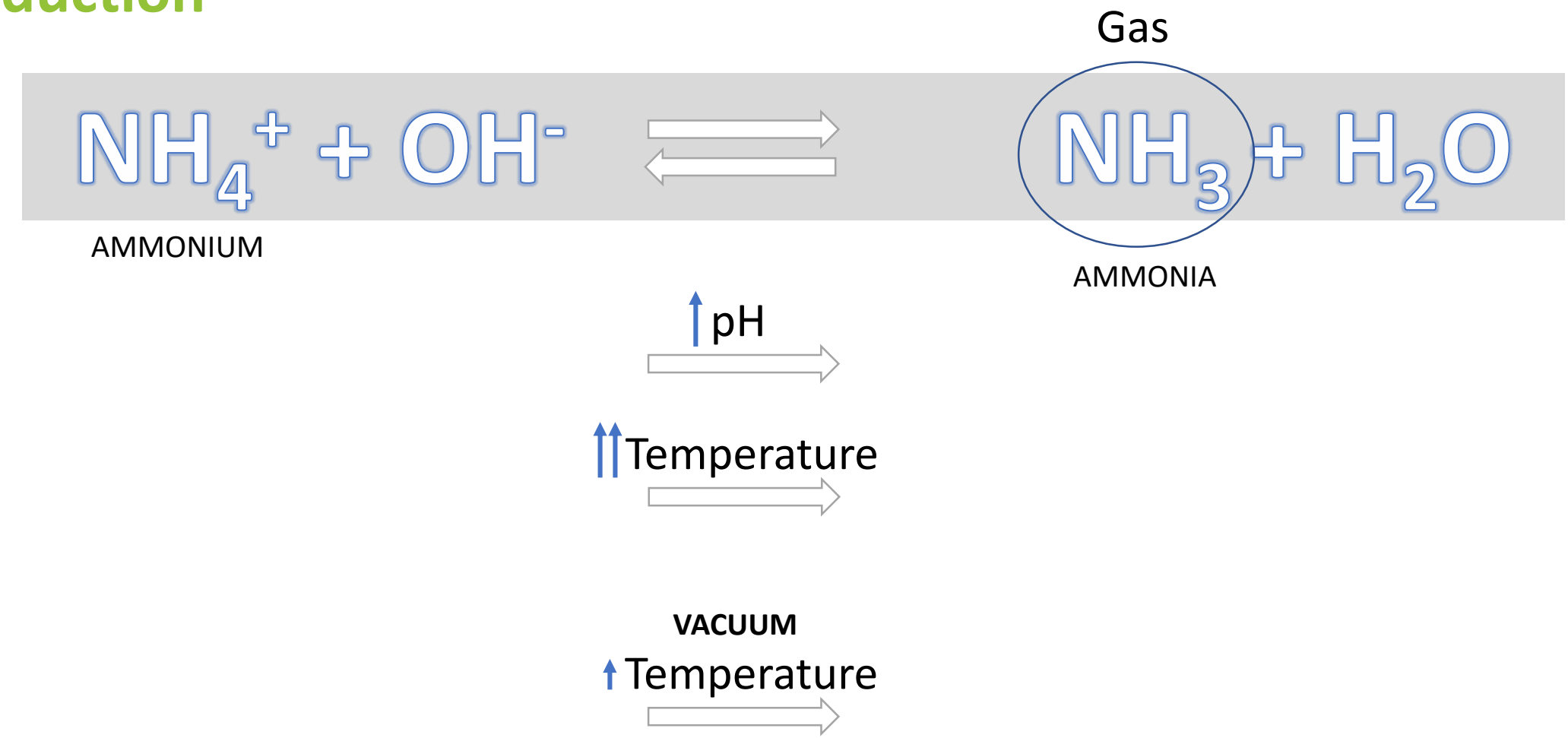
Low temperature vacuum evaporation

Production of marketable products (fertilisers)

Nitrogen cycle closure



Introduction



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Main components AMMONEVA System

1. Influent pit

2. S/L Separator

3. Basification pit

4. Ammoneva container

5. Efluent pit

Main components AMMONEVA System

Evaporator

Acid trap

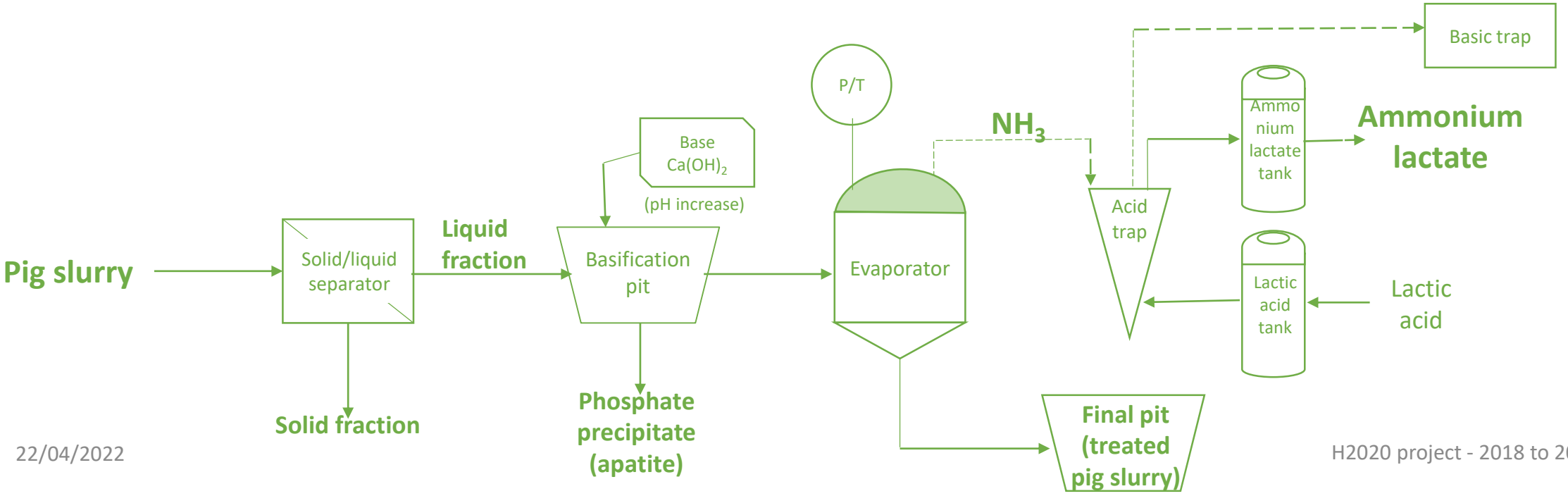
Basic trap

Vacuum pump

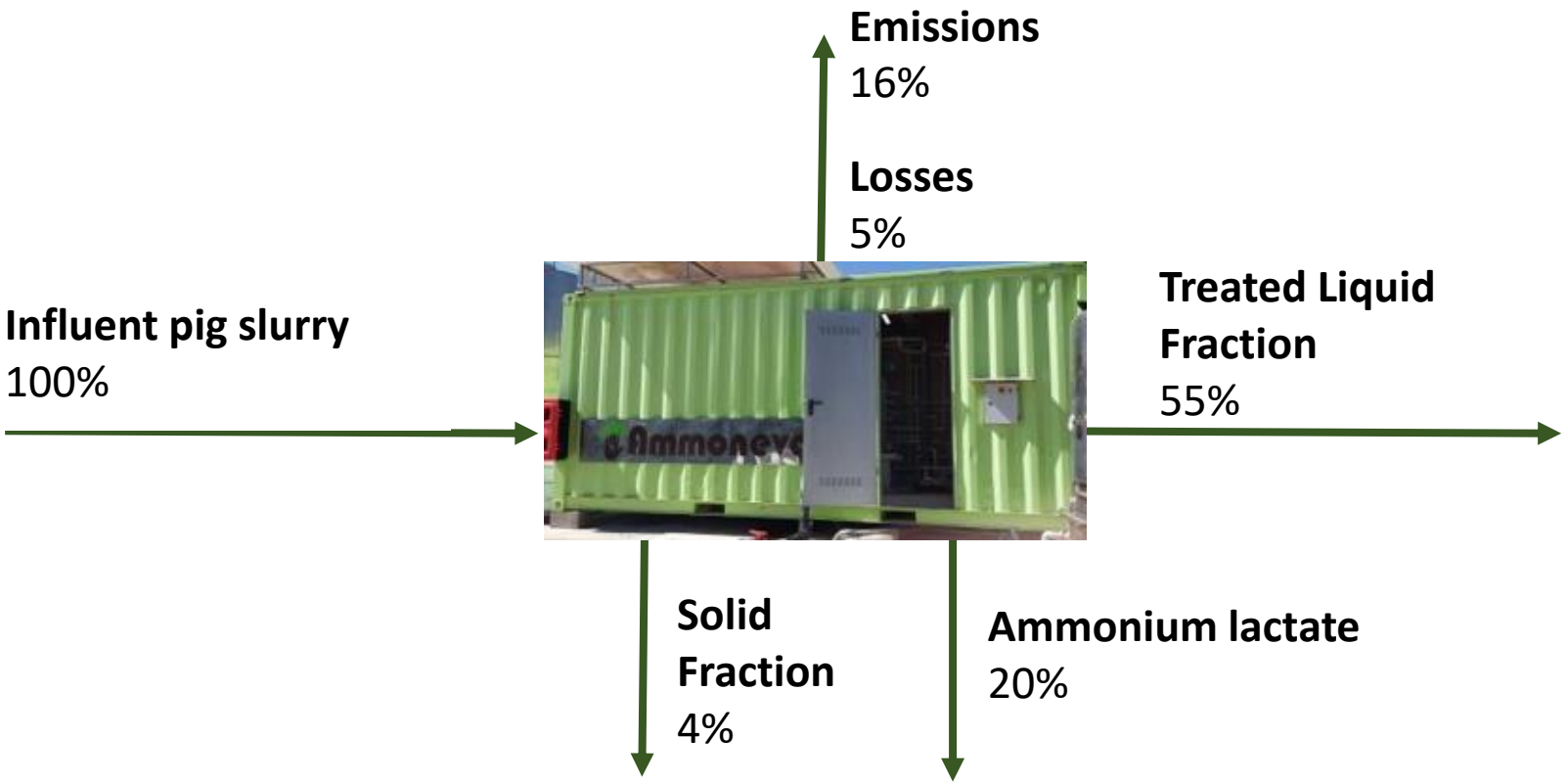
Process diagram





Results: Nitrogen mass balance



Planned improvements

- Change in the basification pit, to **improve phophate precipitates recovery** (apatite): conical tank.

- Combination with reverse osmosis to recover a **salt concentrate and water** as final output, in addition to the ammonium solution and phosphate salts: no land is needed for the application of slurry.

Conclusion

- AMMONEVA pilot plant allows for the reduction of ammonium content in livestock manure, and its recovery in ammonium lactate form (fertilizer).
- Phosphate is recovered in the basification phase.
- It also brings the opportunity to combine with reverse osmosis to avoid the need for land.

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