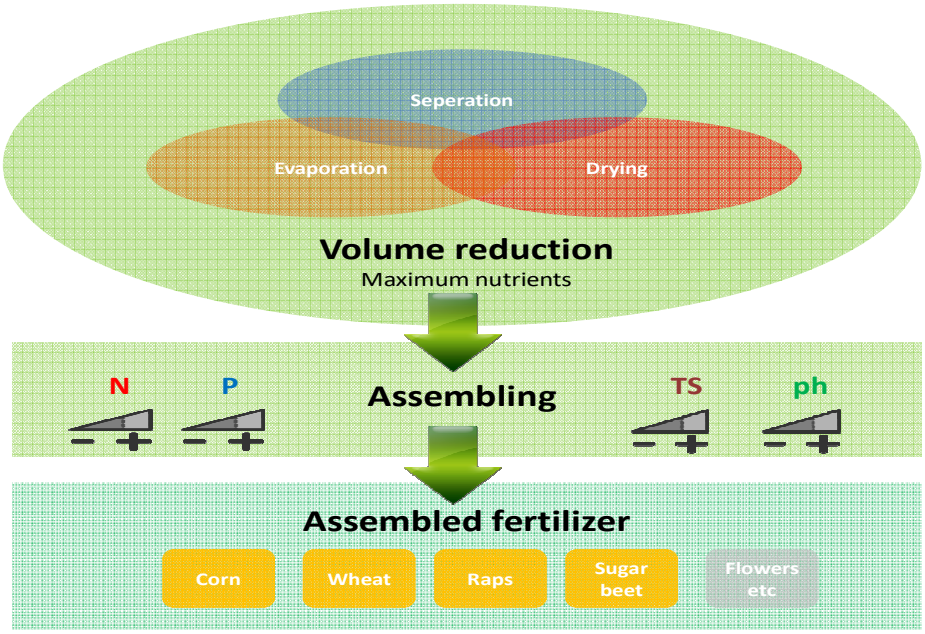
Düngergold

RenewEnergyProjekt

project brief

Recycling of liquid manure and fermentation residues



Basic situation

- **Nutrient overflow, storage and transport problems as well as emissions and water pollution** are well known concerns of citizens and farmers.
- The amounts of liquid manure and manure of livestock farms has increased immensely as per the classification of fermentation residues as organic manure.
- High investments are necessary to comply with the requirements of the Fertilisation Ordinance.
- Known methods such as separation, filtration or drying have little effect and do not solve the storage, transportation or pollution problems.

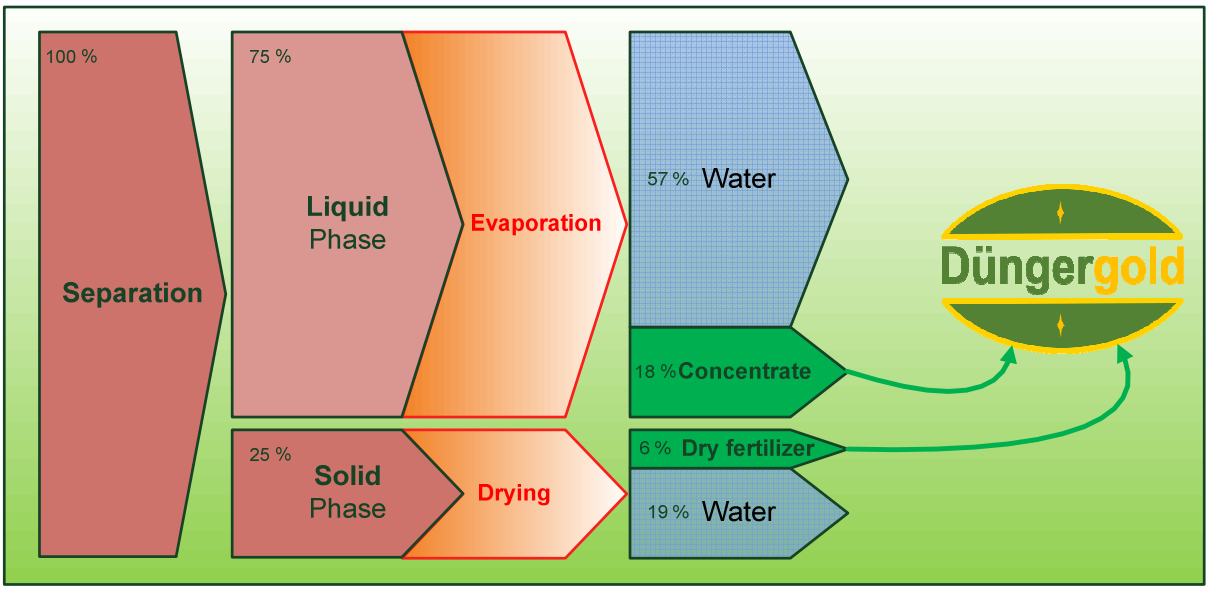
Goal

- **Innovation: Sustainable farm fertiliser from fermentation residues and manure through smart processes**
- Nature and its closed material cycles as a model should be used to produce ecological solutions for the use of sustainable manure and to use them in an environmentally friendly manner.
- At the same time, the environmental impact of these transportable fertiliser products should be reduced, uneconomical transportation reduced and the use of the fertiliser according to the Fertiliser Ordinance guaranteed.

Approach

- Draining the fermentation residues/manure for minimal volume and mass. The aim is to concentrate as much of all nutrients as possible without producing emissions.
- **Through a smart combination of different process technologies, the logistically complex nutrient cycle is to be optimised by dewatering the liquid manure and fermentation residues. The resulting sustainable fertilisers are suitable for use in agricultural farms, gardening businesses, etc. Recycled fertilisers are able to be marketed through a sales structure to be created.**
- Through possible closed circuits, a nutrient-optimized concentrate is produced. This is the starting material for various fertiliser applications and nutrient requirements.
- Existing plants and machines for application in agriculture can be coupled with the concentration processes and variably used for the demand-oriented supply of fertilisers for arable crops and soils.

Process Engineering



- Separation of the solids to a liquid phase with the lowest possible solids content for evaporation available.
- The liquid phase is processed in the system to a concentrate with full nutrient content and condensate.
- Evaporation in the low-temperature process with use of waste heat and complete recovery of all nutrients, as well as drying of the intermediate solids and

concentrate. The condensate can be trickled, used as process water or prepared for introduction into the receiving water.
- The evaporated phase can be applied or marketed as a concentrated fertiliser with standard technology.
- The condensate can be introduced into the receiving water, or used as process water.
- The solids can be applied as moist fertiliser with high humus effect, or dried by further processing.
- By mixing the solids and the concentrate, fertilisers with different nutrient requirements can be "made up".

Main results

- Savings on costs for possibly necessary storage tank expansion according to the new DÜV.
- Savings of up to 70% of the cost of the application
- Revenues through KWK bonus for sustainable heating concept of BGA
- Proceeds from the sale of ready-made organic fertilizers or concentrate, e.g. to established fertilizer deals
- Sustainable improvement of public acceptance by reducing transport and odor nuisance

We offer you

- Computer-aided advice for the specific needs of your business
- Analysis of nutrient flow and slurry discharge based on 170 kg N / ha for compliance with the Fertiliser Ordinance
- Cost-effectiveness and benefits check
- Investment opportunities as a personal investor or a contracting / leasing model
- Assistance with the necessary project planning from the building permit to financing