

# DORSET GM UPDATE



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Drying 8,000 Hours  
per Year!  
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Drying:**  
Successful in Practice.  
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Added Value and  
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## Heat Utilization for Drying Biomass: Organic Fertilizers or Fuels

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Drying digestate offers many advantages – especially the protection of the environment benefits from the innovative procedure. Many regions are affected by a permanent excess of nutrients due to the intensive animal production. Thus, they are forced to export their digestate into other regions. Drying is a good possibility to facilitate the transport of the treated material and thus to apply the valuable components nitrogen, phosphorus and potassium where they are really needed.

In addition, a good portion of the costs for storage and transportation of the digestate can be saved because the storage volume reduces by approx. 90% during the drying process (in the recirculation procedure). Potassium and phosphorus completely remain in the dried digestate. Thus, the excess material which would actually have to be disposed, can be used as a valuable organic fertilizer which the farmer can use to earn real money.

### Humus for dry Soils

However, not only the fertilizing effect is positive: especially soils which react sensitively to aridity can be improved for a long-term by mixing in the dried digestate because the organic material with its high content of humus binds humidity and thus sustainably optimizes the soil structure (See DORSET-customer Jörg Rickel who sprinkles his areas only three times a year after the application of the dried digestate instead of six times before. The precipitation rate remained the same.) Is it really necessary to clean the exhaust air? Yes!

### There is no Chance to do without an Exhaust Air Cleaning System

When drying digestate, an exhaust air cleaning process is absolutely indispensable because the ammoniac nitrogen which is contained in the digestate is released



## Drying and Exhaust Air Cleaning Important Pillars of a sustainable Agriculture

almost completely during the drying process. This is also valid if solid substances are dried after a previous separation process or if the drying procedure stops at a dry matter content of 45%.

Only an exhaust air cleaning process can avoid the emission of the ammoniac nitrogen. However, the exhaust air cleaning does not only keep the air clean, it also offers more advantages. The resulting product can be optimally utilized as a valuable fertilizer: during the drying process, ammoniac nitrogen is released which transforms into ammonia and is bound to ammonium sulphate during the subsequent process of exhaust air cleaning. Thus, in a 500 kW-drying system, approx. 10,000

to 16,000 kgs of ammonia are released in that way. 90% of that can be trapped in the air scrubber and transformed into ammonium sulphate. This ammonium sulphate is an anorganic fertilizer without any phosphate content and can be applied in a very targeted way for nitrogen fertilization. It is available in a liquid form just like ammonium urea solution and thus, it penetrates the soil directly.

### Replacing mineral Fertilizer: Saving Costs

The product replaces the expensive mineral fertilizer which does not have to be bought. In this way, more nutrients remain in the circulation due to the processes of drying and exhaust air cleaning than if the area is fertilized using

liquid digestate. The reason for that effect is: If you fertilize directly using liquid digestate, a part of the nitrogen will be released and get lost when spreading. However, the valuable nitrogen is completely preserved and can be made available for the crops immediately due to drying, exhaust air cleaning and transformation of the nitrogen into ammonium sulphate. To come to a conclusion, it can be said that the exhaust air cleaning process is absolutely necessary for the drying process because it makes a considerable contribution to a sustainable agriculture.

### English version of Dorset Update :



This paper was sent to all German biogasplants in October 2011 to share practical experience on the use of waste heat by drying. We have received many requests for an English version. So we are now happy to present you this translation. Have a good time. Petra Kastein, Dorset marketing manager.



### Turkey: Drying Chicken Manure

An environmentally sound and value-adding alternative to composting: chicken manure from poultry egg production is now dried by the Turkish enterprise Keskinoglu. This doubles the content of nitrogen in the final product and reduces the fine dust load from the farmexhaust air.

### Premiere in the Drying of Sewage Sludge

After the drying of digestate, DORSET now also offers a plug-and-play-solution in a container for the drying of sewage sludge.

