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EMISSIONS OF SMALL-SCALE MANURE TREATMENT FACILITIES

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ABSTRACT

With the instalment of the mineral accounting system MINAS in the Netherlands in 1998, the surplus of manure in specific areas in the Netherlands has been determined officially. The penalty system that accompanies the MINAS instrument has been a driver for local animal farmers to focus on manure treatment in order to avoid levies for the net amount of nutrients that enter their farms. Following descriptions of the manure treatment techniques, this paper gives an overview of the emissions of a small number of potentially viable manure treatment techniques. The strategies used for manure treatment on a small scale include the use of biological purification, evaporation with vapour recovery, and separation techniques. In addition to the environmental impact of these techniques regarding gaseous emissions including ammonia, odour and greenhouse gas emissions, the applicability of the different effluents and solids is also considered in the evaluation of these techniques.

RESULTS

Results of our findings are given in the following table:

System	capacity m ³ /yr	Treatment Category	Ammonia g/hr	Odour OU _F /s	Greenhouse gases kg CO ₂ -eq./hr
de Swart	1800	Filtration	100	3300	4,8
de Swart	1800	Filtration and chemical treatment of air	11	162	1,8
Dirven	2500	Mechanical separation	6	4400	5,0
Agramaat	8760	3-step filtration	4	260	17
Evink	2300	Biological	1	46	46
Biotower	4500	Biological	2	60	45
Manura	21000	Mechanical separation, and evaporation	3	2722	2

CONCLUSIONS

Additional air treatment can influence the emissions to the environment drastically. Biological systems have low odour emissions and high greenhouse gas emissions. The impact of the effluents on the environment have yet to be assessed and should be taken into account when evaluating these treatment techniques.