Netherlands: BioAktiv Cuts Ammonia Emissions by 45% in a Pig Farm

The Agricultural Research Department, Institute for Environmental and Agritechnics (IMAG-DLO) was commissioned by BioAktiv distributor Holland Green International in 1997 to study on the use of BioAktiv Powder for reducing ammonia emissions. The study was carried out at a pig farm owned by Mr. Druijff in Voorthuizen, the Netherlands.

In the pig farm there was a pig house divided into two equal partitions, each measuring 9.3 m × 6.5 m. Each partition contained six pens with a 1-m wide walkway in the middle. Each pen measuring 3 m × 2.6 m kept 10 pigs, hence an area of 0.78 m^2 per animal. The ventilation to both partitions was regulated through thermostats. They had separate manure pits that could keep pig manure up to 12 weeks.

Period	Partition 1	Partition 2	Treatment
1	NA	2 Jul 97	Before introducing the pigs into the pens, manure in the pens and manure pit was flushed out, totally cleaned and disinfested.
	14 Jul 97	NA	
	16-22 Sep 97		Computer monitoring of temperature, relative humidity and ammonia concentration in the partition.
2	29 Nov 97		Partition 1 had a total clean-out while partition 2 had a normal clean-out.
	6-9 Jan 98		Computer monitoring of temperature, relative humidity and ammonia concentration in the partition.
3	NA	13 Jan 98	BioAktiv treatment once to the manure pit, weekly to pig feed in partition 2 only.
	23 Feb-2 Mar 98		Computer monitoring of temperature, relative humidity and ammonia concentration in the partition.

Table 1: Treatments to the two partitions over the three periods

The study spanned over eight months starting on 2 July 1997 and ending on 2 March 1998 and it was split into three periods. Name the partitions 1 and 2. Over the three periods, the two partitions went through the treatment schedule as shown in Table 1. Each period ended with measuring of temperature, relative humidity and ammonia concentration in the air in both partitions through a computer system. Only partition 2 was treated with BioAktiv Powder starting on 13 January 1998.

Ammonia concentrations of the two partitions were measured using the wet chemical method, where the measured amount of ammonia in a small air sample was compared with the standards in the European Air Pollution IMAG-DLO NEN 6472. The measured ammonia concentrations in g NH3/hour per animal area of both partitions at the ends of the three periods are given in Table 2. The last column Part. 2/Part. 1 indicates the ratio of ammonia concentration in partition 2 to that in partition 1.

Period	Dates	Duration	Partition 1	Partition 2	Part. 2/Part. 1
1	16-22 Sep 97	6 days	0.241	0.234	0.98
2	6-9 Jan 98	3 days	0.268	0.377	1.41
3	23 Feb-3 Mar 98	6 days	0.216	0.205	0.96

Table 2: Ammonia concentrations of both partitions and their ratio

Using the data of partition 2 in period 2 (untreated) and period 3 (treated with BioAktiv Powder), we note that the partition 2 data in period 2 was 41% higher (1.41) than that of partition 1 and partition 2 data in period 3 was 4% lower (0.96) than that of partition 1. We can say that the ammonia emissions from the BioAktiv treated partition is 45% (41+4) lower than those from the control untreated partition.

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