Research

BIOLOGICAL-CHEMICAL INSTITUTE
OF HOPPEGARTEN
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Germany

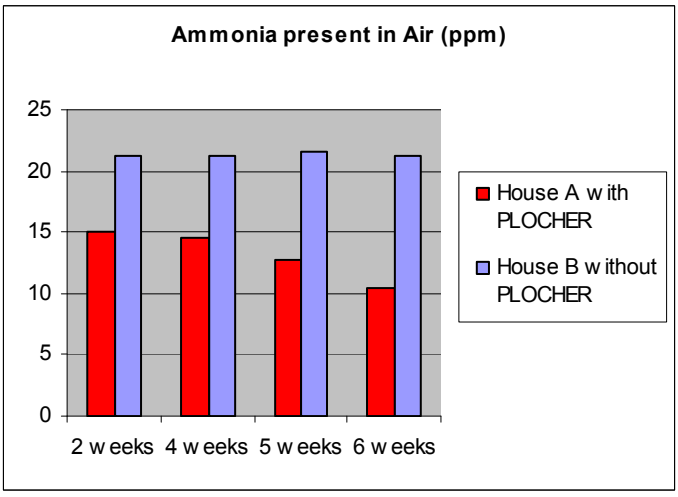
Definition of the Project

Between March and June 1997, the Biological-Chemical Institute of Hoppegarten conducted a scientific trial concerning the effect of Plocher Slurry Treatment on ammonia vapours in pig housing and nitrogen levels in slurry.

Two houses consisting of 4 rooms, each with 14 pens, housed 200 pigs and were monitored over a six week period: House A with Plocher Slurry Treatment, and House B without Plocher Slurry Treatment. Analyses were carried out after 2, 4, 5 and 6 weeks.

Results

CONCENTRATION OF AMMONIA IN THE AIR



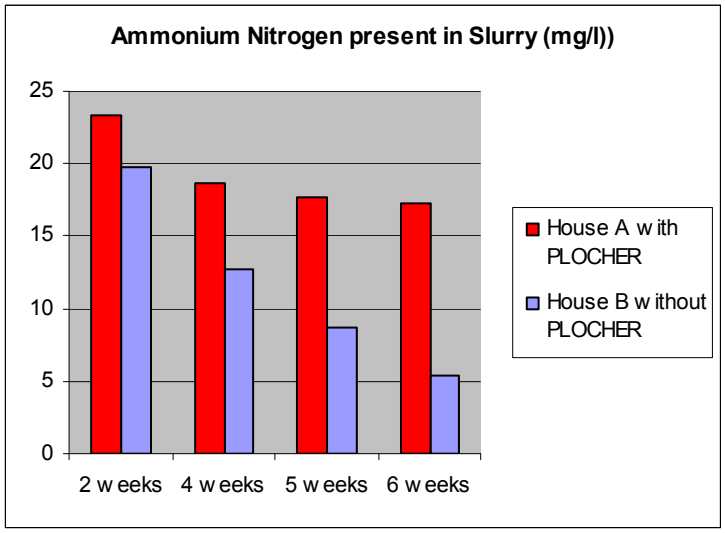
The report states, “A difference was shown clearly when the ammonia content of the air in House A and House B was measured. After 2 weeks of application of Plocher Slurry Treatment, lower ammonia content was noticeable in House A which steadily dropped to a figure well below that is usually measured in comparable houses.

In House B, relatively high ammonia content was determined at the beginning of testswhich stayed constant throughout the whole time.

It is evident from the results that the application of Plocher Slurry Treatment considerably improved the barn climate in the occupied pens.

In addition, slurry from each house was tested fortnightly for Ammonium Nitrogen and Kjeldahl Nitrogen.

AMMONIUM NITROGEN



The report states, " Within the six weeks, House A showed a smaller reduction of Ammonium Nitrogen in the slurry than House B:

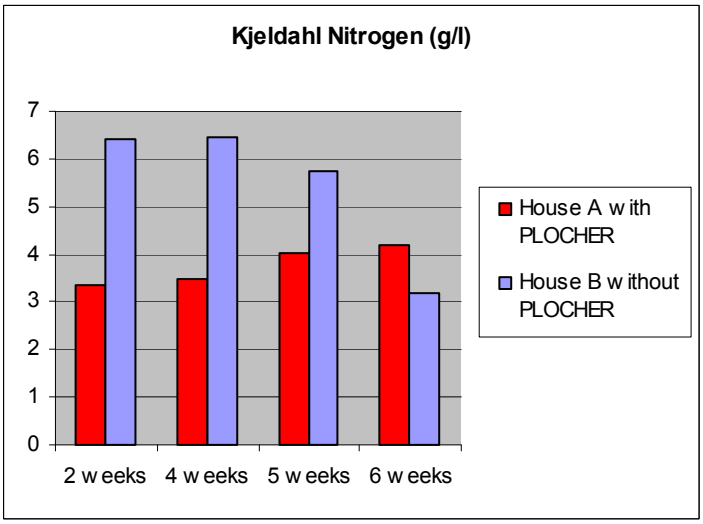
House A (with Plocher Slurry Treatment) — reduction to 75% of the original reading
House B (Control) — reduction to 25% of the original reading

Over the first six weeks of using Plocher Slurry Treatment, 11.84mg/l of Ammonium Nitrogen has been saved. The table below shows the financial benefits.

	kg/t	Price /ton	Price /kg	Value of slurry/ton	Spread at 50 tons/ha	Spread at 80 tons/ha
AN in House A with PLOCHER	17.26	£280	81p	£14.01	£700.41	£1,120.65
AN in House B without PLOCHER	5.44	£280	81p	£4.42	£220.75	£353.21

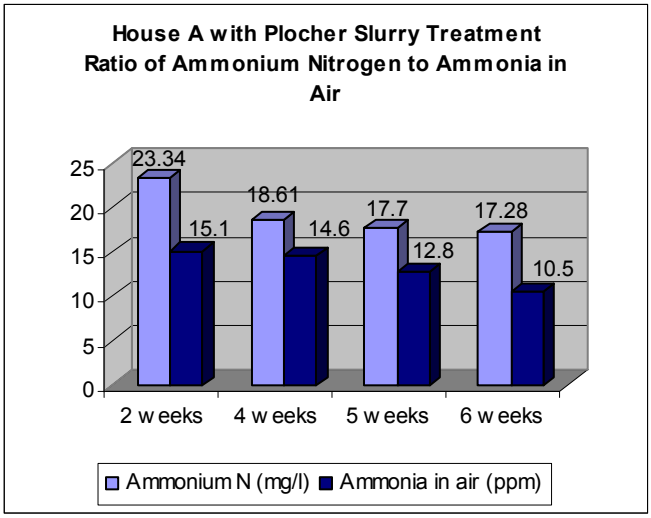
The present cost of Plocher Slurry Treatment is £8.25/50 tons of slurry and £13.20/80 tons

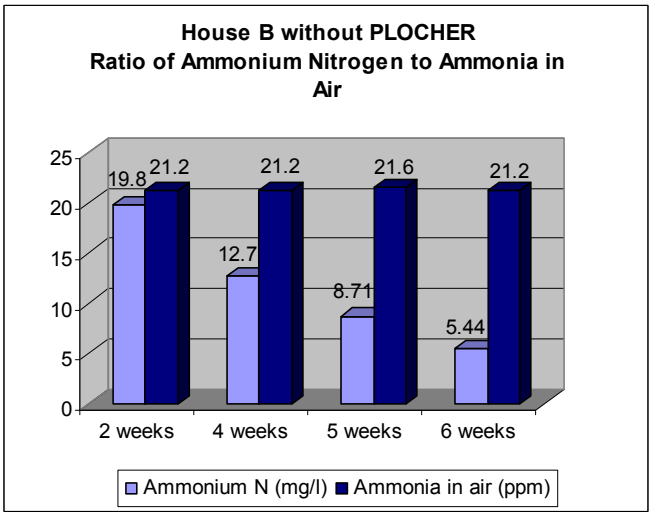
KJELDAHL NITROGEN



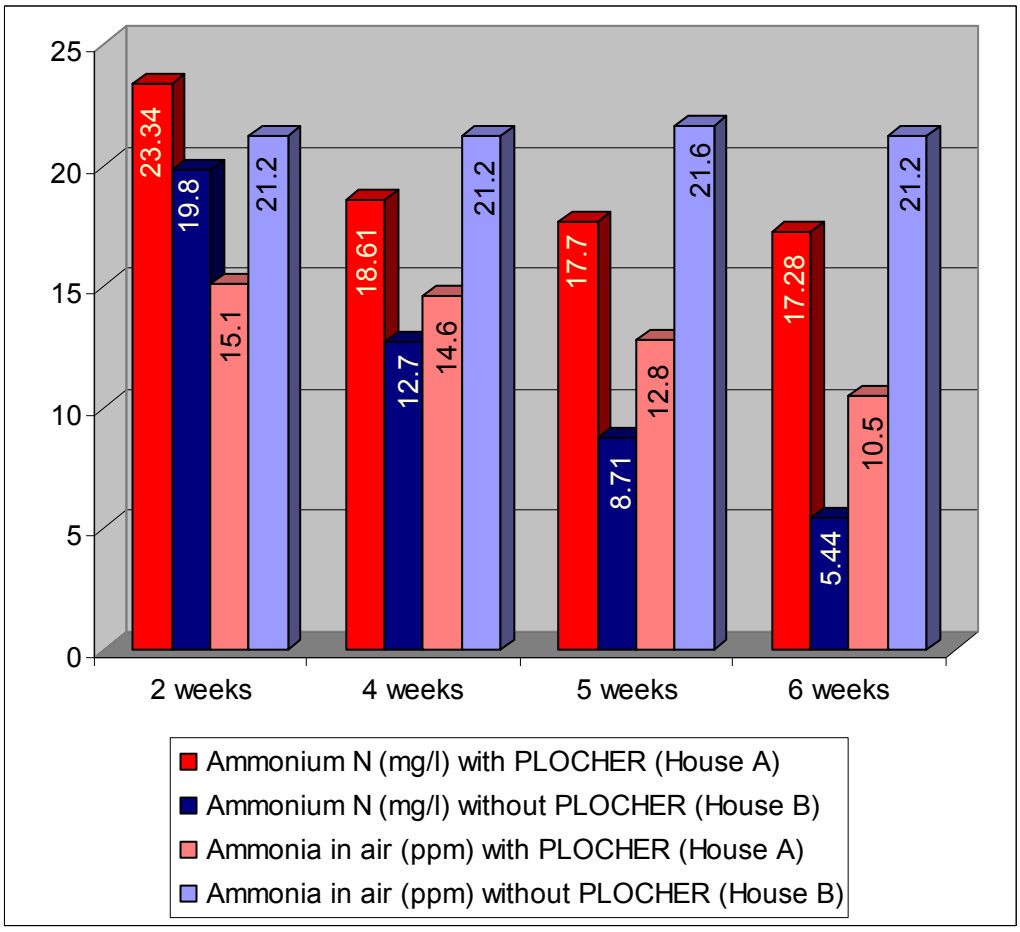
Kjeldahl Nitrogen is the sum of unoxidised nitrogen = nitrogen in ammonia + nitrogen in organic form. In other words, it shows the amount of organic nitrogen.

RATIO OF AMMONIUM-N TO AMMONIA IN AIR





COMPARISON OF THE RATIO OF AMMONIUM NITROGEN TO AMMONIA IN AIR, IN HOUSES A & B



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Conclusion

The scientific report states:

"The biological-chemical-physical process that Plocher Slurry Treatment started off in the slurry obviously binds the Ammonium Nitrogen and other nitrogen compounds in the slurry.

In commonly used slurry treatments, the Ammonium Nitrogen and other nitrogen compounds escape as gases into the air and therefore contaminate the housing climate.

The binding of Ammonium Nitrogen and other nitrogen compounds through Plocher Slurry Treatment considerably reduces the release of gases and definitely improves the housing climate.

The subjectively presented, the noticeable and objectively measured results show, that Plocher Slurry Treatment , even after a short time of six weeks, shows an optimal improvement that positively influences the environment, nature and the health of the animals.

It is to be expected that other houses with comparable technical conditions and longer occupation phases in the houses experience more positive or even optimal results. This will have favourable consequences for the environment, nature and the health of animals.

Further practical and laboratory tests will support above results and widen the knowledge of the chemical-biological-physical effect of Plocher Slurry Treatment in practical applications.

Updated February 2008