

BIOAKTIV FarEast

Brazil: BioAktiv Halves Ammonia Emissions in a Dairy Goat Farm



BioAktiv Brasil conducted a study on using BioAktiv products to reduce ammonia emissions at a dairy goat farm in Barão, a municipality in the state of Rio Grande do Sul, Brazil. A shed in the farm with an area of about 400 m² was used for the study. The shed kept 120 goats in three separate pens of kids, production and dry-off does.

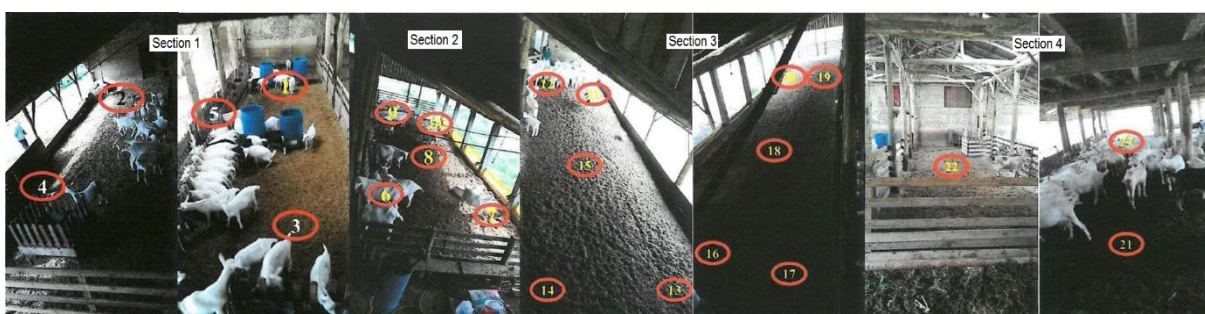
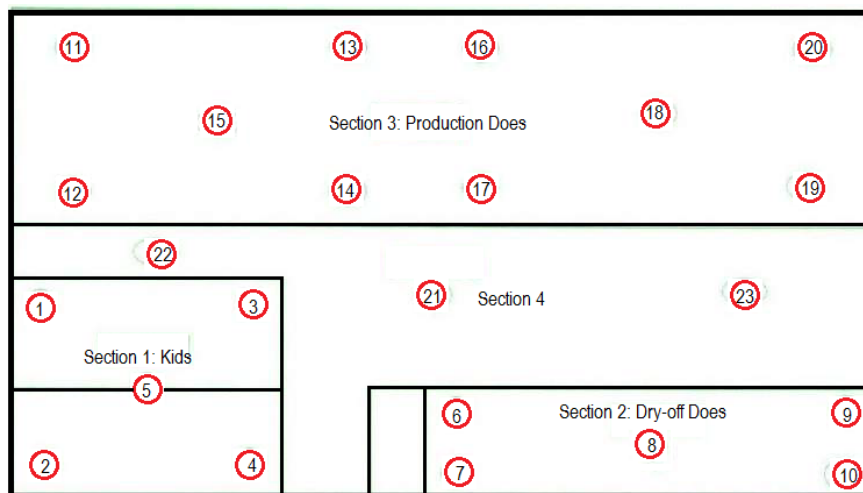


Figure 1: Measurement point distribution

For the measurement of ammonia concentration, 23 measurement points were evenly distributed about the shed (see Figure 1). An SP2nd NH₃ AKSO gas detector was used to measure ammonia concentration. There were two methods of taking the measurements. One method was to take measurement reading 45 cm above the floor (the nose level of a goat) at a measurement point in open air. The other “still-air” method was the same but the measurement points were enclosed by a 7-inch diameter PVC tube to restrict airflow (see Figure 2).



Figure 2: Still-air measurement

On 4 October 2014, both open- and still-air measurements were taken at all 23 measurement points. After that BioAktiv solution (1 kg of BioAktiv for Liquid Manure in 200 litres of water) was evenly sprayed onto the shed floor using a watering can. The next treatment for the shed floor was done on 15 November 2014. Then the goats were fed 1.5 g of BioAktiv Professional Animal Feed Sheep/Goat per animal per week for 45 days (until 17 November 2014).



Figure 3: Shed floor treatment

Still-air Ammonia Measurements (ppm)

Date	Measuring Point																							Shed
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
4-Oct-14	8	4	10	13	1	1	0	5	8	4	10	7	8	13	19	8	30	17	35	7	1	5	1	9.35
10-Oct-14	19	1	23	3	0	2	0	5	19	2	8	18	24	27	20	11	25	27	12	22	25	6	24	14.04
17-Oct-14	25	2	13	10	5	8	3	20	9	6	17	8	24	20	10	15	24	18	16	10	40	9	11	14.04
25-Oct-14	16	11	33	10	4	10	0	4	7	16	5	25	16	16	15	25	25	26	25	23	18	6	6	14.87
1-Nov-14	1	0	5	0	0	0	0	0	8	0	10	6	11	8	1	19	30	20	30	35	20	0	5	9.09
15-Nov-14	9	8	17	7	4	0	0	0	0	0	6	13	7	8	9	5	8	9	13	8	7	3	1	6.17
22-Nov-14	0	7	19	10	3	0	0	6	2	0	3	0	8	8	5	8	8	20	19	28	14	0	10	7.74

Open-air Ammonia Measurements (ppm)

Date	Measuring Point																							Shed
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
4-Oct-14	5	3	6	5	1	1	1	2	1	3	3	5	6	6	5	4	6	8	6	5	1	1	1	3.70
10-Oct-14	2	0	22	0	0	2	0	3	4	1	3	8	17	23	15	4	11	6	10	5	6	6	8	6.78
17-Oct-14	20	0	10	5	4	10	3	6	6	6	8	6	8	18	10	13	18	15	10	10	17	5	11	9.52
25-Oct-14	15	0	10	5	1	10	0	3	6	4	8	5	8	12	8	16	20	17	11	11	10	6	6	8.35
1-Nov-14	0	0	2	0	0	0	0	0	0	0	8	5	0	5	0	6	28	8	25	9	0	0	5	4.39
15-Nov-14	4	8	13	4	4	0	0	0	0	0	6	6	4	6	4	3	2	6	9	5	7	2	0	4.04
22-Nov-14	0	3	9	5	0	0	0	3	0	0	1	0	5	2	2	6	3	4	10	11	9	0	5	3.39

Table 1: Ammonia concentration values

Measurements were taken weekly and the results are shown in Table 1. The value of ammonia concentration for the shed is the average of all 23 measured values. The open- and still-air ammonia concentration values for the shed are shown in Figure 4.

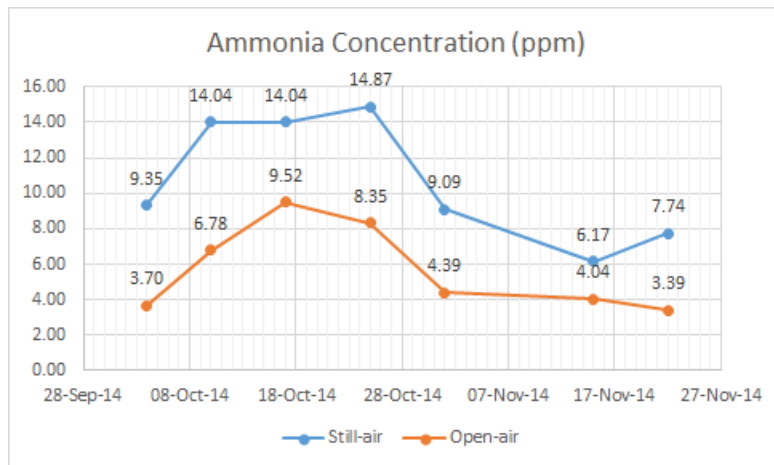


Figure 4: Ammonia concentration values of the shed

Figure 4 shows that during the first 28 days of the study, the ammonia concentration in the shed (blue line) rose to a peak of about 15 ppm and then it dropped by about 50% to the level before the study.¹

- [Original report](#)

¹ Using the still-air values has an advantage. It eliminates the effects due to the varying airflow rates at different measurement locations and on different measurement days.