The effect of BioAktiv Liquid Manure & Anima Feed, Sheep/Goats on ammonia concentration in animal housing

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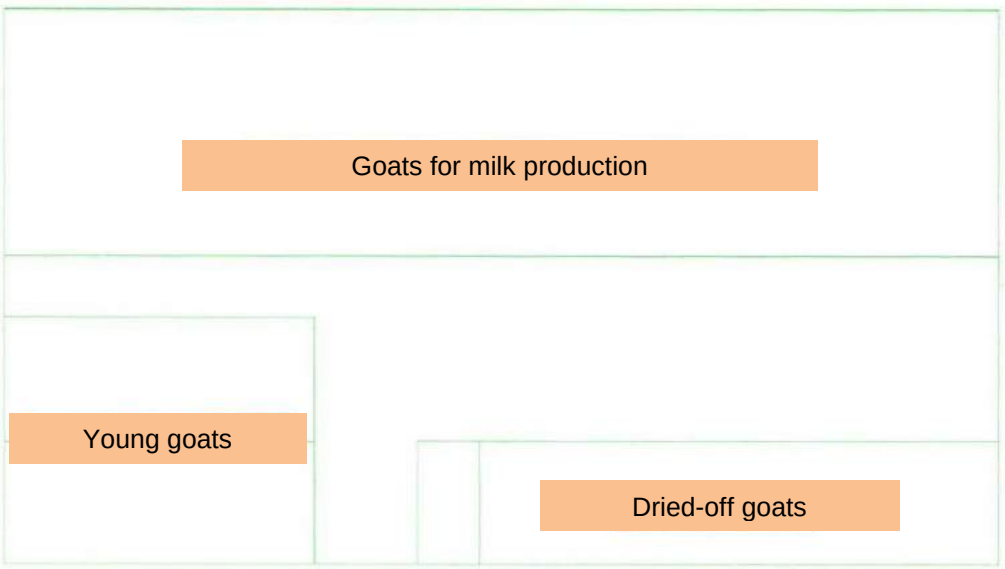
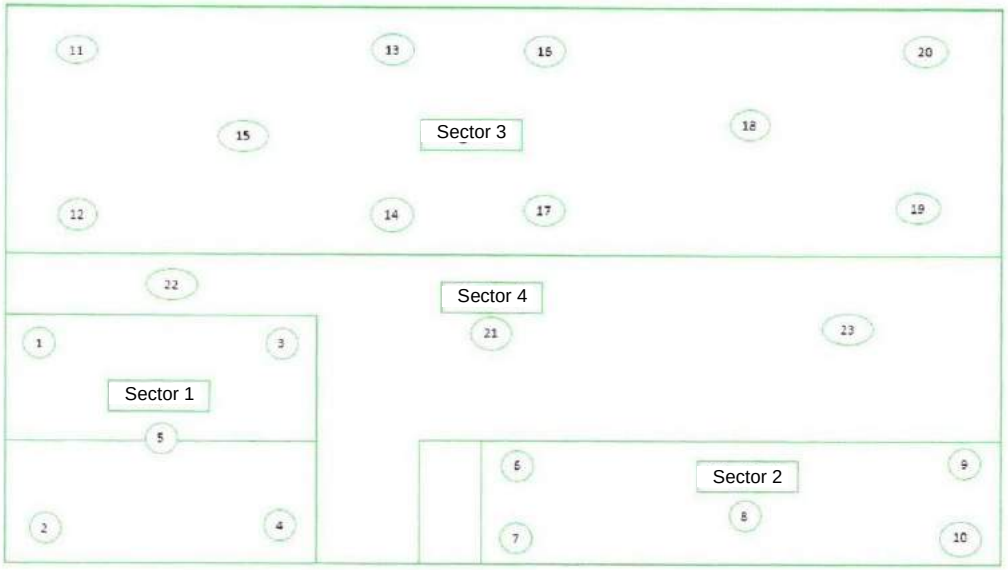
Use of BioAktiv in milk goat sheds

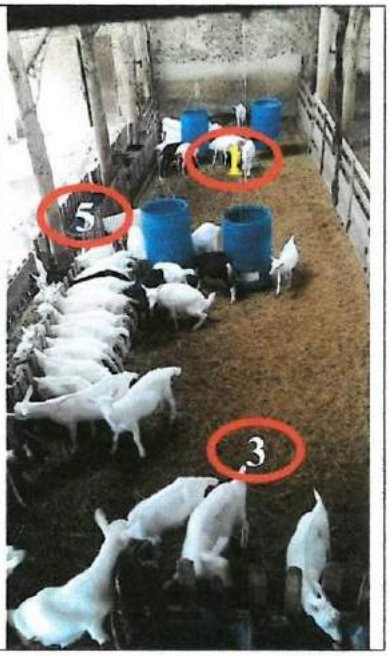
Ammonia was measured in milk goat sheds at Barão in the state of Rio Grande do Sul/Brazil. The farm keeps 120 goats in groups: young animals, milk and dried-off goats. The sheds cover an area of approx. 400 m² and accommodate these groups:

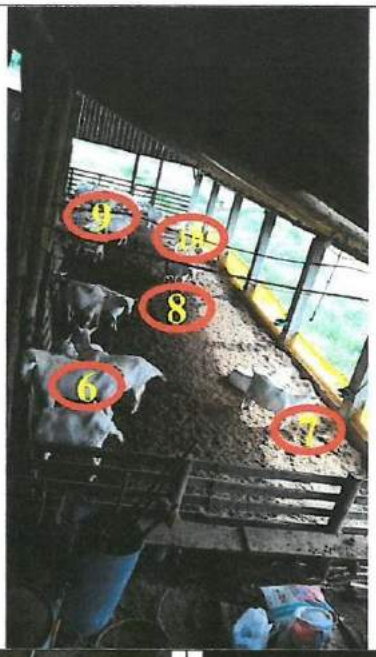
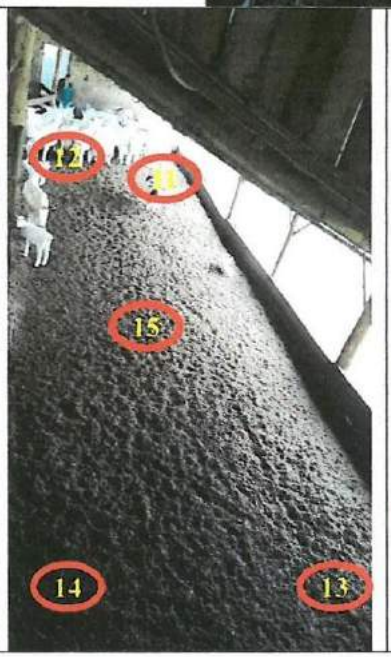
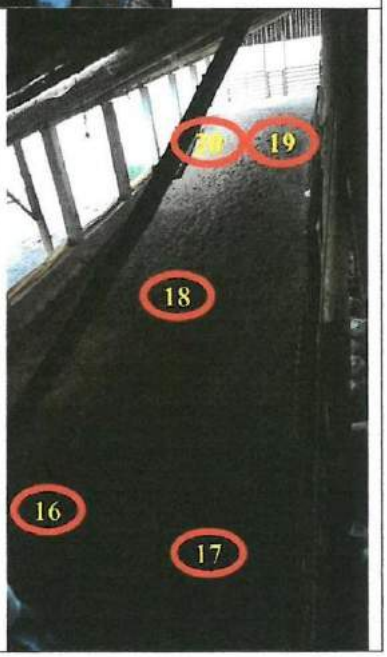


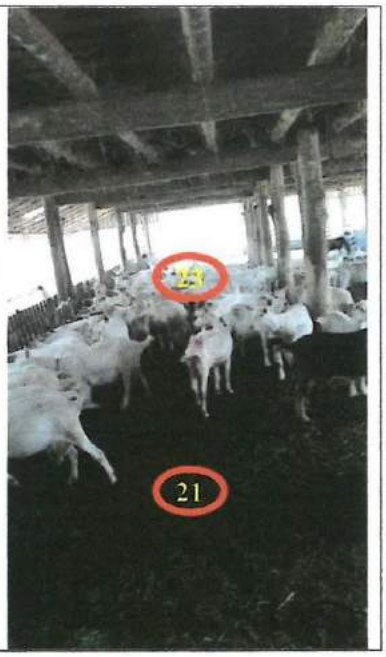
Ammonia concentration inside sheds was measured in four sectors of milk production. In relation to sector size, measuring points were defined so that the readings obtained for a chosen point would indicate the average general ammonia concentration for the sector being studied. Each measuring point was assigned a sequence number within a series of measurements to ensure that not a single measurement was left out in a milk production sector.

Measuring point distribution:



Sector 1		

Sector 2	
Sector 3	 

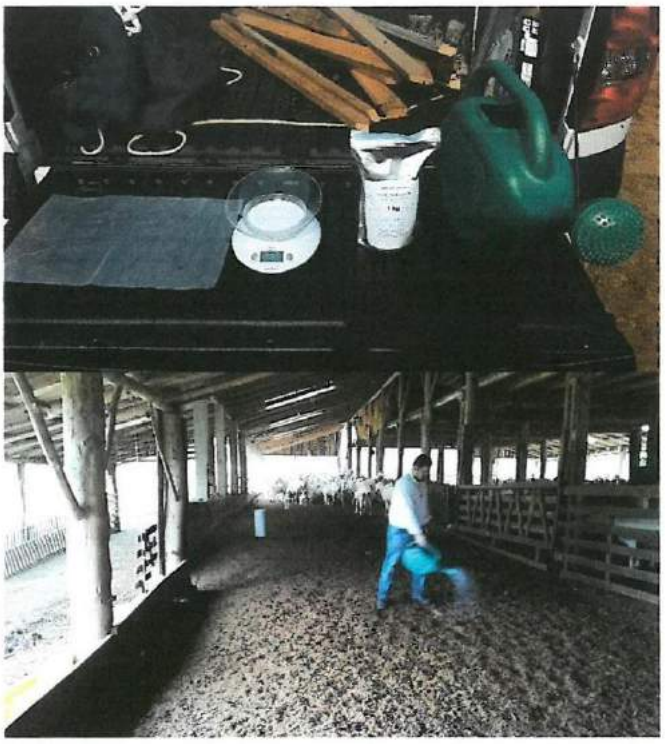
Sector 4		

To determine ammonia concentration in the air of a shed, an SP2nd NH_3 AKSO instrument was used at each of the defined measuring points. For the first measurement the instrument was placed about 45 cm above the floor, the preferred level of a goat's nose. Readings were recorded in ppm as shown on the instrument. The second procedure consisted of the same steps, but the effect of circulating air on the gas concentration was greatly reduced. The measuring instrument was placed inside a 7 inch PVC tube as shown:

Initially, ammonia was first measured to determine the actual conditions under which milk goats were kept in terms of gas concentration from accumulated urine and feces inside a shed. The ammonia values obtained in various sectors (2 – 35 ppm) may cause respiratory tract diseases in general and cough in particular. The table below shows gas concentrations measured on the first day:

		04.10.2014	
Sector	**Measuring point**	**with tube (ppm ammonia)**	**without tube (ppm ammonia)**
1	**1**	**8**	**5**
	2	**4**	**3**
	3	**10**	**6**
	4	**13**	**5**
	5	**1**	**1**
	average	**7.2**	**4.00**
2	**6**	**1**	**1**
	7	**0**	**1**
	8	**5**	**2**
	9	**8**	**I**
	10	**4**	**3**
	average	**3.6**	**1.6**
3	**II**	**10**	**3**
	12	**7**	**5**
	13	**8**	**6**
	14	**13**	**6**
	15	**19**	**5**
	16	**8**	**4**
	17	**30**	**6**
	18	**17**	**8**
	19	**35**	**6**
	20	**7**	**5**
	average	**15.4**	**5.4**
4	**21**	**1**	**1**
	22	**5**	**1**
	23	**1**	**1**
	average	**2.3**	**1**
general average		**7.13**	**3.00**

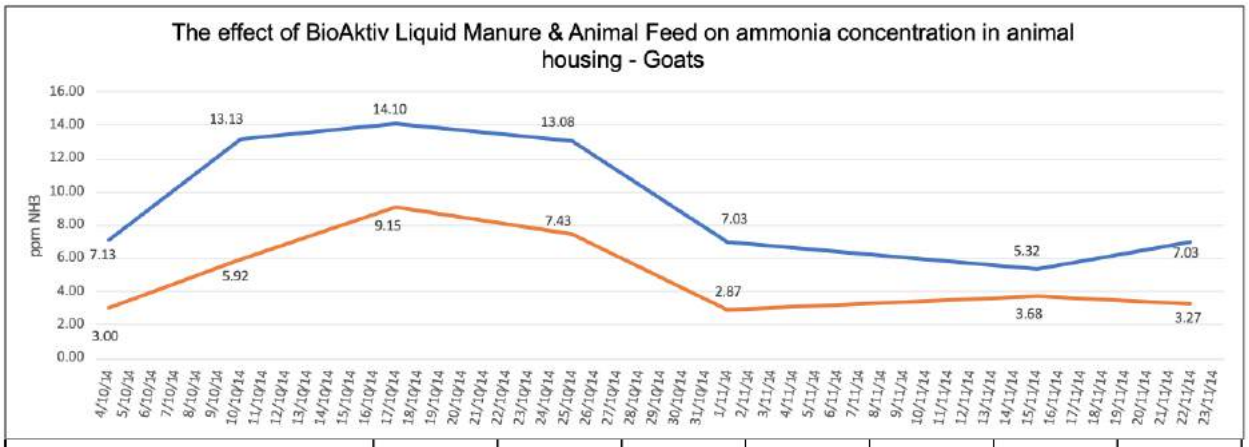
After these measurements BioAktiv was added to the litter by dissolving 1 kg of BioAktiv in 200 litre of water and evenly sprinkling it on the floor of the housing with a watering can. In addition, 1.5 g of BioAktiv Sheep/Goat, Animal Feed (calcium carbonate) per animal and week was added to the goats' concentrate. A second treatment with BioAktiv took place on Nov. 15, 2014.



BioAktiv Liquid Manure and BioAktiv Sheep/Goats, Animal Feed were applied for a total of 45 days. Measurements were taken every 7th day, with results shown below:

		04-Oct-14		10-Oct-14		17-Oct-14		25-Oct-14		01-Nov-14		15-Nov-14		22-Nov-14	
Region	Measuring pt.	with tube ppm Ammonia	without tube ppm Ammonia	with tube ppm Ammonia	without tube ppm Ammonia	with tube ppm Ammonia	without tube ppm Ammonia	with tube ppm Ammonia	without tube ppm Ammonia	with tube ppm Ammonia	without tube ppm Ammonia	with tube ppm Ammonia	without tube ppm Ammonia	with tube ppm Ammonia	without tube ppm Ammonia
1	1	8	5	19	2	25	20	16	15	1	0	9	4	0	0
	2	4	3	1	0	2	0	11	0	0	0	8	8	7	3
	3	10	6	23	22	13	10	33	10	5	2	17	13	19	9
	4	13	5	3	0	10	5	10	5	0	0	7	4	10	5
	5	1	1	0	0	5	4	4	1	0	0	4	4	3	0
	average	7.2	4.0	9.2	4.8	11.0	7.8	14.8	6.2	1.2	0.4	9.0	6.6	7.8	3.4
2	6	1	1	2	2	8	10	10	10	0	0	0	0	0	0
	7	0	1	0	0	3	3	0	0	0	0	0	0	0	0
	8	5	2	5	3	20	6	4	3	0	0	0	0	6	3
	9	8	1	19	4	9	6	7	6	8	0	0	0	2	0
	10	4	3	2	1	6	6	16	4	0	0	0	0	0	0
	average	3.6	1.6	5.6	2.0	9.2	6.2	7.4	4.6	1.6	0.0	0.0	0.0	1.6	0.6
3	11	10	3	8	3	17	8	5	8	10	8	6	6	3	1
	12	7	5	18	8	8	6	25	5	6	5	13	6	0	0
	13	8	6	24	17	24	8	16	8	11	0	7	4	8	5
	14	13	6	27	23	20	18	16	12	8	5	8	6	8	2
	15	19	5	20	15	10	10	15	8	1	0	9	4	5	2
	16	8	4	11	4	15	13	25	16	19	6	5	3	8	6
	17	30	6	25	11	24	18	25	20	30	28	8	2	8	3
	18	17	8	27	6	18	15	26	17	20	8	9	6	20	4
	19	35	6	12	10	16	10	25	11	30	25	13	9	19	10
	20	7	5	22	5	10	10	23	11	35	9	8	5	28	11
	average	15.4	5.4	19.4	10.2	16.2	11.6	20.1	11.6	17.0	9.4	8.6	5.1	10.7	4.4
4	21	1	1	25	6	40	17	18	10	20	0	7	7	14	9
	22	5	1	6	6	9	5	6	6	0	0	3	2	0	0
	23	1	1	24	8	11	11	6	6	5	5	1	0	10	5
	average	2.3	1.0	18.3	6.7	20.0	11.0	10.0	7.3	8.3	1.7	3.7	3.0	8.0	4.7
	average	**7.13**	**3.00**	**13.13**	**5.92**	**14.10**	**9.15**	**13.08**	**7.43**	**7.03**	**2.87**	**5.32**	**3.68**	**7.03**	**3.27**

Measuring results are shown in the following diagram:



Date measurement readings taken	4/10/2014	10/10/2014	17/10/2014	25/10/2014	1/11/2014	15/11/2014	22/11/2014
Control	7.13	13.13	14.10	13.08	7.03	5.32	7.03
BioAktiv Liquid Manure & Animal Feed	3.00	5.92	9.15	7.43	2.9	3.68	3.27

During the first 28 days after application, the gas concentration inside a shed rose to peak values of approx. 15 ppm NH_3 ***and then dropped to around 50% of the levels which had been normal before BioAktiv was applied.***