

A NOTE ON THE PERFORMANCE OF CATTLE FED TREATED PADDY STRAW WITH ANIMAL URINE AS A SOURCE OF AMMONIA¹

M Haque², C H Davis³, M Saadullah² and F Dolberg^{3,4}

Bangladesh Agricultural University, Mymensingh, Bangladesh

Three groups each of 4 local Bangladesh male calves were fed diets based on either i) untreated rice straw ii) straw treated with ammonia generated from urea or iii) urine. Supplements of rice bran (400 g/d) oilcake (200 g/d) and 1 kg fresh roadside grass were given over the 105 days experiment.

No adverse effects on health from feeding urine treated straw were recorded. Liveweight gains from straw treated with ammonia, using either urea or urine as a source (162 and 171 g/d) were significantly higher ($P < 0.01$) than untreated straw (95 g/d).

Key Words: Cattle, ricestraw, urea, urine

Earlier, a digestibility trial with sheep (Saadullah et al 1980) had suggested animal urine could replace fertiliser grade urea as a source of ammonia for treatment of straw. However, it was concluded health aspects had to be considered, before the method could be recommended to farmers. The present experiment was conducted to observe effects of urine treated straw on animal health and also to compare performance of cattle fed a basal diet of untreated rice straw with straw treated with either animal urine or urea as a source of ammonia.

Experiment:

Animals: 12 local male calves were allocated to three treatment groups each containing four animals by stratified randomisation.

Treatments: One group received untreated straw and two groups received straw treated with ammonia as their basal diets. The sources of ammonia were either 1 liter of animal urine/kg of straw or 5% urea. The methods of treatment have been reported earlier (Saadullah et al 1980 and Saadullah et al 1981). In addition to straw, the animals received each per day 400 grammes of rice bran, 200 grammes of oilcake and 1 kg fresh roadside grass.

Health of the calves was observed by clinical observation, pulse rate and rectal temperatures on a daily basis throughout the 105 days experiment. Chemical composition of feed are present in Table 1.

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² Department of animal Science, Bangladesh Agricultural University, Mymensingh, Bangladesh.

³ Noakhali IRDP with DANIDA, P. O. Box No. 29, Maijdee Court, Noakhali District, Bangladesh.

⁴ Present address: Novembervej 17, 8210 Aarhus V Denmark.

Table 1:

Dry matter, crude protein and ash content of the feed stuff

Feed stuff	Dry matter (%)	Crude protein g per 100 g	Ash dry matter
Untreated rice straw	87	3.2	19.3
Urine treated rice straw	85	5.8	22.0
5% urea treated rice straw	86	7.2	20.00
Rice bran	85	8.1	19.2
Oilcake	87	32.3	8.5
Roadside grass	18	7.1	9.0

Results and Discussion

Data on initial, final liveweight and the daily gain are straw dry matter consumption are given in Table 2.

In relation to the basic objective of the experiment, is noted that the use of animal urine as a source of ammonia to treat straw did not cause adverse effects on animal health. Animal health was assessed using three criterion. Pulse rate and rectal temperatures for all the three treatment

Table 2:

Initial, final weight daily gain and feed consumption of the experimental calves

	Dry matter straw	Urine treated straw	5% urea treated straw
Initial weight (kg)	71 ± 8	70 ± 7	73 ± 11
Final weight (kg)	81 ± 8	87 ± 9	91 ± 14
Daily gain* (kg)	0.110 ± 0.33	0.166 ± .036	0.181 ± .031
Straw dry matter consumption (kg/100 kg LW)	2.6 ± .01	3.3 ± .06	3.4 ± .08

* Values having different subscripts are significantly different ($P < 0.01$)

groups were all within the normal range. Standard deviation of the initial and final liveweight was similar within the three treatment groups. Finally, the daily gain of animals receiving urea treated straw and urine treated straw were not significantly ($P < 0.05$) different. There were no cases of obvious clinical sickness in any of the twelve calves throughout the 105 days experiment.

The present experiment is the first long term experiment, we are aware of with animal urine as a source of ammonia. However, with raw cattle urine as the sole protein source, Singh et al (1980) observed a clear protein ef-

fect and Singh et al (1981) observed a clear and identical effect of feeding 50% of the digestible crude protein requirements in the form of either urea or cattle urine.

Conclusión

The present experiment gives considerable support to the original hypothesis, i.e. animal urine can replace urea as a source of ammonia for straw treatment. This is important in the Asian context as animal urine is normally wasted and fertiliser grade urea is relatively expensive.

References

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