

THE DIGESTIBILITY OF ENSILED BROILER-HOUSE LITTER/BARLEY RATIONS
FOR SHEEP

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Broiler-house litter disposal has become a major problem for the poultry industry. Noland, Ford and Ray (1955) have suggested that broiler-house litter would replace conventional protein supplements in the rations of both gestating-lactating ewes and fattening steers. The U.S. Food and Drug Administration have issued three policy statements (most recent, 1971) refusing to "sanction the use of poultry litter as a feed or as a component of feed for animals" since "disease organisms may be transferred from poultry to other animals through the use of poultry litter as animal feed". Pomeroy (personal communication 1972) has studied litter ensiled in a "Harvestore" on a commercial feedlot property in Minnesota. He detected *Salmonella* in the litter going into storage but none in the "poultry silage" (ensiled about 30 days). Drake, McClure and Fontenot (1965) fed steers poultry litter at levels of 25% and 40% of rations. Average daily weight gains were 82.7% and 89.0% of the controls and feed conversions were 126.2% and 126.5% respectively.

In the present experiment, ten yearling wethers (mean weight 50 kg) were fed five diets in a Latin-square design experiment all incorporating broiler-house litter and barley in a 1:1 ratio. One diet included poultry litter in a dry unprocessed form and the others included poultry litter ensiled for 3 or 6 weeks or poultry litter and barley ensiled for 3 or 6 weeks (approximately 70% dry matter) - Table 1.

TABLE 1

Chemical composition of diets (% D.M.)

<u>Diet</u>	<u>D.M. (%)</u>	<u>Ash</u>	<u>N</u>	<u>A.D.F.</u>
1. Poultry litter + barley	85.6	12.4	3.41	25.0
2. (Poultry litter ensiled 3 weeks) + barley	77.1	12.9	3.46	24.9
3. (Poultry litter + barley) ensiled 3 weeks	71.4	14.3	3.56	25.3
4. (Poultry litter ensiled 6 weeks) + barley	77.0	11.2	3.68	23.4
5. (Poultry litter + barley) ensiled 6 weeks	70.7	10.8	3.79	23.4

Dry matter intake and nitrogen balance were significantly improved by the ensiling process ($P < 0.05$) - Table 2. These results would indicate that ensiling (poultry litter + barley) increases palatability and nitrogen availability.

TABLE 2

Dry matter intake, dry matter digestibility, nitrogen digestibility and balance

Mean D.M. intake (g/day)	932 ^b	888 ^b	1177 ^a	930 ^b	1104 ^{ab}
Mean D.M. digestibility (%)	65.8 ^a	66.4 ^a	64.5 ^a	66.8 ^a	66.3 ^a
Mean nitrogen digestibility (%)	69.8 ^a	72.5 ^a	72.9 ^a	72.5 ^a	73.7 ^a
Mean nitrogen balance (g/day)	5.9 ^d	6.7 ^c	11.4 ^a	6.9 ^c	10.5 ^b

REFERENCES

- NOLAND, P.R., FORD, B.F., and RAY, M.L. (1955). *J. Anim. Sci.* **14**: 860.
 DRAKE, C.L., McCLURE, W.H., and FONTENOT, J.P. (1965). *Va. agric. Exp. Sta. Livestock Res. Prog. Rep.*, p.3-6.

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