

WATER INTAKE AND WASTAGE BY GROWER/FINISHER PIGS AT NIPPLE DRINKERS

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Summary

The water intake of pigs is not well known since a large amount of water is wasted from drinkers. A study was conducted to determine water intake and wastage by grower/finisher pigs at nipple drinkers. Actual water intakes of growing and finishing pigs are 4.0 and 5.9 l/d, respectively. The pigs wasted 25% of the water flowing from the nipple drinkers. High nipple flow rates increase water spillage of pigs.

Introduction

Among nutrients, water is required in the greatest amount but has received the least attention. Water intake of grower/finisher pigs has been reported to range from 1.9 to 6.8 l/d, depending on body weight and feed intake. However, most 'water intake' reported in the literature is water disappearance from drinkers, including water wastage, rather than water actually consumed by the animal. A study was conducted to determine actual water intake and wastage of grower/finisher pigs at nipple drinkers. The effect of nipple flow rate on water spillage was also included in the study.

Experimental procedures

Six pens of eight pigs were tested at two stages, mean body weight of 53 ± 5 kg for growers and 72 ± 6 kg for finishers. The pigs were fed pelleted feed ad libitum at room temperatures of 20~25°C. The nipple drinker in each pen was 5 cm higher than the shoulder height of the smallest pig. Daily feed intake, water intake, and water wastage in each pen were measured at a nipple flow rate of approximately 700 ml/min. Drinking speed and water spillage were assessed for 4 pigs in each pen after four hours without water, at nipple-flow rates of 651, 1003, 1226 and 2080 ml/min.

Results and discussion

Water intakes (disappearance – wastage) of the growers and finishers were 4.0 and 5.4 l/day, respectively (Table 1). When expressed in terms of feed intake, water intakes at the two stages were identical. Water wastage was 1.3 and 1.9 l/day for the growers and finishers, respectively, accounting for 25% of the total water disappearance for both growers and finishers. This is lower than what (40~60%) has been estimated on commercial farms. Proper height and flow rate of the nipple drinkers in the

current study could contribute to the improvement in water wastage. Drinking speed of pigs was increased to 1422 ml of actual water intake/min at the nipple flow rate of 2080 ml/min (Fig. 1). Although the pigs increased drinking speed, water spillage was higher at the high flow rate than at the low flow rate (23.2% at 2080 ml/min vs. 8.6% at 650 ml/min, Fig.2).

Implications

Growing and finishing pigs waste 25% of water from well-managed nipple drinkers. It seems that water wastage could be reduced by properly adjusting nipple height and flow rate.

Acknowledgements

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Table 1. Water intake and wastage of growing and finishing pigs*

Period	Grower	Finisher	SE	P <
Body weight, kg	52.6	71.9	0.84	--
Feed intake, kg/d	1.69	2.54	0.09	--
Water disappearance, l/d	5.29	7.31	0.23	0.01
Water intake, l/d	4.00	5.38	0.17	0.01
Water intake/feed intake, l/kg	2.43	2.13	0.12	NS
Water wastage, l/d	1.29	1.93	0.11	0.01
Water wastage/disappearance, %	24.2	26.3	1.08	NS

*Least square means (n=6). NS=no significant difference (P > 0.05).

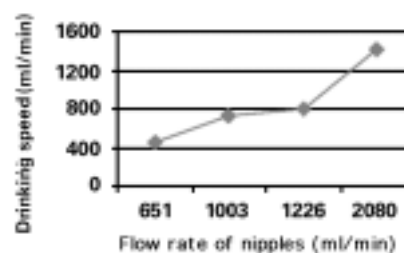


Fig.1. Drinking speed of grower/finisher pigs at different nipple flow rates.

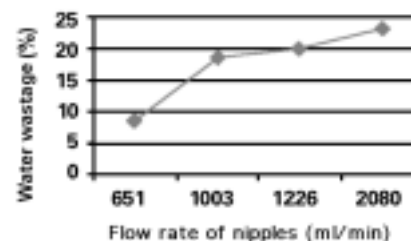


Fig. 2. Water wastage of grower/finisher pigs at different nipple flow rates.

Pigs waste 25% of water from nipple drinkers.