

## FEED LOSS IN CUP DRINKERS IN GEESE PRODUCTION

Mehmet Akif BOZ<sup>1</sup>, Musa SARICA<sup>2</sup>, Umut Sami YAMAK<sup>2</sup>

<sup>1</sup>Ondokuz Mayıs University, Agricultural Faculty, Department of Animal Science,  
55139, Samsun, Turkey

<sup>2</sup>Bozok University, Faculty of Natural and Agricultural Sciences,  
Department of Animal Science, 66900, Yozgat, Turkey

Corresponding author email: m.akif.boz@bozok.edu.tr

### Abstract

*The feed losses in drinkers and behavior of geese in two different systems (intensive and free-range) were investigated in this study. Day old age 216 Turkish geese were randomly allocated among 16 pens interspersed within windowed houses, each holding 12-14 goslings. All goslings were reared indoors until the end of 6 weeks of age. After 6 weeks of age, birds in the 'free-range' outdoor system were given 13-hour access. The amount of feed merged into drinkers determined weekly. The effect of production system on feed loss was significant between weeks of 7-18, and the amount of feed loss in free-range system was found higher than indoor ( $P<0.05$ ). Highest feed lost was determined at 16 weeks of age. Daily mean feed loss in drinkers per goose was calculated between 9.55 and 15.93 g. It has been determined that significant amount of feed loss related to drinkers in geese production.*

**Key words:** geese, feed loss, drinker, production system, behavior.

### INTRODUCTION

Geese are mainly reared in intensive, free-range and cage systems (Romanov, 1999). Round feed tubs and automatic hanging waterers are the most common used equipment in these systems. Geese pollute water rapidly by playing around rather than drinking (Tilki and Saatci, 2013). Also, geese need water for swallowing feed with small particles and in powder form. Otherwise, choking could occur (Tilki and Saatci, 2013). Next to feed consuming, geese rapidly drink water and some feed particles could merge into water. Drinking water of geese is generally polluted related to these factors and polluted water causes health problems. Water quality is an important parameter on optimum fattening performance (Oviedo, 2006). On the other hand, feed merged into water affects the profitability of producers. There is not enough information about the feed losses-related to drinking or "water". The feed losses in drinkers and behavior of geese in two different systems (intensive and free-range) were investigated in this study.

### MATERIALS AND METHODS

The study was conducted at the Ondokuz Mayıs University Agricultural Faculty's Experimental Farm between May-September 2014. Day old age 216 Turkish geese were used as animal material in the study. All goslings were then transferred to a production house and randomly allocated among 16 pens interspersed within windowed houses, each holding 12-14 goslings, for a total of 4 replicates for production system (intensive/indoor or 'free-range'/outdoor-access). Pens (3.5 x 3.5 m) were separated by wire mesh. Each pen contained 1 round feeder and 1 round cup drinker. An 8-cm layer of wood shavings was used as litter. Heating was provided by infra-red heaters. Initial temperature was stabilized at  $28\pm 1^{\circ}\text{C}$ ; reduced by  $3\pm 1^{\circ}\text{C}$ /per week over the next 3 weeks; and after 21 days, no artificial heating was applied. Natural lighting was applied to naturally hatched goslings during day times and economic white bulbs were used for lighting. All goslings were reared indoors until the end of 6 weeks of age. After 6 weeks of age, birds in the 'free-range' outdoor

system were given 13-hour access (6:30 a.m.-7:30 p.m.) to outdoor pens (14x3.5 m) through a single doorway (50x90 cm). Geese fed with egg-type chicken and chicken growth feed. Feed and water was given *ad libitum* throughout the production period. The amount of feed merged into drinkers determined weekly. The water-feed mixtures of each replicate were filled into bottles, dried and feed were weighed. ANOVA was used to determine the effects of production system. All data analysis was performed using the SPSS software program (Version 20.0, licensed by Ondokuz Mayıs University).



Figure 1. The view of water-feed mixture in drinker

## RESULTS AND DISCUSSIONS

The amount of feed loss in drinkers was given in Table 1 and weekly losses were showed in Figure 2. The effect of production system on feed loss was significant between weeks of 7-18, and the amount of feed loss in free-range system was found higher than indoor ( $P<0.05$ ). Highest feed lost was determined at 16 weeks of age. Daily mean feed loss in drinkers per goose was calculated between 9.55 and 15.93 g.

Feed consumption behavior of geese was observed during production period. Goose lifts its head after taking the feed from feeder and then swallows. Before or after swallowing, goes towards drinker and lefts a part of feed into drinker. Besides, feed particles around beak fall to drinker.

Feed loss was found higher in free-range system. It is thought that this could be related to foraging and feed searching behavior of geese in free-range system. Correlation between feed and water consumption was reported by Lott et al., (2003). Water consumption was affected by species, activity level of bird, water quality, water temperature, environmental temperature and feed consumption (Lardy et al., 2008; Cemek et al., 2011).

## CONCLUSIONS

As a conclusion, it has been determined that significant amount of feed loss related to drinkers in geese production. When considering the long fattening period of geese, the amount of economic loss will be higher, and profitability will decrease. On the other hand; the quality of drinking water decreases by pollution. This causes health and welfare problems. New studies have to be conducted investigating the effects of different drinker types on feed losses.

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Table 1. Feed loss amount in drinkers (g/goose/day)

Production Systems	Feed Loss	
	4-6 weeks	7-18 weeks
Free-range	14.36	14.88 a
Intensive		10.87 b
Standard error of means	1.33	0.75

a,b: Differences in superscript letters within columns represent significant differences between groups ( $P<0.05$ ).

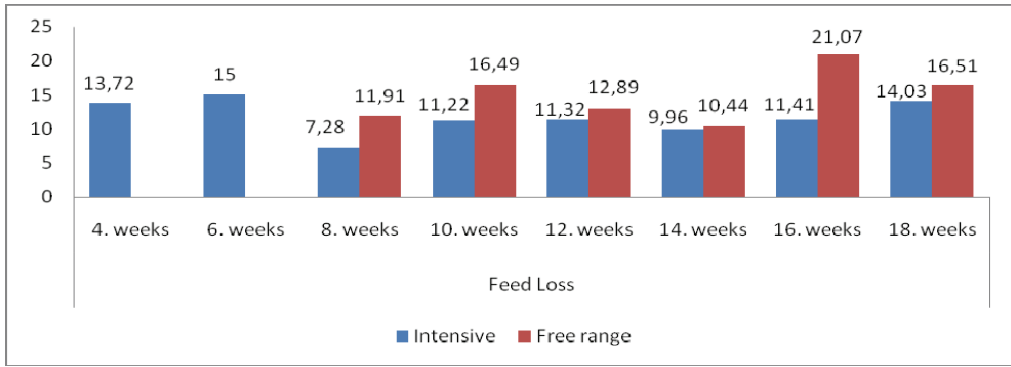


Figure 2. Feed loss amount in drinkers at different ages in free-range and intensive systems (g/goose/day).

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