Consequences of intermittent feeding on retention and flow in different segments of the digestive tract of broiler chickens

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Ad libitum fed broiler chickens eat very frequent and many will not use the crop for temporary storage. In a series of experiments, broiler chickens have been accustomed to intermittent feeding system by removal of feed from 7 days of age. From 11 or 14 days of age, the intermittent feeding system has consisted of either 4 one-hour meals and 1 two-hour meal spread throughout a 18 hours light period, or 5 one-hour meals spread over 24 hours, with one meal with lights during a 9 hour night period. This feeding system has been shown to result in similar body weight, and in some experiments this feeding system has also resulted in improvements in feed efficiency.

Thus, timed feeding and killing at 32-34 days of age was carried out to assess digestive effects of intermittent feeding. The crop contained on average 30 to 40 g DM of feed after a 40 to 60 minutes feeding bout, mixed with water such that moisture content was usually higher than 40 %. This material gradually flowed into the digestive system, resulting in a remarkably stable DM content along the small intestine as long as 7 hours after feeding. Stimulation of gizzard development by the use of oat hulls resulted in a more even flow.