



University of Zabol

Management of graduate education

School of Agriculture

Department of Animal Science

**Dissertation for obtaining a master's degree in the field of
Animal Nutrition**

**Comparison of flaked corn with whole corn
on physical characteristics and chemical
composition and intestinal rumen digestion
in Holstein dairy cow**

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Abstract

Reducing the cost of production in the animal husbandry sector is one of the main priorities of this industry. For this purpose, the optimal use of food sources is the concern of most livestock breeders. The use of inexpensive agricultural by-products and the processing of these materials is one of the solutions proposed for this purpose, and the processing of edible materials may increase livestock performance. The current research was conducted with the aim of observing the effect of physical change (flaking with steam) on the nutritional value and palatability of corn kernels. The treatments of this research are the first treatment of healthy and whole corn kernels without processing and for the second treatment, the corns are first treated for one hour. steamed in a steam boiler at a temperature of 95degrees Celsius, then they were passed through a Flak device with a 2mm roll distance, and after this processing, physical characteristics, chemical composition and ruminal and intestinal digestibility were measured for both treatments in Holstein dairy cows. with rumen fistula and intestinal cannula will be performed. Also, Menk and Stingas method was used to evaluate the parameters of gas production and it was determined using the NLIN procedure from the SAS program (2004). Then the data of gas production and degradability were analyzed with the GLM procedure of SAS program (2004) and the mean of the data was calculated with Tukey's test at %5level. The results of this research showed that the digestibility of flaked corn compared to unprocessed corn, except rumen digestibility of dry matter ($P \leq 0.01$), on rumen digestibility, intestinal digestibility, and total protein, starch, and NDF. also had no significant effect ($P \geq 0.05$). Therefore, it can be said that corn kernels flaked with steam does not have much effect on the process of chemical decomposition of corn kernels and digestibility, and it requires further investigation in other methods to process this kernel.

Key words: corn flake, physical properties, intestinal rumen digestion, Holstein dairy cow