

POTENTIALS TO ENHANCE THE NUTRITIVE AND HEALTH VALUE OF NATIVE GRAINS FOR RUMINANTS BY PROCESSING

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Abstract. Cereal grains such as maize, barley, wheat, sorghum, and triticale have become important components in the diets of high-producing ruminants. The physical characteristics of grains such as surrounding by a firm kernel coat, small particle size, and high specific density preclude efficient degradation and utilization of grains in ruminants, especially in cattle, which do not efficiently masticate them. Thus, if cattle eat unprocessed grains, these grains escape rumen degradation and leave gastrointestinal tract in undigested form. In order to improve the degradation of grains and optimize the feeding value of cereals in ruminants, grains typically are processed aiming to improve the access of microbial enzymes in the rumen. As different feed processing techniques can affect digestibility, the rate and site of digestion as well as the voluntary feed intake of forages, proper grain processing is a prerequisite to ensure high production efficiency of grain use and health in ruminants. This article deals with various grain processing methods in ruminant nutrition, focusing mainly on those that use chemical agents. The article highlights advantages and disadvantages regarding the use of those processing techniques in improving nutritive and health value of grains in ruminants.

Keywords: cereal grains, grain processing, chemical processing, organic acids, starch, phosphorus