

## EFFECTS OF THERMAL PROCESSING ON THE NUTRITIONAL VALUE OF FEED INGREDIENTS

Ferdinando N. Almeida, Oscar J. Rojas, and Hans H. Stein

Department of Animal Sciences, University of Illinois Urbana Champaign, Illinois, USA

### 1.- INTRODUCTION

Feed ingredients have been processed for many years with the objective of improving their nutritional value for livestock (NRC, 2012). Many of these processes involve the utilization of heat at different degrees (i.e., temperature, time), which aim at deactivating anti-nutritional factors (e.g., protease inhibitors) and in some cases improve the utilization of starch through gelatinization. Thermal treatments, however, may also cause destruction of other nutrients, which include, but are not limited to, amino acids (NRC, 2012). Among thermal treatments are extrusion, expansion, pelleting, and drying of feed ingredients. Because of the different processes that feed ingredients are exposed to and also because of their different nutritional composition, it is important to understand how thermal processing affects the nutritional value of different feed ingredients. Thus, the aim of this publication is to review the beneficial effects of thermal processing and to provide information about the negative effects of thermal processing on the nutritional value of feed ingredients.

