

491 Amino acid digestibility in heated soybean meal fed to growing pigs. J. C. González*^{1,2}, B. G. Kim², A. Lemme³, and H. H. Stein², ¹*National University of Colombia, Bogota, Condinamarca, Colombia*, ²*University of Illinois, Urbana*, ³*Evonik Degussa GmbH, Rodenbacher Chaussee, Hanau, Germany*.

Excessive heat treatment during processing may lead to destruction of AA and the formation of biologically unavailable AA-carbohydrate complexes (i.e., Maillard formation). The objective of the present experiment was to determine the effects of heat treatment of soybean meal (SBM) on standardized ileal digestibility (SID) of AA by growing pigs. Ten growing barrows (average initial BW: 25.3 ± 2.04 kg) were individually fitted with a T-cannula in the distal ileum and used in the experiment. Pigs were allotted to a replicated 5 × 5 balanced Latin square design with 5 diets and 5 periods. Four sources of SBM were prepared by 1) no heat treatment, 2) autoclaving at 125°C for 15 min, 3) autoclaving at 125°C for 30 min, or 4) oven drying at 125°C for 30 min. Four diets contained each of the 4 SBM sources as the sole source of AA. A N-free diet was used to estimate basal endogenous losses of AA. The SID of CP and all AA in SBM linearly decreased as the time of autoclaving increased from 0 to 30 min ($P < 0.01$; Table 1). Oven drying at 125°C for 30 min only tended to reduce the SID of CP and AA in this study. It is concluded that heat treatment in the form of autoclaving at 125°C impairs the digestibility of AA in SBM.

Table 1. Standardized ileal digestibility of CP and AA in soybean meal that has either not been heated, autoclaved (AC) or oven-dried (OD)¹

Item	Soybean meal				SEM	P-value
	Not heated	AC at 125°C for 15 min	AC at 125°C for 30 min	OD at 125°C for 30 min		
CP, %	93.1 ^a	88.8 ^a	84.0 ^b	91.4 ^a	1.48	< 0.01
Lys, %	93.0 ^a	89.3 ^b	84.2 ^c	91.3 ^{ab}	1.21	< 0.01
Met, %	93.2 ^a	91.1 ^a	88.3 ^b	92.4 ^a	0.91	< 0.01
Thr, %	89.2 ^a	87.1 ^{ab}	83.5 ^b	86.1 ^{ab}	1.45	< 0.01
Trp, %	90.9 ^a	88.0 ^{ab}	83.8 ^b	88.4 ^a	1.37	< 0.01

¹Each least squares means represents 10 observations.

Key Words: amino acid, digestibility, soybean meal