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**SYMPOSIUM: PROCEDURES AND  
METHODOLOGY FOR DETERMINING  
STANDARD ILEAL DIGESTIBILITY  
(SID) AMINO ACID DIGESTIBILITY AND  
ENERGY OF FEEDSTUFFS**

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**0749 Procedures and methodology for determining  
standard ileal digestibility (SID) amino acid  
digestibility of feedstuffs.** H. H. Stein\*, *University  
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Since results of the first digestibility experiments with animals and humans were published more than 250 yr ago, it has been known that not all nutrients that are ingested by an animal are absorbed. The early work with AA digestibility was based on determining apparent total tract digestibility of AA in individual feed ingredients using rats or chickens as models. It was soon recognized that to avoid the contribution of microbial protein to AA output, AA digestibility is more correctly determined as ileal digestibility. The first procedure to collect digesta from the distal ileum, the reentrant ileal cannula, was described in 1962 and in 1974 the first description of the intestinal T-cannula was published. With this technique, it became possible to collect fluids from the distal ileum and by subtracting the ileal output of AA from the intake of AA it is possible to calculate the ileal digestibility of individual AA. In addition to dietary AA that enter the intestinal tract, there is also a contribution of endogenous AA that are secreted in the form of mucins, enzymes, bile acids, etc., and because of the contribution of endogenous AA to the ileal output, digestibility values that are calculated by subtracting the ileal output of AA from the intake are called apparent ileal digestibility (AID) values. The practical consequence of the endogenous contribution of AA is that values for AID that are measured in individual feed ingredients often are not additive in mixed diets. The endogenous AA may be divided into AA that are non-specific to the diets, also called basal endogenous AA, and AA that are secreted in response to the diet that is being fed. Basal endogenous AA are not needed for calculation of digestibility values that characterize specific feed ingredients and may be determined after feeding a protein-free diet. By disregarding the basal endogenous losses in the calculation, values for standardized ileal digestibility (SID) are calculated. This concept was first proposed in 1995 and later publications documented that values for SID of AA are additive in mixed diets when fed to pigs. Because practical diet formulation relies on the assumption that values for AA digestibility in individual ingredients are additive in mixed diets, diets are most correctly formulated based on values for SID of AA.

**Key Words:** amino acids, ileal digestibility, pigs