determined in our laboratory. Results indicated that in 8 raw cereal grains, DIAAS values range from 29 in sorghum to 77 in dehulled oats with maize, wheat, rye, rice, and barley being intermediate. Not surprisingly, Lys is the first limiting AA in all cereal grains. In contrast, DIAAS values in casein, milk protein concentrate, skim milk powder, whey protein concentrate, and whey protein isolate are between 124 and 139. The sulfur-containing AA are the first limiting AA in casein, milk protein concentrate, and skim milk powder, whereas His is the first limiting AA in whey proteins. Results also indicate that soy flour and soy protein isolates have DIAAS values close to 100, whereas pea protein concentrate has a DIASS value of 73. The sulfur-containing AA are the first limiting AA in both soy and pea protein. It is concluded that the pig can serve as a suitable model to generate DIAAS values for human foods, but there is a need to generate values in many more foods and also to determine effects of food processing on DIAAS values.

Key Words: amino acid digestibility, humans, pigs

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045 Evaluating protein quality of human foods using the pig as a model. H. Stein*, *University of Illinois at Urbana–Champaign, Urbana, IL*.

The need to provide nutritious food has increased as population in the developing world is increasing. It is estimated that at least 20 million children under the age of 5 yr in Africa alone suffer from marasmus or kwashiorkor, which results in edemas and muscle wasting. The only way to overcome this problem is to improve the provision of foods that are rich in digestible AA. Two reports from the Food and Agriculture Organization of the United Nations (FAO) that include guidelines for evaluating food proteins were published in 2013 and 2014, respectively. The reports recommend that the protein quality of human foods be evaluated using a system called digestible indispensable amino acid scores (DIAAS). The 2 reports also recommend that because it is difficult and uneconomical to generate DIAAS values in humans, the best alternative is to determine these values using pigs as models for humans. Values for DIAAS are calculated from values for standardized ileal digestibility of AA and the 2014 report from FAO specified details on how to determine DIAAS values using the pig as the model. Following the publication of the 2 reports, DIAAS values in 21 foods used in human nutrition have been