

## DAIRY LEGISLATION

April, 2017

URBANA, Ill. — Researchers at the University of Illinois are using pigs as a model to study the best way of evaluating protein quality in foods eaten by children, a method that was proposed by the Food and Agriculture Organization of the United Nations in 2011.

“Plant proteins are the primary sources of amino acids in many parts of the world, whereas animal proteins are the primary sources in other parts of the world. However, the composition and digestibility of these types of proteins differ,” says Dr. Hans H. Stein, professor of animal sciences at U of I and principal investigator of this research.

Researchers in Stein’s lab conducted a study to calculate protein scores for eight sources of protein, derived from both plants and animals.

Protein scores compare the amount of digestible amino acids in a food with a “reference protein,” a theoretical protein which contains fully digestible amino acids in the proportions required for human nutrition at a particular stage of life.

The score which has been used for more than 20 years is the protein digestibility-corrected amino acid score, or PDCAAS. PDCAAS is calculated using the total tract digestibility of crude protein. However, this method has certain shortcomings.

“The total tract digestibility fails to take into account nitrogen excretion in the hindgut,” Stein said. “The PDCAAS also assumes that all amino acids in a foodstuff have the same digestibility as crude protein, but in reality, amino acid digestibilities differ.”

These flaws led to the development of a new measure, called the digestible indispensable amino acid score. The DIAAS is calculated using ileal digestibility values, because all absorption of amino acids takes place in the small intestine. It also uses values calculated individually for each amino acid.

Stein and his team determined standardized ileal digestibility of crude protein and amino acids in eight sources of animal and plant protein: whey protein isolate, whey protein concentrate, milk protein concentrate, skimmed milk powder, pea protein concentrate, soy protein isolate, soy flour, and whole-grain wheat. They derived DIAAS scores from those ileal digestibility values. They also calculated PDCAAS-like scores by applying the total tract digestibility of crude protein in the ingredients to all amino acids.

All dairy proteins tested in the study met Food and Agriculture Organization standards as “excellent/high”-quality sources of protein for people six months of age or older, with DIAAS values of 100 or greater. Soy protein isolate and soy flour qualified as “good” sources of protein, with a score between 75 and 100. With scores below 75, pea protein concentrate and wheat did not qualify to make recommendations regarding protein quality.

“Compared with DIAAS, PDCAAS calculations tended to underestimate the protein value of high quality protein sources, and overestimate the value of lower quality sources,” said Stein. “Thus, to better meet protein requirements of humans, especially for people consuming diets that are low or marginal in digestible amino acids, DIAAS values should be used to estimate protein quality of foods.”

Stein acknowledged certain limitations in the study. “The protein sources used in this experiment were fed raw, and foods processed as they typically are for human consumption might well have different protein values.” However, he said, it represents a step forward in determining protein quality.

Funding for the research was provided by National Dairy Council, the non-profit organization founded by America’s dairy farmers and funded by the national dairy checkoff program. The organization had no input into the experimental design or analysis.

“The results of this pilot study indicate that dairy proteins may be an even higher quality source of protein compared to vegetable-based protein sources than previously thought,” said Dr. Greg Miller, chief science officer at NDC. “While using DIAAS is a newer concept and more research will be needed, one thing rings true — milk proteins are high quality and milk as a beverage has protein plus eight other essential nutrients, which is especially important when it comes to kids, because they need quality nutrition to help support their growth and development.”

The paper, “Values for digestible indispensable amino acid scores for some dairy and plant proteins may better describe protein quality than values calculated using the concept for protein digestibility-corrected amino acid scores” was published in the February 2017 issue of the *British Journal of Nutrition*. The co-authors were John Mathai and Yanhong Liu of the University of Illinois.

— University of Illinois  
via [EurekaAlert!](#)

For more articles concerning dairy, [click here](#).

- See more at: [https://www.morningagclips.com/dairy-an-excellent-source-of-protein/?utm\\_content=articles&utm\\_campaign=NLCampaign&utm\\_source=Newsletter&utm\\_term=newsletteredition&utm\\_medium=email#sthash.J8hplpMR.dpuf](https://www.morningagclips.com/dairy-an-excellent-source-of-protein/?utm_content=articles&utm_campaign=NLCampaign&utm_source=Newsletter&utm_term=newsletteredition&utm_medium=email#sthash.J8hplpMR.dpuf)

AGRICULTURE Committee: FAVORABLE

S. 570 –

Senator Massey: A BILL TO AMEND SECTION 46-33-90 OF THE 1976 CODE, RELATING TO REGISTRATION REQUIREMENTS FOR THE SHIPMENT AND SALE OF TREES, PLANTS, AND SHRUBS, TO PROVIDE A NURSERY REGISTRATION FEE SCHEDULE AND A NURSERY DEALER REGISTRATION FEE SCHEDULE AND TO DEFINE NECESSARY TERMS; TO AMEND SECTION 46-9-90(A), RELATING TO PENALTIES FOR VIOLATING THE CHAPTER ON THE STATE CROP PEST COMMISSION, TO PROVIDE THAT A PERSON VIOLATING THE CHAPTER OR CHAPTERS ASSIGNED TO THE COMMISSION IS GUILTY OF A MISDEMEANOR; TO AMEND SECTION 46-10-100(A), RELATING TO BOLL WEEVIL ERADICATION, TO PROVIDE THAT A PERSON WHO

VIOLATES SECTION 46-10-60 OR WHO ALTERS, FORGES, COUNTERFEITS, OR USES WITHOUT AUTHORITY A CERTIFICATE, PERMIT, OR OTHER DOCUMENT PROVIDED FOR IN THE CHAPTER IS GUILTY OF A MISDEMEANOR; TO AMEND SECTION 46-13-180(1), RELATING TO PENALTIES FOR VIOLATING THE PESTICIDE CONTROL ACT, TO PROVIDE THAT ANY PERSON WHO WILLFULLY VIOLATES THE PROVISIONS OF THE CHAPTER ON THE PESTICIDE CONTROL 3 ACT IS GUILTY OF A MISDEMEANOR; TO AMEND SECTION 46-15-100, RELATING TO AGRICULTURAL MARKETING GENERALLY, TO PROVIDE THAT ANY PERSON WHO VIOLATES PROVISIONS WITHIN THE BOUNDS OF ANY MARKET ESTABLISHED UNDER CHAPTER 15, TITLE 46 OR ARTICLE 1, CHAPTER 19, TITLE 46 IS GUILTY OF A MISDEMEANOR; TO AMEND SECTION 46-23-80, RELATING TO NOXIOUS WEEDS, TO PROVIDE THAT ANY PERSON WHO VIOLATES CHAPTER 23, TITLE 46 IS GUILTY OF A MISDEMEANOR; AND TO AMEND SECTION 46-49-70, RELATING TO THE SUPERVISION AND REGULATION OF MILK AND MILK PRODUCTS, TO PROVIDE THAT ANY PERSON VIOLATING CHAPTER 49, TITLE 46 IS GUILTY OF A MISDEMEANOR.

Referred to Committee on Ways and Means

[H. 3929](#) ([Word](#) version) -- Reps. Hiott, Pitts, Kirby, Toole, Forrest, Yow, Sandifer, Atkinson, Hayes, Hixon and V. S. Moss: A BILL TO AMEND THE CODE OF LAWS OF SOUTH CAROLINA, 1976, BY ADDING SECTION 44-1-65 SO AS TO ESTABLISH SPECIFIC REQUIREMENTS FOR THE REVIEW AND APPEAL OF DECISIONS BY THE SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL (DHEC) REGARDING THE PERMITTING OF CERTAIN AGRICULTURAL ANIMAL FACILITIES; TO AMEND SECTION 44-1-60, AS AMENDED, RELATING TO APPEALS FROM DHEC DECISIONS GIVING RISE TO CONTESTED CASES, SO AS TO REVISE AND CLARIFY PROCEDURES FOR REVIEWING PERMITS FOR CERTAIN AGRICULTURAL ANIMAL FACILITIES; TO AMEND SECTION 46-45-60, RELATING TO APPLICABILITY OR LOCAL ORDINANCES TO AGRICULTURAL OPERATIONS, SO AS TO CHANGE CERTAIN EXCEPTIONS; AND TO AMEND SECTION 46-45-80, RELATING TO SETBACK DISTANCES FOR CERTAIN AGRICULTURAL ANIMAL FACILITIES, SO AS TO PROHIBIT DHEC FROM REQUIRING ADDITIONAL SETBACK DISTANCES IF ESTABLISHED DISTANCES ARE ACHIEVED, TO PROHIBIT THE WAIVER OR REDUCTION OF SETBACK DISTANCES IF THEY ARE ACHIEVED, WITH EXCEPTIONS, WITHOUT WRITTEN CONSENT OF ADJOINING PROPERTY OWNERS, AND TO ALLOW DHEC TO REQUIRE CERTAIN BUFFERS.

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## **H. 3234**

March 8, 2017

## **H. 3234**

Introduced by Reps. McEachern and Sandifer

S. Printed 3/8/17--H.

Read the first time January 10, 2017.

## A BILL

TO AMEND SECTION [27-40-120](#), CODE OF LAWS OF SOUTH CAROLINA, 1976, RELATING TO EXEMPTIONS TO THE PROVISIONS OF THE RESIDENTIAL LANDLORD AND TENANT ACT, SO AS TO DELETE OCCUPANCY UNDER A RENTAL AGREEMENT COVERING THE PREMISES USED BY THE OCCUPANT PRIMARILY FOR AGRICULTURAL PURPOSES AS AN EXEMPTION UNDER THE ACT.

Amend Title To Conform

Be it enacted by the General Assembly of the State of South Carolina:

SECTION 1. Section [27-40-120](#) of the 1976 Code is amended to read:

"Section [27-40-120](#). The following arrangements are not governed by this chapter:

- (1) residence at an institution, public or private, if incidental to detention or the provision of medical, geriatric, educational, counseling, religious, or similar service;
- (2) occupancy under a contract of sale of a dwelling unit or the property of which it is a part, if the occupant is the purchaser or a person who succeeds to his interest;
- (3) occupancy by a member or a fraternal or social organization in the portion of a structure operated for the benefit of the organization;
- (4) transient occupancy in a hotel, motel, or other accommodations subject to the sales tax on accommodations as provided by Section [12-36-920](#);
- (5) occupancy by an employee including independent contractors of a landlord whose right to occupancy is conditional upon employment in and about the premises;
- (6) occupancy by an owner of a condominium unit or a holder of a proprietary lease in a cooperative;
- (7) occupancy under a rental agreement covering the premises used by the occupant primarily for agricultural purposes;
- (8)(7) occupancy under a rental agreement in a premises regulated by the provisions of Chapter 32<sub>2</sub> of Title 27<sub>2</sub> of the 1976 Code (Vacation Time Sharing Plan Act).;
- (9)(8) residence, whether temporary or not, at a charitable or emergency protective shelter, public or private."

SECTION 2. This act takes effect upon approval by the Governor.