

workload guidelines need to be implemented to minimize inequities between units; 2) faculty performance should be evaluated on the basis of assigned responsibilities, with teaching, research, and extension valued equally; 3) teaching quality/output indicators need to be specified, such as student teaching/counseling evaluations, awards, teaching publications, unique teaching methods, teaching portfolios/peer evaluation, professional workshops, teaching committees/task forces, and workloads; 4) faculty/unit bias in the T & P process must be mitigated by administration and appropriate peer committees at the unit and college level; 5) college/university teaching reward systems must recognize outstanding undergraduate/graduate teaching and advising (where possible, development efforts should be geared toward this endeavor); 6) college teaching portfolios/peer evaluations should be included in the T & P and teaching award processes; 7) faculty development seminars/workshops need to be regularly offered to enhance teaching/advising and faculty cohesiveness; 8) faculty research and publishing on teaching should be encouraged; 9) faculty participation on teaching committees/task forces needs to be stressed, while minimizing the number of such groups; 10) some open position salary funds should be allocated to updating teaching labs/equipment and mini-grants; 11) faculty teaching internships (ACOP and university) should be encouraged to develop administrators and broaden faculty perspectives; 12) faculty should be encouraged to regularly take sabbaticals to update disciplinary knowledge and teaching skills; 13) academic deans/unit chairs need to respond to changing trends/paradigm shifts impacting teaching.

**Key Words:** Rewarding Teaching, Teaching Excellence, Faculty Performance

**348 Promotion and tenure on the basis of excellence in teaching: A faculty perspective.** M. Wattiaux\*<sup>1</sup> and J. Moore<sup>2</sup>, <sup>1</sup>University of Wisconsin, Madison, <sup>2</sup>North Carolina State University, Raleigh.

With a renewed emphasis on their educational role as institutions of learning and teaching, many universities are revising guidelines for tenure and promotion of assistant professors with major teaching appointments. During the hiring process, a candidate should obtain in writing an up-to-date list of expectations and modes of assessment. Unfortunately, guidelines for tenure and promotion based on "excellence" in teaching are often described vaguely. They rarely distinguish "excellence" from "expertise" or "scholarly activity" in teaching. This lack of clarity combined with a lack of pedagogical training during graduate school may make it difficult for a newly hired individual with a major teaching appointment to find a focus. Thus, each institution should develop clear and specific guidelines that are congruent with its mission statement to help future teaching faculty members understand the standards against which they will be evaluated. Teaching faculty should excel in their teaching and (or) should have a record of accomplishment in Scholarship of Teaching and Learning (SoTL). If "research in teaching" is an expectation, then the newly-hired faculty members should be given support to integrate SoTL successfully into their academic careers such as time to develop teaching proposals and grants and funding for a teaching or research assistant dedicated to the SoTL. Demonstrated impact can be done at the national, regional, campus, college, departmental or classroom level. Examples include but are not limited to authorship of peer-reviewed publications, abstracts or invited presentations, teaching-related grants, developing and (or) leading sessions in teaching-related workshops, seminars or conferences, new course development, peer-review (and student evaluation) of classroom activities and syllabi, and peer-review of electronic educational packages (web or CD). The proper assessment of a teaching program is a rigorous process in part because of its multi-faceted nature. The SoTL offers genuine opportunities for enthusiastic instructors willing to pursue systematic improvement in student learning and the quality of teaching in their institution.

**Key Words:** Teaching, Scholarship, Tenure

## Breeding and Genetics: International Evaluation of Dairy Bulls—In Honor of Dr. Rex Powell

**349 Dr. Powell's contribution to international comparison of dairy bulls.** F. Miglior\*<sup>1,2</sup>, <sup>1</sup>Agriculture and Agri-Food Canada - Dairy and Swine Research and Development Centre, Lennoxville, QC, <sup>2</sup>Canadian Dairy Network, Guelph, ON, Canada.

Dr. Powell wrote his first article on conversion equations between Canada and US in a popular press magazine in 1979, several years before Interbull was created and preliminary methodology of international comparison were developed. In that article he concluded that the international scientific community needed to provide guidance to users of sire evaluations across national borders, though derived equations were not as near perfect as would be desired. Four years later Interbull was created and Dr. Powell has been a member of the Interbull Steering Committee in 18 of the last 21 years. Dr. Powell is an international leader in collaborative efforts to coordinate genetic evaluations of dairy cattle and to enhance genetic improvement on a global basis. Apart from his strong contribution to the improvement of national genetic evaluations in US, Dr. Powell has worked extensively to develop genetic evaluations in several countries. Dr. Powell conducted the most extensive comparison of methods for converting genetic evaluations of dairy bulls among countries. His most relevant findings were: a) importance of correct definition of genetic groups; b) impact of different criteria for data editing and inclusion in international evaluations; and c) presence of bias when imported data were included in evaluations. Once Interbull MACE evaluations became available in 1995, Dr. Powell carried out many projects that have helped to increase the accuracy of international bull evaluations. Recently his focus has been on outlining the impact of genetic correlations among countries on accuracy of sire rankings. His findings have increased international awareness of the importance of improved estimation procedures

of genetic correlations and in 2004 an Interbull Technical Workshop was devoted to this topic.

**Key Words:** International Evaluations, Conversion Equations, Interbull

**350 Country bias in international dairy bull evaluations.** R. L. Powell\*, A. H. Sanders, and H. D. Norman, *Animal Improvement Programs Laboratory, Agricultural Research Service, USDA, Beltsville, MD.*

The International Bull Evaluation service combines national dairy bull evaluations and provides results on each participating country scale. Theoretically, this process is designed to avoid favoring one country relative to another, but this concern has been raised frequently by international marketers of bull semen. Existence of a bias is difficult to assess; one approach is to compare evaluation results for full brothers from different countries. On average, these full brothers have the same genetics and should have similar evaluations. Over 12,000 Holstein bulls in 4336 full-brother families linked yield evaluations from 20 countries having bulls in at least 25 multi-country families. Slightly fewer bulls and families were in 16 countries with SCS data. The model analyzed with SAS<sup>®</sup> GLM included fixed effects of full-brother family (absorbed) and home country, where home country was the country of most daughters. To improve estimates of within-family variation, 6761 single-country families were also included. Primary analyses were on the US scale but results were similar on other scales. Full brothers from several countries had significantly higher evalu-

ations than their US sibs for milk (Australia, Czech Republic, Germany, France, Great Britain, Japan, and South Africa), fat (Australia, New Zealand, and South Africa), and protein (Australia, Czech Republic, Germany, Japan, and South Africa). In contrast, bulls from the United States had significantly favorable evaluations for milk relative to Italy and SCS relative to South Africa. Largest biases involved bulls from South Africa where only 8 to 9 families were in common with the United States (thus giving indirect data greater importance), but other significant differences were based on hundreds of direct ties. The reason for these inequities is unknown but elimination of biases is important to maintaining confidence in international evaluations.

**Key Words:** Genetic Evaluation, Interbull, Evaluation Bias

**351 Multiple-trait multiple-country genetic evaluations of dairy bulls for udder health traits.** T. Mark\*<sup>1</sup> and P. G. Sullivan<sup>2,3</sup>, <sup>1</sup>*Interbull Centre, SLU, Uppsala, Sweden*, <sup>2</sup>*Canadian Dairy Network, Guelph, Ontario, Canada*, <sup>3</sup>*Beef Improvement Ontario, Guelph, Ontario, Canada*.

Udder health is an economically important trait group and several measures of clinical and sub-clinical mastitis describe this trait complex. Interbull routinely computes two separate single-trait-by-multiple-country genetic evaluations (ST-Mace) for clinical mastitis (CM) and milk somatic cell (SC), for bulls from more than 20 countries. Separate evaluations are sub-optimal and it is desirable

to extend ST-Mace to allow more than one trait per country. The aim of this study was to quantify the expected gains for Multiple-Trait-by-Multiple-country genetic evaluations (MT-Mace) compared with the current ST-Mace for udder health. For this purpose national SC (and CM) results from 8 (and 3) Holstein populations were considered. In MT-Mace, weighting factors were adjusted to account for residual correlations, while within country genetic correlations were considered in a multivariate deregression procedure. Predicted international genetic merits, of all bulls evaluated, were highly correlated between MT-Mace and ST-Mace, for SC in all 8 countries (>.99), and for CM in all 3 countries (>.98) when SC from the remaining 5 countries was included in the ST-Mace analysis for CM. Among several groups of bulls studied, the international predictions were most strongly affected for bulls that had national evaluations for both CM and SC in the same country. The genetic correlations from the ST-Mace model were also used for MT-Mace, so these results may change once correlations are re-estimated for the MT-Mace model, based on observations generated by the multivariate deregression procedure. Essentially the same results that required two 8-trait ST-Mace analyses, for these 11 traits of interest, were generated with a single 11-trait MT-Mace analysis. Additional traits for some or all countries could also be added into the MT-Mace system, for example udder depth, fore udder attachment, dairy form or milking speed. However, reduced-rank algorithms or other computational techniques may be needed to implement MT-Mace for a very large number of country-by-trait combinations, especially for the estimation of required covariances.

**Key Words:** International Evaluation, Clinical Mastitis, Milk Somatic Cell

## ADSA Southern Section: Innovative Approaches to Address the Changing Needs of Our Dairy Industry

**352 Innovative staffing models to enhance dairy educational programs.** V. Ishler\*, L. Holden, and R. Stup, *Pennsylvania State University, University Park*.

Universities are challenged with having fewer resources available to conduct educational programming. Dairy extension programs provide educational opportunities, but the complex planning processes, numerous departmental and geographic divisions and multiple academic responsibilities of traditional specialists make effective coordination of programs difficult. Penn State's department of dairy and animal science recognized that progressive dairy producers were being faced with challenges that were outside the discipline oriented programs of tenure-track dairy faculty. Critical gaps in educational programs for dairy producers and the agricultural industry were not being addressed in a timely manner. In-depth focus groups were conducted with agribusiness and producers to determine their educational needs. These groups identified four areas of critical need: information management, human resource management, business management and nutrient management. A new initiative, "Dairy Alliance", was launched to provide a system to integrate all available resources and to respond to the identified needs of the dairy industry. It was designed so highly skilled individuals could be hired in a timely manner with a specific expertise in a particular area. Positions were non-tenure track for a fixed-term basis giving greater flexibility to make program changes compared to traditional tenure-track positions. Dairy Alliance is organized as a self-managing team with specialists in the key program areas and a program manager who organizes activities and resources. A tenure-track faculty member and the department head of Dairy and Animal Science guide Dairy Alliance. The results of this new initiative have surpassed expectations. New relationships have been forged with key members of the dairy industry. An additional specialist has been hired to coordinate a dairy certification program and to address producer needs in milking management. Dairy Alliance is positioned to be a leading dairy extension/outreach program in the United States.

**Key Words:** Dairy, Education, Outreach

**353 A dairy consultant's perspective on the changing needs of our dairy industry.** N. Ohanesian\*, *Consulting Nutritionist, Clovis, CA*.

Dairymen in the western states have become dependent on nutrition consultants to assure that their herds are properly fed and supplemented to achieve maximum production and health. In addition to the nutrition and feeding aspects of their herds, dairymen have become dependent on the nutritional consultant for advice on management aspects such as herd record analysis, breeding, disease, environmental issues, labor utilization, equipment evaluation, etc. Therefore, a professional nutritional consultant must become proficient in all management aspects of the industry. Proficiency means staying current in feeding strategies, current events, new products, new equipment, university and industry research and record keeping programs. The most precious commodity the consulting nutritionist has is time, he or she must balance their schedule with continuing education. Professional meetings must be evaluated for the information being offered along with the locations and time so that the consultant can schedule efficiently. Professional organizations such as American Dairy Science Association (ADSA) and American Registry of Professional Animal Scientists (ARPAS) are the foundation for continuing education. ADSA meetings offer the broadest spectrum of current research and techniques utilized by the consulting nutritionist. Membership in ARPAS and a regional chapter bring professional animal scientists together. Continuing education seminars such as those offered by the California chapter of ARPAS, are shorter in duration and target a specific technical topic. The consulting nutritionist has the opportunity to interact with industry and university professionals on a friendly and informal basis. This interaction is valuable in that professionals are able to exchange ideas and experiences that are helpful in increasing the knowledge base for those participating. Recent trends in the dairy industry have been larger dairy farms with integration of farming and milk. The consulting nutritionist of the future will have a larger roll in the management team of the dairy farm if he or she has a solid academic background and the ability to bring together theory with practicality.

**Key Words:** Consultant, Professional, Dairy