

Technical Division on Reference Materials, AOAC INTERNATIONAL

Wayne R. Wolf,
U.S. Department of Agriculture
Beltsville, Maryland
August 2008

TDRM - The early years.

1993-1995: The initial Executive Committee of TDRM was: Wayne R. Wolf, USDA, Founding Chair; James Tanner, US FDA, Vice Chair,; Jonathan DeVries, General Mills, Secretary; Songsu Lee, Kellogg, Treasurer; Norm Fraley, Active Matrix Corp, Darryl Sullivan, Hazelton Labs, and Phil Oles, Lancaster labs, Members-at-large. The first annual meeting of the TDRM was at the AOAC Annual Meeting held in Washington DC July 1993. In August of 1994 the first issue of The Reference Standard, the TDRM newsletter was published. At that time there were 260 dues paying members. In addition to organizing, initiation of activities and a membership drive, the main activity was the successful conducting of BERM-6 in Kona Hawaii, May 1993, with over 100 attendees from 26 countries, and 25 new members signed up for TDRM. Activities reported at the 2nd annual TDRM meeting in Portland, Oregon Sep 2004 (attended by 50 of now 300 + membership) included initiation of a task force to establish a reference material for trans fatty acid in foods; and a task force chaired by Karen Andrews, Nutrient Data Laboratory, USDA for development of a matrix for the assignment of foods by chemical composition, based upon the food triangle concept (Andrews, Wolf, 1993). Activity was also initiated to identify procedures required to develop a database of RMs recognized by TDRM as suitable for use with specific AOAC OMA. Contact has been made to explore interaction with the COMAR Database for Certified Reference Materials, being developed in the European Community. Milan Ihnat volunteered to head up a Task Force on Multilaboratory Data Criteria for RMs. Sandra Bailey, Lancaster Lab replaced Phil Oles on the Executive Committee.

The executive Committee met for a full day session at AOAC Headquarters in January 1995. At this meeting the TDRM agreed to establish a Laboratory Test Samples Task Force to investigate the feasibility of an AOAC Proficiency Test Sample Program according to international harmonized standards. This was a joint activity with the AOAC Laboratory Quality Assurance Committee. This program would be especially useful in the food nutrition analysis area where validated methods exist, but appropriate certified RM's are scarce. This Task Force, chaired by Jim Ault, Ricera, Inc. ultimately made recommendations to the TDRM Executive Committee that were forwarded to the AOAC Board of Directors. The TDRM also took up the issue of feasibility of expanding its initial interests in RM for nutrient measurements to also include RMs for microbiological methods. A Symposium on RM's for Food and Environmental Samples was presented at the September 1995 AOAC Annual Meeting in Nashville, TN. Initial planning was done to support BERM-7, which was to be held in April 1997, in Antwerp, Belgium. At the 3rd Annual Meeting in

September 1995, Nashville, TN, progress reports of the various committees were reviewed. A microbiology Focus Group was established. Recommendations of the TDRM subcommittee on proficiency testing were accepted by the AOAC Board of Directors. These recommendations eventually led to establishment of the present AOAC Proficiency Test Sample Program. A new member information packet was distributed. The first general election of Executive Committee Officers in 1995 placed Sandra Bailey as Secretary, with Jon DeVries moving to Member-at-Large, and Catherine Champagne joining as Member-at-large. Wayne Wolf as Chair, Jim Tanner as Vice-Chair, Songsu Lee as Treasurer and Daryll Sullivan as Member-at large were re-elected to their positions. AOAC had moved to new headquarters in Gaithersburg, MD and also entered the electronic age with email and a web site, which helped significantly in communication with the increasing international membership of TDRM. Planning began for BERM 7 to be held in Belgium, 1997.

TDRM 1996-1999

The fourth Annual meeting of TDRM was held in Sep1996, Orlando FL. The executive Committee held 5 teleconferences and one site meeting over the last year. Three newsletters were published under the editorship of Keith James. A survey was sent out to TDRM membership. Additional areas with the most need for RMs included, Food additives, Food Nutrition, and Pesticide residues. There was significant interest in setting up discussion groups on the internet to promote worldwide dialog on RMs. In June 1996, AOAC approved the recommendation to begin an AOAC proficiency testing program, the TDRM Task Force on proficiency testing was dismissed with sincere congratulations for their successful efforts. Activity continued with working groups on a beta-glucan RM collaboration with the American Association of Cereal Chemists (AACC), with the trans fatty acid RM, and feasibility of including microbiological RMs as part of the TDRM focus. Activity also continued with the Matrix RM-methods match database. Plans for BERM-7 in 1997 continued and a proposal was accepted to begin planning for a BERM-8 meeting in the Washington, DC area in 2000. There was discussion on a proposal for TDRM to appoint liaisons to each of the 10 Official Methods Committees.

The fifth Annual meeting of TDRM was held Sept 1997 in San Diego CA. Terms of Reference for Liaison representatives to each of the Methods Committees had been developed. A survey of over 50 laboratories indicated a clear need for a proficiency test samples program for method validation and procedure quality control, preferably in a stable cell or spore preparation in lyophilized, liquid or frozen form. The project to establish a beta-glucan reference standard for AOAC Methods 992.28 and 995.16 (corresponding to similar AACC methods) was completed.(Cereal Foods World, Sep 1997) This material was made available through the AACC. Dr Elwood Caldwell of the AACC coordinated this project. A QA list serve was offered by AOAC as a forum to discuss common issues on a number of topics including RM's. BERM-7, co-sponsored by the TDRM and held in April 1997 in Antwerp Belgium, was amply organized and co-chaired by Dr. Jean Pauwels of IRMM, Belgium and Dr. Markus Stoepler, Germany. A

BERM record of 212 attendees, including for the first time 26 from Middle and Eastern Europe, participated in a scientific program of over 170 presentations and posters. A new more formal structure for future BERM symposia was proposed, including AOAC responsibility for this structure. It was agreed to hold BERM-8 in the Washington DC area in September 2000, immediately following the Annual AOAC meeting in Philadelphia. Written summary reports from each of the Method Committee Liaisons were discussed in light of an upcoming Workshop on Primary Reference Material Needs for the Food Industry organized by the NIST for October 1997. As a result of these reports the scope of the NIST workshop was expanded to include Microbiological and Mycotoxin measurements.

A two day Executive Committee Meeting of TDRM was held in January 1998, wherein a number of major activities were discussed. The established term limits for the entire Executive Committee would expire with the next Annual meeting, and a major election would be held. Possible by-laws changes were considered, including a potential dues increase. There was discussion on the place of Technical Divisions within AOAC and their clear distinction from AOAC Sections. Reports from all of the standing committees were considered, including a new committee on In-House RM, chaired by Athan Marion, Campbell Soup, and information from the Methods Committees on RM needs assessment. As a result of the NIST Workshop in October, TDRM was asked to prepare a formal response via a RM nomination form from each of the AOAC Methods Committees. Responses to these forms were extensively discussed and a formal combined response forwarded to NIST. A general outcome of this NIST workshop has been an increased activity in providing additional food matrix RMs and prioritizing them in light of the "AOAC food triangle".

The sixth annual TDRM meeting was held in September 1998. A procedure was proposed for matching reference materials with AOAC methods, including those in the OMA. (Ref pub) The TDRM is planning a special symposium for the 1999 AOAC meeting on "Emerging Initiative from TDRM: New approaches to old problems". Plans are underway for BERM -8 co-sponsored and co-organized by TDRM, to be held in Sep 2000 in Bethesda, MD. A Reference Standard for total, Insoluble and soluble dietary fiber is under development in collaboration with the initiative of the AACC. As a result of the October Workshop, and with significant input from TDRM, NIST has established a priority list of needed SRMs. The material gaining the highest rating in the nomination process was a liquid baking chocolate. This SRM would be developed in 1999 and value assigned for proximates, total dietary fiber, vitamins, minerals, caffeine and theobromine concentrations. A new Executive Committee was elected and took office following the annual meeting. Chair: William Ikins, Silliker Laboratories; Vice Chair: Athan Marion, Campbell Soup; Secretary: Sandra Bailey, Lancaster Laboratories; Treasurer: James Tanner, US FDA; Members at Large: Jonathan DeVries, General Mills, Catherine Champagne, Pennington Biomedical Research; Elwood Caldwell, AACC; and Katherine Sharpless, NIST. Wayne Wolf continued on the Executive Committee in the newly created position of Immediate Past Chair.

The seventh annual meeting of TDRM was in Houston TX, September 1999. Details and a flow chart for the proposed AOAC Reference Materials-Methods matching process were published in Inside Laboratory Management in January 1999. Test cases of two matches were discussed by Methods Committees: BHA/BHT method at the

Additives, Beverages MC and B-glucan RM at the Commodity Foods MC. A project, chaired by Clyde Carducci, University of Buenos Aires was initiated this year to provide an AOAC Lexicon of Terminology for Quality Assurance of Chemical Measurement Project. The dietary fiber RM has been approved and is now available from AACC. TDRM provided input into a Workshop on Proper Use of Environmental Materials held at the REMCO meeting in Berlin, in April. A Handbook of Reference Materials as an AOAC /TDRM publication, in collaboration with several European organizations is scheduled for publication. TDRM participated in the AOAC Proficiency Testing Program Advisory committee; the PT program is off to a good start, under the direction of Arlene Fox, AOAC. The TDRM symposium had a dozen distinguished speakers from a wide variety of US and European organizations. AOAC was in the process of being reorganized, which will result in significant different interactions with TDRM.

TDRM 2000-2003

The TDRM Executive Committee, meeting in January 2000, recommended that AOAC establish an award for outstanding accomplishments and work in the area of reference materials. This award to a member of AOAC and TDRM will consist of a citation and be awarded yearly at the annual AOAC meeting. It was announced in March 2000 that RMs from three major European producers would now be directly available in the US. Discussion was initiated to examine the future of a more formal association of BERM with TDRM/AOAC. The Annual TDRM meeting was held in Philadelphia in September 2000. The AOAC Board of Directors approved the Reference materials Methods Matching process. An AOAC workshop on Developing a Measurement System for Dietary Supplements was proposed for the 2001 Annual meeting. TDRM will be involved in this workshop to focus on what RM's and standards are currently available for dietary supplements. BERM-8 was held in Bethesda in September 2000 with a theme of "Reference Materials for the 21st Century" with approximately 170 conferees. A highlight was a session entitled "Botanical and Dietary Supplements", which was a direct outcome of an NIH Workshop: "Bioavailability of Nutrients and other Bioactive Components of Dietary Supplements: Defining the Research Agenda" held January 2000 in Bethesda. One outcome from the NIH workshop was a strong statement of the need for RMs for botanicals and dietary supplements – a \$60 Billion a year industry. Over 185 oral and poster presentations were presented at BERM-8. Sponsorship, financial administrative and organizational support was received for a number of international organizations including AOAC/TDRM. At a meeting at AOAC headquarters with the main organizers of the BERM meetings it was clear that AOAC was not willing to take on a longer term financial and administrative responsibility for the BERM symposia. It was noted that significantly more registration money was received from non-AOAC members than AOAC members for BERM-8 and also noted that no one took advantage of signing up for AOAC membership along with the registration. A net surplus of funds of \$16,000 from BERM-8 was taken into the AOAC general account since AOAC staff organized and sponsored BERM. A motion from TDRM that some of these funds be returned to the TDRM account was not successful. Further formal involvement of AOAC as an umbrella organization for BERM will not happen.

At the TDRM Executive Committee meeting held in January 2001, Dr. Wayne Wolf received the first TDRM Reference Material Achievement award for "...his pioneering work in the development of reference material and the vision he exhibited in establishing the TDRM within AOAC..." The TDRM Annual Meeting was held on September 10, 2001 in Kansas City. A formal request was made to AOAC that TDRM would like to establish a Reference Materials award to be presented at every AOAC meeting in conjunction with other awards at the Presidents reception. Changes on the Executive Committee included Katherine Sharpless, NIST as Secretary, replacing Sandra Bailey who moved to a position as member at large. Joining as members at large were Bill Obermeyer, Consumerlab.com and Pieter Scheelings, Queensland Health Science Services. The treasurer's report showed that TDRM and BERM now have a combined balance of nearly \$30,000 with TDRM a net yearly income of \$1400. Current Division membership is listed at 520 members. Activities continue on the Reference Material-Method Matching and Lexicon projects. BERM-9 will be held in May of 2003 in Berlin. The TDRM Reference Materials Award was presented to its second recipient, Dr. James Tanner, FDA at the annual meeting. A suggestion was made that there be a TDRM representative on the AOAC Programming committee. A symposium on Dietary Supplements: Analytical Methods and Reference Standards was sponsored by TDRM at the Annual meeting. This session was chaired by Dr. William Obermeyer, Consumerlab.com and Dr. James Tanner, US FDA. Discussion following the talks focused on identifying potential sources of funds to support vital work identified by the newly formed AOAC Task Force on Botanicals and Dietary Supplements

Activities during 2002 included a continued work on agreement of definitions for the Lexicon project and initial discussions on involvement of TDRM in the creation of Dietary Supplement Reference Materials via new contract being negotiated between AOAC and the Office of Dietary Supplements, NIH. BERM-8 proceedings issues have been published, and distributed to attendees. The remainder of BERM funds being held in TDRM accounts was transferred to the BERM-9 organizing committee, completing TDRM obligations to BERM. BERM-9 was announced to be held in June 2003, with Dr. Jean Pauwels, IRMM Belgium as chair of the program committee. A follow-up TDRM Symposium on Reference Materials for the Analysis of Botanical Dietary Supplements was held at the Annual Meeting in Los Angeles in September. At the annual meeting in LA there was considerable discussion about the proposed e-CAM system for making methods available electronically. To more quickly get RM/Method matches into the system maybe there could be two or more levels of matches. A match that has gone through the RM/MM process could be a "demonstrated" match, while those not having gone through the formal process would be "suggested" matches. The 2002 TDRM Reference Material Achievement Award was presented to Dr. Elwood Caldwell at the annual meeting in Los Angeles.

The Executive Committee at its mid year meeting in January 2003 approved use three levels of RM/MM for the e-CAM system: "Proven" matches that have gone through the Formal process with demonstrated data; "Suggested" matches that have been reviewed by an expert committee, but lacking statistical data; and "not reviewed", with appropriate disclaimers in each case. Bill Ikins took over chairmanship of the RM/MM process since Wayne Wolf was unable to continue due to new and increased work responsibilities. Donna Zink was appointed acting Vice Chair, replacing Athan Marion

who resigned. BERM-9 was held in June 2003 in Berlin, focusing primarily on the role of CRMs in life sciences and environmental sciences. BERM-9 demonstrated that there is a large need for new reference materials exists, especially for food analysis. The TDRM Symposium at the 2003 Annual Meeting in Atlanta covered “Botanical Reference Materials: Expectations and Reality”. The 2003 Reference Material Achievement Award was presented to Jennifer Colbert, recently retired from the Standard Reference Materials Program at NIST, for her consistent force for progress in development of food related and other RMs.

[RETURN TO MAIN HISTORY PAGE](#)

[RETURN TO MAIN TDRM PAGE](#)