DARRELL W. DONAHUE, Ph.D., CQE
CURRICULUM VITA

EDUCATION

* **Ph.D., N.C. State University**. 1992. Engineering, Operations Research, Minor: Mathematics.
* **M.S., N.C. State University**. 1986. Biological and Agricultural Engineering and Mathematics.
* **B.S., N.C. State University**. 1981. Zoology and Chemistry, Minor: Mathematics.
* **High School, Davie County High School.** 1977. Diploma.

EMPLOYMENT HISTORY

* February 1995-present. **Department of Chemical and Biological Engineering, University of Maine, Orono, ME**. **Professor and Coordinator of Biological Engineering** (September 2006-present)**, Associate Professor and Coordinator of Biological Engineering (**August 2000-August 2006)**, Assistant Professor of Bio-Resource Engineering.** (February 1995-August 2000).
Address: University of Maine, 5737 Jenness Hall, Orono, ME 04469-5737.
Duties: Research (50%); teaching (50%); service (process engineering). Departmental and research budget administration; college and university strategic planning; college curriculum development; departmental stakeholder development.
Supervisor: Hemant Pendse, PhD; Chair, hpendse@umche.maine.edu; 207-581-2277

* September 2007-2008. **Fellow, American Association for the Advancement of Science, Department of Homeland Security, Office of Health Affairs**. Washington, DC (Sabbatical leave).
Duties: Planning and exercise tool develop for state stakeholders; Strategic operations and planning; community preparedness and resiliency planning and coordination.
Mentor(s): Diane Berry, PhD; diane.berry@dhs.gov; 202-254-2248

* February 1993-January 1995. **Director of Information Systems and Visiting Assistant Professor**. The Graduate School, North Carolina State University, Raleigh, North Carolina.
Duties: Strategic information system design, development and implementation of strategic guidance for graduate school; statistical data analysis; administrative computer architecture design.
Supervisor: Robert Sowell, PhD, rsowell@cgs.nche.edu; 202-223-3791

* June 1992-February 1993. **Computer Consultant**. Self-employed. Cary, North Carolina.
Duties: Designed and developed customized database solutions for small- and medium-sized businesses.

* August 1986-May 1992. **Visiting Instructor**. Department of Biological and Agricultural Engineering, North Carolina State University, Raleigh, North Carolina.
Duties: Teaching undergraduate engineering classes.
Supervisor: Robert Sowell, PhD, rsowell@cgs.nche.edu; 202-223-3791

* **Industrial experience**: Employed as process engineer and process engineering consultant for three Fortune 500 food companies between 1982-1993. Efforts focused on evaluation of

engineering economics and impacts of engineering and safety management decisions. Developed information technology solutions for costs reduction. Led strategic planning for two major food companies. Developed and delivered training in high performing teams in industrial settings. Developed and trained elements of statistical process control for industry.

PROFESSIONAL SKILL SET

* Quantitative (operations research type) skills: Monte Carlo simulations – uncertainty and variability, risk assessment, discrete event; PLS and other statistical analysis tools; statistical process control of industrial systems; engineering economic modeling; systems level design and manufacturing; neural networks; genetic algorithms; GIS, database management systems and SQL methods.

* Qualitative skills: 1) Team development, performance and management techniques, consultant; 2) Over the last 8 years I have been involved with several multidisciplinary teams in government, private industry, university and volunteer situations, as both leader and member, where I fostered consensus building methods with positive outcomes; 3) Decisive decision maker.

*** See APPENDIX A for Leadership and Educational Philosophies Statement**

TEACHING

*** Risk Analysis** (graduate course)**; Computer Simulation and Analysis of Industrial Processes**. (graduate course); **Chemical and Biological Engineering Capstone Sequences** (senior engineering courses); **Statistical Process Control and Analysis**. (junior engineering course)

RESEARCH

* **Quantitative risk assessment and modeling** of environmental systems
* **Near-infrared spectroscopy** of biological materials
* **Biosensor development** for flow through liquid food systems
* **Process engineering design and economics**

GRADUATE EDUCATION

* Served as chair and directed research of 8 MS students
* Served as chair of 2 PhD students
* Served as committee member on 12 MS and 4 PhD students

SERVICE

A. Professional government service

*** *AOAC International* -** December 2004-December 2006, microbiological best management practices.

*** *US EPA* –** 2003-2004- National Center for Environmental Assessment; Science Advisory Board.

*** *US FDA* –** Feb 2003 – May 2004. *Vibrio parahaemolyticus* risk assessment model review team.

*** *US Army CHPPM group* –** Dec 2003 – present; anthrax risk assessment..

*** *National Academy of Sciences* –** Main and subcommittee appointments. Jan 2002 – Jun 2004.

*** *NSF, NSF/SBIR, USDA, USDA/SBIR* -** Research proposal review member, 1999-2007.

B. Service to Professional Societies

**** American Association for the Advancement of Science*** – 2006-present
**** Society for Risk Analysis*** – 2003-present; editorial board, 2004-present; workshop committee, 2005-present
**** American Society of Quality*** – 2000-present, statistics and education divisions
**** International Association of Food Protection*** – 2003-present; editorial board
**** Council for Near-infrared Spectroscopy –*** 2002-present: award committee, 2003-present; editorial board
* ***Institute for Operations Research and Management Science*** – 1990-present
**** Institute of Food Technologists*** – 1995-2004; professional member; associate editor, 2000-2003

C. Service to the University of Maine

* ***Tau Beta Pi Engineering Honor Society*** - Chief Faculty Advisor, 2000-2007
* ***Advisory Board*** (Faculty Representative) of three university department programs -1999-present
* ***College of Engineering Research Committee*** -1999-2007
* ***Graduate School Governing Board*** -2000-2005
* ***University-wide search committees*** -15 committees since 1996, two as chair

D. Service to Local Industry

* Over the years I have provided process design and engineering to small local businesses in both North Carolina and Maine.

E. Volunteer Service

* Boy Scouts of America: continuous membership since 1971; adult leader since 1977
- Troop level: Assistant Scoutmaster, 1977-2003; Scoutmaster 2003-2006
- District level: Various Training Committees, 1982-2002; District development 2000-2006
- Council level: Council Executive Board, 2002-present; OA Lodge Advisor: 1983-present
  Scoutmaster, Wood Badge, 2005; Training Committees, 1984-present

* Local Community: High School Boosters Club, support 1998-2007; Friends of the Library, 2000-2007

GRANT ACTIVITY
(over $20 MM total funding as PI or Co-PI since 1995, over 70 proposals submitted)

(See APPENDIX B: Documentation of Scholarship)
Mixture of grants and industrial contracts for research

PUBLICATIONS
(total counts of papers and other professional presentations, since 1995)

(See APPENDIX B: Documentation of Scholarship)
a. Refereed journal articles: 30; over half with undergraduates as co-authors
b. Refereed proceedings: 12
c. Books: 1
d. Technical engineering reports and reviews: 9
e. Professional scientific/engineering presentations: 150+; many with undergraduates as co-authors

PROFESSIONAL and VOLUNTEER AWARDS

UMAINE COLLEGE OF ENGINEERING: Dean's Award for Excellence, 2006
GOLDEN KEY HONOUR SOCIETY: Honorary member, March 2004
US ARMY: Commander's Medal, March 2004
USDA: USDA Research Honor Award, June 2003
BOY SCOUTS OF AMERICA: Silver Beaver, 2002; District Award of Merit, 1997; Vigil Honor, 1981; Eagle Scout, 1975

APPENDIX A. STATEMENT OF LEADERSHIP AND EDUCATIONAL PHILOSOPHIES

Leadership. Throughout my career I have been in situations where I had the opportunity to lead change efforts while working with and leading diverse groups of people. My mantra has always been: Leadership By Example; do what you want others to mimic. In addition, to the extent possible involving the people you lead in the decision-making processes of your organization increases chances of success. As a leader from the past, Vince Lombardi said: "Winning is not a sometime thing; it's an all the time thing. You don't win once in a while; you don't do things right once in a while; you do them right all the time…" Therefore, leading by example, sets the example to get things done right, all the time.

My experiences in industry, academia and volunteer work have been focused on results driven, optimizing personal involvement and minimizing or reducing costs. I have both taught and lead high performing teams in all aspects of my professional career and volunteer work.

From the initial days of my career at the University of Maine, things were in flux due to reorganizations, budget cuts, administrative changes and university realignment. This flux created opportunities for those willing to take risks. My position as a new faculty member from a different region of the country caused me to bring a unique perspective to the situation and provide leadership to these challenges. Rather than taking a negative approach, I have chosen to confront these challenges with a positive attitude. My approach toward the positive thrust me into a leadership position where I have been able to make a difference and guide other faculty and staff to take a positive approach. This sets up a win-win situation for all those involved.

My expertise in engineering economic modeling is sought by industry and government groups alike. Over the last nearly 20 years, I have been a consultant for several Fortune 500 companies. In addition to my economic modeling experiences several companies have solicited my expertise in team development and operational skils. My statistical and modeling approached have been used in consulting with several governmental agencies and by the National Academies of Sciences.

In my research, teaching and consulting work I have taken an applied, pragmatic, and logical approach to problem solving; methods that are the foundation of my leadership style. These leadership methods have been well received and useful to the advancement of my research, as an instructive tool for my students and recognized by industry leaders. At the foundation of my methods has been the development of high-performing teams-based approach. Developing groups of people and directing them towards tasks and then delegating ownership of the project to them has been my model throughout my career. I believe that this approach to problem solving builds a foundation for developing high quality programs and professionals.

Teaching (in and out of classroom). Since arriving at the University of Maine (UMaine), I have developed and taught nine new courses at the undergraduate and graduate levels and I have restructured and taught four other courses in undergraduate engineering programs. Presently, I teach two formal courses each fall and spring semester. I have taught the Biological Engineering capstone sequence every year since 2002 and I coordinate the Bio-medical Engineering minor for the College of Engineering. Additionally, I take advantage of special problems courses to increase my one-on-one interaction with students and give students experience with solving real-world engineering problems. This has been a positive experience for the students involved and, in two cases, has resulted in the students getting job or internship offers.

My teaching philosophy follows the Thomas Jefferson model of education, which is based on the belief that faculty should be integrally involved in the educational process of students both formally and informally. It is through this process of faculty motivation and example that students learn to "be" whatever they are being educated to be. I have made every effort possible to embody this philosophy in my teaching, research and service at UMaine. I have attended various teaching seminars and workshops on campus and externally to hone my classroom teaching and advising skills, specifically in the areas of team development and leadership skills.

At the foundation of my teaching, research and service at UMaine is my belief in the multidisciplinary team approach to problem solving used by engineers in industry. I use team-based learning in the classroom, when working with graduate students and in my student advisory roles. I strive to teach the idea that everyone has a worldview, or *Weltanschauungen*, through which they interact with others. Background, culture and gender shape each person's worldview and understanding of concepts, concerns, and issues. In my classroom students learn that diverse points of view can create opportunities to make the group as a whole function better than the sum of its parts. Likewise, I understand that all students have different learning styles and I introduce this concept in my classroom to make students aware of the differences and also survey students and employ different delivery methods to in order to reach my students in their style.

It is important to assist the engineering students in understanding the problem-solving methodology early in their careers. I take first and second year students through this approach by showing them how an engineer thinks to solve a problem - what are the relevant questions to ask, how do I get the information that is needed to solve the problem, and what are the different options for the solution? I turn to more of a "job" or task oriented approach to teaching with upper level and graduate students. I present material in sections, and at the end of the section I give problems that have real-world significance where the student has to apply several parts of the section of material to solve the problem. A particular example of this is my CHB 350: Statistical Process Control & Analysis course where the major emphasis is on teamwork and real-world data analysis culminating in a real industrial case study where students interact with engineers in industry and analyze real industrial data. I believe this approach supports the Jefferson education model because it assists the students in understanding how they will be expected to function as engineers upon graduation. A teaching evaluation comment sums it up best: "[Dr. Donahue] gives the student opportunities to make or break themselves…it is a great learning method".

In 1997, I initiated an interdisciplinary course where engineering students working on their senior capstone project were paired with marketing students from the UMaine College of Business, Public Policy and Health (CBPPH) to develop a marketing plan for the engineering capstone product or service. This was a very positive experience for students and is one that underscores my philosophy of integrating the engineer into the total process of design, development and marketing of products and services. This earlier work fostered my interest in a recent initiative in which faculty from across campus came together and where I have been a leader to develop an Innovation Engineering minor course. I am one of three faculty members from Engineering, Music and English Departments teaching the course since fall 2005. This multi-disciplinary course is challenging to teach, but rewarding, as I am learning to understand the *Weltanschauungens* of my colleagues from diverse disciplines and to adjust to their learning and classroom styles as we bring together and present multi-dimensional course materials.

To increase my effectiveness as an instructor I use several technology vehicles. I am a firm believer in the use of electronic mail (e-mail) and the World Wide Web (web) to communicate with students. I encourage my students to use these technologies and support that by checking e-mail

several times daily and by responding to any student messages as soon as possible after receipt. In this way, I am able to assist students with assignments, course registration, homework, or other academic issues in a prompt and efficient manner. I believe that providing students with multiple means of communicating with me makes me a more effective and successful teacher.

I use multimedia in the classroom as a tool to enhance my presentation of lectures. I use the web and overhead projection to show various computer simulations of process control systems and other types of engineering systems. However, the overuse of technology can be a deterrent to the learning process, a fact I have learned through student course evaluations. Heeding course evaluations and student suggestions, I use now a mixture of using presentation slide lectures and working problems out on the board in my classes to reach the various student learning styles.

Experiential learning. As part of my educational philosophy related to active learning, I have involved over 80 engineering and science students in my research and service responsibilities. As faculty, we are aware that not all teaching happens in the classroom. Usually, I have approximately five students each academic year working on my research projects. Every summer since 1996, I have mentored a high school student in my research program. In most cases these students are involved from the early stages of the project when they can learn and comprehend the study objectives. They contribute directly to the research objectives, including building a test apparatus, conducting experiments, and/or recording and analyzing data. This gives the students a sense of accomplishment, increases their confidence level, and helps me get the job done. In over half of my referred publications, undergraduate students have contributed to research and further manuscript development where they are co-authors. In four cases, the undergraduate student has been first author. Although time consuming and challenging, the experience is very rewarding for the students and me. I believe it is important to provide these opportunities to students so that they can see and understand what research is, what its impact is, and how they have contributed to solving the research question.

As part of my service commitment, I have been contacted directly by over 50 production facilities throughout Maine and New England. In over half of these contacts, I have used undergraduate or graduate students to assist in resolving working on the solution. This has given the students valuable and practical experience in problem solving, and the companies have been very supportive of this solution method. In several instances this experience has been instrumental in helping students obtain employment after graduation. Again, this type of activity supports my Jeffersonian philosophy of being involved with my students' development into well-rounded engineers. These one-to-one teaching experiences involving research and service provide students with the motivation for learning as well as increased self-confidence.

In 2002, I added new dimension to my research focus. In addition to process engineering systems for food and agriculture, I began to study microbial risk assessment modeling in food and water. As I was propelled back into the role of student, I have involved several undergraduate students in the learning experience. We continue to learn together!

Advising and mentoring. Not all teaching occurs in formal situations such as the classroom or laboratory. In addition to mentoring students in research and service (as described above), I use my role as academic and organization advisor to reach the person rather than the 'student'. As Lead Faculty advisor of the Maine Alpha of Tau Beta Pi since 2000, I have called upon leadership training that I use in my volunteer Boy Scouting activities to assist these student officers in leadership development, effective meeting strategies, appropriate use of parliamentary procedures and other

organizational techniques. I feel that there has been an increase in student involvement in these student organizations because of my involvement. I believe that each year we make progress towards our leadership goals so that the organization operates more effectively over time. This organizational involvement is not specifically classroom teaching, but it allows me another opportunity to teach engineering students about effective leadership. This is a skill that is essential as they advance in their careers.

My philosophy concerning multiculturalism and gender issues is expressed in my striving to create an environment that values and encourages unique individual contributions to team efforts, including those where an individual's culture, ethnicity or gender may put him/her in a minority position. I feel it is important to help the students understand these perspectives, their application to engineering and technology and place in our global economy. Tolerance is an important quality to model and teach to students, especially in an academic discipline and state where most students still come from conservative, traditional backgrounds.

While the percentage of women and minorities is normally low in the discipline of engineering, I have seen increases in our engineering programs. I feel that I have had a positive impact on the increase and retention of women in our programs. I encourage and assist our women and minority students find role models in the University and industry and to discuss with these people how they have reached their career goals. These people assist in the development of the student as an engineering professional.

Another informal teaching role that I value is that of academic advisor. Over time, I have advised an average of approximately 20 undergraduate students each year. In addition to the advising sessions for semester registration, I talk informally with my advisees once per month and I make a point of asking them how things are going when I encounter them around campus. I may also have impromptu "coffee breaks" with one or more students during the academic year to check progress. These informal methods of contact seem to work well. I use e-mail and/or phone calls to contact those students who do not show up for standard advising sessions. I keep an e-mail contact list of all advisees and use this method to share internship and summer job opportunities as well as to communicate with them in general.

In letters received from a mixture of my advisees, both post-graduates and current, my availability to assist them with academic and non-academic matters was a strong theme. My advisees feel that I keep them on the right track for graduation relative to their academic program. The letters all indicated that I stress the importance of engineering cooperative/internships and have assisted them in obtaining those opportunities. As one indicator, often nearly 80 percent secure internships/cooperatives during summers or take part in semester cooperatives. I encourage these internships/cooperatives because of my belief in experiential learning. All letters suggest that my ability to listen to students' concerns is a positive attribute. It is very important to me that my advisees identify me as a good listener and mentor who makes a difference and I take this as the highest recommendation. Being so gives me the opportunity to reach students on a different level and to become more than simply a teacher or advisor.

APPENDIX B. DOCUMENTATION OF SCHOLARSHIP (since 1995)

1. REFEREED PUBLICATIONS

a. In process

Hamilton, A. and D. Donahue. NIR Analysis of Woody Biomass Process Streams.

Peshlov, B., Dowell, F., Lu, R., and D. Donahue. Comparison of three NIR spectrophotometers for infestation detection in wild blueberries using multivariate calibration models.

Peshlov, B., Dowell, F., Lu, R., Drummond, F., and D. Donahue. Infestation prediction in blueberries by NIR spectroscopy and partial least squares regression: A feasibility study.

Peshlov, B., Dowell, F., Lu, R., Neivandt, D., and D. Donahue. Factors affecting chemometric calibration models of NIR data for infestation prediction in fruit.

b. Published

Dickey, ID, Donahue, DW, Peshlov, B, Nohe, A, Khalil, A, Mason, M, Zhang, R, Aponte, C, Davisson, TH, Engelman, D, Hawkins, M., 2009. Pore size modulates strength of soft-tissue in-growth and growth factor expression into novel porous titanium implants, Transactions of the Orthopaedic Research Society, in press.

Dickey, ID, Donahue, DW, Peshlov, B, Aponte, C, Davisson, TH, Hawkins, M.. 2008. Pore size and morphology modulate strength of soft tissue in-growth into porous titanium implants, Transactions of the Orthopaedic Research Society, #1865, Vol. 33.

Donahue, D.W., Peshlov, B., Dowell, F.E., Drummond, F.A. 2006. Detecting infestation in Maine wild blueberries using NIRS, The NIR Spectrum, 1, 6-9.

Donahue, D. W., N. Canitez, and A. A. Bushway. 2004. Evaluation of a Low-cost UV treatment for Apple Cider. Journal of Food Processing and Preservation, 28:368-387.

Food and Drug Administration (FDA). 2005. Quantitative Risk Assessment on the Public Health Impact of Pathogenic *Vibrio parahaemolyticus* in Raw Oysters. (Chair of technical/analytical review team: D. W. Donahue). July.

Eastern Research Group (Editors) 2005. Microbial Risk Assessment Workshop. EPA Contract No. 68-C-02-060. Lexington, MA. February. (Presenter and author: D. W. Donahue).

Donahue, D. W., N. Canitez, and A. A. Bushway. 2004. Evaluation of a Low-cost UV treatment for Apple Cider. Journal of Food Processing and Preservation, 28:368-387.

Wentworth, D.S., Skonberg, D., Donahue, D.W., and Ghanem, A. 2004. Application of Chitosan Entrapped β-galactosidase in a Packed Bed Reactor System. Journal of Applied Polymer Science, 91(2): 1294-1299.

Institute of Medicine, National Research Council. 2003. Scientific Criteria to Ensure Safe Food. Institute of Medicine, The National Academies. Washington, DC: National Academies Press. (Steering committee and co-author: D. W. Donahue).

Benoit, P. W. and D. W. Donahue. 2003. Review: Methods for Rapid Separation and Concentration of Bacteria in Food that Bypass Time-consuming Cultural Enrichment. Journal of Food Protection, 66(10):1935-1948.

Ziegler, C. R., D. W. Donahue, F. A. Drummond, and S. N. Smith. 2002. The Ecological Economics of Insecticide Use Associated with the Maine Potato Industry Based Upon a Producer Survey. Journal of Alternative Agriculture, 17(4):159-166.

Wentworth, D. S., D. W. Donahue, and R. M. Seymour. 2002. Economic Analysis of Composting Crab Processing Waste. Compost Science and Utilization, 10(1): 47-56.

Skonberg, D. I., D. W. Donahue, R. C. Bayer, E. Floreto, and J. G. Riley. 2001. Quality Evaluation of American Lobsters Fed Diets Containing Crab Processing Waste. Journal of Aquatic Food Product Technology, Vol. 10(2):17-29.

Ziegler, C. R., D. W. Donahue, F. A. Drummond, and S. N. Smith. 2002. The Ecological Economics of Insecticide Use Associated with the Maine Potato Industry Based Upon a Producer Survey. Journal of Alternative Agriculture, 17(4):159-166.

Wentworth, D. S., D. W. Donahue, and R. M. Seymour. 2002. Economic Analysis of Composting Crab Processing Waste. Compost Science and Utilization, 10(1): 47-56.

Skonberg, D. I., D. W. Donahue, R. C. Bayer, E. Floreto, and J. G. Riley. 2001. Quality Evaluation of American Lobsters Fed Diets Containing Crab Processing Waste. Journal of Aquatic Food Product Technology, Vol. 10(2):17-29.

Seymour, R.M., D. W. Donahue, M. Bourdon, J. R. Evans, and D. Wentworth. 2001. Intermittent Aeration for In-vessel Composting of Crab Processing Waste. Compost Science and Utilization, 9(2):98-106.

Ziegler, C.R., D.W. Donahue, F.A. Drummond, and S.N. Smith. 2000. Agrelation: a computerized decision-making tool for Colorado potato beetle population management and environmental quality concerns. Maine Agricultural and Forest Experiment Station Technical Bulletin No. 176.

Donahue, D. W. and P. W. Benoit, B. J. Lagasse, and W. R. Buss. 2000. Sensory, Instrumental and Neural Network Evaluation of Maine Wild Blueberries for the Fresh Pack Market. Postharvest Biology and Technology 19: 221-228.

Benoit, P. W., D. W. Donahue, A. A. Bushway, J. A. Storey, and T. M. Player. 2000. Surfactant Application System to Prevent Anthocyanin Leakage of IQF Blueberries. Journal of Food Quality, 23(3):271-282.

Long, D. W., F. A. Drummond, E. Groden, and D. W. Donahue. 2000. Modeling *Beauveria bassiana* Horizontal Transmission. Agricultural and Forest Entomology, 2:19-32.

Long, D. W., F. A. Drummond, E. Groden, and D. W. Donahue. 1999. Modeling Insect-Pathogen Dynamics. Trends in Entomology, 2:55-62.

McKeage, K. K, D. K. Skinner, R.M. Seymour, D. W. Donahue, and T. Christensen. 1999. Implementing an Interdisciplinary Marketing/Engineering Course Project: Project Format, Preliminary Evaluation and Critical Factor Review. Journal of Marketing Education, 21(3):217-231.

Donahue, D. W., A. A. Bushway, J. M. Smagula, P. W. Benoit, R. A. Hazen. 2000. Assessment of Pre-harvest Treatments on Maine Wild Blueberry Fruit Shelf-life and Processing Quality. Small Fruits Review, 1(1):23-34.

Donahue, D. W., A. A. Bushway, K .E. Moore, and B. J. Lagasse. 1999. Evaluation of Current Winnowing Systems for Maine Wild Blueberries. Applied Engineering in Agriculture, 15(5):423-427.

Donahue, D. W., R. C. Bayer, J. G. Riley, A. A. Bushway, P. B. Brown, R. A. Hazen, K. E. Moore, and D. A. deBruyne. 1999. The Effect of Soy-based Diets on Weight Gain, Shell Hardness and Flavor of the American Lobster (*Homarus americanus*). Journal of Aquatic Food Product Technology, 8(3):69-77.

Donahue, D. W., A. A. Bushway, K .E. Moore, and B. J. Lagasse. 1999. Maine Wild Blueberries Field Winnowing Systems. MAFES Technical Bulletin No. 174, University of Maine, Orono.

Donahue, D. W., D. A. deBruyne, J. D. Fecteau, J. A. Storey, and R.A. Hazen. 1999. Consumer Preference and Mechanical Property Assessment of Maine Wild Blueberries for the Fresh Pack Market. Journal of Food Quality, 22(5):545-551.

Seymour, R. M., D. W. Donahue and K.K McKeage. 1999. Teaching Team-work Through Interdisciplinary Projects. Chapter One, American Institute of Chemical Engineers. February, p.1-3.

Donahue, D. W., A. A. Bushway, K. E. Moore, R. A. Hazen. 1999. Forced Air Removal of Surface Moisture from Maine Wild Blueberries for the Fresh Pack Market. Applied Engineering in Agriculture, 15(2):147-152.

Garland, M. P. and D. W. Donahue. 1998. Review of Potential Pasteurization Methods for Apple Cider. MAFES Technical Bulletin No. 847, University of Maine, Orono.

Donahue, D. W., R. C. Bayer, and M. Loughlin. 1998. Examination of Lead Levels in the American Lobster, *Homarus americanus*, from Three Sites in Maine. Journal of Shellfish Research, 17(4):1247-49.

Donahue, D. W. and T. M . Work. 1998. Sensory and Textural Evaluation of Maine Wild Blueberries for the Fresh Pack Market. Journal of Texture Studies, 29:305-312.

Donahue, D. W., R. C. Bayer, and J. G. Riley. 1998. Effects of Diet on Weight Gain and Shell Hardness of New-shell American Lobster, *Homarus americanus***.** Journal of Applied Aquaculture**,** 8(2):79-85.

Donahue, D. W., J. A. Chalmers, and J. A. Storey. 1998. Evaluation of In-vessel Composting of University Postconsumer Food Wastes. Compost Science and Utilization, 6(2):75-81.

Bayer, R. C., J. G. Riley, and D. W. Donahue. 1998. The Effect of Dissolved Oxygen Level on the Weight Gain and Shell Hardness of New-shell American Lobster, *Homarus americanus*. Journal of the World Aquaculture Society**,** 29(4):491-493.

Donahue, D. W., R. C. Bayer, T. M. Work and J. G. Riley. 1997. The Effect of Diet on Weight Gain, Shell Hardness, and Flavor of New-shell American Lobsters, *Homarus americanus*. Journal of Applied Aquaculture, 7(4):69-77.

Donahue, D. W., R. S. Sowell and N. M. Bengtson. 1996a. Simulation of Alternative Agricultural Marketing Systems. Agricultural Systems, 51(4):395-406.

Donahue, D. W., R. S. Sowell and N. M. Bengtson. 1996b. Economic Analysis of Alternative Marketing Systems for Flue-cured Tobacco Produced in the United States. Tobacco Science, 40:48-55.

<u>c. Technical reviews</u>

NOTE: For the FDA risk assessment (first listing) I was the primary technical reviewer of the risk assessment model devoting approximately five months to the evaluation effort. For the EPA risk assessment workshop the focus was on drinking water. My emphasis on this review was evaluation and assessment of the current and proposed analysis tools for quantitative risk assessment.

Food and Drug Administration (FDA). 2005. Quantitative Risk Assessment on the Public Health Impact of Pathogenic *Vibrio parahaemolyticus* in Raw Oysters. (Chair of technical/analytical review team: D. W. Donahue). July.

Eastern Research Group (Editors) 2005. Microbial Risk Assessment Workshop. EPA Contract No. 68-C-02-060. Lexington, MA. February. (Presenter and author: D. W. Donahue).

d. Conference proceedings: (* indicates refereed proceedings, presenter is underlined)

AOAC International. 2005. Best Practices for Validation of Microbiological Methodology, International Standards Committee. (Steering committee and co-author: D.W. Donahue). Proceedings of the AOAC International Annual Meeting, 12-15 September, Orlando, FL.

* Donahue, D. W. E. Deane, and K. Rawls. 2004. H2O-Safe: Simulation Tool for Risk Assessment of Public Water Distribution Systems. Proceedings of the Society for Risk Analysis Annual Meeting.

* Donahue, D. W. and M. N Cohen. 2004. Transparency in regulations: A perspective. Proceedings of the Society for Risk Analysis Annual Meeting.

* Seymour, R.M., K. K. McKeage, D. W. Donahue, D. K. Skinner and T. E. Christensen. 1999. Interdisciplinary Team Projects With Marketing Students To Improve Engineering Capstone Experience. Proceedings of the American Society of Engineering Education Annual Conference, 9-12 June.

Long, D., F.A. Drummond, E. Groden, and D. Donahue. 1998. Modeling transmission of an entomopathogenic fungus in the summer generation of the Colorado potato beetle, *Leptinotarsa decemlineata*. Proceedings of the 24th Annual Maine Biological and Medical Sciences Symposium, p. 5.

Donahue, D. W., J. A. Chalmers, and J. A. Storey. 1997. In-vessel Compost System Evaluation Using University Food Wastes. Paper # 976052, presented at the 1997 ASAE Annual Meeting, Minneapolis, Minnesota, 10-14 August.

Ziegler, R., F.A. Drummond, and D. W. Donahue. 1997. Environmental concerns and pest management. Proceedings of the Maine Biological and Medical Sciences Symposium, Augusta, Maine. June, p. 34.

Riley, J., D. Donahue, G. Ozbay, and R. Bayer. 1996. Shipping and Handling of Live Lobsters (Homarus americanus). Proceedings of the Marketing and Shipping Live Aquatic Products '96, Seattle, Washington, 13-15 October, pp. 73-76.

e. Miscellaneous publications:

Donahue, D W. 1998. University of Maine Fruits and Vegetables Research. Fruit & Vegetable Products Division Newsletter, Institute of Food Technologists, 18(1):5.

Donahue, D. W. 1998. New Biomedical Engineering at UMaine. College of Engineering Alumni Newsletter, Fall Edition.

Donahue, D. W., J. G. Riley, and R. C. Bayer. 1998. Does Oxygen Affect Lobster Growth and Shell Hardness? Aquaculture & Fisheries Update, Spring.

Donahue, D. W. 1996. In-vessel Composter Designed by University Bio-Resource Department. Biocycle, 37(8):77.

2. GRANTS AND CONTRACTS

Alternative Energy Graduate STEM K-12, $3,000,000. NSF-GK-12 program. PI: D. W. Donahue; Co-PIs: D. Neivandt, H. Dagher. (in process)

Girls Engineer Maine Through Rural Forest Communities, $499,926. NSF-GSE program. PI: J. Leahy; Co-PIs: H. Pendse, D. Donahue, S. Pendse. (in review)

American Association for the Advancement of Science, Science and Technology Policy Fellowship. $125,000. March 2007. D. W. Donahue.

Explore it! Building the next Generation of Sustainable Energy Researchers. $350,090. NSF-REU program. March 2007- February 2010. PD: D. W. Donahue; Co-PIs: D. Neivandt, and D. Gardner.

Sustainable Bioproducts through Forest Biorefinery Principles. $13,500,000. NSF-EPSCoR: a preproposal – university level. November 2004. Shaler and Pendse, PDs; (Donahue Co-PI)

Mechanical Properties of bone and implant materials after orthopedic implant surgery. $71,033. (Stryker Biomedical, Inc.) DIC portion of grant to perform materials testing. March 2005. I. D. Dickey and D. W. Donahue.

Wild Blueberry processing technologies. $24,632 (part of a $245,000 grant). USDA-CSREES-Blueberry tax funds. November 2004. D. W. Donahue.

Wild Blueberry processing technologies. $24,047 (part of a $241,000 grant). USDA-CSREES-Blueberry tax funds. November 2003. D. W. Donahue.

Development of Ultrasonic Rotary Pulsation (URP) Technology for Improving Human and Industrial Waste Water Treatment. $116,000. Maine Technology Institute. January 2003. IPET, Inc. (Jim Shue, principle), Co-PIs: D. W. Donahue, A. Amirbahaman.

Wild Blueberry processing technologies. $25,993 (part of a $241,000 grant). USDA-CSREES. February 2003. D. W. Donahue.

Ultrasonic Rotary Pulsation (URP) Processing of Liquid Food: A seed grant. $30,200. Maine Technology Institute. February 2003. IPET, Inc. (Jim Shue, principle) and D. W. Donahue (minor Co-PI).

Maine Space Grant Consortium, Travel Funds Program. $1,500. NASA-MSGC. July 2002. October 2002. D. W. Donahue.

Maine Space Grant Consortium, Undergraduate Fellowship Program. $6,700. NASA-MSGC. April 2002. September 2002 – May 2003. D. W. Donahue.

GK-12: Sensors!. $1,494,860. NSF-K-12. October 2001. May 2002 – April 2005, UMaine: College of Engineering, J. F. Vetelino (minor PI: D. W. Donahue, 1.0 month/calendar year).

Examining NIRS for blueberry quality. $29,768. USDA-CSREES: Wild Blueberry Production and Processing Technologies. D. W. Donahue (part of $240,000 grant). February 2002.

Using NIR for Maggot Identification. $18,000. USDA-CSRS: Wild Blueberry Commission of Maine, February, 2001. D. W. Donahue.

Separation Methods of Maggot-Infested Blueberries in the IQF Processing Line. $16,836. USDA-CSRS: Wild Blueberry Commission, June, 2000. D.W. Donahue.

Evaluation and Design of a Packaging System for Chocolate-covered Maine Wild Blueberries. $6,300. Maine Agriculture Center. March 2000. D. W. Donahue and A. A. Bushway.

Key equipment needs – enhancement of current near-infrared (NIR) laboratory unit. $4,000. College of NSFA R&D Funds Competition. December 1999. D. W. Donahue.

Lobster Stock Assessment using GIS/GPS Techniques. $50,000. Maine Science and Technology Foundation. August, 1999. Maine Department of Marine Resources, R. C. Bayer, and D. W. Donahue.

Partial support for Native American High School Student Involvement in Research Activities. $1,000. Northeast Blueberry Company, Columbia Falls, Maine. June, 1999. G. Sockabasin and D. W. Donahue.

UV Pasteurization with the Model 5300 Cider Unit. $5,300. MAFES R&D Research Funds (Department of Biosystems Science and Engineering). December, 1998. D. W. Donahue.

Separation Methods of Maggot-Infested Blueberries in the IQF Processing Line. $12,836. USDA-CSRS: Wild Blueberry Commission, November, 1998. D.W. Donahue and F. A. Drummond.

Instrumented Flow Control for Laboratory. $5,000. UMaine Regular Faculty Research Funds Competition - University of Maine, November, 1998. D. W. Donahue.

Wild Blueberry Production and Processing Technologies. $29,860. USDA-CSRS: Wild Blueberry Commission, November, 1997. D.W. Donahue.

Development of an *Escherchia coli* Detection System for Liquid Food Applications. $99,929. NSF/STTR. February, 1998. J. C. Andle (BIODE, Inc.) and D. W. Donahue.

A Prototype Liquid Food Sampling System for Biosensing Applications. $50,000. USDA-Seed Grants. December 1998. D. W. Donahue**.**

Investigations of Physical Properties of Biological Materials. $24,030. USDA-NRI Equipment Grants Program, February, 1997. D. W. Donahue.

Equipment Evaluation for Field Moisture Removal in Maine Wild Blueberries. $5,000. UMaine Summer Faculty Research Funds, February, 1997. D. W. Donahue.

Assessment of Near Infrared Photographic Images on IPM for Maine Wild Blueberries. $2,695. UMaine Agriculture and Forestry Experiment Station, January, 1997. D. W. Donahue, F. A. Drummond, D. E. Yarborough and S. A. Sader.

Process Design for the Application of Gum Surfactant to IQF Maine Wild Blueberries. $10,800. USDA-Wild Blueberry Advisory Commission Tax Funds, November, 1996. D. W. Donahue and A. A. Bushway.

Determination of Aeration Rates, End-product Quality and Economic Analysis of In-vessel Composting of Crab Processing Wastes. $87,960. US Dept. of Commerce/NOAA, May, 1996. R. M. Seymour and D. W. Donahue.

Evaluating Hands-on Design Courses for First Year Students. $3,300. UMaine Student Retention Grant Program, February, 1996. L. E. Katz and D. W. Donahue.

Evaluation of an In-vessel Unit for Food Waste Compost. $5,200. UMaine Regular Faculty Research Funds Competition - University of Maine, November, 1995. D. W. Donahue.

Colorado Potato Beetle Simulator. $25,919. USDA-ARS Horticultural and Sugar Crops Division, August, 1995. F. A. Drummond and D. W. Donahue.

ARENA Simulation Software for Food Processing Simulation. $1,650. UMaine Faculty Research Funds, February, 1995. D. W. Donahue.