

THOMAS MATTHEW JOHN DYKSTRA

Dykstra Laboratories, Inc.
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EDUCATION

- 1997 *Ph.D., Bioelectromagnetics-Entomology*
University of Florida, Gainesville, Florida
Dissertation: A Behavioral and Perceptual Study of Cat Flea Larvae,
Ctenocephalides felis, and Their Responses to Various Stimuli
- 1994 *M.S., Entomology*
University of Florida, Gainesville, Florida
Thesis: Pheromonotropic Activity in the Abdominal Nerve Cord of the
Tobacco Hornworm, *Manduca sexta*.
- 1990 *B.S., Entomology*
Cornell University, Ithaca, NY
Senior research: Purification of various cytochrome b₅ and P-450 enzymes
in the housefly, *Musca domestica*, utilizing SDS-PAGE.
- 1986 *Regents H.S. Diploma*
James E. Sperry High School, Henrietta, NY

RESEARCH EXPERIENCE

- 1997-present **Laboratory Director-** Dykstra Laboratories, Inc.
Research: Insect Olfaction-deciphered the insect olfactory code,
Behavioral and Chemical Ecology, Bioelectromagnetics,
Antenna Physics, Proteomics, Paramagnetism,
Insect/Plant nutritional physiology
- 1994-1997 **Doctoral Candidate-** University of Florida
Research: Bioelectromagnetics, Cat flea larva behavior to EMFs
- 1990-1994 **Master's Candidate-** University of Florida
Research: Moth neurobiology, physiology, gas chromatography
- 1990 **Laboratory Technician-** Cornell University
Research: Protein purification utilizing SDS-PAGE
- 1989 **Laboratory Technician-** Cornell University
Research: Host-parasite interactions, insect rearing

PATENTS

2019	Determining Odorant Detection in Arthropods U.S. Patent Pending
2019	Radiating Systems for Affecting Insect Behavior U.S. Patent #10,226,035
2017	Insect Trap with Reflective Interior Walls U.S. Patent #9,775,334
2017	Radiation Systems for Affecting Insect Behavior (co-author) Australian Patent #2014237064
2015	Radiating Systems for Affecting Insect Behavior-2nd part (co-author) U.S. Patent # 9,173,388
2015	Radiating Systems for Affecting Insect Behavior (co-author) U.S. Patent # 8,984,800
2014	System for Trapping Insects U.S. Patent # 8,893,428
2008	Method and System for Dissipating and Amplifying Natural Emissions from a Resonant Cavity Australian Patent #AU 2003210970 B2

PRODUCT DEVELOPMENT

InnTrap®

From researching the idea, prototype design, developing the product, testing the product, co-designing the product, and finally producing the product in order to bring it to successful market completion.

Universal Insect Trap Emitter (patent pending)

Researching the idea, prototype design

AQUIRED SKILLS & KNOWLEDGE (RESEARCH)

Entomology	Bioelectromagnetics	Olfaction
Proteomics	Statistical Analysis	Antennas
Gas Chromatography	Genomics	Infrared Spectroscopy
Insect Rearing	SDS-PAGE	Emission/Absorption Spectra
Physiology	Neurobiology	Biochemistry
Internet Research	Biological Receptors	Reverse Engineering
Paramagnetism	Microscope	Dissections
Research Design & Analysis	FT-IR spectroscopy	Liquid Chromatography
Western Blots	ELISA	Electronics
Plastic molds	Troubleshooting	Centrifuges
Evaporators	Data Mining/Meta-Analysis	

ACQUIRED SKILLS (BUSINESS)

Product development	Professional Speaking	Communication Skills
Writing Patents	Industry Consultant	Technology Transfer
MS OFFICE proficient	Cataloguing/Organizing	Typing (60-80 wpm)
Supervising employees		

TECHNOLOGY AWARDS

2018	<i>Winner- 4th Category Pioneering and Sophisticated Innovations Serving the Agricultural Sector</i>	Khalifa International Award for Date Palm and Agricultural Innovation
2017	<i>Innovative Ideas and Technologies in Agribusiness -Honorable Mention</i>	United Nations Industrial Development Corporation- ITPO, Italy
2016	<i>Best New Product for the ME market-agriculture</i>	AGRAME

INVITED LECTURES

2019	"Hungary" Insects Only Attack Unhealthy Plants Soil Health Conference, Budapest, Hungary
2017	Farming Beyond the Textbooks Back to Your Roots Annual Growers Meeting, Saskatoon, SK, CAN
2016	An Overview of Brix Electrical Conductivity in Soil Gathering Energy Back to Your Roots Annual Growers Meeting, Saskatoon, SK, CAN
2015	Growing Citrus, Citrus Diseases, and Citrus Pests Soil Works LLC Annual Sales Meeting, Phoenix, AZ
2015	Electrical Conductivity in Agriculture Soil Works Annual Grower's Workshop, Yankton, SD
2015	Electrical Conductivity in Agriculture Brix Chart- generalized markers Back to Your Roots Annual Growers Meeting, Saskatoon, CAN
2015	What Insects Tell Us About the Health of Our Soils Soil Health Symposium, Saint-Hyacinthe, Quebec, CAN
2014	Why We Use Brix to Test Plants Plant Elevators: movement of plant sap Heavy Metals- but not the big-hair bands Soil Works Annual Sales Meeting, Scottsdale, AZ
2014	Toward a New Bioelectromagnetic Theory of Insect Olfaction University of Florida-ECE seminar series, Gainesville, FL

- 2014 **Brix, Aiming For a Higher level of Sugar, and What Does That Mean?**
Soil Works Annual Grower's Workshop, Yankton, SD
- 2014 **Why Plant Feeding Insects Need Unhealthy Plants to Survive**
IFAO Conference, London, Ontario, CAN
- 2014 **Harnessing Earth's Electromagnetic Fields**
Bio-Ag Symposium, Spokane, WA
- 2014 **Introducing Brix to Farmers and Energy in Agriculture**
Back to Your Roots- Sales Meeting, Saskatoon, CAN
- 2013 **Energy in Agriculture**
Soil Works LLC Annual Sales Meeting, Colorado Springs, CO
- 2013 **Insects to Unhealthy Plants and Energy in Agriculture**
Uncle Matt's Organic, Clermont, FL
- 2013 **Insects to Unhealthy Plants**
Symbionature, St. Remi, Quebec, CAN
- 2013 **Energy in Agriculture**
Soil Works LLC Annual Spring Meeting, Yankton, SD
- 2013 **Insects to Unhealthy Plants**
Symbionature, Florida, NY
- 2013 **Insects to Unhealthy Plants**
Back to Your Roots Workshop, Regina, SK, CAN
- 2012 **The Business of Scientific Patents**
MAN 4723, "Strategic Management",
Warrington College of Business Administration, University of Florida
- 2012 **What Do Insects Like To Eat?**
"Soil Safari", Organized by Soil Works, LLC, Yankton, SD
- 2012 **Challenging Paradigms in Insect Olfaction: New Evidence**
Annual Conference of the Society for Scientific Exploration
Boulder, CO
- 2012 **Why Insects Do Not Eat Healthy Plants**
Soil Works, LLC, Annual Spring Meeting, Yankton, SD
- 2012 **Paramagnetism in Agriculture**
Back to Your Roots Workshop, Regina, SK, CAN
- 2012 **Insects Do Not Like Healthy Plants**
Back to Your Roots Workshop, Regina, SK, CAN
- 2011 **Insect Olfaction: Beyond the Textbooks**
Think Tank organized by Dr. Arden Andersen, Tampa, FL
- 2009 **Stem Cell Research: Adult vs. Embryonic**
CUF meeting organized by attorney Thomas Pernice
- 2009 **Can Lepidopterans Smell Odors like Scientists Claim?**
McGuire Center for Lepidoptera, Gainesville, FL
- 2008 **Can the Lock and Key Model Explain Insect Olfaction?**
Utah Valley University, Orem, UT
- 2008 **Towards a Decoding of Insect Olfaction**
Utah Valley University, Orem, UT
- 2005 **Formation of a Scientific Theory: lessons learned from insect olfaction**
Society for Scientific Exploration Annual Meeting, Gainesville, FL

- 2003 **How Effective are Stored Product Moth Traps?**
Heat Treatment Workshop, Manhattan, KS
- 2001 **Paramagnetism Roundtable- State of the Art**
Panel discussion w/Philip S. Callahan, Ph.D., Malcolm Beck, Gary Wilson
Acres USA National Conference, Minneapolis, MN
- 1999 **Biological Antennae**
Sponsored by Nikken, Inc., Titusville, FL
- 1999 **Paramagnetism and the Shatnez**
Sponsored by Nikken, Inc., Titusville, FL
- 1998 **Battling Pests with Electromagnetics**
Acres USA National Conference, Minneapolis, MN
- 1998 **Paramagnetism**
Bioneers Annual Conference, San Francisco, CA
- 1997 **Fleas and Man: an Attractive Relationship**
Knights of Columbus Meeting, Gainesville, FL

PRESENTATIONS

- 2016 **Two Competing Theories of Insect Olfaction Must Both Be Rejected**
International Congress of Entomology
Orlando, FL
- 2011 **Interaction in the Sensillae between Pheromone Binding Proteins (PBPs) and the Dendritic Membrane**
Annual Meeting of the Entomological Society of America
Reno, NV
- 2010 **Insect Olfaction in Relation to Protein Diffusion Coefficients**
Annual Meeting of the Entomological Society of America
San Diego, CA
- 2010 **Insect Olfaction and the Electrostatic Effect**
Annual Meeting of the Association for Chemoreception Sciences
St. Petersburg, FL
- 2009 **Pheromone Deposition on Insect Sensilla- electrostatics**
Annual Meeting of the Entomological Society of America
Indianapolis, IN
- 2009 **Cat Flea Larvae (*Ctenocephalides felis*) are Disrupted by Stray Electromagnetic Fields Emanating from Appliances**
Annual Meeting of the Entomological Society of America
Indianapolis, IN
- 2009 **Disproving the Current Theory of Insect Olfaction: temporal evidence**
Society for Scientific Exploration Annual Meeting
Charlottesville, VA
- 2009 **Movement of Pheromone inside Insect Olfactory Sensillae**
Annual Meeting of the Association for Chemoreception Sciences
Sarasota, FL

- 2008 **How Readily Does Pheromone Migrate Within the Sensilla?**
Annual Meeting of the Entomological Society of America
Reno, NV
- 2008 **Protein Semiconductors in Relation to Insect Olfaction**
Society for Scientific Exploration Annual Meeting
Boulder, CO
- 2008 **Insects and Plant Brix**
Southeastern Branch Meeting of the Entomological Society of America
Jacksonville, FL
- 2007 **How Quickly Can Pheromones Enter an Insect Sensilla?**
Annual Meeting of the Entomological Society of America
San Diego, CA
- 2007 **Insects and Sick Plants**
Society for Scientific Exploration Annual Meeting
East Lansing, MI
- 2007 **Can Dielectric Antenna Theory Help Explain Insect Olfaction**
Society for Scientific Exploration Annual Meeting
East Lansing, MI
- 2007 **Movement of Pheromone into Insect Olfactory Sensillae**
Annual Meeting of the Association for Chemoreception Sciences
Sarasota, FL
- 2007 **Electromagnetic Fields Influence Behavior in Cat Flea Larvae**
Southeastern Branch Meeting of the Entomological Society of America
Knoxville, TN
- 2006 **Problems with the Current Theory of Insect Olfaction**
Annual Meeting of the Entomological Society of America
Minneapolis, MN
- 2006 **Problems with the Current Theory of Insect Olfaction**
Southeastern Branch Meeting of the Entomological Society of America
Wilmington, NC
- 2006 **Can Dielectric Antenna Theory Help Explain Insect Olfaction**
Annual Meeting of the Association for Chemoreception Sciences
Sarasota, FL
- 2004 **The Electromagnetic Hypothesis of Olfaction: a study of the mechanisms and an answer to the enantiomer debate**
Society for Scientific Exploration Annual Meeting, Las Vegas, NV
- 2003 **Cat Flea Larvae, *Ctenocephalides felis*, Exhibit a Strong Taxic Response to a Human Stimulus**
Annual Meeting of the Entomological Society of America
Cincinnati, OH
- 2002 **A Novel Trap for Stored Product Moths**
Annual Meeting of the Entomological Society of America
Fort Lauderdale, FL
- 2002 **The Electromagnetic Hypothesis of Olfaction**
Society for Scientific Exploration Annual Meeting
Charlottesville, VA

2000	Anomalous Field Detection in Insects Society for Scientific Exploration Annual Meeting London, Ontario CAN
1994	Least Toxic Pest Control of Fleas SW Florida Professional Pest Control Operators and Florida Pest Control Association (4 diff. counties)
1994	Beneficial Insects Identification of Urban Pests seminar University of Florida, Gainesville, FL
1994	General Insect Identification Identification of Urban Pests seminar University of Florida, Gainesville, FL

SELECTED CONSULTING

2019	Butler Weihmuller Katz Craig LLP Entomological Consulting
2019	Qualitree Propagators Inc Entomological Consulting
2019	IMS Expert Services Entomological Consulting
2019	Demeter Biosystems , Budapest, Hungary Entomological and Agricultural Consulting
2019	Boyd & Jenerette, P.A. Entomological Consulting
2019	Jaszczuk P.C. Attorneys Entomological Consulting
2019	Slotin Law, LLC , Tampa, FL Entomological Consulting
2019	Kovar Law Group , Tampa, FL Entomological Consulting
2018-present	Cole, Scott, Kissane, P.A. , Miami, FL Entomological Consulting
2018	PMA Companies (Goya Foods) , Blue Bell, PA Entomological Consulting
2016	Iafrate Family of citrus growers , Dade City, FL Agricultural Consulting
2016	Beetle infestation at local residence , Gainesville, FL Entomological Consulting
2014-2015	Cole, Scott & Kissane, P.A. , Jacksonville and Fort Lauderdale Entomological Consulting
2014	LifeWave , San Diego, CA Bioelectromagnetic Consulting
2013-present	Symbionature USA Entomological and Agricultural Consulting

2012-present	Soil Works, LLC , Yankton, SD Entomological, Agricultural, and Bioelectromagnetic Consulting
2012-present	Back to Your Roots , Saskatchewan, CAN Entomological, Agricultural, and Bioelectromagnetic Consulting
2011-present	Uncle Matt's Organic. , Clermont, FL Entomological Consulting
2005	Benjamin, Certain & Lomax, P.A. , Orlando, FL Entomological Consulting
1999-2000	Midlands Claim Administrators , Oklahoma City, OK Entomological Consulting

TEACHING EXPERIENCE

2012	Lecturer (guest) , " <i>The Business of Scientific Patents</i> " MAN 4723- Strategic Management University of Florida
2007-2014	Lecturer (guest) , " <i>Insect Olfaction</i> " GMS 6074- Comparative and Evolutionary Neurobiology University of Florida
1999-2014	Laboratory Coordinator (guest) , <i>Insect Neurobiology</i> GMS 6074- Comparative and Evolutionary Neurobiology University of Florida
2002-2006	Laboratory Coordinator (guest) , <i>Insect Behavior</i> ENY 3005- Principles of Entomology University of Florida
1999	Lecturer (guest) , " <i>The Nervous System of Insects</i> " GMS 6074- Comparative and Evolutionary Neurobiology University of Florida
1992-1993	Course Instructor ENY 3005- Principles of Entomology University of Florida
1991-1992	Guest Lecturer , " <i>The Nervous System</i> " ENY 3005- Principles of Entomology University of Florida
1990-1992	Laboratory Coordinator , ENY 3005- Principles of Entomology University of Florida
1989	Co-Laboratory Coordinator ENTOM 212- Insect Biology Cornell University

EXTENSION EXPERIENCE

2016-present	Judge for local Science Fair Ocala homeschoolers, Queen of Peace Hall, Ocala, FL
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2011 **Supervise cockroach dissection**
Requested by UF Neuroscience Club (15 students)

2008 **Guest speaker at AChemS sponsored event regarding olfaction**
G.Wiz- The Hands on Science Museum, Sarasota, FL

2007 **Guest speaker at grand opening of RoboBugs, the exhibit**
Museum of Science and Discovery, Fort Lauderdale, FL

1998 **Making an Insect Collection**
Hansen Nature Center, Tinker Nature Park, Rochester, NY

1998 **Bugs, Beetles and Butterflies**
Hansen Nature Center, Tinker Nature Park, Rochester, NY

1998 **Business Representative**
Williston Middle School- Career Day, Williston, FL

1995 **Guest speaker**
Wayne Middle School, Wayne, NY, Presentations in Entomology

1995 **Tour Guide**
UF Entomology & Nematology Department
For: ARC- Association for Retarded Citizens

1995 **Video Narrator and Co-Producer, *Beneficial Insects***
University of Florida Publication # SV 436
Institute of Food and Agricultural Sciences (IFAS)

1995 **Video Narrator and Co-Producer, *Mistaken Identities***
University of Florida Publication # SV 458
Institute of Food and Agricultural Sciences (IFAS)

1995 **Video Narrator and Co-Producer, *Structural Pests***
University of Florida Publication #SV (discontinued)
Institute of Food and Agricultural Sciences (IFAS)

1994 **Guest speaker**
Franklin Douglas Middle School, Rochester, NY
Entomology presentations

1994 **Guest Speaker**
UF Entomology & Nematology Department
Presentation followed by Q&A- 7th-8th grade visiting students

1994 **Re-certification Training Program**
SW Florida Professional Pest Control Operators and
Florida Pest Control Association (4 presentations)

1994 **Extension Entomologist**
Insect Identification Laboratory
University of Florida, Dept. Entomology & Nematology

1994-present **Entomological Presentations to local schools (as requested)**

1993 **Special invited presenter**
Entomology presentations, November 12, 1993
UF Museum of Natural History, 3rd-5th graders

PUBLICATIONS

- Dykstra, T.M.** (2019) Picky-Eater Insects Pass on High Brix Plants. Acres USA, Sept 2019. 3pp.
- Dykstra, T.M.** (2010) Insects and the Speed of Smell Problem. *Edge Science* 4:9-13.
- Dykstra, T.M.** (2000) Can Insects Detect Biofields? *MISAHA newsletter*, 28-29:14-18.
- Dykstra, T.M.** (2000) Paramagnetic Effects on Plant Growth. Acres USA, 30(9):20-21.
- Dykstra, T.M.** (2000) Revised and updated 25th Anniversary of *Tuning in to Nature* by Philip S. Callahan, 240 pp, Acres USA. Originally published by Devin-Adair, Old Greenwich, CT
- Dykstra, T.M.** (1997) A Behavioral Study of Cat Fleas, *Ctenocephalides felis*, and their response to various stimuli. Ph.D. Dissertation, University of Florida, 290 pp.
- Nation, J.L., B.J. Smittle, K. Milne, and **T.M. Dykstra** (1995) Influence of irradiation on development of Caribbean Fruit Fly (Diptera: Tephritidae) larvae. *Ann. Entomol. Soc. Am.* 88(3):348-352.
- Dykstra, T.M.** (1995) Insect Identification. Chapter in: *Pests in and Around the Florida Home*. Publication # SP 134, Institute of Food and Agricultural Sciences, University of Florida
- Dykstra, T.M.** (1994) Pheromonotropic activity in the abdominal nerve cord of the tobacco hornworm, *Manduca sexta*. M.S. Thesis, University of Florida, 80 pp.

CONFERENCES ORGANIZED

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| 2012 | Society for Scientific Exploration Annual Conference
Program Committee Chairman
Boulder, CO, June 20-23, 2012 |
| 2005 | Society for Scientific Exploration Annual Meeting
Local Organizer, Program Committee member
Gainesville, FL, May 18-21, 2005 |
| 1994 | Identification of Urban Pests
Local Organizer, Program Coordinator
University of Florida
Gainesville, FL, March 9-11, 1994 |

INVITED BOOK REVIEWS

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| 2009 | <i>The Body Electric</i> by Robert Becker, M.D. and Gary Seldon (1985) <i>J. Sci. Explor.</i> 23(2):232-236. Request from the Society for Scientific Exploration on the occasion of Dr. Becker's passing. |
| 2009 | <i>The Body Electric</i> by Robert Becker, M.D. and Gary Seldon (1985) <i>Edge Science</i> , October 2009, pp. 13-14 (republished in abridged version) |

NON-AUTHORED PUBLICATIONS

2004 Grossman, J. (2004) Building a Better Moth Trap. *The World and I*, April issue. pp. 142-149.

MANUSCRIPTS REVIEWED

2002 *Annals of the Entomological Society of America* (1)
2005 *Journal of Economic Entomology* (1)

TRADESHOW BOOTHS ATTENDED

2016 **Acres USA Conference and Tradeshow**
Representing Soil Works LLC
December 1-2, 2016, Omaha, NE

2013 **Citrus Expo Tradeshow**
Representing Preferred Source and Mycorrhizal Applications, Inc.
Products: various
August 14-15, 2013, Ft. Myers, FL

2011 **MOSES Annual Conference**
Representing Technology SG
Product: innTrap®
February 24-26, 2011, Lacrosse, WI

2010 **Entomological Society of America**
Representing Technology SG
Product: innTrap®
December 12-16, 2010, San Diego, CA

2010 **Acres USA Annual Conference**
Representing Technology SG
Product: innTrap®
December 9-11, 2010, Indianapolis, IN

PROFESSIONAL SOCIETY MEMBERSHIPS

Entomological Society of America	Association for Chemoreception Sciences
Bioelectromagnetics Society	Acres U.S.A.

HONORARY/AWARDS/ELECTED POSITIONS

2011-present	<i>Panel Judge (Industry member)</i>	Entomological Society of America- Biochemistry, Toxicology and Molecular
2005-2008	<i>Secretary</i>	Society for Scientific Exploration

2005-2007	<i>Councilor</i>	Holy Faith Catholic Church
2004	<i>All-American (4x)</i>	US Masters Swimming
2000-present	<i>Adjunct Faculty Member</i>	Union College
2000-2001	<i>Councilor</i>	Society for Scientific Exploration
1997-1999	<i>Councilor</i>	Holy Faith Catholic Church

PERSONAL INFORMATION

Hometown	Henrietta, New York (suburb of Rochester)
Marital Status	Married (Karen)
Children	Maximilian Kolbe Dykstra † Gregory Samuel Dykstra (2007) Benedict John Dykstra (2008) Lydia Cecilia Dykstra (2010) Leo Albert Dykstra (2013) Teresa Gemma Dykstra (2015) Mary Rose Dykstra (2017)
Country of Citizenship	United States of America
Religious Association	Roman Catholic
Sports	Competitive Swimming, Volleyball
Hobbies/Interests	Reading, woodworking, watching movies pencil drawing/scientific illustration