

CURRICULUM VITAE

PAUL FISHER

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EDUCATION

- 1995 PhD in Horticulture, Michigan State University. 'Prediction and control of stem elongation and flowering in poinsettia (*Euphorbia pulcherrima* Klotz.) and Easter lily (*Lilium longiflorum* Thunb.)'.
- 1988 Master of Applied Science (first class honors), Center for Resource Management, Lincoln University, New Zealand. Multi-disciplinary study on 'Barriers to the adoption of organic farming in Canterbury'.
- 1985 Bachelor of Science (Ecology) 1985. Botany Department, University of Auckland, New Zealand.

PROFESSIONAL EXPERIENCE

- Aug 2006 – present Associate Professor, Dept. of Environmental Horticulture, University of Florida. 40% research/60% extension. Director of Young Plant Research Center (stock plant and liner production research program) since 2004. Research: pH and micronutrient management, stock plant and liner management, computer decision-support systems. Extension specialist in floriculture with an emphasis in greenhouse technology.
- Aug 1996-2006 Associate (previously Assistant) Professor, Dept. of Plant Biology, University of New Hampshire. 40% research/40% extension/20% teaching. Teaching: undergraduate Environmental Horticulture PBIO 547 (2nd year), additional courses in greenhouse management, graduate and undergraduate research supervision, coordinator for undergraduate Environmental Horticulture major.
- Apr 1995-June 1996 Post-graduate researcher, Dept. of Environmental Horticulture, University of California at Davis. Crop modeling of ornamental potted plants and cut roses. Co-taught graduate-level course (ENH 241) on diagnosing horticultural plant problems.
- Jul 1991-Apr 1995 Visiting scholar and research assistant, Department of Horticulture at MSU. Quantified development and elongation responses of poinsettia and Easter lily. Developed *The Greenhouse CARE System*, the first commercially-available expert system for the ornamental greenhouse industry.
- May-July 1993 Visiting scientist, Horticulture Section, KVL, Copenhagen, Denmark. Developed first automated link between a biological model and a greenhouse environmental computer for growing a crop to target flowering date specifications.
- Apr 1989-May 1991 Research associate, Biological Modelling Unit and Sustainable Agriculture Program, Ministry of Agriculture and Fisheries (MAF), New Zealand. Developed a database of technical information on sustainable agriculture for use by extension agents and farmers. Represented MAF modeling and sustainability programs to farmer, public and scientific organizations. Ran in-house training on how to develop computer decision-support tools.

PROFESSIONAL ORGANIZATIONS

American Society of Horticultural Science, International Society of Horticultural Science, New Hampshire Plant Growers Assn., OFA – an association of floriculture professionals, Soc. American Florists, New Zealand Nursery and Garden Industry Assn.

SPECIAL SKILLS

Problem-solving advice to leading greenhouse firms in U.S. and Latin America
Spanish oral and written to professional level (presented seminars, written technical reports, grower consulting).
Professional computer programming experience.

RECENT HONORS AND AWARDS

2003 and 2004: Alex Laurie Awards for outstanding research publication in HortScience or the Journal of American Society for Horticultural Science awarded by the OFA national greenhouse industry organization (articles were on research in pH management).

Named one of "40 Under 40" Greenhouse industry leaders by Greenhouse Grower magazine July 2003.

Robert Langhans Visiting Scholar at Cornell University, 2004.

PUBLICATIONS

Refereed articles

- Huang, J., P.R. Fisher, and W.R. Argo. 2007. A Protocol to Quantify the Reactivity of Carbonate Limestone for Horticultural Substrates. *Communications in Soil Science and Plant Analysis*, 38:719-737.
- Fisher, P.R., J. Huang*, and W.R. Argo. 2006. Modeling lime reaction in peat-based substrates. *Acta Horticulturae* 718:461-468.
- Wik, R.M., P.R. Fisher, D.A. Kopsell, and W.R. Argo. 2006. Iron form and concentration affect nutrition of container-grown *Pelargonium* and *Calibrachoa*. *HortScience* 41(1):244-251.
- MacKay, B.R. and P.R. Fisher. 2005. Interactive case studies on the internet: the Ramosus maze tool. *Acta Horticulturae* 672:217-225.
- Smith, B.R., P.R. Fisher, and W.R. Argo. 2004. Water-soluble Fertilizer Concentration and pH of a Peat-based Medium Affect Growth, Nutrient Uptake, and Chlorosis of Container-grown Seed Geraniums (*Pelargonium x hortorum* L.H.Bail). *J. of Plant Nutrition* 27(3):497-524.
- Smith, B.R., P.R. Fisher, and W.R. Argo. 2004. Growth and pigment content of container-grown Impatiens and Petunia in relation to root substrate pH and applied micronutrient concentration. *HortScience* 39(6):1421-1425.
- Smith, B.R., P.R. Fisher, and W.R. Argo. 2004. Nutrient uptake in container-grown Impatiens and Petunia in response to root substrate pH and applied micronutrient concentration. *HortScience* 39(6):1426-1431.
- Dole, J.M., P.R. Fisher, and G. Njue. 2004. Optimizing postharvest life of cut 'Renaissance Red' poinsettias. *HortScience* 39(6):1366-1370.
- Bishko, A.J., P.R. Fisher, and W.R. Argo. 2003. The pH-Response of a Peat-Based Medium to Application of Acid-Reaction Chemicals. *HortScience* 38(1):26-31.
- Fisher, P.R. R.M. Wik, B.R. Smith, C.C. Pasian, M. Kmetz-González, W.R. Argo. 2003. Correcting iron deficiency in calibrachoa grown in a container medium at high pH. *HortTechnology* 13(2):308-313.
- Bishko, A.J., P.R. Fisher, and W.R. Argo. 2002. Quantifying the pH-Response of a Peat-based Medium to Application of Basic Chemicals. *HortScience* 37:511-515.
- Donnelly, C.S. and P.R. Fisher. 2002. The effect of high-pressure sodium lighting on greenhouse production of vegetative cuttings for specialty annuals. *HortScience* 37:623-626.
- Donnelly, C.S. and P.R. Fisher. 2002. Effect of high-pressure sodium lighting on greenhouse production of vegetative cuttings for 10 species of annual floricultural crops. *Acta Horticulturae* 580:221-228.
- Fisher, P.R. and C.S. Donnelly. 2002. Development of a financial model to evaluate investment in supplemental lighting for greenhouse floricultural production. *Acta Horticulturae* 580:191-196.
- Fisher, P.R. and J. H. Lieth. 2000. Variability in flower development of Easter lily (*Lilium longiflorum* Thunb.): model and decision-support system. *Computers and Electronics in Agriculture* 26:53-64.
- Fisher, P.R., J.H. Lieth and R.D. Heins. 1997. Predicting variability in anthesis of Easter lily (*Lilium longiflorum* Thunb.) populations in response to temperature. *Acta Horticulturae* 456:117-124
- Fisher, P.R., R.D. Heins, N. Ehler, J. H. Lieth. 1997. A decision-support system for real-time management of Easter Lily (*Lilium longiflorum* Thunb.) scheduling and height. 1. System description. *Agricultural Systems* 54(1):23-38.
- Fisher, P.R., R.D. Heins, N. Ehler, J. H. Lieth, M. Brogaard and P. Karlsen. 1997. A decision-support system for real-time management of Easter Lily (*Lilium longiflorum* Thunb.) scheduling and height. 2. Validation. *Agricultural Systems* 54(1):39-56.
- Ehler, N., M. Brogaard, P.R. Fisher, R.D. Heins, and J. H. Lieth. 1996. Integration of The Greenhouse CARE System with an environmental computer to control flowering and elongation of *Lilium longiflorum* Thunb. *Acta Horticulturae* 417:69-77.
- Fisher, P.R. and R.D. Heins. 1996. Tracking Easter lily leaf count to aid crop timing decisions. *HortTechnology* 6(10):68-70.
- Fisher, P.R., R.D. Heins, and J.H. Lieth. 1996. Quantification of the Relationship between Phases of Stem Elongation and Flower Initiation in Poinsettia. *Journal of the American Society of Horticultural Science* 121(4):686-693.
- Fisher, P.R., R.D. Heins, and J.H. Lieth. 1996. Modeling the stem elongation response of poinsettia to chlormequat chloride. *Journal of the American Society of Horticultural Science* 121(5):861-868.
- Fisher, P.R., J.H. Lieth and R.D. Heins. 1996. Modeling Flower Bud elongation in Easter Lily (*Lilium longiflorum* Thunb.) in Response to Temperature. *HortScience* 31(3):349-352.
- Fisher, P.R. and R.D. Heins. 1995. A process control approach to height control of poinsettia. *HortTechnology* 5(1):57-63.
- Lieth, J.H., P.R. Fisher, and R.D. Heins. 1996. A phasic model for the analysis of sigmoid patterns of growth. *Acta Horticulturae* 417:113-118.

Refereed teaching publications

MacKay, B.R., P.R. Fisher and W.R. Argo. 2005. The case of the sick greenhouse crop. *Journal of Natural Resources and Life Sciences Education*, "Peer Reviewed Web Lessons/Learning Activities" 34:127, <http://horticulture.massey.ac.nz/lessons.asp>

Books and Book Chapters

Fisher, P.R. and E.S. Runkle, 2004. (Eds.) *Lighting Up Profits*. Meister Publishing, Willoughby, Ohio (98pp. plus Powerpoint CD).

Fisher, P.R. 2004. Chapter 4. Managing pH for Container Media. In: D. Hamrick (ed.), *Ball Red Book*, 17th Edn. Volume 2 *Crop Production*, Ball Publishing, Batavia, Ill., p39-45.

Argo, W.R. and P.R. Fisher. 2002. *Understanding pH management for container-grown crops*. Meister Publishing, Willoughby, Ohio. 68 pp.

Industry publications

Argo, W.R. and P.R. Fisher. 2007. Improving rewetting. *Greenhouse Grower*, Mar 2007:72, 76.

Argo, W.R. and P.R. Fisher. 2007. Retaining water for healthy plants. *Greenhouse Grower*, Feb 2007:72, 74, 76.

Fisher, P.R., K. Santos, and J. Gibson. 2007. Keeping Cuttings Healthy. *Ornamental Outlook*. Jan 2007:24.

W.R. Argo and P.R. Fisher. 2007. Producing consumer-friendly baskets. *Greenhouse Grower*, Jan 2007:58, 60, 61.

Fisher, P.R. 2006. Creating Industry-Funded Research. *Big Grower* Nov. 2006:30-33.

Fisher, P.R. 2006. The most profitable liner size? *Greenhouse Grower*, Oct. 2006:36, 38, 40.

Fisher, P.R., A. Eaton, and R. Cloyd. 2006. Fungus Gnat Management. *Greenhouse Grower*, Young Plant Issue Sept. 2006:20, 22, 24.

Fisher, P.R., H. Warren, and L. Hydock. 2006. Larger Liners, Shorter Crop Time. *Greenhouse Grower*, Young Plant Issue Sept. 2006:8-10, 12.

Fisher, P.R. and Bruce MacKay. 2006. New Website Available for Poinsettia Growers. *Greenhouse Grower*, Sept. 2006, p.90.

Fisher, P.R., A.C. Douglas, and W.R. Argo. 2006. Four steps to better pour-through testing. *GMPro* Feb 2006: 50-54.

Fisher, P.R. 2006. Bank accounts and fertilizer management. *Floral Notes* (U.Mass. Extension) 18(4):7-8.

Runkle, E. and P.R. Fisher. 2006. Growing Crops Cooler. *Greenhouse Grower* March 2006:84-85.

Fisher, P.R., A.C. Douglas, and W.R. Argo. 2006. How to soil test small containers. *GMPro* March 2006:46, 47, 49, 52.

Fisher, P.R., W.R. Argo, and B.R. MacKay. 2006. You're the Expert IX (problem-solving case quiz). *Greenhouse Grower*. Jan. 2006:134,136,138,.

Fisher, P.R., W.R. Argo, and B.R. MacKay. 2005. You're the Expert VIII (problem-solving case quiz). *Greenhouse Grower*. Dec. 2005: 44, 46, 48.

Fisher, P.R., A.C. Douglas, and W.R. Argo. 2005. Use the 1:2 method for media-pH and EC. *GMPro*. November 2005, p.49-50.

Fisher, P.R., A.C. Douglas, and W.R. Argo. 2005. Testing method provides steady results. *GMPro*. September 2005: 66-68, 70, 72.

Fisher, P.R., W.R. Argo, and B.R. MacKay. 2005. You're the Expert VII (problem-solving case quiz). *Greenhouse Grower*. Sept 2005: 48, 50, 52.

Fisher, P.R., A.C. Douglas, and W.R. Argo. 2005. On-site soil testing of growing media. *GMPro*. August 2005:60-62, 64, 66.

Fisher, P.R., W.R. Argo, and B.R. MacKay. 2005. You're the Expert VI (problem-solving case quiz). *Greenhouse Grower*. July 2005:128,130,131.

Fisher, P.R., W.R. Argo, and B.R. MacKay. 2005. You're the Expert V (problem-solving case quiz). *Greenhouse Grower*. June 2005:104, 106, 108.

Fisher, P.R. and W.R. Argo. 2005. Avoid pH Problems. *GMPro*. June 2005:70-72,74.

W.R. Argo, Fisher, P.R., and B.R. MacKay. 2005. You're the Expert IV (problem-solving case quiz). *Greenhouse Grower*. May 2005: 74, 76, 78, 80.

Fisher, P.R. and W.R. Argo. 2005. Electrical conductivity of growing media: why it is important. *GMPro*. May 2005: 54-58.

Fisher, P.R. and E.S. Runkle. 2005. Ten Lighting Tips for Spring Crops. *GMPro*. April 2005: 36-40.

Fisher, P.R., W.R. Argo, and B.R. MacKay. 2005. You're the Expert III (problem-solving case quiz). *Greenhouse Grower*. Apr. 2005: 42, 44, 46.

Fisher, P.R., W.R. Argo, and B.R. MacKay. 2005. You're the Expert II (problem-solving case quiz). *Greenhouse Grower*. Feb. 2005: 66, 68, 96.

Fisher, P.R. and W.R. Argo. 2005. Organize Crops by Nutrition. *Greenhouse Product News*. Jan 2005, p.54, 56, 58, 59, 60.

Fisher, P.R., W.R. Argo, and B.R. MacKay. 2005. You're the Expert I (problem-solving case quiz). *Greenhouse Grower*. Jan. 2005: 100, 164, 166.

Fisher, P.R. and W.R. Argo. Manejo del pH en medios sin suelo. *Revista Asocolflores* (Colombia) 66:54-61.

Fisher, P.R. 2004. Alex Laurie Award – An overview of the 2004 paper. *OFA Bulletin* Nov/Dec. 2004 887: 22-23.

Njue, G. and P.R. Fisher. 2004. 2003 UNH poinsettia cultivar evaluations. *The Plantsman* Fall 2004: 48-49.

- Fisher, P.R. and A.J. Both. 2004. Lighting Up Profits, Part 13 (Lighting of plugs and liners). *Greenhouse Grower*, September 2004: 22-24, 26.
- Fisher, P.R., James Faust, and E.S. Runkle. 2004. Lighting Up Profits, Part 10 (Lighting of stock plants). *Greenhouse Grower*, June 2004: 96, 98, 100, 102, 104.
- Fisher, P.R. and A.J. Both. 2004. Lighting Up Profits, Part 7 (Photoperiod lighting technology). *Greenhouse Grower*, March 2004: 42-44, 46, 49.
- Fisher, P.R. and A.J. Both. 2004. Lighting Up Profits, Part 6 (Supplemental lighting technology). *Greenhouse Grower*, February 2004: 86-88, 91, 92, 94.
- Fisher, P.R. and R. Freyre. 2004. Academic Update: The University of New Hampshire. *OFA Bulletin* 883:18-19.
- Runkle, E. and P. Fisher. 2003. Lighting Up Profits, Part 3 (Photoperiod). *Greenhouse Grower* November 2003: 118-120,122.
- Njue, G., P. Fisher, and J. Dole. 2003. Cut poinsettia: A new specialty cut flower with great potential. *The Cut Flower Quarterly* 15(3):4-9.
- Fisher, P.R. and E.S. Runkle. 2003. Lighting Up Profits, Part 1 (Introduction). *Greenhouse Grower* Sept. 2003: 66-68, 70, 72.
- Fisher, P.R. 2003. Advances in graphical tracking for Euphorbia. *FloraCulture International* Sept. 2003: 54-55.
- Argo, W.R. and P.R. Fisher. 2003. Understanding water quality: Part 3. *OFA Bulletin* No. 881:1,6-10.
- Argo, W.R. and P.R. Fisher. 2003. Understanding Water Quality Part 2 – Match fertilizer to your water. *OFA Bulletin* 879:3-6.
- Argo, W.R. and P.R. Fisher. 2003. Understanding Water Quality Part 1 – Water pH, alkalinity, and control of media pH. *OFA Bulletin* 878:11-14.
- Fisher, P.R. and R. Yates. 2003. Iron deficiency in greenhouse crops. *Greenhouse IPM Notes* 13(2):2-5. Rutgers Univ. Coop. Extn., N.J.
- Fisher, P.R. 2002. Poinsettia web links. *GMPro* Nov. 2002: 35-41.
- Fisher, P.R. 2002. Timing is everything. *GrowerTalks* October 2002: 28.
- Fisher, P.R. and W.R. Argo. 2002. Understanding media-pH management Part 13. *Greenhouse Grower*. April 2002: 48-56.
- Fisher, P.R. and W.R. Argo. 2002. Understanding media-pH management Part 12. *Greenhouse Grower*. February or March 2002.
- Argo, W.R. and P.R. Fisher. 2002. Understanding media-pH management Part 11. *Greenhouse Grower*. January 2002: 50, 52, 54-56, 58, 60.
- Donnelly, C.S. and P.R. Fisher. 2001. Light Your Stock for More Cuttings. *GrowerTalks*. Sept. 2001 p.83-91.
- Fisher, P.R., W.R. Argo, Linda J. Bilodeau, Ron Wik, Brandon R. Smith, Claudio Pasian, and Monica Kmetz-González. 2002. Understanding media-pH management Part 12. *Greenhouse Grower*. January 2002: 50-60.
- Fisher, P.R. W.R. Argo, L.J. Bilodeau, and B.R. Smith. 2001. Understanding media-pH management Part 10. *Greenhouse Grower*. November 2001: 54-62.
- Fisher, P.R. W.R. Argo, L.J. Bilodeau, and B.R. Smith. 2001. Understanding media-pH management Part 9. *Greenhouse Grower*. September 2001: 116-126.
- Fisher, P.R. 2001. A Graphic Solution. *GrowerTalks*. August 2001: 118-122.
- Fisher, P.R., C.S. Donnelly, and J. Faust. 2001. Evaluating supplemental light for your greenhouse. *Ohio Florist's Association Bulletin* No. 858. May 2001: 4-7.
- Fisher, P.R. and W.R. Argo. 2001. "Iron Out" A nutritional program for geraniums and other crops prone to iron and manganese toxicity at low media-pH. *FIRST Research Report* 2001-1.
- Smith, B.R., P.R. Fisher, W.R. Argo, and L.J. Bilodeau. 2001. Understanding media-pH management Part 8. *Greenhouse Grower*. July 2001, p.32-44, 53-54.
- Fisher, P.R., W.R. Argo, B.R. Smith, and L.J. Bilodeau. 2001. Understanding media-pH management Part 7. *Greenhouse Grower*. May 2001: 44-54.
- Fisher, P.R., W.R. Argo, L.J. Bilodeau, and B.R. Smith. 2001. Understanding media-pH management Part 6. *Greenhouse Grower* April 2001: 50-56.
- Argo, W.R. and P.R. Fisher. 2001. Understanding media pH management Part 5. *Greenhouse Grower* March 2001: 58-66.
- Argo, W.R. and P.R. Fisher. 2001. Understanding media pH management Part 4. *Greenhouse Grower* February 2001: 62, 64, 66, 68, 70, 72.
- Argo, W.R., B. Smith, and P.R. Fisher. 2001. Understanding media pH management Part 3. *Greenhouse Grower* Jan. 2001: 72-82.
- Donnelly, C.S. and P.R. Fisher. 2000. Lighting boosts cutting production. *GMPro* Nov. 2000: 64-68.
- P.R. Fisher. 2000. Should you invest in supplemental lighting? *GMPro* May 2000: 48-49.
- Argo, W.R. and P.R. Fisher. 2000. Understanding media pH management Part 2. *Greenhouse Grower* Dec. 2000: 24-30.
- Argo, W.R. and P.R. Fisher. 2000. Understanding management of media-pH Part 1. *Greenhouse Grower* Nov. 2000: 42-51.
- Blom, T.J. and P.R. Fisher. Easter lilies: A challenge you can master. *Greenhouse Product News*. March 2002: 10, 12-17.
- Fisher, P.R. 2000. Research report on overwintering perennials. *The Plantsman* Dec 2000/Jan 2001: 17-22.

- Fisher, P.R. 2000. Controlling poinsettia height with graphical tracking. *Greenhouse Product News* Sept 2000: 24-28.
- Bilodeau, L.; P. van Berkum; and P.R. Fisher. 1999. Overwintering herbaceous perennials in containers. *The Plantsman*, Aug/Sept 1999: 18-21.
- Fisher, P.R. 1999. Optimizing greenhouse temperature for rose flower head size and productivity. *Roses Inc. Bulletin*, Dec. 1999: 51-65.
- Heins, R.D. and Fisher, P.R. 1999. *Keep Plant Height on Track*. Meister Publishing, 18 pp.
- Fisher, P.R., R.D. Heins, B. Smith, and J. Chong. 1998. Tracking Geraniums. *Greenhouse Grower* July 1998: 79-80.
- Fisher, P.R., R.D. Heins, B. Liu, and L. Bilodeau. 1998. Tracking Oriental and Hybrid Lilies. *Greenhouse Grower* January 1998: 39-40.
- Fisher, P.R. and R.D. Heins. 1997. Timing Easter lilies. *Greenhouse Grower* December 1997: 25-26.
- Fisher, P.R. and R.D. Heins. 1997. Tracking Easter lilies. *Greenhouse Grower* November 1997: 65-66.
- Fisher, P.R. 1997. Graphical Tracking - a useful tool for New Hampshire growers. *The Plantsman* Oct 1997: 22-24.
- Fisher, P.R. and R.D. Heins. 1997. From first color to flower. *Greenhouse Grower* October 1997: 27-28.
- Fisher, P.R. and R.D. Heins. 1997. From pinch to first color. *Greenhouse Grower* September 1997: 81-82.
- Fisher, P.R., R.D. Heins, and J.H. Lieth. 1997. Hitting the right curve. *Greenhouse Grower* August 1997: 103-104.
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- Heins, R.D. and P.R. Fisher. 1997. Graphical tracking 101. *Greenhouse Grower* June 1997: 81-82.
- Fisher, P.R. and R.D. Heins. 1997. Ch. 26 DIF and Graphical Tracking. Chapter in: V. Ball (Ed.). *The Ball Red Book*. Ball Publishing.
- Fisher, P.R. 1996. Environmental control systems - choosing what is best. *The Plantsman* Dec 1996:23-24.
- Fisher, P.R., J.H. Lieth, and R.D. Heins. 1996. Easter lily - Hit your target date. *Greenhouse Grower* January 1996, 98.
- Fisher, P.R., R.D. Heins, and T. Wallace. 1995. Tracking your poinsettias with CARE. *Greenhouse Grower* August 1995, 92-94.
- Fisher, P.R. and R.D. Heins. 1995. Computer offers opinion on growing decisions. *GrowerTalks* January 1995, 62-64.
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