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## Curriculum Vitae

### Robert J. Joly

Professor and Head

Department of Horticulture and Landscape Architecture

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### Education:

Ph.D.	Oregon State University	Plant Physiology	1984
M.S.	University of New Hampshire	Plant Physiology	1975
B.S.	University of New Hampshire	Forestry	1972

### Professional Experience:

2007-present	Head, Department of Horticulture and Landscape Architecture
2006-2007	Interim Head, Department of Horticulture and Landscape Architecture
1995-present	Professor of Horticulture, Purdue University
2002-2003	Visiting Professor of Biological Sciences, University of Sussex, U.K.
1990-1995	Associate Professor of Horticulture, Purdue University
1985-1990	Assistant Professor of Horticulture, Purdue University

### Professional Affiliations:

American Society of Plant Biologists  
American Society for Horticultural Science  
American Association for the Advancement of Science  
Sigma Xi Research Society

### Editorial Responsibilities:

Associate Editor, *Journal of the American Society for Horticultural Science*, 1997-2000, monitoring the area of soil-plant-water relationships

Associate Editor, *Journal of Natural Resources and Life Sciences Education*, 1997-2000 and 2000-2003

### Awards and Honors:

Inductee, Purdue University Book of Great Teachers, 2003.

Fellow, U.S. Department of Agriculture ESCOP/ACOP Leadership Development Program, 2000-2001.

Senior Fellow, Purdue University Teaching for Tomorrow Award, 2000-2001. (Mentorship program for assistant professors).

Outstanding Publication Award, American Society for Horticultural Science. 2001. *Journal of the American Society for Horticultural Science* 125: 383-389.

U.S. Department of Agriculture Food and Agriculture Sciences Excellence in Teaching Award, 2000

Founding Fellow, Purdue University Teaching Academy, 1997

Outstanding Undergraduate Educator Award from the American Society for Horticultural Science, 1996

Award of Merit for Teaching from the Purdue University Chapter of Gamma Sigma Delta, the National Honor Society for Agriculture, 1996

Purdue University Charles B. Murphy Outstanding Undergraduate Teaching Award, 1995

### **Courses Taught:**

HORT 110 (Survey of Horticulture). 1 credit hour. 2006-present.

AGR 101/120 (Introduction to the College of Agriculture). 1 credit hour. 2006-present.

HORT 201 (Plant Propagation). 3 credit hours. 1985-1997 and 2003-2006.

HORT 301 (Plant Physiology). 4 credit hours. 1991-2006, team taught with Prof. W.R. Woodson (1991-96), Prof. N. Dudareva (1997-2001, 2004), Prof. D. Salt (2003), Prof. B. Schulz (2005-06).

HORT 551 (Biophysical Plant Physiology). 3 credit hours. 1991-2001, team-taught with Profs. R.A Dille and K.G. Raghothama.

### **Book Chapters:**

Quist, T.M., S. Yokoi, R.A. Bressan, P.M. Hasegawa and R.J. Joly. 2004. Differential regulation of plasma membrane aquaporin transcripts in *Arabidopsis* in response to environmental stress: proposed roles for aquaporins in regulating plant water balance. In: *Recent Research Developments in Biochemistry*, Volume 5. (S.G. Pandalai, ed.). Research Signpost, Kerala, India. pp 19-29.

Maggio, A., R.J. Joly, P.M. Hasegawa and R.A. Bressan. 2003. Can the quest for drought tolerant crops avoid *Arabidopsis* any longer? In: *Crop Production in Saline Environments* (S.S. Goyal, S.K. Sharma, D.W. Rains, eds.). Haworth Press, Inc. New York, pp 99-129.

Maggio, A. and R.J. Joly. 2001. Regulation of water channel activity and stomatal conductance are coordinated events in honey locust (*Gleditsia triacanthos*): a proposed role for aquaporins. In: *Molecular Biology and Physiology of Water and Solute Transport* (S. Hohmann, J. Frokiaer, S. Nielsen, J. Rydstrom. eds.). Kluwer Academic/Plenum Publishers. pp 309-317.

## Refereed Publications:

Quist, T.M., Sokolchik, I., Shi, H.Z., Joly, R.J., Bressan, R.A., Maggio, A., Narsimhan, M. and Li, X. 2009. HOS3, an ELO-like gene, inhibits effects of ABA and implicates a S-1-P/ceramide control system for abiotic stress response in *Arabidopsis thaliana*. *Molecular Plant* 2: 138-151.

Ruggiero, B., H. Koiwa, Y. Manabe, T.M. Quist, G. Inan, F. Saccardo, R.J. Joly, P.M. Hasegawa, R.A. Bressan and A. Maggio. 2004. Uncoupling the effects of ABA on plant growth and water relations: analysis of *sto1/nced3*, an ABA-deficient but salt stress tolerant mutant in *Arabidopsis thaliana*. *Plant Physiology* 136: 3134-3147.

Ma, S., T.M. Quist, A. Ulanov, R.J. Joly and H.J. Bohnert. 2004. Loss of TIP1;1 aquaporin in *Arabidopsis* leads to cell and plant death. *Plant Journal* 40: 845-859.

Inan, G., Q. Zhang, P. Li, Z. Wang, Z. Cao, H. Zhang, C. Zhang, T.M. Quist, S.M. Goodwin, J. Zhu, H. Shi, B. Damsz, T. Charbaji, Q. Gong, S. Ma, M. Fredricksen, D.W. Galbraith, M.A. Jenks, D. Rhodes, P.M. Hasegawa, H.J. Bohnert, R.J. Joly, R.A. Bressan and J.-K. Zhu. 2004. Salt cress. A halophyte and cryophyte *Arabidopsis* relative model system and its applicability to molecular genetic analyses of growth and development of extremophiles. *Plant Physiology* 135: 1718-1737.

Mickelbart, M.V., G. Peel, R.J. Joly, D. Rhodes, G. Ejeta and P.B. Goldsbrough. 2003. Development and characterization of near-isogenic lines of sorghum segregating for glycinebetaine accumulation. *Physiologia Plantarum* 118: 253-261.

Karlson, D.T., Y. Zeng, V.E. Stirm, R.J. Joly and E.N. Ashworth. 2003. Photoperiodic regulation of a 24 kD dehydrin-like protein in red-osier dogwood (*Cornus sericea* L.) with relation to freeze-tolerance. *Plant and Cell Physiology* 44: 25-34.

Maggio, A., S. Miyazaki, P. Veronese, T. Fujita, J.I. Ibeas, B. Damsz, M.L. Narasimham, P.M. Hasegawa, R.J. Joly and R.A. Bressan. 2002. Does proline accumulation play an active role in stress-induced growth reduction? *The Plant Journal* 31: 699-712.

Maggio, A., M.G. McCully, K. Kerdnaimongkol, R.A. Bressan, P.M. Hasegawa and R.J. Joly. 2002. The ascorbic acid cycle mediates signal transduction leading to stress-induced stomatal closure. *Functional Plant Biology* 29: 845-852.

Maggio, A., P.M. Hasegawa, R.A. Bressan, M.F. Consiglio and R.J. Joly. 2001. Unraveling the functional relationship between root anatomy and stress tolerance. *Australian Journal of Plant Physiology* 28: 999-1004.

Frantz, J.M., R.J. Joly and C.A. Mitchell. 2001. Intracanalopy lighting reduces electrical energy utilization by closed cowpea stands. *Life Support and Biosphere Science* 7: 283-290.

Frantz, J.M., R.J. Joly and C.A. Mitchell. 2000. Intracanalopy lighting influences radiation capture, productivity, and leaf senescence in cowpea canopies. *Journal of the American Society for Horticultural Science* 125: 694-701.

Maggio, A., M.P. Reddy and R.J. Joly. 2000. Leaf gas exchange and solute accumulation in the halophyte *Salvadora persica* grown at moderate salinity. *Environmental and Experimental Botany* 44: 31-38.

Joly, R.J. and W.R. Woodson. 2000. It's all about learning: an inquiry-based approach to teaching plant physiology. *HortTechnology* 10: 277-279.

- Joly, R.J., M.L. Jones, S. Verlinden, D. Rhodes and W.R. Woodson. 2000. Learning in an inquiry-driven plant physiology laboratory. *Journal of Natural Resources and Life Sciences Education* 29: 31-35.
- Kaufmann, P.H., R.J. Joly and P.A. Hammer. 2000. The influence of day and night temperature differentials on root elongation rate, root hydraulic properties, and shoot water relations in *Chrysanthemum*. *Journal of the American Society for Horticultural Science* 125: 383-389.
- Biddinger, E.J., C.M. Liu, R.J. Joly and K.G. Raghothama. 1998. Physiological and molecular responses of aeroponically grown tomato plants to phosphorus deficiency. *Journal of the American Society for Horticultural Science* 123: 330-333.
- Frantz, J.M. C. Chun, R.J. Joly and C.A. Mitchell. 1998. Intrac canopy lighting of cowpea canopies in controlled environments. *Life Support and Biosphere Science* 5: 183-189.
- Kerdnaimongkol, K. A. Bhatia, R.J. Joly and W.R. Woodson. 1997. Oxidative stress and diurnal variation in chilling sensitivity of tomato seedlings. *Journal of the American Society for Horticultural Science* 122: 485-490.
- Lagrimini, L.M., R.J. Joly, J.R. Dunlap and T.-T.Y. Liu. 1997. The consequence of peroxidase overexpression in transgenic plants on root growth and development. *Plant Molecular Biology* 33: 887-895.
- Yang, G., D. Rhodes and R.J. Joly. 1996. Effects of high temperature on membrane stability and chlorophyll fluorescence in glycinebetaine-containing and glycinebetaine-deficient maize lines. *Australian Journal of Plant Physiology* 23: 437-443.
- Wood, A.J., H. Saneoka, D. Rhodes, R.J. Joly and P.B. Goldsbrough. 1996. Betaine aldehyde dehydrogenase in sorghum: molecular cloning and expression of two related genes. 1996. *Plant Physiology* 110: 1301-1308.
- Premachandra, G.S., D.T. Hahn, D. Rhodes and R.J. Joly. 1995. Leaf water relations and solute accumulation in two grain sorghum lines exhibiting contrasting drought tolerance. 1995. *Journal of Experimental Botany* 46: 1833-1841.
- Maggio, A. and R.J. Joly. 1995. Effects of mercuric chloride on the hydraulic conductivity of tomato root systems: evidence for a channel-mediated water pathway. *Plant Physiology* 109: 331-335.
- Saneoka, H., C. Nagasaka, D.T. Hahn, W.-J. Yang, G.S. Premachandra, R.J. Joly and D. Rhodes. 1995. Salt tolerance of glycinebetaine-deficient and -containing maize lines. *Plant Physiology* 107: 631-638.
- Yang, W.-J., A. Nadolska-Orczyk, K.V. Wood, D.T. Hahn, P.J. Rich, A.J. Wood, H. Saneoka, G.S. Premachandra, C.C. Bonham, J.C. Rhodes, R.J. Joly, Y. Samaras, P.B. Goldsbrough and D. Rhodes. 1995. Near-isogenic lines of maize differing for glycinebetaine. *Plant Physiology* 107: 621-630.
- Jenks, M.A., R.J. Joly, P.J. Peters, P.J. Rich, J.D. Axtell and E.N. Ashworth. 1994. Chemically-induced cuticle mutation affecting epidermal conductance to water vapor and disease susceptibility in *Sorghum bicolor* (L.) Moench. *Plant Physiology* 105: 1239-1245.
- Premachandra, G.S., D.T. Hahn, J.D. Axtell and R.J. Joly. 1994. Leaf water relations, gas exchange and water-use efficiency in bloomless and sparse-bloom mutants of *Sorghum bicolor* L. *Environmental and Experimental Botany* 34: 293-301.
- Premachandra, G.S., D.T. Hahn and R.J. Joly. 1994. Leaf water relations and gas exchange in two grain sorghum lines differing in their pre- and post-flowering drought tolerance. *Journal of Plant Physiology* 143: 96-101.

- Premachandra, G.S., D.T. Hahn and R.J. Joly. 1993. A simple method for determination of abaxial and adaxial epicuticular wax loads in intact leaves of *Sorghum bicolor*. *Canadian Journal of Plant Science* 73: 521-524.
- Struve, D.K. and R.J. Joly. 1992. Transplanted red oak seedlings mediate transplant shock by reducing leaf surface area and altering dry weight partitioning. *Canadian Journal of Forest Research* 22: 1441-1448.
- Premachandra, G.S. and R.J. Joly. 1992. Solutes contributing to osmotic pressure in young versus mature leaves of cacao seedlings. *Journal of Plant Physiology* 139: 355-360.
- Simon, J.E., D. Reiss-Bubenheim, R.J. Joly, and D.J. Charles. 1992. Water stress-induced alterations in essential oil content and composition of sweet basil. *Journal of Essential Oil Research* 4: 71-75.
- Graves, W.R., R.J. Joly, and M.N. Dana. 1991. Water use and growth of honey locust and tree-of-heaven at high root-zone temperature. *HortScience* 26: 1309-1312.
- Joly, R.J. and D.T. Hahn. 1991. Net CO<sub>2</sub> assimilation of cacao seedlings following dark chilling. *Tree Physiology* 9: 415-424.
- Charles, D., R.J. Joly, and J.E. Simon. 1990. Effects of osmotic stress on the essential oil content and composition of peppermint. *Phytochemistry* 29: 2837-2840.
- Deng, X, R.J. Joly, and D.T. Hahn. 1990. The influence of plant water deficit on distribution of <sup>14</sup>C-labeled assimilates in cacao seedlings. *Annals of Botany* 66: 211-217.
- Deng, X, R.J. Joly, and D.T. Hahn. 1990. The influence of plant water deficit on photosynthesis and translocation of <sup>14</sup>C-labeled assimilates in cacao seedlings. *Physiologia Plantarum* 78: 623-627.
- Joly, R.J. 1989. Effects of sodium chloride on the hydraulic conductivity of soybean root systems. *Plant Physiology* 91: 1262-1265.
- Deng, X, R.J. Joly, and D.T. Hahn. 1989. Effects of plant water deficit on the daily carbon balance of leaves of cacao seedlings. *Physiologia Plantarum* 77: 407-412.
- Joly, R.J., W.T. Adams, and S.G. Stafford. 1989. Phenological and morphological responses of mesic and dry site sources of coastal Douglas-fir to water deficit. *Forest Science* 35: 987-1005.
- Graves, W.R., M.N. Dana, and R.J. Joly. 1989. Influence of root-zone temperature on growth of tree-of-heaven. *Journal of Environmental Horticulture* 7: 79-82.
- Graves, W.R., M.N. Dana and R.J. Joly. 1989. Root-zone temperature affects water status and growth of red maple. *Journal of the American Society for Horticultural Science* 114: 406-410.
- Joly, R.J. and D.T. Hahn. 1989. An empirical model for leaf flush expansion in cacao in relation to plant water deficit. *Annals of Botany* 64: 1-8.
- Joly, R.J. and D.T. Hahn. 1989. Net CO<sub>2</sub> assimilation of cacao seedlings during periods of plant water deficit. *Photosynthesis Research* 21: 151-159.
- Joly, R.J. and J.B. Zaerr. 1987. Alteration of cell-wall water content and elasticity in Douglas-fir during periods of water deficit. *Plant Physiology* 83: 418-422.

Joly, R.J. and W.T. Adams. 1983. Allozyme analysis of pitch X loblolly pine hybrids produced by supplemental mass-pollination. *Forest Science* 29: 423-432.

Eckert, R.T., R.J. Joly, and D.B. Neale. 1981. Genetics of isoenzyme variants and linkage relationships among allozyme loci in 35 eastern white pine clones. *Canadian Journal of Forest Research* 11: 573-579.

Adams, W.T. and R.J. Joly. 1980. Allozyme studies in loblolly pine seed orchards: clonal variation and frequency of progeny due to self-fertilization. *Silvae Genetica* 29: 1-4.

Adams, W.T. and R.J. Joly. 1980. Linkage relationships among twelve allozyme loci in loblolly pine. *Journal of Heredity* 71: 199-202.

Adams, W.T. and R.J. Joly. 1980. Genetics of allozyme variants in loblolly pine. *Journal of Heredity* 71: 33-40.

### **Grants and Awards (since 1990):**

U.S. Department of Agriculture. Food and Agricultural Sciences National Needs Graduate Fellowship Grants Program. D. Rhodes and R.J. Joly. National Needs Program of Study and Research: The Biotechnology of Plant Response to the Environment. \$108,000. 1998-2003.

U.S. Department of Agriculture NRICGP. A. Handa, R.J. Joly and J. Gaffe. Role of pectin methylesterase and pectin chemistry in plant growth and development. \$87,366. 1996-98.

U.S. Department of Agriculture NRICGP. A. Handa, R.J. Joly, J. Gaffe and D. Tieman. Function of pectin methylesterase in plant growth and development. \$130,000. 1994-97.

National Science Foundation. Course, Curriculum and Laboratory Improvement Program. Development and implementation of an inquiry-based approach to teaching plant physiology. R.J. Joly and W.R. Woodson. \$150,500. 1994-1996.

U.S. Department of Agriculture NRICGP. D. Rhodes, R.J. Joly, P.B. Goldsbrough. Salt and drought tolerance of F<sub>8</sub> maize lines differing in glycinebetaine. \$120,000. 1993-95.

McKnight Foundation. E.N. Ashworth, J.D. Axtell (project director), J.L. Bennetzen, R.A. Bressan, L.G. Butler, N.C. Carpita, G. Ejeta, P.B. Goldsbrough, P.M. Hasegawa, R.J. Joly, D. Rhodes. Genetic, morphological, physiological and biochemical characterization of drought resistance in *Sorghum bicolor*. \$750,000 (\$60,000 to R.J. Joly). 1992-1995.

Great Lakes Chemical Corporation. R.J. Joly. Evaluation of the efficacy of a stress-ameliorating compound. \$17,500. 1992-1993.

McKnight Foundation. E.N. Ashworth, J.D. Axtell (project director), J.L. Bennetzen, R.A. Bressan, L.G. Butler, N.C. Carpita, G. Ejeta, P.B. Goldsbrough, P.M. Hasegawa, R.J. Joly, D. Rhodes. Characterization of morphological, physiological and biochemical mechanisms associated with drought resistance in *Sorghum bicolor*. \$750,000 (\$62,500 to R.J. Joly). 1989-1992.

Mint Industry Research Council. J.E. Simon and R.J. Joly. Water management of peppermint in the Midwest. \$55,000. 1990-1992.

Hershey Foods Corporation. R. J. Joly. Carbon and nitrogen allocation in cacao under drought stress. \$70,000. 1990.

Hershey Foods Corporation. R.J. Joly. Photosynthesis, carbon partitioning, and productivity in cacao. \$124,010. 1989-90.

### **Service to Department, School and University: (selected)**

Member, Purdue University Senate (2006-2009). Member, Purdue University Senate Steering Committee (2006-2007).

Departmental Representative, College of Agriculture Area Promotions Committee (2004-2006), serving in role of Interim Department Head, 2006.

College of Agriculture Outcomes-Based Assessment Committee (2005). This ad hoc committee was charged with developing a college-wide outcomes-based approach to learning. The committee was active in 2004 and January 2005 and has been superseded by an implementation committee.

College of Agriculture Honors Committee (2005-06). This committee, composed of departmental honors coordinators, was charged with developing a plan for a College-wide honors program. The Dean's Scholars Program, conceptualized and developed during 2005, is intended to recognize high achieving students and to stimulate their interest in research and scholarly activities.

Search and Screen Committee, Dean of the College of Agriculture (2004, 1994)

College of Agriculture peer mentoring network for new faculty (2004-05).

Chair, Roadmapping Committee for Undergraduate Education, School of Agriculture (2001-2002). Convened a series of discussions during 2001, leading to the development of a report to the Dean of Agriculture: *Goals, Strategies and Action Plans for Undergraduate Education, Purdue University School of Agriculture*. 21 pp.

Chair, Purdue University Course and Instructor Evaluation Steering Group (1999-2002). The role of the committee was to establish guidelines and provide recommendations for the implementation of course and instructor evaluation at Purdue University in accord with policies established by the University Senate.

Executive Committee, Purdue University Teacher Education Council (1999-2002), representing the School of Agriculture. The Council establishes academic standards for all students pursuing curricula leading to teacher certification.

Chair, HLA Teaching Evaluation Committee, 1998-2002. HLA developed one of three pilot teaching evaluation systems at Purdue University during 1999. The prototype system served as a model for some departments in the School of Agriculture and others.

Co-Director, Purdue University Center for Plant Environmental Stress Physiology (1997-2001).

Chair, Curriculum Committee, Purdue University Plant Biology Program (1995-1999).

Chair, Plant Physiology Steering Committee, Purdue University Plant Biology Program (1995-1999).

Purdue University Teaching Evaluation Committee (1996-1998). The committee provided recommendations for improving teaching through the use of formative and summative evaluation practices. The committee's report was later adopted by the University Senate and served as the basis for implementation of new course and instructor evaluation policies at Purdue.

Young Scholars Advisory Committee (1993-1997). The committee planned and coordinated the NSF-supported agricultural research apprenticeship program for high school students.