

MICHELLE L. JONES

**Area of responsibility/ interests:** Floriculture Molecular Biology

**Education history:**

Ph.D.	Horticulture	Purdue University	1997
B.S.	Agricultural Biochemistry	Iowa State University	1993

**Professional positions held:**

Oct 2006- present	Associate Professor, Dept. of Horticulture and Crop Science The Plant Molecular Biology/ Biotechnology Program The Ohio State University, Wooster, OH 85% Ohio Agricultural Research & Development Center 15% Ohio State University Extension
April 2001- Oct 2006	Assistant Professor, Dept. of Horticulture and Crop Science The Plant Molecular Biology/ Biotechnology Program The Ohio State University, Wooster, OH
April 1998- April 2001	Assistant Professor, Dept. of Horticulture and Landscape Architecture, Colorado State University, Fort Collins, CO Area of Specialization: Floriculture/ Molecular Biology

**Current activities:**

**Research projects:** Investigating the molecular and biochemical regulation of flower and leaf senescence

**Extension programs:** Production and postproduction practices to maintain floriculture crop quality during shipping and to enhance retailability.

Preventing ethylene damage during greenhouse production, shipping and retailing of Floriculture crops.

**Courses taught:** H&CS 830 Scientific Writing

**Refereed Publications (last 5 years)**

Shuangyi B., Willard B., Kinter, M., Stead A., and M.L. Jones (2008) Proteomic analysis of post-pollination senescence. In preparation.

Chapin L, Shuangyi B., and M.L. Jones (2008) Ethylene regulates phosphorus remobilization and expression of a phosphate transporter (*PhPT1*) during petal senescence in petunia. Being revised for resubmission to Plant Journal.

Jones M.L. (2008) Ethylene signaling is required for pollination-accelerated corolla senescence in petunias. Plant Science. In press.

Jones M.L., G.S. Chaffin, J.R. Eason and D. Clark (2005) Ethylene Sensitivity Regulates Proteolytic Activity and Cysteine Protease Gene Expression in Petunia Corollas. Journal of Experimental Botany. 56:2733-2744.

Chiang Y-C., C. Stushnoff, A.E. McSay, M.L. Jones and H. Bohnert (2005) Overexpression of Mannitol-1-Phosphate Dehydrogenase Increases Mannitol Accumulation and Adds Protection Against Chilling Injury in Petunia. Journal of the American Society for Horticultural Science. 130:605-610.

Langston B.L., S. Bai and M.L. Jones (2005) Increases in DNA Fragmentation and Induction of a Senescence-Specific Nuclease are Delayed during the Senescence of Ethylene-insensitive (*etr1-1*) Transgenic Petunias. Journal of Experimental Botany. 56:15-23.

Jones M.L., K.K. Cochran, G.A. Anderson and D.C. Ferree (2004) Effects of Preservatives and Cold Storage on Performance of Cut Branches of Various Cultivars of Deciduous Holly. HortTechnology. 14:230-234.

Pennycooke J.C., R. Vepachedu, C. Stushnoff and M.L. Jones (2004) Expression of an  $\alpha$ -Galactosidase Gene in Petunia is Up-regulated during Low Temperature Deacclimation. Journal of the American Society for Horticultural Science. 129:491-496.

Clark D.G., C. Dervinis, J.E. Barrett, H. Klee and M.L. Jones (2004) Drought-induced Leaf Senescence and Horticultural Performance of Transgenic P<sub>SAG12</sub>-*IPT* Petunias. Journal of the American Society for Horticultural Science. 129: 93-99.

Pennycooke J.C., M.L. Jones and C. Stushnoff (2003) Down-Regulating  $\alpha$ -Galactosidase Enhances Freezing Tolerance in Transgenic Petunia. Plant Physiology. 133: 901-909.

Chang H., M.L. Jones, G.M. Banowitz and D.G. Clark (2003) Overproduction of Cytokinins in Petunia Flowers Transformed with P<sub>SAG12</sub>-*IPT* Delays Corolla Senescence and Decreases Sensitivity to Ethylene. Plant Physiology. 132: 2174-2183.

Jones M.L. (2003) Ethylene Biosynthetic Genes are Differentially Regulated by Ethylene and ACC in Carnation Styles. Plant Growth Regulation. 40:129-138.

#### **Extension Publications (last 5 years)**

Jones M.L. (2006) Recognizing Symptoms of Ethylene Damage and Sources of Ethylene Contamination in the Greenhouse. Northwest Ohio's Commercial Floriculture Resource Newsletter 2 :4-5.

Jones M.L. and A.D. Stead (2006) Creation of the D.C. Kiplinger Petunia Microarray: A Floriculture Resource for the Future. OFA Bulletin 898: 20-21.

Ling P., Pasian C. and M.L. Jones (2006) Save energy, but watch for hidden risks. GM PRO 26: 75-79.

Canas L., D. Dyke, C. Pasian, P. Konjoian, M. Jones and P. Ling (2005) Extension Reloaded Tours with Commercial Clientele: Taking University and Grower Cooperation to a Whole New Level. OFA Bulletin\* 890: 3-6.

Jones M.L. (2005) Postproduction Care and Handling: How do we Maintain Plant Quality after Production? Ohio Floriculture Online Newsletter 12(1): <http://floriculture.osu.edu/>

#### **Proceedings and Book Chapters (last 5 years)**

Jones, M.L., Stead A.D. and D.G. Clark (2008) Petunia flower senescence. In *Petunia: A Model System for Comparative Research*. T. Gerats ed. Springer, New York. In press.

Underwood B.A., Clark D.G. and M.L. Jones (2008) Petunia biotechnology. In *Petunia: A Model System for Comparative Research*. T. Gerats ed. Springer, New York. In press.

Chapin L., and M.L. Jones (2007) Nutrient remobilization during pollination-induced corolla senescence in petunia. *Acta Horticulturae* 755: 181-190.

Jones, M.L., Shuangyi B., Willard B., Stead A., and M. Kinter (2007) Proteomic Analysis of Pollination-induced Senescence in Petunia Flowers. Proceedings of the 7<sup>th</sup> International Ethylene Symposium. A. Ramina, C. Chang, J. Giovannoni, H. Klee, P. Perata, and E. Woltering eds. Springer, The Netherlands, Pgs. 279-284.

Stead A.D., van Doorn W.G., Jones M.L., and C. Wagstaff (2006) Flower senescence: fundamental and applied aspects. In *Flowering and its Manipulation*. Annual Plant Reviews. Vol 20. C. Ainsworth ed. Blackwell Publishing, Oxford, UK. Pgs 261- 296.

Jones M.L. (2004) Changes in Gene Expression during Senescence. *In Plant Cell Death Processes*. L. Nooden ed. Elsevier Science, San Diego, Calif. Pgs 51-72.

Pennycooke J.C., M.L. Jones, R. Vepachedu and C. Stushnoff (2003) PCR-Based Cloning of an  $\alpha$ -Galactosidase Gene from Deacclimated Petunia. *Acta Horticulturae*. (ISHS) 618:105-113.

Woodson W.R. and M.L. Jones (2003) In Search of Eternal Youth. The Delay of Postharvest Senescence in Flowers. *Acta Horticulturae*. (ISHS) 624:305-314.

Jones M.L., B.J. Langston and F. Johnson (2003) Pollination-induced Senescence of Ethylene Sensitive and Insensitive Petunias. *In Biology and Biotechnology of the Plant Hormone Ethylene III*. M. Vendrell, H. Klee, J.C. Pech and F. Romojaro eds. IOS Press, Amsterdam. Pgs 324-327.

**Presentations (last 5 years)**

Jones ML (2007) Nutrient remobilization during pollination-induced corolla senescence in petunia. International Conference on Quality Management in Supply Chains of Ornamentals., Bangkok, Thailand, Dec 3-6, 2007

Jones ML (2007) Molecular regulation of flower senescence. Chulalongkorn University, Bangkok, Thailand, Nov 29, 2007.

Jones ML (2007) Cleveland Extension Reloaded: Horticultural and Postproduction Considerations. Greater Cleveland Flower Growers Association Meeting. March 13, 2007

Jones ML (2007) Recognizing Symptoms of Ethylene Damage. OARDC Greenhouse Horticulture Workshop. February 6, 2007.

Jones ML (2007) What is Ethylene and how can it Damage Greenhouse Crops? OARDC Greenhouse Horticulture Workshop. February 6, 2007

Jones ML (2007) What is Ethylene and how can it damage Greenhouse Crops? December 14, 2007.

Jones ML (2007) Nutrient remobilization during petal senescence. OSU Horticulture & Crop Science Department Seminars. April 13, 2007.

Jones ML (2006) Proteomic Analysis of Senescence Signaling Pathways in Petunia Flowers. College of Wooster, Wooster, OH. January 26, 2006.

Jones ML (2006) Proteomic Analysis of Pollination-induced Senescence in Petunia Flowers. Seventh International Ethylene Symposium, Pisa, Italy. June 20, 2006.

Jones ML (2006) Proteomic Analysis of Post-Pollination and Senescence Signaling Pathways in Petunia Flowers. Seventh Annual World Petunia Days Meeting, University of Nottingham, Sutton Bonington, UK. September 16, 2005.

Jones ML (2006) Preventing Ethylene Damage in the Greenhouse. Toledo Area Extension Reloaded - Toledo Area Flower and Vegetable Grower's Association. October 19, 2006.

Jones ML (2006) Energy Management: Horticultural Considerations. Recognizing Symptoms of Ethylene Damage and Sources of Ethylene Contamination in the Greenhouse. OSU Greenhouse Engineering Workshop- Energy Management. January 23, 2006.

Jones ML (2005) Changes in Proteolytic Activity and Cysteine Proteinase Gene Expression during the Senescence of *etr1-1* Transgenic Petunias. American Society for Horticultural Science (ASHS) Annual Meeting, Las Vegas, NV. July 19, 2005.

Jones ML (2005) Research Summaries. Florel Application during Production: Effects on Postproduction Quality. Ohio Florists' Association (OFA) Short Course. July 10, 2005.

Jones ML (2005) Ethylene and Plant Quality: The Good, the Bad, and the Ugly. Toledo Area Winter Greenhouse Conference. January 13, 2005.

Jones ML (2004) Nucleic Acid Catabolism and Phosphorus Remobilization during Corolla Senescence in Ethylene-insensitive (*etr1-1*) Transgenic Petunias. Gordon Research Conference on Senescence and Programmed Cell Death. South Hadley, MA. June 30, 2004.

Jones ML (2004) Ethylene in the Greenhouse. Green Circle Growers Extension Reloaded-Greater Cleveland Flower Growers Association. October 19, 2004.

Jones ML (2004) Ethylene and Plant Quality. Cincinnati Area Extension Reloaded-Cincinnati Flower Growers Association Meeting. April 14, 2004.

Jones ML (2003) Programmed Cell Death and Senescence: Characterization of Nucleases and Proteases Associated with Flower Senescence in Petunia. OSU Plant Molecular Biology and Biotechnology (PMBB) Seminars. November 7, 2003.

Jones ML (2003) Hormonal Regulation of Flower Senescence in *Petunia x hybrida*. OSU Horticulture & Crop Science Department Seminars. October 24, 2003.

Jones ML (2003) Regulation of Flower Senescence by Plant Hormones. College of Wooster, Wooster, OH. January 16, 2003.

Jones ML (2003) Elevated Cytokinin Levels in SAG12-*IPT* Petunias Delay Flower Senescence and Decrease Sensitivity to Ethylene. American Society for Horticultural Science (ASHS) Annual Meeting, Providence, RI. October 4, 2003.

Jones ML (2003) Advanced Plant Growth Management. OFA Short Course. July 15, 2003.

Jones ML (2003) Advanced Research Summaries: Enhancing Postproduction Quality by Modifying Plant Hormones. OFA Short Course. July 14, 2003.

Jones ML (2003) Maintaining Postproduction Quality of Ornamentals. Tri-State Green Industry Expo. Covington, KY. February 6, 2003.

### **Grant Activity (last 5 years)**

Canas L., Ling P. and M.L. Jones (2006) Management of silverleaf whitefly and western flower thrips using the natural enemies *Encarsia formosa* and *Amblyseius swirskii* on petunia plants exhibiting differential ethylene sensitivity. Ohio IPM Program. May 2006-January 2007 (Funded \$4500)

Jones M.L. and C. Pasian (2006) Evaluation of Product Coatings. Sherwin Williams Company. (Funded \$53,340) Oct 2006- March 2007.

Jones M.L. (2005) Floriculture Germplasm Enhancement: Using Genetic Engineering to Improve Postproduction Quality. American Floral Endowment and the USDA Floriculture and Nursery Initiative. (Funded \$162,778) Aug 2005- July 2010.

Jones M.L. (2004) Phosphoproteomic Analysis of Pollinated Petunia Styles. OARDC Seed Grant. (Funded \$50,000) May 2005 – April 2008

Jones M.L., T. Meulia and J. Streeter (2004) Role of Metacaspases in Petunia Petal and Leaf Senescence. OARDC Interdisciplinary Team Grant. (Funded \$100,000) May 2005 – April 2008

Jones M.L. (2004) Protein Expression Profiling during Flower Senescence: A Proteomic Approach to Enhancing Post Production Quality. The Fred C. Gloeckner Foundation, Inc. (Funded \$29,000) Aug 2004 - July 2007.

Jones M.L. (2004) Floriculture Genomics: Identifying Genetic Targets to Delay Flower Senescence. American Floral Endowment. (Funded \$34,500) Aug 2003 - July 2005.

Jones M.L. (2003) Hormone Interactions and their Role in the Initiation and Regulation of Flower Senescence. The Fred C. Gloeckner Foundation, Inc. (Funded \$18,000) Aug 2002 - July 2004.

### **Creative output and professional service**

2004- Present. Consulting Editor, Molecular Biology and Biotechnology, Journal of the American Society for Horticultural Science.