

Department of *Horticulture*

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Dr. Richard Veilleux, Department Head

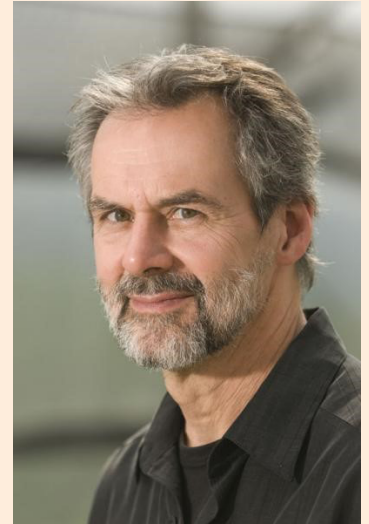
October-November 2017

Fall semester is more than half over already, the Hokie football team is having a great season and we have not had a hard frost in Blacksburg yet. In Horticulture news, we will be interviewing four strong candidates for director of the incipient School of Plant and Environmental Sciences before the end of the semester. We all hope for a good outcome. Truong (Will), our recently hired fiscal technician who had completed his M.S. in Accounting in May stayed with us long enough to set our books straight, but now has left for a position at the Office of International Research, Education and Development. Aparna Yellapantula, the new Business Operations Manager for CALS, will help Tabitha and Debbie fill the gaps while we rehire the fiscal position. Aparna worked for several years as a staff auditor at VT, so she knows her way around a spreadsheet. Scott Douglas, our Garden Director, has been working with the curriculum committee to implement course offerings in the landscape

design option. He will be teaching Introduction to Outdoor Design next semester as a special study for undergraduates, to review the principles of design using hardscape and plant materials, computer and hand graphics.

Other landscape design courses are in the planning for 2018-19 to reinforce this option for Hort students. Hort faculty and grad students published several notable papers this month, maintaining the status of our department in scientific circles. It takes years and buckets of money for these research projects to bear fruit in the form of a major journal publication, so it is tremendously satisfying to usher them through peer review and see them in print.

— Richard



Graduate Student Profile

I'm Laura Barth (Kaderabek) from Eau Claire, WI originally, as well as the Raleigh, North Carolina area where I completed a Masters of Science in Horticulture at NC State University. I'm starting a PhD program this semester, working on nitrogen fate in ornamental container crop production, under the direction of Drs. Jim Owen and Alex Niemiera. I also have a degree in Music Performance (flute), and still play music as much as I can. I enjoy traveling, hiking with my dogs, reading, drawing, and nature photography (particularly mountains and waterfalls).

Welcome to the Department!



Devon Johnson, Communications Coordinator for Master Gardener Program

Devon Johnson is the new Communications Coordinator for the Extension Master Gardener program. Before joining the department, she completed her Masters in Communication at Virginia Tech. She also completed an undergraduate program at VT, minoring in Horticulture. Her interest in science writing and communication related to agriculture is a perfect fit to her new position in Horticulture.

Devon is interested medicinal plants with plantain as her favorite because it is so useful (she also loves mountain laurel). Devon and her husband bought a 1940's house in Christiansburg last summer, and most of their spare time revolves around fixing it up. She also knits and does natural dyeing, so plans for a dye garden are inevitable! She has two kittens named Ella Mae and Jones after historic female labor organizers. She loves being in the Horticulture Department and enjoys her friendly colleagues.

Honors and Awards

Jim Owen, Associate Professor of Horticulture, was presented the 2017 ASHS Nursery Crops Working Group Distinguished Achievement Award in recognition of his productivity and innovation in research and extension programs centered on production, physiology and use of landscape plants.

Jim Owen, and colleagues Amy Fulcher (UT, Anthony LeBude (NCSU and Matt Chappell (UGA), were presented the ASHS Outstanding Educational Fact Sheet Award for two-part series on Hydrangea production. You can find the extension publications: "Hydrangea production: cultivar selection and general practices to consider when propagating and growing Hydrangea" at <http://bit.ly/PB1840A> and "Hydrangea production: species-specific production guide" at <http://bit.ly/PB1840B>.

Jim Owen was presented the Virginia Tech College of Agriculture and Life Sciences Excellence in Applied Research Award for improving resource efficiency and mitigating the environmental impact of the Virginia nursery industry.

Holly Scoggins was voted to the Board of the Perennial Plant Association (PPA) as President-Elect, with a 2-year term beginning October 2017. The PPA is the national trade association composed of growers, retailers, landscape designers and contractors, educators, and others that are professionally involved in the herbaceous perennial industry. Next year's PPA Symposium will be held in Raleigh, NC (July 2018). Student scholarships are available for the multi-day event — contact Holly for more information.

The Virginia Big Tree Program was awarded the inaugural Paul F. Revell Scenic Trees award this past September in Richmond. Sarah Gugercin participated by redesigning the program's website (<http://bigtree.cnre.vt.edu/>) making it easy for citizens to Search, Browse, Measure, and Report big trees in Virginia.



Hort Club Trip to the GIE Expo

Barbara Leshyn, John James, Tom Martin, and Sarah Gugercin took 14 Horticulture and Ag Tech students to the Green Industry and Equipment Expo in Louisville, KY October 19-21. With over 850 exhibits, students got to talk to prospective employers, check out new products, and even try out equipment in the 20-acre outdoor demo area. On the way home, we stopped by the historic Buffalo Trace Distillery to learn more about bourbon whiskey.

We would like to thank Todd Walters (Valley Landscaping) and Chris Dixon (Carter Equipment) for covering our NALP memberships, entrance to GIE, and for dinner! We would also like to thank Mark Maslow (Southern Landscape Group) for taking us out on Thursday evening.



Presentations and Workshops

Ramón Arancibia was a guest speaker at the Texas Hispanic Farmer and Rancher Conference, Sept. 14-15, McAllen, TX, where he presented a summary of 15 years' research on the benefits of row covers and low tunnels in vegetable crop production. These include protection against low temperature as well as wind and excess solar radiation, all of which reduce evapotranspiration. They also toured some specialty crop farmers in the area and compared production systems with Virginia farmers.

Aure Bombarely presented: 'The *Nicotiana benthamiana* genome 2.0: from genes to pseudomolecules' at the 8th Solanaceae and 2nd Cucurbitaceae Genome Joint Conference in Valencia, Spain, September 3-6. He was also co-chair for the *Nicotiana* session at this conference.

In September and October, Aure Bombarely was invited to present seminars and classes at three universities: Universidade Federale de Rio Grande do Sul in Porto Alegre, Brasil, the University of British Columbia in Vancouver, Canada and the University of Puget Sound in Tacoma, WA.

Jayesh Samtani, organized and moderated a workshop titled 'The status and future of strawberry industry in the United States' at the ASHS Annual conference in Waikoloa, Hawaii. Dr. Curt Rom, University of Arkansas was the co-organizer of the workshop.



Sanghamitra Das, Ph.D. candidate advised by Dr. Jayesh Samtani, gave a talk on her project titled 'Evaluating paper pellet mulch and mustard seed meal as fumigation alternatives in annual plasticulture strawberry production' ASHS Annual conference in Waikoloa, Hawaii.

Publications

Hardigan MA, Laimbeer FPE, Newton L, Crisovan E, Hamilton JP, Vaillancourt B, Wiegert-Rininger K, Wood JC, Douches DS, Farré EM, Veilleux RE, Buell CR (2017) Genome diversity of tuber-bearing Solanum uncovers complex evolutionary history and targets of domestication in the cultivated potato. *Proceedings of the National Academy of Sciences* <http://www.pnas.org/content/early/2017/10/27/1714380114.short?rss=1>

Michael Hardigan was a graduate student working under Robin Buell (Michigan State) as part of a Plant Genome collaboration. Parker Laimbeer is a VT Ph.D. candidate in Horticulture working under RV in the Translational Plant Science program. In this paper, we looked at the genome sequences of wild potato species, primitive landraces and North American cultivars to trace lineages.

Kumar A, Fogelman E, Weissberg M, Tanami Z, Veilleux RE, Ginzberg I (2017) Lanosterol synthase-like is involved with differential accumulation of steroidal glycoalkaloids in potato. *Planta* 246: 1189-1202

Landis, Z and Samtani, J. 'Shoppers Guide for Berry Plants in the Mid-Atlantic and the Carolinas' HORT 270-NP Virginia Cooperative Extension.

Marand AP, Jansky SH, Zhao H, Leisner CP, Zhu X, Zeng Z, Crisovan E, Newton L, Hamernik AJ, Veilleux RE, Buell CR, Jiang J (2017) Meiotic crossovers are associated with open chromatin and enriched with *Stowaway* transposons in potato. *Genome Biology* 18: 203 <https://genomebiology.biomedcentral.com/track/pdf/10.1186/s13059-017-1326-8?site=genomebiology.biomedcentral.com>

Alex Marand was an undergraduate Biochemistry major at VT who minored in Horticulture, graduating in 2013. He worked in RV's lab in Latham Hall during his undergraduate years, then joined Jiming Jiang's lab for a Ph.D. program at the University of Wisconsin. Jiming is a collaborator on a Plant Genome project awarded to Robin Buell (Michigan), Richard Veilleux, David Douches (Michigan) Jiming Jiang and Yuehua Cui (Michigan). Alex is close to finishing his doctoral program at Wisconsin. His paper examines the principles of genetic recombination in potatoes using a population of plants partially developed at VT.

Petzold HE, Rigoulot SB, Zhao C, Chanda B, Sheng X, Zhao M, Jia X, Dickerman AW, Beers EP, Brunner AM (2017) Identification of new protein–protein and protein–DNA interactions linked with wood formation in *Populus trichocarpa*, *Tree Physiology* <https://doi.org/10.1093/treephys/tpx121>

Earl Petzold, a technician in the Department for 20 years has been working part-time on his Ph.D. for about half that time. This paper represents one of the chapters that he successfully defended in September to complete the degree. Steve Rigoulot is a graduate student in Horticulture in the Translational Plant Science Program, working under Eric Beers.

Sánchez-Sevilla JF, Vallarino JG, Osorio S, Bombarely A, Posé D, Merchante C, Botella MA, Amaya I, & Valpuesta V. (2017) Gene expression atlas of fruit ripening and transcriptome assembly from RNA-seq data in octoploid strawberry (*Fragaria × ananassa*). *Scientific Reports* 7, Article number: 13737 doi:10.1038/s41598-017-14239-6

Seman-Varner R, Varco J, O'Rourke M (2017) Nitrogen benefits of winter cover crop and fall-applied poultry litter to corn. *Agronomy Journal* 109(6) <https://dl.sciencesocieties.org/publications/aj/pdfs/0/0/agronj2016.11.0670>

Rachel Seman-Varner, a recent Horticulture Ph.D. graduate. The research shows that legume cover crops, such as crimson clover and hairy vetch, coupled with poultry litter can reduce inorganic fertilizer requirements for corn by about half.

Grants

Ramón Arancibia was awarded a VDACS grant on Improving Potato Quality with Calcium: Role in Bruising and Internal Disorders

Mark Williams was awarded a VDACS grant on Alternative Fertilizer Recommendations that Support Helper Soil Microbial Communities in High-Density Apple Orchards

Learn more here: <https://governor.virginia.gov/newsroom/newsarticle?articleId=21546>

In the News

Jayesh Samtani and Sanghamitra Das were interviewed by a Virginian-Pilot reporter for an article titled, 'Research suggests strawberry crops can thrive without fumigants' that appeared Sunday, October 1 in the Bridges Edition of The Virginian Pilot.

MAC-ISA announced that the Bonnie Appleton Memorial Fund has reached the \$100,000 endowment mark and that they will begin awarding scholarships this spring!

Hahn Horticulture Garden News

Home Gardening is a new undergraduate course providing an introduction to the principles and practices of gardening at home, including planting and care of ornamentals, vegetables, and fruit. This fall, students in the class established a small vegetable garden at the Hahn Horticulture Garden. Students prepared raised beds, spread compost and mulch, and seeded a variety of fall vegetables. For many students, this is their first hands-on experience with the joys of gardening and working outside. This small garden will continue to serve as an important on-campus resource for demonstration and teaching for this and other classes for years to come.



Upcoming Events:

- **Nov. 1 to Dec. 31** Art in the Garden: Pat West (acrylic).
- **Nov. 15th noon to 1pm:** Learn at Lunch: Botanizing the Swiss Alps with Dr. Khidir W. Hilu
- **Dec. 6th noon to 1pm:** Focusing on fronds across the fern tree of life with Dr. Jordan Metzgar
- **Jan 10th noon to 1pm:** The Great American Chestnut and Efforts of Restoration with Carl Absher

Visit <http://www.hort.vt.edu/hhg/events.html> to learn more!



Halloween Greetings from the Horticulture Department!