

Physical Resources

Land and Facilities	Description
Farm	124 acres, approximately 80 percent of which is planted to research plantings
Lab/office complex	24,500 sq. ft., including 100-person auditorium, and 6 modern labs
Other structures	3-bay greenhouse, equipment storage, independent pesticide containment, storage barn, high-tunnel

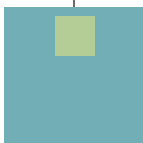
Director – Tony Wolf, 540/869-2560, vitis@vt.edu

Resident Faculty

Faculty	Research and Extension Focus Areas
Chris Bergh Associate Professor, Entomology	Horticultural entomology, primary emphasis on tree fruits and wine grapes. Current research focused on the applied ecology and behavior of pest and beneficial insects, toward development of new or improved approaches to monitoring and managing pest species. Extension activities emphasize grower education on cost-effective strategies for pest management with increased reliance on reduced-risk tools and tactics.
Tremain Hatch Research/extension Viticulture Associate	Provide educational service and information to commercial grape producers, working with individuals, industry associations, and other stakeholders. Assist with applied viticultural research program, including management of vine size and vine nutrition projects.
Mizuho Nita Research/Extension Grape Pathologist, Plant Pathology, Physiology, and Weed Science (PPWS)	Plant disease epidemiology (e.g. development of web-based disease risk assessment tools), cultural and chemical management of grape diseases (e.g. fungicide and fungicide alternative evaluations, development of spray guidelines), diagnostics of various grape diseases, and grape variety disease susceptibility evaluations.
Gregory Peck Assistant Professor, Pomology, Horticulture	Horticultural approaches to address the challenges of producing tree fruit sustainably and profitably. Current emphasis on the use of plant growth regulators for crop-load management in apple orchards, nutrient and soil management in orchards, and sweet cherry cultivar evaluation and production under protective covers.
Tony Wolf Professor, Viticulture, Horticulture	Sustainable vineyard management practices to improve wine grape quality. Current focus on management of grapevine vegetative growth, adaptive training systems, and variety evaluation.
Keith Yoder Professor, PPWS	Tree fruit disease management. Current emphasis on evaluation of fungicide efficacy, fungicide resistance management, management of fire blight, and evaluation of apple cultivar disease resistance.

Postdoctoral Scientists, Graduate Students, and Student Interns

Student	Advisor	Discipline and research area
Angelita Acebes	Bergh	Ph.D. student. Behavior and ecology of brown marmorated stink bug in tree fruits
Gill Giese	Wolf	Ph.D. candidate, Viticulture; Optimized vine balance to promote high fruit and wine quality
Sean Gresham	Bergh	M.S. student. Biological control of woolly apple aphid
Cain Hickey	Wolf	M.S. candidate, Viticulture; Regulated soil moisture as means of managing grapevine growth and fruit quality
Taylor Jones	Nita	M.S. Student, grapevine leafroll-associated viruses survey, diagnostics, and management
Shimat V. Joseph	Bergh	Post-doctoral researcher. Monitoring and management of brown marmorated stink bug in tree fruits
Sasha Marine	Yoder	Ph.D. candidate, PPWS; Fruit fungal pathogen resistance to fungicides
Jhalendra P. Rijal	Bergh	Ph.D. student. Grape root borer ecology, behavior and plant-insect interactions



Farm Management, Technical, and Office Staff

Funding source	Employees	Comments
State, full-time	6	Includes farm manager (1) and executive secretary (1)
Grants, full-time	3	
Grants, part-time	7	Includes 1500 hr/year (1) and seasonal employees

Recent highlights of the AHS Jr. Agricultural Research and Extension Center

The mission of the Alson H. Smith Jr. AREC is “to creatively use science and contemporary technology to solve horticultural crop production problems, develop and disseminate knowledge, train new researchers and industry leaders, and improve the quality of life of Virginia’s citizens”. Our faculty, staff and graduate students work primarily with apples and wine grapes in the disciplines of plant pathology, entomology, horticulture and viticulture.

On a very sad note, our horticulturist, Dr. Rongcai Yuan lost his 18-month battle with cancer in April 2010. That position was re-advertised, and we recruited and hired Dr. Greg Peck in April 2011. With major USDA/NIFA funding of a wine grape project, we also hired Mr. Tremain Hatch in October 2010 as associate extension viticulturist (50%) and grant project coordinator (50%).

Research

Research continues to span a range of issues, from basic investigations of gene regulation in fruit abscission (fruit thinning and pre-harvest fruit drop) to examination of cultural practices to improve fruit and wine quality of wine grapes, and to very practical aspects of chemical and cultural pest management. Eight peer reviewed journal articles were published in 2010. Requests for extramural funding during 2010 were at an all-time high of nearly \$4M (including a successful USDA/NIFA application of \$3.8M in support of the eastern US wine and grape industries), and our faculty (4 FTE) averaged \$159,373 in estimated external funding expended.

- Field testing research of growth regulators and plant protection materials is also strongly supported and is important for several reasons: the results underpin our extension recommendations, including annually revised Pest Management Guides; it provides industry members with unbiased data on pest management tools; and it provides some bridging support of graduate student research and other Center research. Graduate students Hatch (MSc) and Hong (PhD) completed degrees in 2010 and both are employed, the latter in a post-doctoral position at USDA/ARS.
- Entomological projects include a novel effort to introduce a biological control agent of woolly apple aphid to New Zealand. Sean Gresham of New Zealand is working on this project while pursuing his MSc degree at Virginia Tech with Dr. Bergh. Dr. Bergh is also heavily involved in developing monitoring and management strategies for the brown marmorated stink bug. This introduced pest is significantly impacting fruit production in Virginia and elsewhere in the Mid-Atlantic region and has required a comprehensive approach to addressing its management.
- Pathology studies are diverse and include fungal disease management studies of apples, peach and wine grapes and studies to determine the extent of fungicide resistance within populations of apple scab fungus and grape powdery and downy mildew populations.
- Viticultural research is primarily focused on techniques that growers can use to manage excessive vegetative vigor and vine size, and to promote more desirable grapevine canopy characteristics.

Extension and Outreach

- Faculty made 80 extension presentations in 2010, ranging from pest management updates at summer field meetings, to hour-long discussions at In-Depth fruit schools and short courses. Our faculty are also closely involved in development and conduct of industry meetings, including the tree fruits and grape annual technical meetings. Seasonal information, as well as more in-depth resources were provided on individual faculty websites, including pathology blogs.
- Outreach activities included participation at local and regional consumer activities, such as the Apple Harvest Festival in Winchester (AREC faculty and staff provided material and personnel support), radio and TV spots, and numerous requests for input on newspaper stories. Individual faculty also continued to serve in outreach capacities such as high school science fair judging, assistance with plant/insect/disease problem diagnosis (e.g., Master Gardener training programs), responding to media interviews and queries, assistance to state and federal agencies, and other activities that are expected of public servants.