Congratulations to the 2016 AWSEF Scholarship Winners:

Jordan Beaver

Brycen Hill

Jonathan (Jay) Martiniuk

Caroline Merrell

Megan Schumaker

Maria Smith

Andrej Svyantek

Jordan Beaver

Ph.D. Candidate, University of CA – Davis

Jordan Beaver is the recipient of the Banfi Vintners Foundation / AWSEF Scholarship.

Jordan is a first year Ph.D. student at UC-Davis working for Anita Oberholster in the Viticulture and Enology department. Jordan is currently working on a project related to the isolation of anthocyanin compounds and investigating their interaction with cell wall material. The ultimate goal of this project is to develop a model for anthocyanin absorption/desorption based on specific environmental factors. This project could greatly benefit the wine industry as a whole by equipping winemakers with the knowledge of how to achieve specific concentrations of anthocyanins in their red wine thereby controlling the visual aspect of a wine's hue.

Next year, Jordan will begin the arduous task of developing his personal project that he will defend in his Qualifying Exam. Jordan hopes to propose an investigation of the impact of polymeric pigments on the mouthfeel of red wine. Jordan believes that this study could go hand-in-hand with the current anthocyanin project as malvidin-3-glucoside is one of the primary building blocks for polymeric pigment. From an industry standpoint, this project may also yield valuable information of how to manipulate fermentation conditions to achieve the desired mouthfeel properties for red wines.

Brycen Hill

Graduate Student, Virginia Tech

Brycen Hill is the recipient of the East Tennessee/Smoky Mountains AWS Chapter Scholarship – In Fond Memory of Our Former Members Who Now Belong to the Chapter Eternal.

The climate in the Eastern U.S. presents potential challenges to vineyard production of quality fruit with sustainable yields, primarily due to high soil moisture and persistent humidity during the growing season. Vine balance, or the ratio of fruit yield to vegetative growth, can often become disproportionate due to the climatic effects on excessive vegetative vigor. Secondary effects of this vegetative growth, such as shading, can also be detrimental to fruit quality. Brycen's current research attempts to find ways to optimize vine balance by examining strategies to suppress vegetative growth while concomitantly improving fruit quality in Cabernet Sauvignon. Brycen's strategies include root volume restriction, under-trellis cover cropping, and rootstock selection. Preliminary results show that root restriction can significantly reduce vegetative production and increase fruit development and resultant quality. Total phenolic content and anthocyanin concentration of berries, both considered proxies for potential wine quality, were increased compared to unrestricted root systems. The reduction in vegetative growth creates less density in canopies, allowing for increased light penetration and airflow, reduction in disease incidence (resulting in less chemical input), and less manual labor required for canopy management. These strategies have the potential to help grape growers become more efficient high quality producers, resulting in better wines.

Jonathan (Jay) Martiniuk

Graduate Student, University of British Columbia

Jay Martiniuk is the recipient of the Columbus, Ohio AWS Chapter Scholarship – In Memory of Nancy Goorey.

Wine is made through the fermentation of grape sugars into ethanol by yeast, mainly the species *Saccharomyces cerevisiae* (*S. cerevisiae*). While many wines are made by direct inoculation with a single *S. cerevisiae* yeast strain, others are made by spontaneous fermentation, where a variety of yeast from the vineyard or on winery surfaces carry out the fermentative process. These wines may have more sensory complexity and also more regional character, or *terroir*, as yeast populations vary by region. Jay's research focuses on characterizing the *Saccharomyces* and non-*Saccharomyces* yeast populations found in the Okanagan wine region of British Columbia, Canada. Using various genomic and metagenomic techniques, he is conducting a multi-year survey of several vineyard sites to evaluate differences in yeast population composition and to search for regionally-unique yeast species and *S. cerevisiae* strains with winemaking potential. No research has yet been conducted on vineyard yeast populations in Canada. Jay aims to shed some light on this little-explored subject, contributing to the small but growing pool of North American research in this area, and to exploit a potentially valuable resource of novel yeasts that may enhance wine quality and regional character.

Caroline Merrell

Ph.D. Candidate, Washington State University

Caroline Merrell is the recipient of the South Carolina – Tuller AWS Chapter Scholarship.

Caroline's current research project focuses on the changes to wine anthocyanin and tannin content during simulated aging. During the 2015 harvest, Cabernet Sauvignon and Syrah grapes were harvested at three maturities: under ripe, ripe, and over ripe. By harvesting fruit at different maturities, wines made from the grapes had different levels of anthocyanin, tannin and different ratios of the two compounds. The ratio between anthocyanin and tannin is thought to drive the formation of polymeric pigments, which provide the stable color to wines and decrease astringency. Currently, Caroline is analyzing the wines for polymeric pigment content, and tannin size distribution over time. Caroline hopes to gain a greater understanding of polymeric pigment formation and stability, since polymeric pigments play an extremely important role in establishing the stable color in wines. Caroline is also planning on running sensory panels to determine the sensory impact of different phenolic compounds over time. Ultimately, Caroline hopes to be able to shed light on the impact fruit picking decisions, winemaking practices, and storing conditions have on the astringency, bitterness, and color of the wine. This work will positively impact the wine industry in North America by explaining aging processes, and linking sensory characteristics to chemical compounds and reactions.

Caroline also received an AWSEF scholarship in 2015.

Megan Schumaker

Graduate Student, Washington State University

Megan Schumaker is the recipient of the Lehigh Valley AWS Chapter Scholarship.

Wine faults may be caused by the presence of numerous organisms, with one common spoilage organism being *Brettanomyces*. Through its metabolism of various precursors, *Brettanomyces* can produce many aroma and flavor compounds that are associated with aroma descriptors such as smoky, sweaty, as well as barnyard, and in turn, have the potential to severely alter wine quality. Because of these objectionable aroma compounds, its presence in a wine may result in significant financial losses for a winery. As such, further research into the production of these aromas, and the varying influence of wine composition of aroma perception is of interest. Also, *Brettanomyces* aromas can be controversial and tolerated at different levels depending on the preference of the consumer. Thus, the objective of Megan's study is to evaluate the influence of the presence of three volatile compounds (4-ethylphenol, 4-ethylguaiacol and 4-ethylcatechol) associated with *Brettanomyces* growth on the sensory properties of a Portuguese red wine blend. This study, conducted in both Washington State and Portugal, evaluated aroma perception by a sensory consumer panel. By conducting the study in both Washington, USA and Lisbon, Portugal, geographical differences will be analyzed. Variances between these two populations may supplement past and future research by incorporating how geographical differences may influence the perception of *Brettanomyces* aromas. In addition, the wine industries from both locations may benefit by gaining knowledge on what their consumers will accept. Information collected from Megan's study will be beneficial to those in the industry by offering more factors that may aid in providing further insight as to how these differences influence the perception of a 'bretty' wine.

Maria Smith

Ph.D. Candidate, Pennsylvania State University

Maria Smith is the recipient of the South Eastern PA Region Scholarship – In Honor of Larry and Elinor Edmonson.

Notable problems facing the achievement of consistent high-quality wine grape production for growers in the Mid-Atlantic and Northeastern US regions include mid-winter bud survival, injury due to late-spring frost events, disease management, and economic constraints in production costs. Maria's research aims to address these needs through the investigation of crop load management techniques for regulating crop levels and understanding the physiological mechanisms underlying spring frost injury.

Crop load (the ratio of yield to pruning weight) is a critical determining factor for fruit and wine quality and vine health. Recently, early leaf removal (ELR) at pre-bloom and fruit-set has shown to be effective in reducing crop levels and improving fruit and wine quality in over-cropping grape varieties Sangiovese and Tempranillo grown in the Mediterranean climates of Italy and Spain. Compared with cluster thinning, ELR can be easily mechanized, helping to decrease the costs associated with using crop regulation practices.

Recent observations have suggested that many of the new Minnesota cold-hardy hybrid varieties experience earlier bud break relative to *V. vinifera* varieties based on genetic attributes of the parentage, and thus are more prone to frost damage. Maria will be exploring frost-recovery in depth through tracking phenology of 1-year-old potted vines in the vineyard. The information from this study is useful for both commercial growers selecting vines and grape breeders who can use the information to enhance frost avoidance and tolerance of new cultivars.

Andrej Svyantek

Graduate Student, Auburn University

Andrej Svyantek is the recipient of the North Alabama AWS Chapter Scholarship – In Honor of Bonnie and Dennis Dilworth.

Andrej's research focuses on characterizing the phenological growth and viticultural traits of three Pierce's Disease resistant 87.5% *Vitis vinifera* selections grown in the southeastern United States. Pierce's Disease is caused by an endemic bacterium; it is transmitted by piercing sucking insects, including sharpshooters, which are abundantly found in the vast riparian areas stretching across Alabama and the southeastern United States. Infection is akin to a death sentence for *V. vinifera* grapevines, thus regional viticulture is built on cultivation of hybrid bunch grapes (*Vitis sp.*) and Muscadine (*Muscadinia rotundifolia*). However, with the new Pierce's Disease resistant selections from the UC Davis breeding program, Andrej's research includes observing and evaluating *V. vinifera* grapevine performance in the humid subtropical climate of central Alabama. When Pierce's Disease resistant *V. vinifera* vines become commercially available, thorough understanding of the vines' performance in the southeast will enable our region's growers and researchers to adapt viticultural management practices to match new cultivars to our numerous diverse geographical growing regions, eventually maximizing grape and wine quality in previously unexplored soils.