



Future Fermentations

The Texas Wine Market has increased its grape production by 44 percent over the previous year. Texas wineries are adding over \$1 billion of revenue annually to the Texas economy, ranking it the fifth-largest wine producing state in the country. Texas Tech University is helping the Texas economy by experimenting with viticulture and enology through research and new academic programs. Texas Tech has not only found new ways to produce a better quality wine through advanced field research, but by also educating students for careers in the wine market.

In 2008, the Texas Department of Agriculture, along with the Texas Wine Industry, rewarded Texas Tech University with a \$1 million grant to experiment with research in wine-grape production. Texas Tech now offers an undergraduate program in viticulture and enology, and shares a joint operation with the Texas Cooperative Extension Agency.

"Students will learn creative skills throughout the program, and can expect the wine production to take up to a year," said Dr. Thomas Thompson, chairman of the Department of Plant and Soil Sciences at Texas Tech. "Because of the extensive process and skillful preparation, this program can be seen as somewhat a form of art."

Texas Tech is the first educational institution in the state to offer an undergraduate program in viticulture and enology. In fall 2009, the Department of Plant and Soil Science started the program for possible careers in the market by developing professional work in the wine industry. A student can expect to learn about the wine industry and wine retailing. A total of 18 credit hours must be completed in order to graduate. The department has several scholarship opportunities that are available to current and prospective students upon request. Enrollment in individual courses are not available.

In the coming year, Texas Tech will offer an undergraduate distance program in viticulture and enology online. This will allow the department to expand their capacity of how many participants can enroll each term. The department is also adding new courses to the curriculum in the coming year.

"The courses that are being added to the curriculum will further the individual's knowledge in order for them to manage a vineyard on their own," said Dr. Ed Hellman, professor of viticulture at Texas Tech.

Research and experimentation are also done on-site at Texas Tech and at the Texas Agri-Life Research and Extension Center in Lubbock, Texas. The viticulture department has done studies on grape and rootstock evaluation, grapevine climate adaption and ways to reduce crop loss from frost or hail. An effort has been pushed toward grape production in an attempt to match exotic varieties that can survive in West Texas weather. Weather across the South Plains is known for its unexpected severe storms and cold fronts. A late/early freeze, or hail storm could ruin a crop.

"Our biggest challenge is the weather," said Hellman. "Because the South Plains has such a long growing season, we can produce several varieties of grapes that will be used for wine experimenting," Dr. Hellman is the leading viticulturist at the Research Center.

At this time, Texas Tech viticulture research is focusing on grape varieties and finding more efficient ways to grow larger and better yields. Viticulturists in the Plant and Soil Science Department are evaluating 22 wine grape varieties from certain parts of Europe. The long growing season allows vineyards to grow and ripen several varieties throughout the warm months. The purpose of all the grape testing is to provide a better wine quality.

"It's important to watch your crop during the growing season so you will yield the highest quality fruit when harvested", said Hellman. "As a result, the better quality the fruit is, the better the wine will be."

Enology, the study of wine making, is one of the last steps in the production of wine. Enologists at Texas Tech have found a way to evaluate phytic acid. This is a form of phosphorous storage in plants. In wine, the acid acts as a wine stabilizer. If there is a high concentration of iron, wine will have a sharp taste, a slight discoloration and a noticeable oxygen level change. They have found that additions of phytic acid and calcium salt can help the removal of excess iron in most wines.

All of the wine produced through Texas Tech is for research use only. As such, the final outcome of Texas Tech: viticulture and enology research and academic programs are an off-campus program. **T**



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