

Contract

UNL Viticulture - #18-01-188 - \$34,540

Contact

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Issue of Interest

The overall goal of the Viticulture Program is to provide science-based research information that will assist the development of the Nebraska grape and wine industry in a sustainable and profitable manner, thus enhancing the economic viability of Nebraska communities. Nebraska's grape and wine industry has been developing rapidly in recent years. This rapid development parallels an ever-increasing demand for science-based information in support of this exciting value-added agricultural industry. Establishment of grape and wine industries have been shown to have an economic "multiplier" effect on both rural and urban areas throughout the country. Nebraska is no exception, with grapes and wineries providing an excellent example of the impact of agritourism on local economies. This project was designed to provide for research and educational programs in the University of Nebraska Viticulture Program (UNVP) with the addition of a viticulture technologist who provides technical support for maintenance of research vineyards, implementation of research projects, data acquisition, and preparation of reports.

Approach to Problem

UNVP shall utilize funds provided by the Department only for the viticulture technologist's salary, student hourly labor, and fuel and vehicle rental costs to conduct the duties called for in this Agreement. Department funds collected from a checkoff fee paid by the industry are not to be used to pay administrative or indirect costs. The Nebraska Grape and Winery Board approved \$34,540 from the Winery and Grape Producer's Promotional Fund to pay:

- Funding to cover half-salary and benefits for the Viticulture Technologist position: \$27,500. This position provides technical support for maintenance of research vineyards, implementation of research projects, data acquisition, and preparation of reports (Currently funded 50% by the Department of Agronomy and Horticulture).
- Costs of materials such as fertilizer, fuel, pesticides, trellising materials, and harvest expenses are needed to be covered for several of the research projects noted above. Estimated expenses for this portion were \$10,500.
- Travel to cooperating and research vineyards is needed by the P.I., Technologist, graduate students, and extension educators. With fuel costs escalating, current budgets prevent appropriate and necessary visits to assist growers, implement experiments, take data, and participate in appropriate workshops and field days. Estimated needs: \$9,500.

Goals/Achievement of Goals

The overall goal of UNVP is to provide science-based research information that will assist the development of the Nebraska grape and wine industry in a sustainable and profitable manner, thus enhancing the economic viability of Nebraska communities. The Viticulture Technologist has helped achieve the objectives for this project in the following ways:

- The technologist provided oversight and vineyard management for the cultivar trials, resulting in a categorization of genotypes suitable for planting, and an additional list appropriate for trials by growers in Nebraska.
- The technologist supervised harvest and data acquisition enabling evaluation of sustainable production practices.
- Studies of trellis configurations were evaluated by C. Bavougian (M.S. student) with the technologist's assistance, resulting in recommendation of the Geneva Double Curtain trellis system for 'Frontenac' grapes.
- The technologist assisted the P.I. with evaluation of cold hardiness and bud-break. This information has led to presentations at the Kentucky State Grape Growers Conference and the American Society for Enology and Viticulture Conference.

Results, Conclusions, Lessons Learned

Research:

- *Cultivar and New Genotype Evaluation*
 - Over 75 cultivars and numbered selections have been evaluated at the UNVP research sites in Nemaha, Otoe, and Scottsbluff counties. Additional genotypes are being explored both at these sites and in cooperation with commercial vineyards and breeders (Cornell, Univ. of Minnesota, Swenson lines). Furthermore, in cooperation with the NE-1020 project (a national collaboration of grape researchers), trials were planted at three locations in the spring of 2008 and supplemented in 2009.
- *Trellis construction systems and new cultivar performance* (Frontenac, Saint Croix, and Marquette, initially)
 - Evaluation of trellis materials is also being pursued (e. g., Duraline). C. Huck, M.S. student, investigated canopy light penetration and interception by the different systems and completed her M.S. degree in August 2009. She has presented preliminary results at the American Society for Horticultural Science (ASHS) Annual Conference and the Annual Nebraska Winery and Grape Growers Forum.
- *Evaluation of cold-hardiness, spring bud-break and cold temperature damage prevention and management*
 - A workshop was held on these subjects and data can be found on the UNVP web site.
- *Disease and insect management research*
 - The Multi-colored Asian Lady Beetle (MALB) problem is being considered as a potential new thrust for this program.
 - High pH-induced chlorosis problems, especially in western Nebraska, has been an ongoing project in cooperation with Jim Schild, Scottsbluff County Extension Educator).
- *Fertilizers and nutrition*
 - A new study has been initiated involving magnesium and Chambourcin leaf symptoms and how this model may be applied to other important cultivars.
- *Other Findings*

- A new trunk number study will begin in 2010 (can Frontenac, for example, be managed safely on a single trunk system?)
- Seedless table grapes are being studied to determine potential chemical and physical treatments to delay spring bud break. I. Qrunfleh, PhD student, is leading this research thrust, part of which is being conducted in collaboration with James Arthur Vineyards. Preliminary results suggest it can potentially be a model for other cultivars, including wine grapes.
- Ongoing mapping of Nebraska for cultivar suitability has been enhanced by inclusion of a GIS project, in conjunction with CALMIT and the Nebraska Department of Agriculture (NDA) (supported by a grant of \$20,000 from NDA).
- Reduced-input, sustainable and potentially organic grape production studies are continuing. (C. Huck is beginning planning her PhD project to focus on this important developing area of research.)

NOTE: On-vineyard projects are being expanded and collaboration with extension educators will be increased. Currently, James Schild at Scottsbluff and James Hruskoci in central Nebraska are collaborating on several ongoing projects.

Educational Programming:

- The UNVP web site (<http://agronomy.unl.edu/viticulture>) includes information for beginning and experienced grape growers, a calendar of forthcoming educational programs, publications, research results, recent issues of *Nebraska Vine Lines*, and links to other pertinent web sites.
- *Nebraska Vine Lines* is a newsletter published four to six times per year and includes advice for growers, news of the Nebraska Winery and Grape Growers Association (NWGGA), updates of recent research developments, a calendar of events and other news of the industry.
- The first Nebraska Winery and Grape Growers Forum attracted 45 people and has grown to over 300 attendees in the past several years. A trade show was added for the fifth forum (and subsequent forums). The 12th forum was held March 5-7, 2009, in Kearney, Nebraska, in cooperation with the NWGGA.
- Field Days were begun in 2000 to show growers' examples of vineyard practices and the initial results of the UNVP research at the Program's research sites. In 2002, field days were expanded to include both research sites and commercial vineyards. In 2003, the first 4-State Regional Viticulture Field Day was held and Multi-State Field Days have continued. The 2008 Field Day was hosted by the University of Missouri on July 28 in Northwest Missouri and the 2009 Field Day was hosted by UNVP at the Kimmel Education and Research Center in Nebraska City.
- In cooperation with the NWGGA and occasionally adjacent states, single and multiple topic workshops are conducted. One example is the Fall Workshop, usually held in November, which has focused on topics such as pruning grapevines, weed management, managing the impact of cold temperatures, disease management, and fertilizer and nutrient management. The 2009 workshop will be held on October 31, 2009, and will focus on vineyard floor management.
- "Vines, Wines and You" (HORT/NUTR 471/871), is a regular 3-credit course taught both Fall and Spring Semesters at the University of Nebraska-Lincoln, with 50 students in each offering. Because of the course's popularity and the needs of the recently added Hospitality, Restaurant and Tourism Management major, an additional section was offered during the 2009 Spring Semester.

- A grant from the Sustainable Agriculture Research and Education (SARE) program was obtained to conduct workshops to “Educate the Educators,” that is, to help extension professionals increase their knowledge in the fields of viticulture and enology. This project is especially targeting those extension professionals who are more versed in conventional agriculture, but not up-to-speed in their understanding of the grape and wine industry.

Progress According to Outcome Measures

Completed:

- Hired viticulture technologist.
- Cultivar and new genotype evaluation.
- Multi-state project evaluating performance of a common set of grape cultivars in multiple locations.
- Studies of trellis construction systems and new cultivar performance
- Evaluation of cold-hardiness, spring bud break, and cold temperature damage prevention and management.
- Potential efficacy of chemical and physical treatments on seedless table grape vines to delay spring bud break.
- Disease and insect management Trunk studies.
- Sustainable and potentially organic grape production projects.