

January 30, 2007

Kay Thompson
VA Wine Board
Virginia Vineyards Association
1122 Roses Mill Road
Amherst, VA 24521

Dear Ms. Thompson:

Enclosed please find an original and nine (9) copies of a research proposal entitled, "Laboratory Technical Assistant". This proposal is being submitted by Bruce Zoecklein in our Department of Food Science and Technology.

All correspondence related to this proposal should reference Proposal Number **07-1407-01**.

The enclosed information relating to an application for funding of a research program is confidential and for use by the funding agency only. It may be distributed only to those persons whose evaluation is required to determine if the proposed research merits approval and funding by the agency. It is understood that other parties may have access for purposes as specified under 5 USC 552 (a).

Access to the general public of the information enclosed herewith is prohibited until notice has been received of the name and affiliation of the requestor, and the purpose of the request. The investigator and Virginia Tech shall be allowed sufficient time to review the application and to redact those portions considered to be confidential. In the event that the funding agency disagrees with the request for redaction made by the investigator and/or Virginia Tech, the investigator and/or Virginia Tech reserves the right of appeal prior to release of the enclosed confidential information.

Included with this proposal you will find a certification regarding sub-recipient/vendor relationship. In the event that an award results from this proposal we request that a signed certification be returned with the award. You need to sign only the appropriate certification indicating whether we are considered to be a vendor or a sub-recipient.

The University appreciates the opportunity to submit this proposal. If questions of a budgetary or fiscal nature should arise, please contact me at (540) 231-9373. Technical questions should be directed to the Principal Investigator.

Sincerely,



Lisa Cotting
Pre-Award Administrator

phl

Enclosures

Cc:

B. Zoecklein, S. Sumner

L. Mitchell, University File

Invent the Future

TO: David Richardson, Asst. VP for OSP Administration
Virginia Polytechnic Institute and State University

FROM:

Re: Proposal No 07-1407-01

QUALIFIED CERTIFICATION OF VENDOR RELATIONSHIP

I certify that all of the funds from the proposed project provided by _____ to Virginia Tech should be classified by Virginia Tech as Vendor grants, that is, as sales of goods or services to _____.

CERTIFICATION OF SUB-RECIPIENT RELATIONSHIP

I certify that all of the funds provided by _____ to Virginia Tech for the attached proposed project be classified by Virginia Tech as sub-recipient grants, not as sales of goods or services to _____.

(Name Printed)

(Signature)

(Date)

(Title)

(Telephone Number)

RESEARCH PROPOSAL

A. TITLE: Laboratory Technical Assistant

B. DATE: July 1, 2007-June 30, 2008

C. DURATION: One year of a multi-year request

D. OBJECTIVES: To follow the goal established by the Virginia Winegrowers Advisory Board, in continuing to increase wine quality by providing extension and research assistance. The activities of the Laboratory Technical Assistant include the following:

- Help to train new employee of the Enology-Grape Chemistry Group's new Enology Service Lab.
- Help to establish the Enology-Grape Chemistry Group's new Enology Service Lab.
- Analysis of research grapes, juices, and wines.
- Collection of extension survey data.
- Preparation of wines and reagents, and data analysis for extension programs.
- Assistance in conducting short courses, seminars and workshops for the Virginia industry.
- Statistical analysis of research data.
- Assistance in experimental wine production.
- Help to maintain the Enology-Grape Chemistry Group's website (www.vtwines.info).

E. JUSTIFICATION/PRACTICAL IMPORTANCE: The goals of the Enology-Grape Chemistry Group are to increase wine quality, processing efficiency and, therefore, profitability of the Virginia wine industry. The Laboratory Technical Assistant's efforts are designed to help attain these goals.

For most businesses, including wine production, consistent profitability is elusive. Economic risks for the Virginia wine industry are considerable. Competition from foreign and California producers, agricultural and environmental cycles, and changing consumer demands are difficult to control. Although seemingly profitable on a sales basis, the pre-tax return on assets of some Virginia wineries is often low. Indeed, for new or young wineries struggling to establish an identity, the earning power of their total assets may be below the cost of debt

financing. The ever-increasing availability of high quality products at low prices places a strain on our emerging industry. An additional confounding factor is the limited number of technically-trained winemakers and grape growers in Virginia. In order for the industry to continue to compete, it is essential that viable new technologies, which lower the cost of production and/or increase wine quality, be utilized.

The Laboratory Technical Assistant position is designed to impact the industry in several ways. Applied research projects will continue to aid in increasing wine quality, lowering the cost of production, or both. Additionally, this position aids in the dissemination of research-based extension information on issues of wine quality and wine quality control.

F. BACKGROUND: Attempts to improve Virginia wine quality control have taken two basic forms: 1) laboratory and non-laboratory research-based extension, including short course programs, winemaker roundtable meetings, extension publications, newsjournals (*Vintner's Corner* and *Enology Notes*), expansion of our website, laboratory extension activities, and direct contact, and 2) supplemental quality control (QC) analysis performed at the Enology-Grape Chemistry Extension Laboratory. The following is a list of the quality control-oriented extension publications written and distributed:

Controlling microbial growth in wine - No. 463-011

Protein fining agents - No. 463-012

A review of potassium bitartrate stabilization in wine - No. 463-013

Bentonite fining of juice and wine - No. 463-014

Protein stability determination - No. 463-015

A review of *Méthode Champenoise* production - No. 463-017

Enology Notes electronic newsjournal (123 written to date)

World Wide Web site (www.vtwines.info)

The above-listed publications highlight the importance of monitoring wine quality control, including the establishment of HACCP (hazard analysis and critical control point) programs. HACCP-like short courses and

activities involving the Laboratory Technical Assistant, or help from the Assistant, include the following programs:

- Annual Juice and Wine Analysis Workshop. This is a two- or three-day, hands-on analysis course conducted in Blacksburg since 1999.
- Winery Planning and Design workshop. Ten one-day courses have been given to date.
- Annual Norton Winemakers Roundtable.
- Technical Winemakers Roundtables.
- Annual Pre-harvest Workshop.
- VVA Winter meeting, 2006 and 2007.

Recent extension activities assisted by the Laboratory Technical Assistant have included the following:

- Wine Filtration Workshop.
- Wine and Juice Fining Workshop.
- Laboratory Certification Program.
- Wine Closure Workshop.
- Sulfides in Wine Workshop.
- Wine Quality Issues for Growers.
- Tannin and Color Management and Measurement.
- Wineries Unlimited, Wine Closure Review.
- Wineries Unlimited, Winery Planning and Design.
- Wineries Unlimited, Merlot Color and Tannin Management
- The analysis of the lead content of Virginia wines.
- The determination of pesticide residues in Virginia wines.
- Surveys of the industry's research needs. The results of these surveys have been posted on the Enology-Grape Chemistry Group's website at www.vtwines.info

Recent presentations conducted by the Laboratory Technical Assistant include:

- Effect of training system on Traminette free volatiles, glycosides and wine sensory attributes. American Society for Enology and Viticulture, St. Louis, Mo.
- Sensory differences among Traminette wines. Virginia Vineyards Association.
- Grape aroma research. VDACS International Oak Wood Meeting, Blacksburg, VA.

G. PROCEDURE: The Laboratory Technical Assistant has been involved in research efforts designed to help resolve practical and limiting problems facing the Virginia wine industry. The practical significance of each research effort has been conveyed to the industry in the form of my electronic newsjournal (*Enology Notes*), short courses, and industry meetings, such as Winemaker Roundtables and Workshops. The current research involving the aid of the Laboratory Technical Assistant is listed below:

- Wine grape cultivars, clone and training system evaluation of Cabernet franc, Traminette, and Viognier (with T.K. Wolf).
- Wine grape cultivar evaluation in Virginia's Southern Piedmont.
- The evaluation of thermal processing on wine quality.
- The effects of délestage on red wine quality.
- The evaluation of fruit volatiles by an electronic nose to determine optimum Cabernet Sauvignon fruit maturity and red wine quality.
- Nitrogen status of grape juice as an indicator of wine quality.
- Effect of ethanol sprays on Cabernet Sauvignon grape maturity and wine quality.

H. PERSONNEL AND FACILITIES: Dr. Bruce Zoecklein supervises this position.

I. OTHER ENTITIES: None

J. SOURCE OF OTHER FUNDING: None for the position. It should be noted that while the Board has supported this position, the Department of Food Science and Technology funded the extension laboratory operation (reagents and supplies) since 1986. This request does not include indirect cost, such as secretarial support.

K. BUDGET:

Salary:	\$44,258
Fringe benefits:	<u>\$16,154</u>
Total	\$60,412

SUBMITTED BY:

Bruce W. Zoecklein
Professor of Food Science and Enology Specialist
Department of Food Science and Technology

Curriculum Vitae
Bruce W. Zoecklein

Bruce W Zoecklein
Professor, State Enologist, and Head-Enology Grape Chemistry Group
Department of Food Science and Technology
Virginia Tech, Blacksburg, VA 24061-0418

Education:	Degree and Program major
B S	Microbiology/ Biochemistry
M S	Horticulture
Ph D	Food Science & Technology

Professional Academic Positions

Current- Professor and Head, Enology-Grape Chemistry Group, Virginia Tech, Blacksburg, VA
Extension Enologist, Department of Horticulture, University of Missouri, Columbia, MO.
Research Associate, Viticulture and Enology Research Center, California State University-Fresno, CA
Instructor of Enology, Department of Food Science, California State University-Fresno, CA

Honors and Awards (6):

Gamma Sigma Delta Teaching Excellence Award, Virginia Tech, 2000.
Gamma Sigma Delta Extension Excellence Award, Virginia Tech, 1999.
Napa Valley Wine Council Research Award, shared with K. C. Fugelsang, 1999.
Alumni Award for Excellence in Extension, Virginia Tech, 1997
Department of Agriculture and Consumer Service, Wine Person of the Year Award, 1994.
Vinifera Winegrowers Achievement Award, 1993

Books Published (3):

Zoecklein, B W., Fuglesang, K.C., Gump, B. H. and S.F. Nury. 1990. Production Wine Analysis. Van Nostrand and Reinhold, New York, NY. 445p.

Zoecklein, B W., Fuglesang, K.C., and Gump, B. H. 1999. Wine Analysis and Production. Aspen, New York, NY. 570p.

Zoecklein, B W and Gump, B. H. 2000. Análisis y Producción de Vino. Editorial Acribia, S. A. 513 p.

Book Chapters: (4)

Papers in Referred Scientific Grape/Wine/Chemistry journals: (43)

Papers in Grape/Wine Trade Journals: (35)

International Invited Presentations: (34)

National Invited Presentations: (28)

Newsjournals:, 12 issues yearly of Enology Notes published at www.vtwines.info

Service to the National Grape and Wine Industry:

Member, National Grape and Wine Initiative Strategic Committee: 2003-Present

Member, InSight Editorial Board: 1998-present

Director- American Viticulture and Enology Research Network (AVERN): 1998-2004

Regional Coordinator, American Viticulture and Enology Research Network (AVERN): 1998-2004

Member, Journal of Food Composition and Analyses: 1994-Present

Member, Editorial Panel, Australian Journal of Grape and Wine Research: 2003-Present

Member, Editorial Board of Practical Vineyard and Winery: 1986-Present

Member, Editorial Board, Journal of the American Society for Enology and Viticulture: 1995-2003

Member, Editorial Board of Vineyard and Winery Management: 1986-1996

Other Service to the National Grape and Wine Industry:

American Society of Enology and Viticulture. 1984 - Present

- Chair: 2004-2005

- Director: 1996-2000

- Director: 1984-1987

-Chairman, publicity committee: 1997-2000

-Chairman, nominations committee: 1998

- Member, best paper committee: 1996

- Chair, nominations committee: 1996

- Regional meeting Chairman: 1988

- Member, Scholarship Committee: 1988

- Regional meeting Chairman: 1987

- Member, best published paper committee: 1991

- Member, Editorial Review Board: 1995- Present