catalyst
discovery into practice

Accelerating adoption of innovative wine and grape research and technologies.

2020 Revision

Guide to Authors

Catalyst: Discovery into Practice is an online journal published by the American Society for Enology and Viticulture (ASEV). *Catalyst* publishes peer-reviewed, novel, and creative work that translates research findings into practice and accelerates adoption of innovative technologies by the grape and wine industries. Authors need not be ASEV members in order to publish in *Catalyst*. *Catalyst* will consider the following types of submissions: Reports, Technical Briefs, Reviews, Insights, and Topical Analyses. Submissions may be text or video-based or presented in multimedia. Submissions to *Catalyst* span the disciplines in which discovery may impact production practices, including enology and viticulture and related fields such as biochemistry, biocontrol, chemistry, economics, engineering, enology, management sociology, microbiology, plant biology, plant genetics, pest management, plant pathology, plant physiology, soil science, waste management, sensory and consumer sciences, and other applicable areas.

Reports present research findings that can be put to immediate use by grapegrowers and winemakers. Cultural practices, comparisons of wine production technologies and their efficacy, and regional reports and analyses are examples of possible subject matter for reports. Reports should make use of sound experimental trial design and enable application of regional research in other areas or translation to such areas.

Technical Briefs provide limited new information that will be beneficial to technical members of the industry. Appropriate manuscripts may describe a new assay method, validate or improve upon an existing method, or provide a comparative analysis of the impact of different processing methods. Technical briefs are generally no longer than three to five published pages (3,300 words, excluding figures and tables).

Reviews critically assess practical, methodological, new discoveries and procedures and translate basic knowledge into practice. Reviews include surveys and comparative analyses of production options, wine laboratory methods, winemaking or vineyard management practices, grape variety or rootstock fact sheets, diagnostic guides, vineyard mapping and crop estimation protocols, as well as scientific advancements and their potential impact on industry practices. Reviews may vary in length and depth from short communications to multipart extension manuals.

Insights provide new information or a novel perspective on a variety of issues and processes including protocol optimization, methods application, best practices, topical advice, software use and selection, development of innovative methodologies, production database development, and management. Insights are generally short communications covering specific topical areas.

Topical Analyses are short communications that provide timely, science-based analysis of critical or emerging issues impacting the grape or wine industries. Topical analyses may be contributed by authors or invited by the editorial board. Examples include impending regulatory changes, emerging pests and diseases, or consumer perceptions. Topical analyses may focus on regional, national, or international issues.

Video Submissions:

- *Size limitation on video files is 50 MB.*
- *For files larger than 50 MB, either send with Dropbox or enter a URL address where file may be accessed.*

Editorial Polices

Review Process. All submitted contributions are evaluated by peers on the basis of scientific or technical merit, novelty, and potential for impact. The goal of *Catalyst* is to facilitate translation of discovery into practice. Articles must be intelligible to a broad, technically savvy audience. Submitted contributions are assigned to an associate editor by one of the subject area editors. *Catalyst* aims to return timely reviews, recognizing that reviewers and editors do volunteer their time and may often be delayed by other duties. Authors are expected to review other submitted manuscripts when requested by *Catalyst*.

The editors reserve the right to edit accepted manuscripts to make them conform with *Catalyst* style and/or to return them to the authors for further clarification. Any revision that has not been submitted within six months following the date of the initial decision notification letter will be considered withdrawn (with pre-notice communicated to the author by the managing editor). If the authors wish for the manuscript to still be considered by *Catalyst*, the manuscript must be resubmitted and undergo a full review process. Authors submitting a revision may wish to show the changes they have made in "Track Changes" mode. If so, a version of the manuscript in "Track Changes" should be preceded by another version of the revised manuscript, complete with figures or tables, with all tracked changes approved. *Catalyst* accepts manuscripts from commercial vendors and suppliers if they meet general publication standards and lack product promotion.

Text-based contributions. Text-based contributions are those in which the bulk of the contribution is written, though articles may contain short embedded videos in cases where a video can convey information more clearly than a static figure. See section on video-based contributions for information on appropriate video formatting. Text-based manuscripts will undergo a two-step review process. The associate editor will first perform a screening review to determine if the subject and/or content is suitable for the journal, is written using appropriate journal formatting, and meets standards for novelty, impact, and clarity of presentation and language for a general audience. A manuscript

that passes the initial screening will be sent to at least two reviewers. Additional reviewers may be consulted if an editor feels that they are needed to adequately evaluate the submission. Reviewer comments and the associate editor's decision regarding acceptability of the manuscript will be forwarded to the corresponding author by the managing editor. Review decisions are: Accept, Revise, or Reject, with comments of the reviewers supporting the decision provided to the author in a reviewer-blind format. Revised manuscripts may be subject to an additional round of peer review at the associate editor's discretion and depending on the nature of requested revision.

Video-based contributions. While text-based contributions may contain short embedded videos to help illustrate key points, video contributions may stand alone, without accompanying text. Stand-alone video contributions will undergo a three-step review process. Using the "Video" submission type in Editorial Manager, authors should initially submit a script of the proposed video that describes the content to be covered and the nature of the visual materials to be filmed (see section on video quality and submission). Video-based contributions should meet similar scientific and technical standards as print submissions. The associate editor will first conduct a screening review of the script to determine if it meets criteria for novelty and impact and is technically sound. If the script passes initial review, it will be sent to two peer reviewers to provide a more thorough review of the content and the proposed visuals to be used in the filming. Reviewer comments and the associate editor's decision regarding acceptability of the script will be forwarded to the corresponding author by the managing editor. Review decisions are: Accept, Revise, or Reject. Authors who meet the standards for acceptable video presentation will then be invited to proceed with filming. Once the video filming is complete, the authors should submit the video through Editorial Manager as a revision. The submitted video will then be screened by the associate editor and sent to two peer reviewers to determine if it meets journal standards of quality of presentation. The associate editor will make the final decision to accept/revise/reject the video. The goal of this review process is to provide input to the authors at the conceptual stage of the proposed video so that only those concepts likely to ultimately be accepted are pursued. Multiple styles of video are acceptable (voice, voice-over, live, animation, etc.). The visual and audio components of the video must be of sufficient quality to assure viewers will engage with the material. The audio component must be clearly audible at all times and the visual component should possess sufficient lighting and contrast so that key visual elements are clearly discernable.

Submission of Contributions

Catalyst accepts only online submissions of articles and videos. Both text and video contributions can be submitted via the journal's Editorial Manager website (https://www.editorialmanager.com/catalyst/default.aspx). A cover letter must accompany the submission to describe the novelty and impact of the work and state that all authors who contributed to the manuscript have approved the submission and that the manuscript is not currently under review with another publication. In addition, authors will need to upload, email, fax, or mail to the Journal office a completed and signed copy of the *Catalyst: Discovery into Practice* Author Agreement, which can be found on both the www.asevcatalyst.org and http://catalyst.edmgr.com sites. It is the corresponding author's responsibility to obtain consent from all coauthors and provide them with a copy of both the submitted and final manuscripts. All authors must reveal to the editors any conflict of interest in the research, including financial interest and patent ownership or application, any relationship with a funding source, as well as any financial interest in any entities manufacturing, distributing, or selling any products that are noted in the manuscript. In some cases, publication may be contingent on such disclosure, and the editors may recommend general statements regarding such disclosure be added to the acknowledgments section of the manuscript. For all manuscripts, all funding sources, institutional and corporate, must be cited in the acknowledgments section.

Article Formatting

Articles must be correctly formatted for their type. Format manuscripts for letter size (8.5 by 11 inches) paper in 12 pt Times New Roman font with numbered pages, consecutively numbered lines, and double spaced. All manuscripts must follow American-English standards of spelling, scientific notation, and word usage (see abbreviations at the end of this guide and consult the ACS Style Guide (American Chemical Society). Manuscripts should identify the article type (Report, Technical Brief, Review, Insight, or Topical Analysis) and follow guidelines for that article type (listed below).

Catalyst places high importance on the reader experience. All articles should include on the cover page a title limited to 120 characters. Titles should be declarative in nature (reflecting take-home messages) rather than descriptive (covering the scope of the article). Authors are encouraged to use active rather than passive voice. Figures and tables must have sufficiently detailed and complete captions, legends, and footnotes to stand alone and deliver meaning separately from the text in the body of the manuscript. An expanded abstract format, termed summary, is used, divided into sections as described for each article type.

Below the title, articles should list all authors and their affiliations. If an author's affiliation has changed between the time of submission and publication, please notify the managing editor with the present address details, which will be included on the manuscript. The corresponding author should be designated and contact information (email) provided. If appropriate, an acknowledgment section noting the source of funds or materials should be included. This section should also note personal acknowledgments of assistance and nonauthor contributions and declare any potential conflicts of interest by any of the authors.

Key words. Create a list of approximately six key words, selecting from the list that is available online at http://catalyst.edmgr.com. Authors may "write in" up to two key words of their own selection that do not appear on the *Catalyst* key word list, if necessary.

REPORTS

Reports should be organized according to the following format. Longer reports (more than three printed journal pages) should set off each section with the following headers. Brief reports (less than three printed pages) do not need to be divided into separate sections but should follow the flow presented as follows.

Summary *(150-300 words)*. The first section of the paper will be a summary. The summary should be divided into three sections labeled as follows:

Goals (50-100 words): This section should briefly state the rationale for undertaking the research.

Key Findings (50-150 words): This section should outline in a bulleted format the key findings of the work.

Impact and Significance (50-100 words): This section should present the major conclusion and impact of the study and its relevance to winemaking and/or grapegrowing.

Overview. This section will describe the question or questions to be addressed by the work and their significance in addressing issues facing the grape or wine industries. A brief summary of previous work in the area and the novelty of the study should be presented. Authors should sufficiently introduce the study in the overview such that the major observations follow naturally.

Major Observations and Interpretations. This section will return to the key findings list from the summary and present the observational details and interpretations of those findings. The section can be divided into subsections, each with the header of one of the key findings. The data associated with each finding should be included. Supplemental information may also be included as necessary; that is, observations necessary to understanding the key finding that might not directly lead to that finding.

Broader Impact. This section will build upon the key findings and describe the broader significance of the work, including future impacts/applications of the work or material being presented. The aim of this section is to place the study presented in appropriate context. For example, how can a regional field trial be interpreted in a broader context? For winemaking, how do the findings apply to other styles/varieties/processing decisions? What are the factors that might limit the scope of a finding?

Experimental Design. This section will provide the rationale for the experimental design used in the study, rather than simply reporting the methodologies used. Why were particular methods chosen? Why were alternative methods not chosen? What were the key elements of field trial design or of winemaking protocols? In other words, do not merely focus on what was done, but why it was done in the way presented. Experiments are expected to be properly replicated and repeated in time (for example, multiple years) and/or space (different locations). Authors should provide justification for studies that have not been repeated.

References and Endnotes. References, endnotes, and additional reading (optional) should be formatted as described under "References and Endnotes" on page 7.

TECHNICAL BRIEFS

Technical Briefs provide limited new information that is beneficial to technical members of the industry. They are generally no longer than three to five published pages (3,300 words, excluding figures and tables) and should use the following format:

Summary *(150-300 words)*. The summary should be divided into the following sections:

Goals (50-100 words): This section should briefly state the rationale for undertaking the research.

Key Findings (50-150 words): This section should outline in a bulleted format the key findings of the work.

Significance (50-100 words): This section should present the major conclusion of the study and its relevance to winemaking and/or grapegrowing.

Overview. This section will introduce and describe the question or questions to be addressed by the work and their significance for the grape or wine industries. A concise summary of previous work in the area should be presented. Authors should sufficiently introduce the study and its rationale in the overview such that the major observations follow naturally.

Major Observations and Interpretations. This section will return to the key findings list from the summary and present the observational details and interpretations of those findings. The data associated with each finding should be included.

Significance. This section will build upon the key findings and briefly describe the implications of the work. The aim of this section is to place the study presented in appropriate context.

References and Endnotes. References, endnotes, and additional reading (optional) should be formatted as described under "References and Endnotes" on page 7.

REVIEWS

Reviews cover a broad area of communications of interest to the grape and wine industry and should use the following format:

Summary *(300-500 words).* The summary should be divided into the following sections:

Aim (50-100 words): What is the purpose of writing the review? What lack in knowledge or interpretation of that knowledge is this work designed to address?

Key Themes (50-150 words): What are the key observations of this review? This can be a list of key topical areas to be covered and could be presented as a set of critical questions to be answered within the review. This should be presented as a bulleted list.

Impact and Significance (50-100 words): What key information does this work provide or what key questions does it address?

Overview. This section should present the rationale for writing the review article. What are the key issues/problems/production questions that are going to be addressed? The previous work in the topical area of the review should be summarized.

Key Themes. This section should refer back to the key themes presented in the summary and should be organized into subsections based on those key themes. Where appropriate, themes should be supported by artwork, figures, charts, and tables.

Significance. This section should expand upon the significance statement of the summary and describe the intersection of the major themes and key take-home messages.

References and Endnotes. References, endnotes, and additional reading (optional) should be formatted as described under "References and Endnotes" on page 7.

INSIGHTS

These types of communications focus on a specific topical area and are expected to be brief, no more than three to five printed pages. Insights are at the intersection between a Report and a Review and combine elements of both. These articles should be

divided into the following sections, identified as such in longer communications. For shorter communications, the flow of these topical areas should be followed, but not differentiated.

Summary *(150-300 words)*. The summary should be divided into the following three sections:

Importance (50-100 words): This section should address the following: why is this communication important? What major issue(s) does it aim to address?

Key Observations (50-150 words): This section includes a bulleted list of the critical clarifications of thought and interpretations arising from this study.

Impact and Significance (50-100 words): This section will summarize strategic insights arising from the work.

Overview. This section will introduce the major issues underlying the topical area. What technical or production issue is being addressed by this study? What previous work has been conducted, what were the conclusions, and what is the importance of the current work?

Discoveries. This section will return to the bulleted list of key observations and be divided into sections paralleling that list. Each section should provide data where necessary or summaries of cited work.

Outcomes. This section will provide a summary of the major conclusion(s) derived from the work. The conclusions may be based on data obtained or derive from a review of previous work in the context of the work presented in this communication.

References and Endnotes. References, endnotes, and additional reading (optional) should be formatted as described under "References and Endnotes" on page 7.

TOPICAL ANALYSES

Topical analyses succinctly present an emerging area of concern for the grape and wine industries. These communications are expected to be brief, no more than 3-5 printed pages, and divided into the following sections:

Summary *(150-300 words)*. The summary should be divided into three sections:

Issue Statement (50-150 words): This section should objectively present the issue to be addressed in the communication.

Key Considerations (50-150 words): This section should present a bulleted summary of the key factors impacting the issue to be discussed and, depending upon the topic, should include brief statements on potential impacts to grape/wine quality and impacts on processing decisions, practices, or implementation.

Impact and Significance (50-100 words): This section will describe the key importance of the issue and the need for it to be addressed. For example, if the issue concerns an emerging disease or pest, how quickly is that pest/disease likely to spread, or what are the potential consequences of spread? If it is a pending regulation, what are the consequences of implementing that regulation?

Assessment. This section should return to the key considerations and provide an objective assessment of each. Diagrams, figures, and data can be used to support the statements being made. Statements should be based on factual information rather than opinion. If factual information is lacking, it is appropriate to discuss the need for additional data and the nature of those data.

Impact and Significance. This section will return to the impact and significance section of the summary and provide more detail on the issues raised in that section.

References and Endnotes. References, endnotes, and additional reading (optional) should be formatted as described under "References and Endnotes" on page 7.

VIDEO SUBMISSIONS

Video submissions are expected to meet the same scientific and technical standards for content as print submissions. The initial text (script) submission of the proposed video should provide sufficient detail to enable review of the content for accuracy, novelty, need, and impact.

Technical Specifications for Video Abstracts.

Video abstracts must meet minimum standards of quality for both video and audio components. In creating a video abstract, authors are asked to meet the following specifications:

- Frame rate: 25–30 frames per second
- Aspect ratio: 16:9 or 4:3, square pixels, deinterlaced
- Frame size: (minimum) 320 × 240 pixels
- Format: .mov, .mpg, or .mp4
- Video codec: H.264, mp2, mp4
- Video encoding: 2 pass H.264 preferred
- Keyframe: at least every six seconds
- Video bitrate: 480–2672 kbps
- Audio bitrate: 16-bit AAC audio at a sampling frequency of 44.1kHz
- Bitrate of 192 kbps
- Maximum file size: 50 MB

How to Make a Good Video Abstract. For tips and suggestions on making a video abstract, see the following page on IOPScience: *http://iopscience.iop.org/1367-2630/page/How%20to%20make%20a%20good%20video%20abstract*.

VIDEO SUBMISSIONS

The video script and storyboard should use the following format:

Catalyst: Discovery into Practice ***VIDEO SUBMISSION***

Title of Video production:

Authors and Affiliations:

ABSTRACT and CONCEPTS (300 word summary of goal and expected content of video)

SCRIPT and STORYBOARD

NAME of Corresponding Author/Videographer:	TYPE OF VIDEO: live, animation, voice, voice-over, combination
Contact information:	PROPOSED LENGTH:
TOPIC: TITLE:	
Visual Style: (Live, Animation, Still Shot) Audio Style: (Natural Sound (NS); Voice-Over Narration (VON); Interview (I); Recorded Voice (RV)	Descriptive Text for storyboard
Visual: Audio:	Scene 1:
Visual: Audio:	Scene 2:

See an example of a Video Submission on the next page.

Catalyst: Discovery into Practice *VIDEO SUBMISSION EXAMPLE*

Title of Video production: Yeast Identification Using Microscopy

Authors and Affiliations: Linda F. Bisson, Department of Viticulture and Enology,
University of California Davis, Davis, CA 95616

ABSTRACT and CONCEPTS (300 limit word summary of goal and expected content of video)
The aim of this video is to show how to align and set up a microscope and then show typical photographs of microorganisms as seen through a microscope. This video will serve to train individuals in use of the microscope and in identification of living organisms versus debris and to tentatively identify those organisms as best as can be accomplished by microscopy alone.

SCRIPT and STORYBOARD

NAME of Corresponding Author/Videographer: Linda Bisson	TYPE OF VIDEO: live, animation, voice, voice-over, combination
Contact information: lfbisson@ucdavis.edu	PROPOSED LENGTH: 12 minutes
TOPIC: Use of the common winery lab microscope to monitor microbial populations of grapes, juices and wine. TITLE: Yeast Identification Using Microscopy	

Scene 1: Visual: Live shot of an Active Fermentation Audio: VON, Linda Bisson Duration: 0.5 minute	Bisson will introduce the importance of use of the wine laboratory microscope. "The Microscope is one of the most critical tools in a winery laboratory to assure fermentation progression and the absence of spoilage. Yeast and bacteria may be beneficial to the wine, benign, or agents of aroma or taste deterioration. Although many organisms look alike and DNA sequence analysis is required to make a definitive identification, microscopic analyses can be used to assess relative purity of fermentations, spot emergence of populations in finished wines during aging, and monitor stability post-bottling."
Scene 2: Visual: Animation: Shot of Microscope that will move as features are pointed out Audio: VON, Bisson Duration 1 minute	The components of the microscope will be pointed out: occulars, lens, stage. slide holder on stage, coarse adjustment, fine adjustment. Bisson will describe the purpose of each feature of the microscope as it is shown.
Scene 3: Visual: live shot of Bisson placing a slide on the microscope Audio: Live Duration 0.2 minute	"This is how the slide should be placed on the microscope stage and the appropriate lens then swung into place."
Scene 4: Visual: image under the microscope Audio VON, Bisson Duration: 0.1 minute	"The image on the slide will likely not be in focus."
Scene 5: Visual: still shot of the course and fine adjustment Audio: VON, Bisson Duration: 0.2 minute	"While looking at the microscope lens and slide, the coarse adjustment can be used to bring the lens in close proximity with the slide. The fine adjustment knob can be used while viewing the slide through the occulars to focus on the specimen."
Scene 6: Visual: live shot of Bisson focusing the microscope Audio: NS Duration: 0.2 minutes	Bisson will show proper technique for use of coarse and fine adjustment.

Script and Storyboard will continue for the entire video.

References and Endnotes (RE)

Authors should only cite salient references, typically no more than 35 depending upon the nature of the article; reviews, for example, may require more than 35 references. List only published, relevant references that are accessible through an information system: journal articles, books, chapters in books, proceedings, bulletins, reports, patents, theses, dissertations, and in-press articles that have a date, volume, and page numbers. Peer-reviewed references are preferred.

Pertinent references to unpublished abstracts and oral presentations, unpublished data, personal communications, manuscripts in preparation or submitted for publication, letters, company publications, databases, and software used for analysis can be included as endnotes. For personal communication and unpublished data, obtain permission from the person cited and provide the editors with the written permission.

References and endnotes should be assigned unique sequential numbers as superscripts where they appear in the text. Once a reference is assigned a number in the text, that number should be used in subsequent sections referring to that reference or endnote. Use endnotes to convey detailed information of interest to experts in the field but not to a general audience. For example, methodological details, numbers of replications, and statistical treatments should be included as endnotes. For the online version, hovering on the endnote/reference will bring up the content in a side box.

In a list at the end of the paper, combine the endnotes and references in numerical order as they were first cited in the text. Listed references should be prepared as shown in the samples provided below. All authors of an article must be listed in the RE, unless there are over 10 authors (if so, list the first author and "et al."). If a source has no author, list the sponsoring organization or publisher; do not use "Anonymous" or acronyms.

Authors must ensure the accuracy of all references listed in the RE section. In the full-text version, Internet hyperlinks between the RE and the actual referenced articles will not link if there are errors in the information (author, title, journal title, volume, and page numbers). Readers increasingly depend on these hyperlinks, making it imperative that information is accurate and complete. Authors will be charged an extra fee if RE contains excessive errors that need to be addressed during editing. Endnotes should be as brief as possible and may contain references within them. Hyperlinks will also be provided for references listed in the Additional Reading section (described below), so the information for these references must also be accurate. If a reference management program is used to format the references and citations in the manuscript, all field codes (gray shading on the reference list and in-text references) must be removed prior to submission.

The correct order of elements in sources is noted below.

Journal article:

Kennedy JA, Saucier C and Glories Y. 2006. Grape and wine phenolics: History and perspective. Am J Enol Vitic 57:239-248.

Book:

Boulton RB, Singleton VL, Bisson LF and Kunkee RE. 1996. Principles and Practices of Winemaking. Chapman & Hall, New York.

Chapter in book:

Sponholz WR. 1993. Wine spoilage by microorganisms. *In* Wine Microbiology and Biotechnology. Fleet GH (ed.), pp. 395-420. Harwood Academic Publishers, Chur, Switzerland.

Conference proceedings:

Wample RL and Wolf TK. 1996. Practical considerations that impact vine cold hardiness. *In* Proceedings for the Fourth International Symposium on Cool Climate Enology and Viticulture. Henick-Kling T et al. (eds.), pp. 23-38. New York State Agricultural Experiment Station, Geneva.

Thesis:

Wolpert JA. 1983. Cold acclimation of Concord grapevines. Thesis, Michigan State University, East Lansing.

References to unpublished data, personal communication, articles submitted for publication, software, websites, databases, company publications, and unpublished abstracts should be listed within parentheses in the text.

Unpublished data and communications:

(A. Reynolds, unpublished data); (G. Creasy, personal communication).

Software:

". . . data were analyzed with SAS statistical software (ver. 8.1; SAS Institute, Cary, NC)."

Website:

"as found on the ASEV website (www.asev.org)."

Database:

". . . vector sequences were removed by cross-match (www.genome.washington.edu)."

"Additional Readings" are optional and, if included, should follow the list of References and Endnotes. If desired, authors can include Additional Readings, listing previous work that may bear upon the topics presented in the paper but that are not directly cited or that may refer readers to topically related information. This section will be more appropriate for Reviews, Insights, and Topical Analyses but may be considered for Reports and Technical Briefs as appropriate and at the discretion of the authors.

Tables and Figures

Tables. Information presented in tables must be self-explanatory and independent of the text in the body of the manuscript. If only a few values are presented or if the information is simply a list, then place the information in the text rather than in a table. Do not repeat data in the text that are given in a table or figure and make sure tables and figures are not redundant (generated from the same data set, unless this is essential to making different key observations).

Construct tables using a word-processing program, not in Excel or as a fixed object. They must fit within one (3.5 inches or 8.9 cm) or two columns (7.25 inches or 18.4 cm). The table caption should summarize the information in the table without repeating the column headings. Each column must have a brief heading that names the variable being measured and indicates the unit of measurement within parentheses, such as (mg/L) or (%). If significance of value is indicated, use a lowercase letter

(not superscript). Explain nonstandard abbreviations in footnotes. Designate footnotes with superscript lowercase letters beginning with a (a, b, c). Use the same style for all tables. Cite tables in numeric order in the manuscript.

Figures. Submitted figures must be high quality and ready for publication. Cite all figures in numeric order in the manuscript. Captions must describe the contents so that each illustration is understandable when considered apart from the text. If your artwork is from another source, you will need to obtain permission from the copyright holder prior to publication of the article.

Figure construction: As *Catalyst* is published online, there are no charges associated with the use of color. Therefore, authors are encouraged to use color when it can provide insight or clarity. For line graphs and frame graphs, affix index marks to the vertical axis (y axis, or ordinate) and to the horizontal axis (x axis, or abscissa). Use symbols to indicate data points: open circles for the first set of data and filled circles for the second; triangles, open and filled, are next; then squares, open and filled (○●△▲□■). If a graph requires more than six symbols, consider presenting the data in two graphs. Keys to symbols should be set in a small box in the graph (or next to it); do not place them within the caption.

- For a multipanel figure, place a capital A, B, C, etc. in the upper left or right corner of the panels. (All panels should be included in the same file.)
- Special effects, such as 3-dimensional bar charts or graphs are acceptable at the discretion of the managing editor.
- Use solid gray/color shades in bar charts rather than patterns; differentiate among shades by at least 20%.
- Include error bars as appropriate.
- Line weights: Use line weights of 0.5 point. For prominent lines, such as graph plot lines, the weight should be approximately 1.0 point.
- Fonts: Use Arial, Helvetica, or Symbol fonts for the text in figures. Capitalize only the first letter of the first word in labels. Do not use boldface type, except for the "A," "B," "C," etc., used in designating parts of multipanel graphics.
- Figure sizes: Figures should be submitted at the size specified for either single- or double-column figures:

  Single-column figure: 3.5 inches (8.9 cm) wide.

  Double-column figure: 7.25 inches (18.4 cm) wide.

  Maximum figure height: No more than 9.5 inches (24.5 cm), including space for figure caption underneath.

- Acceptable file types: There are two basic options for submitting electronic figure files to *Catalyst*:

  1. Place your original files (before being exported or saved as tiff, jpeg, or bitmap images) in Microsoft Word, Excel, or PowerPoint files. *Catalyst* can save these files at the correct resolution and make any corrections needed. (Do not place images that have already been exported or saved as tiff, jpeg, or bitmap images.)

  2. Export or save figure files as tiff, jpeg, or bitmap images. After being exported, figures are composed of pixels rather than text, lines, and fills. These images cannot be corrected or saved at higher resolutions. When choosing this option, you must be sure to export files with the correct amount of resolution (see below), or dots per inch (DPI), at the size they will print. A graphic with too low a resolution will appear blurry and pixelated when professionally printed.

- Acceptable resolutions for tiff, jpeg, and bitmap images: The minimum requirements for resolutions in figure files are:

  1200 DPI for monochrome: For images that are purely black and white, such as line graphs.

  300 DPI for halftones (CMYK/RGB/grayscale): For images containing pictures or areas of gray or color shades only—an image that does not containing any text labeling or lines.

  600 DPI for combination of lines or text with halftones: For images containing pictures or areas of gray or color shades and text labeling and/or thin lines.

- Saving your images as tiff, jpeg, or bitmap files:

  Crop figures with only a small amount of white space bordering them. (This reduces file size.)

  Use the correct resolution (see above).

  Select grayscale (for black and white) or CMYK or RGB (for color).

  Select LZW Compression (to reduce file size) and Byte Order: IBM PC.

- Unacceptable file types: Internet graphics—graphics downloaded from website pages—are low-resolution images (usually 72 DPI), which are fine for screen displays, but far below acceptable quality standards for print.

If you have additional questions, please email the publications coordinator (rosemary@asev.org).

Supplemental Data

Catalyst is able to publish online supplemental data for some articles. It is intended that these data should not be necessary to the understanding of an article, but instead might be helpful in further consideration of the article (for example previous methods in common use) or replication of the study. A supplemental file should be referred to at least once in an article. These materials are freely available to all *Catalyst* subscribers.

Authors may be charged a fee for the supplemental file, given the file size and editing needs.

Reporting Information

Statistical methods and replications. For reports, authors must present enough details of their experimental design so that the results can be judged for validity and so that previous experiments may serve as a basis for the design of future experiments. Statistical methodology should be of the same rigor as that expected for the American Journal of Enology and Viticulture. It is suggested that where possible, statistical treatments and methodologies appear in an endnote.

Multiple comparison procedures such as Duncan's multiple range test are frequently misused. Such misuse may result in incorrect scientific conclusions. Multiple range tests should be used only when the treatment structure is not well understood (for example, studies to compare cultivars). When treatments have a logical structure, significant differences among treatments should be shown using t or F tests.

Field experiments, such as studies on crop yield and yield

components that are sensitive to environmental interactions and in which the crop environment is not rigidly controlled or monitored, should be repeated (over time and/or space) to demonstrate that similar results can (or cannot) be obtained in another environmental regime. Perform replicate chemical and sensory evaluations to show reproducibility and consistency, respectively.

Trade names. The trade names of materials and the names of manufacturers or suppliers of special (not reagent grade) materials must be given (including city, state, and country). In experimentation, identify a chemical compound by its common name (if such name exists) or by the chemical name and structural formula.

Nomenclature. The binomial or trinomial (in italics) must be shown for plants, insects, and pathogens when first used in the abstract and in the text (for example, *Vitis vinifera*). A collection number or that of a comparable listing should identify algae and microorganisms referred to in the manuscript.

For cultivar names, *Catalyst* conforms to spellings listed in the TTB listing of approved grape names for American wines (http://www.gpo.gov/fdsys/pkg/CFR-2011-title27-vol1/xml/CFR-2011-title27-vol1-sec4-91.xml); *Catalyst* uses a lowercase format for noir, blanc, and franc. Do not use single quote marks around cultivar names.

Chemical identification. Papers reporting on flavor constituents should conform to the recommendations made by the International Organization of the Flavor Industry (see J Agric Food Chem 44:10 [1996]). Any flavoring substance must have its identity confirmed by at least two methods. Otherwise, the identification should be labeled "tentative." Include at least semi-quantitative data on the concentration of an identified component in the original source. Ranges such as <1 µg/L, 1 to 10 µg/L, 10 to 100 µg/L, rather than absolute amounts, are acceptable.

N**umerals.** Spell out all numbers or fractions that begin a sentence. Do not use a dash or hyphen to replace the preposition "to" between numerals (3 to 10°C) within the text; however, a dash or hyphen may be used in tables and figures.

Write out numerals one through nine when referring to general numbers (e.g., three panelists, five sessions, four training systems). Use numbers with all units of measurement, and always use decimals, not commas (3.56 mL, not 3,56 mL). Write out and hyphenate simple fractions (for example, two-thirds), but in general, use decimals instead of fractions.

Units. Units of measurement are treated as collective nouns and take singular verbs (e.g., "2.5 mL bentonite was added to the sample"). The International System of Units (SI) is preferred, and the solidus (/) is preferred to the negative index form (e.g., g/L rather than g L-1). However, for reader clarity, use of U.S. or common units and degrees Fahrenheit in addition to metric units and degrees Celsius are encouraged. Also observe the following:

Wine volume: report as liter (L) or milliliter (mL). Hectoliters are not recommended. Abbreviate liter as a capital L, not lowercase, to avoid confusion with the number 1.

Grape weights: report as grams (g), kilograms (kg), and metric tons (t).

Temperature: report as degrees Celsius (°C). Degrees Fahrenheit may also be included (°F).

Parts per million (ppm) and parts per billion (ppb) are not recommended. Use the equivalent milligrams per L (mg/L) and micrograms per liter (µg/L).

Wine or juice yield: report as liters per 1000 kg (L/1000 kg) or milliliters per kilogram (mL/kg) (equivalent).

Land area: report as hectares (ha) (1 ha = 2.47 acres). Acres may also be included.

Latitude and longitude: report as (42°31′; 12°29′).

Time and dates. When reporting time, use the 24-hour system with four digits (e.g., 0400 hr for 4:00 a.m., 1630 hr for 4:30 p.m.). Report dates as day, month, year (9 Apr 2007).

Abbreviations and symbols. See the accompanying list of abbreviations. Replacement of certain unwieldy chemical names by well-known abbreviations is acceptable (e.g., HPLC, DNA). Standard chemical symbols may be used after an initial definition (e.g., Ca, NaOH). With the exception of those standard for international usage (e.g., HPLC, ATP), do not use abbreviations in the title or abstract. Symbols and abbreviations in figures and tables must also conform to these guidelines.

Reporting Vineyard Trials

Viticultural field experiments have specific issues that require description to provide context and allow reproducibility. The following information should be included whenever possible:

- Geographic coordinates of study site(s) when possible. A less precise description of the location is acceptable if privacy or security concerns prevent sharing coordinates.
- Vineyard elevation, aspect, and slope.
- Climate classification.
- Soil type(s) and depth(s).

Description of the vineyard:

- Year the vines were planted and years when the study was conducted.
- Rootstock and scion variety and clone (when known and applicable).
- Row orientation and vine spacing (between and within rows).
- Vine training system and trellis specifications.
- Type of irrigation system, if present.
- Timing of key phenological stages.
- Key weather data (e.g., growing degree days, heat or cold events, precipitation) during the course of the study.

Cultural practices employed:

- Vineyard floor management (e.g., cover crop, tilling frequency, herbicide use).
- Pruning method, including approximate number of nodes/vine remaining after pruning.
- Canopy management practices, if any.
- Pest control program.
- Irrigation approach (e.g., regulated deficit irrigation) and scheduling basis.
- Fertilization approach (type, amount, timing, and delivery method)

- Special management considerations (e.g., freeze or frost protection, hail netting, etc.).

Agronomic data:

- Pruning weight and number of shoots per vine.
- Yield and yield components (including number of clusters per vine, cluster weight, and berry weight).
- Harvest date and harvest method.
- Basic fruit composition, including total soluble solids, pH, and titratable acidity, and measurement methods.

Experimental procedures:

- Describe the experimental design and replication of each study.
- Verify that the same study or a similar study has been repeated in time or space, or justify why such repetition was not possible or necessary.
- Sufficiently describe the experimental treatments and control(s).
- Describe the sampling strategy and how the samples were processed.
- Statistical analysis procedures, including software and models employed, and thresholds for statistical significance.

Reporting Winemaking

Winemaking experiments have specific issues that require description to allow translation into practice. While it is understood that some variables cannot be controlled, there are factors that should be reported in each study. If an experiment starts with fresh grapes, then as much as possible, report the following data:

- Local source of grapes
- Variety/varieties (and species if not *Vitis vinifera*), clone and rootstock, if known
- Harvest date
- Harvesting method
- History of grapes between harvest and crushing (or analysis), including time delay and temperatures and disease conditions (amount of Botrytis, etc.)
- Crushing and pressing devices with settings
- Yield of juice or wine
- Juice or must samples should be analyzed for components under study in the resulting wine. Describe the sampling technique and analytical procedures. All samples must be replicated.

For fermentations, include the following:

- Replicate fermentations. At least duplicate, but preferably triplicate, winemaking procedures must be applied whenever possible. It is standard practice to use field replicates to create fermentation replicates. Describe techniques used to reduce replicate variability, especially with red musts. Replicate variability should be assessed within the context of the experiment. It is important to distinguish between experimental replicates (independent fermentations) versus analytical replicates (replicate analyses of one fermentation) when citing data on significance.
- Additions, including amount and time of addition, preparation, and method of mixing. For yeast or bacteria, report source and genus, species, and selection.
- Specify weight of grapes per fermentation lot, fermentation volume, and container type.
- Maceration technique for red musts
- Daily measurements during fermentation: temperatures (separate measure of cap temperature for red musts before maceration) and soluble solids and, if no inoculation is used, microbial populations should be counted at the genus level.
- Analysis of these factors before fermentation: soluble solids, pH, titratable acidity, yeast-assimilable nitrogen, and any other variable under investigation.
- Analysis of these factors after fermentation: pH, titratable acidity, ethanol, residual sugar, free and total sulfites, and, depending upon the study, malic and lactic acid, total phenols, absorbance at 420 and 520 nm, volatile acidity or acetate, and any other variables under study.
- Specify history of samples (time and temperature) between collection and analysis.
- Replicate analyses should be conducted and statistical treatment of data reported.

If a study or analysis starts with finished wine:

- Wines should be analyzed initially for components under study. Describe the sampling technique and the analytical procedures. All samples must be replicated.
- Wine composition: pH, residual sugar, titratable acidity, ethanol, and free and total sulfites
- Postfermentation storage container size and material and storage temperature
- Vintage dates and dates of experiment and analyses
- Replicate analyses should be conducted and statistical treatment of data reported.
- Bottling operations or study of bottle closures: visual examination of closures for mechanical defects, and wine must be tested for dissolved oxygen immediately after bottling.

Reporting Sensory Evaluation

Sensory methodology used must demonstrate sound scholarship and meticulous attention to the methodological details expected within the field and be capable of testing what it purports to be testing. All articles reporting a sensory analysis must meet the acceptable analytical standards for this field. Authors must clearly indicate exactly how the test was conducted, at what temperature the wines were stored, for how long the wines were stored, at what temperature the wines were served to the panelists, what type of glassware was used, how much wine was poured in each glass, how many tests the panelists performed, and how many samples were served per session. Examples of sound methodology are presented below.

Panelists. Trained panelists or "expert" panelists may not be asked to indicate their liking or the acceptability of the sample(s). Only true consumer panelists can give this type of information. Consumer panelists usually should not be asked to score the

intensities of specified sensory attributes. However, there may be isolated situations where this would be acceptable.

Discrimination testing. With discrimination testing (such as paired difference, duo-trio, triangle, two-out-of-five), the objective is to determine whether two samples are perceptibly different. In all cases, except the directional paired difference test, that is the only information the test provides.

The major issue with discrimination tests is ensuring that the test had enough power. (Power is defined as the probability of finding a difference that actually exists.) Power is affected by several factors, but the one that the experimenter usually has control over is the number of panelists evaluating the samples.

If a discrimination test shows that two samples are perceived to be significantly different, then the test had enough power (regardless of the number of panelists).

If a discrimination test shows that two samples are not perceived to be significantly different, then the power issue becomes crucially important and the authors must then indicate the power associated with their test. (This is usually the issue when authors want to show that a new method or variation does not affect the sensory properties of the product—the power of such tests is low when the number of panelists is low.[1])

Using the directional paired difference test with wines can be problematic. The requirement for this test is that the two samples may only differ in a single sensory attribute: for example, a 1% salt-water solution is less salty than a 2% salt-water solution, but it does not differ in any other sensory modality. However, when real products are used, this is often not true; for example, a wine with 2% residual sugar is perceived to be less sweet than one with 4% residual sugar, but the first wine may also be perceived to be more sour than the second. In such cases, the paired directional test should not be used.

Descriptive analysis. When authors use the descriptive analysis techniques to evaluate their samples, there are three major issues. First, unless the panel was trained by or in direct consultation with the Tragon Corp. (Palo Alto, CA), the technique used was not QDA (Quantitative Descriptive Analysis). QDA is a registered trademark of Tragon. The same is true for the FPA (Flavor Profile Analysis), which is trademarked by A.D. Little Company (Boston, MA), and the SDA (Spectrum Descriptive Analysis) of Sensory Spectrum (East Hanover, NJ).

Second, authors typically use variations of the above techniques. They could refer to a variation of the QDA technique as the consensus training method and to variations of the FPA and SDA as ballot training methods. It is also possible to amalgamate the two methodologies as a combination training method.

Third, authors must give explicit information on the following: number of panelists, source of panelists, method of training, length of training, assessment of training, attributes used, reference standards/verbal descriptors used for attributes, number of times each panelist evaluated each sample, number of samples per session, number of sessions, duration of sessions, and time between sessions.

Publication Information

Publishing fees. Corresponding authors who are ASEV members are not charged for the publication of manuscripts 10 pages or less in *Catalyst*. Nonmembers will be charged $75.00 per page for the first 10 pages. All authors (member or nonmember) are charged $200.00 for each page over the first 10. *Catalyst* reserves the right to charge an author for any extra costs of unusual or improperly submitted materials, additional editing or proofreading, extensive tables, extensive author alterations, supplemental data files, excessive modification of figures by staff, and any applicable bank fees for international payment transactions.

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Public Institution and Funding Agency Public Access. The National Institutes for Health (NIH) and other federal funding agencies require that all articles written with NIH funding and

[1]Example: Authors want to indicate that using a new fining agent produces a wine that is not perceptibly different from a wine fined with a more traditional agent. Before starting the study, the authors determine that they want a power of 90% (a 90% chance of detecting a difference if it exists), analogous to a type II error (β) of 10%. In addition, the authors use the usual type I error (α) of 5%; they want less than 10% of the population to discriminate between the samples. Given these assumptions, the authors determine that to perform a triangle test they would need at least 342 panelists. Using the same assumptions but a duo-trio test, authors would need 853 panelists.

After completing the study, the authors write a paper stating that they used α at 5%, a duo-trio test, and 50 panelists and found that the two fining agents did not significantly differ in how they affected the sensory quality of the wine. The reviewer determines that assuming that less than 25% of the population can detect a difference; the power of this test is about 55%. If the authors had performed a triangle test, then the power would have been 78%.

accepted on or after 7 April 2008 be submitted to a central repository (PubMed Central) for public access. At this point, NIH-funded *Catalyst* authors are responsible for submitting a copy of their final accepted manuscript, at the time of acceptance, and authorizing NIH to make the copy available in digital form for public access in PubMed no later than 12 months after the online publication date by *Catalyst*. Please access the following for information: http://publicaccess.nih.gov/. Other public funding agencies and public institutions have similar requirements. It is the responsibility of the author to comply with these requirements.

Corrections. Corrections are published, if necessary, in the online Journal. Authors should notify the managing editor of any necessary corrections.

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Abbreviations and Symbols

Term	Abbreviation or Symbol
absorbance/ absorbance units (in tables and figures)	abs/AU
active ingredient	a.i.
adenosine 5' triphosphate (adenosine triphosphate)	ATP
ampere	A
et alia (Latin: and others)	et al.
atmosphere (see also standard atmosphere)	Atm
average (abbreviate in tables and equations only)	avg
boiling point	bp
Brix (no degree sign)	Brix
°Celsius	°C
°centigrade	°C
chemically pure	CP
coefficient	coeff.
colony forming unit(s)	cfu
concentration (in tables and figures)	concn
constant	const.
cubic centimeter	cm^3
cultivar (only after species name)	cv.
day, days	day
decibel	dB
degree (angular)	°
dextro (preceding chemical name)	(small cap) D
dextrorotatory (preceding chemical name)	(italic) *d* (+)
diameter	diam
dry weight (with unit of measurement)	DW
electron volt	eV
equation (reference in text)	(eq)
equivalent	equiv
exponential	exp
for example (in tables and figure captions only)	e.g.
freezing point	fp
fresh weight (with unit of measurement)	FW
gram	g
gravity (gravitation constant)	(italic) *g*
hectare	ha
hertz	Hz
high-performance liquid chromatography	HPLC
hour	hr
hydrogen ion concentration, negative logarithm of	pH
infrared	IR
inhibitor constant	K_1
inside diameter	i.d.
joule	J
kelvin	K
kilo (x 10^3)	k
kilodalton	kDa
kilogram	kg
kilometer	km
kilovolt	kV
kilowatt	kW
levo- (preceding chemical name)	(small cap) L
liter	L
mass	(italic) *m*
mass-to-charge ratio	(italic) *m/z*
mass charge on electron	(italic) *m/e*
maximum	max.
mega (x 10^6)	M
megapascal	MPa
melting point	mp
meta- (preceding chemical name)	(italic) *m*
meter	m
Michaelis constant	(italic) K_m
micro (x 10^{-6})	µ
microequivalent	µeq
microgram	µg
microliter	µL
micrometer (micron)	µm
micromole	µmol
milli (x 10^{-3})	m
milliampere	mA
milliequivalent	meq
milligram	mg
milliliter	mL
millimeter	mm
millimole	mmol
millivolt	mV
minute (time)	min
mitochondrial deoxyribonucleic acid	mtDNA
molar (concentration)	(italic) *M*
mole	mol
month	mo
Nephelos turbidity unit	NTU
newton	N

nicotinamide adenine dinucleotide ..... NAD
nicotinamide adenine dinucleotide, reduced ..... NADH
nicotinamide adenine dinucleotide phosphate (reduced) ..... NADP
normal (concentration) ..... *N*
normal (preceding chemical name) ..... *n*
not significant ..... ns
nuclear magnetic resonance ..... NMR
ohm ..... Ω
ortho- (position; preceding chemical name) ..... (italic) *o*
outside diameter ..... o.d.
para- (preceding chemical name) ..... (italic) *p*
parts per billion ..... µg/L
parts per million ..... mg/L
per ..... /
percent ..... %
peta (x 10^{15}) ..... P
pico (x 10^{-12}) ..... p
polymerase chain reaction ..... PCR
probability (lowercase italic) ..... *p*
racemic (optical configuration, a mixture of dextro- and levo-) (preceding chemical name) ..... (small caps) DL
revolutions per minute ..... rpm
second (time) ..... sec
significant at 0.05 level ..... *
significant at 0.01 level ..... **
significant at 0.001 level ..... ***
species (only after generic name) ..... sp., spp.
species nova (only after specific epithet) ..... sp. nov.
specific gravity ..... sp gr
specific heat ..... sp ht
specific volume ..... sp vol
square ..... sq
standard atmosphere ..... atm
standard deviation ..... SD
standard error ..... SE
substrate constant (see Michaelis) ..... (italic) K_m
surface tension ..... N/m
tangent ..... tan
temperature ..... temp
tera (× 10^{12}) ..... T
that is (in tables and figure captions only) ..... i.e.
tonne (metric ton) ..... t
ultraviolet ..... UV
varietas (variety; only after specific epithet) ..... var.
versus (only in tables and figures; spell out in text) ..... vs
volt V
volume ..... vol
volume ratio (volume per volume) ..... v/v
watt ..... W
week ..... wk
weight ..... wt
weight per volume ..... w/v
weight ratio (weight per weight) ..... w/w
year ..... yr

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