

# AMERICAN JOURNAL *of* ENOLOGY AND VITICULTURE

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## 2019 Revision Guide to Authors

The *American Journal of Enology and Viticulture* (AJEV) publishes full-length research papers, research notes, and literature reviews on subjects related to enology and viticulture.

*Research papers* are scientific communications that present a new principle, rigorously test an existing hypothesis, or otherwise provide important novel information to the scientific community. Descriptive studies that are hypothesis generating also fit into this category.

*Research notes* are brief manuscripts, generally no longer than three to five published pages (3,300 words, excluding figures and tables). Notes are especially appropriate for subject matter of interest to the scientific community that can be adequately conveyed in a concise format and that might not be acceptable as a full length research paper. Examples of work that might be best presented as a research note include research findings that may be limited in scope or preliminary, but suggest new insights or new or improved scientific methods. Research notes must draw a conclusion and may present important but negative results. Notes that are primarily of interest to technical members of the industry are more appropriate for *Catalyst: Discovery into Practice*.

*Literature reviews* synthesize the hypotheses and results within the research area under review and critically evaluate the published literature.

*Technical briefs*, which provide important new information to technical members of the industry but might not advance the forefront of science in viticulture or enology, are no longer published in AJEV, but will be considered for publication in *Catalyst: Discovery into Practice*.

### Submission of Manuscripts

The AJEV accepts manuscript submissions online at <http://ajev.edmgr.com>. The corresponding author will submit a cover letter together with the manuscript that states that all authors have contributed to the manuscript, have approved its submission, and that the manuscript is not currently submitted to or in review with another publication. A signed copy of the AJEV Author Agreement, which can be found on both the [www.ajevonline.org](http://www.ajevonline.org) and <http://ajev.edmgr.com> sites, must be included with the submission (upload, fax, or mail to the Journal office). Manuscripts should be formatted and organized as explained in the *Content of Manuscripts* section, p. 2.

### Review Process

The viticulture and enology editors assign each manuscript to an associate editor. Manuscripts then undergo a two-step review process. Manuscripts are first screened to determine whether they meet AJEV standards of scientific rigor and language. Manuscripts that are largely descriptive, confirmatory, or that otherwise do not

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- Online manuscript submission: <http://ajev.edmgr.com>
  - Format and organize manuscripts as explained in *Content of Manuscripts*, p. 2
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present any new information or novel insights will not be accepted.

A manuscript that passes the initial screening is generally sent to two peer reviewers. Authors may recommend up to three qualified reviewers who are not members of their institutions or collaborators; they may also note individuals who they prefer not to review their manuscript. Author-recommended reviewers are invited at the discretion of the associate editor. Additional reviewers may be consulted at the associate editor's discretion. AJEV has a single-blind review process in that authors are identified to reviewers, but reviewers are not identified to authors. Reviewer comments and the associate editor's decision regarding acceptability of the manuscript will be forwarded to the corresponding author by the managing editor. Any correspondence from the authors should be directed to the managing editor. AJEV does its best to return timely reviews, but reviewers and editors volunteer their time and may often be delayed by other duties. Authors should be willing to review other submitted manuscripts when requested by AJEV.

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. Revisions that have 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 AJEV, the manuscript will be required to be resubmitted and undergo a full review process. The editors reserve the right to edit accepted manuscripts to make them conform with AJEV style and/or to return them to the authors for further clarification.

### Journal Publishing Best Practices

The AJEV does not review or accept articles submitted to or published in other publications, and it is unacceptable for an author to submit manuscripts that describe the same research to more than one journal. AJEV does not accept manuscripts from commercial vendors and suppliers unless they meet our scientific standards for publication and lack of product promotion. Submitted manuscripts that may overlap previously published material, for example, conference proceedings, should be accompanied by an electronic version of that published material. Data that were previously published in conference proceedings might be considered suitable for publication in AJEV if the manuscript submitted

to AJEV integrates the data from the conference proceedings within a substantially more comprehensive manuscript. Authors of manuscripts containing such data must clearly state this in the cover letter, detailing the differences between the conference proceedings manuscript and the manuscript submitted to AJEV. They must also include a copy of the proceedings manuscript. The editors will make the final determination as to the suitability of such manuscripts.

Authorship should be based only on substantial contributions to (1) the conception and design of experiments or analysis and interpretation of data and (2) the drafting of the paper or major revision for important intellectual content. The corresponding author must obtain final approval of the manuscript from all authors. All authors must have agreed to submission of the paper and to take public responsibility for defending its content, and have agreed that the corresponding author act on their behalf on all matters pertaining to publication. It is the corresponding author's responsibility to provide all coauthors 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.

### Content of Manuscripts

Format manuscripts for letter-size (8.5 x 11 inch) paper, in Times New Roman font, with numbered pages, and double-spaced lines that are consecutively numbered. There is a Word template for formatting your manuscript on both <http://ajev.edmgr.com> and [www.ajevonline.org](http://www.ajevonline.org). All manuscripts must follow American-English standards of spelling and scientific notation (see abbreviations at the end of this guide and consult *The ACS Style Guide* [American Chemical Society] as a reference). Prepare manuscripts in the following order:

**Title.** The title must reflect the important aspects of the article as concisely as possible, in no more than 120 characters. Short yet descriptive titles are preferred. Questions are not suitable for titles.

**Authorship and byline.** List the first and last names of all authors. List the authors' current affiliations and the corresponding author's address, email, and/or fax number. If an author's affiliation has changed between the time of submission and publication, please notify the managing editor with the present affiliation and address, which will be included on the manuscript.

**Acknowledgments.** Note the source(s) of funds and materials used to conduct the research and where research was conducted, if applicable, and note any potential or perceived conflicts of interest by any authors. Give personal acknowledgments of assistance and nonauthor contributions.

**Abstract.** For full research articles, include a one-paragraph abstract of no more than 275 words that clearly states the hypothesis, intent, or purpose of the research, the theoretical or experimental plan used, key findings (without experimental details or

data), and major conclusions. Do not cite references, figures, or tables. Limit abstracts for research notes to 200 words.

**Interpretive abstract.** This abstract must be included with the final accepted manuscript. Its purpose is to explain the research in nonspecialized language to a less scientific audience in approximately 300 words. It should state the question being investigated and then explain how the findings help to answer the questions and the implications the findings may have in a broader scope and for a wider audience.

**Key words.** Create a list of approximately six key words, selecting from the list that is available online at [www.ajevonline.org](http://www.ajevonline.org) or at <http://ajev.edmgr.com>. Authors may "write in" up to two key words of their own selection that do not appear on the AJEV key word list, if necessary.

**Introduction.** Provide a background review of existing knowledge, citing salient literature. Clearly describe the knowledge gap that the research was designed to address and how the research approach addressed this knowledge gap. Conclude with the hypothesis involved and/or the purpose of the investigation.

**Materials and Methods.** See the sections *Reporting Information*, *Reporting Vineyard Trials*, *Reporting Winemaking*, *Reporting Sensory Evaluation*, and *Reporting Ampelographic or Molecular Marker Data* on the following pages. Enough detail must be given in Materials and Methods so that others may repeat your work. Identify the number of replications of experimental treatments and the number of times individual experiments were repeated. For standard methods, cite the corresponding literature; describe in adequate detail those procedures that have not been fully described in cited publications. List model number and sources (vendor name) of equipment and media. Clearly describe methods of statistical analysis. Specify conditions or variables whose control influences the experimental results (e.g., use of colored lights or glasses in sensory evaluation). Refer to the *Reporting Information* section for more detailed requirements.

**Results.** Report the results of your study here; reserve your interpretation of the results for the Discussion section. Present results concisely in the text and any accompanying tables and figures, if necessary. Avoid extensive use of graphs; tables are often more effective. Avoid duplicative presentation of the same results. If specific results are given in tables, then do not repeat that information in the text (e.g., significance values). In short articles, the Results and Discussion sections may be combined.

**Discussion.** Critically evaluate and interpret the results in relation to previous literature, propose explanations for the results observed, and discuss possible limitations and applications. Avoid speculation unsupported by the data obtained.

**Conclusion.** Specify conclusions concerning the original problem/hypothesis and the information given in the article. This final section should complement the Introduction by summarizing how the study findings address the knowledge gap and whether the results support the initial hypothesis. Do not simply summarize the article and do not introduce new information or cite literature sources. The conclusion section should communicate the implications of the findings rather than repeat specific results.

**Literature Cited (LC).** Authors must ensure the accuracy of all references listed. In the full-text version of [www.ajevonline.org](http://www.ajevonline.org), Internet hyperlinks between the LC 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. If EndNote or a similar reference management program was used to format the references and citations in the manuscript, all field codes (gray shading on LC and in-text citations) must be removed prior to submission.

Most research articles can be limited to 40 to 50 salient literature citations (25 to 30 for research notes and technical briefs). The LC should contain 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. All references listed in the LC must be cited within the text.

Do not include the following in the LC: 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; these should be referred to in parentheses in the text (see examples below). For personal communication and unpublished data, obtain permission from the person cited and provide the editors with the written permission. Submit unpublished manuscripts and/or data that are essential to the submitted manuscript together with the manuscript to provide enough background for the reviewers and the handling editor.

The AJEV uses the author and date in parentheses system for in-text citations. Consult the sample issue of AJEV posted at [ajevonline.org](http://ajevonline.org) and the following examples for the correct format of literature cited. Arrange citations chronologically by date of publication, with the earliest date first. Separate multiple citations with a comma between each citation (example: Wolpert et al. 2004, Harbertson et al. 2012). All authors of an article must be listed in the LC, unless there are over 10 authors (if so, list the first author and “et al.”). In edited works, if there are three or more editors, list the first editor and “et al.” If a source has no author, list the sponsoring organization or publisher; do not use “Anonymous.”

If more than one work by the same author is cited, list the publications in chronological order; if the year is identical, insert lowercase letters (i.e., a, b, c) after the date according to the order each source is cited in the text. Please note that if reference management programs (e.g., EndNote, Mendeley, Reference Manager, etc.) were used, the formatting does not always match AJEV’s style and references may require manual correction. Do not use linked field codes (produced by EndNote and other similar reference management programs). Check formatting of references following building of the PDF in Editorial Manager. The correct order of elements in sources is noted in the following.

#### *Journal article:*

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

*In-text citation:* (Kennedy et al. 2006) [for three or more authors, use “et al.” following the senior author’s name]

#### *Book:*

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

*In-text citation:* (Boulton et al. 1996)

#### *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.

*In-text citation:* (Sponholz 1993)

#### *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.

*In-text citation:* (Wample and Wolf 1996)

#### *Thesis:*

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

*In-text citation:* (Wolpert 1983)

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

*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](http://www.asev.org)).”

*Database:* “. . . vector sequences were removed by cross-match ([www.genome.washington.edu](http://www.genome.washington.edu)).”

## Tables and Figures

Do not repeat data in the text that are given in a table or figure and make sure tables and figures are not redundant.

**Tables.** Information presented in a table must be self-explanatory and agree with the text. 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.

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) and (%). 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 <sup>a</sup> (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 permission from the copyright holder.

*Figure construction:* 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. (Include all panels in the same file.)
- Do not use special effects such as 3-dimensional bar charts or graphs without prior permission from the AJEV managing editor.
- Use solid gray shades in bar charts (not patterns); differentiate among the gray levels by at least 20%.
- Include error bars, if 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.
- Black and white illustrations are standard for the print version of AJEV, but color may be appropriate for the online version at no cost. Color costs for the print journal are paid by the author in addition to any page fees (~\$250.00 US per each page with color).

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

- Copy-paste your original files (before being exported or saved as tiff, jpeg, or bitmap images) in Microsoft Word, Excel, or PowerPoint files. AJEV can save these files at the correct resolution and make any corrections needed (do not copy/paste images that have already been exported or saved as tiff, jpeg, or bitmap images).
- 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 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 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 minimizes file size).
- Use the correct resolution (see previous).
- Select grayscale (for black and white) or CMYK and 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 usually low-resolution images (usually 72 DPI), which are fine for screen displays, but far below acceptable quality standards for print.

Authors will be charged an extra fee if extensive manipulation on tables and/or figures is required.

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

**Supplemental data.** AJEV is able to publish online supplemental data for some articles. It is intended that the data not be necessary to the understanding of an article, but might be helpful in further consideration or replication of the study. These materials are freely available to all ajevonline.org readers. Authors may be charged a fee for the supplemental file, depending on the file size and editing needs.

## Reporting Information

**Statistical methods and replication.** Report experimental design and statistical methods used in sufficient detail that the results can be judged for validity and that published results may serve as a basis for the design of future experiments. A useful reference is: Gates CE. 1991. A user’s guide to misanalyzing planned experiments. *HortScience* 26:1262-1265. Field experiments, such as studies on crop yield and yield components, fruit composition, or pest/disease incidence, 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. Chemical analysis and/or sensory evaluation of materials from field experiments should be collected independently from each field replicate. Perform replicate chemical and sensory evaluations to show reproducibility and consistency, respectively, but avoid pseudoreplication resulting from such evaluations.

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

**Nomenclature.** Refer to recently published AJEV articles for appropriate nomenclature in American English. For example, AJEV uses “budbreak” rather than “budburst” and “bloom” rather than “flowering” to refer to these distinct developmental stages. The binomial or trinomial (in italics) must be shown for all biological species when first used in the abstract and in the text (for example, *Vitis vinifera*). Thereafter, the genus name is abbreviated

to the initial, except when confusion could arise by reference to other genera with the same initial. A collection number or that of a comparable listing should identify algae and microorganisms referred to in the manuscript.

For variety names, the AJEV 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>); AJEV uses a lowercase format for adjectives such as noir, blanc, or franc. Do not use single quote marks around variety names. The terminology used to describe the skin color of mature grapes should conform to the Vitis International Variety Catalogue skin color descriptors (<http://www.vivc.de>). For example, the skin color of mature Cabernet Sauvignon grapes is black (although the color of the wine made from Cabernet Sauvignon grapes may be red) and the skin color of mature Flame Seedless grapes is red.

**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.

**Numerals.** 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 metric system is standard, and the International System of Units (SI) is the only acceptable system. The solidus (/) is preferred to the negative index form (e.g., g/L rather than g L<sup>-1</sup>). Also observe the following:

- Latitude and longitude: report as (42°31'N; 12°29'E).
- Grape weights: report as grams (g), kilograms (kg), and metric tons (t).
- 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.
- Wine or juice yield: report as liters per 1000 kg (L/1000 kg) or milliliters per kilogram (mL/kg) (equivalent).
- 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).

**Significant figures.** Report data only to the appropriate number of significant figures for the precision of the measurement.

**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 names by well-known abbreviations is acceptable (e.g., HPLC, DNA). Standard chemical symbols may be used after an initial definition (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 guidelines.

### Reporting Vineyard Trials

Viticultural field experiments have specific issues that require description to provide context and allow reproducibility. Information regarding the need for replication and repetition of field trials is provided in the section *Statistical methods and replication*. The following information should be included whenever possible:

- Administrative division of the study site (city, state, American Viticultural Area, or other description of administrative division).
- 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, when known and applicable, clone.
- 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 per vine remaining after pruning.
- Canopy management practices, if any.
- Pest management 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:**

- Completely describe the experimental design and replication of each field trial.
- 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 reproducibility. While it is understood that some variables cannot be controlled, there are factors that should be reported in each study. Depending on experimental goals and objectives, winemaking experiments may require replication across at least two vintages, locations, or varieties. Authors shall provide justification if this replication is not performed. If an experiment starts with fresh grapes, then report the following data:

- Location for source of grapes
- Species and variety(ies), clone and rootstock, if known
- Harvest date
- Harvesting method
- History of grapes between harvest and crushing (or analysis), including time delay and temperature and disease conditions (e.g., 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. All samples must be replicated.

**For fermentations, include the following:**

- Replicate fermentations. At least duplicate, but preferably triplicate, winemaking procedures must be applied. For field trials, retain field replicates as fermentation replicates, rather than pooling grapes from field replicates and creating separate fermentation replicates. Describe techniques used to reduce replicate variability, especially with red musts. Replicate variability should be assessed within the context of the experiment.
- Additions, including amount and time of addition, preparation, and method of mixing. For yeast or bacteria, report source and genus, species, and selection.
- 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, fermentable 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, and volatile acidity or acetate, and any other variables under study.

- History of samples (time and temperature) between collection and analysis.

**If an experiment 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, TA, ethanol, and free and total sulfites
- Postfermentation storage container size and material and storage temperature
- Vintage year(s) 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 testing of wine 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.

**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.<sup>1</sup>)



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 more complex 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 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.

### Reporting Ampelographic or Molecular Marker Data

The AJEV publishes studies on ampelography and genetic diversity in *Vitis* and Vitaceae. However, unless they are submitted as Research Notes or present significant phenotypic data, articles must have a broad impact and be of significance to the entire international community. Studies on major collections should strive for comprehensive treatment of a collection, rather than simply address small subsets of cultivars within a collection. For example, one article examined more than 300 accessions in one collection (AJEV 2016, 67:466-470).

To be considered for review, all submitted manuscripts concerning molecular markers should include the standard set of

international markers (VVMD5, VVMD7, VVMD27, VVS2, VrZAG62, VrZAG79). Tables and figures must be limited to significant information only (other data such as allelic fingerprints will be published as supplemental tables or figures with the online published article). When submitting an article, carefully consider whether it should be designated as a full research article or a research note (see description of each on p. 1).

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<sup>1</sup>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 ( $\beta$ ) of 10%. In addition, the authors use the usual type I error ( $\alpha$ ) 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  $\alpha$  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%.

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### AJEV 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 <sup>3</sup>
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) <i>d</i> (+)
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) <i>g</i>
hectare	ha
hertz	Hz
high-performance liquid chromatography	HPLC

hour	hr
hydrogen ion concentration, negative logarithm of	pH
infrared	IR
inhibitor constant	K <sub>1</sub>
inside diameter	i.d.
joule	J
kelvin	K
kilo (x 10 <sup>3</sup> )	k
kilodalton	kDa
kilogram	kg
kilometer	km
kilovolt	kV
kilowatt	kW
levo- (preceding chemical name)	(small cap) L
liter	L
mass	(italic) <i>m</i>
mass-to-charge ratio	(italic) <i>m/z</i>
mass charge on electron	(italic) <i>m/e</i>
maximum	max.
mega (x 10 <sup>6</sup> )	M
megapascal	MPa
melting point	mp
meta- (preceding chemical name)	(italic) <i>m</i>
meter	m
Michaelis constant	(italic) <i>K<sub>m</sub></i>
micro (x 10 <sup>-6</sup> )	μ
microequivalent	μeq
microgram	μg
microliter	μL
micrometer (micron)	μm
micromole	μmol
milli (x 10 <sup>-3</sup> )	m
milliamper	mA
milliequivalent	meq
milligram	mg
milliliter	mL
millimeter	mm
millimole	mmol
millivolt	mV
minute (time)	min
mitochondrial deoxyribonucleic acid	mtDNA
molar (concentration)	(italic) <i>M</i>
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)	<i>N</i>
normal (preceding chemical name)	<i>n</i>
not significant	ns
nuclear magnetic resonance	NMR
ohm	Ω
ortho- (position; preceding chemical name)	(italic) <i>o</i>
outside diameter	o.d.
para- (preceding chemical name)	(italic) <i>p</i>
parts per billion	μg/L
parts per million	mg/L
per	/
percent	%
peta (x 10 <sup>15</sup> )	P
pico (x 10 <sup>-12</sup> )	p
polymerase chain reaction	PCR
probability (lowercase italic)	<i>p</i>



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)..... ( <i>italic</i> ) $K_m$	
surface tension..... N/m	
tangent..... tan	
temperature..... temp	
tera ( $\times 10^{12}$ )..... 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	