

Plant Health Progress Instructions for Authors

Plant Health Progress (PHP) is a peer-reviewed journal of the Plant Management Network (PMN) and an official publication of The American Phytopathological Society (APS). This journal of applied plant health publishes original research and review articles, briefs, proceedings, and guides to management and diagnosis (all peer-reviewed). All topics relating to plant health are appropriate content for *Plant Health Progress*. Articles are published immediately upon completion of review and production, and they are assigned quarterly issue and annual volume numbers.

Manuscripts from official symposia sponsored by professional or academic organizations may be submitted. Organizers of a symposium should make arrangements with the Editor-in-Chief for submissions before the symposium is presented. Manuscripts from symposia are subject to the same review process as other articles, and special publication fee arrangements will be made; please inquire with the business office (planthealthprogress@scisoc.org).

Original findings peer-reviewed by *Plant Health Progress* must demonstrate reproducibility. All opinions, editorials, and papers published in *Plant Health Progress* reflect the views of the authors and are not necessarily the views of PMN, APS, or the institutions with which the authors are affiliated. The editors reserve the right to reject or accept letters and perspectives for publication and to edit them for clarity and conciseness.

Subscription content and open access. All content of *Plant Health Progress* is open access without restriction 12 months after publication. Immediate open access can be purchased for any article for a fee of \$1,900.

Publication fees. *Plant Health Progress*'s fee structure is closely based on that of other APS journals such as *Plant Disease* and *Phytopathology*. The fee structure is as follows:

Briefs

1 to 2 published pages = \$450 nonmembers; \$350 APS members
3rd page (the maximum) = \$130 nonmembers; \$80 APS members

All Other Articles (i.e., "full-length" articles)

for nonmembers, \$130 per published page; for APS members, \$50 per page for first 6 pages, \$80 per page for each additional page

Figures

\$20 each (black & white or color photos, line drawings, graphs)

e-Xtras

\$20 each for tables, figures, lists, movies, or other files
5 free links, \$5 each for additional links

Symposium or other proceedings

Inquire with the business office (planthealthprogress@scisoc.org).

For articles submitted as part of symposium or other proceedings, and open-access articles, please inquire with the business office (planthealthprogress@scisoc.org).

Proceedings fees should be arranged prior to submission and, preferably, prior to the symposium event itself. No additional fees are required for publication of images (black & white or color), links, animations, appendices, or other supplemental files accepted through

the review process. Fees are payable at the author proof stage of production.

Submitting peer-reviewed articles. Manuscripts are submitted electronically via PHP's account at Scholar One's Manuscript Central review system. See instructions under "*Plant Health Progress* Submission Guidelines." Consult recent articles for arrangement of heads, subheads, etc., and follow the guidelines in the current document below.

PMN Update. All authors of a submitted manuscript will be added to the distribution list of our new article alert e-newsletter, PMN Update, from which they may unsubscribe at any time using links provided in each issue.

Biosecurity policy. The APS biosecurity policy developed by the Publications Board to screen potential articles for research that constitutes a misuse of plant pathological methods or a potential danger to society from the improper application of knowledge in our field is available at: <http://apsjournals.apsnet.org/userimages/ContentEditor/1285252638691/BiosecurityAPSPubBoardPolicy.pdf>.

In addition, before a report on a discovery of an Agricultural Select Agent can be submitted for publication, the detection of the Select Agent must be reported to USDA APHIS. See the APS Policy on Publishing on Agricultural Select Agents at: http://apsjournals.apsnet.org/page/SelectAgents_Policy.

Funding. Authors of manuscripts submitted to PHP are expected to list all sources of funding for the research project at the time of submission.

Authors can facilitate review and processing of their manuscripts by reading this guide carefully and completing the checklist in these instructions for authors before submitting their papers.

CONTENT

Research. PHP research articles are peer reviewed. They should describe work that represents a significant advance in the understanding of a particular issue and that leads to practical solutions to existing problems. The work described must not have been published before (except in the form of an abstract or as part of a published lecture, review, or thesis) and must be original. Research articles analyzing data collated from multi-year or multi-location germplasm, varietal, or fungicide trials are also acceptable. Data reported in PHP must be from scientifically valid, replicated plots or observations and subjected to appropriate statistical analysis. Contributors are strongly encouraged to combine data from related experiments in similar regions or environments in order to broaden the inference space for the work.

Research articles are no longer than 5,000 words including table headings and figure captions but not including the Literature Cited section. All manuscripts must be presented in terms meaningful to both a multidisciplinary audience of scientists and educated lay readers. Technical jargon should be avoided when possible, and technical terminology should be defined at its first occurrence in the text. Authors are encouraged to use figures and/or videos to present their findings.

An abstract should be included, consisting of three to six sentences that provide an informal summary of the main points of the article and why the research results should be viewed as important.

A one- to three-paragraph introduction should describe the problem and the reasons for conducting the research. Authors should

establish the context of their research at the beginning of the article and discuss the significance of their findings for plant health management practices.

The main body of the article should describe specific experiments, how they were conducted, and the results of these experiments. *Articles should not be organized around the subdivisions of "Introduction, Materials & Methods, Results, and Discussion,"* but should instead be subdivided using short clauses describing the goals and significance of the particular experiment or series of experiments. Conclusions and recommendations resulting from the work should be discussed together in the final section of the article. Conclusions should interpret results in terms of practical recommendations.

Methods should be described in enough detail for the reader to understand and evaluate the results and conclusions, and to duplicate the work if so desired. If the experiment includes two or more trials (e.g., in the form of random locations or environments), then the trials should be discussed separately only if the statistical analysis indicates that separate analyses are more appropriate. The conclusions and recommendations resulting from the trials can be summarized as a whole. All tables and figures should be cited in numerical order.

Authors of Research articles should also prepare a four to five sentence (200 word maximum) summary of the article and present it with the cover letter in Manuscript Central at the time of submission. The summary should describe the contents of the article and the ways in which its publication would benefit the readership of the journal.

Reviews. *PHP* Reviews are peer-reviewed articles that summarize and analyze a topic of importance to the journal's subject matter area for those who are not specialists. Readers of the narrative should be able to learn what is known and what questions remain unresolved about the subject. Review articles manuscripts are peer reviewed in the same manner as research articles, but the nature of the narrative requires different criteria for judging suitability for publication. The format of a review article differs significantly from that of a research article. Many reviews are invited by the Editor-in-Chief, and potential authors should inquire before writing a review intended for publication by *Plant Health Progress*.

Reviews should be documented with appropriate references and be no longer than 5,000 words including table headings and figure captions but not including the Literature Cited section.

Reviews should include an introduction to the problem or issue including why the topic is of interest to those involved with the journal's subject area and a discussion of the issues or new information as it relates to plant health management. The body of the review may be subdivided using short clauses that describe the major idea or ideas being discussed. Reviews should cite suitable references to document statements that are not considered general knowledge and also provide a list of printed and/or electronic resources for further information. Authors are encouraged to include figures, concise tables, color photographs, short videos or animations, or interactive illustrations to document or substantiate statements and to increase reader interest.

Authors of Reviews should also prepare a four to five sentence (200 word maximum) summary of the article and present it with the cover letter in Manuscript Central at the time of submission. The summary should describe the contents of the article and suggest the ways in which the article would benefit the readership of the journal.

Potential topics for Reviews in *Plant Health Progress* include analysis of issues that impact agriculture, horticulture, forestry, industry, environment, or society including research efforts and priorities, the practice of plant health maintenance, and public policy debates and legislation. Review topics may also include illustrative narratives that describe efforts to implement new knowledge in the practice of plant health maintenance.

Mini-Reviews are summaries of new information that has emerged in the past 2 to 3 years or since a review was previously published on

the topic. This updated summary should be of importance to the subject matter of *Plant Health Progress* and should be tailored to a readership of non-specialists. The intent of a Mini-Review is to highlight recent and significant developments in the topic area, not to be a comprehensive or exhaustive review. The Mini-Review should be presented in the context of previously published research and focus on the current situation regarding the topic. A brief discussion of questions that remain unresolved about the topic may be appropriate, as in a regular review article.

Mini-Reviews may be up to 1,500 words (2 to 3 pages), not including literature cited, although length may vary according to space needed to describe the subject adequately and accurately.

The Mini-Review can be prepared in the same style as that described for regular-length *Plant Health Progress* Reviews, but in keeping with the intent and page limit of the Mini-Review. Mini-Reviews may include concise tables, color photographs, and other figures, short videos or animations, or interactive illustrations to document or substantiate statements and to increase reader interest. Authors of Mini-Reviews should also prepare a summary (100 word maximum) of the article and present it with the cover letter in Manuscript Central at the time of submission.

Survey articles are peer-reviewed and document the geographical and/or temporal distribution and prevalence of plant pathogens or the diseases they cause. Articles may summarize surveys such as those initiated by commodity groups or USDA Cooperative Agricultural Pest Surveys (CAPS). Articles reporting on regional surveys are strongly encouraged. Sampling procedures should be scientifically valid and as uniform as possible among sampling sites. Survey articles are no longer than 5,000 words including table headings and figures captions but not including the Literature Cited section. The format for Survey articles is the same as for research articles.

Briefs are short, peer-reviewed, scientific articles that report new findings and recommendations relevant to any aspect of the journal's subject matter area. Topics appropriate to *PHP* briefs are the same as those of other *PHP* articles. Briefs provide a repository of science-based findings that are important to advisers, growers, diagnosticians, researchers, regulatory officials, other practitioners, and the public. Briefs are intended to stand alone and do not include preliminary reports of work that will later be presented in full-length papers. Briefs are not abstracts and *must not duplicate the content of published abstracts or posters or those submitted for publication*. Briefs are limited to 700 words, not including the Literature Cited section.

The title of a Brief should clearly identify the topic presented, the common name of the plant involved, if well known (otherwise the scientific name is allowed), and the relevant geographic location. When appropriate, scientific names should be used in the body if not already given in the title. Briefs should include observations and general methods but omit the related tables, footnotes, and acknowledgments. The significance of the report should be clearly stated and a brief interpretation, prognostication, or statement of implications is desirable. Briefs that report on a new host for a pathogen or an expansion in the geographic range of a disease should include information on the symptomology, prevalence, and economic or aesthetic impacts of the disease. Up to six high-quality color photographs may be included to illustrate relevant aspects of the Brief. Briefs should have no more than six references. References must be published journal articles or material from books (not proceedings or "in press" material).

Diagnostic Guides are peer-reviewed and describe the methods used to identify nutrient and other abiotic disorders, diseases and their causal agents, and insect, nematode, or weed pests of specific plants. Each guide discusses: symptoms and signs; pathogen or pest names; host range; geographic distribution; methods for isolating and identifying the pathogen or pest, storage of the pathogen/pest, and conducting host range/pathogenicity tests; taxonomic references; and

general references. These articles should be illustrated with high-quality color photographs of the symptoms and pathogen or pest structures associated with the problem. Diagnostic guides should not exceed 5,000 words in length.

Diagnostic guides should adhere to the format below (or use a close adaptation for cases such as abiotic disorders or conditions). Other formats may be proposed to the Editor-in-Chief.

Host(s). List the common names of the primary economic hosts followed in parentheses by the scientific name of each host.

Disease. Give the official common name of the disease as listed in the *APS Approved Revised Common Names of Plant Diseases* (<http://www.apsnet.org/publications/commonnames/Pages>).

Pathogen. List the current scientific name of the pathogen and any important synonyms, e.g., previous names by which the pathogen was well known or under which a large body of information may have been published. For fungal pathogens, provide anamorph and teleomorph names if appropriate. For virus pathogens, list the virus and its family affiliation. It is not necessary or desirable to provide great depth on the current taxonomic state of the pathogen.

Taxonomy. List and describe pertinent references that discuss the current taxonomic state of the causal agent. If possible, list electronic resources that may be used to confirm the current taxonomic status of a causal agent.

Symptoms and signs. Start by describing those symptoms and signs of the disease most useful and characteristic for diagnosis of the disease. Expand the description to include important symptoms and signs of the disease as it develops over the growing season.

Host range. Describe the host range of the pathogen beyond the economic hosts listed above. Include a statement citing references for those interested in more detail.

Geographic distribution. Describe the geographic distribution of the pathogen in general terms. Include a statement citing references for those interested in more detail.

Pathogen isolation. For isolation of fungi and bacteria, include methods for isolation and establishment of pure cultures. Include recipes for unusual media but not for common media such as potato dextrose agar. For nematodes, include appropriate methods.

Pathogen identification. Describe the characters and techniques used to identify the pathogen in enough detail for someone unfamiliar with it to have a reasonable chance of success. Include "tricks of the trade" for working with individual pathogens and photographs or good quality line drawings of key characters. If molecular or serological tests are available, include the appropriate references for species specific primers and/or sites for obtaining the testing kits.

Pathogen storage. Describe methods used to preserve cultures of pathogens for both short- and long-term storage. These may include microbiological methods for fungi and bacteria or plants used to maintain cultures of viruses, nematodes, or other pathogens that cannot be cultured on artificial media. List plant species and cultivars known to be successful greenhouse hosts.

Pathogenicity tests. Describe the methods used to inoculate plants with a suspect pathogen. Include techniques for inoculum production, inoculation techniques, host varieties or cultivars most useful in identification, and environmental conditions for incubation of inoculated plants. Describe methods used to rate disease incidence and/or severity. Include descriptions and/or references to specialized equipment that may be used in the process.

Literature cited. List references for material provided above using the citation format for *PHP*.

Plant Health Management articles are peer reviewed. They should introduce the disease, disorder, or pest by describing its geographic distribution, brief history including when and where the problem was first described, and relative economic importance with respect to crop production. Subsections should describe the symptoms and signs associated with a particular disease, disorder, or pest, the causal agent of the problem, the disease or pest life cycle, the

environmental conditions that influence the problem, and lastly, management recommendations for the problem. Management articles should be documented with high-quality color images of the symptoms and signs and causal agents of the problem, and appropriate references and sources of additional information. Plant Health Management articles should be approximately 2,000 words or less in length.

NPDRS Recovery Plans are administered by APS and the National Plant Disease Recovery System (NPDRS), a USDA system to ensure that the tools, infrastructure, communication networks, and capacity required to mitigate the impact of high-consequence plant disease outbreaks are such that a reasonable level of crop production can be maintained in the United States.

Recovery Plans provide a brief primer on a threatening disease, assess the status of critical recovery components, and identify disease management strategies including research, extension, and education priorities. Article sections typically include: Executive Summary; List of Contributors; Introduction; Biology and Symptoms; Spread and Risk Map; Monitoring, Detection, and Identification; USDA Pathogen Permits; Response; Infrastructure and Experts; Economic Impact and Compensation; Mitigation and Disease Management; Research, Extension and Education Priorities; References; and Web Resources. Authors should coordinate closely with the NPDRS on Recovery Plan manuscripts.

All Recovery Plans are required to be published with Open Access. Authors have the choice of publishing Recovery Plans as a PDF only or as a PDF plus full-text functionality. For PDF-only publication, the price is \$2,050 (a required \$1,900 open access fee + a \$150 publication fee). For publication as PDF plus full-text functionality, the price follows the same fee structure as all other open-access *Plant Health Progress* articles. For example, the price would include the \$1,900 open access + \$130 per page (APS members: \$50 per page for the first six pages and \$80 per page thereafter) + \$20 per figure. *Plant Health Progress* publishes an abstract of every Recovery Plan.

Symposium Proceedings. All symposium manuscripts are submitted, peer-reviewed, and revised before the proceedings are published. We require that one member of the symposium act as overall organizer to make sure that: (i) each speaker agrees to submit a manuscript before the symposium; (ii) manuscripts are submitted on time (within a short time frame following the actual symposium); (iii) revisions are made in a timely manner following peer review; (iv) the organizer prepares an introduction to the symposium that sets the context for readers so they understand why the symposium is important; and (v) the organizer, not *PHP*, will be responsible for enforcing agreed-upon deadlines.

Prior to the submission of the first manuscript, the Editor-in-Chief and the *PHP* Editorial Office must receive a list of article titles and authors to permit efficient tracking of the proceedings manuscripts as they are reviewed.

Resource Announcements. This article type has the same requirements across all APS journals. Authors may use headings of their choice. This article type is up to 3 pages and can include one table. It can contain up to 500 words excluding title, affiliations, acknowledgments, and references; e-Xtras are allowed.

Perspectives are not peer reviewed but are evaluated for importance, relevance, and appropriateness for *PHP*'s audience. They discuss problems of general interest to our readers, such as recent developments in research, legislation, and public policy, and express opinions concerning the resulting impact on *PHP*'s subject area. Perspectives representing alternative or opposing points of view will frequently be solicited and presented simultaneously. The Editor-in-Chief reserves the right to reject or accept Perspectives for publication and to edit them for clarity and conciseness. The opinions published in the Perspectives section of *PHP* reflect the views of the authors and are not necessarily the views of *PHP*'s editorial board,

PMN's partners, or APS. Perspectives should be no longer than 1,000 words.

Letters to the Editor are not peer-reviewed but are evaluated for importance, relevance, and appropriateness for *PHP*'s audience. They should pertain to material published in *PHP*. Letters may correct errors, provide supporting or differing points of view, clarification, or information to supplement material published in *PHP*. In cases where numerous responses are received on a particular topic, letters will be selected to reflect a range of opinions. Authors of the articles addressed usually will be given an opportunity to reply. The reply should be concise and respond directly to the issues raised. Letters are typically no longer than 300 words in length and are evaluated for appropriateness before publication. The editors reserve the right to reject or accept letters for publication and to edit letters for clarity and conciseness.

"e-Xtra" options. APS journals offer cost-effective article enhancements, called e-Xtras, designed to supplement articles. e-Xtra options include the following: *Supplemental materials such as tables, figures, or movies*. The journal's online table of contents contains links to these materials. e-Xtra options are subject to review and must be included in the original submission. Accepted materials can be provided in the following formats: MS Word, WordPerfect, MS Excel, .jpg, .tif, .mov, .avi, .mpg, and .mpeg. *e-Xtra options may be cited in the article only once per item.*

See also Quick Guide to *PHP* Editorial Style and the Checklist for Peer-Reviewed Articles.

SCIENTIFIC NOMENCLATURE AND LANGUAGE

Scientific language—measurements, specialized vocabulary, and nomenclature—is always in flux. Nevertheless, a manuscript should be prepared with internal consistency and attention to current standards of usage. Where legitimate differences in language and nomenclature exist, the preferences of authors will be respected. Following is a brief survey of guidelines and references that authors can consult as they prepare their manuscripts, along with any APS Publications Board policies that may apply to usage (a quick guide to *PHP* editorial style is provided).

Abbreviations. Avoid nonstandard abbreviations in the text. These may be used in tables. Authors should not coin abbreviations except for unusually long terms or complex concepts used frequently in the article. Spell out the term and place the abbreviation in parentheses at first use; use the abbreviation after that, including at the beginning of sentences.

Apparatus and materials. Names of unusual proprietary materials and special apparatus should be followed by the manufacturer's name in parentheses. It is only necessary to cite these materials by specific name if the work cannot otherwise be replicated without them. Trade names may be used and should be capitalized; trademark symbols should not be used.

Chemistry terms. The *Merck Index* (O'Neill 2006) and *Hawley's Condensed Chemical Dictionary* (Lewis and Hawley 2007) are good sources for checking spellings of chemical terms. List fungicides and other pesticides by their approved common or generic names. Brand names and formulations should be included parenthetically when a pesticide is first mentioned. The current *Farm Chemicals Handbook* (Meister Publishing Co.) and the *Acceptable Common Names and Chemical Names for the Ingredient Statement on Pesticide Labels* (Environmental Protection Agency) are good sources. Use the chemical name if a common name is not available.

Common names of plant diseases. For common names of plant diseases, the list developed by the APS Committee on Standardization of Common Names for Plant Diseases should be used (<http://www.apsnet.org/publications/commonnames/Pages>).

Cultures. Indicate the source of cultures. Include culture designations obtained from or deposited in recognized collections. In addition, papers are accepted on the condition that microbe strains

and plant variants developed in the course of the research will be available for distribution to all qualified members of the scientific community, either directly from the investigator or by deposit in national or international collections.

Enzymes. Use the names recommended in the latest issue of *Enzyme Nomenclature* (International Union of Biochemistry 1992). Give the number of the enzyme at its first use (e.g., EC 1.1.75.6).

Genetics. Rieger et al. (1991), Stenesh (1989), and King et al. (2006) are good specialized genetics and molecular biology dictionaries.

Germplasm screening. *Plant Health Progress* should not serve as an archive for reports that consist solely of lists of cultivars or germplasm accessions and their reactions. When the results of large germplasm screenings are reported, data may be summarized and accessions grouped for presentation. Means and appropriate statistics should be calculated and presented in lieu of long lists of identical data for numerous individual accessions.

Names of organisms. Scientific names should be included for all organisms that are subjects of the research. Use the scientific name of the principal host in the introduction and the abstract. After first use of binomials, the name can be written by abbreviating the genus, e.g., *P. cactorum*. For trinomials, the name can be written by abbreviating the genus name and spelling out the specific epithet and subspecific epithet, e.g., *P. graminis* f. sp. *tritici*. Do not use two- or three-letter abbreviations for binomials and trinomials.

Authorities for Latin binomials. Citations of authorities for Latin binomial names must be provided at first mention in the text of the primary hosts and pathogens discussed. Citations of authorities for other organisms mentioned are optional but appropriate for manuscripts dealing with taxonomy or nomenclature or for unfamiliar binomials.

Bacteria. Spell per Bergey's *Manual of Systematic Bacteriology* (Staley et al. 1989) or the *Approved List of Bacterial Names* (Skerman et al. 1989). Note that per Bergey's style, groups below the level of subspecies should be italicized. Where applicable, designate strains. For information on phytoplasmata, see Brown et al. (2007).

Fungi. The preferred source for common and scientific names and authorities of fungi is USDA-ARS, Systematic Botany and Mycology Laboratory Fungal Database (<https://nt.ars-grin.gov/fungalatabases>). *Ainsworth and Bisby's Dictionary of the Fungi* (Ainsworth et al. 2001) is another good reference. When new fungal taxa are described, the authors are strongly encouraged to submit the name and appropriate information to MycoBank (<http://www.mycobank.org>). For modern binomials to apply to powdery mildews (Erysiphales), it is suggested that authors check the Erysiphales Database (<http://www.erysiphales.wsu.edu>).

Insects. *Common Names of Insects and Related Organisms* (Bosik 1997) can be used to verify insect names. Include scientific names for important insect vectors.

Plants. The PLANTS Database, Natural Resources Conservation Service, U.S. Department of Agriculture (<http://plants.usda.gov>) is a good source for spelling of common and scientific names. Other good sources are *Merriam-Webster's Collegiate Dictionary*, *PLANTS Databases*, and *The Plant-Book* (Mabberley 1997). Regional floras may be used. Use the term "cultivar" for agronomic and horticultural varieties. Identify the source of cultivars and include plant introduction (PI) numbers when appropriate. The name of a cultivar should be enclosed in single quotation marks at first use.

Viruses. A virus species name should be printed in italics, with the first word and any subsequent proper noun capitalized, e.g., *Wheat American striate mosaic virus*. The accepted acronym for the virus should be introduced at first usage in the text of the manuscript. Subsequent reference to the same virus should be by the accepted acronym, which is not italicized, e.g., TSWV. Virus names written in tables also should be italicized. The name of a tentative species whose taxonomic status is uncertain should not be italicized, but its first word

(and any proper nouns) should be capitalized. Authors do not need to add taxonomic information to the name of a virus other than to identify the taxonomic relationship of the virus species. When used, virus family, subfamily, and genus also should be capitalized and printed in italics, and the name of the taxon should precede the term for the taxonomic unit, e.g., the family *Bunyaviridae* and the genus *Tospovirus*.

Nucleic acid sequences. Submit new nucleic acid sequences for the primary organism(s) of interest to GenBank or a similar public database and report accession numbers. Deposit sequence alignments in TreeBASE at <https://treebase.org/> or in a similar public database and report accession numbers. Accession numbers cited from GenBank, EMBL, and other databases for primary nucleotide or amino acid sequence data should be referenced in the text, not in the Literature Cited section. Provide accession numbers that are generated in the study as footnotes on the first page and in the text.

GENERAL EDITORIAL STYLE

Most of the style guides mentioned have good discussions of English, grammar, and style. Other good general references are *The Chicago Manual of Style* and *Merriam-Webster's Collegiate Dictionary*.

Title. Unless otherwise indicated, all manuscripts submitted for publication in *PHP* must have a title that is descriptive of the topic discussed in the manuscript and contains a verb.

Authors. List all authors by their full names, e.g., Jane E. Doe (unless the author uses initials only), and provide their affiliation including title, department, institution or company, and location including any city, state or province, and postal code information.

Funding. Authors of manuscripts submitted to APS journals are expected to list all sources of funding for the research project at the time of submission.

Acknowledgments. Acknowledgments may be included with peer-reviewed articles after the text and before the Literature Cited section. Authors may acknowledge any assistance associated with the work reported or the development of the manuscript.

Literature cited. Use the author-year method of citing publications. For example, "Various investigators (Smith 1990; Smith et al. 1988, 1995a, b; Smith and Jones 1994) have reported similar findings." List citations in alphabetic order by authors' surnames. When citing multiple works by the same author, list articles by one author before those by multiple authors. Determine the sequence by alphabetizing the first author's surname and subsequent authors' surnames, by the year of publication (most recent last), and, if necessary, by the page numbers of articles published in the same journal.

Always cite the original source of publication, whether print or online. Italicize Latin binomials, capitalize German nouns, and insert diacritical marks as needed. List specific pages of books. Refer to the *BIOSIS List of Serials* for accepted abbreviations of journal names.

Check the accuracy of each citation and that each is cited in the text. Only references generally available through libraries should be listed in the Literature Cited section. If work cited is in preparation, submitted but not accepted for publication, or not readily available in libraries, cite the work parenthetically only in the text, e.g., (J. Jones, P. Marx, and W. Wiley, *unpublished*) or (J. Jones, *personal communication*). The author must include a letter from the source of a personal communication with the submitted manuscript that gives permission to use the information provided. Avoid excessive reference to unpublished information.

Software. Software used should be treated as a proprietary material or apparatus. Give the manufacturer or developer name in parentheses. Software such as that produced by SAS should not be cited in literature citations.

Quick Guide to *PHP* Editorial Style (See also General Style Guide)

Numbers

Numerals for measurements, including ad hoc measurements such as drops and wells.

Commas in numerals of four digits or more (except for digits used as designations).

Zero in front of decimal points.

In lists where one item is multidigit, use numerals throughout.

Spell out numbers at the beginning of a sentence (if number is spelled out, unit of measure also should be spelled out).

-fold: threefold, manyfold, 10-fold.

Measurements

Use units of the Système International d'Unités (SI units).

Do not abbreviate measurements in titles.

Time: second (s), minute (min), hour (h), day, week, month, year.

Volume: liter (spell out), but ml, μ l, etc.

Use the degree symbol with temperature (70°C).

Binomials and trinomials

All taxa are italicized. In trinomials, always spell out species, e.g., *X. campestris* pv. *campestris*.

Molecular weight and Daltons

Correct: The molecular weight of protein *x* is 54,000.

The molecular mass of protein *x* is 54,000 Da (or 54 kDa).

Incorrect: The molecular weight of protein *x* is 54,000 Da (or 54 kDa).

Enumeration

Use (i), (ii), (iii), (iv).

Prefixes and suffixes

Generally should be closed up (e.g., postinfection, loopsful), even in nonstandard constructions; see dictionary or style manuals for exceptions.

Compound words

When two words are used as adjectives preceding a noun, as a rule they are hyphenated. If uncertain, consult the dictionary or style manuals.

Abbreviations

Consult the list below for the standard abbreviations for common terms and other sections of this Quick Guide for unit abbreviations. Authors should not ordinarily coin abbreviations.

Problem abbreviations and terms

aa—amino acids

Carborundum—capitalize

Celite

CFU—colony-forming units, do not spell out if preceded by a numeral

cheesecloth—one word

chi-square test or χ^2

cis, *trans*—italicize

cM—centimorgan, spell out at first use

Coomassie brilliant blue

df—degrees of freedom, do not spell out if preceded by a numeral et al., not *et al.*

GLM—general linear model

gram negative, gram positive

Gram stain

LB broth—Luria-Bertani broth

LR white resin

MAB—monoclonal antibody

P—probability, do not spell out

Parafilm—capitalize

phytoplasma, not MLO or mycoplasma-like organism

potato dextrose agar, no hyphen

ppm—parts per million

Rf—retardation factor

V8 juice agar—no hyphen

Databases. Accession numbers cited from GenBank, EMBL, and other databases for primary nucleotide or amino acid sequence data should be referenced in the text, not in the Literature Cited section. Provide accession numbers that are part of the research as footnotes on the first page or in the text.

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Statistics. Statistical analyses are required to formally test the hypotheses addressed by experiments, to characterize variability (uncertainty) in observational and planned studies, and to provide evidence of the robustness and reproducibility of the conclusions. Clearly describe your statistical methods and provide enough detail to enable the reader to verify the reported results. Except for simple procedures (e.g., *t* tests), citation of an appropriate and accessible statistical text and indication of the computer program, procedure, and version used is the least amount of information required. Data analysis should not be done with a spreadsheet program because these are known to have many errors in their algorithms for data analysis. The procedures of non-mainstream statistical analyses should be described in detail and with appropriate citations to allow reproducibility by readers.

Whenever possible, researchers should consult a statistician before designing an experiment and when analyzing results. Many references are available for more information, including Garrett et al. (2004), Littell et al. (2006), Madden (1986), Piegorsch and Bailer (2005), Schabenberger and Pierce (2002), Shah and Madden (2004), or Westfall et al. (1999).

Provide sufficient information to specify the sampling and experimental units, assumptions, experimental and sampling design and sizes, randomization and blocking, replicate numbers, whether the design was balanced, and at least the name of the statistical procedure used. Clearly distinguish between true replications and subsamples within a replication-treatment combination. Do not refer to sampling as random unless it was done in a statistically acceptable random manner. For example, if plants within a plot were selected arbitrarily for disease assessment, do not refer to these as a random sample.

Graphical presentation of data is encouraged to present results with an appropriate indication of variability or precision (e.g., a confidence interval). When means (or medians) are followed by $\pm x$, indicate whether x refers to the standard deviation, standard error, or half the confidence interval. This type of data presentation should be complementary to hypothesis testing, and exclusive reliance on the latter, such as “significant or not significant at $P = 0.05$ ” is discouraged. Instead, give the achieved significance level for statistical tests

(e.g., F was significant at $P = 0.03$). Duncan’s multiple range test is not acceptable as a mean separation procedure. The use of polynomial regression models for nonlinear data is also discouraged as a general method. The presentation of percent and fractional data or cumulative distributions should also include the total number of observations. For a figure, this information should be included in the legend, while for a table it should be listed for each percentage entry.

The statistical methods used for analyzing response variables should be chosen according to the type of random variable being measured or assessed (e.g., disease incidence, severity, counts, ordinal ratings). Irrespective of the type, the distribution of the data and homogeneity of variance should be checked. For continuous variables, such as yield or disease severity (proportion of the surface area diseased), parametric methods, such as analysis of variance (ANOVA) and linear mixed models, are usually appropriate. However, transformations are almost always needed for disease severity, because the variance is a function of the mean. For binary observations, proportions out of a total of n observations (e.g., disease incidence), and counts (e.g., number of lesions or number of spores), parametric methods such as linear mixed models can be used if the data are properly transformed, or generalized linear mixed models can be used with an appropriate selection of the discrete distribution and link function. Model fits should be evaluated through the residual plots to confirm that a reasonable model and data transformation (or link function) are being used. See Schabenberger and Pierce (2002) for details on parametric data analysis. For ordinal measurements (e.g., disease rating on a 0 to 3 scale designating the ordinal degree of symptoms), nonparametric methods based on ranks should generally be used. See Shah and Madden (2004) for recommendations on the treatment of ordinal data. As an alternative, parametric proportional odds models may be used for ordinal data, if there are sufficiently large numbers of observations for each experimental unit. If rating scores are used for ranges of disease severity, with variable length of the ranges for each score (e.g., Horsfall-Barratt [where, for instance, a 2 corresponds to a severity range from 3 to 6%, and a 3 corresponds to a range of 6 to 12%]), each score should be back-transformed to the midpoint of the corresponding severity range prior to use of a parametric analytical technique.

Zero values in disease intensity data require careful handling. In general, some transformation will be required to handle zero data appropriately, but the particulars of the optimum transformation will vary depending on the context. Authors should consult appropriate statistical resources such as O’Hara and Kotze (2010) for guidance and seek expert statistical help for data sets in which zero observations are common.

Tables. Tables are used to present precise numerical data that show comparisons or interrelationships. Lists should be incorporated into the text. Cite tables in numeric order in the manuscript. Tables should be intelligible without reference to the text or another table. Do not repeat data in the text that are given in a table or figure. The title should summarize the information presented in the table without repeating the column headings. Headings should be brief.

Submit tables using the table function of the same word processing program used to submit the text. *Do not use tabs or spaces to create columns and do not submit tables as images*—use the table function of the word processing program.

The minimum number of columns is two. Nonessential details should be omitted. Numbers should be rounded to significant digits. Ditto marks should not be used. Abbreviations are acceptable; explain any nonstandard abbreviations in footnotes. Footnotes are designated with superscript lowercase letters. Use “a, b,” etc. if mean separation letters do not appear in the data fields; otherwise use letters from the end of the alphabet, and end with “z” for the last footnote. Vertical and horizontal rules and bold type are not allowed in data fields.

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- Research, Briefs, Diagnostic Guides, Reviews, or any other article type written and organized according to guidelines in this document.
- Significance and originality of work are shown.
- Discussion relates work to other published material and addresses strengths and weaknesses of research.
- Major conclusions are supported by results from repeated experiments. Reproducibility of results is clear.
- Objectives are clearly stated in introduction.
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