

# Meat and Muscle Biology™

The Journal of the



**American Meat Science Association**

## *Policy, Style Guide, and Instructions for Authors*

(Revised August, 2017)

### **1. Policies and Procedures of *Meat and Muscle Biology***

#### **SCOPE AND PURPOSE**

The American Meat Science Association (AMSA) fosters community and professional development among individuals who create and apply science to efficiently provide safe and high quality meat.

The purpose of the *Meat and Muscle Biology (MMB)* scientific journal is to provide an appropriate medium for the dissemination of interdisciplinary and international knowledge on all antemortem and postmortem factors that influence the properties of meat that are marketed for human consumption.

*MMB* is a gold open access online publication, allowing maximum exposure immediately after publication and extending its reach freely across the globe. High quality, pertinent, and timely basic and applied research will be published on meat and muscle biology from domestic mammals, avians, aquaculture species, amphibians, wild capture mammals, and synthetic meat analogs. Topics can include any factors affecting meat and its use, including production, quality, composition, processing, safety, and value of edible products including muscle biology and biochemistry, human nutrition, food safety, sensory evaluation, consumer science, new or improved meat related analytical procedures, processing and sensing technologies, and marketing of meat products.

Types of papers considered for publication, with all undergoing peer review:

- Original research articles
- Review papers by invitation or unsolicited

- Reciprocal Meat Conference abstracts (as one paper) that are accepted after peer review for the AMSA annual meeting
- Proceedings of the RMC by invitation only

The Editorial Board is committed to minimizing the time to decision for the articles submitted. Editorial policies are established by the Editor-in-Chief, Associate Editors, and Editorial Board in conjunction with the AMSA Board of Directors. The views given in articles published in *MMB* are the opinions of the author(s) and do not represent the official policy of the author's institution or company, AMSA, *MMB*, or the *MMB* Editorial Board. Authors are responsible for ensuring that the experimental protocols, design, sampling, analyses, collection of data, and interpretation in *MMB* papers is scientifically valid and is accurately represented.

Information on the scientific content of *MMB* or submission of the manuscript to the Thomson Reuters ScholarOne website is at <https://mc.manuscriptcentral.com/mmb>.

#### **ANIMAL CARE AND USE AND USE OF HUMAN SUBJECTS IN RESEARCH**

If live animals are used in the research, then submission of the manuscript signifies that the research has followed established standards for humane care and use of animals. The standard which was followed and a statement of the approval or waiver by the appropriate authorities or Institutional Animal Care and Use Committee (IACUC) with approval or waiver number and date of approval or waiver must be submitted with the manuscript. Research that requires veterinary procedures or invasion of body organs or tissues of any kind must describe the methods and procedures to minimize pain and discomfort to the animal before, during, and after the invasive procedures. Research involving humans as subjects should clearly describe the reason for and extent to which human participation was necessary for the research. As required by law or the institution policies, the agency or institutional review board (IRB) approvals for human subject use should be described with the approval number and date of approval. If institutional review boards or committees do not exist, then authors must make sure that the research has followed the 2013 revised Declaration of Helsinki (<http://www.wma.net/en/30publications/10policies/b3/>). Documentation of the IACUC and/or IRB status must be made available upon request. The statements of compliance should preferably be at the beginning of the Methods and Materials section rather than in the Acknowledgements section of the manuscript.

#### **CONFLICTS OF INTEREST**

The integrity and credibility of published articles is partially based on the transparency of relationships surrounding all aspects of the research and its publication. Authors, reviewers, editors, and agents of AMSA are required to disclose possible conflict of interest situations, actual or perceived, that may affect or appear to affect the objectivity, impartiality, and overall integrity of the peer review process and publication of research. Conflicts of interest may be from employment; financial benefit; personal, social, or professional relationships; or other situations. Disclosure of potential or real conflicts of interest are required, but do not necessarily exclude a paper from consideration for publication. Failure to disclose actual or perceived conflicts of interest in the manuscript when submitted may result in rejection of the manuscript or retraction of a published paper from the journal.

### **Author conflicts of interest**

Conflict of interest situations that authors should report are those concerning financial interests in the outcome of the research. It is not possible to anticipate or describe every potential conflict of interest, authors should communicate to the Editor-in-Chief at the time of manuscript submission of known or perceived conflicts of interest, including those with any potential reviewer or editor.

- 1) a financial interest in the outcome of the research or a relationship that might affect judgment of the data or results by the author, close family member of the author, or professional associate (as defined by National Institutes of Health, [http://grants.nih.gov/grants/peer/COI\\_Information.pdf](http://grants.nih.gov/grants/peer/COI_Information.pdf)).
- 2) service as an employee, officer, director, owner, member, or trustee of an organization with a financial interest in the outcome of the research or as a consultant, advisor, expert witness, or advocate on behalf of an entity with a financial interest in the outcome.
- 3) support of the research, including grants, contracts, subcontracts, fellowships, consulting agreements, gifts, services, or other nonfinancial benefits with a company or organization having a financial interest in the outcome.
- 4) employment, rights to patent applications, patents, sales, licensing, or royalty agreements or memoranda of understanding; service on advisory boards, speaker or review panels; or ownership of stock or shares in a company or organization that might gain or lose financially based upon the outcome.

### **Reviewer and editor conflicts of interest**

Peer manuscript reviewers and editors are expected to provide independent and impartial reviews and decisions on manuscripts and so are bound by the same conflicts of interest ethical concerns as for authors. Additionally, reviewers and editors will have a conflict of interest if they have financial or personal interests directly with the author(s) that might affect or might be perceived to affect the impartiality of manuscript review and decisions. Potential conflicts include, but are not limited to,

- 1) collaborations, research grants, contracts, subcontracts, or consulting directly with any of the authors or other investigators or key personnel on the research in the manuscript.
- 2) serving as an advisor or advisee to author(s) on the current manuscript.
- 3) employment (current, pending, or prospective) at the author(s) institution or company that could be affected by the peer review process or manuscript decision.

Reviewers are obligated to indicate if they have a vested interest in the publication of a manuscript that would compromise their ability to serve as an impartial reviewer. Reviewers who feel unable to give an independent and unbiased review when invited or during the course of their review should contact *MMB* so they can be removed from the review assignment. Potential reviewers or editors with actual or perceived conflicts of interest will not be involved in the manuscript decision process. Editors who are authors or coauthors on manuscripts will be excluded from the decision processes, but will have the usual author or coauthor access to manuscript information.

## **EXPECTATIONS OF AUTHORS AND MANUSCRIPTS**

Authors are expected to adhere to scientific methods in conducting, evaluating, and reporting research in manuscripts submitted to *MMB*. Each manuscript must contain a clear description of the conduct or protocol for the experiment, including the experimental conditions, experimental design, experimental units, number of observations, and the method and statistical model by which the data were statistically analyzed.

### **ELIGIBILITY OF AUTHORS**

Membership in the American Meat Science Association is not required for publishing in *MMB*. Members, however, do receive a discount on publication charges. Authors who wish to join AMSA to receive this discount should do so before the paper is accepted for publication. Membership information is available at <http://meatscience.org/membership/join-amsa>.

### **PUBLICATION CHARGES**

Publication charges are \$1,500 for a research paper of 12 typeset pages or less, which is payable at the time a manuscript has been accepted for publication. A 20% discount on publication charges is given to AMSA members when papers have been accepted and membership has been verified. No papers will be listed in the *MMB* table of contents or will be available on the *MMB* website until the publication charge has been received. Invited review papers will not incur page charges while unsolicited review papers will have the same page charges as for research papers, but may be up to 20 typeset pages without additional charges. Research papers longer than 12 typeset pages or unsolicited review papers longer than 20 typeset pages will have additional publication charges at the rate of \$200 per page regardless of author membership in AMSA.

### **COPYRIGHT AGREEMENT**

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Authors of *MMB* manuscripts who are including materials, often tables or figures, from other copyrighted sources must obtain permission to use these materials from the copyright holder and submit the evidence that this permission has been obtained from the copyright holder when the manuscript is submitted to *MMB*. Acknowledgement of the use of this material and credit for the source of the material must be included in the manuscript.

Upon request, the author(s) of published *MMB* manuscripts may be given the right to publish material from the manuscript in books or other articles in which she or he is an author or editor provided that appropriate credit of the source of the material in the original *MMB* article is given in the book or paper.

## **NO PRIOR PUBLICATION OR SIMULTANEOUS SUBMISSION**

Papers submitted to *MMB* should be original reports of research unless it is a review or issue paper invited or accepted for submission. It is expected that the work has not been previously published in a scientific journal and is not being considered for publication in another scientific journal. Authors must disclose at the time of submission if portions of the paper have been submitted or published elsewhere and to submit copies of the relevant prior publications when the manuscript is submitted. The determination of whether a technical paper such as a Cattlemen's Day Report or Swine Day publication is a prior scientific publication will be decided for each case, but in general, prior publication is considered if substantial portions of the manuscript sections have been published in the technical media.

Review or issue papers can be submitted if invited by the *MMB* Editor-in-Chief on a specific topic or as unsolicited review papers on pertinent topics. The Editor-in-Chief will determine the appropriateness and importance of unsolicited manuscripts for peer review. Review papers should provide a synthesis of existing knowledge and give new insights or concepts not previously presented in the literature. They are not exhaustive reviews of the literature, but provide enough literature review to give the reader a sound basis for understanding and interpreting the topic. Review papers are on important subjects needing a scholarly perspective, give balanced coverage of the entire spectrum of the topic, and adds a perspective to the subject not previously available to scientists. Invited issue papers serve the purpose to stimulate discussion and examination of current views on a topic and might be controversial, but should not be confrontational. Authors should contact the *MMB* Editor-in\_Chief before writing and submitting unsolicited issue papers.

## **GENERAL MANUSCRIPT HANDLING PROCEDURES**

Authors must complete the Manuscript Submission and Copyright Release form for each manuscript that is submitted. Receipt of manuscripts will be acknowledged by email to the corresponding author and to each co-author. The corresponding author verifies that the other authors have reviewed the manuscript before its submission and that each contributed to the research or report being submitted. The cover letter or title page should give the corresponding author's current telephone number and email address for use during review and production. After initial confirmation to all authors that the manuscript has been received, then all other correspondence will be only with the corresponding author via the contact information provided upon submission.

Manuscripts are assigned a manuscript number, reviewed for conformity to the *MMB* desired format, and assigned to an associate editor. The associate editor invites two or more scientists knowledgeable on the research in the manuscript to provide objective peer reviews of the originality, appropriateness of methods, and validity of the results and conclusions. A manuscript may be rejected before it is sent for review because it does not fall within the scope of *MMB*, does not conform to acceptable scientific standards, or does not follow *MMB* style guidelines.

The manuscript number assigned by the submission site must be given in all subsequent communications. Authors will be informed as the manuscript moves through the various steps

involved in review, review/acceptance/rejection, and publication. Manuscripts accepted for publication are edited for language, grammar and style and prepared for publication by professional editorial staff for *MMB*. Manuscript proofs are sent in electronic format to authors with instructions for proofreading. Proofs must be returned to the editorial office within 5 days of receipt. After any necessary corrections are made, the journal article is posted to the *MMB* website, usually within two weeks after return of the corrections.

All papers are given an anonymous review where the names of reviewers are not revealed to the authors of the papers or to the other reviewers. The contact information of authors is entered when a manuscript is submitted in the online manuscript submission system so that editors and technical staff can contact authors about the status of the paper.

Manuscripts may be rejected and not published for several reasons. *MMB* has high scientific standards and does not accept works that are incomplete, poorly described, poorly designed, lack adequate statistical procedures, lack evidence to support conclusions, lack contributions to science or meat and muscle biology knowledge, or do not advance information in the field of meat and muscle biology science. Papers that are not deemed to fit the journal scope will also be rejected and alternative scientific publication venues will be recommended. Manuscripts that do not follow the guidelines in this Policy, Style Guide, and Instructions for Authors; are not written in clear, concise, organized, and coherent manners; or that have excessive grammar and language difficulties may be rejected before or after being subjected to peer review. Authors are responsible for the contents of manuscripts. Authors who are not proficient in English language and/or scientific writing are urged to have an editing service review the manuscript before it is submitted.

Authors are urged to discuss difficulties with manuscripts with the Editor-in-Chief. Decisions can be appealed with a committee of Editorial Board members consulted to advise the Editor-in-Chief on the disposition of the manuscript. Appeal decisions of the Editor-in-Chief to publish or reject manuscripts are final.

## 2. Manuscript Preparation

Authors should read through this Style Guide and have colleagues thoroughly review the manuscript before submission to the American Meat Science Association (AMSA) *Meat and Muscle Biology* journal (*MMB*). Coauthors should have read and agreed with the scientific content and merit of the paper. It is advisable to consult the *MMB* manuscript template or papers in *MMB* to view an acceptable format for headings, title page, desired sections (Abstract, Key words, Introduction, Materials and Methods, Results, Discussion or combined Results and Discussion, Literature Cited, tables, figures) of research papers. A template for development of manuscripts is at the *MMB* website. Manuscripts must be written in English and use American spelling and usage and standard scientific usage.

Resources for detailed information about general style and form are the Scientific Style and Format: The CSE Manual for Authors, Editors, and Publishers. 7<sup>th</sup> ed. Council of Science Editors,



Reston, VA (<https://www.councilscienceeditors.org/>). For anatomical nomenclature, the current *Nomina Anatomica Veterinaria* ([http://www.wava-amav.org/downloads/nav\\_2012.pdf](http://www.wava-amav.org/downloads/nav_2012.pdf)) should be consulted. Bacteria nomenclature should follow the Approved Lists of Bacterial Names (<http://www.bacterio.net/index.html>).

## **DETAILS OF MANUSCRIPT PREPARATION**

### **Manuscript Submission and Handling**

Authors must submit manuscripts using the *MMB* online manuscript submission system (<https://mc.manuscriptcentral.com/mmb>).

### **SPECIFIC INFORMATION FOR MANUSCRIPT SUBMISSIONS**

All accepted manuscript files are edited in Microsoft Word so authors should submit manuscripts in Microsoft Word or file formats compatible with Microsoft Word. Papers submitted as pdf files will be returned to authors before review. Manuscripts must be double-spaced, with consecutive line and page numbering for the entire paper; use 12 point Times New Roman font and 2.54 cm (1 inch) margins. Do not use complicated fonts or complicated features of Microsoft Word such as automatic footnoting or outlining because these interfere with editing and electronic formatting. The use of italics, bold, and superscripts and subscripts should be limited. If you need to place a numbered list in your manuscript, enter the numbers and use appropriate tabs and indents manually instead of using automatic outlining. Complex equations should be inserted using Math-Type ([www.dessci.com/en/products/mathtype/](http://www.dessci.com/en/products/mathtype/)). Manuscripts should be uploaded to Thomson Reuters ScholarOne using the fewest files possible to facilitate review and editing.

### **Abbreviations**

Abbreviations are highly discouraged except for standard abbreviations of weights and measures. Author defined abbreviations and acronyms are highly discouraged, but if used, each must be defined in the abstract, defined at first use in the body of the manuscript, and defined in each table and figure.

### **Headings and Subheadings**

Keep headings short and only use headings pertinent to describe sections. The formatting of headings is illustrated in the *MMB* Manuscript Template at the submission website. Level 1 headings (main headings) are used for the main sections of Introduction, Materials and Methods, Results, and Discussion and Level 2 headings can be used for subsections. Level 3 and Level 4 headings are allowed, but should be used only when necessary.

### **Research Manuscript Format**

Manuscripts of research usually have the order and sections of:

1. Running head, title, and byline.
2. Author–paper documentation (addresses/affiliations, email address of the corresponding author).

3. Abstract.
4. Keywords.
5. Introduction. This section should include sufficient literature review to introduce the reader to the topic and lead to the hypothesis or research objectives, which must be clearly stated.
6. Materials and Methods.
7. Results. This section is sometimes combined with the discussion section.
8. Discussion. This may include a subsection for conclusions. No separate summary section is used because it would duplicate the function of the abstract; a summary statement may, however, be given as a closing paragraph.
9. Acknowledgments (if desired to give credit or required to explain conflicts of interest, funding).
10. Literature Cited.
11. List of figure captions, then tables with titles, then the figures or images .

### **Manuscript Format**

**Title.** The title should be representative of the content of the article and facilitate retrieval in secondary literature service indexes. Title terms should give specific information about the content of the article. Titles should be started with key words and not with “Effect of” or “Influence of.” Appropriate titles briefly identify the subject, indicate the study purpose, and gives key terms or concepts. Titles should not contain more than 12 to 15 words and be free of nonstandard abbreviations, chemical formulas, or proprietary names. An example of an acceptable title would be “Palatability of beef from forage-finished cattle” rather than “Effects of feeding forages to cattle on the palatability of beef.”

Acknowledgements about the research that may include those of a consortium, grant funding, dissertation requirement, journal article number, or experiment station or journal series number are given by a footnote to the title. The disclosure of potential or actual conflicts of interest related to the research with full details of the conflict, extensive support information, and personal thanks belong in the acknowledgments section at the end of the paper. Any required government or institutional disclaimer in reference to commercial products or trade names mentioned in the text should also be in this section.

**Author Listing.** Full names (Michael Z. Smith) should be used. The first person listed in the title is considered the senior author. The corresponding author, who might not be the senior author, submits the manuscript and is the author with whom the journal personnel will communicate. The corresponding author is designated by an asterisk (\*) and is responsible for making any needed corrections and returning the article proofs within the required times. In standard American rules of punctuation, the asterisk comes after any comma (e.g., Stanley G. Jones, Michael Z. Smith,\* and Zhang A. Zhao). The order of the authors on the paper must be decided and agreed upon by all of the authors.

Affiliations and addresses for all authors and an email address for the corresponding author should be in a paragraph following the author listing, using numerals for identifying authors with different affiliations with the specific affiliations. If all authors are at one affiliation or one address, only the one affiliation or address should be listed and not repeated.



**Abstract.** The abstract aids readers in determining the overall content of the article and is the portion of the paper used by abstracting and indexing services. The abstract should contain all information that is important in the paper, by giving the basic information and also calling attention to techniques, observations, or data. The abstract should be concise, but have specific details from the paper. This informative abstract should reflect the entire paper by having one or two sentences on an introductory statement of the rationale and objectives or hypotheses, materials and methods, results and conclusions. Specific pertinent results should be given, with quantitative and statistical data (i.e., P values) when possible. Use of abbreviations are highly discouraged except for weights and measurements and should be limited. When abbreviations are used, each should be defined when first used in the abstract, in the body of the manuscript, and in each table and figure. Abbreviations used in the body of the manuscript should be defined at first use in the body and not rely on the abstract for definition. The abstract should be limited to 300 words and preferably be less than 250 words for abstracting services.

**Key words.** Up to 6 key words or phrases should be used, including the species, variables tested, and major response criteria. The first letter of each key word is lower case unless proper nouns are used. Key words should be separated by commas with no use of abbreviations.

**Introduction.** The introduction should be as brief as possible and contain a concise introduction, justification for the research that references previous concepts and research, clear hypotheses that were tested, and the objective(s) of the research. The literature should be limited to essential information with use of the most pertinent or relevant citations available. The extensive discussion of literature pertaining to the research should be in the Discussion (or Results and Discussion section, if combined). Attribution should be given to previous literature or other works with appropriate references in chronological order, then alphabetically when there are two or more references in the same year. Formats for text citations should be Smith and Jones (2008), (Smith and Jones, 2008; Adams et al., 2010), (Smith et al., 2007; Smith and Jones, 2008a, b) and so forth. An appropriate introduction clearly communicates to the reader the identification of the subject area, what the research is intended to contribute to the current knowledge in the subject area, and the hypothesis, definition of the problem, or objectives for the research.

**Materials and Methods.** The first item in this section should be any statements indicating that requirements for institutional animal care and use committee approval or institutional review board approval were met if they are necessary for the research conducted. If approvals are not needed, the reasons that those approvals were not necessary should be stated. If live animals or human subjects were used in the research, the committee, agency, or institutional approval information (number, date) should be given along with a description or location of the affiliation review documents

This section must contain a clear description of the conduct or protocol for the experiment, including the experimental conditions, experimental design, experimental units, number of observations, and the method and statistical model by which the data were statistically analyzed. This section should give sufficient detail to allow a competent scientist to repeat the experiments, mentally or in actuality. The preparation method, equipment, and measurements that include the

SI unit must be given, in a logical order or in the sequence in which the methods were performed. Materials and equipment specific to the research or essential to the outcome should be identified by code or model, manufacturer, and manufacturer location. Readily available or common apparatuses, instruments or equipment such as beakers or analytical balances need not be identified with specific information, but sources of chemicals and other products must have the code, source, and location. Chemical rather than trade names and scientific rather than technical terms are preferred. Materials that are proprietary or specially procured should be identified by the pertinent chemical and physical properties (e.g., purity, pH, concentration). For physical measurements, the metric system should be used for all units of measure. Meat shear force should be expressed in Newtons (N), although kilograms (kg) may also be acceptable. Concentrations should be in mg/kg or µg/kg and not in ppm or ppb. Muscles should be specified with the correct anatomical location, e.g. M. longissimus lumborum, M. longissimus thoracis, M. longissimus thoracis et lumborum, M. triceps brachii, M. pectorals major.

It is preferable to cite references for methods if the methods are exactly as those in the reference. If the reference method is modified or adapted, only the modifications or adaptations should be described. The statistical methods should clearly describe the experimental design, treatments, experimental units, experiment replications, and probability levels. The statistical programs used to analyze the data must be given.

For sensory studies, information on study parameters including source of samples, storage, preparation methods, temperature parameters, serving size, number of samples per session, number of sessions per day, time between samples, number of replications, duplication, palette cleansers, serving order design, use of carriers and other key information on the sensory test should be provided in the methods. For descriptive studies using trained panels, the number of panelists, the type and length of training, definition of scales and attributes, and how the panel was monitored and validated must be given. For consumer studies, the number of consumers, basic demographic information, recruitment/selection pool and criteria are required. Information from AMSA Research Guidelines for Cookery, Sensory Evaluation, and Instrumental Tenderness Measurements of Meat (<http://meatscience.org/publications-resources/printed-publications/sensory-and-tenderness-evaluation-guidelines>) should be used and appropriately cited.

For color measurements, the AMSA Meat Color Measurement Guidelines (<http://meatscience.org/publications-resources/printed-publications/amsa-meat-color-measurement-guidelines>) should be consulted and appropriately cited.

**Results.** Tables, graphs, and other illustrations should be in the Results section to provide a clear understanding of the data obtained from the experiments. Attention should be drawn to significant or pertinent findings such as one quantity is greater than another, one result is linear across a range, or a particular value is an optimal value. However, do not repeat in the text what is clearly shown in the tables, graphs, or other illustrations. Minimal results can be described in the text rather than in tables or figures. When giving results, it is preferable to give exact probability levels associated with the results (e.g.  $P=0.003$ ). If significance is described in the Materials and Methods section to be specific probability values, then it is not acceptable to use the word “significant” and the probability level ( $P=0.172$ ) in the same sentence. If there is not a separate Discussion section, the

results should be related to the stated objectives for the research and to relevant, previously published work.

**Discussion.** This section is used to interpret the results, specifically addressing the problem, question, or hypothesis presented in the introduction. It is expected that the discussion will relate the results to the original objectives; explain the principles, relationships, and generalizations that are supported or refuted by the results; address exceptions to the findings or lack of correlations that necessitate qualification of the research results; explain how the results relate to previous findings in the published literature to support, contradict, or add information; and present a conclusion that is supported by the summary of the evidence. The discussion section focuses on the meaning of the findings, not to simply repeat the results. Speculation about the results and their use is acceptable when the speculation is reasonable, supported by the observations, and can be tested through experimentation, but should be expressed as speculation.

**Acknowledgements.** The disclosure of potential or actual conflicts of interest as described in the Policies and Procedures section related to the research giving full details of the conflict, information about funding, grant, or other support of the research, credit for research or manuscript assistance, and personal thanks belong in this section. Any required government or institutional disclaimers in reference to commercial products or trade names mentioned in the text also should be in this section.

**Literature Cited.** The Literature cited section lists only the references for the literature cited in the paper. Authors are encouraged to cite only significant, published, and the most relevant literature references. Only literature available through libraries and public sources should be cited in the text. Personal communications and unpublished data are highly discouraged, but exceptions may be made if absolutely necessary and if cited according to the Citation Style section.

**Figure Captions, Tables, and Figures.** The captions for all figures should be in a single list by figure number and caption/title after the Literature Cited. Tables with titles in chronological order follow the figure captions. Tables and figures should be constructed so they can be understood without referring to the body of the manuscript. Each table and figure should include a measure of the variation and evidence of statistical analysis of the data. Figures should be submitted as high-resolution TIF or EPS files to facilitate the layout process. Editors should be contacted if figures are larger than 5 MB to arrange for ftp transfer.

Line patterns instead of shading and avoidance of thin, light lines are needed for figures. It is desirable to use color in figures with a mixture of patterns, line widths, dash types, and other options. Most figures will be reduced to one-column width (84 mm, or ~3.25 inches) so the original should be as close to possible to this size (one-half larger than the intended final size in the published paper). Relative size should be considered for symbols, letters, and numbers.

## CITATION STYLE

The author and year notation system is required within the body of the paper. Manuscripts with numbered notations or footnoted references will be returned to the author without review. Citations

of two authors within the text should list both authors while references with three or more authors should be given as last name of first author with “et al.,” and the year. A distinguishing lowercase letter should be added to the year when two or more articles have the same within-text citation and year in both the text and Literature Cited list. Multiple citations in the text should be separated with a semicolon, but citations of multiple works by the same authors should only repeat the designation of year, not author names. Examples of citations within the text in chronological and then alphabetical order for with multiple citations in the same year are

(Jones et al., 2010; Jones and Brown, 2012; Brown, 2015)

(Smith et al., 2001; Jones et al., 2011a, b; Jones and Smith, 2013; Brown, 2015)

(Smith and Davis, 2002; Brown et al., 2011, 2013; Brown, 2015)

Use of direct quotations from other sources are discouraged, but are required to be in quotation marks with the page number associated with the reference from which the quotation was taken.

If absolutely necessary to provide essential information for the materials and methods or discussion, personal communications or unpublished data is cited in the text with the source and the date for the information in parentheses. Examples are (T.D. Jones, personal communication, 2014) or (Smith, unpublished data, 2016).

## LITERATURE CITED

The authors are responsible for the completeness and accuracy of all citations in the reference list. Authors must check the alphabetical reference list against the citations in the body of the manuscript as one of the last steps before submitting the manuscript for publication. The peer reviewers and editors are not expected to verify the format of the literature citations. **Finding format discrepancies or typographical errors in the reference list will be grounds for rejection of the manuscript.** Information that is in press because it has been accepted for publication, but has not yet been released to public view is acceptable for citation when the term *in press* is at the end of the reference in the reference list. Material submitted for publication but not yet accepted should not be cited in the text or included in the reference list.

The references should be arranged alphabetically by the surnames of authors. Multiple author articles with the same senior author as a single-authored article should follow the single author article. Alphabetize entries with the same first author according to surnames of succeeding coauthors and then by year, when the names are repeated in exactly the same order. Two or more articles by the same author (or authors) are listed chronologically and then by title. Distinguish articles by the same author or multiple authors published in the same year by lowercase letters (a, b, c, etc.) after the year. Examples of citations in the desired order are

Brown, L. D. 2001. Title. Journal title vol.:pages.

Brown, L. D. and G. C. Smith. 2014. Title. Journal title vol.:pages.

Brown, L. D., G. C. Smith, and J. D. Tatum. 2005. Title. Journal title vol.:pages.

Brown, L. D., G. C. Smith, and J. D. Tatum. 2007a. Title. Journal title vol.:pages.

Brown, L. D., G. C. Smith, and J. D. Tatum. 2007b. Title. Journal title vol.:pages.

Brown, L. D., G. C. Smith, J. D. Tatum, K. J. Jones, and A. Q. Brown. 2001. Title. Journal title vol.:pages.

Brown, L. D., G. C. Smith, E. C. Vandegrift, and J. D. Tatum. 2015. Title. Journal title vol.:pages.

Brown, L. D. and J. H. Ziegler. 1994a. Title. Journal title vol.:pages.

Brown, L. D. and J. H. Ziegler. 1994b. Title. Journal title vol.:pages.

Give the names of all authors in the reference list. The author for the reference list is the person, committee, organization, or other party responsible for the work. Only when no author can be determined for a document should "anonymous" be used instead of the author name. For Web pages, it is acceptable to use either the author name, if the author is listed, or to use the name of the organization as the author. The organization and location are listed as the publisher of the site. Titles and subtitles of articles, book chapters, bulletins, and books should use sentence style capitalization where the first letter of the first word as well as proper nouns and adjectives are capitalized. Journal titles should be capitalized and abbreviated. Examples are given in following sections.

### Style of the Literature Cited List

Examples of common types of citations follow. Extensive rules and examples for references of all kinds are given in the *Chicago Manual of Style* (<http://www.chicagomanualofstyle.org/home.html>), *Scientific Style and Format* (<http://www.scientificstyleandformat.org/Home.html>), and the *ACS Style Guide* (<http://pubs.acs.org/series/styleguide>). Abbreviations for journal names should follow the guidelines of the Web of Science at [http://images.webofknowledge.com/WOK46/help/WOS/A\\_abrvjt.html](http://images.webofknowledge.com/WOK46/help/WOS/A_abrvjt.html). References should include the DOI number when it is available.

#### Journal Articles

References for a scientific journal article must include, in order, the author(s), year of publication, full title of the article, publication in which it appears, and volume and inclusive page numbers. The issue number must be included for publications without consecutive pagination (i.e., each issue within the volume begins with page 1; 11(2):5–10).

First author, second author, and third author. Year. Title of article. Journal Title Vol.:pages. doi:xxxx.

Nerimetla, R., S. Krishnan, S. Mazumder, S. Mohanty, G.G. Mafi, D.L. VanOverbeke and R. Ramanathan. 2017. Species-specificity in myoglobin oxygenation and reduction potential properties. *Meat and Muscle Biol.* 1:1-7. doi:10.22175/mmb2016.10.0003.

Gruber, S. L., J. D. Tatum, J. A. Scanga, P. L. Chapman, G. C. Smith, and K. E. Belk. 2006. Effects of postmortem aging and USDA quality grade on Warner-Bratzler shear force values of seventeen individual beef muscles. *J. Anim. Sci.* 84(12):3387-3396. doi:10.2527/jas.2006-194.

#### Online Journal Articles

For electronic-only journals, the format is similar to that for print journal articles. The DOI number should be given at the end of the citation, instead of the URL, which may change with time.

- Du, M., J. Tong, J. Zhao, K. R. Underwood, M. Zhu, S. P. Ford, and P. W. Nathanielsz. 2010. Fetal programming of skeletal muscle development in ruminant animals. *J. Anim. Sci.* 88:E51–E60. doi:10.2527/jas.2009-2311.
- Duckett, S. K., S. L. Pratt, and E. Pavan. 2009. Corn oil or corn grain supplementation to steers grazing endophyte-free tall fescue. II. Effects on subcutaneous fatty acid content and lipogenic gene expression. *J. Anim. Sci.* 87:1120–1128. doi:10.2527/jas.2008-1420.
- Duckett, S. K., D. G. Wagner, L. D. Yates, H. G. Dolezal, and S. G. May. 1993. Effects of time on feed on beef nutrient composition. *J. Anim. Sci.* 71:2079–2088. doi:/1993.7182079x
- Garmyn, A. J., S. M. Knobel, K. S. Spivey, L. F. Hightower, J. C. Brooks, B. J. Johnson, S. L. Parr, R. J. Rathmann, J. D. Starkey, D. A. Yates, J. M. Hodgen, J. P. Hutcheson, and M. F. Miller. 2011. Warner Bratzler and slice shear force measurements of 3 beef muscles in response to various aging periods after trenbolone acetate and estradiol implants and zilpaterol hydrochloride supplementation of finishing beef steers. *J. Anim. Sci.* 89:3783–379. doi:10.2527/jas.2011-4134.
- Honikel, K. O. 1998. Reference methods for the assessment of physical characteristics of meat. *Meat Sci.* 49:447–457. doi:10.1016/S0309-1740(98)00034-5.
- Immonen, K., and E. Puolanne. 2000. Variation of residual glycogen-glucose concentration at ultimate pH values below 5.75. *Meat Sci.* 55:279–283. doi:10.1016/S0309-1740(99)00152-7.
- Immonen, K., M. Ruusunen, K. Hissa, and E. Puolanne. 2000. Bovine muscle glycogen concentration in relation to finishing diet, slaughter and ultimate pH. *Meat Sci.* 55:25–31. doi:10.1016/S0309-1740(99)00121-7.

#### **Article in serial publication**

- Huck, G. L., R. T. Brandt, Jr., M. E. Dikeman, D. D. Simms, and G. L. Kuhl. 1991. Timing of trenbolone acetate implants on performance, carcass characteristics, and beef quality of finishing steer calves. *Kansas State University Cattlemen’s Day Report.* p. 90-92.

#### **Article with known erratum follow-up**

- Morales, A., L. Vázquez-Hernández, L. Buenabad, E. Avelar, H. Bernal, L. H. Baumgard, 2016. Effect of heat stress on the endogenous intestinal loss of amino acids in growing pigs. *J. Anim. Sci.* 96:165-172 [erratum: 94:2682-2682].

#### **Articles in press**

For an in-press article, use the current year as the date. If the manuscript has been posted online ahead of publication, include the DOI (digital object identifier).

Author. Year. Article title. Journal Title DOI number (in press).

- Hagenmaier, J., C. Reinhardt, S. Bartle, and D. Thomson. 2016. Effect of shade on animal welfare, growth performance, and carcass characteristics in large pens of beef cattle fed a beta agonist in a commercial feedlot. *J. Anim. Sci.* doi: 10.2527/jas.2016-0935 (in press).

#### **Magazine Article**



Faivre, K. 2016. Addressing barriers to sustainable ag. *Feedstuffs*, Oct. 3, p.8, 43.  
Frazer, A. M. and M. A. Pascall. Cleaning and sanitization of food-contact surfaces in retail/foodservice establishments. *Food Safety Mag.*, Feb.-Mar., p. 12, 14-15.  
Hartman, L. R. 2016. Natural ways to a long and healthy shelf life. *Food Proc.* 77(9):47-48.  
Topp-Becker, . 2016. BIF symposium provide valuable insights for Braunvieh breeders. *Braunvieh World*, 26(3):18-19.

### **Books (including bulletins, reports, multivolume works, series)**

Budavari, S., editor. 1996. *The Merck index*. 12th ed. Merck Publ. Group, Rahway, NJ.  
Food and Agricultural Organization. 1994. *Production and trade yearbook, 1993*. FAO, Rome.  
Snedecor, G.W., and W. G. Cochran. 1989. *Statistical methods*. 8th ed. Iowa State Univ. Press, Ames.  
Steel, R. G. D., and J. H. Torrie. 1960. *Principles and procedures of statistics, with special reference to the biological sciences*. McGraw-Hill, New York.  
Steel, R. G .D., and J. H. Torrie. 1980. *Principles and procedures of statistics: A biometrical approach*. 2nd ed. McGraw-Hill, New York.  
Taylor, B. N. 1995. *Guide for the use of the International System of Units (SI)*. NIST Spec. Publ. 811. US Gov. Print. Office, Washington, DC.

### **Online Books**

Online books usually correspond to printed versions, and the reference style is similar. Use the DOI in place of a URL if available.

Barbut, S. 2015. *Science of Poultry and Meat Processing*. ISBN 978-0-88955-62-3 (pdf). [www.poultryandmeatprocessing.com/](http://www.poultryandmeatprocessing.com/).

### **Chapter in a Book**

The entry for a chapter or article within a larger work must give the author(s), year, chapter title, the word "In" followed by a colon, any editors, and the publication title, followed by the volume (for multivolume works), edition (when more than one has been published), publisher, place of publication, and page range.

Author. Year. Chapter title. In: Editor name(s), editor(s), Book title. Publisher, Place of publication. page range.

Gardner, G. E., B. L. McIntyre, G. D. Tudor, and D. W. Pethick. 2001b. Nutritional influences on muscle glycogen recovery following exercise in sheep and cattle. In: J. L. Corbett and I. Schmidt, editors, *Recent advances in animal nutrition in Australia*. Univ. of New England, Armidale, Australia. p. 145–151.

Hamm, R. 1975. Water-holding capacity of meat. In: D. A. J. Cole and R. A. Lawrie, editors, *Meat*. Butterworth, London. p. 321–338.

Hamm, R. 1986. Functional properties of the myofibrillar system and their measurements. In: P. J. Bechtel, editor, *Muscle as food*. Academic Press, Inc., Orlando, FL. p. 135–199. doi:10.1016/B978-0-12-084190-5.50009-6.

Sainz, R. D., and E. Hasting. 2000. Simulation of the development of adipose tissue in beef cattle. In: J. P. McNamara, J. France, and D. Beever, editors, Modelling nutrient utilization in farm animals. CABI Publishing, Cambridge MA. p. 175–182.

### **Online Chapter in a Book**

Wenther, J. 2015. Muscle characteristics. In: The meat processor's journal science, methods and trends. Vol. 1 Whole muscle processing. MTG Media Group, Chicago, IL. p. 33-40. <http://www.meatingplace.com/Ebook/MeatProcessorsJournalVol1>. accessed 18 October 2016.

Wenther, J. and M. Fielding. Definition of whole muscle processed meat/poultry products. In: The meat processor's journal science, methods and trends. Vol. 1 Whole muscle processing. MTG Media Group, Chicago, IL. p. 7-11. <http://www.meatingplace.com/Ebook/MeatProcessorsJournalVol1>. accessed 18 October 2016.

### **Conference, Symposium, or Workshop Proceedings and Transactions**

An entry for conference proceedings is similar to an entry for a book, with two more pieces of information: the place of the meeting and the date. Conference proceedings often have two titles: the title of the book of proceedings and the name of the conference. If both are present, the title of the book is given first, with only the first word of the title, proper nouns, and proper adjectives capitalized, followed by a period. After the book title comes the name of the conference; capitalize all significant words for the conference name.

#### **Published proceedings and symposia**

Author. Year. Title. Conference Proceedings, City, State. pages OR Editor. Year. Title of book. Number and Name of Conference, place of conference. Date of conference. Publisher, place of publication.

Howard, B., J. Gonzalez, W. Keller, J. Drouillard, K. Phelps, S. Ebarb, and K. Maddock-Carlin. 2015. Effects of implanting strategy and zilpaterol hydrochloride on the calpain proteolytic system in sectioned beef steaks aged for two time periods. 68th Recip. Meat Conf. Proc., Lincoln, NE.

Mega, A., T. Mitsunashi, and M. Tajima. 1999. Changes in the texture, histological structure and degradation of myofibrillar protein of beef round meat during ordinary or vacuum cooking. Congress Proceedings, 45<sup>th</sup> Intl. Congress Meat Sci. Technol., Yokohama, Japan 1-6 August 1999. Vol. 1: p. 188-189.

Schnäckel, W. and J. Krickmeier. 2007. Influences of functional ingredients on technological and sensory quality of cooked sausages. In: G. Zhou and W. Zhang, editors, Proceedings of 53<sup>rd</sup> Intl. Congress Meat Sci. Technol., Beijing, China 5-10 August. p. 423-424.

### **Chapter in a proceedings volume**

Papers published in a proceedings volume are treated much like a book chapter.

Slautterback, D. B. 1966. The ultrastructure of cardiac and skeletal muscle. In: E. J. Briskey, R. G. Cassens, and J. C. Trautman, editors, The physiology and biochemistry of muscle as a food

and Proceedings of an International Symposium, Madison, WI 12-14 July 1965. The Univ. Wisconsin Press, Madison, WI. p. 39-68.

### **Abstracts**

Authors. Year. Title. Source, Location. pages. (Abstr.)

Raines, C. R., M. C. Hunt, and J. A. Unruh. 2008. Cow biological type affects ground beef color stability. 54<sup>th</sup> International Congress of Meat Science and Technology, Cape Town, South Africa 10-15 August. p. 87 (Abstr. 3A.10).

Tørnberg, M. and N. Madsen. 2005. Effect of retail- packaging methods on premature browning of cooked beef patties. 51<sup>st</sup> International Congress of Meat Science and Technology, Baltimore, Maryland 7-12 August 2005. p. 42 (Abstr. T43).

### **Papers and poster sessions presented at meetings**

Use this format when citing unpublished conference papers. When possible, avoid citing conference papers older than two years. If subsequent publication is known, cite the published form.

Author. Year. Title of paper. Paper [or poster session] presented at: Title of conference. Number and Name of the Conference, place of the conference. Date.

Burkett, J. L., K. J. Stalder, W. Powers, T. J. Baas, J. W. Mabry, and J. L. Pierce. 2005. Effect of inorganic and organic trace mineral supplementation on growth performance and carcass traits of market hogs. 21st Annual Symposium: Biotechnology in the Feed and Food Industries, Lexington, KY, May 22-25.

Meyer, S. R. 2005. Optimal selling strategies & comparing packer matrices. Paper presented at: Iowa Pork Produc. Assoc.-Iowa Pig Info. Conf., Marshalltown, IA.

Yang, J. and Y. Xiong. 2014. Strong inhibition of lipid oxidation in o/w emulsions by interface-adsorbed myofibrillar protein: Evidence of physical protection. Paper 064-03 presented at: Inst. Food Technol. Ann. Meeting & Food Expo, New Orleans, LA. June 22.

### **Miscellaneous**

Author. Year. Title of item. Source or publisher: page numbers.

### **Dissertations and theses**

Author. Year. Title of dissertation or thesis. Ph.D. diss. or M.S. thesis, University, City. Internet access information if available online.

Cruzen, S. 2013. Characterization of the skeletal muscle calpain/calpastatin system in growth models in swine and cattle. Ph.D. diss., Iowa State Univ., Ames. (<http://lib.dr.iastate.edu/etd/13305/>).

Grubbs, J. K. 2010. Molecular and physiological effects of ractopamine on yearling heifers across days on feed. M.S. thesis, Auburn Univ., Auburn, AL. (<https://etd.auburn.edu/handle/10415/2149>)

## **Software and software documentation**

- Abacus Concepts. 1991. SuperANOVA user's guide. Release 1.11. Abacus Concepts, Berkeley, CA.
- Minitab. 1998. MINITAB 12. Minitab, State College, PA.
- SAS Institute. 1994. The SAS system for Windows. Release 6.10. SAS Inst., Cary, NC.

## **Encyclopedia article**

- Paulsen, P. and J. Nagy. 2014. Mechanically recovered meat. In: C. Devine and M. Dikeman, editors-in-chief, Encyclopedia of meat sciences. Elsevier, Oxford. p. 270-275.

## **Patents**

- McMindes, M. K., E. Godinez, I. Mueller, M. W. Orcutt, and P. A. Altemueller. 2013. Protein composition and its use in restructured meat. U.S. Patent 8,529,976. Date issued: 10 September.
- Riley, C. and S. H. Hultin. 2014. Methods for separating proteins from connective tissue. U.S. Patent 8,871,291. Date issued: 28 October.

## **Standards or Standard Procedures**

Institution. Year. Rule number: Title. Publisher, Place of publication.

- American Meat Science Association. 2015. Research guidelines for cookery, sensory evaluation, and instrumental tenderness measurements of meat. Version 1.0. Am. Meat Sci. Assoc. Champaign, IL.
- AOAC. 2000. Official methods of analysis. 17th ed. AOAC, Arlington, VA.
- ASTM 2011. F2925-11. Standard specification for tenderness marketing claims associated with meat cuts derived from beef. ATSM Int., West Conshohocken, PA. <http://www.astm.org>.
- CIE. 1976. Recommendations on uniform color spaces– color difference equations, psychometric color terms. Supplement No. 2 to CIE Publication No. 15 (E-1.3.1) 1978, 1971/(TC-1-3). CIE, Paris.
- CIE (Commission Internationale de l'Eclairage). 1976. Recommendations on uniform color spaces- color difference equations, Psychometric Color Terms. Supplement No. 2 to CIE Publication No. 15. Commission Internationale de l'Eclairage, Paris, France.
- USDA. 1996. United States standards for grades of slaughter cattle. Livest. Seed Program, Agric. Market. Serv., Washington, DC.
- USDA. 1997. United States standards for grades of carcass beef. Livest. Seed Program, Agric. Market. Serv, Washington, DC.
- USDA Agricultural Marketing Service. 2012. Operational requirements for the USDA certification of ASTM International tenderness marketing claim. December 2012. <http://www.ams.usda.gov/AMSV1.0/getfile?dDocName=STELPRDC5095042>. (Accessed 14 February 2016).

## Electronic Sources

Electronic sources of information should be cited as for any other reference, with the author, date, article or Web page title, and further information essential to the online reference. Publications in both printed and digital forms should cite only the printed form. The date of copyright (if displayed), the date of updates or revisions, and the date when the publication was accessed should be given. The title should be the title on the website or the major wording describing the article. The person or organization responsible for the site is the publisher, whose information may be at the top, bottom, or sides of pages. The URL or DOI, if either is given, of the database citation should be included.

Author. Year. Title of document. Title of site. Owner or sponsor of site. URL (accessed day month year).

Tatum, J. D. 2011. Animal age, physiological maturity, and associated effects on beef tenderness. [http://www.beefresearch.org/cmdocs/beefresearch/pe\\_white %20papers/animal age.pdf](http://www.beefresearch.org/cmdocs/beefresearch/pe_white%20papers/animal_age.pdf). (Accessed 26 March 2015.)

Tatum, J. D., S. L. Gruber, and B. A. Schneider. 2007. Pre-harvest factors affecting beef tenderness in heifers. [http://www.beefresearch.org/CMDocs/BeefResearch/PE\\_Executive\\_Summaries/Pre\\_Harvest\\_Factors.pdf](http://www.beefresearch.org/CMDocs/BeefResearch/PE_Executive_Summaries/Pre_Harvest_Factors.pdf). (Accessed 26 March 2015.)