Chapter 2
The Review–Editing Process

The process of converting a manuscript into a published technical paper involves numerous people with various areas of expertise. The dual goal of all these people is to maintain the publication's high standards and to help authors present their information clearly, succinctly, and conforming to style.

BEFORE THE REVIEW BEGINS

As noted in Chapter 1, no paper may be accepted for publication in an ASA, CSSA, or SSSA scholarly publication unless at least two unbiased, professional scientists independently agree that the paper merits publication. Also, no paper that has been entered into the formal review process may be rejected by an ASA, CSSA, or SSSA scholarly publication unless at least two unbiased professional scientists independently agree that the paper is unacceptable for publication.

The first responsibility of the journal editor is to determine if the paper is ready for review. Potential problems with papers may be nonscientific or relate to scientific content. Such problems may also be recognized by the technical editor (referred to as co-editor or senior editor in some of our journals) or associate editor.

Nonscientific Problems

Nonscientific problems may render a paper "not ready for review" and require action before the paper is entered into the review process.

Structural Problems

Structural problems include, but are not limited to, such things major format flaws or the lack of a major component, such as the figures or tables. For those journals that use a double-anonymous review, lack of conformity to the particular needs of that review process falls into this category.

Problems with Language

Language problems that make it difficult to assess the quality of the science can render a paper not ready for review. It is best in these cases for the editor to reject the paper without review. If such a manuscript is from an author whose first language is not English, the editor may return the manuscript to the author with the suggestion for the author to contact a professional translator for help.

Judgment and tact when contacting the author are necessary for the editorial board member who has received such a paper.

Problems of Content

Scientific

Scientific problems include serious flaws in the work itself, such as the design of the experiment, lack of necessary replication, or inadequate statistical treatment that make it impossible to draw the stated conclusions from the data. These are the sort of flaws referred to in Cases 1 and 2 below.

The associate editor should study each assigned paper carefully to see if it has one of these intrinsic problems before moving the paper to the formal review stage. If such a problem exists, the associate editor should discuss the paper with the technical editor or editor to determine whether it should be released immediately for those problems rather than waste the time of reviewers. (Such a release is possible because two editors—two scientists—agree to it.)

Suitability

A manuscript submitted to one journal may be better suited for another ASA, CSSA, SSSA journal. The editorial board member who receives the manuscript may make a decision to "reject and transfer" to that journal. The author then has the option to accept the transfer and submit to the second journal or ignore the suggestion to transfer.

Once the editor and technical editor determine that a paper is ready for a review, it is assigned to an associate editor.

REVIEWERS

Locating Reviewers

Finding reviewers for manuscripts can be one of the most frustrating jobs for the associate editor. The current online submission management system used for ASA, CSSA, SSSA journals has a Reviewer Locator feature that uses metadata to link paper topics with authors from Web of Science in similar fields. Other strategies include using the reference list of the manuscript to identify reviewers. One can also search ASA, CSSA, and SSSA journals for related papers using key topics or words in the title or abstract. Annual meetings abstracts show who is recently working on a topic. Note that reviewers do not need to be members of ASA, CSSA, or SSSA. Authors are also required to provide a list of preferred and non-preferred reviewers. These reviewers cannot have a conflict of interest involving the authors or the study, and the editorial board is not required not use any reviewers suggested by authors.

In addition to well-known researchers in the area of the manuscript, one can also seek out reviewers from under-represented groups, such as international scientists, early career scientists, and Ph.D. students. Asking for suggestions from those who turn down the opportunity to review the paper is another strategy.

Ensuring Unbiased Reviews

If there is a concern that a potential reviewer may have (or have even the strong appearance of) a conflict of interest with one or more of the authors, the associate editor should select another reviewer. Similarly, they should heed the wishes of a reviewer who asks to be excused from reviewing a paper for a similar reason. The following list (adapted from USDA-ARS guidelines) is by no means exhaustive, but a positive response to any of the following (or similar) questions is a sufficient reason to select a different reviewer.

- Have you had significant and acrimonious disagreements with the authors in the past?
- Are you and the authors co-investigators on a current research project?
- Have you and the authors jointly published an article in the past three years?
- Are you close friends with one or more of the authors?
- Are you working in the same area of research with the authors so that you might be considered to be a competitor or gain an advantage by reviewing the manuscript?
- Are you at the same location as the authors?
- Did you review and approve the manuscript as a peer reviewer prior to its submission to the journal?

Obtaining Anonymous Reviews

The policy of ASA, CSSA, and SSSA journals is to keep the reviewers anonymous from authors and from each other. Some journals also keep the names of the authors anonymous from the reviewers (double-anonymous review).

If a reviewer inserts their name into their review comments, the policy is to edit out the reviewer's name from the review. There is, of course, no way to prevent a reviewer from contacting an author after a paper is published.

Checking Reviews for Inappropriate Language

In addition to ensuring the reviewer's name does not appear in the review, the associate editor should also take care that the review does not contain personal attacks or derogatory comments, either directly or indirectly. Per our reviewer guidelines: "The ideal review will be fair, unbiased, prompt, and confidential without derogatory comments and should be constructive in nature. The reviewer's job is not to find reasons to reject a manuscript but to help the author improve the manuscript so that the author, journal, and reader all benefit."

Depending on the level of change they deem necessary, the associate editor, in communication with their technical editor if needed, should

determine whether they can make the change themselves (if minor and easily corrected), rescind the review completely, or rescind the review and ask the reviewer to make any necessary changes. If the associate editor edits the review, they may also wish to contact the reviewer and explain to them what comments were inappropriate.

Obtaining Timely Reviews

All scientists want fair reviews of their papers, but they also want them as soon as possible. Initially assigning more reviewers prevents delays if the first reviews received do not agree. The downside to assigning a large number of reviewers to a single manuscript is increased difficulty in finding new reviewers for other assigned manuscripts.

The associate editor may serve as one of the reviewers unless the subject matter is too far outside their area of expertise. If there is no substantial disagreement between the first two reviews (complete agreement is rare), associate editors do not need to wait for a third review before they begin summarizing the key comments of the reviewers. If another review arrives before work on the paper is completed and if that review contains valuable information overlooked by the other two reviewers, that information can also be passed on to the author. If not enough reviews have been submitted to make a decision, the associate editor should contact delayed reviewers and encourage completion of their review.

It is good practice for associate editors to contact potential reviewers outside the online submission system before assigning a manuscript. This will determine if the person's email and other contact information are current, if they are available to review the paper in a timely fashion, and if they have a potential conflict of interest (as outlined above) that might preclude reviewing that paper.

Obtaining Sufficient Reviews

After a paper is deemed to be suitable for review, the task of the editorial board is to then determine if the paper is suitable for publication. Such a decision can be reached only upon the agreement of at least two unbiased, professional scientists.

Thus, the first task of the associate editor is to obtain two recommendations for revision, acceptance, or rejection. The associate editor is expected to exercise professional judgment in reviewing a paper and not simply tally up "yeas" and "nays" and act accordingly. If, for example, a reviewer has recommended acceptance without change for a paper that has a major flaw, or recommended release of an excellent paper, the associate editor has the obligation to discount that review and, if necessary, obtain another.

A few hypothetical cases are given below, all of which take place within the editorial board of a journal whose structure calls for a technical

editor to receive a manuscript and assign it to an associate editor who is to handle the review process.

Case 1. A technical editor receives a manuscript, studies it, and notes a serious flaw that by itself could preclude publication. The technical editor contacts an associate editor before assigning the manuscript and says, "Read this carefully before you assign reviewers. I do not believe it is suitable for publication." The associate editor reads the paper and agrees with the technical editor's assessment. These two agreements allow the release of the manuscript without additional input.

Case 2. The technical editor is assigned several manuscripts on the same day and, so as not to delay review, assigns them to associate editors without studying them thoroughly. An associate editor who is assigned one of the papers notices a serious flaw in it and, before assigning it to reviewers, contacts the technical or co-editor to discuss the paper. The technical editor reads the manuscript thoroughly, agrees with the associate editor, and the two agree to release the paper.

Case 3. The associate editor assigns a paper to three volunteer reviewers, then reads it while awaiting the return of the three additional reviews. The associate editor finds serious enough problems with the manuscript to believe it should not be published. Two of the outside reviews within two or three days recommend "accept as submitted" with no further comments. The associate editor waits for the third outside review. The third reviewer has written a thoughtful series of comments pointing out the problems that the associate editor had noted as well as several others. The associate editor now has recommendations from two independent professional scientists who read the manuscript thoroughly and agree the manuscript should not be published. The associate editor releases the manuscript, even though two reviewers recommended acceptance and two reviewers recommended rejection.

Case 4. The associate editor and another scientist believe they have read an excellent paper, but three other scientists, all of whom had the same major professor in college, recommend that the paper be rejected. After studying the three release recommendations, the associate editor determines that the reasons given for release are personal rather than scientific. Again, two independent scientists who have carefully studied the paper agree it is suitable for publishing, allowing publishing to proceed.

If examples such as those given in Cases 3 and 4 were to happen—and we have no evidence that they ever have—the associate editor would be wise to thoroughly document the reasons for the action, whether it be acceptance or rejection. It would also be a good idea to consult the technical editor and perhaps the editor as well, so that at least four scientists have

agreed to the chosen action, regardless of the number of responses the other way.

Agreement of Reviewers

The matter of agreement is at least as subjective as it is objective. While unanimous agreement for acceptance or release of a paper is possible, more likely there will be some level of disagreement. The following is one common set of reviewer recommendations (note that the exact wording of the recommendations may vary):

- Reviewer 1: minor revision
- Reviewer 2: major revision
- Reviewer 3: reject

The associate editor who receives recommendations like these must exercise judgment. Was Reviewer 1 unduly lenient, or was Reviewer 3 unduly harsh? Once that question is answered, the comments of Reviewer 2 could be used to bolster the remaining recommendation.

Revisions

Another consideration is how often to seek further revisions of the manuscript. Rather than allowing a manuscript to go back and forth several times between author, reviewer, and associate editor, it could be appropriate to recommend rejection of a borderline manuscript and encourage resubmission.

The associate or technical editor should keep in contact with the author if there are delays with the author uploading the revised manuscript or if the author's response to reviewers comments is inadequate. If the author and associate editor agree, and depending on the circumstances, the associate editor may extend the revision deadline.

Once the revised manuscript is uploaded, the associate editor should attempt the review of the revision alone without assigning outside reviewers by checking that all reviewer concerns have been sufficiently addressed. This would still count as two scientists recommending acceptance if one reviewer had previously recommended minor revision (i.e., accept after incorporating reviewers comments) or if the technical editor or editor examines the manuscript before making the final accept decision.

If the changes are extensive or the area is too far out of the associate editor's expertise, the associate editor might review what they can and send the manuscript to one or two reviewers. In such instances, it is preferable that the same reviewers who reviewed the original version also review the revised version unless the associate editor deemed the original review inadequate. The associate editor should try to prevent numerous cycling with the authors; one should not demand unnecessary changes, but it is appropriate to insist that authors correct scientific flaws or a presentation that would prevent readers from understanding the manuscript. The

associate editor should obtain support from the technical editor or editor if necessary.

TYPES OF PAPERS REVIEWED

By far the most common type of paper to appear in ASA, CSSA, and SSSA journals is the original research paper, and the greatest portion of this section is devoted to the review of those papers. Our journals also publish other paper types, which are outlined below. Note that the name of each paper type may vary from journal to journal.

Review and Analysis Papers

Most ASA, CSSA, and SSSA journals accept invited and volunteered review papers. They are often not be presented in the common form for research papers (introduction, methods, results, and discussion). They also typically do not present the results of a single research project. Such papers should not be penalized for following a less-traditional format.

Good review papers provide a synthesis of existing knowledge and give new insights or concepts not previously presented in the literature, or at least not with the same level of detail. One should consider rejecting papers that fail in these areas.

Review articles are not to be considered exhaustive reviews of the literature but should include enough literature review to provide a basis for discussion and interpretation of the topic under consideration.

A good review is often one of the most important ways to advance an area of science. Readers expect a review paper to

- deal with an important subject that needs a scholarly review,
- cover the entire spectrum of the subject, not just the segment the author of the review paper has published papers about,
- present a balanced coverage that is fair to all the work it reviews, and
- add a perspective to the entire subject; contribute significantly to understanding.

Opinion Papers

Opinion papers may be called perspectives or issues papers depending on the journal. They give a broader and often more personal perspective on a subject than a review paper. They may discuss contemporary issues from a combination of scientific, political, legislative, and regulatory perspectives. These papers often have more of a philosophical bent but must still be based on a foundation of good science. They may be invited or volunteered.

The intent of these papers is to stimulate discussion and possibly a rethinking of current views. They can be provocative and controversial. A reviewer or editor who does not agree with a paper's content should

not use that as a reason to recommend its rejection but instead should include constructive comments regarding the logic and arguments used to convey the ideas presented. In addition, the reviewer should evaluate the quality of the writing and make comments as appropriate.

Letters to the Editor

Letters to the Editor may contain comments on articles appearing in the journal or general discussions about agronomic, crop, soil, or other pertinent research, according to the nature of the journal. The suggested length of a Letter to the Editor is 1000 words or less. The letter must be approved by the journal editor and may be peer-reviewed. If a letter discusses a published paper, the author of that paper will be invited to submit a response to the comments, which will generally be published with the letter.

Notes

Notes, or short communications, are a separate category of scientific manuscripts that describe research techniques, apparatus, and observations of unique phenomena. These papers also are usually shorter than research papers. For the suggested length of these papers, authors should check the specific journal's instructions to authors.

Occasionally, an editor may believe a paper submitted as a regular research paper will better fit this category, or vice versa. If the author agrees, the manuscript can be moved to or from this category.

Book Reviews

Several of the journals publish book reviews. The editor often handles these or assigns a technical editor to handle the review. Book reviews are not considered scientific articles and do not need to be sent to outside reviewers.

THE REVIEW

The purpose of scientific editing and review is to determine if the research presented in the paper sought information that either was previously not known or not completely understood; that the research was properly designed, accurately conducted, and accurately recorded; and that the results were correctly interpreted and presented completely and accurately.

Scientific Accuracy

Although the primary responsibility for a paper's accuracy and completeness rests with the author(s), the technical editor, associate editor, and reviewers can often provide valuable assistance in the presentation of that information. For example, authors may be too close to the material to present—in a way others can follow—the logic used in approaching the problem.

Errors and ambiguities can be grouped into two general categories: (i) scientific and technical and (ii) grammatical. Although there is substantial

overlap in duties, problems in the first category are the basic responsibility of technical and associate editors and reviewers and those in the second category are the basic responsibility of the headquarters staff. Editors, technical editors, associate editors, and reviewers cannot ignore grammatical problems, however. If an author who is unfamiliar with writing in English submits a manuscript that is nearly unintelligible, editors should not hesitate to send the manuscript back to the author for improvements before beginning serious scientific review.

Once a manuscript is readable, scientific editors and reviewers should give it a thorough review. Specific aspects of the review are outlined in the checklist at the end of this chapter.

Style

The manuscript should follow the ASA, CSSA, SSSA style as outlined in the journal author instructions and the ASA, CSSA, SSSA *Publications Handbook and Style Manual* (https://www.agronomy.org/publications/journals/author-resources/style-manual). General style issues, such as capitalization in titles, heading format, reference style, will be addressed during production if a paper is accepted and so do not need to be noted in the review process. However, scientific style issues, such as the correct use of specialized terminology, statistics, and equations, as well as the use of scientific names and soil series descriptions, are best addressed during the review stage. While scientific styles issues are not a reason for rejection, it is best that authors address them during revision.

Supplemental Information

Supplemental material must undergo peer review and should be submitted along with the original manuscript. A one- or two-sentence description of the supplemental material should be included in the main manuscript before any acknowledgment section. Supplemental tables and figures should be cited in order in the main manuscript.

The Paper's Language

Editorial board members often ask for guidelines as to when it is okay to leave writing problems in an otherwise acceptable manuscript to be addressed at the copyediting stage and when they should insist that the author repair the problem before accepting the paper. It is difficult to provide unequivocal guidelines. Without question, awkward writing is difficult, if not impossible, to interpret. But many scientific reviewers and editors are willing to overlook flawed writing in a manuscript in the interest of publishing the important scientific information expressed in the paper.

There are different degrees of errors in writing. Some can be corrected fairly easily by a professional copy editor; others require the guidance of the author or a scientific editor.

The location of the error within the paper will often influence the severity of the problems caused by that error. Ambiguity or opacity of language in the introduction damages the effectiveness of a paper because this is where the authors orient their study to similar studies and place their investigation within the context of established knowledge. The same can often be true for the Materials and Methods section. Poor language presentation may cause fewer problems in the Results and Discussion sections, where context has already been established. Similarly, the study's conclusions must be stated clearly, unambiguously, and in a way that is consistent with the preceding sections because this is where the authors are attempting to justify both the performance of the research and the publication of the study. Without a clear presentation here, readers may miss the significance of the study's findings.

When in doubt, determine whether the key concepts and arguments of the study have been adequately expressed. Are the key statements free from ambiguity and vagueness in their meanings? Be less concerned if they are clear but merely not fluent.

Software is used after acceptance to check citation/reference matching. It is not necessary for editors and reviewers to spend a lot of time checking this. Of course, if a key reference is omitted, it is good to mention that to the author.

Errors That Require Correction during the Review Process

Serious defects in scientific writing are those of vagueness, missing information, and missing indications of relationships between pieces of information. Our copy editors are not qualified to correct these sorts of errors without input from authors or scientific editors. Scientific editors therefore are expected to resolve all problems in this category before accepting the paper. The following examples fall into this category.

Vague statement/poor word choice. "Also SOC concentration is more a function of residue and roots (Hanes et al., 1990) after harvest than actual grain yield since virtually no yield can be obtained (corn in dry years, corn after sunflower), yet biomass and residue are produced."

The above statement is unclear as to when or under what conditions no yield can be obtained. With the author's help, this sentence was revised to read: "Also, SOC concentration is more a function of residue and roots (Hanes et al., 1990) remaining after harvest since, at times, little or virtually no yield is obtained (of corn in very dry years, or of corn after sunflower has dried out the soil profile), yet leaf and stem biomass and residue are produced."

Excessively long strings of compound modifiers; adjectival nouns modifying a head noun. "... mixed bed exchange resins..." Does the author mean "mixed-bed exchange resins," or "mixed bed-exchange resins?"

Incomplete comparisons. "It seems reasonable to conclude that the fallow plot should be capable of dissipating nitrate more rapidly." More rapidly than what? Under what conditions?

Topic shift from sentence to sentence. In the following example the reader cannot tell which exposure of soils is being referred to. "Denitrification rates under ambient C conditions were higher in the surface 10 cm of the first test plot compared with the control soil but not in the second test plot. Exposure of soil to agricultural runoff has a significant impact on the soil microbial community."

Errors That Copy Editors Routinely Correct

Writing problems are annoying and can make interpretation of statements laborious but can usually be fixed relatively easily by the copy editor after acceptance. These errors can be more significant when they occur in orienting statements and concluding claims, however. Awkward sentences in non-key areas and minor ambiguities even in key areas can be left in the hands of the copy editor.

CHECKLIST FOR DETAILED COMMENTS

Scientific Content

____ *Duplication*. Does the manuscript unnecessarily repeat already published work?

____ *Review of literature*. Is due credit given to relevant contributions? Is the author's contribution placed in its proper perspective in relation to the state of knowledge? Is the number of references adequate, too small, or excessive?

____ *Objectives*. Is the statement of objectives adequate and appropriate?

____ *Methods*. Are the methods appropriate? Have suitable measurements been performed? Have proper control measurements been made? Have the methods been presented in sufficient detail (e.g., not just what reagents were used, but in what manner and for how long, for instance) to allow a competent scientist-reader to repeat the work? If not, are the sources cited where sufficient detail is available?

____ *Calculations*. Randomly select a few instances and verify the calculations made by the author.

____ *Effectiveness of data presentation*. Would data presented in tables be better presented in figures, or vice versa?

____ *Tables and figures*. Are tables and figures understandable and complete apart from the text? Are they scientifically accurate? Are figure parts labeled sufficiently?

____ *Table row and column headings*. Is the interpretation clear, unequivocal, and in SI units?

____ *Table and figure captions*. Do the captions accurately and completely state the content, or could they be improved?

____ *Conclusions*. Are they adequate and supported by the data?

____ *Conjecture*. Does the author clearly distinguish between fact and

conjecture? Is the amount of conjecture excessive or too little? As long as they are properly identified, speculation and extrapolation are encouraged.

____ *Appropriate units*. Are SI units (or SI-acceptable units) used throughout? (At their discretion, authors may also use other units as well as the SI—usually parenthetically—in text, tables, and figures.) Note that some journals may require different units.

Scientific Presentation

____ *Title*. Does the title adequately describe the subject of the manuscript, preferably in 12 or fewer words (not including conjunctions and prepositions)? Can the wording be improved, particularly so it does not begin with weak words such as "Effects of"?

____ *Abstract*. Abstracts are the most widely read section of any paper, often being seen without the paper itself. Does the abstract briefly (≤250 words for a full paper, ≤150 words for a note) tell what was done and what was found? More information about abstracts can be found at the end of this list.

____ *Clarity*. Does the author present the information in a relatively simple, straightforward manner that can be understood by a reasonably competent scientist-reader?

____ *Organization*. Does the manuscript develop the subject logically and effectively?

____ *Duplication*. Can the manuscript be shortened without loss of content? Are all figures needed if the same data are also given in tabular form? Is there unnecessary duplication in the text or between the text and tables and figures?

____ *Correspondence of text with tables and figures*. Are all tables and figures referred to in the text? Do statements in the text correspond with the content of tables and figures?

____ *Scientific names*. Are scientific names, with authority, given at first use for plants?

____ *Soil descriptions*. Are soils described at first mention according to the US soil taxonomic system or an appropriate national system for soils outside the United States?

____ *Graphs*. Do they conform to the guidelines outlined in the *Publications Handbook and Style Manual*, including the color policy? Are they properly labeled? Do they contain all observations? Is the plotting of the data accurate?

____ *References*. Is the basic information there, independent of format? Are there obvious errors, such as misspelled names of authors or publications?

Manuscript Style

____ *Consistency.* Are all abbreviations and variables defined and used uniformly? If an abbreviation is defined in the paper, is it used more than once? If not, it can often be eliminated.

____ *Abbreviations.* Does the paper have an excessive number of author-made-up abbreviations that hinder ease of reading and interpreting the information? Suggest the author cut back. Are all ad hoc abbreviations defined in a list immediately after the abstract? If not, ask the author to create the list.

____ *Sequence of Tables, Figures, and Equations.* Are all serially numbered items presented in the proper sequence?

____ *Note:* You do not need to check for reference style or citation matching, heading style, and the like.

Abstract

____ Strive for an impersonal, noncritical, and informative account.

____ The structure should move from an introductory statement of the rationale to a clear statement of the objectives or hypotheses through a brief account of the methods to the results and conclusions.

____ Provide rationale or justification for the study. The statement should give a brief account of the purpose, need, and significance of the investigation (hypothesis or how the present work differs from previous work).

____ State the objectives or hypothesis clearly as to what is to be obtained.

____ Give a brief but specific account of the methods, emphasizing departures from the customary.

____ Give the full soil classification if it is a factor in interpreting the results.

____ Identify scientific names of plants.

____ State results succinctly.

____ Outline conclusions or recommendations, if any. Emphasize the significance of the work, conclusions, and recommendations. This may include new theories, interpretations, evaluations, or applications.

____ Use specific figures whenever possible to avoid use of general terms, especially in presenting the method and reporting the results. For example, if two rates of a treatment are used, state what they are.

____ Never cite references.

____ Contain about 200 to 250 words (100 to 150 words for notes).

Plain Language Summaries and Core Ideas, if Present

____ Review for readability and connection to the results and conclusions of the paper.