

Preface

It is often said that change is the only constant thing in the world. This maxim is particularly relevant to science. Throughout the history of human development, science has been evolving and generating new knowledge. From prehistoric times, such new knowledge was passed down orally from generation to generation. Domestication of several agricultural crops, for example, predates the development of writing systems. With the advent and development of writing, the storage and communication of knowledge across generations and cultures became much more accurate and convenient. The remarkable advances in technology bred by rapid developments in scientific knowledge and discoveries have resulted in enormous changes in human life and experience, especially during the past 50 years.

One aspect of the scientific endeavor that has perhaps not undergone substantial transformation along with these rapid and astounding changes is the way in which scientific papers are written and presented, i.e., the sequence of steps involved in preparing them. Scientific writing in English is reported to have started in the fourteenth century and scientific communication as we know it today may be a little over 300 years old. The period since World War II has witnessed an enormous increase in the amount of scientific outputs and publications in print versions, and lately in electronic versions as well. The nature or the act of writing has also been constantly evolving with the development of new technologies such as pen, printing press, and computers over the centuries; the change became quite rapid since the relatively recent introduction of digital technologies. All these technological developments have altered the content as well as the medium of writing. Remarkably, however, the sequence of steps involved in writing scientific papers has not undergone any significant changes during this era of rapid progression. Scientific papers—whether published in print journals or online—are still written according to the simple and convincing logic of the IMRAD format (an acronym for Introduction, Materials and Methods, Results, And Discussion: see [Chap. 2](#) of this book) that is said to have been in use for a century. The early career and relatively less-experienced writers will find this constancy in the midst of all the changes happening in science rather comforting in a sense, because while they have to deal with a whole host of intimidating research challenges not experienced by their older peers, they can adopt the same logic and format that their peers have used for writing their papers.

The idea of compiling such a book has been in development for some 20 years. We were fascinated by the informative and entertaining columns that Mr. William Luellen wrote in the 1990s under the general title “Fine-Tuning Your Writing” in the monthly newsletter (then called *Agronomy News*, now *CSA News*) of the ACS societies—the American Society of Agronomy, the Crop Science Society of America, and the Soil Science Society of America (These columns were later published as a book with the same title: Luellen 2001; see References). The first author of this book who was then the Editor-in-Chief of *Agroforestry Systems* as well as an Associate Editor of *Plant and Soil*, and the second author who was an Associate Editor of the *Journal of Environmental Quality*, were benefitted considerably by Mr. Luellen’s columns. In 1998, an opportunity to consolidate these benefits with personal experience arose when the first author was invited to conduct two-week training courses on scientific writing at the Forest Research Institute and Colleges in Dehradun, India. That series of lectures and exercises for scientists and professionals of forestry research institutions throughout India provided a motivation to develop an early version of a training manual for scientific writing in agroforestry and natural resource management. Subsequently, we had the privilege and opportunity to deliver various versions of the course to different institutions in a few countries around the world. The second author currently teaches a graduate level course in scientific writing at the University of Florida.

While these activities have enabled us to stay abreast with the developments as well as needs in scientific writing in agriculture and natural resources, we have been constantly reminded about the lack of a manual or aide for helping early career scientists to get started in writing research papers. Perhaps there is no dearth of books, reference manuals, and Internet sources on scientific writing. Given, however, that different fields have different conventions for writing style, we have found it difficult to recommend a specific book or source material as the “go to” guide to young scientists in agriculture and natural resources. Having been involved as authors, reviewers, and editors of various journals and publications during the past few decades, we have come to the conclusion that writing a scientific paper is a tedious task for not only us, but most writers. While that is true even for experienced writers, it is a sort of nightmare for the early career professionals such as students, trainees, scientists, and scholars in agriculture and natural resources, especially when their first language of communication is not English. Their trials, tribulations, and frustrations are compounded by the severe pressure they experience from the increasing importance attached to authoring scientific publications (in English). This book is targeted mainly to that group.

The ten short chapters of the book are organized in four parts. The first, “Essentials for Good Writing,” contains four chapters that emphasize the importance of publishing research results, review briefly the various types of scientific publications, give an account of the IMRAD format, outline the essential features of tables and figures, and deal with the use of various issues such as numbers, units, abbreviations, nomenclature, and so on—which we call the “nuts and bolts” that are needed to keep the paper together. Part II that includes two chapters, one each for Words and Sentences, deals with the use and misuse of

English as the international language of science. Manuscript preparation and submission is the scope of Part III. It has two chapters: [Chap. 7](#) describes the essential steps involved and their sequence in preparing a manuscript and [Chap. 8](#) outlines the common procedures to be followed in submitting a manuscript to the journal and following it up through the peer-review process and the ensuing communications. The last part, Part IV, of the book is about communication of research results through oral and poster presentations, with a chapter each on these two forms of presentations to the peer groups at conferences and meetings. A list of references and recommended reading completes the book.

We have drawn from and consulted various sources for compiling this book. In fact such a book that contains materials and expressions used for a long period of time cannot be prepared in isolation, and from that perspective cannot be claimed to be truly “original.” But in light of our experiences, we have adapted, modified, paraphrased, and contextualized the various expressions and usages to the specific needs and requirements of writing focused on agriculture and natural resources—primarily in the biophysical areas. In doing so, we have found some publications and sources particularly useful; these include: Day (1988), Luellen (2001), Malmfors et al. (2004), Stapleton et al. (1995), Stilman (1977), Strunk and White (2000), and Wikipedia (www.wikipedia.org). All these and other references and sources consulted are listed in the section “References and Further Reading.”

The inspiration and encouragement for undertaking such an effort came from the innumerable colleagues, trainees, students, and visiting scholars from around the world over the years. In addition to thanking all of them, we would like to express our special thanks to Gregory Toth, Ph.D. candidate, and Rekha Nair, Ph.D., for critically reviewing the chapter drafts and offering many suggestions for improvement from the perspectives of early career professionals.

A final word: this is not a “rule book.” The “rules” for publishing are set by journals and publishers. Please follow them. What we provide in this book are only some guidelines, which, we think based on our experience, are widely applicable and will help in the preparation of manuscripts according to the journals’ instructions. We earnestly hope that the current and future generations of readers will find the book useful.

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