

How to Evaluate Information Sources in Botany Critically

Author

1. Has the author of the article, book chapter, book, or conference paper written extensively in this area? Is this an area of expertise for the author? Does the author's educational background or experience give evidence of expertise in this area. *Who's Who in America* and *American Men and Women of Science* are examples of directories that give information about scientists' credentials.
2. Has the paper been cited extensively by other scientists? Use *SciSearch* to determine the number of times the paper has been cited. Does your textbook or instructor mention this author?
3. What is the author's affiliation? Is he or she affiliated with a respected college, university, or institute?

Title of Journal

1. Is the journal in which the article is published a core journal in botany? Does it have a high impact factor in *SciSearch*? See the *Journal Citation Reports* (CSEL Ref Q1 S3652) of *Science Citation Index*. Common sense tells us that the *Annals of Botany* is more of a core journal than is the *Journal of Botany of Lower Slobovia*. The exception to this is a topic involving local flora where regional journals may be the only sources available.
2. Availability: The following tip is more a matter of practicality. There are many core agricultural journals but our collection of agricultural journals is very limited. Choose from botanical journals first.

Type of Paper

1. Journal **Articles** with standard sections: Introduction, Materials and Methods, Results, Discussion, and Conclusions are likely to be more substantive. Articles are an example of primary literature.
2. **Letters to the Editor** (as opposed to Letters in *Nature*), and **Notes** are less substantive.
3. **Review** articles review the work of other scientists and may critically evaluate the work of others. They are great guides to other literature and are an example of secondary literature.
4. **Conference papers** (in proceedings or symposia) are often cutting edge research but may not be peer-reviewed. They are also harder to find and may not be owned by CSEL. Conference papers should not be your first choice.

5. **Book Chapters** may be a good source of information if CSEL owns the book, but be sure to check out the author's credentials and check that the publisher of the book is reputable.
6. **Textbooks** and **Encyclopedias** are great sources of background information, but are not appropriate for incorporation into your reference list for this paper.

Timeliness

Is current information critical for your topic? If you have an older, key article and require newer information, consider doing a "Cited Reference" search through *SciSearch*.

Content Analysis

1. Do the authors introduce the topic well and present a clear statement of the problem or research question being investigated? Do the authors explain the importance/relevance of their research?
2. Are the methods explained in sufficient detail and appropriate to the question under investigation? Are assumptions stated?
3. Are the results clearly laid out? Are there omissions or errors?
4. Does the discussion include wild speculation or reasoned arguments supported by other literature?
5. Are the conclusions reasonable based on the evidence presented?
6. Overall, is the information presented valid and well-researched, or unsupported by evidence? Is there a bibliography that cites pertinent other investigations?

Examples of core botany journals available at CSEL include:

*American Journal of Botany	CSEL Per. QK 1 B345
Annals of Botany	CSEL Per. QK 1 A47
Annals of the Missouri Botanical Garden	CSEL Per. QK 1 M65
Australian Journal of Botany	CSEL Per. QK 1 A9
Australian Journal of Plant Physiology	CSEL Per. QK 710 A93
Botanical Journal of the Linnean Society	CSEL Per. QK 1 L5
The Botanical review	CSEL Per. QK 1 B6
Brittonia	CSEL Per. QK 1 B875
The Bryologist	CSEL Per. QK 534 B7
*Canadian Journal of botany	CSEL Per. QK 1 C3
Environmental and Experimental Botany	CSEL Per. QK 757 R22
*International Journal of Plant Sciences	CSEL Per. QK 1 B3
*Journal of Experimental Botany	CSEL Per. QK 1 J763
Journal of Vegetation Science	CSEL Per. QK 101 J68

The Journal of the Torrey Botanical Society	CSEL Per. QK 1 T694
*The New Phytologist	CSEL Per. QK 1 N45
New Zealand Journal of botany	CSEL Per. QK 1 N4
Perspectives in Plant Ecology, Evolution and Sys	CSEL Per. QK 901 P47
Physiologia Plantarum	CSEL Per. QK 1 P575
Phytologia	CSEL Per. QK 1 P58
Phytomorphology	CSEL Per. QK 1 P586
Plant and Cell Physiology	CSEL Per. QK 710 P55
Plant and Soil	CSEL Per. SB13 P55
The Plant Cell	CSEL Per. QK 725 P5518
*Plant, Cell and Environment	CSEL Per. QK 710 P525
*Plant Ecology	CSEL Per. QK 901 V3
Plant Physiology	CSEL Per. QK 1 P65
Plant Science Bulletin	CSEL Per. QK 1 P685

Examples of core general journals available at CSEL include:

*Ecology	CSEL Per. QH 540 E3
Evolution	CSEL Per. QH 301 S753
*Nature	CSEL Per. Q 1 N2
*Science	CSEL Per. Q1 S28

* = Electronic full-text access available to UNM.