

# Scientific writing skills

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As well as publishing over 70 papers in international refereed journals and 100 other publications, I have a lot of experience reviewing other people's work.

I was on the editorial advisory board of the **Journal of Experimental Botany** for over 10 years.

## What's in today's presentation:

- ❖ Marketing strategy
- ❖ Is your research interesting enough?
- ❖ Impact factors
- ❖ Different types of papers
- ❖ Choosing a journal
- ❖ Instructions for authors
- ❖ Writing the text
- ❖ Tidying it up
- ❖ Improving the text
- ❖ The review process

There are several reasons for manuscripts being rejected by journal editors:

- ❖ **Bad quality research** badly described
- ❖ **Bad quality research** well described
- ❖ Good quality research **badly described**
- ❖ Good research but not substantial enough
- ❖ Research out of the journal scope

Today I shall focus on: Good quality research **badly described**

## **Publishing your science is just like any other marketing campaign!**

It needs two essential components:

- 1. A good quality product to sell -**  
Your research
- 2. Someone who wants to buy it -**  
A journal editor (and referees).

**Your target -**

Your exciting/novel/innovative research has to be this year's "**must have**" Christmas present!

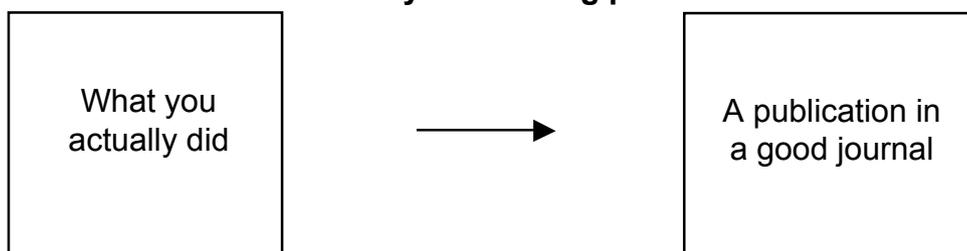
**Here's your marketing strategy:**

What you write and what you actually mean may not be the same:

"IT HAS LONG BEEN KNOWN"	I didn't look up the original reference.
"A DEFINITE TREND IS EVIDENT"	These data are practically meaningless.
"WHILE IT HAS NOT BEEN POSSIBLE TO PROVIDE DEFINITE ANSWERS TO THE QUESTIONS"	An unsuccessful experiment, but I still hope to get it published
"THREE OF THE SAMPLES WERE CHOSEN FOR DETAILED STUDY"	The other results didn't make any sense.
"TYPICAL RESULTS ARE SHOWN"	This is the prettiest graph.
"THESE RESULTS WILL BE IN A SUBSEQUENT REPORT"	I might get around to this sometime, if pushed/funded.
"IN MY EXPERIENCE"	Once
"IN CASE AFTER CASE"	Twice
"IN A SERIES OF CASES"	Thrice
"IT IS BELIEVED THAT"	I think.
"IT IS GENERALLY BELIEVED THAT"	A couple of other guys think so too.
"CORRECT WITHIN AN ORDER OF MAGNITUDE"	Wrong.
"ACCORDING TO STATISTICAL ANALYSIS"	Rumour has it.
"A STATISTICALLY-ORIENTED PROJECTION OF THE SIGNIFICANCE OF THESE FINDINGS"	A wild guess.
"A CAREFUL ANALYSIS OF OBTAINABLE DATA"	Three pages of notes were obliterated when I knocked over a glass of beer.
"IT IS CLEAR THAT MUCH ADDITIONAL WORK WILL BE REQUIRED BEFORE A COMPLETE UNDERSTANDING OF THIS PHENOMENON OCCURS"	I don't understand it.
"THANKS ARE DUE TO JOE BOLTZ FOR ASSISTANCE WITH THE EXPERIMENT AND TO ANDREA SCHAEFFER FOR VALUABLE DISCUSSIONS"	Mr. Boltz did the work and Ms. Shaeffer explained to me what it meant.

### **Scientific publications**

**This is your starting point:**



**Therefore, your starting point was the research itself.**

**So, first you need to know whether what you actually did is worth a paper in an international journal.**

The first time your science is *critically* reviewed is *not* by a journal referee but *by you before you start it!* So ....

**The story of the lost traveller and the Irish cowherd.**

### The wisdom of the Irish cowherd:

You can't write good quality scientific papers if you're not already doing -

- good quality research, with
- good quality research design, to achieve
- good quality data to analyse and interpret!

Let us assume you are starting from the right place!

<http://bitesizebio.com>

<http://www.bitesizebio.com/13627/writing-your-first-or-next-paper-part-i/>

Extract from <http://bitesizebio.com>

“Think in terms of figures” is my advice to keep young scientists from falling into [the “Oh, I forgot to do this!”] trap. Instead of heading straight to the bench with your burning question, stop and ask yourself what elements would need to be in this experiment for it to be a figure in a paper (positive controls, negative controls, gel markers, etc). Imagine your hypothesis is correct, and you're going to use the results of this experiment to convince a critical viewer - what lanes need to be on the gel to make your point? Would you convince (or at least frustrate) an opponent of your hypothesis?

### Research suitable for a good quality journal:

Your research has to be good enough quality or *your manuscript is unlikely to be accepted.*

i.e. all the **factors** identified to get to the **truth**.

But it needs more than this -

It needs *international* interest and appeal - part of your **marketing strategy!**

International journals give you more *impact!*

First, what type of manuscript are you going to write?

### Scientific publications:

There are basically four types of scientific paper:

1. A hypothesis-testing paper which will set up a hypothesis and then test it.
2. A purely descriptive paper that is describing something new.
3. A techniques/methods paper on developing a new/improved technique/ method for something.
4. A review paper describing and discussing what other people have done.

### **To be suitable for publishing in an international journal -**

1) a hypothesis-testing paper needs:

- one or more hypotheses to be tested,
  - clearly-defined aims, justifying why the research needs to be done,
  - sufficient replication/size of datasets
  - results that match the aims
  - interpretation to test the hypotheses.
- short communications (easier to write and quicker to publish.)

## To be suitable for publishing in an international journal -

2) a purely descriptive paper needs:

- a clearly-defined reason explaining why the research needed to be done,
- a reason why it is of *international* importance to know about this,
- interpretation of the findings to put them into the context of similar work done elsewhere.
- implications of the findings (policy, etc).

3) a techniques/research methods paper needs:

- a clearly-defined reason saying why the new technique/research method was necessary,
- a sufficiently detailed description of the technique/method (including validation) for others to use it as a new method,
- detailed comparison with existing methods to show how the new method is better/differs.

4) a review paper needs:

- a clearly-defined subject area that hasn't been reviewed recently,
- a comparison of findings of others, usually including your own work,
- including the latest research findings, plus where possible papers in press,
- an opportunity for you to publish data otherwise not suitable for publication!

Scientific review publications:

Note that review papers in review journals will usually give you a **high impact factor!**

**Nature Reviews: Cancer - 37.9 [2013]**

**Annual Review of Biochemistry - 26.5**

**Annual Review of Plant Biology - 18.9**

**Annual Review of Physiology - 14.7**

**Annual Review of Microbiology - 13.0**

**Advances in Agronomy - 3.8**

**Critical Reviews in Food Science & Nutrition - 3.7**

**Review of Economic Studies - 2.6**

Choosing the right journal :

Once you have decided that -

- a) your research was good enough quality to publish, and
  - b) you have decided what type of a paper to write,
- then you can choose which is the right journal.

How do you do that?

**First - Impact Factors (IF) of journals:**

Journal impact factor is calculated over a three-year period, and is the mean **number of times published papers are cited** up to two years after publication.

Impact Factors are typically a year behind the calendar year. Thus, Impact Factors for 2014 were published in June 2015.

Impact factor determines whether the journal ranks highly or is unranked on your Ministry lists.

### Citations

Journal Impact Factors depend on **you**, how frequently **you** cite articles in a particular journal, and how frequently other researchers cite **your** publications in that journal. You can monitor this for yourself at the following web addresses:

- Add your research output to **ResearchGate**  
(<https://www.researchgate.net>) [free]
- Add your research output to **ImpactStory**  
(<https://impactstory.org>) [subscription]
- Set up a (public) Google Scholar account to advertise your **citations and h-index**  
(<http://scholar.google.com>) [free]

### Impact factors of journals:

The higher you aim with impact factors, the more difficult it is generally to publish (**but not always**).

Two journals with very high impact factors are Nature (IF ~41) and Science (IF ~31).

Therefore be realistic in choosing the journal for publishing your first scientific manuscript!

### Source Normalized Impact per Paper (SNIP)

SNIP measures contextual citation impact by weighting citations based on the total number of citations in a subject field. The impact of a single citation is given higher value in subject areas where citations are less likely, and vice versa.

<http://www.journalmetrics.com/snip.php>

### Journal impact factors & acceptance rates:

Journal	IF(2013)	SNIP	%accepted
Nature	38.597	8.822	8%
Nutrition	2.859	1.375	15%
New Phytologist	6.736	1.914	20%
J Biotechnology	3.183	1.169	20%
J Experimental Botany	5.242	1.918	31%
Anticancer Research	1.713	0.723	35%
BMC Plant Biology	4.354	1.418	62%
J Rural Studies	2.817	2.017	31%

## Open Access “predatory” journals

See also <http://scholarlyoa.com/individual-journals/>.

This website is run by Jeffrey Beall (USA) to give information on potentially predatory journals: questionable, scholarly open-access journals - those that publish papers for money without proper peer review.

*So, choose your open-access journals very carefully.*

**Assuming you have not chosen a predatory journal (!) -**

**Ask yourself “Is my research interesting/innovative enough to publish in this journal?”**

- A frequent reason for rejecting a manuscript is that the results/conclusions of your research are **thought to be not sufficiently novel or not substantial enough** or of **local interest only**.

-for example just repeating someone else’s work with different datasets/ varieties [**a PhD student in Newcastle**].

- Will your paper **increase** the journal’s **Impact factor**?

**Your research should create new knowledge:**

Well-justified research

Well-designed research

Well-described research

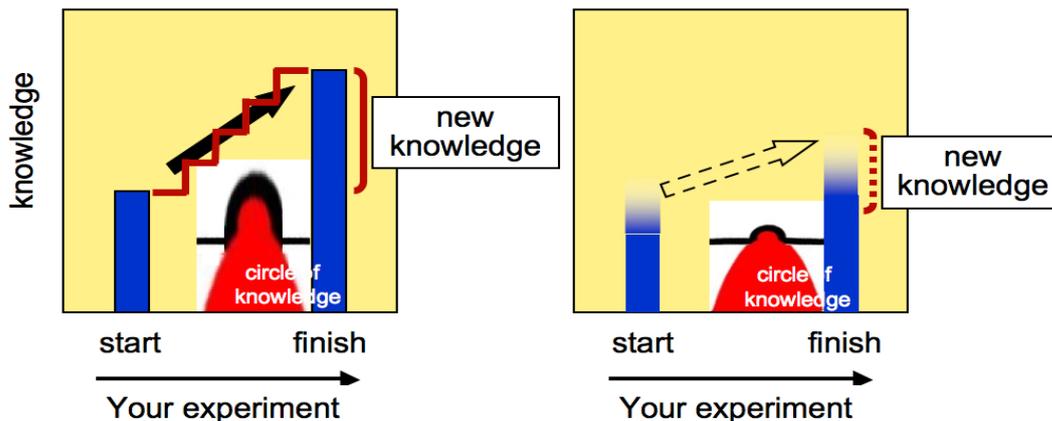
Clearly significant progress

Poorly-justified research

Poorly-designed research

Poorly-described research

Little evidence of progress



**So, you identify the most suitable journal and submit your manuscript to that journal only and to no other!**

The editor of the journal I work for (Botanica Serbica) has found problems of M/S duplication.

Information in this and the next slide are from:

### **Publishing Ethics for journals**

A guide for Editors-in-Chief, Associate Editors, and Managing Editors  
*Springer Publishers*

### **Duplicate submission/publication**

This refers to the practice of submitting the same study to two journals or publishing more or less the same study in two journals. These submissions/publications can be nearly simultaneous or years later.

This is unethical practice and is not accepted!!!

**So you believe you have something worth writing, to submit to your journal of choice!**

### **Journal information for authors**

**Always start by reading the journal's scope and information for authors - either inside the journal cover or on the journal web-site. First, to confirm whether it is the right journal for your paper or not.**

### **Selected comments from journal information for authors**

Descriptive reports, *in which no specific hypothesis is tested* are **unlikely to be accepted**.

*Field-study results are more likely to be accepted if they use more than a single technique of data collection and analysis.*

**Papers must be original research and must not have already been published or be under consideration for publication elsewhere.**

Work published in abstract form or presented orally is not considered previously published.

***Papers containing a poor standard of English language are less likely to be considered for review.***

### **Journal of General Physiology (good international):**

No substantial part of an article may have been, or may be, published elsewhere.

Except in special circumstances, **manuscripts that fall within the following categories are unlikely to be accepted:**

- Purely methodological or theoretical developments (except as noted in Scope of Publication).
- Descriptive reports, ***in which no specific hypothesis is tested***.
- **Manuscripts that primarily confirm results already established for other species, ....**
- Manuscripts which merely amplify a previous brief publication and contain no substantial new information.

The journal gives **Open Access** after 6 months.

**Annals of Botany (good international)** publishes experimental, theoretical and applied papers on all aspects of plant science.

The submitted manuscript or its essential content must not have been published previously or be under consideration for publication elsewhere.

To merit publication ..., ***contributions should be substantial***, written in clear English and combine originality of content with potential ***general interest***.

Submission of manuscripts that report ***small incremental advances*** or are of ***geographically local interest only is discouraged*** unless the implications of the findings are wide-reaching. In general, a paper is ***unlikely to be accepted unless referees and editors involved in its evaluation are enthusiastic about the science***.

Once you've decided which journal you will submit the paper to, make sure you read carefully *all* the journal's **Instructions to Authors** for writing the text!

## Journal of Biological Chemistry

### Instructions for Authors:

#### Manuscript preparation

- All of the text should be single spaced with one-inch [2.54 cm] margins on the left and right sides. **[Note - imperial units are used.]**
- Once the text of the manuscript is completed in Word, **convert the Summary through Discussion sections from a single column format to double column format.**
- Select these sections of the text, click on "Format" heading, then "Columns" from the drop-down menu. Select two columns and equal column width and then change spacing to 0.25 inches [0.63 cm].
- Title and running title sections as well as references, footnotes, figure legends and tables should remain in single column format.
- **Use Times New Roman font** and select size and bolding to mimic the appearance shown above for the title section; **use 11 point** for the remaining text.

## Annals of Botany

### Instructions for Authors:

#### Manuscript preparation

- (Always consult a recent issue of *Annals of Botany* for layout and style)
- Text should be typed using size 12 Times New Roman or Courier, double-spaced throughout and with an approx. 25 mm margin.
- **All pages should be numbered sequentially.**
- **Each line of the text should also be numbered**, with the top line of each page being line 1 [Format→Document→Layout].
- The article file should be in PC-compatible Microsoft Word - file type DOC.
- **Please make sure the "Language" is "English (U.K)"** via Tools →Language →Set Language.

## Journal of Biological Chemistry

### Advice on units:

#### Abbreviations of units of measurement and of physical and chemical quantities

(These abbreviations may be used without definition. They are not followed by full stops. The same form is used in the plural.)

#### *Prefixes to the Names of Units*

Multiplier	Prefix	Symbol	Multiplier	Prefix	Symbol
10 <sup>-1</sup>	deci	d	10	deca	da
10 <sup>-2</sup>	centi	c	10 <sup>2</sup>	hecto	h
10 <sup>-3</sup>	milli	m	10 <sup>3</sup>	kilo	k
10 <sup>-6</sup>	micro	μ	10 <sup>6</sup>	mega	M
10 <sup>-9</sup>	nano	n	10 <sup>9</sup>	giga	G
10 <sup>-12</sup>	pico	p	10 <sup>12</sup>	tera	T
10 <sup>-15</sup>	femto	f	10 <sup>15</sup>	peta	P
10 <sup>-18</sup>	atto	a	10 <sup>18</sup>	exa	E

#### *Units of Concentration<sup>a</sup>*

molar (moles/liter) <sup>b</sup>
millimolar (millimoles/liter)
micromolar (micromoles/liter)
nanomolar
picomolar

M
mM (rather than 10 <sup>-3</sup> M)
μM (rather than 10 <sup>-6</sup> M)
nM (not mM)
pM (not μM)

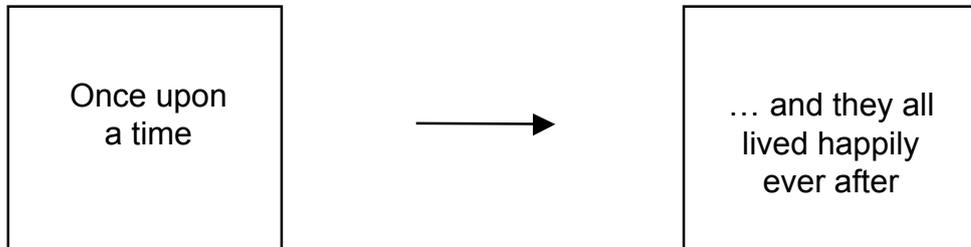
#### *Other Units*

mole	mol
becquerel <sup>c</sup>	Bq
curie	Ci
dalton	Da
equivalent	eq
counts per minute	cpm
revolutions per minute	rpm
cycles per second (hertz)	Hz
degree centigrade or Celsius	°C
degree absolute (kelvin)	K
calorie	cal
kilocalorie	kcal
joule	J
gauss	G
ampere	A
volt	V
Svedberg (10 <sup>-13</sup> s)	S

Not bothering to follow all the journal's instructions (style, format, etc) **creates a bad impression at the start**, even before anyone has read what you have written!

Scientific publications:

This is your starting point:



and this is your target end point.

Let's assume you have a good story to tell!

The secrets to writing and submitting a good quality paper (*indeed any document!*) are to be **logical,**

**clear,**

**concise,**

**unambiguous,**

**consistent,**

**without factual errors,**

**without technical errors.**

If not, reviewers won't be able to follow what is going on and you risk comments that the work is not focused or badly put together.

**Logical:** points go naturally from one to another.

**Clear:** easy to read, simple language, easy to understand.

**Concise:** no unnecessary words, easy to read.

**Unambiguous:** only one way to interpret what you write.

**Consistent:** the same information every time you mention it, table and figure data correctly reported in the text, all references cited, etc.

**Without factual errors:** checked for consistency, correctly referring to other work.

**Without technical errors:** checked with journal style, formatting consistent, reference details correct, no spelling mistakes.

**First impressions have an impact on reviewers!** So, not being **consistent** in following the journal's style or format, etc **creates a bad impression at the start!**

Note - a manuscript that has simple spelling mistakes suggests lack of care. **That suggests lack of care with the research!!**

Lack of care implies they may not find the **truth!**

**Here's an example from a manuscript I was checking for Botanica Serbica earlier this month:**

"QRs responsive to juglone treatment are **manily** microsomal, while soluble GSTs are elevated in pea under this treatment."

**Evidently the authors did not bother to use a spell-checker before submitting their manuscript!**

### **Making a start on the manuscript:**

Start by creating a folder on your computer for the manuscript.

This will contain:

- journal instructions for authors
- the text (various versions - **each dated**)
- publications (pdf files) to support the manuscript  
(a separate folder for those you use)
- tables and figures as you prepare them
- maybe key email discussions with co-authors
- eventually, proofs and supplementary documents

I'll describe here a typical research paper.

### **The first page:**

Choose a title that gives clear information about the content of the research.

"Effectiveness of the organic food supply chain in the Republic of Pontevedro" is a suitable title but "Supplying organic food in Pontevedro" is not.

The title may be a question: "How effective is the organic food supply chain in the Republic of Pontevedro?" but not:

"Can Pontevedrins get organic food?"

The title can also be a statement of the results: "Organic food supply chains in Pontevedro are poorly established".

- Think carefully about the author list and their order of presentation - the one doing the research usually comes first.
- Authors should have contributed in some way to the science or the manuscript, or getting the money for the research!
- Should you include your technicians as authors?

### **Abstract**

- **Write this at the start to organise your thoughts.**

If the journal does not require a structured abstract:

The abstract is a summary of your report, so must be a brief description of the **whole paper**, capturing the essence of your research.

**[Do not say "results are presented for ...."]**

- Remember that most readers of your paper will **never get beyond the abstract**.
- So, ensure the abstract says in 250 words (or whatever the number is) all the reasons for doing the research and the main conclusions.

It should have an immediate impact on the reader, so needs to be written in as **concise** (short) a sentence construction as possible and must give readers a 'take-home' message.

- **Complete this once the paper is written**
- Give a little background (one sentence) describing the subject area of the research (this is often optional)
- Give a brief description of the rationale behind the research and clearly state research objectives (why it was needed).
- Describe briefly the research methods (research design), what was measured.

- Identify which of your results/findings are most important.
- Identify the most important interpretation of your results.
- Maybe, say what this means for the future, policy implications, etc.

Try to save words wherever possible, for example as follows:

Short sentences save words.

Replace “and” with a full stop whenever possible.

Do not use redundant words:

‘To do this, ....’ and **not** ‘In order to do this, ...’

Rearrange or change words when possible. Instead of:

“..., and calculation of the annual means to identify ...” use

this shorter version:

“... Calculating annual means to identify ...” (3 words less)

**Never waste words by repeating information.**

**Writing the body of the text:**

I’ll use the format typical for sciences:

- **Introduction and objectives**
- **Materials and methods**
- **Results**
- **Discussion**

to say a few words about putting together what is needed for a good quality paper - whatever the subject of the research.

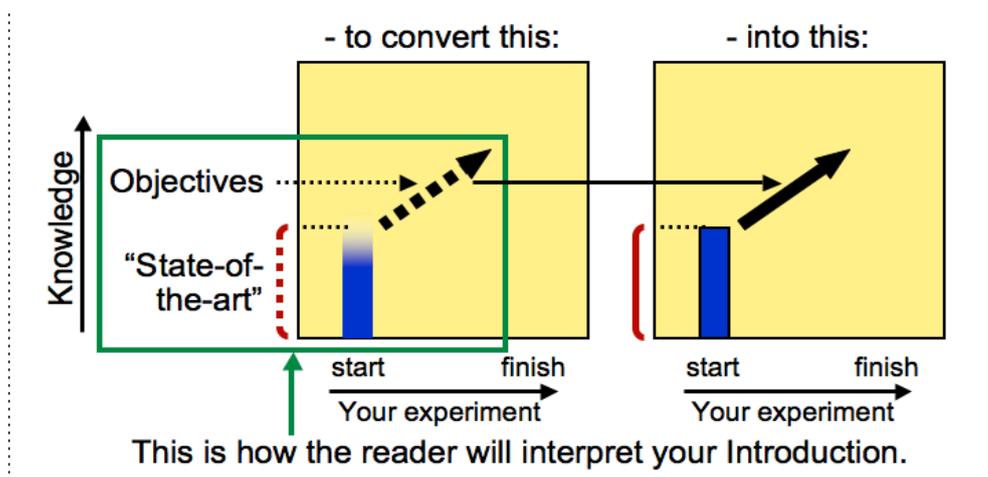
### Introduction and Objectives

Your Introduction **must convince** the journal editor and referees of the **need** for your research and **their need** to accept it! [The ‘**salesman’s pitch**’!]

There should be a question to answer or problem to solve, with clear increase in **understanding**.

It is much easier to create a good story if you did research to test one or more hypotheses.

Think of your Introduction in terms of the blue bars. Your Introduction is where you give definition to the first blue bar in the histogram -



## SAQ comments written at end of the Introduction of someone's manuscript:

“There is little justification here for an editor to publish your paper. There are, say, already 20 papers on the subject and you just want to add one more, which will, no doubt, just contribute to the complexity of the problem! **Where is the increase in understanding that this research aims to achieve? Where is the novelty?** You have got to sell this to the journal editor and referees. So, start conceptually by identifying a good story to tell that will lead to something interesting for the [international] reader. Then, build up the background to your story as you present the Introduction, focusing towards the end of the Introduction on what is already known in the literature that is relevant to your specific research story and the questions still remaining to be answered. In that way, you are providing justification for your research to be carried out.”

### Introduction and objectives (2)

Here are sections that should go into a typical Introduction, 1-2 paragraphs on each section:

- subject area background information
  - research area background information
  - [your previous research if this is relevant]
  - clear justification for this research - what makes it **interesting?** (why is it needed?)
  - clear statement of objectives and hypotheses to be tested
- [Note - sometimes objectives change during the process of writing the manuscript!]

By the end of this the reader should have a clear impression of **why the research needs to be done and what sort of conclusions will be reached at the end.** Typical length no more than 2-3 double-spaced pages, depending on the research complexity.

### Materials, methods and resources

- Sufficient detail **to allow the reader to repeat your work**
- Include **only** parameters/measurements (and treatments) that you will present later on
- State clearly the research/experimental design and methods, and sample replication (**this needs very careful thought to be unambiguous**)
- Give details of analytical methods/assays (briefly if previously published)
- Give details of statistical methods that have been used.

### Results/Observations

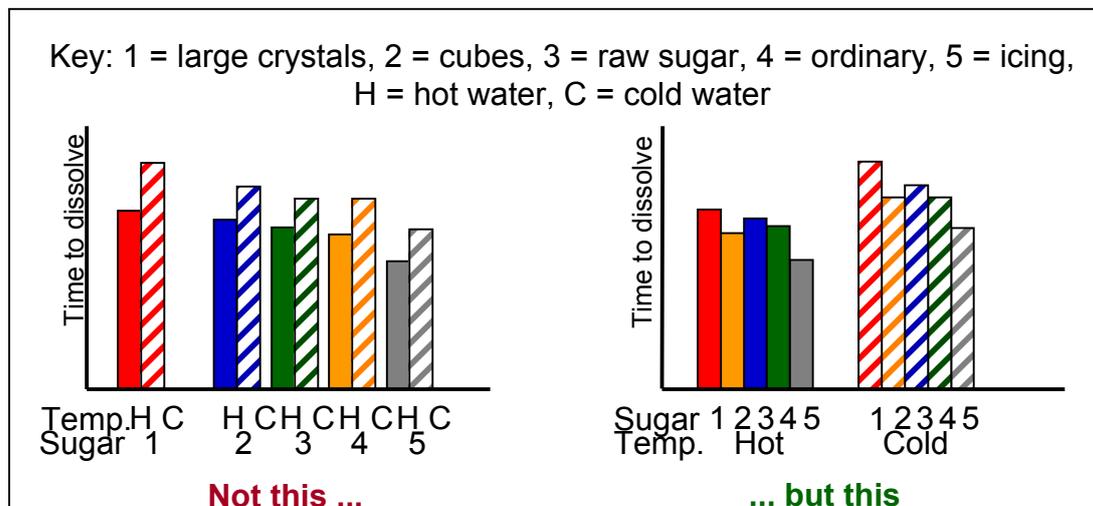
- Present results in a logical order - priority order, or sequence order: this leads to this, which leads to this, and then is followed by this, ...
- If you measured it, present results for it
- Design tables and graphs to have the most visual impact (they must make points **clearly, logically and unambiguously**)
- Say something in the text about all the points made in tables and/or graphs
- Do not **interpret** results in the Results section.

Now a few words and examples on how to show data:

When showing results graphically, you should always put the most important comparisons nearest to each other.

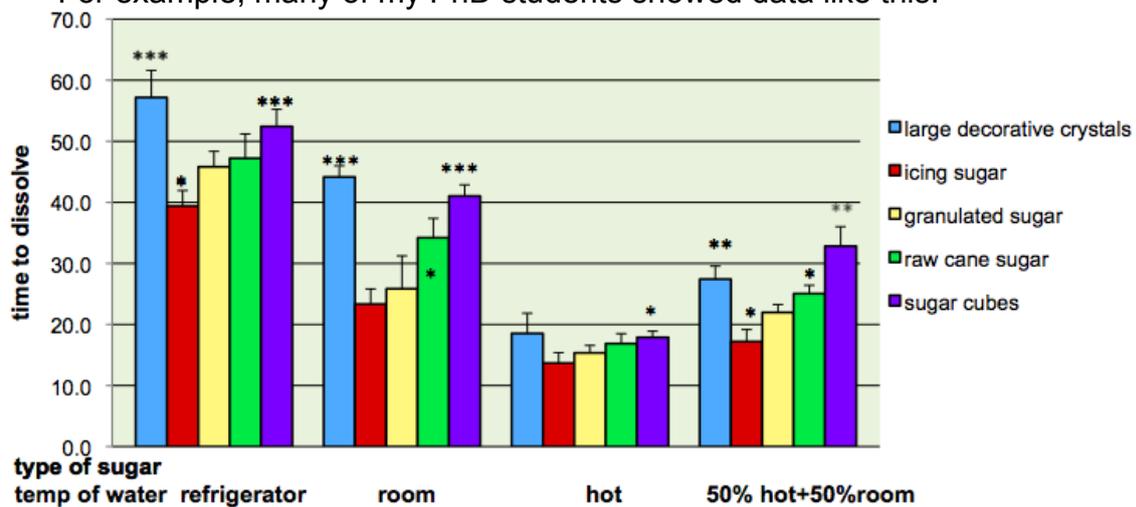
Here's an example of two ways to present results. An experiment with sugar tested the primary hypothesis that **different types of sugar dissolve at different** rates (a secondary hypothesis looked at the effect of temperature).

The sugar experiment primary hypothesis was that sugar types dissolve at different rates. Therefore, use the right-hand graph:



Present your data in graphs in a **logical** order.

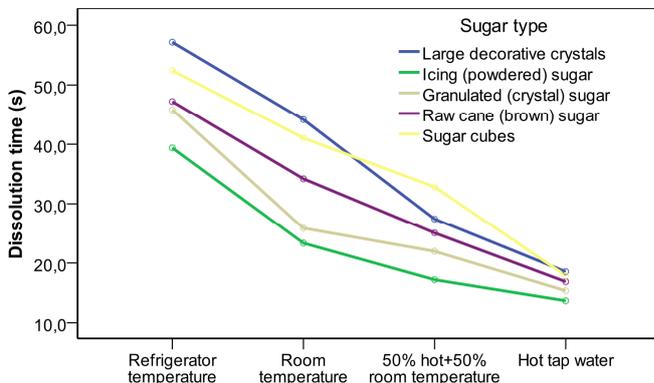
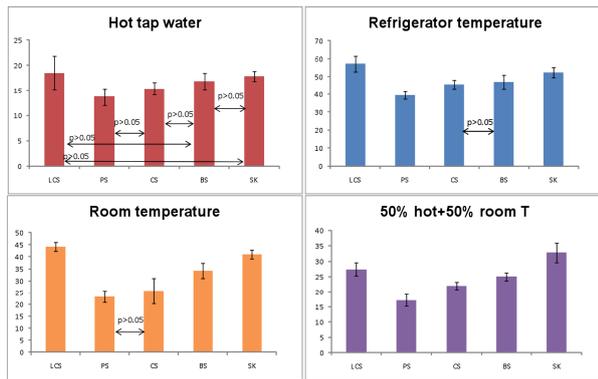
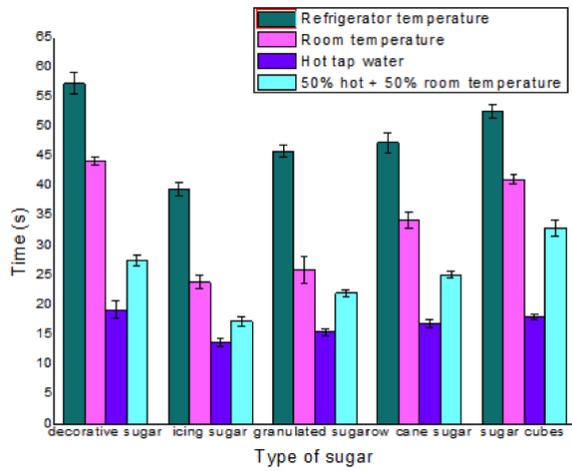
For example, many of my PhD students showed data like this:



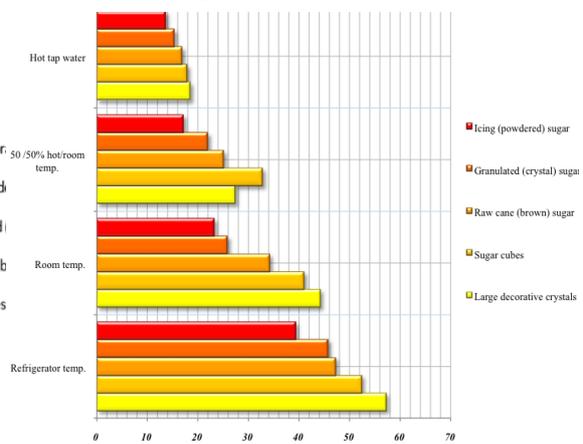
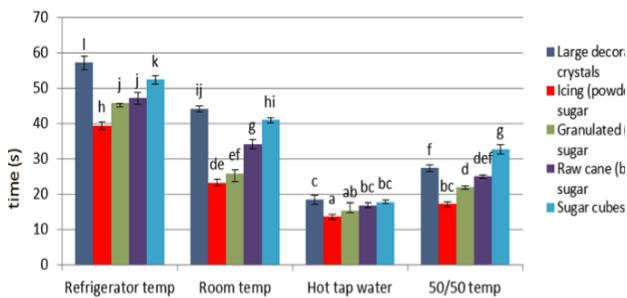
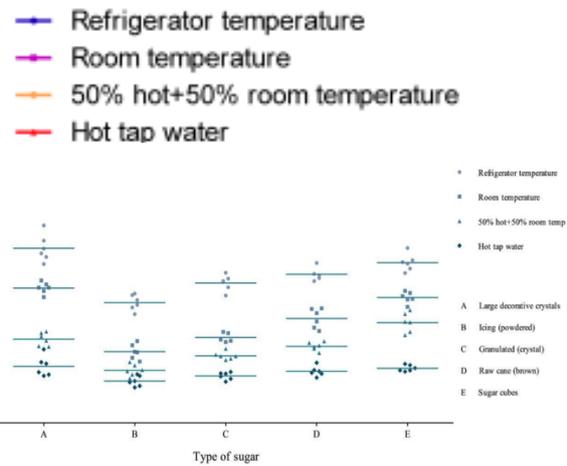
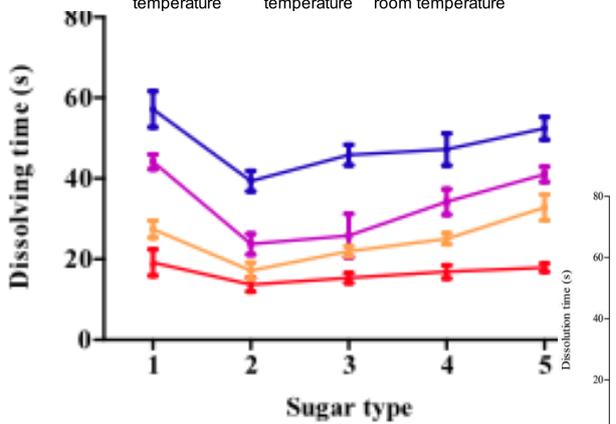
Why are 50% hot/50% cold samples on the right hand side?

Why are icing sugar data next to the large crystal data?

This order may be in real time, but is not **logical** to a reader.



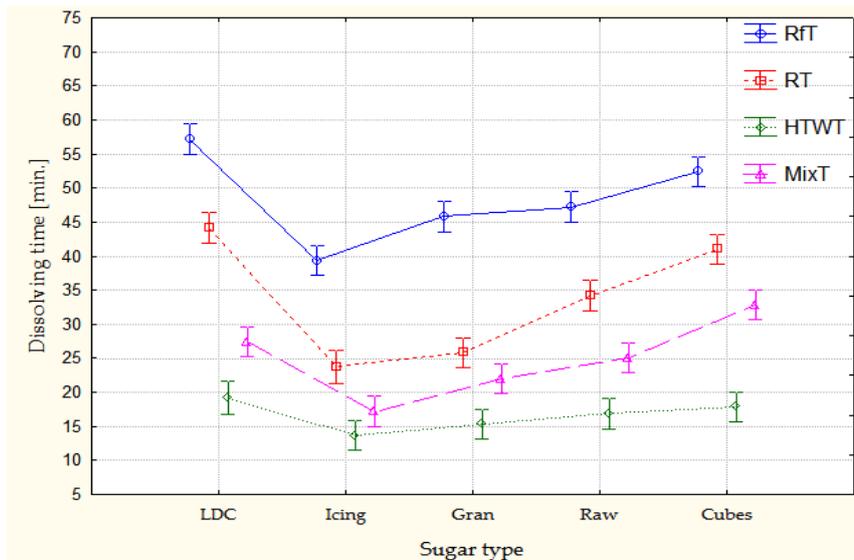
These graphs illustrate different ways of presenting the same results [Prepared by my PhD students].



There is always more than one way of showing results, so think about the best way.

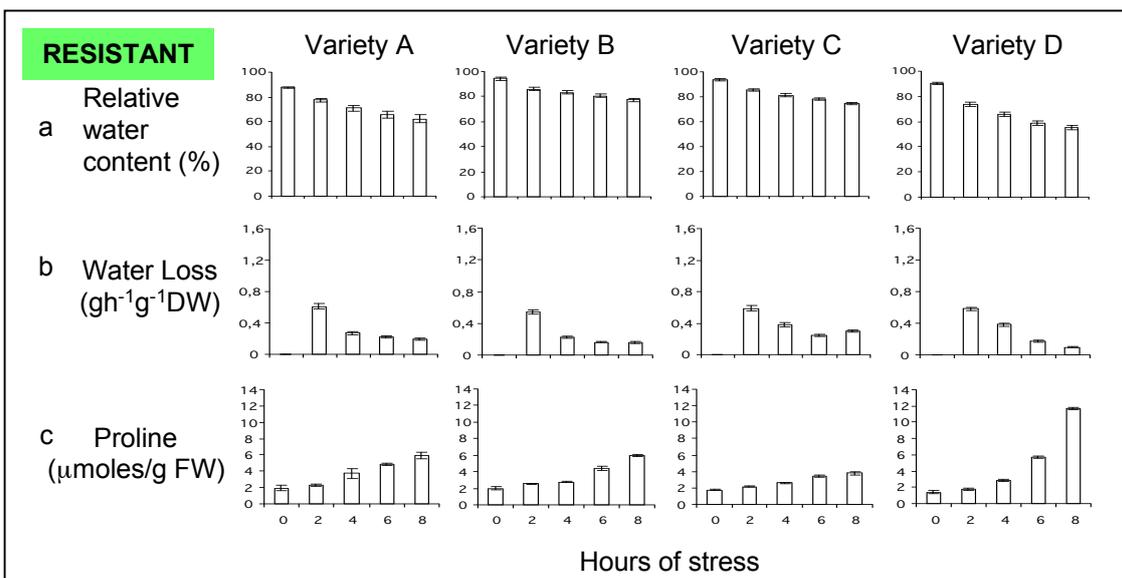
On the previous page are two contrasting types of the graph from the PhD students I had in 2011 showing different methods to present data: bar charts and line graphs. Which method of presenting the data gives a clearer picture of the results?

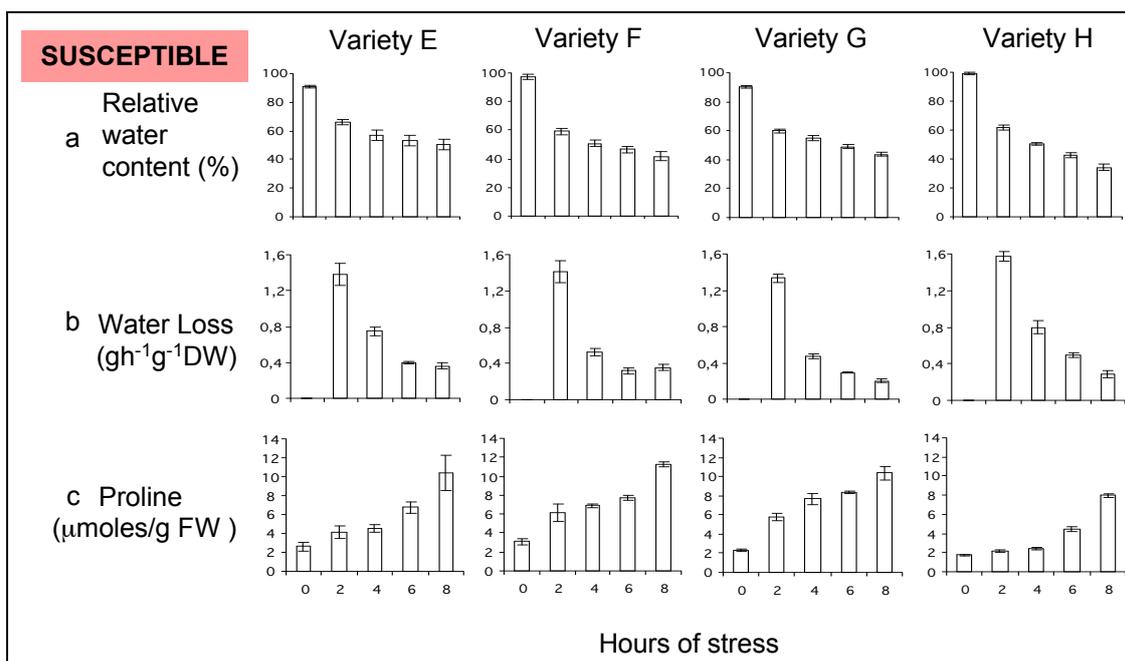
Using lines to connect data points indicates some sort of trend (in time, temperature, crystal size, etc.). **Therefore do, not do this:**



What does a line between Large Decorative Crystals and Icing sugar mean? **If samples indicate crystal size, then this is OK.**

Here are examples of problems with graphs from an actual manuscript: The authors wanted to **compare and contrast** two groups of varieties differing in drought resistance and they presented two graphs - one for 4 resistant varieties, and the next for 4 susceptible varieties.





How easy is it for you to compare differences in drought responses between the resistant and susceptible varieties?

So, in this example it would be much better to compare resistant and susceptible varieties in the same graph, using a separate set of graphs for each trait/parameter.

**Therefore, remember to put the most important comparisons you want the reader to see or appreciate close to each other in figures.**

**Points to note on tables:**

- Don't make a table too dense with numbers.
- Don't use more decimal points than are justified by the precision needed (3 significant figures?).
- Remember to include all the units (cm, h, mmol).
- Don't show the same data in both tables and figures.

Table 1: Phenotypic analysis of shoot number and plant height in the population.

	Stage	Zhenshan	Minghui	the RIL population			
				Mean $\pm$ s.d.	Range	Skew.	Kurt.
shoot number	Stage 1	1.30	2.25	1.716 $\pm$ 0.425	1.00-2.90	0.560	-0.076
	Stage 2	9.47	12.57	9.776 $\pm$ 1.582	6.20-14.10	0.273	-0.036
	Stage 3	17.88	22.85	19.041 $\pm$ 3.692	10.50-29.90	0.266	-0.230
	Stage 4	17.43	20.35	18.085 $\pm$ 3.323	11.10-29.10	0.472	0.235
	Stage 5	15.88	16.50	15.546 $\pm$ 2.792	10.10-24.05	0.592	0.265
		<b>No units for height</b>	<b>Far too many decimal places! Judging by the size of s.d.s., only 1 is justified.</b>				
plant height	Stage 1	32.79	30.60	33.743 $\pm$ 2.525	27.57-39.20	-0.054	-0.544
	Stage 2	50.38	49.76	51.183 $\pm$ 3.555	43.17-61.31	0.217	-0.195
	Stage 3	80.22	75.09	79.757 $\pm$ 5.053	67.20-93.50	0.098	-0.180
	Stage 4	82.18	78.97	85.372 $\pm$ 5.633	71.92-102.51	0.283	-0.033
	Stage 5	85.13	105.94	98.610 $\pm$ 8.118	78.46-116.27	-0.086	-0.432

Here's an example of a table from a manuscript:

Table 2. Top 1/3<sup>rd</sup> better performing genotypes with respect to different *in vitro* traits under normal (0 bar) and stress (-7 bars) conditions

Rank	Germination (%)		Shoot length (cm)		Root length (cm)		Coleoptile length (cm)		Root number		Seedling vigour index (%)		Overall basis	
	0	-7	0	-7	0	-7	0	-7	0	-7	0	-7	0	-7
1	DH 5	DH 6 <sup>B</sup>	Sapt <sup>A</sup>	DH 28 <sup>B</sup>	DH 62 <sup>B</sup>	DH 61 <sup>C</sup>	DH 80 <sup>B</sup>	V499 <sup>A</sup>	DH 17 <sup>C</sup>	DH 64 <sup>B</sup>	Sapt <sup>A</sup>	DH 61 <sup>B</sup>	Sapt	Sapt
2	DH 6	DH 17 <sup>B</sup>	Sen*	Sapt <sup>A</sup>	DH 43 <sup>B</sup>	DH 19 <sup>C</sup>	DH 85 <sup>B</sup>	Sapt*	DH 27 <sup>C</sup>	DH 28 <sup>B</sup>	Sen*	DH 19 <sup>B</sup>	DH 63	DH 28
3	DH 7	DH 4 <sup>B</sup>	DH 27 <sup>B</sup>	Sen <sup>A</sup>	DH 63 <sup>B</sup>	DH 65 <sup>C</sup>	DH 69 <sup>B</sup>	Sen*	DH 29 <sup>C</sup>	DH 80 <sup>B</sup>	DH 85 <sup>B</sup>	DH 28 <sup>B</sup>	DH 80	Sen
4	DH 8	DH 18 <sup>B</sup>	DH 85 <sup>B</sup>	V499*	DH 80 <sup>B</sup>	DH 20 <sup>C</sup>	V499 <sup>A</sup>	V452*	DH 28	DH 53 <sup>B</sup>	DH 63 <sup>B</sup>	DH 20 <sup>B</sup>	DH 41	DH 19
5	DH 16	Sapt <sup>A</sup>	DH 80*	V452*	WW24 <sup>A</sup>	DH 1 <sup>B</sup>	Sapt*	DH 20*	DH 58	H184 <sup>A</sup>	DH 80 <sup>B</sup>	Sapt <sup>A</sup>	Sen	V452
6	DH 17	V452 <sup>A</sup>	DH 63*	DH 20 <sup>B</sup>	DH 16 <sup>B</sup>	DH 55 <sup>B</sup>	DH 60*	DH 38*	DH 86	Sapt*	DH 62 <sup>B</sup>	Sen*	V499	DH 61
7	DH 18	DH 7 <sup>B</sup>	DH 69*	DH 26 <sup>B</sup>	P552*	DH 28 <sup>B</sup>	DH 84*	DH 75*	DH 1	Sen*	DH 43*	V452*	DH 62	DH 40
8	DH 25	DH 19 <sup>B</sup>	DH 66*	DH 53*	DH 86 <sup>B</sup>	DH 36 <sup>B</sup>	DH 59*	DH 26*	DH 4	DH 7	V499*	DH 26 <sup>B</sup>	DH 26	DH 86
9	DH 26	DH 26 <sup>B</sup>	DH 3	DH 19*	Sapt*	DH 86 <sup>B</sup>	DH 87*	DH 19*	DH 7	DH 27	DH 86*	DH 55*	DH 86	DH 53
10	DH 28	DH 8 <sup>B</sup>	DH 1	DH 36*	DH 85 <sup>B</sup>	DH 77 <sup>B</sup>	DH 20*	DH 36*	DH 8	DH 69	DH 16*	DH 36*	DH 85	DH 26
11	DH 31	DH 16 <sup>B</sup>	DH 74	DH 61*	V499*	DH 57 <sup>B</sup>	DH 15*	DH 53*	DH 16	H155	DH 69*	DH 1*	DH 16	DH 20
12	DH 32	DH 29 <sup>B</sup>	DH 56	DH 55*	V452*	Sapt <sup>A</sup>	Sen*	DH 61*	DH 23	DH 17	WW24*	DH 86*	DH 20	V499
13	DH 41	DH 46 <sup>B</sup>	DH 70	DH 40	DH 10 <sup>B</sup>	DH 40 <sup>B</sup>	DH 41*	DH 70*	DH 40	DH 21	DH 66*	DH 40*	DH 43	DH 55
14	DH 52	DH 28 <sup>B</sup>	DH 15	DH 86	DH 69 <sup>B</sup>	H42*	DH 56	DH 73*	DH 45	DH 23	DH 26*	V499*	H89	DH 36
15	DH 57	DH 43 <sup>B</sup>	DH 59	DH 65	Sen*	Sen*	DH 63	DH 55*	DH 49	DH 40	DH 56*	DH 57*	DH 31	DH 1
16	Sapt	DH 71 <sup>B</sup>	DH 86	DH 70	DH 26	DH 30	DH 34	DH 28*	DH 61	DH 49	P552	DH 65*	DH 56	DH 17
17	DH 60	DH 31 <sup>B</sup>	V499	DH 62	DH 56	DH 43	DH 31	H184	DH 62	DH 65	DH 31	DH 53*	DH 3	DH 65
18	H155	DH 56 <sup>B</sup>	DH 41	H184	DH 75	V452	DH 71	DH 86	DH 63	DH 71	DH 75	DH 74*	DH 69	DH 74
19	Sen	DH 60 <sup>B</sup>	DH 71	DH 73	H147	V499	DH 23	DH 39	DH 88	DH 86	DH 3	DH 38*	WW 24	DH 70
20	DH 4	DH 62 <sup>B</sup>	DH 53	DH 74	DH 78	DH 38	DH 76	DH 40	DH H89	H147	DH 74	DH 77*	DH 5	DH 57
21	DH 19	DH 39*	DH 75	DH 38	H30	DH 60	DH 88	DH 65	DH 5	P343	DH 10	DH 43	DH 45	H184
22	DH 21	DH 3*	DH 21	DH 1	DH 30	DH 74	H155	DH 72	DH 10	W10	DH 41	DH 70	DH 19	DH 27

Contd...

23	DH 33	DH 40*	DH 31	DH 39	DH 66	DH 93	P552	DH 74	DH 11	DH 4	DH 45	DH 30	DH 10	DH 38
24	DH 44	Sen*	DH 62	DH 72	DH 45	DH 27	DH 61	DH 1	DH 14	DH 5	DH 71	DH 93	DH 66	DH 30
25	DH 47	DH 74*	H89	DH 57	DH 31	DH 26	DH 39	DH 69	DH 19	DH 52	DH 30	DH 60	P552	DH 39
26	DH 48	DH 1*	DH 26	DH 58	DH 74	DH 14	DH 26	DH 93	DH 20	DH 61	DH 25	DH 17	DH 1	DH 77
27	DH 64	DH 11*	DH 20	DH 67	DH 93	DH 17	H89	P552	DH 41	DH 88	H3024	H42	DH 18	DH 73
28	H42	H89*	DH 18	DH 76	H184	DH 3	H184	DH 57	DH 60	H89	DH 20	DH 73	H155	DH 72
29	H184	DH 49*	DH 5	H155	DH 3	DH 10	DH 3	H155	DH 72	P552	DH 70	DH 3	DH 75	DH 21
30	P552	DH 53*	DH 58	DH 68	P343	DH 70	DH 35	DH 27	DH 78	V499	DH 78	DH 39	DH 74	P343
31	U2418	DH 70*	DH 78	DH 30	DH 25	DH 59	DH 38	DH 58	DH 87	DH 8	H184	DH 27	DH 32	DH 10

Note: Sapt- Saptdhara; Sen-Sentry; V499-VVFW 499; V452-VVFW 452; H42-HPW 42; H89-HPW 89; H155-HPW 155; H184-HPW 184;H3024-HW 3024; P552-PW 552; H147-HPW 147; P343-PBW 343; U2418-UP 2418

\*Significant at P<0.05, when compared with overall mean.

<sup>A</sup> Best parent; <sup>B</sup> DH lines at par with the best parent; <sup>C</sup> DH lines better than the best parent

How easy is it to assimilate and understand the data in this table?!!! KEEP IT SIMPLE!

### Presenting Fraudulent Results

Fraud involves deliberate deception, including the **invention (fabrication) or falsification of data**, and the omission from analysis and publication of **inconvenient data**.

Researchers are sometimes under **huge pressure** to “prove” a positive result (e.g. new drug trials).

Scientific ethics must always be respected, and great care must be exercised when deciding that data may be ignored or changed for some reason.

Ask yourself the question “**If I change or ignore any of these data shall I get closer to or further from the truth?**”

## Discussion/Implications (1)

- Do not repeat the results in the Discussion!!
- Discuss results in the order in which they were presented
- **This where you *interpret* your findings**
- Interpret how your results fit in with your stated objectives/hypotheses
- Interpret how your results fit in with other published work
- [Consider any limitations of your methodology and suggest possible improvements]
- Future research/policy implications/next step
- Give a 'take-home' message at the end.

Make sure your Discussion is genuine discussion to ***interpret results*** and ***not just descriptive*** - restating parts of your Introduction or Results (text in grey below):

Here's an example of part of the Discussion of a manuscript I was asked to check through for a researcher (only the sentence in red is interpretation):

"In this experiment, it was possible to show, that different level of osmotic stress after PEG treatment can reveal the sensitivity of tested sensitive and resistant wheat genotypes and allows to choose the proper concentration of PEG to investigate further supplementations of media to explain the mechanisms of drought tolerance. Plant morphology and water status at seedling stage, gas exchange, lipid peroxidation, accumulation of some osmolytes, like soluble carbohydrates, proline and polyamines were sensitive in three tested concentrations of PEG treatment (D1, D2 and D3). Generally, after osmotic adjustment at the seedling stage, the growth of plants observed as of seedling height and roots length is decreased. Also RWC is lowered for sensitive genotypes. In this experiment lower water potential in CS genotype resulted from reduction of water content in leaves of seedlings. Under osmotic stress its impact on changes of photosynthesis between drought-resistant and drought sensitive genotypes was not always significant. **Probably in these conditions the effect of non-stomatal mechanism regulation of photosynthesis occurred.**"

Here are section headings in my latest paper:

### **Results**

#### ***Environments and phenotypes***

*Environmental variation*

*Phenotypic variation*

*Trait associations*

#### ***Genetic map and QTL analyses***

*DArT-extended genetic map*

*Marker and gene deletion bin assignments*

*QTL analyses*

*Coincidence of QTLs*

### **Discussion**

***Phenotypic characteristics***

***The extended genetic map of Chinese Spring x SQ1 and bin assignments***

***Locations of QTLs and their coincidences***

***Future developments***

### **Conclusions**

## Acknowledgements

Don't forget to acknowledge the help from others that allowed you to do the research: technicians, students, materials provided by others, analyses done by others, etc.

Always acknowledge the funding sources that paid for the research.

## References

Add all text reference citations to your Reference list as you write the manuscript to avoid forgetting any when you type all reference details.

Make sure you follow the style and format for reference details required by the journal. Use Reference Manager or EndNote software if you have access to it. I find inconsistencies in formatting references very frequently.

If you copy and paste reference details directly from the journal website or a pdf file of the article, make sure you change the title from 'Title' case to 'Sentence' case.

Many people use software: Reference Manager or End Note.

## Plagiarism

**Plagiarism is becoming an increasing problem (for example, the previous president of Hungary in 2012 and German education minister in Feb, 2013).**

### **Guidelines on quotations from Human Relations:**

Quotations from published work, including any author's own previous work, must be acknowledged as such and fully cited.

Quotations should be kept to a minimum. Where possible, keep quotations to 100 words or less. Where quotations exceed 400 words, the permission of the publisher (or copyright holder) must be obtained and acknowledged.

Diagrams and tables reproduced from already published work require permission from the original publisher (or copyright holder).

It should be stated in the relevant legend that permission for reproduction has been granted, giving the reference and name of the copyright holder who has given the permission.

I regularly use <http://www.grammarly.com/>

### **Some advice from others at Newcastle University, Centre for Rural Economy:**

Responses from **senior/established academics** at Newcastle University for advice to PhD students on getting published.

[Sent by Matthew Gorton for FOCUS-Balkans.]

Typical responses of professors to the question ‘What advice would you give?’:

*“At the very least you could circulate your answers and give the rest of us a clue!”*

*“I’m probably the worst person to ask for this!”*

*“I think I have had far too many rejections to provide that much guidance!”*

### **Planning**

1. **Time management.** If you have something to write make sure you cross out time in your diary regularly to do this otherwise it will constantly be put to the bottom of the pile as more pressing things come along!
2. **Don't have a list of 20 paper ideas.** Focus on your first 1 or 2 priorities and set aside time when you will address them.
3. **Plan the papers you will write each year.** Have a plan at the start of the year of what papers you want to get submitted over the year.

### **Targeting**

1. **Before writing have a target journal,** or at least the type of journal, in mind.
2. **Target your journal effectively.** Having a high impact score is good but so is having a journal that has a reasonable turn round time, both in terms of giving you a decision and getting things published.
3. **A good indication of whether or not it is the right journal** is whether or not you are referring to material in your bibliography from past issues of the journal.
4. **A good scientific paper targets specific scientists.** Be clear about which group that is and what journal(s) they would be reading.
5. **Be clear who you are writing for and focus on that audience.** Don't try to write for everyone. Who do you want to tell about your research, what is the best journal to reach them?

### **Targeting**

6. **Watch out for calls for special issues on a subject.** If its in your area they may be very pleased to get good empirically-grounded insights or detailed description even if you don't have profound analytical or theoretical insights.
7. **Some journals are much, much harder to get in than others so ask for advice.** By talking to others you will get a sense of how tough a journal it is and how appropriate your paper is to it.
8. **Choose the right journal for the work.** So, you need to know your target journal well - make sure you know the usual topics, content and style of articles in the journal.
9. **Which journals are targeted by people you consider to be working in a similar area as yours?**

### **Teamwork**

1. **Get involved in co-authorship of papers.** This can be a way of improving quality, drawing on individual strengths and keeping sane. When working in writing partnerships, don't sit on drafts. Aim to pass drafts on rapidly between co-authors.
2. **Look to form research/writing collaborations that work.** These will give you have a mix of single-authored and multiple-authored articles. Co-authoring can also help getting those first few articles put together and help understand the publication process.

### **Writing**

1. **Write a damn good paper that you feel deeply about.**
2. **Start by preparing a fairly detailed outline.** That way you always have something to refer back to (I guess this is common sense!) [an abstract maybe?]
3. **Be prepared to re-work your structure.** The argument doesn't always work the way you think it will when you start.
4. **Know the journal you are targeting.** That way you can write from the start reflecting its aims/focus, in its style, according to the submission guidelines etc.
5. **Write in short clear sentences.** Trying to be too wordy will tie you and the reader in knots. In some disciplines the tendency is to write in grand theory, being verbose when it really isn't needed.

### **Writing**

6. **Be careful not to set up false arguments.** This is very easy to do when you are trying to differentiate your work (be constructive in your criticism of others - don't introduce something just to dismiss it)
7. **Think carefully about the added-value of the article.** How will it contribute to the literature and science?
8. **Make your paper's contribution clear.** Make sure it is tied into debates within the literature. Know the literature in your field well.
9. **Figure out what it is you like about the journals you enjoy the most.** Learn the stylistic tricks that lift an argument.
10. **Practice writing at every opportunity.**

### **Peer support**

1. **Regularly seek comments and views of colleagues on drafts.** Don't submit a half-baked piece early.
2. **Always, always get other people to read and comment on your manuscript before submission.**
3. **Don't try to publish too early.** Ask for honest advice from supervisors and mentors on when research is ready to be written up for publication.

### **Peer support**

4. **Get advice from people with experience in publishing in your field.** Ask them journals to target. Get feedback on your manuscript before submission.
5. **Getting feedback from colleagues.**
6. **Let other people read what you write and ask them for comments.** Don't get upset if they criticise but get behind the criticism if valid and see how to respond.

### **Review and revisions**

1. **Develop a thick skin.** Over time, all academics will get papers rejected and some reviewers are nasty and adversarial. They should remember that a paper may be bad but that does not equate to invading Poland.
2. **Have a tough skin and persist.** Don't be dispirited with rejection or major revisions. Be polite to referees and editors in commenting on revisions to papers
3. **Don't sit on revisions or referee comments.**
4. **Read editor's and referees' comments very carefully.** If revisions are needed, then revisions are needed!
5. **Make the editor's job easier when returning a revised paper.** Give a blow by blow account of changes that address comments (don't complain).

## **Improving your writing style and use of English**

### **Writing style and improving your English**

At the end, put aside your draft and come back to it later. You'll be surprised how much you want to change!

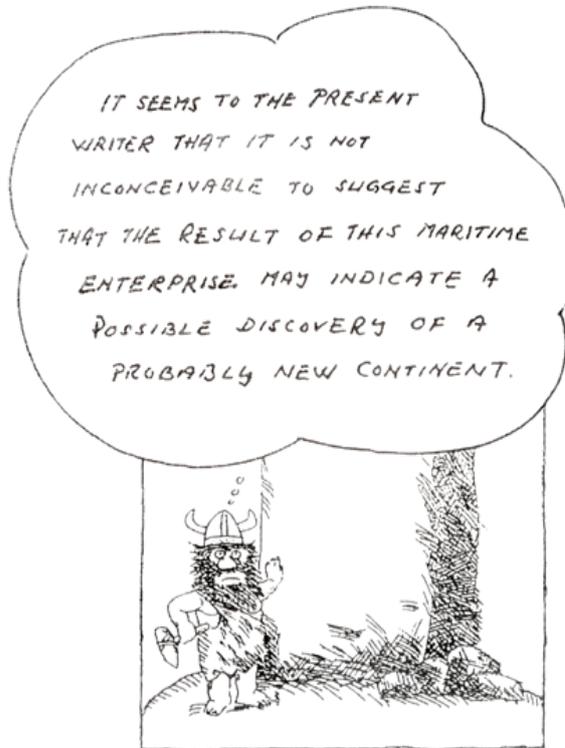
This is the time to tighten up the text and remove unnecessary words - **many scientists like to use unnecessary words!**

Such phrases as **'It is worth pointing out in this context that'** may be deleted without affecting the meaning.

So may **'It is significant to note the fact that'**, **'It should be borne in mind in this connection that'**, and other phrases that correspond to no more than spoken 'errrs, ummms and ovajs'.

For **'It is plainly demonstrable from the data presented in Table 2'** write **'Table 2 shows'**.

## Don't write unnecessary words!



"It seems to the present writer that it is not inconceivable to suggest that the result of this maritime enterprise may indicate a possible discovery of a probably new continent."

"I think I discovered America"



(Redrawn, with permission, from Majewski 1994.)

## How to Write & Publish a Scientific Paper

5th Edition

Robert A. Day - ORYX PRESS 1998

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### Appendix 4: Words and expressions to avoid

#### Replace

a considerable amount of  
a considerable number of  
a decreased amount of  
a decreased number of  
a majority of  
a number of  
a small number of  
absolutely essential  
accounted for by the fact  
adjacent to  
along the lines of

#### with

much  
many  
less  
fewer  
most  
many  
a few  
essential  
because  
near  
like

**Here are typical Balkan (Slavic) examples (red):**

subsequent to	after
sufficient	enough
take into consideration	consider
terminate	end
<i>the aforementioned/abovementioned values for weight varied</i>	<i>weight varied</i>
<i>the data for height showed the findings in this section imply that the great majority of</i>	<i>height showed this implies that most</i>
<i>the measured values for time showed the measured values of time to equilibrate showed a range from</i>	<i>time showed time to equilibrate ranged from</i>
the opinion is advanced that the predominant number of the question as to whether the reason is because	I think most whether because
<i>the studied varieties showed the values for height showed</i>	<i>the varieties showed height showed</i>
the vast majority of there is reason to believe they are the investigators who this result would seem to indicate	most I (we) think/believe they this result indicates

**Genuine examples from manuscripts**

“Diversity in **the evaluated** parameters amongst the ....” becomes

“Diversity in parameters amongst the ....”

“A comparison of **95% CI values of evaluated** traits for ...”

becomes “A comparison of 95% CIs for traits for ....”

“The **collected** data were **statistically** analyzed using SPSS software

....” becomes “The data were analysed by SPSS ....”

“should be advantageous **for the** avoidance **of** ....”

becomes “... should be advantageous to avoid ... ”

“... were recorded in **examined** indigenous varieties”

becomes “... were recorded in these indigenous varieties”

“**Statistically** significant trend toward an association ....”

becomes “A significant trend toward an association ....”

“tabulated all the **abovementioned** traits **in order** to present the”

becomes “tabulated all these traits to present the”

**Two examples of texts from a Slavic speaker (a scientist from Poland):**

**Original**

For all data of measurements standard error of mean was calculated.

**SQ version**

**Standard errors of means were calculated** for all parameters. **[Start with what was done, then ....]**

**Original**

The results of measurements of gas exchange parameters and chlorophyll content in control plants are presented in figure 1.

**SQ version**

Gas exchange parameters and chlorophyll content in control plants are presented in figure 1.

**Two examples from a Slavic course participant:**

**Original**

It could be identified several driving forces that motivate people to initiate organic production ...

**SQ version**

Several driving forces were identified that motivate people to initiate organic production ...

**Original**

In this moment is very important to mention that structure of organic food distribution is mainly in special healthy food part of big supermarkets.

**SQ version**

Currently, organic food is distributed mainly through health food sections of major supermarkets.

**A manuscript paragraph from a [one of many] course participant:**

**Original**

There is several very important open questions [a typically East European phrase] like regular basis distribution, appropriate packaging, marketing education to the producers etc. which should be done before starting of serious informative campaign for organic food.

**SQ version**

It is essential to educate the producers to provide regular supplies, distribution, appropriate packaging and marketing before starting any serious publicity campaign for organic food.

The manuscript gave no research method details.

Cited and listed references were not related!

**Another paragraph from the [that particular one] course participant:**

**Original (\*)**

*There is* many problems along the chain, from the suppliers till consumers. Like main problems in production process were mentioned supply of organic fertilizers and organic protection materials. Another problem is unavailability of biological materials and that why is important to have allowed list of materials appropriate for using in organic production. For *solving of these problems* [another typically E Europe phrase] it is necessary establishing of specialized shop for organic materials and protection instruments.

**SQ version**

Many problems *exist* along the chain from the suppliers to the consumers. The main production problems are supply of organic fertilisers and treatments for plant protection, including suitable biological agents. Therefore, it is essential for the Ministry to have a list of permitted materials for organic production. Specialised suppliers for organic growers are essential.

### Correcting a manuscript is often not a trivial job:

The process goes as follows (for each paragraph):

1. Correct the English to make it typically English [easier to read]
2. Make it simple English (cut out/rearrange words) [quicker to read]
3. Check for consistency with surrounding text [does it flow logically?]
4. Check for consistency with the data [is it factually correct?]
5. Check for consistency with the references [are they cited correctly?]

That paragraph above (\*) took exactly 6 minutes to read through, understand and then to retype, plus a few more seconds to check it again for typing errors. [Plus another minute the next day, after sleeping on it: parts 1+2, above, only]

The whole manuscript would be the equivalent of 25 such paragraphs (including the abstract).

Thus to correct the whole text would take around 3 h, including proof reading, but **not** consistency [that could take another 1-2 hours, at least].

That is why many journals recommend that a manuscript is checked by a fluent English speaker before submission. Some journals provide their own copy-editing service to improve the English.

### Another manuscript sentence from course participants:

#### Original

However, all respondents **consider** ... traditional food overwhelmed with **meet**, full of fat, prepared as grilled, roasted or fried. The **later [latter]** was particularly emphasized female participants. Also younger participants **consider** traditional food not to be particularly healthy.

#### SQ version

However, all respondents, especially female, **considered** traditional ... food to be overwhelmed with **meat**, grilled, roasted or fried, and full of fat. Also, younger participants **considered** traditional food to be not particularly healthy.

### Which tense of the verb do you use?

Generally speaking, if you are describing what you did in your experiment and its findings, then you use the simple past tense. The **active** form is OK!

[Materials and Methods]

**We sent** a spaceship to the moon to examine its composition and found that it **was** made of sugar!"

[Results]

If the results of your research are likely to be generally true then you can use the present tense.

"As the moon **is** made of sugar it **is** very likely to be able to support simple forms of life." [Discussion]

Here's an example on the use of tenses given in *Botanica Serbica* (published by Biology Faculty - Belgrade University):

"Introduction and Discussion sections may contain present tense to convey generally accepted information.

"Materials and Methods and Results are normally written in the past tense. Results and discussion can be combined."

**You can usually reword a sentence that includes the phrase: “*it is* ....” or “*it was* ...”. For example:**

“... existing references which, as it was concluded, **underestimated** the prevalence of ...”

Convert the verb past participle “underestimated” into the infinitive of the verb: to **underestimate**.

This becomes: “... existing references, which were concluded to **underestimate** the prevalence of ...”

Note that “,” has now been placed before “which”.

**Here’s some advice on the use of articles (*a, the*) - particularly difficult for Slavic language speakers.**

**Tomato** [*used as a descriptor*] juice is usually sweet.

**A tomato** [*just one - any one*] was harvested ....

**The tomato** [*that specific one*] was then ....

**Tomatoes** [*in general*] are regarded as sweet.

**Tomatoes** [*assuming they have been previously described*] were harvested ...

**The tomatoes** [*used in this experiment - specific ones (typically followed by an adjectival clause)*] were of the variety ‘Sonata’.

**Some closing remarks:**

- A frequent reason for rejecting a manuscript is that the results/ conclusions of your research are **not thought to be sufficiently novel or not substantial enough** or of **local interest only**.
- for example just repeating someone else’s work with different datasets/methods.
- Will your manuscript help to increase the journal’s **impact factor**?!
- If the referees say your manuscript is too long and needs reducing, a good way to do this is to **combine the Results and Discussion sections helps**, so you say everything only once!
- **Your written English needs to be sufficiently good** for it to be unambiguous/obvious what you are trying to say. If in doubt, when possible get a native English speaker to check your manuscript before you send it.
- **Referees will not bother to struggle reading very bad English!** However, if the English is acceptable, they will often be willing to correct for you any subtleties in the use of words (eg prepositions, and when to use ‘a’ and ‘the’).
- **Don’t assume referees are always right!**
- Just like us, they sometimes make mistakes, not reading text carefully enough or jumping to the wrong conclusions.
- **So, you don’t have to accept everything a referee says!**
- If you can provide a good counter-argument to a referee’s comment in your reply to the journal’s editor, then do so.

- Even if you can't see a reason why, accept any changes of words/style required by a referee!
- It looks better to the editor if it is clear you are responding to the referee's comments where possible.
- ❖ Remember to do your **quality control** of the manuscript before submission.
- ❖ Have you checked all the references in the text and Reference list for consistency?
- ❖ Have you followed all the journal instructions for authors?
- ❖ Have you completed all your Table and Figure legends, with enough detail for the reader to know what they show without referring to the text?
- ❖ Have you completed any conflict of interest statement where needed?
- ❖ Have you completed any ethics statement where needed?

**The review process:**

This example for **Journal of Experimental Botany** is typical.

The Editor makes the initial evaluation of the manuscript. If the topic is important and relevant to the journal readership, he/she assigns the manuscript to an Associate Editor, who oversees the review process.

Manuscripts are reviewed by two [5 asked?] independent experts in the particular area. The reviewers will make a scientific assessment and send a recommendation to Editors.

If reviewers' reports are contradictory, the Editor will either send the manuscript for a third opinion and accept the majority view, or decide to reject the manuscript.

<b>Referee Assessment</b>	
Please complete the following assessment and use these criteria in writing your report.	
	Yes No See comments
The reported results are novel	
The experiments are well designed and executed	
The manuscript is well written, clear, concise and in the <b>third person</b>	
The subject area is important and relevant to experimental botany	
Figures and tables are clear, non-repetitive and necessary	
Titles and abstracts are representative and concise	
References are adequate without being excessive	
Colour plates are essential to understanding the science	
<b>Please score the paper on a scale of 1 to 5 with 5 the highest quality or most important:</b>	
Importance of the topic	
<b>Quality of the science</b>	
<b>Overall Recommendation</b>	
Please tick the appropriate box	
Acceptable with minor revision	
Acceptable with revision	
Unacceptable as major revision required	
Unacceptable	
<b>Note: J. Exp. Bot. rejects over 70% of manuscripts submitted!</b>	

**Quality of science has to be 4 or 5 for manuscripts to succeed.**

## Examples of review comments I wrote on manuscripts - 1a:

### Review of MS 010643 by M.... and R....

At first sight this looks a carefully carried out and written up piece of research to study aspects of the mechanism of Cd uptake and complexing in durum wheat. **There is some very good science in this; it's just a shame that the hydroponics experiment didn't work!**

The authors need to repeat this aspect of the work with much lower levels of Cd in the hydroponics to be able to test the association between Cd uptake and sequestering in relation to seed levels of Cd. This may reveal differential expression of Cd-complexing polypeptides.

**Nevertheless, much of the biochemistry presented here is probably publishable in its own right, though not in relation to any genetic variation in seed Cd contents. The authors should be encouraged to consider this,** while at the same time repeating the hydroponics experiment with more realistic Cd treatments to test for genetic variation in Cd complexes.

**If it is any consolation, it is nice to see a manuscript so well presented with so few unnecessary errors.**

### Conclusion:

So, if you've carried out carefully-designed research, accounting for all the factors, then the advice given here should allow you to prepare a good quality manuscript describing your research for a top-ranking international journal.

### **Remember:**

- your research should be **looking for the truth**
- the reader of your paper needs to see clearly **that you are presenting the truth!**

**So, if your marketing strategy was effective, you should now be able to get your manuscript accepted for publication!**

Finally, for complementary advice on writing a scientific paper see:  
[http://vivovoco.astronet.ru/VV/E\\_LESSON/WRITING.HTM](http://vivovoco.astronet.ru/VV/E_LESSON/WRITING.HTM)