

Journal of Agricultural Science

Please note: the Journal now accepts electronic submissions only. Full instructions are available on the website at <http://mc.manuscriptcentral.com/jagricsci> by clicking “Instructions and Forms” then “Author Instructions”.

The Editorial Offices are pleased to offer help and advice to potential authors:

Alison Sage,
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The Journal welcomes concise papers presenting original research data or methodology from authors throughout the world. The Editors wish to continue the policy of the Journal, since its foundation in 1905, of publishing papers in all aspects of agricultural science and reflecting the considerable and continuing changes in agriculture. Plant and crop science, soil science, animal science, environmental science and the relationships between them are covered. The Editors also welcome papers relating new scientific technology or concepts in such fields as genetics, biochemistry, biophysics and molecular biology to agricultural practice. In addition, the Journal publishes critical reviews from time to time, normally by invitation, on topics of interest to its readership.

The Editors must be informed if any of the material submitted has been published elsewhere. If a paper is accepted, it must not be published elsewhere in the same form. Experiments on animals must conform to the legislation in the country where the experiments were carried out. Work based on limited experimentation will not generally be considered acceptable. Work of local interest only is not considered appropriate for an international journal.

Scripts/submission of papers. Papers, written in English, should be typed in double spacing with a margin of at least 4 cm on the left-hand side. If the paper is prepared on a word processor with necessary facilities, the lines should be numbered in the margin of each page of text.

The preferred word processing packages are Word or WordPerfect in either IBM PC or Macintosh format and the preferred graphics package is Freehand, but files from many others can be accepted. Please indicate the file

format used (e.g. TIFF, EPS, Freehand etc).

The typefaces used in electronic artwork supplied should be restricted to the Monotype, Adobe and Bitstream font libraries.

Layout and style. Authors are advised to use the format adopted in recent issues. A simple direct style of writing is preferred. Spelling should conform to that given in the *Concise Oxford Dictionary*.

Double-blind refereeing. This system of refereeing, where anonymity is preserved both for the authors and the referees, has been adopted by the Journal; therefore authors are asked to remove their names, addresses and email from the title page of the submitted manuscript. This information should be submitted as a separate file, marked ‘not for review’. Authors should give full initials and surnames. The full name and address of the institution where the research was done should be stated. Change of address may be given as a footnote. Indicate at the foot of the page the name and address to which proofs should be sent and the e-mail address.

Title page. The title should be informative but concise and should not contain abbreviations. It should name the organism studied, where relevant. Authorities for Latin names should **not** be given in the title but **should** be given at first mention in the text. A short title, not exceeding 50 characters, should be provided for the running headlines.

A summary, placed at the beginning of the text, should briefly indicate the experiments described (including year and place, as appropriate), the main results (preferably including some numerical values) and the most important conclusions. It should not repeat the wording of the title.

Text. It is usually convenient to divide the paper into 4 main sections, viz. Introduction, Materials and Methods, Results, Discussion.

Too many headings and subheadings should be avoided. The Introduction should set the work in context, present only essential background, and include a concise statement of the objectives; a detailed review of the literature is not necessary. Relevant details should be given of the experimental materials and design, and the techniques and statistical methods used. Statistical guidelines are available on request. Numerical results should be shown in the tables and not repeated in the text. Metric and SI units should be used e.g. kg/ha, mg/l. Use of % should be restricted and used only to describe relative changes in responses. Experimental details and results should be reported in the past tense. The Discussion should draw together the results, briefly relate the author's results to other work on the subject, summarise any implications and applications and give the author's conclusions. Footnotes should not be used. All abbreviations used should be fully explained at first mention. Papers should be written in the third person.

Tables must be typed on separate sheets, numbered consecutively in the same order as they are mentioned in the text. Numerical results should be displayed as means with their relevant standard errors and degrees of freedom. Normally a mean should be rounded to one-tenth of its standard error and the standard error given to one place of decimals more than the mean. The title should fully describe the contents of the Table and explain any abbreviations used in it. The Journal prefers not to have a proliferation of asterisks, superscript letters, etc. in tables; however if footnotes are necessary, the following symbols may be used in this order: * † ‡ §.

Figures should be restricted to the display of results where a large number of values are presented and interpretation would be more difficult in a Table. Figures may not reproduce the same data as Tables. Originals of Figures should be no larger than twice the final size, of good quality, and printed clearly in black on plain white paper. Lines should be bold enough to allow the Figure to be reduced to either single or double column width in the Journal. Vertical axes should be labelled vertically. A full legend, describing the Figure and giving a key to all the symbols on it, should be typed on a separate sheet. The symbols preferred are ○ ● □ ■ △ and ▲, but + and × should be avoided.

Plates may be accepted, but only if they make a definite contribution to the value of the paper. These should be submitted electronically in TIFF or EPS format if possible, in a separate file from the paper and not embedded within it; however we will accept either good quality, unmounted glossy

prints, lightly numbered in pencil on the reverse side, or transparencies, clearly marked. These should be sent to the appropriate Editorial Office along with photocopies of the prints/transparencies, which should be clearly labelled on the front with the author's name, the Figure number and details of any parts that may need cropping out. They should be numbered as part of the sequence of Figures. If several plates, or coloured photographs, are submitted the authors may be asked to contribute to the cost of reproducing them.

References. In the text, a reference should be quoted by the author's name and date in parentheses, in date order, e.g. (Jarvis 1994; Edmondson 1998). Where there are three or more authors, the first name followed by *et al.* should be used. A list of references should be given at the end of the text listing, in alphabetical order, surname of authors and initials (in capitals), year of publication (in parentheses), title of paper, name of journal in full (in italics or underlined) as in *CAB International Serials Checklist*, volume, and first and last pages of the reference; the place of publication and publisher (and Editor(s) if appropriate) for books and conferences should be included. Examples:

In text:

Jarvis (1994); Jarvis (1994a, b); Scott & Jaggard (1993); (Edmondson 1998); (Scott & Jaggard 1993; Jarvis 1994; Edmondson 1998); Ferris *et al.* (in press); (Ferris *et al.*, in press); A.B. Smith (unpublished); (A. B. Smith, unpublished); D. J. Jones (personal communication); (D. J. Jones, personal communication).

In reference list:

EDMONDSON, R. N. (1998). Trojan square and incomplete Trojan square designs for crop research. *Journal of Agricultural Science, Cambridge* **131**, 135-142.

AGREN, G. I. & BOSATTA, E. (1996). *Theoretical Ecosystem Ecology: Understanding Element Cycles*. Cambridge: Cambridge University Press.

SATTER, L. D., JUNG, H. G., VAN VUUREN, A. M. & ENGELS, F. M. (1999). Challenges in the nutrition of high-producing ruminants. In *Nutritional Ecology of Herbivores, Proceedings of the Vth International Symposium on the Nutrition of Herbivores* (Eds H. G. Jung & G. C. Fahey), pp. 609-646. Savoy, Illinois, USA: American Society of Animal Science.

SCOTT, R. K. & JAGGARD, K. W. (1993). Crop physiology and agronomy. In: *The Sugar Beet Crop: Science into Practice* (Eds D.A. Cooke & R. K. Scott), pp. 179-237. London: Chapman & Hall.

JOHANSSON, E. (1995). *Wheat grain proteins: accumulation and composition in*

breeding for improved bread-making quality. PhD thesis, The Swedish University of Agricultural Sciences, Svalöv, Sweden.

JARVIS, S. (1994). Soils and the environment. In: *Institute of Grassland and Environmental Research 1993 Annual Report*, pp. 69-76. Aberystwyth: AFRC Institute of Grassland and Environmental Research.

FERRIS, C. P., GORDON, F. J., PATTERSON, D. C., MAYNE, C. S. & KILPATRICK, D. J. (in press). The influence of dairy cow genetic merit on the direct and residual response to level of concentrate supplementation. *Journal of Agricultural Science, Cambridge*.

Authors should check that all references in the text appear at the end of the paper and vice versa, and that the names and dates correspond in the two places. The accuracy of presentation of each reference in the list should be carefully checked.

Series. The Editors do not wish to publish continuing series and will accept work divided into parts only if they consider it of advantage to the readers; the whole work must be submitted at the same time. In general, the first part must include in the Introduction the

reasons for carrying out the whole work and the final part must end with a Discussion of all the findings to show the progress made.

Mathematical models. Authors preparing papers involving complex mathematical models are advised to obtain, from the Editorial Office, notes setting out the Editors' policy on these models.

Proofs will be sent to authors to enable them to check the correctness of the typesetting and must be returned within a week. Excessive alterations due to amendments of the author's original agreed copy may be charged to the author.

Offprints The author is entitled, on request, to a pdf copy of their published article. Offprints are available for purchase at proof stage: the corresponding author will be sent an order form.

Books for review. Books should be sent to the appropriate Editorial Office.

Last updated: 12/10/2011

Style and Editorial

Please use the following style:

Dates. (e.g.) 12 April 1999; from 12 April to 22 May (but 12-18 April).

Months. Abbreviate to three letters, no stops, when necessary in Figs or Tables, e.g., May, Jun, Sep.

Years. Use (e.g.) 1997-99 or 'from 1997 to 1999' or 'between 1997 and 1999'.
For a single season use (e.g.) 1998/99.

Time. 06.30 h, GMT, BST, 4 h day.

Numbers. Avoid numerals at the beginning of a sentence; spell out or change word order if necessary.

Cardinal and ordinal numerals: spell out up to ten, but note e.g. 3rd-5th leaf stage, 6 million tonnes. Numerals before units, including time, e.g. 3 ha, 5 kg, 30 s (seconds), 20 min, 4 h, 8 days, 6 weeks, 3 months, 2 years.

Do not use commas in thousands, e.g. 2600, 23 000. Give ranges in full, e.g. 475-489.
A zero must always precede a decimal point, e.g. 0.58.

Avoid confusion with consecutive figures by spelling out the first, e.g. two 3-year-old cows. For ratios use a colon, e.g. 17:24, not a solidus.

Units. See *Units, Symbols and Abbreviations*, 4th edn (1988) (Ed. D. N. Baron). London: Royal Society of Medicine Services.
SI units are preferred.

NB. Give cation exchange capacity in mmol (+)/kg *not* mequiv. Please use g/kg, mg/kg, mg/l, µm/g, ml/l, etc. rather than % or p.p.m.
Use kg/ha, or t/ha if more than 999 kg/ha, *not* quintals.

For international units, use SI units where possible.

Use 'litres' in full after numbers where confusion could arise with the numeral l; e.g. use 5 litres/day but 5 ml/l.

Rates should be expressed by a solidus, e.g. kg/ha, 6 kg N/ha, 3 plants/m² (not 3 plants m²), 7 kg/ha per year.

Do not repeat units in lists, e.g. 3, 10, 17 and 30 °C; 20 or 30% more.

Conventions

Use % after numbers, not per cent, e.g. 7 %.

Abbreviations. All abbreviations must be explained at first mention in the text (and should not be used in the title), e.g. leaf area index (LAI), dry matter (DM), artificial insemination (AI), acid detergent fibre (ADF).

Use full stops after words cut off short of their end, e.g. Fig., Ed. Do not use stops where the last letter of the abbreviation is that of the complete word, e.g. Figs, Expt, Expts, Eqn, Eqns, Eds. At the beginning of a sentence, write in full.

Quotations. In general, use single quotes, e.g. 'headland'.

Spelling and Style. Follow *the Concise Oxford Dictionary* and, for scientific terms, the *CAB Thesaurus*, Wallingford: CAB International.

NB. Use -ize, ization endings, e.g. minimize, organization, except for words whose noun ends in -is e.g. analyse, synthesised. Use (e.g.) connection *not* connexion.

Please try to avoid using the following words:
level (use content, concentration, rate; or just omit)

elevated (to mean increased)

presently (to mean currently or at present)

parameter (to mean variable, trait, character)

population (to mean population density)

densities (to mean population density).

References. For full details, see *Instructions to Authors* page.

Papers accepted by a journal but not yet published should be given in the text as Ferris *et al.* (in press) or (Ferris *et al.*, in press) and in the reference list as

FERRIS, C. P., GORDON, F. J., PATTERSON, D. C., MAYNE, C. S. & KILPATRICK, D. J. (in press). The influence of dairy cow genetic merit on the direct and residual response to level of concentrate supplementation. *Journal of Agricultural Science, Cambridge*.

If, by the proof stage, the publication details are still not known, cite in the text as (C. P. Ferris *et al.*, unpublished) and delete from the reference list. Otherwise, give date, volume and page numbers.

Statistical Note for Authors

The *Journal of Agricultural Science* has a tradition of setting high standards regarding the statistical methods contained in its papers. Although it is impracticable to present here a comprehensive survey of acceptable statistical analyses, it is nevertheless useful to point out some common practices which have and have not found favour with the editors. In order to speed up assessment of submitted papers, authors are advised to pay particular attention to the following.

- (1) The description of the experimental designs and statistical analyses should be clear and concise. From this description, readers must be able to understand exactly how the experiment was conducted and how the data were analysed. When presenting initial numerical summaries of the experimental material (e.g. starting weights, ages) variation should be represented by ranges or standard deviations.
- (2) The favoured method of presenting experimental results is by quoting estimated values of the relevant statistics (mean values, regression coefficients, etc.), together with the appropriate standard errors of those estimates. The degrees of freedom (D.F.) on which the standard errors (S.E.) are based should also be quoted. This will usually assist the referees and the general reader in understanding the experimental procedure.
- (3) Authors should make every effort to ensure that the standard errors which are quoted are suitable for the comparisons which they wish to make. Unwarranted pooling of heterogeneous sources of variation (such as 'between' and 'within' animal) is particularly prevalent. When in doubt, authors should seek the guidance of a statistician.
- (4) Repeated measurements over time or spatial data from, for example, crop disease or competition studies often give rise to correlated data that require special methods of analysis. Usually, it will be necessary to seek specialist advice before attempting an analysis of data of this type. A standard reference book is DIGGLE, P. J., LIANG, K-Y. & ZEGER, S. L. (1994). *The Analysis of Longitudinal Data*. Oxford: Oxford University Press.
- (5) The Journal will not publish tables containing a proliferation of asterisks or other indicators of statistical significance. Although statistically appropriate tests of hypotheses are acceptable, they should be employed sparingly and with discretion. Probability values (e.g. $P < 0.01$) may be quoted in the text.
- (6) Standard statistical models should be fully described using correct terminology so that the reader can understand the techniques that were used to model the data. Normally, this will involve some discussion of the data and some explanation of the choice of statistical model used.
- (7) The uncritical and indiscriminate use of 'multiple comparison' procedures, particularly when the treatment structure provides a logical basis for testing, is inappropriate. The results of exhaustive, retrospective tests of hypotheses are not acceptable.
- (8) Authors should aim to combine the virtues of simplicity and statistical rigour in the analysis of their data. Unnecessarily complex statistical methodology should be avoided. Where more sophisticated procedures are essential, great care needs to be taken in describing the method, and adequate references should be cited.
- (9) The Journal will not normally publish routine Analysis of Variance tables used for calculating standard errors and significance tests. The underlying Analysis of Variance tables should be shown only if components of variance are of especial interest or if an unavoidably complex design has been used.
- (10) Where a statistical package is used for analysis or modelling of data, it will normally be necessary to give an explicit reference to the package and the techniques used with appropriate page numbers from the Reference Manual. With editorial agreement, novel computer code may be listed in an appendix.
- (11) Statistical models with factorial structure must normally conform to the principle that factorial interaction effects of a given order should not be included unless all lower order effects and main effects contained within those interaction effects are also included. Similarly, models with polynomial factor effects of a given degree should normally include all corresponding polynomial factor effects of a lower degree (e.g. a factor with a quadratic effect should also have a linear effect). Useful references include:
NELDER, J. A. (1994). The statistics of linear models: back to basics. *Statistics and Computing* **4**, 221-234.
BOX, G. E. P. & DRAPER, N. R. (1986). *Empirical Model-Building and Response Surfaces*. New York: John Wiley & Sons.