

Animal Science

Instructions for contributors

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Introduction

Animal Science, is published in English six times a year in two volumes. Contributions are welcomed reporting studies in all aspects of the sciences which are germane to an understanding of animals, their function and performance and their relationship to the social and physical environment. Research at the molecular, cellular, organ or system levels will be considered together with research involving whole animals, production systems and mathematical

modelling. Papers will be welcome in all relevant areas including breeding and genetics, nutrition and digestion, physiology and endocrinology, reproduction, lactation, growth, health, ethology and welfare, environment and housing, food evaluation and animal products. The approach can be experimental or theoretical provided the work has been carried out in a systematic way and, in the former case, in a way which is ethically acceptable. Articles critically re-examining published information will be considered also. Papers presenting a detailed description of a technique or of equipment will be considered. Papers in a numbered series will not be accepted unless all are presented at the same time.

A proprietary product used as a source of material in experimental comparisons should be described by the appropriate chemical name, with the trade name given in parenthesis in the **Material and methods** section only, if this is seen as helpful to readers. Authors who have worked with proprietary products, including equipment, should ensure that the manufacturers or suppliers of those products have no objections to the publication of the results in the manner intended if the products, for the purpose of experimentation, were not used in the usual recommended way.

Papers are published on the understanding that they have not been and, with the exception of the authors' abstracts, will not be published elsewhere without the editor's written permission. Authors' abstracts can be reproduced if full acknowledgement of the source is made.

Preparation of papers

The responsibility for the preparation of a paper in a form suitable for publication lies in the first place with the author. They should consult a current issue in order to make themselves familiar with the layout and style of the journal. The typographical and other conventions to be adopted are set out below.

Title. A title needs to be concise yet informative. It should:

- (a) arrest the attention of a potential reader scanning a journal or a list of titles;

- (b) provide sufficient information to allow the reader to judge the relevance of a paper to his interests and whether it will repay the effort of obtaining a copy;
- (c) incorporate key words or phrases that can be used in indexing and information retrieval;
- (d) avoid inessentials such as 'A detailed study of...'

Abstract. Every paper should have a short abstract complete in itself and understandable without reference to the paper. It will be printed at the beginning of the paper. It should state succinctly in short paragraphs the problem, the experimental methods, results and conclusions but should not be overburdened by numerical values. References should not be included. Further information on the writing of an abstract may be obtained from: **O'Connor, M. and Woodford, F. P.** 1975. *Writing scientific papers in English*. Elsevier, Amsterdam.

Keywords. Up to a maximum of five keywords selected from *CAB Thesaurus (1988)* or from an equivalent volume should be listed at the end of the Abstract.

Statistical treatment of results. A statistical guide for authors may be purchased from the Secretary of the British Society of Animal Science. The methods of statistical analysis must be indicated and sufficient statistical detail should be given to allow replication of the experiment. Where reference is made to statistical significance, the level of significance attained should normally be indicated using the following conventional standard abbreviations (which need not be defined): $P > 0.05$ for non-significance and $P < 0.05$, $P < 0.01$ and $P < 0.001$ for significance at these levels. In tables, these levels of significance should be indicated by *, ** and *** respectively. Treatment means should be given with standard errors or standard errors of differences.

Tables. These should be as simple and as few as possible. The same material should not normally be presented in tabular and graphical form. In designing tables, authors should take account of the size and shape of the pages and columns of text of *Animal Science*. Each table should be typed, preferably in double spacing, on a page separate from the main body of the text and an indication given in the text where it should be inserted. Tables should be given arabic numbering and each should have its own explanatory title which is sufficient to permit the table to be understood without reference to the text (in italics, i.e. underlined once). Column headings should be concise and units should be clearly stated using standard abbreviations. Only the first letter of the first word is in capitals. Stub-items describing the data in the rows should be indented

relative to cross-headings; where they involve printing on more than one line they should be indented in the second and subsequent lines. Sub-stub-items should also be indented. Footnotes should be used sparingly and kept brief. The reference symbols used are, in order, †, ‡, §, ||, ¶. Numbers and letters should be avoided. Asterisks should be reserved for indicating levels of significance in tables.

Figures. Diagrams should be drawn in black ink on white paper or card, or on stout tracing paper or plastic film. Photographed diagrams are also accepted. It is recommended that the width of diagram submitted should be either 150 mm or 100 mm including the legend at the side. A specimen diagram indicating minimum sizes of symbols, thicknesses of lines and spacing of dashes is shown in Figure 1. In choosing ornaments, solid symbols should be used before open, and continuous lines before dotted or dashed. **No lettering or numbering or symbols should be submitted on the figure.** Lettering inside the framework of the diagram and marginal lettering should be submitted on a fly-leaf. Photographs intended for half-tone reproduction should be on glossy paper and will be accepted by the editors only if found necessary. Colour plates are unlikely to be accepted unless the authors bear the cost. Captions for figures should be typed on a sheet of paper separate from the body of the text, and should be sufficiently detailed to allow the figure to be understood without reference to the text. An indication of where a figure should appear should be given within the text. Diagrams and plates are referred to within the text as Figure 1, etc., and the captions begin with **Figure 1**, etc.

References. Literature cited should be listed in alphabetical order of authors. Bibliographical details should be in the following order: author's name, initials, year, title of paper in English (when translated, put title in square brackets), title of journal in full, volume of journal, first and last page of paper. When abstracts are referred to, the page reference should be followed by (abstr.). A full stop should follow the 'author' even if it is an institution (or if the forename in full replaces the more usual initials). Some typical references are:

Cameron, N. D. and Curran, M. K. 1944. Selection for components of efficient lean growth rate in pigs. 2. Selection pressure applied and direct responses in a Landrace herd. *Animal Production* **59**: 263-269.

Agricultural Research Council. 1980. *The nutrient requirements of ruminant livestock*. Commonwealth Agricultural Bureaux, Slough.

Wiseman, J. 1990. Variability in the nutritive value of fats for non-ruminants. In *Feedstuff evaluation* (ed. J. Wiseman and D. J. A. Cole), pp. 214-234. Butterworths, London.

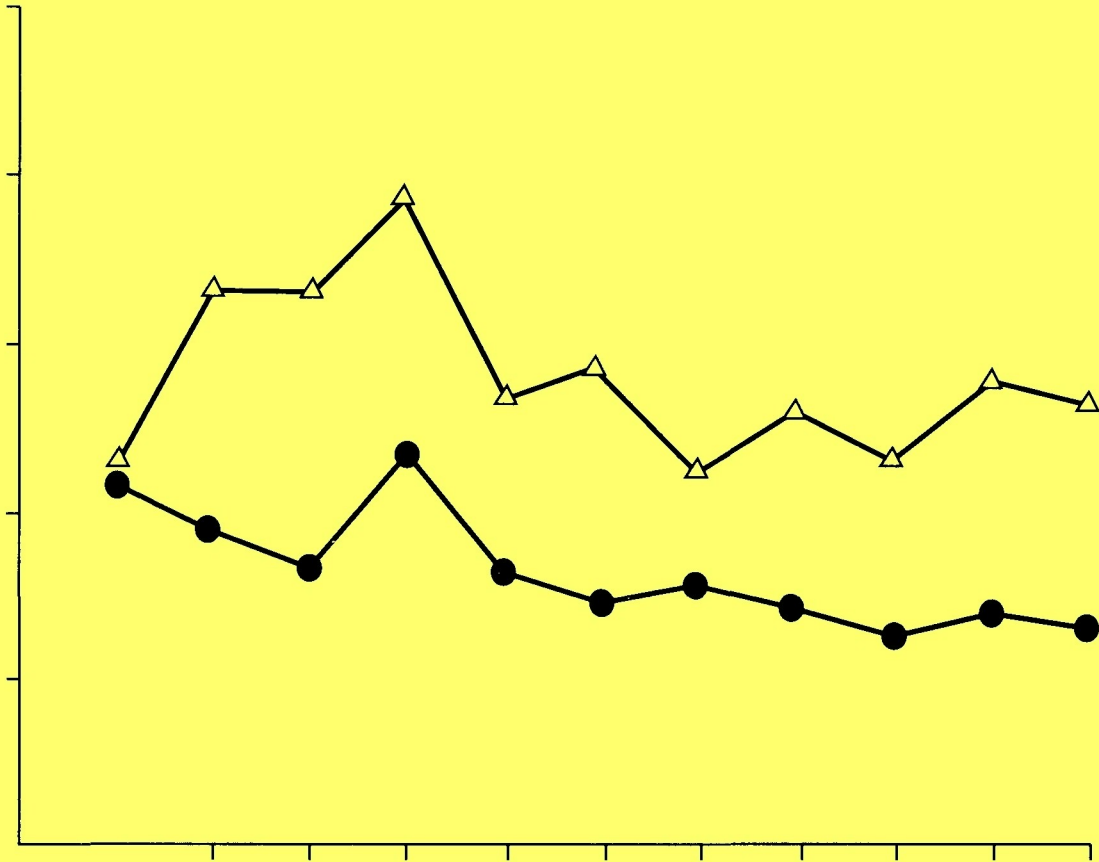


Figure 1 Recommended form of diagram for submission. Please note that there should be no numbering or lettering on the graph or the axes of the original figure. Numbers and letters should appear only on a separate page.

In the text, references should be cited by author and year. At the first mention all authors should be named; thereafter, papers with more than two authors should be referred to by *et al.* Names of organizations used as authors (e.g. Milk Marketing Board) should be written out in full in the list of references and on first mention in the text. Subsequent mentions may be abbreviated (e.g. MMB). Ampersand are not used. Multiple references should be as follows:

Wright *et al.*, 1993 and 1994; Wright *et al.*, 1993a and b.

'Personal communication' or 'unpublished results' should follow the name of the author in the text where appropriate. The author's initials but not title should be included, and such citations are not needed in the reference list. Check that all of the references in the text are in the list of references and *vice versa*.

Submission. Three copies of the manuscript, one of which must be the original, are required by the

editors. These are not returned with the proofs; authors should therefore retain a copy.

Typographical conventions and consistencies

Manuscripts should be typed or printed on one side of the papers in double-line spacing with wide margins and each page should be numbered. The lines on each page should also be numbered. The top copy should be on good-quality paper. In manuscripts, italics are denoted by single underlining (————) and bold type by a wavy line (~~~~~).

Headings

Animal Science convention is as follows.

- (a) Title of the paper is in bold with only the first letter in capitals. Authors' names are in lower case with initial capitals and their addresses are in italics. (Addresses include country names only for countries outside the United Kingdom.)

(b) *Main section headings* (**Abstract, Introduction, Material and methods, Results, Discussion, Acknowledgement(s), References**) are printed in bold throughout and placed by the left margin.

(c) *Subheadings* are italicized and only the initial letter is in capitals. The two main classes are:

- (i) side italics unpunctuated (shoulder headings);
- (ii) italics, punctuated and text run-on (side headings).

When more than two types are needed, centred italics (iii) may be used.

The sequence is always (iii) to (i) to (ii). In cases where only one type is required it is left to the editor's discretion which class is adopted.

Capitals

(a) Initial capitals are used for proper nouns for adjectives formed from proper names, for generic names, and for names of classes, orders and families.

(b) Names of diseases are not normally capitalized.

Italics

Words to be italicized should be underlined in manuscript or typescript. Use italics for:

- (a) titles of books and names of periodicals in the text and in references;
- (b) authors' addresses;
- (c) subheadings (see above);
- (d) titles for tables (but not captions for figures);
- (e) most foreign words especially Latin phrases,

e.g. *ad hoc*
ad libitum
et al.
in situ
inter alia
inter se
in vitro
per se
post mortem
post partum
vide } (adverbial)

but *no italics* for
corpus luteum
 c.f. }
 e.g. } no following comma
 i.e. }
 N.B. }
 etc., }
post-mortem
post-partum } (adjectival)
via

(f) mathematical unknowns and constants;

(g) generic and specific names;

(h) letters or numbers in the text which refer to corresponding letters or numbers in an illustration;

(i) letters used as symbols for genes or alleles e.g. *Hb^A, Tf^D* (but not chromosomes or phenotypes of blood groups, transferrins or haemoglobins, e.g. *HbAA, TfDD*);

(f) first occurrence of a special term;

(k) repeated emphasis of a special term (use cautiously);

(l) Latin names of muscles (but not of bones), e.g. *m. biceps femoris*.

Hyphens

In *numerical* expressions hyphens should be used:

(a) between the numerator and denominator of a fraction when spelled out (e.g. one-third), and in compound numbers (e.g. twenty-four);

(b) in adjectival phrases such as '3-year-old' when they precede the noun;

(c) hyphens are not used to express a range. The word 'to' as in '10 to 12' is preferable.

Temporary hyphens should be used as follows:

(a) in compound modifiers (double-barrelled adjectives or phrases used attributively) when it is necessary to avoid misunderstanding or to aid understanding, e.g. short-term trend, two-egg twins, 12-week period, all-pelleted diet;

(b) after some prefixes used temporarily (e.g. anti-oestrogenic, intra-class, non-active, pre-treatment).

Hyphens should be avoided:

(a) between the parts of a compound modifier which follows the noun modified (e.g. the wool was dirty white);

(b) between the parts of a well known open-compound noun used to modify a substantive (e.g. sodium chloride solution, examination *post mortem*);

(c) between an adverb and the objective it modifies even if they precede the noun (N.B. 'well known scientist' but 'dirty-white wool').

Permanent hyphens should be used between the parts of a compound noun (or verb) not yet acceptable as a single word. The necessity for a link between the two parts is normally indicated by the reduction of two accents to one and the fact that the compound word has a different meaning from the two words used separately. It is preferable to join up the single elements if possible without offending or misleading the eye, e.g. 'crossover' but not 'crosssection'.

Parenthesis

Parenthesis takes four main forms: (a) commas, (b) dashes, (c) round brackets and (d) square brackets. A general rule is almost impossible to formulate, but it should be noted that the 'strength' of the

parenthetical effect increases from (a) through (b) and (c) to (d). It follows therefore that (d) should be avoided if (c) will suffice, and so on. It should be noted that the distinction in emphasis between (b) and (c) is very marginal. Square brackets (d) are often used to denote material inserted by a quoter, editor or translator.

Note that a dash is differentiated from a hyphen by typing the former as two unspaced hyphens.

Quotation marks

Single quotation marks should be used around:

- (a) all direct quotations;
- (b) titles of articles and parts of books (in the text, not in list of references);
- (c) new technical terms or old terms used in a new sense.

Double quotation marks should be used around a word, title or term within a quotation.

If a quotation extends over more than one paragraph, begin each paragraph with a single quotation mark but close the quotation only at the end of the last paragraph.

Spelling

The spelling of the current edition of the *Shorter Oxford English Dictionary* (SOED, Clarendon Press, Oxford), should be used. Care should be exercised in the use of agricultural terminology that is ill-defined and of local familiarity only.

Numerals

- (a) In text, use words for numbers zero to nine and figures for higher numbers. In a series of two or more numbers use figures throughout irrespective of their magnitude.
- (b) Sentences should not, however, begin with figures.
- (c) The decimal sign between digits in a number should be a point (·).
- (d) For values less than unity, 0 should be inserted before the decimal point.
- (e) For large numbers in the text substitute '× 10ⁿ' for part of a number (e.g. 1.6 × 10⁶ for 1 600 000).
- (f) To facilitate the reading of long numbers in tables the digits should be grouped in threes about the decimal sign but no point or comma should be used.
- (g) The multiplication sign between numbers should be a cross (×).
- (h) Where figures are altered by multiplication, the multiplication factor must be clearly shown, e.g. a series of variance estimates multiplied by 10⁴ would be headed 'Variance (× 10⁴)', not × 10⁴, which would be the power necessary to reduce them to their original values.
- (i) Division of one number by another should be indicated as follows: 136/273.

- (j) Use figures whenever a number is followed by a standard unit of measurement (e.g. 100 g, 6 days, 4th week).
- (k) Use figures for dates, page numbers, class designations, fractions, expressions of time, e.g. 1 January 1995; page 5; type 2.
- (l) Dates should be given with the month written out in full in the text and with the day in figures (i.e. 12 January *not* 12th January). Single non-calendar years should be written 1994/95; periods of two calendar years as 1994-95, and of two non-calendar years as 1993/94-94/95.
- (m) For time use 24-h clock, e.g. 09.05, 13.20 h.

Units of measurement

The International System of Units (SI) should be used, with the recommendations and modifications in *Quantities, units and symbols*. 2nd ed., Royal Society, London, 1975 and *Metric units, conversion factors and nomenclature in nutritional and food sciences*. Royal Society, London, 1972—reproduced in *Proceedings of the Nutrition Society*, 31: 239-247, 1972. Day, week, month and year are not abbreviated. *Multiplication and division of units*. A product of two units should be represented as N·m and a quotient as N/m.

Concentration or composition. Composition expressed as mass per unit mass or mass per unit volume should have as denominator the unit of mass, the kilogram, or the unit of volume, the litre. Values should thus be expressed as nanograms, micrograms, milligrams or grams per kilogram or per litre. The term *content* should *not* be used for concentration or proportion.

Percentages. These must *not* be used to express concentration (see above) or the common ratios used in nutritional studies, for which decimals should be employed (e.g. digestibility should be expressed as 0.70, not 70%). In general, *the use of percentages should be avoided wherever possible*, but percentages are acceptable for whole-number attributes (e.g. mortality or reproductive events) provided the denominator warrants it.

Vitamins. All amounts of vitamins should be expressed in terms of their mass rather than in terms of international units.

Symbols and abbreviations

The following may be used without prior explanation:

- (a) *Mathematical symbols*
- smaller than <
- larger than >
- smaller than or equal to ≤
- larger than or equal to ≥
- equal to =
- not equal to ≠
- approximately equal to ≈

approaches	→	logarithm, common	\log_{10}
proportional to	\propto	natural	\log_e
infinity	∞	luteinizing hormone	LH
female	♀	maximum	max.
male	♂	melting point	m.p.
plus	+	minimum	min.
minus	-	number	no.
plus or minus	±	pregnant mare's serum	
<i>a</i> multiplied by <i>b</i>	<i>ab</i>	gonadotropin	PMSG
<i>a</i> divided by <i>b</i>	<i>a/b</i>	relative humidity	r.h.
<i>a</i> raised to the power <i>n</i>	<i>aⁿ</i>	ribonucleic acid	RNA
<i>n</i> th root of <i>a</i>	<i>a^{1/n}</i>	species (taxonomy)	sp.
mean value of <i>a</i>	\bar{a}	thyroid stimulating hormone	TSH
		versus (i.e. compared with)	<i>v.</i>

(b) *Statistical terms*

chi square	χ^2
coefficient of variation	CV
correlation	
multiple	<i>R</i>
sample coefficient	<i>r</i>
degrees of freedom	d.f.
expectation of mean square	e.m.s.
least significant difference	LSD
mean square	m.s.
non-significant	$P > 0.05$
probability	<i>P</i>
$P < 0.05$	*
$P < 0.01$	**
$P < 0.001$	***
regression coefficient	<i>b</i>
standard deviation	s.d.
standard error of difference	s.e.d.
standard error of mean	s.e.
standard error of estimate	<i>Sy,x</i> or
or residual standard	residual
deviation	s.d.
variance ratio	F

(c) *Standard abbreviations*

The following abbreviations need not be defined:

adenosine triphosphate	ATP
adrenocorticotrophic hormone	ACTH
approximate(-ly)	approx.
	or <i>ca.</i>
aqueous	aq.
boiling point	b.p.
deoxyribonucleic acid	DNA
diameter, inside	i.d.
outside	o.d.
follicle stimulating hormone	FSH
freezing point	f.p.
Greenwich Mean Time	GMT
growth hormone	GH
heritability	<i>h²</i>
international units	i.u.
live body weight (mass)	
in formulae	M

(e) *Chemical symbols*

Elements and compounds may be represented by their chemical symbols. The symbol is not followed by a full stop. The right superscript position should be used, when required, to indicate charge (e.g. Cl⁻). The mass number should be inserted as a superscript preceding the symbol for an element and the number of atoms per molecule as a subscript following it (e.g. ¹⁴N₂).

(f) *Other abbreviations*

Acronymic titles of computer languages are printed in small roman capitals and should be double underlined in the typescript.

Abbreviations should be avoided in the text unless the expression occurs very frequently. They should be given normally in full at first textual reference followed by the appropriate abbreviation in brackets. The rules for the full stops are as follows:

- (1) abbreviations in capitals have no full stops;
- (2) lower case abbreviations have full stops unless the last letter of the abbreviation is also the last letter of the word.

Nomenclature of farm animals*General*

In the **Material and methods** section, a clear definition should be given of each class of animal used in terms of species, breed (or cross), sex, age and physiological state. The agricultural function(s) of the class can often be added with advantage. This definition should precede the standard term (given in brackets) which may then be used in the Title, **Abstract, Introduction** and subsequently in the text.

*Descriptive words for use in definition**Breeds:*

Use full name (e.g. 'British Friesian' or 'Holstein-Friesian' not 'Friesian'. Consult **Mason, I. L.** 1969. *A world dictionary of livestock breeds, types and varieties* (2nd ed. Commonwealth Agricultural Bureaux, Farnham Royal) for recommended usage.

Crosses:

Show the breed constituents and sexes of respective parents. For example, a three-way cross might be:

Suffolk ♂× (Border Leicester ♂× Scottish Blackface ♀)♀.

Sex:

Male (or ♂), female (or ♀), castrated ♂ or castrated ♀. The symbols should not normally be used in the text.

Age:

- (i) Whenever possible in terms of days, weeks, months or years, as appropriate.
- (ii) In addition (or alternatively, if necessary) weight or weight range, or other size dimensions, describing the limits of the class.

Physiological state:

Growing, pregnant (or non-pregnant), lactating (or non-lactating), working, wool-producing.

Breed function:

Milk (or dairy), meat, wool, hair, work. (N.B. Avoid hyphenated terms to link different states or functions, e.g. meat-milk, pregnant-lactating, growing-fattening.)

Standard sex and age terminology

Standard terms should be as precise as possible, e.g. write 'male calf' not 'bull calf', 'pregnant cow' not 'in-calf cow'. Terms should not be used to describe a defined class where the normal meaning of the term runs counter to the defined usage, e.g. where pregnancy has been induced in 3-month-old female sheep call them 'pregnant females' not 'lambs'.

Young			Adult		
♂ and ♀	Approx. upper age limit	♂	♀	Castrated animal	
Cattle	calf	8 months	bull	cow (heifer)†	steer
Sheep	lamb	6 months	ram	ewe	wether
Goat	kid	6 months	buck	doe (goatling)†	
Pig	piglet	8 weeks	boar	sow (gilt)†	barrow
Horse	foal	12 months	stallion (colt)†	mare (filly)†	gelding
Rabbit			buck	doe	
Deer‡	calf		stag	hind	

† Alternative names for the young adult. In some instances the use is strictly defined, as for heifer to the end of the first lactation, for goatling and gilt to the end of the first pregnancy.

‡ Species must be categorized with Latin names.

Proofs

The following guidance is given by the Royal Society (see **Authoritative sources** below).

'Proofs are submitted so that authors can make sure that the printers have reproduced the typescript faithfully. Authors should not insert new matter into proofs to correct faults in the style or arrangement of their papers at this stage. Many journals quite justifiably ask authors to pay for the heavy costs of alterations made in proof that do not arise from mistakes in the setting up. However, any errors of fact or of logic that have escaped earlier notice must be corrected, even at this stage. . . .

'Authors are advised to pay particular attention to checking scientific and proper names, numerical data, formulae, tables and illustrations. Whilst printers' readers are competent in correcting proofs dealing with subjects of which they have no specialist knowledge, the ultimate responsibility for the correction rests with the author. The proofs should be compared with the original typescript, and it is helpful to have the proofs read by a colleague, since it is very difficult for an author to see mistakes in his own work.

'Marks for proof corrections are given in British Standard 5261: Part 2: 1976, *Copy preparation and proof correction*. The tables of symbols from this standard are available printed on stout card as British Standard 5261C: 1976. Corrections should be made as legibly as possible in ink, not pencil. Incorrect use of printers' symbols can be extremely misleading, and when a complicated correction has to be made it is better to write a note in the margin explaining in plain English what is wanted. Directions to the printer which are not to be set up in type should be encircled.'

Authoritative sources

The following sources are taken as authoritative in matters not covered herein.

Fowler, H. W. 1984. *A dictionary of modern English usage*. 2nd ed. Revised by Sir Ernest Gowers. Clarendon Press, Oxford.

O'Connor, M. and **Woodford, F. P.** 1975. *Writing scientific papers in English*. Elsevier, Amsterdam.

Royal Society. 1974. *General notes on the preparation of scientific papers*. 3rd ed. Royal Society, London.

American copyright protection act

Authors are required formally to transfer copyright to the British Society of Animal Science. A form for this purpose is sent to the senior author when an article is accepted and articles are not published until the completed form has been received by the editorial office. It should be made clear that signing the form does not put any limitation on the personal freedom of authors to use material contained in their article.

Submission conditions

Submission of a paper implies acceptance by the author(s) of editorial conventions and consistencies.

13th International Congress on Animal Reproduction

30 June - 4 July 1996

Sydney Convention Centre, Sydney, Australia

This major international meeting covers topics on reproduction of domestic and wild animal species, ranging from biotechnology in traditional production animals and reproduction in the 'horizon' industry species, to conservation of endangered species and control of feral pests. A scientific programme is being organised by an international panel and will feature invited plenary speakers, special symposia, workshops and free communications.

The Congress Secretary and Chairman of the Local Organising Committee is:

Dr Gareth Evans, Department of Animal Science, University of Sydney, NSW, 2006, Australia. Fax: 61 2 692 2114. Email: gareth@vetsci.su.oz.au.

Further information can be obtained from:

ICAR 96 Congress Secretariat, GPO Box 128, Sydney, NSW, 2001, Australia.

Phone: 61 2 262 2277 Fax: 61 2 262 2323.

Illustrations. The same material should not normally be presented in tables and figures. Legends should be typed on a separate sheet.

a) Diagrams should be drawn in black ink, about twice the size of the finished block, on white paper or card, stout tracing paper or plastic film. Photographed diagrams are also accepted. Lettering inside the framework of the diagram should be avoided as far as possible but if unavoidable it should be included on a fly-leaf.

b) Photographs intended for half-tone reproduction should be on glossy paper. They will be accepted only if found necessary by the editors.

c) Colour plates are unlikely to be accepted unless the authors bear the cost.

Tables should be as simple and as few as possible. Each table should be typed on a separate sheet.

Abstract. Every paper should have a short abstract (not more than 250 words) complete in itself and understandable without reference to the paper. The abstract will be printed at the beginning of the paper and preferably should be in the format of unnumbered short paragraphs.

Keywords. Up to a maximum of five keywords selected from the *CAB Thesaurus* (1988) or from an equivalent reference volume should be listed at the end of the Abstract.

References. Only papers closely related to the author's work should be referred to; exhaustive lists should be avoided. The arrangement of references should be as in recent papers in *Animal Science*; details are given in the notes for guidance.

Proofs are supplied once and must be returned corrected to the editors within 3 days. Only essential corrections should be made.

Reprints. Twenty-five reprints of each paper will be supplied free of charge to authors on request. Further copies may be purchased if the order is sent at the proof-stage.

Annual subscription is £140.00 (or \$255.00 in the USA and Canada) and the price for a single part is £24.00 (or \$43.00) net.

Abstracts of papers presented at British Society of Animal Science winter meeting are published as a separate section in the June issue of *Animal Production*.

Correspondence regarding subscriptions and sales (current and back numbers of the Journal) and any other enquiries, including those concerning copyright, should be addressed to: Durrant Periodicals, Winton Lea, Pencaitland, East Lothian, Scotland EH34 5AY.

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