

## Instructions to authors

### Submission of Manuscripts

Manuscripts written in the two official languages of ALPA (Spanish and Portuguese) and in English will be accepted. Authors should send to the Editor three copies of the manuscript, typed with double spacing and with the lines numbered at the left margin. The manuscript should be accompanied by a cover letter of intent of submission and concession of rights of authorship. If none of the authors is an active member of ALPA, a check or money order in the amount of US \$40.00 (forty dollars) should be enclosed, and this sum will be credited to the cost of publication if the manuscript is accepted.

Manuscripts should be written on letter size paper, typed with double spacing, and with the lines numbered at the left margin, and if possible, using type of Courier 10 letters. All the pages including bibliography, tables, figures and legends, should be numbered consecutively and should include in the upper right hand corner, the surname of the first author. When complimenting articles or articles of a series are submitted, they should all be sent to the Editor at the same time.

All manuscripts should be accompanied by a letter from the author responsible for publication indicating the full title and an abbreviated title (with a maximum of 45 characters, including spaces), the names of the authors, their respective institutions and postal addresses. The responsible author should also include his telephone number (and fax) and may suggest to the Editor the names of several people who might serve as external reviewers of the manuscript. The Editor will notify the author responsible for publication of receipt of the manuscript and the number that has been assigned to it.

All manuscripts submitted for possible publication in the journal should conform to the style and format herein explained, otherwise the process of both revision and publication will be unnecessarily delayed. The authors should use short and concise sentences with the verbs in active form and avoid use of the first person, unless this is absolutely necessary. The style guideline of the journal is based on the CBE Style Manual (9650 Rockville Pike, Bethesda, MD 20814, USA). For terminology employed in Pastures and Forage research it is suggested that the publication terminology for Grazing Lands and Grazing Animals (The Forage and Grazing Terminology Committee, Pocahontas Press, Blacksburg, Virginia) be consulted.

All results should be expressed using units of measure of the metric system. In the numerical values, the decimal point indicates the separation between whole numbers and fractions of numbers. When the value of the whole number

exceeds three digits, a blank space should be left to indicate this (for example, 1 234.56)

### Preparation of the Manuscript

**Title page.** The first page of the manuscript should include the title, names of the authors, institutions to which they belong and complete postal address. The institutional ranks and academic degrees of the authors should not be included. In the title of the manuscript only the first letter of each word should be capitalized, except conjunctions and prepositions. The title should be brief and descriptive and not contain abbreviations. The supplementary information that it is wished to include (present address of the author or coauthors, acknowledgements, etc.) should be placed in a footnote on the first page. The trademarks of equipment and products used and the names of manufacturers which are mentioned in the text of the publication should be included between parentheses in the text rather than in footnote.

**Subtitles.** In the text of the manuscript three types of subtitles are permitted.

**Principal subtitles.** These subtitles (Introduction, Experimental Procedures [or Materials and Methods], Results, Discussion [or Results and Discussion] and Literature Cited) should be located in the center of the corresponding lines, with the first letter of the principal words capitalized. The subtitles of review articles may depart from this general rule.

**Secondary subtitles.** These are located at the left margin in a separate line and in italics (or underlined) and without final punctuation. These subtitles are used to designate certain sections consisting of several paragraphs grouped together under the same principal title, especially if the paragraphs begin with tertiary subtitles.

**Tertiary Subtitles.** These subtitles are located at the beginning of the first line of the paragraph. They should be indented, written in italics and followed by a period. They can be used, with or without secondary subtitles, to introduce independent sections of two or three paragraphs, under the same principal subtitle.

**Abstract and Resumen.** The abstract, limited to 250 words in a single paragraph, should appear at the beginning of the manuscript. The abstract or resumen should be written in the same language as the manuscript and should indicate the objectives, general procedures and pertinent results in a clear and concise form. Not permitted are biographical citations or abbreviations that have not been previously identified nor appear in the list of common abbreviations to be mentioned subsequently.

All articles written in Spanish or Portuguese should include an abstract in English. Articles written in English should include a resúmen in either Spanish or Portuguese.

**Key words.** At the end of the abstract, a total of up to six key words that describe the research, should be cited. It is suggested that the species be included (when applicable) and the response variable(s) of greatest importance. The first letter of each key word should be capitalized and the key words separated by commas. The key words will serve as the basis for producing the index of each volume of the journal.

**Introduction.** The introduction follows the abstract and resúmen and should be short (200 to 250 words). It is to be used to justify the research and specify the objectives or the hypotheses that are to be tested. The discussion of relevant literature should be included in discussing the results and not in the introduction. In order to not lengthen the manuscript unnecessarily and avoid redundancy, it is suggested that three or four references are enough to support any concept or idea presented.

**Experimental Procedure or Materials and Methods.** It is necessary to include a clear description of all the biological, chemical and statistical procedures used, or indicate the bibliographical citation where these can be found. Any modification of the original procedures should be explained clearly and in detail. A detailed description should also be given of the diets, animals (breed, sex, age and weight), conditions of weighing (with or without restriction of feed and/or water), surgical methods, measurements taken and experiment design.

Emphasis should always be placed on biological responses. However, the use of incorrect or inadequate statistical methods to analyze and interpret the results will not be accepted. When the statistical methods employed are those that are generalized and in common use, there is no need to describe them in detail, both the references consulted should be cited. The statistical model, classification variables and experimental units should be clearly defined. A simple citation of the statistical package, without mention of the sources of variation or other characteristics of the analysis employed (for example, covariance), is not acceptable. To the extent possible, the results of similar experiments should be analyzed jointly.

The experimental unit is the smallest unit to which a treatment is applied. When animals are fed in groups, the group of animals in a corral or paddock is the experimental unit. If the authors wish to consider each individual animal within such groups as an independent experimental unit, justification for this should be included. Likewise, measurements that are taken of the same experimental unit over time are not independent and should not be considered as experimental units.

The basic assumptions of most statistical models are that the errors are normally and independently distributed and that the variance is constant. Also, most statistical procedures are based on the assumption that the experimental

units have been assigned randomly to the treatments. If the animals were stratified by weight or if some other initial measure is to be taken into account, the model should include the variable used to form the blocks or the initial measure should be included as a covariable. The term parameter is not appropriate to describe a variable of response, observation, characteristic or measure that is affected during the course of the experiment.

The common designs can easily be described by their name and size (for example, "a complete blocks design with five treatments and four blocks"). When referring to factorial arrangements an adequate description could be: "protein at 12 or 14 % and lysine at 0.8, 1.0 and 1.2% (dry basis), in a 2 x 3 factorial arrangement of treatments under a randomized complete blocks (five) design, using age as the factor for blocking". Note that the factorial arrangement is not a design. The term design refers to the method of distributing the experimental units in groups or blocks (i.e. the form of restricting the randomization).

The standard deviation refers to the variability of a population or of a sample. The standard error, that is calculated from the error variance, represents the estimated sampling error of a statistic, such as the mean. When presenting the standard deviation or the standard error, the number of degrees of freedom associated with the same should be indicated. Likewise upon presenting some statistical value (a mean or difference between means) the standard error or confidence interval should be included. The fact that given differences are not "statistically significant" is not reason for not presenting the standard error. In most cases it is sufficient to present the number of observations, the treatment means and some estimate of the experimental error, preferably the pooled standard error of the means. It usually is not necessary to present the standard error of each mean separately, unless these are based on different numbers of observations or it is desired to emphasize the heterogeneity of the variance.

In the case of more complicated experiments the inclusion of tables containing the subclass means and the analysis of variance or covariance is permitted. When the analysis of variance involves more than one error term, as is the case with split-plot designs or factorial arrangements in time, it should be clearly indicated in the text which mean square was used as the denominator in calculating the value of F. In case of unbalanced designs the method of analysis used and the means of calculating the statistical parameters should be specified.

It is recommended that, in order to pass judgement on the hypothesis set forth upon designing the experiment and for the comparison of treatment means, use be made of contrasts, preferably orthogonal ones. Multiple range tests are not appropriate when the treatments have an orthogonal arrangement and should only be used to compare the means of treatments that are unstructured and unrelated. Adjusted means should not be used, except when the design is unbalanced, part of the data have been lost or a covariable has

been employed. When factorial arrangements are used, means of the principal effects are to be included only if there are no important interactions. The means of the combinations of factors should be included in the text or in tabular form.

The terms **significant** and **highly significant** are reserved for  $P < .05$  and  $P < .01$ , respectively. It is permissible to use other levels of significance if these are properly designated, but the words significant and highly significant should be omitted so as not to confuse the readers. If the exact level of probability ( $\alpha$ ) is known it should be included, instead of  $P < .05$  or  $P < .01$ , leaving it to the reader to decide what to accept and what not. Independent of the probability level used by the authors, the acceptance or rejection of the hypothesis should be based on the relative consequences of committing a Type I or Type II error. A not significant relationship or effect does not always imply the absence of such a relationship or effect. A limited number of experimental units or inadequate control of the variability may seriously reduce the effectiveness of detecting such relationships. The use of  $P > .05$  to indicate nonsignificance should be avoided, since this can be interpreted as the possibility of a beta type rather than an alpha type error.

The numerical data included should be logical and undisputable. A practical rule is to round the values in such a way that the change produced by rounding is inferior to 10% of the standard error. This rounding increases the variance of the informed value by less than 1%, so that less than 1% of the relevant information contained in the data is sacrificed. In most cases two or three significant figures (not decimal places) are sufficient.

**Results.** The results may be presented alone or in combination with the discussion. To the extent possible, they should be presented in tabular form. In the text it is appropriate to explain and deepen the insights presented in the results, rather than merely repeating unnecessarily numerical data that appear in the tables. A sufficient quantity of information should be included to enable the reader to interpret the results of the experiment. The use of standardized abbreviations is discussed subsequently.

**Discussion.** The discussion, which may be presented in combination with the results, should interpret the results in a clear and concise manner in terms of underlying biological mechanisms, integrating information published in the scientific literature. This permits the reader to interpret the results of the experiment and to possess an ample basis on which to accept or reject the hypotheses that were set forth. At the end of the discussion a small paragraph should be included, giving the principal conclusions to be derived from the research and, if warranted, some recommendations or practical implication.

**Appendices.** It is Permissible to include appendices for the purpose of illuminating the reader with a numerical example that helps to clarify a procedure or analytical method that was used, provided that the same is new or uncommon. However, if the supplementary information is of interest to

only a limited number of readers, it is preferable to indicate that the supplementary material is available upon request of the interested party rather than to include an appendix. In the manuscript, the appendix such be placed after Literature Cited, headed by a principal subtitle. Bibliographic citations. In the text. The published literature to which reference is made in the text can be included in two different ways: 1) "Stobbs (1975) and Lascano et al. (1985) have shown that during the dry season the gain in weight of animals grazing associations is greater". 2) "The gain in weight of animals grazing associations is greater, particularly during the dry season" (Stobbs, 1975; Lascano et al., 1985).

When two or more citations are included in the same sentence, the citations are arranged in chronological order. Citations that have the same year of publication are arranged in alphabetical order. When the citation has only one or two authors, the surname(s) and year of publication are included. If there are three or more authors of the publication cited, only the surname of the first author is included followed by et al. and the year (for example, Lascano et al., 1985). If the same author(s) have more than one publication with different dates, these can be cited together in the text (Jones, 1984, 1986). If two different bibliographical citations are abbreviated in the same way in the text, a letter should be placed after the date in order to distinguish between them, both in the text and in the Literature Cited. Unpublished literature is cited in the text only, in the following manner: ... according to M. Ruiz (personal communication);... (M. Ruiz, personal communication). Literature Cited. It is recommended that a minimum number of references be included in the manuscript, selecting only those that are most pertinent and most recent. Generally, three references are more than enough to document one specific concept. The bibliographical references are cited in strict alphabetical order, beginning with the surname of the first author followed by the initial(s) of his name(s). If all the authors are identical in two or more references, the date of publication will decide their ordering in the final list. If it should happen that there are two or more articles by the same authors and published in the same year, they will be included in the list of references according to alphabetical order of the titles of the articles, adding a small case letter as suffix (for example, 1991a). In the titles of scientific articles, only the first letter and proper names are capitalized and only the number of the first page is indicated. If the pages of the scientific journal in which it is published are numbered separately in each number instead of per volume, the identity of the number should be indicated (or the month of publication) in parentheses following the number of the volume. When books are cited, the first letter of the principal words are capitalized and the number of pages is not included. When only one chapter or one section of a book is cited, the number of the first page should be included. When an abstract or resumen is cited this should always be indicated. Articles that have been submitted for publication but have not yet been accepted may not be cited. Manuscripts that have been accepted for publication may be

included in the list of references, indicating the journal in which they are to appear followed by the words "in press" in parentheses. Articles published in magazines that are not considered scientific or have no editorial board should not be included as references. Several examples are given as follows:

- AOAC. 1990. Official Methods of Analyses (15th. Ed.). Association of Official Analytical Chemists. Arlington, Virginia.
- Goering, H. K., and P. J. Van Soest. 1970. Forage fiber analyses (apparatus, reagents, procedures and some applications). Agric. Handbook No. 379 ARS, USDA, Washington, D.C.
- Herrera, R. S. 1983. La Calidad de los Pastos. En: Ugarte, J., R. S. Herrera, R. Ruíz, R. García, C. M. Márquez y A. Senra (Ed.). Los Pastos de Cuba, Tomo 11. Instituto de Ciencia Animal. La Habana, Cuba. p. 59.
- Klopfenstein, T. 1978. Chemical treatment of crop residues. *J. Anim. Sci.* 46:841.
- NRC. 1988. Nutrient Requirements of Swine (9th. Ed.). National Academy Press. Washington, D.C.
- Owen, E. 1978. Processing of roughages. In: Haresign, W., and D. Lewis (Ed.). Recent Advances in Animal Nutrition. Butterworths, London.
- Quiroga, E. J. y J. M. Farías. 1983. Efecto del estado de madurez al corte sobre la cantidad de proteína lignificada de los forrajes. *ALPA Mem.* 20:161 (Resumen).
- Riquelme, E., and G. Rojas. 1980. In vitro digestibility of sesame straw as affected by chemical treatment and protein levels and/or sources. *J. Anim. Sci.* 5t (Supplement 1):342 (Abstr.).
- SAS. 1988. SAS/STAT User's Guide (Release 6.03). SAS Inst., Inc., Cary, North Carolina.
- Suárez, M., J. Herrera, A. Pró y M. Cuca. 1985. Interacción genotipo x ambiente en líneas comerciales de pollos de engorda. *ALPA Mem.* 20:165.
- Steel, R. G. D. and J. H. Torrie. 1980. Principles and Procedures of Statistics: A Biometrical Approach (2nd. Ed.). McGraw Hill Book Co., New York.
- Tilley, J. M. A. and R. A. Terry. 1963. A two stage technique for the in vitro digestion of forage crops. *J. Br. Grassl. Soc.* 18:104.

#### Abbreviations of Scientific Journals Frequently Cited.

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Acta Agric. Scand.  
Acta Endocrinol.  
Adv. Agron.  
Adv. Appl. Microbiol.  
Adv. Genet.  
Adv. Lipid Res.  
Adv. Protein Chem.  
Agric. Eng.  
Agric. Téc.  
Agrociencia  
Agron. J.

ALPA Mem.  
Am. J. Clin. Nutr.  
Am. J. Pathol.  
Am. J. Physiol.  
Am. J. Vet. Res.  
Anal. Biochem.  
Anal. Chem.  
Anim. Behav.  
Anim. Breed. Abstr.  
Anim. Feed Sci. Technol.  
Anim. Prod.  
Annu. Rev. Biochem.  
Annu. Rev. Pharmac. Toxicol.  
Annu. Rev. Physiol.  
Appl. Environ. Microbiol.  
Appl. Microbiol.  
Arch. Biochem. Biophys.  
Arch. Latinoam. Nutr.  
Arch. Latinoam. Prod. Anim.  
Aust. J. Agric. Res.  
Aust. J. Biol. Sci.  
Aust. J. Exp. Agric. Anim. Husb.  
Biochem. J.  
Biochemistry  
Bochem. Biophys. Acta  
Biol. Reprod.  
Biometrics  
Br. J. Nutr.  
Br. Vet. J.  
Can. J. Anim. Sci.  
Chapingo  
Clin. Toxic.  
Comp. Biochem. Physiol.  
Domest. Anim. Endocrinol.  
Endocrinology  
Eur. Assoc. Anim. Prod. Publ.  
Fed. Proc.  
Feedstuffs  
Food Res.  
Food Technol.  
Genetics  
Growth  
Horm. Behav. Immunology  
Ir. J. Agric. Res.  
J. Agric. Food Chem.  
J. Agric. Sci.  
J. Agric. Univ. P. R.  
J. Am. Vet. Med. Assoc.  
J. Anim. Physiol. Anim. Nutr.  
J. Anim. Sci.  
J. Assoc. Off. Anal. Chem.  
J. Br. Grassl. Soc.  
J. Clin. Endocrinol. Metab.  
J. Dairy Sci.  
J. Hered.  
J. Nutr.

J. Nutr. Biochem.  
 J. Physiol. (London)  
 J. Physiol. (Paris)  
 J. Range Manage.  
 J. Reprod. Fertil.  
 J. Sci. Food Agric.  
 Lab. Anim.  
 Lipids  
 Livest. Prod. Sci.  
 Meat Sci.  
 Metabolism  
 Methods Enzimol.  
 N. Engl. J. Med.  
 N. Z. J. Agric. Res.  
 Nature (London)  
 Nature (Paris)  
 Neth. J. Agric. Res.  
 Nutr. Abstr. Rev.  
 Nutr. Metab.  
 Nutr. Rep. Int.  
 Nutr. Res.  
 Pharmacol. Rev.  
 Physiol. Rev.  
 Poult. Sci.  
 Proc. N.Z. Grassi. Assoc.  
 Proc. Nutr. Soc.  
 Proc. Soc. Exp. Biol. Med.  
 Proc. West. Sect. Amer. Soc. Anim. Sci.  
 Q. J. Exp. Physiol.  
 Rev. Asoc. Mex. Prod. Anim.  
 Rev. Cubana Cienc. Agric.  
 S. Afr. J. Anim. Sci.  
 Science  
 Steroids  
 Téc. Pec.  
 Theriogenology  
 Toxicol. Appl. Pharmacol.  
 Veterinaria  
 Vet. Res.  
 Vet. Res. Commun.  
 World Anim. Rev.

#### Other Abbreviations.

Asoc.	Asociación
Assoc.	Association
Bol.	Boletín
Bull.	Bulletin
Circ.	Circular
Coll.	College
Conf.	Conferencia
Ed.	Editor(es)
Edigdo(es)	Edition(s)
Est.	Estación
Exp.	Experimento, Experimental
Ext.	Extensión
Inf.	Informe

Inst.	Instituto
Misc.	Misceláneo
Monogr.	Monografía
Nac.	Nacional
Natl.	National
Publ.	Publicación
Rep.	Report
Simp.	Simposio
Sta.	Station
Sup.	Suplemento
Suppl.	Supplement
Symp.	Symposium
Tec.	Técnico(a)
Tech.	Technical
Univ.	Universidad
Vol.	Volume

**Abbreviations of Words.** It is to be preferred that authors not use abbreviations or acronyms of their own invention. In case their use is necessary, all those abbreviations that do not appear in the list to follow, should be defined in the abstract and again the first time that they are used in the text. Abbreviations are not permitted in the titles, table headings or subtitles. A sentence may not begin with an abbreviation, symbol or acronym. It is not necessary to define the symbols of the chemical elements.

The abbreviations of units of measure are permitted when used immediately after a number. Units of measure are not abbreviated when they follow a quantity that is written out completely or at the beginning of a sentence. All abbreviations of units of measure are written in the singular, even though they refer to a plural (for example, kcal not kcals). The form (plural or singular) is indicated by the verb used.

The following is a list of abbreviations that need not be defined in the text:

#### Physical Units.

°C	degrees Celsius
cal	calorie
ci	Curie
Da	Dalton
dpm	Disintegrations per minute
g	gram
ha	hectare
J	Joule
L	liter
lx	lux
m	meter
M	molar (concentration)
mol	mole
N	normal (concentration)
n	number (of observations)
Pa	Pascal
ppm	parts per million
T	ton (metric)
W	watt

<b>Prefixes.</b>			
G	giga (x 10 <sup>9</sup> )	EE	ether extract
m	mega (x 10 <sup>6</sup> )	ME	metabolizable energy
K	kilo (x 10 <sup>3</sup> )	ME <sub>n</sub>	metabolizable energy corrected for nitrogen balance
H	hecto (x 10 <sup>2</sup> )	NE	net energy
D	deca (x 10)	NE <sub>g</sub>	net energy for weight gain
d	deci (x 10 <sup>-1</sup> )	NE <sub>l</sub>	net energy for lactation
c	centi (x 10 <sup>-2</sup> )	NE <sub>m</sub>	net energy for maintenance
m	mili (x 10 <sup>-3</sup> )	NE <sub>p</sub>	net energy for production
μ	micro (x 10 <sup>-6</sup> )	NE <sub>(m+p)</sub>	net energy for maintenance and production
n	nano (x 10 <sup>-9</sup> )	Exp.	experiment (should always be followed by a number)
p	Pico (x 10 <sup>-12</sup> )	CF	crude fiber
f	femto (x 10 <sup>-15</sup> )	FSH	follicle stimulating hormone
<b>Units of Time.</b>		GLC	gas-liquid chromatography
s	second	GLM	general linear model
m	minute	GNRH	gonadotrophin releasing hormone
h	hour	HCG	human chorionic gonadotrophin
d	day	HPLC	high pressure liquid chromatography
wk	week	i.m.	intramuscular
Mo	month	i.p.	intraperitoneal
Yr	year	i.v.	intravenous
<b>Others.</b>		IR	infrared
AA	amino acids	L	lignin
IAA	indispensable amino acids	LD <sub>50</sub>	lethal dose (50%)
ACTH	adrenocorticotrophin	LH	luteinizing hormone
ADIA	acid detergent insoluble ash	LHRH	luteinizing hormone releasing hormone
ADF	acid detergent ' fiber	DM	dry matter
ADIN	acid detergent insoluble nitrogen	OM	organic matter
ADP	adenosine-diphosphate	TND	total digestible nutrients
ANOVA	analysis of variance	NIRS	near infrared reflectance spectroscopy
IFA	indispensable fatty acids	p	probability
VFA	volatile fatty acids	(w/w)	weight/weight
NEFA	nonesterified fatty acids	(w/v)	weight/volume
USFA	unsaturated fatty acids	PAGE	polyacrylamide gel electrophoresis
ATP	adenosine triphosphate	CP	crude protein
BSA	bovine serum albumin	PBS	phosphate buffer solution
DMI	dry matter intake	DP	digestible protein
cv	coefficient de variation	BW	body weight
e. d.	external diameter	W <sup>0.75</sup>	metabolic weight
i.d.	internal diameter	r	coefficient of correlation
IVDMD	in vitro dry matter digestibility	r <sup>2</sup>	coefficient of determination (simple)
DMD	dry matter digestibility	R <sup>2</sup>	coefficient of determination (multiple)
msd	minimum significant difference	RIA	radio immunoassay
DNA	desoxyribonucleic acid	RNA	ribonucleic acid
GE	gross energy	rpm	revolutions per minute
EBV	estimated breeding value	S. C.	subcutaneous
DE	digestible energy		
EDTA	ethylene diamine tetra acetic acid		

SD	standard deviation
SDS	sodium dodecil (lauryl) sulphate
SE	standard error
SEM	standard error of the means
sp.	species
spp.	species
TLC	thin layer chromatography
UV	ultraviolet
vis	visible spectrum
Vol	volume
(vol/w)	volume/weight
(vol/vol)	volume/volume
Vs	versus
*	multiplied by or crossed with
x	mean

**Tables.** As far as possible the tables should be designed to fit within the width of the page without the need of changing to lengthwise orientation. Each table should occupy an individual page, should be numbered consecutively with Arabic numerals and inserted into the manuscript immediately after Literature Cited.

The titles of the tables should be concise but descriptive of the contents. Except for proper names and abbreviations and acronyms (in parentheses) which are normally written with capitals, only the first letter of table and the title are capitalized. A period should not be placed at the end of the title. The body of the table should be double spaced. Each column should be identified and only the first letter of the heading capitalized.

In the body of the table a zero should not be placed to the left of the decimal point. If a datum was not obtained, a dash, should be put in its place. It is also permissible to use ND (not determined) and a brief explanation at the foot of the table. If reference is made to an explanation that is placed at the foot of the table, said reference(s) will be referred to by means of numerical superscripts in the following order: (1) title, (2) column headings, (3) row headings, and (4) body of the table. The superindicators \*, \*\*, and \*\*\* do not require explanation and will be used exclusively to indicate the level of significance ( $P < .05$ ,  $P < .01$  and  $P < .001$ , respectively). Vertical lines are not to be used in the tables unless their use is indispensable to avoid confusing regarding what the data represent.

It is recommended that a column giving the standard error of the means be included. If the variances are not homogeneous (experiments not balanced or with different numbers of observations per mean), the mean can be given along with its standard deviation preceded by the sign  $\pm$ . When a system comparing individual means is used, the preferred explanation at the foot of the table is "Means in the same column (row) not having a superscript in common are different ( $P < .05$ )"; it being permissible to specify another value of  $P$ .

**Figures.** The figures should be prepared with thick lines and the text and legends should be written in indelible ink or same other medium such that the original or a photograph of the original can be clearly reproduced. The use of graphs and figures made by computer is permitted provided that a laser printer is used. Since most of the figures will have to be photo reduced to make them fit the size of the journal, the authors should make sure that the thickness of the lines as well as the size of the letters permit such reduction without loss of legibility.

In preparing the figures, symbols and lines that are clearly discernible should be used. The symbols and abbreviations used in the figures should be explained in the figure itself or in its legend. All abbreviations should follow the same style as in the text and in the tables. A zero should not be placed to the left of the decimal point. The units on the axes should not be within parentheses. When the units are included after some word or phrase, they should be preceded by a comma. It is not permissible to include typed text in the figures and color photographs can not be accepted. If microphotographs are included the number of times of magnification should be indicated (including the enlargement from the negative to the final photograph). The photographs that are submitted should be in black and white and printed on glossy paper of high contrast. If two or more figures or photographs are presented together, they should be positioned carefully and identified (1a, 1b, 1c, etc.). With respect to both figures and photographs the acceptable dimensions are 7.5 x 5 cm and 16 x 10.5 cm.

Each figure should be identified on the back with the number of the figure and the surname of the first author of the publication. The legends of the figures should be written on a separate page, indicating clearly to which figure they belong.

#### Miscellaneous Instructions

1. The decimal metric system is to be used exclusively. The period has been adopted to separate the whole numbers and the decimals.
2. When making reference to percentages, the symbol (%) is used after a number and is preceded by a space. If the number comes at the beginning of a sentence and must be written in words, the word percent should also be written instead of using the symbol. The word percent always follows a number. When there is no preceding number, the words to use are "percentage of".
3. In the text, the words "Table" and "Figure" begin with a capital letter only when reference is made to one of them in particular. Arabic numerals should be used to designate tables, figures, experiments, diets, etc. Terms such as experiment, group, diet, treatment, etc. are capitalized and followed by an Arabic numeral when reference is made to one of them in particular. The word "experiment" should be abbreviated (Exp.) when it proceeds a number, except in titles, subtitles and at the beginning of a sentence.

4. Redundancy should be avoided when pointing out significant differences. That means that the word significant should not be used together with the level of probability.
5. In nutrition experiments, the preferred measure of efficiency is the quotient of gain in weight over feed consumed (gain/intake). This method of expressing efficiency avoids values of infinity (positive or negative) when there is no weight gain or when the gain is negative. Since the efficiency (gain/intake) depends on the rate of gain, the slope of the regression (increment in weight gain, additional unit of feed) can be included in addition to the value of efficiency. To avoid decimal figures, the value of gain/intake can be expressed as gain (g)/intake (kg).
6. A sentence should not begin with a number. Another expression should be used or the number, and its corresponding unitage, spelled out.
7. Each time a number less than 10 and not followed by a unit of measure is mentioned, the number should be spelled out (for example: four animals, 14 diets, two seasons, etc.) If a series of similar elements, that includes numbers both larger and smaller than 10, is mentioned, all should be in the form of numerals.
8. The units of measure that proceed or follow a numerical value should always be abbreviated, except when they begin a sentence.
9. It is not acceptable to use more than one oblique line (/) to indicate division (g/d, mg/(gd) or  $\text{mg g}^{-1} \text{d}^{-1}$ ).
10. The term md/dl should be used instead of mg%.
11. The time of day should be indicated in terms of 24h (14: 10 instead of 2: 10 P. M.).
12. When tabulating data on growth or feed consumption, the values should be expressed on the basis of daily mean per animal.
13. Use of the term monogastric is not permitted. The accepted term is "nonruminant".
14. The scientific names of plants and animals should be in italics or underlined.
15. The word diet refers to some feed or mixture of feeds. The word ration refers to the daily amount provided.
16. The use of phrases that add nothing to the text should be avoided (examples: "it is interesting to note that"). Also an effort should be made to avoid the use of strictly regional words.
17. In conclusions, the use of personal opinions not supported by the data presented, should be avoided. The suggestion or recommendation to continue research on the subject is not a conclusion.