

Instructions to authors

The Cuban Journal of Agricultural Science is a publication of the Institute of Animal Science from the Ministry of Higher Education of the Republic of Cuba. It appears quarterly and comprises the following topics in the agricultural field: Applied Mathematics, Economics, Animal Genetics, Animal Science (Physiology, Nutrition and Management of Ruminants and Monogastrics, Microbiology, Biotechnology, Dairy, Beef and Small Livestock), Pastures and Forages, Rural Development, Environment, Sustainable Agricultural Systems, Production Systems, Knowledge Transaction, Technology Transfer, Technology Innovation and Extensionism. It was founded in 1967. It is an impact and mainstream journal. It also appears in numerous international indices and has received the category of Certified Journal by the Academy of Sciences of Cuba.

It publishes unedited and original articles written by researchers and professors from research centers and universities in the country and abroad, with emphasis on the problems of the tropical and subtropical areas. All specialists fulfilling these requirements are invited to send their contributions. The decision of accepting or rejecting the articles is the responsibility of the Editorial Board and it is unappealable. The articles should present contributions to the scientific knowledge, written in English or Spanish using clear, accurate, concise and fluid language to allow their interpretation and understanding. The article should be typewritten in paper format A4, in Times New Roman of letter size 12, margins of 2.5 cm, enumerated pages and lines, 1.5 space between lines. The articles will be submitted to a double blind review process by triplicate.

Three printed copies and one floppy disk will be sent for the publication of the papers in format Microsoft Word (.DOC) and a formal letter manifesting the authorization for publishing the article of the authors and the coauthors. It is recommended to use postal or electronic mail for a safe and fast delivery. All the correspondence should be sent to:

Editor in Chief

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The right of publication and copy of the article is attributed to the Cuban Journal of Agricultural Science with the purpose of spreading the scientific knowledge.

The articles that do not fulfill these instructions will not be accepted.

Our journal will publish articles of reviews, researches and technical notes. In the necessary cases, the Letter of the Editor may be published, as well as synopsis of books that will appear as Book Review throughout a year. The book will form part of the bibliographic stock of the Institute of Animal Science.

Research paper

It reports results that make contribution to scientific or technological knowledge, using an experimental design, statistical analysis and a deep discussion of the results supported by updated scientific literature. It will include the following parts:

Title: It reflects the content of the paper or the main results. It should be short, accurate and concise to catch the reader's interest. Do not use abbreviations and the scientific name of the species should always be accompanied by the common name between parenthesis.

Author(s): The names and last names of all the authors should be mentioned, as well as those of the coauthors as follow: the initials of the names and the full last name (Ex: R.F. Fernández) of the male authors and the full first name, the initial of the second

name and the last name (Ex: María R. Acosta) of the female authors. Remember that the authors and coauthors are those that participate directly in the design, performance, analysis and writing of the paper.

Affiliation: The complete name and postal and electronic address of the affiliation of every author should be included. In order to differentiate them, put a number in the form of a superscript at the end of the last name of every author and refer to it at the beginning of every affiliation.

Abstract: This section is highly consulted. It should not exceed 250 words in extension and it will be formed by: the objectives of the paper, the design and the experimental method, the main results that support the objectives and the conclusions. Do not use abbreviations, references or adjectives. Offer the largest possible amount of numerical data.

Key words: They designate and identify the aspects of greatest importance in the paper. They serve to locate the information of interest and elaborate databases and indices of thematics. It is recommended not to use the words of the title. At most, five key words should be provided.

Introduction: In this section, there should be a short and concise explanation of the need and importance of the research and the objective of the paper will be clearly stated. Use only the necessary bibliography because most of it should be included in the discussion of the results.

Materials and Methods: It will offer the information needed to reproduce the research. The use of subheadings (treatments, experimental design and procedure) is suggested. The experimental design, the statistical analysis, the sampling systems and methods, the analytical methods and procedure, accompanied by the bibliographical citations, should be reported. The technical modifications and the procedures will be explained in a detailed form.

Results and Discussion: One or two sections will be presented according to the interest of the author. The results may be reported by tables and figures that will be inserted in the text after the paragraph in which they are named the first time. They should be

numbered consecutively according to the order in which they are cited. The figures should not duplicate the data in the tables. If a chart is included, it should be of simple structure and easy understanding. In the Discussion, the results attained should be explained in a clear, precise and direct form and the biological mechanisms will be stated, as well as their possible effects related to the results. They will be supported by the correspondent updated bibliography. The discussion will finish with the conclusions according to the purposes of the research. The greatest possible amount of updated references should be used, especially those from the last five years. For supporting one statement, do not exceed too much in the number of citations. If the citation has two authors, write both last names and the year of publication (for instance: Gutiérrez 2004 and González and Hernández 2004). If there are three authors or more, the last name of the first author will be used with the words *et al.*, followed by the year of publication (for instance: Pérez *et al.* 2004). In the text, the references are ordered chronologically (for instance: Martínez 1998 and Ortega *et al.* 2003), but if the years coincide, the citation will be order alphabetically (for instance: Álvarez 2002 and Núñez 2002). If the same authors and the year of publication coincide, the citations will be differentiated by letters after the year (for instance: Serrano *et al.* 2001a and Serrano *et al.* 2001 b and Valdés 2001a and Valdés 2001b). The letter after the year should also appear in the list of references at the end of the paper.

Acknowledgements: The author may recognize briefly the work of people and institutions that collaborated in the research.

References: They will appear at the end of the paper and they will be ordered alphabetically according to the last name of the first author. In case there is coincidence, the second author should be used and so forth.

Paper extension: It should not exceed 12 typewritten paper sheets.

Review article

The review articles are compilation studies on any subject to gather, analyze and discuss informations previously published and recommendations may be expressed for further strategies on the area under study. They will contain the following parts:

Title, authors and affiliation: They will be structured as in the research paper.

Abstract: It will contain from 250 to 500 words and report the objective and importance of the article.

Key words: They will be included as in the research paper.

Content of the review: subheadings, tables and figures should be included to facilitate its understanding. The information will be compiled and a critical analysis should be performed supported by the use of bibliographical references.

Conclusions: This section will include the conclusions of the analysis reported.

References: They will be included as in the research paper.

Extension: This article should not exceed 16 typewritten paper sheets.

Technical Notes

They should present a) description of a new feed for animals, a recent creation of an equipment, a new species, crossbred or plant hybrid and technology transfer, b) synthesis of patents or technologies, c) substitution of raw materials or common or specialized chemical reagents, d) achievements of the research centers and universities, e) preliminary studies of new breeds, crossbreeds and procedures of selection criteria and f) other aspects of scientific and technological interest.

The technical note does not require to be written divided in sections, it should be structured as follows:

Title, author and affiliation: They will be structured as in the research paper.

Abstract: It will be of 150 words making emphasis on the objective, the results and the conclusions.

The subheadings Introduction, Materials and Methods and Results and Discussion will not appear. These sections should be written all together, not divided in headings.

The Introduction should be brief and its aim is to highlight the objective of the paper and its relation with the present scientific development. Afterwards, the Materials and

Methods should be included emphasizing on the procedure. Then, the Results and Discussion should be presented clearly and concisely, with, at most, two tables or figures. No more than 10 bibliographical citations should be used. The conclusions will appear at the end of the Discussion. The objectives of this paper are its originality and synthesis.

References: Proceed as in the case of the research article

Extension: This article should not exceed 6 typewritten paper sheets.

General Norms

The authors should take into account the following aspects when writing the papers.

Writing. Use clear, direct and precise language and the passive voice to show impersonality. Avoid adjectives and other terms that are not recognized in the scientific language such as regional words. Use full sentences and not clauses.

Tables. They should have the smallest possible number of rows and columns. Do not use abbreviations for the treatments, but a simple description of them (for instance, do not write Treatment A, B, but control and 100 kg of N instead). The average values should be accompanied by the correspondent statistics, the standard error and the significance. If transformations are used, the value transformed and the original between parenthesis should appear. Letters as superscripts should be used to show the differences between the means and the comparison test used should be noted at the foot of the table. Use asterisks to denote the significance (for instance, * $P < 0.05$, ** $P < 0.01$ and *** $P < 0.001$). If you need to highlight something in the table, use other symbol different to the asterisk. The number of the table in the order and its title should appear at the top of the table. Tables of analysis of variance will only be accepted in the cases required for the interpretation of the results.

Figures. They should contain the smallest possible number of curves. The data in the tables should not be repeated. When the regressions are reported, the dispersion points should be denoted. An adequate scale should be used. A table of values should be annexed to the figure for its reproduction. The number of the figure in the order and its

title should be written at the bottom. Use only black color for the figures and symbols for the plotting points (squares, triangles, circles).

Photographs and images. They are accepted only in the cases in which they are necessary for the understanding of the results. They should have an optimum quality, good contrast and they should be in black and white. Their location in the text should be marked. They should be in format (.TIF) or (.BMP) in image files.

Diagrams. They are only accepted in the cases in which they are needed for the understanding of the procedure or the results. In the case of non-classical diagrams, the author should accompany an explanation.

Nomenclature. The references in the titles of the articles and the first mention to in the text or in the abstract to the animal or plant species (except domestic animals or crops) will be provided with the scientific names followed by the name of the author. The names of the authors should be cited completely, with the exception of Linnaeus (L) and Fabricius (F), according to the International Codes of Zoological and Botanical Nomenclature. The common names, if internationally used, may also be included. The species may be cited by their generic name when another species of the same genus is not mentioned in the article. In such case, the initial of the generic name and the full specific name may be used, (for instance, *L. leucocephala*). The scientific names of animals, plants and microorganisms, as well as the words in Latin should always be written in italics (for instance, *Leucaena leucocephala*, *Heteropsylla cubana*, *Lactobacillus rhamnosus*, *in vitro* and *in vivo*).

References. This is an indicator of the quality of the research paper. They should be updated. The largest amount of them should be used in the Discussion section and they may include scientific journals, books, theses, congresses, symposiums, technical reports and electronic documents. In the text, the smallest amount of citations to the author of the paper is recommended, as well as those of the same publication, of unpublished data and personal communications. If the two later are necessary, that is, in the case of known personalities in the subject matter, they will only be mentioned in the text (for instance, A. Pérez 2004, unpublished data and P. Hernández 2004, personal communication) and they do not appear in the list of references. Avoid the use

of references cited by other authors (for instance, Pérez 2001, cited by Juárez 2004). References that are in the process of edition or in press are not accepted and references of non-scientific publications should not be cited. In the list of references, they should be ordered alphabetically starting by the last name of the first author. If there is a coincidence of more than one author with the same last name, the second author will be used and so forth (for instance Crespo, G. & Fraga, S. 2002. Technical note on the contribution of litter and nutrients to the soil by the species *Cajanus cajan* (L.) Millsp and *Albizia lebbbeck* (L.) Benth in silvopastoral systems. Cuban J. Agric. Sci. 36:383 and Crespo, G., Rodríguez, I. & 198 Cuban Journal of Agricultural Science, Volume 44, No. 2, 2010. Fraga, S. 2000. Estudio de la acumulación de hojarasca y nutrientes retornados al suelo en las especies *Albizia lebbbeck* (L.) Benth y *Cajanus cajan* (L.) Millsp. IV Taller Internacional Silvopastoril “Los árboles y arbustos en la ganadería tropical”. Estación Experimental de Pastos y Forrajes Indio Hatuey, Matanzas, Cuba. p. 182). If the authors coincide, the difference will be made by adding letters after the year of publication (for instance, Díaz, M.F., Padilla, C., González, A. & Curbelo, F. 2001a. Agronomical features and nutritional indicators of grains in grouped maturity varieties of *Vigna unguiculata*. Cuban J. Agric. Sci. 35:271 and Díaz, M.F., Padilla, C., González, A. & Curbelo, F. 2001b. Evaluación de especies de leguminosas temporales *Cannavalia ensiformis*, *Lablab purpureus* y *Stizolobium niveum* en producción de forrajes integrales y granos. I Simposio Internacional sobre Ganadería Agroecológico, SIGA 2001, La Habana, Cuba. p. 171).

Research papers. Last name and initials of the name of the author(s), publication year, article title, name of the publication (use the international system of abbreviations), volume and initial page (for instance, Crespo, G., Lok, S. & Rodríguez, I. 2004. Production of leaf litter and contribution of N, P and K in two grasslands with different species composition. Cuban J. Agric. Sci. 38:93).

Books. When the book was written by one or several authors, the last name and the initials of the author or authors are included, as well as the year of publication, the number of the edition, the last name and the initials of the editors, the publishing house, the country and the page (for instance, Ramos, N., Herrera, R.S., Padilla, C., Barrientos, A. & Aguilera, J.M. 1987. Evaluación agronómica. In: Pasto estrella

mejorado (*Cynodon nlemfuensis*). Su establecimiento y utilización en Cuba. 1ra Ed. Ed. Instituto de Ciencia Animal. La Habana, Cuba. p. 37).

Chapters of the book. Write the last name and the initial(s) of the name(s) of the author(s), the year of publication, the title of the chapter, the preposition In and then the title of the book, the number of the edition, the last name and the initial of the name of the editor(s), the publishing house, the country and the page (for instance, Crespo, G. 1990. Utilización de la materia orgánica. In: King grass. Plantación, establecimiento y manejo en Cuba. 1ra Edición. Herrera, R.S. Ed. EDICA, La Habana, Cuba, p.171).

Thesis. Write the last name and the initial of the name of the author, the year of publication, the title, specifying the type of thesis (graduate, master or PhD), the institution and the country (for instance, Del Pozo, P.P. 1998. Análisis del crecimiento del pasto estrella (*C. nlemfuensis*) bajo condiciones de corte y pastoreo. PhD Thesis, Instituto de Ciencia Animal, La Habana, Cuba).

Technical bulletin. Write the last name and the initial(s) of the name(s) of the author(s), the year of publication, the title of the article, the title of the bulletin, the last name and the initials of the name of the editor(s), the publishing house, the country and the page (for instance, Cino, D.M., Sardiñas, O., Martínez, H.L., Padilla, C. & Sistach, M.1988. Economía de la rehabilitación de pastizales. Technical bulletin. Serie Pastos, No. 4. EDICA, La Habana, Cuba, p.115).

Technical report. Write the last name and the initial(s) of the name(s) of the author(s), the year of publication, the title of the paper, the type of technical report (project, research), the institution and the page (for instance, Valenciaga, N. 2004. Caracterización de los daños en leucaena causados por *Heteropsylla cubana*. Final Research Project Report, Instituto de Ciencia Animal, La Habana, Cuba).

Events, Symposiums and Workshops. Write the last name and the initial(s) of the name(s) of the author(s), the year of publication, the title of the paper, the full name of the event, symposium and workshop, editors (if any), country and page. If the edition is digital, add CD-ROM (for instance, Amador, N. 2004. Glosario bilingüe de agroforestería. XIV Congreso Científico del Instituto Nacional de Ciencias Agrícolas, La Habana, Cuba. p. 157).

Electronic publications. Write the last name and the initial(s) of the name(s) of the author(s), the year of publication, the title of the paper, the electronic address, and then the consulting date preceded by the word consulted (for instance, Swientek, B. 2003. Beneficial bacteria. Prebiotics and probiotics work in tandem to stimulate a healthy microflora in the gastrointestinal tract. <http://www.preparedfood.com/archives/2001/2001_01/0101_toc.htm> [Consulted: February 5, 2003].

Statistical Aspects

Some statistical aspects that should be taken into account when writing the papers are:

1. In the text (Materials and Methods) an explanation of the statistical models and methods used for data analyses should appear.
2. The sampling designs used should be stated and the size and number of the sample units should also appear.
3. When applying classical designs (completely randomized design, random blocks, Latin squares, etc), the information on the mathematical model used will not be necessary, only the name of the design, the number of replications or repetitions are required, as well as any other information to clarify the application of the design.
4. When applying non-classical models, the mathematical model used should be indicated with the necessary explanation.
5. The multiple comparative test used (Duncan, Scheffé, Tukey, etc) should be reported.
6. The tables for the analysis of variance should only be reported when they offer important additional information. The tables of analyses of variance should not be reported when using classical designs.
7. The tables of means that summarize the information available should be included. The original data should not be included, except in very specific cases where that information is required.
8. The estimators of these means should be accompanied by their corresponding Standard Errors or any other statistics of dispersion.

9. In the tables, the means of the Standard Errors of Differences between Means or the Least Significant Differences should not be included.
10. For the representation of multiple comparative test, superscripts can be added (to the means) so as to simplify the interpretation of these comparisons. Notes explaining the application of the superscripts are required.
11. In case the data are transformed with the objective of making valid the statistical analyses, the datum transformed and its standard error and between parenthesis the value of the original mean will be informed.
12. The number of significant figures to be used in the presentation of means should be as small as possible (2, 3 or 4 significant figures).
13. The tables should have a clear heading and report the units of measure used.
14. The asterisks will be used to designate significance levels and they should be accompanied by clarifying notes relating their utilization (* $P < 0.05$, ** $P < 0.01$ and *** $P < 0.001$).
15. In the case of using equations of regression, the standard error of the parameters, the coefficient of determination, the level of significance and the analysis of the residues should be included.

Other norms

Units of measurement. They will always be expressed in the International System of Units of Measure. If any other unit of measure is necessary, it will be expressed first according to the International System of Units of Measure and then, between parenthesis, its equivalent (for instance, 1 ha (2.47 acres)). The units of measure may be expressed as follows: kg/ha or kg ha^{-1} .

Equipment and instruments. The name of the equipment will be expressed and, between parenthesis, the brand and model.

Chemical products. When herbicides, insecticides and other chemical products are mentioned for the first time in the text, write the chemical or technical name and the commercial name between parenthesis, then, keep using the chemical name.

Numbers. They will be written with letters at the beginning of a paragraph and after a period or when they may cause doubts in the reading or interpretation (from 1 to 9). When using positive and negative numbers, do not leave space between the number and the sign (for instance, -10 and 53). Write always two decimal numbers separated by a point (for instance, 153.79). When writing numbers in the order of thousands or more, do not leave space between the numbers (for instance, 13571.26 and 18937.20).

Time. Use ante meridian and post meridian to indicate the hour (for instance, 5:30 a.m. and 11:45 p.m.).

Abbreviations and symbols. They save space, but if use excessively, they may make difficult the understanding of the text. Try not to create abbreviations and, if necessary, write first the full name and then between parenthesis the abbreviation (for instance, chemical composition (CC)). The symbols of chemical elements and the units of the International System of Units of Measure do not need the definition unless they may difficult the reading and understanding of the text. It is recommended to use the following abbreviations:

Acid detergent fiber ADF	Gross energy GE	Minute min
Altitude m.a.s.l.	Hectare ha	Mole mol
Analysis of variance ANOVA	Hectoliter hL	Nanometer nm
Antemeridian a.m.	Hour(s) h	Net energy NE
Centimeter cm	International unit IU	Neutral detergent fiber NDF
Centimole per kilogram cmol/kg	Joule J	Organic matter OM
Coefficient of correlation r	Kilogram kg	Parts per million p.p.m.
Coefficient of determination R ²	Kilojoule kJ	Pascal Pa
Coefficient of regression b	Kilometer km	Postmeridian p.m.
Coefficient of variation CV	Liter L	Second s
Crude protein CP	Live weight LW	Species sp.
Cubic centimeter cm ³	Mean square MS	Square centimeter cm ²
Cultivar cv	Megajoule MJ	Square meter m ²
Day(s) d	Megapascal MPa	Standard deviation SD
	Metabolizable energy ME	Standard error SE

Degrees Celsius °C

Degrees of freedom d.f.

Digestible energy DE

Dry matter DM

Edition, Editor(s) Ed.

Gram g

Gray Gy

Meter m

Metric ton t

Milliequivalent

per liter m-equiv/L

Milliliter mL

Millimeter mm

Millimole mmol

Standard error of the
regression coefficient S_b

True protein TP

Vitamins Vit.

Volatile fatty acid VFA