

## Instructions to authors

The Cuban Journal of Agricultural Science appears every three months and comprises the following topics in the agricultural field: Applied Mathematics, Economics, Animal Genetics, Animal Science (Physiology, Nutrition and Management of Ruminants and Non-ruminants, Microbiology, Biotechnology, Dairy, Beef and Small Livestock), Pastures and Forages, Rural Development, Environment, Sustainable Agricultural Systems, Production Systems, Knowledge Management, Technology Transfer, Technological Innovation and Extension processes.

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.

The Editorial Board is responsible for the decision of accepting or rejecting an article and it is not open to appeal. The articles should contain 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 type-written in paper format A4, in Times New Roman letter size 12, margins of 2.5 cm, enumerated pages and lines and space 1.5 between lines. The articles will be submitted to an anonymous, blind and triple review process.

The articles will be sent for being published in Microsoft Word (.doc). Attached to the article, a formal letter signed by authors and coauthors should be sent, manifesting their authorization for its publication, stating that it has not been published before and transferring the publishing rights to the CJAS. The article and the letter should be sent to [rcca@ica.co.cu](mailto:rcca@ica.co.cu) and it can also be sent to:

Editorial Director  
Cuban Journal of Agricultural Science  
Carretera Central km 47 y medio, San José de las Lajas  
Mayabeque, Cuba

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 review articles, research papers and technical notes. In the necessary cases, the Letter of the Editor may be published, as well as book synopsis that will appear as Book Review throughout a year. The book will be part of the bibliographic stock of the Institute of Animal Science.

### Research paper

It reports results that contribute 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 interest of the reader. Do not use abbreviations and the scientific name of the species should always be accompanied by the common name in parenthesis.

**Author(s):** Names and last names of all the authors and coauthors should be mentioned as follows: the initials of names and full last name for male authors (e.g., R.F. Fernández) and the full first name, the initial of the second name and the last name for female authors (e.g., María R. Acosta). 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 addresses 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: objectives of the study, design and experimental method, main results that support the objectives and conclusions. Do not use abbreviations, references or adjectives. Offer the largest possible amount of numerical data with its statistical significance.

**Key words:** They designate and identify the aspects of greatest importance in the paper. They are useful for locating the information of interest and create databases and indexes of topics. It is recommended not to use words from 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 updated references and most

of them will be included in the discussion of results.

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

*Results and Discussion:* It will be presented in one or two sections, according to the interest of the author. The results may be reported by means of tables and figures that will be inserted in the text after the paragraph in which they are mentioned 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 have a simple structure and be easy to understand. 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 references. The discussion will finish with the conclusions according to the objectives of the research. The highest 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 (e.g., 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 (e.g., Pérez *et al.* 2004). In the text, the references are ordered chronologically (e.g., Martínez 1998 and Ortega *et al.* 2003), but if the years coincide, the citation will be order alphabetically (e.g., Álvarez 2002 and Núñez 2002). If the authors and the publication year coincide, the citations will be differentiated by letters after the year (e.g., Serrano *et al.* 2001a and Serrano *et al.* 2001b 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 be written at the end of the paper and they will be ordered alphabetically according to the last name of the first author. In case the first author coincides, the second author should be used and so forth.

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

### Review article

Review articles are compilation studies on any particular subject to collect, analyze and discuss information previously published and recommendations may be expressed for further strategies on the studied area. They will contain the following parts:

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

*Abstract:* It will contain 250 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 writing and understanding. The information will be compiled and a critical analysis should be performed supported by the use of references.

*Conclusions:* This section will be included at the end of the discussion.

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

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

### Technical Note

They should present: a) a description of a new feed for animals, a recent creation of an equipment, a new species, crossbred or hybrid of plants and of technology transfer, b) technologies or patents synthesis, c) substitution of raw materials or chemical reagents of common or specialized techniques, d) achievements of 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 into 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 objective, results and conclusions of the paper.

*Introduction, Materials and Methods and Results and Discussion:* These sections should be written all together, not divided into subheadings. The Introduction should be brief and its aim is to highlight the objective of the paper and its relation to the current 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 currency, originality and synthesis.

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

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

### General instructions

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

*Writing:* Use clear, direct and precise language. Use passive voice and avoid gerunds, compound times, qualifying adjectives and other terms that are not recognized in the scientific language such as neologisms, anglicisms and regional words. Use sentences and not phrases.

*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, respectively). The average values should be accompanied by the correspondent statistics, standard error and significance. If transformations are used, the transformed value should appear and the original value should be included between parentheses. Letters as superscripts should be used to show the differences between 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 in order of the table 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 results interpretation.

*Figures:* They should contain the lowest possible number of curves. The data of tables should not be repeated. When the regressions are reported, the dispersion points should be denoted and it should include the equation with its terms, standard error, coefficient of determination and its significance. The procedure used for models will be the same. An adequate scale should be used. A table of values should be annexed to the paper for reproducing the figure. The number in order of the figure and its title should be written at the bottom of the figure. Symbols will be used to differentiate them (squares, triangles, circles).

*Photographs and images:* They should have an optimal quality and good contrasts. Their location in the text should be marked. They should be in format (.tif) or (.bmp) in image files.

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

*Nomenclature:* The first reference to animal or plant species (except domestic animals or crops) in the title or within the abstract or body of the articles will be given by their 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 (e.g. *L. leucocephala*). Scientific names of animals, plants and microorganisms, as well as words in Latin, should always be written in Italics (e.g., *Leucaena leucocephala*, *Heteropsylla cubana*, *Lactobacillus rhamnosus*, *in vitro* and *in vivo*).

*References:* This is one of the quality indicators of a research paper. They should be updated. The highest amount of them should be used in the Discussion section and they may be taken from scientific journals, books, theses, congresses, symposiums, and electronic documents. In the text, the lowest amount of self-citations is recommended, as well as those of the same publication. The journal will not accept references from personal communications, unpublished data, referred citations, technical reports, reports from projects or from non-scientific publications.

In the list of references, they should be ordered alphabetically starting from 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 (e.g., 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. & 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 (e.g., 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 Agroecológica, SIGA 2001, La Habana, Cuba. p. 171).

The main references and the way of writing them in the list are stated as follows:

*Research papers:* Last name and initials of the name of the author(s), publication year, article title, publication

name (use international system of abbreviations), volume and initial page (e.g., 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, last name and initials of the author or authors are included, as well as publication year, name of the book, edition number, last name and initials of editors, publishing house, country and page (e.g., 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).

**Book chapters:** Write the last name and the initial(s) of the name(s) of the author(s), publication year, chapter title, preposition In and then the book title, edition number, last name and initial of the name of the editor(s), publishing house, country and page (e.g., 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, publication year, title, specifying type of thesis (graduate, master or PhD), institution, province and country (e.g., 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), publication year, article title, bulletin title, last name and initials of the name of the editor(s), publishing house, country and page (e.g., 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), publication year, paper title, type of technical report (research project), institution and page (e.g., 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), publication year, paper title, full name of the event, symposium and workshop, editors (if any), country and page. If it is a digital edition, add CD-ROM (e.g., 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), publication year, paper title, electronic address preceded by the words “available on”, and consulting date preceded by the word “consulted” (e.g., Swientek, B. 2003. Beneficial bacteria. Prebiotics and probiotics work in tandem to stimulate a healthy microflora in the gastrointestinal tract. Available on: <[http://www.preparedfood.com/archives/2001/200101/0101\\_toc.htm](http://www.preparedfood.com/archives/2001/200101/0101_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 selected sample units should also appear.
3. When applying classical designs (completely randomized design, random blocks, Latin squares, etc), 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 stated.
6. Tables for the analysis of variance should only be reported when they offer important additional information. These tables should not be reported when using classical designs.
7. Tables of means that summarize the available information should be included. 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 dispersion indicators.
9. The “Standard Errors of differences between means” or the “Least Significant Differences” should not be included on the mean tables.
10. Superscripts can be added (to the means) for representing the multiple comparative tests, so as to simplify the interpretation of these comparisons. Notes explaining the application of these 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 representation of means should be as low as possible (2, 3 or 4 significant figures).

13. The tables should have a clear heading and report the measurement units used.

14. The asterisks will be used only to designate significance levels and they should be accompanied by notes clarifying their utilization (\*  $P < 0.05$ , \*\*  $P < 0.01$  and \*\*\*  $P < 0.001$ ).

15. In case of using regression equations, standard error of parameters, coefficient of determination, level of significance and analysis of residues should be included.

#### Other instructions

*Measurement Units:* They will always be expressed in the International System of Measurement Units. If any other measurement unit is necessary, it will be expressed first according to the International System of Measurement Units and then, between parentheses, its equivalent (e.g., 1 ha (2.47 acres)). The measurement units may be expressed as follows: kg/ha or kg ha<sup>-1</sup>.

*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 parentheses. Then, continue to use 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). With positive and negative numbers, do not leave space between the number and the sign (e.g., -10 and 53). Always write two decimal numbers separated by a point (e.g., 153.79). When writing numbers in the order of thousands or more, use a comma to divide them (e.g., 13,571.26 and 18,937.20).

*Time:* Use ante meridian and post meridian to indicate the hour (e.g., 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 the abbreviation between parentheses (e.g., chemical composition (CC)). The symbols of chemical elements and the units of the International System of Measurement Units do not need the definition unless they may difficult the reading and understanding of the text. The following abbreviations are recommended:

|   |                        |                             |                                       |
|---|------------------------|-----------------------------|---------------------------------------|
| Acid detergent fiber ADF                    | Dry matter DM          | Megapascal MPa              | Postmeridian p.m.                     |
| Altitude m.a.s.l.                           | Edition, Editor(s) Ed. | Metabolizable energy ME     | Second s                              |
| Analysis of variance ANOVA                  | Gram g                 | Meter m                     | Short chain fatty acids SCFA          |
| Antemeridian a.m.                           | Gray Gy                | Metric ton t                | Species sp.                           |
| Centimeter cm                               | Gross energy GE        | Milliequivalent             | Square centimeter cm <sup>2</sup>     |
| Centimole per kilogram cmol/kg              | Hectare ha             | per liter m-equiv/L         | Square meter m <sup>2</sup>           |
| Coefficient of correlation r                | Hectoliter hL          | Milliliter mL               | Standard deviation SD                 |
| Coefficient of determination R <sup>2</sup> | Hour(s) h              | Millimeter mm               | Standard error SE                     |
| Coefficient of regression b                 | International unit IU  | Millimole mmol              | Standard error of the                 |
| Coefficient of variation CV                 | Joule J                | Minute min                  | regression coefficient S <sub>b</sub> |
| Crude protein CP                            | Kilogram kg            | Mole mol                    | True protein TP                       |
| Cubic centimeter cm <sup>3</sup>            | Kilojoule kJ           | Nanometer nm                | Vitamins Vit.                         |
| Cultivar cv                                 | Kilometer km           | Net energy NE               | Volatile fatty acid VFA               |
| Day(s) d                                    | Liter L                | Neutral detergent fiber NDF |                                       |
| Degrees Celsius °C                          | Live weight LW         | Organic matter OM           |                                       |
| Degrees of freedom d.f.                     | Mean square MS         | Parts per million p.p.m.    |                                       |
| Digestible energy DE                        | Megajoule MJ           | Pascal Pa                   |                                       |