

# Analysis of the Editorial Process of the Multidisciplinary Rural Development Journal *Tropicultura*

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## Summary

*Tropicultura* is a multidisciplinary journal which aims mainly at releasing research results relevant to rural development in developing countries and at improving the investigation capacities of the researchers who submit manuscripts to its editorial board. The operating process of the journal and its consequences on its output during the period 2002-2009 were analysed by considering mainly the factors influencing the duration of the editorial work and the final acceptance of the manuscripts. The factors taken in consideration were: the field of research, the geographic origin of the data analysed, the language of writing and the country of origin of the authors. The available data were analysed using descriptive statistic methods. They were also subjected to parametric and non parametric comparisons. A total of 1,034 papers have been submitted during the investigated period to *Tropicultura* in different fields of rural development research, with a large proportion of papers in agronomy sensu lato (60%), and livestock production (19%). Most of the papers submitted (85.1%) came from Sub-Saharan Africa, followed by North Africa (11.2%), Asia (1.6%), Latin America (0.6%) and Europe (0.3%). The rate of acceptance (27.4%) was very low compared to other journals, mainly because of a poor design of the works or inappropriate research topics. The average time for final decision was 355 days. The non parametric classification analysis retained as major determinants for the acceptance of papers for publication in decreasing order of influence: (i) time before final decision, (ii) language, (iii) continent, (iv) Belgian cooperation priority countries, (v) Belgian cooperation partner countries, and (vi) the field of research. The data obtained are discussed in the light of the literature related to the editorial process of other scientific journals, taking into account the peculiarities of *Tropicultura* related to its history and to the history of the rural development actions of the Belgian cooperation. This analysis highlighted a series of possible improvements at the level of the operating process of the journal which should enable it to better achieve its goals.

## Résumé

### Examen du processus éditorial du journal multidisciplinaire de développement rural *Tropicultura*

*Tropicultura* est un journal multidisciplinaire qui vise principalement à la diffusion de résultats de recherche pertinents pour le développement rural des pays chauds et au renforcement des capacités d'investigation des chercheurs qui lui soumettent leurs manuscrits. Les processus de fonctionnement du journal et les conséquences de ceux-ci sur sa production durant la période 2002-2009 ont été analysés en considérant principalement les facteurs qui influencent le délai et la décision d'acceptation finale d'un manuscrit. Ces facteurs étaient: le domaine de recherche, la zone géographique d'où proviennent les données analysées, la langue de rédaction et l'origine des auteurs. Les données disponibles ont fait l'objet d'une analyse statistique descriptive et de comparaisons paramétriques et non paramétriques. Au total, 1.034 articles ont été soumis à *Tropicultura* au cours de la période examinée dans différents domaines de recherche concernant le développement rural, avec une proportion importante d'articles dans le domaine de l'agronomie sensu lato (60%), et de l'élevage (19%). La plupart des documents présentés (85,1%) provenaient d'Afrique subsaharienne, suivie par l'Afrique du Nord (11,2%), l'Asie (1,6%), l'Amérique latine (0,6%) et l'Europe (0,3%). Les principaux déterminants de l'acceptation des articles pour publication retenus par l'analyse de classification non paramétrique ont été, par ordre décroissant d'influence: (i) le temps avant la décision finale, (ii) la langue, (iii) le continent, (iv) les pays prioritaires de la coopération belge, (v) les pays partenaires de la coopération, et (vi) le domaine de recherche. Les données obtenues sont examinées à la lumière des informations contenues dans la littérature concernant le processus de rédaction d'autres revues scientifiques, en tenant compte des particularités de *Tropicultura* liées à son histoire et à l'histoire des actions de développement rural de la coopération belge. Cette analyse a mis en évidence une série d'améliorations possibles au niveau de l'organisation du fonctionnement de la revue qui devraient lui permettre de mieux atteindre ses objectifs.

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## 1. Introduction

Attempts to understand the reasons or bias for rejection or acceptance of papers submitted to peer-reviewed journals were numerous during the last decades in different fields as for example animal husbandry (4), medicine (1, 3, 7) and social sciences (5). The field of editing scientific papers is evolving and criteria are changing, strengthening the need to ensure the provision of quality papers in quality journals. The peer-review process is quite complex and the perception by authors and reviewers often divergent (8, 12). Van Tassell *et al.*, (11), who studied this process for four agricultural economics journals, highlighted the paradox that researchers, whose career depends on the quality and quantity of papers published, seldom benefit from a formal training in the publishing process.

Tropicultura is a free-of-charge peer-reviewed multidisciplinary rural development journal, published quarterly by the Agri-Overseas association since 1983, and focusing on developing countries. Papers can be published in English, French, Spanish or Dutch. Currently, there are almost 2,500 subscribers from 110 countries all over the world. From volume 20 (2002) onwards, the issues are also online (<http://www.bib.fsagx.ac.be/tropicultura>) and free-of-access. From May 2007 till March 2009, Google Analytics recorded almost 10,000 connections to the website out of 149 countries. The online volumes can also be accessed through the Directory of Open Access Journals (DOAJ).

The journal is sponsored by the Belgian Directorate-General for Development Cooperation (DGDC) - Federal Public Service Foreign Affairs, Foreign Trade and Development Cooperation and by the Brussels Capital Region. All Belgian institutions involved in rural development research in developing countries are members of the board and of the scientific committee. The Royal Academy for Overseas Sciences (RAOS) is also member of the board and guarantees the scientific and academic value of the journal, principally through referees and members of the scientific committee. Since September 2009, a memorandum of understanding was signed with the Institutional Cooperation branches of the Flemish Interuniversity Council (VLIR-UOS) and of the Interuniversity Council of the Belgian French Community (CUD-CIUF) aiming to improve the dissemination of research outputs of the South. As such, VLIR-UOS and CUD-CIUF became also members of the editorial board of the journal.

Tropicultura aims to assist researchers from developing countries and from Belgium in publishing the results of their researches or experiments which are relevant to rural development in developing countries. Albeit

scientifically accurate, those results are in most cases of local interest and not suitable to be released in specialised journals which prefer to publish works that are internationally more innovative. More than what is the rule in other editorial boards, the scientific committee and the referees of Tropicultura are coaching the authors in the writing process and in the scientific approach, even providing extra papers and documentation. This process complies with the objective to learn the right format to young researchers and fits with the focus on research for development.

Nowadays, Tropicultura is well-known in the world and papers are quoted in international databases (AGRICOLA, AGRIS, CAB, ...). The GAMES (*Conseil africain et malgache pour l'enseignement supérieur*) considers papers published in Tropicultura as relevant for promotion of researchers in French-speaking Africa and Madagascar.

Statistical data on authors and on their papers are available on electronic support since 2002, which allows to analyse critically the papers submitted to Tropicultura, principally in terms of factors predicting their acceptance or rejection, field of research, used language and origin of the authors. The aim is to help the editorial board of Tropicultura to better understand the processes underlying the achievements of the objectives of the journal in order to adjust them if needed.

## 2. Material and methods

### 2.1. Material

The variables are summarised in table 1. DGDC follows the Declaration of Paris and concentrates development aid in *partner* countries, which are currently 18. For scholarships and indirect aid through NGO's, universities, etc ... DGDC handles a broader list including 23 additional countries. Those 41 countries are called *priority* countries.

### 2.2. Statistical analysis

Data were analysed by means of STATA (9) and CART software (10). STATA was used for descriptive statistics and for parametric comparisons using regression models and chi squares. CART was used to determine the major determinants for rating a paper as good or bad. CART is an acronym for Classification and Regression Trees. The approach to classifying data is a non-parametric technique that selects variables and interactions that determine an outcome or dependent variable, also called target variable. In our case, the binomial target variable "good paper/bad paper" was analysed against the explanatory variables described in table 1. The default 'Gini method' was used as a splitting criterion, because it usually performs best.

**Table 1**  
**Description of the variables of the database “papers” and the database “authors”**

Variable code	Description	
	Database papers	Database authors
Language of paper*	1: French, 2: English; 3: Spanish	
Type of paper*	1: Original paper, 2: Technical note	
Consistency	1: submitted paper consistent with authors' guide or journal' topic ; 2: not consistent	
Field of research*	1: agronomy, 2: forestry, 3: game, 4: fish farming, 5: animal production, 6: animal health, 7: socio-economy, 8: food technology	
Country	Country where study was made (54)	Country of origin of the author (65)
Priority country*	Country where study was made priority country for DGDC or not (0: No; 1:yes)	Country of origin of the author priority country for DGDC or not (0: No; 1:yes)
Partner country*	Country where study was made is partner country for DGDC or not (0: No; 1:yes)	Country of origin of the author is partner country for DGDC or not (0: No; 1:yes)
Continent*	Continent where study was made 1: North Africa, 2: Sub-Saharan Africa, 3: North America, 4: Latin America, 5: Asia, 6: Europe, 7: Oceania	Continent of origin of the author 1: North Africa, 2: Sub-Saharan Africa, 3: North America, 4: Latin America, 5: Asia, 6: Europe, 7: Oceania
Final decision for paper	1: accepted, 2: published, 3: not decided yet, 4: refused, 5: removed	
Final decision for paper (2 categories)*	1: good paper (accepted or published) 2: bad paper (refused or removed)	
Duration*	Time in-between submission and final decision (years)	

\*: used for the classification tree analysis with target variable «good/bad» for papers

\*\*: the DGDC priority countries are: Algeria, Bangladesh, Benin, Bolivia, Brazil, Burkina Faso, Burundi, Cambodia, Cameroon, China, Colombia, D.R. Congo, Ivory Coast, Cuba, Ethiopia, El Salvador, Ecuador, Guatemala, Guinea, Haiti, India, Indonesia, Kenya, Madagascar, Mali, Morocco, Mozambique, Nicaragua, Niger, Palestine, Peru, Philippines, Rwanda, Senegal, Suriname, Tanzania, Uganda, Vietnam, South Africa, Zambia, Zimbabwe.

\*\*\*: The DGDC partner countries are : Algeria, Benin, Bolivia, Burundi, D.R. Congo, Ecuador, Mali, Morocco, Mozambique, Niger, Palestine, Peru, Rwanda, Senegal, Tanzania, Uganda, Vietnam, South Africa

### 3. Results

#### 3.1. Analysis of the submitted papers

##### 3.1.1. Nature of the papers

The majority (97.9%) of the 1,034 papers submitted to Tropicultura from 2002 to March 2009 are original papers. Technical notes represent only 2.1% whereas in the past this type of contribution has been much more frequent. The majority of the papers are in French (56.8%), followed by English (42.8%) and very few papers are in Spanish (0.39%). The majority (85.1%) of the papers originates from Sub-Saharan Africa, followed by 11.2 % from North Africa, 1.6% from Asia, 1.3% from Latin America, 0.6% from Europe and 0.3% from Oceania. 53% of the papers are from DGDC priority countries and 17.5% from DGDC partner countries. Out of the DGDC priority countries, Cameroon provides the most important number of papers (37.3%). If we consider only the 18 DGDC partner countries, the DR Congo is the most important with 28.2% of the papers submitted by researchers of these countries. No papers were submitted from partner countries like Bolivia, Ecuador, Mozambique and Palestine. Globally, the most important providers are Nigeria (27.9%), Cameroon (19.9%), Tunisia (9.4%), Ivory Coast (8.5%) and Burkina Faso (6.1%).

**Table 2**  
**Percentage Tropicultura papers by field of research (2002-2009) (n= 1,034)**

Category	percentage
Agronomy	60.1
Animal production	19.1
Socio-economy	5.6
Food technology	4.6
Fish farming	3.8
Animal health	3.4
Game	2.6
Forestry	0.9

Table 2 gives the distribution by field of research. Agronomy and animal production are the more largely represented, forestry the least.

##### 3.1.2. Consistency, rate of acceptance and time for final decision

A decision was taken for 897 out of the 1,034 papers submitted during the period 2002-2009. The process for the 137 remaining ones is still ongoing. Only 27.4% of the 897 papers were accepted. The rate of acceptance of papers in French was significantly higher than that of English ones ( $p < 0.0001$ ) and the rate of acceptance for papers from DGDC priority countries

was almost twofold higher than that for papers from other countries ( $p= 0.002$ ). No significant difference was put in evidence for the acceptance rate of the papers according to the DGDC partnership status of the country of implementation of the investigations. Papers based on researches in developing countries were significantly more rejected than the few ones from Europe ( $p< 0.0001$ ) (Table 3). The field of research with the highest rate of acceptance was game. Referees for the fields “agronomy”, “animal health” and “animal production” rejected almost three thirds of the papers. No paper concerning the field of forestry was accepted (Table 4). Major reasons for rejection were: poor experimental design, mistakes in the interpretation of the results, outdistanced data or obsolete bibliographic references.

The average time for final decision was 355 days, just less than one year. At the moment of submission, 20.3% of the articles were found not consistent with the authors' guide or with the topic of the journal and were refused from the beginning. The average time for final decision for the remaining papers sent to referees was slightly higher (423 days or almost 14 months). The average time for final decision was significantly influenced by the field of research ( $p< 0.001$ ). Considering the field of research, the longest time for decision was 21 months for forestry and 13 months for agronomy. The shortest period was 5 months for animal health.

To be published, it took 19 months. Based on the analysis of 213 papers published during the period 2002-2008, it appears that 46% were analyzed once, 42% twice and 12% three times. English papers were significantly read more than once time than French papers (66% versus 49 % -  $p< 0.05$ ). There was also a significant difference between fields ( $p< 0.01$ ). Papers on game were reviewed more than once in 86% of the cases and papers on animal production in 75% of the cases.

### 3.1.3. Major determinants of the final decision by classification tree analysis

The CART analysis was based on the 897 papers which were definitively accepted or rejected during the period 2002-2009. The model retained the following variables as major determinants of the variable “good/bad paper” in decreasing order of influence: time before final decision, language, continent, DGDC priority country, DGDC partner country and field of research. Figure 1 shows the classification tree produced by CART. The papers were first split into two nodes based on the time before final decision. The first intermediary node included 368 papers wherefore the decision was taken before 6 months. This node was split in two terminal nodes (TN) based on the continent where the research was implemented. TN1 included 6 papers from Asia and Europe out of which

**Table 3**  
Rate of acceptance for Tropicultura papers by continent (2002-2009) (n= 897)

Continent	n	Rate of acceptance (%)
Europe	6	100.0
Oceania	3	66.7
Latin America	13	53.9
North Africa	98	29.6
Sub-Saharan Africa	765	26.0
Asia	12	25.0

**Table 4**  
Rate of acceptance for Tropicultura papers by field of research (2002-2009) (n= 897)

Category	n	Rate of acceptance (%)
Game	25	56.0
Socio-economy	56	41.1
Fish farming	33	33.4
Food technology	43	32.7
Animal production	190	25.8
Agronomy	514	25.1
Animal health	29	20.7
Forestry	7	0.0

4 (66.7%) were accepted. TN2 included 362 papers from North and Sub-Saharan Africa, Latin America and Oceania, out of which a few were found good (7.2%). The second intermediary node included 529 papers wherefore the decision was taken after 6 months. It was split again according to the time elapsed before a decision. TN6 included 204 papers wherefore the decision was taken after 18 months and out of which 57.4% were found good. The second node was an intermediary one including 325 papers wherefore the decision was taken before 18 months. This node was split according the language. TN3 included 171 papers in French with 41.5% classified as good. The right node was an intermediary one including 154 papers in English or Spanish, further split in TN's 4 and 5. TN4 included 41 papers from DGDC priority countries (31.7% good) and TN5 included 113 papers from no-priority countries with only 13.3% rated as good paper.

### 3. 2. Analysis of the authors

3,286 authors submitted the 1,034 papers mentioned above. The average number of authors per paper is 3.2. There is a possible bias for that figure, as in case of a large number of authors, Tropicultura requests a written agreement and/or suggests to the main author to restrict the list of authors to those who really participated.

The majority (78.5%) of the authors originates from Sub-Saharan Africa, followed by 10.3% from North Africa, 7.9% from Europe, 1.34% from Latin America, 1.1% from Asia, 0.9% from North America and 0.03%

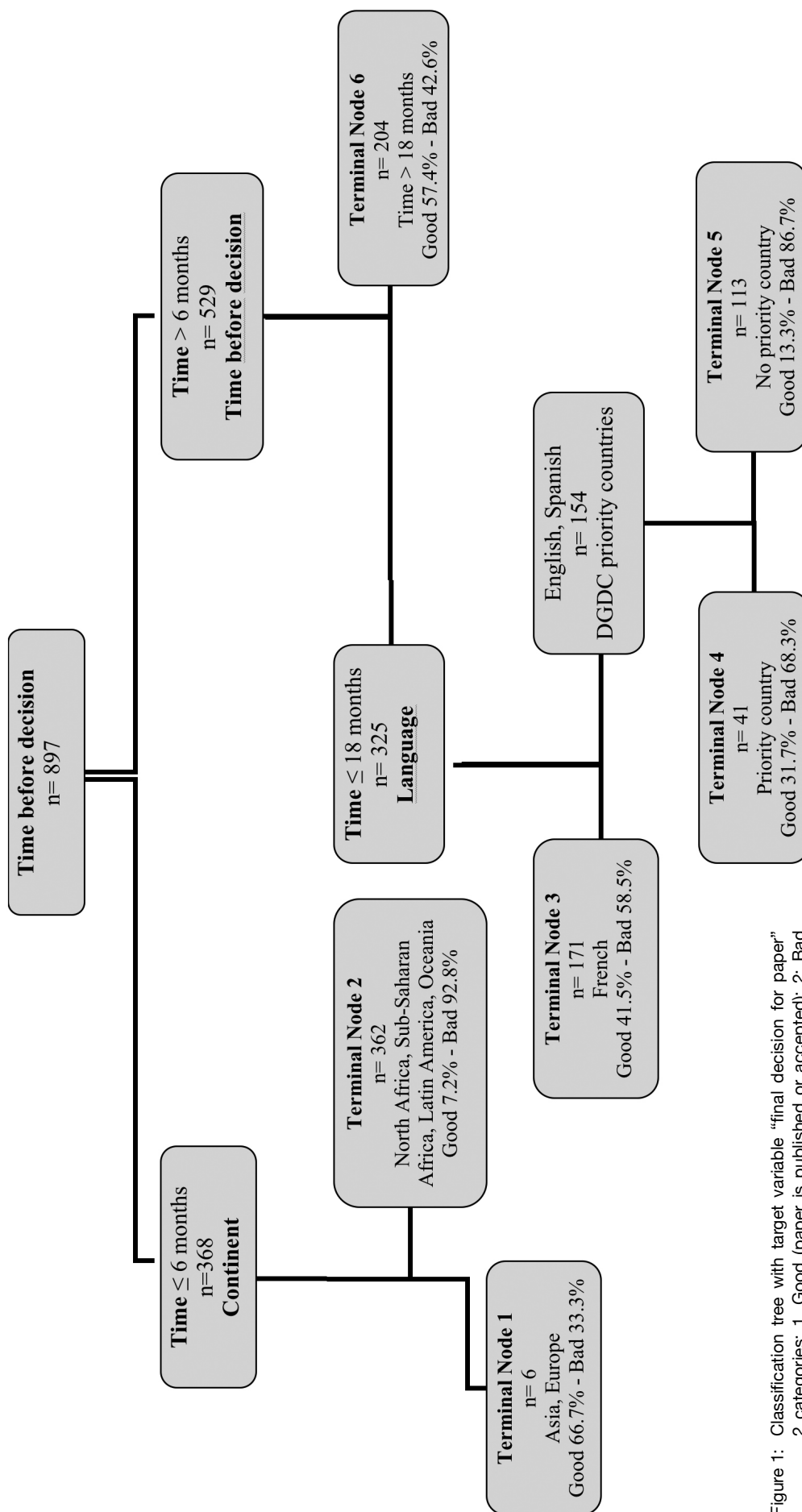


Figure 1: Classification tree with target variable "final decision for paper"  
2 categories: 1. Good (paper is published or accepted); 2: Bad  
(paper is refused or removed).

from Oceania. 52.2% of the authors are from DGDC priority countries and 14.3% are from DGDC partner countries. The most important group of authors are from Nigeria (22.9%), followed by those of Cameroon (21.7%), Ivory Coast (9.5%) and Tunisia (9.1%).

#### 4. Discussion

The decrease of the number of technical notes may be due to the fact that authors rather prefer to publish original papers which are professionally better quoted in the evaluation of their scientific output. This point explains perhaps also that, even if historically the number of papers in French was larger, more and more authors prefer nowadays to write in English with the aim to target a larger audience. However several factors help maintaining a large proportion of French written papers in *Tropicultura*: (i) CAMES considers papers in *Tropicultura* as relevant for promotion, (ii) *Tropicultura* is one of the few journals still publishing in French in the field of rural development, and (iii) an important proportion of the Belgian cooperation partner countries are French speaking. The very small proportion of papers in Spanish may result from the preference of Spanish-speaking scientists to publish in their own language and in journals with large distribution in Spanish-speaking countries.

Remarkably, the most important provider, Nigeria, is not a partner country nor a priority country. Researchers from Nigeria had always a culture of publishing research results. However most of the local journals are not published anymore or irregularly. The Nigerian researchers found their way to *Tropicultura*.

The observation that the four other most important providers are priority countries can be explained by the fact that they were partner countries in the past and that their rural development research was for many years supported by Belgium. Therefore, authors from those countries continued to submit papers to *Tropicultura*. Remarkable is that there is no partner country in the top five. No explanation is at hand but one possible interpretation can be that researchers from partner countries publish less than in the above mentioned countries and/or that papers are submitted to specialised journals. This has to be confirmed.

The acceptance rate of *Tropicultura* (27.4%) is very low if we compare with rates available in the literature. According to Davis (2) the acceptance rate of scientific journals can vary from 15 to more than 80%. Zuckerman and Morton (1971) cited by Hargens (5) found substantial variation of acceptance with rates of 80 to 60% in physical sciences, and 30 to 10% in social sciences. Different disciplines can thus have quite divergent acceptance rates. Within research fields differences are possible too (5). This can partly explain the variation of acceptance rate among the different fields of *Tropicultura*. Few figures on the acceptance rates are available for (multidisciplinary

rural development journals. Based on the data of the Ohio State University education website (<http://www.ag.ohio-state.edu/~admin/agriculture.htm>) an average rate of acceptance of 58% was calculated for 17 journals related to agriculture. In the field of animal production *Archivos de Zootecnia* has an acceptance rate of 64.3% (4).

The fact that the rate of acceptance of papers in French was significantly higher than that of English ones can have different explanations. The first reason can be that papers in English are not always written by native English speakers. Well-written, fluent documents are generally better accepted by reviewers. Actually, poor writing is identified by Pierson (7) as one of the top 10 reasons why manuscripts are rejected. Ehara and Takahashi (3) found that authors submitting to the *American Journal of Roentgenology* and coming from countries having English as primary language had similar acceptance than those of the United States, what was not the case for other authors. Poor English explains also that papers in that language were significantly reviewed more times than French ones for *Tropicultura*. Another reason for the better performance of French papers can be that some French speaking scientists are better known by the referees as they published already in the Journal and were coached several times. Indeed, *Tropicultura* operates with single-blinded peer review which reveals authors' names to the referee while reviewers themselves remain anonymous to the authors. The comparative advantage is that it allows the referee to put the submitted paper in the context of previous work of the authors and/or previous submissions inducing better coaching and subsequently better skilled authors. At contrary, most of the papers written in English are from new authors, mostly from Nigeria. Additionally, the experimental design of a large proportion of these papers is poor and the papers are then often rejected after the first review.

Papers based on researches in developing countries were significantly more rejected than the few ones from Europe ( $p < 0.0001$ ). A reason can be that the poor resources of most of the experimental stations in the South allow them to run only small experimental plots. Livestock is often only represented by small species. Additionally, a large proportion of the papers in agronomy are based on field surveys which are much cheaper to carry out than field trials. Additionally, even if the research is implemented by researchers coming from the South (mostly PhD students), the better work conditions and coaching in the North and the choice of the topic can have influenced the quality of the papers. Another point can be related to the research design itself. Indeed several factors (access to literature, absence of local peer-review ...) can make that the research topic is not appropriate and/or the research is not well-designed. This induces in turn

a weak acceptance rate. As *Tropicultura* aims to help authors from developing countries, the “development country bias” inducing low acceptance rates as stated by Yousefi-Nooraie *et al.* (2006) cited by Shakiba *et al.* (8) is not valid as argument for rejection. At contrary it induces in general a stronger coaching, explaining the high number of reviews per paper.

From the classification tree analysis, it appears that for almost 41% of the 897 papers, the decision was taken before 6 months with a very low acceptance (8.2%). For the other 529 papers, the rate of acceptance was directly proportional to the duration of the period of referring. This can be explained by the fact that, when a paper is considered as susceptible to improvement, the authors are given the chance to submit one or even two new versions, what is time-consuming and multiply the number of reviews. But, the objective to have interesting results published is attained. Nevertheless, time for final decision being very long some authors are discouraged and stop the submission. Due to the large number of submissions, *Tropicultura* withdraws a paper after 3 months if no response is given by the authors to the correction requests expressed by the reviewers. This is a pity, because as Van Tassell *et al.* (11) state persistence is one of the most important characteristics in getting a manuscript published. The longest period observed in the field of agronomy can be correlated to the very large number of submitted papers in that field.

It took 19 months to be published, what is relatively a long period. The reasons can be firstly that there are only 4 issues a year with 41 original papers per year (46 since 2008), and secondly that the way of financing the Journal makes that, in most cases, all these 4 issues are only published in the second part of the year.

Finally, regarding the authors, the trend is quite similar to that of the origin of the papers. This shows that the national researchers are now the main providers of papers and implementers of the research in the South. However the number of co-authors from the North is significant showing that collaboration still exists. Belgian, French and authors from the United States are the most represented.

#### 4. Conclusion and recommendations

Based on the analysis of the 2002-2009 seven-year-period, it can be concluded that a substantial number of papers have been submitted yearly to *Tropicultura* in different fields of rural development research, with a large proportion of papers in agronomy *sensu lato* and livestock production. An overwhelming part of the papers for *Tropicultura* are coming from Sub-Saharan Africa and almost half of the papers are coming from the 41 DGDC priority countries. The journal offers thus a real opportunity for researchers from the South to publish their results and to upgrade their skills in the publishing process by benefiting from coaching.

The rate of acceptance is very low compared to the information available for other journals. This is partly due to the quality of the papers which in turn can be the consequence of a poorly designed work or of an inappropriate research topic. Helping the authors can go through assistance in designing their research or to determine a research topic fitting with the local priorities. However, this need time. Involving more senior referees from the South, who are also fully aware of the realities in their countries, can help sharing this workload and reduce the time for final decision and publication. Online pre-publishing of accepted can also helps in this.

In the future researchers from DGDC priority or partner countries should be encouraged to publish in *Tropicultura*, certainly those from “traditional partners”, like the Democratic republic of Congo, Rwanda and Burundi or from universities financed through CUD-CIUF or VLIR-UOS.

Strategies should be implemented to boost the number of submission in neglected fields like e.g. socio-economics, game or animal health.

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