

Proposal for the Elaboration of the Terminological Dictionary of Pisciculture in the Amazon Region

Josué Leonardo Santos de Souza **LISBOA**¹

Alcides Fernandes de **LIMA**²

¹ Doctorate Student in Letters/Linguistics of the Graduate Program in Letters from Universidade Federal do Pará - UFPA. Military Professor of Portuguese Language and Writing for Elementary and High School at Colégio Tenente Rêgo Barros - CTRB/DIRENS/FAB. Contact: josueleonardo10@hotmail.com

² Doctorate Degree in Linguistics from the Universidade Federal do Ceará - UFC (2010). Associate Doctor Professor II at Universidade Federal do Pará - UFPA. Contact: alcides@ufpa.br

Abstract:

This study is an outline of a proposition for the development of a terminological dictionary of pisciculture in the Amazon region. Its objective is to analyze some terms of the semantic field of fattening, one of the stages of production that aims to boost the growth of fish in size, weight, and quality for the commercialization of their meat. The *corpus*, named PisciTerm, consists of: a) interviews with fish farmers, technicians, fishing engineers, specialist professors, students, and manual workers at farms, laboratories and pisciculture stations; b) data collected in written text genres available in PDF on the internet and in printed format at EMBRAPA, UFRA and UFPA libraries; c) data from YouTube videos. As tools for the survey, analysis, editing, organization and distribution of entries, the computer programs WordSmith Tools (version 5.0) and Lexique Pro (version 3.6) are used. The research is substantiated by the theoretical-methodological procedures of socioterminology established by Gaudin (1993a, 1993b) and Faulstich (1995, 2001, 2010).

Keywords:

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Josué Leonardo Santos de Souza Lisboa; Alcides Fernandes de Lima

1. INTRODUCTION

This article is a part of an in-progress doctoral thesis that addresses the terminology of pisciculture, an activity of cultivation of fish species, in the Amazon region. This piece aims to analyze some terms of the semantic field of fattening, one of the fish farming stages in which the development in size, weight, and in quality of meat is evaluated for the commercialization of fish.

The theoretical basis follows Gaudin's (1993a, 1993b) guidelines of Socioterminology, Boulanger (1995), Faulstich (1995, 2001, 2010), Lima (2010, 2014), among others.

The specialized area of pisciculture was subdivided into three semantic fields, namely: (i) induced reproduction, (ii) fattening and (iii) commercialization, which are stages of production and sale of fish in captivity. For the purposes of this article, the fattening stage was chosen, as it is the most productive in the fish farming context. The elaboration of this terminographic instrument includes a *corpus* of oral interviews in field research with 17 informants in four municipalities in the State of Pará, Brazil: Belém, Peixe-Boi, São Miguel do Guamá and Igarapé-Açu; the selection of texts in four libraries: EMBRAPA, UFPA, CENTUR and UFRA; texts in PDF format on the internet on the EMBRAPA, Brazilian Fish Farming Association (*Associação Brasileira de Piscicultura*), *Aquaculture Brasil*, and Panorama of Aquaculture (*Panorama da Aquicultura*) websites; and finally, images and videos related to fish farming shared on YouTube.

Pisciculture is a developing and growing activity in the world, in Brazil and in the Amazon region. The numbers demonstrate the rise of fish farming, due to its social, economic, environmental and nutritional importance to the population. Pará, for instance, is one of the main fish producers in Brazil, not only because of extractive fishing, which is a prominent activity, but also for the expanding enterprise of farming fish species in captivity.

Thus, the significance of such activity is justified for its imminent accomplishment of food production. Pisciculture has advanced in terms of technologies, forms of crop management and cultivation, the procedure of induced reproduction, the structuring of the fattening stage, and the multiple scientific concerns in protecting aquatic beings from parasites and diseases. That is, through this technical-scientific development, numerous terms and their variants were created by professionals. For this reason, it is relevant to collect, treat, analyze, document and share this pisciculture terminology.

2. SPECIALIZED LEXICON STUDIES IN THE GEOLINTERM PROJECT

In the Amazon region, there are active groups in the field of Terminology and Socioterminology. One of which is the Geolinguistics and Socioterminology (*Geossociolinguística e Socioterminologia - GeoLinTerm*) group, associated to the Faculty of Language (Faculdade de Linguagem - FALE) of the Federal University of Pará (Universidade Federal do Pará - UFPA) and coordinated by professors Abdelhak Razky, Marilucia Barros de Oliveira and Alcides Fernandes de Lima.

In Pará, studies on the lexicon of general and specialized languages began with the ALIPA project, Geolinguistic Atlas of Pará (*Atlas Geolinguístico do Pará*), in 1996. According to Razky and Lima (2011, p. 350), the development of lexical studies in Pará can be divided into three phases. The first phase, the ALIPA Project, from 1996 to 1999, is characterized by research on the lexicon of the general language, covering the study of the lexicon used in speech in Pará in 50 rural locations.

In the second phase, from 2000 to 2009, there was a continuation of the ongoing studies from the previous phase, but there was also an amplification of objectives with the investigation of specialized lexicons of sociocultural activities in the State of Pará through the inclusion of Terminology and Socioterminology.

The third phase, which started in 2010 and is still in progress, is a new version of the ALIPA project that integrates the area of lexical studies and the area of the aspects of variationist phonetics. The project is called GeoLinTerm and is distributed in four axes: the Linguistic Atlas of Brazil – north regional (*Atlas Linguístico do Brasil – regional norte*, Alib-norte); the Pará Geosociolinguistic Atlas (*Atlas Geossociolinguístico do Pará - ALIPA*); the Regional Linguistic Atlas of Northern Brazil (*Atlas Linguísticos Regionais do norte do Brasil - ALIN*); and Terminology and Socioterminology in Brazil (*Terminologia e Socioterminologia no Brasil - SocioTerm*). Specifically, the fourth research axis has the objective of elaborating glossaries and dictionaries of the specialized language of local and national economic and sociocultural activities.

It is observed that, between 2000 and 2010, there were doctoral, master's and undergraduate thesis researches on Socioterminology that systematized the terms of some technical fields of great sociocultural and socioeconomic relevance in Pará, in the Amazon region and in Brazil, namely: *Glossário da Terminologia do Caranguejo: uma perspectiva socioterminológica* (VASCONCELOS, 2000); *Terminologia da Pesca em Soure-Marajó: uma perspectiva socioterminológica* (VELASCO, 2004); *Glossário Semi-sistemático da Terminologia do Pescado em Santarém* (CARVALHO, 2006); *Glossário Socioterminológico do Sairé* (SANTOS, 2006); *Glossário da Indústria do Alumínio* (MARTINS, 2007); *Glossário Terminológico da Cultura do Cacau em Medicilância-PA* (COSTA, 2009), *Glossário Socioterminológico da Cultura da Farinha* (RODRIGUES, 2010), and *Socioterminologia da Indústria Madeireira* (LIMA, 2010).

Between 2011 and 2022, there were concluded research in the socioterminological and some that are still being developed, as: *Os Termos da Meliponicultura: uma abordagem socioterminológica* (BORGES, 2011); *Terminologia da Carpintaria Naval* (QUARESMA, 2012); *Glossário da Cerâmica Artesanal do Distrito de Icoaraci* (COSTA, 2012); *Glossário Socioterminológico do Corte Bovino no Pará* (OLIVEIRA, 2013); *Terminologia da Agroindústria do Dendê* (QUARESMA, 2014); *Termos da Indústria do Alumínio* (MARTINS, 2014); *Terminologia da Cultura do Açai* (ASSUNÇÃO, 2014); *Glossário Eletrônico da Terminologia da Farinha de Mandioca na Amazônia Paraense* (RODRIGUES, 2015); *Terminologia da Piscicultura* (LISBOA, 2015); *Glossário dos Termos da Castanha-do-Pará* (FEITEIRO, 2016); *Dicionário Socioterminológico Bilingue da Área do Corte Bovino* (OLIVEIRA, 2018); *Estudo da Fraseologia do Futebol Brasileiro das Séries B, C e D em jornais digitais populares: construção de um dicionário eletrônico* (SALVADOR, 2017); *Fraseologismos no Discurso Político Brasileiro: uma proposta de glossário* (SOUZA, 2018), and *Dicionário Terminológico da Piscicultura da Região Amazônica* (thesis in progress).

Therefore, the diversity of socioterminological research conducted by GeoLinTerm (UFPA) and aimed at documenting aspects of sociocultural practices and productive activities in the North of the country is noted.

3. THEORETICAL BASIS: TERMINOLOGY AND SOCIOTERMINOLOGY

The field that studies specialized lexicon is denominated terminology, and Terminography is its applied facet. Finatto and Krieger (2004, p. 20) state that the terminology has two distinct approaches: theoretical development and descriptive analyses; and terminology applications, which is the production of glossaries, dictionaries, databases and automatic terminology recognition systems. These terminological procedures seek the organization, storage and dissemination of knowledge arising from technical-scientific activities through the sharing of specialized terms, within the scope of human communication.

Terminology is understood to be a branch of linguistics and lexicon sciences, of knowledge and practices. It has technical-scientific terms as objects of study, dealing with the relationships between the concepts and terms of an area of expertise.

Terminology research has become increasingly notable due to the relevance of specialty languages linked to economic, social, scientific, technological, cultural importance of numerous human activities that already existed and that were created by the dynamics of industrialization and globalization in the world. Pontes (1997, p. 44) ratifies this when he points out the causes of the expansion of terminology, such as

a) the advancement of science; b) the development of technology; c) the development of the means of communication; d) the development of international policies; e) the development of international trade; and f) the progress of multinationals.

The terms created and used in the various human activities are identity marks that convey the relevance of the knowledge of everything that surrounds that field, but being linguistically materialized, that is, having a real significant value for all professionals in the area. Thus, they present the functions of representation and transmission of specialized knowledge.

The various technical-scientific areas have an expertise lexicon that reflects interests, trends, phenomena, developments, experiences, progress, research, the heterogeneity of crop management, cultivation, techniques, work instruments, commercialization, both of the activities and of the professionals in the field.

This fact inserts a term in the referential universe. A term consists of denomination plus concept, as expressed by Biderman (2001, p. 19). In other words, the terminology has as a methodological procedure to establish a relationship between the conceptual structure (cognitive dimension) and the lexical structure (linguistic dimension) of the specialty language of any technical-scientific human activity. Therefore, the terminology presents an onomasiological approach, starting from the concept to the denomination.

To constitute and validate the terms of a technical-scientific human activity, the terminologist follows a methodological procedure that outlines the path to be followed and the way in which this path of research should be followed.

Rondeau (1984 p. 70 *apud* PONTES, 1997, p. 49) states that the steps of the practice of terminology are: a) choosing the domain and working language, b) delimiting the subdomain, c) consulting specialists, d) collecting information, e) establishing a domain tree, f) expanding the representation of the chosen domain, g) establishing the limits of terminological research, h) collecting and classifying terms, and i) working on the presentation of terminological data.

This entire methodological process, the decision for the publication of a terminographic work and the presentation of the terminology of a given area of expertise must be directed towards the consultant. In such a manner, the work, the dictionary, the printed or electronic glossary becomes a path indicative of knowledge, linguistic and extralinguistic distribution and use of the domain, of the technical-scientific activity.

Socioterminology, as a term, emerged in the early 1980s, published in a work by Jean-Claude Boulanger (GAUDIN, 1993b, p. 67). Internationally, Socioterminology was formalized by François Gaudin in 1993, with his doctoral thesis *Pour une Socioterminologie: des problemes semantiques aux pratiques institutionnelles*.

As reported by Lima (2014, p. 209), Gaudin establishes the theoretical foundations of Socioterminology in his thesis, and he ratifies: a) a dissension with the universalist idealism of Wusterian terminology; b) the rejection of non-verbal thought, as the words authorize the autonomy of thought; and c) terminological studies in vivo, with real conditions of use of the terms.

Furthermore, he highlights the contributions of sociolinguistics to terminology and presents: a) the approach to domains and concepts, semantic characteristics of the term and the autonomy of terminology; b) the sociolinguistic concepts and methods usable in Socioterminology; c) reflections on the relationship between semantics and terminology; d) the importance of including history in terminological studies for the analysis of vocabularies and metaphors; e) the social circulation of terms that imposes an analysis on terminological vulgarization (LIMA, 2014, p. 210).

In Brazil, Enilde Faulstich systematized a methodology for the socioterminological studies established by Gaudin and formalized the construct of terminological variation. Socioterminology as a practice of terminological work is based on: a) linguistic variation of terms in the social environment and the perspective of change and b) principles of ethnography in socioterminological research, the interaction between the members of an activity that generate concepts to a term and terms to a concept (FAULSTICH, 1995, p. 2). Thus, the theoretical assumptions of Socioterminology strongly diverge from those of the TGT.

Gaudin (1993a, p. 16) affirms that, through socioterminological practice, terminology examines the real functioning of language. It is focused on the social dimension of language practices in human activities, meaning that it describes and analyzes the terms of a specialty language in its real context of use. In this

way, the terminology has a methodological basis, an interdisciplinary and dynamic vision. This fact led to the transposition of a prescriptive terminology to Socioterminology to a heterogeneous terminological study.

4. PRESENTATION AND ANALYSIS OF THE METHODOLOGICAL PROPOSAL

4.1. Delimitation of field research locations

For the delimitation of some research sites of great relevance to pisciculture in the Amazon, the assistance of some technicians, professors and researchers from the Rural Federal University of Amazon (Universidade Federal Rural da Amazônia - UFRA) and from the Brazilian Agricultural Research Corporation (Empresa Brasileira de Pesquisa Agropecuária - EMBRAPA) was necessary. They contributed with knowledge about the large area of aquaculture, explained the particular activity of fish farming and shared contacts of fish farmers who conduct the process of cultivation and commercialization of fish.

With this, we learned that there are fish farms, laboratories, or fish farming environments with the objective of reproduction, fattening, of storage, processing and commercialization, and cultivation places for research and extension.

From there, we could delimit the municipalities considered relevant for research in the production and commercialization of fish, namely: Peixe-Boi and São Miguel do Guamá, where there are fish farms for fattening and commercialization of Tambaqui; Igarapé-Açu, where there are pisciculture of induced reproduction and commercialization of fingerlings from Tambaqui; Paragominas, where there are fattening pisciculture and commercialization of Tambatinga, which is a hybrid fish from a genetic cross between Tambaqui and Pirapitinga; and Belém, which has a fish farming station for scientific and experimental research.

4.2. *Corpora* constitution and data collection

The socioterminological research on pisciculture in the Amazon region is constituted of specialized printed writings about this practice in fish farms collected in libraries, namely: theses, dissertations, course conclusion papers, scientific articles, books on technical standards, specialized magazines about aquaculture, pisciculture-promoting journals, catalogs, reports, and manuals. All these texts were published between 1994 and 2022. In addition, there are texts written in PDF format available on fish farming research websites, which disseminate pisciculture in captivity and, finally, the collection of YouTube videos on management and cultivation of fish such as Tambaqui, Tambatinga, and Tilapia, which are produced on fish farms in the states of the Amazon region.

The reference *corpus* of the socioterminological research on Pisciculture consists of 95 works, 55 videos, which gather, respectively, more than 500 thousand words and 20 hours of recording. All written, scanned and printed material and recordings downloaded from YouTube are organized into five groups corresponding to five stages of publishing the works and posting the videos on the platform, namely:

1. Phase A: corresponds to works published between 1990 and 2000;
2. Phase B: corresponds to works published between 2001 and 2010;
3. Phase C: corresponds to works published between 2011 and 2022;
4. Phase D: corresponds to videos posted between 2000 and 2010;
5. Phase E: corresponds to videos posted between 2011 and 2022.

Moreover, scanned and printed texts were divided into three groups according to levels of expertise:

1. Highly specialized texts :
 - a) Technical books: *Piscicultura: fundamentos e técnicas de manejo*;
 - b) Scientific articles published in specialized journals: *Revista Brasileira de Zootecnia*;

- c) Census: *Censo Aquícola Nacional*;
 - d) Booklets: *Cartilha de genética na piscicultura: importância da variabilidade genética, marcação e coleta para análise de DNA*.
2. Specialized Texts:
 - a) Articles published in peer-reviewed journals: *Revista Brasileira de Engenharia da Pesca*;
 - b) Bulletins: *Boletim Estatístico da Pesca e Aquicultura*.
 3. Less specialized texts:
 - a) Magazine article: *Revista Globo Rural*.

Regarding the YouTube platform, the downloaded videos were divided into two groups, according to their levels of expertise, expressly:

1. Highly specialized videos:
 - a) Courses: *CPT: curso de Piscicultura*;
 - b) Classes: classes taught by EMBRAPA's Western Amazon researchers.
2. Specialized videos:
 - a) Reportages: *Globo Rural* videos.

We organized the *corpora* of printed and scanned files and videos about the fish farming activity. The objective was to build knowledge, deepen, apprehend, understand, organize and delimit the pisciculture area and create questionnaires for the interviews.

For the first interviews at the EMBRAPA pisciculture station in Belém, at the fattening farm in Peixe-Boi and in São Miguel do Guamá, and at the induced breeding farm in Igarapé-Açu, questionnaires were structured to guide the interviews. The first questionnaire, based on the readings, had 43 questions, distributed among the following semantic fields: equipment/instrument; reproduction; fattening; biometrics and nursery structure. For example, in the questionnaire, the following question was inserted in the semantic field of reproduction: “What is the name of the fish, after the larval stage, that presents in its morphology all the characteristics of an adult fish?”³, with the expected technical answer being the term “*alevino*” (fingerling).

Also, the reference *corpus* of the socioterminological research on pisciculture consists of specialized, printed and scanned works on fish production in captivity, including theses, dissertations, course conclusion papers, books, scientific articles, catalogs, manuals, laws, national and international magazines, photos.

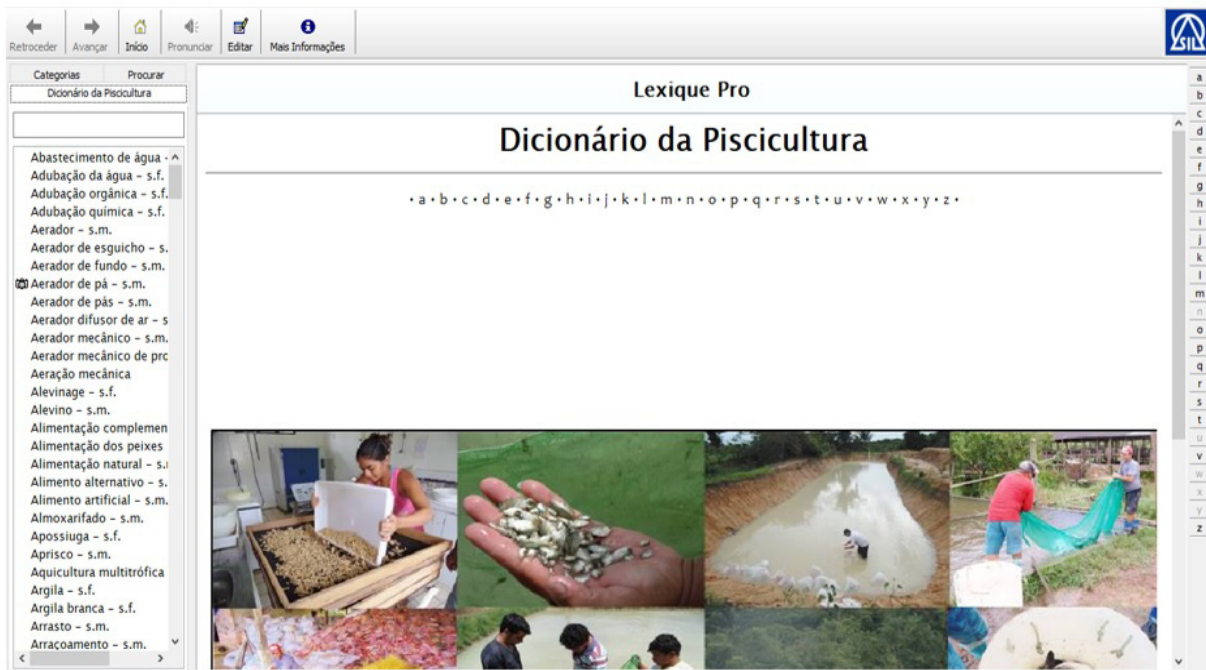
There was, too, a collection of fish farming videos about water quality, fingerlings, rearing, crop management, fattening, ration and feeding available on YouTube that were watched and downloaded.

4.3. Data treatment

In this research, we used the computer programs WordSmith Tools, version 4.0 and Lexique Pro, version 3.3.1. (2004-2010). WordSmith Tools, version 4.0, developed by Mike Scott and published by Oxford University, is a program that describes a linguistic *corpus*, providing resources for analyzing various aspects of language, such as the organization of word lists; selecting items from a list of words, or more, by comparing their frequencies with a list of references; and producing lists of occurrences of a specific item in the text. These aspects are delimited by the following tools called, in the program, respectively, WordList, KeyWords and Concord (SARDINHA, 2004, p. 86).

³ Original quotation: “Como é denominado o peixe após o estado de larva que apresenta na sua morfologia todas as características de um peixe adulto?” (our translation).

Image 1 - Presentation of the dictionary of pisciculture in Lexique Pro.



Source: Produced by the authors.

It was extremely effective to use computer programs to manipulate, edit, organize and process the fish farming terminology database available after the thorough transcription of the interviews.

Sardinha (2004) emphasizes the assistance of *corpus* linguistics to collect, organize and analyze data through the use of computational resources made available with the technological renovation of informatics.

4.4. Terminographic organization of entries

As mentioned, the socioterminological dictionary of pisciculture was organized on the Lexique Pro platform. The microstructure and macrostructure of the printed and virtual glossary can be observed.

To complement the structured information, each of the fields that form the entry, the microstructure, and the composition of the set of vertically structured entries, the macrostructure, are explained in detail.

In macrostructure, the dictionary presents the fish farming terminology arranged in alphabetical order, composing the set of vertically structured entries.

On the other hand, the microstructure, the information fields that form the entry, were structured according to the methodology established by Faulstich (2010, p. 180-181):

Scheme 1 - Organization of the microstructure that forms the entry.

**ENTRY = Lexical entry + Semantic field + Grammatical category + Definition + Context
(reference) ± Variant ± Note ± Cross-references ± Image.**

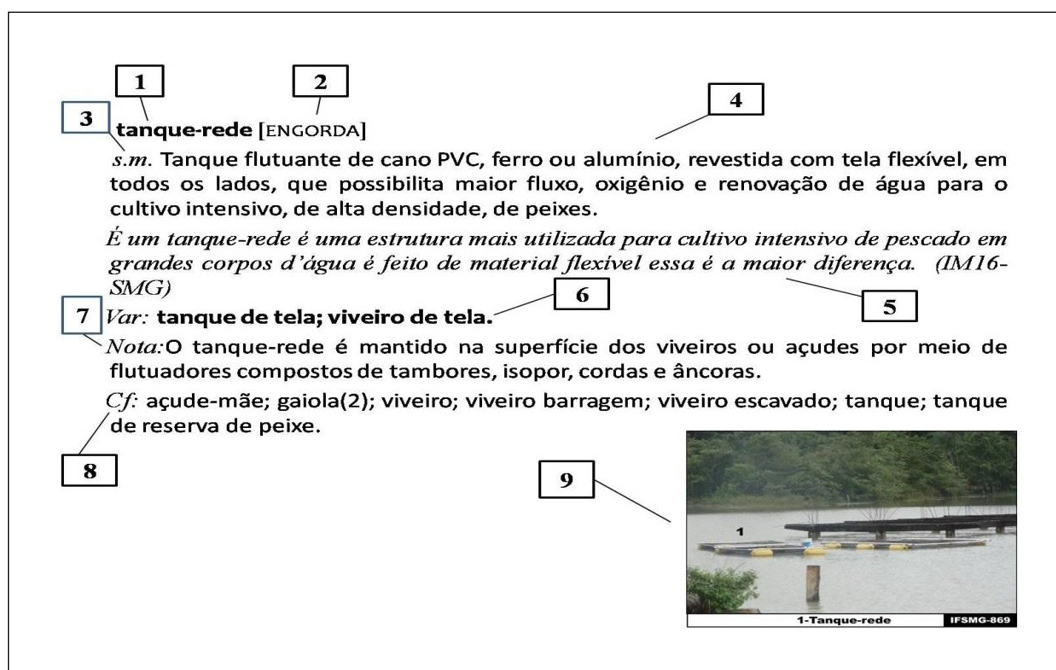
Source: Prepared by the authors.

In order to have a total interaction between the terminographic work and the target audience, it is essential to have a detailed description of the microstructural components of the documented entries. Organization and coherence cause, in the arrangement of abbreviations, definitions, observations, illustrations,

videos, audio, among others, the success of the main objective, which is to inform, to transmit knowledge of the terminology of a given specialized area of human activities.

The components of the entry are the lexical entry, the semantic field, the grammatical category, the definition, the context, the variant, the note, cross-references, and the image. We can see these well-structured linguistic components in the image below, after the Lexique Pro program has exported the glossary from its platform to Word format.

Image 2 - Wording of the entry.



Source: Prepared by the authors.

The lexical entry (1) is the main term, the linguistic unit that has the semantic content of the terminological expression of the specialty language. For example, “*tanque-rede*” (meaning a net tank). This term-entry has the semantic content that expresses an action, a type of relationship, a manifestation materialized in the activity of fish farming.

The semantic field (2) “*engorda*” (fattening) indicates the area, or stage, or phase, of the activity of expertise in which the term is used, a field where numerous terms related to each other circulate through the semantic domain. In the dictionary, the semantic fields are highlighted, next to the input term, in square brackets.

The grammatical category (3) indicates the word class and gender of the term. In the dictionary, the term “*tanque-rede*” is a masculine noun (*s.m.*).

Definition (4) is a system of reciprocal distinctions that describes concepts pertinent to terms. For example, the term “*tanque-rede*” has a definition produced from the explanations collected in the written and oral genres. The definition differentiates the term “*tanque-rede*” from any other term in the same semantic field or from other fields in the realm.

The context (5) is an excerpt that represents the use of the term referred to in the context of the activity. It is extracted from books, articles, written manuals, videos downloaded from YouTube and the speech of professionals. In context, the term-entry is registered from an excerpt of the discourse, as can be seen in the context of the term “*tanque-rede*”.

Variant (6) presents the concurrent forms with the lexical entry. These are the naming alternatives for the same referent, concept. Competing terminological variants can be linguistic and of registration. For instance, the term “*tanque-rede*” has two variants: “*tanque de tela*” (tank of net) and “*viveiro de tela*” (net nursery).

The note (7) complements the definition information, as “*tanque-rede*” has a note in addition to its meaning.

The cross-references (8) are a system of relationship of complementarity between terms. They can be hypernyms, hyponyms and related terms. In the glossary, these references are indicated using the abbreviation “*Cf.*” which means (check, compare).

Finally, the image (9) represents the object that the term refers to. In this illustration, the querent has an idea of what a “*tanque-rede*” is. Additionally, the coding of the illustration and the caption can be seen, which makes it clear which object is to be highlighted, for example, among all the objects present in the illustration, the main object referring to the term is the cultivation instrument “*tanque-rede*”.

Thus, with the characterization of the units that comprise the dictionary structure, the consultant can visualize, read and understand the terminological information of the specialized language of the pisciculture activity in the Amazon region.

5. OUTLINE OF SOME ENTRIES: SEMANTIC FIELD OF *FATTENING*

Fattening is the pisciculture phase that aims to assure the development in size, weight, and quality of meat for commercialization. In this essential phase for the growth of the fish, the following processes were considered: a) cultivation and handling equipment: equipment for analyzing the chemical-physical parameters of the water; b) structure of the nursery: the units that compose the nursery; c) fish nutrition: natural or artificial nutritional compounds; d) biometrics: fish growth analysis processes and crop management procedures; e) fish species: fish inserted in captive farming; and f) recreation: the production of juveniles and their procedures that are also fattening.

The selected sample consists of 18 terms. All belong to the word class of nouns. There are 12 masculine nouns and 6 feminine nouns. It is noticed that 12 terms are Simple Terminological Units (UTS), in which 10 terms are classified as simple nouns, for example, “*arraçoamento*” (feeding), “*chip*”, “*consórcio*” (consortium) “*excremento*” (excrement), “*fertilização*” (fertilization), “*gaiola*” (cage), “*oxímetro*” (oximeter), “*peixamento*” (fish peopling), “*Tambaqui*” and “*trapicho*” (wooden fish feeding ramp); and 2 terms are classified as compound nouns, e.g., “*biomassa*” (biomass) and “*biometria*” (biometrics).

There are also 6 Compound Terminology Units (UTC), for example, “*aerador de pá*” (shovel aerator), “*despesca de transferência*” (transfer harvesting of fish), “*disco de Secchi*” (Secchi disk), “*filtro mecânico*” (mechanical filter), “*galpão de armazenamento de ração*” (feed storage shed) and “*ração balanceada*” (balanced ration) consisting of a noun phrase structured by a head, the noun, “*aerador*”, “*despesca*”, “*disco*”, “*filtro*”, “*galpão*” and “*ração*” and a prepositional phrase constituted by the preposition “*de*” and a noun phrase, whose head is a common or proper noun, as “*pá*”, “*transferência*”, “*Secchi*”, “*mecânico*”. It is observed that these nouns function as specifiers, characterizers, qualifiers of the head, in the morphological role of adjective phrases and the syntactic role of adnominal adjunct. It is noticed that “*balanceada*” is playing the morphological role of an adjective, specifying the balance of the ration. The same happens in “*galpão de armazenamento de ração*”, morphologically constituted by noun, preposition, noun, preposition and noun, in which the nouns “*armazenamento*” and “*ração*” specify that it is not just any “*galpão*”.

The use of linguistic borrowing is another characteristic perceived in the speech of pisciculture professionals, for instance, the foreign term coming from the English language “*chip*”, classified morphologically as a masculine noun in Portuguese.

Let us look at 18 entries, in alphabetical order, from the fattening semantic field:

A

aerador de pá [FATTENING]

s.m. Aerator with perforated blades that rotate to increase the level of dissolved oxygen in the pond water.

This is another type of aerator is a <shovel aerator>, it has several perforated blades at the tip and these blades rotate with the engine running

and also promote mechanical oxygenation but through the blades. (IM12-BL)⁴.

Var: **aerador mecânico; aerador de pás; pá mecânica.**

Cf: aerador; aerador difusor de ar; roda d'água.

arraçoamento [FATTENING]

s.m. Daily action of supplying balanced ration and complementary food to fish in ponds and tanks.

We do the <feeding> every day for the development of the fish, we throw the ration into the ponds and feed the fish. (IF1-PB)⁵.

Var: **alimentação dos peixes; distribuição de ração; processo de alimentação; ração.**

Note: Feeding, with balanced and complementary rations, is essential for the cultivation of any species of fish, as it improves quality, flavor and ensures greater productivity.

Cf: ração balanceada; ração complementar; ração extrusada; ração granulada; ração pra alevino; ração peletizada.

B

biomassa [FATTENING]

s.f. Concentration of the mass of fish species in the aquatic environment, represented by dry or fresh weight per area or volume.

I'm going to do an estimated calculation of the <biomass> so I can calculate how much ration I'm going to throw in. (IM12-BL)⁶.

Cf: balança de campo; biometria; despesca.

biometria [FATTENING]

s.f. The process of measuring fish grown in tanks and ponds.

It is to perform the <biometrics> in which I will make an estimated calculation of the biomass I have in my pond, taking fish, measuring and weighing them. (IM6-BL)⁷.

Var: **biometria dos peixes.**

Note: The fish is weighed and measured to be compared to the last biometrics. The calculation is done to find out how productive it was in the tank as an individual.

Cf: arrasto; balança; balança digital; balança de campo; despesca; engorda; recria (1); recria (2).

C

chip [FATTENING]

s.m. Electronic device for individual fish tagging that has the function of identifying weight, size, age, behavior, breeding season, sexual identification and genetic monitoring.

It's a chip, a fish tag. It is a <chip> that he puts in the fish then he sees if this fish is growing, it's a little chip. It's been around for a long time, but, in Pará, it's arriving now. It is used in research, because it's very expensive, costly to the producer. (IM13-BL)⁸.

Note: The chip is inserted through a syringe into the muscle or visceral cavity of the fish. It has a unique number code, which can be identified by a reader device.

Cf: injetor de chip.

consórcio [FATTENING]

s.m. Activity practiced in pisciculture that allows the creation of aquatic ecosystem beings and terrestrial ecosystem beings with the objective of rationally taking advantage of the area and increasing the profitability of production.

⁴ Original quotation: "Isso é um outro tipo de aerador é um <aerador de pá>, ele tem várias pás perfuradas na ponta e essas pás giram com o funcionamento do motor e promovem também a oxigenação mecânica mas através das pás" (IM12-BL) (our translation).

⁵ Original quotation: "A gente faz o <arraçoamento> todo o dia pro desenvolvimento do peixe, a gente joga a ração no açude e alimenta os peixes." (IF1-PB) (our translation).

⁶ Original quotation: "Vou fazer um cálculo estimado da <biomassa> pra poder calcular quanto de ração vou jogar." (IM12-BL) (our translation).

⁷ Original quotation: "É que seja realizado a <biometria> onde eu vou fazer um cálculo estimado da biomassa que eu tenho no meu viveiro, tirando peixes, medindo e pesando." (IM6-BL) (our translation).

⁸ Original quotation: "É um chip um marcador de peixe é um <chip> que ele coloca no peixe aí ele vai vendo se esse peixe tá crescendo

We call it <consortium>, which would be a culture of the terrestrial ecosystem and another of the aquatic ecosystem. (IM9-BL)⁹.

Var: **sistema de consórcio; sistema consorciado.**

Note: In pisciculture, there is the possibility of intercropping fish with rice, an activity called rice-fish farming, in addition to intercropping fish with cattle; fish with horse, fish with chicken, fish with duck, fish with pork, fish with goat.

Cf: *adubação da água; apossuiga; aprisco; casa; excremento; gaiola (1); produtividade primária; produtividade secundária.*

D

despesca de transferência [FATTENING]

s.f. The removal of fish species from the culture environment in order to transfer larvae and fingerlings from nurseries to ponds or tanks for fattening and marketing.

And the <transfer harvesting> is when I take smaller animals out and put them on other farm sites. (IM12-BL)¹⁰.

Var: **passar a tela.**

Note: In the transfer harvest, there is also the objective of biometrics, to roughly assess weight and size of the fish that are being cultivated in the fattening stage.

Cf: *arrasto; biometria; despesca; despesca final; puçá; rede de malha grossa.*

disco de Secchi [FATTENING]

s.m. Apparatus in circular format with white and black coloring, with weight, supported by a graduated string, that is used to analyze the transparency of the water in the culture environment of fish species.

I analyze the transparency with this device, it's the <Secchi disk>. Normally, the limit that we use in the Secchi disk is from thirty to fifty centimeters, so if it's ten centimeters it means it's too dark and you have to do some procedure. If it's a hundred, it's very clear, you have to do some procedure. (IF7-BL)¹¹.

Cf: *qualidade da água; kit; oxímetro; turbidez.*

E

excremento [FATTENING]

s.m. Natural fertilizer that comes from joint breeding. It is rich in nutrients such as nitrogen, calcium and phosphorus and when dissolved in water, it favors the proliferation of phytoplankton and zooplankton, increasing the productivity of the environment.

Chicken farming takes place and the objective is to collect the <excrement> of the chickens, which will get in contact with the water and is very rich in nitrogen, phosphorus and calcium. These nutrients will dissolve in the water and, consequently, make the environment richer in microorganisms. (IM9-BL)¹².

Var: **esterco; fezes.**

Note: The excrements of ducks, laying hens, pigs, goats, cattle, and horses are natural fertilizers that, when in contact with water, increase the productivity of important nutrients for the fish.

Cf: *adubação da água; alimentação natural; consórcio; matéria orgânica.*

é um chipizinho já existe há muito tempo só que no Pará tá chegando agora utilizada em pesquisa pois sai muito caro é muito oneroso pro produtor.” (IM13-BL) (our translation).

⁹ Original quotation: “A gente chama de <consórcio> que seria um uma cultura do ecossistema terrestre e outra do ecossistema aquático.” (IM9-BL) (our translation).

¹⁰ Original quotation: “E a <despesca de transferência> é quando eu vou tirar animais menores e colocar em outros locais de cultivo.” (IM12-BL) (our translation).

¹¹ Original quotation: “Análise a transparência com esse aparelho é o <disco de Secchi> normalmente o limite que a gente usa no disco de Secchi é de trinta a cinquenta centímetro então se der dez centímetros quer dizer que tá muito escura e tem que fazer algum procedimento se der cem tá muito clara tem que fazer algum procedimento.” (IF7-BL) (our translation).

¹² Original quotation: “Ocorre a criação de frango o objetivo é o <excremento> dos frangos, que vai entrar em contato com a água é muito rico em nitrogênio, fósforo e cálcio e esses nutrientes vão se dissolver na água e consequentemente tornar o ambiente mais rico em microorganismo.” (IM9-BL) (our translation).

F

fertilização [FATTENING]

s.f. Use of fertilizers and nutrients to the water in ponds and tanks. This fertilization can be done with organic components such as manure and grass, and it can also be done with inorganic or chemical components such as urea and ammonia.

It is to put certain products into the water that will propitiate the reproduction of algae, that is <fertilization>. This reproduction of algae, together with photosynthesis, will produce both oxygen and plankton that will be necessary for fish to feed. (IM6-BL)¹³.

Cf: adubação da água; adubação química; excremento.

filtro mecânico [FATTENING]

s.m. A filter made of natural elements, such as sand, stones, for purifying the water before it reaches the tanks and ponds.

It's a <mechanical filter> where you put coarse sand in the bottom and fine sand and pebbles in various dimensions to filter this water. (IM13-BL)¹⁴.

Cf: abastecimento de água; qualidade da água.

G

gaiola [FATTENING]

s.f. A building built over a pond to raise chicken. It is a mixed activity of fish and chicken, and the objective is the fertilization of the pond water through chicken feces.

It is a kind of <cage> for chicken farming. (IM9-BL)¹⁵.

Var: aviário; viveiro de patos.

Cf: apossinga; aprisco; casa; consórcio; fertilização.

galpão de armazenamento de ração [FATTENING]

s.m. A ventilated shed structured with wooden platforms, refrigerated, for the storage of ration.

You should have a <feed storage shed>. This alternative food is stored completely wrong, it is directly on the ground, susceptible to rodent action and environmental contamination that will contribute for this food to rot. (IM12-BL)¹⁶.

Var: casa pra depósito.

O

oxímetro [FATTENING]

s.m. A digital instrument that measures the amount of dissolved oxygen in water in a weir, nursery, tank, or pond.

It's the <oximeter>. We denominate, classify according to the needs of fish. There are fish that need a lot of oxygenation and there are fish that need little, so when there is little oxygenation, dissolved oxygen in the water, and the fish demand a lot, we say it's low. When it's normal, we say it's normal, it's enough. (IF8-BL)¹⁷.

Var: oxigenômetro.

Cf: aerador; oxigenar a água; oxigênio; qualidade.

¹³ Original quotation: “É você colocar determinados produtos dentro da água que vai propiciar a reprodução de algas isso é <fertilização> e essa reprodução de algas ela faz juntamente com a fotossíntese ela vai produzir tanto oxigênio quanto o plâncton que vai ser necessário pro peixe se alimentar.” (IM6-BL) (our translation).

¹⁴ Original quotation: “Aí é um <filtro mecânico> que você coloca então areia grossa lá embaixo areia fina e vem pedregulhos em diversas dimensões pra filtrar essa água aí.” (IM13-BL) (our translation).

¹⁵ Original quotation: “É uma espécie de uma <gaiola> ocorre a criação de frango.” (IM9-BL) (our translation).

¹⁶ Original quotation: “Você deveria ter um <galpão de armazenamento de ração> esse alimento alternativo está armazenado completamente errado ele tá diretamente ao solo suscetível à ação de roedores à ação de contaminação de ambiente que vai contribuir pra que esse alimento apodreça.” (IM12-BL) (our translation).

¹⁷ Original quotation: “É <oxímetro> não a gente aqui denomina classifica conforme a necessidade do peixe tem peixe que precisa de muita oxigenação e tem peixe que precisa de pouca então quando tem pouca oxigenação oxigênio dissolvido na água e o peixe exige muito a gente diz que tá baixo quando tem, tá normal a gente diz que tá normal que tá suficiente.” (IF8-BL) (our translation).

P

peixamento [FATTENING]

s.m. Insertion of post-larvae, fingerlings, juveniles and adult fish in weirs, ponds, tanks and nurseries for fattening and marketing.

There, where we released the fish, is the nursery, it is only for the fish to stay there until they reach a hundred grams so we are able to do <fish peopling> in the other dams. (IM16-SMG)¹⁸.

Var: povoamento.

Note: The fish farmer does the fish peopling of the pods at the fattening stage with commercialization objectives.

Cf: engorda; recria (1); recria (2).

R

ração balanceada [FATTENING]

s.f. Ration that has nutritional elements, such as proteins, amino acids, lipids, in amounts adequate for the captive growth of a particular species of fish.

So, for example, a <balanced ration> for carnivorous fish has more protein than a balanced ration for omnivorous fish, because the carnivore needs more protein as well as other species, they need a larger amount of amino acids or, else, a larger amount of vitamin premix that has several types of vitamins. So, it refers to that, the correct amount of the different nutrients... different components of the ration. (IF11-BL)¹⁹.

Var: alimentação artificial; ração comercial; ração controle; ração industrial; ração original.

Note: The balanced ration has the following forms: paste, flour, pelleted or extruded. It has a proportional composition of nutrients fundamental to the development of the fish, such as protein, lipid, vitamins, minerals, i.e., these elements are essential to cover energy needs, replace worn parts, renew skeletal and muscular structures, and for the reproduction of the fish.

Cf: arraçoamento; pellet; ração; ração complementar; ração extrusada; ração granulada; ração peletizada; ração pra alevino.

T

tambaqui [FATTENING]

s.m. A round freshwater fish, omnivorous, with scales, black and yellowish coloration, adipose fin, elongated operculum, reproduced and cultivated in stations, farms, and fish farming laboratories.

The <tambaqui> has the most scaly scales, the scales that are very yellow because they are yellow and have very yellow scales. (IM2-PB)²⁰.

Note: The Tambaqui, *Colossoma macropomum*, is one of the most cultivated and commercialized fish in Pará and in Brazil. It is a technology dominated species. It can reach a length of up to 1 meter and weigh up to 30 kg. In captivity, reproduction occurs by hormonal induction.

Cf: pacu; pirarucu; tambacu; tambatinga.

trapicho [FATTENING]

s.m. A wooden structure located somewhere in a pond or tank to facilitate the feeding of fish.

We named it <trapicho>. It is where we put the ration, as I was doing, to go to the tip and throw the food to the fish, because, if we were to throw it from here, it would be much more difficult. (IM2-PB)²¹.

Var: palafita; pontezinha; rampa; rampa de madeira; rampazinha.

¹⁸ Original quotation: “Ali onde a gente soltou é o berçário ali só é pro peixe ficar ali até o torno de cem gramas pra fazer o <peixamento> nas outras represas.” (IM16-SMG) (our translation).

¹⁹ Original quotation: “Então por exemplo uma <ração balanceada> pra peixe carnívoro tem mais proteína do que uma ração balanceada pra peixe onívoro porque o carnívoro precisa de mais proteína assim como outras espécies elas precisam uma quantidade maior de aminoácidos ou então uma quantidade maior de premix vitamínico que tem vários tipos de vitaminas, então se refere a isso a quantidade correta dos diferentes nutrientes... diferentes componentes da ração.” (IF11-BL) (our translation).

²⁰ Original quotation: “O <tambaqui> ele tem a escama mais escamuda aquela escama bem mesmo que tu vê a escama amarela porque é amarelo tem a escama bem amarela.” (IM2-PB) (our translation).

²¹ Original quotation: “Nós demos o nome dum <trapicho> serve pra gente botar aqui a ração, como eu tava fazendo aqui ir lá na ponta e jogar a ração pro peixe porque na verdade se a gente fosse jogar daqui ia ficar bem mais difícil.” (IM2-PB) (our translation).

Note: This structure is built in large nurseries to facilitate the act of feeding the fishes, giving access to a certain area so that the food is better distributed and is used for fisheries catch-and-pay type.

Cf: açude; arraçoamento; viveiro.

6. CONCLUSION

This article presents a proposal for the elaboration of a terminological dictionary for pisciculture in the Amazon region. The elaboration of the dictionary of terms related to fish farming is executed through printed and digitalized written texts available, respectively, in libraries and on the internet; There is also the collection of specialized terms available in videos on the YouTube platform; in addition, terms are documented through visits to the work environment, breeding laboratory and fattening and commercialization farms in interviews with professionals in the field.

The objective is the description and the terminographic record in a dictionary of the specialized language of pisciculture, with the purpose of disseminating the relationships between the concepts and terms used by this area of expertise in the written and oral modalities in the Amazon region.

Fish farming is on the rise. The trend is that fish farming and aquaculture will surpass extractive fishing, as they are profitable activities and targets of scientific research, new technologies, and growing private and public investments. In this sense, pisciculture has special importance, as it produces highly nutritional food that are no longer easily found in natural aquatic habitats, especially in the case of some species, such as Pirarucu and Tambaqui. Due to its relevance (economic, nutritional, environmental, political and social), fish farming arouses much interest in several departments of scientific research, from biology, which studies aquatic ecosystems, and ecology, to economics and terminology. The interest of the latter is justified by the fact that this activity increasingly requires, at local and national levels, the normalization, regulation and standardization of all stages of production, and it cannot be achieved without the rigor of a well-established technical language. On that account, this study has the academic concern of contributing to the systematization of technical terms in the field of pisciculture (both those that circulate in written and spoken language), creating subsidies for the specialization and standardization of this activity in the Amazon region.

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