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An overview of family fish farming: social, politics and food security implications

Uma visão geral da piscicultura familiar: implicações sociais, políticas e de segurança alimentar

Una visión general de la piscicultura familiar: implicaciones sociales, políticas y de seguridad alimentaria

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Abstract
One characteristic that can be observed in family farming is the diversity of activities that are carried out concurrently on the property, providing and guaranteeing products for personal consumption or sale over the course of the year. Fish farming, an activity destined for fish production, is often one of these activities developed by family farmers and contributes to the access to quality protein for rural families and to increase income. Furthermore, the techniques used for fish production in family farming can foment a sustainable form of production. However, the lack of incentives regarding extension projects, marketing barriers, the lack of integration of traditional communities in decision making, and the absence of adequate technical information for the reality of rural properties make this activity limited and even ineffective in some regions. The encouragement of this activity could provide family farmers with improved economic conditions and food security and, consequently, the reduction of poverty in rural areas. The present study originated from a bibliographic review that addresses the activity of fish production and its impacts on the development of rural family activities, food security, and public and social policies for the maintenance, regularity, and quality of the final product.
Keywords: Family fish farming; Food security; Social conditions.

Resumo
Uma característica que pode ser observada na agricultura familiar é a diversidade de atividades que são desenvolvidas simultaneamente dentro de uma propriedade, proporcionando a garantia de produtos para consumo ou venda ao longo do ano. A psicultura, atividade destinada à produção de peixes, muitas vezes é uma dessas atividades desenvolvidas por agricultores familiares e contribui para o acesso à proteína de qualidade para famílias rurais e para a geração de renda. Além disso, as técnicas utilizadas para a produção de peixes na agricultura familiar podem representar uma forma de produção mais sustentável. No entanto, a falta de incentivo para projetos de extensão, barreiras na comercialização, a falta de inserção das comunidades nas tomadas de decisões e as informações técnicas adequadas para a realidade das propriedades fazem com que a atividade se torne limitada ou até mesmo ineficiente em certas regiões. O estimulo dessa atividade poderia proporcionar aos pequenos agricultores melhores condições econômicas, melhor segurança alimentar e, consequentemente, a redução da pobreza em áreas rurais. O presente trabalho se originou de uma revisão bibliográfica que faz apontamentos sobre a atividade de produção de peixes e seus impactos no desenvolvimento da atividade rural familiar, na segurança alimentar e nas políticas públicas e socias para a manutenção, regularidade e qualidade na oferta do produto final.
Palavras-chave: Condições sociais; Piscicultura familiar; Segurança alimentar.

Resumen
Una característica que se puede observar en la agricultura familiar es la diversidad de actividades que se desarrollan simultáneamente dentro de una propiedad, ofreciendo una garantía de los productos para consumo o venta durante el año. La piscicultura, una técnica destinada a la producción de peces, es a menudo una actividad realizada por agricultores familiares y contribuye al acceso de las familias rurales a proteínas de calidad y a la generación de ingresos. Además, las técnicas utilizadas para la producción de peces en la agricultura familiar pueden representar una forma de producción más sostenible. Sin embargo, la falta de apoyo a proyectos de extensión, las barreras de comercialización, la falta de

inclusión de las comunidades en la toma de decisiones y las informaciones técnicas adecuadas para la realidad de las propiedades, hacen que la actividad sea más limitada o incluso ineficiente en determinadas regiones. El fomento de esta actividad podría proporcionar a los pequeños agricultores mejores condiciones económicas, mayor seguridad alimentaria, y consecuentemente, la reducción de la pobreza en las zonas rurales. El presente trabajo se origina a partir de una revisión bibliográfica que informa de la actividad pesquera y sus impactos en el desarrollo de la actividad rural familiar, de la seguridad alimentaria, políticas públicas y sociales de mantenimiento, regularidad y calidad de la oferta del producto final.
Palabras clave: Condiciones sociales; Piscicultura familiar; Seguridad alimentaria.

1. Introduction

Fish farming, a form of Aquaculture, is an activity aimed at producing fish and, according to Garutti (2003), cultivating fish can represent an excellent leisure activity and also a profitable economic activity.

According to the Institute for Applied Economic Research (IPEA, 2017), concerns with sustainability, populational growth, and food security constitute challenges for countries in the next decade. Brazil, one of the leading meat production markets (beef, pork, poultry, and fish), tends to reposition itself to overcome the food deficit envisioned with the increase in the world population. The Food and Agriculture Organization of the United Nations (FAO, 2020) anticipates that, by the year 2050, the country's population could reach 9 billion people.

According to FAO (2018), aquaculture continues to grow faster than other important food production sectors, although it no longer has the high annual growth rates of the 1980s and 1990s.

To the detriment of the decline in extractive fishing, aquaculture has benefited, as indicated by official statistics. The proportion of people employed in capture fisheries decreased from 83% in 1990 to 68% in 2016, whereas the percentage of people employed in aquaculture increased correspondingly from 17% to 32% (The state of world fisheries and aquaculture-FAO, 2018).

In Brazil, this scenario of activity expansion was also perceived, as demonstrated in the annual report of the brazilian association of fish farmers (Peixe BR, 2021), in which there was an increase in production in 2020 of 802,930 tons of farmed fish.

However, despite the increase in fish production in the country, the situation of food insecurity (FI) is still prevalent, as indicated in the latest National Household Sample Survey (IBGE, 2013). Food insecurity is characterized by the following categories: Mild Food Insecurity (MiFI), Moderate Food Insecurity (MoFI), and Severe Food Insecurity (SFI), with each one indicating a greater decline in food quantity, quality, and provision, reaching the most serious expression, famine. According to this same institute (IBGE, 2020), the prevalence of FI in rural areas was higher than that found in urban areas, and the situation of SFI in rural households was 7.1%, 3 percentage points higher than that recorded in urban areas (4.1%).

In this context, fish farming can be suggested as an activity that offers an opportunity for family farmholds with the objective of maintaining natural resources, sustainability, subsistence, income generation, and nutritional guarantee. Family farmers, including peasants, indigenous peoples, traditional communities, pastoralists, fishermen, and many other food producer groups, have a unique potential to bring about transformative changes in the way food is grown, produced, processed, and distributed, thus enhancing territorial development (Global Action Plan- FAO, 2019).

The aim of the present study was to review how family fish farming can impact its development, reflecting on economic, social, and food security aspects.

2. Methodology

In order to investigate the impact of fish production on rural family activity and food security, searches were conducted on digital library databases: Scientific Electronic Library Online (SCIELO), Google Scholar, ResearchGate, government

websites offering statistical data and current Brazilian legislation, and reports found on the Food and Agriculture Organization of the United Nations (FAO) website.

As a result, papers, dissertations, decrees, and legislation that supported the topic at hand were chosen. In the search, both Portuguese and English words were utilized (example: family fish farming, food security, technical assistance, rural extension, family income). Papers with inconclusive results were not included.

The works previously chosen based on the indexing terms were saved in a database for subsequent exploratory, selective reading, and selection of material that contributed the most to the work's theme, and finally interpretative reading and manuscript composition.

The final considerations of this work include the authors' impressions of the researched issue.

3. Characterization of Family Fish Farming

In family farming, property management is shared by the family, and agricultural production is the primary source of income (IBGE, 2017). The family and the farm are connected, co-evolving and combining economic, environmental, social, and cultural functions (Global Action Plan- FAO, 2019).

Data from the 2017 agricultural census shows that 77% of the agricultural establishments in Brazil were classified as family farming. In terms of area, family farming occupied 80.9 million hectares during the survey period, which represents 23% of the total area of Brazilian agricultural establishments (IBGE, 2017).

Like any activity linked to family farming, fish farming is one more among the diversification of activities within the rural family property.

Fish farming, like any agricultural enterprise, requires information, planning, and training so that the activity can provide the family fish farmer with a steady demand for the product, both for consumption and for the sale of the surplus. Igarashi (2019) emphasized that fish farming can be a promising activity in family farming, although it can be faced with a lack of preparation and information on the part of the farmers. The application of Best Aquaculture Practices (BAP), for example, is incipient and poorly adapted to the particular conditions (social and economic) of the family farming communities.

Ribeiro-Neto et al. (2016) highlighted this reality in the Baixo São Francisco region in the state of Sergipe, Brazil, where extensive family fish farming is characterized by small rural properties that carry out the activity in community or individual reservoirs, excavated or natural, using agricultural by-products for fish feeding, family labor, and simplified management. The technical assistance and rural extension aimed at extensive family fish farming are still minimal compared to semi-intensive commercial scale systems. Ottati et al. (2018) described the reality of family farmers in the municipality of Santo Amaro do Maranhão who work with fish production. According to the authors, the rudimentary form in which the local fish farms exist clearly reveals the technical deficiency in production management, regarding even the most basic and necessary guidelines, such as the correct depth of a tank, the most suitable tarpaulin, the type of feed most appropriate for the species and age of the fish, and the time required for harvesting, essential aspects for economic return in this activity, but that are totally unknown by the vast majority of producers in that region.

Overall, practices and resources are not taken into account as much as the technologies per product. This suggests the intensive use of modern inputs and capital, which are scarce for small farmers and mischaracterize the usage of the labor force, which, in general, is of family origin (Embrapa, 2003).

One of the possible reasons why fish farming is not characterized in the context of family farming may be the lack of information and indicators for this type of production. Nunes et al. (2017) evaluated the fish farming activity in order to identify indicators to assess the sustainability of agroecosystems in the south-central region of the state of Paraná. In that study, the authors took into account methodologies that identified positive and negative aspects of the system through interviews with

farmers. They reported that, through their study, it was possible to understand the existing relationships between the activities developed in the agroecosystems, as well as their limits and potential. The indicators were identified considering the perception of the farming families regarding their reality, a determining factor for the study results.

Pravakar et al. (2013), in a study carried out in a district of Bangladesh, collected data to better characterize the studied region and also evaluated indices related to educational conditions, family composition, income, property type, stocking density, fish species cultivated, type of food provided, and how the fish were fed. The authors found that only 34% of the fish farmers received formal training in fish production, while 94% reported that their socioeconomic conditions were improved through fish farming.

Ofuoku et al. (2008), in a study conducted with family fish farmers in the Central Agricultural Zone of the state of Delta, Nigeria, evaluated the access and use of technical information that reached the fish farmers. They concluded, through the interviewees, that there were still deficiencies to be resolved, such as the use of technology, management, and process control, in addition to the absence of information on the quality of the provided feed, which, according to the researchers, occurs due to the lack of knowledge of the fish farmers regarding the processes and technologies used in fish food production.

In the state of Paraná, a case study on Brazilian aquaculture was carried out, in which a Cooperative, known for its operations in the poultry sector, considered the fish market indicators and decided on its own scaled processing. In 2008, it started to process fish that, until then, were produced in an artisanal manner by its members. Currently, 40 tons of fish are slaughtered in a single unit of this cooperative (IPEA, 2017).

Conversely, Vieira et al. (2016) argued that, being a small enterprise, family aquaculture is more capable of controlling and training, including the construction, treatment, and fertilization of nurseries, the production of compost and food, natural food production, better monitoring of water quality, and the biometrics of cultivated species, in addition to favoring environmental education in the community.

In the context of rearing fish in extensive and even semi-intensive production systems by farming families, it is essential to inform and adapt the techniques they use, as well as respect the cultural and socioeconomic conditions of these populations.

4. Fish Quality and Food Security

Food and nutritional security are themes that are widely addressed in different fields (nutritional, social, political, economic, etc.).

Corona and Pereira (2013) addressed this issue and related it directly to family farming, reporting that, since the 1990s, Brazil has sought, through development programs and policies, initiatives, not only to satiate hunger, but that aim at food security, with guarantees of product quality, distribution, food access mechanisms, and, above all, local development focused on family farming. This assertion by the authors is, in turn, supported by Article 3 of Law No. 11,346, which states that:

> *Food and nutritional security consist of the realization of everyone's right to regular and permanent access to quality food, in sufficient quantity, without compromising access to other essential needs, based on health-promoting food practices that respect cultural diversity and that are environmentally, culturally, economically, and socially sustainable*.

Fish comprise an important component of the human diet, but their production is unlikely to keep up with demand. When assessing the consequences of dwindling fish supply for human food security, it is crucial to distinguish between the effects on the population as a whole and the effects on the poorest, those most vulnerable to malnutrition. Middle- and high-income people consume much more fish than low-income individuals (Kent, 1997). Kwasek et al. (2020) reported that the main source of PUFA (Polyunsaturated Fatty Acids) in traditional populations has been fish and fish oil, but the supply of these

substances is not sufficient to provide the recommended levels for population growth. It is well known that fish products stand out for their nutritional properties and benefits to human health, as stated by Tilami and Sampels (2018), regarding the levels of proteins, peptides, and amino acids. In addition, they are also a rich source of certain vitamins and minerals, such as vitamin D, selenium, phosphorus, and calcium.

Sartori and Amancio (2012), in addition to highlighting the qualities of fish in human consumption, compared the differences in the amount consumed in different regions of Brazil, highlighting the North and Northeast regions as high consumers of this product.

Fish is characterized by its rapid deterioration process, which is due to the action of microorganisms and muscle autolysis, with relevance concerning the forms of conservation and evaluation in measuring the quality of the product (Araújo et al., 2010; Ashei et al., 1996). Microbiological, sensory, and chemical analysis techniques are commonly applied to fish, but such knowledge is far from known by small family fish farmers. Ghaly et al. (2010) mentioned different conservation methods, including salting, smoking, and dehydration, which historically are older techniques that are still used by traditional populations.

These forms of processing are related to cultural and social aspects of each community. According to FAO (1992), in the African continent, the activities of handling and post-harvest processing of fish are divided between family members, and such division differs from one geographic region to another.

Adeyeye and Oyewole (2016) reported that traditional fish preservation methods have been practiced for centuries in most African countries, and they consist of: sun drying, salting, and smoke drying. The authors highlighted the different types of ovens and techniques used in smoke drying, emphasizing that such traditional procedures produce fish of uneven quality and often pose a work-related health risk due to the lack of control over temperature and smoke density.

Brazil is governed by an Industrial and Sanitary Animal Products Inspection (RIISPOA) regulation that establishes quality standards for fish intended for human consumption. When taking these standards into account, it can be concluded that they are exclusionary regarding the commercialization of fish from small family fish farms. Food security management control systems adopted by the fish industry, such as HACCP (Hazard Analysis and Critical Control Points) and GMP (Good Manufacturing Practices), are also procedures that are far from the reality of this segment. Thus, the fish farmer is left with selling fresh fish directly, often informally.

Souza et al. (2019) elaborated pilot actions, together with the population of artisanal fishermen and family fish farmers of the state of Tocantins, to include fish meat in school meals with the support of government actions. As reported by the authors, the supply of the product in the form of fillet and mechanically separated meat (MSM) should meet the recommendations of the food legislation established by the National Health Surveillance Agency (Anvisa) and the Ministry of Agriculture, Livestock and Supply (Mapa). However, the main bottleneck diagnosed in the state was the lack of suitable fish suppliers, mainly comprised of family farms, that had access to sanitary inspection services to meet the demands of the public-school network.

In this context, food security, as well as accessible fish conservation techniques, are extremely necessary to serve traditional populations, as is the adjustment of the current legislation for the formal commercialization of fish derived from family farming.

5. Public Policies, Incentives, and the *Selo Arte* seal

From a normative point of view, we can consider that advances have been made to establish guidelines for public policies on family farming, as set out in Federal Law No. 11,326, of July 24, 2006. Article 1 of this Law establishes the concepts, principles, and instruments destined for the formulation of public policies aimed at Family Agriculture and Rural Family Enterprises (Brasil, 2006).

Niederle et al. (2019) analyzed the changes in public policies for rural development in Brazil, as did Junqueira and Lima (2008), who pointed out the main difficulties in the development of family agricultural production in the country, which include: low capitalization, reduced access to lines of credit, low access to technologies, interregional production disparity, and minimal access to technical assistance.

This reality was evidenced by Silva et al. (2013) in their Participatory Rapid Diagnosis in two communities in the state of Tocantins. Together with family fish farmers, the authors showed that one of the obstacles for development is the lack of licensing, which also prevents them from obtaining credit from financial institutions.

Such a reality was also reported by Silva et al. (2021) in the municipality of Arari-Maranhão, where the fish farmers association encounters obstacles in the purchase of inputs, marketing, and the lack of documents for environmental licensing and technical assistance.

In the context of technical assistance and rural extension programs, the discontinuity of these programs is the factor that most results in the family fish farmer abandoning the activity or inefficiency in production. In a report containing interviews with professionals involved in Brazilian rural extension, the authors described the entire process of changes in the policy of rural extension agencies in Brazil and how the modifications in the National Technical Assistance and Rural Extension Program (PNATER) became more comprehensive. As a consequence, this new rural extension model, created and supported by PNATER, was characterized by the expansion of public funding agencies that provide more technical assistance than rural extension, a fact that made institutions adjust (Sette & Ekboir, 2013).

Projects with little or no participation commonly result in failures due to the low social capital involved, where policies are deliberated at the state level, but there is no effective participation of traditional communities in the policy-making process (Cunha, 2009).

With the growing concern with water scarcity, the challenges have increased with regard to access to and the conservation of water resources in the country, despite Brazil having 12 hydrographic regions, which currently face different obstacles to maintain their availability and water quality (Agência Brasil, 2018). Therefore, fish production is an activity that should be well evaluated in the environmental sphere. The greatest challenge is to do this sustainably, generating income and adding value to products derived from fisheries and aquaculture. For this to occur, a legal and regulatory framework is needed to guarantee legal security for the production and safety of food for consumers.

Over the course of 42 years, Decree-Law No. 221, of 1967, was the main legal instrument that regulated the fishery activity. With the enforcement of Law No. 11,959/2009, the decree was considerably repealed. The current legal framework on fisheries and aquaculture is considered the first law on the subject. In spite of the new legislation, some laws from Decree-Law No. 221 are still in force, such as those dealing with fishing vessels and fishing companies, amateur and scientific fishing licenses, the aquaculturists' registry, and the general fishing registry (Câmara dos Deputados, 2015).

Law No. 11,959 (Brasil, 2009) became the leading legal instrument addressing fisheries and aquaculture in Brazil. The National Policy for the Sustainable Development of Aquaculture and Fisheries, established by this law, aims to guarantee the sustainable use of fishery resources and optimize the resulting economic benefits in harmony with the protection of the environment and biodiversity; promote the ordering, promotion, and inspection of fishery activities, preservation, conservation, and recovery of fishery resources and aquatic ecosystems; and encourage the socioeconomic, cultural, and professional development of those engaged in fishery activities and their communities. Among other issues, this law classifies fishing into two commercial (artisanal and industrial) and three non-commercial (scientific, amateur, and subsistence) modalities and addresses the access and sustainable use of fishery resources, boats, aquaculture, stimuli, inspection, and sanctions applicable to offenders.

Although the first general law on aquaculture and fisheries was published in 2009, Law No. 8,171, of 1991, which addresses agricultural policies (Brasil, 1991), already contained several provisions referring to fisheries and aquaculture. This law sets the foundations, defines the institutional objectives and competencies, provides for resources, and establishes the actions and instruments of agricultural policy relative to agricultural and agro-industrial activities and the planning of fishery and forestry activities.

Among the instruments of the Agricultural Policy, rural credit and agricultural insurance stand out. One of the objectives of rural credit is to develop forestry and fishery activities with family farmers or rural family entrepreneurs in accordance with Article 3 of Law No. 11,326, of July 24, 2006 (Brasil, 2006). Rural credit aims to encourage income generation and the better use of family labor by financing agricultural and non-agricultural rural activities and services, provided they are developed in rural establishments or nearby community areas, including rural tourism, artisanal production, and the like. It is important to point out that aquaculturists can also be classified as family farmers, provided that they simultaneously meet all the requirements referred to in Law No. 11,326/2006 and exploit water reservoirs with a total surface area of up to 2 ha (two hectares) or occupy up to 500 m³ (five hundred cubic meters) of water when exploitation takes place in net tanks. In compliance with these requirements, aquaculturists, in addition to conventional lines of credit, will be allowed to access Pronaf – National Program for Strengthening Family Farming. Agricultural insurance, in turn, aims at covering losses arising from claims that affect fixed and semi-fixed goods or livestock, in addition to losses arising from natural phenomena, pests, diseases, and others factors that affect plantations.

Aquaculture can be carried out on dry land (in excavated tanks) or in marine or continental waters. Its expansion has increased with the advent of net tank technology, floating structures in which aquatic organisms are reared. A legal aspect of fundamental importance, in this case, is the authorization to use physical spaces of water bodies owned by the Union, which was initially implemented through Decree No. 2,869, of 1998, which was later replaced by Decree No. 4,895, of 2003.

Decree No. 4,895, of 2003, addresses the authorization to use physical spaces of water bodies owned by the Union for aquacultural purposes. These spaces may have their use authorized for the purposes of aquacultural practice, observing ordering, location, and preference criteria, with a view to:

I – sustainable development;
II – increases in Brazilian fishery production;
III – social inclusion; and
IV – food security. Single paragraph. The authorization referred to in the caput will be granted to individuals or legal entities that fall under the category of aquaculturist, as provided for in the legislation in force.

The Department of Aquaculture and Fisheries of the Ministry of Agriculture, Livestock and Supply – MAPA is the agency responsible for delimiting the location of aquaculture parks and areas of preference with the prior consent of the Ministry of Environment, the maritime authority, the Ministry of the Economy, and the National Water Agency - ANA, within the scope of their respective competencies.

Another extremely relevant topic is fishery and aquaculture health, which is dealt with by MAPA in the Secretariats of Agricultural Defense and Aquaculture and Fisheries. The objective of this policy is the health of aquatic organisms under cultivation, the control of aquatic organisms for ornamental purposes, and the quality of fish to be used as raw material for handling, processing in industrial establishments, and direct sale to the consumer. It should also be noted that Law No. 1,253/1950 (Brasil, 1950), which establishes the obligation of prior inspection, from the industrial and sanitary point of view, of all animal products, edible and non-edible, whether or not with added vegetable products, prepared, processed, handled, received,

conditioned, deposited, and in transit. Despite the objective of ensuring the safety of food, this legislation makes formal access impossible for a large part of aquaculture farmers and fishermen who wish to implement some degree of product processing, thus making adding value and accessing formal markets unfeasible. Furthermore, this sanitary legislation establishes the authorization for the transit of food products of animal origin. Therefore, a product inspected by the Municipal Inspection Service is only authorized, at first, to be marketed within the limits of the municipality that granted the Seal. The same logic applies to the states and the Federal District. Thus, the *Selo Arte* law was created as a way to break with territorial restrictions and, at the same time, value products with territorial, cultural, or traditional bonds.

The *Selo Arte* seal, created by Law No. 13,680, of July 14, 2018, which included Article 10-A to Law No. 1,253/1950, and regulated by Decree No. 9,918, of July 18, 2019, can be considered the realization of an old dream of artisan producers from all over Brazil since it "is a certificate that ensures that food products of animal origin were prepared by hand following a recipe and process that have traditional, regional, or cultural characteristics" (Brasil, 2019).

The creation of the *Selo Arte* seal is yet another strategic opportunity for small producers to access new markets, as it reduces bureaucracy in the interstate marketing process and establishes the duty of inspection and monitoring of enterprises to the health agencies of the states and the Federal District.

In addition, to consumers, it represents the guarantee of the quality of these products, which follow a truly artisanal form of production and comply with good agricultural practices and sanitary standards (Brasil, 2019).

The importance of the *Selo Arte* seal for producers is, first of all, the added value that an official quality seal offers to certified products. Moreover, it also expands the potential consumer market, as products are no longer restricted to the territory of their respective health certification, and enables the sale of these products throughout the national territory (Brasil, 2019). Although there is no direct link with the territory, as in the case of Geographical Indications, it is clear that most of the products that have already managed to access this policy also have Geographical Indications or potential Geographical Indications.

A Geographical Indication is a tool that signals the consumer that a product has differentiated qualities that are specific to a geographical area, which can be a country, state, city, or region. The legal framework for Geographical Indications in Brazil is the Industrial Property Law (No. 9,279/1996), which regulates the rights and obligations regarding industrial and intellectual property in Brazil. According to this law, in Articles 176 to 178, a Geographical Indication is constituted in two forms: the indication of provenance and the denomination of origin. The indication of provenance is the geographical name of a country, city, region, or locality in its territory, which has become known as a center for the extraction, production, or manufacture of a given product or provision of a given service. The denomination of origin, in turn, is the geographical name of a country, city, region, or locality in its territory, which designates a product or service whose qualities or characteristics are due exclusively or essentially to the geographical environment, including natural and human factors (Brasil, 1996).

Up to when this study was written, Brazil had 86 Geographical Indications registered in the INPI – National Institute of Industrial Property, nine of which were foreign and 77 Brazilian, with the states of Minas Gerais, Rio Grande do Sul, and Paraná presenting the highest number of registered GIs (Sebrae, 2021). Despite the significant increase in the number of registries in recent years, Brazil has only one Geographical Indication for fish products, of the Denomination of Origin (DO) type, which is *Mamirauá*, for the management of pirarucu (*Arapaima gigas*) products. This product already has the *Selo Arte seal*, enabling it to be commercialized throughout the country. There is still no Geographical Indication or *Selo Arte seal* for aquacultural products.

Through these instruments, there is an interest in protecting producers from the unfair competition that imitation products marketed under the same name entail and, on the other hand, assuring consumers the guarantee of a product prepared with a certain quality, whose compliance with specific protocols is ensured by certifying agencies.

In spite of the high expectations regarding these initiatives (*Selo Arte* and Geographical Indications), it cannot be denied that these themes present significant contradictions. Both the Geographical Indications and the *Selo Arte* seal are new tools and are still little known by the general public. Both present challenges to be faced, especially for products of animal origin from aquaculture, fishing, and family farming. On the other hand, due to their potential to add value, they can play a fundamental role in stimulating the regularization of these establishments.

6. Final Considerations

Family fish farming is an activity that can contribute to improving the income of farming families. In addition, fish can be included in the farmers' diet, providing nutritional quality for these families. However, greater participation by family fish farmers and/or fishermen and/or traditional communities is necessary, as well as accessibility of information, adjustments to public policies, and the continuity of extension and technical assistance projects, respecting social and cultural conditions of communities so that they can reach the individuals involved in this activity.

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