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Brazilian shrimp farmers eye new horizons

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A tariff-free return to international markets means intensification and increased production

The Brazilian farmed shrimp sector is returning to the international market and working to competitively increase production through intensification and expansion.

Seafood is one of the most-traded commodities in the world, with values as much as three times higher than other animal proteins. Marine farmed shrimp contributes globally with around 4.8 billion metric tons (MT) and an import value of $21 billion. Farmed marine shrimp comprise 58.6 percent of all shrimp consumed worldwide (FAO 2017).

Brazil has huge natural and competitive advantages for the production of farmed shrimp, plus an adequate basic infrastructure network in terms of access roads, electricity and communications, but unfortunately has not yet awakened to this significant opportunity

The northeastern region of Brazil is where 98 percent of the country's marine shrimp farming area is located. This region has a potential of more than 1 million hectares of production area, just in the estuarine areas, but at present only 30,000 hectares (3 percent) of this potential is being used. This region was responsible for 99.7 percent of the national production of farmed marine shrimp in 2016 (60,000 MT), but only exported 526 MT valued at $3.1 million that year.

Recent notable achievements

This export situation may begin to change in the coming years when we consider that in 2017 the farmed marine shrimp sector, through the Brazilian Shrimp Farmers Association's (ABCC) efforts, celebrated the following achievement:

1. In the second five-year review conducted by the U.S. International Trade Commission (ITC) to determine what could happen if antidumping tariffs were repealed, the five acting members of the ITC voted unanimously in favor of revoking the antidumping order against Brazilian shrimp;
2. Our defense strategy was that Brazil should be reviewed and therefore judged individually and not cumulatively with the four Asian countries as was done in the First Five Year Antidumping Review and as was strongly advocated by U.S. interested parties. The main defense argument was that Brazil's farmed shrimp production has been focused almost 100 percent on the domestic market for some years regardless of the antidumping tariffs in force;
3. The ITC's decision to accept Brazil's position of being individually reviewed meant that Brazil was the only country that emerged victorious from this review; and
4. The final result is that antidumping tariffs against Brazilian shrimp no longer exist and the Brazilian shrimp producer may once again look to the United States as a potential export market without any barriers.

It is worth noting that the Brazilian shrimp product, because of its recognized sensorial quality coupled with solid social and environmental commitments, ranked first in U.S. shrimp imports in the small-medium classifications in 2003.

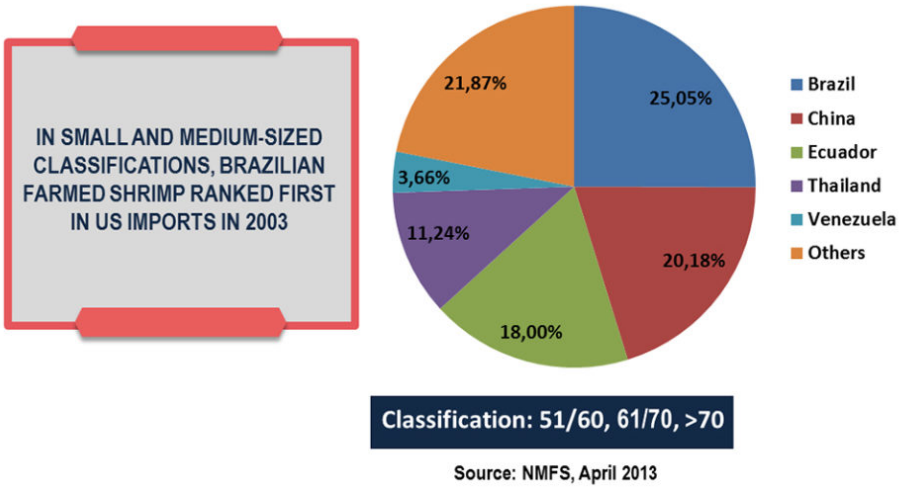

Fig. 1: Imports of small/mid-sized marine farmed shrimp (69,701 MT) by the United States in 2003.

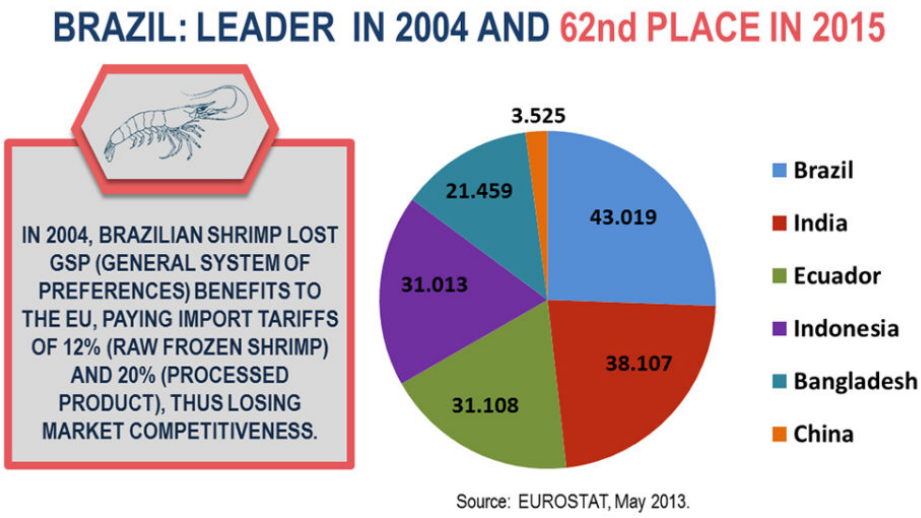

Fig. 2: Main exporters of warm water marine shrimp to the European Union in 2004 (168,231 MT).

It also occupied the top position of imports of tropical shrimp in the EU in 2004, with imports by France (28 percent), the most demanding market, and by Spain (12 percent), the continent's largest market. So, it can be said that Brazilian farmed shrimp once occupied a prominent position in the international marketplace (Figs. 1 through 4) in relation to similar products from Asia and Latin America.

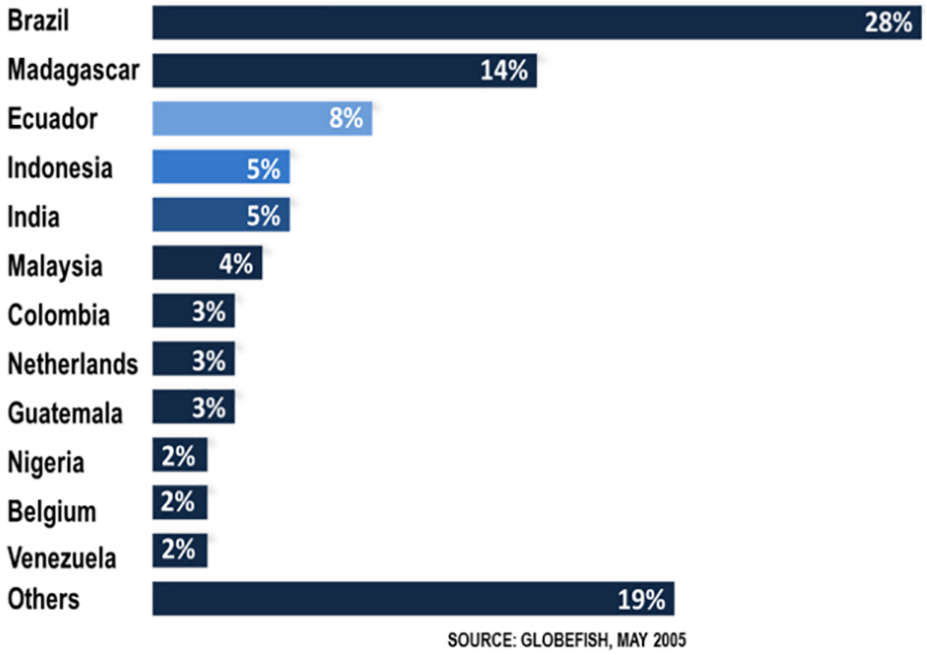

Fig. 3: Percentage participation of imports of marine shrimp (101,049 MT) to France in 2004.

Fig. 4: Profile and percentage participation in the imports of marine shrimp (144,977 MT) to Spain in 2004.

During this export-oriented phase, farmed shrimp occupied the second place in the primary sector exports of the Northeast region and the first place (55 percent) of exports of the Brazilian fisheries sector in 2003. This was a clear demonstration of the industry's relevance towards establishing a new economic and social order in this region, as shown both by the significant production expansion (14,514 percent) between 1997 (3,600 MT) and 2003 (90,190 MT) and its exports growth (2,405 percent) between 1998 (400 MT, $2.8 million) and 2003 (58,455 MT, $226 million).

Farmed shrimp were an important component of Brazil's seafood exports for many years.

However, after this export-oriented phase, the sector switched directions completely due to factors such as exchange rate devaluation, floods, the emergence of viral diseases (like Infectious Myonecrosis Virus, or IMNV; and White Spot Syndrome Virus, or WSSV) and the difficulties of obtaining environmental licenses and bank financing.

The performance of the sector between 2003 (90,190 MT) and 2017 (65,000 MT) was affected in such a way that it practically removed Brazilian shrimp from the international market and from the privileged position it occupied worldwide in this strategic sector, forcing producers to channel all marine farmed shrimp production to the domestic market (Fig. 5).

Fig. 5: Decline in production (left) and exports (right) of Brazilian farmed shrimp between 2003 and 2017.

As a result, there was a need to adapt to the new market reality, and the share of Brazil's farmed shrimp in the domestic market increased from 22 percent in 2003 to 99.9 percent in 2017, showing an increase in relation to 1998 of over 1,000 percent (Fig. 6). This favorable performance in the domestic market, corresponding to a yearly growth of 65 percent, and –considering the already mentioned difficulties that can now be seen as a blessing in disguise – was the most viable alternative for maintaining marine shrimp farming in Brazil as a viable economic activity.

Fig. 6: Participation of farmed marine shrimp in the Brazilian market 1998 to 2017.

New intensive technology

Within this concentration of almost 100 percent of production being directed to the domestic market in the last decade, what can be presented as a novelty starting in 2016 is the dissemination in several states in Brazil of a new technology of intensive growout cycles, where dozens of farms are building micro- and small ponds (0.1 to 0.4 hectares), lined with high density polyethylene (HDPE, 1.0 mm) and completely covered with plastic materials in like agricultural greenhouses, for *L. vannamei* grow-out, at densities of 170 to 250 shrimp per square meter.

In fact, in this context there are two lines of actions that are guiding this process of intensification of marine shrimp farms in the northeast region. The first one, for the projects already in operation, involves the use of primary nurseries with plastic covers to maintain water temperature (31 to 32 degrees-C) to control the White Spot Virus (WSSV). In these systems, postlarvae are grown at densities of 15 to 25 PL_{10}/L, fed with special diets using probiotics and intensive aeration for a period of 10 to 12 days, and then the animals are transferred to the grow-out ponds for another 60 to 90 days.

Since 2016, more intensive shrimp farming technology has been expanding, including indoor nursery phases.

The second line of action involves the combination of these primary nurseries with added secondary nurseries also lined with HDPE and with plastic covers (greenhouses) to raise the temperature and control WSSV, at densities of 2-3 PL_{20-22}/L, with intensive aeration and fed every two hours, and implementing strict water quality control and management.

This phase lasts for a period of 25 to 35 days and produces 1- to 2-gram juveniles. These juveniles are then transferred to grow-out ponds (0.1-0.4 hectares), where they are raised at densities of 170 to 250 animals per square meter for 60 to 90 days, with survivals between 85 to 95 percent, even in areas where WSSV is prevalent. The resulting productivities range from 60 to 100 MT per hectare annually, with three to four annual grow-out cycles (each 75 to 90 days) and with final mean shrimp weights of 12 to 18 grams.

This intensification process has the dual benefit of helping manage and combat diseases like WSSV while increasing production to meet the ever-growing domestic demand without the use of any illegal drugs. Our association, the ABCC, has always been a firm advocate of the use of best management practices and biosecurity measures as the best way to prevent or coexist with shrimp diseases.

The intensification of production methods increases yields and helps protect the shrimp against diseases like WSSV.

Perspectives

Although the Brazilian farmed shrimp sector made the right decision some years ago to concentrate its efforts on supplying the domestic market, today there is a general concern that it is time to return to the international market. To do this, the sector needs to increase production.

Some shrimp farms from the 1980s are doubling their production areas, and there are new investments from newcomers to the shrimp farming sector. It is our view that production will increase, reaching 90,000 MT in 2018 and 120,000 MT by 2020.

When we evaluate the future of exports of Brazilian farmed shrimp, we must consider two important facts: first, even though China is the largest producer and exporter of seafood in the world – and the world's largest shrimp (captured and farmed) producer – it is also the second-largest importer of marine shrimp in the world.

Second, Brazil has the suitable conditions to produce and sell the shrimp sizes (small and medium) that Chinese consumers want to buy. In a recent survey conducted by the **Global Aquaculture Alliance** (https://www.aquaculturealliance.org/) (GAA) for its annual GOAL event in 2017, respondents in Asia reported a move towards the production of smaller shrimp sizes (51 to 60 count and smaller), and the share of small-count shrimp increased from 27 to 52 percent between 2010 and 2016.

New, more intensive, biosecure and sustainable production technologies are leading the way for increasing shrimp yields.

The Brazilian farmed shrimp sector is mature and committed to the mission of increasing farmed shrimp production, starting with a new development phase based on the new technologies that allow farmers to produce intensively and competitively in the presence of WSSV.

The goals are to produce medium-size (10 grams), head-on shrimp at high density (700 postlarvae per square meter) and reaching over 280 MT per hectare in five cycles/year; and large, head-on shrimp (20 grams) at 200 shrimp per square meter and achieving 108 MT per hectare in three cycles per year, as depicted in Fig. 7 below.

Fig. 7: Intensive and super intensive performance in some Brazilian shrimp farms.

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