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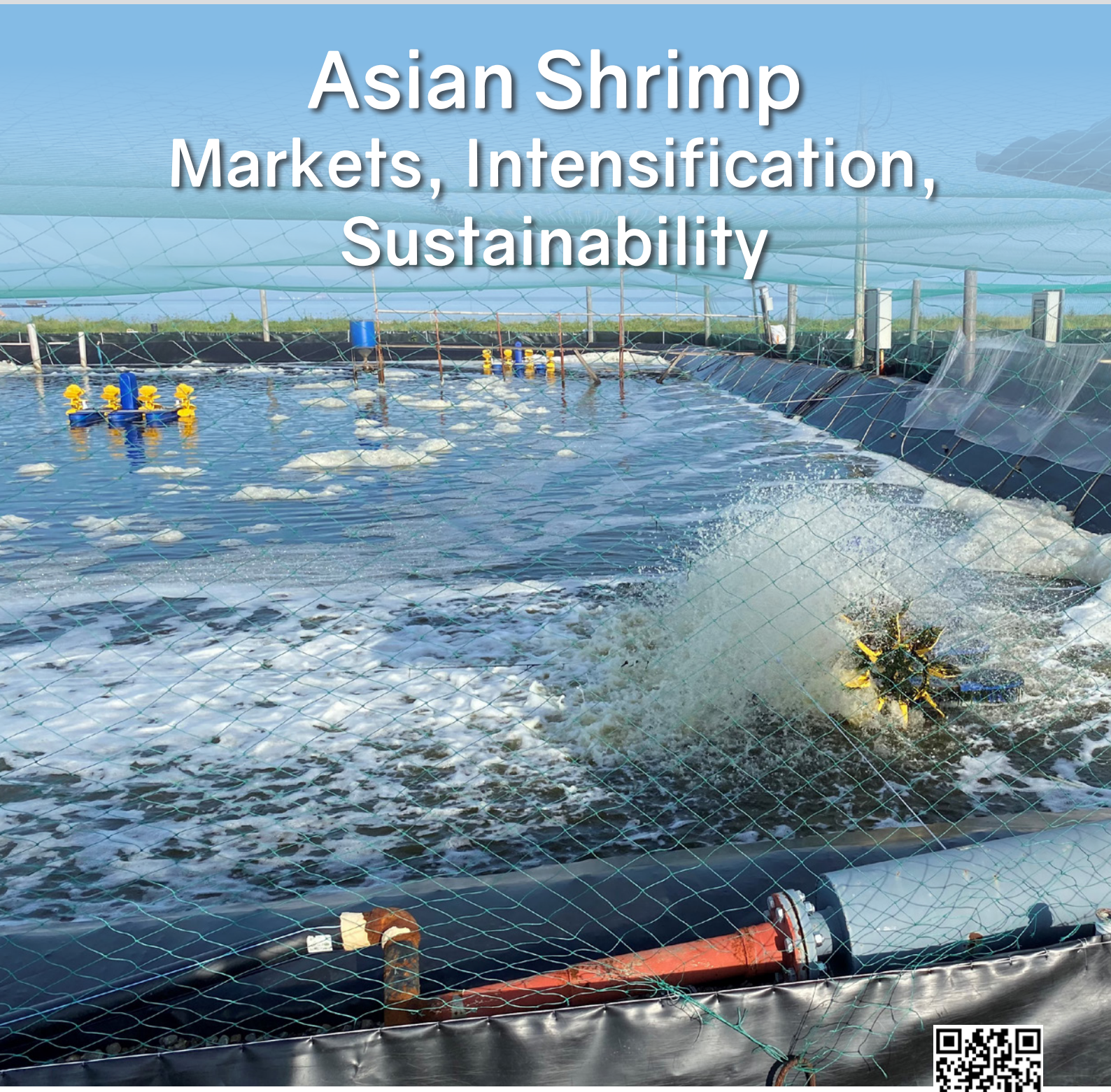

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Super intensive pond at Mabini Aquafarms, Inc.,Davao De Oro, Mindanao, Philippines.

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From the editor

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Vannamei shrimp production in the Philippines: Is there a revolution ahead?

Reaping higher harvests with intensification, new culture systems and using performance functional feeds

By Ronaldo Gatilao, Wilson Dayaday and Thommy Tablatin

Mabini Aquafarms, Inc. has a super intensive pond set-up situated at Mabini, Davao De Oro, Mindanao. Encouraged by three successful crops using Grobest functional feeds and technology, it is expanding with another seven ponds to be operational by September of this year.

Shrimp aquaculture started in the 1980s in the Philippines, reaching an annual production of 120,000 tonnes in 1992, mostly *Penaeus monodon*. However, during the last two decades, shrimp production (*P. monodon and Penaeus vannamei*) has remained below 60,000 tonnes per annum.

In 2019, the mood of shrimp producers was more optimistic, anticipating 60,000 to 70,000 tonnes of *P. vannamei* production. In 2020, the Bureau of Fisheries and Aquatic Resources (BFAR) had approved 3,300ha for *P. vannamei* monoculture and 2,300ha for *P. vannamei* polyculture systems. This increase in vannamei production is reflected in the increased importation of vannamei broodstock. With the development of new farms in the southern regions and the intensification of existing farms in the central regions, production is expected to grow by 3-5% per year.

Despite the COVID-19 pandemic, shrimp production in 2021 is expected to reach 52,000 tonnes, with >45,000 tonnes from intensive farming, which will result in a 4% increase compared to 2020.

Shrimp Sales Head Ronaldo Gatilao (left) with from left, Mabini Aquafarms, Inc. owners Josue "JT" Tesado, Sr. and Josue "Jun" Tesado, Jr., together with Isidro "Ding" Bastida, General Manager of Mabini Aquafarms, Inc.

Compared to many other Southeast Asian countries, the Philippines differs in two ways:

- Most of the shrimp is consumed locally (wet markets, wholesalers, and retail).
- Production is dominated by independent enterprise farms, vertically integrated companies and feed suppliers rather than small-scale farms.


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Zest Cook 117 Inc. located at Bago City, Negros Occidental, Visayas operates a closed-intensive system with a reservoir and HDPE-lined ponds. Their annual production is 200 tonnes per year.

Intensification

Recent developments in the Philippines include an increasingly higher stocking density, from 70 post larvae (PL)/m^2 to 200 PL/m^2 or even 300PL/m^2 and higher yields. With increased stocking density, there is increased investment in the infrastructure but also higher risks, such as disease or mangrove deforestation and pollution of coastal waters.

The intensification of shrimp production in the Philippines has led many farmers to look for the best protocols to sustain fast growth with reduced impact on the rearing conditions. This requires feed with high palatability, digestibility and reduced leaching. Similarly, the increased stocking density leads to potentially stressful conditions and higher disease risks. Farmers rely on water treatment products and a range of additives for the top dressing of feeds. This time-consuming process is prone to human error and it negatively affects feed stability and performance. Consequently, farmers increasingly rely on functional feeds to support shrimp during critical phases of the culture.

Experiences of farmers

We wish to share the experiences of three farmers, key customers in Visayas and Mindanao regions, who are using a range of functional feeds (daily care, immune and growth enhancement) to get the best output for their farming conditions, i.e. post larvae genetics, pond set up, stocking density, etc.

Mabini Aquafarms Inc. is owned by Josue Tesado Jr. The farm is in Mabini, Davao De Oro on Mindanao Island. It has been operating fully lined ponds with a reservoir and a treatment pond.

Partial harvesting at pond 4, Zest Cook 117 in Bago, Negros Occidental.

	Pond 1	Pond 2	Pond 3
Stocking density (PL/m²)	259	312	259
Days of culture (DOC)	115	120	121
Feed conversion ratio (FCR)	1.4	1.4	1.4
Average daily growth, ADG (g/day)	0.17	0.18	0.18
Average body weight ABW (g)	20	21	22
Biomass (kg)	6,004	7,005	7,712
Yield (tonnes/ha)	37.5	43.8	48.2

Table 1. Harvest data from Mabini Aquafarms.

For this crop, three ponds, each of 1,600m² were stocked at 250-315 PL/m² with fast-growth post larvae (0.01g size) and were harvested after 115-121 days of culture (Table 1).

Encouraged by the three successful crops using Grobest functional feeds and technology, Mabini Aquafarms is expanding with another seven ponds to be operational by September of this year.

Over in Bago City, Negros Occidental in the Visayas, Zest Cook 117 Inc. which is managed by Julia Keunhye Lee operates a closed-intensive system with a reservoir and HDPE-lined ponds. Their annual production is 200 tonnes per year. Previous crops were characterised by 120 days of culture (DOC) and an FCR of 1.4-1.5 to produce 23g shrimp.

	Pond 1	Pond 2	Pond 3	Pond 4
Size (m²)	4,800	4,500	4,500	4,800
Stocking density (PL/m²)	104	111	156	146
Days of culture (DOC)	93	97	81	81
Feed conversion ratio (FCR)	1.3	1.3	1.2	1.3
Average daily growth, ADG (g/day)	0.22	0.20	0.27	0.27
Average body weight ABW (g)	16.7	16.7	14.6	16
Biomass (kg)	7,336	8,110	7,819	7,651
Yield (tonnes/ha)	15.3	18	17.4	15.9

Table 2. Harvest data from Zest Cook 117.

By using a daily care functional feed, they were able to reduce both days of culture, FCR and improve profitability (Table 2).

At Noecil Aquaculture Farm, in Toril, Davao City on Mindanao Island, owner Maria Cecilia Egasan operates earthen ponds with concrete dykes under a closed-intensive protocol. This farm produces 200 tonnes per year. For this crop, two ponds were stocked with 0.01g post larvae and cultured for 88-89 days. The crops were extremely successful (Table 3).

Noecil Aquaculture Farm located at Toril, Davao City, Mindanao uses a closed-intensive protocol to produce 200 tonnes/year.

	Pond 1	Pond 2
Size (m^2)	5,300	3,600
Stocking density (PL/m^2)	86	84
Days of culture (DOC)	88	89
Feed conversion ratio (FCR)	1.07	1.06
Average daily growth, ADG (g/day)	0.19	0.22
Average body weight ABW (g)	18	20
Biomass (kg)	6,771	4,663
Yield (tonnes/ha)	12.8	13

Table 3. Harvest data from Noecil Aquaculture Farm.

Maria Cecilia Egasan, owner of Noecil Aquaculture Farm supervising pond clearing operations.

High-performance feed and partnership

These excellent results were obtained with high-performance feed improving farm outputs of these three companies operating under very diverse conditions and in different parts of the Philippines. The unique partnership between the farm managers and the Grobest technical service team providing frequent assessments of the shrimp health status explains these results. There has been a growing feed consumption in recent months, with many new farmers using Grobest feed. This has led to the feed company increasing its market share by 10% within 12 months.

Recent reports of white spot syndrome virus (WSSV) and acute hepatopancreatic necrosis disease (AHPND) in May and June in Negros Island, Visayas Region, have reinforced interests in functional feeds. We expect this trend to continue in the future, thanks to the setting up of laboratory services in more areas and the high level of technical support being provided. The technical service team offers consolidated assistance on farm management and provides a comprehensive consultancy on feeds and other related services. Aside from guidelines on feeds and feeding, the team also shares professional insights on modern farm management, such as onsite laboratory assistance for faster and more accurate results and data analyses.

Shrimp health monitoring by Grobest technical support team.

A technical and sales farm visit to Mabini Aquafarms, Inc.

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