



QUALITY GEOMEMBRANES THAT YOU CAN TRUST



**GEOMEMBRANES
FOR AQUACULTURE**

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Aquaculture is a major industry in the Asia-Pacific region, accounting for about 90% of the global production volume. Success in aquaculture, more specifically shrimp farming, depends on several factors such as the quality of the larvae, feed mixture, disease and environment control, etc. Lining your pond or tank with HDPE geomembrane, can play a critical role in improving the overall biosecurity and stability of the pond/tank, reduce downtime between growth-out cycles, and improve the efficiency of feed and oxygen, helping you achieve greater profitability.

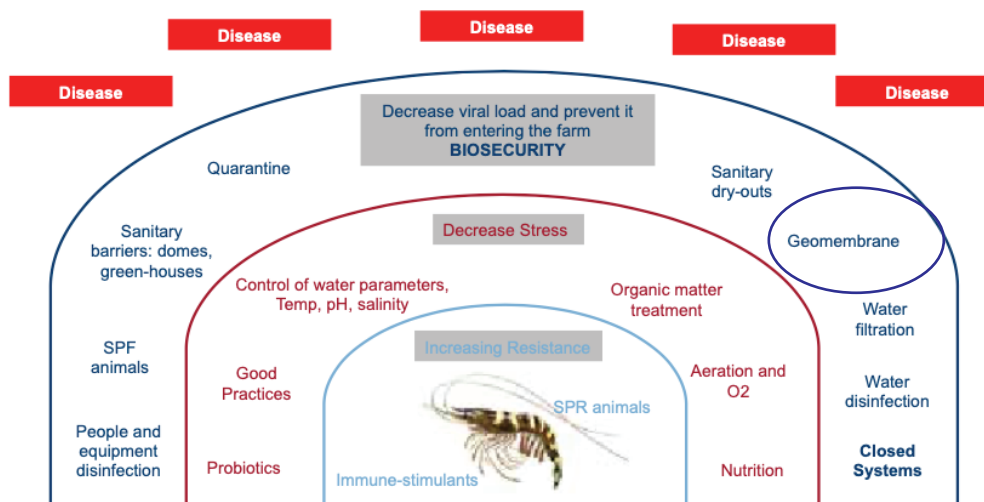


Fig 1. Critical Factors in Integrated Shrimp Farming to Decrease the Risks of Crop Failure

Boaventura, M., Hetzel, G., Tran, C., Bakker, S., Campet, M. (2020). A practical experience at a shrimp nursery system in Vietnam. AquaCulture Asia Pacific, Volume 16, p.19

ADVANTAGES OF USING GEOMEMBRANES

1. Pond/Tank water quality is better maintained resulting in a more stable environment for shrimp grow-out.

- No risk of ground contamination from earth ponds: for example, if the soils contain acids-sulphates, then the pH of the pond water will be quite low, which is detrimental to shrimps
- No accumulation of waste in the soil surface or suspended solids; waste particles are more easily cleaned through drains, thereby reducing the risk of disease development
- HDPE geomembranes are a very inert material: no chemicals will leach out and the barrier will not react with the water, the nutrients or other elements



2. Improve water retention (for example: sandy soils do not hold water very well)

3. Protect against erosion of the ponds

Eroded soils due to wind/water movement can accumulate at the bottom of the pond, causing both water pollution and reduces the volume of the ponds. A geomembrane lining protects the slopes of the ponds against erosion.

4. Reduce the risk of diseases in shrimp population, resulting in higher yields

Earth ponds may not properly dry out between crops, resulting in a deteriorating bottom surface and increases the risks of diseases after several cultures.

5. Reduce drying delay between growth cycles

Decreases the dry-out period of earth ponds between cultures from around 35 days, to about 7 days with HDPE geomembrane, resulting in less downtime and more growth cycles per year and thus increasing pond productivity



6. Improve Aeration in Ponds/Tanks

Supports higher aeration of the ponds/tanks, resulting in more oxygen, resulting in healthier cultures and better supports higher stock densities

7. Low Installation Costs and Low Maintenance Costs

- HDPE is a durable material, resistant to chemicals, vegetation, and is UV protected
- The material will maintain its properties for several years of use, and require minimal maintenance

WAYS TO USE GEOMEMBRANE IN AQUACULTURE



Traditionally, most aquaculture operations were performed in large earth ponds, which were subsequently lined with HDPE geomembrane.

In recent times, new operations have turned more and more towards, smaller tanks systems. Those tanks are typically round, constructed from a steel structure lined with HDPE geomembrane, and built with a central drain.

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This new round tank system differs from more traditional ponds a few ways:

- More intensive farming method, with a higher stock density
- Allows for diffusion aeration from the bottom of the tank, reducing the sedimentation effect and increasing oxygenation for shrimps, thus allowing for a higher stock density
- Reduction of culture area and volume allows for greater control over biosecurity (water quality, feed distribution, disease control). They are often built under a roof structure (net, film or other) to further protect the culture area from rainwater and animal droppings.
- Improved feed usage efficiency
- Typically produces shrimps of a more uniform size

The above advantages combined with their ease in construction (does not require heavy earth-work) has made the HDPE geomembrane lined tank systems popular with new aquaculture projects without existing ponds.



Contact us for more information on how HDPE geomembrane can help your aquaculture project.

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