Revolutionary breakthrough in vaccinating shrimp against common diseases

In what could revolutionise the USD 45 billion global shrimp farming industry, US based Dalan Animal Health has announced a groundbreaking achievement: successful proof of concept trials with their vaccine indicating the protection of shrimp against common and devastating diseases. The company, already known for creating the world's first honeybee vaccine, has successfully applied its innovative maternal immune priming technology to aquaculture, potentially transforming how the industry approaches disease prevention in shrimp farms across Asia-Pacific and beyond.

From bees to shrimp: Cross-species innovation

Dalan's journey into shrimp health began with bees. In January 2023, the company received conditional approval from the USDA for the world's first honeybee vaccine against American foulbrood, a bacterial disease that has plagued beekeepers worldwide.

The technology behind this innovation - maternal immune priming - has proven surprisingly adaptable across species boundaries. This biological mechanism allows a mother to pass immunity to her offspring after exposure to disease-causing pathogens, creating a natural vaccination effect that works even in invertebrates previously thought incapable of such immune responses.

Dalan's CEO, Dr. Annette Kleiser, and Head of Strategy, Warren Rickard will be attending and presenting at Shrimp Summit on 22-25 June in Bali, Indonesia.

Dalan Animal Health CEO Dr Annette Kleiser explained, "The same fundamental biological principle that works in bees also functions in shrimp. "This cross-species application demonstrates the versatility of our platform and opens new possibilities for sustainable disease prevention across aquaculture."

Addressing critical industry challenges

The timing of this breakthrough could not be more critical for Asia-Pacific's shrimp industry, which has long struggled with devastating disease outbreaks. Early mortality syndrome (EMS), white spot syndrome virus (WSSV), and various vibrio bacterial infections continue to cause billions in annual losses while limiting the industry's growth potential.

Kleiser added, "Dalan's vaccine technology offers a fundamentally different approach by stimulating the shrimp's own immune system to resist infection, potentially reducing or eliminating the need for antibiotics while providing more consistent protection against multiple pathogens."

Field trial success

Dalan's initial field trials have demonstrated promising results. Shrimp exposed to the company's vaccine technology showed significantly higher survival rates when challenged with common pathogens compared to unvaccinated control groups.

The company has focused its initial efforts on WSSV and *vibrio* bacteria - two of the most economically damaging pathogens in shrimp farming. These early successes suggest the platform could eventually address a broader spectrum of diseases that currently limit production efficiency.

Commercialisation timeline

Dalan is working toward commercial availability of its shrimp vaccine technology within the next 18-24 months, following completion of expanded field trials and regulatory approvals. The company has opened discussions with several major shrimp producers in Asia to accelerate testing and adaptation of the technology to regional production systems.

Initial deployment will likely focus on hatcheries and breeding centers, where the maternal immune priming can be most efficiently implemented before broodstock distribution to farms. This approach allows for centralised application while providing protection throughout the production cycle.

Industry implications

For Asia-Pacific's shrimp industry, which accounts for approximately 80% of global production, the implications of effective vaccination could be transformative. Beyond the immediate benefits of reduced mortality and improved production efficiency, the technology could enable:

- Reduced antibiotic use, improving both environmental sustainability and market access
- More predictable harvests, stabilising supply chains and pricing
- Higher stocking densities with lower disease risk
- Expansion of production into areas previously limited by disease pressure

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Dr. Annette Kleiser and Warren Rickard visited National Cheng Kung University in Tainan, Taiwan and met with Professor Grace Chu-Fang Lo and her research team

A sustainable path forward

Today, innovations in aquaculture are becoming increasingly critical to food security. Dalan's cross-species application of vaccine technology represents exactly the kind of breakthrough the industry needs - one that addresses production challenges while aligning with sustainability imperatives.

Widespread implementation includes developing efficient delivery systems at commercial scale, adapting protocols to different production systems, and navigating regulatory frameworks across Asia-Pacific markets.

For Asia-Pacific producers, who have experienced the devastating economic impact of disease outbreaks firsthand, this development offers not just a new tool but potentially a new paradigm in shrimp health management - one where prevention through immunity becomes the foundation of biosecurity rather than a perpetual cycle of treatment and loss.

As the company moves toward commercialisation, the region's producers will be watching closely to see if this technology can indeed deliver on its promise to transform shrimp health management for the better. https://dalan.com