

Noriaki Akazawa



Agrobest Sdn. Bhd. Malaysia

Noriaki Akazawa is managing director of a major shrimp farm and processing operation owned by Agrobest Sdn. Bhd. in Malaysia. Over 15 years, he increased production despite the presence of diseases – most recently early mortality syndrome. Akazawa's research, including his recent finding on the pH “trigger” for EMS, has established him as a global expert on farm management for the disease. He is completing his doctorate degree at Kinki University in Japan based on this research.





EMS – Agrobest's Experience in Malaysia Farm

Noriaki Akazawa

Status of EMS in Malaysia/Agrobrest

Vannamei

1st outbreak happened in late 2010 or early 2011 in Peninsula Malaysia
Vannamei production gradually came back after 2 years

2nd outbreak happened in the middle of 2013

→ Local market price kept rising

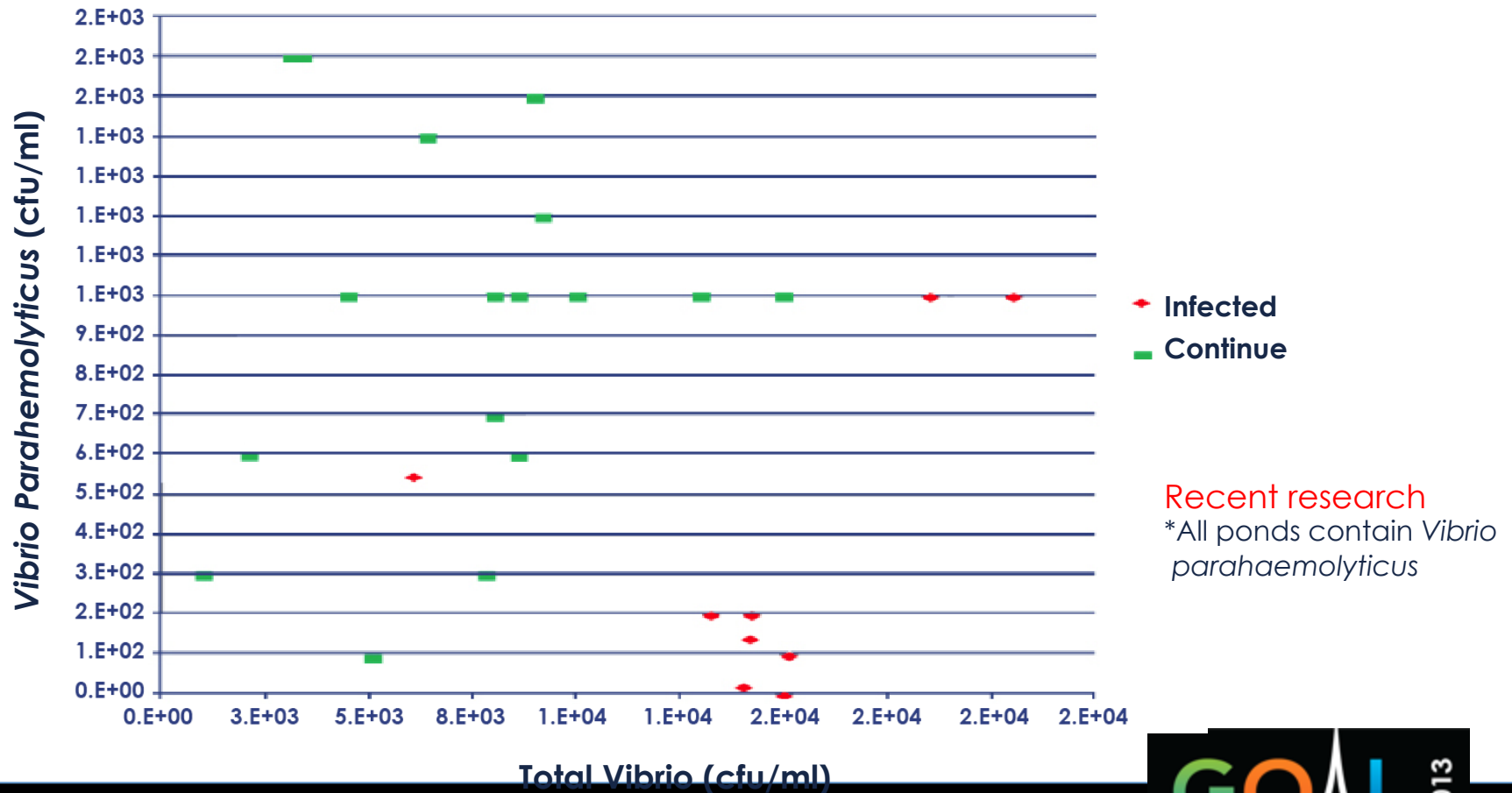
After 1 year in Agrobrest effort to recover 14t/ha of productivity (stocking density 85 P/m², 80-95% survival)

Comparison between 1st and 2nd outbreak

→ 2nd outbreak is more serious than 1st outbreak

	1st outbreak	2nd outbreak
Symptom	Water color change to black green (around 30 days)	Water color still transparent (even 1 week after start of mortality)
Shrimp	White muscle, molting, mortality Fast mortality	White muscle, molting, mortality Slow mortality
Pathogen	From hatchery	From hatchery
Spreading	Infected early stage of culture Infection to neighboring ponds Mid size also infected seriously Large shrimp also infected more seriously	Infected early stage of culture Infection to neighboring ponds Mid size not obviously infected Large shrimp not infected

Pond sampling for *Vibrio parahaemolyticus* vs Total *Vibrio*



Trials with Black Tiger Shrimp (*P. monodon*)

At Agrobrest, *P. monodon* are never infected with EMS, even though when raised in ponds beside *P. vannamei*

PCR Check for Monodon 'SPF' PL, 2013

Virus	Total	Batch	Sample	Ratio
		19	55	
	WSSV	0	0	0.0%
	IHHNV	6	14	25.5%
	HPV	4	12	21.8%
	NHPV	0	0	0.0%
	TSV	0	0	0.0%
	IMNV	0	0	0.0%
	YHV	0	0	0.0%
	GAV	0	0	0.0%
	MBV	0	0	0.0%

Shrimp Farming Disease Outbreak

Pathogen	Type
Bacterial infection	Vibrio
Virus infection	WSSV, TSV, IMNV
Multi-Virus infection	Slow growth +
Bacteria + Virus	Early mortality +

- *Over 50% of batch detected virus
- *47% of sample detected virus
- *Not deducted double



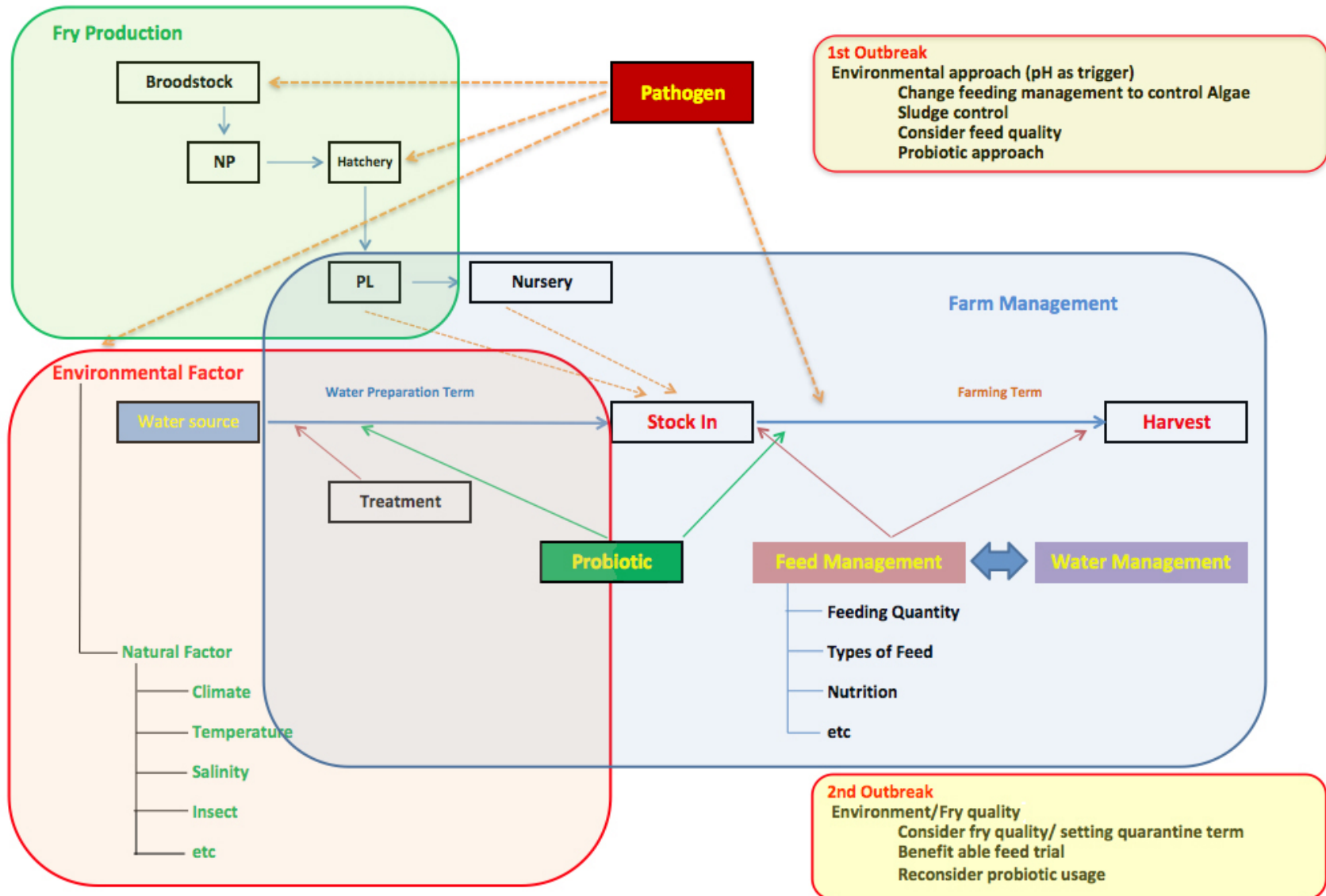
Virus may influence some cases



Complication

Worldwide environment becomes serious for farming

Farm Management Against EMS



Prospects for Future

