Pond farming and co-culture options in Vietnam

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Area (ha)

Year

2005 2006 2007 2008

Decline in shrimp farming ≥ 60%
Pond farming in Vietnam

- Around a dozen farmers
- Producing 2-3 t/ha/annum
- Seed from RIA 3 hatchery at 2 sizes
- Farmers sell to local dealers gutted only
Current constraints to further uptake

- Hatchery production capacity
- The balance between density dependence and price realised for harvested product
- Time taken for growout
Advanced Nursery – partial solution

Hatchery

Haplas

2-5g

Sea Ranching

Limited to best ponds due to wet season

7-9 month grow-out

10,000 Ha$^{-1}$

10,000 Ha$^{-1}$

10,000 Ha$^{-1}$

10,000 Ha$^{-1}$

10,000 Ha$^{-1}$

20-50g

50,000 Ha$^{-1}$

Advanced nursery in best ponds
Advanced Nursery – pond use

- = nursery ponds
- = growout ponds
Premise for new shrimp co-culture trials?

• Hasn’t it already been done to death? (Pitt, Duy et al – monodon, Bell, Purcell et al – stylirostris)

• Vannamei has different behaviour patterns – less burying/more swimming than monodon, and greater reliance on natural productivity in pond

• Different approach to sizing
  – Sandfish at 40g+ (from advance nursery) with vannamei post - larvae
  – Potentially allows for concurrent harvest

• Direct comparison with rotation

• Interest by farmers – but high risk
Co-culture tank trials

• 10 sandfish of ca. 50g per tank (high density!)
• Shrimp @ three densities
   Low = 15 m^-2
   Med = 25 m^-2
   High = 50 m^-2
• Shrimp treatments fed according to standard procedures
Co-culture tank trials

Shrimp density

Weight

Days

Low
Medium
High
Control
Sandfish survival rates

Survival rates (%)

- Low
- Med
- High
- control

Shrimp density
Shrimp survival rates

![Bar chart showing survival rates for Low, Med, High, and control treatments.](chart.png)
The victims
The culprit!
Sweet revenge!
Pond trials – rotation & co-culture
Refurbished ponds
Pond trials – experimental design

Co-culture
Sandfish 0.5/m²
Shrimp 25/m²
Rotation
Sandfish 1/m²
Shrimp 50/m²
Co-culture
Sandfish 1/m²
Shrimp 15/m²
Sandfish 1/m²
Sandfish 15/m²

Direct comparison

‘Most likely….’

Controls
5400 juveniles in first phase
Harvesting shrimp
Growth - sandfish

Total mortality

- SFC
- Low Co
- mid co
Rotational culture - sulphur

Shrimp

Sandfish

Fallow Period

0 5 10 15 20 25 30

1 2 3 4 5 6 7 8
Conclusions

• Advanced nursery very effective at overcoming issues with grow-out period and wet season

• Will pay substantial survival dividends for ranching

• Co-culture with *vannamei* is NOT an option

• Rotational culture appears to work well and long-term advantages should be monitored
Thanks