



Non-ablation improves shrimp robustness to diseases

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1. Main global challenge in the shrimp Industry

DISEASES



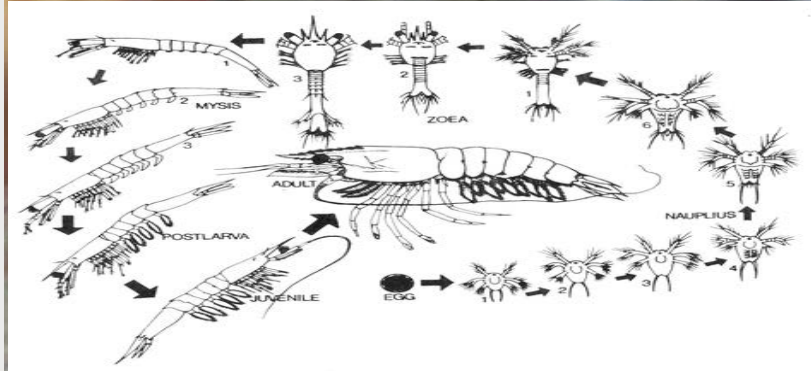
WSD (Virus)
EHP (Parasite)
AHPND (Bacteria)



Financial Losses



2. Eyestalk ablation



Why ablate?

- Organs controlling reproduction are located in the eyestalk
- Removal increases rate of production of eggs/nauplii to commercial level



The shocking practice that shows prawn farming is as cruel as factory farming

Advocates call on supermarkets to act on prawn "mutilation"

September 7, 2017 AAP and Inside FMCG

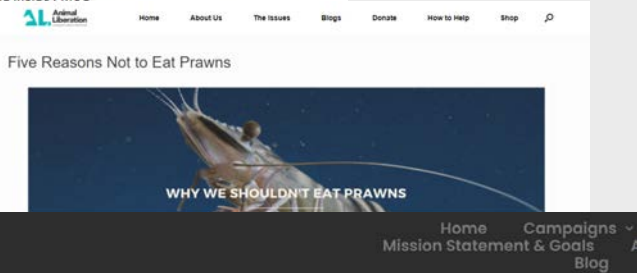
Animal rights advocates have called on Australia's big supermarkets to act to stop prawn farmers from engaging in the "cruel and unnecessary" practice of removing female prawn's eye stalks to promote breeding.

The procedure, known as 'eyestalk ablation', typically involves cauterising or squeezing a prawn's eye out to remove a hormonal gland that moderates reproduction into sexual

Animals Australia says the practice is widespread and typically causes

"Science is on our side, yet it is unrelenting," she said.

Oogjes hat



Eyestalk ablation is the removal of one (unilateral) or both (bilateral) eyestalks from a crustacean. It is routinely practiced on female shrimps (or prawns) in almost every marine shrimp maturation or reproduction facility in the world, both research and commercial. This procedure triggers the maturing of their ovaries. As a result, they have no control over their egg production and so produce eggs uncontrollably.

This horrific procedure is sometimes carried out by using a razor blade, but the main method used is to simply remove the eyestalk by hand.

Scientists describe this process as cruel and traumatic. It is known that crustaceans have the appropriate physical and neurochemical mechanisms to feel pain.

Shrimp welfare

- Animal welfare organizations attack ablation as a cruel practice
- Retailers and certification bodies want to eliminate ablation
- Many producers have taken steps to eliminate eyestalk ablation but the practice remains widespread
- Need more positive reasons to end the practice

Therefore the Industry:


New practices to improve the tolerance or resistance of shrimp to disease

Stop unilateral eyestalk ablation in commercial hatcheries

3. Baseline work for the INNOVATIVE RESEARCH


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Reproductive performance and offspring quality of non-ablated Pacific white shrimp (*Litopenaeus vannamei*) under intensive commercial scale conditions



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3.1. Commercial shrimp egg production can be done without eyestalk ablation

Pre-maturation

Sex ratio manipulation

3.2. Non-ablated shrimp broodstock produced ROBUST OFFSPRING

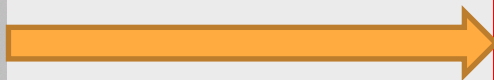
Salinity stress test

Salinity stress test: Non-ablated shrimp broodstock produced ROBUST OFFSPRING

Focus of the innovation:

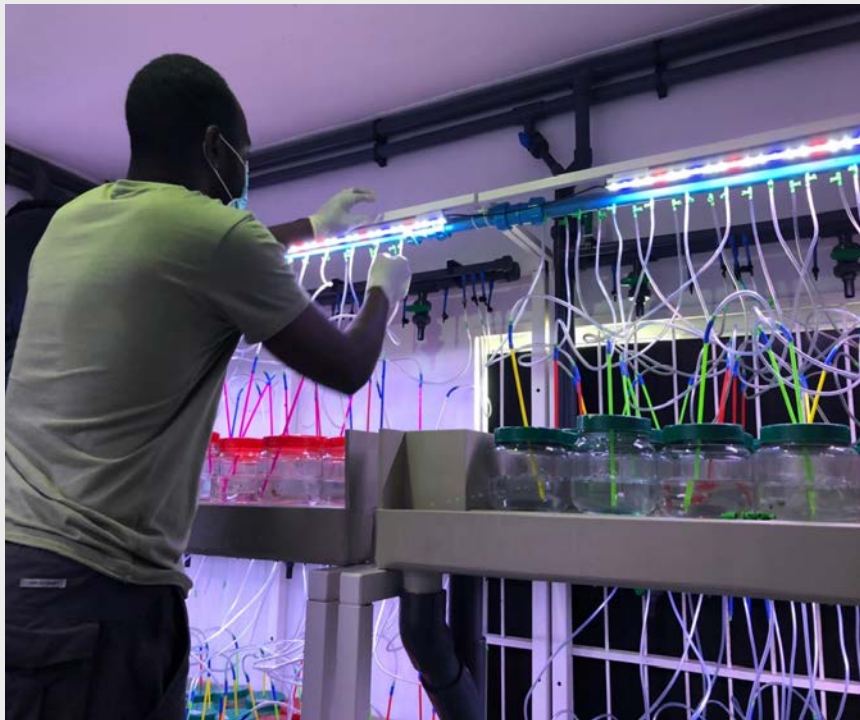
Is there a link between eyestalk ablation and the “fitness” of the offspring?

Is there a difference in fitness between PL produced from ablated and non-ablated animals?



Disease Challenge

4. Innovative Research Work

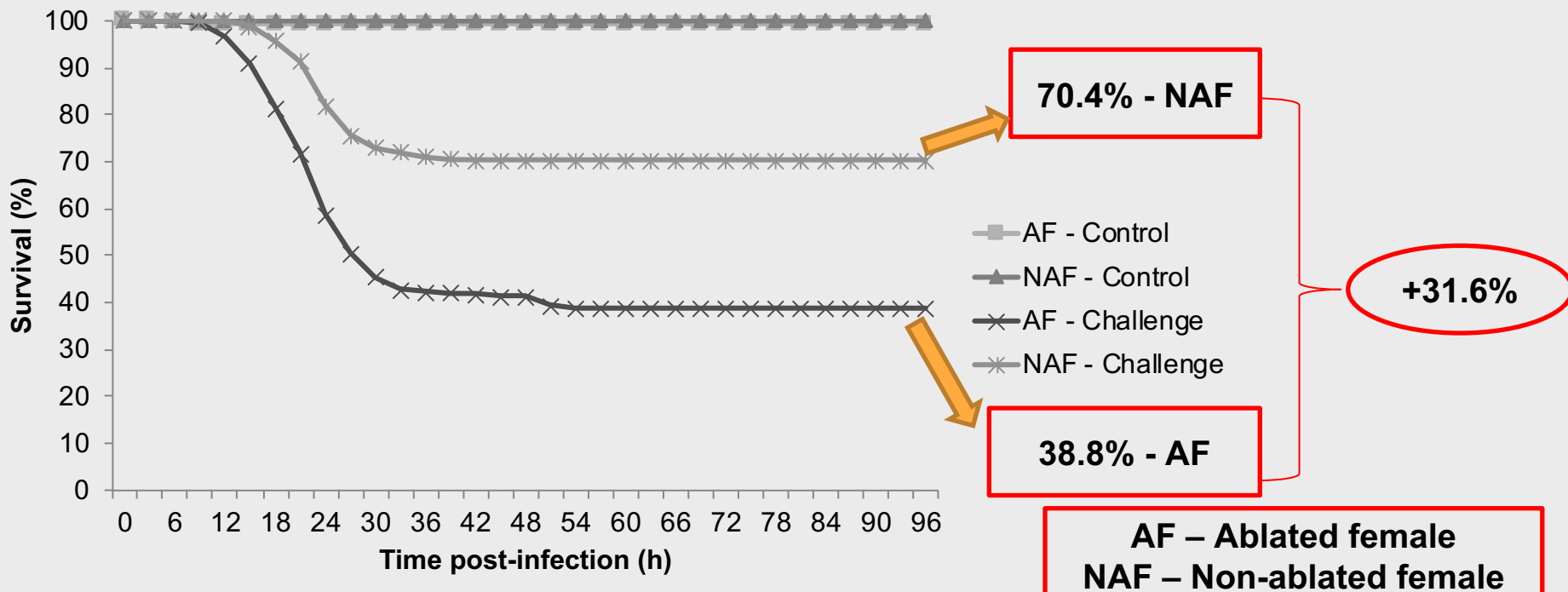


4.1. Challenge *P. Vannamei* Postlarvae with AHPND/EMS

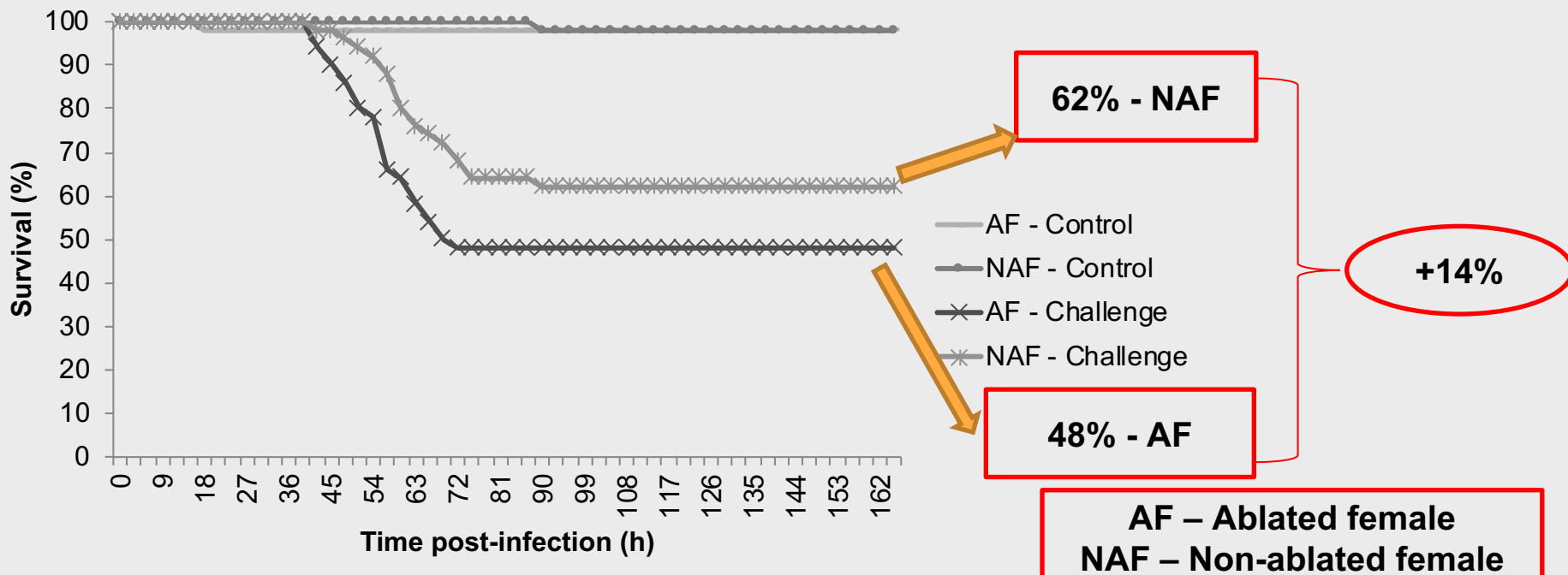
4.2. Challenge *P. Vannamei* Juveniles with WSD

Results

4.1. Survival of *P. vannamei* Postlarvae challenged with and without AHPND/EMS



4.2. Survival of *P. vannamei* Juveniles challenged with and without WSSV



5. Impact of the innovation to the industry

5.1. Major welfare concern in the industry would be quickly addressed

- There is a strong positive reason for commercial hatcheries to eliminate eyestalk ablation

5.2. Shrimp hatcheries would produce high quality (robust) animals with non-ablation

- Improve marketability of their product (Postlarvae) to farmers
- Facilitate certification process on Animal Welfare Practices

5.3. Farmers would ensure good survival and productivity during disease outbreaks

- This would reduce financial losses

5.4. Farmers would produce more valuable and marketable product

- Improve marketability of their product to processors, retailers and consumers
- Facilitate certification process on Animal Welfare Practices

5.5. It would become a key health strategy in shrimp farming going forward

- Non-ablation improves shrimp robustness to disease

6. Acknowledgement





THANK YOU!