The holistic approaches for sustainable aquaculture and modernized shrimp health management practices 2022

Dr. Prakan Chiarahkhongman DVM., CertAqV.

Aquatics Animal Health Care Products Specialists and Solutions provider (AAHCPS) The Representative of Charoen Pokphand Food Public Company (CPF) Charoen Pokphand Group Global (CPG) <u>prakan@cpf.co.th</u>

Abstract:

The holistic approaches for sustainable aquaculture to help the farmers to cope with an increasing number of important shrimp diseases i.e. WSSV, IHHNV, IMNV, DIV1, AHPND, EHP, BACTERIA, WFS etc. by integrating the 360 degree of the best aquaculture practices with the understanding of environmental deterioration impact which including of the eutrophication, high organic loaded & pathogens accumulation, invasive of virus & microsporidian EHP into bio - carrier or mechanical vector found accumulating in the natural resources water including water system inside the farms. Dramatically increasing environmental impact and overloaded of pathogens shown by active pathogens surveillance program have been done in Thailand and many countries 2022. The holistic approach with the overall understanding of the impact and environmental impact have been found to be crucial & very important for shrimp farmers to be survived with the diseased environment which definitely cause poor performance, low survival, economically losses & high production cost.

The holistic approach by adopting and combine a range of different culture management strategies can be started with the concept of avoiding the contamination within the ponds and water by using only *Clean seed* from *Clean SPF brood* stock with the extension of *Nursery phase* to promote the bigger and stronger juvenile finally will be benefited by the compensatory growth resulting in able to finish the crop faster and lower the risk during the pond periods. Clean water, in term of both quality and quantity aspects have to be well prepared. Reservoir, Settling, Treatment ponds are needed to be designed. Aging water or resting water until the quality are good for water exchanged are always safe for shrimp. *Clean pond* bottom with routinely maintenance program which mean earthen pond and HDPE lining pond must be well examined and cleaned, repeated uses and bad bottom guality must be avoided, leaving sun drying after harvest, burnt liming or disinfecting to eliminate the pathogens and EHP spore have to be considered. Completed biosecurity concerns comprised with physical. chemical and biological precaution measures with audit system have to be implemented to exclude all of the pathogens. *Routinely water quality* parameter examination & improvement and Shrimp health monitoring program, Surveillance program, Carrying capacity and Crop planning analysis also needed to be considered. Pond aids, labor, Equipment and Power supply also needed to have a backup plan. Season change and Timing management which mean understanding of seasonal factors and decreasing the contact time between pathogens and shrimp to be as less as possible are always safe for shrimp, many of modern shrimp farms have been adapted for **Smaller size culture unit** such as using HDPE round tanks or Concrete tanks for easily managing the pathogens & EHP spore Exchanging more water by or Transferring (partial harvesting) shrimp to new cleaner tanks in case of deteriorated overcapacity, or contaminated. Biological control by Bioaugmentation to increase MMW (Microbially mature water) and microbial diversification including Probiotic and Gut *health improvement* have been beneficial and chemical control by **Disinfecting and** Sanitation protocol have to he introduced. Sludge ponds and ETP (Effluent treatment plant) to keep all solid waste and effluents in place to be well treated before discharging also play an important role for diseases mitigation and environmental-friendly sustainability aquaculture system in 2022.

