

PREVENTION & MANAGEMENT OF WHITE SPOT DISEASE OF SHRIMP



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What is White Spot Disease (WSD)?

White spot disease (WSD) is a serious disease of farmed shrimp globally. The disease is transmitted vertically from infected brood stock to larvae and horizontally either by ingestion of infected organisms or through carrier organisms. Most



crustaceans including all penaeid shrimps (monodon, vannamei, indicus etc.) and crabs can be affected by WSD. All the life stages of shrimp may get infected by this virus. Affected shrimp exhibit anorexia, lethargy, reddish discoloration and presence of circular white spots on the carapace and other exoskeletal parts. In Pacific white shrimp, or vannamei shrimp, white spots may not be clearly visible. Mortality of shrimp may start 2-3 days after infection and reach 80-90 per cent within 5-7 days of onset of first mortalities, necessitating emergency harvest.

What is the causative agent of WSD?

White spot disease is caused by a virus called as White Spot Syndrome Virus (WSSV). WSSV is a rod shaped double stranded DNA virus.

How WSD is transmitted?

WSD can be transmitted horizontally as well as vertically. Disease transmission is mainly horizontal through oral ingestion and water/soil/carrier animals. Many crustaceans such as crabs, squilla, copepods from marine and brackishwater are either hosts or carriers of WSSV, and thereby can transmit disease. Crawfish and freshwater prawn, scampi can also be affected by WSSV. Non-arthropod crustaceans



such as *Balanus* sp and annelid such as polychaete worms can also act as carriers. This virus can survive in water without any host for several days and in soil for longer period.

When larvae are stocked in ponds, they can get infected by WSSV through water or carriers if treated water is not used for farming. WSSV infection is most likely during early days of culture (DOC) if the ponds are inadequately dried. Mortality in a pond may start at any time and even as early as within a month of stocking. This should not be confused with early mortality syndrome (EMS) or acute hepatopancreatic necrosis disease (AHPND). Vertical transmission through infected brooders is also possible, wherein, the virus is transmitted to larvae. Hence, it is always advisable that PCR tested seeds only are stocked in the ponds.

There is no treatment for WSSV.

Prevention is the only way to avoid the disease.

Following practices help to avoid the disease

1. WSSV can persist in wet soil. Carry out pond preparation properly by drying, applying lime etc. Provide sufficient time of at least three to four weeks between the culture cycles to enable the pond soil to completely dry.
2. Stock only post larvae (PL) of at least PL15 stage. Select healthy PL using stress tests and make sure that the PL are negative for WSSV by PCR testing.
3. Adopt strict biosecurity measures by providing reservoir ponds, bird and crab fencing, proper sanitation of men, material and machines.



4. Adopt best management practice (BMP) to maintain good water quality, proper feed usages and good health of shrimps through regular monitoring.
5. Usages of probiotics and immunostimulant may be helpful. However, avoid using too many chemicals / unauthorised products without knowing their exact effect.

Government and private laboratories are available for PCR testing of WSSV. Live and moribund samples collected in ethyl alcohol can be sent to these laboratories for WSSV testing.

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