



Responsible use of farm inputs in brackishwater aquaculture

Brackishwater aquaculture in India has been rapidly expanding, contributing significantly to the National economic development. For enhanced production and income, aquaculture is being continuously intensified and diversified. These initiatives have been contributing to increased incidences of disease. Diseases in aquaculture can be due to infectious agents, or poor farm management related environmental causes. One should note that viral diseases such as white spot disease (WSD) and parasitic diseases like hepatopancreatic microsporidiosis (HPM) will not respond to treatment with any antibiotic or chemical interventions. No definite infectious agents have been identified as causative agent of stunted growth, white faeces syndrome, running mortality syndrome or white muscle syndrome.

Considering these on farm health and productivity issues, use of medicines/drugs/chemicals without scientific knowledge would most likely aggravate disease conditions and drastically affect farm produce. It must be also noted that the efficacy of drugs and chemicals drastically reduces in saline waters and many of these substances persist in pond sediments for long periods of time. Indiscriminate use of antibiotics leads to development of antibiotic resistance among the microflora. The ecosystem harbouring a number of bacteria of public health importance and human infections with these bacteria would become untreatable and pose threat to public health. Further, use of antimicrobials also results in residue issues in aquaculture produce, which would be viewed seriously by the importing countries, affecting



foreign exchange revenues to the country. Alternatives to the use of antimicrobial agents include good husbandry, adequate feed composition and use of probiotics, biocontrol agents and disinfectants and movement restrictions.

General principles to be followed while using inputs in shrimp aquaculture operations

- Major disease issues in aquaculture can be prevented by following best management practices (BMPs). Medicines/drugs/chemicals should only be applied with expert advice.
- Providing good environment by water exchange generally resolve problems in the aquaculture ponds except for infectious diseases caused by viral agents or HPM.
- Identify cause of the problem before initiating any treatment and all information such as the nature of the disease and the range of therapeutic options available should be considered.



- Bio-control agents, probiotics, immunostimulants, vaccines and disinfectants are the best alternatives to anti-microbial substances.
- Use Medicines/drugs/chemicals for targeted treatment only after proper diagnosis.
- Government approved medicines/drugs/chemicals are only be used if necessary. It must be noted that no antibiotics are approved for use in aquaculture in India.
- Qualified technician should supervise application of medicines/drugs/chemicals.
- Strictly follow instructions on dose and schedule of drug application given by the manufacturer and the technician.
- During the disease conditions there is a possibility of reduced feed consumption, hence the dose should be calculated accordingly to avoid under dosing.
- Quantity of drug should be calculated based on the biomass and feeding rate.
- Administer medicines/drugs targeting the animals orally as feed top dressing or as immersion treatment. While preparing medicated feed by top dressing, homogeneity of the drug should be ensured.
- Good quality binder should be used for feed top dressing to avoid leaching of drug into water.
- Since affected shrimp/fish are not active and lose appetite, use of feed attractants in binder is advisable.
- All the drugs/medicines and the medicated feed should be stored in clean and dry place as suggested by the manufacturer with restricted access.
- The products should never be used after the expiry date under any circumstances.
- All interventions should be recorded, so that alternative options can be explored in cases of failure, if any.



Responsibility of aquafarm technicians

- Aquafarm technicians should have overall understanding of the aquaculture system so that suitable management strategies are followed to avoid the occurrence of disease and must always avoid use of chemicals and drugs.
- Providing good environment in the pond by water exchange should be the first step in remediating any problem in the farm.
- Should ascertain on farm clinical and environmental conditions and resort to treatment only if necessary.
- Before initiating any treatment, cause of the problem in the farm should be ascertained by an approved laboratory.
- Technician should be aware of the national recommendations or regulations regarding the indications, dose and schedule of the drug to be prescribed. He should have knowledge of contra-indications, pharmacodynamics, pharmacokinetics and effectiveness of each drug. He should be also aware of drugs not permitted for use in different culture systems.
- Decision to use the drug/medicine in aquaculture farm should primarily be based on expert knowledge and judgement.
- Drugs/medicines should be procured from authorized sources based on the prescription of competent aqua health professionals.
- Technician should take all precautions while handling the medicine/drug in the farm.
- During the course of treatment, farm should to be monitored regularly to enable revision of the course of treatment, if necessary.
- Technician should systematically maintain records of all inputs used in the farm. Lack of effectiveness of any drug has to be recorded and brought to the notice of the authorities.



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