NUS National University of Singapore | Department of Biological Sciences, Faculty of Science

SEMINAR

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Hosted by Professor Wong Sek Man

Past, Present and Future Trends in the Development of Aquaculture Feeds: Focus on Tilapia



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Using tilapia as an example, this presentation will highlight the evolution and development of aquaculture feeds from the days of extensive culture systems to the super intensive culture systems currently practiced in modern day aquaculture.

Tilapias are a group of freshwater omnivorous cichlids that are native to Africa and have been subsequently introduced, either deliberately or accidentally, throughout the world. Globally, tilapia is the second most farmed fish group and over the past decade has quadrupled in production. The continued global expansion of tilapia farming in over 100 tropical and sub-tropical countries is due to their many beneficial characteristics that include their tolerance to crowding, high marketability, relative ease of captive spawning year-round, high disease resistance, success with polyculture and ability to accept lower cost diets from terrestrial-based ingredients. Total global tilapia aquaculture production currently exceeded 4.5 million metric tons generating worldwide sales exceeding US$9.0 billion in 2015.

The rapid expansion of tilapia production is due in large part to the intensification of culture systems made possible with the use of commercial pelleted feeds. Since feeding constitutes the major operating cost of tilapia farming, understanding their nutritional requirements, factors that may influence these requirements and implementing the most appropriate feeding management strategy is essential for continued sustainability and scalability of the global tilapia industry. This presentation will provide an overview of the nutrition and feeding of farmed tilapia from broodstock to harvest. Current global trends in tilapia nutrition such as the use of alternatives to marine-based ingredients, functional feeds for disease management, and increasing governmental policies and laws regulating the tilapia feed industry will be highlighted. Functional feeds are feeds with additional function, usually health-promoting or disease preventing properties beyond their nutritional value. These feeds are now considered the new generation of aquafeeds. Our research into the use of organic acids as a functional feed additive in tilapia feeds as an alternative to the use of harmful antibiotics will be presented. Focus will also be given to the recent research on optimizing feeds for Genetically Improved Farmed Tilapia (GIFT) so that farmers can exploit the full genetic potential of these fast-growing tilapia strains. This presentation aims to provide a comprehensive overview on tilapia nutrition and thus contribute to the continued global expansion of tilapia farming and demand for their products.

Artwork by Ann Nee, DBS, NUS