



SESSION 1.2 SWINE



**EMPYREAL 75:
NEW PURE PROTEIN SOURCE FOR LIVESTOCK AND AQUA**

Mr. Nguyen Duy Hoa, PhD.
Technical Director
Empyreal Products, Cargill Inc.

SESSION 1.4 SWINE



ROBINA FARMS' WAR AGAINST CLASSICAL SWINE FEVER: A SUCCESSFUL EXPERIENCE

Mr. Dante Palabrica
Renee Diane Marca
Universal Robina Corporation

Introduction Classical swine fever (CSF), also known as hog cholera, is a highly contagious disease of pigs included in the list of notifiable animal diseases by the Office International des Epizootic (OIE).^{1,2} This disease, with mortality rate varying from 20% to 100%,³ is endemic in the Philippines with a 30-40% prevalence rate.² Vaccination against CSF is one of the control strategies used by pig farms to fight the war against the outbreak of the disease. The Bureau of Animal Industry (BAI) carried out a hog cholera control program, which includes CSF vaccination, after reports of outbreak of the disease happened in major pig-producing provinces in the country in 2002. The Malaysian Vaccine and Pharmaceuticals (MVP) produces a live, freeze-dried, GPE negative (GPE (-)) strain vaccine for CSF branded as the MYVAC Swine Fever. The objective of this research study is to investigate the experience of Robina Farms Bulacan (RF Bulacan) with using the MYVAC Swine Fever vaccine by determining its efficacy based on the farm's historical serological profile using the Enzyme-Linked Immunosorbent Assay (ELISA) for AntiHog Cholera Virus Antibody (HCV Ab) Idexx Kit and the farm's production performance data.

SESSION 3.1 SWINE



THE GOOD GILT MANAGEMENT

Mr. Niels Geertsen
Technical Manager
Danbred International

Having a high performing herd requires the right beginning. The gilt is your future and without a good beginning for the gilt the sows will not perform at the desired level.

This seminar will discuss the available literature from the Danish Pig Research Center and highlight the important key points for increasing the number of liveborn piglets and the longevity of the sow, all related to the management of the young gilt.

SESSION 4.2 FEEDS



FEED AND GI TRACT PROBLEMS

Dr. Waranee Prakatthagomol
Technical Division Manager
Better Pharma Co.,Ltd.

In livestock production, GI tract problem is the most health concerning problem. This problem can affect all species in any production periods leading to loss and poor performance. In current situation, the food safety issue put the big pressure to the industry. Limited antimicrobial used in the food animal production start the new era of GI tract problem control and prevention. Feed and feeding strategies must be highlight to handle the problem. Alternative feed additive can be a powerful tool in maintain the good health status and performance such as probiotics, acidifier, and herb extract.
Seminar Admission: Open to Public and Invited Guest

SESSION 4.4 FEEDS



**SOYBEAN MEAL AND FULLFAT SOYBEAN MEAL
PRODUCTION AND UTILIZATION IN SWINE AND POULTRY FEEDS**
Basilisa Pascual-Reas, DVM MSc
U.S. Soybean Export Council - SEA

Energy, followed by amino acids are the biggest components of any diets for livestock and poultry, and therefore occupy the biggest contribution in feed costs. The major energy ingredients are cereals, (corn, sorghum, wheat), fats and vegetable oil, and some by-products such as rice bran, copra meal, and distillers grains. The choice lies on which gives the best efficiency both in the long and short term animal performance. With the continuously increasing prices of cereal grains and coconut and palm oil, animal producers tend to shift from alternatives. For amino acids, oilseeds, particularly soybean meal is the most common sources. Some animal sources are also used, but mostly limited due to prices, availability and quality.

For optimum production and performance efficiency, these ingredients must be evaluated according to production, nutrition and performance. This presentation aims to provide information on raw material choices and usage in poultry and swine based on nutrients, quality, cost and performance. Data from latest local feeding demonstrations in piglets and layers will be discussed to support these claims. The major raw materials to be included in the discussions include; corn, wheat, rice bran, copra meal, coconut oil, de-hulled soybean meal, fullfat soybean meal and animal protein sources.

SESSION 4.5 FEEDS



EXTRUSION PROCESS & TECHNOLOGIES: APPLICATION IN RAW MATERIALS AND FEED PRODUCTION

Dr. Mian Nadeen Riaz
Texas A&M University
United States of America

Extruders can be visualized as a high temperature short time (HTST) device that can transform a variety of raw ingredients into intermediate and finished products. Extrusion technology provides several different advantages over traditional methods for feed processing. While many processing technologies result in an agglomerated feed, only a few have sufficient energy inputs to ensure feed safety. Feed safety is a major factor in choosing extrusion-based methods over traditional pelleting methods. Extrusion is a hydro-thermal process where the critical process parameters of retention time, moisture, and thermal and mechanical energy inputs can be varied over a wide range. The feed industry has considered a provision to mandate that all feeds are pasteurized and some form of extrusion will likely be implemented as the processing method of choice.

Extrusion is a highly versatile operation that can be applied to a variety of feed processes. Extruders can be used to cook, form, mix, texturize and shape feed products under conditions that favor quality retention, high productivity and low cost. There are several ingredients that need some kind of processing to make it more digestible and palatable to use as feed ingredients. There are several agriculture by-products that can be processed in to value added ingredients for feed application. Therefore, adding one extruder to a feed milling operation can add value to the ingredients and by products. At the same time a feed miller can reduce the effect of mold, fungus, microorganism and other anti-nutritional factors in these ingredients.

SESSION 4.6 FEEDS



ANTIBIOTICS REPLACEMENT IN ANIMAL FEED

Mr. Robert Walbeek
Export General Manager
Shenyang Kinetika Biotec Co.,Ltd

Alternatives to Antibiotic Use for Growth Promotion in Animal Husbandry, experiences from Europe

- The presence of an antibiotic may kill most of the bacteria in an environment but the resistant survivors can eventually re-establish themselves and pass their resistance genes on to their offspring and, often, to other species of bacteria.
- Both medical and veterinary uses of antibiotics have resulted in the appearance of resistant strains of bacteria. Resistant bacteria which are human pathogens may cause diseases that are difficult to treat; even if the resistant bacteria are not human pathogens, they may still be dangerous because they can transfer their antibiotic resistance genes to other bacteria that are pathogenic.

Antibiotics have also been widely used in animal feed in many other countries although a number of individual countries and the European Union have restricted the sub-therapeutic use of some antibiotics to minimize risks.

- In this presentation we look at alternatives, options, use and results.
- Information gathered from Europe especially the Nordic area (where antibiotics were banned in an early stage) ,Holland and Germany

SESSION 4.9 FEEDS



THE VALUE OF SPECTROSCOPY IN “QUALITY ANALYSIS IN ANIMAL FEED” AND OTHER APPLICATIONS

Mr. Daniel Freiner
Carl Zeiss Spectroscopy GmbH, Jena
Ms. Arlene Malaa
Bihis-Malaa Basics, Manila

Focusing on complex information of feed composition that can be retrieved in a short time from highly reliable measurement systems, the presentation explores the impact of analysis on the value improvement in animal feed. As wearable instrumentation is competing with traditional laboratory instrumentation, the implementation of continuous monitoring in a production process is not becoming obsolete, but might see even more justification, as information content is improving. A second example will focus on the rendering of meat using the same technology in waste treatment to make turn it into a valuable resource.



SESSION 6.1 AQUACULTURE

PRODUCING QUALITY SEEDS OF MARINE FINFISHES (POMPANO, SEA BASS, GROUPER, SNAPPER, AND MILKFISH)

Dr. Evelyn Grace de Jesus-Ayson

Scientist and Research Division Head SEAFDEC Aquaculture Department

SESSION 6.2 AQUACULTURE



COMMUNITY-BASED RESOURCE ENHANCEMENT: SCIENCE, GOVERNANCE & FISHERS IN ACTION

Dr. Nerissa D. Salayo , PhD.

Associate Scientist and Socioeconomics Section Head
SEAFDEC Aquaculture Department

Most fisheries in the Philippines have been assessed to be over-exploited due to increasing dependence on extractive fishing activities to secure food and economic needs of its growing human population. Seed production for stock enhancement is one of the two-pronged role of aquaculture, aside from producing juveniles typically for grow-out. Resource enhancement using hatchery-bred seedstocks is one of the management options to replenish fishery resources in already depleted fishing grounds. Aquaculture R&D at SEAFDEC generated technologies that enabled mass production of hatchery-bred seeds from the remaining wild stock in enhancement sites. Likewise, tagging methods for hatchery-bred juveniles, release strategies and monitoring of growth, survival and spill-overs have also been developed.

Since 2000, SEAFDEC/AQD has been implementing release trials for stock enhancement of highvalue abalone (*Haliotis asinina*) in Carbin Reef, a protected area of the Sagay Marine Reserve (SMR) in Negros Occidental. In 2006, community-based resource enhancement (CBRE) of abalone and sandfish (*Holothuria scabra*) started in Molocaboc Island, a multi-use area of SMR, starting with baseline assessment, social preparation and consultative policy formulation prior to releases. CBRE of tiger shrimps (*Penaeus monodon*) were initiated in New Washington Estuary since 2010 and release trials were conducted since 2013.

Sustainable and economically-viable CBRE therefore requires collaboration among scientific organizations such as SEAFDEC/AQD, local government authorities who manage and regulate the fisheries, and organized local fisherfolks who secure, monitor and maintain the enhancement area. Local governments are encouraged to adopt CBRE in its fisheries development programs to sustain the benefits from CBRE while protecting the fishery habitat and capacitating fisherfolks.

SESSION 6.3 AQUACULTURE



TILAPIA, FRESHWATER PRAWN ... AND NOW, SILVER PERCH! BREEDING AND FARMING UPDATES

Dr. Maria Rowena R. Romana-Eguia, PhD.
Scientist and OIC, Manila Office
SEAFDEC Aquaculture Department

Traditional aquaculture species such as tilapias, carps and catfishes have continued to dominate global fish production from inland waters. In the Philippines, freshwater aquaculture production which are mostly tilapias (Nile, red), Chinese carps, Clariid catfishes (or the native hito) and freshwater-reared milkfish, registered at 303,126 metric tons in 2015. Some species of Pangasiid catfishes are locally produced but in minimum quantities in view of the market demand for cream dory which is its commercial name. Giant freshwater prawns (*Macrobrachium rosenbergii*) or ulang, are also being farmed in some regions particularly in areas where hatchery seedstock are available. The choice of species for freshwater aquaculture production lies mainly on the ease by which these species are bred and farmed, the suitability of areas for farming, and availability of inputs. Technological advancements for increased yields in freshwater fish/prawn culture come with continuous scientific research in all aspects of fishfarming, from marker-aided strain improvement, to nutrition, water and health management on traditional and non-traditional species, etc. Countries such as Vietnam and Thailand have achieved good economic returns in farming their indigenous Pangasiid catfish species for which they devoted more than two decades of research. Except for the Pangasiid catfishes, which is not endemic to the Philippines, this presentation will highlight SEAFDEC/AQD's work on most of these traditional freshwater species, to include updates on the refinement of breeding and farming methods for the silver perch (ayungin) and other native prawn species which may have good aquaculture potential.



SESSION 6.4 AQUACULTURE

AQUACULTURE IN INLAND WATERS: A DOUBLE EDGED SWORD

Dr. Maria Lourdes C. Aralar
Scientist and OIC, Binangonan Freshwater Station
SEAFDEC Aquaculture Department

SESSION 6.5 AQUACULTURE

WHAT IS IN A FISH FEED?: ON-FARM FEED FORMULATION & PRODUCTION



Dr. Relicardo M. Coloso, PhD.

Retired Scientist at SEAFDEC Aquaculture Department
Currently, Professor at University of San Agustin, Iloilo City

Cost-effective feeds and proper feeding management are important in increasing fish production from aquaculture. Improved feed composition and feed conversion efficiency lower the cost of feeds and minimize the production of wastes from farms making fish farming more profitable and sustainable. A balanced diet for fish is important in ensuring fast growing, healthy, and disease-free fish and shrimps. Giving feed that supplies all the components of good nutrition, such as carbohydrate, fat, protein, vitamins and minerals, is essential in good aquaculture practices. These nutrients provide energy, build tissues, and are able to regulate metabolism in aquaculture species optimizing their ability to grow, survive and resist pathogens and environmental stresses.

On-farm feed formulation, production, and feeding are alternative options to farmers, but the feed should provide all the nutrients at amounts required for optimal growth and survival. Feed, whether conventional or produced on-farm, is the input with the greatest influence on water quality during production and whose expenditure line is the largest during the course of production. Therefore, it is extremely important to closely monitor the performance of feeding during the course of production. Suitable alternative fish feed ingredients (e. g., plant-based proteins, terrestrial animal by-products, and other products from biochemical engineering of nontraditional protein sources) which are digestible and contain minimal amounts of anti-nutritional factors and toxins are needed for on-farm feed production. The technical feasibility and economic viability of using these alternative ingredients in terms of the quantity required for commercial production should be properly addressed.



SESSION 6.6 AQUACULTURE

EMERGING DISEASE THREATS IN PHILIPPINE SHRIMP FARMING: AVOIDANCE, EARLY DETECTION & PREVENTION

Dr. Rolando Pakingking
Scientist and
Fish Health Section Head
SEAFDEC Aquaculture Department



SESSION 6.7 AQUACULTURE

SEAWEED KAPPAPHYCUS : CLONAL PROPAGATION AND CULTURE

Ms. Maria Rovilla Luhan
Associate Scientist and
Farming Systems and Ecology Section Head
SEAFDEC Aquaculture Department

SESSION 6.8 AQUACULTURE

HOW TO GROW MUD CRABS IN POND: SOFT OR HARD



Dr. Emilia Tobias-Quinitio

Senior Scientist and

Dumangas Brackishwater Station Head

SEAFDEC Aquaculture Department, Iloilo, Philippines

The Philippines is the second top producer of mangrove crab (mud or swamp crab) in the world. The total production of mangrove crab, locally known as 'alimango', from aquaculture was estimated at 16,160 mt valued at PhP 5.2 billion in 2013. The major sources of crab seeds for farming is from the wild and in recent years, from the hatchery although still in small percentage. Among the mangrove crab species found in the Philippines, *Scylla serrata* (king crab) is the preferred species for farming by crab growers. From the hatchery, crab juveniles are grown in net cages installed in earthen brackishwater nursery pond. In the first nursery phase, 0.3-0.5 cm carapace width (CW) crabs are grown to 1.5-2.0 cm CW for 3-4 weeks and these are harvested for selling or are grown further in a second nursery phase in which crabs reach 2.5-3.5 cm after another 3-4 weeks. The crabs are then grown for 1.5 months (80-100 g) for soft shell (newly molted) crab production or to market size (>450 g; hard-shelled crabs) for 3-5 months in ponds. Crabs for soft-shell production maintained individually in crab boxes are inspected for molting every 4-5 h. Newly molted crabs are immediately removed, put in a container with aerated freshwater for about 30 min, packed and stored in a freezer. All parts including the exoskeleton of the crab can be eaten when cooked.

SESSION 6.9 AQUACULTURE



SINGLE OYSTERS: THE BETTER, MEATIER, JUICIER ALTERNATIVE

Dr. Junemie Hazel Leбата - Ramos

Scientist and Training & Information Division Head
SEAFDEC Aquaculture Department

Oysters are a gourmet and luxury food in developed countries but a cheap food in developing countries. They are among the most in demand bivalve species because of their affordability to the low-income members of the society. Because of its high demand, oyster farming is an important source of livelihood in many coastal communities, not just in the Philippines but throughout Asia. It is one of the most preferred species for culture in estuarine bays because it does not require large capital—the spats are readily available in the wild; oysters don't need to be fed; and growing them requires very minimal maintenance. Among the most established methods for oyster farming are the stake, hanging, long line and lattice methods. All these traditional methods produce clustered oysters of varying shapes and sizes. The new culture system developed for growing oysters utilizes wild or hatchery-produced spats which are reared in pouches hung from floating rafts. Using this method, oysters with an initial size of 2-3 cm shell length (SL) and around 2-3 months old may be harvested after 6 months of culture, instead of the usual 12-month culture period using traditional methods. This new method produces single oysters that are meatier, juicier and almost of uniform shapes and sizes. Published papers reported a 5-21% flesh to total weight ratio for oysters. On the other hand, growing single oysters, resulted to an average of 24% flesh to total weight ratio (range = 1138%).