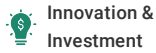




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Innovation &
Investment

At GOAL, a peek at potential aquaculture futures

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By Darryl E. Jory, Ph.D.

Annual conference offers unique looks at chickens, biotechnology and a collaborative approach to marketing



Neil Manchester, managing director of Hendrix Genetics Aquaculture BV, discussed the innovative Kipster project in Holland. Photos by Elise Avallon.

At the Global Aquaculture Alliance's annual GOAL (Global Outlook for Aquaculture Leadership) conference in Guyaquil, Ecuador, some unfamiliar topics gave aquaculture industry leaders something to chew on, some potential futures for the industry.

A radical redesign of a chicken egg farm, a frank discussion about biotechnology and a collaborative approach to information sharing and marketing of Ecuador's main aquaculture product – shrimp – were all on the table.



Kipster is an innovative and sustainable concept to grow chickens in a way that meets the highest demands of stakeholders and consumers. From Neil Manchester's GOAL presentation.

Kipster: An innovative and sustainable concept to grow chickens

On the conference's packed final day, **Neil Manchester** (https://www.aquaculturealliance.org/advocate/goal-2017-video-neil-manchester-hendrix-genetics/?_hstc=236403678.5caaeaed407b304b44bd21cd6ca161e3.1680956444385.1680956444385.1680956444385.1&_hssc=236403678.1.1680956444386&_hsf) managing director of Hendrix Genetics Aquaculture BV, started the plenary with his presentation, "Value Creation from Innovation, Sustainability and Collaboration – the Four Pillars of Revolution."

He discussed an innovative new concept in animal protein production involving whole-chain collaboration and innovation: Kipster Farms (www.kipster.farm) in Holland. The facility, formed by four visionaries with the idea to build a sustainable facility that meets the highest demands for all stakeholders, puts the latest innovations to work and focuses on what consumers want.

Collaborators include farmers (Styn Claessens & Maurits Groen); breeders (Hendrix Genetics); Technical (equipment and systems suppliers); academia (Wageningen University); welfare (Dutch Society for Prevention of Cruelty to Animals); environment (Milieudefensie); sustainability (Dutch Urgenda Foundation); marketing & communications (Schuttelaar & Partners); and retail sales (Lidl Nederland).

Kipster opened in 2017 and set a new standard with the main objectives of sustainability, animal welfare, efficiency and cost-effective production, and to be the best in class by any measure. Other important standards included order, no waste and complete transparency.

The facility, Manchester explained, is open 24 hours a day: The public can literally walk in, full access to the heart of the operation, with complete biosecurity measures in place. The business center offers as much information about the project as you may want.

"Trust has to be earned, so what better way?" asked Manchester, adding that inviting the participation of all stakeholders in the design process helped to consider the challenges. "The facility has plenty of space for the animals, is visually appealing, as well as practical and efficiency and is built in a high-visibility area, just inviting for the public to visit and have a look. It has a zero-waste policy through collaboration with local partners, and the chicken feed originates from residual flows and does not compete with food which could also be suitable for human consumption. And it uses a zero-energy policy with no emissions, is carbon-neutral, with no use of fossil fuels, pleasant to the eye and it actually exports and sells electricity."



The Kipster facility is open 24 hours a day. From Neil Manchester's GOAL presentation.

The big question, Manchester asked, is not could, but should aquaculture follow the Kipster concept? In a similar set-up for fish, tilapia could be an example of a low-value fish becoming a premium one, with strong welfare, efficient production and a high quality product delivered fresh to consumers.

With aquaculture, where cost-driven production systems are generally extensive ponds and in remote locations or open waters, exposed to the environment, it might be difficult to accomplish. But as motivational speaker and organizational consultant Simon Sinek says, we need a vision, and Kipster is a vision.

"The end collaborator in retail, Lidl, recognizes value and had committed to 100 percent production for first five years. There are five new Kipster farms being built in Holland and Germany. The concept really works, it creates value and people are willing to pay twice the price for the Lidl eggs, with demand outstripping supply," said Manchester. "And therefore, the need for more farms and production. Why is that? Because with all stakeholders involved in the design of the operation and its production, there is no dent in the consumers' minds that paying extra is the right thing to do. My own children love them and eat only Kipster eggs now, this is brand loyalty."

The food production world today, he stated, requires collaboration among all stakeholders along the entire value chain. Kipster got "everybody on the bandwagon before leaving the station, and no one has left," said Manchester.

"Imagine if you will, an operation that used the best genetics, best feeds, least polluting, highest and consistent quality, open and transparent, where the consumer has absolute confidence that every issue has been addressed before it goes forward. And then imagine that consumer-led approach being branded – that is a nice vision."

From left to right: James Wright, Global Aquaculture Alliance; Vonnie Estes, Estes Consulting; Larry Feinberg, KnipBio; Michael Tlusty, UMass-Boston; and David Tze, Novonutrients.

How biotechnology is impacting aquaculture

Vonnie Estes defined biotechnology as "Technology based on biology using cellular processes to develop products to improve our lives and the health of our planet."

Biotechnology industry leader Vonnie Estes' presentation, "Biotechnology: Improving ways to feed, fuel and heal the world," gave attendees a stronger sense of what biotech is and how it is already impacting our lives.

Defining biotechnology as "technology based on biology using cellular processes to develop products to improve our lives and the health of our planet," Estes discussed its various applications, government regulations, public perceptions and growing acceptance.

"Remind yourselves of the importance of our amazing planet, and why it is important to develop tools that continue to allow us to feed people and have no negative impacts on the environment," she said.

Biotechnology has many uses in medicine, including the creation of precise tools for disease detection, for reduction of rates of infectious diseases and to fight serious illnesses like diabetes.

"We can take cells out of your body, change them through biotechnology and put them back in your body to fight disease in your own body," she said.

Biotech can improve the odds on serious and life-threatening conditions and to be used to tailor and individualize treatments to minimize health risks and side effects. You will never hear "I am not using my insulin because it was made by genetic modification, or I am not using this amazing cancer treatment because it was produced through biotechnology," she said. In this regard, the use of biotech has very high acceptance rates among consumers. It gets far more complicated when food enters the discussion.

"People don't like messing with their food, and will say, 'I do not want any DNA in my food,'" she said, illustrating how much education many consumers need on the subject.

"Biotechnology enhances all parts of our lives, health, food, environment" and for biotechnology to continue moving forward, argued Estes, there is a need for sound policy decisions supporting innovation and risk-taking by an industry worth trillions of dollars and that provides millions jobs. It requires a well-informed public as well as funding, protection and regulation, and "the risks and challenges need to be addressed through dialogues among stakeholders including policy makers, experts, the public and NGOs."

Biotechnology has many industrial biotechnology applications, like the use of microorganism like *E. coli* to produce different products. These applications including the streamlining of chemical manufacturing processes; making enzymes to lower temperature to clean clothes; reducing the use of petrochemicals; and producing "materials we haven't dreamed of."

This area of biotechnology "promises new approaches to pollution prevention, resource conservation and cost reduction." For crop production, biotechnology can yield more environmentally sustainable farming practices, including helping reach higher crop yields with fewer inputs, with less chemicals use and run-off, to produce crops with enhanced nutrition profiles and foods free of allergens, and to reduce fuel use and CO₂ emissions.

Biotechnology also can improve animal health and production through breeding, detection and treatment of diseases as well as new and better vaccines, and for nutritious and digestible feeds.

Because it is being used more for food production, biotechnology is becoming more consumer-facing, said Estes. There are, however, signs of more public acceptance for various new technologies. On genetically modified organisms (GMOs), public perception is an important concern, but the rejection of GMOs and transgenic technology is based mostly on uncertainty and doubts about transparency, she said.

"Speak to people and engage them; have dialogues with all stakeholders, explain what it is and how it is used," said Estes, who has experience working with DuPont, Monsanto and Syngenta.

Estes also joined Global Aquaculture Advocate Editor James Wright on a panel discussion on "Science Nonfiction: How Biotechnology is Shaping Food's Future." Larry Feinberg, CEO of **KnipBio** (https://www.aquaculturealliance.org/advocate/pink-powder-revolutionize-aquaculture/?_hstc=236403678.5caaeaed407b304b44bd21cd6ca161e3.1680956444385.1680956444385.1680956444385.1&_hssc=236403678.1.1680956444386&_hsf) Dr. Michael Tlusty of the University Of Massachusetts-Boston and David Tze, CEO **Novonutrients** (https://www.aquaculturealliance.org/advocate/new-nutrient-aquaculture-microbes-eat-carbon-waste/?_hstc=236403678.5caaeaed407b304b44bd21cd6ca161e3.1680956444385.1680956444385.1680956444385.1&_hssc=236403678.1.1680956444386&_hsf) helped to explore the how biotechnology is making its mark on food production, with a focused look at the aquafeed sector.

Representatives from shrimp producer associations, feed companies, buyers, producers and other interested stakeholders met to discuss information sharing and a unified approach to marketing. Photo by Darryl Jory.

Shrimp Information Exchange aims to align supply and demand

Organized and led by GAA president Dr. George Chamberlain, representatives from shrimp producer associations, feed companies, buyers, producers and other interested stakeholders met twice at GOAL to discuss the sharp decline in shrimp farm gate prices to near or below the break-even point.

The first-ever gathering was dubbed the Shrimp Information Exchange. Taking place before GOAL officially began, about 30 participants at the SIE presented overviews of the shrimp farming industries in their countries along with their views on the current price situation and perspectives on how to improve this situation.

There are significant concerns that low prices could continue throughout the year and beyond, given stated expansion plans under way to increase production even further in some of the main global producers, and because demand has not responded due to a lag in price reductions at the consumer level.

Ragnar Nystoyl from Kontali Analyse AS, a Norwegian company leader in providing seafood analyses and information, presented a general overview of how the company tracks information on the salmon industry, its characteristics and data, focusing on production but also on trade flows and consumption at regional and global levels. Nystoyl emphasized a transparent approach and discussed general options to reduce price volatility.

During the meeting after GOAL, close to 60 participants reviewed options to increase shrimp consumption and concluded that an Organizing Committee should look at options to better track farmed shrimp production, strategies to promote and expand consumption and methods on financing these efforts.

Both meetings highlighted a lack of general and specific information and the need for more and better communication among all stakeholders, the need to better align farmed shrimp supply with expected market demand, and the need to reduce the significant price volatility recently experienced by the sector.

A degree of price volatility is to be expected in any food production sector, but the range is far greater in the shrimp sector than in more mature sectors such as salmon, poultry and wheat. Part of this volatility is explained by shrimp farming's history of disease outbreaks and recoveries that lead to corresponding shortages and oversupplies. Volatility is further magnified by a lack of reliable data about production volume and lack of transparency about outbreaks and production shortfalls.

Price volatility is disruptive both to producers and buyers. When prices are low, producers struggle, yet buyers are hesitant to pass on low farm prices to consumers or offer promotions unless they are confident of production stability. When prices are high, buyers may be forced to shift their purchasing sources or delist items.

The consensus view is that subsidies to support producers during periods of low prices are not a solution, because they can trigger antidumping tariffs.

"The objective of the Shrimp Information Exchange is to improve transparency about shrimp production volumes and trends by gathering more accurate and reliable shrimp production statistics. It will be working closely with national producer associations, major producers, feed companies, hatcheries, processing plants and other stakeholders, as well as with the global buying community with the objective of assuring alignment of production and market," said Chamberlain. "After the meetings in Guayaquil, an Organizing Committee has been established to address needs and options to expand shrimp consumption, more efficiently track and share production information, and possible courses of action to expand consumption in the main global markets. A SIE Advisory Committee has also been established consisting of economists and industry leaders."

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