



Ohio Soybean Council Partners with Matrix to Promote EnzoMeal®

The Ohio Soybean Council (OSC) has licensed EnzoMeal®, an advanced soybean-based fish feed, to Matrix Sea Food India Ltd. (Matrix). The collaboration is expected to greatly expand the aquaculture industry's access to this attractive alternative to fish meal and other soybean-based diets.

Matrix is a manufacturer of aqua feed and feed supplements. With headquarters in India, Matrix exports to several major economies in Southeast Asia, long considered the home of aquaculture, or “fish farming.” As a key part of this industry, Matrix recognizes both the opportunities and the challenges presented by today's growing market.

Global per capita fish consumption has nearly doubled in the last 40 years, hitting a record high in 2016 and continuing to rise an estimated 3% to 4% annually.¹ Aquaculture, rather than wild catch, is driving the seafood industry's sustainable growth.² While the industry is thriving, raising fish in regulated environments such as ocean pens or ponds entails procuring increasingly large quantities of controlled feed. Historically, fisheries have used fish meal, but the primary ingredients—wild fish and shrimp—are rapidly dwindling resources, making the feed expensive and unsustainable. The industry has turned to soybean meal because of its high protein content (around 48%), but that, too, has presented obstacles. Conventional soybean meal, when used at high levels in producing fish feed, contains carbohydrates that fish cannot easily digest.

Recognizing a market need, OSC and its research partner, Battelle, developed a process that removes non-digestible carbohydrates and increases crude proteins in the soybean meal. The resulting technology, EnzoMeal®, resolves the issues that to date have limited soybean use as a fish feed protein.

“Soybean meal provides much of what fish need: high protein, essential fatty acids, unsaturated fats, and a favorable amino acid profile,” explains Dr. Ram Lalgudi, Battelle senior scientist and the lead researcher behind the innovation. “But fish digestive systems aren't accustomed to oligosaccharides—those are the carbohydrates—and there are other soybean compounds that can interfere with the digestive process. Our advanced process removes those substances so that the feed can include a much higher percentage of soybean meal. EnzoMeal® feed is the best available option when balancing nutrition and costs, and as the key ingredient is produced in abundance in the United States, it will likely remain affordable.”

EnzoMeal® received a 2017 R&D 100 Gold Special Recognition Award—the highest level of this prestigious award for invention and innovation—in the Corporate Social Responsibility category.

¹ Food and Agriculture Organization of the United Nations, *The State of World Fisheries and Aquaculture, 2016*, <http://www.fao.org/3/a-i5555e.pdf>.

² RaboResearch, *Global Animal Protein Outlook 2018*, November 2017, <https://www.demolenaar.nl/wp-content/uploads/2017/11/hier.pdf>.

OSC was honored to receive the R&D 100 award,” says Steve Reinhard, soybean farmer and chair of the OSC board. “EnzoMeal® is a great step forward in animal feed. But the best technologies are ineffective if they are not used. The partnership with Matrix will facilitate EnzoMeal’s® adoption in international markets, allowing OSC and Matrix to play an important role in meeting rising aquaculture demand across the globe.”

Matrix will reach out to its existing client base with product samples, allowing industry to test-drive the advanced feed. In parallel, the company will complete a new facility for large-scale production.

Vee Siva Prasad, Matrix’s chief executive officer, expects the EnzoMeal® line to grow quickly. “The burgeoning fish farming industry is meeting an important demand, helping to feed the growing global population in a way that is affordable, sustainable, and healthy. That demand has, in turn, created another demand: feeding the fish themselves in an equally sustainable way. That’s where EnzoMeal® comes in.

“The technology opens up a number of possibilities,” Prasad continues. “Matrix’s goal is to produce 50,000 tonnes of feed annually. Once EnzoMeal® has been established as a readily digestible protein source, Matrix may look into using the technology for other animal feed products.”

OSC will partner with Matrix to help realize its vision for EnzoMeal®, providing technology transfer support, technical assistance, and data for various fish species.

If you have any questions please contact Barry McGraw, Ohio Soybean Council EnzoMeal® project lead.

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The EnzoMeal development team (*from left*): Kirk Merritt (OSC), Vee Siva Prasad (Matrix), Steve Reinhard (OSC Board), Shankar Prasad (Godavari Knowledge Society), Barry McGraw (OSC), and Ram Lalgudi (Battelle). not pictured: Rob Cain (Battelle), Mrudula Vempuluru (Matrix), Bhima Vijayendran (Redwood) and Jim Sonnett (Redwood).