VALUE ADDING TO PEARL OYSTERS

PARTNERS

JAMES COOK UNIVERSITY AUSTRALIA

BROKEN BAY PEARL FARM

IN SHORT

This Food Agility CRC project supported the development of advanced breeding programs so that Australian Akoya producers can estimate breeding values for commercially important traits.

"For Broken Bay Pearls, this project has converted a long-term breeding ambition into a practical pathway for commercial application. By providing access to our farm, hatchery, oyster families and production data, we helped ensure that the technologies were developed around real operating conditions and the traits that matter to producers."

James Brown, Broken Bay Pearls

THE CHALLENGE

Traditionally grown for their high-value pearls, Akoya oysters are emerging as a fast-growing and disease-tolerant species that can be farmed for the restaurant table. However, selective breeding based on specific traits is time consuming and cost prohibitive, holding back the oyster's commercial potential.

OUR APPROACH

To support the development of advanced breeding programs, this project developed industry-scalable artificial intelligence (AI)-based computer vision, sensor-driven phenotyping technologies, genomic tools, databases, and genomic prediction methodologies. These technologies enabled the rapid and accurate collection of phenotypic and genomic data, which were integrated into genomic prediction models to estimate breeding values for commercially important traits. Collectively, the project provides the technological platform needed to implement industrial-scale selective breeding programs, accelerating genetic improvement and enhancing the productivity, product quality, and profitability of the Australian Akoya oyster industry.

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Department of Industry, Science and Resources

Cooperative Research Centres Program