

September 2017—AQUACULTURE PERSPECTIVES

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GMO fish are now a consumable reality

by Bill Manci

It happened. AquaBounty Technologies sold their first batch of genetically modified (GM) Atlantic salmon to customers in Canada. This is the first GM animal ever legally sold and eaten by people.

This is a momentous occasion, and one that AquaBounty has pointed to for many, many years. I'll bet they didn't figure it would take this long. But when your product is called "Frankenfish," you have to assume there will be push-back.

The AquaBounty AquaAdvantage salmon is a product of genetic technology. Specifically, this fish has genes from two ocean fish that allow it to continue to grow quickly in cold water. In all other respects, it's still the same Atlantic salmon most of us have grown to enjoy.

I applaud their efforts, and know they are pointed in a direction and down a path in which other segments of agriculture must necessarily follow. For that matter, AquaBounty only did what plant geneticists already had done.

What I find very interesting is that while AquaBounty was slogging it out for years in the trenches with regulators, bureaucrats, and politicians, science and technology moved several steps farther ahead by developing the technology called CRISPR—an acronym with a meaning that sounds straight out of Strunk's "The Elements of Style"—Clustered Regularly Interspaced Short Palindromic Repeats.

Now you've got something for your next trivia contest.

Soon following CRISPR came the gene-editing technique called the CRISPR/Cas system, and the simpler version called CRISPR/Cas9. With this horse now out of the barn, it is being used for all kinds of genetic manipulations.

To make it very clear, the difference between CRISPR and what AquaBounty did is that in CRISPR, genes are not transferred from one species to another—an approach that made/makes many people "ethically queasy." Instead, genes within the animal are edited, with the inclusion of no "outside" genes—no so-called transgenesis.

If you are so inclined to use the term, you can think of it as “highly accelerated evolution.”

Whether or not gene editing—which may replace the transgenic techniques like those employed by AquaBounty—is more reassuring to the opponents of transgenic techniques remains to be seen.

In the meantime, AquaBounty has successfully run the regulatory gauntlet, both in Canada and here in the United States.

For reasons that are fairly obvious, AquaBounty has not yet disclosed who their customers are in Canada. But, I can rest assured tonight that the consumers of the AquAdvantage salmon will not emerge soon as disfigured zombies because of the ocean pout genes they ingested in their recent meal.

By the way, the reason AquaBounty went to all the trouble to develop the AquAdvantage salmon is it grows to market size in half the time of an unaltered Atlantic salmon. No pun intended, but that’s huge!

It’s “huge” for the growers, who can now plan production using shorter grow-out cycles, and it’s “huge” for consumers because the marketplace is now becoming more sensitive to upturns and downturns in demand, which will lead to greater production efficiency and more stable pricing.

If we are to continue feeding ourselves, the AquAdvantage salmon and other scientific advancements in the safe production of food must be accepted.

Any progress we make in the science of aquaculture will relieve pressure on wild fish populations, and greatly reduce the chances of food shortages and the ensuing escalating political and cultural tensions that invariably follow.

It’s also worth mentioning that the AquAdvantage salmon is one of the most scrutinized food items in the history of mankind, and will continue to be scrutinized and monitored as it is produced. Think of it as super-traceability!

Wild fish can’t hold a candle to that!

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