

The Importance of using a Precise and Intelligence Data Analyzing in the Aquaculture Industry, Before and After the COVID-19

Nir Tzohari*

Senior Consultant, Aquaculture Specialist, NT Aqua Con, Israel

PERSPECTIVE

On the 1980's Madonna used to sing that "We are living in a material world". Today, when we are deep into the 21st century, we know that we are living in a "data driven world".

Our industry of aquaculture is a unique industry amongst the other agricultural sectors, from many reasons. But the main reason to that is due to the fact that when a fish grower leaves the farm at the end of the day, he knows exactly how much money he spent on feed, on labor, fuel, energy etc., but unlike dairy, or poultry for example, where one can actually see what he grows, count the animals, see how they were fatten, here a farmer doesn't know how much money he made (or, to be more precise - how much biomass he added to the live biomass of the farm). No counting is possible, nor vision of all the stock.

All over the industry we are seeking for solutions for that enigma - sophisticated cameras with image processing, counters for the fish outside the water, and more inventions better or worse, but we have never found the best solution yet.

Saying all that - while quality data analyzing becoming more and more available, it also getting more and more essential, and there are many reasons for that. In the next few paragraphs I will try to touch it as deep as I can.

Data registration

For a reliable data registration, we need a reliable tool.

As large as the farm is - the more data there is, and the harder it is to make the data registration reliable, effective and accurate with the traditional tools we used to have (all the way from paper sheets to excel sheets). That is why, as a first step we will need a reliable tool for that, a software that will be easy-to-use and will save time on one hand (using mobiles, hand-typing and copy-pasting methods for an effective process) - and will arrange all the data in a way that will be easy to process later, to achieve the best results of analyzing and reporting.

Today there are several good solutions for that in the market, that will fit to every farm's scale, from small-family business to a very large scale company with thousands of production units.

Data analyzing and the way to a best production planning

Now, after data has been entered safely and easily to the database of the farm, it is time to understand why we need it so much.

As mentioned above - today we are living in a world of data, or a data-driven world. The more data we collect, the better tools we have - that way we will be having better knowledge.

But - the big question is: how can we transform this data into knowledge, and what will that knowledge give us back? With the help of the best practices of data analyzing, datamining and machine-learning, a fish farmer will be able to transform his data, that now became Big-Data into his own knowledge his own property.

That data, those tools, will help the fish-farmer to do some very important things that were missing before that technique came to serve the industry:

- 1 The farmer can now create his own growth- and feeding-model, based on his own performances of the past years. With the help of the right software and analyzing tools, there is an opportunity to constantly create and update a unique Feeding-Model, and a unique FCR-Model that are based on real data, and not on the generic-feeding-companies' data that (although comes from years of research) fits for an average environmental-conditions, and not for the specific location.
- 2 With the help of those specific models, now the farmer can, as a first step, be more accurate as to what he has under the water surface, and once the Big-Data based models are accurate, the assumptions of the biomass become closer to reality.
 - The way of making it, is as simple as that: once the farmer knows the estimated FCR for a specific temperature and weight, he can, by operating regular sampling protocol (either by the traditional samplings or with more modern and sophisticated tools such as image-processing tools and

Correspondence to: Nir Tzohari, Senior Consultant, Aquaculture Specialist, NT Aqua Con, Israel, Tel: +972549799284; E-mail: nirtz2010@gmail.com

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weight estimators), to estimate whether the actual FCR is close or far from the estimated one, and by that, the farmer will adjust his fish number to be closer to reality.

- Now, one need to make sure that all the data is correct: from the model to the samplings, from the feeding-data-registration to the environmental measurements. Once all the above is correct the chance of making mistakes is getting smaller and smaller.

3 One more, and very important tool, that will come with the help of creating a precise model, is the ability to create a very accurate production planning, that will be done, once again

with the right models and the best-fitted software, so that a plan can be always up-to-date, according to real performances, but, and more important, will always make the farm to work by a plan, instead of being drag to what happens in the field.

And last, but not least - how does it connected with COVID-19?

As to my point of view - from now on, the industry will need to be more flexible on one hand, and more planned on the other hand.

The industry will need to learn how to adjust itself after and during the next crisis.