

Data Analytics



In agrifood, a powerful and low hanging fruit application of this approach has been in integrating and analyzing available data related to health, disease, performance (FCR, ADG), and management practices that drive these and link them to economic return.

One of the first sectors of the agrifood industry to do this was the beef industry. Large corporate veterinary beef practices now have many years of experience in collecting data on health, disease, performance, and profitability which has allowed them to identify management practices that actually drive performance for their clients - they can prove it and it has made them virtually indispensable.

In the poultry industry, early adopter integrators, producers, commodity groups, and their suppliers are seeing the light and the uptake of similar analytic approaches is growing fast.

Why Data Analytics?

Data analytics is a proven, cutting edge tool which has been used to enhance profitability in many sectors. It is low cost, easy to do, requires no capital investment, and leads rapidly to practical, priority solutions to improve your bottom line.

The poultry industry globally is beginning to catch onto data analytics and companies that fail to begin investigating and trying these approaches risk being left behind in a rapidly changing and sophisticated industry.

How did Data Analytics evolve?

Data analytics grew out of the computer and information age. Today, vast amounts of data exist on virtually every subject and are readily storable and retrievable. Certain early adopter industries (for example the banking industry and information technology industries such as Google) have recognized that integration and analysis of data can yield vast profits by identifying measurable sources of profitability in their own operations.

Data analytics takes them from guessing what might in theory increase their profits (for example based on the literature, 'expert' opinion etc) to the next level of sophistication; that is, seeing what actually is driving revenue and costs - and hence profits - in their own operations based on their own actual data. The difference can be dramatic - because it takes them from theory to reality.



What do I need to do to get started?

Getting started is easy!

- No capital investment is required
- No new software is needed
- You can start as big or as small as you want

You will, of course, need insight into data analytics from an experienced individual. Someone with a specific skill set and knowledge base is ideal – that is, an understanding of what data to collect, how to analyse it, and how to interpret it.

In our experience, veterinary epidemiologists possess the best off-the-shelf skill set to do this is; however, experience with that skill set in a commercial context is critical.

The 5-Step Data Analytics Process

1. Define your objectives by asking yourself, “Out of all the issues you could look at, what is likely most important and likely to yield rapid results and an impact on the bottom line.” For example, is it health status? Is it food safety? Animal welfare? What is driving your short term (eg costs) and long term (eg brand image) profitability?

2. Pull together the relevant existing data. Typically these consist of things like necropsy results, management factor information, and performance - all of which can readily be linked to economic return.

3. Undertake the RIGHT analyses. This is critical. One of the best sources of information on how to do this effectively comes from the field of veterinary epidemiology. For years, veterinary epidemiologist have been amassing and honing a very specific set of tools to do this. They have been adopted by the beef and dairy industries with huge impact (as described above). The poultry industry has been slower to catch on but is now out of the gate and rapidly gaining momentum.

4. Test the results. The analysis is designed to identify measureable factors that can be changed to improve profitability. The next step is to do this using highly targeted, safe, and inexpensive pilot projects - in your next flocks. With this, you can measure the actual empirical impact of these changes on your operation, evaluate which works best, and scale up.

5. Repeat. This is a process that builds over time. Each step is the baseline for the next test. At each stage further improvement occurs, and what actually drives improvement is shown mathematically at each stage.



Is Data Analytics right for us?

Perhaps you believe that the use of data analytics would be unnecessary - after all, you already observe management factors with the intent of making improvements.

The difference between this method and using a true data analytics approach is best explained through use of an example.

“A producer has noticed periodic coccidiosis issues through routine necropsies (eg a low level ongoing issue) and during visible coccidiosis breaks. It is well understood that coccidiosis can cause substantial economic loss and that there are main factors (eg nutrition, medication, etc) that cause it.”

The real questions for the producer are the following:

- Is this worth worrying about (eg is it actually costing me money - if so how much)?
- Should I do anything about it or should I spend my time/money on other issues?
- If I should spend money and time on this issue, how should this be prioritized to provide the most value and return?
- If so - what is actually causing it in my operation?
- What will be the actual economic benefit of making changes in my operation?
- If I try some changes, how will I know if they worked?

ANSWER:

Without the benefit of the right data analysis and interpretation - unless there is a significantly increased mortality or drop in performance and some very obvious problem with management - even the **best production specialists in the world** would simply be guessing.

Here's a [high level overview](#) of a scenario that illustrates the answer that can come out of approaching this situation with data analytics:



Sample Data Analytics approach:

- The **epidemiology and production specialist team** meets with the producer to evaluate what they have been seeing and what data exist on **health, performance, and management factors**.
- They find that necropsies have been done, but inconsistently over time - eg mainly when a clinical problem has been suspected. The results are **recorded in different paper and electronic formats** and **performance data are recorded separately**.
- Various people have attempted to intuitively link potential causes to the disease and a few different medication changes have been tried – but no one is sure if they really worked
- No one can really say what the dollar cost of the problem is
- Opinions on the data range around the theme of - “Potentially useful, but we never know exactly what to do with it and there is a lot of it.” Some are doubtful of the value of looking at it because they have ‘already done that’
- The farm management team is **shown the value of the data** by explaining the difference in the approach from what they have been doing and being walked through examples of how it has worked for other producers just like them. Through this they are brought on board to do a **simple test pilot**
- The existing and available data are assembled in one electronic spreadsheet
- Changes in coccidiosis levels are plotted over time along with performance and this is expressed in **dollar terms based on existing economic models**
- Data collection gaps are **identified and are rectified**
- The **relationship** between coccidiosis and performance is **determined from the data and translated into dollar terms**
- **A historical elevation in coccidiosis is seen from the data to be statistically associated with a specific change in medication**
- That medication issue is changed in a few test flocks
- Subsequent coccidiosis levels are **monitored through the enhanced data collection system**. The medication change is shown statistically to have produced a specific improvement in FCR and dollar return. The medication change is rolled out
- This is treated as the new baseline - the team moves to investigating 1) further potential tests to improve coccidiosis 2) new diseases and their impact and causes



How do I get my team on board?

Regardless of where you are in the value chain - a producer, an integrator, a supplier or any other role, getting engagement and alignment from your internal and external teams is critical. Some of the perspectives we've observed that have created barriers which prevent uptake of data analytics include:

Perceived Barriers

"This is new"

"It is unproven to me personally"

"I don't know people who have used it successfully"

"I've already tried it (like the example above, this is usually a situation where people have looked at data but without the right approach to give them success)"

"It will work for other people but not me or my customers"

These are just normal concerns raised by people who are not habitually cutting edge early adopters in this context. In our experience, some **excellent ways to bring people on board** include the following:

- Start with the **early adopters** - the people who are naturally interested in new ideas to improve things especially ones like this
- Ensure that the **right senior management team** is on board
- Focus on issues of **immediate concern** to them
- Show the **dollar benefit**
- **Start small** - create small success and then move on from there
- Show them how it is **already being used successfully** by people just like them

NOTE: The key here is to model success - ask someone who has done it and made it work - don't be dissuaded by people who aren't yet familiar with it.

Data analytics is a powerful tool whose time has come. Will it guarantee the correct answer in every case immediately? No - clearly not. But over time it is an extremely effective process that will consistently yield predictably systematic improvements in profitability. And it is completely consistent with and integratable with every other effective management change that can be instituted - like enhanced diagnostics, improved products and approaches to enhance health, and so on.

Value chain members who fail to realize the value of their own data and that of their customers risk being left behind - like companies that failed to adopt emerging information technology fast enough and which are a shadow of their former selves (think Kodak and Blockbuster). Information technology is a major driver of profitability and a next major wave is using software to turn all that data into information to create practical value- added solutions.

Novometrix Research Inc specializes in network engagement and data analytics to support the economic, environmental and social sustainability of the agrifood industry with special emphasis on poultry production.

How to contact us:

Tara Roberts
Senior Project Manager
tara.roberts@novometrix.com
613-340-7277

www.novometrixinc.com

