Summary about my Nuffield experience

NUFFIELD THE NETHERLANDS FARMING SCHOLARS

Smart farming in the pig industry

We record a lot of data on our company. But which ones are the most important. I want to zoom in on the piglets that become fattening pigs. These animals bring in the money when sold and you prefer to sell as many good healthy animals as possible per year. We record enough data about the sows and the accompanying analyses are also sufficient to be able to manage our company properly.

But what do we really know about our piglets? These are born, delivered and moved round and about 25 kg and delivered to the slaughterhouse when they are about 120 kg. When they arrive at the slaughterhouse, you can only link the slaughter data to the animal. But nothing is known of it's history. This has changed since the Sustainable Pork Chain (KDV) started with the concept of Antibiotics Life-Free Guarantee. These piglets are chipped and monitored from birth to slaughter. This is done by means of an app (LeeO) in which all events of that animal are recorded. This gives you the mother (and litter number), the father, date of birth, diseases and weights. With these data you can make analysis in order to limit the failure costs on your company. This was the reason for me to take up the following question within Nuffield:

"What information do I need from my individual animals to ensure robust pigs that can be raised with as little intervention as possible?"

During my Nuffield study I came to four important conclusions. These are summarised below with the advice and follow-up actions.

1. RFID tags and related software

Working with an RFID tag is a prerequisite to gain more insight into the production process of your own animals. This is currently the only method of tracing and tracking the individual animal. We are at the forefront of this in the Netherlands. Abroad, I have not come across any conventional pig farm working with electronic eartags on piglets from birth to slaughter. The RFID tags are ready to use. The peripherals are in full development; it applies to the software and reports. This shows that the use of RFID tags is being picked up in a chain contex because it shows perspective for optimalisation in the whole chain.

2. Various technologies in pig farming

Various technologies are under development. At the moment there is no technology with great added value for all pig farmers. Through chains which work with RFID tags, added value is visible, but this is not yet fully utilised. There is more perspective when the individual animal data are linked so that everything is put in one system. That makes it easier to make analysis and you can benchmark.

With the long-term possibility, due to the amount of data, to apply machine learning (a form of artificial intelligence), which makes even better analysis possible.

Specifically for our company, I would like to have all raw data back in LeeO for easier analysis. At the moment we only receive quarterly overviews from Westfort. This gives us an overview of the worst sows. There is a need for a tool that helps to combine data and convert it into concrete advice (for example which sows to replace). In addition you would like to benchmark with colleagues.

3. The importance of birth weights

Recording birth weights manually is time-consuming and creates chances of writing errors with all the associated consequences. By working with RFID tags, it hardly takes any extra time, there are no more writing errors and the start of the piglet is known. We have been doing this for 5 years now and have seen a lot of differences between terminal boars, litter numbers and more mortality in light piglets. But this is only based on technical results. You would also like to link the slaughter results to this data, in order to have the financial data in view as well. Only than you can reduce failure costs. Unfortunately, now I can only calculate with the data from our company. The analysis of our own data by means of the analysis tool: "RFID from birth to slaughter", developed by Agrovision, shows the importance of a good birth weight. Heavier piglets have a lower mortality rate and higher life growth. If you extend this to a conventional fattening pig farm, it can generate up to € 25.000,- income. To get a good birth weight for the piglets it is also important to watch the sow. You must replace them in time. Knowing the average birth weight per litter is a good tool therefore.

The importance of birth weights is clear. In order to really make progress on this we need to work more together in the chain. Now I only have insight into our own company. But because we have varying boars, types of feed, feed consumption, etc., the question is what exactly causes the differences. By comparing with other companies we can jointly check whether my conclusions also apply to other companies. This must be organized and further research must be carried out for this.

This requires cooperation with the slaughterhouse. Only the slaughterhouse can flow data back into the LeeO database. From a practical point of view it is logical that this is going to be supervised by our chain organisation Keten Duurzaam Varkensvlees (Sustainable Pork Value Chain Association) .

In the meantime contact has been made with our chain director Mark van den Eijnden (KDV). It has been agreed upon him to send this report after the final presentation and to discuss the development of a more jointly approach as described above.

The raw data from the Westfort slaughterhouse can currently be processed in AgroVision's "RFID from birth to slaughter" analysis tool. However the dataset still needs to be cleaned up so that the errors are eliminated and the quality of the data is also suitable for making analysis. It may be that new reports would have to been adding due to advancing insight. But the current reports are certainly a good base.

In addition this tool can also be used by pig farmers who want to work with RFID tags and are not affiliated with KDV. You can also record individual animals in Farm (also a program of Agrovision). If these eartags are also read individually during slaughter, this data can also be analyzed with the above analysis tool.

4. Data platform

A lot of pig data is stored by many companies. There is not yet a data platform managed by pig farmers where all data comes together. As a pig sector we have to get to work using the Producenten Organisatie Varkenshouderij (Dutch Pig Association). Which companies dispose of this data and how will we obtain and / or maintain control over this data. By bringing them in to one platform, you can make analysis and thus reduce the costs of failure in the companies. At the moment a working group of stable data from the POV is being set up to get starting with this. I am the chairman of this group.

Finally, I would like to start by thanking the sponsors, but also my family and all the other people (and there are quite a few) whom I spoke during my Nuffield study. Because of the many interviews, it is impossible to thank everyone personally.

Ruth van der Haar
Nuffield scholar2019