The importance of good management on dairy farms

Digitalisation, precision livestock farming or Farming 4.0 are key words in everybody's mind when it comes to smart technologies and future farming. Milking robots, milking parlours equipped with control devices and smart sensors for identification, and real-time monitoring deliver a lot of data. But the combination of all these data is often a challenge and needs a professional farm management system.

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Farmers are facing many challenges today. Existing software systems are very complex and each one is different. Many applications produce a lot of data, but do not offer the right information to the farmer.

Often, it is difficult to meet all requirements for documentation and all regulations for cross compliance and animal welfare issues. The complexity in the agricultural sector is increasing rapidly.

Smart technologies

Therefore smart farming technologies are leading the way through the jungle of solutions. According to Markets and Markets (2016) dairy herd management is expected to reach approximately $2.8 billion by 2021 at a CAGR of 7.8%.

The main market drivers for raising professionalism in management are:
● Increasing herd size.
● Increasing production and consumption of milk and dairy products.
● Technological advancements and new product launches.
● Substantial cost savings associated with dairy herd management.
● Key benefits of smart farming.

The lack of trained dairy professionals in rural areas can also lead to an increasing demand for proper herd management tools.

With the use of smart farming technologies, farmers, herdsmen and other dairy professionals can detect diseases in animals, determine if a cow is pregnant, determine the quantity and quality of milk, check conductivity, colour, fat and protein content.

Companies around the world are starting new software services for farmers and turning data into information to help them make better decisions.

Herd improvement systems, together with national organisations, often provide advanced tools which help users to save time in data entries and combine data from test centres and machine data. Mobility is one of the main topics when asking farmers what is very important in their daily business. Therefore, entering and retrieving data from anywhere and at any time is a must.

A survey with more than 150 customers (Schulte, 2016) shows that more than 20% of the customers use the internet for more than six hours per week for their business. Young farmers (below 30) think of using an online herd management tool as the only source for data driven decisions. But slow internet connections and problems with data security are concerns when it comes to an exclusive use of online services.

Accessibility to data is key

The provision of interfaces to national databases to register animals and animal actions, as well as retrieving data from milk recording organisations, is a major point in acceptance of a network. Features like dashboards and task calendars round off the requirements for guidance and information to run the farm successfully.

Apps are a necessary solution to document animals' activities and where they take place – in the barn or on pasture.

At the same time, all information and measures of all animals are available on the farmer's smartphone. For example, the veterinary history of each animal can be called up immediately when the vet is visiting the farm.

In case of an interruption of the internet the app must be available offline and able to store the data until the internet is available again. That makes necessary documentations easy, fast, mobile and flexible. It does not matter where you are, at the kitchen table or in the barn; the data are available at farmer's fingertips.

Web-based systems can bundle all data centrally in the cloud, so that the user has access to the latest files and figures at any time and from anywhere.

Software modules combining the existing on-farm management system with the 'new' world of digitalisation and offer the connection of on-farm milking processes to web-based management systems or IoT (Internet of Things) platforms are necessary to receive all advantages of an up-to-date mobile online tool for smart management decisions. The use of modern business intelligence and analytic tools can create smart and better key performance indicators for process optimisation.

With online herd management tools like the GEA Basic Cattle Module integrated in a web platform of the German company 365FarmNet is one approach to fulfill the needs of professional farmers.

To combine different operational areas the idea of a single platform for the management of entire farm purposes arose. One approach is done by GEA to join the web-based platform 365FarmNet. It is offering a platform for managing, planning, documenting and analysing agricultural processes and showing the entire dairy value chain at a glance.

The philosophy behind it is to create a comprehensive system solution with a close connection to the individual operating areas. Through intelligent data fusion and analytics, operational processes can be improved.

Due to the fact that the 365FarmNet is an open platform competencies are bundled through a specific partner concept.

Working with modern technology and providing modern data infrastructure allows high quality of data and data security.

Features like dashboard overviews, where all information is seen at a glance, benchmarking across farms with anonymised data and online delegation of tasks are valuable for process optimisation and for a holistic and intelligent system approach. Different business models and pricing strategies are possible with modern cloud technology. A modular pricing system in a 'pay what you use' way, such as price per milking cow, is feasible.

According to McConnell (2017) the rapid development in precision livestock farming has revolutionised farm management practices, but the value of these technologies can only be achieved if stakeholders like industry, scientists and farmers work together.

Future farm management systems need smart networks, network knowledge and expertise to make the right decisions every day, which are the essence of success. ∎

**References are available
from the author on request**