

PRECISION LIVESTOCK FARMING

Precision Farming

Precision Agriculture has become big. In arable farming, GPS is being used to drive straight with the tractor and to irrigate, fertilize or spray in the right place. Sensors are being used on an increasing scale to make operations more efficient.

Moisture sensors to control irrigation, drones with cameras that use vision techniques to recognize diseases in crops or predict yields. Satellites, weather stations and more provide data and information to optimize business operations.

Besides it's being more efficient, this also provides the chance for a more sustainable crop production. Food production using less commodities, less pesticides and less water, because of more precise sowing, spraying and watering.

Precision Livestock Farming

Precision agriculture in the livestock industry is also known as precision livestock farming (PLF). As defined by Daniël Berckmans (University of Leuven): 'PLF uses advanced technologies aimed at automatic, real-time monitoring of animal welfare, health, environmental impact and production'.

This means that we will use technologies in animal husbandry to continuously monitor animal behavior, animal health, production and environmental impact. The purpose of this monitoring is to detect deviations at an early stage and improve animal health, welfare and efficiency. The expected result is an improvement in the overall production sustainability.

PLF, Sustainability and Animal Welfare

Precision Livestock Farming fits in a sustainable farming system. Dijkhuizen (president of the top sector Agri & Food) as well as Louise Fresco (chairman of the board of Wageningen UR) state that Smart Farming is a way to handle resources in a sustainable way and to work towards a sustainable global food production.

The promise of Precision Livestock Farming was spelled out during the final conference of the EU-PLF project (EU-PLF, 2016)



PLF, Sustainability and Animal Welfare

When we can detect diseases with early warning systems and treat animals at an early stage, it costs less medication. Antibiotic reduction is a good result of using this technology. Thus, a pig owner who put up a cough monitor in his pig unit told me that he noticed coughing pigs earlier, and because he could get there early, he could intervene. Treating the whole unit with antibiotics is no longer needed. Systems that alert the farmer to deviations in health and behavior, save on medical costs as well as improve animal welfare. Both enhance sustainability. The better we monitor the animals, the better we can take care of them, and the more sustainable the system.

Accurate data on feed and water intake can lead to better health and animal production. Precision feeding is on the rise. In a group, animals can be fed individually, so that the feed composition is better adapted to the individual animal. Thus, high-quality feed can be provided to animals that are growing faster and thus produce more efficiently, while giving low-value feed to the animals that do not have that potential, thus saving expensive commodities.

Location for dairy cows is an example of a PLF technology that can relieve the farmer in the cow shed. By quickly finding the cow that needs attention, the farmer can work more efficiently. This saves him time and annoyance.

Role of a Farmer

Rarely, PLF systems provide direct advice to the farmer. Exceptions are estrus detection systems for dairy cattle, usually based on pedometers or activity meters, that advise when the cow should be inseminated. Most PLF systems warn the farmer in case of deviations from the normal pattern. The farmer then has to decide if something is wrong,

and if so, what should be done. That requires craftsmanship. PLF promises a lot for the farmer. The recently published ABN AMRO report on smart farming (Hilkens and Bruinsma, 2016) sums up. Less administrative pressure and greater ease of use of data and data management through high-tech sensors and loggers, smart software and cloud technology.

Cost savings through targeted use of feed, fertilizers and plant protection products. Time saving due to greater labor efficiency. A higher sales value of the primary products, and a better guaranteed food quality. Why then has smart farming not yet been broadly embraced by farmers? Apparently, they are not convinced of the technological possibilities.

