Precision Livestock Farming
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Background

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MSc in Animal Science
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Precision Livestock Farming (PLF)

Definition:

‘PLF is using advanced technologies aimed at automatic, real-time monitoring of animal welfare, health, environmental impact & production’

Adapted from prof. Daniël Berckmans, University of Leuven, Belgium
PLF and sustainability

Sustainability: People, planet, profit
1. labour
2. resources
3. animal welfare

Promise of Precision Livestock Farming:

‘PLF has the potential to:
• make farming more efficient by better use of resources
• guarantee/improve animal welfare’
PLF and sustainability

- Less labour  →  Positioning systems
- Less resources  →  Lower feed conversion by precision feeding & health
- Better animal welfare  →  Early detection and prevention of disease
Role of the farmer

PLF is a **tool** and does not replace the farmer!

Technology offers extra **ears**, **eyes** and **nose** in the farm

Technology is **on site, 24/7** and can detect **small deviations** in behaviour patterns, health, production

*The farmer combines information and takes the decisions*

Involve the farmer when developing PLF tools!
Precision Dairy Farming

- Activity measurements
  - Leg tag Nedap
  - SensOor
  - Neck tag Nedap, DeLaval
  - SmaxTec
- Positioning system
  - Nedap
  - Gea Cow View
  - LoRa
- Internal measurements
  - bolus SmaxTec
- Milk analysis
  - DeLaval herd navigator
Activity

- Oestrus detection
  - Leg, neck, ear
  - Rumen/reticulum bolus)
Activity

Behaviour

Sole ulcer
Healthy
White line disease
Mortellaro
Hoeve Boveneind positioning system
Bolus – pH, activity, temperature

On 01/10/2015 daily fluctuation in pH was exceedingly high. Large fluctuation in pH is indicative of problems in feed management and animal health.

Possible causes:
- Feed supply (frequency and regularity of feeding, feed push-up frequency)
- Feed composition: check components and mixing accuracy, check for selective feeding
- Overcrowding and/or insufficient manger space
- Health problems at individual or herd level (e.g. lameness)

On 26/10/2015 at 8:30 am there was a noticeable increase in temperature indicative of health problems.

Possible causes:
- Feverish condition due to illness (e.g. mastitis)
- Environmental conditions: impact of heat stress on the cardiovascular system
Milk analysis

- In line systems
- Herd navigator
  - BHB (ketosis)
  - Ureum (nutritional status)
  - Progesterone (fertility)
  - LDH (somatic cell count)
Pig farming

Source: EU-PLF
Pig farming

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Pig farming

AgriSyst Monitoring - Dashboard Dekstal
Dekweek - 2015/06 Demo

- Gedeelt binnen 7 dagen
- Afwijking dekkingen gehaald t.o.v. 133 laatste 4 weken
- Interval Spenen - Dekken
Poultry farming

Sound analysis in broilers

Bron: EU-PLF
Poultry farming

Activity and distribution in broilers:
Camera warns in 95% of cases of:
- malfunctioning feeding system
- malfunctioning watering system
- deviating light conditions
- climate problems

Bron: EU-PLF
Poultry farming

Robotics

Liter aeration
Questions?

Precision Livestock Farming

National Centre for Precision Farming

Livestock Building

Welfare

Conference

Feed

Technology

Retailers

Beef

Industry

Pigs

R&D

Design

Poultry

Veterinary

Research

Environment

Grassland

Farmers

TSB

Robotic

Consumers

Dairy

University

Manufacturers

Sheep

Engineering

Food

Funding