Intelligent Animal Identification

Tom Breunig
North American General Manager
Background of Technology Profiled:
SCR Established in 1976 in Israel
Over 300 global employees, 15 in the U.S.
Over 800K tags shipped every year globally
20% of the companies’ employees are R&D engineers
More then 70 partners around the world
Part of the Global Allflex Group since January 2015
How many dairy herds are already using this technology in the US
Cow Challenges/People Challenges – Dr. Jeff Bewley (KY)

Cow Challenges:
• Catching sick cows in early lactation
• Finding and treating cows with mastitis
• Finding and treating lame cows
• Finding cows in heat
• Understanding nutritional status of cows
  – Feed intake
  – Body condition (fat or thin)
  – Rumen health (pH/rumination time)

Global Technological Pressure:
• Extension of other industries
• New dairy industry demands
  – Animal well-being
  – Consumer demands
  – Environmental pressure
  – Labor challenges
  – Economic competition
Cow Intelligence

Heat

Data Access Platforms

• Heatime ® terminal
• PC-based software for large farms
• HealthyCow 24: SCR cloud-based system

Long Range Base Unit (BU)

• Long range, RF-based data collection enables real-time transfer of intelligence
• System also capable of running on IR-based collection at

Wellbeing

Monitoring Tags

• Tags detect unique movement, movement intensity and record rumination patterns
• Tags transmit information a few times per hour to BU

Nutrition
Cow Monitoring--what does the data look like for a dairy cow?
Rumination Graph

- Baseline (Average)
- Raw Rumination
- Calving
- Group Change
Estrus Detection – Activity and Rumination Graph

High Activity

21 days

42 DIM

63 DIM
What have we learned?
What have we learned? - Step by step

Dry period
Pre-partum → Calving → Fresh period and beginning of lactation → Reproductive Management

Health

Repro
Transition Cow Monitoring: Fresh Cow Recovery

Fresh cow rumination time recovery is automatically monitored. The system looks for about an hour of rumination time added each day in the first week of lactation.
Use of Ruminination and Activity Monitoring for the Identification of Dairy Cows with Health Disorders

M.L. Stangaferro, R. Wijma, C.E. Quinteros, M.B. Medrano, M. Masello, and J.O. Giordano

Dairy Cattle Biology and Management Laboratory

Cornell University
Department of Animal Science
PC Portal Information Specific to Farm
Relationships among Rumination, Resting, and Feeding (Schirmann et al., 2012)

• Rumination and feeding time/DMI were correlated positively after a 4-h lag ($r=0.23$)

• Rumination is correlated positively with lying time ($r=0.60$)
  – Periods of rumination are more frequent when lying down

Courtesy of Dr. Heather Dann, Miner Institute, 2014
Real-Time Group Routine – Rumination & Activity

The purple line is the current real-time data. The gray line is the group’s two-week rumination average. Any difference between the lines indicates an abnormality.
Rumination routine effected by different feeding time
Notice the activity is only slightly lower than normal, and not outside the path.
Case Study: Example, T&C Louters

- 600 Holstein cows Milking 3 x
- RHA: 30,675 lbs.
- 3.6% Fat, 3.3% Ptn
- 160,000 SCC
Simple install
T&C Louters Dairy
Why

• Maximize milk production:
  – Optimize *dry cow performance* and their transition to the milking string
  – Improve *fresh cow management* and fill gaps that could be present
  – Increase *pregnancy rate*
What Learned

• Fast insight into effectiveness of veterinarian treatments given to sick animals – having a tool to identify the evolution of treatments, monitor success rates and help on the decision to make changes if necessary

• Now we are looking at the feed management, and how it’s really affecting the animals
Dry cow management

• Before the system:
  – Cows were moved from the far-off to the close up pen once a week, and vaccination injections were given on the same day
  – 25-30% cows with early calving and presenting retained fetal membranes
Dry cow management

- After the system:
  - Generated two list of cows to work
  - Vaccination given 4 weeks prior to calving and pen moves done 3 weeks prior to calving
  - Early calving and retained placenta rates dropped dramatically
- Data dashboard for quick reference of herd stats
- Can set up Custom Alerts to animal or group issues
Data Driven Opportunity to:

- Lower lock up time
- Have choices to reduce hormone and drug expenses
- Selective treatment, know when to quit treatment
- Reduce death loss
- Reduce number of DA’s
- View into my animals anytime/anywhere
- Options for greater reproductive success
- Set “Alerts” when groups or animals hit preset levels
- Increase employee accountability
- Have greater peace of mind
THANK YOU!