DHI Delivers Leading Edge Technology

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Strategic Guidelines

- Keep a nimble infrastructure
- Look outside the dairy industry
- Choose technologies with strong potential
- Maintain confidence in the DHI mission

Cow-based Technology

- Production and components
  - Milk Urea Nitrogen, Casein
- Disease
  - Johne’s
- Identities to avoid inbreeding; crossbreeding programs
- Health management systems
- Profitability
  - Assessment and decision-making

Process Management

- Steps in a process
- Success depends on completion
- Which animal? What treatment? When?
- Using software to “get it right”
- Minimizing “Invisible Error”
  - Offset of actual compliance from desired
"Invisible Error"
- Ovsynch (GnRH, PGH, GnRH, Breed)
  - \(0.95 \times 0.95 \times 0.95 \times 0.95 = 0.81\)
  - Error = 0.19
- PreSynch (PGH, PGH, GnRH, PGH, GnRH, Breed)
  - \(0.98 \times 0.98 \times 0.97 \times 0.99 \times 0.98 = 0.88\)
  - Error = 0.12
- Apply to vaccination programs, fresh cow, group changes, mastitis treatment, etc.

Process Management Tools
First Generation
- Traditional DHI Management Lists
- On-farm herd management software
- Automated Milk Recording Systems

> Difficult to reduce "invisible error"

Process Management Tools
Second Generation
- Workflow management
- Protocols / Chores
- Timed AI systems
- Mobile devices
- Radio-Frequency ID
- Statistical process control

> Help reduce "invisible error"

Workflow Management
- Starts with workflow design decisions
- Protocol assigned to animal
- Manufacturing orientation
- Standardizes daily process
  - ToDo lists
  - Input completed chores
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- Protocol assigned to animal
- Manufacturing orientation
- Standardizes daily process
- Todo lists
- Input completed chores
- Provides for auditing and analysis
- Affects all herd sizes

Timed AI Systems

- A specialized protocol ...

Mobile Devices - PocketDairy

- Cow Page
- Health
- Breed
- Calve
- Left
- Dry
- Quit
- More
Radio-Frequency ID - RFID

- Focus on management during regulatory evolution in U.S.
- Certain and Quick ID
  - Management and test day
- Tags
  - Stable; site of attachment?
- Readers
  - Competition underway
  - Stationary - Parlors, heifer weighing

RFID Readers

Mobile and RFID

- WiFi and Bluetooth
- Quick hot syncs - coffee breaks
- Multiple units on same dairy
- "Call the roll"
- Earbuds - voice alerts
  - BadMilk, Whoa (don’t beef), OK (to milk), Un-oh (wrong group), Open, Preg, etc.

Statistical Process Control

- When to act?
  - Now - info, experience, intuition, advice
- Patterns of events in producer’s own herd
- Apply statistical rules
- Clear signals for action
- Examples
  - Subtle increase in bulk tank SCC
  - Spike in number of cases of lameness

Pen Management - Large Herds

- Real-time Monitoring of “Non-DHI” Data
  - Feed consumption / Heat index
  - Time moving or standing
  - Counts for sick pens and health conditions
  - Number days in close-up pen
  - Body Condition Scores
  - External lab data / flow meters
  - Number cows diagnosed pregnant, calved
  - Facilities load and forecasting
Focus on Technology with High Upside Potential

- Affects herds of all sizes
- Network connectivity including Wireless
- Rural Broadband alternatives

Focus on Technology with High Upside Potential

- Internet Appliances
- Multi-Site partnerships
- Real-time consultant access
- Return to centralized data systems

Operational Challenges for DHI

- Increased diversity of Test Interval
- On-farm analysis of components
- Automating mundane technician tasks
- Recognition of value of DHI accuracy
- Diversity in expectations of customers
Thank you...