Tips and Best Practices with Nursery Calf Rearing

Growing as Better Leaders

2018 GPS Dairy Leaders Forum
Growing as Better Leaders

Road map for our session

1. KPI’s – Health status, Survival rate, Growth rate
2. Monitoring critical control points
3. Tips - best monitoring practices
#1: KPI’s

Health status, Survival rate, Growth rate

• Health status - <10% treated for pneumonia, <15% treated for scours
• Survival rate - ≥97% to 60 days
• Growth rates – by 56 days at least double birth weight, at least add 4-5” in height

• Dairy Calf & Heifer Association “Gold Standards” 2016
#2Monitoring – How I Choose Tests

1. Quantitative – “I want numbers, not opinions!”
2. Inexpensive – reasonable cost/test
3. Timely – now is better than later
4. Valid – results reliably present the “real” biological facts
#2: Monitoring critical control points

A. Monitoring passive transfer of immunity
B. “As-fed” bacteria levels
C. Biofilm management
D. Air quality
Sam’s Tip #1 – A. Passive Transfer of Immunity
Use BSTP for monitoring immunity

• Every calf vs. sampling – what questions do you want to answer?
• Gravity vs. centrifuge methods = equal results
• Thresholds for successful passive transfer of immunity: 90% ≥ 5.2g/dL, 80% ≥ 5.5g/dL

• Complete guide to using blood serum total protein (BSTP) values for testing for passive transfer of immunity is HERE or at http://atticacows.com/library/newsletters/TestPassiveTransferR1880.pdf
Sam’s Tip #1 – A. Passive Transfer of Immunity
Use BSTP for monitoring immunity

Optical Refractometer

Digital Refractometer
#2: Monitoring critical control points

A. Passive transfer of immunity

B. Monitoring “As-fed” bacteria levels

C. Biofilm management

D. Air quality
Sam’s Tip #2 – B. “As-fed” Bacteria Levels Sample & Lab Culture

• “As-fed” bacteria counts measure (1) first-feeding inoculation and (2) sustained immune system challenge

• Colostrum – “as-fed” samples from either nipple or end of tube feeder when ready to feed the calf

• Pasteurized milk – 4 samples – (1) raw milk, (2) direct from pasteurizer, (3) first calf fed, and (4) last calf fed

• Milk replacer – 3 samples – (1) direct from mixing tank, (2) first calf fed, and (3) last calf fed

• Sampling protocols in English and Spanish are at www.calffacts.com – scroll to “Bacteria quality control”
Sam’s Tip #2 – B. “As-fed” Bacteria Levels
Sample & Lab Culture

• Speciate and Quantify colonies
• Colostrum bacteria thresholds: coliforms <5,000cfu/ml and total plate count <50,000cfu/ml
• Milk/milk replacer thresholds: coliforms <1,000cfu/ml and total plate count <5,000cfu/ml
• Colostrum: US data (12 states) 43% samples had total plate count >100,000cfu/ml, 17% samples had total plate count >1,000,000cfu/ml
Sam’s Tip #2 – B. “As-fed” Bacteria Levels
Sample & Lab Culture

Sterile Sample Tubes Needed

Lab will use sterile culture plates
#2: Monitoring critical control points

A. Passive transfer of immunity
B. “As-fed” bacteria levels
C. Monitoring biofilm management
D. Air quality
Sam’s Tip #3 – C. Biofilm Management

Get Stuff Clean

• Test – Measure the level of bacteria contamination after equipment is cleaned and ready for next use

• Luminescense testing – dry swab technology with Hygiena SystemSure Plus measures adenosine triphosphate (ATP)

• Swab protocols will allow time-series comparisons
  • Washing protocols – click HERE or paste this URL in your browser
Sam’s Tip #3 – C. Biofilm Management
Get Stuff Clean

• Whose standards? Food service standard of <10RLU for direct food contact surfaces, <50RLU environmental surfaces?

• Site-specific thresholds most useful (1) inside surface of s.s. colostrum collection bucket (2) inside ball end of colostrum tube feeder (3) underside of top of pasteurized bulk milk transport tank?

• Use time-series data to show (1) on-farm improvement when starting values are high (2) consistent cleaning protocol compliance
Sam’s Tip #3 – C. Biofilm Management
Get Stuff Clean

ATP Meter

ATP Swab
#2: Monitoring critical control points

A. Passive transfer of immunity
B. “As-fed” bacteria levels
C. Biofilm management
D. Monitoring air quality
Sam’s Tip #4 – D. Air Quality

• Ammonia (NH₃) is the key component to monitor
• Where to sample air quality
• Matheson toxic gas detector (Model 8014KB)
• Ammonia test tubes in 0.2-20 ppm range
• Direct reading from test tube in ppm
• Threshold – maximum 5ppm
Sam’s Tip #4 – D. Air Quality

Toxic Gas Detector

Air Sampling & Test Tube
Dr. Sam Leadley
Attica Veterinary Associates, P.C.

• Monthly calf management newsletter for calf rearers
  (http://atticacows.com/resources/newsletter-calf-management.php)
• Website is www.calffacts.com
• Blog “Calves with Sam” address is dairycalfcare.blogspot.com