Iowa Pasteurization Survey
2010

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General herd information
14 surveys

- Avg. peak # calves fed: 76 (16-200)
- Avg. Weaning age: 50 days (42-75)
- Avg. qts. fed/feeding: 2.5-3 qts (1.75-5), up to 8 qts. with automatic calf feeder
### Age and amount fed/feeding if rate is variable

- **Days 1-7:** 2 qts.
- **Days 7-30:** 3 qts.
- **Days 30-50:** 4 qts.
- **Days 1-10:** 3.5 qts.
- **Days 10+:** 4.5 qts.
Health and treatment

- Avg. death loss heifers pre-weaning (13 responses): 7%
- Avg. death loss bulls pre-weaning (7 responses): 4%
Oral rehydration: 44%
Antibiotic Intervention: 54%
How long have they been pasteurizing?

How satisfied are you?
Pasteurizer info

- Homemade 300 gallon tank
  - Recycle hot water/gas, water heater, cooled with well water cycle
- Homemade 200 gallon tank
  - Circulate hot water through plates on a timer with temperature controller
- Old small bulk tank
  - Hot water heats the milk and cold water cools it (manually check temperature)
- 250 gallon bulk tank
  - Run hot water through
    - 2 batches/day
- Dairy Tech pasteurizers
  - (4) 30 gallon batch
  - (1) 40 gallon batch
  - (1) 55 gallon batch
  - (3) Batch pasteurizers
Collection of waste milk

- Pipeline goes directly to pasteurizer
- Dump pail
- Milk goes through chiller into collection tub
- Milk pipeline to 55 gallon barrel (5)
- Weigh jars to 5 gallon buckets that have been stored in freezer
- Pumped to used 400 gallon bulk tank on wheels
- Milk collected with pails and put into bulk tank cooled to 35 degrees F.
At what temperature is waste milk cooled to pre-pasteurization?

- Room Temperature
- 40-50 Degree F
- I do not cool milk pre...
- Other

Other: Cooled to 32-35 Degrees F

$n=14$
Time & Temperature used to pasteurize milk

- 15 min @ 145
- 24 min @ 160
- 30 min @ 140
- 30 min @ 145-155
- 45 min @ 145
- 60 min @ 140-145
- 120 min @ 140

n=14
Monitoring pasteurization times

- Recorded Daily
- System is programmed
- Training/Review

n=13
Monitoring Pasteurizing Temperatures

- Recorded Daily
- Manually check...
- Training/Review
- All of the above
- Manually...

n=12
Post pasteurization temperature

- Room Temperature
- Feeding Temperature (100-105)
- Other

Other: 45-50 & 80 Degrees F
How is handling equipment cleaned pre and post pasteurization?

- Rinse with water between transfers (2-3 times/day) - 51%
- Rinsed with water only daily - 21%
- Cleaned/disinfected between transfers (2-3 times/day) - 14%
- Cleaned/disinfected daily - 7%
- Cleaned/disinfected less often than daily - 7%
Types of disinfectants used to clean equipment

- Trek-trol
- Dairy parlor soap
- Alkaline detergent wash-acid sanitizer rinse
- Hand acid (weekly)
- Pipeline washed with wash/rinse cycle, pasteurizer rinsed with warm water and scrubbed with Dawn detergent
- Milk stone remover
Temperature milk is fed to calves

- Room Temperature
- Feeding Temperature (100-105)
- Do not know
- Other

Other: 112 Degree F

n=14
Feeding schedule

- 2 times/day (86%)
- Other (14%)

Other: 50% fed 2x/day, 50% fed with automatic feeder
Other: May-October 2x/day, November-April 3x/day
Highest percentage of milk being used:

- Treated or Antibiotic cow: 50%
- Fresh or transition cow: 29%
- Combination of above: 14%
- Bulk tank (saleable milk): 7%
- High SCC: 0%
When pasteurized milk is in short supply?

- PWM supplemented with solids from MR
- MR fed to young calves/older calves receiving waste milk
- PWM fed to young calves/older calves receive milk replacer
- Saleable milk

n=13
How often are solids tested?

- Weekly: 10
- Monthly: 1
- Yearly: 30
- Occasionally: 30
- Never: 70

n=12
How often are bacteria levels tested?

- Weekly: 5%
- Monthly: 15%
- Yearly: 20%
- Occasionally: 25%
- Never: 40%

n=14
How soon is colostrum administered?

- Other: Newborns fed after milking
- 1-3 hours
- <1 hour
- 4+ hours

n=12
Pasteurizing colostrum (1 response)

- 1 HR@142
- Colostrum is cooled to 40 degrees F post pasteurization
- Quality of colostrum is not measured before pasteurizing
Management issues

• Checking temperatures regularly
• Cleaning equipment
• Sanitizing milk transfer hoses and milk tank on calf cart and feeding equipment needs to be done before and after just like milking equipment
• Put in a place to cool and store until ready to pasteurize
• Milk curdling; reviewed cleaning practices to fix the problem
• Milk getting to warm and —souring” in the summer, having to dump the milk because calves will not drink it
• General employee training
• Cooling was not working - had to replace electrical parts
Procedures or protocols they would like to change to improve milk quality

- Smaller transport tank, easier to clean
- Testing on a regular basis for both proper function as well as bacteria/solids
- Would like 2-3 temp and timing readings to double check machine
- Would like to see pails that carry milk to pasteurizer cleaned more often
- Keeping it stored at a cooler temperature
- Clean out waste milk bulk tank more often
- In 2010, quit using computerized group milk-feeder as the group housing of calves from birth-60 days proved to be challenging and was hard to teach to employees - now have individual hutches; more work, but less trouble
Checklist

✓ Routinely culture samples of pasteurized milk to monitor quality.
✓ Keep a daily log of who prepared the milk and how long it reached the "goal" temperature — then correlate this to culture results
  ✓ Pull random samples — spot check”
✓ Train all employees that will be using the pasteurizer to be sure they understand how to operate the unit and what the concepts of pasteurization is.
✓ Conduct follow-up training and review for employees to reinforce procedures
✓ Know how to manually check the temperature of pasteurized milk to ensure proper temperatures are being met.
✓ If calf death loss occurs, diagnose calf morbidities and mortalities.
✓ Visit other operations successfully using on-farm waste milk pasteurization systems.