Iowa Pasteurization Survey 2010

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General herd information
14 surveys

- Avg. Milking: 415 (58-900)
- 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

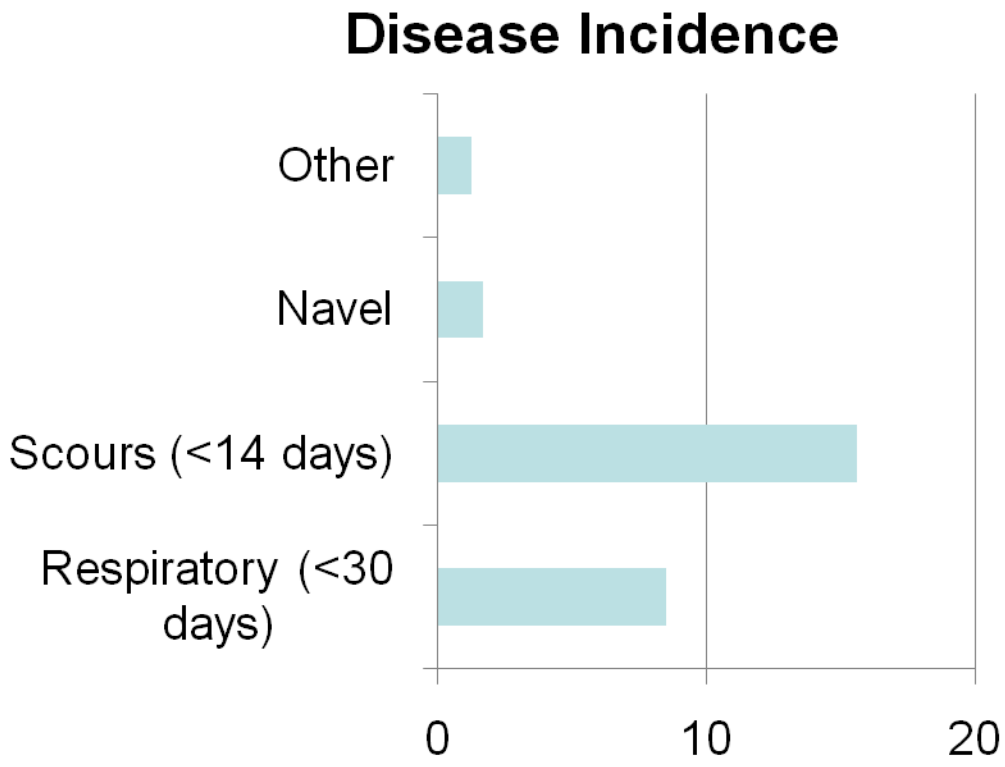
Age and amount fed/feeding if rate is variable

- 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.

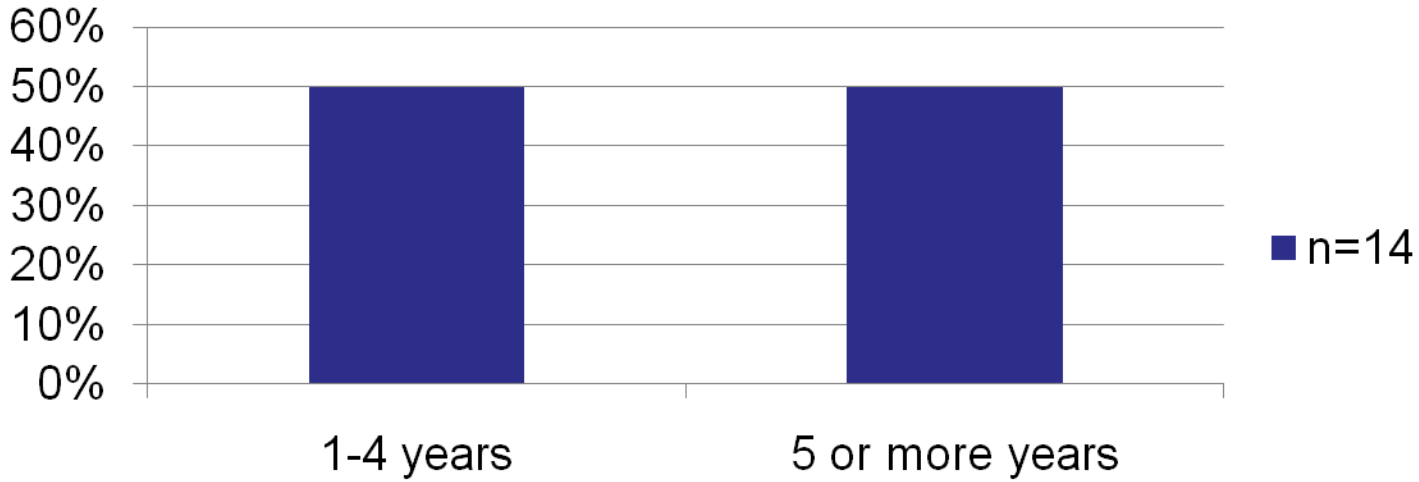
Health and treatment

- Avg. death loss heifers pre-weaning (13 responses): 7%
- Avg. death loss bulls pre-weaning (7 responses): 4%

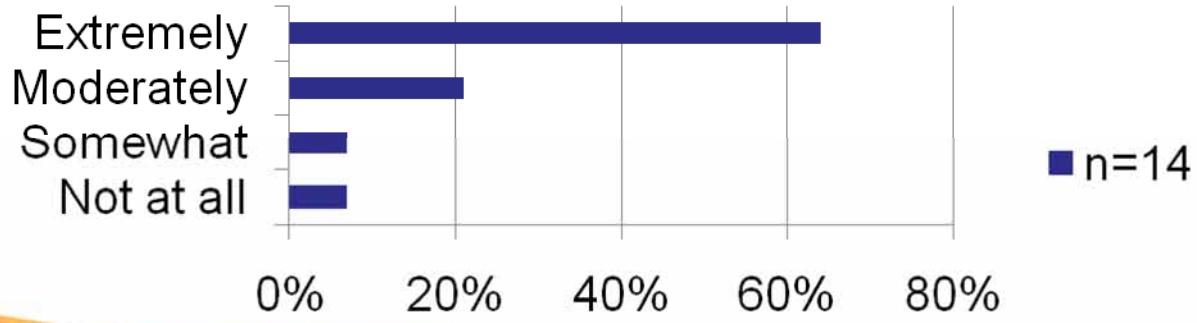


Oral rehydration: 44%
Antibiotic Intervention: 54%

How long have they been pasteurizing?



How satisfied are you?



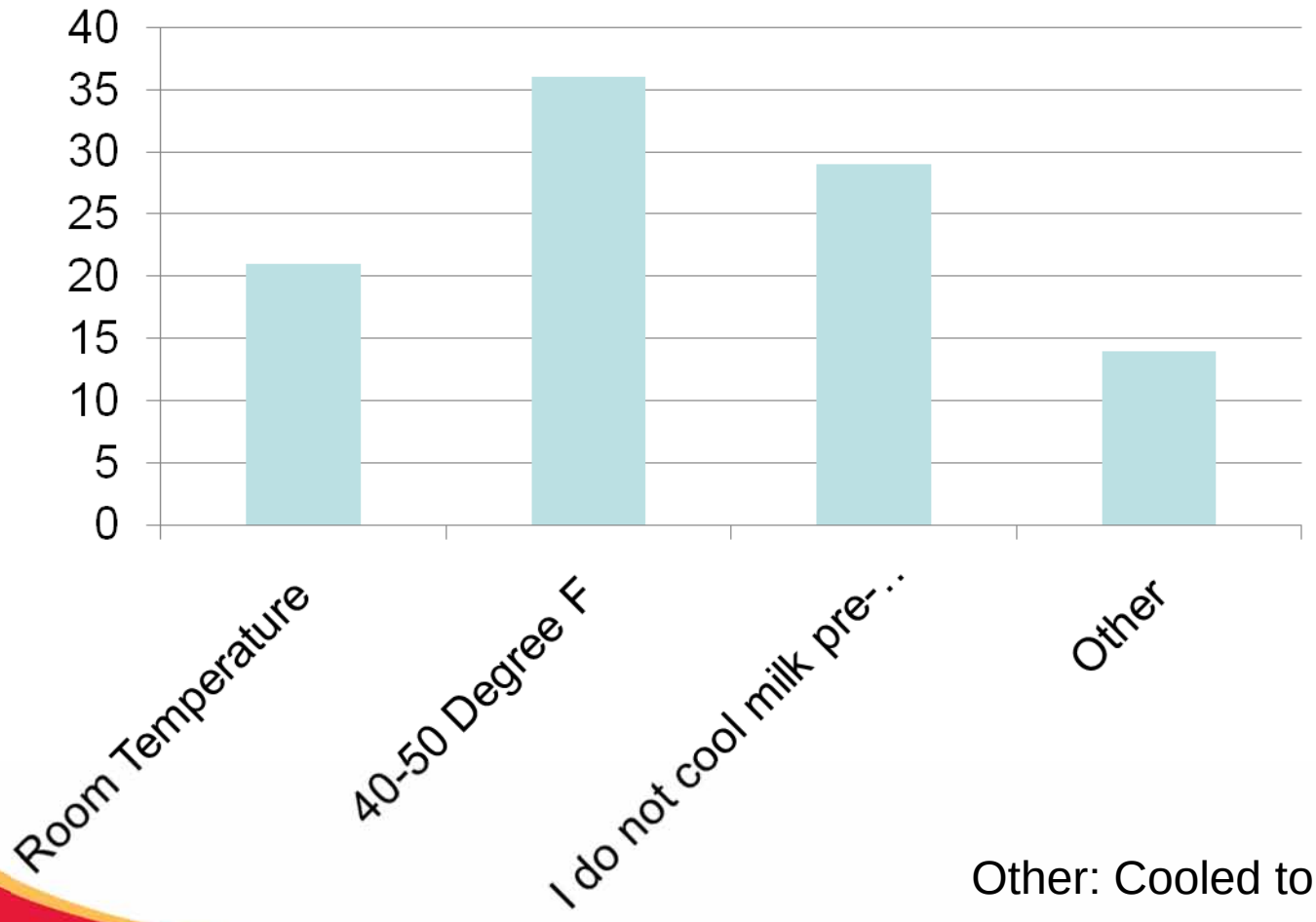
Pasteurizer info

- 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

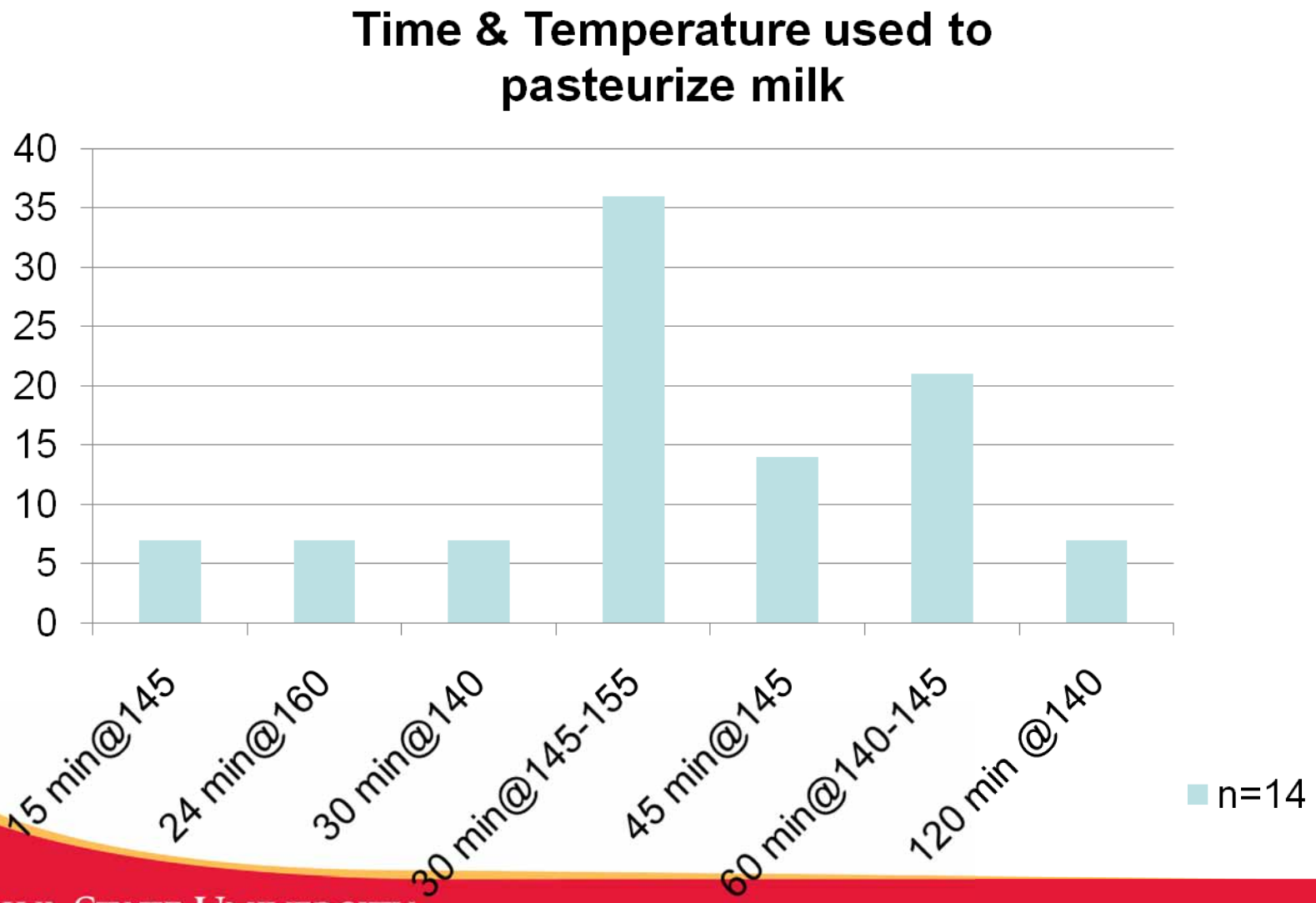
Collection of waste milk

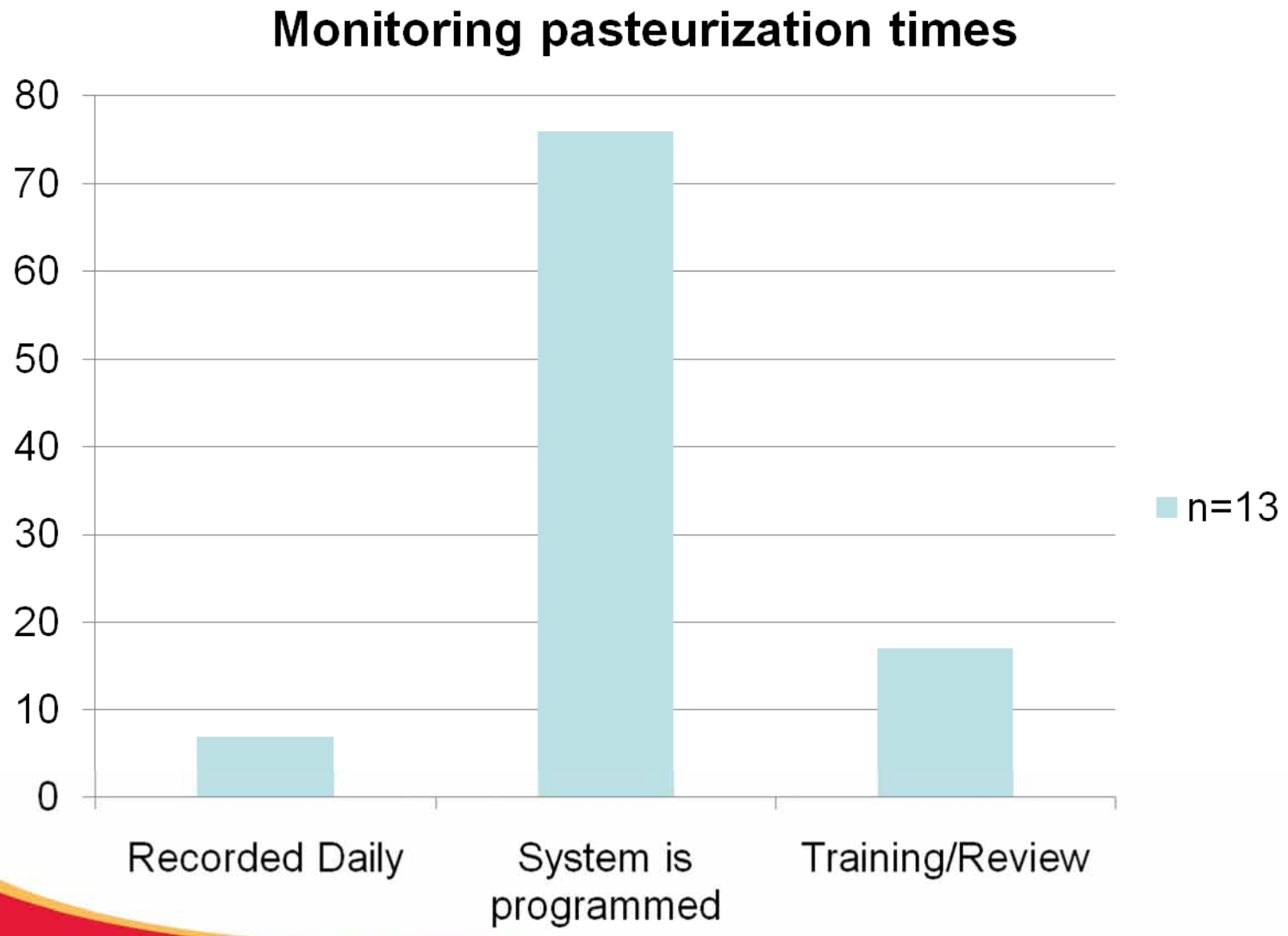
- Pipeline goes directly to pasteurizer
- Dump pail
- Milk goes through chiller into collection tub
- Milk pipeline to 55 gallon barrel (5)
- Weigh jars to 5 gallon buckets that have been stored in freezer
- Pumped to used 400 gallon bulk tank on wheels
- Milk collected with pails and put into bulk tank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

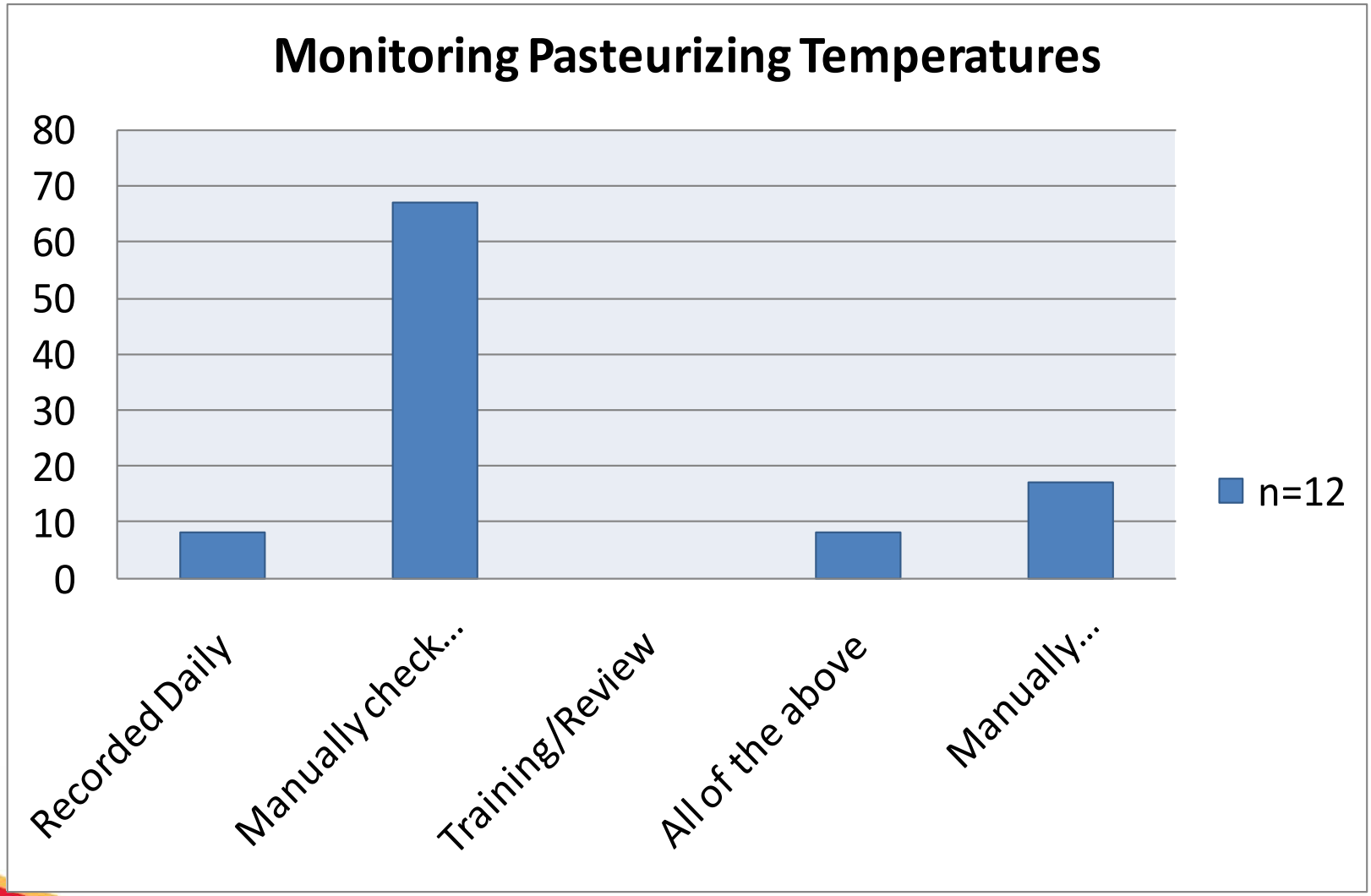
At what temperature is waste milk cooled to pre-pasteurization?

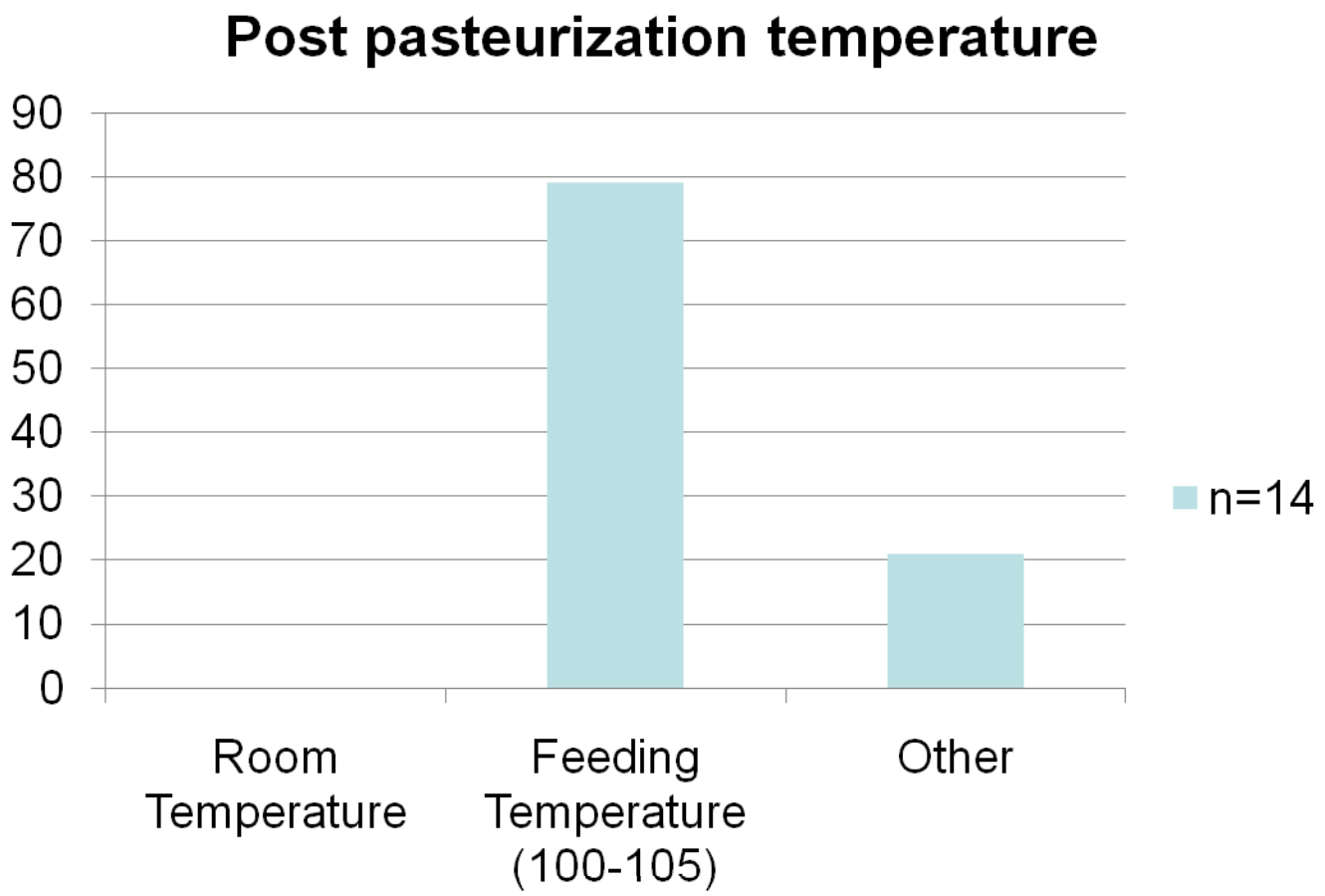


Other: Cooled to 32-35 Degrees F


Time & Temperature used to pasteurize milk
40
35
30
25
20
15
10
5
0
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

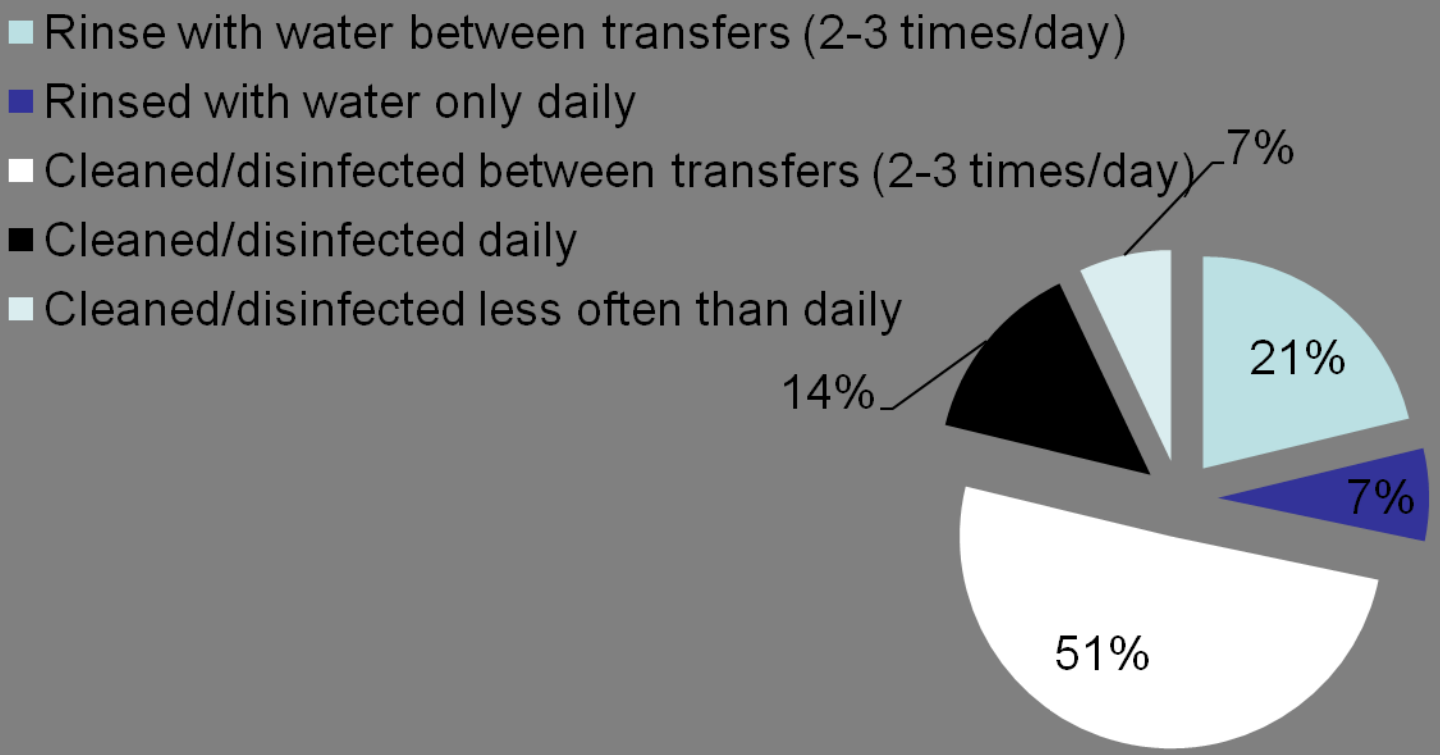

Monitoring pasteurization times
80
70
60
50
40
30
20
10
0
Recorded Daily
System is programmed
Training/Review
n=13


Monitoring Pasteurizing Temperatures
80
70
60
50
40
30
20
10
0
Recorded Daily
Manually check...
Training/Review
All of the above
Manually...
n=12



Other: 45-50 & 80 Degrees F

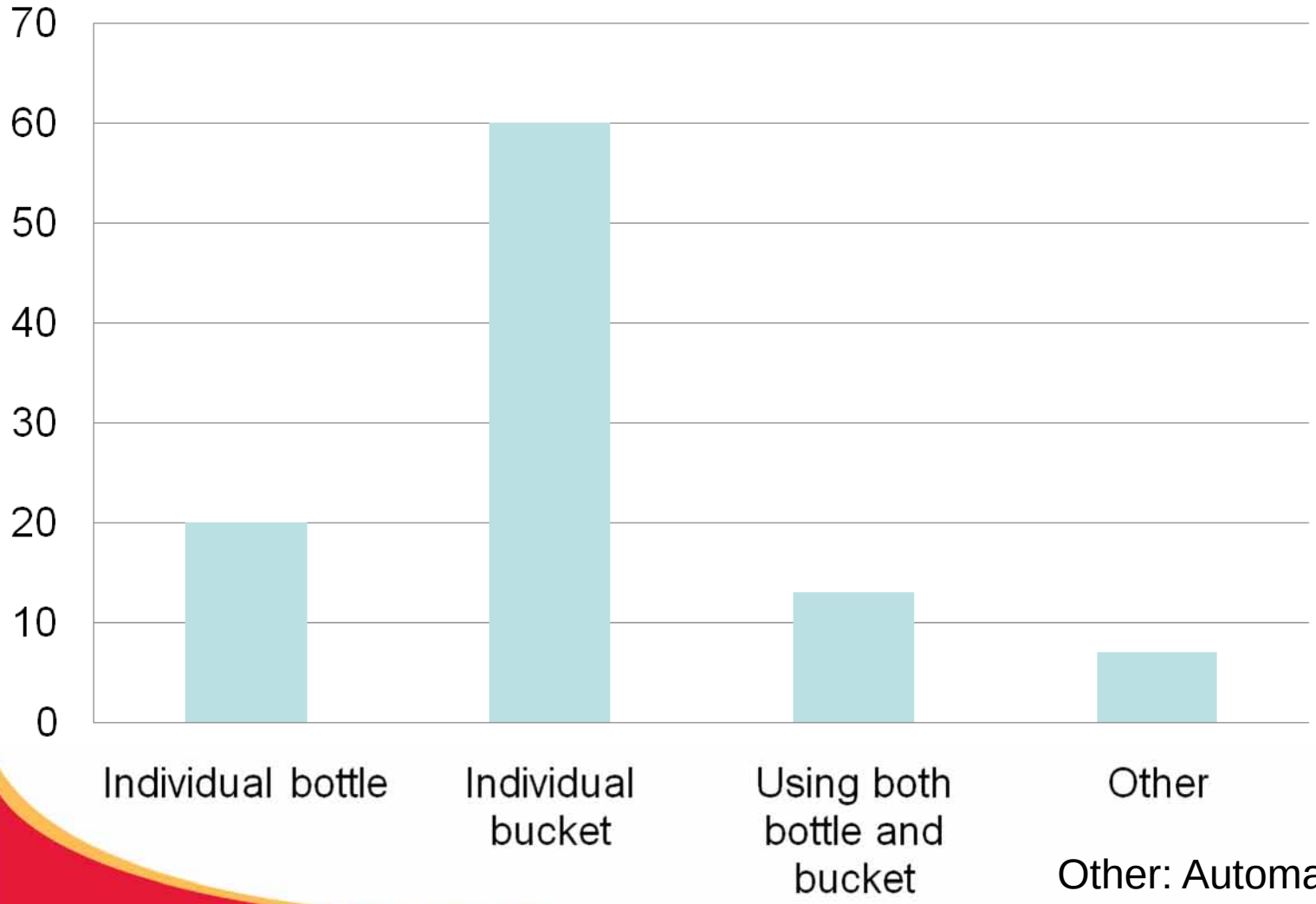
How is handling equipment cleaned pre and post pasteurization?



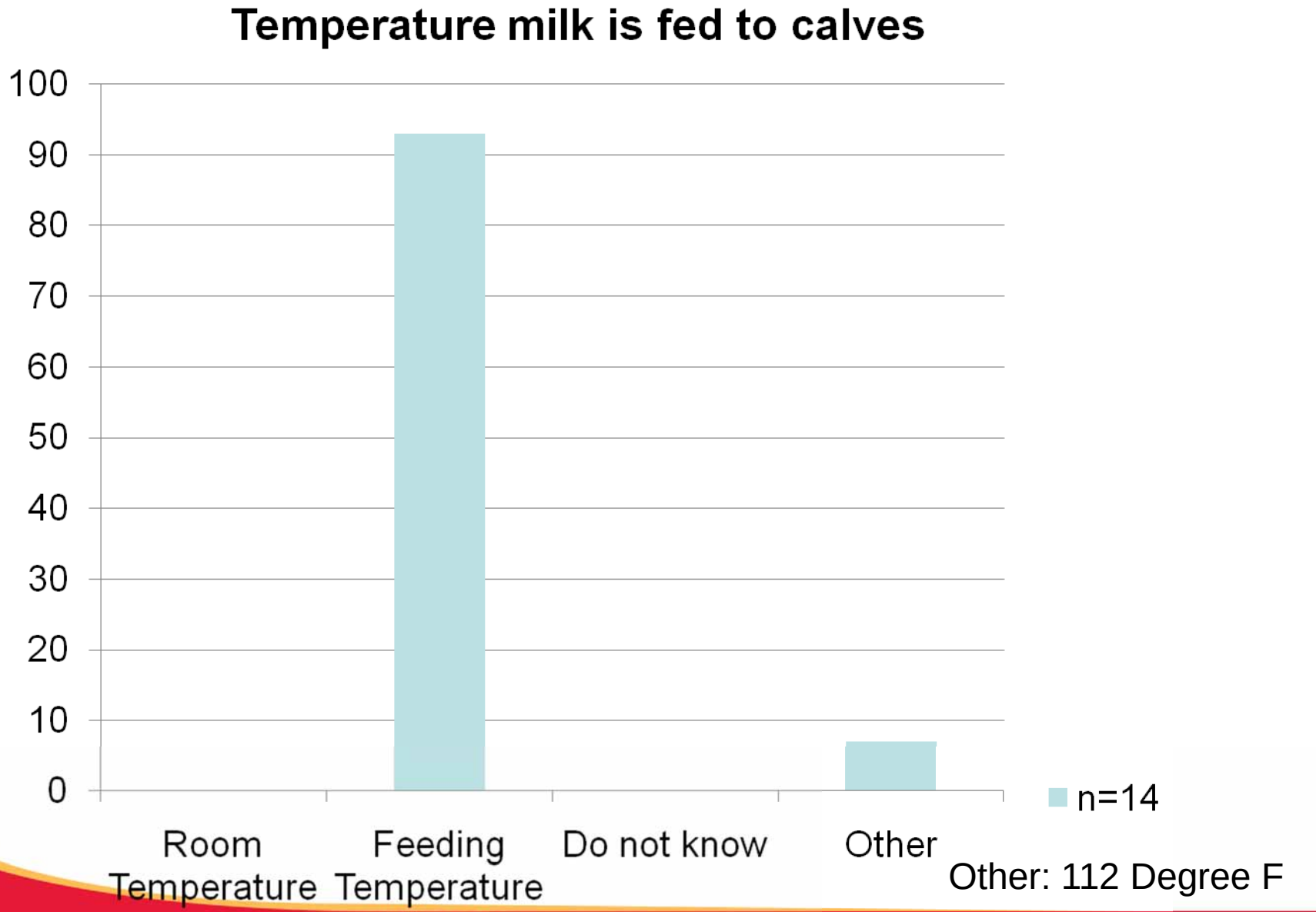
Types of disinfectants used to clean equipment

- 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

Feeding Method

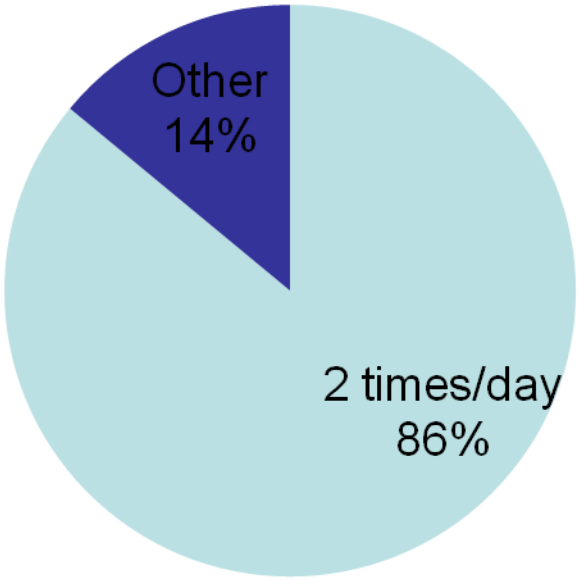


Other: Automatic calf feeder



Other: 112 Degree F

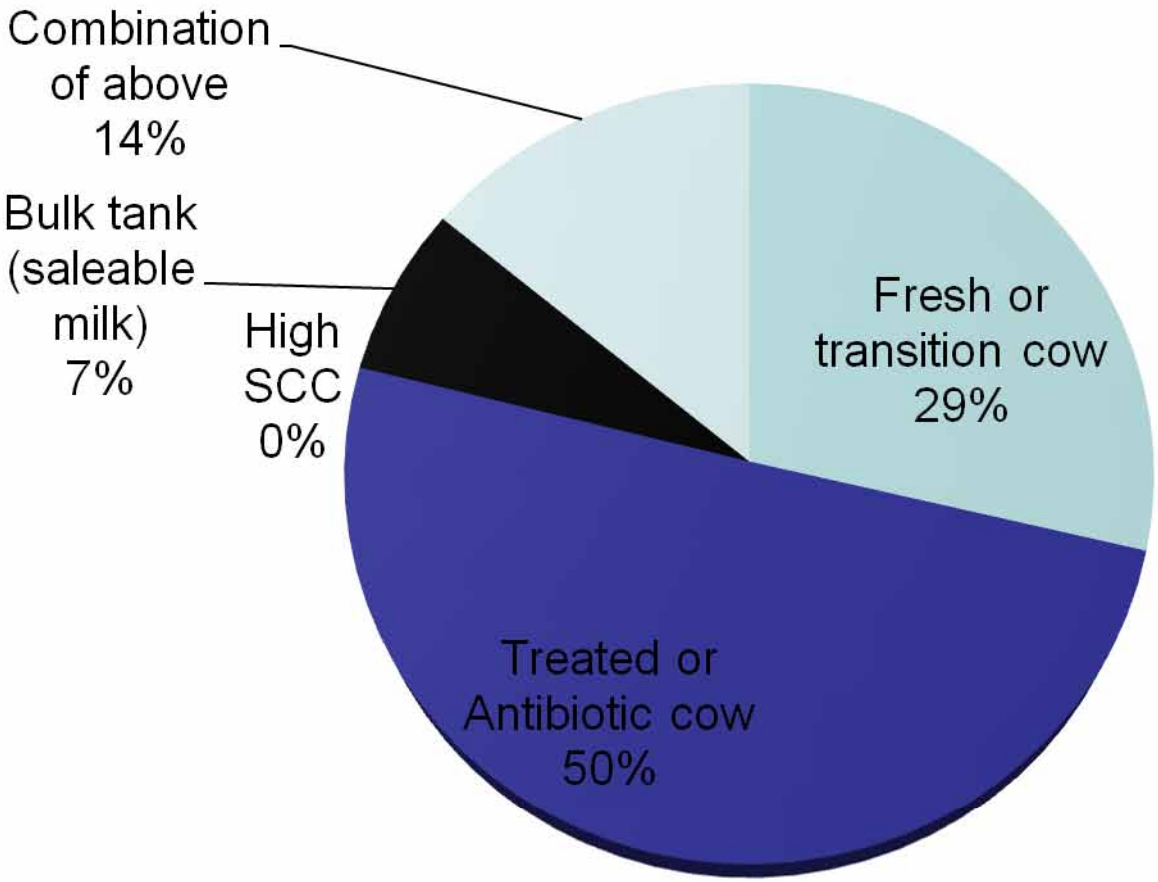
Feeding schedule



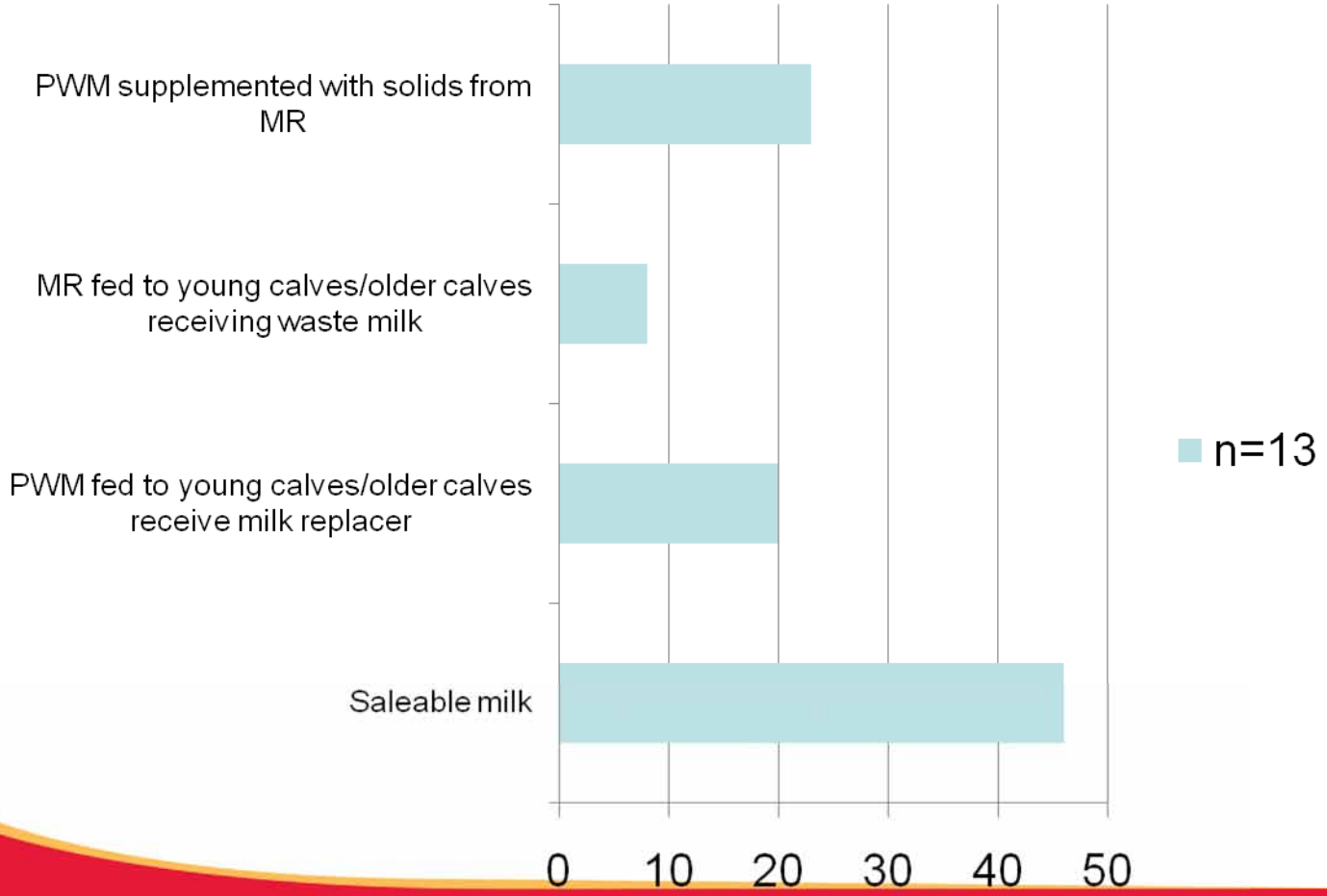
Other: 50% fed 2x/day, 50% fed with automatic feeder

Other: May-October 2x/day, November-April 3x/day

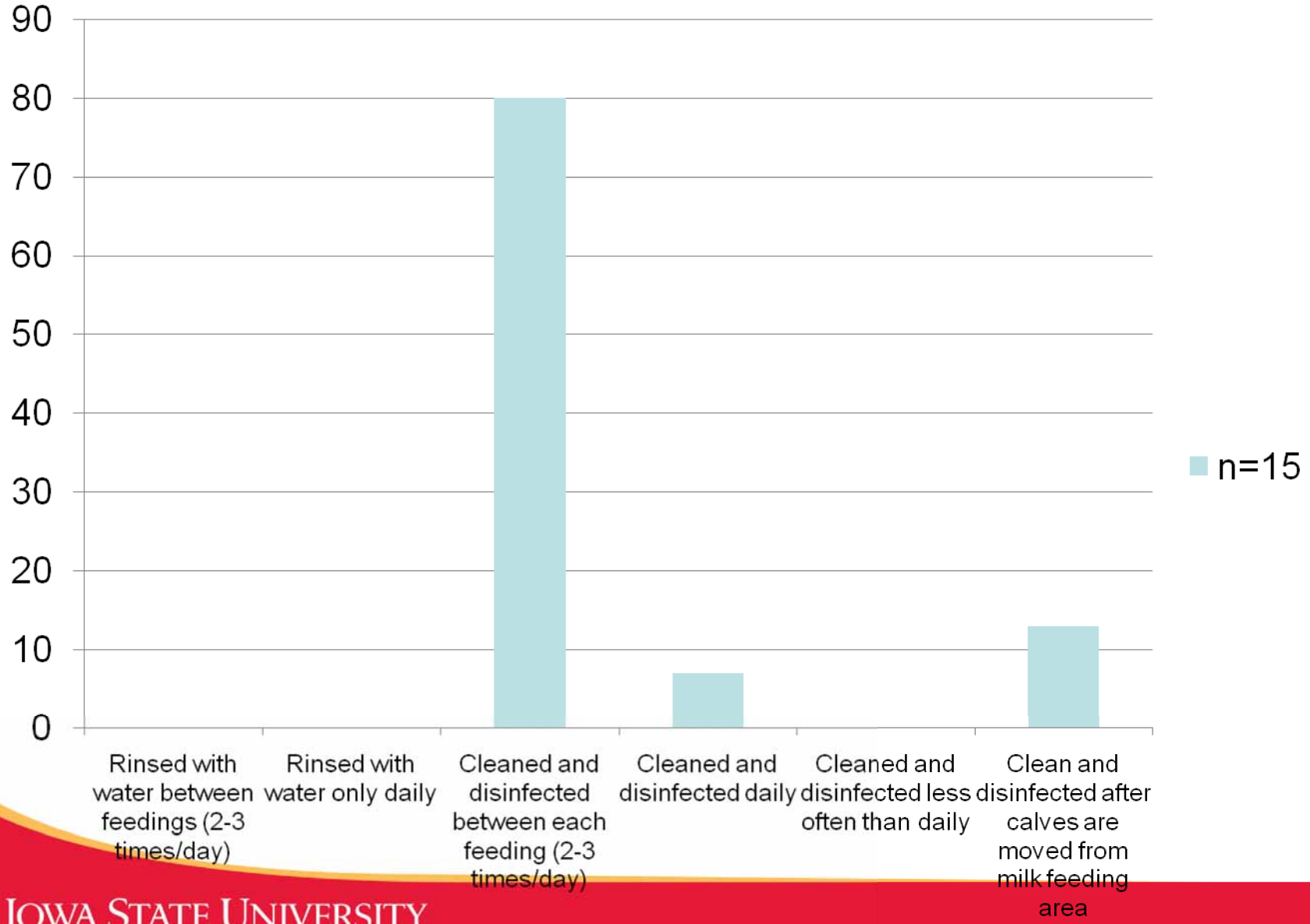
Highest percentage of milk being used:

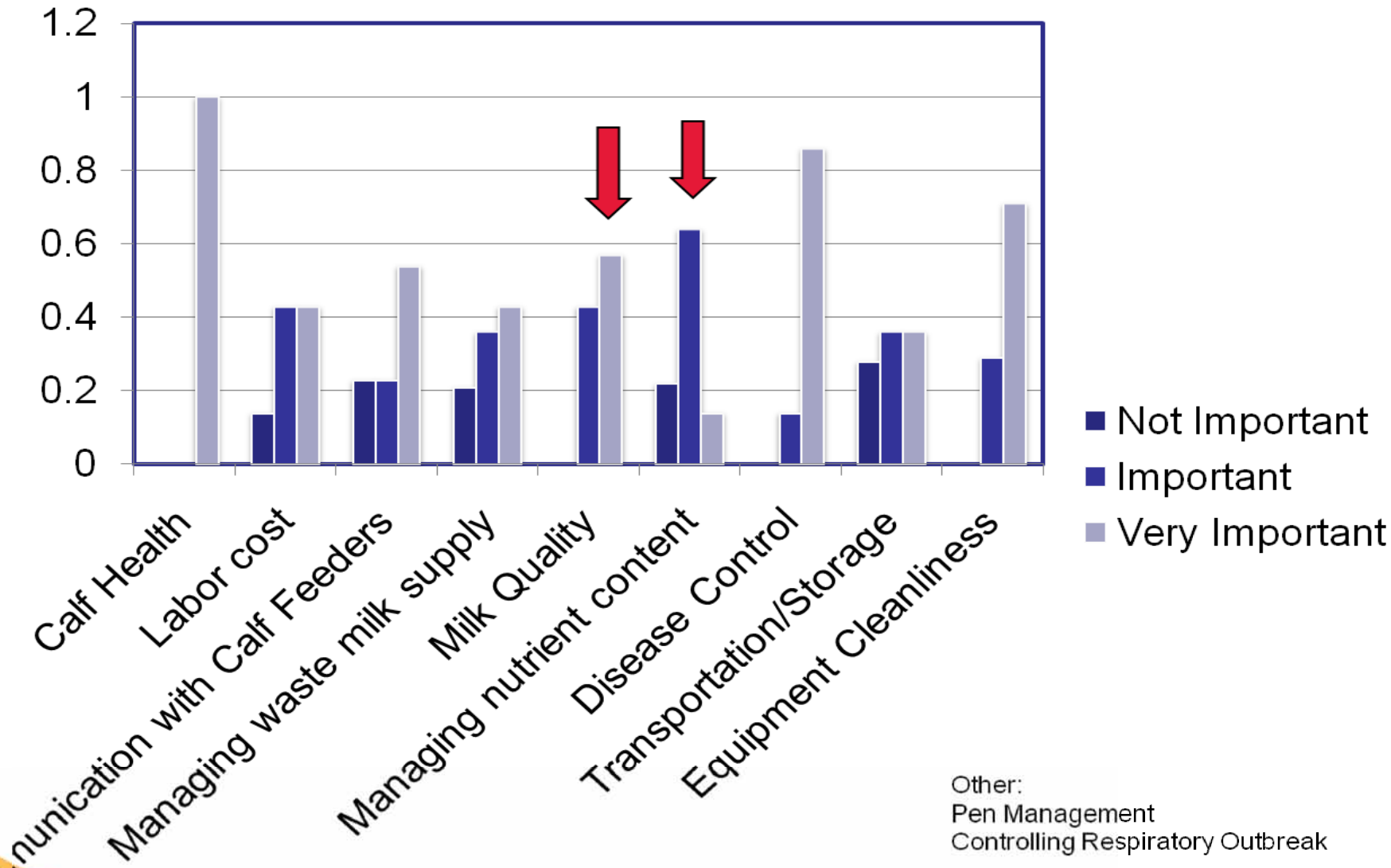


When pasteurized milk is in short supply?

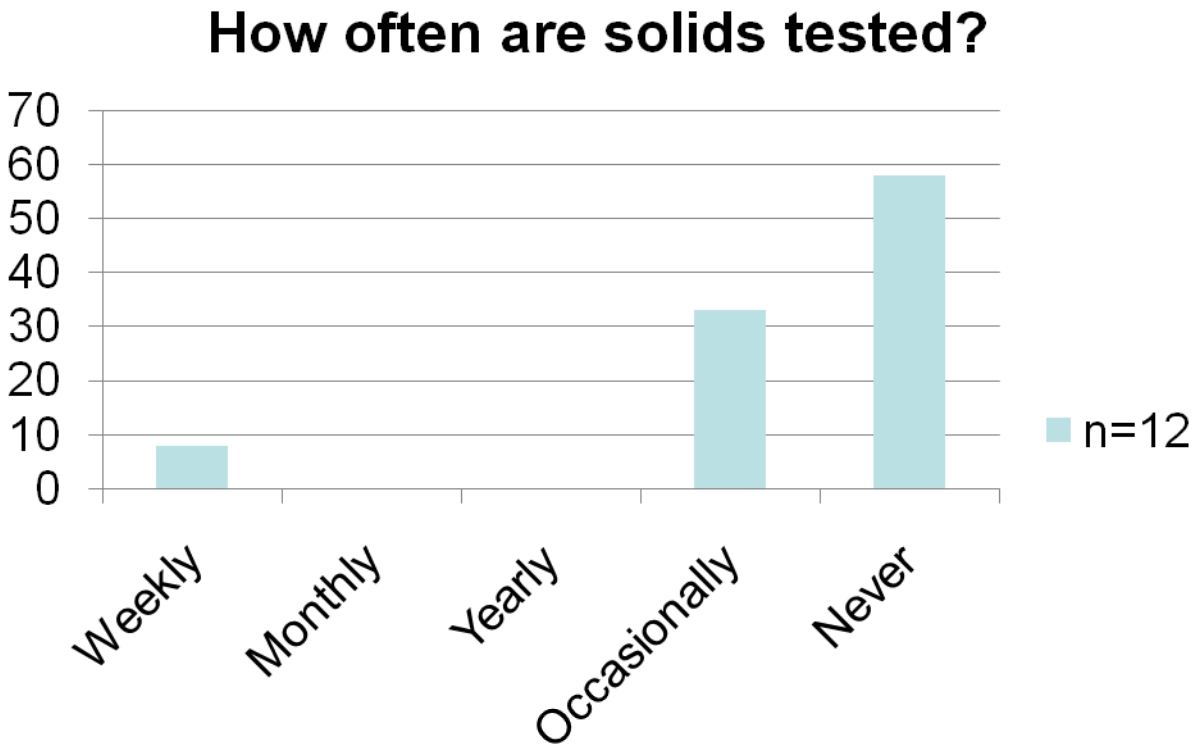


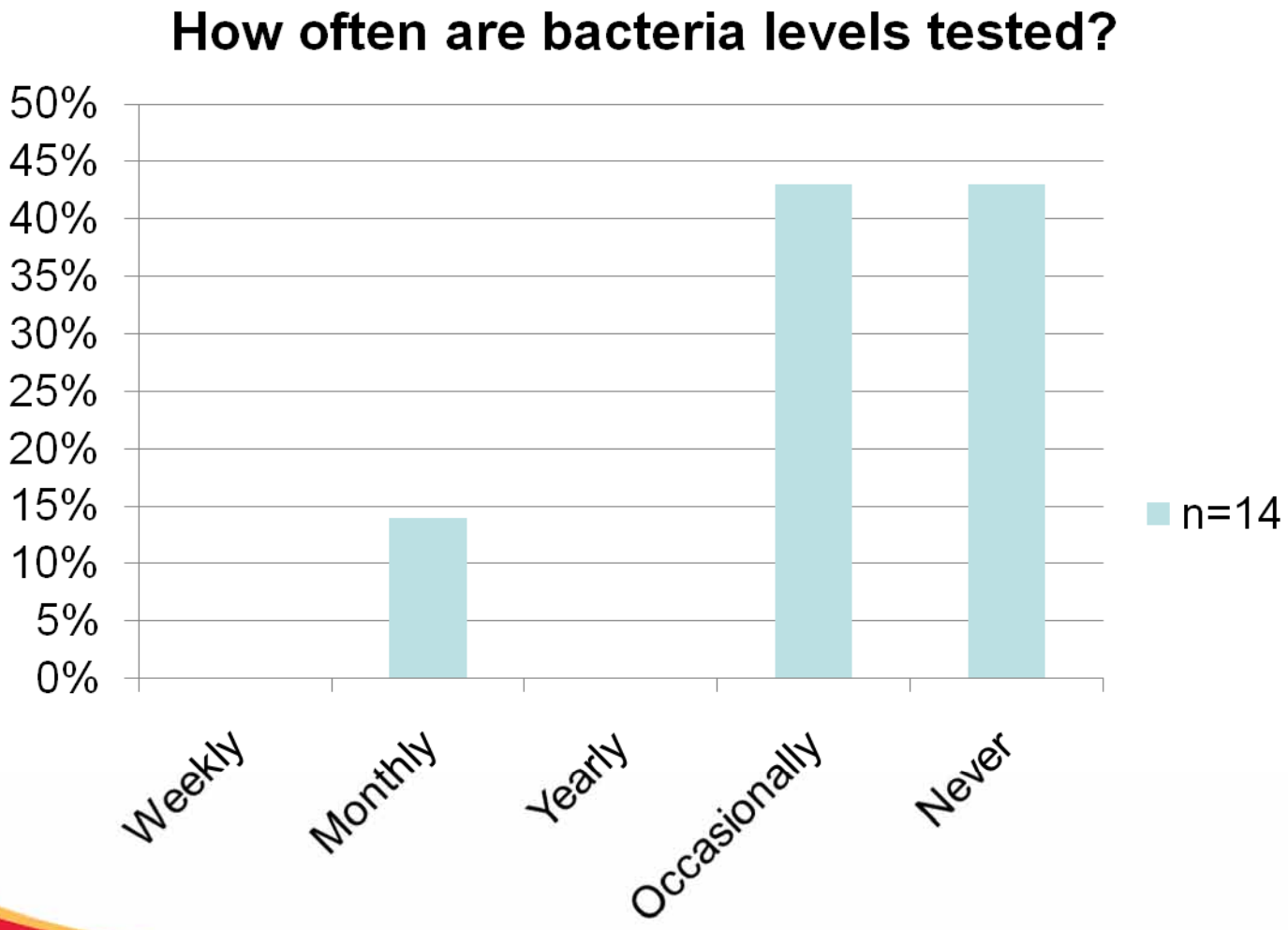
Cleaning of Feeding Equipment

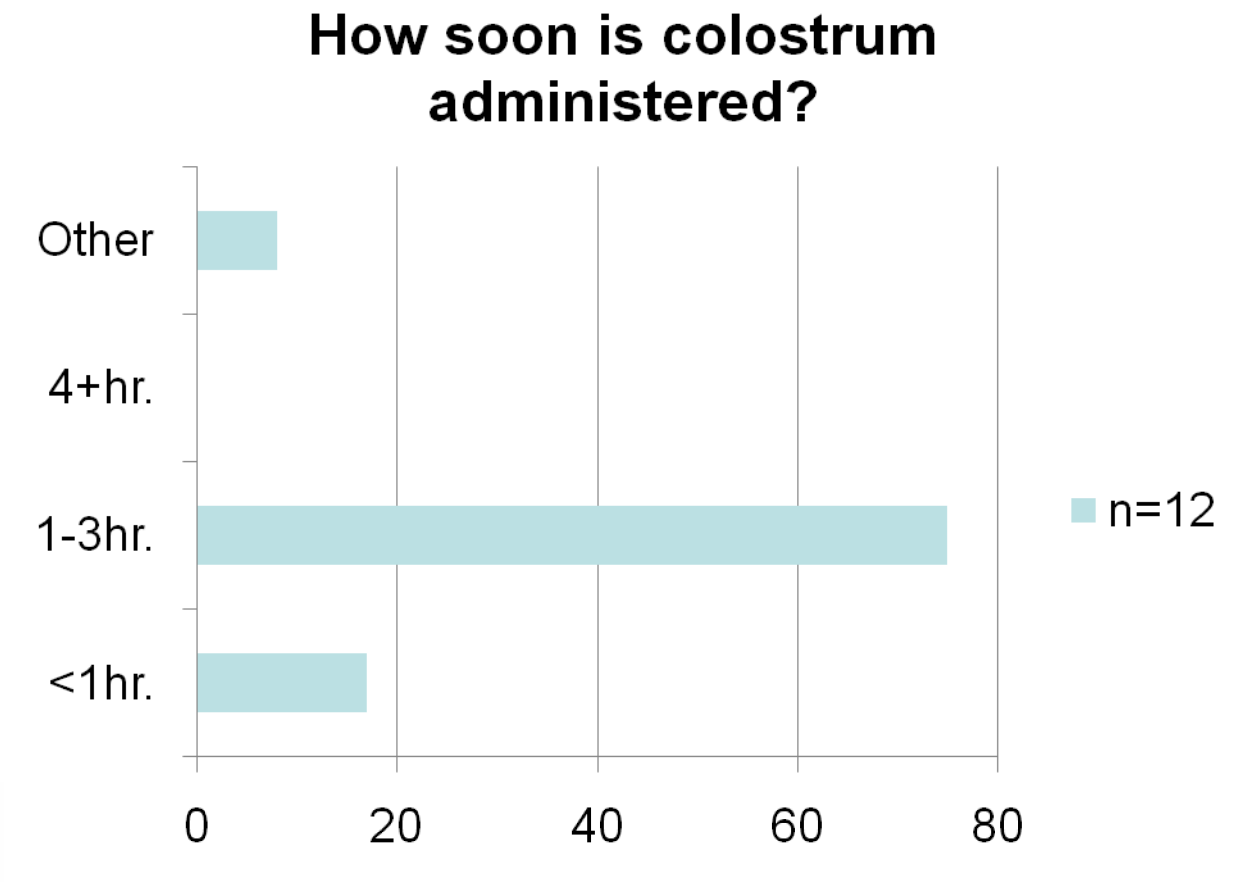




Other:
Pen Management
Controlling Respiratory Outbreak


How often are solids tested?
70
60
50
40
30
20
10
0
Weekly
Monthly
Yearly
Occasionally
Never
n=12


How often are bacteria levels tested?
50%
45%
40%
35%
30%
25%
20%
15%
10%
5%
0%
Weekly
Monthly
Yearly
Occasionally
Never
n=14



Other: Newborns fed after milking

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.