

## Pasteurized Milk Systems for Calves

### Overview of Processing & Monitoring

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**Goal:** Consistently deliver clean, high quality milk to calves.

#### Steps in the System:

1. ***Harvest, move and store raw milk before pasteurization***
  - a. Cleaning / sanitation of all harvest, transfer or storage equipment
  - b. Process milk within 2 hours of harvest, or else chill milk (40°F) until ready to pasteurize
  - c. Prevent fermentation: process all chilled raw milk within 3-4 days
  - d. Prevent dilution of milk with wash water
  - e. Agitate milk well before transferring to pasteurizer
2. ***Pasteurize the milk***
  - a. Use PMO times and temperatures:
    - i. HTST: 161°F x 15 seconds
    - ii. Batch: 145°F x 30 minutes
  - b. Do not repasteurize milk
  - c. Cleaning / sanitation of pasteurization equipment
3. ***Deliver milk to calves***
  - a. Feed milk within 2 hours of pasteurizing or chill until ready to feed (must then rewarm to feeding temperature of 100-105°F)
  - b. If milk is not fed immediately after pasteurizing, agitate well prior to delivery
  - c. Cleaning / sanitation of milk transfer and feeding equipment

#### Monitoring the Milk Pasteurization System:

1. ***Pasteurizer function***
  - a. Monitor times / temps reached with every batch (e.g. use chart recorder)
    - i. HTST: 161°F x 15 seconds
    - ii. Batch: 145°F x 30 minutes
2. ***Adequacy of raw and pasteurized milk handling, as well as pasteurizer function***
  - a. Periodic (monthly) milk cultures for total plate count (TPC):
    - i. Pre-pasteurized milk: < 1 million cfu/mL
    - ii. Post-pasteurized milk: < 20,000 cfu/mL
    - iii. In front of calf: < 50,000 cfu/mL
3. ***Milk quality***
  - a. Total solids using Brix refractometer. Check at least weekly.
    - i. Goal is 12-13.5% for TS in milk (10-12% on Brix scale)
  - b. Fermentation due to excessive storage length or warm storage conditions (optional):
    - i. pH. Goal > 6.5 (expected trouble if < 5.0)