Pasteurized Milk Systems for Calves
Overview of Processing & Monitoring

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)