1.0 PURPOSE

To establish rigid procedures to be followed during the cheese making process for Camembert cheese in at _______________. A strict record of all proceedings shall be made so that food safety/quality issues might be addressed.

2.0 SCOPE

This SOP applies to the production of Camembert cheese produced at ________________ and all employees that are involved in the production of this cheese.

3.0 SAFETY & ENVIRONMENTAL CONSIDERATIONS

When working around hot water or chemical cleaners, always use care and follow instructions for use.

4.0 FREQUENCY

This SOP applies anytime Camembert cheese is produced.

5.0 RESPONSIBILITY

- TASK
  ____________ Staff, anyone using plant for cheese production

- VERIFICATION
  ____________ Management

- PAPERWORK REVIEW
  As needed to address quality or safety concerns, by appropriate managers/regulatory officials including cheese make sheets, vendor lot code keys, batch sheets, sampling records, pH/TA recording sheets, salometer recording sheets, temperature recording sheets, and pasteurization records.

6.0 SUPPLIES/EQUIPMENT

6.1 Supplies
   6.1.1 Milk
   6.1.2 Appropriate cultures, rennet, calcium chloride, salt

6.2 Equipment
   6.2.1 Jacketed cheese vat with paddles (automated)
6.2.2 Cheese vat strainer
6.2.3 Calibrated pH meter or titratable acidity meter
6.2.4 Calibrated thermometer(s)
6.2.5 Draining mats
6.2.6 Molds (_______ molds manufactured by __________)
6.2.7 Cheese knives (__________ knives manufactured by ______________) and/or ladle
6.2.8 Cheese Paper (manufactured by ______________)

7.0 PROCEDURE

7.1 Cheese making preparation
A. In a clean and properly sanitized vat, add pasteurized milk volume. Take initial pH reading and record it.
B. Warm milk to 90.0°F while gently mixing.

7.2 Fermentation
A. Record lot numbers of cultures and calcium chloride on the make sheet.
B. Add culture(s) at the appropriate amounts. See make sheet for standards as mathematical calculations are required based on milk volume for all ingredients. Cultures are added at a rate of _________ gr/_________ gallons of milk and _________ gr/______gallons.
C. Acid ripen the milk for 15-30 minutes.
D. pH measurements must be taken at the intervals specified in the make sheet and recorded to ensure the culture is functioning and there is an increase in acidity. Record this reading on the make sheet. Add calcium chloride. Calcium chloride is added at a rate of _______ ml/______gallons of milk.

7.3 Coagulation
A. Record lot number of rennet/coagulant on the make sheet.
B. When the titratable acidity of the milk is .22 percent, add rennet (or coagulant of choice) to milk and stir for 2-4 minutes. Maintain temperature at 89-90°F (+/-1°F) to ensure rennet functions at the same level between production lots (enzymatic reactions are temperature sensitive). Rennet is added at a rate of _____ ml/_______ gallons of milk. Cover the vat. Rennet set takes 45-60 minutes, or until a clean break is achieved, with properly function enzyme. Determining when the curd is ready to cut must be determined and takes expertise and experience.

7.4 Cutting and/or Dipping of curds
A. Using a clean and sanitized cheese knife cut the curd first with the horizontal cheese knife the length of the vat.
B. Using a clean and sanitized cheese knife cut the curd next with the vertical cheese knife the length of the vat.

C. Finally, using the vertical knife cut the curd across the vat. Ensure that all cheese has been cut and a uniform cube size throughout has been obtained. Take a sample and measure pH and record on make sheet.

D. No cooking at elevated temperatures is required. Maintain 90°F/32°C temperature.

E. Dispose of excess whey in an approved manner.

OR

A. Ladle intact curd into open-ended, perforated forms. Fill forms to capacity.

B. Take a pH reading and record.

C. Dispose of excess whey in an approved manner.

7.5 Draining

A. Place a clean and sanitized drain strainer in vat, if using cut curds only.

B. Apply no external pressure to the curds in the molds.

C. In several hours, at room temperature (72°F/22°C) the curds may be turned without breaking. After 3 hours of drainage, turn the mold for the first time. Repeat the turning of the cheese after another two hours. Turn 3-4 more times at 30 minute intervals.

D. Dispose of excess whey in an approved manner.

7.6 Inoculation

A. Spray a fine mist of P. camemberti spore suspension over the curd wheels.

B. In 30 minutes, turn the cheese molds and repeat spraying.

C. Leave cheese to rest in molds for 30 minutes.

7.7 Pressing and Molding Curd

A. Remove wheels of curd from molds.

B. Place on clean drainage mats at room temperature (72°F/22°C) for 5-6 hours.

C. Test cheese for coliform and moisture.

D. Retain samples for regulatory authority and quality. Samples must be labeled with an appropriate label with accurate measurements and information.
7.8 Salting

A. Record lot number and manufacturer of salt on the make sheet.

B. Dip one half of wheel in coarse salt.

C. Reverse cheese and dip other half.

D. Lay the salted cheese on draining mats overnight at room temperature (72°F/22°C).

E. Take pH reading and record it on the make sheet.

7.9 Curing

A. Transfer the cheeses to a 50°F/10°C and 95-98% relative humidity room.

B. Elevate cheese above curing shelves for 5 days.

C. As soon as traces of mold appear on the surface of the cheese, turn over the wheel once.

E. After 14 days in curing room, wrap cheese and store at 50°F/10°C and 95% relative humidity for 7 more days.

F. Move cheese to 40°F/4°C in same condition.

G. Cut into wedges (if necessary) and wrap for distribution.

H. Distribute immediately as ripen continues even at low temperatures.

8.0 ATTACHMENT/DOCUMENTATION

Cheese Make Sheet, Pasteurization Records, Lot Numbers for any products used during processing, pH recording sheet

9.0 SIGNATURES AND APPROVALS

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