

**SAMPLE DOCUMENTATION
PRODUCTION OF DAIRY PRODUCTS IN FOOD SERVICE
ESTABLISHMENTS**

Dahi



Ministry of
Health

Production of Dahi in Food Service Establishment

The two predominant bacteria used in yogurt production are described in **yogurt** plan. An ideal temperature of 39-45 °C is suggested. This temperature ensures the proper ratio of bacteria in the finished product. The *Streptococcus lactis* is the first bacteria to grow and develop acid. The production of acid enables the *Lactobacillus* to grow producing the distinctive flavours associated with yogurt (lactic acid, acetaldehyde, acetic acid and diacetyl). When the yogurt fermentation is done at a temperature below 39°C the rate of acid production will be slower. Other competitive bacteria that affect shelf life may grow.



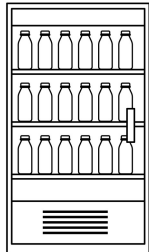
STANDARD RECIPE

- 10 Litres of pasteurized milk
- 250 g skim milk powder (about 1 1/3 cups)
- Bacterial culture (follow manufacturers instructions)

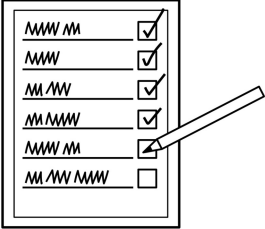

Equipment List

Measuring cups	Long handled metal spoon	Milk Boiler	Thermometer
Scale	Incubation area (away from drafts)		

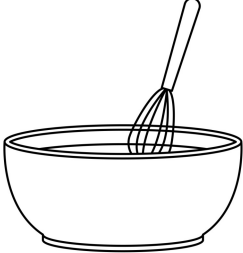
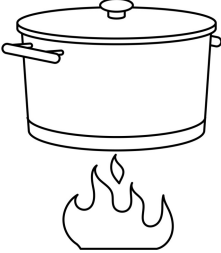
PROCESS BASED FOOD SAFETY PLAN

Step #	Process Step	Potential Hazards	Instructions and Outcomes
1	Purchase and refrigerate milk 	<u>Biological</u> Pathogen contamination due to using product that is past best before date. Pathogen growth due to time/temperature abuse. Pathogen contamination due to condensation falling onto/into uncovered product.	<ul style="list-style-type: none"> Purchase and use only pasteurized dairy ingredients from approved sources. Keep pasteurized dairy ingredients in original commercial packaging, as purchased, until use. Store at 4°C or colder. <p style="text-align: center;">Do not use products where the best before date has expired.</p>

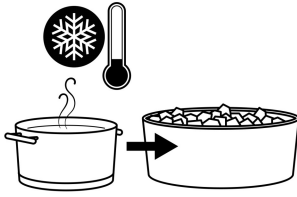
PROCESS BASED FOOD SAFETY PLAN

Step #	Process Step	Potential Hazards	Instructions and Outcomes
2	Preoperational Checks 	<p><u>Biological</u> Pathogen contamination due to incomplete sanitation procedures.</p> <p><u>Chemical</u> Cross contamination due to improper separation of activities. Contamination with non-food chemicals due to residual cleaners or sanitizers. Contamination with non-food chemicals due to mishandling of sanitizer spray bottles during use or filling.</p>	<ul style="list-style-type: none"> • Inspect, clean and sanitize designated work area. • Inspect equipment, utensils, and processing areas (clean and sanitized). • Use written recipe each time you make the product to ensure consistency of measurements and that all steps in the production process are followed. • Label the sanitizer spray bottles to indicate the content (non-food chemical).
3	Stage Ingredients 	<p><u>Biological</u> Pathogen growth due to time/temperature abuse.</p> <p>Pathogen contamination due to unsanitary equipment. Pathogen cross-contamination due to improper employee handling practices.</p> <p><u>Chemical</u> Contamination with non-food chemicals due to residual cleaners or sanitizers.</p>	<ul style="list-style-type: none"> • Finished product attributes of cultured dairy products are determined by the total milk solids content of the recipe and heat treatment used. • Skim milk powder can be added to Dahi to increase total solids and improve the consistency. The traditional process may include an evaporation step to increase total milk solids.

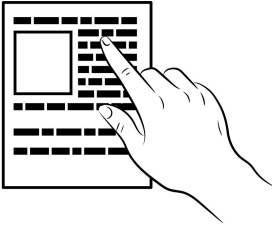
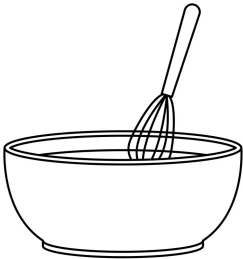
PROCESS BASED FOOD SAFETY PLAN

Step #	Process Step	Potential Hazards	Instructions and Outcomes
4	Adjust Milk composition & Blend Ingredients 	<p><u>Biological</u> Pathogen contamination due to unsanitary equipment. Pathogen growth due to poor inventory control (use of FIFO) Pathogen contamination due to poor hygiene and improper handling by employees. Pathogen growth due to time/temperature abuse.</p> <p><u>Chemical</u> Contamination with non-food chemicals due to residual cleaners or sanitizers.</p> <p><u>Physical</u> Hazardous extraneous material contamination due to improper preparation of ingredients.</p>	<ul style="list-style-type: none"> • Adjust milk composition to achieve the desired texture (i.e., add milk powder). See appendix for instructions of how to standardize milk using Pearson Square Method. • Blend milk ingredients and begin the heating step. • Slowly add dry ingredients to warm milk and cream portion of mix using a whisk. Ensure all ingredients are incorporated and continue heating.
5	Heat milk to gentle boil 	<p><u>Biological</u> Pathogen growth due to time/temperature abuse (too slow heating rate, incorrectly calibrated thermometer). Pathogen contamination due to unsanitary equipment. Pathogen contamination due to poor hygiene and improper handling by employees.</p> <p><u>Chemical</u> Contamination with non-food chemicals due to residual cleaners or sanitizers.</p> <p><u>Allergens</u> Contamination by allergens due to improper separation of activities.</p>	<ul style="list-style-type: none"> • Heat milk to desired temperature as per your recipe (reach temperature within 1 hour). Example: 93°C for 10 minutes. • Stir constantly to avoid burning the milk. There are milk cookers/boilers available in the market and they usually have an indicator that tells a person when the milk has boiled but does not allow the milk to overspill from the pot. <p style="text-align: center;"><i>Heat is used to denature whey proteins to allow for the formation of a stable gel structure in the yogurt. Heating the milk also reduces spoilage organisms in the milk to reduce unwanted competition with the bacterial culture.</i></p> <p style="text-align: center;">Check temperature with clean and sanitized probe thermometer</p>

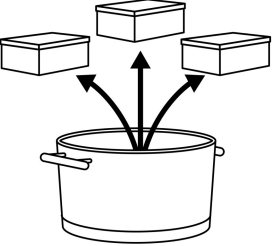
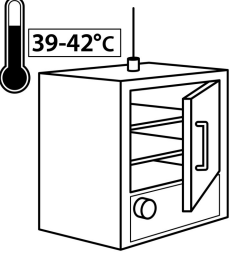
PROCESS BASED FOOD SAFETY PLAN

Step #	Process Step	Potential Hazards	Instructions and Outcomes
6	<p>Cool Milk to inoculation temperature</p> 	<p><u>Biological</u></p> <p>Pathogen growth due to time/temperature abuse (too slow cooling rate, incorrectly calibrated thermometer).</p> <p>Pathogen contamination and growth due to poor hygiene and improper handling by employees.</p> <p>Pathogen contamination due to uncovered or unsealed containers (improper packaging).</p> <p><u>Physical</u></p> <p>Hazardous extraneous material contamination due to uncovered or unsealed containers (improper packaging).</p>	<p>CRITICAL CONTROL POINT (CCP1B)</p> <ul style="list-style-type: none"> • Cool down quickly to incubation temperature (reach temperature within 1 hour). • Cool the pot in a sink with cold water or ice bath. Example: cool to 37-45°C (refer to bacterial culture manufacturer for exact incubation temperature requirements) • Prolonged cooling time may allow for the growth of undesirable microorganisms (for example, spore formers naturally present in the milk). • Measure pH of milk. Hygienically remove a sample of cooled milk and measure the pH. This is your starting pH for the batch. • Discard milk sample after testing. <p>Corrective Action:</p> <p>Discard milk if time limit has not been met. Document on batch sheet or production logbook.</p>

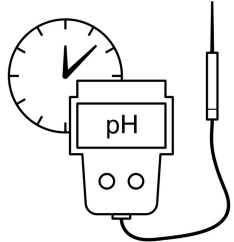
PROCESS BASED FOOD SAFETY PLAN

Step #	Process Step	Potential Hazards	Instructions and Outcomes
7	<p>Prepare Bacterial Culture</p> 	<p><u>Biological</u> Pathogen contamination due to poor hygiene and improper handling by employees. Pathogen contamination due to unsanitary equipment.</p> <p><u>Chemical</u> Contamination with non-food chemicals due to residual cleaners or sanitizers.</p> <p><u>Allergens</u> Allergen cross contamination due to improper employee handling practices.</p>	<ul style="list-style-type: none"> • Use only approved commercial starter culture for dahi. Check that culture is still within the expiry date. • Follow the manufacturer’s instructions for usage rate and incubation requirements. • Hygienically measure out the required amount of starter culture from the culture package. • Hygienically close the culture package and return to storage. <ul style="list-style-type: none"> For foil packages, use an alcohol wipe (~60% alcohol content) to sanitize the outside of the package before sealing up. Place the package in a clean, food-grade re-sealable bag or container and store container as per the manufacturer’s instructions. <p style="text-align: center;">Previous batches of dahi are not approved for use as a bacterial culture.</p>
8	<p>Add Bacterial Culture (inoculate)</p> 	<p><u>Biological</u> Pathogen contamination due to mixing culture with contaminated dairy ingredient. Pathogen contamination due to poor hygiene and improper handling by employees. Pathogen contamination due to unsanitary equipment.</p> <p><u>Chemical</u> Contamination with non-food chemicals due to residual cleaners or sanitizers.</p> <p><u>Allergens</u> Presence of allergens due to improper separation of activities.</p>	<ul style="list-style-type: none"> • Sprinkle the starter culture directly into the processing container or pre-mix the culture with a small volume of milk before adding to the processing container. • For the pre-mix method, hygienically remove a small volume of cooled milk and mix in the starter culture. When the culture is dispersed, pour the mix back into the processing container. • Mix gently and thoroughly to disperse the culture.

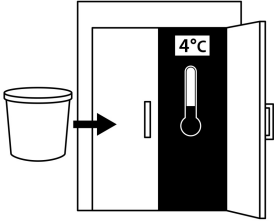
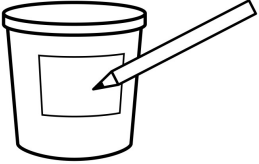
PROCESS BASED FOOD SAFETY PLAN

Step #	Process Step	Potential Hazards	Instructions and Outcomes
9	Transfer to containers (if producing container set product) 	<p><u>Biological</u> Pathogen growth due to time/temperature abuse.</p> <p>Pathogen contamination due to use of non food grade, damaged or unclean containers (new or used).</p> <p><u>Chemical</u> Contamination with non-food chemicals due to use of non food grade packaging material</p> <p><u>Allergens</u> Allergen cross contamination due to unsanitary equipment.</p> <p><u>Physical</u> Hazardous extraneous material contamination due to dirt and debris falling into uncovered product.</p>	<ul style="list-style-type: none"> • Hygienically transfer inoculated milk to food grade containers with lids. • If re-using containers, ensure they are cleaned, sanitized, and approved for multi-use.
10	Incubate/Ferment 	<p><u>Biological</u> Incomplete acidity development due to improper incubation procedure.</p> <p>Pathogen growth due to improper incubation temperature.</p> <p>Pathogen contamination due to uncovered or unsealed containers (improper packaging).</p> <p><u>Physical</u> Hazardous extraneous material contamination due to uncovered or unsealed containers (improper packaging).</p>	<ul style="list-style-type: none"> • Keep processing container covered and move to incubator. It is not sufficient to wrap product to insulate. Must be a temperature controlled room. • After 1 hour, hygienically remove a sample of “dahi” and measure the pH. Compare the reading to the milk pH taken at step 6. • A pH drop (decrease in pH) of at least 0.1 units indicates that the fermentation has started. • Record on batch report. • Discard the sample after testing the pH. <p>Corrective Action:</p> <ul style="list-style-type: none"> • If the pH has not changed, retest pH after 30 minutes. If the second pH test fails to show a pH drop, there is a problem with the batch. Discard the product and start again. <p>Wash and sanitize all utensils, containers and equipment before re-using them. Report on batch report.</p>

PROCESS BASED FOOD SAFETY PLAN

Step #	Process Step	Potential Hazards	Instructions and Outcomes
11	Reach end point pH 	<p><u>Biological</u></p> <p>Pathogen growth due to failure of culture/culture that is past code/inactive cultures.</p> <p>Incomplete acidity development due to improper incubation procedure.</p> <p>Pathogen growth due to time/temperature abuse.</p> <p>Pathogen contamination due to improper employee handling practices.</p> <p>Pathogen contamination due to unsanitary equipment.</p> <p><u>Allergens</u></p> <p>Allergen cross contamination due to improper employee handling practices.</p>	<p>CRITICAL CONTROL POINT (CCP2B)</p> <ul style="list-style-type: none"> • Endpoint pH ≤ 4.6 or lower within 2 hours of the expected incubation time. • Dahi fermentation takes 8-12 hours. • Check the product pH at the expected completion time for the fermentation stage <p>Important: The normal fermentation time is specific to your process and must be established during your product development.</p> <ul style="list-style-type: none"> • If the target pH has not been reached, continue incubating and recheck the pH after 1 hour. <p>Corrective Action:</p> <ul style="list-style-type: none"> • If the end point pH (pH 4.6 or lower) has not been reached after 2 hours past the expected incubation time, there is a problem with the batch and it must be discarded. <p>Wash and sanitize all utensils, containers, and equipment before re-using them. Document on batch sheet or production logbook.</p>

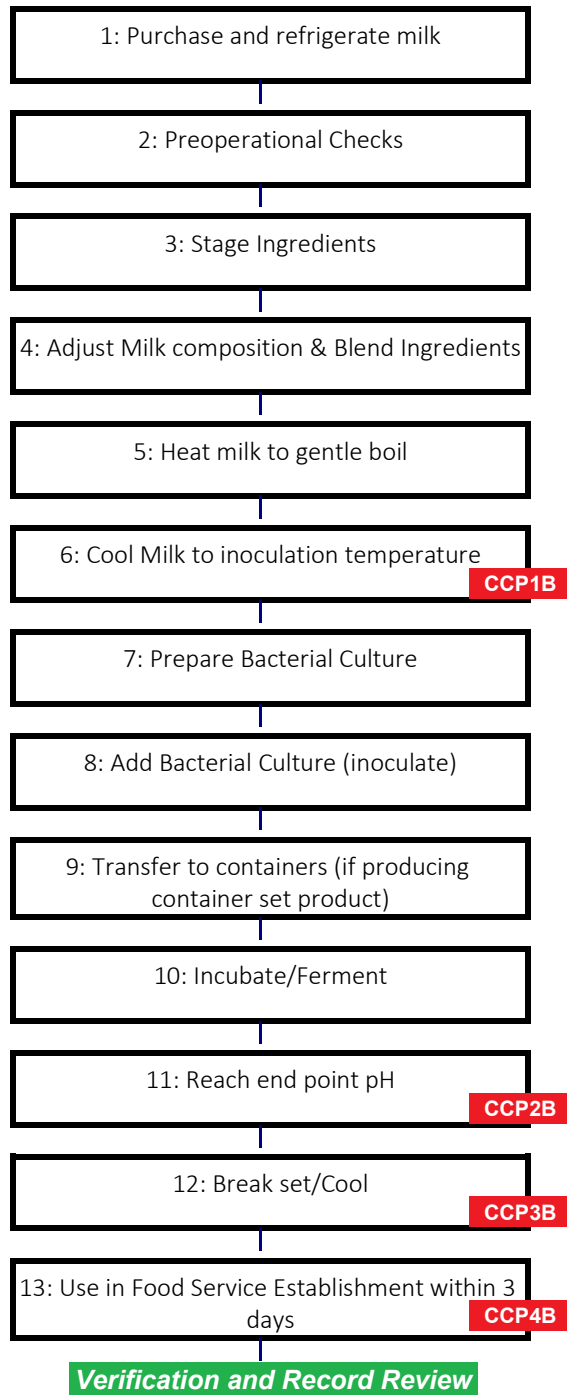
PROCESS BASED FOOD SAFETY PLAN

Step #	Process Step	Potential Hazards	Instructions and Outcomes
12	Break set/Cool 	<p>Biological</p> <p>Pathogen growth due to time/temperature abuse (too slow cooling rate, incorrectly calibrated thermometer).</p> <p>Pathogen growth due to improper storage conditions (cooler malfunction).</p> <p>Pathogen growth due to poor inventory control (use of FIFO)</p> <p>Pathogen contamination due to unsanitary equipment.</p> <p>Pathogen contamination due to poor hygiene and improper handling by employees.</p> <p>Chemical</p> <p>Contamination with non-food chemicals due to residual cleaners or sanitizers.</p>	<p>CRITICAL CONTROL POINT (CCP3B)</p> <ul style="list-style-type: none"> • Cool to 4°C to stop the fermentation process. • Ensure proper cooling rate <ul style="list-style-type: none"> • Cool to 4°C to stop the fermentation process. • Cool down to 20°C within 2 hours, and 20°C to 4°C within 4 hours. • Total cooling time not to exceed 6 hours. • Record on Batch Report.
13	Use in Food Service Establishment within 3 days 	<p>Biological</p> <p>Pathogen growth due to improper storage conditions (cooler malfunction).</p> <p>Pathogen contamination and growth due to poor inventory control (use of FIFO)</p> <p>Pathogen growth due to time/temperature abuse.</p>	<p>CRITICAL CONTROL POINT (CCP4B)</p> <ul style="list-style-type: none"> • Date product with 3-day use by date. • Store at 4°C or colder. • Use in Food Service Establishment within 3 days. Record on Batch Report

Product Description Form (Foodservice)

Product Category	Cultured Products
1. What is your product name and weight/volume?	Dahi
2. What type of product is it (e.g. raw, ready-to-eat, ready-to-cook, or ready for further processing)	Ready to Eat (RTE), ingredient in meal preparation.
3. What are your product's important food safety characteristics (e.g. acidity, water activity, salinity, etc.)?	Pasteurized, cultured, stored refrigerated, pH \leq 4.6.
4. What allergens does your product contain?	Milk
5. What restricted ingredients (preservatives, additives, etc.) does your product contain, and in what amounts e.g. grams)	None
6. How do you store your product e.g. keep refrigerated, keep frozen, keep dry) in your establishment and when you ship your product?	Store in lidded container in refrigerator.
7. What is the shelflife of your product under proper storage conditions?	3 days refrigerated (4°C).
8. Who will consume your product (e.g. the general public, the elderly, the immunocompromised, infants?)	Food Service customers.
9. How might the consumer mishandle your product and what safety measures will prevent this?	Mishandled in kitchen.
10. Where will the product be sold?	At own facility.
11. What information is on your product label?	Keep refrigerated, production date (lot code).

Dahi Process Flow Table



Critical Control Points Table: Dahi

1. Identifying Hazards	2. Identifying Critical Control Points (CCP)	3. Establishing Critical Limits:	4. Establishing Monitoring Procedures (who, what, how and when)	5. Establishing Corrective Actions:	6. Establishing Verification Procedures (who, what, how and when)	7. Keeping Records
Pathogen growth due to improper cooling procedures	CCP1B Cool Milk to inoculation temperature	Cool down quickly to inoculation temperature. Reach temperature within 1 hour.	<ol style="list-style-type: none"> 1. Production worker checks temperature with clean and sanitized probe thermometer. 2. Check temperature every 5 minutes during cooling to incubation temperature. 3. Record on batch report. 	<p>When critical limits are not being met for one or more product samples.</p> <ol style="list-style-type: none"> 1. Report slow cooling to Operator. Check cooler and determine if maintenance is required. 2. Place product on hold. Discard dahi if time limit has not been met. 3. Immediately investigate the cause of the non-conformance and take necessary corrective actions to prevent reoccurrence. Record all non-conformances and corrective actions on batch report. 	<ol style="list-style-type: none"> 1. Operator reviews and signs batch reports at end of production day to ensure that it has been properly completed. 2. Once per week, the Operator ensures that the temperature checks follow the procedure (observes production worker in their task). 3. Operator reviews and signs cooler temperature once per week. 4. If a non-conformance is found during the verification procedure, immediately investigate the cause of the non-conformance and take necessary corrective actions to prevent reoccurrence. 5. Record all observations on the batch report, including the date, the time and initials. 	Dahi Batch Report Cooler Temperature Log
Incomplete acidity development due to improper incubation procedures	CCP2B Reach end point pH	Endpoint pH ≤ 4.6 within 2 hours of the expected incubation time	<ol style="list-style-type: none"> 1. Production worker checks pH with clean and sanitized calibrated pH meter. 2. Start pH checks one hour before anticipated end point pH for product and repeats every hour until end of incubation period. 3. Record on batch report. 	<p>When critical limits are not being met for one or more sample.</p> <ol style="list-style-type: none"> 1. If target pH has not been achieved, continue for one more hour. 2. Discard the batch if end point pH is not reached after this additional incubation time. The batch is contaminated and should not be used. 3. Record as corrective action on batch report. 4. Clean and sanitize utensils, containers and equipment before reusing. 	<ol style="list-style-type: none"> 1. Operator reviews and signs batch reports at end of production day to ensure that it has been properly completed. 2. Once per week, the Operator ensures that the temperature checks follow the procedure (observes production worker in their task). 3. Operator reviews and signs cooler temperature once per week. 4. If a non-conformance is found during the verification procedure, immediately investigate the cause of the non-conformance and take necessary corrective actions to prevent reoccurrence. Record all observations on the batch report, including the date, the time and initials. 	Dahi Batch Report pH Meter Calibration Record

Note: CCPs are points in the your process where controls are essential to preventing hazards or reducing them to acceptable levels. You may not be able to prevent or reduce the risk of the hazard at any later step. A CCP is measureable. Some examples of measureable CCPS in dairy processing are the time and temperature of pasteurization, the pH of a fermented dairy product and the water activity of a dried product such as skim milk powder. Foodservice establishments may include additional preparation steps as CCPs particularly when there is no cook step in the operation. These additional CCPs control the hazards associated with crosscontamination due to sanitation and personnel.

Critical Control Points Table: Dahi

1. Identifying Hazards	2. Identifying Critical Control Points (CCP)	3. Establishing Critical Limits:	4. Establishing Monitoring Procedures (who, what, how and when)	5. Establishing Corrective Actions:	6. Establishing Verification Procedures (who, what, how and when)	7. Keeping Records
Pathogen growth due to improper cooling procedures	CCP3B Break set/Cool	Cool down to 20 °C within 2 hours and from 20 to 4 °C within 4 hours. Total cooling time not to exceed 6 hours.	<ol style="list-style-type: none"> 1. Production worker checks temperature with clean and sanitized probe thermometer. 2. Check temperature every hour until 4 °C is reached. 3. Record on batch report. 	<p>When critical limits are not being met for one or more product samples.</p> <ol style="list-style-type: none"> 1. Report slow cooling to Operator. Check cooler and determine if maintenance is required. 2. Place product on hold. Discard dahi if time limit has not been met. 3. Immediately investigate the cause of the non-conformance and take necessary corrective actions to prevent reoccurrence. Record all non-conformances and corrective actions on batch report. 	<ol style="list-style-type: none"> 1. Operator reviews and signs batch reports at end of production day to ensure that it has been properly completed. 2. Once per week, the Operator ensures that the temperature checks follow the procedure (observes production worker in their task). 3. Operator reviews and signs cooler temperature once per week. 4. If a non-conformance is found during the verification procedure, immediately investigate the cause of the non-conformance and take necessary corrective actions to prevent reoccurrence. 5. Record all observations on the batch report, including the date, the time and initials. 	Dahi Batch Report Cooler Temperature Log
Pathogen contamination due to product past use date.	CCP4B Use in Food Service Establishment within 3 days	Dahi must be used within 3 days of production.	<ol style="list-style-type: none"> 1. Production worker checks inventory as part of daily preoperational checklist. 2. Record amount still in inventory on batch report. 3. Dispose of product past code and record on batch report. 	<p>When critical limits are not being met for one or more product samples.</p> <ol style="list-style-type: none"> 1. Report poor inventory control to owner. 2. Discard product that is past code. 3. Review FIFO procedures with employees. 4. Record all non-conformances and corrective actions on batch report. 	<ol style="list-style-type: none"> 1. Operator reviews and signs batch reports at end of production day to ensure that it has been properly completed. 2. Owner reviews and signs batch report once per week. 3. If a non-conformance is found during the verification procedure, immediately investigate the cause of the non-conformance and take necessary corrective actions to prevent reoccurrence. 4. Record all observations on the batch report, including the date, the time and initials. 	Dahi Batch Report Inventory Report Cooler Temperature Log

Note: CCPs are points in the your process where controls are essential to preventing hazards or reducing them to acceptable levels. You may not be able to prevent or reduce the risk of the hazard at any later step. A CCP is measureable. Some examples of measureable CCPS in dairy processing are the time and temperature of pasteurization, the pH of a fermented dairy product and the water activity of a dried product such as skim milk powder. Foodservice establishments may include additional preparation steps as CCPs particularly when there is no cook step in the operation. These additional CCPs control the hazards associated with crosscontamination due to sanitation and personnel.

Dahi Batch Report

Production Date	8-May	9-May	10-May	11-May	12-May	13-May	14-May
Use by Date:	11-May	12-May	X	14-May	15-May	16-May	17-May
Preop Checks done:	Yes	Yes		Yes	Yes	Yes	Yes
Operator:	Joe	Joe		Joe	Joe	Joe	Joe
No. of Batches	1	2	0	1	1	1	1
Standard Batch	Code/Lot	Code/Lot	Code/Lot	Code/Lot	Code/Lot	Code/Lot	Code/Lot
10 L Homo Milk (3.25% BF)	MA 18	MA 18	X	MA 21	MA 21	MA 21	MA 22
250 g Skim Milk Powder	19205	19205	X	19205	19205	19205	19205
5 g Bacterial Culture	L20123A	L20123A	X	L20123A	—————	—————	L21231B
Processing							
Time Start Heat milk	6:00 AM	6:15 AM		6:05 AM	6:15 AM	6:25 AM	6:15 AM
Time End	6:10 AM	6:25 AM		6:15 AM	6:25 AM	6:35 AM	6:25 AM
Temp (°C)	93	92		93	91	93	92
CCP1B Cool to Inoculation Temperature (°C)	35	35		35	35	35	35
Record pH	6.3	6.3		6.3	6.3	6.3	6.3
Time Start Incubation	6:20 AM	7:00 AM		6:50 AM	7:05 AM	7:10 AM	7:05 AM
Record Temperature of incubator at start	35	35		35	35	35	35
Record Temperature of incubator at 12 hours	35	35		35	35	35	35
CCP2B Monitor pH	3.8	3.8		3.8	3.8	3.8	3.8
Time Transfer to Cooler	18:20	18:45		18:35	18:50	18:55	19:05

Dahi Batch Report

Production Date	8-May	9-May	10-May	11-May	12-May	13-May	14-May
Cooler Record							
CCP3B Break Set/Cool	9-May	10-May	X	12-May	13-May	14-May	15-May
Temperature after 12 hours in cooler	4	4		4	3.5	4	4
pH after 12 hours in cooler	3.7	3.8		3.8	3.5	3.6	3.5
Inventory Record Always use oldest Dahi first.							
Amount Made (L)	10	20	0	10	10	10	10
Amount Used Day 1	2	8		2	2	2	2
Amount Used Day 2	3	5		3	8	3	3
Amount Used Day 3	5	4		5		3	3
Total Amount Used (L)	10	17		10	10	8	8
CCP4B Amount Disposed of:	0	3		0	0	2	2
Date finished or disposed of:	11-May	14-May	X	14-May	14-May	16-May	17-May

Observed Deviations and Corrective Actions

Date of Record Review: 20-May-22

Verification by: M. Smith