New product development for cheesemakers

Food Safety Guides
Managing Member, **Food Safety Guides**
Senior Technical Advisor for Food Safety, **UC San Diego Extension**
International Cheese Expert/Consultant and FSPCA Lead Instructor
Brand Ambassador, **Meiomi Wines**

**Michael Kalish**
Agenda

1. Raw materials and labor
2. Equipment and Utensils
3. Facility Construction/Design
4. Expertise and Experience
5. Yield
6. Shelf-Life
7. Communication Skills
8. Audience
<table>
<thead>
<tr>
<th>Item</th>
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<th>Unit</th>
<th>Vol./Batch</th>
<th>Batchs/Week</th>
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<th>Weekly</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Milk</td>
<td>$0.50</td>
<td>Liter</td>
<td>500</td>
<td>3</td>
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<td>3</td>
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</tr>
<tr>
<td>Cultures</td>
<td>$10.00</td>
<td>Per 100 L</td>
<td>5</td>
<td>3</td>
<td>$150.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Labor*</td>
<td>$15.00</td>
<td>Hour</td>
<td>4</td>
<td>3</td>
<td>$180.00</td>
<td>$1,802.10</td>
<td>$12,985.20</td>
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*Labor includes: Prep, manufacturing, aging, packaging and marketing
### Raw materials and labor

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Raw materials and labor

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Create a General Budget Sheet
Create a General Budget Sheet

**Raw materials and labor**

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<table>
<thead>
<tr>
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</tr>
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<tbody>
<tr>
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Create a General Budget Sheet

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Hazard Analysis
Supplier Approval
Supplier Verification

[Table with items and costs]
<table>
<thead>
<tr>
<th>Process Step</th>
<th>Equipment/Utensil</th>
</tr>
</thead>
<tbody>
<tr>
<td>Receiving</td>
<td>Mobile bulk tank, hose, pump</td>
</tr>
<tr>
<td>Storage</td>
<td>Bulk tank, dry storage rack</td>
</tr>
<tr>
<td>Pasteurization</td>
<td>800L vat pasteurizer, arm</td>
</tr>
<tr>
<td>Renneting/Culturing</td>
<td>Stainless steel container, whisk</td>
</tr>
<tr>
<td>Cutting/Stirring</td>
<td>Blade, Paddle</td>
</tr>
<tr>
<td>Forming/Pressing</td>
<td>10 moulds, 10 followers/weights</td>
</tr>
<tr>
<td>Brining</td>
<td>50 Liter brining tank</td>
</tr>
<tr>
<td>Aging</td>
<td>Aging racks</td>
</tr>
</tbody>
</table>

Create a flow diagram to help you create a list of equipment/utensils.
<table>
<thead>
<tr>
<th>Process Step</th>
<th>Equipment/Utensil</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Receiving</td>
<td>Mobile bulk tank, hose, pump</td>
<td></td>
<td>✓</td>
</tr>
<tr>
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<td></td>
<td>✓</td>
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</table>
Step 1
Map the Facility
Flow of food
Step 3

Flow of personnel
Flow of packaging
Flow of allergens
Flow of chemicals
Step 5
Highlight high traffic areas
Expertise and Experience

Raw materials and labor
Equipment and Utensils
Facility Construction/Design

Yield
Shelf-Life
Communication Skills
Audience
Raw materials and labor
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Raw materials and labor
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Yield
Shelf-Life
Communication Skills
Audience

The Joy of Cheesemaking

Paperback – April 6, 2011
by Jody M. Farnham (Author), Marc Druart (Author)
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Raw materials and labor
Equipment and Utensils
Facility Construction/Design
Expertise and Experience
Yield
Shelf-Life
Communication Skills
Audience
Raw materials and labor
Equipment and Utensils
Facility Construction/Design
Expertise and Experience
Yield
Shelf-Life
Communication Skills
Audience
Less is more?

Distribution
10+ days

Customer
1-2 Weeks
## Production Make Sheet

**COMPANY INFORMATION:**
- Business name: Food Safety Guides
- Phone #: (415)747-5927
- Email: michael@foodsafetyguides.co
- Address: 804 Spring Street, Sanitary, CA 94905

**PRODUCTION INFORMATION:**
- **Product:** FONTINA
- **Cheesemakers:** Michael Kalish
- **Make date:** 1/17/2016
- **Batch or Lot #:** 160117

**SECONDARY INGREDIENT(S):**
- **Name #1:** SACCO MT092 FET 10 UC
  - Amount (g): 40
  - Lot #: 12

**CULTURE(S):**
- **Name #2:** Danisco Choixit LB 10 UC
  - Amount (g): 50
  - Lot #: 253

**MILK COMPOSITION(S):**
- **Type(s):** Cow
- **L liters:** 200
- **% Fat:** n/a
- **% SNF:** n/a
- **% Protein:** n/a

**MILK RECEIVING:**
- **Time(s):** 6:00 AM
- **Temp (°C):** 29
- **Filtered:** Yes
- **Name #1:** n/a
- **Lot #:** n/a

**ADDITIONAL ADDITIVES:**
- **Name #2:** n/a
- **Lot #:** n/a

**PROCESS STEPS:**
- **Target Temp (°C):** 45
- **Actual Temp (°C):** 47
- **Target Time:** 1:16:00
- **Actual Time:** 6:57
- **Target PH:** 6.3
- **Actual PH:** 6.3

**Notes:** 24 hour storage in bulk tank
### PRODUCT MAKESHEET

**COMPANY INFORMATION:**

- **Business name:** Food Safety Guides
- **Phone:** (415)747-5927
- **Email:** michael@foodsaftyguide.co
- **Address:** 804 Spring Street, Sausalito, CA 94965

**PRODUCTION INFORMATION:**

- **Product:** Fontina
- **Cheesemakers:** Michael Kalish
- **Make date:** 1/17/2016
- **Batch or Lot #:** 160117

**SECONDARY INGREDIENT(S):**

- **Rennet Type:** Chy-max
- **Amount (g):** 40
- **Lot #:** 12
- **Name #1:** SACCO MT092 FET 10 UC
- **CaCl₂ (ml):** 20
- **Lot #:** 230
- **Name #2:** Danisco Choozit LB 10 UC
- **Amount (g):** 50
- **Lot #:** 253
- **Name #3:** MVA
- **Amount (g):** 37
- **Lot #:** 5432

**MILK COMPOSITION(S):**

- **Type(s):** Cow
- **Liters:** 200
- **% Fat:** n/a
- **% SNF:** n/a
- **% Protein:** n/a

**MILK RECEIVING:**

- **Time(s):** 6:00 AM
- **Temp (°F):** 39
- **Filtered:** x
- **Name #1:** n/a
- **Lot #:** n/a

**ADDITIONAL ADDITIVES:**

- **Name #2:** n/a
- **Lot #:** n/a

**PROCESS STEPS**

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<tr>
<th>Step</th>
<th>Target Temp. (°C)</th>
<th>Actual Temp. (°C)</th>
<th>Target Time</th>
<th>Actual Time</th>
<th>Target PH</th>
<th>Actual PH</th>
<th>Comments</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Add Culture</td>
<td>36</td>
<td>0:00:00</td>
<td>0:00:00</td>
<td>6.7</td>
<td>6.6</td>
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<tr>
<td>2</td>
<td>Set Rennet</td>
<td>36</td>
<td>0:00:00</td>
<td>0:00:00</td>
<td>6.7</td>
<td>6.6</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Heating &amp; Stirring</td>
<td>46</td>
<td>1:15:00</td>
<td>1:45:00</td>
<td>6.3</td>
<td>6.2</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Extract / Press</td>
<td>18</td>
<td>2:25:00</td>
<td>3:10:00</td>
<td>6.1</td>
<td>5.9</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>1st Turn (15 min)</td>
<td>18</td>
<td>2:50:00</td>
<td>2:50:00</td>
<td>6.1</td>
<td>5.9</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>2nd Turn (15 min)</td>
<td>18</td>
<td>3:10:00</td>
<td>3:10:00</td>
<td>5.8</td>
<td>5.7</td>
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**Traceability**
<table>
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<td>0:00:00</td>
<td>0:00:00</td>
<td>6.7</td>
<td>6.6</td>
<td></td>
</tr>
<tr>
<td>3 Cutting (Kernel)</td>
<td>36</td>
<td>34</td>
<td>0:40:00</td>
<td>1:35:00</td>
<td>6.4</td>
<td>6.4</td>
<td></td>
</tr>
<tr>
<td>4 Heating &amp; Stirring</td>
<td>46</td>
<td>47</td>
<td>1:15:00</td>
<td>1:45:00</td>
<td>6.3</td>
<td>6.2</td>
<td></td>
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<tr>
<td>5 Extract / Press</td>
<td>18</td>
<td>20</td>
<td>1:25:00</td>
<td>2:30:00</td>
<td>6.2</td>
<td>6.1</td>
<td></td>
</tr>
<tr>
<td>6 1st Turn (15 min)</td>
<td>18</td>
<td>19</td>
<td>2:25:00</td>
<td>2:50:00</td>
<td>6.1</td>
<td>5.9</td>
<td></td>
</tr>
<tr>
<td>7 2nd Turn (15 min)</td>
<td>18</td>
<td>19</td>
<td>1:45:00</td>
<td>3:10:00</td>
<td>5.8</td>
<td>5.7</td>
<td></td>
</tr>
<tr>
<td>8 3rd Turn (1 hr)</td>
<td>18</td>
<td>18</td>
<td>2:45:00</td>
<td>3:30:00</td>
<td>5.6</td>
<td>5.5</td>
<td></td>
</tr>
<tr>
<td>9 Salt (5 hr)</td>
<td>18</td>
<td>17</td>
<td>7:45:00</td>
<td>8:00:00</td>
<td>5.3</td>
<td>5.2</td>
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<tr>
<td>10 Age</td>
<td>8 - 10, 90%</td>
<td>-</td>
<td>90 days</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>95%</td>
</tr>
</tbody>
</table>

Notes: A little slow on the acidification. Likely due to weather (29 degrees F. this morning).
Raw materials and labor
Equipment and Utensils
Facility Construction/Design
Expertise and Experience
Yield
Shelf-Life
Communication Skills
Audience

pH

Fontina Acidification Profile Chart (pH)

3rd Turn (1 hr)
TARGET PH: 5.6

...Then Weight
Can you stomach feedback?

Feedback

Raw materials and labor
Equipment and Utensils
Facility Construction/Design
Expertise and Experience
Yield
Shelf-Life
Communication Skills
Audience
Focus Group

Can you stomach feedback?

Raw materials and labor
Equipment and Utensils
Facility Construction/Design
Expertise and Experience
Yield
Shelf-Life
Communication Skills
Audience

It’s you, the cheese is fine

Retailer
Making Business Sense

In-Sourcing
- On-site consultations
- Research & Design
- In-house training

Out-Sourcing
- Co-Packing
- Lab Testing
- 3rd Party Logistics
- Marketing

Making Business Sense
Food Safety Guides

Questions?

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