# APPENDIX

## QUESTIONNAIRE

(Principal investigator: Epi Taufik)

### GENERAL INFORMATION

<table>
<thead>
<tr>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>Age</td>
</tr>
</tbody>
</table>

**Address**
- Street
- Telephone/MP
- Village
- Sub district

**Farm characteristics**
- Location in the residence
- Type
- No. of animals
- No. of workers

**Educational level**
1. None
2. Elementary school
3. Secondary school
4. University

### A. GENERAL FARM CONDITION AND MANAGEMENT PRACTICES

<table>
<thead>
<tr>
<th>Herd size</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 &lt;= 200 heads</td>
</tr>
<tr>
<td>2 &gt; 200 heads</td>
</tr>
<tr>
<td>-------------------</td>
</tr>
<tr>
<td>1. Hygiene status of workers?</td>
</tr>
<tr>
<td>2. Special worker for milking?</td>
</tr>
<tr>
<td>3. General hygiene status of the farm</td>
</tr>
<tr>
<td>4. Surface condition</td>
</tr>
<tr>
<td>5. House surface material</td>
</tr>
<tr>
<td>6. House for lactating goats</td>
</tr>
<tr>
<td>7. Ventilation</td>
</tr>
<tr>
<td>8. Type of house</td>
</tr>
<tr>
<td>9. Milk</td>
</tr>
</tbody>
</table>

Note: The table is partially visible and the text is not legible due to the image quality.
2. Source of water?

<table>
<thead>
<tr>
<th>Tap</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Well</td>
<td></td>
</tr>
</tbody>
</table>

3. Water storage?

<table>
<thead>
<tr>
<th>Closed</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Open</td>
<td></td>
</tr>
</tbody>
</table>

4. Is water chlorinated?

<table>
<thead>
<tr>
<th>Yes</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td></td>
</tr>
</tbody>
</table>

5. Stocking density?

<table>
<thead>
<tr>
<th>Low</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Medium</td>
<td></td>
</tr>
<tr>
<td>High</td>
<td></td>
</tr>
</tbody>
</table>

6. Presence of other animal species in the farm?

<table>
<thead>
<tr>
<th>Yes</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td></td>
</tr>
</tbody>
</table>

C. MILKING PRACTICES

20. How do you milk the goat?

<table>
<thead>
<tr>
<th>Machine milking</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Hand milking</td>
<td></td>
</tr>
</tbody>
</table>

21. Is there a special place for milking the animal?

<table>
<thead>
<tr>
<th>Yes</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td></td>
</tr>
</tbody>
</table>

22. How many times is the goat milked?

<table>
<thead>
<tr>
<th>Once a day</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Twice a day</td>
<td></td>
</tr>
</tbody>
</table>
1. Is pre-milking washing done?
   Yes _________  No _________

2. Is pre-milking drying done?
   Yes _________  No _________

3. Is pre-dipping done?
   Yes _________  No _________

4. Is fore-stripping done?
   Yes _________  No _________

5. Is post-dipping done?
   Yes _________  No _________

B. GOAT CONDITION

28. Breed of goat?
   1 _________  2 _________  3 _________

29. Animal parity?
   1 Primiparous _________  2 Multiparous _________  3 If multiparous in which parity?

30. Animal lactation stage?
   1 First _________  2 Second _________  3 Third _________
2. Udder halves symmetric?

- Yes
- No

3. Teat end condition scoring*

- No ring
- Slightly or smooth rough ring

4. Teat skin condition scoring**

5. Teat shape***

- Normal
- Dilated
- Generally dilated

6. Udder hygiene scoring****

7. Udder inflammation? (from CMT result)*****

- Normal
- Inflammation

8. Appearance of milk?

- Normal
- Abnormal
2. If no. 37 is abnormal, please check below:

<table>
<thead>
<tr>
<th>Remarks regarding the above-mentioned scoring are as follows:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blood</td>
</tr>
<tr>
<td>Off odor</td>
</tr>
</tbody>
</table>

Bogor Agricultural University (Institut Pertanian Bogor)
A scoring system for teat-end condition (Mein et al. 2001)

<table>
<thead>
<tr>
<th>Score</th>
<th>Description</th>
<th>Illustration</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>No ring: The teat-end is smooth with a small, even orifice. This is a typical status for many tests soon after the start of lactation.</td>
<td><img src="image1" alt="Illustration" /></td>
</tr>
<tr>
<td>S</td>
<td>Smooth or Slightly rough ring: A raised ring encircles the orifice. The surface of the ring is smooth or it may feel slightly rough but no fronds of old keratin are evident.</td>
<td><img src="image2" alt="Illustration" /></td>
</tr>
<tr>
<td>R</td>
<td>Rough ring: A raised, roughened ring with isolated fronds or mounds of old keratin extending 1 - 3 mm from the orifice.</td>
<td><img src="image3" alt="Illustration" /></td>
</tr>
<tr>
<td>R</td>
<td>Very Rough ring: A raised ring with rough fronds or mounds of old keratin extending 4 mm or more from the orifice. The rim of the ring is rough and cracked, often giving the teat-end a &quot;flowered&quot; appearance.</td>
<td><img src="image4" alt="Illustration" /></td>
</tr>
</tbody>
</table>
(**) Subjective Teat Skin and Teat End Evaluation System, University of Vermont, USA (cited from: Goldberg et al., 1994)

TEAT SKIN CONDITION SCORING

1. Physical injury (e.g. stepped on or frostbitten) not related to the treatment, or the quarter is nonlactating.
2. Teat skin is smooth and free from scales, cracks, or chapping.
3. Teat skin shows some evidence of scaling.
4. Teat skin is chapped. Some small warts may be present.
5. Teat skin is chapped and cracked, Redness, indicating inflammation, is present.
6. Numerous warts may be present.
7. Teat skin is severely damaged and ulcerative with scabs or open lesions. Large or numerous warts are present that interfere with teat end function.

Since no score of 0, 3, 4 and 5 were found, the scoring was only for 1 and 2

(***) Example for teat shape scoring

- Normal
- Dilated
- Generally dilated
udder hygiene scoring was adopted from scoring for cow's udder (Ruegg, 2002)

**UDDER HYGIENE SCORING CHART**

Score udder hygiene on a scale of 1 to 4 using the criteria below. Place an X in the appropriate box of the table below the pictures. Count the number of marked boxes under each picture.

<table>
<thead>
<tr>
<th>SCORING</th>
<th>PERCENT OF SURFACE AREA</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCORE 1: Free of dirt</td>
<td>0%</td>
</tr>
<tr>
<td>SCORE 2: Slightly dirty 2-3%</td>
<td>10-30%</td>
</tr>
<tr>
<td>SCORE 3: Moderately covered with dirt 6-20%</td>
<td>30-50%</td>
</tr>
<tr>
<td>SCORE 4: Covered with soiled or dirt &gt;20%</td>
<td>50%</td>
</tr>
</tbody>
</table>

No scores of 3 and 4 were found, so the scores were only for 1 and 2

**CMT result:**
- 0 or Trace = Normal (negative)
- +1, +2, +3 = Inflammation (positive)

(Wakwoya et al., 2006)

Example of +3 CMT reaction of milk sample (gel like form) indicated that the udder had inflammation
Appendix B: Lists of materials and equipments

I. Equipment and materials

- Eppendorf tubes
- Autoclave
- Balance with a 2000 g-weights capacity and a sensitivity of 0.1 g
- Bunsen burner
- Culture tubes, 16*150 and 20*150 mm
- Incubator
- Ose/loop
- Laboratory refrigerator, - 20°C and -1 to 4°C
- Sterile Petri dishes, 15*100 mm
- Sterile  Hockey stick
- Petrifilm plates for Coliform isolation (3M Petrifilm, USA)
- Sterile pipettes
- Micropipette
- Micropipette tip
- Sterile culture tubes
- Test or culture tube racks
- Vortex mixer
- Ice box, 24 liters
- Beakers, and containers
  - Sterile 500, 1000 and 2000 ml Erlenmeyer flasks, sterile 250 and 500 ml
  - Sterile Schott Duran bottles 50, 250 ml
- Marker pens

II. Media, reagents and chemicals

- Maximum Recovery Diluent (MRD) (Merck, Germany)
- Brain Heart Infusion Broth (BHI) (Merck, Germany)
- Plate Count Agar (PCA) (Merck, Germany)
- Baird Parker Agar (BPA) (Merck, Germany)
1.2. Estimation of low numbers

1.2.1. If the two dishes contained less than 15 colonies, the formula was simplified and only the arithmetical mean was used for calculation.

\[ N = \bar{y}d \]

- \( \bar{y} \) = Arithmetical mean of the colonies counted on two dishes
- \( d \) = The dilution factor of the initial suspension
2.2 If the two dishes did not contain any colonies, the results are to be expressed as less than 1/d per ml, where d is the dilution factor of the initial suspension.

Calculation of Staphylococcus spp. (coagulate positive and negative)

Calculation of the number a of either coagulate positive or negative staphylococci identified for each plate selected

\[ a = \left( \frac{b_c}{A_c} \times c_c \right) + \left( \frac{b_{nc}}{A_{nc}} \times c_{nc} \right) \]

- Number of typical colonies submitted to the coagulate test
- Number of atypical colonies submitted to the coagulate test
- Number of typical colonies which have been shown to be coagulate positive/negative
- Number of atypical colonies which have been shown to be coagulate positive/negative
- Total number of typical colonies seen on the plate
- Total number of atypical colonies seen on the plate

2.2 Calculation of the number N of identified coagulate positive or negative staphylococci in the test portion

\[ N = \frac{\sum a}{V \times [(n1) + (n2 + 0.1)] \times (d)} \]

- Number of colonies per ml of product
- Sum of the coagulate positive or negative staphylococcal colonies identified on all the dishes selected
= Volume of inoculum on each dish, in millilitres (in this study 0.1 ml = spreading method)

= Number of plates selected at the first dilution

= Number of plates selected at the second dilution

= Dilution rate corresponding to the first dilution selected

**Estimation of low numbers**

If the two dishes, corresponding to the test sample or the initial suspension each contain less than 15 identified colonies, the calculation is as follows:

\[
N = \frac{\sum a}{V \times 2 \times d}
\]

= Sum of the coagulase positive or negative staphylococcal colonies identified on all the dishes selected

= Volume of inoculum on each dish, in millilitres (in this study 0.1 ml = spreading method)

= Dilution rate corresponding to the first dilution selected

2.3.2 If the two dishes, corresponding to the test sample or the initial suspension do not contain any colonies, the results are to be expressed as follows:

Less than 10^-d per ml, where d is the dilution factor of the initial suspension
DECLARATION

I, the undersigned, declare that the thesis is my original work and has not been presented for a degree in any university.

EPI TAUFIFK

[Signature]

Date of Submission: 15 Sep 97
CURRICULUM VITAE

: Epi Taufik

: Place of birth

: Ciamis, Indonesia  December 2 1975

: Religion

: Male

: Islam

: Marital Status/children

: Married/one daughter

: Home Address

: Lecturer/academic staff of lab. of animal product technology, Faculty of Animal Science, Bogor Agricultural University (IPB) Indonesia.
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email: etaufik@yahoo.com

: Office Address

: Laboratory of Animal Product Technology, Department of Animal Science and Technology, Faculty of Animal Science, Bogor Agricultural University. Jl. Agatis Kampus IPB Darmaga, Bogor, West Java, INDONESIA 16680. Phone and Fax. 62-251-629104
email: fapetipb@indo.net.id

EDUCATION:

<table>
<thead>
<tr>
<th>Level of Education</th>
<th>School Name</th>
<th>Year</th>
<th>Diploma and date of issued</th>
</tr>
</thead>
</table>
| University         | Study Program Animal Product Technology, Department of Animal Production, Faculty of Animal Science, Bogor Agricultural University, Indonesia | 1994 - 1999 | Diploma No. 1006990025
Graduate Status: With Honor
February 27 1999 |
<table>
<thead>
<tr>
<th>Training</th>
<th>Organizer</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Community Empowerment Program</td>
<td>IPB in cooperation with Directorate General of Higher Education, INDONESIA</td>
<td>2004</td>
</tr>
<tr>
<td>National Training on Microbiology in Animal Science and Veterinary Public Health</td>
<td>Ministry of National Education in cooperation with Department of Veterinary Public Health, Faculty of Veterinary Medicine IPB, INDONESIA</td>
<td>2004</td>
</tr>
</tbody>
</table>

Trainings: (Last 5 years)
PROFESSIONAL ORGANIZATIONS:

INDONESIAN SOCIETY FOR MICROBIOLOGY/PERHIMPUNAN MIKROBIOLOGI INDONESIA / PERMI Member Registration No. 002 – BGR 298

RESEARCH EXPERIENCES:

1. Physical, chemical and microbiological characteristics of dadiah (Indonesian traditional fermented milk food) made from cow’s milk fermented with different starter probiotic bacteria combinations stored at different temperatures. 2003

2. Antimicrobial activity of dadiah (Indonesian traditional fermented milk food) made from cow’s milk fermented with different starter probiotic bacteria combinations. 2004

3. Antimicrobial activity of different fermented goat milk products from different breeds of goats. 2005


5. Survival of Pathogenic Bacteria in Yoghurt and Kefir during Fermentation and Cold Storage. 2007

RESEARCH GRANTS:

1. Young Academic Staff Research Grant from Bogor Agricultural University (IPB), 2003

2. Young Academic Staff Research Grant Bogor Agricultural University (IPB), 2004


PROFESSIONAL EXPERIENCES:

1. Internship at PT Sierad Produce, Poultry Processing Plant, 1998
2. Assistant specialist in the agricultural sector for project benefit evaluation of projects funded by the JAPAN BANK FOR INTERNATIONAL COOPERATION (JBIC) Loan INP 22 dan 23, 2002-2003

SCIENTIFIC PUBLICATIONS:


2. Shelf life of duck carcasses chlorinated with different concentration levels. Jurnal Peternakan dan Lingkungan, Vol. 08. No. 2 (Juni 2002) ISSN: 0852-4092 (Indonesia National Scientific Journal)


5. Physical, Chemical and Microbiological Characteristics of Dadih (Indonesian Traditional Fermented Milk Food) Made from Cow’s Milk Fermented with Different Starter Probiotic Bacteria Combination and Stored at Different Temperatures. Research Report, Research Institute of IPB, 2003


SCHOLARSHIP AWARDS

1. McDonald Indonesia Family Restaurant Co. Ltd. for Undergraduate Study, 1994 – 1999

3. Deutscher Akademischer Austauschdienst (DAAD)/German Academic Exchange Service for Postgraduate Study in Master of Veterinary Public Health in the Joint Master Program between the Freie Universitaet Berlin, Germany and Chiang Mai University, Thailand, 2005 - 2007