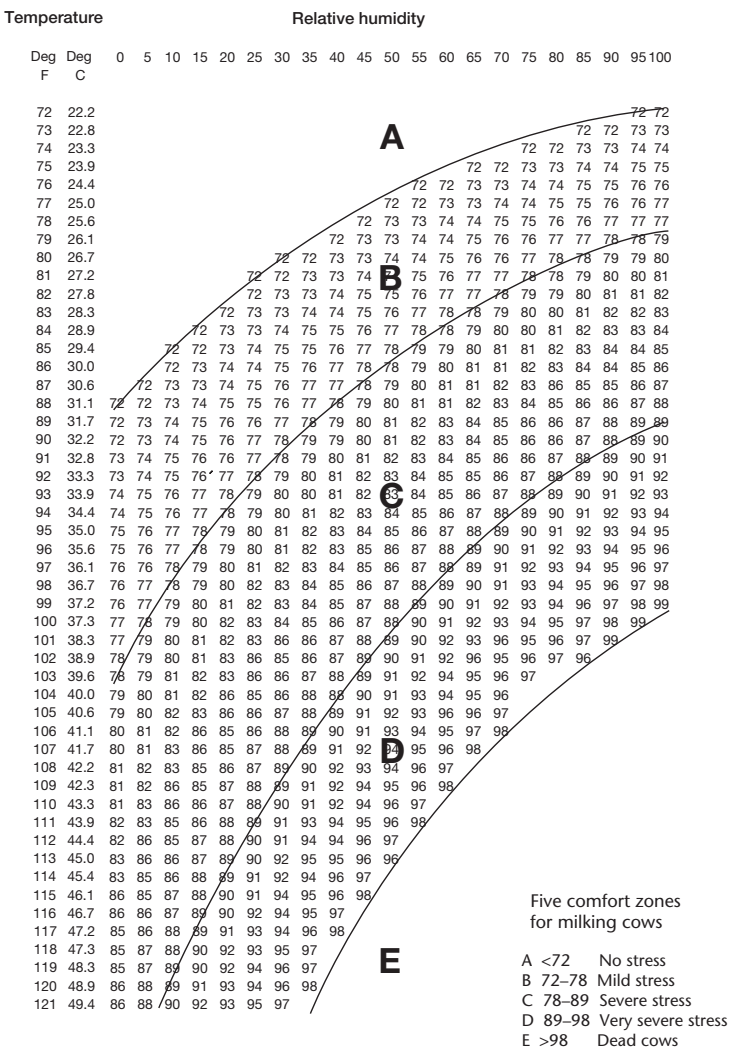
Appendix 1: Temperature Humidity Index

The following table presents the Temperature Humidity Index, calculated from temperature (in degrees Fahrenheit or Centigrade) and relative humidity (%), highlighting its potential effects on cow heat stress and hence performance.



Appendix 2: Abbreviations and conversion of units of measurements

1. Abbreviations

k	kilo or thousands
M	mega or millions
mm	millimetre
cm	centimetre
m	metre
ha	hectare
mL	millilitre
L	litre
J	joule
MJ	megajoule
min	minute
hr	hour
yr	year
mg	milligram
g	gram
kg	kilogram
t	tonne
lb	pound
ft	foot
$	dollar
c	cent
<	less than
>	greater than

2. Conversion of Imperial units to metric units

Length:	1 inch = 25.4 mm
	1 foot = 30.5 cm

	1 yard = 0.91 m
	1 mile = 1.61 km
Volume:	1 cu ft = 0.028 m^3
	1 pint = 0.57 L
	1 gallon = 4.54 L
	1 bushel = 36.4 L
	1 acre foot = 1.23 ML
Area:	1 acre = 0.40 ha
	1 sq mile = 2.59 sq km
Weight:	1 ounce = 28.3 g
	1 pound = 0.454 kg
	1 hundred weight = 50.8 kg
	1 long ton = 1017 kg (2240 lb)
Energy:	1 calorie = 4.19 joules
Density:	1 lb/ft^3 = 0.063 kg/m^3
Rate:	1 gallon/acre = 11.23 l/ha
	1 pound/acre = 1.12 kg/ha
	1 gallon/ton = 4.17 l/tonne
Pressure:	1 pound/sq in (psi) = 1.45 kPa (kilopascals)
Yield:	1 lb/ac = 1.12 kg/ha
Temperature:	1°F = ((9/5) × C) + 32
	1 degree F is equivalent to 0.56 degrees C
	50°F = 10.0°C
	60°F = 15.6°C
	70°F = 21.1°C
	80°F = 26.7°C
	90°F = 32.2°C
	100°F = 37.8°C
	110°F = 43.3°C

3. Conversion of US units to metric units

Volume:	1 gallon = 3.79 L
	1 bushel = 35.2 L
Weight:	1 hundred weight = 45.4 kg
	1 short ton = 907 kg (2000 lb)
Milk prices:	$10/hundred weight = 22.0 c/L
Forage maize yields @ 30% DM:	
	25 ton fresh weight/acre = 16.8 t DM/ha
Food energy:	1% unit TDN = 0.185 MJ/kg DM of metabolisable energy
	30% TDN = 3.7 MJ/kg DM of ME
	40% TDN = 5.5 MJ/kg DM of ME
	50% TDN = 6.4 MJ/kg DM of ME
	60% TDN = 7.4 MJ/kg DM of ME

70% TDN = 8.3 MJ/kg DM of ME
80% TDN = 9.2 MJ/kg DM of ME
1 MCal/lb = 9.22 MJ/kg
1 MCal/kg = 4.19 MJ/kg

4. Conversion of other specific country units to metric units

Most countries now use the metric units of measurement, but certain countries have their own historical units, which are still used by farmers and advisers.

China

Length:	1 chi = 33 cm
	1 li = 500 m
Volume:	1 gongsheng = 1 L
Weight:	1 jin = 500 g

Thailand

Length:	1 nui = 2.1 cm
	1 kheup = 25 cm
	1 sawk = 50 cm
	1 waa = 2 m
	1 sen = 40 cm
	1 yoht = 16 km
Weight:	1 baht = 15 g
	1 tamleung = 60 g
	1 chang = 1.2 kg
	1 haap = 60 kg
Area:	1 sq waa = 4 sq m
	1 ngaan = 400 sq m
	1 rai = 1.6 ha

Appendix 3: Expectation and evaluation forms for workshop

IMPROVED HERD MANAGEMENT FOR HIGH GRADE DAIRY STOCK

Expectations of workshop

Location: .....

1. Name: .....
2. Address: .....
3. Position held (farmer, dairy cooperative staff, milk collection centre staff, government adviser):

   .....

4. How many milking cows do you have?

   .....

5. What is your total number of dairy stock (calves, heifers, cows, bulls)?

   .....

6. How many acres of land do you have growing forages?

   .....

7. How many litres of milk each day do all your milking cows produce (on average)?

   .....

8. What topics would you like to learn about in this workshop?

   a) .....

   b) .....

   c) .....

Please answer the following questions with a Yes or No

	Yes/No
9. Should your country be importing high grade dairy heifers from other countries?	
10. Do you think government staff are aware of the need for improved management of these animals?	
11. Do you think farmers are aware of the need for improved management of these animals?	
12. Should farmers be selected on the basis of their herd management skills?	
13. Do many farmers have the skills to manage imported heifers to achieve high milk yields and fertility?	

IMPROVED HERD MANAGEMENT FOR HIGH GRADE DAIRY STOCK

Evaluation of workshop

Location: .....

Participant's name: .....

1. **Expectations:**
   What were your expectations of the workshop? Please list:

2. **Outcome:**
   What knowledge have you gained from this workshop?

3. **Relevance of training:**
   Please describe how this training will be of use to your work.

4. **Program delivery:**
   Please tick the appropriate space to indicate your views on the way the workshop has been delivered.

	Not enough	About right	Too much
Overall program			
Lectures and/or formal instruction			
Discussion			
Visits on site/fieldwork			
Reading matter provided			

5. **Services:**
   How do you rate the services provided for you? (Please tick)

Please tick	Excellent	Good	Fair	Not good
Training/trainers				
Training location				
Other				

   Other .....

6. **Other comments:** .....

   .....

7. **Overall assessment:**
   How do you rate this program in terms of its relevance to your role in the dairy industry? (Please tick)

	Excellent	Good	Fair	Not good
Personal relevance to you				

8. **What are the weaknesses of the workshop?**

.....

.....

.....

9. **What improvements can be made for future workshops?**

.....

.....

.....

10. **List the most important messages/information that you found most useful to you.**

.....

.....

.....

11. **List the least useful messages/information that you found least useful to you.**

.....

.....

.....

Please rank the following questions for their importance to you (1 to 5), where 1 is low/not much and 5 is high/a lot.

	Score
12. How do you rate farm visit?	
13. How do you rate small groups and reporting back sessions?	
14. How do you rate overhead presentations?	
15. How do you rate importance of improved herd management skills in your job?	
16. How much have you improved your knowledge of herd management skills?	
17. How well will you be able to apply knowledge to farmer situations?	
18. When should you do a refresher course? Please score 1 for 3 months; 2 for 12 months; 3 for 2 years; 4 for never	

Thank you for your participation in this workshop

Appendix 4: Indonesian dairy small holder pamphlet

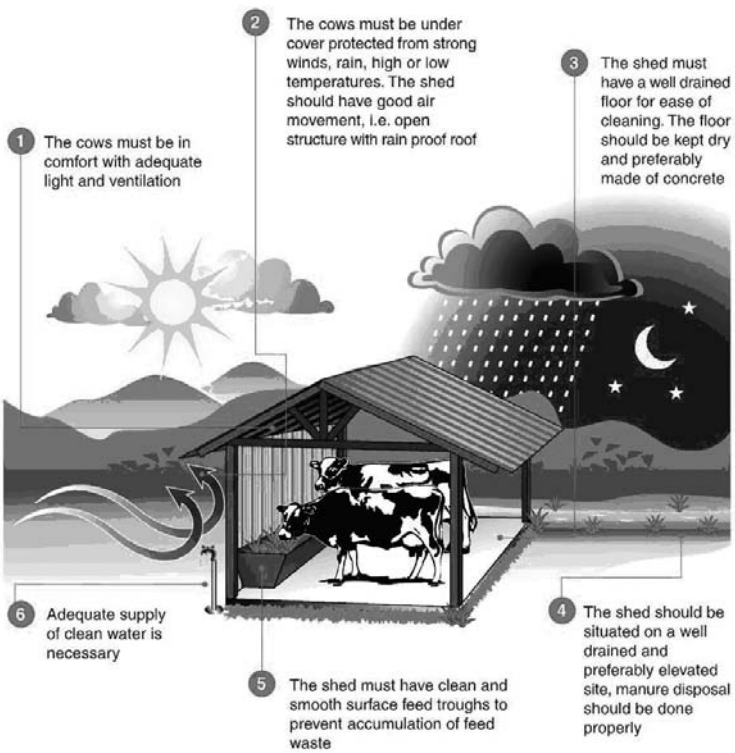
Tips For Proper Managing of Dairy Cows On Indonesian Smallholder Farms

(Edition 2)

All dairy cows have one thing in common, their milk production and quality are directly related to the way they are looked after, and the way they are milked. Caring and gentle treatment directly affects a cow's well-being, improving its milk production and general health.

A. Housing for Dairy Cows

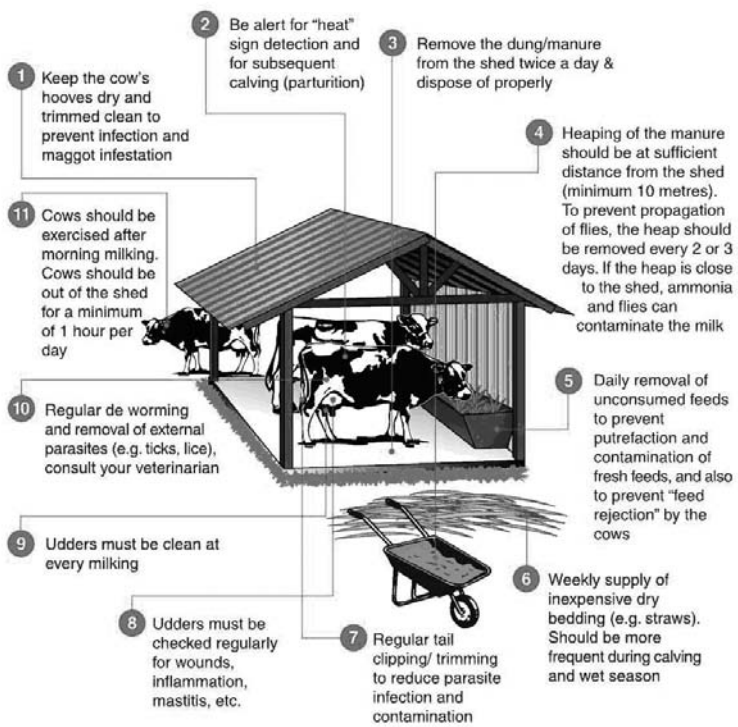
To ensure that the cows are in a proper environment resulting in higher milk production, the animals must be in proper shelters;



Tips For Proper Managing of Dairy Cows On Indonesian Smallholder Farms

B. Livestock Health and Hygiene

A good dairy farmer should be capable of detecting the early symptoms of ill-health in dairy cattle and to take steps to eliminate the sources of disease on the farm, e.g. contaminated water supply, infected buildings or roughages, etc. Other important factors are:

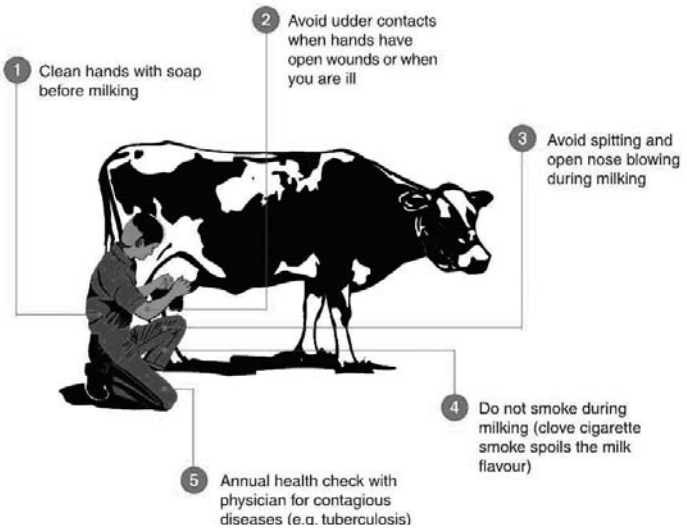


Tips For Proper Managing of Dairy Cows On Indonesian Smallholder Farms

C. Recommended Feeding

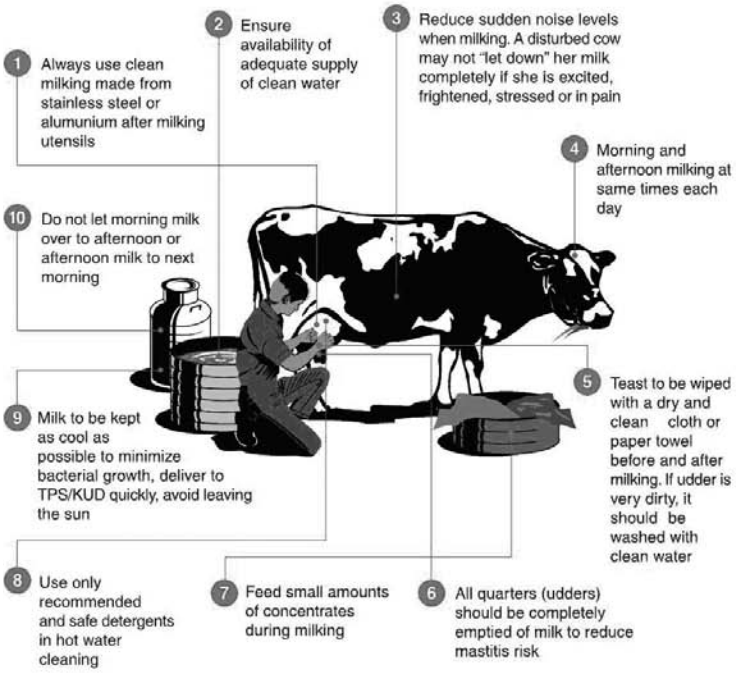
Follow the recommendations from the dairy training centre, i.e. a cow must eat the right quantity and the right quality of green roughage and concentrates, depending on the stage of development (calf, grower, heifer, pregnant, dry cow, bull) and milk production level (higher milk production needs more feeds) to maintain satisfactory milk production and ensure cow gets back in calf within 100 – 150 days of calving. Ideally milking cows should be fed 40 – 50 Kg fresh, high quality forage each day plus1 kg quality formulated concentrate per 1 – 2 L milk. Wet or dry (ampas tahu, onggok, rice bran) by products can substitute for some of the concentrates so long as they.

D. Dairy Farmer Personal Hygiene



Tips For Proper Managing of Dairy Cows On Indonesian Smallholder Farms

E. Recommended Milking and Milk Handling



Important:
IF COWS SHOW SIGNS OF ILL-HEALTH, CONTACT IMMEDIATELY THE DAIRY CENTRE OR VETERINARIAN ON DUTY.

All these recommendations will ensure that the dairy cows will remain healthy, thus increase milk production and improve milk quality which result in higher income.

State Government Victoria AUSTRALIA
Queensland Goverment Department of Primary Industries
GKSI
DeLaval
Tetra Pak More than the package