Small-Scale

Dairy Farming Manual

Volume 5

Husbandry Unit 11.1

DISEASE PREVENTION AND CONTROL

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page 175

DISEASE PREVENTION AND CONTROL

Husbandry Unit 11.1:

Technical Notes

Note: Numbers in brackets refer to illustrations in the Extension Materials.

Losses from diseases can be due to any one or a combination of the following. (1-3)

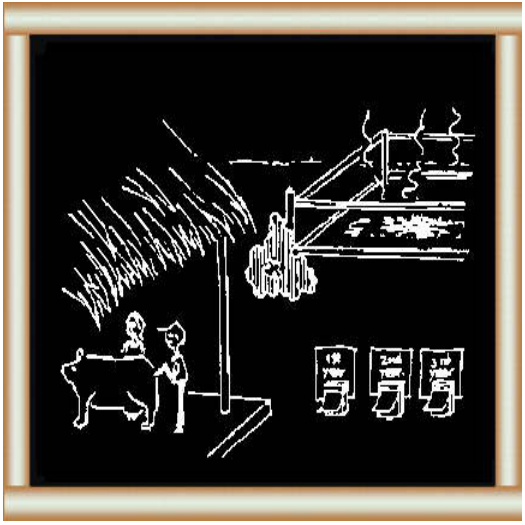
- Drop in productivity (reduced weight gains, milk yields and reproductive efficiency). Even after recovery the animal may remain less than optimally productive.
- Expenditure for treatment.
- Death of animal.
- Possibility of transferring disease to other animals.

Prevention and control are, therefore, of extreme importance. The various measures can be considered under several headings.

What should you know about preventing and controlling disease?

What can you do to prevent disease? (4-7)

1 You should pay attention to your animals':
- environment
- nutrition.

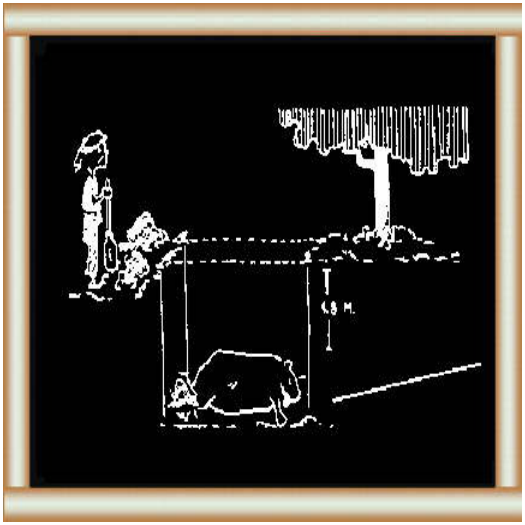


How can your extension worker help you prevent and control disease? (8-16)

2 He can advise you on:
- vaccination
- parasite control
- diagnosis of disease.

What can you do with animals with chronic disease? (17-19)

3 You must:
- cull and slaughter them



- dispose of carcasses and infected materials.

page178

Environment (5-6)

Provide a comfortable environment for the animals and adopt adequate hygienic precautions and all possible precautions against accidents.

Adopt measures to prevent parasitic infestations.

(See H.10.6 Parasites)

Nutrition (7)

Ensure feeding of colostrum to new born calves.

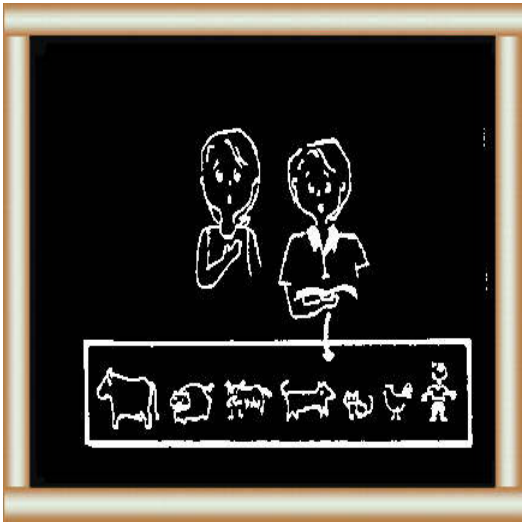
(See H.8 Calving and H.9 Calf Rearing)

Provide optimal nutritional conditions.

(See H.4 Feeding and H.5 Feeds)

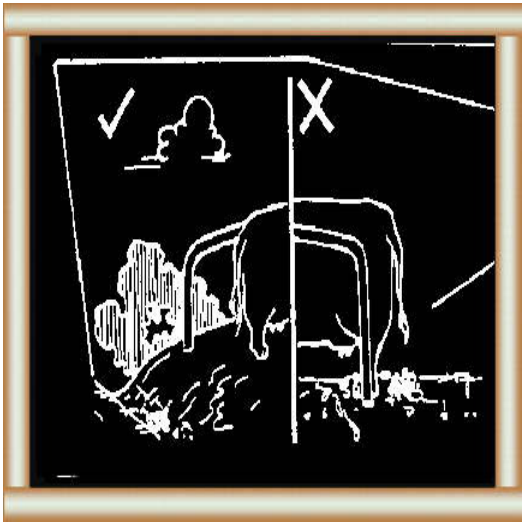
Provide ample amounts of clean water for drinking.

What can you do to prevent disease?



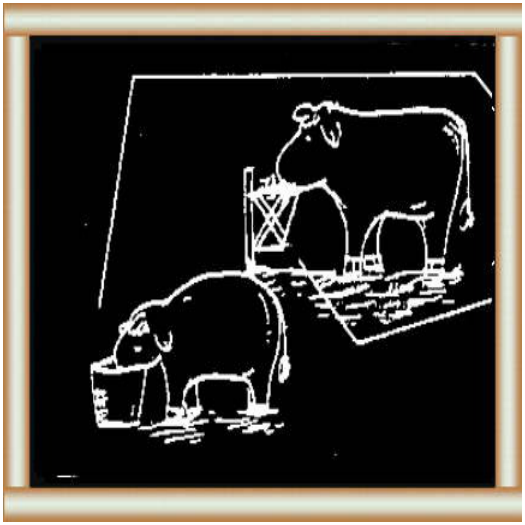
4 You must pay attention to the following things:

Environment
5 Make sure your animals' environment is:
- comfortable e.g. cool with plenty of dry bedding
- safe e.g. no electrical dangers or slippery floors



6
- clean e.g. manure kept away from shed and clean water for washing
- well-planned e.g. to prevent parasites.
(See H. 10.6 Parasites)

Nutrition
7 Make sure:
- you feed colostrum to your calves
- you feed your animals the right amounts of the right feed
- you give them plenty of clean water for drinking.



Vaccination (9)

Vaccinate animals against diseases prevalent in the area (a vaccination schedule to be prepared by the extension officer in consultation with animal health authorities of the area).

Parasite control (10)

Deworm/detick animals regularly (a schedule for drenching/dipping/spraying animals to control internal and

external parasites to be prepared by the extension officer in consultation with the animal health authorities of the area. In some areas, control of vectors e.g. snails which are not parasites themselves, is important).

page181

How can your extension worker help you prevent and control disease?

8 Your extension worker can advise you on the following:

Vaccination
9 Consult your extension worker or vet for the right vaccinations against diseases in your area.

Parasite control
10 Consult your extension worker or vet about:
- medicines and sprays for parasites on

and in your animals
- ways of controlling flies, snails etc which carry parasites.

page182

Movement of animals (11-12)

Do not bring into the farm, sick animals or animals from an area where infectious diseases are present.

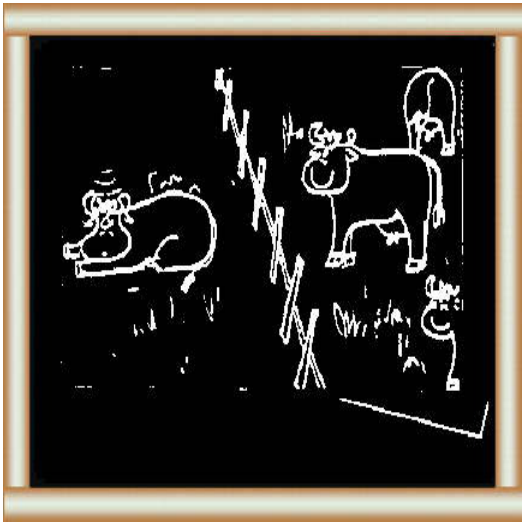
Do not send healthy animals into an area with infectious diseases.

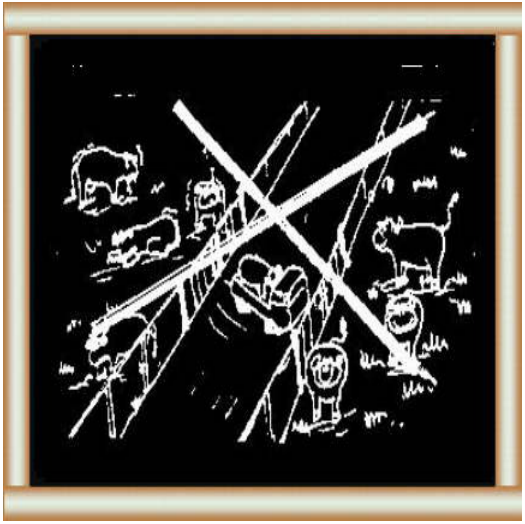
Do not send animals having infectious diseases from your farm into an area with healthy animals.

page183

Movement of animals

11 Always separate sick animals from healthy animals.





12 Never

- bring to your farm animals which are sick or have contact with infectious disease
- send animals from your farm which are sick or have contact with infectious disease.

page184

Detection and treatment of diseases (13-16)

Use appropriate tests to diagnose diseases early e.g. Strip cup; California Mastitis Test; Milk Ring Test; Tuberculin Test.

Observe for abnormalities and seek early advice/treatment (abnormalities in feed intake, behaviour, secretions, excretions, reproduction etc). Early detection and treatment of diseases would be helpful in ensuring early recovery of affected animal(s) and in the case of infectious diseases, in preventing other animals being affected.

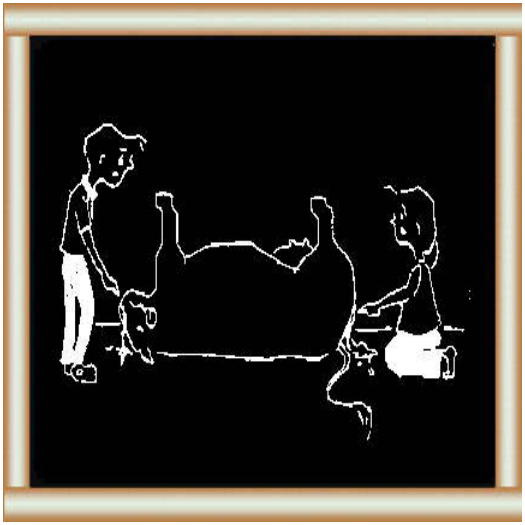
Seek advice/diagnosis if an animal dies suddenly.

Diagnosis of disease
13 Consult your extension worker or vet about tests to diagnose disease early.

14 Tell your extension worker or vet anything unusual about your animals:
- feeding

- condition
- discharge
- reproduction etc

15 or if one of your animals dies suddenly.



16 If you diagnose disease early, you can:
- treat your animals so they get better quickly
- separate sick animals to protect your healthy animals.

page186

Culling and slaughter (17)

Cull the animals with chronic infections not responding to treatment e.g. Chronic Mastitis, Johne's Disease. In some situations, legislation may require the slaughter of affected/in contact animals, e.g. in eradication programmes and in

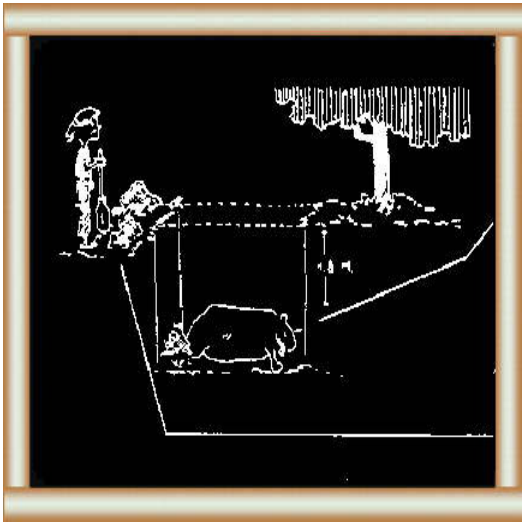
programmes to prevent the spread of a new disease. These will have to be strictly adhered to in the interest of the individual farm enterprise and that of the industry as a whole.

Disposal of infected materials/carcasses (18-19)

Dispose of infected materials/carcasses, adopting all hygienic precautions. Burning is a very good method of disposal. If burial is practised, the topmost part of the body should be more than 1.8 m below ground level and a layer of quick lime on top will be useful.

Culling and slaughter
17 You must cull animals with chronic disease so that healthy animals do not get sick.

Disposing of carcasses and infected materials
18 You must dispose of anything in contact with the disease by:
- burning or



19
- burial.
If you bury, make sure the top of the carcass is at least 1.8 m below ground.
Add a layer of quick lime if possible.
Fence the area off.

Factors in the prevention and treatment of disease

1 Environment	**(5-6) and see H.3.2**
2 Nutrition	**(7) and see H.4**
3 Vaccination	**(9)**

4 Parasite control	**(10) and see H.10.6**
5 Movement of animals	**(11-12)**
6 Diagnosis of disease	**(13-16)**
7 Culling and slaughter	**(17)**
8 Disposing of carcasses and infected materials	**(18-19)**

Small-Scale

Dairy Farming Manual

Volume 5

Husbandry Unit 11.2

HEALTH RECORDS FOR DAIRY CATTLE AND BUFFALO

page191

HEALTH RECORDS FOR DAIRY CATTLE AND BUFFALO

Husbandry Unit 11.2:

Technical Notes

Note: Numbers in brackets refer to illustrations in the Extension Materials.

Diagnosis of diseases can be made difficult and delayed in the absence of appropriate information. Such a situation can be prevented by maintaining records in respect of each

animal

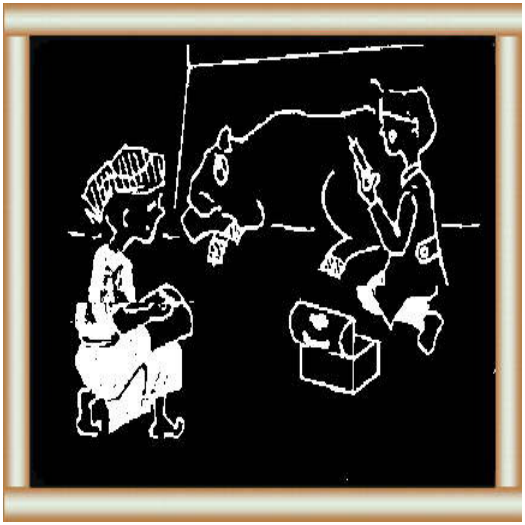
Appropriate records will help in early diagnosis of disease and losses will be minimized.

The information to be recorded will include:

- Dates of vaccinations (and the disease vaccinated against).
- Dates on which any abnormal behaviour, secretions, excretions are seen and nature of such abnormality.
- Dates of any tests carried out and the results.
- Dates of heat and the type and duration of discharges e.g. blood stained, purulent etc.
- Dates of calving and any abnormalities observed.
- In the case of bulls, the dates of service and the identification of cows served.
- First aid measures adopted, treatment given etc with dates and a brief description of the condition treated.

How can you keep health records?

1 Keeping records helps quick diagnosis so you have higher production.
Record dates and information for:



2
- unusual behaviour, discharge etc
- diseases, treatment and vaccinations
- tests carried out and their results

3
- heat and duration of discharges
- calving and anything unusual.

4 For bulls, record dates of:

- service
- identification of cows served.

page 194

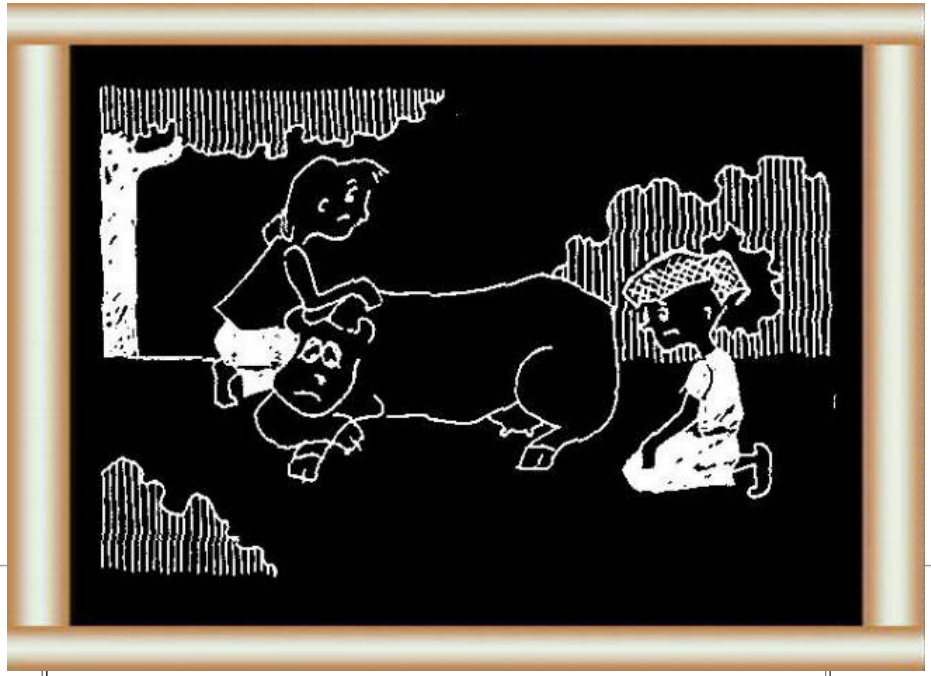
Small-Scale

Dairy Farming Manual

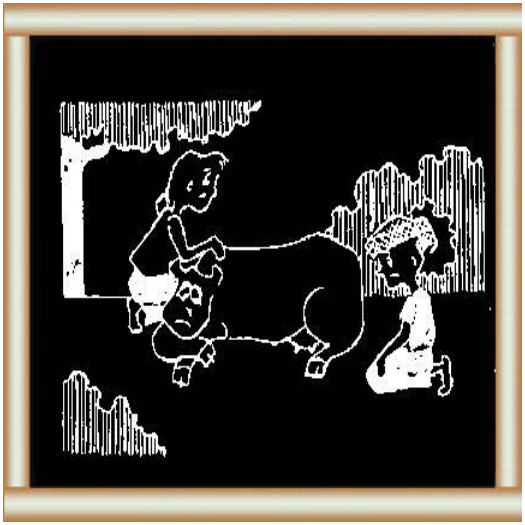
Volume 5

Husbandry Unit 11.3

FARMER'S FIRST AID



Extension Materials



How can you give first aid?

1 Sometimes you must act quickly before calling for help or for the vet to:
- prevent death
- prevent serious injury
- provide comfort and ease pain.

2 You should study:
Assistance at Calving (H.8)
Bloat (H.10.1)
"Downer" Cow (H.10.1)
Mastitis (H.10.5)

Poisoning (H.10.1)
Prolapse of the Uterus (H.10.1)
Prolapse of the Vagina (H.10.1)
Retained Placenta (afterbirth) (H.10.1)
Wounds (H.10.1)

FARMER'S FIRST AID

Husbandry Unit 11.3:

Technical Notes

Note: Numbers in brackets refer to illustrations in the Extension

Materials.

Some conditions require prompt action by the owner or stockman before further assistance/advice can be obtained. Action in such situations is aimed at one or more of the following.

- Prevent imminent death.

- Prevent aggravation of the condition and or further injury.

- Provide comfort, and relief from pain and suffering.

The first aid measures to be adopted will depend on the disease and the condition of the animal at the time it is observed. Some of the measures that can be adopted are discussed under relevant sections.

Assistance at calving Unit 8
Bloat Unit 10.1
"Downer" Cow Unit 10.1
Mastitis Unit 10.5
Poisoning Unit 10.2
Prolapse of the Vagina Unit 10.1
Prolapse of the Uterus Unit 10.1
Retained Placenta (afterbirth) Unit 10.1
Wounds Unit 10.1

Small-Scale

Dairy Farming Manual

Volume 5

Husbandry Unit 11.4

HOOF CARE


MANICURE SALON

Extension Materials

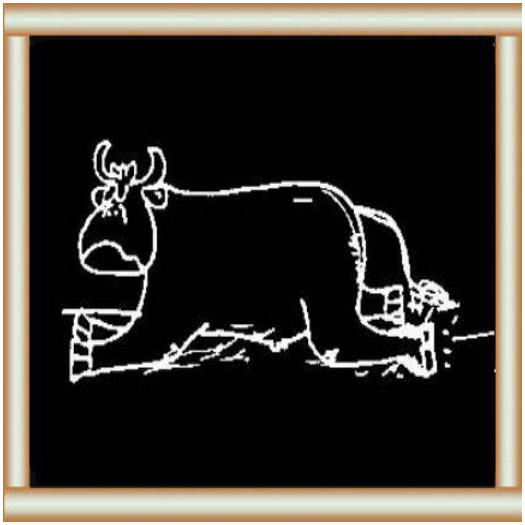
What should you know about Hoof Care?

Why is hoof care important? (1-11)

1 Overgrown or damaged hooves:
- cause pain and low milk production
- may cause disease.

How can you care for hooves? (12-20)
2 By using a skilled hoof trimmer with the right tools.

What diseases come from poor hoof



care? (23-43)

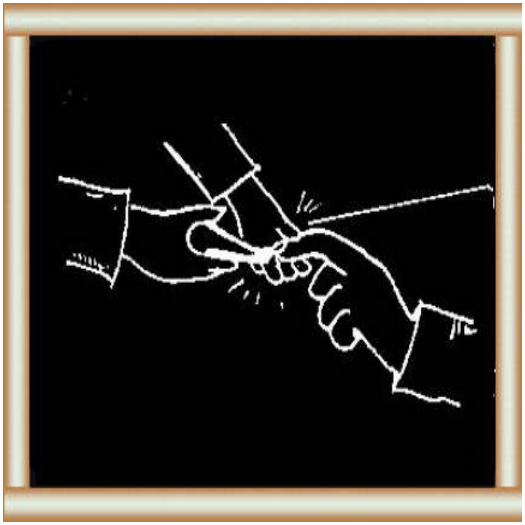
3 Ulcers and bacteria can cause fever and even death.

How can you prevent hoof problems?(44-54)

4 By choosing a cow with good hooves and looking after her well.

page 201

Why is hoof care important?



5 Because it affects milk production and the health of your cow.
You cut the nails on your hands and feet regularly.

6 If your nails are too long, you feel uncomfortable and cannot work properly.

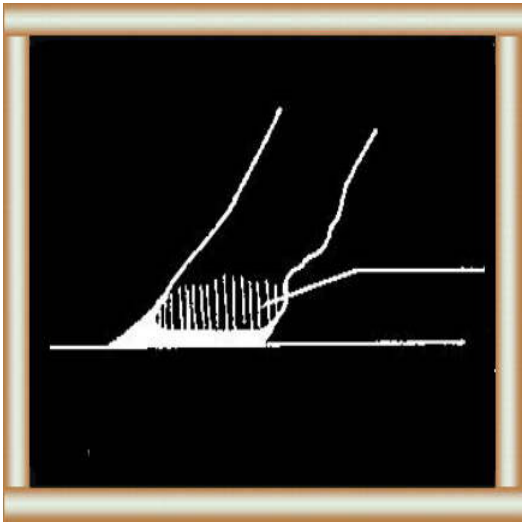
7 Without care, the hooves of your cow become too big. They are painful when the cow is standing or walking. This reduces milk yield.

8 If you do not care for overgrown

hooves, your cow may get serious diseases in hooves and legs. She can become very sick and even die.

What are the signs of poor hoof care?

A normal hoof

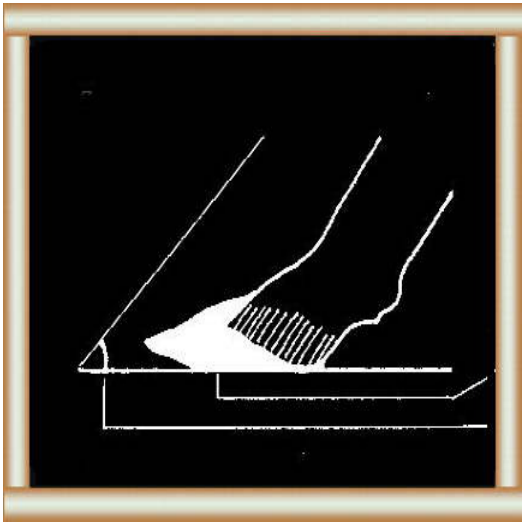


9 A layer of horn covers the hoof and this grows all the time.

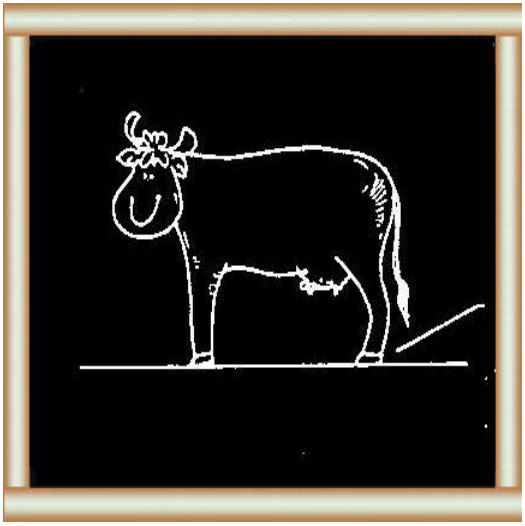
Under the horn is soft tissue with many blood vessels.

The horn protects the soft tissue.
In a normal hoof, the horn is not too thick.

An overgrown hoof

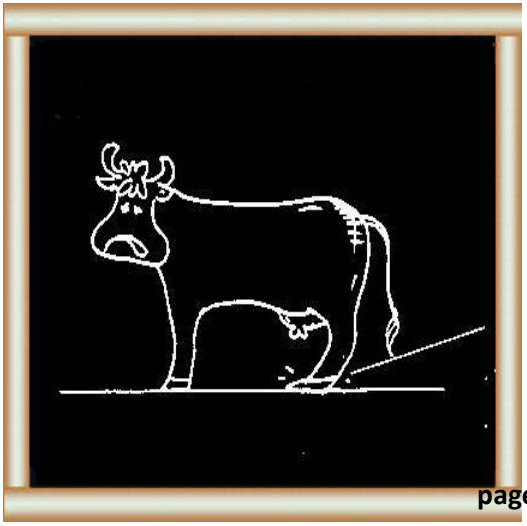


10 If your cow usually walks on soft ground or you tie up your cow in the barn, the horn layer becomes too thick. Note the angle of the leg.



Normal leg position
11 This cow has normal hooves and legs. Note the position of the hindlegs when the cow is standing relaxed.

Abnormal leg position
12 This cow has abnormal hooves (or legs).
Note the position of the hindlegs when



the cow is standing relaxed.
Compare the positions of the hindlegs in illustrations 11 and 12.

page 203

Why do overgrown hooves hurt your cow?

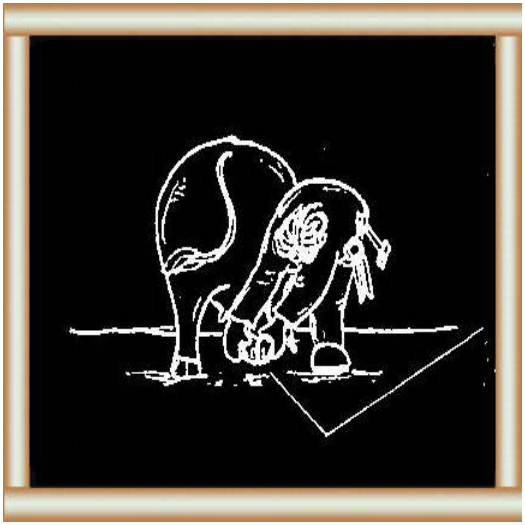
13 If you walk on your heels, you do not feel comfortable.
This is also true for a cow with overgrown hooves.
Overgrown hooves are painful when the cow stands or walks.

14 To avoid pain the cow lies down more than usual.
So she easily gets wounds specially on the hock and knee.

15 The cow easily stumbles and falls.
She often damages her hooves and legs.

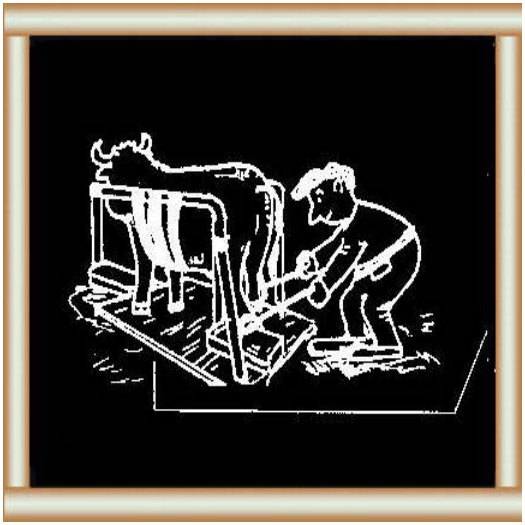
page204

How can you care for hooves?



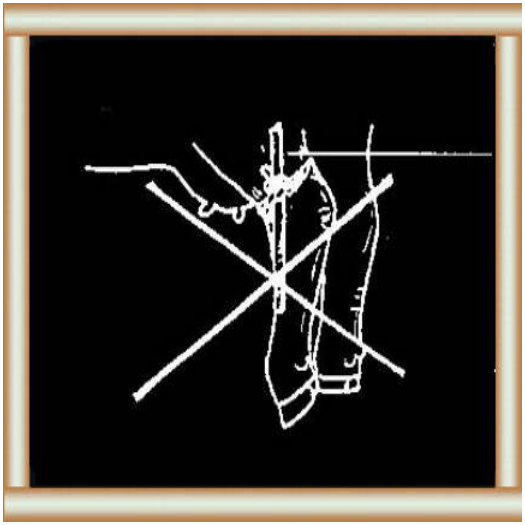
16 By asking a skilled hoof trimmer to examine and trim the hooves of your cows at least twice a year.

17 Trim hooves in a special box.



Then the skilled hoof trimmer can work quickly so your cow does not become nervous and hurt herself or the hoof trimmer.

18 If you do not have hoof trimming box, fix the leg carefully.



19 Do not use this device.
It can make your cow lame.

page 205

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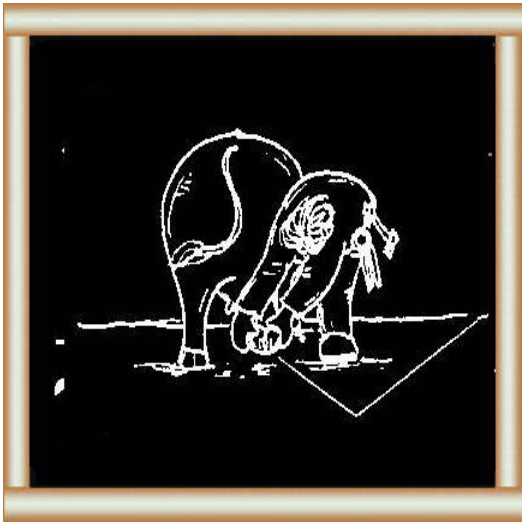
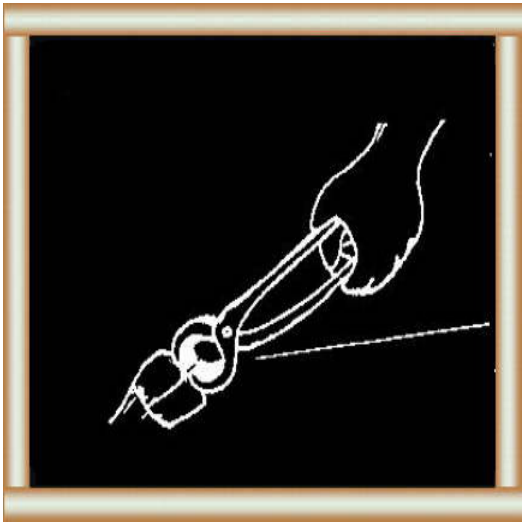
20 Not everyone can trim hooves.

Use a person who is experienced in hoof trimming!
Wrong hoof trimming can damage the hoof more than no trimming.

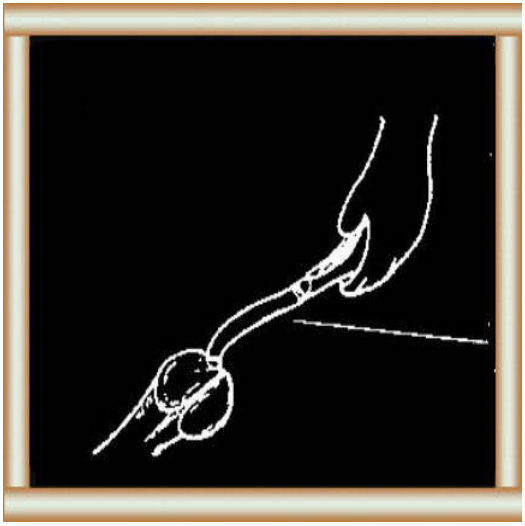


21 An experienced hoof trimmer examines the hoof carefully for pain and disease.
He uses various instruments.



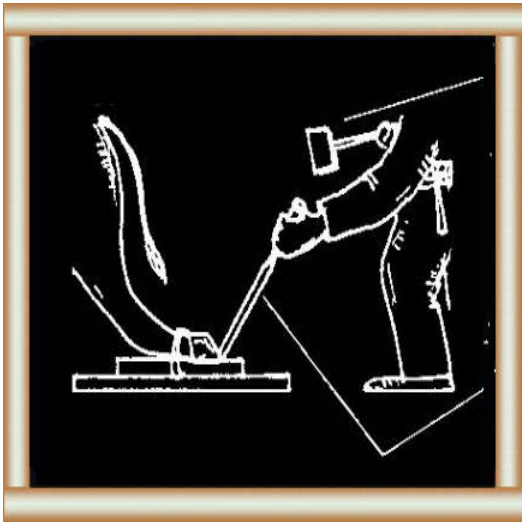
Tongs
22 He cuts the edge of the hoof with tongs.

Knife



23 He cleans and trims the sole of the hoof with a knife.

page 206

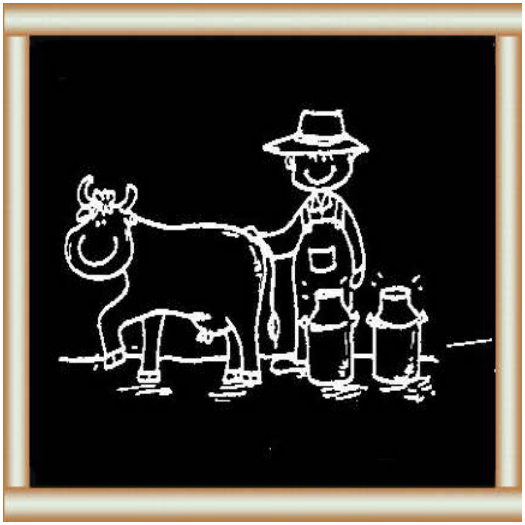


Hammer and chisel

24 He cuts the horn with a hammer and chisel.

25 He advises you to call the vet if necessary.

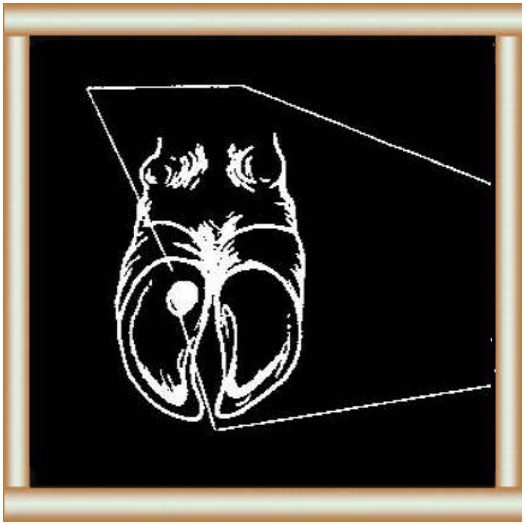
Remember



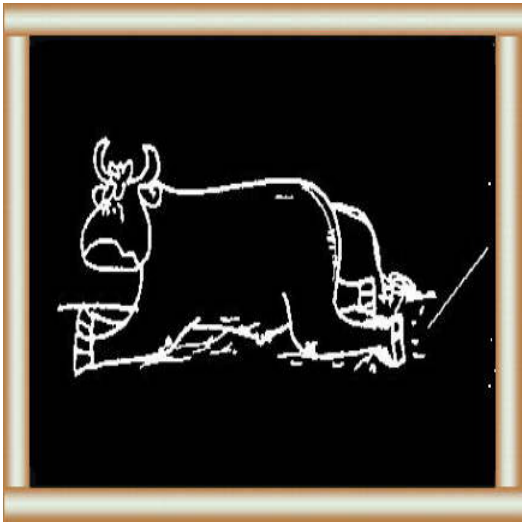
26 Well trimmed hooves improve the health of your cows and healthy cows have a better milk yield.

page207

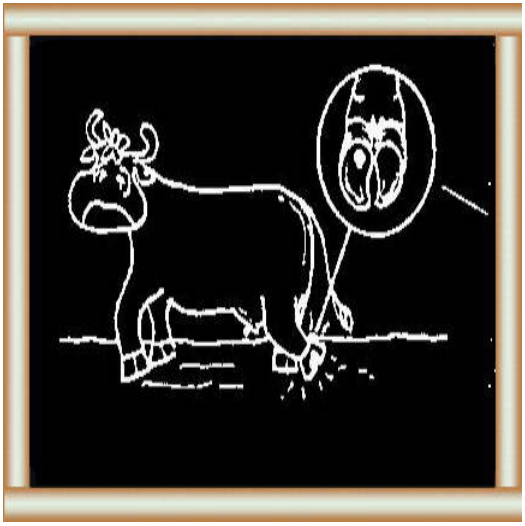
What diseases come from poor hoof care?



27 Ulcers on the sole.An ulcer is a hole in the horn of the sole. You can see the soft tissue under the horn.

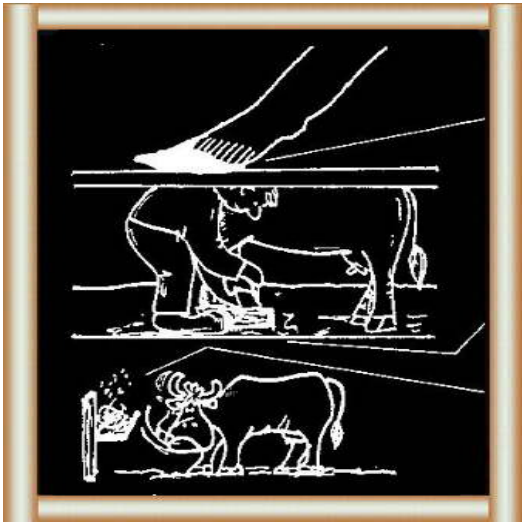


28 The hoof easily becomes infected and your cow becomes sick.



29 A cow with untrimmed hooves will often get an ulcer on the sole of the outer claw of the hind leg.

page208



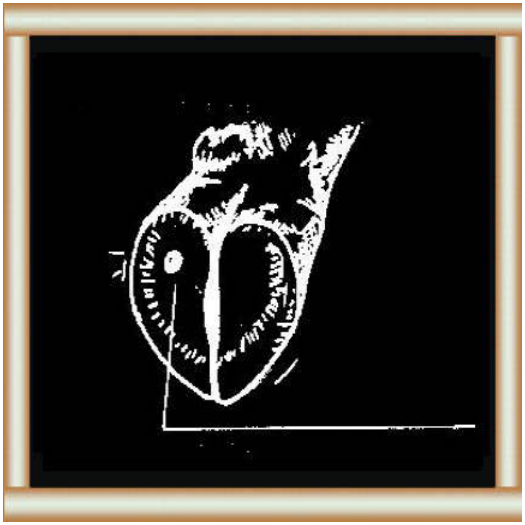
30 The causes of sole ulcers are:
- overgrown hooves
- poor hoof trimming
- poor feeding (lack of calcium and phosphorus in the food).

31 If the ulcer is not too deep, the hoof trimmer can clean and trim the hoof.

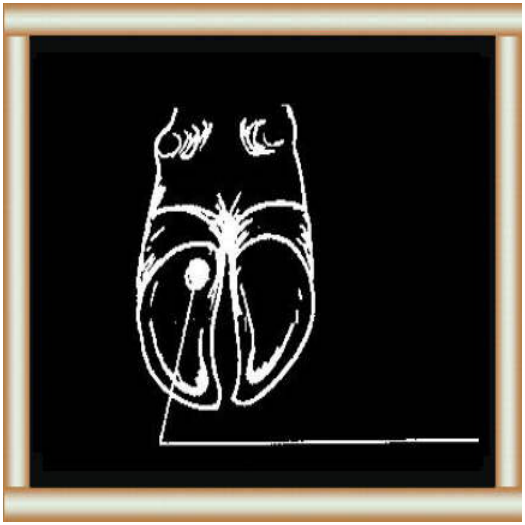
32 If the ulcer is deep and you can see the soft tissue, call the vet and let him treat the wound with antibiotics.

page209

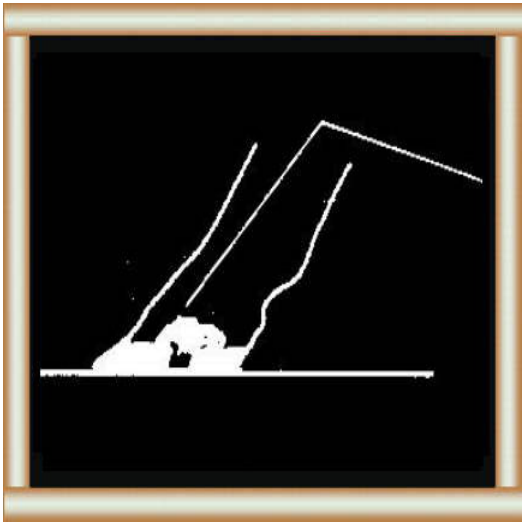
Things going through the sole



33 Nails or sharp stones from roads can easily go through the sole.

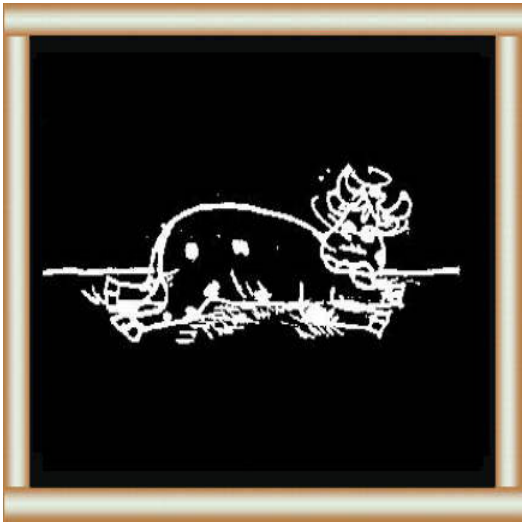


34 If the hole is deep, it reaches the soft tissue.



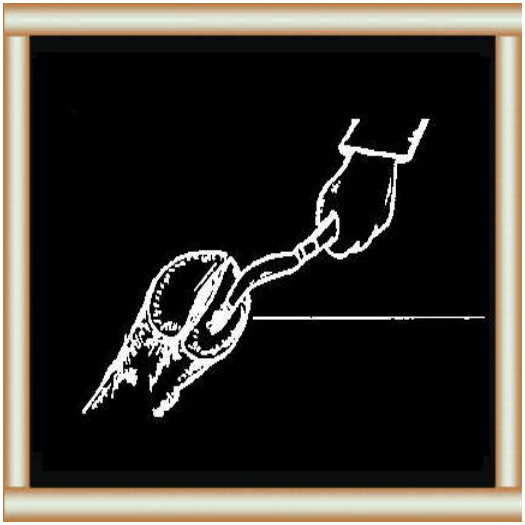
35 An abscess (pus) may form inside the hoof

36 and if you do not treat your cow,

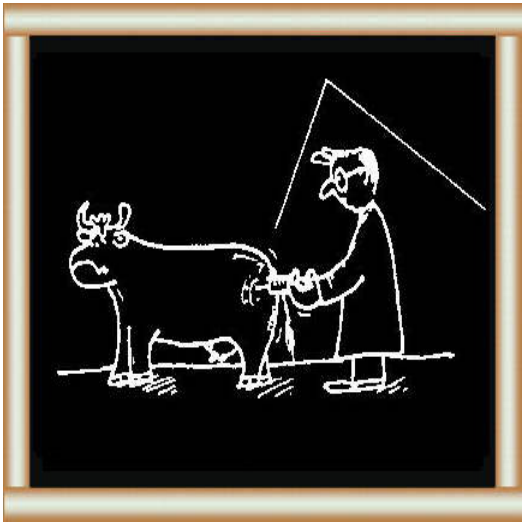


abscesses may form in the rest of the body.She gets fever, stops eating and may die.

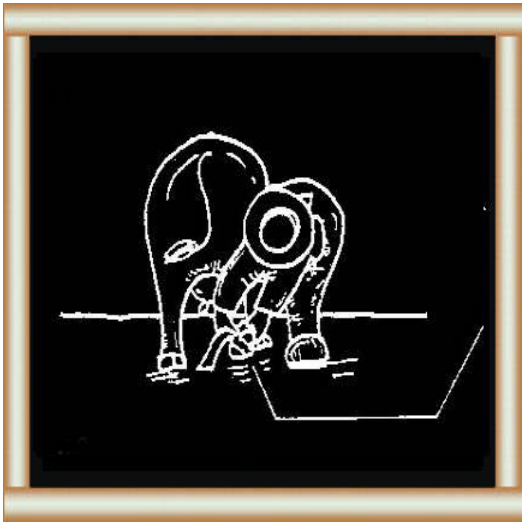
page 210



37 A trained hoof trimmer can open the sole horn and let the pus out.



38 The vet can treat your cow with antibiotic injections.



39 Protect the wound by dressing. Remove the dressing when the wound heals.

40 To prevent disease, do not let your

cows walk on roads with sharp stones, nails, and other things that may go through the hoof sole.

page 211

Foot Rot (Foul-in-the-Foot)

41 One type of bacteria can infect the soft tissue between the claws and an abscess develop. This is called Cattle Foot Rot.

42 This bacteria likes wet surroundings. So you often find the disease in the wet season.

43 However, you may find the disease all through the year, especially when your cows walk around in mud and wet manure.

44 If your cow has a small hole in the skin

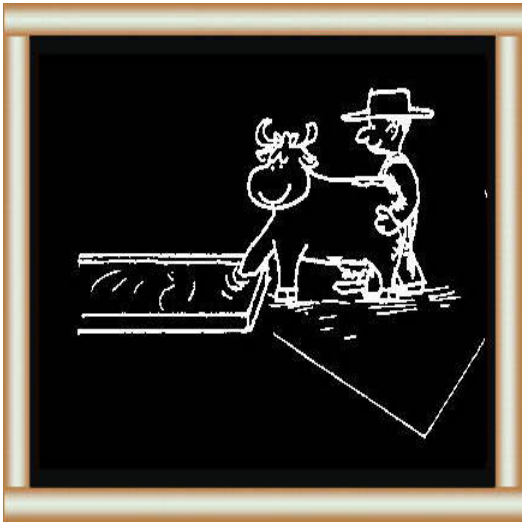
the bacteria can enter and an abscess form. It hurts her when she walks.

page 212

45 The disease may spread to the hoof joint.
The joint swells.
Your cow may get a severe fever and stop eating.

46 Call the vet as soon as you see signs of foot rot.
He removes dead tissue and treats the animal with antibiotic injection.

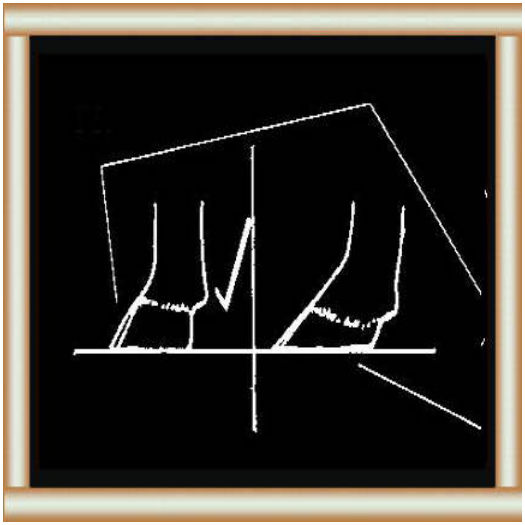
47 If you see signs of foot rot:



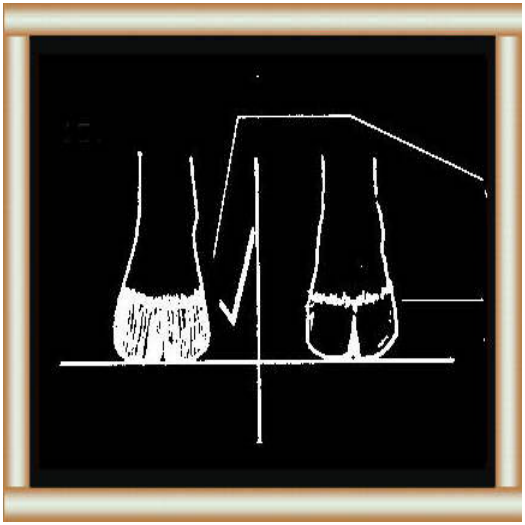
- make a foot bath with 3% formalin or 5% copper sulphate
- walk your cows daily through the foot bath.
This prevents the disease.

page213

How can you prevent hoof problems?



48 You can prevent hoof problems by paying attention to the following:
Inheritance
Some cows are born with better hooves than others.
Narrow hooves resist injuries better than low, flat hooves



49 and dark horn is stronger than fair horn.

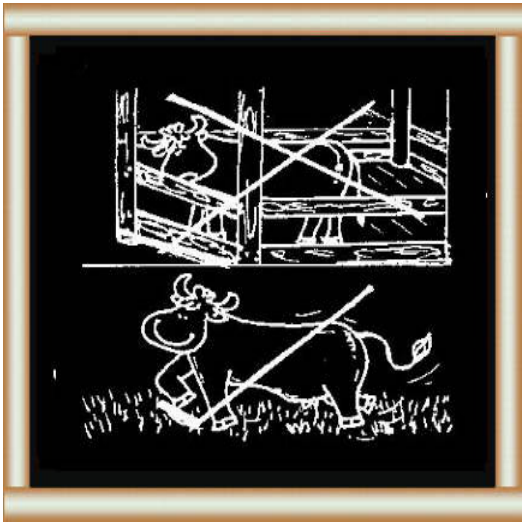
50 Choose your cattle carefully when buying or selecting them for breeding.

Feeding
51 Poor feeding may lead to bone diseases, which means problems with

legs and hooves.The right amounts of the minerals Calcium and Phosphorus, and Vitamin D, are important for bones.

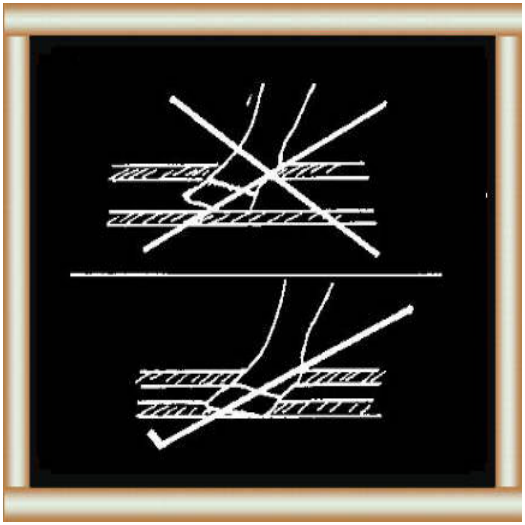
page 214

Exercise



52 If you always tie your cows, they will have more hoof problems than cows which walk freely.
Give your cows exercise.This avoids damage from standing and improves the natural wear of the horn.

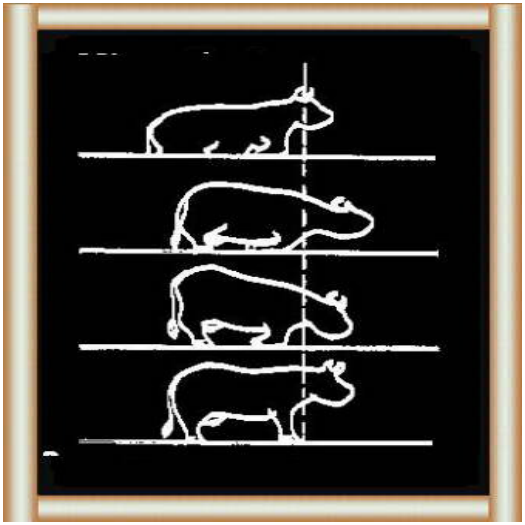
Housing
53 Most housing systems can cause



problems for your cows:
- in barns with grates, slotted floors or concrete floors, choose designs which do not damage hooves and legs.

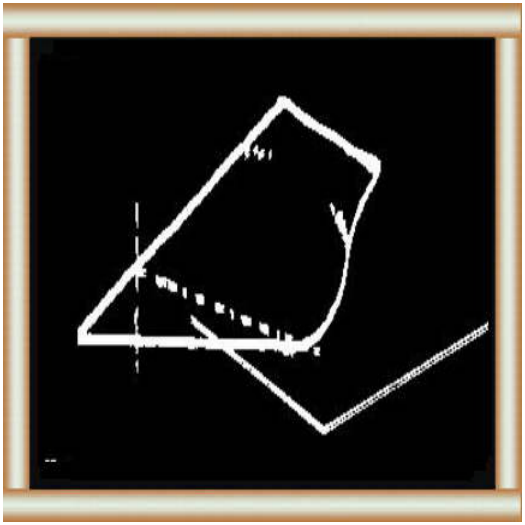
54 Always keep your barn clean!

Boxes and tyings
55 In the illustrations, you can see the normal movement of a cow when she

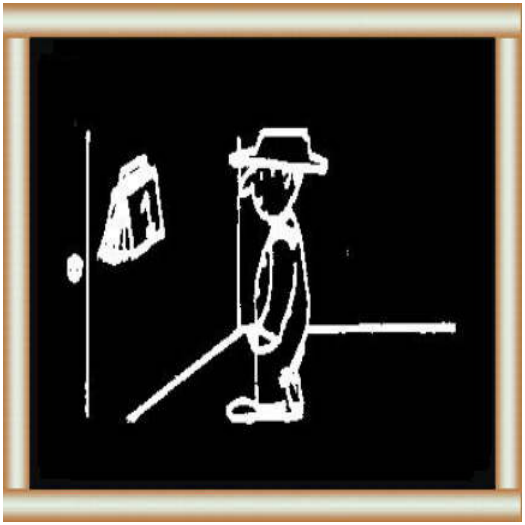


stands up.
If the box is too short or too narrow or if the tying does not allow free movement the cow cannot move freely.
Then she easily stumbles or has to stand up like a horse, stretching the forelegs first

56 This means that the cow easily injures hooves, legs and the teats of the udder.



Hoof trimming
57 Trim overgrown hooves!



58 Call the hoof trimmer to examine an treat your cow at least twice a year!

What do you know about hoof care?

Importance of hoof care

Poor hoof care:

1 lowers milk production (5)

2 causes pain (6-7)

3 may cause disease and death (8)

Signs of poor hoof care

1 Too thick horn layer (9-10)

2 Abnormal leg position (11-12)

3 Frequent laying down, stumbling and falling (13-15)

Caring for hooves

A skilled hoof trimmer should:

1 trim hooves at least twice a year (16)

2 use a hoof trimming box or correct tying (17-18)

3 Use the correct tools to cut, clean and trim hooves (19-26)

Disease from poor hoof care

1 Ulcers on the sole (27-32)

2 Abscess from things through the sole (33-40)

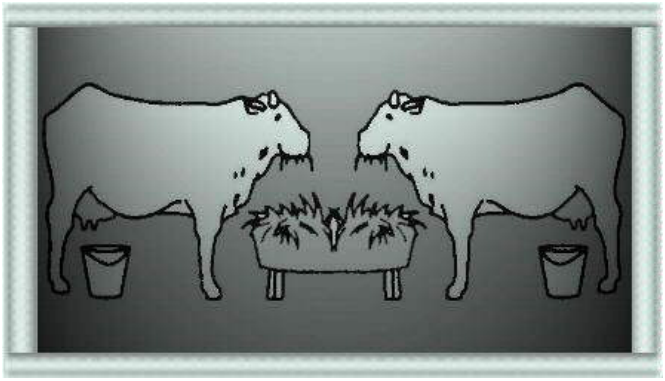
3 Foot Rot (Foul-in-the-Foot) between the claws caused by bacteria (41-

47)

Preventing hoof problems

Pay attention to:

1 inheritance	**(48-50)**
2 feeding	**(51)**
3 exercise	**(52)**
4 housing	**(53-54)**
5 boxes and tyings	**(55-56)**
6 hoof trimming	**(57-58)**



Small-scale

dairy farming manual

Volume 6

Husbandry
Units 12 and 13

**Regional Dairy Development and Training Team
for Asia and Pacific
Chiangmai, Thailand**

**Regional Office for Asia and the Pacific
Bangkok, Thailand**

**FOOD AND AGRICULTURAL ORGANIZATION OF THE UNITED NATIONS
Rome, 1999**

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boundaries.

TABLE OF CONTENTS

Volume 6

		Page
Husbandry Unit 12 -	Dairy Farm Accounting	i
Husbandry Unit 13 -	Dairy Farming Organizations	23

Small-Scale

Dairy Farming Manual

Volume 6

Husbandry Unit 12

DAIRY FARM ACCOUNTING

pagei

Extension Materials

What should you know about dairy farm accounting?

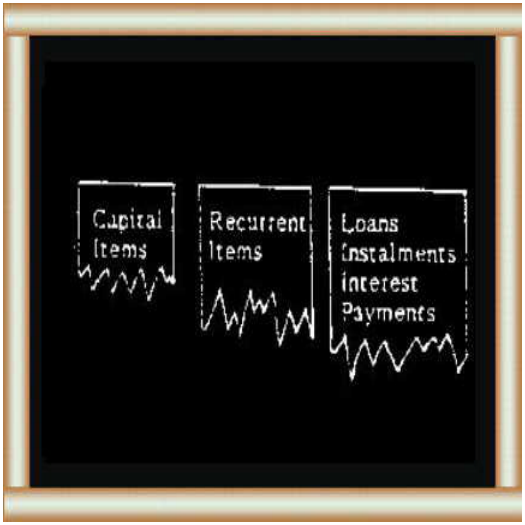
1 How can you keep accounts by single-

entry book keeping? (5-11)

By entering transactions in one book and filing documents.

2 How can you calculate profits and losses? (12-18)

Keep payments and incomes over a year



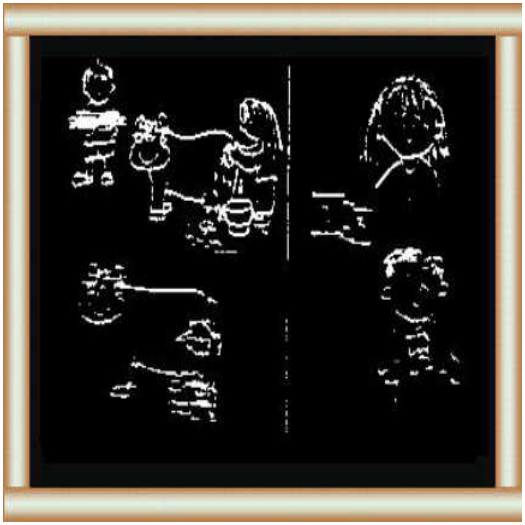
under:
- capital items
- recurrent items
- loans, instalments, interest payments.

3 How can you keep capital, loan and current accounts?

Consult your extension worker about:

- how to record items
- when and how to analyze accounts.

4 How can you analyze net returns and cash flows? (19-24)



By accounting for:

- labour and other costs and benefits
- the timing of receipts and payments.

DAIRY FARM ACCOUNTING

Husbandry Unit 12:

Technical Notes

Note: Numbers in brackets refer to illustrations in the Extension Materials.

Introduction (5-7)

Record keeping is an activity that is almost completely neglected by small scale farmers, even in literate communities. The farmers may not see the benefits from this extra activity, which appears to be quite unconnected with the practical aspects of dairy farming. The extension officer, therefore, need to make an extra effort to explain the benefits of maintaining accurate records. Maintaining separate accounts for the dairy farm will be helpful in:

- understanding how money is spent and income is earned;

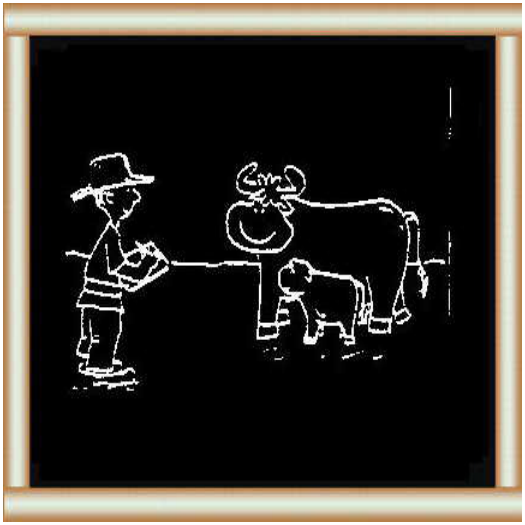
- finding ways of reducing expenses and increasing incomes i.e. increasing profits;

- making decisions about increasing or decreasing concentrate feeds, growing pastures and fodder crops, buying and selling of animals etc.

To get a correct picture of the income, expenditure and profits (or losses), everything of value in the dairy farm and all transactions involving payments and receipts of money must be recorded.

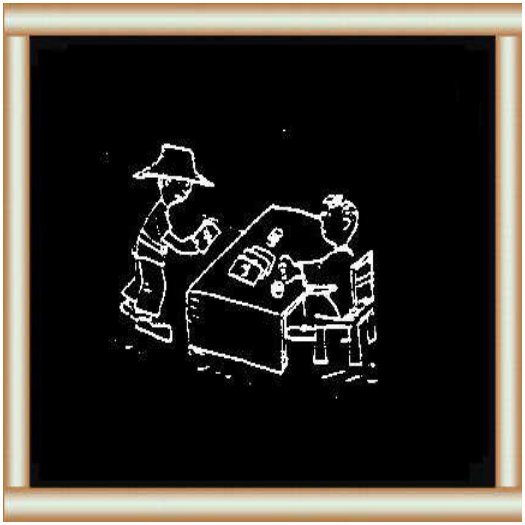
page2

What is dairy farm accounting?



5 Measuring and recording:

- everything of value on your farm: animals, buildings, machines, equipment etc.



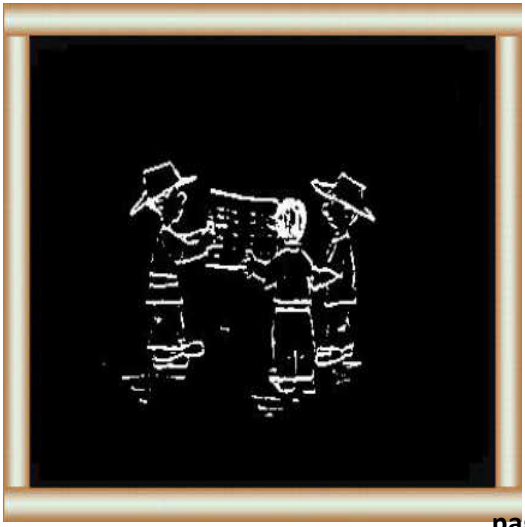
6

- any business or movement of money, buying, selling, borrowing etc.

Why keep accounts?

7 Keeping accounts helps to:

- understand how you spend money and



earn income
- find ways to reduce expenses and increase profits
- make decisions about feeds, pastures, animals etc.

page 3

Single-entry book keeping

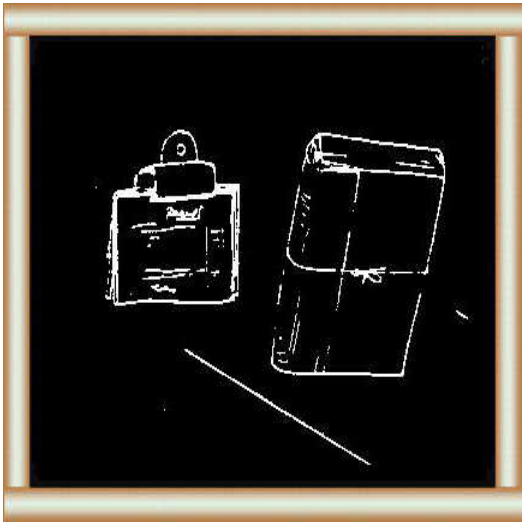
Single-entry book keeping is a simple method of accounting. A single book is maintained to enter all transactions, whether they are payments made out or income received by the farmer. (8-10)

page4

How can you keep accounts by single-entry book keeping?

8 Keep a single accounting book. Your extension worker can advise you on this.

Fill in the book every day or at least every week. Enter all transactions including payments and income.



9 Keep receipts, invoices, statements and other business documents together with a clip or in a file.

10 You will learn a simple method of

accounting here called single-entry bookkeeping.

- you use only one book.

page5

It is important to note the purpose for which the payment was made or income was received. See the example in the Extension Materials opposite.

Note: If an invoice is received from the dairy coop (or any

other purchaser of milk), only the quantity of milk and amount of money received need to be entered in the accounts book, together with the invoice number. The invoice must be filed separately to get the relevant information when necessary. (11)

Make a record for each payment or income e.g.

January 1990

Item	Date	Description	Payment	Income
1	3.1.90	Concentrate feeds (40 kg @ 3.00)	120.00	-
2	5.1.90	Milk sales-received from dairy coop. (for milk supplied 16-31 Dec. 89. 62 litres; av. fat	-	310.00

		4.2 %; 5.00 per l)		
3	5.1.90	Payment to labourer (grass cutter)	50.00	-
4	6.1.90	Mineral mixture (5 kg@ 12.00)	60.00	-
5	10.1.90	Payment of loan instalment	96.00	-
6	12.1.90	Sale of 2 bull calves (3 months - 700.00) (5 months - 800.00)	-	1500.00
7	15.1.90	Purchase of heifer Tatoo No. (650); date of birth (25.12.88)	5000.00	-
8	16.1.90	A.I. service for cow no. (5) - receipt no. (A 2125)	60.00	-

11 If the dairy coop or someone who buys milk from you gives you an invoice, only record:

- amount of money received
- quantity of milk
- invoice numbers

in the accounts book.

File the invoice separately so you can get information if you need it.

age 7

Profit and loss

Even though income and expenditure are recorded daily in this manner as and when actual transactions take place, the profits (and losses) are usually calculated for longer periods e.g. for a year. For calculating profits (and losses), the items of expenditure and income during the period under consideration are summarised under three main sections: (12)

- capital items

- recurrent items
- loans (and payment of loan instalments including interest).

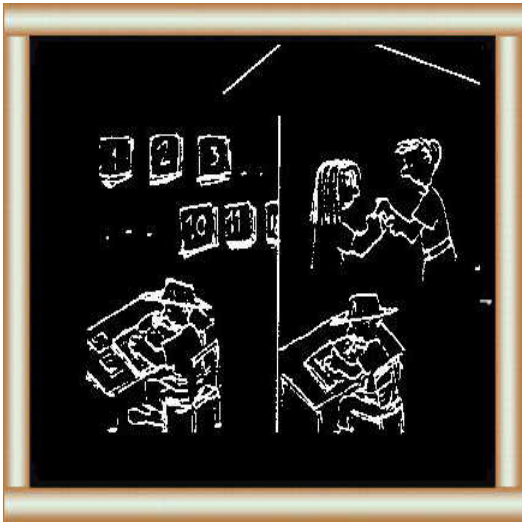
Capital items

Capital items are those having a longer life and a higher value e.g. land, buildings, equipment such as milk cans and animals. (13)

Recurrent items

The recurrent (or consumption) items are those that get used up in the production process e.g. cattle feeds (both roughages and concentrates), mineral mixtures, chemicals, disinfectants, medicines, soap, and various miscellaneous items. (14)

How can you calculate profits and losses?

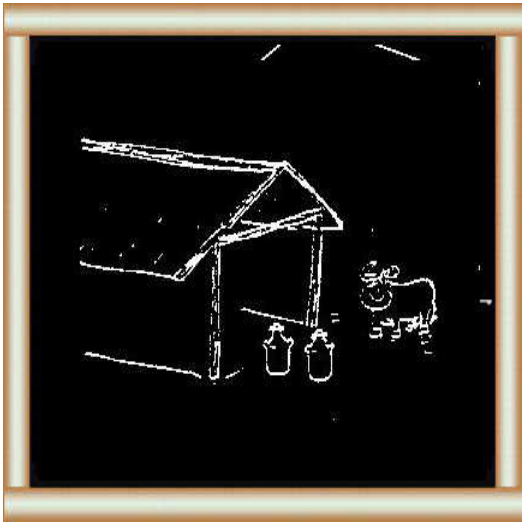


12 You usually calculate profit and loss over a long period (e.g. 1 year).

Whereas you record payments and income from day to day.

13 For profit and loss calculations, keep payment and income under 3 headings:

Capital items

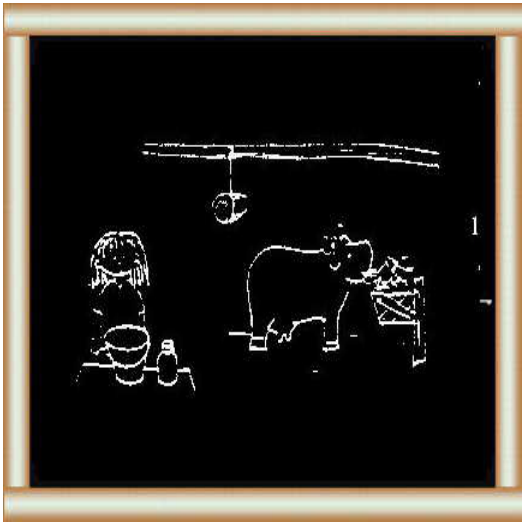


Things with long life and high value e.g.

- land
- buildings
- equipment
- animals.

Recurrent items

14 Payments for things you use:



- feeds (roughages and concentrates)
- mineral mixtures
- chemicals
- disinfectants
- medicines
- soaps etc.

Payments made for services such as labour, A.I. and veterinary services are also considered under recurrent items. (15)

On the income side are sale of milk or milk products, cow dung or compost etc.

Loans, instalments, interest payments

Money received on loans and payments made as loan repayment and interest charges are summarised separately for purposes of profit (and loss) and cash flow calculations. (17)

Small scale farmers may find it difficult to prepare these summaries and analyze them. Therefore extension officers should:

- encourage farmers to record each and every item of income and expenditure with relevant details;

- assist farmers to summarise them and analyze them once in 3 months, 6 months or a year. (18)

Examples of dairy farm accounts are given in the Extension Materials opposite.

15 Payments for services:

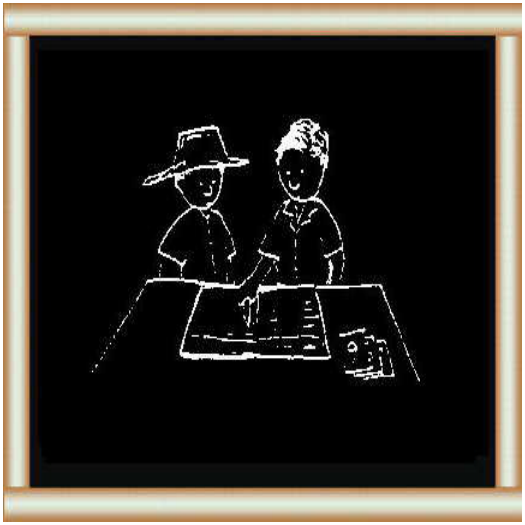
- A.I.
- veterinary.

16 Income from the sale of:

- milk
- milk products
- cow dung
- compost etc.

Loans, instalments, interest payments.

17 Record these under a separate heading to calculate profit and loss and cash flow.



18 Consult your extension worker about:

- how to record items
- when and how to analyze accounts.

page11

How can you keep a capital account?

Item	Value as	Sales	Additions/	Value as

	on 1.1.89	during 89	purchase during 89	on 1.1.90
Land	5000.00	-	-	5,000.00[1]
Buildings	4,000.00	-	2,000.00	6,000.00[2]
Equipment	1,000.00	-	500.00	1,500.00[2]
Animals				
(a) Value as of 1.1.89	30,000.00[3]	-	-	-
-Sales				
Culls (2 Nos.)-		5,000.00[3]	-	-
Bull calves (3 Nos.)-		1,500.00[3]	-	-
Heifer calves(1 No.)-		1,500.00[3]	-	-
-Purchases				
Pregnant heifers (2 Nos.)	-	-	10,000.00[3]	-

(b)	Value as of 1.1.90			33,000.00[3]
Total	40,000.00[4]	8,000.00[4]	12,500.00[4]	45,500.00[4]

1 Even though land values may have gone up (appreciated) between 1.1.89 and 1.1.90, it has not been taken into account.

2 Depreciation of buildings and equipment has not been accounted for. Depreciation is the amount of money that has to be set aside to replace the buildings (in about 20 years time) or the equipment (in about 3-5 years time, depending on the type of equipment). This is a factor to be considered in an overall profit and loss account.

3 The total number of animals in the farm have been valued as of 1.1.89 and also 1.1.90.

When the difference between additions/purchases of animals (10,000.00) and sales of animals (8,000) amounting to 2,000.00 (10,000.00 - 8,000.00) is added to 30,000.00, value as of 1.1.90 should be only 32,000.00. The additional 1,000.00 could be due to a heifer on 1.1.89, calving down and starting its lactation in 1989, thus appreciating in value.

4 Total value of capital items (assets) has gone up only by 4,500.00 (44,500.00 - 40,000.00) in spite of additions and purchases amounting to 12,500.00. This may be explained as follows:

Value of assets as of 1.1.90	**45,500.00**	
Additions/purchases during 1989	**+ 12,500.00**	
Total value of assets held during 1989	**=**	**58,000.00**
Less:		
Sales of assets during 1989	**8,000.00**	**+**
Increase in value of herd growth	**1,000.00**	
Value of assets as of 1.1.89	**40,000.00**	
	= 49,000.00	

Investments from savings and/or loans 9,000.00

i.e. The increase in the value of capital items by 5,500.00* (45,500.00 - 40,000.00), including additions/purchases amounting to 12,500.00* has been made possible:

- partly by sale of assets (animals) - (8,000.00)

- partly by using cash from a loan and farmer's savings - (9,000.00)

- partly due to an increase in the value (appreciation) of a heifer - (1,000.00)

Total = 18,000.00

***(5,500 + 12,500 = 18,000)**

How can you keep a loan account?

Item	Outstanding as of 1.1.89	Receipts in 89	Payment in 89	Outstanding as of 1.1.90
Loan obtained in 1987	10,800.00[1]	-	3,600.00	7,200.00
Interest payment on above loan	-	-	600.00	-
New loan in 1989	-	2,400.00[2]	1,200.00	1,200.00
Interest on new loan	-	-	360.00	-
	10,800.00	2,400.00	5,760.00	8,400.00[3]

---

1 Loan may have been obtained to purchase cattle/equipment and/or construct/improve buildings.

2 Part of the investment of 9,000.00 may have come from this loan.

3 Interest is also payable in addition to the outstanding loan amount.

How can you keep a current account?

Current Account (with and without depreciation and excluding capital items and loans)

Income Expenditure	Income	Items
- milk sales	26,500.00	
- milk product sales	-	
- cow dung sales	-	
- compost sales	-	

- animal sales	**8,000.00**	
Expenditure Items		
- concentrates		**14,200.00**
- minerals		**250.00**
- roughages		**-**
- seeds and planting material		**300.00**
- fertilizer		**800.00**
- labour payments		**600.00**
- hire of machinery		**-**
- transport costs		**1,200.00**
- vet. fees, pharmaceuticals etc.		**300.00**
- A.I. and stud services		**500.00**
- chemicals, disinfectants etc.		**250.00**
- miscellaneous purchases (e.g. ropes, chains, soap etc.)		**200.00**
- rent on land, buildings etc. (if not owned)		**-**
- maintenance of buildings		**400.00**
- maintenance of equipment		**-**
- other recurrent items		**-**
Total	**34,500.00**	**19,000.00**

- Profit on the operation (34,500.00 - 19,000.00)	15,500.00
Less depreciation (buildings, 5 %; equipment 20 %)	600.00
- Profit after allowing for depreciation	14,900.00

Note: Revenue from sale of animals is included as an income whereas payments for the purchase of new animals are not included as an expenditure. The sales result from a previous investment; the payments for new animals is a new investment and the farmer's capital assets have increased because of this investment.

Profit from the dairy enterprise

Net return on investment

This shows that by making an investment of 45,500.00 (19), the farmer has received an income of 14,900.00 in 1989 (after setting apart 600.00 to meet the replacement of buildings in 20 years and equipment in 5 years) i.e. a return of 32.7 % on investment. (23)

However, the time spent by the farmer and his family have not been taken into account in this computation. If the farmer and his family together spend about four hours a day (for 365 days of the year) on the dairy enterprise (milking, feeding, cutting grass, washing animals and sheds, transporting milk and cattle feed etc.) (21), the total number of hours spent in a year is 1,460. If the normal wage rate is 5.00 per hour, the total earning from working for 1,460 hours is 7,300.00. (22)

The net return from the investment of 45,500.00 after allowing for labour = 14,900.00 - 7,300.00

= 7,600.00

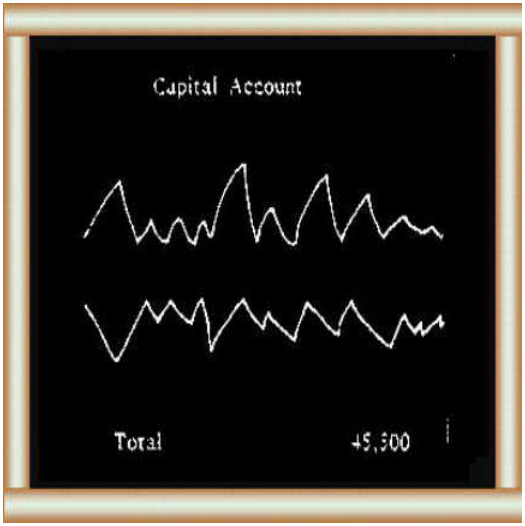
mu

and the net return on investment (after allowing for labour) = $\frac{7,600}{}$ x 100

45,000

= 16.7 %

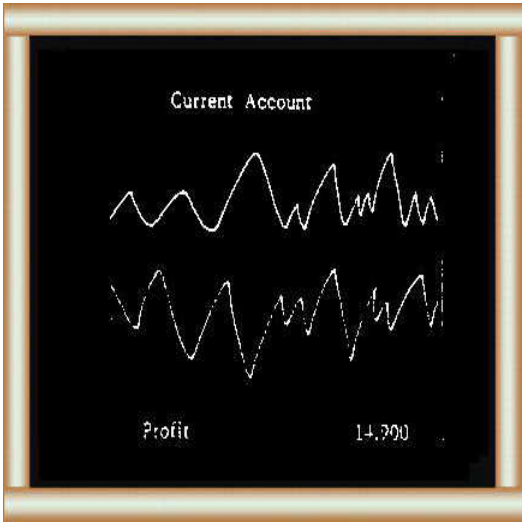
How can you analyze net return?



Net return on investment

From the above accounts:

19 The farmer made an investment of 45,000 mu

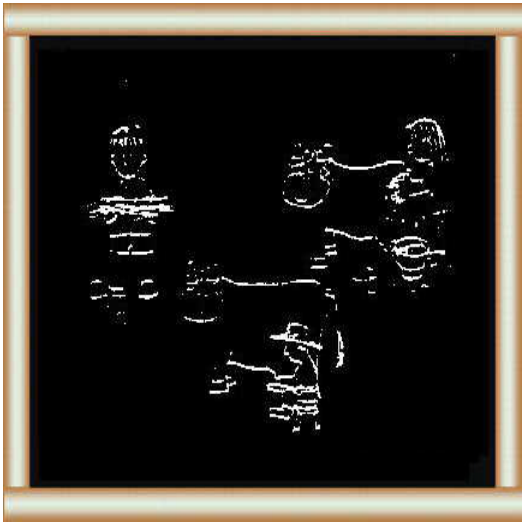


20 and received an income of 14,900 mu in 1989 (after allowing for depreciation).

His return is

$\frac{14,900}{45,000} \times 100 = 32.7\%$

21 But the farmer and his family use their time, they work on the farm:



- cutting grass and feeding
- washing animals and sheds
- milking
- transporting milk and cattle feed.

22 If the farmer and his family spend 4 hours/day for 365 days/year = 1,460

hours/year.

If the normal wage is 5 mu/hour, they should earn 7,300 mu.

The net return (after allowing for labour) is 14,900 - 7,300 m = 7,600 mu

The net return on investment is $\frac{7,600}{45,000}$ x 100 = 16.7%

page17

Net return on labour

Another method of analyzing the benefits is to compute the net return on labour. In this method the capital investment is valued on the basis of the normal interest rate. If the interest rate is 12 %, the value of the investment of 45,500.00 is 5,460.00 i.e.

$$45{,}500 \times \frac{12}{100}$$

The net return from 1,460 hours of work (labour) is

(14,900.00 - 5,460.00 =) 9,440.00

Therefore, the net return on labour is 6.47 mu per hour i.e.

$$\frac{9{,}440}{1{,}460}$$

You can also calculate the net return on labour.

If the interest rate is 12 %, the value of the investment of 45,000 is:

$$45{,}500 \times \frac{12}{100} = 5{,}460 \text{ mu}$$

The net return from 1,460 hours of work (labour) is:

$$14{,}900 - 5{,}460 = 9{,}440 \text{ mu}$$

The net return on labour is:

$$\frac{9{,}440 \text{ mu}}{1{,}460 \text{ hours}} = 6.47 \text{ mu/hour}$$

Thus this example shows that the farmer benefits because:
- he gets a higher return on the investment than the normal interest rate and
- he gets a higher payment for labour than he could have obtained

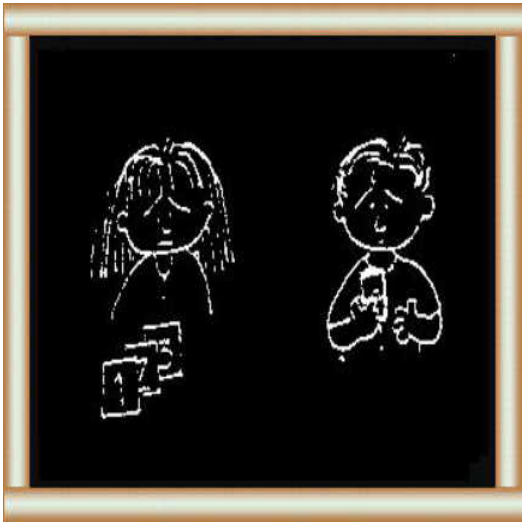
by renting his labour i.e. by working for somebody else.

Other benefits that have not been taken into account are:
- the increase in value (appreciation) of land
- the increase in value (appreciation) of the herd
- the value of cow dung, compost etc. that may have been used for
improving soil fertility
- the value of milk that may have been consumed in the household.

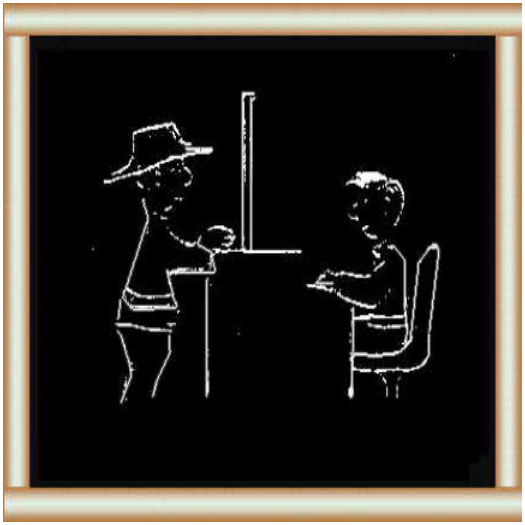
Cash flows

It is also important to know about the timing of receipts and expenditure of money. If money is not available from the enterprise to meet the expenditure at the correct time, e.g. planting grass or buying concentrates, the farmer may be forced to borrow from expensive sources (because the borrowing has to be done at short notice). The cash flow from the above example is shown opposite.

How can you analyze cash flow?



23 It is important to know about:
- timing of receipts
- timing of payments.
If you do not have money to pay at the right time for planting grass, concentrates etc.



24 you have to borrow.
If you hurry to borrow, this can be very expensive.

Here is the cash flow from the above accounts:

Item	Inflow (receipts)	Outflow (expenses)
Capital Account	8,000.00	12,500.00
Loan Account	2,400.00	

5,760.00	
Current Account	34,500.00
19,000.00	
	44,900.00
37,260.00	

In this example, there is a surplus inflow over outflow of (44,900.00 - 37,260.00 =) 7,640.00. Therefore, it would be possible to arrange the expenses in such a way as to avoid borrowing at short notice. (Of course, there is an outstanding loan of 10,800.00 and a new loan of 2,400.00 which are considered as planned borrowing at normal interest rates.

What do you know about dairy farm accounting?

What dairy farm accounting is	(5-6)
Reasons for keeping accounts	(7)
Single-entry book	

keeping

1 Entries (8)

2 Filing (9)

3 Example (10-11)

Calculating profits and losses

1 Capital items (13)

2 Recurrent items (14-16)

3 Loans instalments, interest payments (17-18)

Capital accounts (Page 7-8)

Loan accounts (Page 9)

Current accounts (Page 10)

Analysing net returns

1 Net return on investment (19-22)

2 Net return on labour	**(Page 12)**
Analyzing cash flows	**(23-24)**

Small-Scale

Dairy Farming Manual

Volume 6

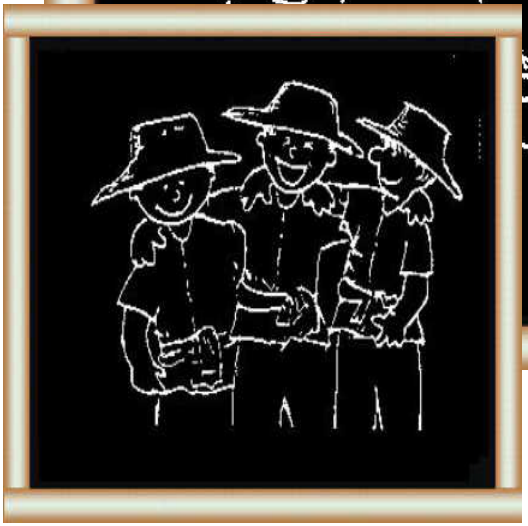
Husbandry Unit 13

DAIRY FARMING ORGANIZATIONS

page23

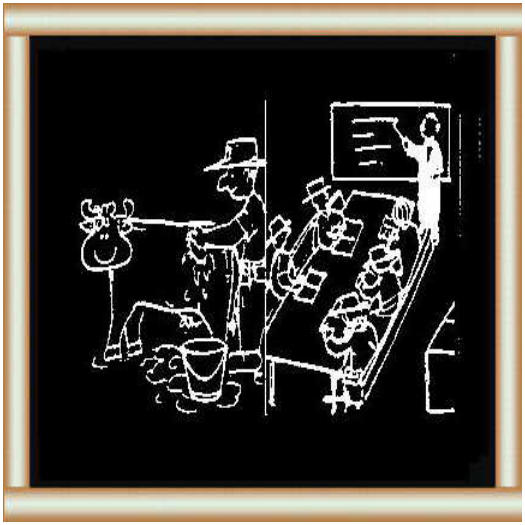
Extension Materials

What should you know about dairy cooperatives?



1 What is a dairy cooperative and why join? (5-16)

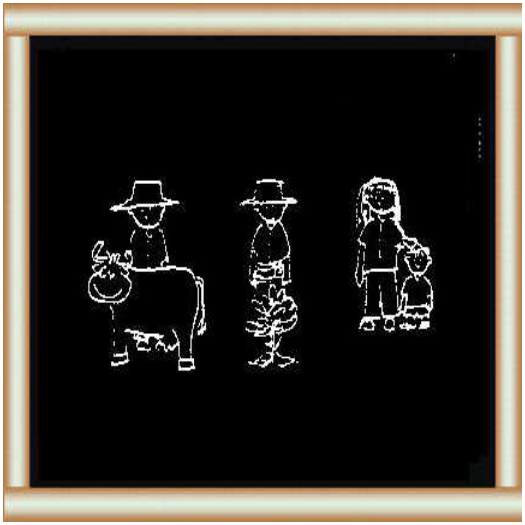
A dairy cooperative is:
- a group of people working together to help each other and share benefits.



2 What does a dairy cooperative do? (17-35)

A dairy cooperative:
- provides services for members
- keeps records and organises financial matters.

3 What types of dairy cooperative are there? (36-44)



There are:
- single-purpose cooperatives
- multi-purpose cooperatives.

4 How can you organise a dairy cooperative? (45-49)

By choosing:
- the right person
- for the right job
- in the right structure.

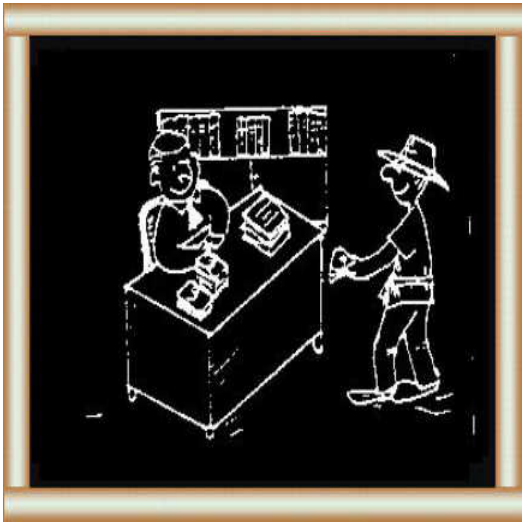
page25

What is a dairy cooperative?

5 A group of people working together on dairying:
- they put their labour and resources together to benefit all members.

6 A cooperative is democratic:
- each member has one vote.

7 By members working as a group, the

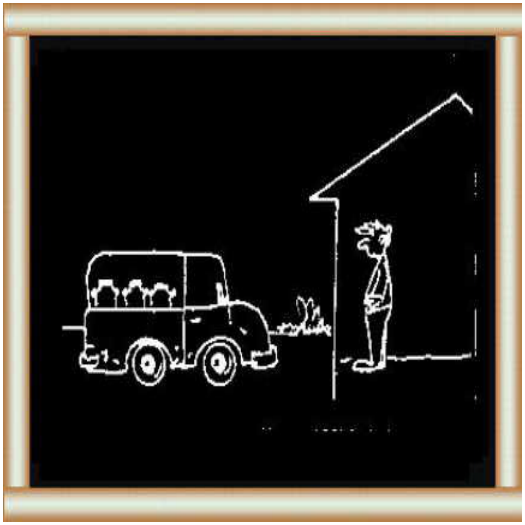


cooperative can help by:
- making the best use of the money and resources which each member has

8

- buying large quantities of necessary items at lower prices such as concentrates

page26



9

- sharing the costs of collection, processing and distribution

- making production more efficient and increasing employment

- making a profit to share between members.

10 Each year, some of the surplus money goes to the cooperative for financial, social and training services

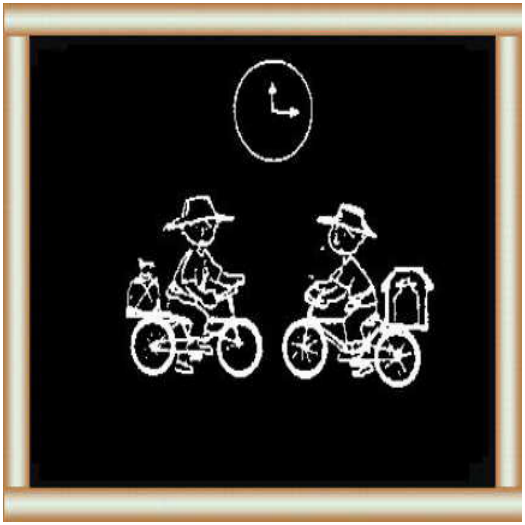
11 and the members share the rest of

the money.
So you get more benefit by joining other farmers in a dairy

cooperative
12 and sometimes your dairy cooperative can get more benefits by working with other dairy cooperatives.

page27

Why join a dairy cooperative?



13 Without a cooperative, you must spend a long time
- to send your milk to the chilling plant
- to collect your feed

14 or deal with a middle man who takes a high profit and may be corrupt.

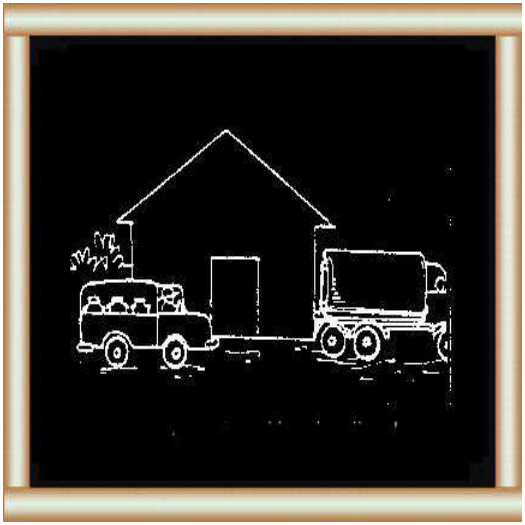
15 With a cooperative, you can have milk collecting points in each village or group

of villages.
The collecting points can also provide feed and other requirements.

16 By sharing, you:
- spend less time travelling
- reduce the cost of feed because the coop buys in bulk.

page28

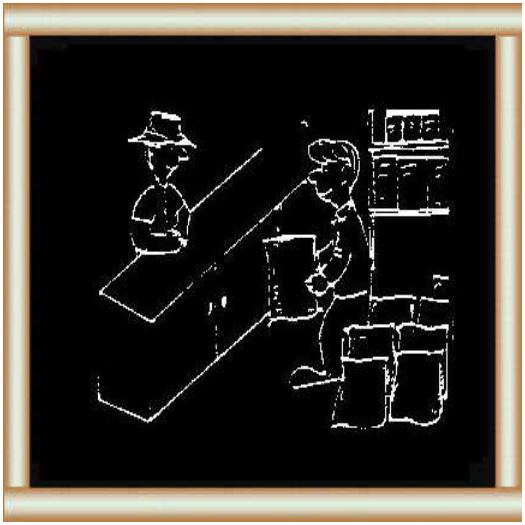
What does a dairy cooperative do?



17 It organizes members for efficient collection, processing and distribution of milk.

18 It checks milk quality
- on the farm
- during processing
- during retail.

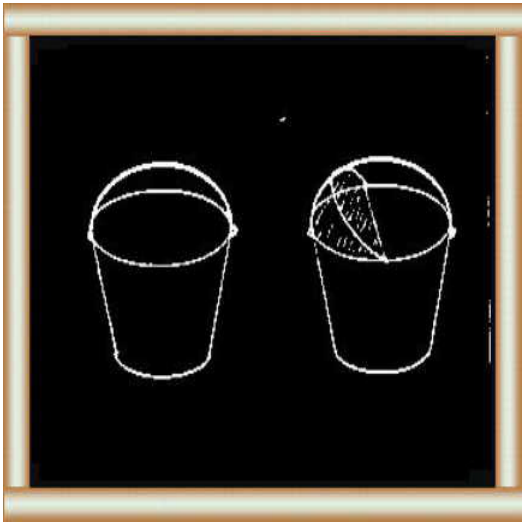
19 It sets milk prices paid to members.
It negotiates sale prices for milk on behalf of all members.



20 It supplies:
- animal feeds
- farm and household supplies.

page29

21 The cooperative purchases:
- equipment
- vehicles
- buildings
necessary for cooperative activities.

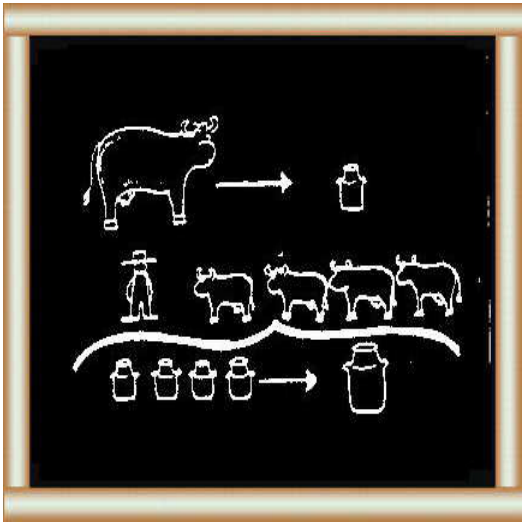


22 Each farmer needs:
- an open milking bucket
- a milking bucket with a hood

23
- a milk transport can, large enough to

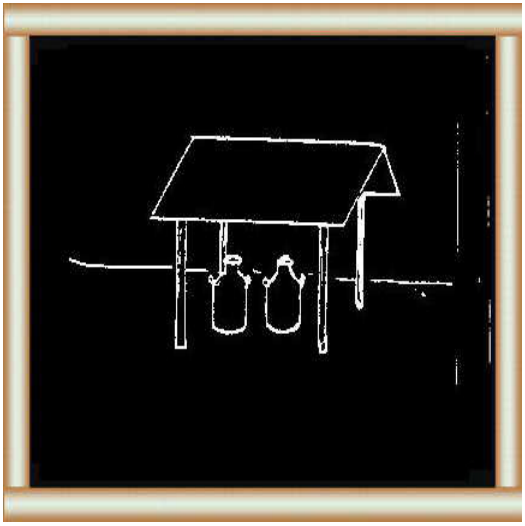
hold all the milk with:
- a lid
- a wide neck to allow cleaning.

24 For example: 1 cow needs: 1 x 10 l



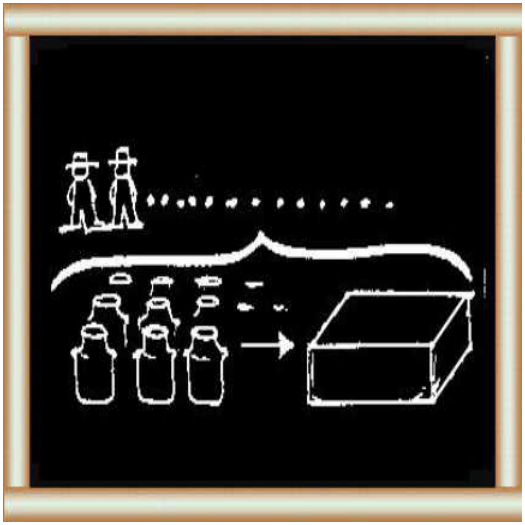
milk can
so
1 farmer with 4 cows needs:
- 4 x 10 l milk cans and
- 1 x 40 l milk transport can.

page30

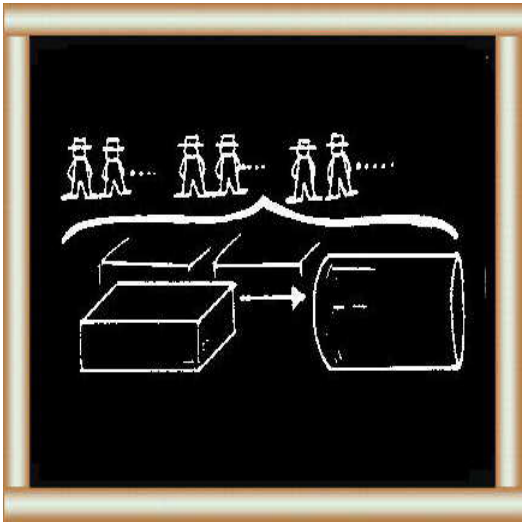


25 Each milk collecting point needs:
- milk transport cans.

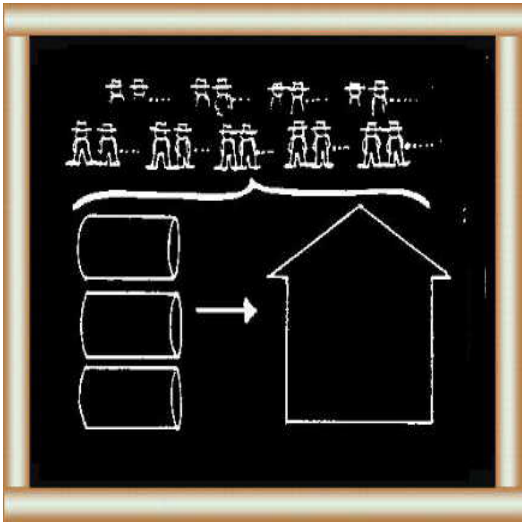
26



For example:
25 members supply 400 l to the collecting point so there should be at least:
- 12 x 40 l cans (2 spare cans).



27 The milk chilling centre needs:
- cooling tanks.
For example, the daily collection is:
- 2,500 l from 10 collecting points with 300 members.

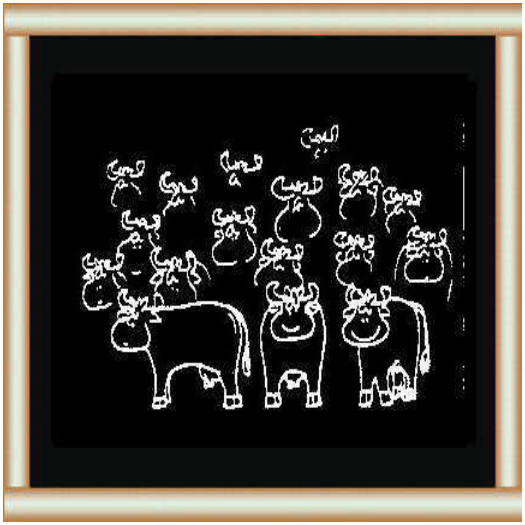


28 The processing plant collects milk from the chilling centres and, therefore, needs larger capacity.

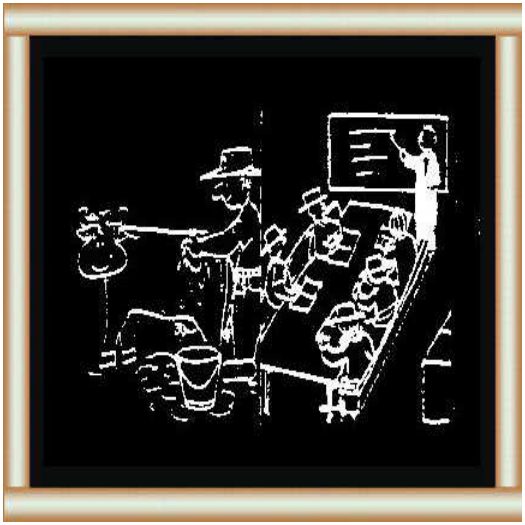
page31

29 The cooperative provides:
- A.I. services
- veterinary services.

30 For this work, a cooperative needs:
- vets

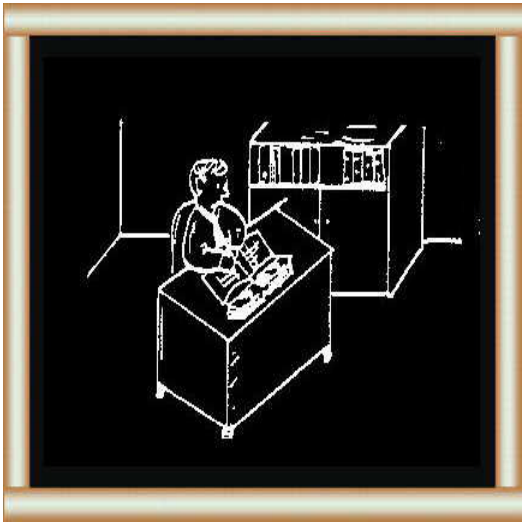


- inseminators
- extension workers
- milk recorders (where there is official milk recording).

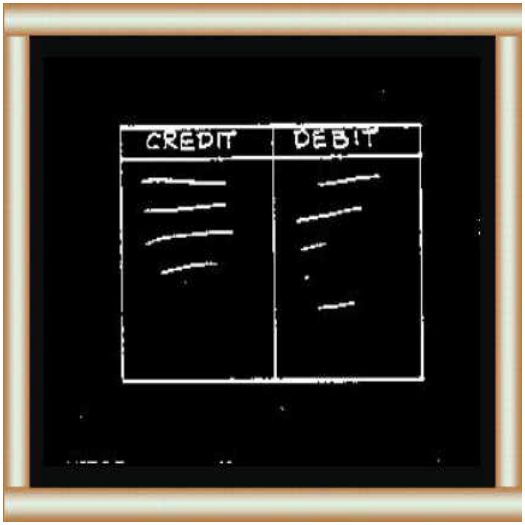


31 It provides training:
- in husbandry
- and cooperatives.

page32



32 The cooperative keeps records of all credits and debits

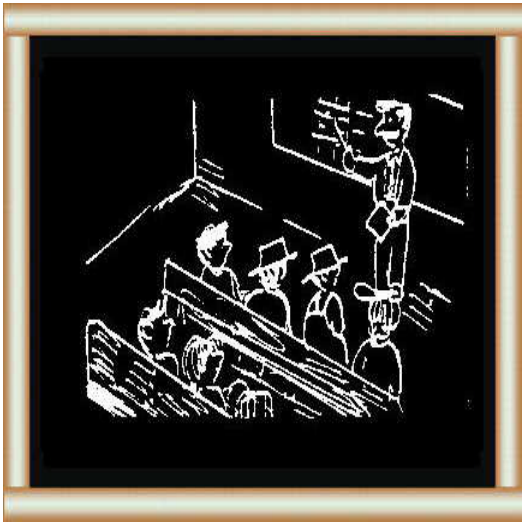


33 and produces balance sheets for:
- milk collection and marketing
- sales of cattle feed and consumer goods
- other activities.

34 An internal auditor checks:
- investments

- budgets
- loans
- payments.

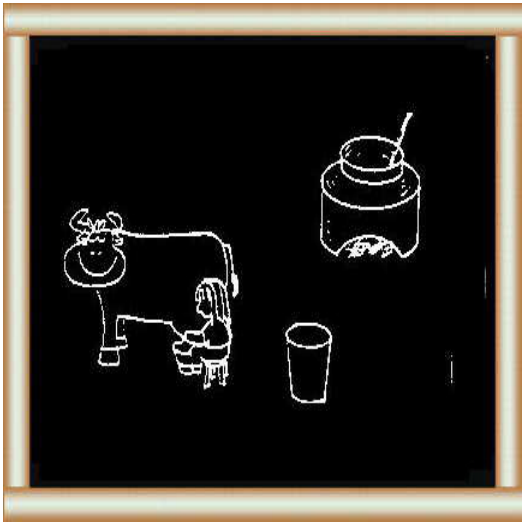
35 Cooperative officers or private



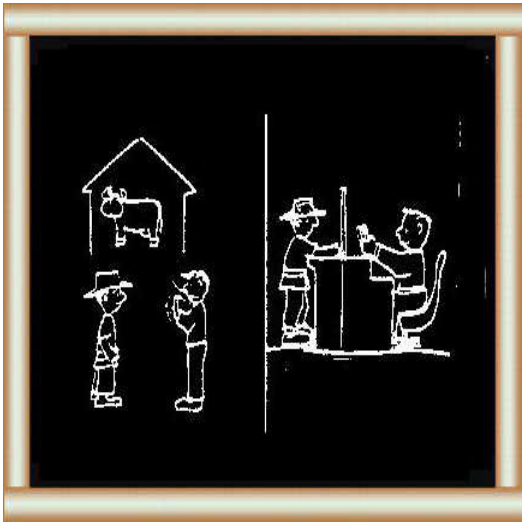
auditors approved by the cooperative:
- do the final auditing
- report to the meeting of all the members.

page33

What types of cooperatives are there?



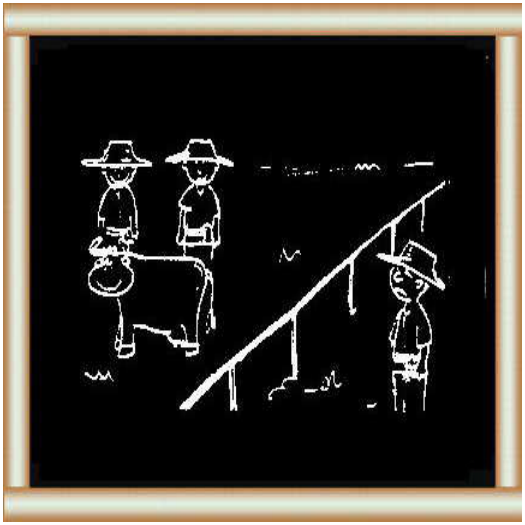
Single-purpose cooperatives
36 This type of cooperative only supports dairying, dairy feeds and milk processing.



**37 In some countries, e.g. India, the cooperative does not give credit.
The bank may offer credit to members of the cooperative.**

38 In other countries, e.g. Indonesia and

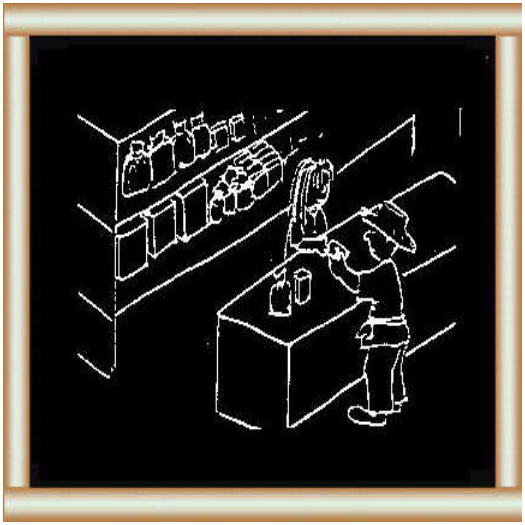
Thailand, the cooperative does offer credit.



39 Only milk producers can be members of these single-purpose cooperatives.

page34

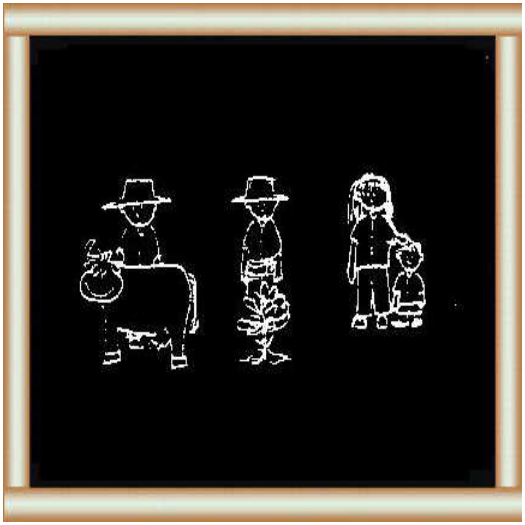
Multi-purpose cooperatives
40 This type of cooperative supports other activities besides dairying:
- crop production e.g. smallholder tea



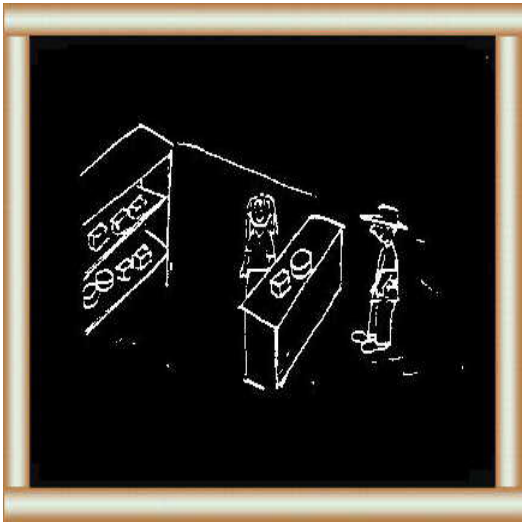
41

- general sales outlets e.g. in Indonesia.

42 Milk producers, tea producers,

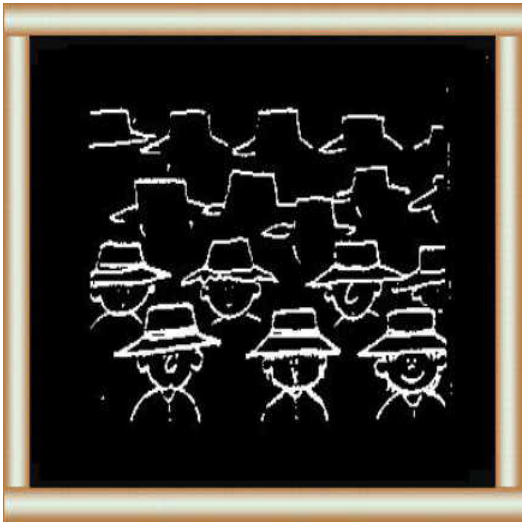


consumers and others can join multi-purpose cooperatives.



43 Some cooperatives process milk from members and market the products. Profits are shared with members.

page35



How can you organize a cooperative?
44 You choose the:
- right man
- for the right job
- in the right structure.

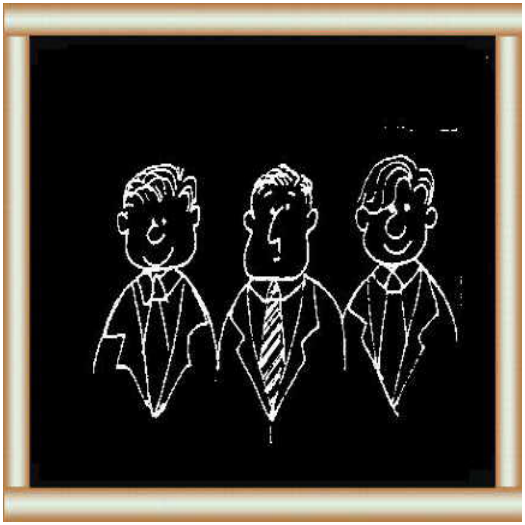
page 36

What are the duties of each group?

45 The General Assembly has a President

and a Secretary elected from the members.
It can:
- elect and dismiss the President, Secretary, Board of Directors and Management
- approve budgets and rules
- vote on other important subjects.

46 The Board of Directors has a Chairman, Secretary, Cashier and Board Members, and is responsible to the General Assembly.

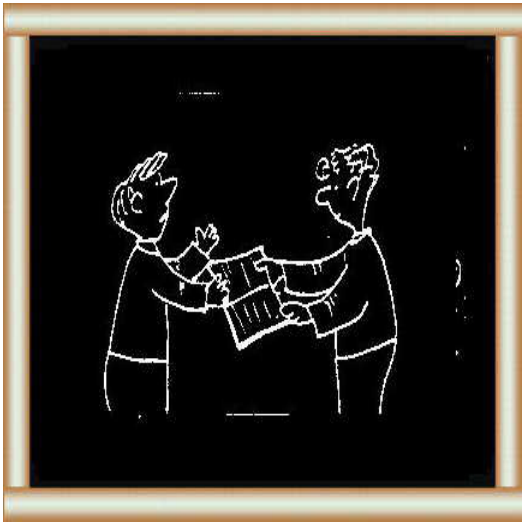


It can:
- arrange meetings of the General Assembly
- interpret rules
- supervise management
- set and review budgets.

47 The Supervisory Board has an Auditor and Inspectors.
It can:

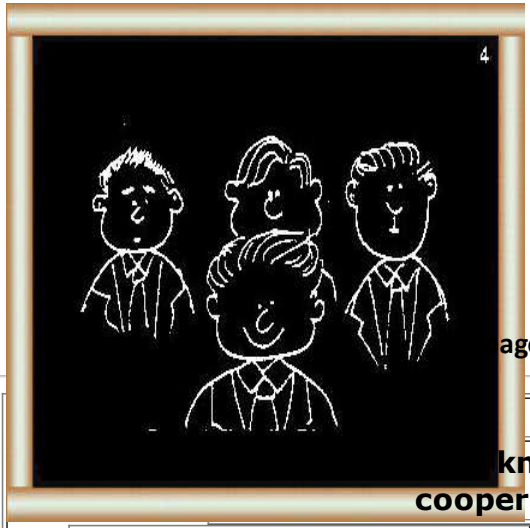
- check accounts
- supervise administration
- check production
- call meetings if necessary.

page37



48 The Advisory Board has experts in many fields.
It can give specialist advice on:
- housing
- processing
- marketing.

49 The General Manager and the Section Managers:
- manage the personnel
- make sure to achieve objectives
- report activities and budgets to the Board of Directors.



In small cooperatives members will do most of the jobs above.
Large cooperatives will employ specialists where necessary.

age38

know about dairy cooperatives?

What a dairy cooperative is

1 Activities (5-9)

2 Sharing benefits (10-12)

Reasons for joining

1 Problems of time and middle man (13-14)

2 Benefits of milk collecting points and (15-

cooperation (16)

What a dairy cooperative does

1 Organises collection (17)
2 Checks milk quality (18)
3 Negotiates milk prices (19)
4 Supplies goods for members (20)
5 Purchases items for activities (21)
6 Farmer requirements (22-24)
7 Milk collecting point requirements (25-26)
8 Milk chilling centre requirements (27)
9 Milk processing plant requirements (28)
10 Cooperative services and manpower requirements (29-31)
11 Financial matters (32-35)

Types of dairy cooperative

1 Single-purpose (36-39)
(40-

2 Multi-purpose **43)**

Organising a dairy cooperative

1 Manpower and structure **(44)**

2 Organisation:

- General Assembly **(45)**

- Board of Directors **(46)**

- Supervisory Board **(47)**

- Advisory Board **(48)**

- General and Section Managers **(49)**