

Ethnoveterinary Medicine in Asia

An Information Kit on Traditional Animal Health Care Practices



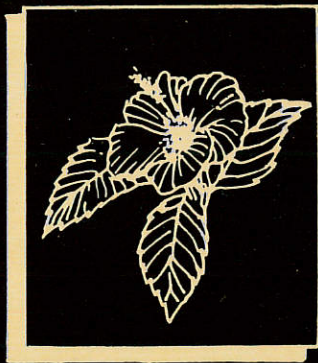
International Institute of Rural Reconstruction
Y.C. James Yen Center, Silang, Cavite, Philippines

Ethnoveterinary medicine in Asia

1

An information kit on traditional
animal health care practices

General Information



Brot
für die Welt



gate



Ethnoveterinary medicine in Asia

2

An information kit on traditional
animal health care practices

Ruminants



Brot
für die Welt



gate

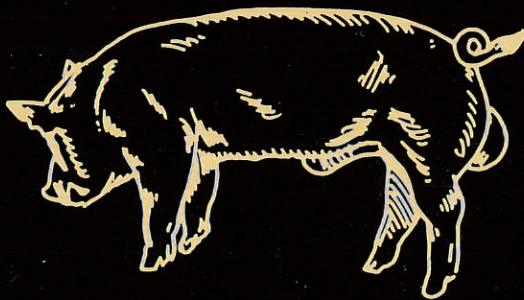
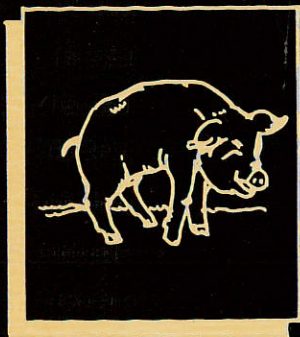


Ethnoveterinary medicine in Asia

3

An information kit on traditional
animal health care practices

Swine



Brot
für die Welt



gate

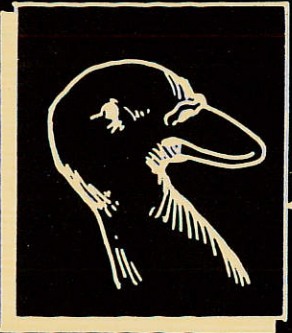


Ethnoveterinary medicine in Asia

4

An information kit on traditional
animal health care practices

Poultry



Brot
für die Welt



gate



Ethnoveterinary medicine in Asia - An information kit on traditional animal health care practices

General information

1994

IIRR

The International Institute of Rural Reconstruction is a nonprofit, nongovernment organization that aims to improve the quality of lives of the rural poor in developing countries through rural reconstruction: a sustainable, integrated, people-centered development strategy generated through practical field experiences.

IIRR publications are not copyrighted. The Institute encourages the translation, adaptation and copying of materials for noncommercial use, providing an acknowledgement to IIRR is included.

Correct citation: IIRR. 1994. Ethnoveterinary medicine in Asia: An information kit on traditional animal health care practices 4 vols. International Institute of Rural Reconstruction, Silang, Cavite, Philippines.

Published 1994 by the International Institute of Rural Reconstruction Silang, Cavite 4118 Philippines

Printed in the Philippines
ISBN 0-942-717-627

Collaborating organizations

Brot Bread for the World
für die Welt P.O. Box 10 11 42
D-70010 Stuttgart, Germany

Heifer Project
INTERNATIONAL
1015 South Louisiana P.O. Box 808 Little Rock, Arkansas 72203, U.S.A.

THE WORLD BANK
Small Grants Program 1818 H Street, N.W. Washington, D.C. 20433 U.S.A.

German Appropriate
Technology Exchange

Dag-Hammarskjöld-Weg 1 P.O. Box 5180 65726 Eschborn, Germany

International Institute of Rural Reconstruction
Y.C. James Yen Center Silang, Cavite 4118 Philippines

Participants and workshop staff

Participants

Nita Abena (Philippines)
Jayvir V. Anjaria (India)
Luka Choemuen (Thailand)
Baldwin Dy (Philippines)
Mila Gracia Ejercito (Philippines)
Tomas J. Fernandez, Jr. (Philippines)
Nitya S. Ghotge (India)
Scott Killough (USA)
Vinai Klunson (Thailand)
Sivagurunathar Kumaraswamy (Sri Lanka)
Chheng Heat Leao (Cambodia)
Carmencita Mateo (Philippines)
Evelyn Mathias (Germany)
Constance McCorkle (USA)
Sommay Mekhagnomdara (Laos)

Tri Budhi Murdiati (Indonesia)

H.D. Wasantha Piyadasa (Sri Lanka)
Sagari R. Ramdas (India)
Piyasak Sukarnthapong (Thailand)
Aem Wangklang (Thailand)
Medino A. Yebron (Philippines)

Translators

Montawadee Krutmechai
Winai Yothinsirikul

Steering committee and workshop management

Nita Abena
Mila Gracia Ejercito
Scott Killough
Evelyn Mathias
(Workshop Coordinator)
Paul Mundy
Jim Oprecio
Jimmy Ronquillo

Editors

David Abbass
Lyn Capistrano-Doren
Constance McCorkle
Raylene Montes
Paul Mundy
Jimmy Ronquillo
Sheila Siar

Desktop publishing

Carmenia May Magno
Jel Montoya
Angie Poblete
Artists
Florante C. Belardo
Ricardo E. Cantada
Peaches Gamboa
Arnold Gardon
Ronie Ramacula
Bernie Remoquillo
Logistics
Lhai S. Kasala

Lorna Villaflor

Support

Thess Aquino
Carding Belenzo
Paulit Garcia
Gerry Medina
Jel Montoya
Rollie Ramos

Introduction to the workshop process

Introducing Western technologies in developing countries can have side effects and disadvantages that may outnumber their benefits. Western veterinary medicine is no exception. Drawbacks include:

- Drugs are unavailable in rural areas or their supply is erratic.
- Imported drugs are expensive.
- Many stockraisers either underdose to save money, or overdose because they do not understand the instructions for use.

Stockraisers would often be better off if they knew ethnoveterinary remedies and practices for the most common animal diseases. Such remedies and practices reflect centuries of experience and trial and error, they are adapted to the local culture and environmental conditions, and they are inexpensive and locally available.

Local veterinary practices have been systematically recorded and documented for more than a decade, but the results have found little application in development efforts. There are two reasons for this:

- Many international and national organizations have not yet recognized the role and potential contribution of ethnoveterinary medicine in development. This contrasts with the case in human ethnomedicine, which has been widely recognized and used by development organizations.

Little written information exists on practices that work and can be recommended. Without any guidelines on what to use and what not to use, development professionals hesitate to integrate ethnoveterinary practices into project design and implementation.

These manuals aim to overcome the latter constraint. They will facilitate the use of ethnoveterinary medicine and enable project designers and field personnel to tap this valuable resource. They are a ready-to-use package on ethnoveterinary remedies and practices that can be implemented and recommended in villages.

The manuals demonstrate that ethnoveterinary science contains many valuable, traditional practices which can serve as low-cost and practical alternatives for rural communities throughout the world. However, much remains to be done to document, assess and understand the wide range of ethnoveterinary practices used across the globe. We hope that the compilation of these practices will serve as an inspiration to the veterinary science and pharmacology research community to undertake studies to validate traditional livestock practices. We also hope that the simple, practical and low-cost practices outlined in these manuals will benefit rural households and communities whose livelihood involves livestock production.

How these manuals were compiled

The International Institute of Rural Reconstruction (IIRR) has pioneered a rapid, efficient way to produce information materials through the use of participatory workshops. Such workshops bring together academics, officials, nongovernment organization staff, extension personnel and farmers, together with editors and artists in intensive, one- or two-week sessions to write, edit, illustrate and critique the materials. A complete set of materials can be drawn up within this brief period. Only minor editing and refinement are necessary to obtain material that is ready to print. This workshop process has two major advantages: it reduces the total amount of time needed to develop information materials and it profits from the expertise and resources of a wide range of participants and their organizations.

This approach was used to compile the ethnoveterinary manuals. Preparations for the workshop started several months before the actual workshop date. A steering committee composed of staff members of IIRR and the Philippine Program of Heifer Project International contacted organizations and asked them to recommend individuals who had experience in the application of ethnoveterinary medicine at the field level or had tested such remedies in farm animals. The steering committee also developed a list of tentative topics and sent it to recommended candidates for two purposes: (1) to ask them to verify suggested topics and suggest additional ones and (2) to discover in which areas they could contribute.

Finally, some 20 participants were selected on the basis of the following criteria: (1) country (no more than four per country in tropical Asia), (2) regional distribution within country, (3) extensive field or laboratory experience with ethnoveterinary medicine; and (4) potential contributions of the participant to avoid overlap and ensure a broad coverage of topics.

Based on the participants' responses to the topic list, the steering committee assigned six or seven specific topics to each participant and asked him or her to compile first drafts along guidelines provided. Participants brought these drafts as well as other resource materials to the workshop.

For the workshop proper, some 20 participants from Cambodia, India, Indonesia, Laos, the Philippines, Sri Lanka, Thailand and the USA met at IIRR on July 11-24, 1994. They included scientists, staff members of NGOs working at the field level and farmers.

During the workshop, the participants presented the drafts they had prepared, discussed these and critiqued them in plenary sessions. After each presentation, participants named additional remedies used in their countries for the disease or problem under discussion. Thus, the original drafts were enriched with remedies from several other countries in Asia.

All remedies were discussed and either accepted against a commonly agreed upon set of criteria, or rejected by the group if participants regarded them as harmful, dangerous or ineffective according to their professional judgement. Some topics were dropped, others combined or added. Editors and artists from IIRR helped each participant make the suggested changes in his or her topic. Through this process, second drafts of about 80 topics were developed and discussed.

The second drafts were again presented in three groups, one each for ruminants, swine and poultry. Each group discussed the drafts in detail, editing and checking the validity of each remedy. Again, editors and artists integrated the revisions to text and illustrations. The resulting

third drafts then underwent a final review by the IIRR editorial team and were prepared for printing.

Because the final version of the topics reflected the inputs not only from those who had originally drafted the text but also from many other participants, it was decided not to name specific authors for each topic but to identify the entire group as authors for the complete set of manuals.

The initial stimulus for these manuals came from Dr. Julian Gonsalves of the International Institute of Rural Reconstruction (IIRR). We would like to thank him for his support. IIRR would also like to thank the workshop participants for their hard work and invaluable contributions during the workshop. Without them, producing this set of materials would not have been possible.

The workshop and the printing of these manuals were supported by Bread for the World, Heifer Project International (HPI), the World Bank's Small Grants Program, the German Appropriate Technology Exchange Service (GATE) of the German Agency for Technical Cooperation (GTZ) and IIRR. The Research Institute for Veterinary Science in Bogor, Indonesia, supported the participation of the participant from Indonesia.

How to use these manuals

Audience and content

The ethnoveterinary information in this set of manuals is intended for use in the field by animal husbandry and agricultural extension personnel (both government and NGO), paraveterinarians, local livestock healers and veterinarians. The manuals can serve as reference materials for livestock care and treatment, can be used to validate or cross-check existing practices and experiences from throughout Asia and can be a source of inspiration to further test ethnoveterinary practices.

The manuals describe indigenous practices which have been shared by the workshop participants. They focus on the tropical region of Asia because areas across this similar agro-climatic zone will have similar flora. This helps to ensure that the plantbased ethnoveterinary remedies recommended in the manuals will be widely available and equally applicable.

Structure and organization of the manuals

The set is divided into four Booklets, three of which are species-specific: ruminants (small and large), swine and poultry. This fourth Booklet contains topics which are general in nature, are not species-specific and are, therefore, applicable to any of the species presented in the manuals.

The topics in the species-specific manuals are not necessarily divided along disease categories, but rather have been broadly presented to include the whole spectrum of "conditions" which a field practitioner may encounter in the care and management of livestock. Additionally, the manuals do not solely present a curative perspective to livestock care, but also include a range of traditional practices (e.g., housing, feeding, breeding, etc.) that focus on maintaining animal health and preventing diseases.

Cross-references (e.g., "see Housing") refer the reader to other relevant sections of the manuals. The References section contains publications that were consulted during the workshop to validate any particular remedy or that contain information on ethnoveterinary medicine.

Because of linguistic diversity across the region, the various remedies list the ingredients by their botanical (or Latin) name and a common English name. Many widely practiced remedies use commonly available and widely known species (e.g., garlic, ginger, coconut, banana, guava), so will be widely applicable. For such species, only the English name may appear in the text. The corresponding Latin name can be found in the Glossary of English and botanical names (page 46 in this manual). The Glossary of medicinal plants (page 49) provides the botanical name, the various plant **Parts used** and the known uses for each of the plants mentioned in the manuals.

@ This symbol highlights precautions to heed when using a treatment.

This symbol highlights reminders.

\$ This symbol marks diseases that can affect humans.

Topics which describe a disease or condition present the following information:

Symptoms	key symptom(s) by which the disease can be identified.
Causes	primary cause(s) of the disease.
Prevention	appropriate preventive measure(s) to avoid disease onset.
Treatment	a detailed description of the treatment(s).

The treatments or remedies which require multiple ingredients are presented in a step-by-step "recipe" format which lists all ingredients to be used and describes how to prepare them. Many remedies which require only a single ingredient are presented in tables. Each remedy is identified by the "." mark; where several remedies are presented, the choice of the remedy is left to the user. The specific socio-religious context of any given remedy has not been included, even though this may be critically important within the culture where the remedy or practice originates.

Intellectual property rights

All remedies and most dosages are based on local stockraisers' practices. Most treatments are widely used within a country or region and cannot be attributed to a single person or village. In a few cases, a remedy is known to be used by a certain individual. For such remedies, the individual's name and village are given.

Validation of practices

After each treatment, the countries where the treatment is practiced (as validated by the workshop group or through references) are presented in boldface. Immediately after the names of the countries is a series of numbers that reflect the validation criteria used in the workshop:

1 Workshop participants agreed that the treatment would be useful.

2 Treatment is widely used in a region or a country (some remedies were also validated against practices from outside Asia).

3 Workshop participants had first-hand knowledge of the remedy's use on-farm.

4 Traditional healers are known to use the remedy.

5 The remedy is cited in the literature in one of two ways: (1) it is used to treat the same problem in humans or another animal species; or (2) this plant has proven pharmacological activity to treat the problem in question. For instance, laboratory tests have shown that *Nicotiana tabacum* (tobacco) leaf extract is effective against *Staphylococcus aureus* bacteria in vitro (Syat 1990). This tends to support the use of tobacco leaves in treating wounds.

6 The remedy has been scientifically validated as effective to treat the problem in the livestock species in question. Relevant references are given under the corresponding plant name in the Glossary of medicinal plants, page 49.

As can be seen from the validation codes after each remedy, relatively few treatments have been scientifically validated in the species in question (code 6). The wide use of some other plants or remedies in several locations or countries, however, lends support for the farmers' claim that these remedies are effective. It also suggests the need for careful scientific evaluation of these remedies, both in the laboratory and in clinical trials.

Because of the lack of scientific testing, it is not possible to vouch that every ingredient in every remedy acts directly to solve the problem in question. There may be additive, synergetic or nutritional effects that help alleviate the problem. It must be stressed again that these are remedies used by farmers and stockraisers. The workshop participants and IIRR have made every attempt to ensure that the remedies are effective and are not harmful. However, they cannot guarantee this or be held liable for any problems that arise from applying these practices.

Dosages

Dosages and preparation methods in indigenous practice are often imprecise and vary widely between individuals and regions. The dosages and methods given are those that, according to the professional judgement and experience of the workshop participants, are most suitable, are easy to prepare and are likely to be effective.

Unless noted to the contrary, all dosage quantities for treatments are for single dosage applications; in other words, each treatment should be prepared at the time of application according to the quantities specified. Dosages for treatments in swine are usually given in terms of live body weight (a simple calculation procedure for estimating live body weight for all species is explained on page 31). Remedies for ruminants are generally stated in terms of dosages for adult cattle or buffaloes. It is important to use appropriate dosages: for instance, a dose for an adult cow could kill a goat; on the other hand, a dose suitable for a goat may have no effect on a cow. Dosages for poultry are usually the amount needed to treat 10 adult birds.

Where possible, simple measurements (handful, cup, etc.) have been given for ease of use by field practitioners. More detailed measurements (milliliters, etc.) are also given to allow a practitioner to be as precise as the particular conditions may allow. The section on Common "nils of measurement (page 28) gives approximate equivalents for various measures used.

Identification, collection and preparation of medicinal plants

Identification

Make sure that you know exactly which plant to use to treat a problem. The names of plants vary from one place to another. Different plant species may have the same local name. The botanical name of each plant used in these manuals is given with each remedy, except for the most common plants. Here are some things to check to make sure you use the right plant.

Type of plant

- Approximate size of the plant.
- Type: tree, woody, shrub, vine, grass.
- The position of flower or fruit in the plant (such as on the top of stem, in the branches).

Leaves

- Approximate size
- Shape (number of leaflets or lobes, with ridges or not) and color.
- Texture (smooth or rough, with hair or not).
- Position and arrangement of the



Leaves

Flowers

- Type of flower; type of inflorescence.
- Size, color and shape of flowers and bud.



Flowers

Fruits

- Approximate size.
- Shape, color when young or ripe.
- Seed present or not.
- Size, shape and color of seeds.



Fruits

Bark

- Present or not.
- Color and texture (smooth or rough).

Collection

Know which materials to collect and what time to collect them. The content of the active ingredient may depend on the plant part, stage of growth, season of harvest, method of handling during collection, physical condition of its collection place and storage.

- Leaves and stems are best collected during daytime and when the plant is about to bloom.
- Flowers that have a smell are best collected when the flower buds are just about to open and in the morning when the sun is still low. Other flowers should be collected when they are in full bloom. Sometimes, collection should be done in batches since flowers do not bloom at the same time.
- Unless the recipe says that unripe fruits will be used, fruits should be collected when they are ripe. Fleshy fruits which deteriorate rapidly should be gathered when they are somewhat ripe, preferably in the early morning or at nightfall.
- Seeds are usually collected from thoroughly ripened fruits. Some dry-textured fruits fall off the plant or split open easily when fully ripened. As a result, seeds are easily scattered and lost. It is advisable to collect such fruits as soon as they start ripening.
- Barks should be collected when the plants are in bloom or in vigorous growth. Barks should be collected from the trunk and branches.
- Roots and other underground parts (e.g., rhizome, rootstock, stem tuber, bulb and stolon) are best collected when the plant is in full growth.

Reminder

Avoid collecting plants in a way that kills the plant or damages its surroundings. Before collecting any, determine first how much of the plant and what parts are needed to prevent wastage. Collect only the plant parts you need. For instance, if you need only the leaves, take only the leaves and only the number that you need. Medicinal plants should be conserved to ensure their continuous supply.

After collection

Sorting and cleaning

- Clean plant parts of soil and dust.
- Plants that may have been exposed to pesticides should not be used. If you have no other choice, they should be washed properly in clear water. Clean and wash plants as quickly as possible to avoid damaging them.

Drying

Air-drying is the best way of drying herbal plants. Drying at high temperatures will destroy plant ingredients. Spread the plant materials thinly and evenly over an old newspaper, a bamboo mat, or chicken-wire screen. Put in the shade until the materials are dry. Drying can be done through artificial heat, especially in the rainy season. Heating devices vary from one place to another.

Cutting, trimming, grinding, chopping

These are done for various reasons:

- To increase the efficacy of the plants materials.
- To allow more active ingredients to go into the preparation.
- To reduce the toxicity or adverse effects of certain drugs.
- To shorten the duration of drying.
- To make the plant material more convenient to store.

Storing

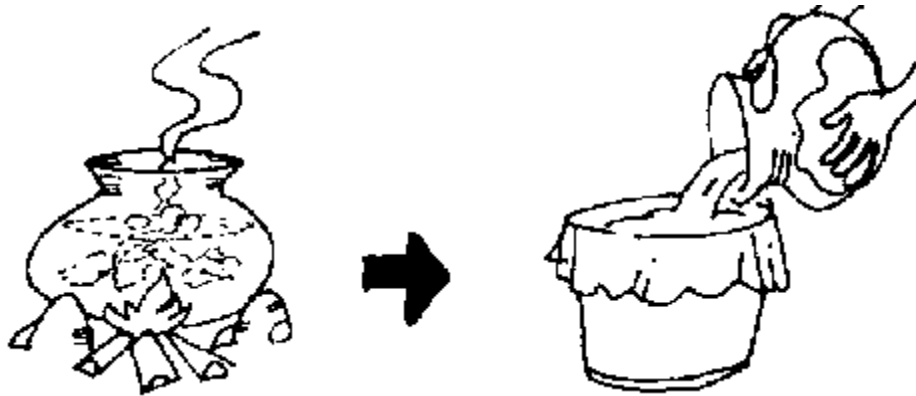
Medicinal plants should be properly stored to preserve their quality. Otherwise, they may be attacked by insects, mites and fungus. Storage can also ensure the continuous supply and availability of the materials whenever they are needed. Dried plants should be kept in covered plastic containers or bottles. These should be covered tightly and kept in a cool, dry place away from sunlight. Label the container properly with the name of the plant and the date when it was collected. Do not use any stored herbal plant which has molds or is discolored.

Preparing herbal medicine

Plant materials can be either fresh or dry, depending on the need and preparation. If dried plants are to be used as a substitute for fresh parts, adjust the quantity or the weight since water is lost during drying.

Decoction

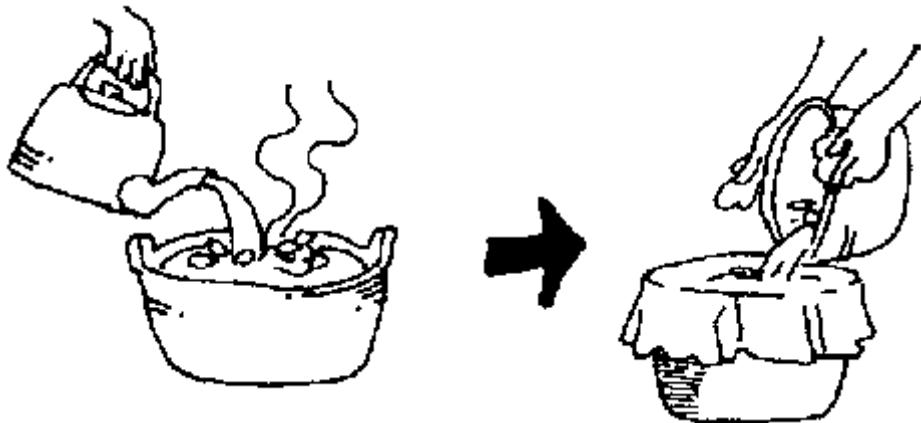
Boil the plant parts in water, preferably for 15-20 minutes from the time the water has started boiling. Some healers recommend boiling the plant materials until the original volume of the water is reduced to one half. Some plants are soaked or moistened. Ideally, plant materials should be decocted twice in order to extract their active ingredients thoroughly. Strain or filter the liquid either while it is still hot or after cooling.



Decoction

Infusion

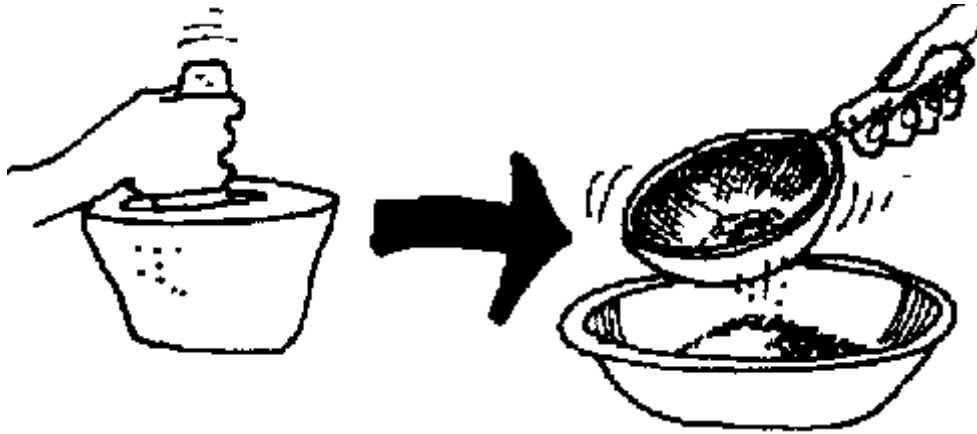
Pour hot or cold water onto the fresh or dry plant material and allow it to stand. Cover the preparation tightly to stop important ingredients from being lost. The length of time needed to prepare an infusion depends on the type of plant material and whether the water is hot or cold. In general, hot infusions need to stand for only 5-15 minutes; cold infusions may require up to 24 hours. Filter the preparation (and allow hot liquid to cool) before administering to the sick animal.



Infusion

Powder

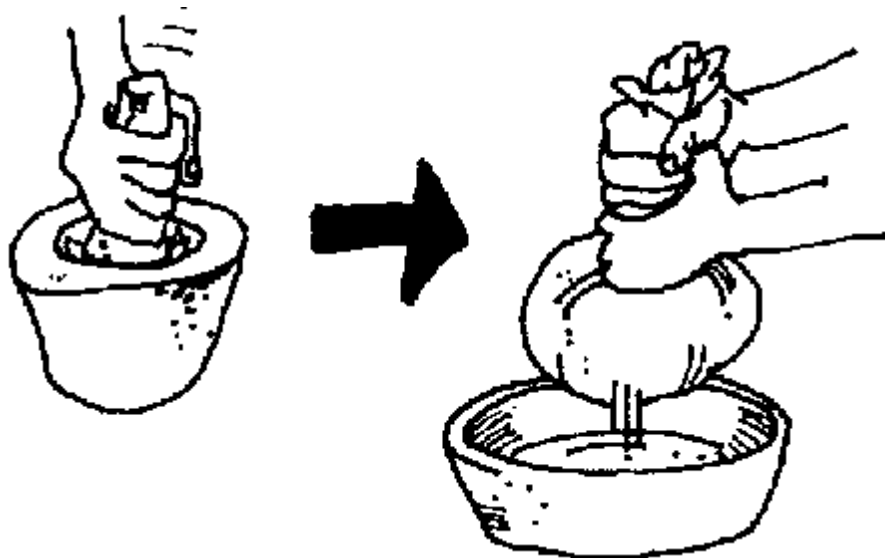
Pound and grind the dried plant materials into coarse, intermediate or fine particle sizes. Sift the powder (once or several times) through coarse or fine sieves to get the required particle size.



Powder

Juice

Pound the fresh plant materials, then pass them through a cheesecloth or any fine piece of cloth in order to get the juice. Or you may just squeeze the plant parts to extract the juice.



Juice

Poultice or paste

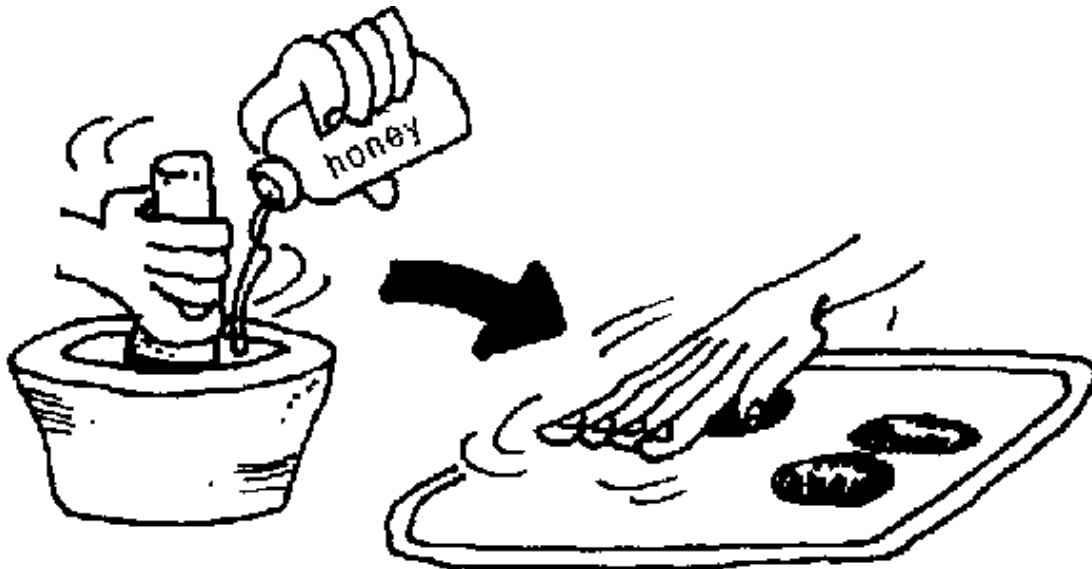
A poultice is a moist, semisolid preparation which is applied directly on the skin. Prepare it by grinding the plant materials (either fresh or dry), sometimes with a little oil, water, molasses, honey, or other liquids.



Poultice or paste

Bolus

A bolus is made by pounding fresh or dried plant material and adding sufficient binding agent such as honey or molasses. Roll it or shape it with your hand to make a round or oval ball

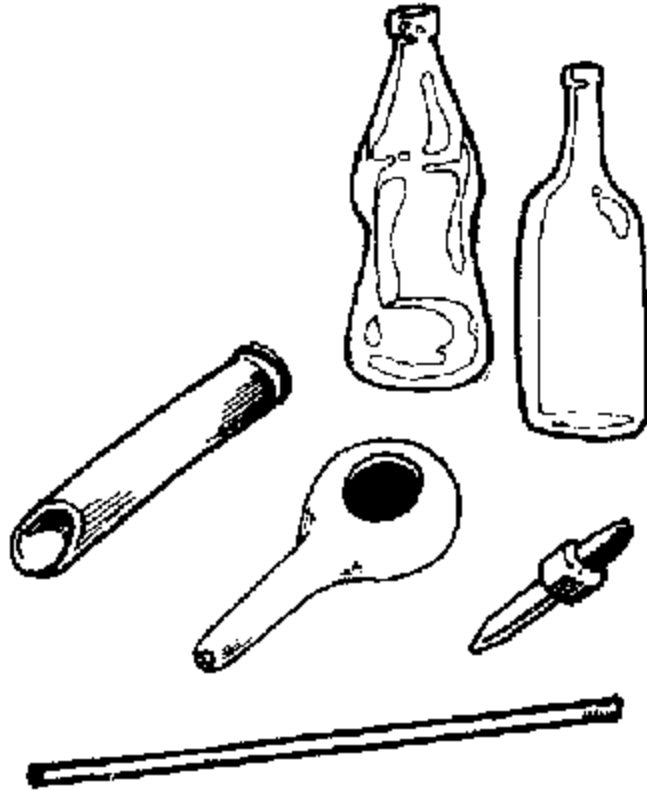


Bolus

Application of herbal medicine

Drenching

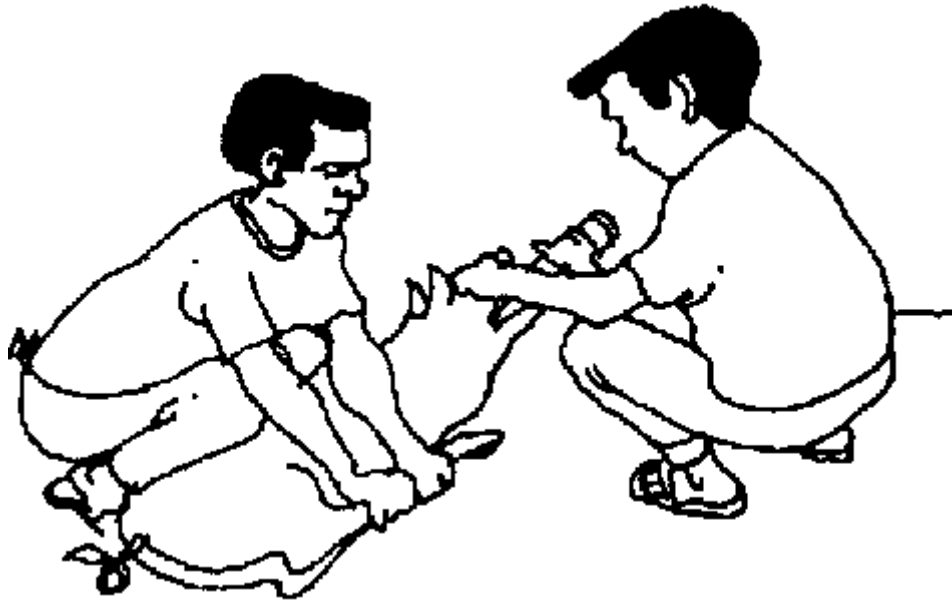
The application of liquid preparation through the mouth is called drenching. It can be used for swine, ruminants and poultry. Hold the head level so that the medicine does not go into the lungs. For swine and ruminants, use a bamboo tube, a softdrink bottle, a wine bottle or a bottle gourd. Use a dropper or straw for poultry.



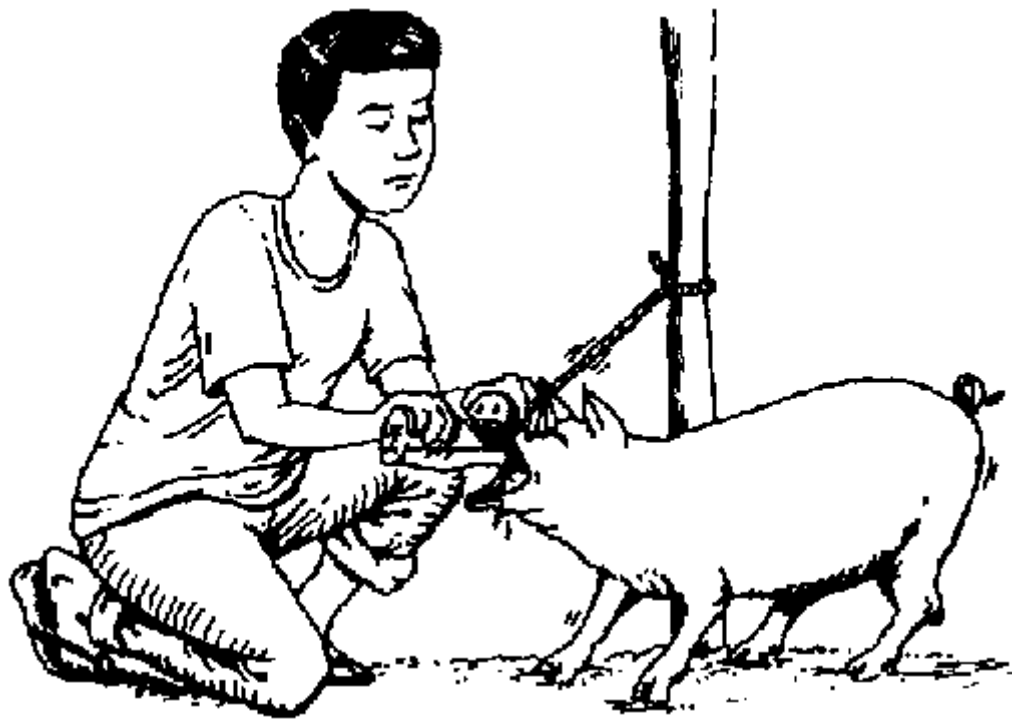
Drenching

Swine

- Lie the animal on its front on the ground and tie it down or ask someone to hold it.
- Tie the snout with a piece of rope. Hold one end of the rope tightly or tie it to a post so the animal's mouth is open and it cannot bite your hands or the bottle. Put the end of the bottle into the mouth and slowly pour the liquid into the mouth. Make sure the animal swallows the liquid.



Swine



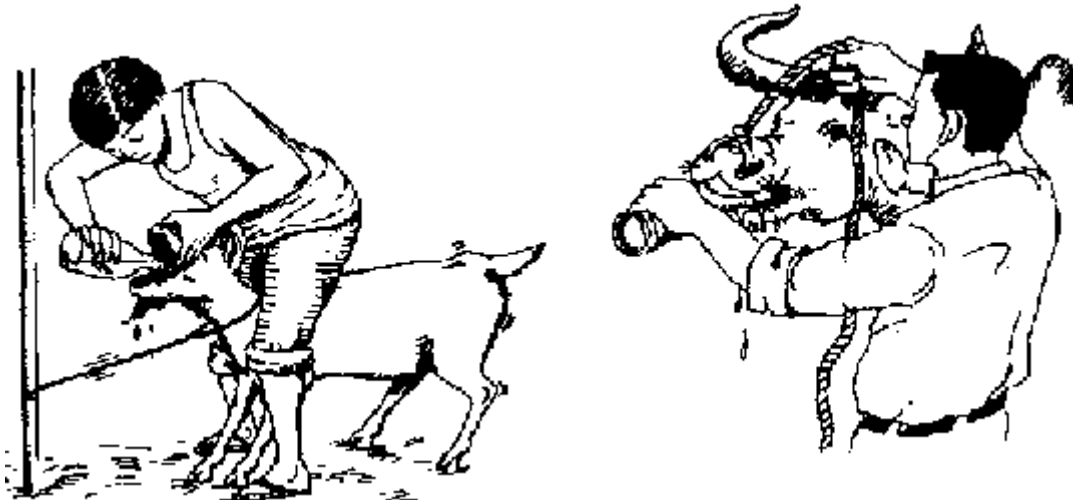
Swine - continue

Ruminants

1 Tie the animal to a tree or pole.

2 With small ruminants, mount the animal and hold it between your thighs.

3 With one hand, hold the upper jaw so that the animal opens its mouth. With cattle and buffaloes, you can use a rope through the nose ring to hold the mouth open. With the other hand, put the end of the bottle in the side of the animal's mouth and slowly pour the liquid into the mouth.

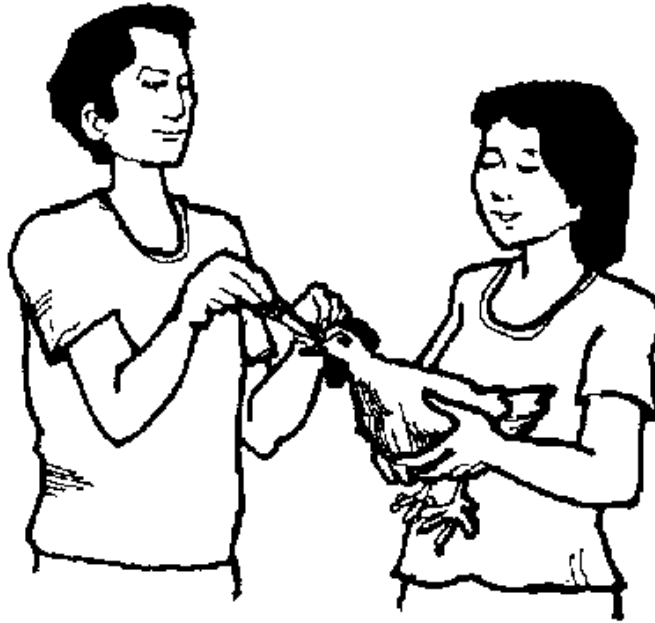


Ruminants

Chickens

Birds can be held by the person who will administer the medicine or by someone else. Use a syringe or dropper or you can use a rice or sorghum straw.

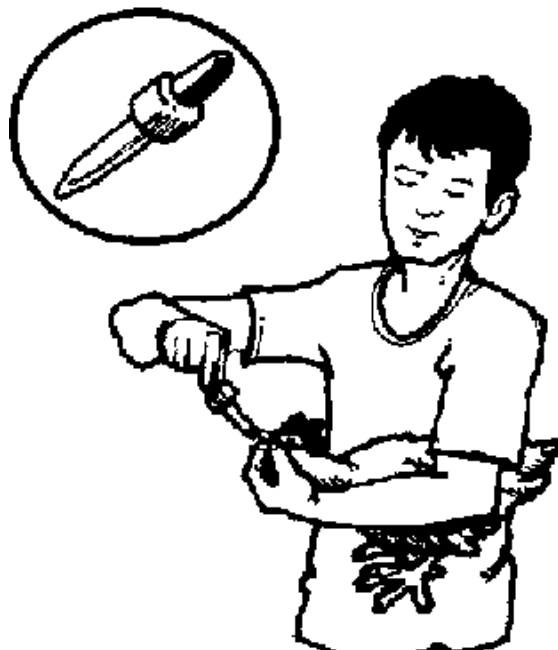
- Hold the upper beak with the left thumb or first finger. Push the lower beak down with your finger or the medicine dropper. Hold the head level so the medicine does not go into the lungs.
- Drop or squirt the medicine into the mouth.



Chickens

Force-feeding

The application of solid preparations through the mouth is called "force-feeding". It is used for ruminants, swine and poultry. The procedure is similar to that for drenching. After you have put the solid medicines into the mouth, make sure that the animal swallows them. In ruminants, this can be done by massaging the throat. An easy way to force-feed animals is to put solid medicines either into a banana or cooked sweet potatoes and feed this to the animal.



Force-feeding

Medicine mixed with feed and water

In all species, both liquid and solid medicines can be given with feed and water. They can be:

- Mixed thoroughly with the feed.
- Mixed with some of the feed; give the remaining feed only if the animal has eaten all of the medicated part. To treat individual poultry, put the bird and the medicated feed together under a basket until the feed has been eaten.
- Dissolved in drinking water. Use only as much water as the animal can drink at one time.
- Sprinkled on the feed ("top-dressing").

Topical application

Poultice

- A poultice is a soft, usually heated preparation that is applied to a sore or inflammation.
- If necessary, keep the poultice on if necessary by tying a cloth or strip of banana trunk or coconut leaves over it.

Poultices are used for swine, ruminants and poultry.

Fomentation

A fomentation is a warm, moist substance (such as a wet cloth) applied to the affected parts of the body. It is used to ease pain and inflammation in swine and ruminants.

Compress

A compress is similar to a fomentation, but is always dry.

This is used for swine and ruminants.

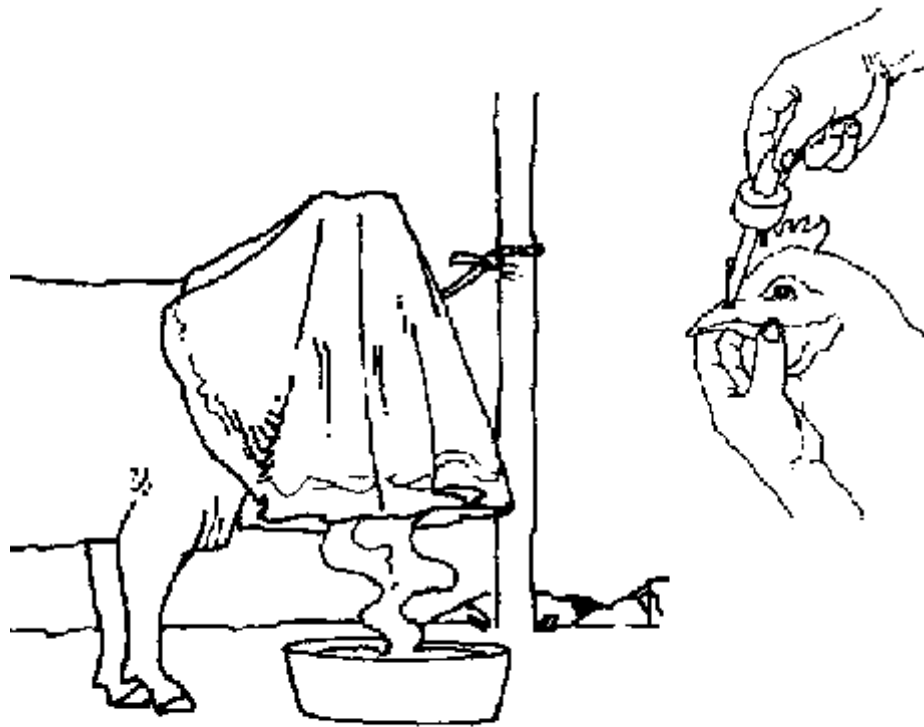
Direct application

Rub the preparation directly on the affected part.

This is used for swine, ruminants and poultry.

Nasal application

Drop medicine directly into the nostril or apply it as vapor as shown in the illustrations. This is used in all species.



medicine,
hot water

Nasal application

Vaginal application

This application is used in cows and sows that have an infection of the birth canal, for example: after retained placenta or other birthing difficulties.

To apply solid medicines

- 1 Clip your nails, clean your hands thoroughly and apply vegetable oil to them as a lubricant.
- 2 Clean the animal's vulva with soap and warm water.
- 3 Take the medicine in one hand and cup this hand into a cone-shape.

4 Insert this hand into the vagina when the muscles of the birth canal are relaxed (for instance, between contractions during birthing). Leave the medicine in the vagina and slowly pull your hand out.

To flush the vagina with liquids

1 Clean and wash the stalk of a papaya leaf and lubricate its tip with vegetable oil.

2 Insert the stalk slowly about 10 cm deep into the vagina.

3 Pour the liquid medicine into the vagina through the hollow stalk until the liquid flows over.

Anal application

This can be used for ruminants and swine.

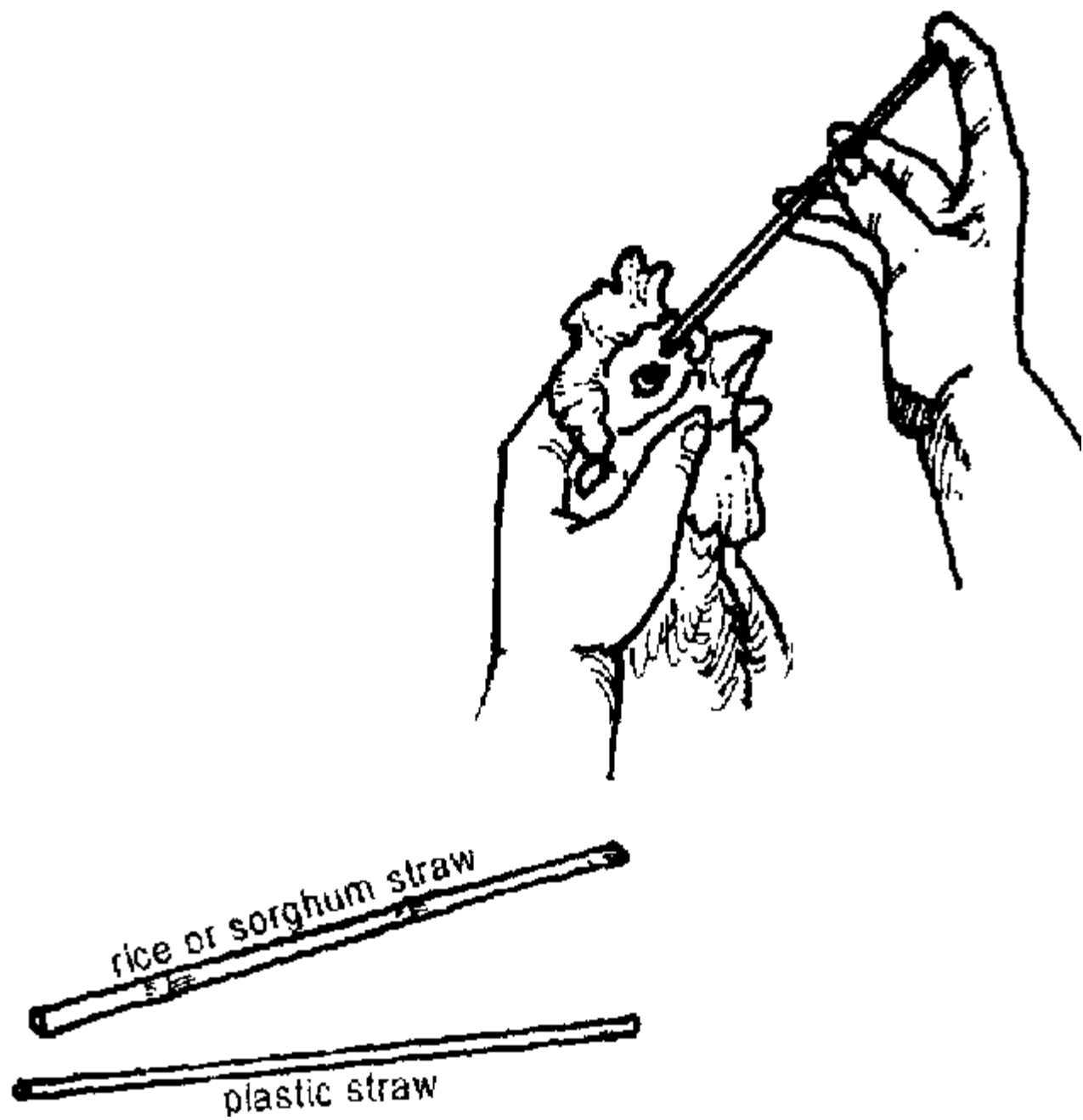
1 Shape the medicine into a small ball.

2 Carefully push it into the animal's anus. If this is difficult, dip the ball into the water or oil before inserting it in the anus.

In the eye

This can be used in all species.

· Use a rice straw, sorghum straw, medicine dropper or plastic dropper. Apply remedy directly into the eyes.



In the eye

Fumigation

Fumigation is the use of smoke to drive away insects.

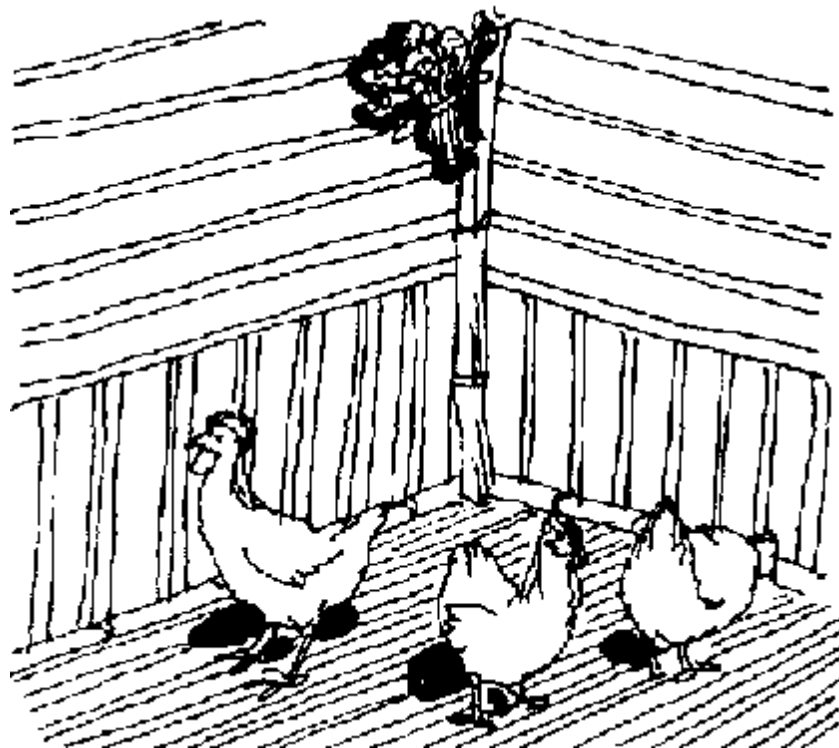
Burn dried leaves. Cover the fire with fresh banana leaves to make a lot of smoke.



Fumigation

Hanging bouquet

Bind plants into a bouquet and hang inside the houses. This can be used for poultry, swine and ruminants.



Hanging bouquet


Common units of measurement


Many farmers do not have accurate ways of measuring ingredients for medicines. For many of the remedies in these manuals, accurate dosages are neither appropriate nor possible. This section gives some approximate equivalents for commonly available measures. Common containers, such as glasses, cups, spoons and bottles, may vary from country to country or even within countries. You should check that these equivalents are correct for your area before using them.


Liquid

- Cup (Philippines)
- Cups (teacup, India)
- Spoons


- **Cups (Philippines)**

 = 16 tablespoons = ¼ liter approximately


 = 1 pint = ½ liter approximately



 = 1 quart = 1 liter approximately

- **Cups (teacups, India)**

 = 30 ml = 6 teaspoons

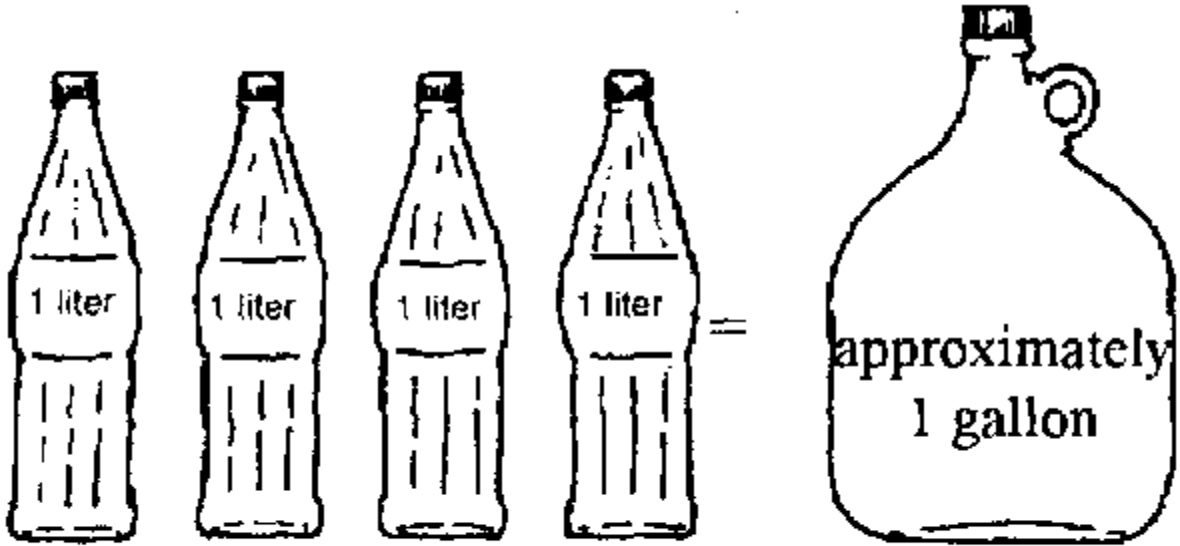
- **Spoons**

 = 5 ml (1 teaspoon)

 =  = 15 ml (1 tablespoon)

 =  = 30 ml (2 tablespoons)

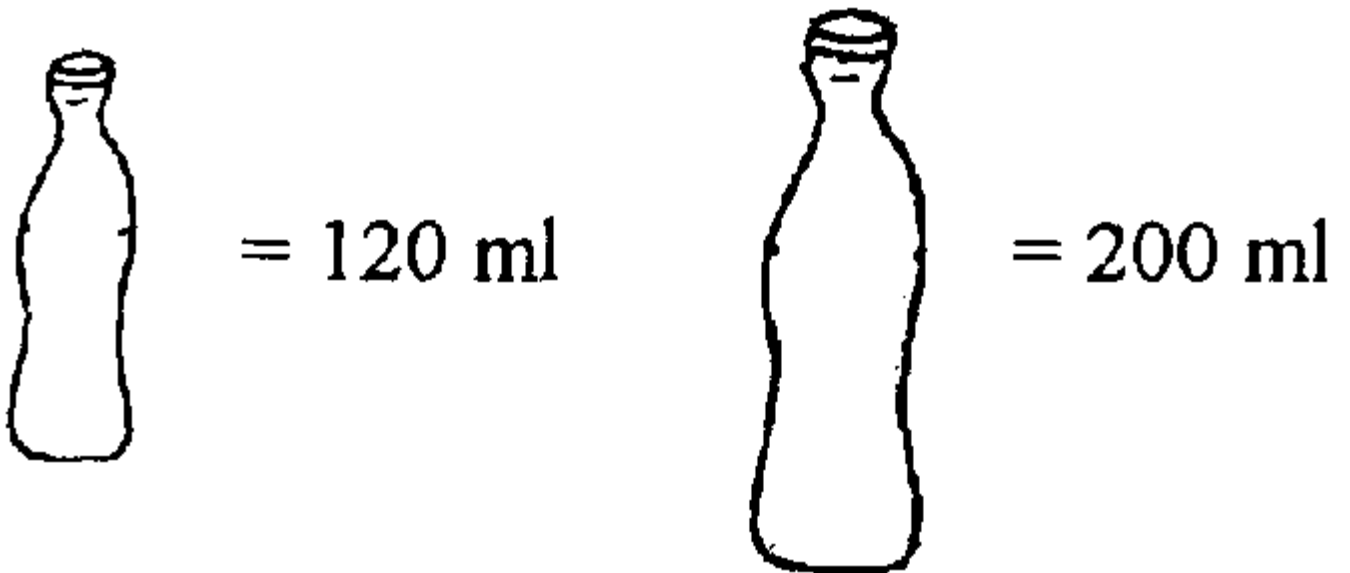
· Bottles (Philippines)



4 liters

Common units of measurement

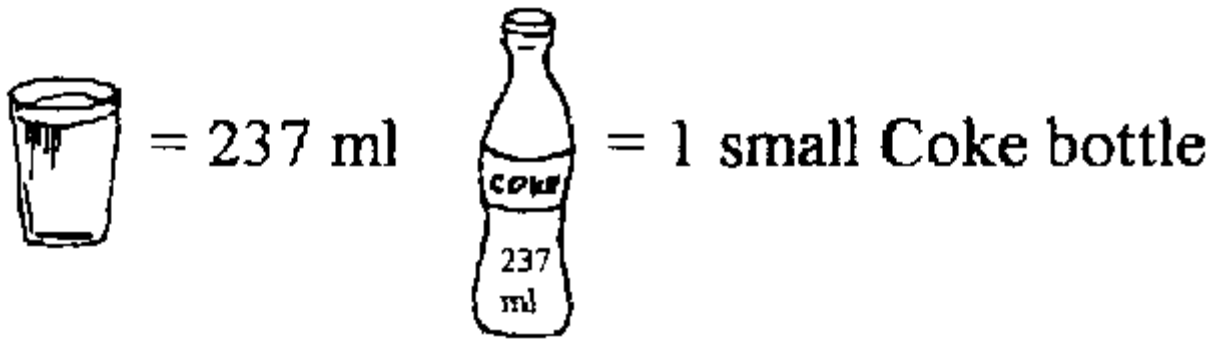
· Bottles (India)



Common units of measurement

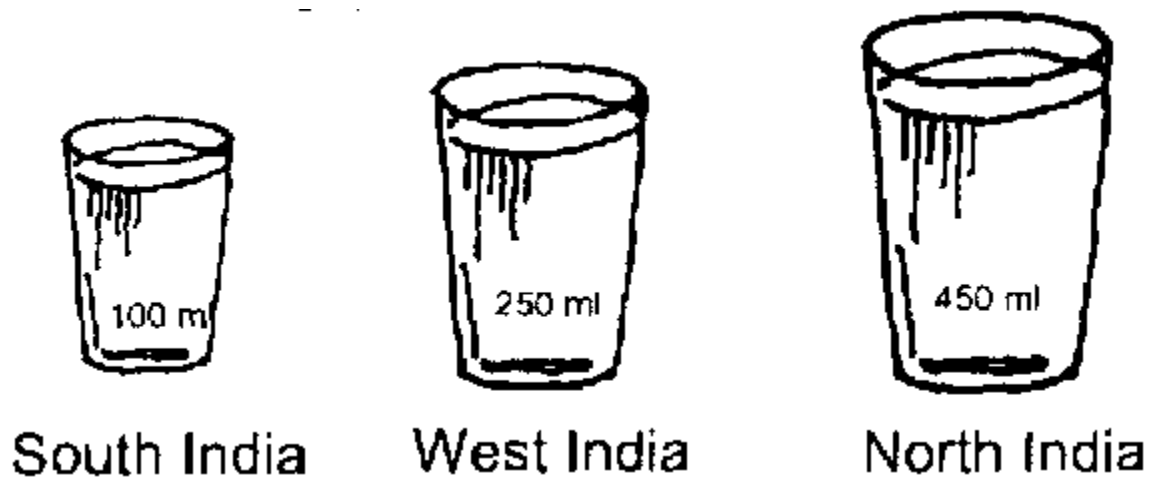
Bottles are often marked with their volume. Common sizes are 1 liter, 750 ml, 375 ml and 320 ml.

· Drinking glass (Philippines)



Common units of measurement


· Drinking glass



Common units of measurement

· Dropper



60 drops = 5ml =  1 teaspoon = 5 grams

Common units of measurement

Powder



1 small matchbox = 50 grams



= 5 grams



= 25 grams



= 10 grams



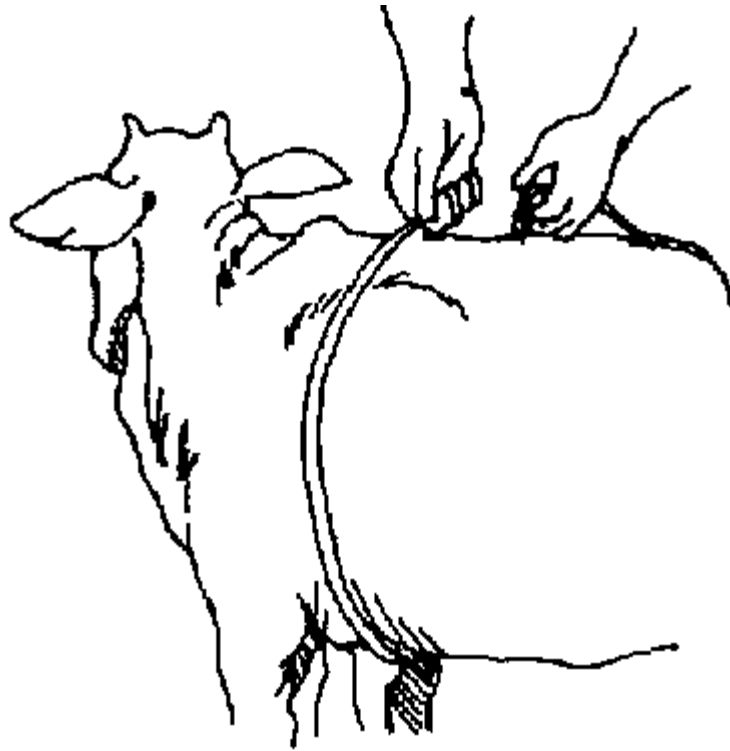
= 50 grams



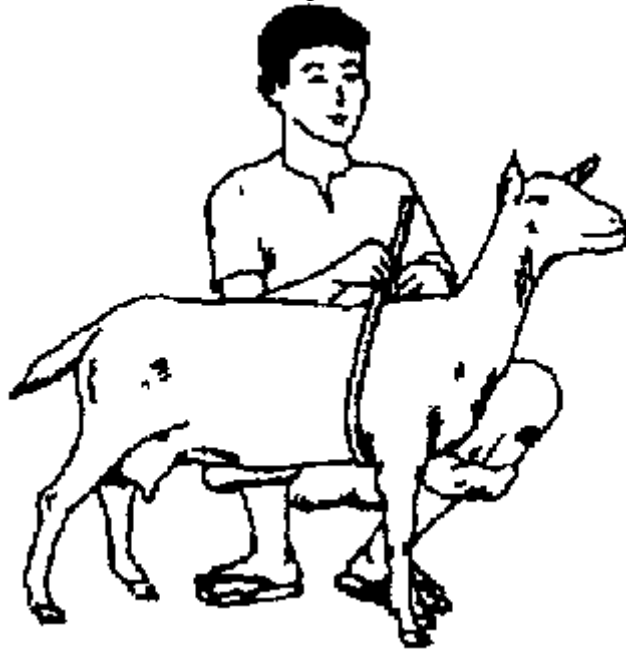
= 10 grams

20 peanuts

Powder



Figure



Figure

Chopped leaves

150-200 leaves of *Azadirachta indica* = 1 handful

300 leaves of *Ocimum* sp. = 1 handful

15-25 leaves of *Eucalyptus tereticornis* = 1 handful

10 leaves of *Areca catechu* = 1 handful

Estimating live weight

Cattle and buffaloes

Measure the chest girth of large ruminants with a tape measure or a string. Use the table below to estimate the weight.

Girth (cm)	Weight (kg)	Girth (cm)	Weight (kg)	Girth (cm)	Weight (kg)
65	35	125	170	185	508
70	40	130	190	190	552
75	45	135	210	195	598
80	50	140	230	200	648
85	59	145	252	205	698
90	69	150	272	210	748
95	79	155	295	215	798
100	89	160	325	220	850
105	103	165	360	225	905
110	118	170	392	230	969
115	134	175	427		
120	150	180	467		

Source: Veterinary Research Institute, Sri Lanka

Small ruminants

Measure the heart girth of small ruminants (goats or sheep) using a tape measure or string. Pull the tape tight. Use the table below to estimate the weight.

Heart girth		Body weight		Heart girth		Body weight	
(in)	(cm)	(lb)	(kg)	(in)	(cm)	(lb)	(kg)
10 ³ / ₄	27.3	5	2.3	18 ³ / ₄	47.6	25	11.3
11 ¹ / ₄	28.6	5½	2.5	19¼	48.9	27	12.2
11 ³ / ₄	29.9	6	2.7	19 ³ / ₄	50.2	29	13.2
12 ¹ / ₄	31.1	6½	3	20 ¹ / ₄	51.4	31	14.1
12 ³ / ₄	32.4	7	3.2	20 ³ / ₄	52.7	33	15
13 ¹ / ₄	33.7	8	3.6	21 ¹ / ₄	53.9	35	15.9
13 ³ / ₄	34.9	9	4.1	21 ³ / ₄	55.3	37	16.8
14 ¹ / ₄	36.2	10	4.5	22 ¹ / ₄	56.5	39	17.7
14 ³ / ₄	37.5	11	5	22 ³ / ₄	57.8	42	19.1
15 ¹ / ₄	38.7	12	5.4	23¼	59.1	45	20.4
15 ³ / ₄	40	13	5.9	23 ³ / ₄	60.3	48	21.8
16 ¹ / ₄	41.3	15	6.8	24¼	61.6	51	23.1
16 ³ / ₄	42.7	17	7.7	24 ³ / ₄	62.9	54	24.5
17¼	43.8	19	8.6	25¼	64.1	57	25.8
17 ³ / ₄	45.1	21	9.5	25 ³ / ₄	65.4	60	27.2
18 ¹ / ₄	46.4	23	10.4	26 ¹ / ₄	66.7	63	28.6

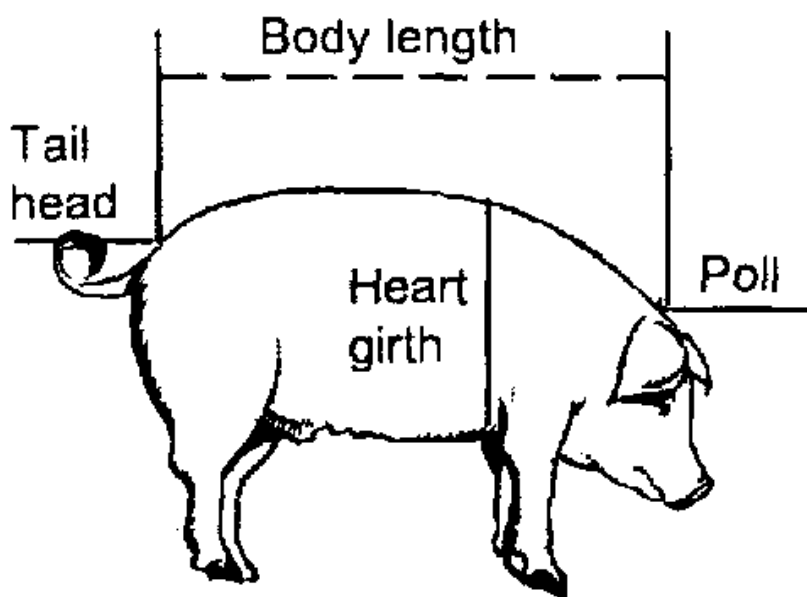
Heart girth		Body weight	
(in)	(cm)	(lb)	(kg)
26 ³ / ₄	67.9	66	29.9
27 ¹ / ₄	69.2	69	31.3
27 ³ / ₄	70.5	72	32.7
28 ¹ / ₄	71.7	75	34
28 ³ / ₄	73	78	35.4
29 ¹ / ₄	74.3	81	36.7
29 ³ / ₄	75.6	84	38.1
30 ¹ / ₄	76.8	87	39.5
30 ³ / ₄	78	90	40.8
31 ¹ / ₄	79.4	93	42.2
31 ³ / ₄	80.7	97	44
32 ¹ / ₄	81.9	101	45.8
32 ³ / ₄	83.2	105	47.6
33 ¹ / ₄	84.5	110	49.9
33 ³ / ₄	85.7	115	52.2
34 ¹ / ₄	87	120	54.4
34 ³ / ₄	88.3	125	56.7
35 ¹ / ₄	89.5	130	59
35 ³ / ₄	90.8	135	61.2
36 ¹ / ₄	92.1	140	63.5
36 ³ / ₄	93.4	145	65.8
37 ¹ / ₄	94.6	150	68.1

37 ³ / ₄	95.9	155	70.3
38 ¹ / ₄	97.2	160	72.6
38 ³ / ₄	98.4	165	74.8
39 ¹ / ₄	99.7	170	77.1
39 ³ / ₄	101	175	79.4
40 ¹ / ₄	102.2	180	81.6
40 ³ / ₄	103.5	185	83.9
41 ¹ / ₄	104.8	190	86.2
41 ³ / ₄	106.1	195	88.4

Source: Sinn (1983)

Swine

Live weight of swine can be estimated by measuring the body length (from the back of the head to the tail head) and the heart girth of the animal with a tape measure. Using the table below, an approximate weight can be calculated. For example, if the body length is 130 cm and the heart girth 110 cm, the swine weighs about 105 kg.



Swine

Heart girth (cm)

		80	90	100	110	120	130	140
		Body weight (kg)						
Body length (cm)	80	36	40	48	60	75	94	116
	90	42	47	55	67	82	101	123
	100	50	55	63	76	90	108	130
	110	59	64	72	84	90	117	139
	120	69	74	82	94	109	120	150
	130	80	85	94	105	120	139	161
	140	93	98	106	118	133	151	173
	150	107	111	120	132	147	165	187

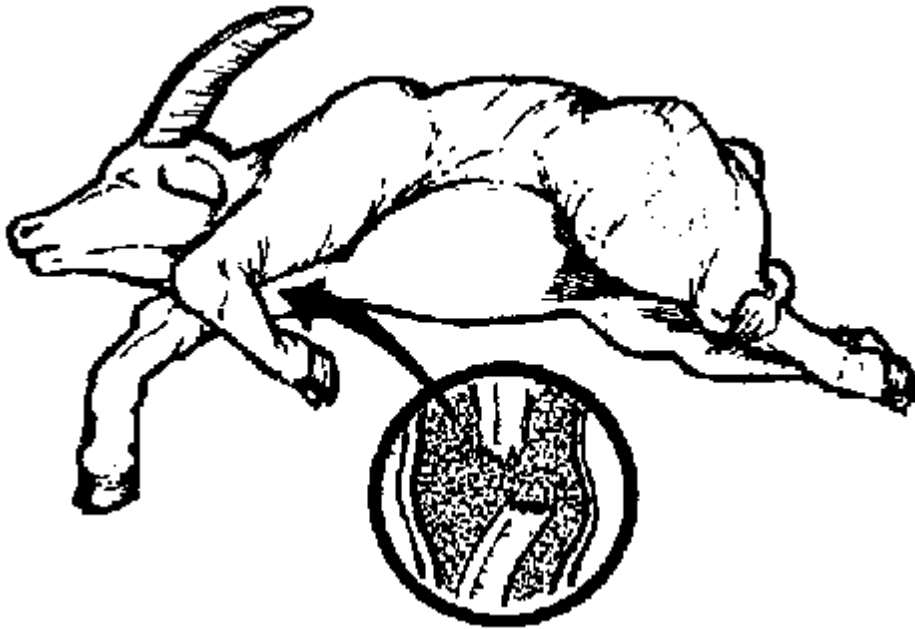
Source: Dayrit (1979)

Body length

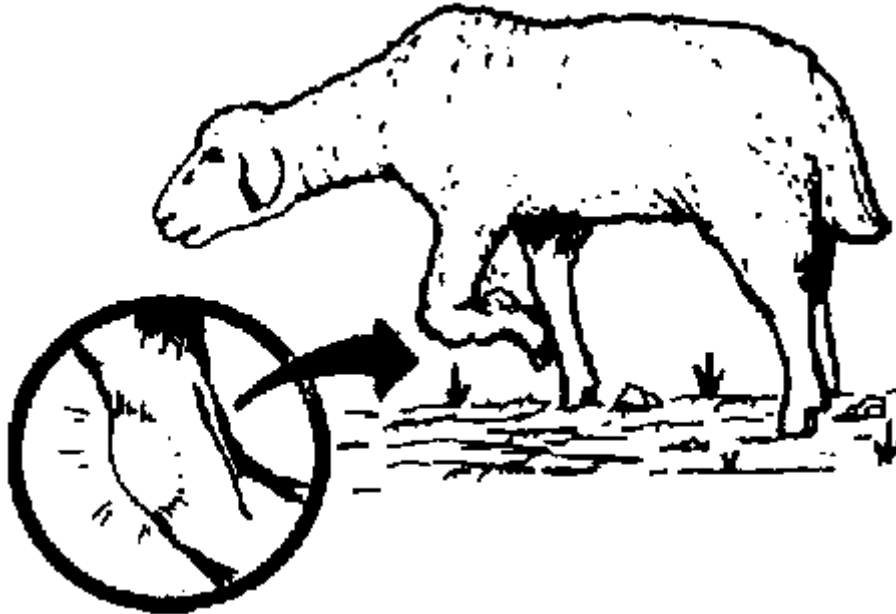
Simple surgical techniques

Fractures

A fracture is a crack or a break in a bone. Fractures are caused by accidents or falls. If a fracture is not treated immediately, the affected area may not regain its normal function.



Fractures



Symptoms

Symptoms

- Swelling at the site of fracture which does not subside.
- The fracture site is painful.
- You can hear a crackling sound when you touch or move the fracture.
- The animal has difficulty using the affected area.



The fracture site is painful

Prevention

- Avoid accidents or falls of your livestock while using draft animals or when sending them out to graze in hilly areas.
- Take extra care with pregnant animals. Their bones are much weaker than other animals'.

Treatments

To treat pain

- Boil 4-7 tablespoons of fresh, mature roots of *Mimosa pudica* (sensitive plant) in 500 ml of water for 10 minutes. For adult cattle and buffaloes, drench this amount of the liquid once a day for 3 days. Caution: prolonged use of *Mimosa pudica* can be dangerous.

For minor fractures and cracks in the bone

- Grind a handful of fresh *Symphytum officinale* (comfrey) leaves and use as a poultice. Change the poultice once a day for 1 week until the animal regains the use of its limb.

For more serious fractures

Follow these steps:

1 Put the animal in a comfortable position.

2 Boil 1 kg of fresh leaves of *Cissampelos pareira* in 1 liter of water for half an hour. Drench adult cattle and buffaloes with 200 ml of the decoction (give 100 ml to calves, goats or sheep). This will relax the animal's muscles an hour after drinking.

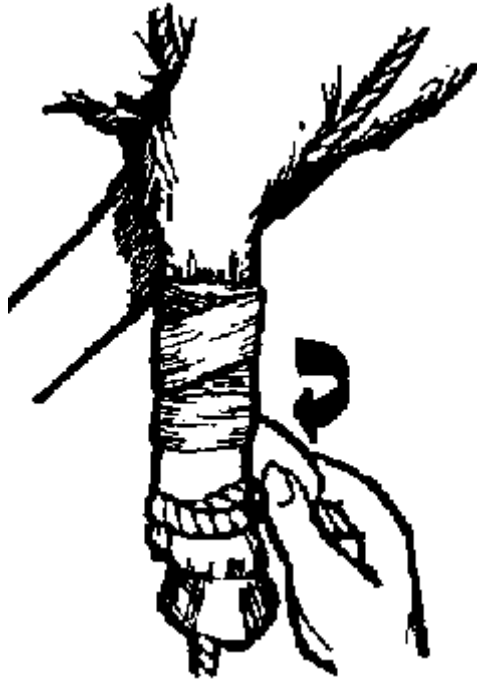
3 Position animal carefully and comfortably, with the affected area facing upwards.

4 Using a rope, straighten the affected limb and align the bones. Be careful not to hurt the animal.

5 Shave the hair and clean the affected area with clean water.

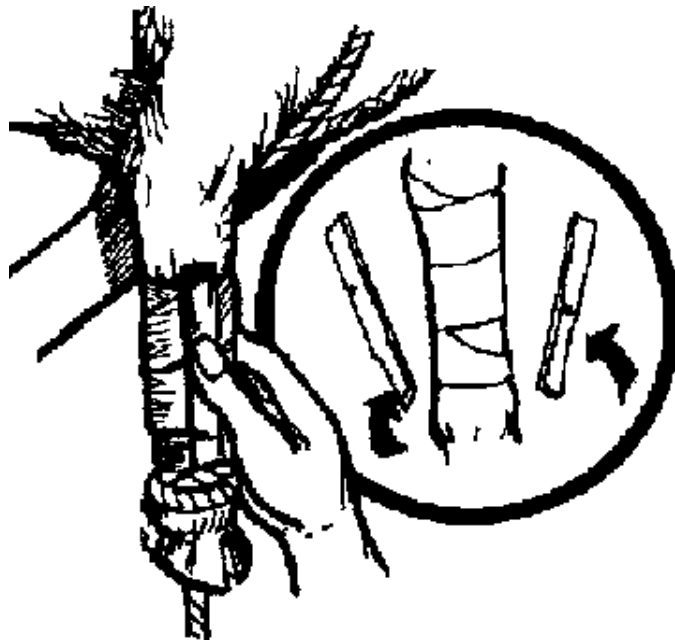
6 Pour vegetable oil on newspaper. Wrap several layers of newspaper around the joint as a cast to keep the joint from moving. This helps reduce the swelling slightly. Leave on for one day.

7 The next day, remove the newspaper. Tie a clean cloth around the area to cover the fracture and protect the skin.



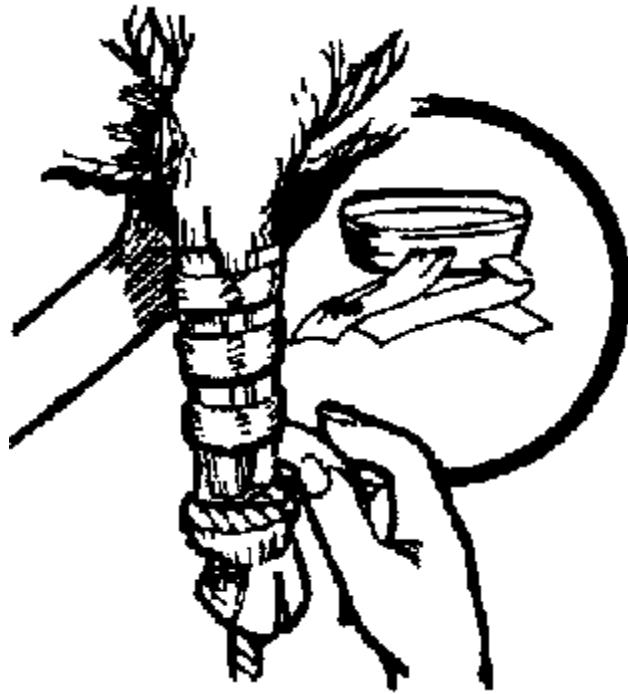
Wrap several layers of newspaper

8 Position splints to keep the joint from moving. Normally, four splints are needed around the leg.



Four splints are needed around the leg.

9 Dip strips of clean cloth in one of the plaster mixtures (see box) and bandage firmly around the limb. The bandage must not be too tight; you should be able to insert your finger under it.



The bandage must not be too tight

10 Leave the cast on for 7-10 days in young animals. Depending on the type of the fracture, it may take 3-4 weeks in adult animals before the cast can be removed.



Depending on the type of the fracture

How to make plaster

Use one of the following mixtures to make plaster. Make enough of the mixture to cover the fracture site. Dip strips of cloth in this mixture.

- Grind 2 bricks and mix with a sufficient quantity of egg white to make a smooth plaster. (Western India. 1, 2, 3, 4)
- Mix 10 egg whites, 3 teaspoons of latex from *Euphorbia neriifolia* and 2 teaspoons of red oxide of mercury. (Western India. 1, 2, 3, 4)
- Grind a handful of *Tamarindus indica* (tamarind) leaves and mix it with anthill mud. Add a little water to make a fine paste. (Western India. 1, 2, 3, 4)
- Mix equal amounts of fresh goat milk, fresh goat droppings (from a goat stall), ash and egg whites. (Western India. 1, 2, 3, 4)

Splints

Splints support fractures and prevent the broken bone from moving. Splints must be made of stiff but light material, such as bamboo, the stalk of coconut or palmyra palm leaves, or the bark of *Areca catechu*.

After treating the fracture

The bone takes approximately 3-6 weeks to heal, depending on the age of the animal and its health. Bones of young animals heal faster. Too much movement of the affected part will delay healing.

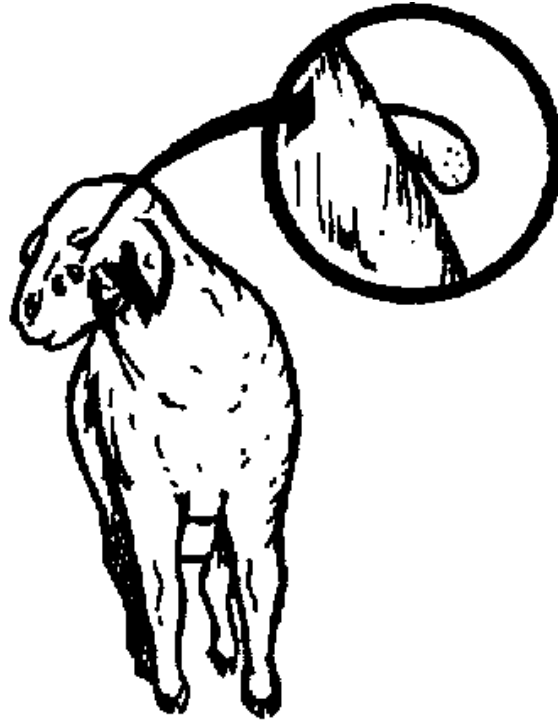
- Allow the animal to rest.
- Give the animal easily digestible and nutritious feed.
- Add a handful of ground limestone, chalk or eggshells to every 10 kg of feed.
- If the cast falls off, replace it immediately with a fresh one.

Bone fractures in very large ruminants are difficult to treat. This is especially true for fractures in the upper limbs. Such animals may develop sores. In this case, consult a professional (a local expert, respected healer or veterinarian).

Working animals may never regain the full use of the affected part. They may not be able to pull heavy carts or plows. In most cases, it will be most practical to sell or slaughter the animal.

Warts

Warts are small, solid growths on the surface of skin. Warts on the tongue can interfere with eating. Warts around the nostrils block the breathing passage. Warts on the teats make milking painful for the animal. Warts on the penis hinder the passage of urine.



Warts

Treatment



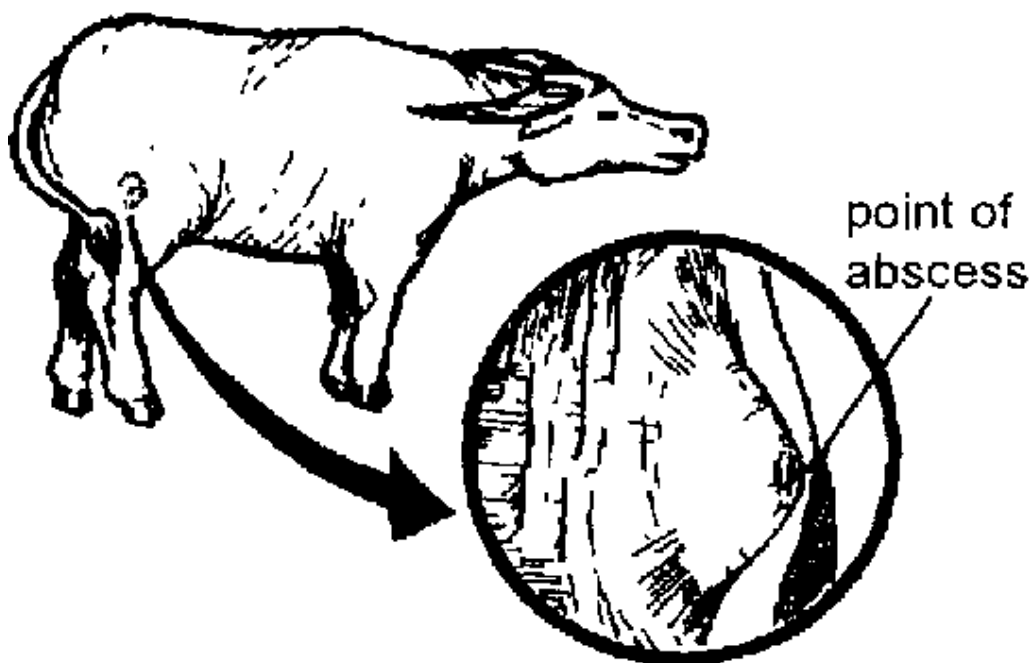
Treatment

Remove the wart using any of the following:

- Tie a thread or 3-4 strands of horse hair tightly around the wart. This will cut off the blood supply to the wart. It will shrink, dry up and eventually fall off. (1, 2, 3, 4, 5)
- Apply 1 or several drops of latex of *Euphorbia neriifolia* or the latex from a papaya trunk, fruit or leaves on the wart. The amount of latex depends on the size of the wart. Apply twice a day until the wart falls off. (1, 2, 3, 4)
- Crush 2-3 fresh leaves and petals of a single flower of *Calendula officinalis* (calendula). Extract the juice and apply at least 3 drops on the wart twice a day until the wart falls off. The amount of juice depends on the size of the wart. (1, 2, 3, 4)
- Tie an entire Piper belle (betel) leaf over the wart like a bandage. Use a string to keep the leaf in place. Change the bandage twice a day until the wart falls off. Also used to treat abscesses (see below). (1, 2, 3, 4)
- Mix 2-3 crystals of copper sulfate with a drop of water. Apply on the wart using a matchstick. Caution: Copper sulfate is strong enough to burn your fingers. (1, 2, 3, 4)
- Squeeze 1-2 cloves of garlic directly onto the wart. Do this once a day till the wart falls off. (1, 2, 3, 4)

Abscesses

Symptoms



Symptoms

An abscess is a rounded, hot, painful swelling full of pus. A single or many abscesses may be found on the body.

Cause

Abscesses may have various causes, including infected wounds, irritants on the skin and internal disease. They may also be caused by using dirty instruments, syringes or needles. If the animal has fever as well as abscesses, it may have an infectious disease (see Infectious diseases in species-specific manuals). Infected matter from an abscess which falls on open wounds may cause more abscesses, severe pain and swelling.

Prevention

- Keep the animal clean and well-fed.
- Clean and sterilize syringes, knives and other instruments before using them on animals.
- Clean wounds properly (see Wounds in species-specific manuals).

Treatment

Use any of the treatments below twice a day until the abscess has dried up. If the animal has fever, see also Fever in species-specific manuals. If the abscess does not subside, or if there are other symptoms, check the section on Infectious diseases and other sections. Consider getting help from a professional.

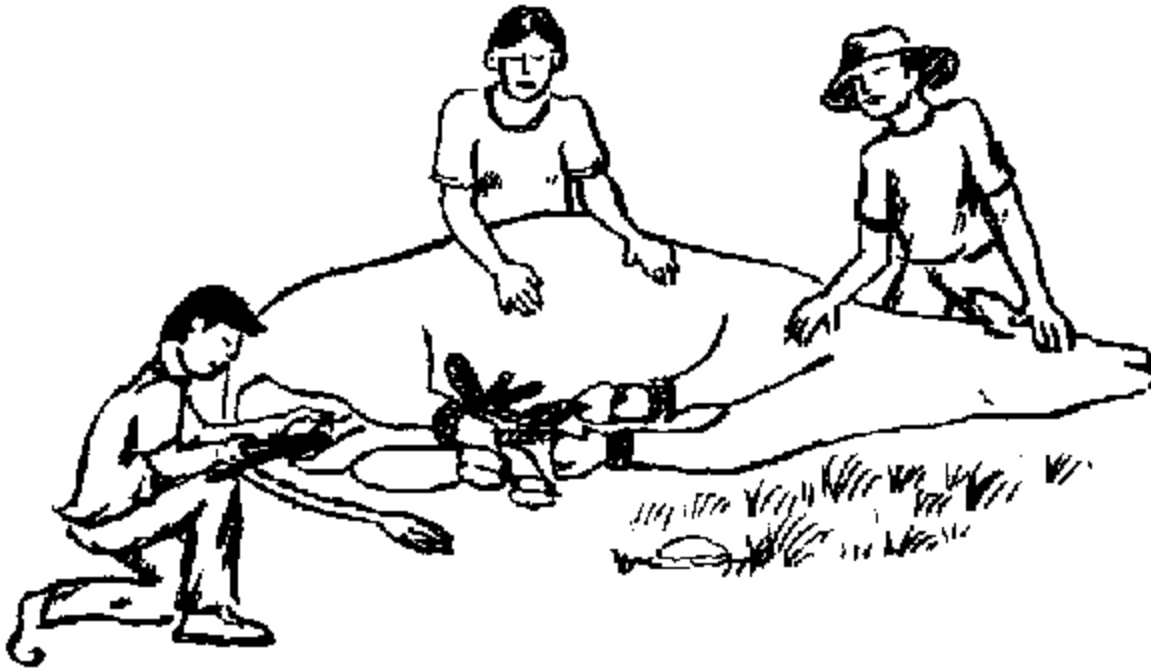
- Grind a handful of fresh neem leaves to make a paste. Apply it on the affected area as a poultice.
- Grind a handful of Odina wadder (sesharam) leaves and mix with half this amount of vegetable oil. Apply it on the abscess.
- Tie a Piper betle (betel) leaf over the abscess to drain it (see Warts on page 40).
- Make a paste from 5 teaspoons of turmeric rhizome powder and 5 teaspoons of water. Apply on the abscess.
- Rub a block of Pterocarpus santalinus (red sanderswood) against a rough stone to make a powder. Make a paste from 5 teaspoons of this powder with 5 teaspoons of water and apply on the affected area.
- Mix equal amounts of salt and water and pour on the abscess.
- Mix equal amounts of slaked lime (calcium hydroxide) and water. Mix this with an equal amount of lemon juice and apply on the abscess.

· Crush 10-20 fresh *Mentha piperita* or *M. cordifolia* (mint) leaves and apply on top of the abscess as a poultice.

· Boil 1 part of young, chopped leaves of *Spondias pinnate* with 2 parts of clean water. Boil for 10-15 minutes. Use the decoction to wash the abscess.

Treating castration wounds

The practice of castration is very old. Castration checks unwanted breeding, prepares young male animals for draft work, fattens males for good meat production and makes the animal docile. Farmers castrate their animals using various methods. In the Philippines and in Sri Lanka, some farmers use a sterilized blade and two long forceps.



Treating castration wounds

Antiseptics to prevent infection

After castration, apply any of the following remedies:

- Wash the wound with water boiled with guava leaves that has been allowed to cool. Do this for 3 consecutive days. (Philippines. 1, 2, 3, 4, 5)
- Chop and pound 1 to 3 mature, fresh banana leaves (depending on how big the wound is). Extract the latex by straining the chopped leaves through a clean cloth or gauze. Apply latex on the wound after the animal's wash in the early morning and the evening. Do this every day until the wound heals. (Philippines. 1, 2, 3, 4, 5)
- Apply 2 handfuls of hot, cooked rice to the wound. This will stop bleeding. (Philippines. 1, 2, 3, 4)

- Mix 1 part brown sugar and 1 part coconut oil and apply on the wound. (Cambodia. 1, 2)
- Mix 1 part lime (calcium hydroxide) powder and 1 part brown sugar and apply to the wound. (Cambodia. 1, 2)

If swelling occurs

- Splash 2-3 cups clean, cold water on the swollen part 23 times a day. (India. 1, 2, 3, 4)
- Pound dry turmeric (*Curcuma domestica*) rhizome with water to make a paste. Apply on the wound till the wound heals. (India, Philippines. 1, 2)
- Crush 5-10 comfrey (*Symphytum officinale*) leaves. Apply to the wound. (Philippines. 1, 2, 3, 4)
- Boil a handful of neem or guava leaves in 1 liter of water for about 15 minutes. Let cool down and sprinkle on and around the wound. (India, Philippines. 1, 2, 3, 4)

Glossary of english and botanical names

This glossary lists plants mentioned in the manuals that are known widely by their common English name. Further information on each plant and a full list of other plants mentioned in the manuals can be found in the Glossary of medicinal plants, page 49.

avocado

Persea americana

banana

Musa sp.

barley

Hordeum sativum

betel

Piper betle

camphor

Cinnamomum camphora

cassava

Manihot esculenta

castor

Ricinus communis

chickpea

Cicer arietinum

chilli

Capsicum annum

coconut

Cocos nucifera

cotton

Gossypium sp.

cowpea

Vigna sinensis or *Vigna unguiculata*

cumin

Cuminum cyminum

fennel

Foeniculum vulgare

fenugreek
Trigonella foenum-graecum

finger millet
Eleusine coracana

garlic
Allium sativum

ginger
Zingiber officinale

greengram
Phaseolus aureus

groundnut (peanut)
Arachis hypogaea

guava
Psidium guajava

hemp
Cannabis sativa

horsegram
Dolichos uniflorus

jackfruit
Artocarpus heterophyllus

lentil
Lens esculenta

linseed
Linum usitatissimum

maize
Zea mays

mango
Mangifera indica

millet
Pennisetum typhoideum

mungbean
Phaseolus radiatus

mustard
Brassica nigra

neem
Azadirachta indica

nipa
Nypa fructicans

nutmeg
Myristica fragrans

onion
Allium cepa

palmyra palm
Borassus flabellifer

papaya
Carica papaya

pepper
Piper nigrum

pigeonpea
Cajanus cajan

pineapple
Ananas sativus

pomegranate
Punica granatum

rice
Oryza sativa

ricebean
Phaseolus calcaratus

rosewood
Dalbergia nigra

rubber

Hevea brasiliensis

sandalwood
Santalum album

sesame
Sesamum indicum

sorghum
Sorghum vulgare

soybean
Glycine max

sunflower
Helianthus annus

sweet potato
Ipomoea batatas

tamarind
Tamarindus indica

tard
Colocasia esculenta

tea
Camellia sinensis

tobacco
Nicotiana tabacum

turmeric
Curcuma longa or
Curcuma domestica

water hyacinth
Eichhornia crassipes

watermelon
Citrullus lanatus

wheat
Triticum aestivum

Glossary of medicinal plants

This glossary lists all ethnoveterinary plants that are mentioned in the manuals. It does not include poisonous plants described in the section Poisoning in Ruminants.

The plants are ordered alphabetically by their botanical name. In addition to the botanical name, each entry provides the English name if known, the various plant Parts used and the known uses for each plant part mentioned in the manuals. The only exception is bamboo because it consists of several different genera and species. Therefore, it was not always possible to determine which genus or species was meant when farmers use "bamboo." Therefore, only the English name is given.

To make it easy for the reader to find the section in the manuals that corresponds to each use, the wording of the "known uses" closely follows or includes the headings of the chapter titles where the plants and treatments are mentioned.

In a few cases, a reference in [] is added after a specific plant part and known use. It refers to the publication which contains the scientific validation for the plant's efficacy in treating the problem in the livestock species in question (marked in the corresponding chapter and treatment with code No. 6). The complete citation of the reference appears in the section on References.

Abelmoschus esculentus

Ladyfinger, Okra

Parts used

Leaf, root and seed

Usage

Decreased milk flow

Booklet

Ruminants



Abelmoschus esculentus

Abrus precatorius
Prayer beads

Parts used
Leaf

Usage
Fowl pox

Booklet
Poultry



Abrus precatorius

Acacia arabica

Parts used

Bark

Leaf and pod

Whole plant

Usage

Vaginal bleeding (Pregnancy and birthing)

Feed

Fencing (Housing)

Booklet

Ruminants

Ruminants

Ruminants



Acacia arabica

Acacia catechu

Catachu

Parts used

Sap

Usage

Wounds and diarrhea

Booklet

Ruminants

Acacia concinna

Parts used

Leaf

Usage

Bloat

Booklet

Ruminants

Acacia farnesiana

Parts used

Whole plant

Usage

Fencing (Housing)

Booklet

Ruminants

Acacia insuavis

Parts used

Branch

Usage

Diarrhea

Booklet

Poultry

Acacia rugata

Parts used

Pod

Usage

Coughs and colds

Booklet

Swine

Acacia spp.

Parts used

Whole plant

Usage

Fencing (Housing)

Booklet

Poultry

Acorus calamus

Parts used

Root

Usage

Eye disease

Booklet

Ruminants



Acorus calamus

Actinopetris fennis

Parts used

Leaf

Usage

Bleeding

Booklet

Ruminants

Adhatoda vasica

Parts used

Leaves, rhizome

Usage

Coughs and colds

Booklet

Ruminants

Aegale marmelos

Indian Bael

Parts used

Bark, flower, fruit, leaf, root, stem

Fruit

Usage

Dehydration

Diarrhea

Booklet

Ruminants

Ruminants



Aegale marmelos

Albizzia myriophylla

Parts used

Bark

Usage

Coughs and colds

Booklet

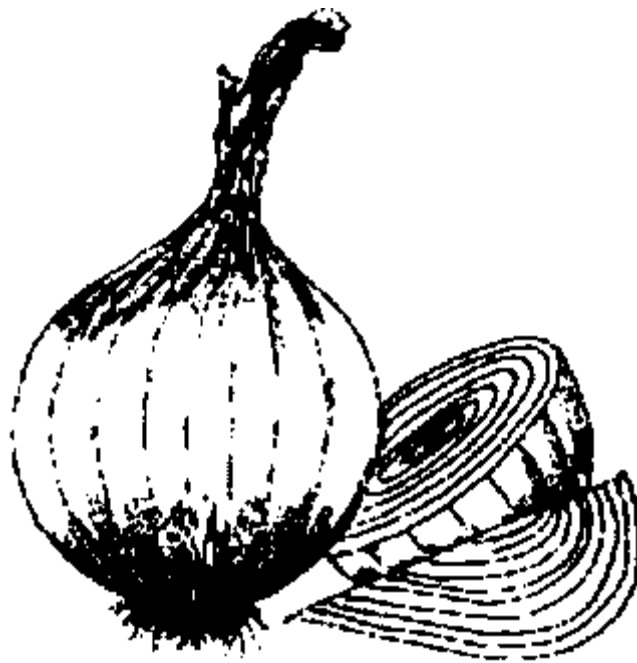
Swine

Allium cepa
Onion

Parts used
Bulb

Usage
Coughs and colds, fungus

Booklet
Poultry



Allium cepa

Allium sativum

Garlic

Parts used

Bulb

Usage

After birth, coughs and colds, newborn's navel, wounds

Retained placenta (Breeding)

Appetizer, coughs and colds, feed, fungus, wounds

Diarrhea

Intestinal worms

Warts (Surgery)

Booklet [Reference]

Ruminants

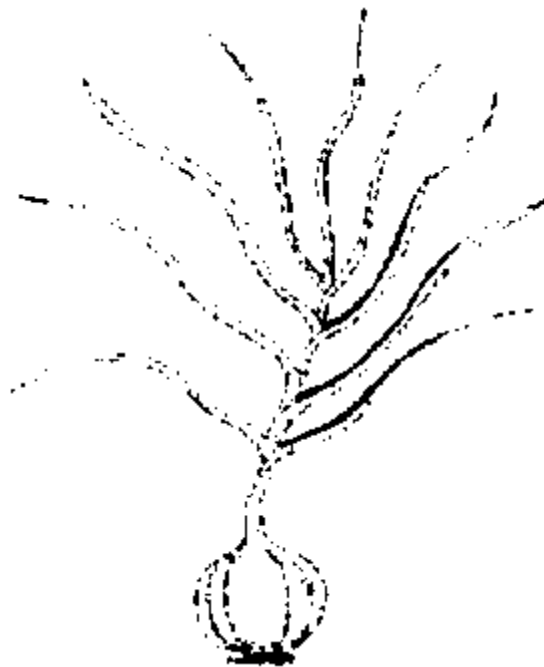
Swine

Poultry

Poultry[Rao et al. 1983]

Poultry [Yebron 1994]

General information



Allium sativum

Aloe vera

Aloe

Parts used

Leaf

Usage

Constipation, eye disease, pregnancy and birthing difficulties, wounds

Wounds

Booklet

Ruminants

Poultry



Aloe vera

Alpinia galanga
Greater galangal

Parts used
Rhizome

Usage
Appetizer, coughs and colds, fungus

Booklet
Ruminants



Alpinia galanga

Alstonia scholaris

Parts used

Bark, leaf and stem

Usage

Appetizer

Booklet

Swine



Alstonia scholaris

Amaranthus gracilis

Parts used

Leaf

Usage

Care during pregnancy (Breeding), constipation

Booklet

Swine

Amaranthus spinosus

Parts used

Leaf

Usage

Care during pregnancy (Breeding), constipation

Booklet

Swine



Amaranthus spinosus

Ananas sativus

Pineapple

Parts used

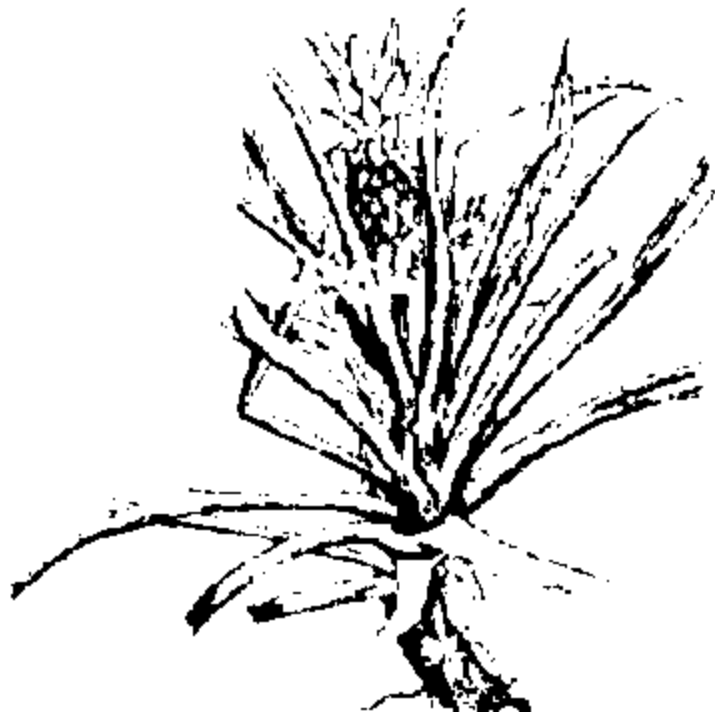
Fruit wastes

Usage

Feed

Booklet

Ruminants



Ananas sativus

Andrographis paniculata

Bitters

Parts used

Stem

Juice

Whole plant

Usage

Diarrhea

Newcastle disease (Infectious diseases)

Coughs and colds

Booklet

Poultry

Poultry

Poultry



Andrographis paniculata

Andropogon annulatus

Marvel grass

Parts used

Leaf

Usage

Decreased milk flow

Booklet

Ruminants

Andropogon citrates

See Cymbopogon citratus

Annona muricata

Sour sop

Parts used

Seed

Leaves

Usage

Lice

Foot rot, wound.

Booklet

Swine

Ruminants



Annona muricata

Annona reticulata

Parts used

Seed

Usage

Lice

Booklet

Swine

Annona squamosa

Sugar apple, custard apple, sweet sop

Parts used

Fruit

Leaf

Seed

Usage

Wounds

Bleeding, foot rot, wounds

Eye, disease, internal parasites

Lice, scabies

Tick and lice

Wounds

Booklet

Poultry

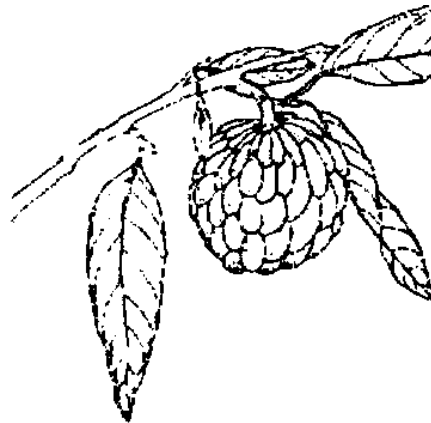
Ruminants

Swine

Swine

Poultry, ruminants

Poultry



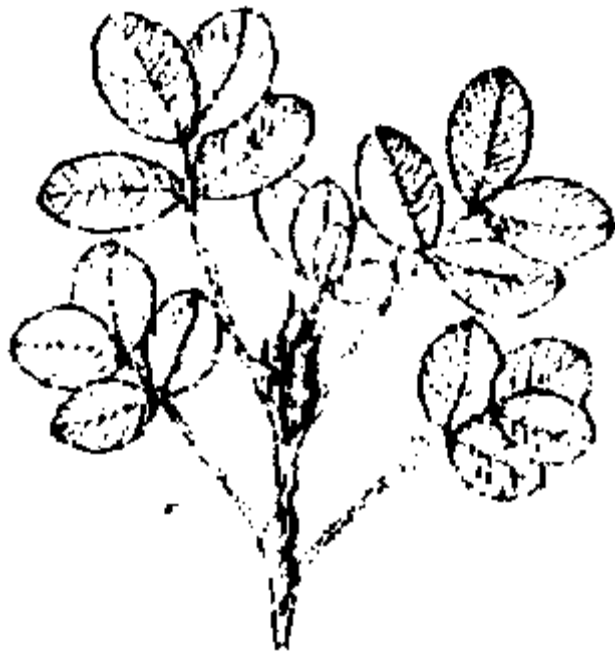
Annona squamosa

Arachis hypogaea
Ground nut, peanut

Parts used
Seed

Usage
After birth
Feed
Decreased milk flow

Booklet
Ruminants
Poultry, ruminants and swine
Ruminants



Arachis hypogaea

Areca catechu

Betel nut

Part used

Nut

Usage

Internal parasites

Intestinal worms

Liverflukes

Booklet

Ruminants, swine

Poultry

Ruminants



Areca catechu

Aristolochia bracteata

Worm killer

Parts used

Leaf

Usage

Constipation, internal parasites

Booklet

Ruminants

Artemisia vulgaris

Parts used

Leaf

Root and stem

Usage

Internal parasites, scabies

Scabies

Booklet

Swine

Swine



Artemisia vulgaris

Artocarpus heterophyllus
Jack fruit

Parts used
Leaf and fruit

Usage
After birth, feed, wounds

Booklet
Ruminants



Artocarpus heterophyllus

Azadirachta indica

Neem tree

Parts used

Bark

Leaf

Seed

Whole plant

Usage

Diarrhea, ticks and lice, wounds

Abscesses (Surgery), castration wound

Bleeding, feed, fever, foot rot, lice, udder infection, wounds

Wounds

Ticks

Insect repellent (Housing)

Booklet

Poultry

General information

Ruminants

Swine

Ruminants

Ruminants



Azadirachta indica

Azima tetracantha

Parts used

Root or leaf

Usage

Diarrhea

Booklet

Poultry

Bamboo (Bambusa sp. and other genera)

Parts used

Leaf, shoot

Stem

Usage

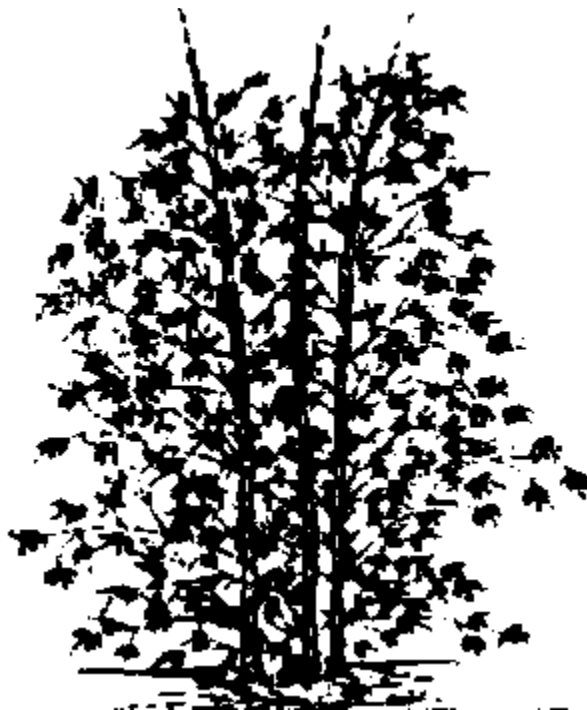
Retained placenta (Pregnancy and birthing), feed (After birth)

Housing

Booklet

Ruminants

Poultry, ruminants, swine



Bamboo

Barleria lupulina

Mahua

Parts used

Leaf

Usage

Snake bite

Booklet

Ruminants

Bassia latifolia

Indian butter tree

Parts used

Flower

Usage

Feed (After birth)

Booklet

Ruminants

Berberis aristata

Parts used

Leaf, stem

Usage

Eye disease

Booklet

Ruminants

Bixa orellana

Parts used

Seed

Usage

Intestinal worms

Booklet

Poultry



Bixa orellana

Blumea balsamifera

Parts used

Leaf

Usage

Fever

Booklet

Swine



Blumea balsamifera

Boerhaavia diffusa

Parts used

Whole plant

Usage

Difficulty in urinating

Booklet

Ruminants

Borassus flabellifer

Palmyra tree

Parts used

Flower

Leaf, wood

Usage

Bleeding

Housing

Booklet

Ruminants

Ruminants, swine

Brassica integrifolia

Parts used

Seed

Usage

Coughs and colds

Booklet

Ruminants

Brassica nigra or juncea

Mustard

Parts used

Seed

Usage

Appetizer

Feed, ticks and lice

Sprains

Booklet

Swine

Poultry

Ruminants

Breynia patens

Parts used

Bark, leaf

Usage

Decreased milk flow

Booklet

Ruminants

Cajanus cajan
Pigeon pea

Parts used
Leaf and pod

Usage
Feed

Booklet
Ruminants and swine



Cajanus cajan

Calendula officinalis

Calendula

Parts used

Flower, leaf and petal

Usage

Warts (Surgery)

Booklet

General information

Camellia sinensis

Tea

Parts used

Leaf

Usage

Bleeding, dehydration, diarrhea, poisoning

Eye disease

Booklet

Ruminants

Swine



Camellia sinensis

Cannabis sativa
Hemp

Parts used
Stalk

Usage
Housing

Booklet
Ruminants



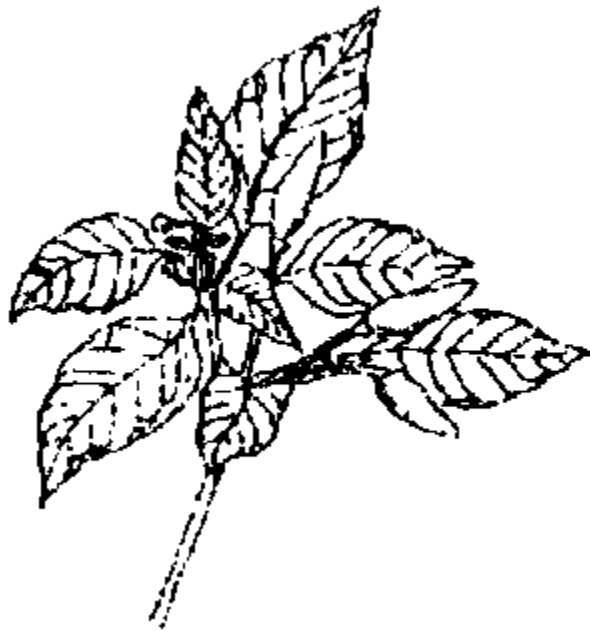
Cannabis sativa

Capsicum annum or frutescens
Chilli

Parts used
Fruit, seed

Usage
Appetizer
Fowl pox

Booklet
Ruminants, poultry
Poultry



Capsicum annum or frutescens

Careya sphaerica

Parts used

Bark

Usage

Dehydration, wounds

Booklet

Ruminants

Carica papaya

Papaya

Parts used

Fruit

Leaf

Latex of fruit or stem

Seed

Latex of trunk, fruit and leaf

Usage

Constipation

Intestinal worms

After birth

Intestinal worms

Internal parasites

Warts (Surgery)

Booklet

Swine

Poultry

Ruminants

Poultry [Mursof, 1990]

Ruminants

General information



Carica papaya

Cassia alata

Ringworm bush

Parts used

Leaf

Stem, bark, fruit

Usage

Scabies

Fungus infection

Scabies

Booklet

Swine, ruminants

Ruminants

Swine



Cassia alata

Cassia siamea

Parts used

Leaf

Usage

Appetizer

Booklet

Ruminants



Cassia siamea

Cassia tora

Parts used

Leaf, seed

Usage

Fungus

Booklet

Ruminants

Centrosema spp.

Parts used

Leaf

Usage

Feed

Booklet

Ruminants

Chromolaena odorata

Parts used

Leaf

Usage

Wounds

Booklet

Swine

Chrysanthemum indicum
Chrysanthemum

Parts used
Leaf

Usage
Scabies

Booklet
Swine



Chrysanthemum indicum

Chrysophyllum cainito

Star apple

Parts used

Leaf

Usage

Diarrhea, foot rot, internal parasites, wounds

Diarrhea

Booklet

Ruminants

Swine



Chrysophyllum cainito

Cicer arietinum

Chick pea

Parts used

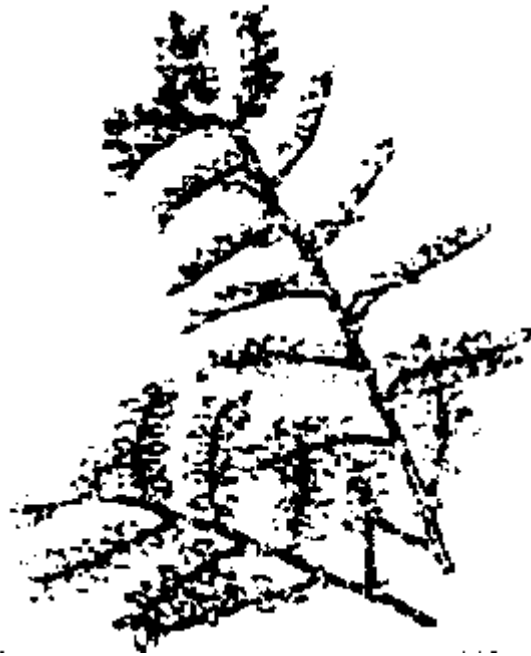
Seed hulls

Usage

Feed

Booklet

Ruminants



Cicer arietinum

Cinnamomum camphora

Camphor

Parts used

Wood

Usage

Coughs and colds

Booklet

Ruminants



Cinnamomum camphora

Cissampelos pareira
Velvet leaf

Parts used
Leaf

Usage
Fractures (Surgery)

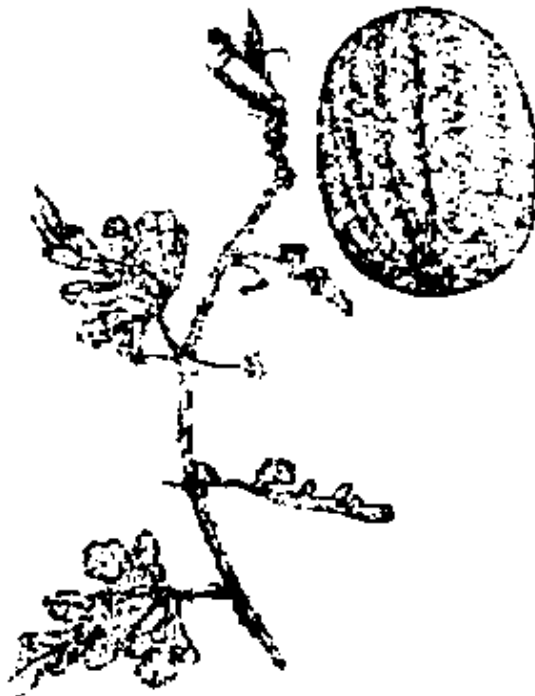
Booklet
General information

Citrullus lanatus
Watermelon

Parts used
Rind of fruit

Usage
Water source (Feeding)

Booklet
Swine



Citrullus lanatus

Citrus acida

Parts used

Bark

Usage

Ticks and lice

Booklet

Poultry

Citrus bergamia

Lemon

Parts used

Fruit

Usage

Sprains

Booklet

Ruminants

Citrus madurensis

Parts used

Leaf

Usage

Fever

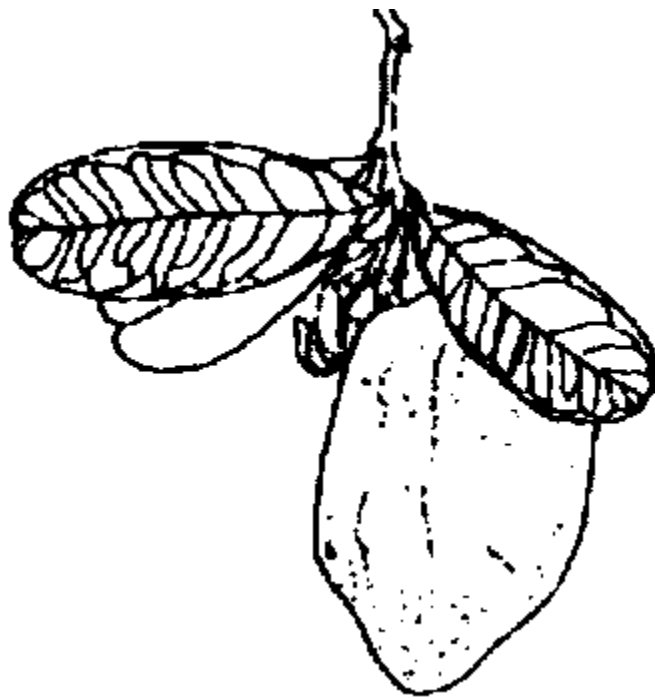
Booklet

Swine

Citrus medica

Citron tree

Parts used	Usage	Booklet
Leaf	Fever	Swine
	Coughs and colds	Ruminants



Citrus medica

Coccinia grandis

Parts used

Leaf

Usage

Eye disease

Booklet

Ruminants

Cocos nucifera

Coconut

Parts used	Usage	Booklet
Husk	Lice, diarrhea Scabies, fungus	Swine Ruminants
Leaf	Housing	Ruminants, swine
Meat	Appetizers	Ruminants
	Feed	Swine, poultry
	Internal parasites	Swine
Oil	Castration wounds	General information
	Constipation, scabies, ticks	Ruminants
	Scabies, udder infection, diarrhea	Swine
	Wounds	Poultry
Shell	Diarrhea	Ruminants, swine
	Lice, scabies	Swine
Water	Appetizer	Ruminants, poultry

	Diarrhea	Swine
	Diarrhea, dehydration	Ruminants
	Eye disease, poisoning	Ruminants, swine
	Heat stress	Poultry
Wood	Housing	Poultry



Cocos nucifera

Colocasia esculenta

Taro

Parts used	Usage	Booklet
Leaf	Feed	Ruminants
Corm	Feed	Swine



Colocasia esculenta

Couroupita guianensis
Cannon-ball tree

Parts used
Fruit

Usage
To stimulate heat

Booklet
Ruminants

Crataeva nurvala

Parts used
Whole plant

Usage
Difficulty in urinating

Booklet
Ruminants

Crotolaria juncea
Sun hemp

Parts used
Fresh leaves

Usage
Feed (After birth)

Booklet
Ruminants



Crotonia juncea

Cuminum cyminum

Cumin

Parts used

Seed (dried)

Usage

After birth, diarrhea

Booklet

Ruminants

Curcuma longa or domestica

Turmeric

Parts used	Usage	Booklet
Rhizome	Abscesses (Surgery), castration wounds	General information
	Coughs and colds	Poultry, ruminants
	Fungal diseases, diarrhea, intestinal worms, feed	Poultry
	Ticks, constipation, udder infection, bleeding, eye disease, sprains	Ruminants
	Wounds	Ruminants, swine, poultry
Whole plant	Cough and colds, sprains	Ruminants
	Swine pox	Swine



Curcuma longa or domestica

Cymbopogon citratus

Lemon grass

Parts used	Usage	Booklet
Leaf	Ticks, lice and mites	Poultry
	Sprains	Ruminants



Cymbopogon citratus

Cynodon dactylon
Bermuda grass

Parts used	Usage	Booklet
Grass stalk	Bleeding	Ruminants
Leaf	Bleeding, wounds, decreased milk flow	Ruminants

6

Dalbergia nigra
Rosewood

Parts used	Usage	Booklet
Wood	Housing	Ruminants

Desmodium triflorum

Parts used	Usage	Booklet
Leaf	Eye sidease	Ruminants

Dioscorea alata
Yam

Parts used
Tuber

Usage
Feed

Booklet
Swine



Dioscorea alata

Dioscorea esculenta

Tugui

Parts used

Tuber

Usage

Feed

Booklet

Swine



Dioscorea esculenta

Diospyros ebenum

Parts used

Leaf

Usage

Ticks and lice

Booklet

Poultry

Diospyros mollis

Parts used	Usage	Booklet
Fruit	Cough and colds	Swine
	Internal parasites	Swine, ruminants

Dolichos uniflorus

Horsegram

Parts used	Usage	Booklet
Seed	Feed	Poultry
	After birth	Ruminants

Dolichos catjung

See *Vigna unguiculata*

Eichhornia crassipes

Water hyacinth

Parts used

Leaf

Usage

Feed

Booklet

Swine

Eleusine coracana

Finger millet

Parts used

Seed

Usage

After birth

Booklet

Ruminants

Embelia ribes

Parts used

Fruit

Usage

Bloat

Booklet

Ruminants

Erythrina indica

Parts used

Leaf

Usage

Cough and colds

Booklet

Ruminants

Eucalyptus globulus

Eucalyptus

Parts used	Usage	Booklet
Leaf	Fever, sprains	Ruminants
	Wounds	Poultry
Whole plant	Insect repellent	Ruminants
		(Housing)

Eugenia caryophyllus
Clove

Parts used
Root clove and bark

Usage
Diarrhea

Booklet
Swine



Eugenia caryophyllus

Eugenia jambolana
Jambul or black plum

Parts used
Bark

Usage
Bleeding

Booklet
Ruminants

Eupatorium odoratum

Parts used	Usage	Booklet
Leaf	Bleeding, wounds	Ruminants
	Wounds	Swine
Whole plant	Foot rot Ruminants	

Euphorbia hirta

Parts used

Latex from stem

Usage

Eye disease

Booklet

Ruminants



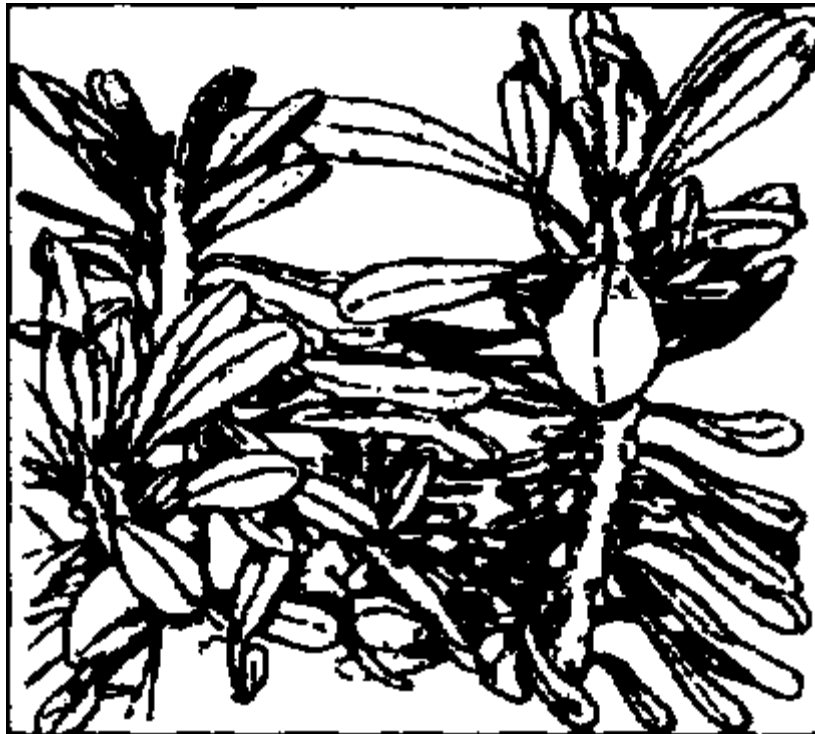
Euphorbia hirta

Euphorbia neriifolia
Common milk hedge

Parts used
Latex

Usage
Fractures and warts (Surgery)

Booklet
General information



Euphorbia neriifolia

Ferula assa-foetida

Asafoetida

Parts used

Resin

Usage

Bloat, after birth

Booklet

Ruminants

Ficus bengalensis

Banyan tree

Parts used	Usage	Booklet
Bark	Bleeding	Ruminants
Latex	Wounds	Ruminants, poultry
Leaf	Feed	Ruminants

Ficus hauli**Parts used**

Bark

Usage

Wounds

Booklet

Ruminants

Ficus minahassae

Parts used

Leaf

Usage

Udder infection

Booklet

Swine

Ficus racemosa

Parts used

Leaf

Usage

Sprains

Booklet

Ruminants

Foeniculum vulgare

Fennel

Parts used

Seed

Usage

Appetizer, after birth

Booklet

Ruminants

Fumaria officinalis

Parts used

Leaf

Usage

Udder infection

Booklet

Ruminants

Gardenia gummifera

Parts used

Resin

Usage

Bloat

Booklet

Ruminants

Gardenia jasminoides

Gardenia

Parts used

Stem

Usage

Fever

Booklet

Ruminants



Gardenia jasminoides

Gaultheria fragrantissima

Parts used

Leaf

Usage

Sprains

Booklet

Ruminants

Gmelina arborea

Parts used

Leaf

Usage

Coughs and colds

Booklet

Ruminants



Gmelina arborea

Gliricidia septum

Gliricidia

Parts used	Usage	Booklet
Bark and root	Scabies, sprains	Swine
Leaf	Lice	Swine
	Feed scabies	Ruminants. swine

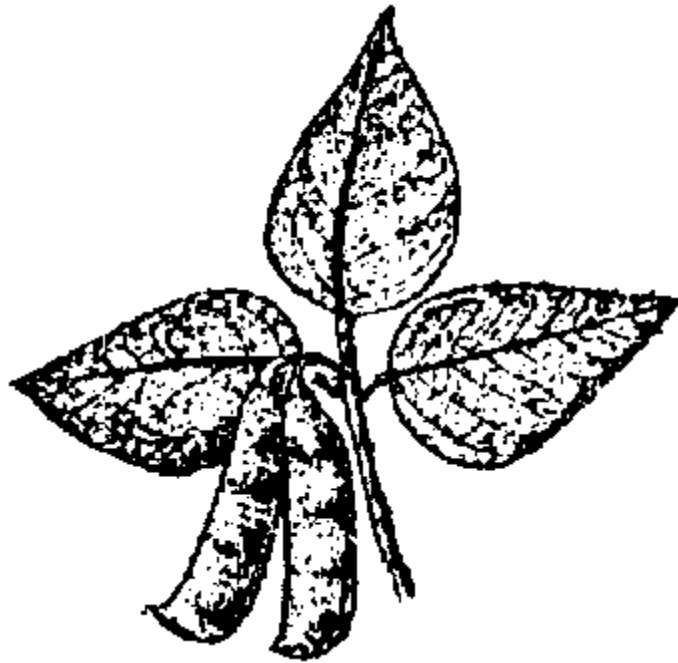


Gliricidia septum

Glycine max

Soy bean

Parts used	Usage	Booklet
Seed	After birth	Ruminants
	Constipation, sprains	Swine
	Feed	Poultry, swine, ruminants



Glycine max

Glycyrrhiza glabra

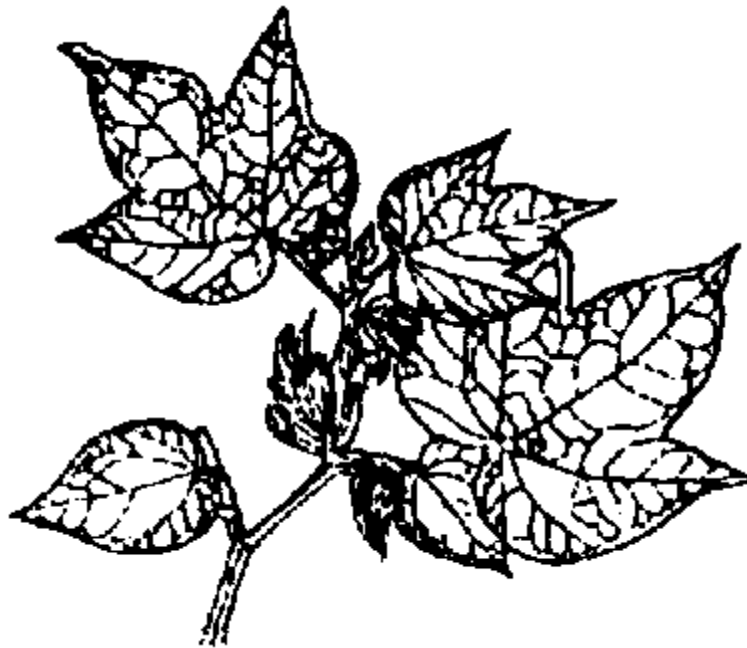
Liquorice

Parts used	Usage	Booklet
Stem	Wounds	Ruminants
Whole plant	Coughs and colds	Ruminants

Gossypium sp.

Cotton

Parts used	Usage	Booklet
Leaf	Retained placenta (Breeding)	Swine
Seed	Decreased milk flow	Ruminants
	Feed	Poultry, ruminants



Gossypium sp.

Helianthus annuus
Sunflower

Parts used
Seed

Usage
Feed

Booklet
Poultry, ruminants



Helianthus annuus

Heliotropium indicum

Indian heliotrope

Parts used

Mature leaf

Usage

Coughs and colds

Booklet [Reference]

Poultry [Fernandez, 1990]



Heliotropium indicum

Hevea brasiliensis

Rubber

Parts used

Seed

Usage

Feed

Booklet

Ruminants



Hevea brasiliensis

Hibiscus rosa-sinensis

Hibiscus

Parts used	Usage	Booklet
Flower	Fever	Swine
	Wound	Ruminants
Leaf	Sprains, wound	Ruminants
	Fever	Swine



Hibiscus rosa-sinensis

Holarrhena antidysenterica

Parts used
Seed and bark

Usage
Diarrhea

Booklet
Ruminants



Holarrhena antidysenterica

Hordeum sativum

Barley

Parts used

Grain

Usage

Feed

Booklet

Poultry

Hoya ovalifolia**Parts used**

Leaf

Usage

Sprains

Booklet

Ruminants

Hyoscyamus niger

Black or common henbane

Parts used

Whole plant

Usage

Difficulty in urinating

Booklet

Ruminants



Hyoscyamus niger

Imperata cylindrica

Cogon grass

Parts used

Leaf

Usage

Housing

Booklet

Ruminants, swine



Imperata cylindrica

Ipomea aquatica

Swamp cabbage, water spinach

Parts used

Leaf and stem

Usage

Care during pregnancy (Breeding)

Booklet

Swine



Ipomea aquatica

Ipomea batatas

Sweet potato

Parts used

Leaf

Leaf and stem

Root

Usage

Appetizer, constipation

Feed

Care during pregnancy (Breeding)

Feed

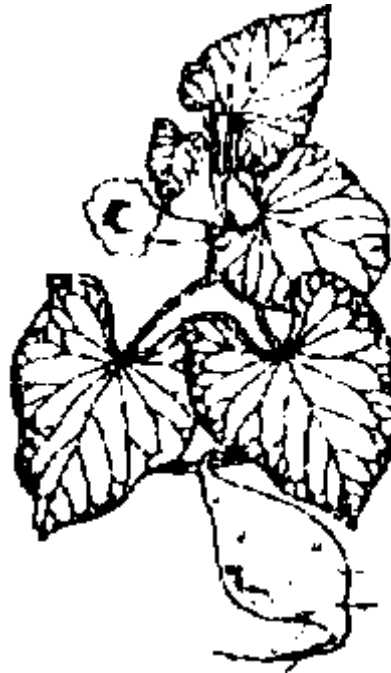
Booklet

Swine

Swine and poultry

Swine

Swine



Ipomea batatas

Jatropha curcas

Parts used

Leaf

Usage

Bleeding

Booklet

Ruminants



Jatropha curcas

Jasminum sambac

Arabian jasmine

Parts used

Flower

Whole plant

Usage

Eye disease

Ticks and lice

Booklet

Ruminants

Poultry



Jasminum sambac

Lagerstroemia speciosa
Banaba

Parts used
Leaf

Usage
Wounds

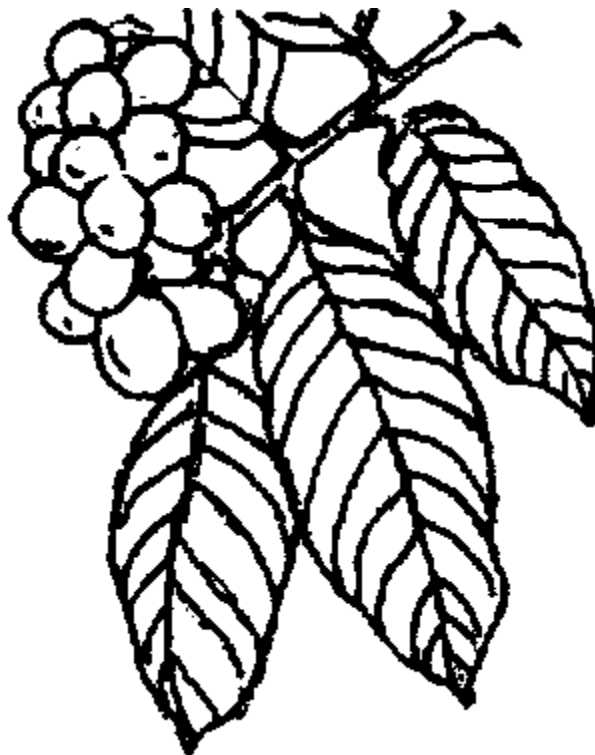
Booklet
Ruminants

Lansium domesticum

Parts used
Seed

Usage
Intestinal worms

Booklet
Poultry



Lansium domesticum

Launaea pinnatifida

Pathri grass

Parts used

Leaf

Usage

Decreased milk flow

Booklet

Ruminants

Lawsonia inermis

Henna

Parts used

Leaf

Usage

Constipation

Booklet

Ruminants

Lens esculenta

Lentil

Parts used

Husk

Usage

Decreased milk flow, feed

Booklet

Ruminants

Leucaena leucocephala

Parts used

Leaf

Seed

Usage

Feed

Internal parasites

Booklet

Ruminants, swine, poultry

Swine



Leucaena leucocephala

Leptadenia reticulata

Parts used

Bark
Leaf
Whole plant

Usage

Decreased milk flow
Decreased milk flow, feed (After birth)
Eye disease
Decreased milk flow, antiabortion, to stimulate heat

Booklet

Ruminants
Ruminants
Swine
Ruminants

Linum usitatissimum

Linseed

Parts used

Seed

Usage

Feed
Poisoning, constipation retained placenta

Booklet

Poultry
Ruminants

Litsea sabifera

Parts used

Leaf

Usage

Udder infection

Booklet

Ruminants

Mangifera indica

Mango

Parts used

Bark

Peel, kernel, leaf, fruit pulp

Usage

Bleeding

Feed (After birth)

Booklet

Ruminants

Ruminants



Mangifera indica

Manihot esculenta

Cassava

Parts used

Leaf

Root

Usage

Feed (After birth)

Feed

Booklet

Ruminants

Ruminants, swine



Manihot esculenta

Marantha arudinacea

Arrowroot

Parts used

Root

Usage

Feed

Booklet

Swine

Melia azedarach

Persian lilac or common bead tree

Parts used

Leaves

Usage

Scabies

Booklet

Ruminants



Melia azedarach

Mentha arvensis

Japanese mint

Parts used

Leaf

Usage

Sprains

Booklet

Ruminants



Mentha arvensis

Mentha cordifolia Opiz

Marsh mint

Parts used

Leaves

Usage

Abscesses (Surgery)

Booklet

General information



Mentha cordifolia Opiz

Mentha piperita

Pepper mint

Parts used

Leaf

Usage

Abscesses (Surgery)

Sprains

Booklet

General information

Ruminants

Mimosa pudica

Sensitive plant Touch-me-not

Parts used

Bark

Leaf

Root

Usage

Sprains

Internal parasites

Sprains

Castration wounds pain (Surgery)

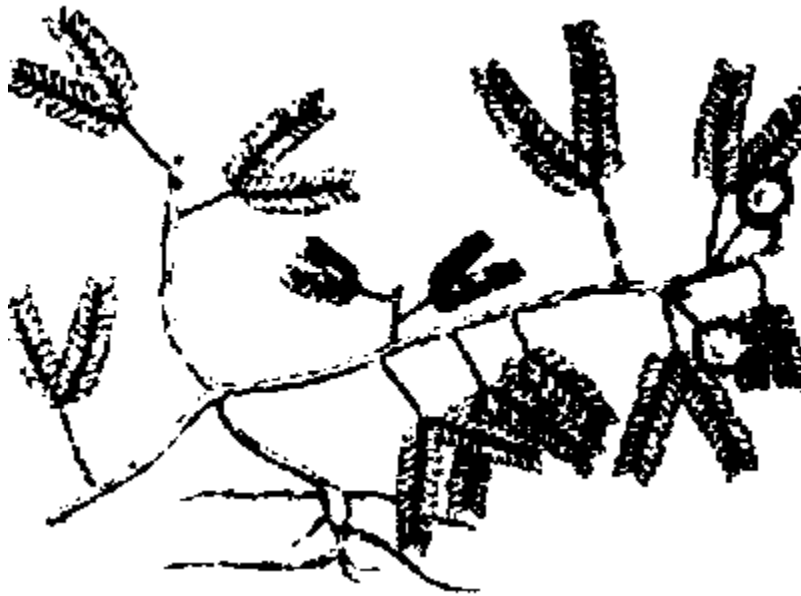
Booklet [Reference]

Swine

Ruminants

Swine [Tan 1981]

General information



Mimosa pudica

Mimusops elonga

Parts used

Seeds

Usage

Cough and colds

Booklet

Ruminants

Mitragyna speciosa

Parts used

Leaves

Usage

Dehydration

Booklet

Ruminants

Michelia champaca

Parts used

Bark

Usage

Wounds

Booklet

Ruminants

Momordica charantia

Bitter gourd

Parts used

Leaf

Fruit and root

Usage

Anemia

Internal parasites

Diarrhea

Booklet [Reference]

Swine [Micu and Mateo 1986]

Swine

Ruminants



Momordica charantia

Morinda citrifolia

Indian mulberry

Parts used

Fruit

Leaf

Usage

Internal parasites

Appetizer

Booklet

Ruminants

Ruminants



Morinda citrifolia

Moringa oleifera

Horseradish tree or drumstick

Parts used

Leaf

Stem bark

Seed

Usage

Anemia, feed

Wounds, cough and colds, after birth

Coughs and colds

Internal parasites

Booklet [Reference]

Swine [Micu and Mateo 1986]

Ruminants

Ruminants

Swine

Mucuna pruriens

Cow-witch

Parts used

Seed

Usage

To stimulate heat

Booklet

Ruminants

Murraya koenigii

Curry - leaf tree

Parts used

Leaf

Usage

Appetizer

Booklet

Poultry

Musa sp.

Banana

Parts used	Usage	Booklet
Blossom	Constipation	Ruminants
Fruit	Bleeding, foot-and-mouth disease (Infectious diseases), udder infection	Ruminants
Latex	Castration wounds	General information
Leaf	Bedding (Breeding, care of newborn), wounds	Swine
	Bloat, constipation, housing	Ruminants
Stem	Fungus	Ruminants
Trunk	Water source (Feeding)	Swine



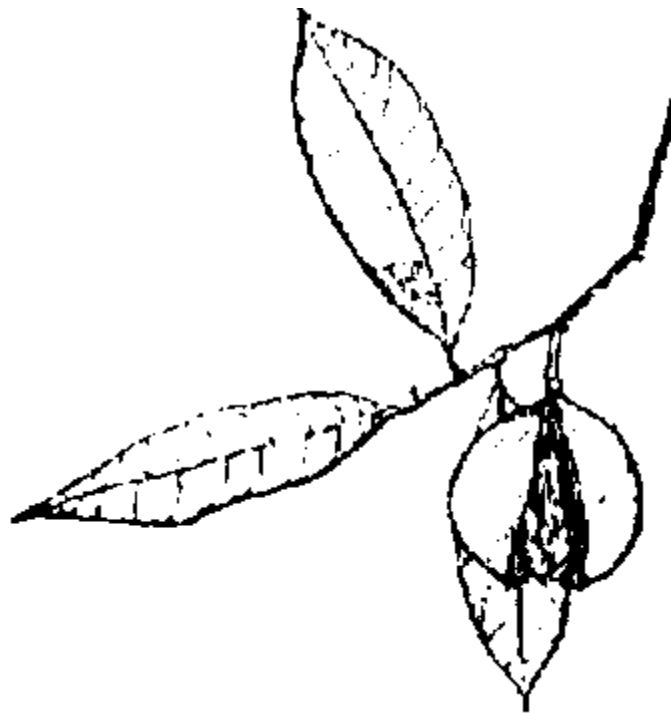
Musa sp.

Myristica fragrans
Nutmeg

Parts used
Fruit

Usage
Diarrhea

Booklet
Poultry



Myristica fragrans

Nephelium lappaceum

Rambutan

Parts used

Leaf, bark

Usage

Fever

Booklet

Ruminants



Nephelium lappaceum

Nicotiana tabacum

Tobacco

Parts used

Leaf

Usage

Ticks and lice

Ticks, wounds

Udder infection

Booklet

Poultry

Ruminants

Swine



Nicotiana tabacum

Nigella sativa
Black cummin

Parts used
Seeds

Usage
Decreased milk flow
Retained placenta
(Pregnancy and birthing)

Booklet
Ruminants
Ruminants

Nypa fruticans
Nipa

Parts used
Leaf

Usage
Housing

Booklet
Ruminants, swine

Ochna serrulata

Parts used
Root

Usage
Snake bite

Booklet
Ruminants

Ocimum sanctum

Holy basil

Parts used	Usage	Booklet
Leaf	Bleeding, coughs and colds, eye disease, udder infection, wounds	Ruminants
	Coughs and colds, ticks and lice	Poultry
	Mosquito control (Infectious discuses)	Poultry
	Mosquito control (Housing)	Ruminants



Ocimum sanctum

Ocimum basilicum

Sweet basil

Parts used	Usage	Booklet
Leaf	Bleeding, cough and colds, udder infection	Ruminants
Pulp	Bleeding	Ruminants



Ocimum basilicum

Odina wodier

Besharam

Parts used

Leaf

Usage

Abscesses (Surgery)

Booklet

General information

Orthosiphon spicata**Parts used**

Leaf

Usage

Difficulty in urinating

Booklet

Ruminants

Oryza sativa

Rice

Parts used	Usage	Booklet
Bran	Decreased milk flow (After birth)	Ruminants
	Feed	Ruminants, swine
Seed	Appetizer, decreased milk flow, dehydration, snakebite, wounds	Ruminants
	Care during pregnancy	Swine
	Castration wounds	General information
	Coughs and colds	Poultry
	Diarrhea	Poultry, swine
	Feed	Poultry, ruminants
Straw	Bedding (Housing)	Ruminants, poultry
	Bedding (Care of newborn)	Swine
	Feed	Ruminants



Oryza sativa

Panicum isachne

Parts used

Leaf

Usage

Decreased milk flow

Booklet

Ruminants

Papaver somniferum

Poppy

Parts used

Fruit gum

Usage

Diarrhea

Booklet

Swine



Papaver somniferum

Pathos secundes

Parts used
Whole plant

Usage
Sprains

Booklet
Ruminants

Pavetta indica

Parts used
Whole plant

Usage
Difficulty in urinating

Booklet
Ruminants

Pedaliu maurex

Parts used	Usage	Booklet
Leaf, stem, fruit	After birth	Ruminants
Bark	Retained placenta (Pregnancy and birthing)	Ruminants

Pennisetum typhoideum

Millet

Parts used	Usage	Booklet
Seed, straw	Feed	Ruminants
Seed	Feed	Poultry
	After birth	Ruminants

Persea americana
Avocado

Parts used
Leaf

Usage
Wounds, foot rot

Booklet
Ruminants



Persea americana

Peucedenum graveolens

Parts used	Usage	Booklet
Seed	Appetizer	Swine
	Bloat	Ruminants
	Retained placenta (Pregnancy and birthing)	Ruminants

Phaseolus aureus

Green gram

Parts used

Bean

Usage

Feed

Booklet

Poultry

Phaseolus calcaratus

Rice bean

Parts used

Seed

Usage

Feed

Booklet

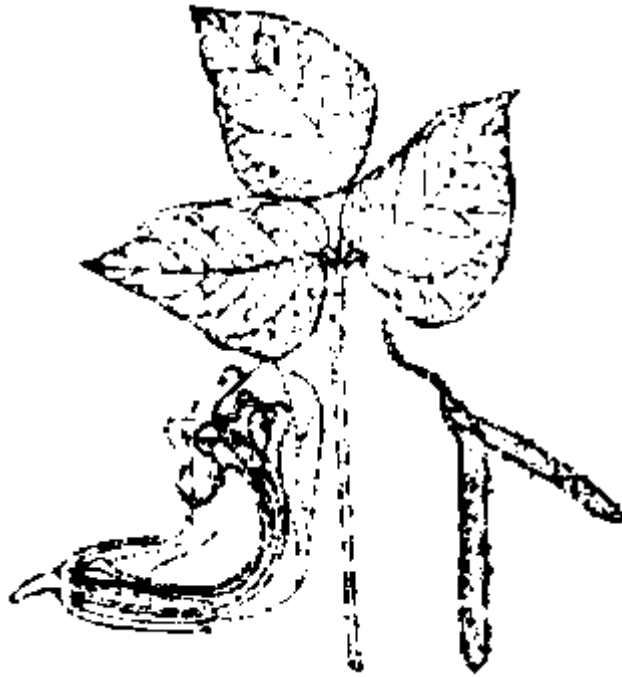
Ruminants

Phaseolus mungo
Black gram

Parts used
Bean

Usage
Feed

Booklet
Poultry



Phaseolus mungo

Phaseolus radiatus

Mung bean

Parts used

Seed

Usage

Feed

Booklet

Ruminants, swine, poultry

Phyllanthus emblica

Parts used	Usage	Booklet
Fruit	Appetizer	Ruminants
Seed	Wounds	Ruminants

Picrorrhiza kurrooa

Parts used	Usage	Booklet
Root	Appetizer	Swine
	Fever	Swine, ruminants

Piper betle

Betel pepper

Parts used	Usage	Booklet
Leaf	Abscesses, warts (Surgery)	General information
	Eye disease	Ruminants
	Housing, retained placenta (Breeding), udder infection	Swine



Piper betle

Piper nigrum

Black pepper

Parts used	Usage	Booklet
Seed	After birth, coughs and colds, decreased milk flow	Ruminants
	Fowl pax	Poultry
	Retained placenta (Breeding)	Swine



Piper nigrum

Plumbago zeylanica

Ceylon leadwort

Parts used

Bark

Usage

Bleeding

Booklet

Ruminants

Plumeria acuminata

Temple flower

Parts used

Leaf, bark

Usage

Internal parasites

Booklet

Swine

Pongomia glabra

Parts used

Seed

Usage

Wounds

Booklet

Ruminants

Premna odorata

Alagau

Parts used	Usage	Booklet
Leaf	Ticks and lice	Poultry
	Lice	Swine



Premna odorata

Psidium guajava

Guava

Parts used	Usage	Booklet
Leaf	Castration wounds	General information
	Retained placenta (Pregnancy and birthing)	Ruminants
	Udder infection, diarrhea	Swine, ruminants
	Wounds	Swine



Psidium guajava

Pterocarpus macrocarpus

Parts used

Bark

Usage

Foot rot,
wounds

Booklet

Ruminants

Pterocarpus santalinus

Red Sanderswood

Parts used	Usage	Booklet
Wood	Abscesses (Surgery)	General information

Punica granatum

Pomegranate

Parts used	Usage	Booklet
Bark	Intestinal worms	Poultry
Fruit	Intestinal worms	Poultry
	Eye disease	Swine
Leaf	Eye disease	Ruminants
	Diarrhea	Swine
Root	Internal parasites	Ruminants
Stem	Diarrhea	Swine



Punica granatum

Quisqualis indica

Parts used

Leaf and seed

Usage

Intestinal worms

Booklet

Poultry



Quisqualis indica

Ricinus communis

Castor

Parts used	Usage	Booklet
Leaf	Feed (After birth)	Ruminants
Seed (oil)	Bloat	Ruminants
	Constipation	Swine and ruminants



Ricinus communis

Saccharum officinarum

Sugar cane

Parts used	Usage	Booklet
Juice from stem	Decreased milk flow	Ruminants
Leaves or juice from stem	Difficulty in urinating	Ruminants
Stalk, top, molasses	Feed	Ruminants



Saccharum officinarum

Sansevieria sp.

Parts used

Root

Usage

Snake bite

Booklet

Ruminants

Santalum album

Sandalwood

Parts used

Wood

Usage

Wounds

Booklet

Swine

Sapindus rarak

Parts used

Fruit

Usage

Eye disease

Booklet

Ruminants

Saraca indica

Ashoka tree

Parts used	Usage	Booklet
Bark	Bleeding	Ruminants
	Retained placenta	Ruminants
	(Pregnancy and birthing)	

Sauropus androgynus

Katuk

Parts used

Leaf

Usage

After birth

Booklet

Ruminants

Semen nelumbinis

Lotus

Parts used	Usage	Booklet
Seed	Breeding	Swine
	Nutrition	Piglet

Sesamum indicum

Sesame

Parts used	Usage	Booklet
Seed	Constipation	Swine
	Feed	Poultry, ruminants
	Vaginal bleeding (Pregnancy and birthing)	Ruminants
	Wounds	Ruminants



Sesamum indicum

Sesbania aegyptiaca

Parts used

Seed and bark

Usage

Diarrhea

Booklet

Poultry

Sesbania grandiflora

Katurai

Parts used

Bark

Usage

Dehydration, wounds

Booklet

Ruminants

Sida cordifolia

Country mallow

Parts used

Whole plant

Usage

To stimulate heat

Booklet

Ruminants

Sorghum vulgare

Sorghum

Parts used

Seed

Usage

Feed, after birth

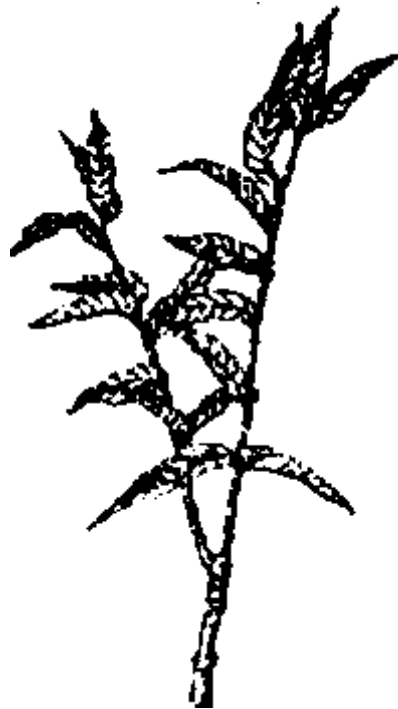
Booklet

Ruminants

Spondias pinnata or Spondias mangifera

Indian wild mango

Parts used	Usage	Booklet [Reference]
Leaf	Abscesses (Surgery)	General information
	Coughs and colds	Poultry [Fernandez, 1990]
	Tapeworm	Swine
Whole plant	Wounds	Swine



Spondias pinnata or Spondias mangifera

Stachyta jamaicensis

Parts used

Leaf

Usage

Udder infection

Booklet

Swine

Sterculia foetida

Wild almond

Parts used

Pod

Usage

Eye disease

Booklet

Swine

Swertia chirata

Parts used	Usage	Booklet
Whole plant	Appetizer, fever	Swine
	Fever	Ruminants

Symphytum officinale

Comfrey

Parts used	Usage	Booklet
Leaf	Castration wounds	General information
	Fractures (Surgery)	General information
	Sprains	Ruminants



Symphytum officinale

Tamarindus indica

Tamarind

Parts used	Usage	Booklet
Bark	Internal parasites	Swine
Fruit	Appetizer, bloat, fever, internal parasites	Ruminants
	Constipation	Ruminants, swine
	Cough and colds	Swine
Leaves	Fever, cough and colds	Ruminants
	Fractures (Surgery)	General information
	Internal parasites	Swine



Tamarindus indica

Tectona grandis Teak

Parts used	Usage	Booklet
Leaf, bark	Poisoning	Ruminants
Wood	Housing	Ruminants

Terminalia arjuna

Parts used

Bark

Usage

Bleeding

Booklet

Ruminants

Terminalia belerica

Parts used

Seed

Usage

Wounds

Booklet

Ruminants

Terminalia chebula

Parts used	Usage	Booklet
Fruit	Appetizer, bloat	Ruminants
Seed	Wounds	Ruminants



Terminalia chebula

Thunbergia laurifolia

Parts used

Root

Usage

Poisoning

Booklet

Ruminants

Tinospora spp.

Parts used	Usage	Booklet
Whole plant	Scabies	Swine
Vine	Appetizer, internal parasites	Ruminants
	Diarrhea	Poultry

Trachyspermum ami

Bishop's weed

Parts used	Usage	Booklet
Seed	Appetizer	Swine
	Diarrhea, bloat, appetizer	Ruminants
	Retained placenta (Pregnancy and birthing), after birth	Ruminants

Tribulus terrestris

Parts used

Whole plant

Usage

Difficulty in urinating

Booklet

Ruminants

Trigonella foenum-graecum

Fenugreek

Parts used	Usage	Booklet
Leat	Foot-and-mouth disease (Infectious diseases)	Ruminants
Seed	Appetizer	Swine
	Coughs and colds, coryza	Poultry
	Diarrhea	Ruminants, poultry
	Retained placenta(Pregnancy and birthing), after birth	Ruminants

Triticum aestivum

Wheat

Parts used	Usage	Booklet
Bran	Feed	Ruminants
Seed	Decreased milk flow (After birth)	Ruminants
	Diarrhea	Poultry
	Feed	Ruminants, poultry
Straw	Bedding (Housing)	Ruminants

Veronica anthelmintica

Parts used	Usage	Booklet
Seed, leaf, whole plant	Appetizer	Swine
Seed	Diarrhea	Ruminants

Vigna sinensis or unguiculata

Cowpea

Parts used

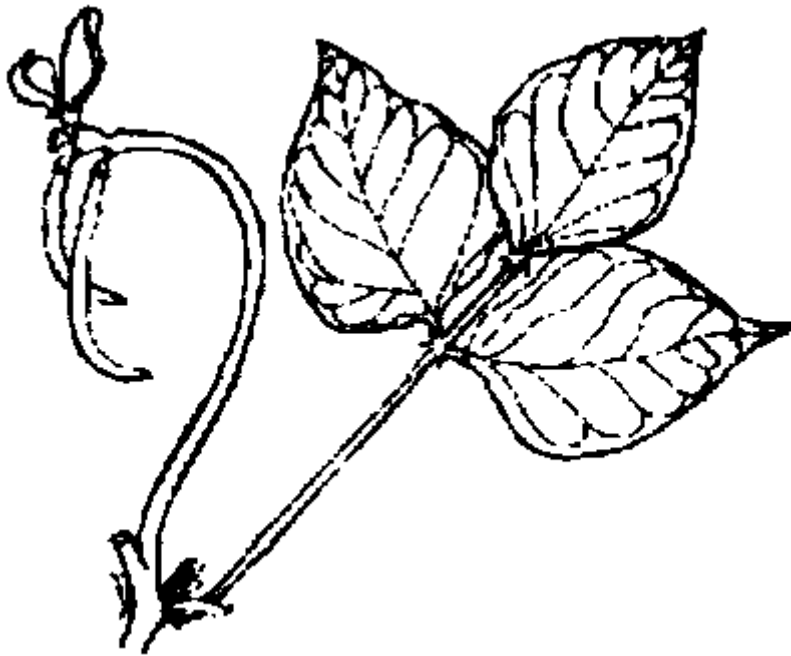
Seed

Usage

Feed

Booklet

Ruminants, poultry



Vigna sinensis or *unguiculata*

Vitex negundo

Five-leaved chastetree

Parts used	Usage	Booklet
Leaf	Sprains, fever	Ruminants
	Wounds, ticks and lice	Poultry



Vitex negundo

Withania somnifera

Winter cherry

Parts used

Root

Usage

Decreased milk flow

Booklet

Ruminants

Xylia kerii

Parts used

Bark

Usage

Dehydration, wounds

Booklet

Ruminants

Zea mays

Maize

Parts used	Usage	Booklet
Grain	Feed	Swine, poultry
Straw, seed	feed	Ruminants



Zea mays

Zingiber cassumunar

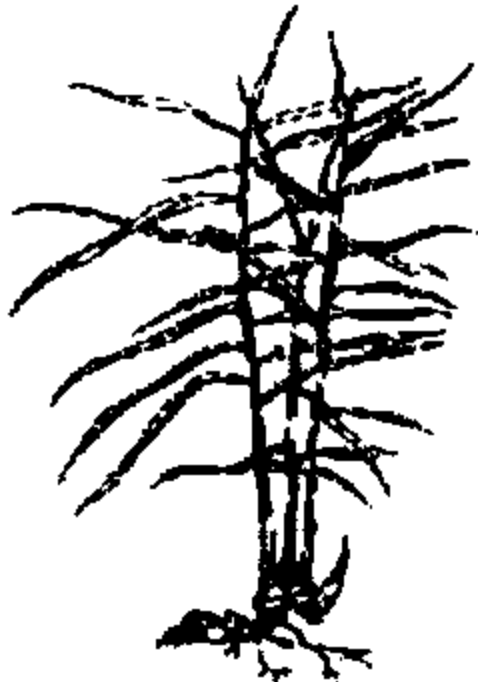
Common ginger

Parts used	Usage	Booklet
Rhizome	Diarrhea	Swine
	Internal parasites	Ruminants

Zingiber officinale

Ginger

Parts used	Usage	Booklet
Rhizome	Appetizer, coughs and colds	Poultry, ruminants
	Appetizer, eye disease, retained placenta (Breeding)	Swine
	Bloat, diarrhea, retained placenta (Pregnancy and birthing), sprains	Ruminants



Zingiber officinale

Zingiber zerumbet

Parts used	Usage	Booklet
Rhizome	Coughs and colds	Ruminants
Rhizome	Diarrhea	Swine

Ethnoveterinary question list

If you work on livestock production in villages, it is important to know and understand local animal health care practices. Here is a list of questions to ask livestock raisers when recording information on ethnoveterinary medicine. The questions are for guidance only; they should be adapted to local conditions and the situation of each livestock raiser.

Background information

- Who in the household is responsible for, manages, or treats sick animals?
- What are the local seasons of the year? How do they affect livestock diseases?
- What species of livestock are kept? What breed, age or other categories are considered relevant for animal health?

Disease names

- Elicit the names of all livestock diseases in the area, by species, seasons and other locally relevant variables.
- Cross-check all terms for duplications, overlaps, confusions and omissions.
- Decide which diseases warrant further investigation in the question list below.

The question list

Ask these questions for each disease you have identified above.

1. What species, breeds, ages and sexes of animals are affected by this disease?
2. Is there seasonality or other timing to the appearance of the disease?
3. Does it usually affect one animal or a group of animals at the same time? Does it spread from animal to animal (i.e., is it contagious or infectious)?
4. What causes the disease natural/physical causes, supernatural/non-physical causes, or both? Describe.
5. Are there ways to prevent/avoid this disease? If so, what are they?
6. Describe the main symptoms, if possible, in order of progression and timing, i.e., what is the first symptom seen and when? What is the second symptom seen and when? etc. Also, what is the symptom, if any, that makes you decide it is this specific disease?

7. Are traditional treatments available? What are they? Where/how are they obtained? What happens when they are used? (Please be as specific as possible.)

8. Are modern treatments available? What are they? Where/how are they obtained? What happens when they are used? (Please be as specific as possible.)

9. What usually happens if the animal is not treated?

10. When did you last have (or for areas with few livestock per household, hear of) an animal with this disease? What did you do and what happened to the animal?

Source: Based on Grandin and Young (forthcoming).

Glossary of technical terms

These manuals avoid using technical terms if at all possible. Sometimes, however, using a technical word is unavoidable. This glossary contains such words and other terms found in books on veterinary medicine.

A

Abortifacient. Causes abortion or miscarriage.

Abscess. A collection of pus in the tissue.

Acaricide. Chemical used for tick (external parasite) control.

Active principle. Ingredient or the chemical component of a crude drug which has a therapeutic effect.

Acute. Condition which is critical, sudden and of short duration.

After birth. Placenta and other membranes expelled after birth.

Allergen. Substance capable of inducing an allergic response.

Allergy. Hypersensitivity of the body cells to specific substances such as antigens and allergens, resulting in various types of reactions.

Alterative. A substance which alters a condition by a gradual change toward restoration of health.

Analgesic. Pain-reliever or pain-killer.

Anaphrodisiac. A drug that represses sexual desire.

Anemia. Number of red blood cells and quantity of hemoglobin in blood reduced below normal.

Anesthetic. An agent which causes total or partial loss of sensation.

Anhidrotic. An agent that suppresses perspiration.

Anodyne. A soothing agent which eases pain.

Anthelmintic. An agent that removes intestinal worms from the host animal.

Antibiotic. A chemical substance produced by a microorganism that has the capacity to kill or inhibit the growth of other microorganisms.

Antibody. Immunoglobulin molecule that is found normally in the body but is elicited after contact with an antigen.

Anticoagulant. Agent preventing or retarding blood clotting.

Anticolic. Agent that relieves abdominal pain by expelling gas from the stomach and intestines.

Antidote. A treatment which counteracts or destroys the effect of poisons or other medicines.

Antidyspeptic. Acts against nausea due to indigestion.

Antiemetic. An agent that relieves vomiting.

Antigen. A substance capable of inducing an immune response.

Antiherpetic. Drug for skin inflammations.

Antipyretic. Substance that lowers body temperature to the normal level; used against fever.

Antirheumatic. Medicine for rheumatism.

Antiseptic. An agent for destroying or inhibiting diseasecausing bacteria.

Antisialic. Checking the flow of saliva.

Antispasmodic. Prevents or relieves muscular spasms or cramps.

Antitussive. An agent that relieves coughing.

Aphrodisiac. A drug that arouses sexual desire.

Aperient. A gentle purgative.

Aromatic. Emits fragrant odor; used to make medicinal preparations more palatable.

Ascariasis. Infestation by the intestinal parasite Ascaris.

Ascarid. A roundworm (nematode parasite) found in the intestine of pigs, birds, ruminants, horses and humans.

Astringent. Shrinks tissues and prevents secretion of fluids from wounds.

B

Bacteria. Microscopic organisms.

Balm. A soothing or healing medicine.

Balsam. A semifluid, resinous vegetable juice.

Balsamic. Healing or soothing agent.

Bladder. The organ which is reservoir for urine, or gall, in body.

Boil. Infected, painful, hard swelling of the skin.

C

Carminative. An agent that relieves flatulence.

Catarrh. Inflammation of nose and mucous membranes.

Cathartic. Causes cleansing of the bowels.

Chronic. Condition which is recurring and of long duration.

Colic. Gas pain.

Collyrium. An eyewash or lotion for the eyes.

Colostrum. Viscid yellow milk, high in protein and micro-nutrients, produced by mothers after birth.

Compress. A wet, folded cloth soaked in a solution and applied firmly to a part of the body.

Congestion. Abnormal accumulation of blood in a part.

Concoction. A preparation from crude materials, made by combining different ingredients.

Constipation. Infrequent or difficult bowel movement with hard stools caused by functional or organic disorders or improper diet.

Contagious. Diseases which are readily passed on to others.

Contamination. The soiling or making inferior by contact, as by introduction of organisms into a wound.

Contusion. Injury to tissues caused by blunt force which did not disrupt or lacerate the skin.

Convulsion. A violent involuntary contraction of a muscle or muscles.

Costive. An agent that produces constipation.

D

Decoctions. Solutions representing the water-soluble constituents of plant drugs prepared by boiling the drug in water.

Decongestant. An agent that reduces congestion or swelling.

Demulcent. A soothing medicine or application.

Depressant. Agent that reduces functional activity.

Depurative. Purifying agent; normally applied to bloodpurifiers.

Dermatitis. Inflammation of the skin.

Detergent. Cleansing agent.

Diagnosis. The determination of the nature of a case of disease. Includes:

(1) the name, (2) the cause and (3) the prognosis.

Diaphoretic. An agent that promotes profuse perspiration.

Diarrhea. Abnormal frequency and fluidity of stool discharges.

Digestant. Aids or promotes digestion.

Disease. Any departure from a state of health.

Diuretic. A drug or preparation that promotes urine production.

Dosage. The determination and regulation of the size, frequency and number of doses.

Dose. The quantity of a specified medication to be administered at one time that cures or mitigates illness.

Drench. Giving medicines in liquid form by mouth and forcing the animal to drink.

Dysentery. Inflammation of the large intestines with evacuation of liquid and bloody stool and painful straining.

Dyspepsia. Indigestion characterized by nausea.

Dysuria. Difficult discharge of urine.

E

Eczema. Inflammatory skin disease characterized by redness, itching and formation of scales and crusts.

Edema. Abnormal accumulation of fluids in the tissues.

Emetic. Causes vomiting

Emollient. An agent that softens or soothes the skin, or soothes an irritated internal surface.

Encephalitis. Inflammation of the brain.

Enema. Any liquid preparation introduced into the rectum.

Enteritis. Inflammation of the intestines.

Epidemic. A sudden outbreak of disease in a relatively small area.

Estrus. Heat, the condition of being receptive to breeding.

Etiology. The study or theory of the cause(s) of any disease; the sum of knowledge regarding causes.

Eupeptic. Promotes good digestion.

Expectorant. Promotes ejection of fluid from the lungs and trachea.

F

Febrifuge. A remedy for fever.

Fever. Increase in the body temperature; an abnormally high body temperature.

Flatulence. Gas formation in the alimentary canal.

Fluid extract. Liquid preparation of vegetable drug containing alcohol as a solvent or as a preservative or both.

Fomentation. Application of warm, moist substances such as wet cloth to ease pain and inflammation.

Fracture. Breaking of a bone.

G

Galactagogue. An agent that promotes milk flow.

Gastroenteritis. Inflammation of the stomach and intestines characterized by pain, nausea and disease germs.

Germicide. Destroy disease germs.

Gestation. Period of pregnancy term of life of offspring within womb.

H

Health. A normal condition of body and mind.

Hematoma. A swelling filled with blood.

Hemorrhage. Excessive bleeding.

Hemorrhoid. Painful swelling formed by dilation of a vein in the anus; usually accompanied by bleeding and constipation; piles.

Hygiene. The science of health and its preservation.

Hypnotic. Induces sleep.

I

Immune. Resistant to a disease due to the formation of antibodies.

Immunity. The body is defense against disease; can be passed on to offspring through colostrum, or through exposure and naturally developed defenses (vaccinations/inoculations).

Infectious. Disease conditions which can be passed on to others (see Contagious).

Inflammation. The reaction of living tissues to injury infection or irritation; characterized by pain swelling, redness and heat.

Infusion. Herbal remedy preparation which involves adding hot or cold water to plant part(s) and allowing to stand (with cover), usually for about 15 minutes; an infusion can be either hot or cold.

Internal medicine. Branch of medicine not involving surgery.

Invigorant. Strengthening, energy-giving agent.

L

Larva. An independent, immature stage in the life cycle of an animal or insect in which it is unlike the parent and must undergo changes in form and size to reach the adult stage.

Laxative. Encourages defecation.

Lesions. Alterations of skin due to skin disease.

Liniment. A medicated liquid, usually containing alcohol, camphor and an oil, applied to the skin to relieve pain or stiffness.

M

Macerate. Cold water extract of a plant or crude drug, also, to soften or separate by soaking.

Massage. Rubbing or kneading the muscles.

Mastitis. Inflammation of the udder due to infection.

Medicine. (1) any drug or remedy (2) the art or science of healing diseases—the diagnosis and treatment of a case of disease.

Milk fever. Critical condition after calving when cow cannot stand and may quickly die unless given calcium therapy.

Mixture. A combination of different elements or ingredients.

N

Narcotic. A drug, which, in moderate doses, alleviates pain, reduces sensibility, produces sleep; in large amounts, induces stupor, coma or convulsions.

Nausea. Upset stomach, with the inclination to vomit.

Nervine. Soothing to the nerves; provides nervous relaxation.

Nutrient. Nourishing substance.

O

Obstuent. Any agent that causes obstruction (e.g., in the wind pipe or intestine).

Ointment. Combination of juice or plant part with oil (e.g., coconut oil) and starch.

P

Pandemic. An outbreak of disease occurring over a very wide area, affecting a large percentage of the population.

Paralysis. Inability to move a muscle or group of muscles, often coupled with loss of sensation in the affected area.

Parasites. Any organisms which have a harmful effect or cause a disease condition; usually refers to worms, ticks, fleas' mites, lice, leeches, etc.

Parturient. Giving birth or pertaining to birth.

Parturition. The act of giving birth; calving.

Pathology. The science that deals with the study of disease.

Pelvic. The area around the anus and the hips.

Pharmacognosy. The study of the biology, chemistry and pharmacology of plant drugs and species.

Pharmacology. The study of the action of chemicals and drugs in the body.

Placenta. The sac inside which the fetus grows and is attached to the mother's womb through which it is nourished.

Plaster. A mixture of materials that hardens; used for immobilizing body parts.

Preventive medicine. Branch of study and practice which aims at prevention of disease.

Poison. A substance that, in relatively small amounts, may cause structural damage or functional disturbance.

Post partum. After a birth.

Poultice. A soft, usually heated preparation spread on a cloth and applied to a sore or inflammation.

Prognosis. A forecast as to the probable result of a case of disease; the prospect as to recovery from a disease afforded by the nature and symptoms of the case; may be: (1) favorable, (2) guarded, (3) unfavorable.

Prolapsed rectum. The lower portion of the intestinal tract comes out of the anus.

Prolapsed uterus. The uterus descends into the vagina and may be seen at the vaginal opening.

Prophylactic. Preventing against disease.

Pulmonary. Pertaining to the lungs.

Purgative. Causing evacuation from the intestines.

R

Refrigerant. Relieving fever and thirst. Rejuvenator. Causes renewed vitality. Repellent. An agent that repels or drives off other organisms.

Resolvent. An agent that promotes the subsidence of an inflammation or the softening and disappearance of a swelling.

Restorative. Aids in regaining normal vigor.

Retained placenta. A disease condition in which the placenta is not expelled after calving, requiring treatment.

Revulsive. Diverts disease from one part of the body to another.

Rinse. To wash out with water.

Rubefacient. An external skin application causing redness of the skin.

Ruminant. An animal that has a stomach with four complete cavities and regurgitates undigested food from the rumen and masticates it when at rest (e.g., cattle, buffalo, sheep, goat).

S

Secretion. The liquid products of glands.

Sedative. An agent that calms the nerves.

Sign. Any objective evidence of a disease.

Soak. To thoroughly wet or saturate with liquid.

Soporific. An agent that induces sleep.

Specific agent. Remedy that has a special effect on a particular disease.

Sporadic. An outbreak of disease in a single or scattered location.

Sprain. A violent and sudden twist of a joint.

Starchy water. Water full of starch.

Steam. The vapor which rises from boiling water

Sterile. Free from living germs or bacteria.

Stimulant. Increases or hastens body activity.

Stomachic. Stimulates activity of the stomach.

Stomatitis. Inflammation of the mouth.

Styptic. Stops bleeding with an astringent.

Sudorific. An agent that causes sweating.

Symptom. Any functional evidence of disease or of a patient's condition.

Syndrome. The aggregate of symptoms associated with a particular disease.

T

Therapeutics. Branch of medicine associated with the use of remedies and the treatment of diseases.

Tincture. Alcoholic extract of a plant drug.

Tonic. Produces healthy muscular condition and reaction.

Treatment. Application of therapeutic measures.

U

Ulcer. A superficial inflammation or sore of the skin or mucus membrane discharging pus.

V

Vagina. The portion of the female reproductive tract through which the baby animal must pass. It is separated from the uterus by the cervix.

Vermicide. An agent lethal to worms or intestinal animal parasites.

Vermifuge. An agent that expels the worms or intestinal animal parasites; anthelmintic.

Vesicant. An agent that produces blisters.

Virus. A minute organism which causes disease.

Vulnerably. An agent that promotes the healing of wounds.

Vulva. The opening below a female animal's tailhead to which the urinary and reproductive tracts are attached, which swells at time of estrus and more so at calving time.

Sources

Agravante, et al. (1985)

Blood and Studdert (1988)

Co (1989)

GuzmanLadion (1985)

Jensen and Kaeberle (1975)

Lewis (1977)

Nadkarni (1992)

Padua, et al. (1978)

Participants' profile

Nita Cueva-Abena
International Institute of
Rural Reconstruction (IIRR)
Silang, Cavite, Philippines
Tel (0969) 9451
Fax 9937

Dr. Abena has a B. S. degree from Aquinas University and a D.V.M. degree from the University of the Philippines, Diliman, Quezon City, Philippines. Her experience includes clinical practice with food and companion animals, rural development and extension work and consultancies for commercial swine farms. Currently, she is IIRR's swine production coordinator. Among other things, she conducts training on swine production and basic animal health care for farmers. She has done research on ethnoveterinary practices in Cavite province, Philippines, and has used herbal remedies during her clinical work. Dr. Abena is a Filipina.

Jayvir V. Anjaria
C/5, Sonarika Apt.
Nr. Panjarapole, Atira Road
Ahmedabad 380 015, India
Tel 091-079 - 404910
Fax c/o 091-079 - 425332

An Indian national, Dr. Jayvir V. Anjaria is a retired professor of pharmacology and, currently, a consultant to the pharmaceuticals and herbal drug industry. His experience includes 11 years of field work in veterinary medicine, 21 years in teaching, research and administration and 10 years as an international consultant. Dr. Anjaria has travelled to various countries, including the USA, UK, France and Canada. He has received four National Awards in India for his efforts in indigenous drug research.

Luka Choemuen
115 M.2 T. Rimkok A. Muang
Chiangrai 57100
Thailand
Tel (053) 713-169
Fax (053) 713-169

Mr. Choemuen is the agricultural manager of the Development and Education Project for Akha (a hill tribe in Thailand). He graduated from Chiangrai Teachers' College with a bachelor's degree in agriculture and education. He has served as a teacher, trainer and coordinator for animal raising, farming, irrigation and the administration of a revolving credit fund. He is a Thai citizen.

Baldwin L. Dy
Philippine Animal Health Center

Bureau of Animal Industry
BAI CPD, Visayas Avenue
Diliman, Quezon City, Philippines
Tel/Fax 99-21-77

Dr. Dy is a Filipino veterinarian at the Epidemiology Section of the Philippine Animal Health Center, Bureau of Animal Industry, Department of Agriculture. He has been involved in ethnoveterinary documentation, research and development, application, practice and extension for the past eight years. He is currently involved in animal disease investigations and surveillance in the Philippines.

Mila Gracia A. Ejercito
1070 M. Ocampo St.
Bo. Obrero, Tondo
Manila, Philippines
Tel 35-32-60
Fax 818-76-18; 587-919

Dr. Ejercito is a Filipino veterinarian with the Philippine program of Heifer Project International. She provides farmerlevel training to grass-root organizations nationwide on proper livestock production management.

Tomas J. Fernandez, Jr.
Department of Animal Science and
Veterinary Medicine
ViSCA, Baybay, Leyte 6521A
Philippines

Dr. Fernandez, Jr. is the Head of the College of Veterinary Medicine at the Visayas State College of Agriculture, Baybay, Leyte, Philippines. He has been doing research on ethnoveterinary medicine for 10 years, studying the toxicity and efficacy of herbal remedies. Dr. Fernandez earned his D.V.M and M.S. degrees at the University of the Philippines, Diliman, Quezon City and his Ph.D. at the Centre for Tropical Veterinary Medicine at the Royal Faculty of Veterinary Medicine, Edinburgh University, Edinburgh, Scotland. Dr. Fernandez is a Filipino.

Nitya Sambamurti Ghotge
ANTHRA
10, Lantana Gardens N.D.A. Road
Bavahan, Poona 411021, India
Tel 0212-369065

Dr. Ghotge received her degree in veterinary sciences and animal husbandry from the College of Veterinary Sciences, Haryana Agricultural University, Hisar, India, and her master's degree in veterinary surgery from Bombay Veterinary College, India. She has worked extensively as a veterinary researcher and consultant to NGOs, animal welfare organizations, zoological parks and research organizations. She has developed educational and training materials for rural and

urban animal owners and health workers and has conducted training programs in urban and rural areas, especially directed towards rural women. She is interested in alternative systems of animal medicine and care and has collected and documented indigenous veterinary practices in different parts of Western India. Dr. Ghotge has also worked as a small-animal practitioner and surgeon for several years. She is an Indian citizen.

Vinai Klunsorn
Northern Agriculture Development Center (NADC) 65
Sutape, Amphur Muang
Chiangmai, Thailand
Tel (053) 279080, 276490

Mr. Klunsorn is the agricultural officer of NADC. He finished high vocational level in animal science from Maejo Agricultural College, Chiangmai, Thailand in 1970. He formerly raised fish and swine as a private business. He was also the agricultural extension worker in the highland area around Chiangmai, Thailand, for a UNDP Project. One of his major current responsibilities is to administer a revolving fund for animal raising for rural people. Mr. Klunsorn is a Thai citizen.

S. Kumaraswamy
Agroskills Consultancy
7711, Isipatana Mawata
Colombo 5, Sri Lanka
Tel (01) 508129, 508130
Fax (01) 584124

Dr. Kumaraswamy, a Sri Lankan, is a veterinarian. He has 15 years experience in clinical practice and he has done research in animal reproduction for 10 years. He was also deputy director of the Department of Animal Production, Sri Lanka, provincial director of the Department of Animal Production and advisor to the Ministry of Agriculture, Government of Sri Lanka. He is presently a director and consultant of Agroskills Consultancy and a freelance consultant.

Chheng Heat Leao
2440 E. Van Owen Avenue
Orange, CA 92667, USA
Tel Work/Daytime (714) 5711980
Home/Nighttime (714) 633-6416
Fax (714) 571 -1974

Dr. Leao, a Cambodian, is a veterinarian trained in animal production. He was the provincial chief of the Veterinary Department in Cambodia for 19 years. He worked closely with Cambodian farmers in animal production and the eradication of contagious animal diseases. Dr. Leao also taught veterinary students at the universities in Cambodia. He now lives in California. Since 1985 he has been providing teaching materials in Khmer for his young colleagues in

Cambodia through the American Friends' Service Committee, for which he is a veterinary consultant.

Carmencita Directo-Mateo
Institute of Animal Science
University of the Philippines at Los Baños
College, Laguna, Philippines
Tel 1092551
Fax 109-2547

Dr. Mateo is a Filipino veterinarian and animal nutritionist with D.V.M., M.Sc. and Ph.D degrees. She has been involved in university research on the utilization of medicinal plants for animal health care in the Philippines. She has published on this topic and participated in workshops, conferences and seminars addressing ethnoveterinary concerns.

Evelyn Mathias
International Institute of
Rural Reconstruction (IIRR)
Silang, Cavite 4118
Philippines
Tel 0969-9451
Fax 0969 9937

Dr. Mathias holds a Dr. med. vet. degree (equivalent to Ph.D.) in veterinary medicine and a D.V.M. degree, both from the University of Giessen in her native Germany and an M.S. in international development from Iowa State University, USA. She has performed field research on goats' feeding behavior in Tunisia, the reproductive physiology of swamp buffaloes in Thailand and ethnoveterinary medicine in Indonesia. She has conducted extensive literature reviews of ethnoveterinary medicine and indigenous tree management worldwide. From 1981 to 1985, she was a visiting lecturer at Bogor Agricultural University in Indonesia. From 1988 to 1992, she was a research associate with the Center for Indigenous Knowledge for Agriculture and Rural Development (CIKARD) at Iowa State University. Currently, she is the coordinator of the Regional Program for the Promotion of Indigenous Knowledge in Asia at IIRR. There, she works on the retrieval and application of indigenous knowledge in development and promotes regional networking.

Constance M. McCorkle
7767 Trevino Lane
Falls Church
Virginia 22043, USA
Tel (703) 2041837

Dr. McCorkle holds an M.A. in linguistics and an M.A. and a Ph.D. in anthropology from Stanford University. Currently, she works as a consultant in agriculture, environment and rural development worldwide. She previously served as director of USAID's staff environmental training program and as director of research for USAID's global gender-in-development project.

From 1985 to 1990, as a faculty member in the University of Missouri's Department of Rural Sociology, she coordinated the Sociology Project of the Small Ruminant-Collaborative Research Support Program (SRCRSP). Dr. McCorkle began work in ethnoveterinary medicine in 1980 while conducting the SR-CRSP research in Peru. In 1986, she published the first article describing the field of ethnoveterinary research and development (Journal of Ethnobiology, 6: 129149). She has since designed and conducted research and published several articles on ethnoveterinary medicine, traditional healers and paraveterinary extension in Latin America and Africa. She is currently editing a multi-author volume (with Schillhorn van Veen and Mathias) on ethnoveterinary medicine worldwide. She is a US citizen.

Sommay Mekhagnomdara
National Institute Vaccine Production (NIVP)
B.P. 1298
Nonteng, Vientianne, Laos
Tel 612017-612028
Fax c/o Quaker Service 856-21-314370

Dr. Sommay, a Lao citizen, is the head of the Veterinary Division of the National Institute for Vaccine Production. He is also Quaker Service's coordinator for the improvement of veterinary field services. He has published two Booklets: Village veterinary worker training handbook and Indigenous chicken raising in Laos.

Tri Budhi Murdiati
Balitvet-Research Institute for Veterinary Science
Jln. Martadinata 30
Bogor 16114, Indonesia
Tel (0251) 331048
Fax (0251) 336425

Dr. Tri Budhi Murdiati holds an M.Sc. in toxicology from Sydney University (Australia) and a Ph.D. in poisonous plants from James Cook University (also in Australia). She worked for three years with the Research Institute for Animal Production in Bogor, Indonesia. In 1984, she joined the Research Institute for Veterinary Science, where she is currently a research scientist. Dr. Murdiati has conducted a number of laboratory trials and village studies on ethnoveterinary medicine. She has also done research on residues of antibiotics in livestock products and the environmental impact of livestock methodology. She is an Indonesian citizen.

H.D. Wasantha Piyadasa
Provincial Director's Office (West)
Livestock Farm
Welisera, Ragama
Sri Lanka
Tel 01 538474

Dr. Piyadasa, a Sri Lankan, has 17 years of experience in clinical practice with livestock and other animals species, in veterinary acupuncture and in the use of herbal medicine in animals. He

completed his B.S. degree in veterinary science in 1975 and an M.Sc. in animal physiology in 1984, both from Peradenya University. He is currently involved in swine development activities in the Department of Animal Production and Health, Sri Lanka.

Piyasak Sukarnthapong
North East Thailand (NET) Foundation
Post Office Box 2, Amphur Muang
Surin 32000, Thailand
Tel 511-172

Mr. Sukarnthapong has been in charge of the Northeast Thailand Foundation's livestock project since 1990. He conducts training and implements field activities with villagers in the project's target area. The livestock project focuses on medicines and animal health care. It emphasizes a blend of indigenous technologies and practices with Western science. Mr. Sukarnthapong has five years of experience in beef cattle production. He is a Thai citizen.

Sagari R. Ramdas
ANTHRA
A-21 Sainikpuri
Secunderabad 500594, India
Tel 040-862826; 040-863167
Fax 040-690892

Dr. Ramdas is a graduate of the College of Veterinary Sciences, Haryana Agricultural University, Hisar, India, and holds a master's degree in animal breeding and genetics from the University of California—Davis, USA. She has wide professional experience with different rural livestock production problems in India, ranging from tribal to semi-nomadic shepherding systems. As a veterinary consultant to various NGOs, Dr. Ramdas has trained animal paramedics, specifically rural women, and developed training and educational materials which are now used for alternative health systems (especially homeopathy) for the prevention and cure of animal disease. She is deeply involved in the collection and practical application of indigenous veterinary practices. An Indian citizen, Dr. Ramdas is working with rural communities in South India.

Aem Wangklang
36 Moo 4 Ban Nongsai
Tambol Lamprick, Amphur Kornburi
Nakornrachasima, 30250
Thailand

Mr. Wangklang is a Thai farmer. He cultivates cassava and raises 40 cows and 200 chickens. He has 20 years of experience in using herbal medicine for animals. He is a member of the Committee of the Lamprick Livestock Farmer Association.

Medino A. Yebron
College of Veterinary Medicine

Central Mindanao University
University Town
8710 Musuan, Bukidnon
Philippines

Dr. Yebron is a veterinarian at the College of Veterinary Medicine of Central Mindanao University in Bukidnon, Philippines. He is an associate professor and former dean of that college, which conducted more than 30 studies and theses on herbal medicine and related indigenous practices. Dr. Yebron holds an M.S. degree with a major in veterinary pathology. He has been teaching and doing research and extension work for the last 18 years. He is concurrently the coordinator of the Philippines-Belgium Animal Disease Diagnostic Laboratory.

References

- Adjid, R.M.A. 1990. Survey of Traditional Medicine Use for Sheep Health Problems by OPP Farmers in the Bogor District of West Java. Working Paper No. 118. Small Ruminant-Collaborative Research Support Program, Balai Penelitian Ternak, Pusat Penelitian dan Pengembangan Peternakan, Bogor, Indonesia.
- Agravante, Marie Denise, Jovita G. Reyes, Florenda I. Santiago and Angelita G. Reyes. 1985. Philippine Plants (Their Medicinal, Culinary and Cosmetic Values). REX Book Store, Manila, Philippines.
- Anjaria, Jayvir V. 1986. Traditional (Indigenous) Veterinary Medicine Project: Recent Trends in the Use of Traditional (Indigenous) Veterinary Drugs in Animal Health and Production. Veterinary Research Institute, Gannornwa, Peradeniya, Sri Lanka.
- Anjaria, Jayvir V. 1994. Traditional Veterinary Medicine in India: Research and Development—An Overview. Unpublished paper. Available at the Library of the International Institute of Rural Reconstruction, Silang, Cavite, Philippines.
- Blood, D.C. and V. P. Studdert. 1988. Bailliere's Comprehensive Veterinary Dictionary. Bailliere Tindall: London.
- Co, Leonardo L. 1989. Common Medicinal Plants of the Cordillera Region (Northern Luzon, Philippines). Community Health Education, Services and Training in the Cordillera Region (CHESTCORE), Baguio City, Philippines.
- Dayrit, Ricardo El. S. 1979. Swine Raising. International Institute of Rural Reconstruction, Silang, Cavite, Philippines.
- Evans, William Charles. 1989 (13th edition). Trease and Evans' Pharmacognosy. Baillière Tindall, London, UK.
- FAO. 1991. Traditional Veterinary Medicine in Indonesia. FAO Regional Office for Asia and the Pacific, Bangkok, Thailand.
- FAO. 1991. Traditional Veterinary Medicine in Nepal. FAO Regional Office for Asia and the Pacific, Bangkok, Thailand.
- FAO. 1991. Traditional Veterinary Medicine in Sri Lanka. FAO Regional Office for Asia and the Pacific, Bangkok, Thailand.
- FAO. 1992. Traditional Veterinary Medicine in the Philippines. FAO Regional Office for Asia and the Pacific, Bangkok, Thailand
- Fernandez, T. J. 1990. Medicinal Plants for Haemophilus gallinarum Infection in Chickens. ASEAN Journal on Science and Technology for Development. 7 (22): 99-107.

- Fernandez, T. J. 1991. Local Plants Having Anthelmintic Values. ASEAN Journal on Science and Technology for Development. 8 (2):115-119.
- Fernandez T. J., D. N. Amihan and E. E. Ceniza. 1992. Anthelmintic Principle of Local Plants. Terminal Report Submitted to ODREX, Visayas State College of Agriculture, Baybay, Leyte, Philippines.
- Fernandez T. J. and F. B. Braga. 1992. Anthelmintic Value of Some Local Plants. Annual Report Submitted to ODREX, Visayas State College of Agriculture, Baybay, Leyte, Philippines.
- Fernandez, T. J. and L. A. Galvez. 1994. Phytochemical and Pharmacological Studies of Indigenous Plants. Paper presented during the in-house review in May 1994 at DASVM, Visayas State College of Agriculture, Baybay, Leyte, Philippines.
- Fernandez, T. J. and N. P. Rosillo. 1994. Anthelmintic Value of Some Local Plants. Paper presented during the in-house review in May 1994 at DASVM, Visayas State College of Agriculture, Baybay, Leyte, Philippines.
- Grandin, Barbara and John Young. Forthcoming. Collection and Use of Ethnoveterinary Data in Community-based Animal Health Programs. In: McCorkle, C., E. Mathias and T. Schillhorn van Veen (eds.). Ethnoveterinary Research and Development. IT Publishers. London.
- Guzman, Constancio C. de. 1990. Herbs and Spices: Sweet Basil, Dill, Coriander and Fennel. Technology and Livelihood Resource Center, Manila, Philippines.
- Guzman-Ladion, Herminia de. 1985. Healing Wonders of Herbs. Philippine Publishing-House, Manila, Philippines.
- Jensen, L.A. and M. L. Kaeberle. 1975. Course Outline for Livestock Disease Prevention 487. Iowa State University Research Foundation, Ames, Iowa, USA.
- Lewis, Walter H. 1977. Medical Botany: Plants Affecting Man's Health. John Wiley and Sons, New York.
- Loculan, Ma. D. and C. D. Matco. 1986. Utilization of Medicinal Plants for Animal Health Care. Philippine Journal of Veterinary and Animal Science 12 (3&4): 1-7
- Ludgate, Patrick J. 1989. Kumpulan Peragaan Dalam Rangka. Penelitian Ternak Kambing dan Domba di Pedesaan. Balai Penelitian Ternak, Pusat Penelitian dan Pengembangan Peternakan, Bogor, Indonesia.
- Mateo, Carmencita D. 19X6. Medicinal Plants for Animal Health Care. Animal Production Technology. 2 (1): 26-32.
- Mateo, Carmencita D. 1987. use of Herbal Medicine in Disease Control and Prevention in Livestock. Animal Husbandry and Agricultural Journal. (April): 14-17.

Mathias-Mundy, Evelyn and Constance M. McCorkle. 1989. *Ethnoveterinary Medicine: An Annotated Bibliography*. *Bibliographies in Technology and Social Change* No. 6. Iowa State University Research Foundation, Ames, Iowa, USA.

Mathias-Mundy, Evelyn and Tri Budhi Murdiati (eds.). 1991. *Traditional Veterinary Medicine for Small Ruminants in Java*. Indonesian Small Ruminant Network, Bogor, Indonesia.

Mathias-Mundy, Evelyn, Sri Wahyuni, Tri Budhi Murdiati, Agus Suparyanto, Dwi Priyanto, Isbandi, Beriajaya and Harini Sangat-Roemantyo. 1992. *Traditional Animal Health Care for Goats and Sheep in West Java: A Comparison of Three Villages*. Working Paper No. 139. Small Ruminant- Collaborative Research Support Program, Balai Penelitian Ternak, Pusat Penelitian dan Pengembangan Peternakan, Bogor, Indonesia.

Micu, E. D. and C. D. Mateo. 1986. The Potential Use of Ampalaya (*Momordica charantia* Linn.), Malunggay (*Moringa oleifera*) and Kalasiman (*Portulaca oleracea* Linn) Extracts in the Prevention of Piglet Anemia. *Philippine Journal of Veterinary and Animal Science*. 12 (3 & 4): 24-30.

Morton, Julia F. 1977 *Major Medicinal Plants: Botany, Culture and Uses*. Charles C. Thomas Publisher, Springfield, USA.

Murdiati, T.B. and J. Manurung. 1991. Uji Daun Ketepeng (*Cassia alata* L.) untuk Pengobatan Penyakit Kulit (*Psoroptes Cuniculi*) pada Kelinci. Research Institute for Animal Disease, Bogor, Indonesia.

Mursof, E. P. 1990. Pengendalian *Ascaridia galli* pada Ayam Petelur Dengangetah Papaya (*Carica papaya* Linn.). MS Thesis. Institut Pertanian Bogor, Indonesia.

Nadkarni, A. K. 1992. *Indian Materia Medical Vols. I and 2*. Popular Prakashan Private Ltd., 35C Tardeo Road, Popular Press Bldg., Bombay - 400034, India.

Oliveros-Belardo, Luz. 1981. *Herbal Medication in the Philippines and the Search of its Scientific Basis*. Occasional Paper, Research Center, De La Salle University, Philippines.

Padua, Ludivina S. de, Gregorio C. Lugod and Juan V. Pancho. 1977(Vol. I), 1978 (Vol.II), 1981 (Vol. III), 1989 (Vol. IV). *Handbook on Philippine Medicinal Plants*. Documentation and Information Section Office of the Director of Research, University of the Philippines at Los Baños, Philippines.

Perry, Lily M. 1980. *Medicinal Plants of East and Southeast Asia: Attributed Properties and Uses*. Massachusetts Institute of Technology Press, Cambridge, UK.

PCARRD. 1988. *The Philippines Recommends for Animal Health Care*. Philippine Council for Agriculture and Resources Research and Development, Los Baños, Laguna, Philippines.

Prajapati, R. B. and L. S. Hiregoudar. 1976. Treatment of Psoroptic Mange of Buffaloes with Mineral and Plant Oil. *Indian Veterinary Journal*. 53: 150151.

Quisumbing, Eduardo. 1978. *Medicinal Plants of the Philippines*. Katha Publishing, Manila, Philippines.

Rao, V. N., H. C. Joshi and Abhay Kumar. 1983. Therapeutic Efficacy of Garlic (*Allium sativum*) Against E. coli Infections in Chickens. *Avian Research*. 67 (1): 26-27.

Sastroamidjojo, A. Senso. 1988. *Obat Asli Indonesia*. Penerbit Din Rakyat, Indonesia.

Satyavani, G.V., M. K. Raina and M. Sharma (eds.). 1976. *Medicinal Plants of India (Vol 1)*. Indian Council of Medical Research New Delhi India.

Satyavani, G.V., and Ashok K. Gupta (eds). 1987. *Medicinal Plants of India. (Vol II)*. Indian Council of Medical Research, New Delhi, India.

Sinn, Rosalee. 1983. *Raising Goats for Milk and Meat*. Heifer Project International, Arkansas, USA.

Sri Wahyuni, Tri Budhi Murdiati, Beriajaya, Harini SangatRoemantyo, Agus Suparyanto, Dwi Priyanto, Isbandi and Evelyn Mathias-Mundy. 1992. *The Sociology of Animal Health: Traditional Veterinary Knowledge in Cinangka, West Java, Indonesia: A Case Study*. Working Paper No. 127. Small Ruminant—Collaborative Support Research Program, Balai Penelitian Ternak, Pusat Penelitian dan Pengembangan Peternakan, Bogor, Indonesia.

Somehit, Ponpangan and Suparb Poobrasert. 1991. *Edible and Poisonous Plants in Thai Forests*. Second edition (in Thai). O.S. Printing House, Bangkok, Thailand.

Somsuk Madehaehiap. 1991. *Medicinal Plants*. First edition (in Thai). Praepitaya Publishing, Bangkok, Thailand.

Suyat, Gaudencio dela Cruz. 1990. *In Vitro Study on the Antibacterial Effect of Tobacco Leaf Extract on Staphylococcus aureus*. Undergraduate Thesis, Department of Veterinary Pharmacology, College of Veterinary Medicine and Science, Central Luzon State University, Muñoz, Nueva Ecija, Philippines.

Syamsuhidayat, Sri Sugati and Johnny Ria Hutapea. 1991. *Inventaris Tanaman Obat Indonesia*. (1). Badan Penelitian dan Pengembangan Kesehatan, Jakarta, Indonesia.

Tan, Michael. 1981. *Philippine Medicinal Plants in Common Use, their Phytochemistry and Pharmacology*. Alay Kapwa Kilusang Pangkalusugan (AKAP), Philippines.

Taylor, E. Varro, Lynn R. Brady and James E. Robbers. 1988. (9th edition). *Pharmacognosy*. Lea and Febiger, Philadelphia, USA.

Vohora, S. B. 1989. Research on Medicinal Plants in India: A Review on Reviews. *Indian Drugs*. 26 (10): 526-532.

WHO. 1989. Medicinal Plants in China. World Health Organization, Regional Office for the Western Pacific, Manila, Philippines.

WHO. 1990. Medicinal Plants in Viet Nam. World Health Organization, Regional Office for the Western Pacific, Manila, Philippines.

Yebron, Medino A. 1994. Results of Thesis Research on Medicinal Plants at Central Mindanao University. Paper compiled for Ethnoveterinary Kit Production Workshop held at the International Institute of Rural Reconstruction, Silang, Cavite, Philippines, July 11-24, 1994.

Ethnoveterinary medicine in Asia - An information kit on traditional animal health care practices - Ruminants

How to use this manual

This is one of four manuals on traditional animal health care practices (or "ethnoveterinary medicine") in tropical Asia. The manuals were compiled during a participatory workshop held at the International Institute of Rural Reconstruction in July 1994. The four manuals cover swine, poultry, ruminants (cattle, buffaloes, sheep and goats) and general information. For details, see the General information manual.

The topics in this manual have been broadly presented to include the whole spectrum of "conditions" which a field practitioner may encounter in the care and management of livestock.

Topics which describe a disease or condition present the following information:

Symptoms - key symptom(s) by which the disease can be identified.

Causes - primary cause(s) of the disease.

Prevention - appropriate preventive measure(s) to avoid disease onset.

Treatment - a detailed description of the treatment(s).

The treatments list the ingredients by their botanical (or Latin) name and a common English name. For some commonly known species (e.g., garlic, ginger, coconut, banana, guava), only the English name may appear in the text. The General information manual contains a complete list of plants named in the four manuals.

The treatments or remedies which require multiple ingredients are presented in a step-by-step "recipe" format which lists all ingredients to be used and describes how to prepare them. See the General information manual for details on how to prepare remedies such as fomentations, poultices and decoctions. Many remedies which require only a single ingredient are presented in tables. Each remedy is identified by the "*" mark; where several remedies are presented the choice of the remedy is left to the user.

After each treatment, the countries in tropical Asia where the treatment is practiced (as validated by the workshop group or through references) are presented in boldface parentheses.

Immediately after the names of the countries is a series of numbers that reflect the validation criteria used in the workshop:

1. Workshop participants agreed that the treatment would be useful.

2. Treatment is widely used in a region or a country (some remedies were also validated against practices from outside Asia).

3. Workshop participants had first-hand knowledge of the remedy's use on-farm.

4. Traditional healers are known to use the remedy.

5. The remedy is cited in the literature in one of two ways: (1) it is used to treat the same problem in humans or another animal species; or (2) this plant has proven pharmacological activity to treat the problem in question. For instance, laboratory tests have shown that *Nicotiana tabacum* (tobacco) leaf extract is effective against *Staphylococcus aureus* bacteria in vitro (Syat 1990). This tends to support the use of tobacco leaves in treating wounds.

6 The remedy has been scientifically validated as effective to treat the problem in the livestock species in question. Relevant references are given under the corresponding plant name in the Glossary of medicinal plants section in the General information manual.

Dosages and preparation methods in indigenous practice are often imprecise and vary widely between individuals and regions. The dosages and methods given are those that, according to the professional judgement and experience of the workshop participants, are most suitable, are easy to prepare and are likely to be effective. The workshop participants and IIRR have made every attempt to ensure that the remedies are effective and are not harmful. However, they cannot guarantee this or be held liable for problems arising from these practices.

Unless noted to the contrary, all dosage quantities for treatments are for single dosage applications, in other words, each treatment should be prepared at the time of application according to the quantities specified. Remedies for ruminants are generally stated in terms of dosages for adult cattle or buffaloes. It is important to use appropriate dosages: for instance, a dose for an adult cow could kill a goat; on the other hand, a dose suitable for a goat may have no effect on a cow.

Where possible, simple measurements (handful, cup, etc.) have been given for ease of use by field practitioners. The General information manual contains a guide to commonly used weights and measures. More detailed measurements (milliliters, etc.) are also given to allow a practitioner to be as precise as the particular conditions may allow.

@ This symbol highlights precautions to heed when using a treatment.

This symbol highlights reminders.

* This symbol marks diseases that can affect humans.

All references used in this manual are listed in the References section in the General information manual.

Lack of appetite

Symptoms

- Weight loss.
- Tiredness.
- Lack of energy.
- Dullness and listlessness.

Causes

- Low quality feed.
- Overworked animal.
- Hot weather.
- Irregular feeding time. Infectious diseases.
- Wounds.
- Worms.
- Stomach trouble.
- Stress.
- Fever.

Prevention

In the dry season, when the fodder quality is low, Thai farmers give this supplement as an appetizer.

1. Pound and grind together 5 kg mature *Terminalia chebula* fruits, 5 kg mature *Phyllanthus emblica* fruits and 600 g salt.
2. Put the mixture in a big container.
3. Pour 15 liters of bovine urine over the mixture.
4. Ferment (i.e., let stand) for 20 days.

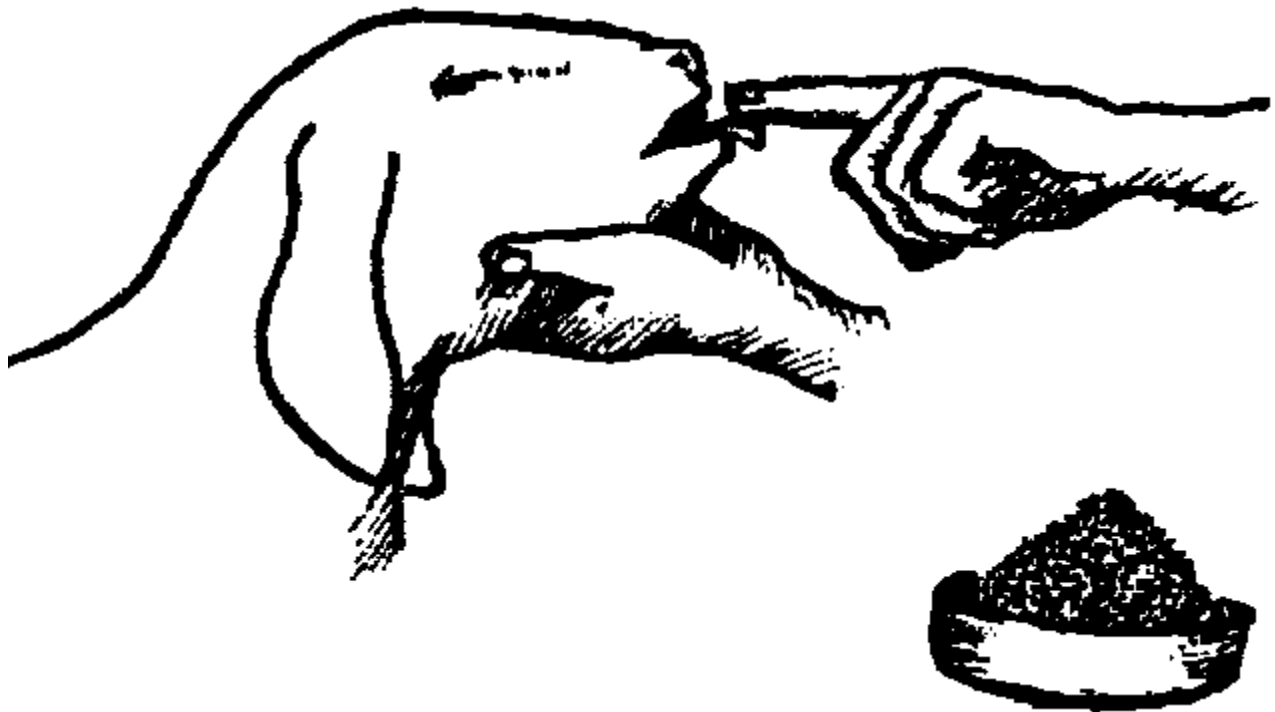
5. Once fermented, drench the animal with 600 ml once a day until it regains its appetite.

(Northeast Thailand 1,2,3,4)

Treatment

Use any of these practices.

- Gently rub the animal's tongue with a stick or an iron bar to stimulate salivation.
- Change the feed.
- Mix 500 ml juice of tamarind fruit pulp with 10 g dried Terminalia chebula fruit. Feed this to a large ruminant once a day until it regains appetite. For a small ruminant, use 200 ml tamarind pulp juice.



Animal's treatment

- Mix together 60 g each of powdered ginger, powdered fennel (*Foeniculum vulgare*) seeds, brown sugar and 20 g black salt. Take enough of the mixture on your finger and rub on the animal's tongue. Do this every day until the animal regains appetite. (India. 1, 2, 3, 4)
- Pound together 10 g salt and 10 g *Trachyspermum ammi* seeds. Mix with 20 g molasses and feed to the animal twice a day for 2-3 days. (India. 1, 2, 3, 4)

· Grind together 10 g salt and 10 g *Trachyspermum ammi* seeds. Mix with 1/4 liter coconut water. Drench twice a day for 2-3 days. (India. 1, 2, 3, 4)

· Drench 1/2 liter buttermilk twice a day for 2 days. (India. 1, 2, 3, 4)

· Mix 1 tablespoon soy sauce, 100 ml water and 50 g shrimp paste. Feed the animal once a day for 3 days. (Indonesia. 1, 2)

To make the animal gain weight

Mix 1 handful each of fresh *Tinospora rumphii* vine, *Cassia siamea* leaves and *Morinda citrifolia* leaves, the grated meat from 1 mature coconut and a handful of salt in 10 liters of water. Let stand for 2 nights. Feed about 1 liter of this mixture to the animal every other morning. After feeding, give lots of water. (Thailand. 1, 2)

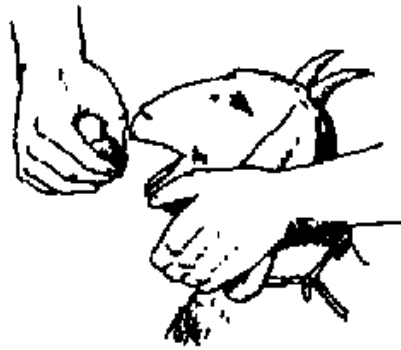
To make the animal active

Pound and grind together 100 g *Tinospora rumphii* vine and 100 g galangal (*Alpinia galanga*) roots. Mix with 200 g cooked rice. Make into a ball. Feed this to the animal once a day for 3 days. (Thailand. 1, 2)

100 g *Tinospora rumphii* +
100 g *Alpina galanga* roots



200 g
cooked
rice



Cooking treatments for animals

Fever

Symptoms

- Body feels hot.
- Thirst: the animal drinks a lot of water.
- Animal does not urinate as much as usual.
- Hairs are raised.
- Appetite is decreased.
- Eyes are not shining (dull).
- Nose is dry.

Feel the animal's ear. If the ear is very hot, the animal is sick and needs treatment.



Detect fever by holding the base of the ear.

Causes

Fever can occur during sudden changes in weather. Young animals are more susceptible.

Fever is caused mainly by viruses, bacteria or protozoa. It may also be due to sunstroke or poisoning. If the animal has any of the symptoms below, it may have one of the following diseases. Consider consulting a professional (a local expert development officer or veterinarian).

- Bloody, foul-smelling diarrhea (possibly rinderpest).
- Difficulty in breathing (pneumonia); if with snoring sound and bloat (hemorrhagic septicemia)
- Lameness, difficulty in eating (foot and-mouth disease)
- Very high fever, swelling all over the body (anthrax).
- Lameness, swelling of muscles in the thigh and shoulder (black quarter).
- Swelling of udder (mastitis)
- Red-colored urine (babesiosis).
- Groaning and grunting when moving, weakness, tiredness (lasts only 3 days) (ephemeral fever).
- Boils filled with water on body (pox).



Detecting fever

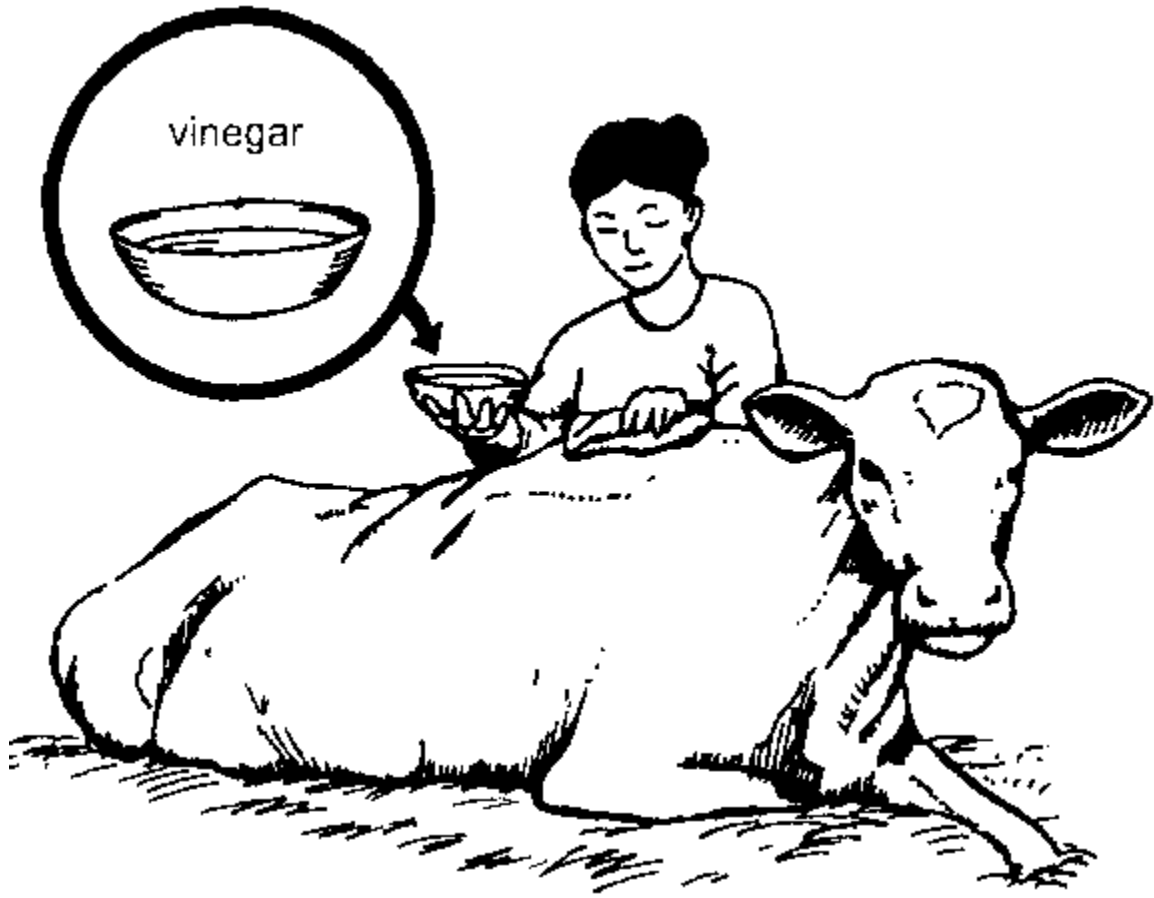
Prevention

- Provide clean drinking water. Clean the surroundings.
- Provide fresh, clean food. Protect animals against bad weather.
- To prevent sunstroke, do not tie or graze the animals under the hot sun.

Treatments

Any of the following treatments will help to reduce the fever. The dosages below are for cattle and buffaloes. Use half of the quantities for sheep, goats and calves. Use one quarter of the amounts for lambs and kids. Continue giving the treatment to keep the fever under control.

- Mix about 10 g of *Swertia chirata* (whole plant) with 100 g of molasses to make a thick paste. Apply the paste to the tongue and the roof of the mouth twice a day. (India. 1, 2, 3, 5)
- Prepare a paste of the root of *Picrorhiza kurrooa* and molasses as above. Use the same amounts and in the same way as above. (India. 1, 2, 3, 5)
- Boil a handful of *Tamarindus indica* leaves and 1/4 kg of fruit pulp in 1/2 bucket of water for 15 minutes. Collect the fluid and give to the animals as the only source of drinking water. (Indonesia. 1, 2)
- Boil a handful of *Eucalyptus globules* leaves in 1 liter of water for 15 minutes. Give 1 liter as a drench twice a day. (India. 1, 2, 3, 4)
- Boil a handful of fresh neem leaves in 1 liter of water for 15 minutes. Give this amount as a drench twice a day. (India. 1, 2, 3, 4)
- Boil two handfuls of *Vitex negundo* leaves for 15 minutes in 1 liter of water. Give 1-2 cups of the liquid 3 times a day as a drench. (India, Philippines. 1, 2)
- Sponge animal with vinegar all over the body as often as possible. (Philippines. 1, 2)
- Boil a handful of rambutan (*Nephelium lappaceum*) leaves and bark in 3 liters of water for 30 minutes. Give 1 liter 3 times a day as a drench.
- Boil 1/2 g of the bark or wood of stems or node of *Gardenia jasminoide5* in 5 liters of water for 15 minutes. Drench 2 liters per day, twice a day for 5 days.



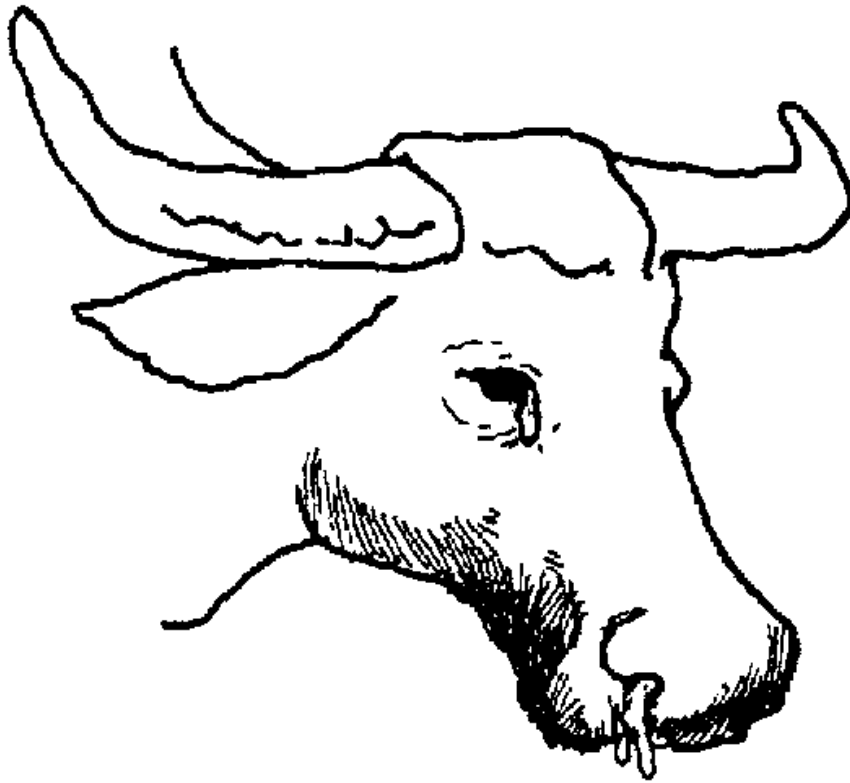
Sponge animal with vinegar

Coughs and colds

Coughs and colds are diseases of the lungs and the respiratory passage.

Symptoms

- Coughing.
- Sneezing.
- Watery eyes.
- Watery discharge from the nose, which later becomes yellow in color.
- Loss of appetite.
- Body temperature is higher than in a normal animal (fever).
- Difficulty in breathing.



Symptoms of coughs and colds

Causes

- Moist conditions in the animal housing because of poor lighting and ventilation.
- Overcrowding of animals.
- Allergic reactions.
- Lung parasites.
- Breathing in dusty food particles.
- Infectious diseases.
- Foreign particles, irritants or oil in the respiratory passage.

Prevention

- Avoid overcrowding, feeding of dusty feeds and exposure to rain or bad weather, especially for young animals.

Treatment

Any of the following can be used to treat coughs and colds:

Fomentation

Fresh *Adhatoda vasica* leaves.

Fresh *Moringa oleifera* (drumstick) leaves.

Fresh *Gmelina arborea* leaves.

Fresh *Curcuma domestica* (whole plant with roots).

Chop 5 handfuls of each of the ingredients into small pieces. Mix the ingredients together and divide into 3 parts. Put each part into a plate-sized cloth and tie the cloth to make a pouch. Warm the pouches with steam. Put each warm pouch on the animal's chest for 20-30 minutes, until that pouch has cooled. Then replace it with another warm pouch. Keep the other two Douches warm to allow continuous treatment. Do this twice a day for 2 days. This is best done early in the morning and late in the afternoon. (Sri Lanka. 1, 2, 3, 4)



Boiling a treatment against coughs and colds

· Apply 300 ml of *Mimusops elonga* seed oil all over the animal's body, especially on the chest. Keep the animal near the fire so that it is warm. Heat a gunny sack, towel or any absorbent cloth above the fire (not so near as to burn it). Put the sack over the chest of the animal and keep it there for 20-30 minutes. Repeat this twice a day for 2 days. (India Sri Lanka. 1, 2, 3, 4)



Apply the fire

· Mix 250 ml of vegetable oil with 50 g of camphor powder to make camphorated oil. Rub this on the chest. Do this continuously for 5 minutes or until you can feel the warmth of the chest. Do this twice a day for 2 days. (India. 1, 2, 3, 4, 5)

Oral treatment

The dosages given below are for adult cattle and buffaloes. Use one-third to half the dosage for sheep, goats and calves. Give the remedy for a maximum of 10 days or until symptoms disappear (unless the duration is stated below).

· *Brassica integrifolia* (raw seed).

Garlic bulb.

Black pepper (*Piper nigrum*) seed.

Moringa oleifera (stem bark).

Ginger rhizome.

Finely pound a handful of each of the ingredients, mix and make a small bolus. Put 4-5 bolus inside the animal's mouth twice a day for 3-4 days. Make sure the animal swallows the medicine. (Sri Lanka. 1, 2, 3, 4)

· Boil 2 handfuls of fresh leaves of *Tamarindus indica* with 1 liter of water for 5 minutes. Drench with 1 liter of the liquid, 3 times a day for 3 days. (Philippines. 1, 2)

· Pound 500 g of fresh *Erythrina indica* leaves and mix with 300-400 ml (1 big glass) of water. Drench all of this amount twice a day for 2 days. (Indonesia. 1, 2)

· Mix 5 g of *Curcuma domestica* (dried rhizome) powder with just enough brown sugar to bind the powder. Feed this as a paste to the animal twice a day for 10 days. (India. 1, 2, 3, 4, 5)

· Mix 5 g of powder of each of the following ingredients:

Curcuma domestica (dried rhizome).

Ocimum sanctum or *Ocimum basilicum* (dried leaves).

Adhatoda vasica (dried leaves).

Ginger (*Zingiber officinale*/zerumbet) (dried rhizome).

Add 2 cups of water, mix and drench at once, 2 times a day for 10 days. (India. 1, 2, 3, 4, 5)

· Separately grind 1 whole dried plant of *Glycyrrhiza glabra* and dried leaves of *Ocimum sanctum*, *Adhatoda vasica* and *Curcuma domestica* rhizome. Take 10 g of each powder and mix them with enough brown sugar to bind the powder. Feed as a paste to the adult animal 2 times a day for 5-10 days. (India. 1, 2, 3)

· Mix 10-15 g of dried *Alpinia galanga* rhizome powder with a little brown sugar to make a paste. Feed as a paste or apply the paste to the tongue of the animal, twice a day for 5 days. (India. 1, 2, 3, 5)

· Grind 5-10 g of dried rhizome of *Zingiber officinale* or *Zingiber zerumbet* to powder. Mix with a small amount of brown sugar to make a paste. Feed this twice a day. (India. 1, 2, 3, 4, 5)

· Boil 10 g of either dried or fresh *Adhatoda vasica* leaves with 2 liters of water for 1/2 hour. Drench with 500 ml of the liquid twice a day for 10 days. (India. 1, 2, 3, 4, 5)

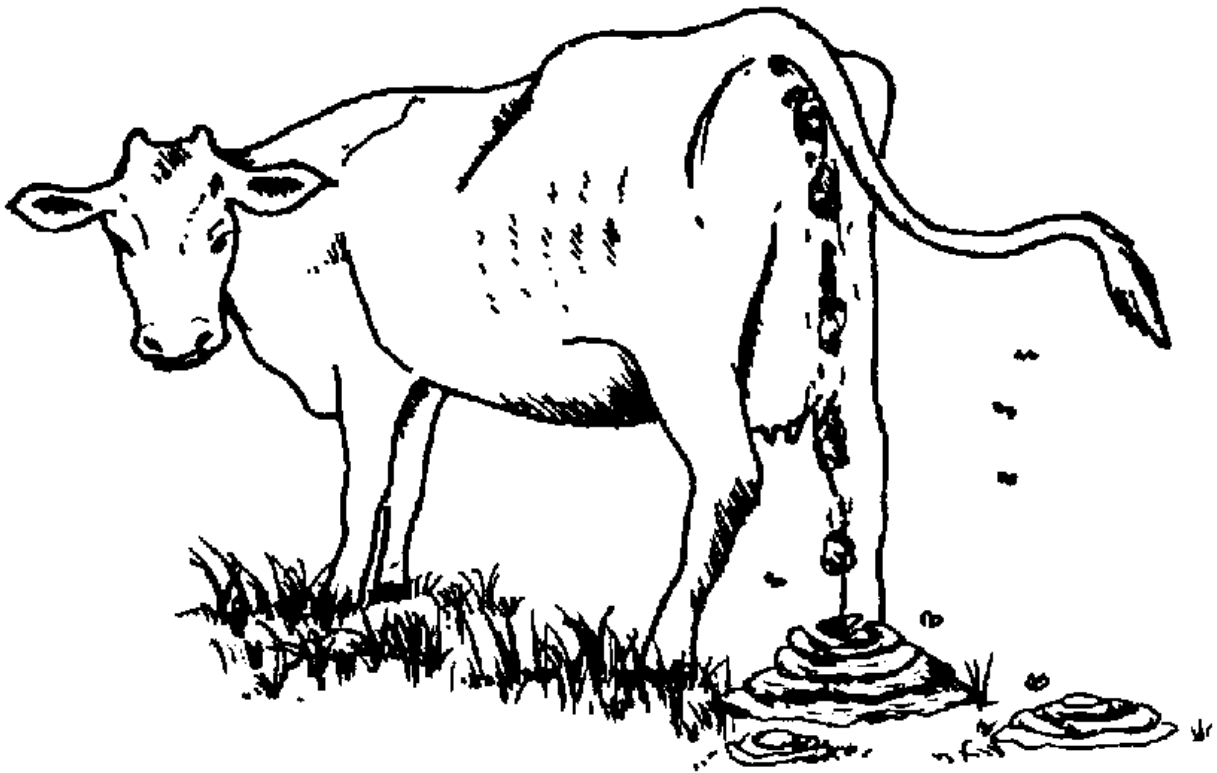
· Grind 5 - 10 g of dried *Ocimum sanctum* leaves to powder. Mix with a little brown sugar and apply paste to the tongue 2-3 times a day. (India. 1, 2, 3, 4, 5)

· Mix the juice of 1 lemon (*Citrus medica*) fruit with a pinch of salt and apply to the tongue of the animal twice a day. (Thailand. 1, 2, 3)

Diarrhea

Symptoms

- Defecation more frequent than normal.
- Loose feces that sometimes contain blood, mucus or both.
- Dry skin.
- Hindquarters are soiled.
- Animal stops chewing cud.
- Animal has dull and sunken eyes and does not move energetically.



Diarrhea

Causes

- Sudden change in diet (especially from dry fodder diet to green fodder).
- Intestinal parasites like amoeba.

- Bacterial and viral diseases.
- Contaminated water.
- Overeating.

Prevention

- Good hygiene and nutrition.
- Proper husbandry practices such as giving clean feed and water, keeping animal quarters and surroundings clean, etc.
- Do not graze the animal immediately after a rain or too early in the morning before the dew has dried.
- Do not provide drinking water immediately after giving legumes and green fodder as feed.
- Deworm the animals regularly. See Internal parasites, page 38.
- Vaccinate animals against rinderpest in areas where it is seasonally endemic.

@ Caution

- Watch out for rinderpest—bloody, foulsmelling, shooting diarrhea with high fever that affects many animals in the village. (See Infectious diseases).
- If there is chronic diarrhea with wasting away and no response to treatment, seek professional help.

Treatment

Provide a soft, pulpy diet to animals with diarrhea. It is necessary to make the animal drink extra liquid to replace the liquid lost in the diarrhea. Diarrhea that lasts for 2 to 3 days may cause dehydration. This can lead to shock and then death. It is, therefore, necessary to make the animal drink more liquid.

Use any of the following drenches. The dosages of the treatments given below are for adult cattle or buffaloes.

Use half the amounts for calves, goats and sheep. Further drenches are described in Dehydration, page 18.

- Dissolve 1 teaspoon of salt and 4 teaspoons of sugar in 1 liter of water. Drench 2-3 times a day as needed. Continue giving the treatment for as long as the diarrhea lasts. (India. 1, 2, 3, 4, 5)
- Boil 1 handful of tea leaves in 1 liter of water. Strain, and add 1/2 handful of ground ginger rhizome to the liquid. Drench twice a day for 3-4 days. (India. 1, 2, 3, 4, 5)
- Grind 1/2 handful of fresh ginger rhizome and 1/2 handful of bishop's weed (*Trachyspermum ammi*) seeds. Add this mixture and a handful of tea leaves to 1 liter of water and boil. Cool. Drench half of the amount in the morning and half of the amount in the evening. Repeat the next day until the diarrhea stops. (India. 1, 2, 3, 4, 5)
- Give the water from cooked rice mixed with 1 g of dried ginger rhizome powder to the animal to drink. Repeat 2 times a day. Give half the quantity for sheep and goats. (India. 1, 2, 3, 4, 5)
- Drench 500 ml to 1000 ml of young coconut water twice a day until the diarrhea stops. (Philippines, Thailand. 1, 2, 3)

Some treatments to help stop diarrhea are described below. As before, use half the dosages given below for calves, sheep and goats. Continue the treatment for as long as the diarrhea lasts.

- Mix 1 handful each of bishop's weed (*Trachyspermum ammi*) seeds, dried or fresh ginger rhizome and cumin (*Cuminum cyminum*) seeds with 1/2 handful fenugreek (*Trigonella foenum-graecum*) seed powder. Mix with 50 g brown sugar to make bolus and feed by mouth twice a day for 2-3 days. (India. 1, 2, 3, 4)
- Boil 1/2 kg of fresh guava (*Psidium guajava*) leaves in 3 glasses of water. Drench twice a day. (Thailand. 1, 2, 3, 4, 5)
- Boil about 20 fresh star apple (*Chrysophyllum cainito*) leaves in 2 cups of water. Drench 3 times a day for 1-3 days. (Philippines. 1, 2, 3, 4)
- Grind coconut shell charcoal to a powder. Mix 1 cup with 500 ml of water. Drench 3 times a day for 3 days. (Philippines. 1, 2, 3, 4)
- Mix 5 to 10 crystals of potassium permanganate in 1 liter of water. Drench twice a day. (India. 1, 2, 3, 4)
- Drench the animal with any of the following ingredients in the amounts indicated, mixed in 300 to 400 ml of water: powdered chalk (4 g), kaolin earth (5 g), or potassium aluminum sulfate crystals (0.8 g).
- Crush 15 g each of the young fruits and roots of *Momordica charantia* to obtain the juice. Mix the juice into 1 liter of young coconut water and drench once a day for 3 days. (Philippines. 1, 2, 3, 4, 5)

· Prepare a decoction of 10 to 15 leaves of *Psidium gunjava* in 1 liter of water. Divide the liquid in 3 equal doses and give 3 doses per day for 5 days. (Philippines. 1, 2, 3, 4, 5)

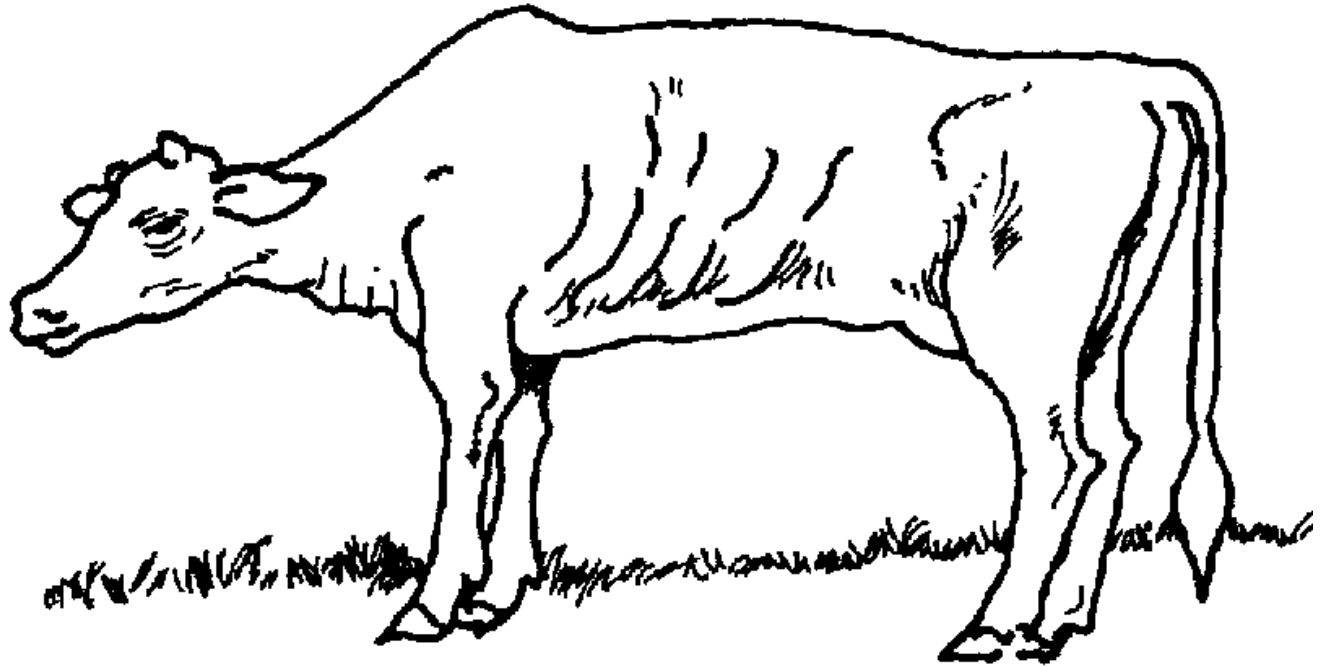
Some further treatments to stop diarrhea are presented in the following table. All plant parts used in the treatments are dried and ground to powder form.

Mix the dosage indicated with 300 to 400 ml of water and drench with this amount twice a day for 3-5 days or as long as the diarrhea lasts.

Scientific name	Common name	Parts used	Dosage
<i>Acacia catechu</i>	Catechu	Sap lumps	0.8 g
<i>Aegle marmelos</i>	Bael fruit	Dried, ripe fruit	1.0 g
<i>Cyperus rotundus</i>	Nut grass	Dried roots	1.0 g
<i>Holarrhena antidysenterica</i>	Kurchi	Dry seeds and bark	3.0 g
<i>Veronica anthelmentica</i>	Purple	Dry seeds	3.0 g

Dehydration

When an animal loses more water than it is able to take in, its body will become dehydrated.

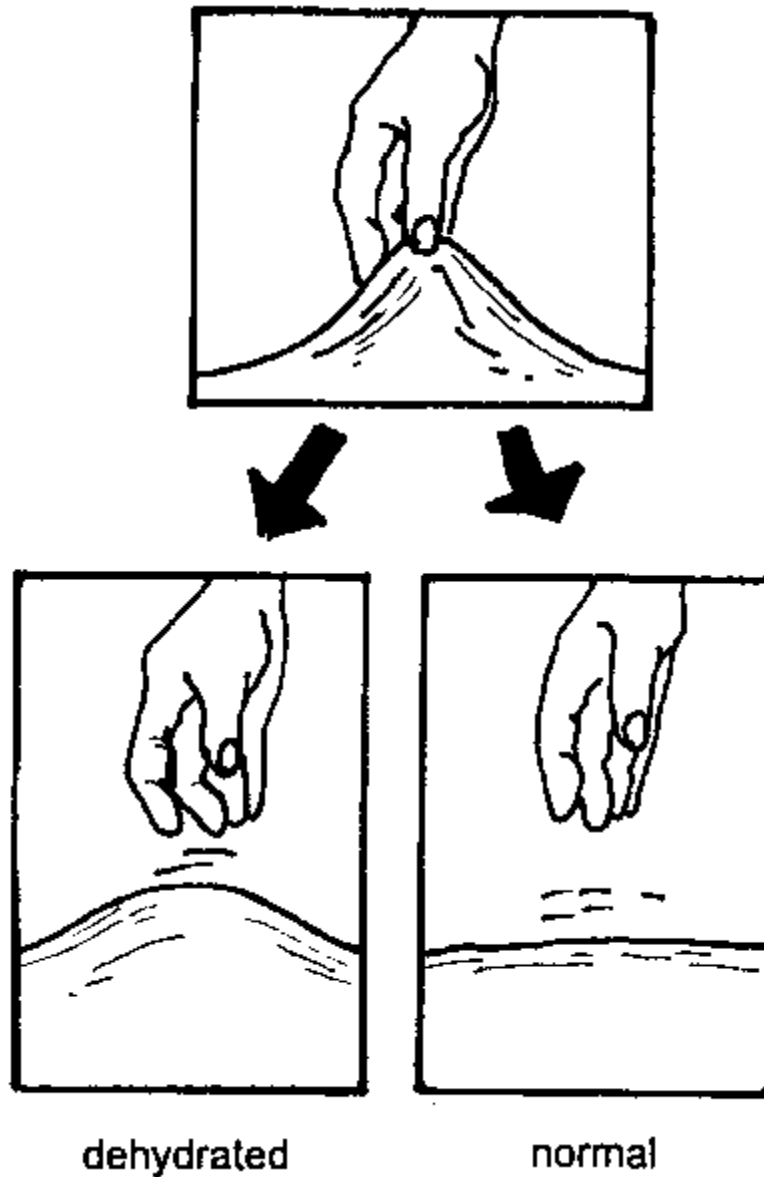


Dehydration

Symptoms

- Eyes are sunken.
- The skin is dry, wrinkles and is hard to stretch.
- The animal is very thirsty and very weak.
- The feces are dry.
- The animal suffers from constipation: there are less feces than usual.
- It urinates less than usual. The urine has a dark color.

An easy test for dehydration: Raise the skin on the neck between your finger and thumb. If the skin returns to the normal position only slowly, the animal is dehydrated.



Test for dehydration

Causes

- Diarrhea.
- Heat stress.
- Insufficient drinking water.
- Diseases that last a long time.
- Bleeding due to large injuries.

- Diseases in the urinary tract.
- Severe burns from fire or chemicals.
- Inability to drink water: something blocks the passage of food.

Prevention

- Always give the animal enough drinking water.
- Grazing areas should be near to a source of water.
- Ensure that the immediate surrounding of the animal is clean.
- Avoid keeping the animal in the sun for a very long time.
- Avoid any cause of diarrhea. See Diarrhea, page 13.

Treatment

Before using any treatment, find out what causes the dehydration. See Diarrhea.

The dosages below are for adult cattle and buffaloes. Use one-third or half of this amount for calves, sheep or goats.

To replace the lost liquid in the body, use any of the following remedies:

- Drench the adult with 2-3 liters of young coconut water 2-3 times a day until symptoms have disappeared. Varieties of coconut with yellow nuts are preferable. (India, Sri Lanka, Philippines. 1, 2, 3, 4)
- Mix 1 teaspoon of salt with 1 liter of the water left after washing rice (or the water left after cooking rice). Drench 1-3 liters of such a mixture 2-3 times a day until the symptoms disappear. (Indonesia. 1, 2)
- Take 1 handful of any kind of tea leaves and pour 2 liters of boiling water on them. Add a handful of sugar or brown sugar. Let it cool and drench all this mixture 2-3 times a day for 3 days. (India. 1, 2, 3)
- Take 1 handful of each of the following parts of Aegle marmelos: young fruit, leaves, flowers, root, stem and bark. Chop and put in 2 liters of water. Boil for 1/2 hour. Drench adult cattle and buffaloes with 1-2 liters twice a day for 2 days. Drench calves, sheep and goats with 1/2 liter of mixture twice a day for 2 days. (Sri Lanka. 1, 2,3, 4)

· Pound 10 fresh *Mitragyna speciosa* leaves and mix with 1 liter of water. Drench with the liquid 2-3 times a day until the symptoms disappear. (Thailand. 1, 2, 4)

· 1 kg *Careya sphaerica* bark.

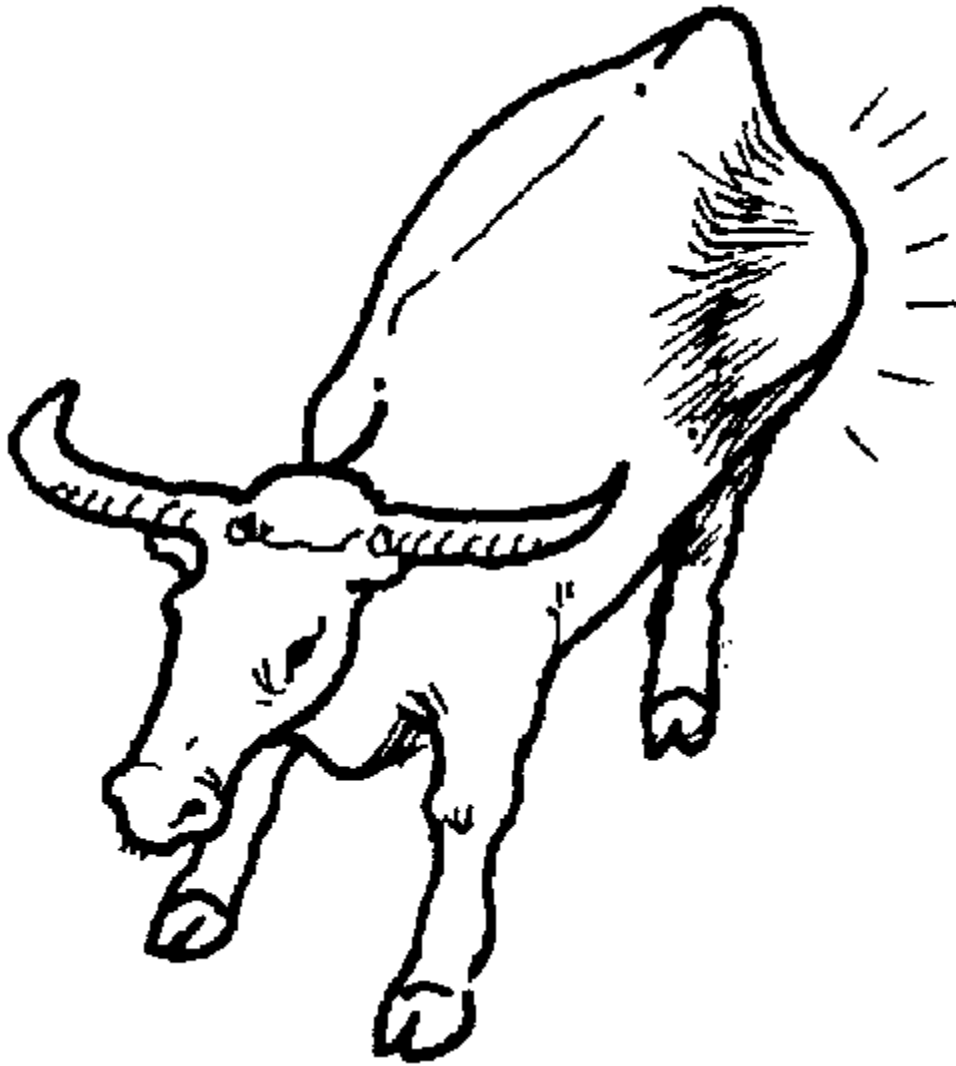
1 kg *Xylia kerii* bark.

1 kg *Sesbania grandiflora* bark.

Boil the 3 types of bark together in 3 liters water. Drench the adult buffalo or cattle with 2-3 liters of the liquid 2-3 times a day for 4 days. (Thailand. 1, 2, 3, 4, 5)

· Dissolve 2 teaspoons of salt, 1/2 teaspoon of baking soda (if available) and 4 teaspoons of sugar in 1 liter of water. Drench adult cattle and buffaloes with 2-3 liters of the solution 2-3 times a day. Drench calves, goats and sheep with 1/2-1 liter 2-3 times a day. Continue treatment until the symptoms disappear. (Thailand. 1, 2, 3)

Bloat



Animals sometimes have too much gas in their stomach. This is called bloat.

Symptoms

- The animal's abdomen is big on the left side. It sounds like a drum when you tap it.
- Thick and foamy saliva.
- Loss of appetite.
- Animal stops eating or chewing.
- Fast breathing.

- Restlessness.
- Kicks with hind legs.

Causes

Two main causes of bloat are the wrong type of feed and presence of infectious diseases. An animal may have bloat:

- After eating a lot of leguminous plants, young grass, or grass that has been extensively fertilized with nitrogen.
- After sudden changes to certain types of feed ration.
- After eating ripe fruits and other foodstuffs that ferment easily.
- After eating poisonous plants or feed with chemical residues. .
- After drinking water contaminated with poisonous chemicals or waste materials.
- When something blocks off the passage of food.
- When it has constipation.
- After eating plastic or other foreign matter.
- Because of paralysis of the nerves.
- Because of infectious diseases such as hemorrhagic septicemia.

Bloat can occur in adult animals, especially cattle, when the weather changes, because this means a change from dry to wet feed.

Sudden bloat

Bloat that starts suddenly is very dangerous. It can kill the animal within a few hours if you do not treat it immediately. Watch for these symptoms:

- The animal lies down on the ground.
- The legs are stiff and spread out when standing. The animal refuses to move.
- When you look in its eyes, the pupil (the dark part of the eye) is partly or completely invisible
- Green discharge with chewed feed comes out of its nose and mouth.

If you see these symptoms, pierce the rumen immediately. Then consult an expert straight away.

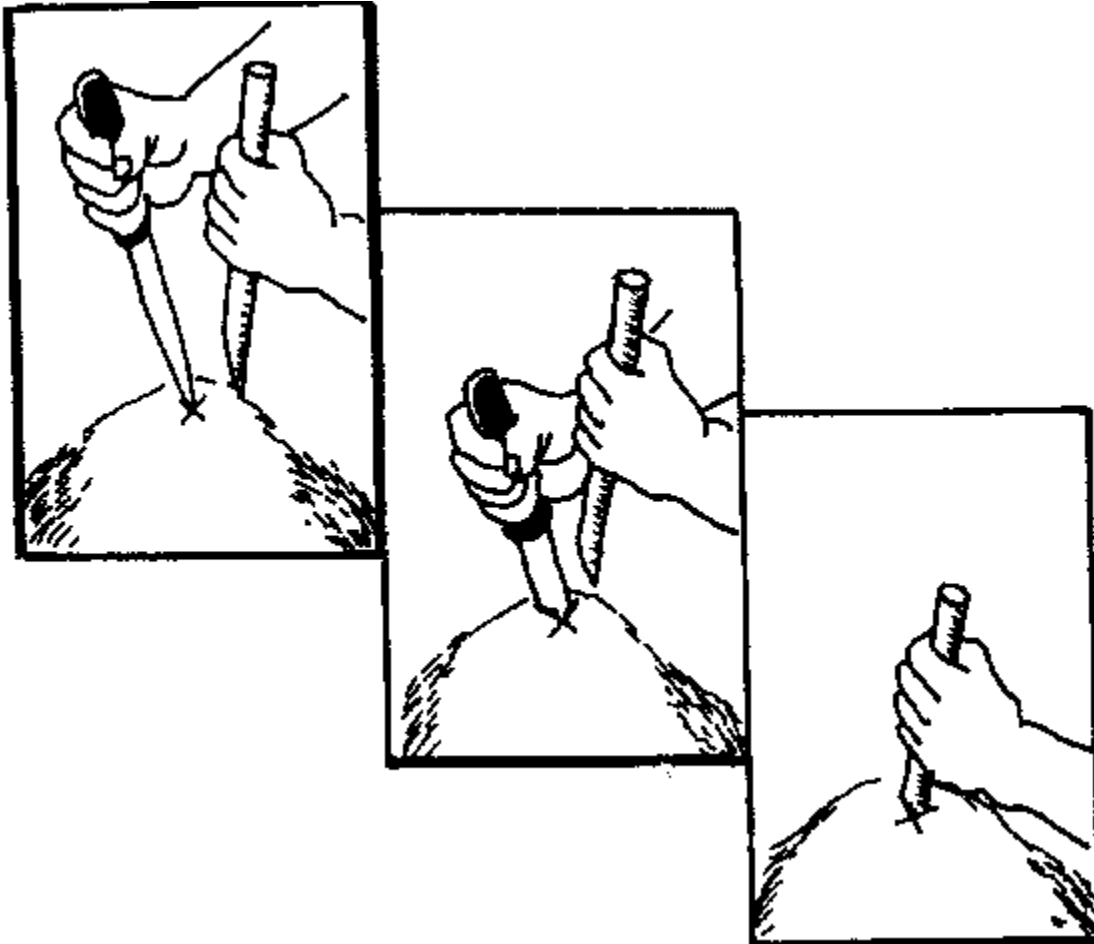


Sudden bloat

Piercing the rumen

You will need a sharp knife (1 - 2 cm wide and 8 - 10 cm long) and a bamboo tube about 30 cm long (the length of a man's foot) and as wide as a man's thumb.

Wash these thoroughly with soap and clean water. Disinfect the knife by heating it over a fire and cool it before use. Hold the knife in one hand and the bamboo in the other. On the left side of the animal, stab the highest point of the swollen (bloat) part with the knife. Push the knife blade all the way into the hole. Remove the knife and immediately insert one end of the bamboo into the hole. Gas will come out through the tube. Release the gas for 30 minutes. Then, pour a mixture of 300 ml vegetable oil and 30 ml of turpentine oil into the bamboo tube. The mixture of oil will break up the bubbles in the rumen which cause the bloat and help prevent its recurrence. Remove the bamboo, and the wound will immediately close and heal on its own because the skin of the animal is tight. However, to avoid possible infection, you may apply powdered charcoal, fresh from the stove and cooled.



Piercing the rumen

Prevention

- Do not give water to the animals before or immediately after they have grazed on wet pasture.
- Put grasses that are wet in the sun for 2-3 hours before you give them to the animals.
- During the rainy season, feed the animal with dry fodder first before sending it onto wet pasture.
- If you are changing the feed ration, mix and feed half of the previous ration with half of the new ration on the first day. Increase the proportion of the new ration while decreasing that of the old ration for the next 2-3 days until you feed the new ration completely.
- Do not give too much feed that can cause bloat (such as clover and lucerne).
- Keep animals away from contaminated water sources.

Treatment

- If constipation is the cause of bloat, see Constipation, page 29.

If the bloat is not too serious, give any of the following remedies to facilitate the release of gas. The amounts given are for adult cattle or buffaloes. For calves, goats and sheep, use one-third or one-half of these amounts. If the bloat remains for more than 2 days even after treatment, seek professional help.

- Drench 300-500 ml of any of these oils: coconut oil, vegetable oil or peanut oil, once a day for 2-3 days. Repeat the treatment once after the bloat is gone. (India, Indonesia, Philippines, Sri Lanka, Thailand. 1, 2, 3, 4)

@ Caution

Drenching should be done carefully since the animal's rumen is already full of gas. The animal will refuse to swallow any liquid. Forcing the animal may result in the liquid ending up in the lungs rather than the stomach. To prevent this, give the fluid slowly. Observe if the animal swallows. If it does not, try to stimulate the tongue as you pour the liquid, or massage the rectum to stimulate belching.

- Mix 3 tablespoons or 30-40 ml of turpentine oil with any edible oil (see list in the previous remedy). For adult cattle and buffaloes, drench 2-3 cups for the first dose. Repeat for a second dose after 4-5 hours. Give the last dose the next day. (India. 1, 2)
- Give 200 ml of castor oil to an adult animal. Do this once only. If the bloat persists, use any of the other remedies. (India. 1, 2)
- Drench warm vinegar twice a day. For adult cattle or buffalo, use 1 1/2 to 2 cups (1/2 liter) of vinegar. Force the animal to walk to help release the gas. (Cambodia. 1, 2, 3)
- Mix 1 tablespoon of detergent (washing powder) with 1/2 liter (1 1/2-2 cups) of water. Drench once. (India. 1, 2, 3, 4, 5)
- In treating mild bloat, you can chop up 2 fresh banana leaves (for calves) or 3-5 leaves (for adult animals). Feed the chopped leaves 2-3 times a day for 2 days. (Philippines. 1, 2, 3, 4)
- 2 handfuls of fresh leaves of *Acacia concinna*. 3 tablespoons of dried seeds of *Trachyspermum ammi*. 3 tablespoons of resin of *Ferula assa-foetida*.

Grind or pound these ingredients separately. Mix the powder together and add 50 g of brown sugar to make a bolus. Put into the mouth of the animal, twice a day for 2-3 days. (India)

- Mix 2 handfuls of pulp of ripe *Tamarindus indica* fruit in 1 cup of water. Extract and add the juice to 1-2 matchboxfuls of ground and dried *Terminalia chebula* fruit. Add 4 more cups of water. This makes enough liquid to dose an adult animal once. Drench the mixture to a sick animal twice a day for 2-3 days. (India. 1, 2, 3, 4, 5)

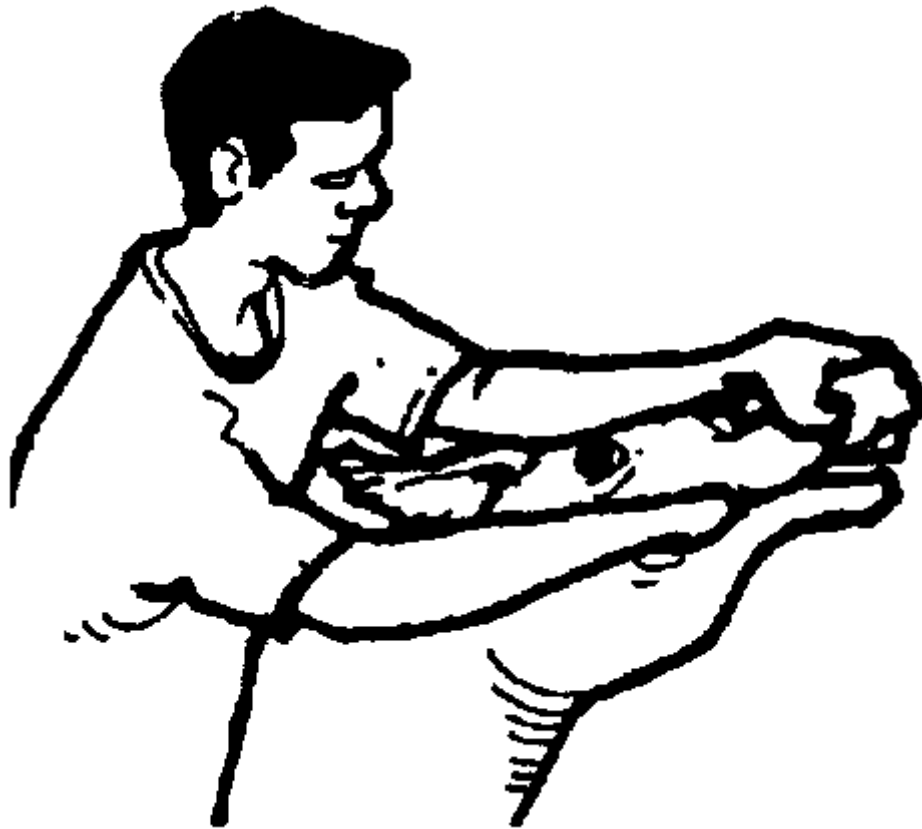
· Fresh or dried ginger rhizome. Resin of *Ferula assa-foetida*. Seeds of *Peucedenum graveolens*. Seeds of *Trachyspermum ami*. Fruit of *Embelia ribes*. Resin of *Gardenia gummifera*. Baking powder (sodium bicarbonate).

Take equal amounts of the ginger, *Peucedenum graveolens* seeds, *Embelia ribes* fruit and baking soda. Add 1/4 of this amount of *Ferula assa-foetida* resin and half of the amount of baking soda. Mix all the ingredients and grind them to a powder. Mix 2 tablespoons of this powder with brown sugar and 300 ml water. Feed 2-3 times the first day. Repeat this dosage once a day for the next 2 days. (India)

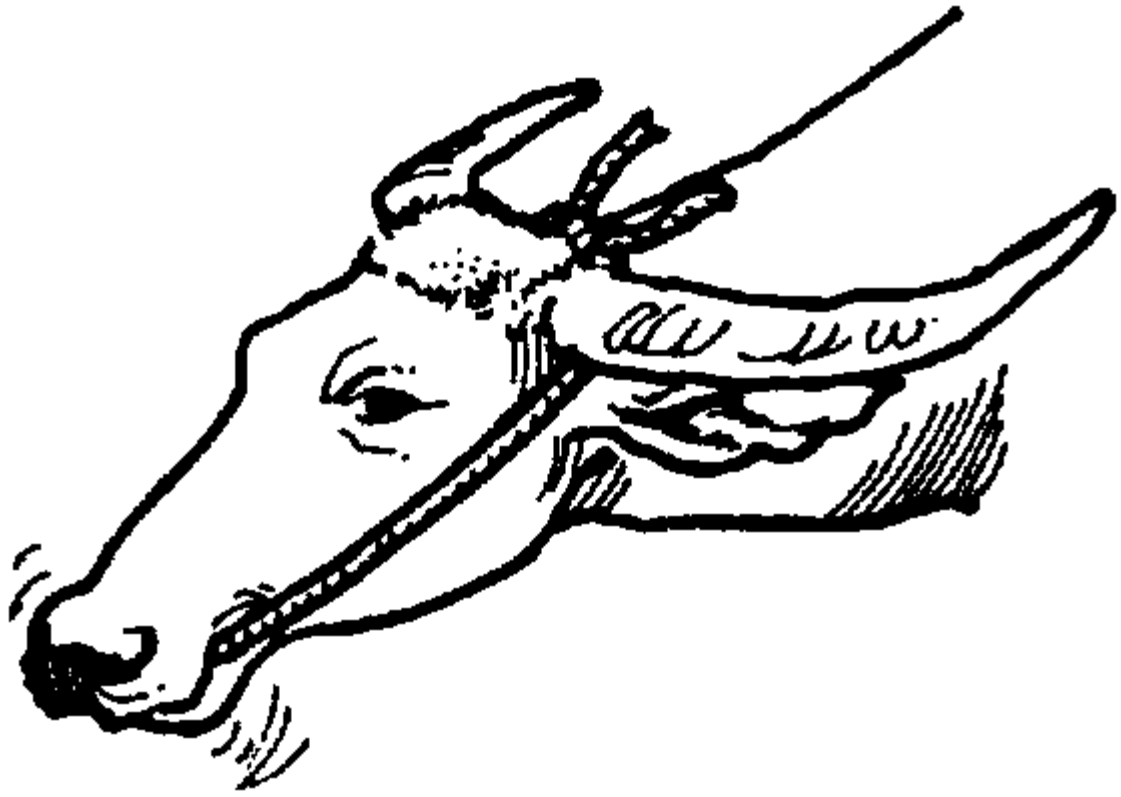
After treatment

· Open the mouth of a healthy animal until you can fit your hand inside. Take the chewed cud and mix it with 1/2-1 liter (3-5 cups) of water. Drench the diseased animal. This helps the bloated animal digest feed. (India. 1, 2, 3)

· Put a rope the thickness of your thumb in the animal's mouth and tie it around the head. The animal will chew the rope. This will stimulate salivation and help release the gas. (Philippines. 1, 2, 3, 4)



Applying the treatment



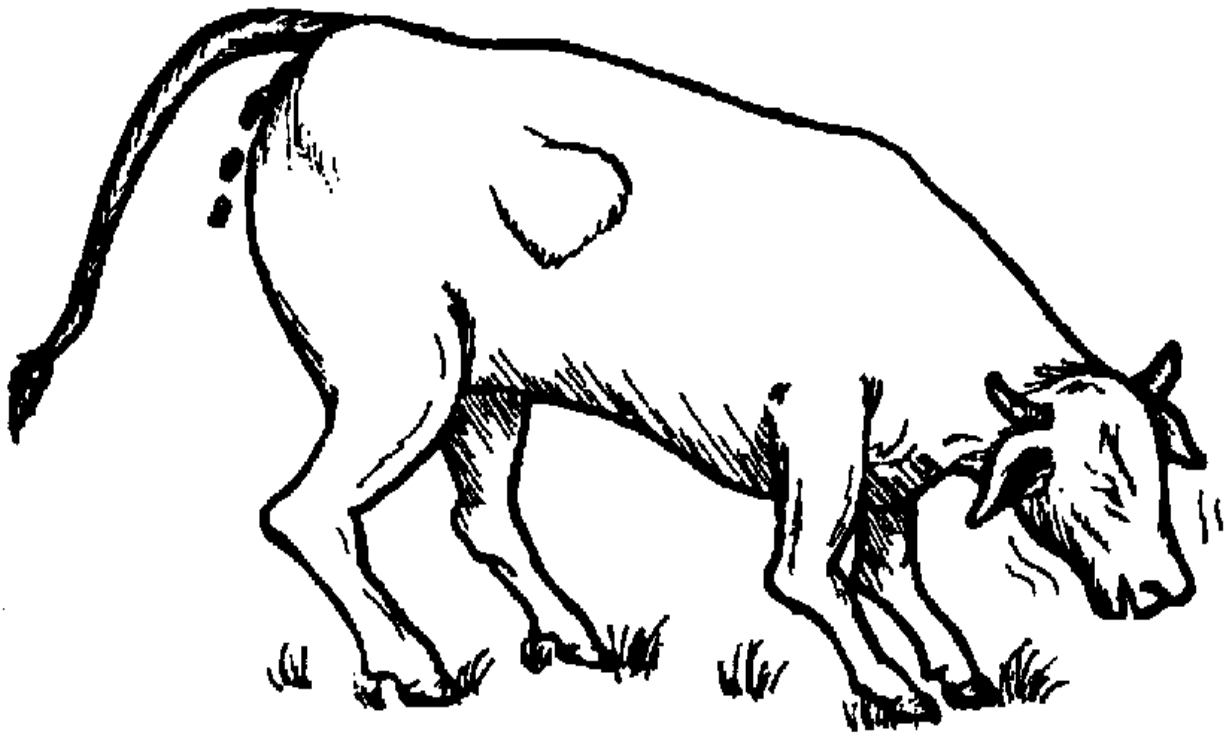
After treatment

Constipation

Constipation or impaction usually occurs in the dry season. It can be remedied easily. However, if constipation persists for 4-5 days, it could lead to infection of the bowels.

Symptoms

- Straining while trying to pass dung.
- No dung or urine found left by the animal in the morning.
- Hard dung.



Constipation

Causes

- Low fiber feeds.
- Not enough drinking water.
- Illness.
- Stress.
- Sudden change in diet.

Prevention

- Feed animals vegetables, green forages (like maize leaves, lucerne, alfalfa, elephant or guinea grass, etc.) and other high fiber foods.
- Give adequate water.
- Reduce sources of stress.
- Keep animal housing clean.

Treatment

Select any of the following treatments:

- Drench 500-750 ml vegetable oil (coconut, peanut, sesame, etc.) twice a day for 3 days. (All countries. 1, 2, 3, 4, 5)
- Use any of these laxatives: castor oil, liquid paraffin oil, raw linseed oil. Drench 300-400 ml a day for 1-2 days. (All countries. 1, 2, 3, 4, 5)
- Take 300 g of ripe tamarind (*Tamarindus indica*) fruit. Remove covering, seeds and fiber. Boil in 1 liter of water. Cool. Give the resulting liquid to the animal by drenching once or twice a day. Do this for 1-2 days. (Laos, Thailand. 1, 2, 3, 4, 5)
- Feed as many fresh banana (*Musa sp.*) leaves as the animal can eat until it recovers. (Philippines. 1, 2, 3, 4)
- Feed 50-100 g of dried Aloe vera leaf pulp until the animal recovers. (Indonesia. 1, 5)
- Give 10 to 20 g of powdered henna (*Lawsonia inermis*) leaves with rock salt. (India, Indonesia 1, 5)
- Prepare decoction of a thumb-sized turmeric (*Curcuma longa*) rhizome in 1 liter of water. Let the animal drink the decoction once a day for 1-3 days. (Philippines, India. 1, 2, 3, 4)
- Grind 1/4 kg of *Aristolochia bracteata* leaves. Mix with 50 g of molasses. Feed the animal in the morning, in the evening and again the next morning. (India. 1, 2, 3, 4, 5)
- Chop 1 banana (*Musa sapientum* var. *Iatundan*) blossom. Crush with rock salt. Add a little water. Feed this to the animal. (Philippines. 1, 2, 3, 4)

100 g *Tinospora rumphii* +
100 g *Alpina galanga* roots



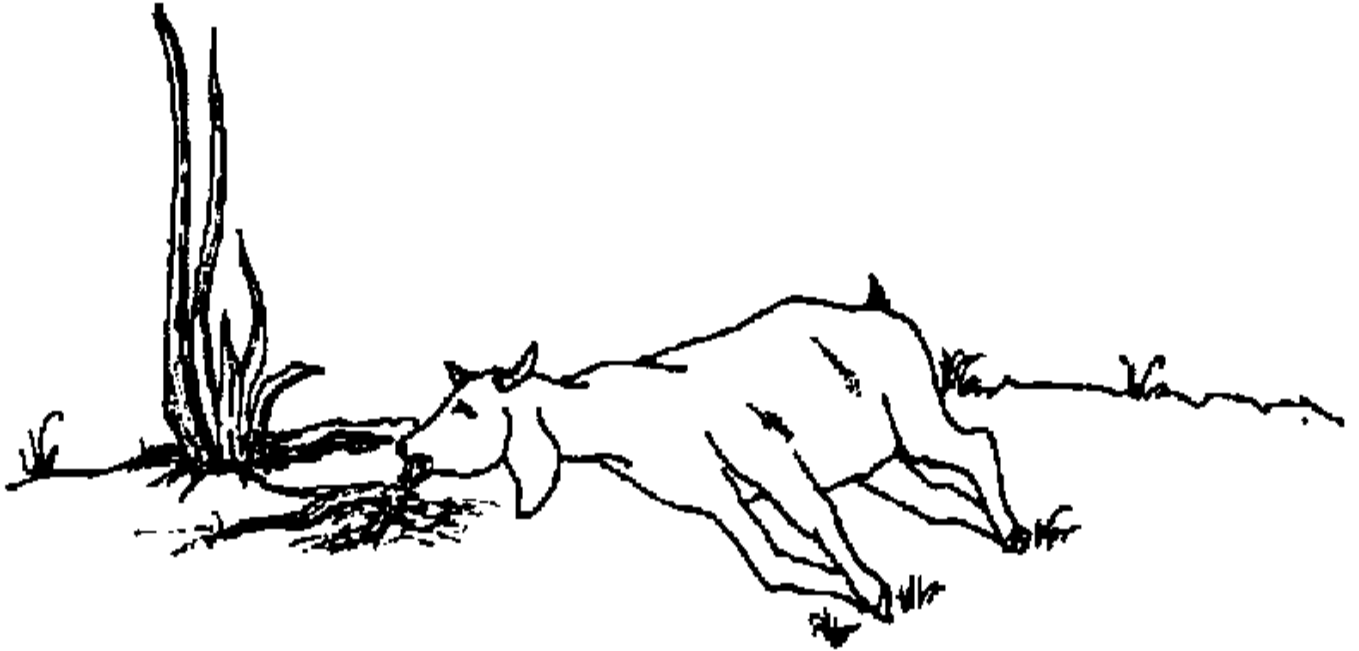
200 g
cooked
rice



Treatment with banana blossom

Poisoning

Young calves and kids are curious and may eat poisonous plants. However, young or old, male and female animals, can be poisoned.



Poisoning

Symptoms

- Bloat.
- Abdominal pain.
- Groaning.
- Kicking the abdomen.
- Diarrhea (in arsenic poisoning) .
- Constipation (in lead poisoning).
- Convulsions.
- Salivation.

Causes

- Eating or licking toxic plants or plants sprayed with pesticides.
- Licking or drinking chemicals, pesticides, or paint containing lead.

Prevention

- Store chemicals away from animals.
- Do not use lead-based paints, especially where animals can lick.
- Do not let animals eat sprayed weeds.

Treatment

Use any of the following treatments for adult cattle and buffaloes unless otherwise indicated. Use half the amount for small ruminants.

- Drench the cattle and buffaloes once with 1 liter paraffin oil or raw linseed oil or natural vegetable oil. (Thailand, India, Philippines, Sri Lanka. 1, 2, 3, 4)
- Drench young animals once with 100 g epsom salts (magnesium sulfate) mixed with 500 ml water. For an adult animal, use 500 g epsom salts with 500 ml water and drench once. (Thailand. 1, 2, 3)
- Pound 200 g *Thunbergia laurifolia* roots. Mix with 1.5 liter of water used in washing rice. Drench every 30 minutes until signs of poisoning are gone. (Thailand. 1, 2, 3, 4)
- Drench with any of the following fluids:
 - 1 liter of milk. (India. 1, 2, 3, 4, 5)
 - 200 g charcoal powder mixed with 800 ml water.
(India. 1, 2, 3, 4, 5)
 - 1 liter of coconut water. (Cambodia. 1, 2, 3, 4)

Plants that can poison animals

Aleurites fordii

Poisonous part: Foliage and fruit.

Symptoms: Symptoms are not observed until 3-7 days after the foliage has been consumed. Acute poisoning results in death in 3-4 days, while chronic cases linger on for 18-25 days before death ensues. Common symptoms include diarrhea which later becomes watery and profuse, lack of appetite, cessation of rumination, listlessness, depression and unthriftiness. Chronic cases may develop labored breathing, mucus discharge from the nose, salivation, cracking of the skin of muzzle and progressive weight loss.

Antidote/Treatment: Emollients (such as vegetable oil) and drugs should be administered to relieve the inflammation in the digestive tract. Tempt the animal with soft feeds to stimulate the appetite.

Amaranthus spp.

Poisonous part: Young shoots.

Symptoms: Abortion, reduction of milk flow and sudden death.

Argeratum conyzoides

Poisonous part: All parts.

Symptoms: Congestion of small intestine, disturbed blood flow and heavy aromatic odor of skin and urine.

Cassia occidentalis

Poisonous part: Whole plant.

Symptoms: Dullness, high temperature, suppression of urine and slowing of breathing. Death occurs with coma after slight convulsion. Also groaning, great pain, coldness of extremities, weakness of the heart and slight stiffness of the limbs.

Chromolaena odorata

Poisonous part: Young leaves and shoots.

Symptoms: Weakness, bloating, diarrhea with blood, weight loss, muscle contractions and loss of consciousness.

Antidote/Treatment: Mix 6 eggs and 500 g sugar in 1 liter water. Drench at once. Give half the dose to small ruminants.

Crotolaria quinquefolia

Poisonous part: Leaves, stems, roots, seeds.

Symptoms: Low blood pressure, slow heart beat, depression, loss of appetite, bloody feces, drooling saliva, nasal discharge and finally death.

Derris elliptica

Poisonous part: Whole plant.

Symptoms: Dizziness, staggering and sudden death.

Excoecaria agallocha

Poisonous part: Gum.

Symptoms: Diarrhea and blindness.

Hypericum pulogense

Poisonous part: Whole plant.

Symptoms: Blisters and scabs around the mouth, eyes, ears, nose and feet. In severe cases, difficulty in breathing, rapid pulse, foaming of the mouth and finally death.

Antidote/Treatment: Affected animals should be kept in the shade.

Lantana camara

Poisonous part: Leaves.

Symptoms: Staggering, weakness. Skin becomes hard, swollen, cracked and painful. Sluggishness, partial paralysis and bloody diarrhea. Acute poisoning may cause death within 3-4 days. Lantana also produces lesions and symptoms of severe gastroenteritis.

Antidote/Treatment: Affected animals should be kept under the shade. Skin lesions should be treated with healing ointments. Give the animal a mixture of egg white and sugar.

Manihot esculenta, Cassava

Poisonous part: Fresh leaves and uncooked roots.

Symptoms: Bloat with frothing at the mouth, difficulty in breathing.

Antidote/Treatment:

- Pound 200 g *Thunbergia laurifolia* leaves with 1-5 liters of water from rice washing. Give 1.5 liters in 1 drench. Repeat dose every 30 minutes till cured.

- Pound 2 handfuls of charcoal to powder. Add 500 ml water and drench once. Give half of the dose to small ruminants.

- Mix 4 eggs and 250 g brown sugar with 100 g tamarind soaked in 100 ml water to extract the juice. Drench once. Use half of the dose for small ruminants.

Melanorrhoea usitata

Poisonous part: Leaves.

Symptoms: Itching, leading to wounds and abscesses.

Antidote/Treatment: For adult cattle, take 2 kg fresh leaves and 1 kg bark of *Tectona grandis*. Prepare decoction in 10 liters water. Cool. Dip a clean cloth and rub on the itchy part until the itch is gone.

Nerium oleander

Poisonous part: Leaves.

Symptoms: Nausea, irregular heart beat, bloody diarrhea, respiratory paralysis and death.

Pteridium aquilinum, Bracken fern

Poisonous part: Fronds

Symptoms: Blood in urine. High fever, labored breathing, internal salivation, bleeding. Poisoning is often mistaken for anthrax and other infectious diseases of cattle. Also, unsteady gait, nervousness, congestion of visible mucus membrane and constipation; later staggering and dilated pupils. Antidote/Treatment: 500 ml of strong black tea or coffee as drench.

Solanum nigrum

Poisonous part: Leaves and fruits.

Symptoms: Paralysis, dilated pupils, vomiting, stimulation of nervous system followed by depression, craving for water, diarrhea, loss of appetite and extreme weakness.

Antidote/Treatment: Affected animals should be given general heart and nerve stimulants.

Sorghum vulgare, Sorghum

Symptoms: Sudden bloat, salivation, difficult respiration, stretched body, death.

Antidote/Treatment: Drench immediately with any vegetable oil. (Note: This remedy is not foolproof and is not validated.) This is only effective when drenching is done immediately, as death can occur within 1/2-1 hour.

Internal parasites: Stomach and gut worms

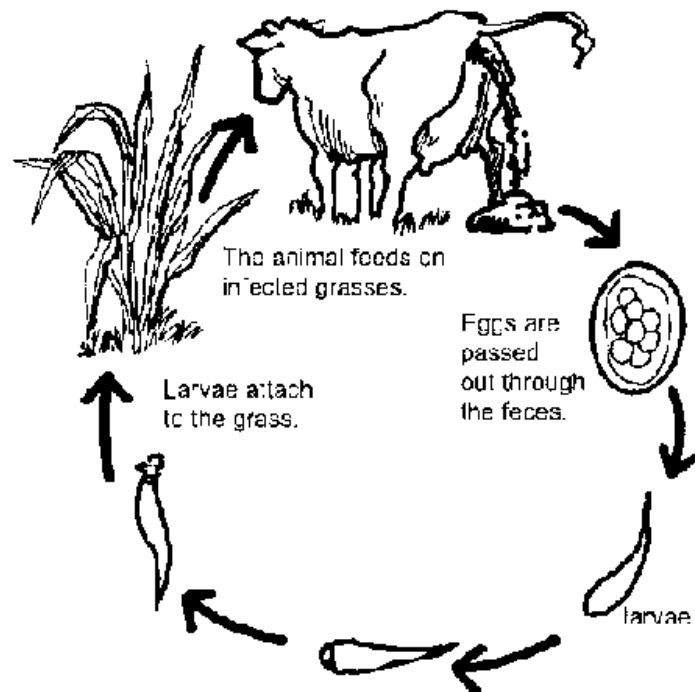
Symptoms

- Animal is thin and looks weak.
- Lack of appetite.
- Anemia. The first symptom is a pale color of the skin, snout, nostrils and gums. The flesh is pale.
- Diarrhea.
- Enlarged abdomen.

Cause

Various types of parasites living in the stomach and gut.

- Stomach worm (*Mecistocirrus digitatus*). Barber's pole worm or wire worm (*Haemonchus contortus*).
- Tapeworm (*Taenia multiceps*).
- Whipworm (*Trichuris ovis*).
- Hookworm (*Bunostomum* spp.).
- Roundworm (*Ascaris lumbricoides*, *Strongylus* spp.)



Life cycle of roundworms in cattle, water buffalo and goats

Young and malnourished animals of both sexes are most susceptible to parasites. The problem is especially common in the rainy season. The animals may become dehydrated and die.

The parasites are transmitted when an animal eats grasses or drinks water contaminated with larvae. Less commonly, they can be spread from the mother to its offspring,.

Prevention

- Deworm the animal regularly. Use the herbal dewormers listed in the table. These dosages are for cattle and buffaloes. Use half these amounts for calves, sheep and goats.
- Rotate pasture. Do not use always the same pasture area to graze the animals. Rotation will help the grasses to rejuvenate and will protect the animals from infected grasses.
- Keep the animals and the surroundings clean.



Prevention

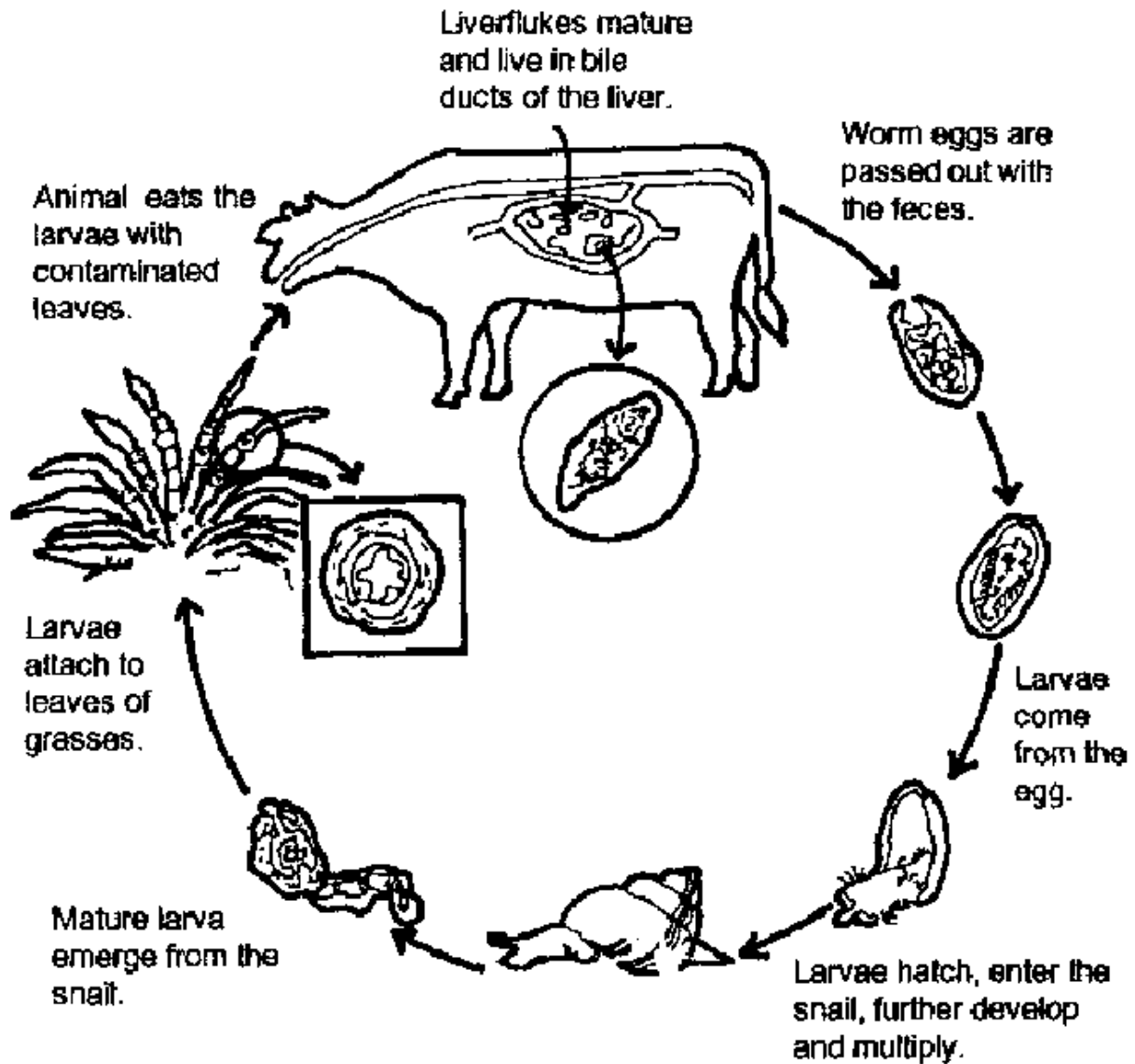
Treatment for internal parasites

Scientific	Common Name	Parts Used	Preparation	Dosage	Application
Areca catechu	Betel nut	Mature, air-dried nuts	Pound nuts and mix in water.	8-10 nuts	Drench. Repeat after 2-3 weeks. (Indonesia, Laos. 1, 2, 3, 4, 5)
Aristolochia bracteata	Worm killer	Fresh leaves	Grind 2 handfuls of leaves and mix with 50 g of brown	This is enough for 1 dose. Make a	Administer once in the morning, again in the evening and

			sugar and a little water and make a bolus.	fresh batch for each of the following day.	repeat in the morning (India, Philippines. 1, 2, 5)
Carica papaya	Papaya	Air-dried ripe seeds	Pound seeds and add a little water.	3 g seeds per 1 kg body weight (or ½ kg seeds per small animal and 1 kg seeds per adult animal)	Drench once a day for 6 days. (Indonesia, Philippines. 1, 2, 3, 4, 5)
Note: Do not use this treatment for pregnant animals.					
Chrysophyllum cainito	Star apple	Air-dried leaves	Decoction of 2 parts of water for 1 part leaves.	40 ml of liquid Drench. for every 30 kg of body weight.	Repeat after 2-3 weeks. (China, Philippines. 1, 2, 3, 4, 5)
Diospyros mollis	Ebony	Fruit	-- Pound 600 g ripe fruit with 80 g salt and 700-800 ml water. Filter the pounded mixture to get the liquid. -- Here is another way to prepare it: Pound 300 g ripe fruit and extract the juice. Mix the juice with 250 ml water and 3 tablespoons epsom salt	Give as drench.	250 ml of the solution to be given once only. Need not be repeated. (Thailand. 1, 2, 3, 4)
Note: Do not use this treatment for pregnant animals and those with kidney disease.					
Mimosa pudica	Sensitive plant	Air-dried mature leaves	Decoction of 2 parts water for 1 part of leaves. Strain to get the vine.	40 ml of liquid for every 30 kg body weight.	Drench. Repeat after 2-3 weeks. (China, Philippines. 1, 2, 3, 4, 5)
Morinda citrifolia	Indian mulberry	Whole mature fruit	Pound 1 mature fruit. Add 50 ml water and a little salt while pounding.	1 fruit and water.	Drench once a week for 3 weeks. (India, Philippines. 1)

Punica granatum	Pomegranate	Fruit	Pound 300 g ripe fruit and add 2 liters of water. Boil the mixture until the liquid is 700 ml. Collect the liquid and allow it to cool.	Give as drench.	700 ml for a mature buffalo and cattle. To be given once only. Need not be repeated. (Thailand. 1, 2, 3, 4)
Note: Do not USE this treatment for pregnant animals.					
Tamarindus indica	Tamarind	Ripe fruit pulp	Pound 300 g pulp of tamarind and 150 g rhizome of ginger. Mix a pinch of salt to the mixture.	Through the mouth.	Give the whole treatment in one application. Need not be repeated. (Thailand. 1, 2, 3, 4, 5)
Zingiber cassumunar	Ginger	Rhizome			
Tinospora rumphii		Mature vine	Decoction of 2 parts of water for 1 part vine.	40 ml of liquid of for every 30 kg of body	Drench. Repeat after 2-3 weeks. (China, Philippines. 1, 2, 3, 4, 5)

Liverflukes



Life cycle of liverfluke

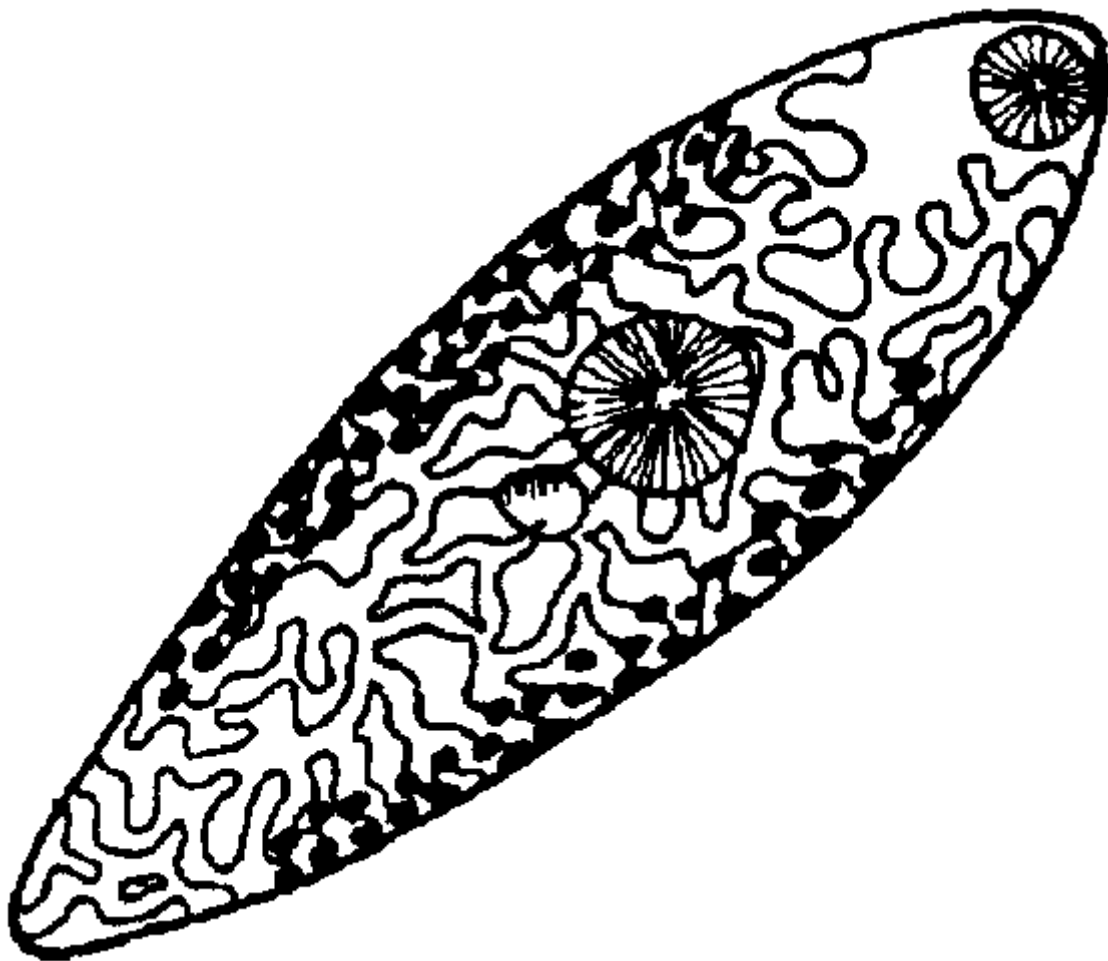
Symptoms

- Anemia. The first symptom is a pale color of the skin, snout, nostrils and gums. The flesh is pale.
- Gradual loss of weight.
- Repeated diarrhea.
- Swollen face ("bottle neck").

- Reduced milk production.
- Animal gets tired easily.
- Animal may die because of internal bleeding and anemia.

Cause

Liverflukes are leaf-shaped worms that live in the animal's liver. They are spread by snails that live in the pasture. The liverfluke larvae stick to grasses and are eaten by the animals. The chances of infection are high if snails are common in the area.



Liverflukes

Animals of all ages can suffer from liverflukes. The disease is common in low-lying, waterlogged areas, rivers, streams and stagnant pools. It occurs in all seasons.

Prevention

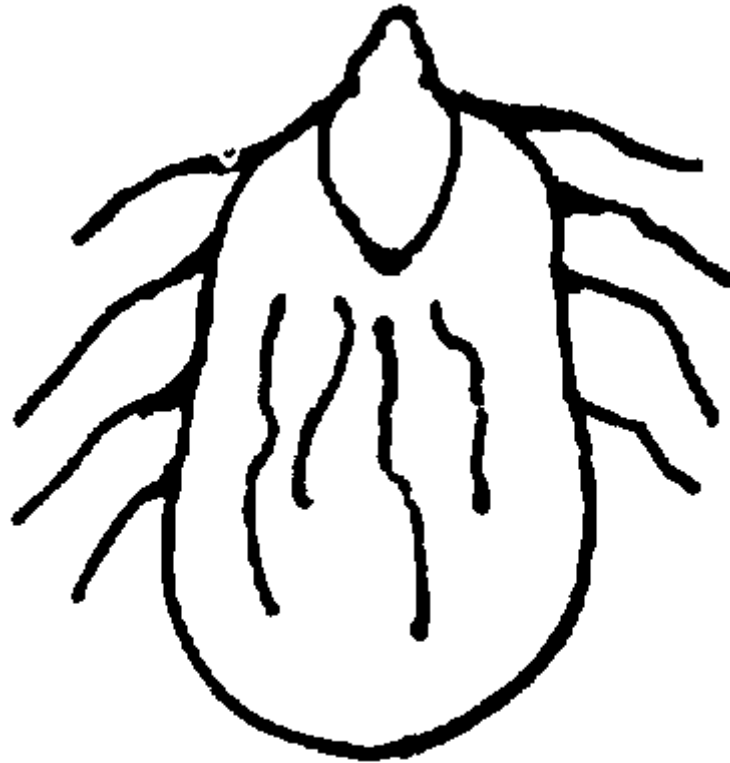
- Deworm the animals at regular intervals, usually 3-4 times a year. Farmers in the Philippines use this remedy: Grind 8-10 mature nuts of Areca catechu. Add 1/2- 1 liter of water. Give the mixture to the animal as drench in divided doses or part by part for 3 days. Repeat the medication after 3 weeks. (Philippines. 1, 2)
- Because animals may have liverflukes without showing any symptom, deworm all animals of a herd if liverflukes are found in an animal when it is slaughtered.
- Raise ducks to eat the snails.
- Improve the pasture. Cover stagnant pools with soil to prevent snails from breeding.
- Keep animals away from areas with many snails and from infested grasses.
- If the animal's condition does not improve a week after deworming, seek professional help.



Ducks

Tick infestation

Ticks are external parasites, dark in color and 2-3 cm in size when full of blood. They attach themselves to the skin of animals and suck blood. Ticks can transmit serious diseases such as "tick fever."



tick

Tick

Direct damage

- Hundreds or thousands of ticks infesting an animal can result in anemia, loss of milk production, weight loss and death.
- Some species of ticks cause tick paralysis.
- Physical damage to the hide reduces its market value.

Symptoms

- The animal shows discomfort.

- A large number of ticks may be found in less hairy areas.
- The hide has red patches (tick bite-marks).
- The animal keeps scratching.

Human can be infested with ticks while handling the infected animal.

After sucking blood, an adult female tick falls from the animal to the ground. It lays eggs on the ground, in sheltered places, under the stones and in cracks in the wall.

After this, the tick dies. The eggs hatch and develop into a new generation of ticks.

Prevention

- Remove weeds and bushes from around animal housing.
- Clean the housing regularly.
- Cut grasses on pasture areas regularly.
- Avoid contact with infested animals.
- Provide a daily supply of salt for the animals to eat.
- Graze more than one species of animals together.
- Allow birds to eat the ticks. For instance, keep poultry in and around the animal housing. (Laos)
- Bathe the animal in the sea whenever possible, or bathe it with salt water.
- Raise pest-repellent plants such as neem and marigold near the animal housing.

Treatment

- Carefully remove the ticks with your fingers. Pull the rear end of the tick upwards and then backwards towards its head. This will avoid leaving the head in the animal's skin. It will also keep the hide from being marred. After removing the ticks, burn them in a fire. Or, you can feed them to your poultry, as people do in Thailand and Laos. In the Philippines, they put the ticks in kerosene. (All countries. 1, 2, 3, 4)



Pull the ticks from the animal's skin and burn them.

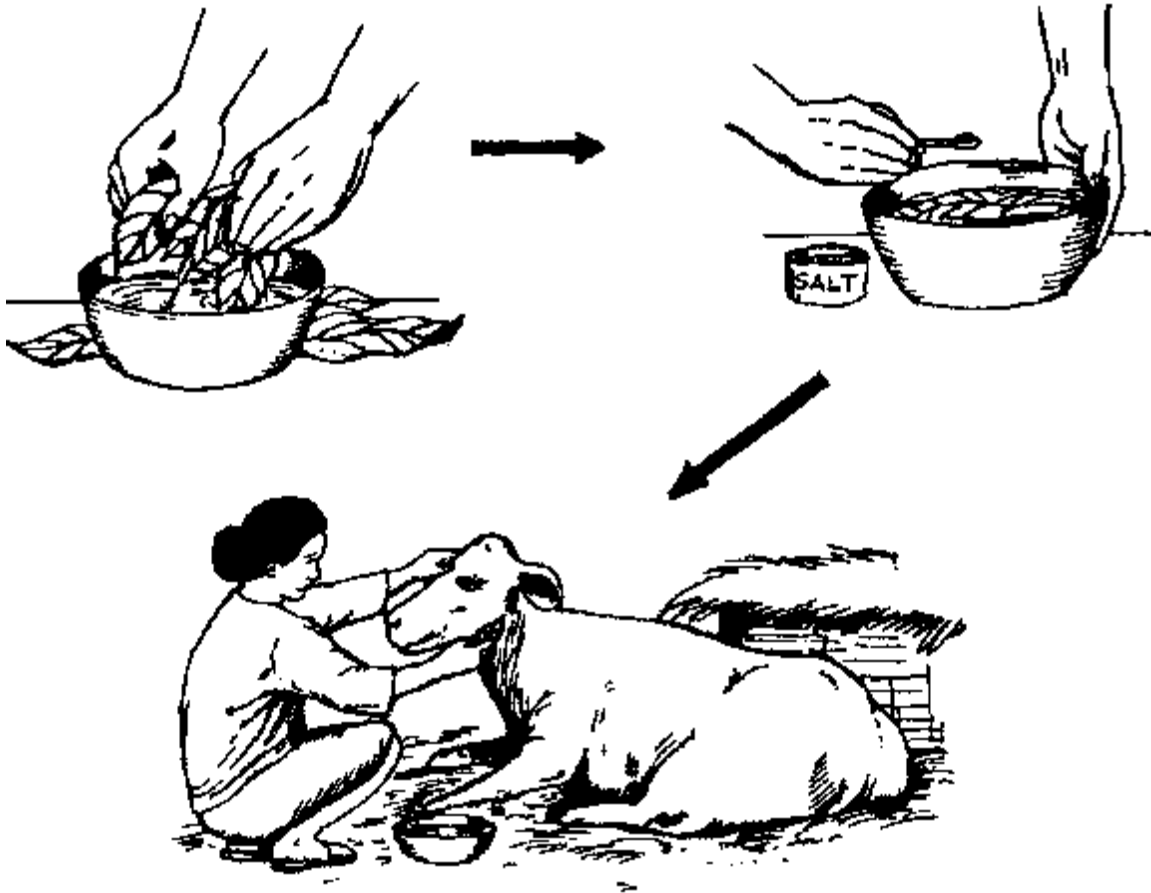
- Treat with salt water. Regularly bathe the animal in the sea or rub the entire body with a mixture of 200 g of salt and 4 liters of water. (Philippines, Sri Lanka, Thailand. 1, 2, 3, 4)

- Boil 100 g of salt in 250 ml of coconut oil. Let it cool and apply all over the animal's body. (Sri Lanka. 1, 2, 3)

- Boil 10 g of camphor powder in 100 ml of coconut oil. Let it cool and apply all over the animal's body. (Sri Lanka, Thailand. 1, 2, 3)

- Mix 50 ml of coconut oil, 100 g of sulfur and 50 g of turmeric (*Curcuma domestica*). Boil and let it cool before applying all over the body. (Sri Lanka. 1, 2, 3)

- Soak 300 g of dried tobacco leaves in 1 liter of water. Add 1 tablespoon of salt. After 3 hours, use the tobacco leaf as a sponge and rub the liquid over infested areas. (Cambodia. 1, 2, 3, 4)



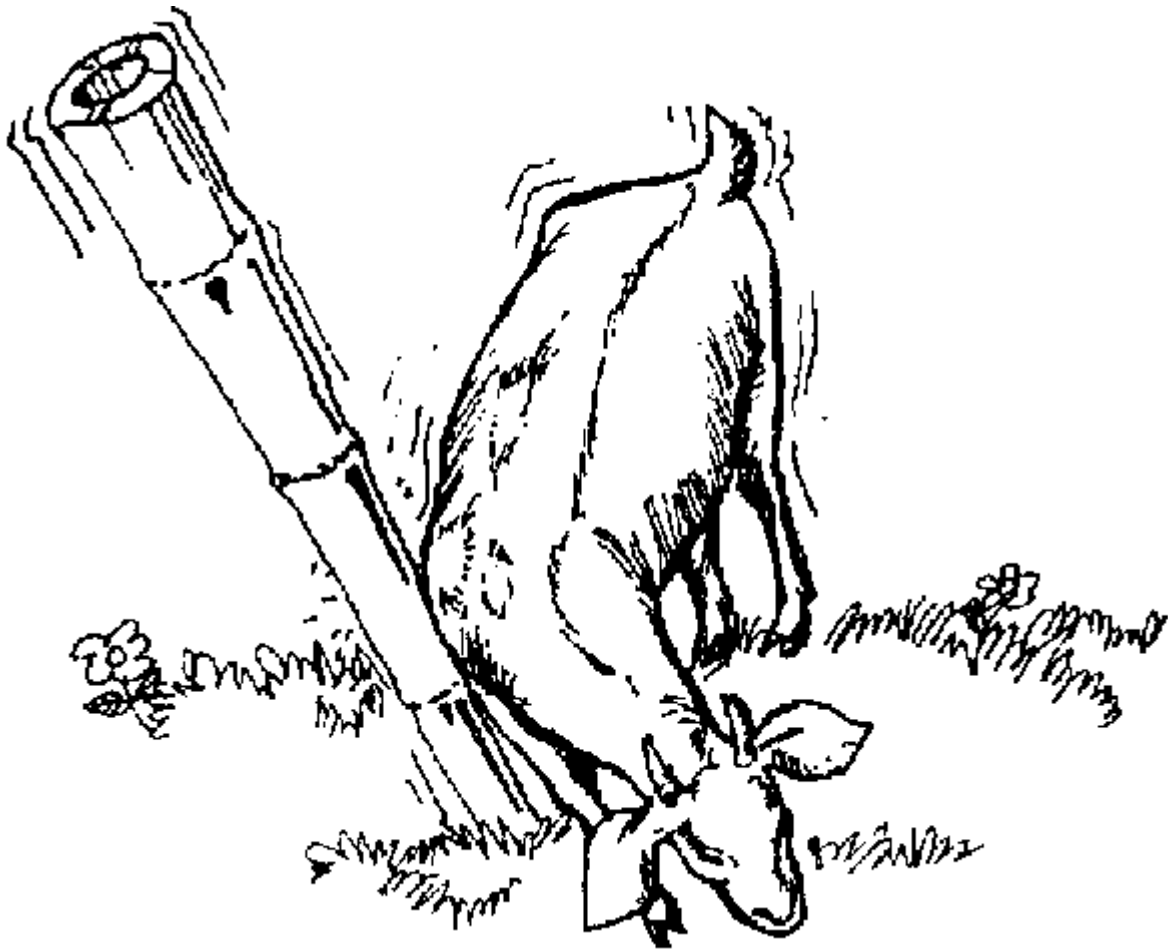
Treatment for ticks

Take 1 kg of *Annorna squamosa* (sugar apple) seeds, 1 kg of neem seeds and 200 g of tobacco leaves. Pound all the plant parts. Mix with 2 liters of water and soak for 24 hours. Rub the mixture all over the body. (Thailand. 1, 2, 3, 4, 5)

Scabies (mange)

Symptoms

- Scabby patches on the skin, especially on the head and neck, which cause itchiness.
- Animal scratches itself.
- Hair falls out.
- Animal looks weak.



Scabies

Cause

Scabies is caused by tiny mites. It can affect all ruminants but is especially common in goats. The mites spread from one animal to another easily. Humans can also easily become infested. Scabies spreads by direct contact with the infected animal or any infected area or object.

Prevention

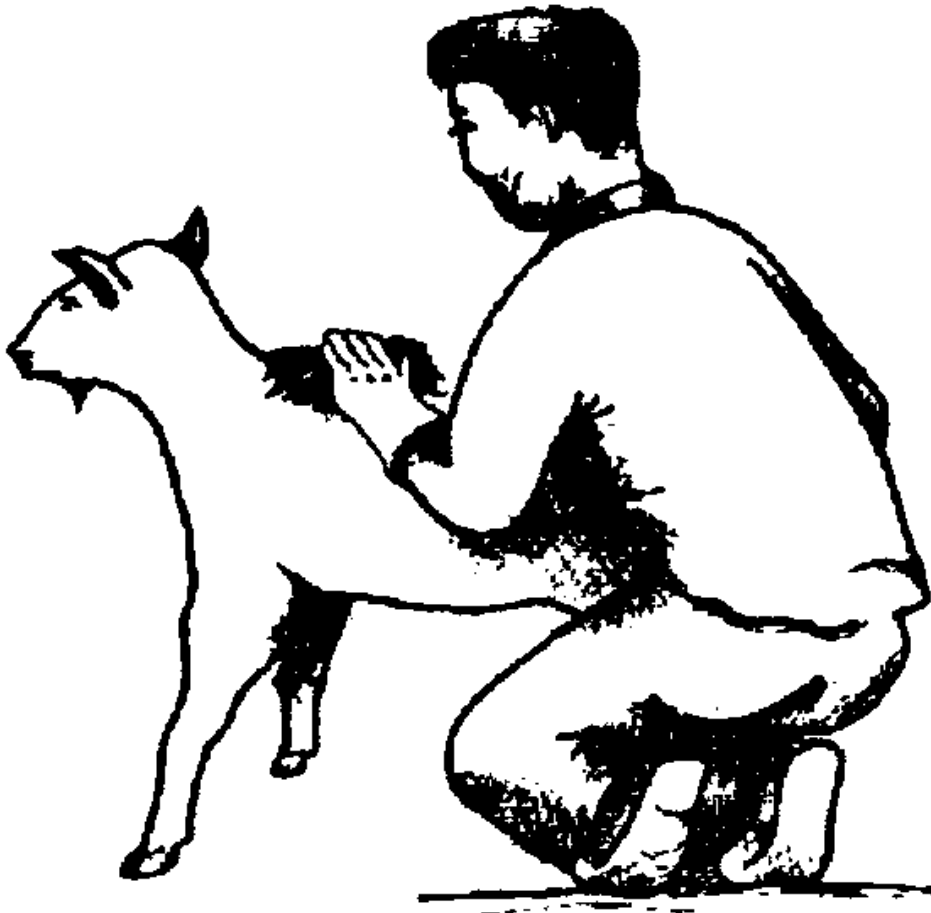
- Keep the animal, pen and surroundings clean and dry.
- Isolate the infected animal to protect the other animals from catching the infection.
- Do not use infected animals for breeding.

* Warning

Scabies is highly contagious to humans. Avoid touching the infected part of the animal, especially when applying a treatment.

Treatment

When applying one of the treatments below, use a brush or coconut husk to rub in the medication so it penetrates deep into the infected skin. Cover your hands with a plastic bag to protect them. After the treatment, clean your hands with soap and water.



Applying treatment

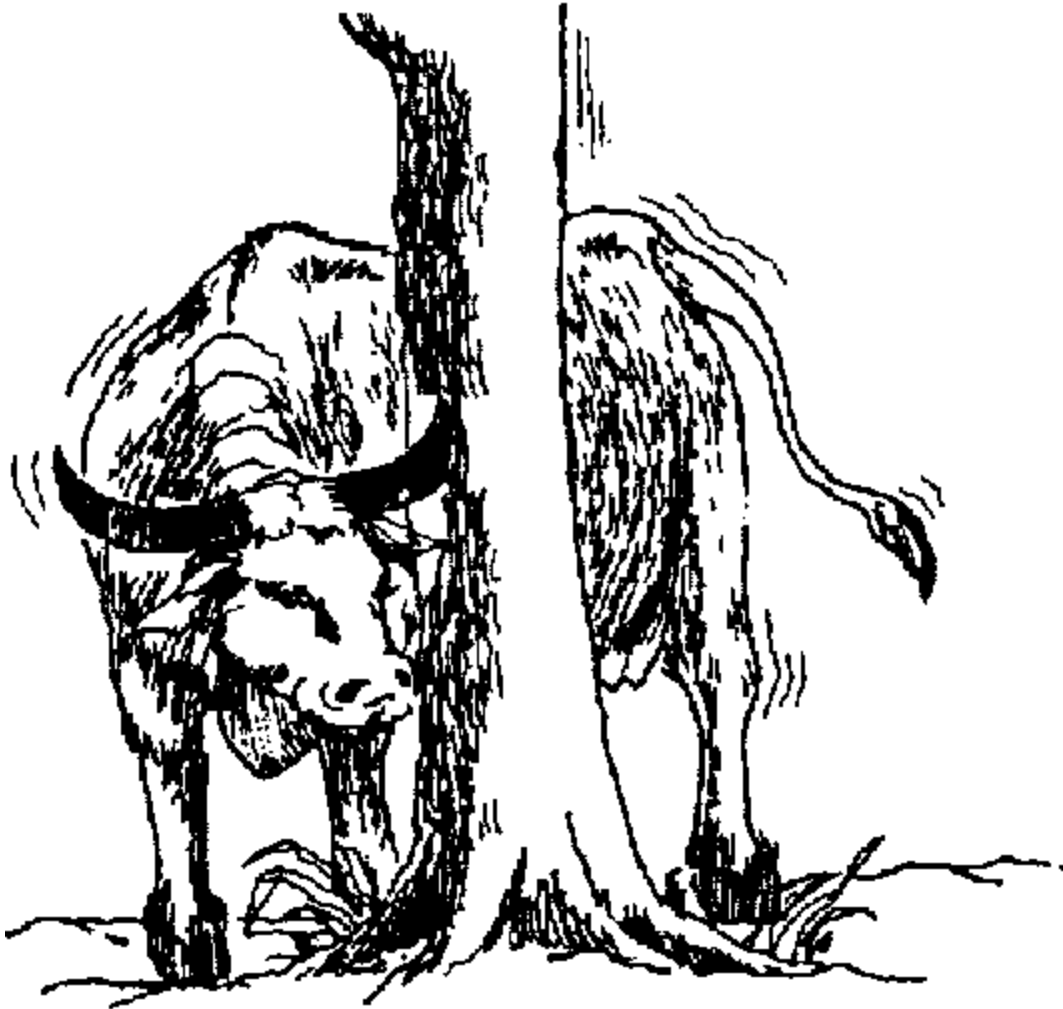
The amount of ingredients needed to prepare the medication and the amount of medication to apply depends on the size of the infected area.

- Grind a handful of young or mature air-dried leaves of *Melia azedarach* or *Cliricidia septum*. Add a little water and continue grinding. Rub the mixture on the infected area daily. Repeat the medication until the infection is cured. (Indonesia, Philippines. 1, 2, 3, 4, 5)
- Burn a coconut shell and pound it into powder. Add just enough coconut oil to make a sticky paste. Rub the paste on the infected area once a day until the infection is cured. (Cambodia. 1, 2, 3, 4, 5)
- Mix powdered sulfur with just enough vegetable oil to make a sticky paste. Rub it on the infected area once a day until the infection is cured. (Thailand. 1, 2, 3, 4)
- Mix used engine oil and powdered sulfur (for every 100 ml of engine oil, use 30 g of sulfur). Rub the solution on the infected area once a day until the infection is cured. If you have no sulfur, you can use the engine oil alone. (Indonesia, Thailand. 1, 2, 3, 4, 5)
- Grind a handful of fresh or dried *Cassia alata* leaves. Add a little water to make a paste. Apply on the infected area daily until the infection is cured. (Laos. 1, 2, 4)

@ Caution

Do not use too much engine oil as this may burn the skin. For severe infections, do not apply oil to the whole body at the same time. Treat one-third of the body in the morning, one-third in the evening and the remaining third the following morning. Apply to the most affected area first, followed by the less affected area the next day, or if whole body is affected, apply part by part.

Lice



Lice in ruminants is a result of bad sanitation.

Symptoms

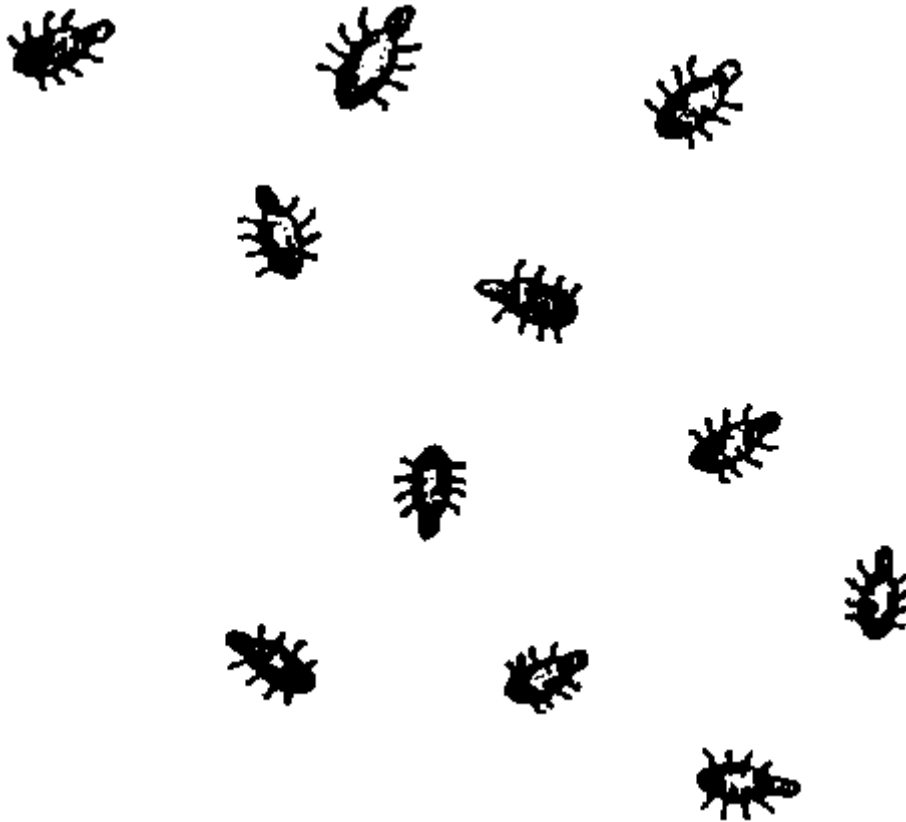
- Itchiness.
- Animals scratch or rub their bodies against trees or posts, their pens and other objects.
- In ruminants, lice eggs concentrate at the tip of the tail, the hair inside the ears and the hair around the eyes.
- However, in buffaloes, lice also spreads all over the body.

Prevention

- Keep animals clean by washing them.
- Allow buffaloes to wallow every day. (All countries. 1, 2, 3)
- Drive animals into the sea once a month for about 1/2 hour. (Philippines, Sri Lanka. 1, 2, 3)
- Shave the affected parts of buffaloes. (Philippines. 1, 2, 3, 4)

Treatment

All of the preventive measures listed above can also be used as treatments. Or you can:



Lice

- Finely pound together 1 kg of tobacco leaves, 500 g of sugar apple (*Annona squamosa*) seeds and 500 g of neem (*Azadirachta indica*) leaves. Mix all the ingredients together in 1/2 liter of water. Stir until well mixed. Let stand for 1 hour. Then smear the mixture on the affected areas of the animal's body. After 8 hours, the lice will die. (Thailand. 1, 2, 3, 4)
- Mix powdered chalk, salt and soap with a little water and smear the paste on the affected parts.

Fungus infections of the skin

*** Warning**

Fungus can affect people. Those who touch the infected part of the animal can become infected. The disease can also spread through the air.

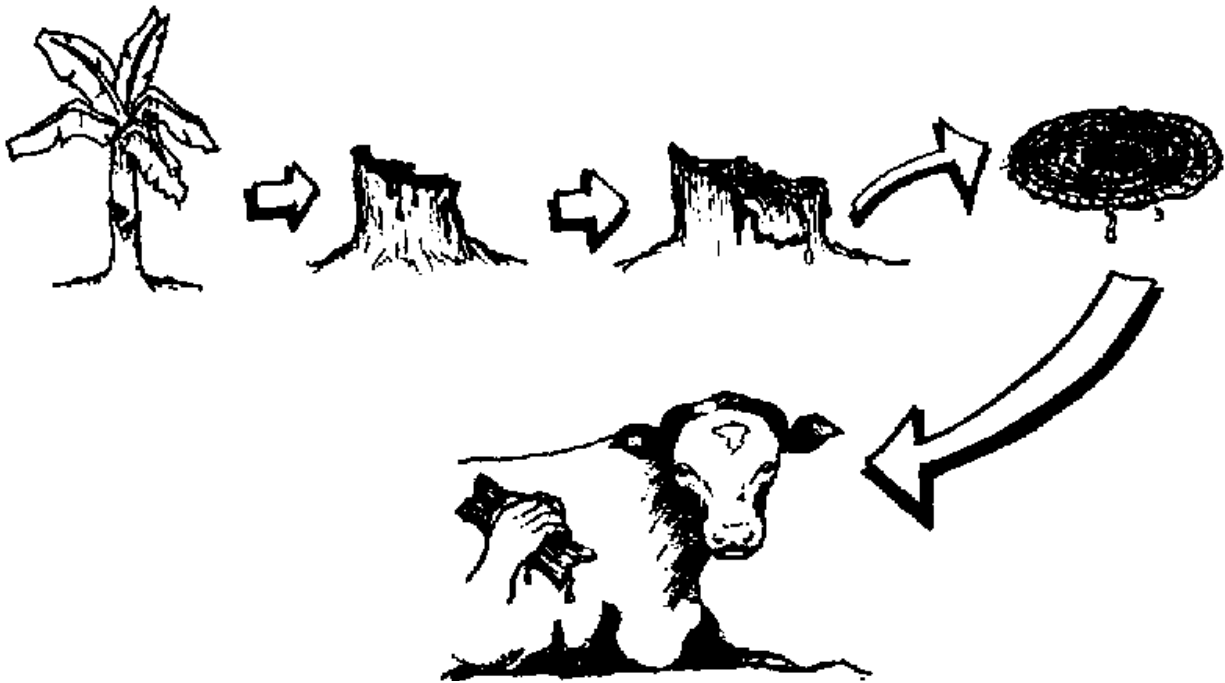
Symptoms

- Hair falls out from the infected area.
- The infected area is thick and swollen.

Treatment

Be sure that the infected skin is clean and dry. Then apply one of the following remedies.

- Grind a handful of fresh or air-dried *Cassia alata* leaves. Make a paste with water or lemon juice. Apply the mixture on the infected skin using a brush or coconut husk. Do this every day until the infection has been cured. (Indonesia. 1, 2, 3, 5)
- Grind a handful of fresh or dried *Cassia tora* leaves or seeds. Make a paste with water and apply as above. (India, 1, 2, 3, 5)
- Grind the fresh rhizome of *Alpinia galanga*. The amount of the ingredient will depend on the size of the infected area. Add a little water and continue grinding. Rub the mixture on the infected skin using a brush or coconut husk. Do this at least once a day until the infection is cured. (Indonesia. 1, 2)
- Find a cut banana tree with the stem rotting. You will see water coming out of the stem. Take the water and rub this on the infected area. Do this every day until the infection is cured. (Thailand. 1, 2)
- Mix used engine oil with sulfur. The ratio should be 100 ml oil for every 30 g sulfur. Rub the solution on the infected area, using a piece of cloth. Do this every two days until the infection is cured. (India, Indonesia, Laos, Sri Lanka, Thailand. 1, 2, 3)



Treatment

Infectious diseases

Anthrax

Symptoms

- High fever.
- Difficulty in breathing.
- Bleeding from ears, mouth, nose, anus and vagina.
- Blood does not clot.
- Trembling and convulsive movements.
- Animal collapses and dies quickly.

Anthrax is spread by contact with infected materials.

Treatment

No treatment is recommended. Sick animals should be killed because of the danger to humans.

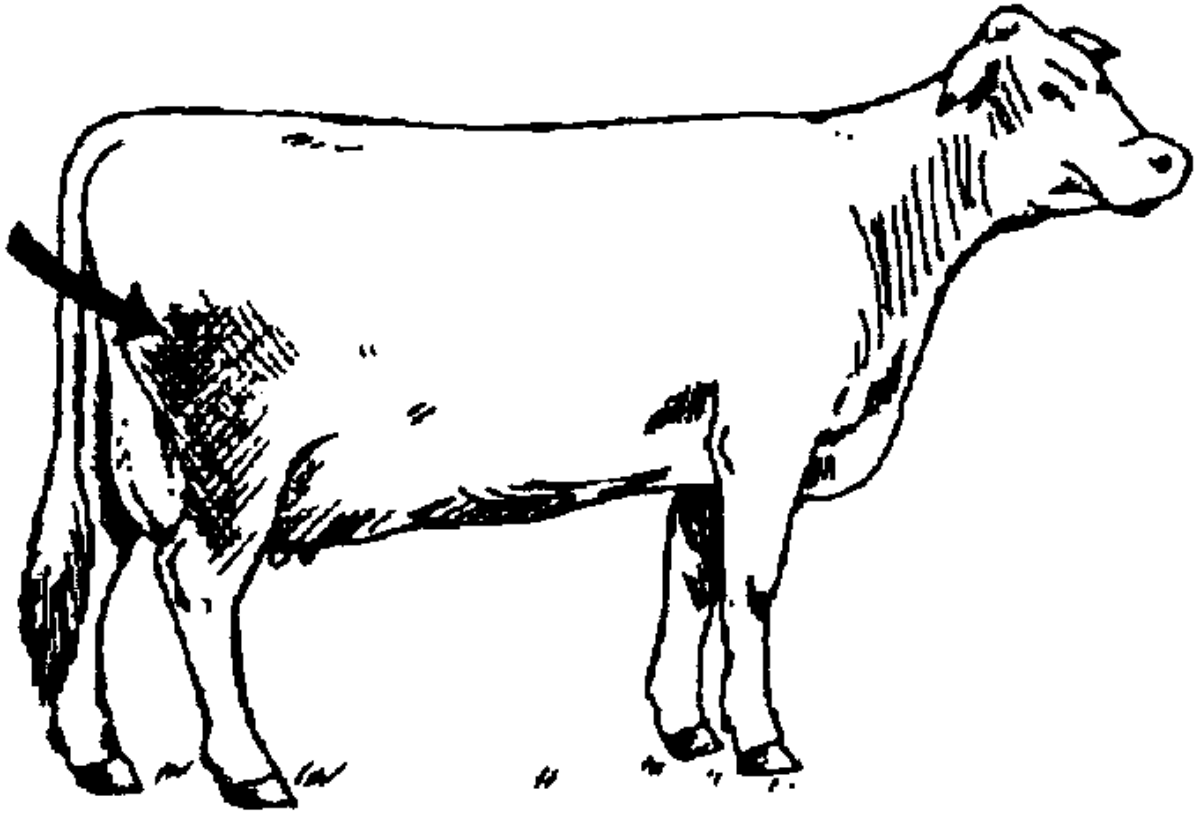
*** Warning**

Anthrax is highly infectious to people. Do not open up dead animals or use the meat. Burn the carcass or bury it in a deep pit (120 -150 cm).

Blackleg or black quarter

Symptoms

- Fever.
- Lameness.
- Muscles swollen in the affected area. Air bubbles can be felt under the skin in the swollen area.



Blackleg or black quarter

Blackleg affects mostly cattle and water buffaloes. It can also attack sheep and goats. It usually affects well-nourished animals. It often occurs at the change from summer to the rainy season. It spreads by animals eating infected materials in the soil.

Treatment

No indigenous treatment is recorded.

Blue tongue

Symptoms

- Fever.
- Difficulty in breathing.
- Reddening of the muzzle, lips and ears.
- Ulcers and dead flesh inside the mouth.

If no complications occur, the disease takes a week. It often kills young animals.

Cause

A viral disease of sheep, cattle, goats, water buffaloes and wild ruminants. It is spread by biting insects.

Treatment

No indigenous treatment is recorded.

Brucellosis

Symptoms

- Abortion or retained placenta.

Spread by contact with aborted fetuses, placenta and uterine discharges.

* Warning

People can get infected through contact with infected materials such as afterbirth, aborted fetuses and milk. Boil milk before drinking. Make a fire on the place where the abortion occurred.

Prevention

Vaccination.

Treatment No treatment is recommended. Affected animals should be killed because of the danger to humans.

Caprine pleuropneumonia

Symptoms

- Infectious pneumonia in goats.
- Rapid breathing and nasal discharge with fever.
- Cough, weakness and loss of appetite.
- Spread by contact or infected materials in the air.

Treatment

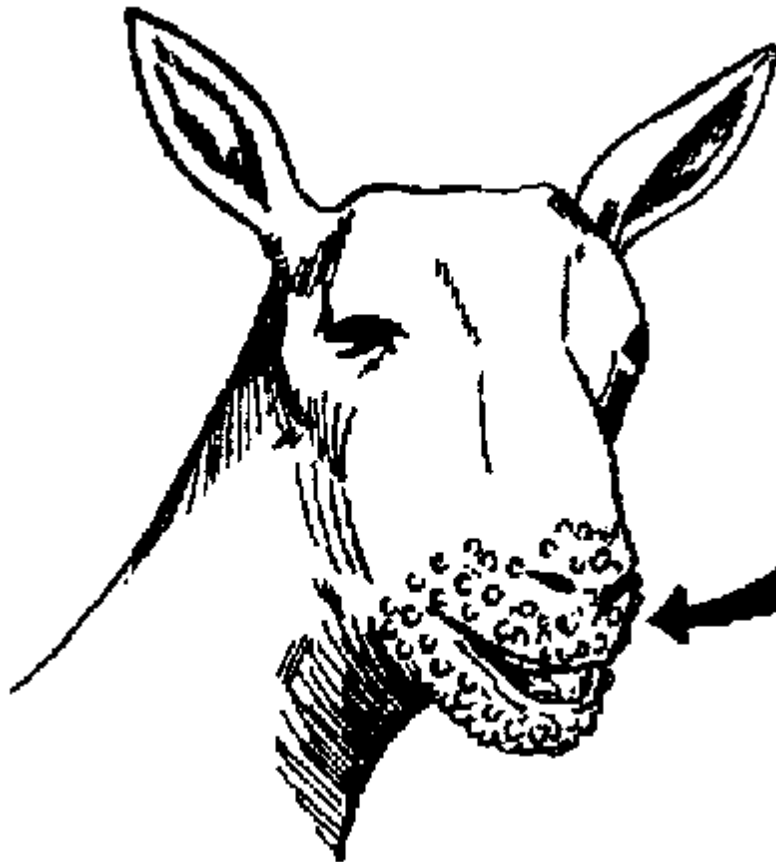
To relieve symptoms, see Coughs and colds (page 8) and Fever (page 4).

Ecthyma

Symptoms

- Scabs around the mouth and on the nose.
- Lack of appetite.
- Lameness.
- Weight loss.
- Skin lesions on the lips, which later may develop into scabs.

Disease occurs only in goats and sheep. Spread by contact with infected animals.



Ecthyma

Prevention

Isolate infected animals from the herd.

Treatment

No indigenous treatment is recorded.

Enterotoxemia

Symptoms

- Foul-smelling diarrhea with blood.
- Abdominal pain.
- Convulsions. Enterotoxemia causes many deaths in calves, kids and lambs. It is spread by contact with infected materials.

Treatment

- No indigenous treatment is recorded.

Ephemeral fever

Symptoms

- Fever.
- Stiffness and lameness.
- Shivering.
- Lack of appetite.
- Tears in the eyes.
- Discharge from the nose.
- Drooling (salivation).
- Difficulty in breathing.

Affects cattle and water buffaloes. The disease is spread by mosquitoes as mechanical carriers. A sick animal usually recovers within a few days.

Treatment

These treatments are for the symptoms only.

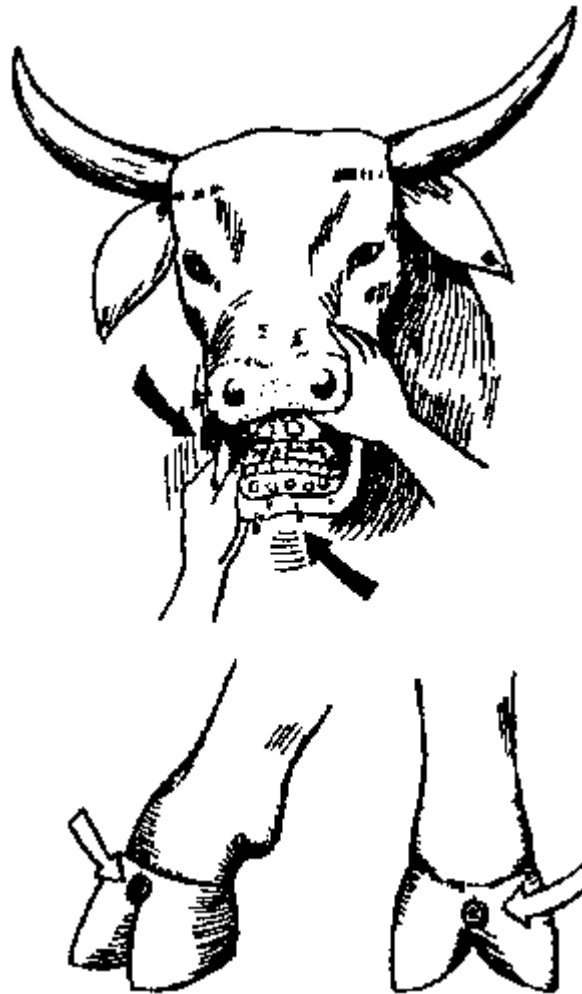
- Reduce the fever (see Fever, page 4).

- Complete rest.

Foot-and-mouth disease

Symptoms

- Blister-like sores and ulcers on the udder, teats, feet and inside the mouth, nose and muzzle.
- Drooling and smacking of the lips.
- Fever.
- Lack of appetite, refusal to eat.
- The disease lasts only about a week but can take longer. It often kills young animals.



Foot-and-mouth disease

Cause

A highly contagious, viral infection of animals with cloven hoofs. The disease is spread by air, usually between animals that are close together. People may serve as mechanical carriers.

Treatment

No indigenous treatment to cure the disease is recorded. The remedies below are to treat the symptoms only.

- When the animals start to feel ill, give 12 bananas and 1 kg of *Trigonella foenum-graecum* leaves as feed for 45 days. (India. 1, 2, 4)
- For wound treatment, see Wounds, page 75.

Prevention

- Keep infected animals away from other animals.
- Avoid contact with infected animals.
- Clean and disinfect housing. For disinfectants, see Foot page 68.

Hemorrhagic septicemia

Symptoms

- Swelling of the neck.
- Inability to breath properly.
- In the last stage of the disease, the tongue sticks out because of difficulty in breathing.
- Fever.
- Discharge from the nose.
- Cough.
- Lack of activity.
- Lack of appetite.
- Bloat.

The following can make animals more susceptible to hemorrhagic septicemia: transportation, stress, overwork and a sudden change in the weather.

Prevention

- Good sanitation and hygiene.
- Good nutrition.
- Vaccination

Treatment

See Coughs and colds (page 8), Fever (page 4) and Lack of appetite (page 1). These treatments are for the symptoms only.

Paratuberculosis (Johne's disease)

Symptoms

- Gradual loss of weight.
- Recurrent diarrhea.

Can affect cattle, water buffaloes, sheep and goats. Most cases occur in 2-6 year-old cattle. The disease is spread by contact with infected materials.

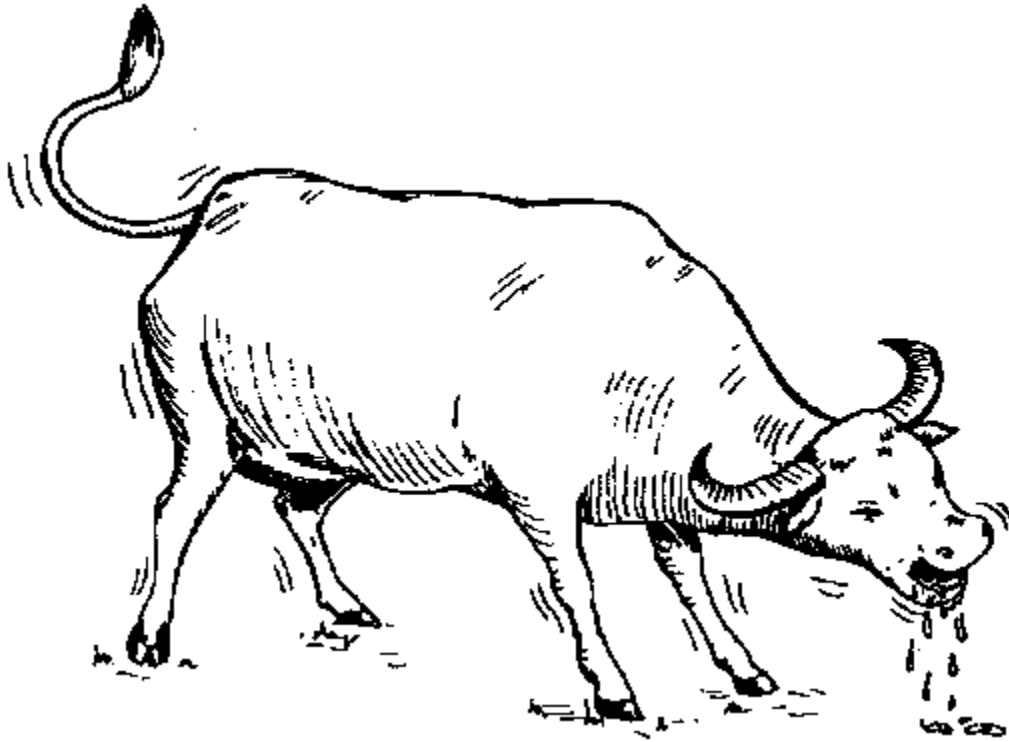
Prevention

- Clean and disinfect housing.
- Rotate pasture.

Treatment

No indigenous treatment is recorded.

Rabies



Rabies

Symptoms

- Animal becomes aggressive.
- Bellowing.
- Frequent urination.
- Salivation.
- Constipation.
- Animal is viciously aggressive, running at and trying to bite any moving object.
- Convulsions.
- Death. Spread by bites of infected animals.

Prevention

- Vaccination.

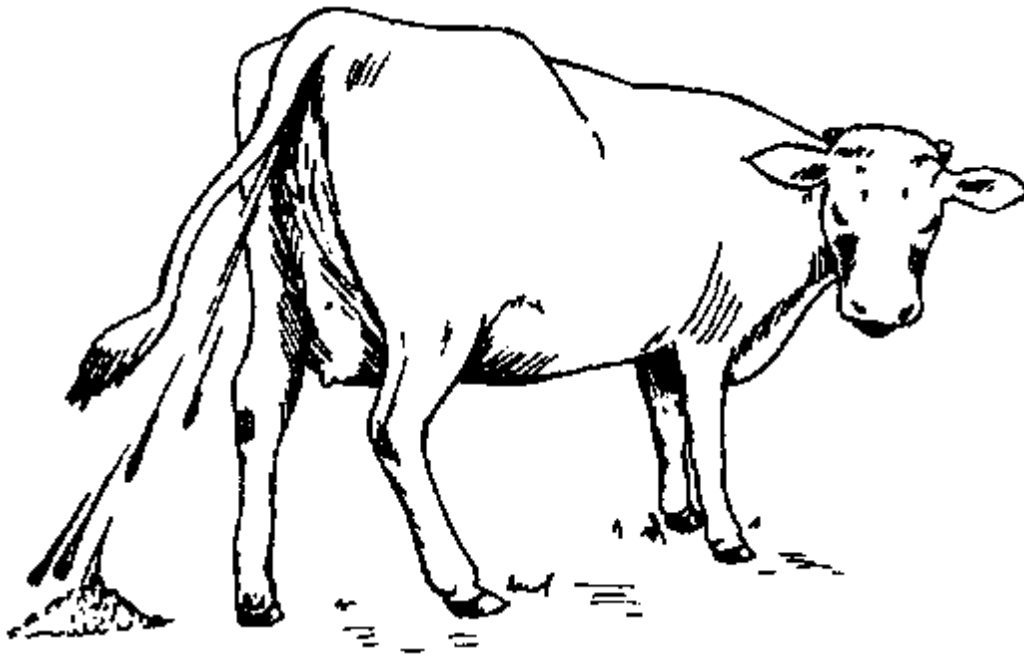
Treatment

Treatment is not recommended.

* Warning

Rabies can infect people and usually kills them. Avoid contact with animals that might have rabies. They should be killed immediately. See also section on dog bites in Wounds (page 80).

Rinderpest



Rinderpest

Symptoms

- Very high fever.
- Nasal discharge.
- Foul-smelling, shooting diarrhea that contains blood and mucus.
- Difficulty in breathing.
- Watery eyes. Dehydration.
- Bran-like lesions in the mouth and tongue.
- Animal cannot eat.

Cause

This is the most severe infectious disease in cattle and water buffaloes, but it can also affect other animals. It is spread by direct contact with infected animals. Many animals die.

Prevention

Vaccination is recommended.

Treatment

No indigenous treatment is recorded.

Tuberculosis

Symptoms

- Low, recurrent fever.
- Weakness.
- Lack of appetite.
- Progressive loss of weight despite good nutrition and care.
- Enlarged superficial lymph. You can feel them as swellings behind the ears and in front of the shoulders.

Prevention

- Keep housing clean. Provide sufficient light and ventilation.
- Good nutrition.

Treatment

Treatments are not recommended. Sick animals should be killed because of the danger to humans.

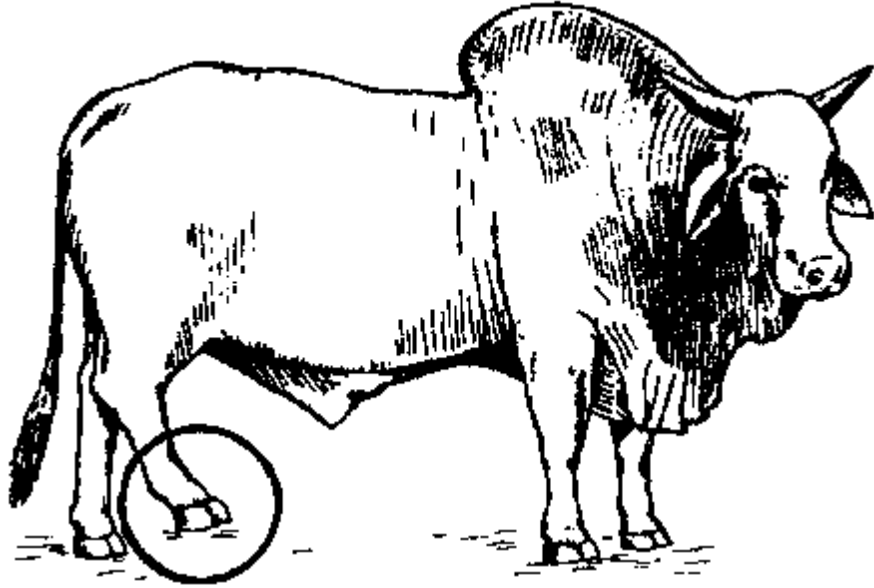
* Warning

People can catch tuberculosis by drinking milk from infected animals. Boil milk before drinking.

Foot rot

Symptoms

- Inflamed foot.
- Pus between the two parts of the hoof
- The hoof smells bad.
- Parts of the flesh may die and turn black.
- The animal becomes lame.
- The animal does not put its weight on the foot.



foot rot

Foot rot

If you see sores in the mouth of animals with foot rot, the problem may be foot-and-mouth disease (see Infectious diseases, page 62).

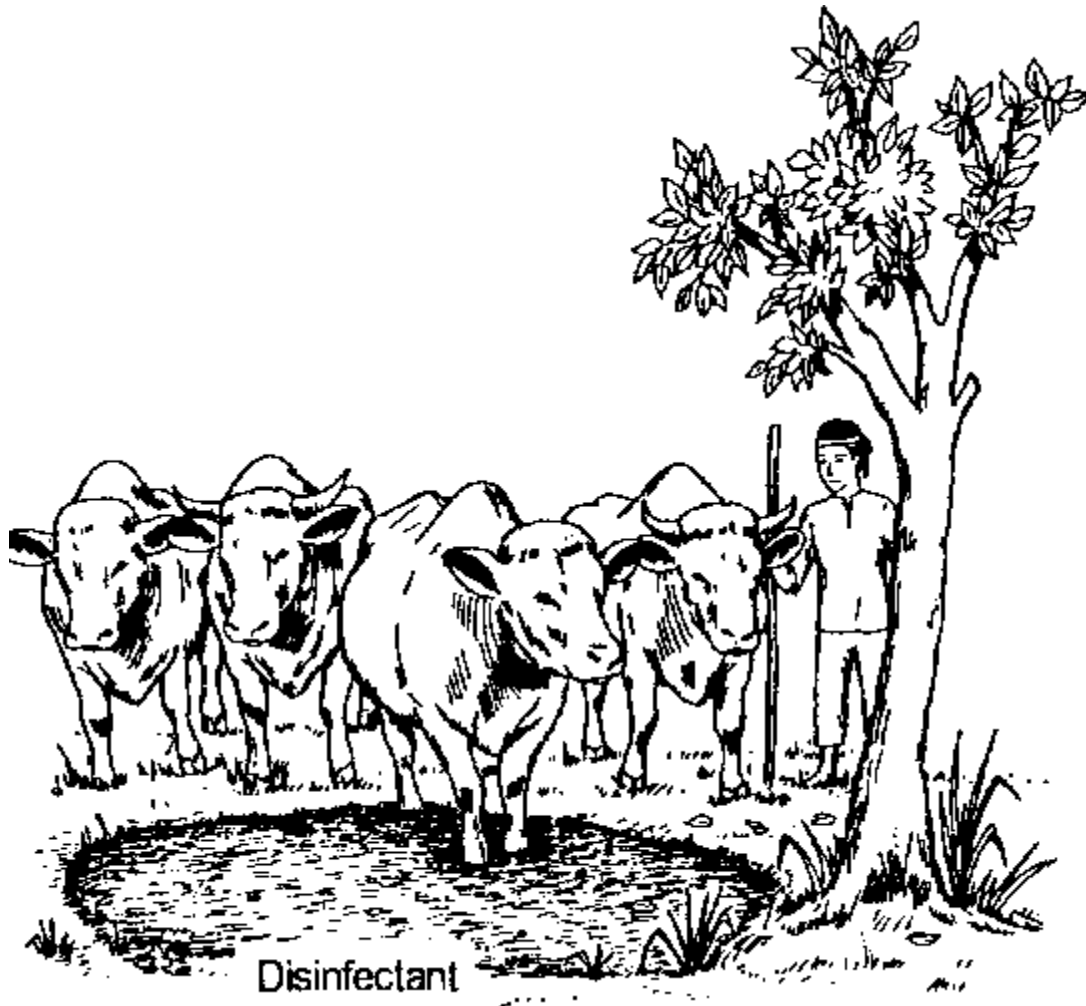
Causes

- Bacteria, fungi.
- Animals that are kept in a wet place often suffer from foot rot.

Prevention

- Keep animals in a dry place.

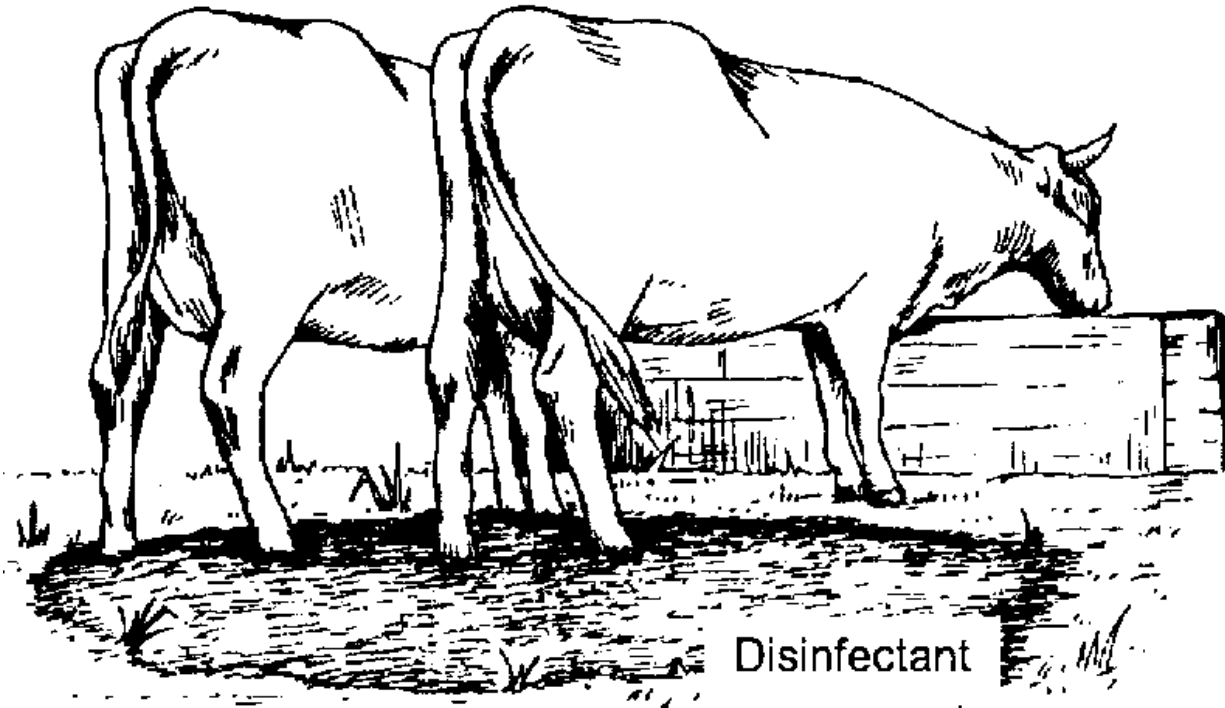
· Dig a shallow pit across the road where the herd of animals must pass on its way to and from the pasture. Fill this with water to make a mud-bath. Sprinkle any of the following disinfectants in the pit. Drive the animals through the pit twice each day. You can also put any of these disinfectants in the wet, muddy area near drinking troughs. (Northern and Western India)



Prevention

Disinfectants:

- 2-3 liters of kerosene. (Cambodia. 1, 2)
- 200-300 ml of any strong disinfectant, e.g., floor cleaning fluid, lime (calcium hydroxide) water. (Cambodia, India, Indonesia, Sri Lanka, Thailand. 1, 2, 3)
- 2-3 handfuls of copper sulfate dissolved in a bucket of water. (Sri Lanka)
- 3-5 kg of pounded fresh neem leaves.

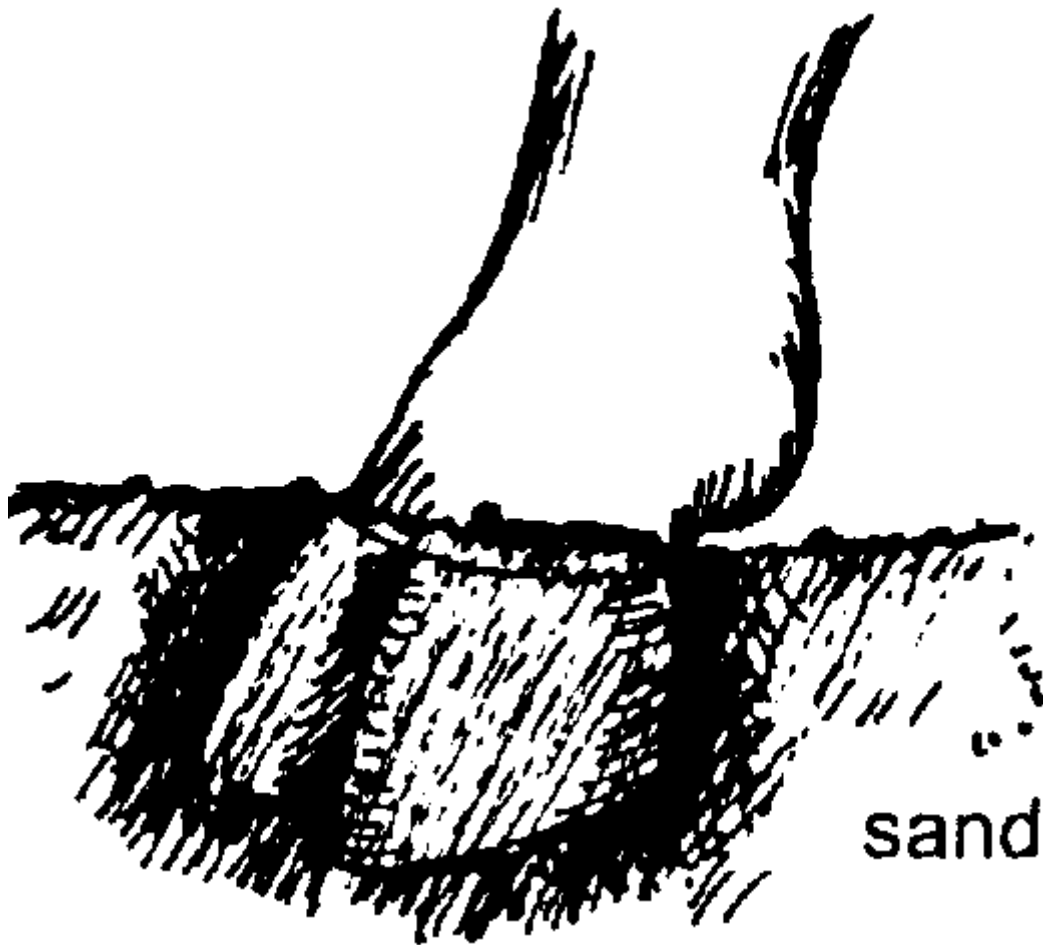


Disinfectants

Treatment

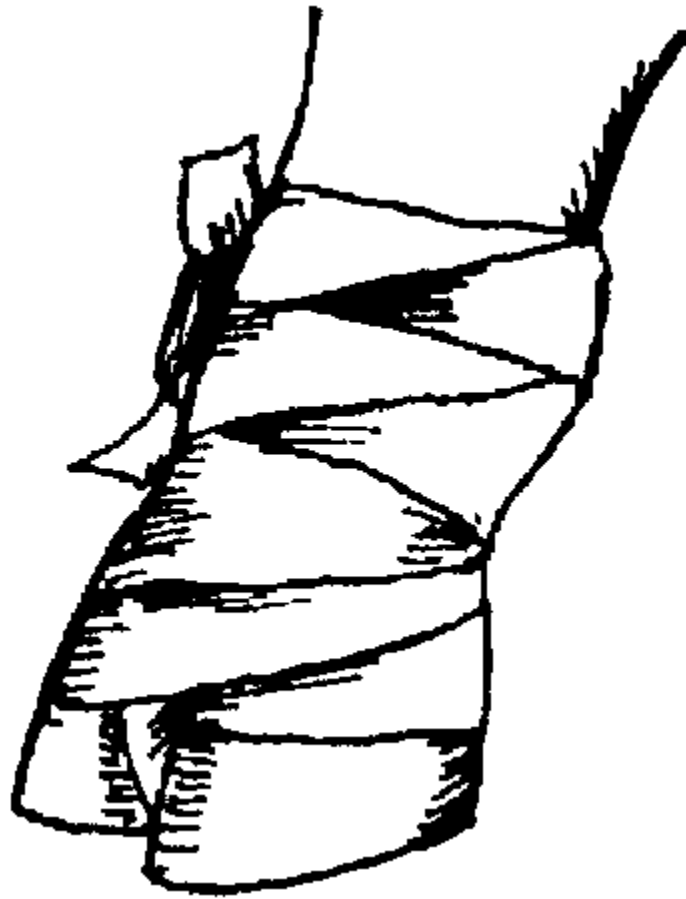
Wash the foot thoroughly with clean water, remove dead tissue and apply one of the following remedies. Move the animal to a dry place.

- Pound 3 handfuls of *Pterocarpus macrocarpus* bark together with 3 fistfuls of small pieces of *Eupatorium odoratum* (fresh whole plant). Add 1-2 tablespoons of salt. Boil with enough water to make a paste. Apply on the rotten hoof 3 times a day for 7 days. (Thailand. 1. 2.3)
- Use the A-B-C treatment for wounds (see Wounds, page 77).
- Dig a small pit in clean, hot sand in a river bed or on the beach. Put the affected hoof in the pit and cover it up to the fetlock with hot sand. Keep it there for 10-20 minutes. The heat will help heal the wound. Do this once a day in the afternoon when the sand is hot, until the hoof is cured. (India. 1, 2, 3)



Treatment

· If you see maggots in the wound, take equal amounts of fresh *Annona squamosa* and neem leaves. Pound to make a paste (add a little water if necessary). Apply this to the wound twice a day for 2-3 days. Tie a cloth around the hoof to hold the paste in place. Keep the animal confined for this time. (For other treatments against maggots, see Wounds, page 78). (India. 1, 2)



Treatment 2

Eye diseases

Symptoms

Early stages

- Watery discharge from the eye.
- Partly or totally closed eye.
- Swollen eye.
- Eye is reddish.

Late stages

- Yellowish discharge from the eye.
- The eye is covered with a thick, whitish film.



Eye diseases

Causes

- Attack in eye by insects.
- Injuries to the eye.
- Infectious diseases such as pink eye.
- Vitamin A deficiency.
- Allergic reactions.
- Foreign bodies in the eye.
- Snake poison.

Prevention

- Feed green fodder to prevent Vitamin A deficiency.
- Separate animal with infectious eye diseases from the rest of the herd.

Treatment

Continue using any of these suggested remedies for 5 days unless the duration of treatment is stated. If symptoms persist after treatment, contact a professional (local expert, respected healer or veterinarian).

- Boil 2-3 handfuls of fresh Punica granatum leaves in 56 cups of water for 10 minutes. Wash the eye with the liquid twice a day for 3-4 days. (Sri Lanka. 1, 2, 3, 4)
- Squeeze a fresh stem of Euphorbia hirta Put 5-10 drops into the infected eye once a day. (Indonesia. 1, 2, 5)
- Wash the eye with Cocos nucifera (young coconut) water 2-3 times a day for 3-5 days. (Indonesia. 1, 2, 3)
- Boil 5 leaves of Piper betle (betel pepper) in 500 ml of water and cool. Use as an eye-wash twice a day for 35 days. (Indonesia. 1, 2, 3)
- Peel a mature Aloe vera leaf and extract the pulp. Apply the extract as an eye ointment 3 times a day for 3-5 days. (Philippines. 1, 2, 4)

- Boil a handful of *Jasminum sambac* flowers in a glass of water. Put 3-5 drops of the liquid in the affected eye 3 times a day for 3 days. (Philippines. 1, 2, 4)
- Pound a handful of *Ocimum sanctum* leaves. Squeeze the extract and apply 3-4 drops in the eye twice a day. (India. 1, 2, 3, 4, 5)
- Squeeze the juice of 10 fresh *Coccinia grandis* leaves. Apply 3-5 drops into the eye twice a day. (Thailand. 1, 2, 3, 4)
- Crush 1 medium-sized, dried *Sapindus rarak* fruit Put the powder in a small whisky or Coca-Cola bottle (200 ml) and fill 3/4 of the bottle with rain water. Shake well and take the foam out. Blow the foam from your palm into the animal's eye twice a day for 4-5 days. (Thailand. 1, 2, 3, 5)



Treatment with *Sapindus rarak*

Treatment for keratitis or opacity of the eye

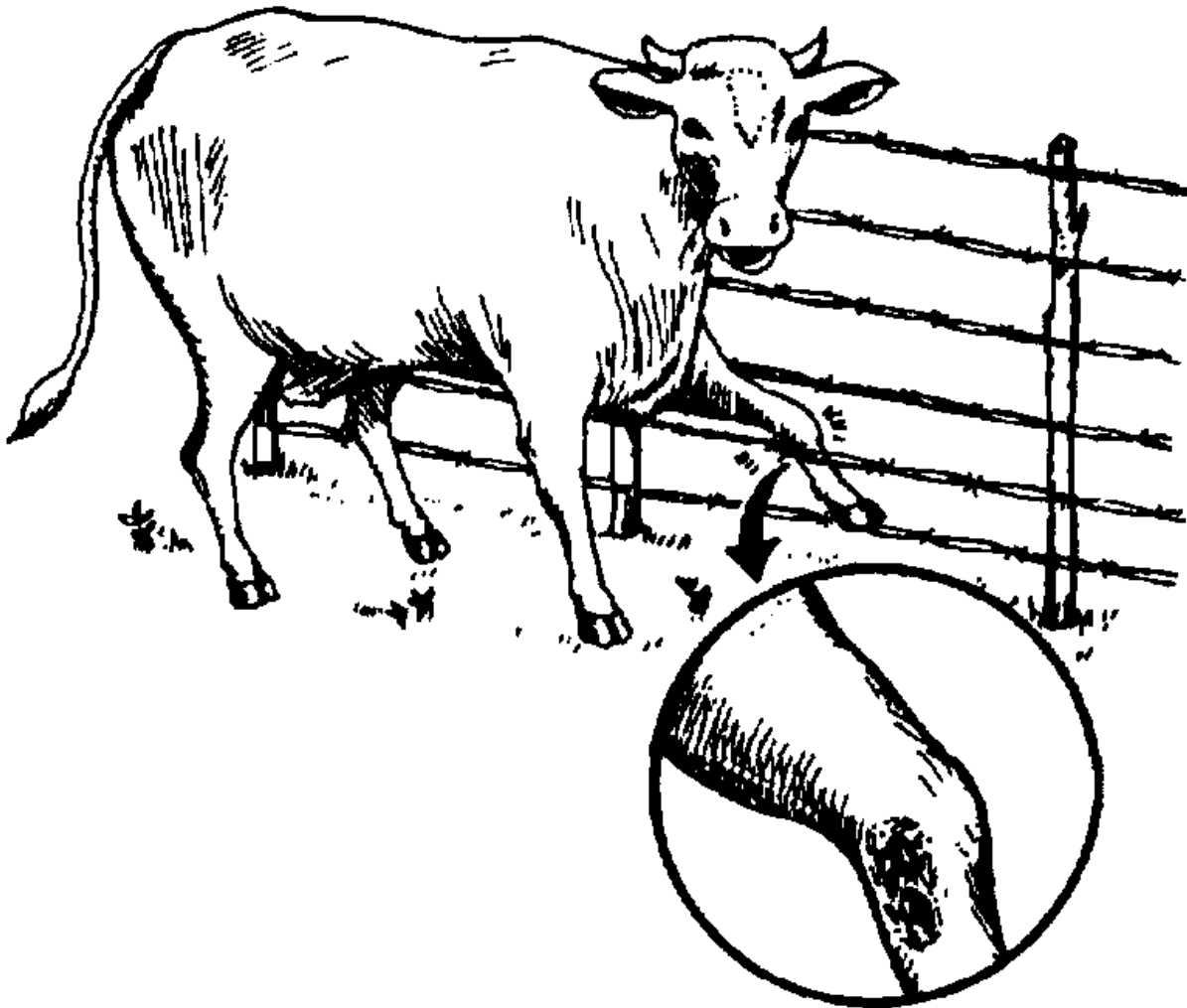
- *Desmodium triflorum* (fresh leaves). *Acorus calamus* (dried root). *Curcuma domestica* (fine powder of dried rhizome). Egg shell (very fine powder).

Grind the ingredients separately to very fine powder. Mix $\frac{1}{2}$ teaspoonful of each of the ingredients and apply inside the upper eyelid once a day. (Sri Lanka. 1, 2)

Wounds

Wounds can be caused by many things:

- Injuries from wire, nails, sharp objects or gunshots.
- Bruising, abrasions, trampling or crushing.
- Branding and other burns.
- Fights and bites.



Wound

Wounds heal by forming a scar. The scar starts to form in the first 3 days after the injury. The healing process is faster if the skin is brought together and if there is no infection.

Fresh wounds

Small wounds may heal by themselves. Tie the animal to a tree or keep it confined to prevent it from moving around and reopening the wound.

If the wound needs attention:

1. Stop any profuse bleeding (see Bleeding, page 82). Cauterize if necessary: heat an iron sickle in fire till red-hot and apply for 1-2 seconds on the wound.

2. Clean dirt or other foreign bodies from the wound.

3. If possible, bring the skin together to close the wound. Hold the two edges together with a Band Aid, or stitch them together.

4. Protect the wound from dirt and flies using one of the remedies below.

5. Keep the animal quiet and restrained until the wound heals.

Old wounds

For old wounds that are severely contaminated, carefully clean the wound and trim away any dead tissue with a sharp knife or razor blade (trim until the flesh starts to bleed). Then use one of the treatments below.

If the wound is too serious to treat, seek the help of a professional or slaughter the animal.

Treatment

For any of the treatments below, tie a wide (7-10 cm) cloth around the wound if needed to keep the medicine in place.

· Pound 500 g of fresh *Moringa oleifera* (horseradish) leaves to make a paste. Apply as a poultice or smear on the wound daily until the wound heals. This stops bleeding and reduces swelling. (India, Philippines, Sri Lanka. 1, 2, 5)

· Pound 7 young fresh leaves of *Eupatorium odoratum* and mix with 1/2 teaspoon of salt (or fresh urine from the same animal). Apply on the wound once a day for 3 days. (Cambodia, Thailand. 1, 2, 3, 4)

· Ignite raw cotton wool and allow to burn until it is a black mass and the flame dies. Collect the black part. Put this on the wound and leave it there for 1 day. Replace it each day for 2-3 days. (India. 1, 2, 3)

· Pound 2-3 handfuls each of fresh neem and *Ocimum sanctum* leaves to make a paste. Apply as a poultice. Renew the poultice daily for 3-5 days or until the wound heals. (India. 1, 2, 3)

· For wounds that have stopped bleeding, apply vegetable cooking oil around the wound. Then apply wood ash on top of the oil. (Indonesia, Philippines, Thailand. 1, 2, 3)

· Boil 250 g of neem leaves in 2 liters of water. Allow to cool and use to clean the wound. (India, Sri Lanka. 1, 2)

· A-B-C (avocado-banaba-caimito) treatment for wounds. Collect equal amounts of fresh leaves of avocado (*Persea Americana*), banaba (*Annona muricata*) and star apple (caimito, *Chrysophyllum cainito*). Put in a pot with 10 times as much water as leaves. Boil for 10 minutes and allow to cool. Use a cloth dipped in the water to wash the wound. Do this twice a day until the wound is cured. This treatment can also be used for foot rot. (Philippines. 1, 2)

· Wound dressing powder

2 parts of neem leaves.

1 part of *Ocimum sanctum* leaves.

5 parts of jack (*Artocarpus heterophyllus*) leaf powder (or talc).

1 part of *Annona squamosa* leaves.

Dry the leaves in the shade. Grind them together and sieve them to a fine powder. Sprinkle the powder on the wound two or three times a day. If the powder does not stick to the wound, mix this powder with coconut oil or other vegetable oil to make a paste. Apply to the wound. (India. 1, 2, 3, 5)

· Grind fresh leaves and fresh flowers of *Hibiscus rosasinensis* and apply on the wound as a poultice. Replace each day for 3-5 days. (Cambodia, Indonesia. 1, 2)

· Grind fresh leaves of *Ocimum sanctum* and rhizome of turmeric together and apply on the wound as a poultice. (Thailand. 1, 2)

· Crush cloves of garlic and store them in vinegar together with chili (*Capsicum frutescens*) fruits. Take as many cloves as needed and apply them as a poultice. (Philippines. 1, 2)

· Pound the bark of *Ficus hauli* and apply to the wound. (Philippines. 1, 2)

Wounds with maggots

Use one of the following treatments to get rid of maggots infesting a wound.

· Pour the milky juice from *Ficus bengalensis* into the wound. After a while, the maggots will come out. Repeat once a day until no maggots remain. (India. 1, 2, 3)

· Pound fresh leaves of *Annona squamosa* into a paste and apply to the wound. (India, Sri Lanka. 1, 2, 3)

· 2 g of *Michelia champaca* bark.

1g of strong chewing tobacco.

1/2 g of roasted rice.

150 g of lime (calcium hydroxide).

Pound and mix these ingredients and apply to the wound. The lime will kill the maggots. If *Michelia* bark and rice are not available, use the tobacco and lime only. (Thailand. 1, 2)

· 1 part of oil crushed from *Pongomia glabra* seeds.

2 parts of sesame oil.

2 parts of ground, fresh neem leaves.

Mix the ingredients and apply to the wound. This mixture soothes the wound, kills the maggots and drives away flies. (Sri Lanka. 1, 2)

Wounds or sores in the mouth and vagina

For wounds or sores in the mouth or vagina, use one of the following treatments.

· Mix 1 tablespoon of alum in 1/2 a liter of water. Apply to the wound. (India, Sri Lanka. 1, 2)

· *Terminalia chebula* seeds. *Terminalia bellerica* seeds. *Phyllanthus emblica* seeds. *Glycyrrhiza glabra* stem.

Take equal parts (100-200 g) of each of these ingredients. Grind and add a little water to make a paste. Apply on the mouth sores once a day. This treatment is also used to treat wounds and sores in the vagina (for instance, after difficult calving) and to treat sores from foot-and-mouth disease. (Sri Lanka. 1, 2, 5)

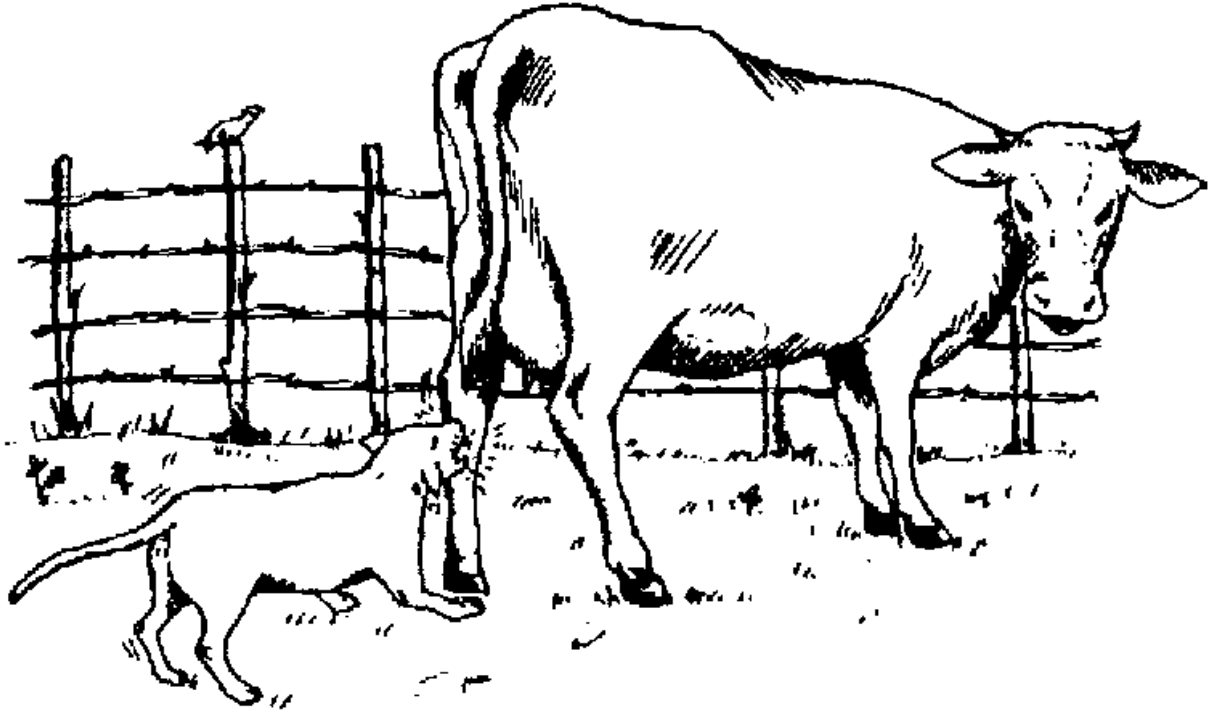
· *Pterocarpus macrocarpus* bark. *Sesbania grandiflora* bark. *Xylia kerii* bark. *Careya sphaerica* bark.

Make a decoction in water of 1.5 kg of each of the four types of bark. Apply on the mouth and feet. Used to treat sores from foot-and-mouth disease in cattle and swine. (Thailand. 1, 2, 3)

· Pound the solid sap from *Acacia catechu* into a powder. Sprinkle this on ulcers in the mouth twice a day for several days until the ulcer heals. (India, Sri Lanka. 1, 2, 3)

Dog bites

Bites of dogs and other animals may be infected with rabies. Rabies can spread to humans very easily and it usually kills infected people. If you know the dog has rabies, kill the dog and the animal it has bitten. Inform a veterinarian immediately.



Dog bites

If you are not sure whether the dog has rabies, cover your hand with a plastic bag and clean the wound thoroughly with soap and water without touching it directly. Then treat as for other wounds. An animal with rabies may not show symptoms for several months after being bitten. Watch it carefully and keep it isolated if possible. For symptoms of rabies, see Infectious diseases, page 65. If the animal shows signs of rabies, it should be slaughtered immediately. Do not use its meat for any purpose. Burn the carcass or bury it in a deep pit where it cannot be dug up by dogs.

Burns

- Mix lime (calcium hydroxide, used in chewing betel) with water. Take the water off from the top of the container. Mix equal amounts of this water and vegetable oil to make a white mixture (called "carron oil"). Apply profusely on the burn twice a day. This helps soothe the burn. (India, 1, 2, 3, 5)
- Apply the flesh of Aloe vera leaves to the burn. (Thailand)
- Apply vegetable oil on the burn. (Indonesia)

Bleeding

Bleeding can be external or internal. External bleeding is usually a result of wounds due to cuts, bruises, insect bites, ulcers, skin parasites and foot-and-mouth disease infections. Internal bleeding is usually caused by viruses, parasites and bacteria in the udder, uterus, digestive and respiratory systems.

Blood in the milk indicates udder infection. Blood in the mucus from the nose may be due to respiratory tract infection.

Treatment

External bleeding

1. Stop the bleeding.

Try any one or more of the following ways to stop bleeding. If bleeding does not stop, apply a tourniquet.

- Crush fresh leaves of sweet basil (*Ocimum basilicum*) or holy basil (*Ocimum sanctum*) or neem (*Azadirachta indica*).

Apply the pulp to the wound using a tight bandage. Any clean cloth will do. (India. 1, 2, 3, 4, 5)

- Fill the wound completely with powdered turmeric (*Curcuma domestica*) rhizome. (India. 1, 2, 3, 4, 5)

- Apply alum crystals. (India, Sri Lanka. 1, 2, 3, 4, 5)

- Apply powdered tea leaves. (India. 1, 2, 3, 4, 5)

- Mix sugar and fresh grated ginger rhizome in equal proportions. Apply on a bandage or cloth and tie the cloth over the wound. (India. 1, 2, 3, 4)

- Apply an ice pack. (India, Sri Lanka 1, 2, 3)

- Apply a decoction of 1 handful of *Eugenia jambolana* bark boiled in 1 liter of water. Wash the wound with the liquid and hold a clean cloth over it for a few minutes. (India. 1, 2, 3, 4, 5)

- Press the flowers of the palmyra tree (*Borassus flabellifer*) to the wound. Hold the flowers in place for a few minutes. (India. 1, 2, 3, 4)

- Crush blades of *Cynodon dactylon* grass. Apply the juice to the wounds. (India, Sri Lanka. 1, 2, 3, 4)

- Powder mango tree (*Mangifera indica*) bark and place it on the wound. (India. 1, 2, 3, 4,5)
- Powder the bark of a banyan tree (*Ficus bengalensis*). Apply to the wound. (India. 1, 2, 3, 4, 5)
- Pound fresh leaves of *Eupatorium odoratum* Apply the pounded leaves to completely cover and fill the wound. (Thailand. 1, 2, 3, 4, 5)

Use of a tourniquet

If the wound on the legs or tail is large or continues to bleed, tie a tight bandage or clean cloth above the point of bleeding. Loosen the bandage every 20-30 hours to allow blood to reach the limb below (if you do not do this, the limb may turn black and the flesh may die). If the bleeding does not stop, seek professional help.

2. Once bleeding stops, clean the wound. Apply medicine. Suture if necessary. (See section on Wounds, page 75.)

3. If the wound has maggots, apply crushed fresh leaves of *Annona squamosa*. (For further remedies, see section on Wounds.) (All countries. 1, 2, 3, 4, 5)

Internal Bleeding

If blood is present in the milk or the mucus from the nose:

- See the treatment of udder infection in Udder infection, page 138.
- Make a cut along the length of a banana and fill this with 1/2 teaspoon of camphor powder. Feed the banana to the animal twice a day for 3-4 days. (India, Sri Lanka. 1, 2, 3, 4)

Use blood coagulants such as *Saraca indica* bark, *Actinopetris fennis*, *Jatropha curcas*, *Plumbago zeylanica* or *Terminalia arjuna*.

Scientific name	Parts used	Preparation	Dosage
<i>Actinopetris fennis</i>	Fresh leaves	Use any of the plants.	Drench 200 ml twice a day for 3-5 days.
<i>Jatropha curcas</i>	Fresh leaves	Take 100 g of the plant part	
<i>Plumbago zeylanica</i>	Dry bark	the plant part specified and	
<i>Terminalia arjuna</i>	Dry bark	prepare a decoction in 1 liter of water.	

Snake bite

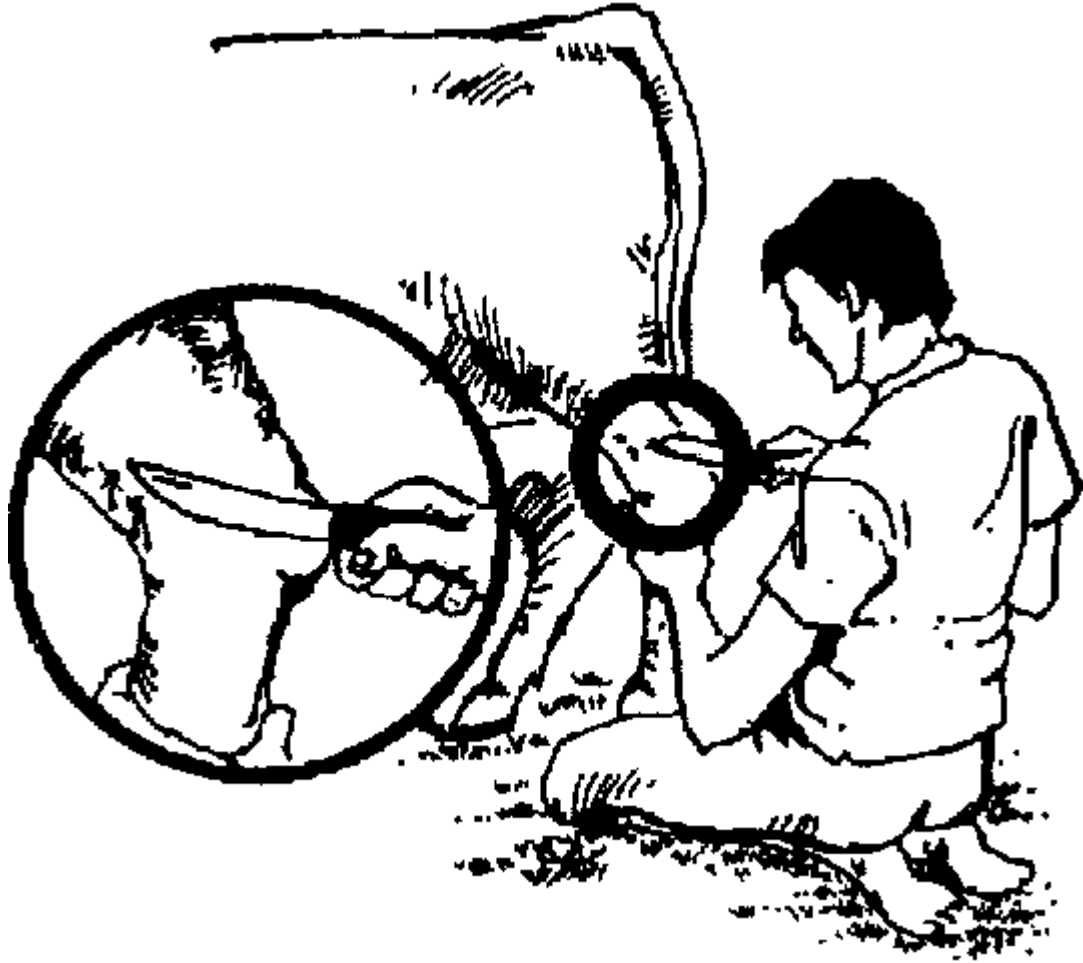
Symptoms

An animal bitten by a snake may show several signs:

- An animal that has just been bitten may bolt or jump suddenly.
- You may notice a wound and a swollen area, usually on the leg or face. When the affected area is pressed, blood will seep from the base of the hairs.
- The animal appears anxious.
- It has muscle contractions.
- Its hair stands on end.
- The animal stands very tensely, with a curved back.
- The animal may bleed from the nostrils.
- Its urine may be red.
- In an acute case, the animal will die within 30 minutes.

Emergency treatments

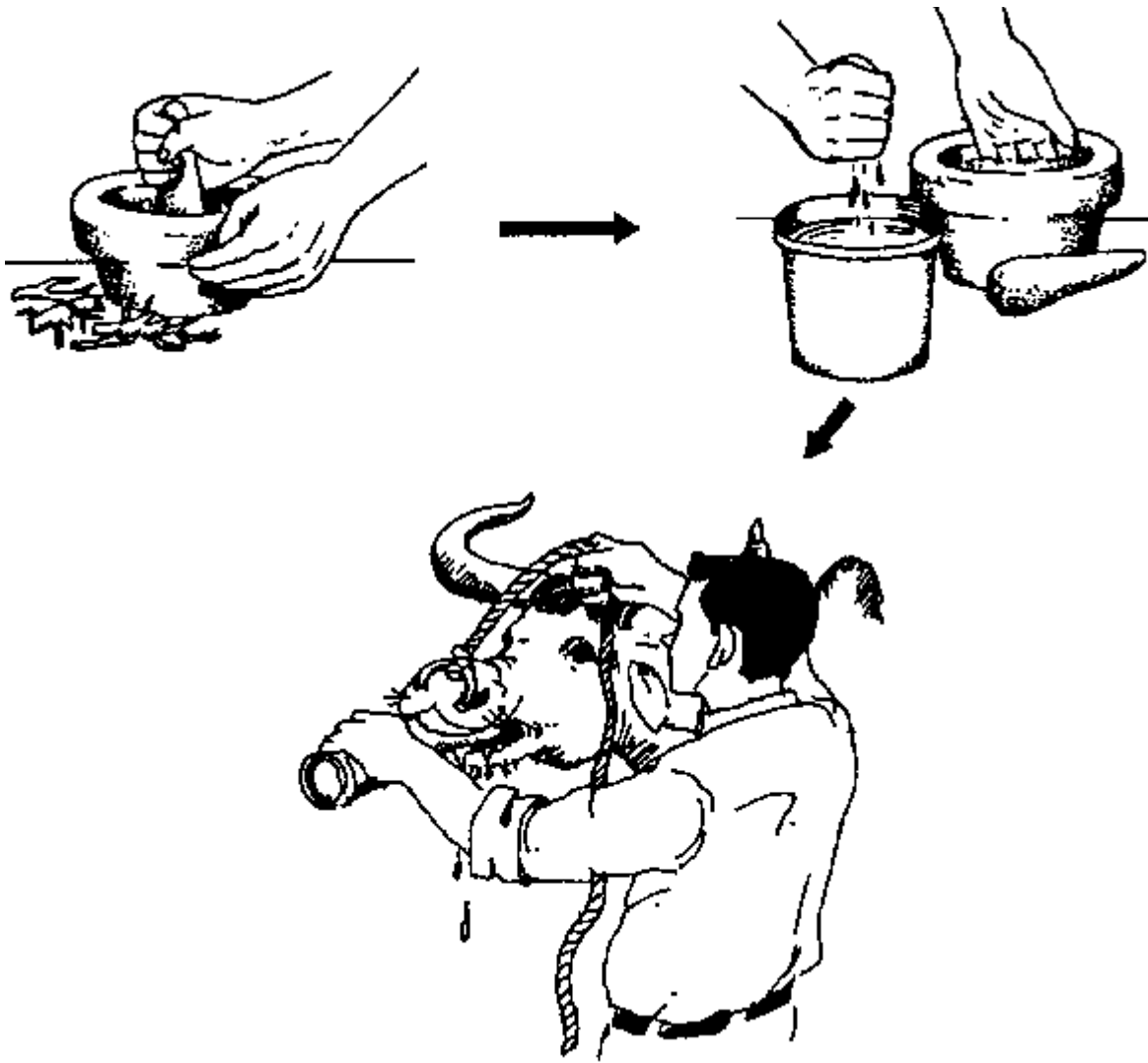
- Apply a tourniquet above the wound (for leg bites only). See section on Bleeding (page 82) for how to use a tourniquet.
- Locate the bite marks, make a deep cut over the mark in line with the muscle tissue and let the wound bleed freely.
- Put your mouth to the wound and suck out the poison. Be sure to spit out the poison. (Caution: Do not do this if you have a wound or sore in your mouth.)
- Keep the animal still.
- In some countries, farmers apply red ants to the bite area.



Emergency treatments

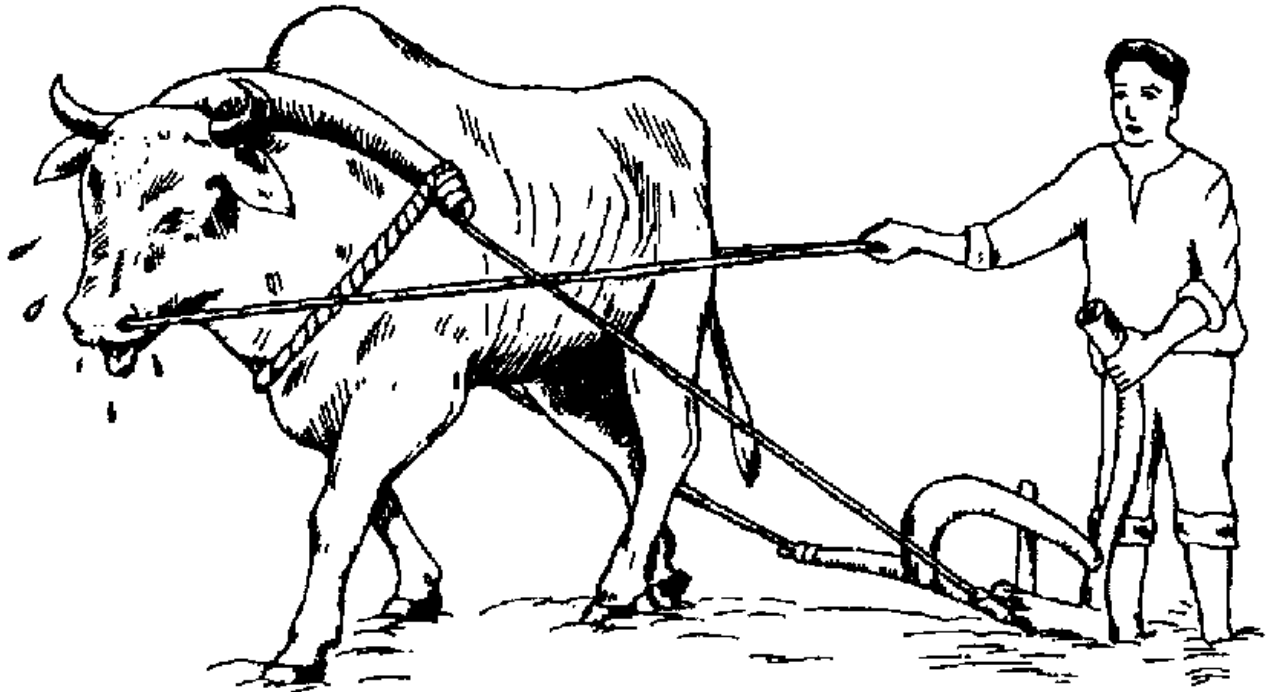
Treatments

- Pound, press and strain the juice from a handful of leaves of *Barleria lupulina*, mix with 50 ml of whisky and give as a drench. Also, apply the ground leaf material directly to the wound (Thailand. 1, 2, 3, 4, 5)
- Pound and press the juice from 1 root (about 300 g) of *Sansevieria* sp. Mix the juice in 1 liter of water that has been used for washing rice. Give as a drench once only. The pounded rhizome of this plant, mixed with 1 liter of water, can also be used as a drench. (Thailand. 1, 2, 3, 4, 5)
- Rub the bite with an alum stone, lubricated with spit. Do this for 2-3 minutes. (1)
- Boil about 1 kg of *Ochna serrulata* (multiflora) root in 3 liters of water until only 2 liters remain. Cool and give the fluid as a drench. Once should be enough. (1)



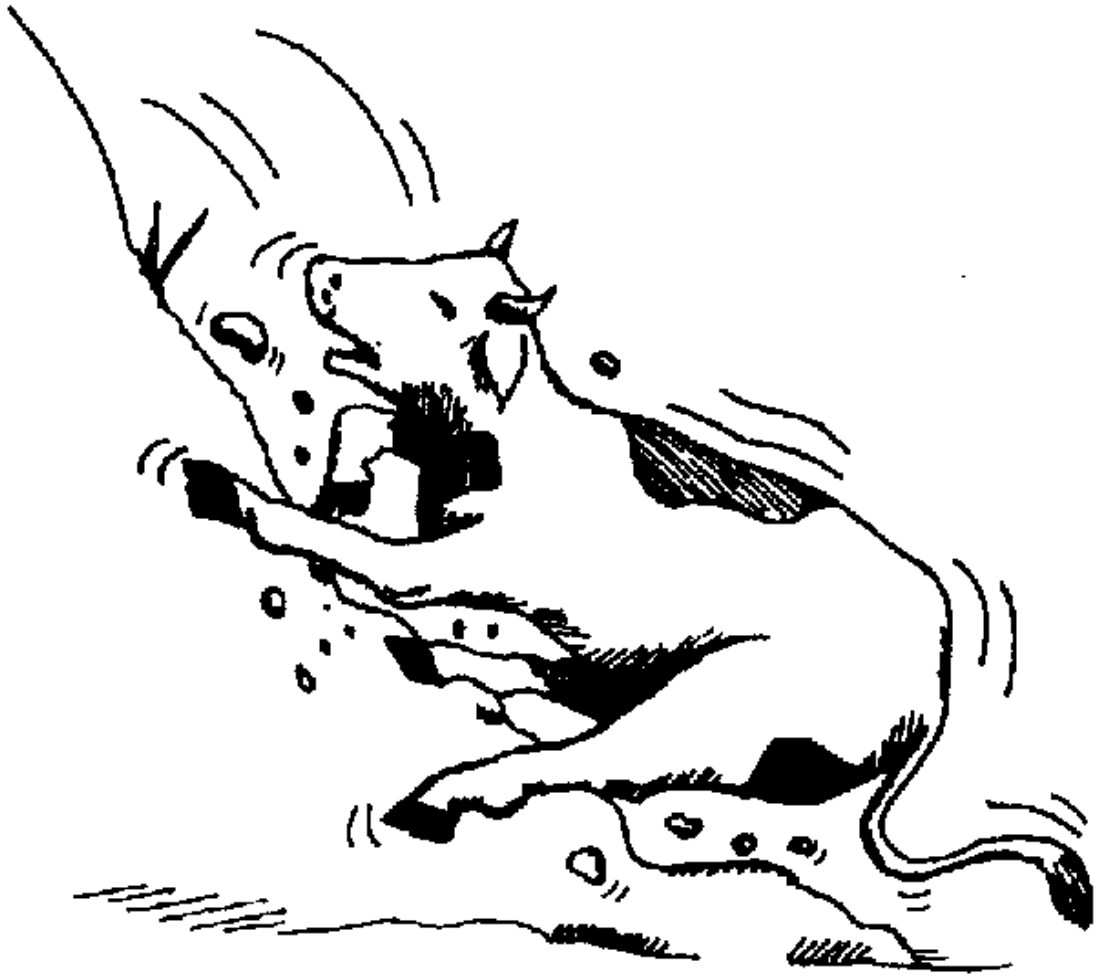
Treatment for a snake bite

Sprains

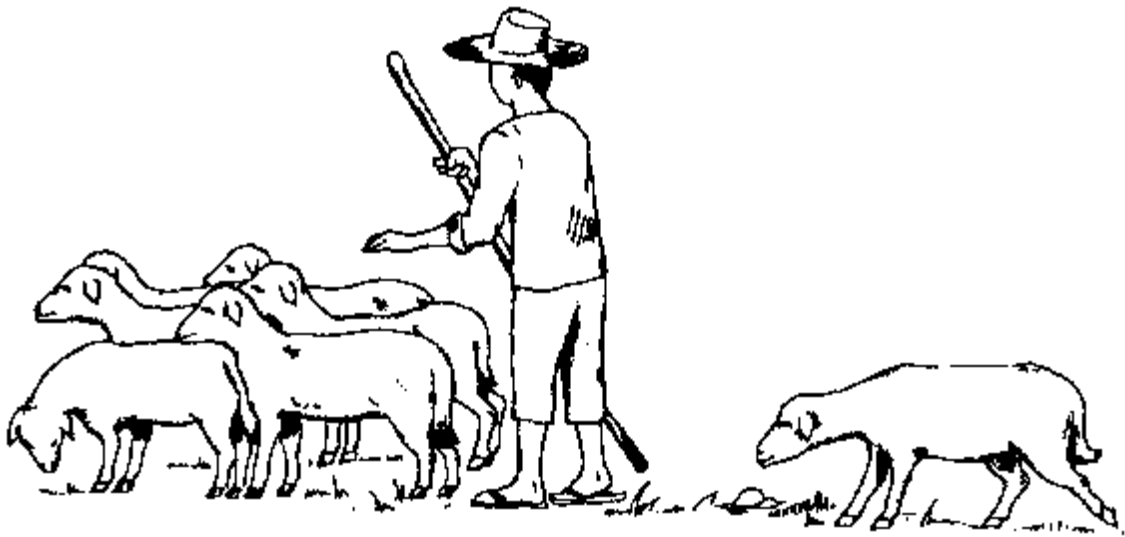


Sprains

Frequent causes of sprains in ruminants are accidents and falls, especially during plowing and pulling heavy carts. Sprains often occur if the animal is tired, overworked or in Door condition. Young animals used for draft work are particularly affected especially at the beginning of the plowing season when feed is scarce. Animals with poorly formed legs are also more likely to get sprains. Sprains are also a problem in hilly areas where the animal must walk up and down steep slopes.



Falls



Symptoms

Symptoms

- The animal limps or has an uneven gait.
- It lags behind the rest of the flock or herd.
- It carries or drags the affected leg.
- It does not put its full weight on the leg.
- It has pain and pulls its leg away when you try to examine it.
- The affected joint may be swollen or inflamed.

Before treating the animal, make sure the problem is not:

- A fracture (see Simple surgical techniques in General information).
- Foot rot (see Foot rot, page 68).

Prevention

- Herd the animals carefully during grazing to avoid accidents.
- Use light, nimble animals (not large, crossbred cattle or large buffaloes) in hilly areas.
- Do not use young, immature animals for work.
- Feed animals well and keep them in good condition.
- Do not overload animals.

Treatment

Herbal treatments

Use one of the herbal treatments below.

- Crush enough fresh leaves of *Cymbopogon citratus* to cover the affected part. Warm over a fire and wrap around the affected part. Tie on with a cloth and leave for 3-5 days. This remedy provides heat by stimulating the blood circulation. (Indonesia. 1, 2)
- Finely cut a handful of fresh comfrey (*Symphytum officinale*) leaves. Place on a piece of cloth, fold the cloth and boil in water for 5 minutes. Wring out the water and apply hot to the affected area. Be careful not to burn the skin of the animal. (Cambodia, Philippines, Thailand. 1, 2, 3, 4)

· *Cissus quadrangularis* (whole plant). *Hoya ovalifolia* leaves. *Pathos secundens* (whole plant). Turmeric (whole plant). *Ficus racemosa* leaves.

· Take a handful of each plant and chop together with 100 g of salt. Put the mixture on a cloth and heat it over a pot of boiling water. Tie the hot mixture around the affected area with a cloth. Repeat this treatment once every 2 days for 3-5 days. Be careful not to burn the skin of the animal. (India, Sri Lanka. 1, 2, 3, 4, 5)

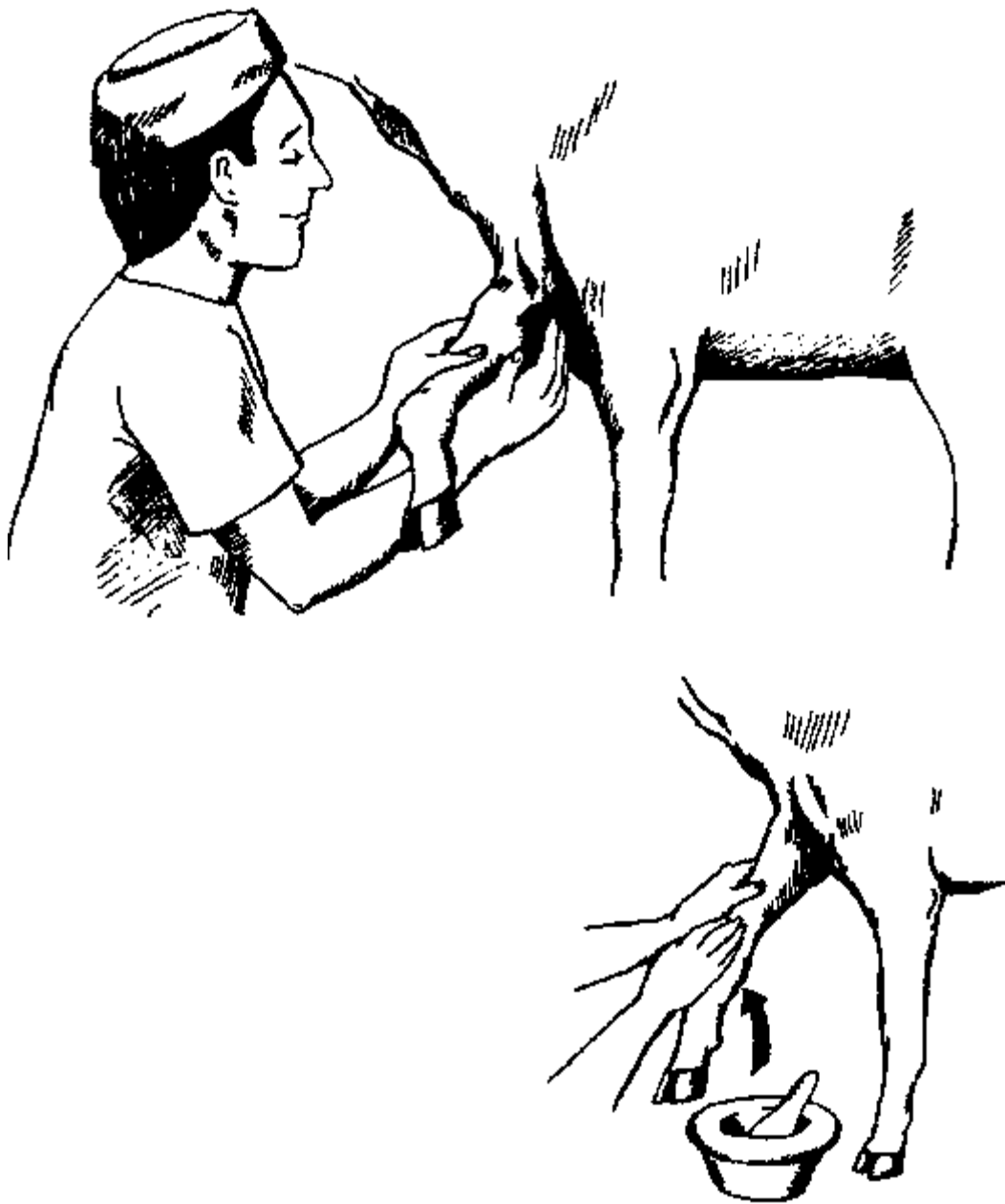
· Grind enough *Brassica nigra* seeds to cover the affected area, together with enough water to make a paste. Apply on the affected part twice a day for 3-5 days. (India, Sri Lanka. 1, 2, 3, 4)

· Take a sufficient quantity of any of the medicinal plants in the table below to cover the affected area. Pound and add enough hot water to make a warm poultice. Apply it around the affected joint or area 2-3 times a day for 3-5 days. Tie a cloth around the area to support the joint and keep the poultice on if necessary.

Sprain treatments

Scientific name	Common name	Parts used
<i>Curcuma longa</i> +	Turmeric	Dry/fresh turmeric rhizome, lemon juice (India. 1, 2)
<i>Citrus bergamia</i> +	Lime	
salt	Salt	
<i>Eucalyptus globulus</i>	Eucalyptus	Fresh leaves (India. 1, 2)
<i>Gaultheria fragrantissima</i>	Indian wintergreen	Fresh leaves(India. 1, 2)
<i>Hibiscus rosa-sinensis</i>	Hibiscus	Fresh leaves(Cambodia, India, 1, 2)
<i>Mentha arvensis</i>	Japanese mint	Fresh leaves
<i>Mentha piperita</i>	Peppermint	(India 1, 2)

Vitex negundo	Five-leaved chaste tree	Fresh leaves (India. 1, 2)
Zingiber officinale	Ginger	Fresh rhizome (Indonesia. 1, 2)



Where to apply the poultice

Applying heat

Warming the affected area helps heal the sprain. Use one of the following treatments.

- Mix 1/4 matchboxful of camphor powder with 100 ml of vegetable oil. Apply on the affected part once a day for 3-5 days. Caution: Do not apply on skin that is grazed or broken. (India. 1, 2, 3, 4, 5)
- Put a handful of salt in a cloth, tie the cloth with string to make a small bag, heat and apply on the affected part. Repeat the treatment twice a day for 3-5 days. (India. 1, 2, 3, 4)
- Heat a piece of dry clay and apply it on the affected part. Repeat the treatment twice a day for 3-5 days. (Maharashtra, India. 1, 2, 3, 4)

Preventing the sprained limb from moving

Keep the animal confined to prevent it from moving too much. Do not send it out for grazing or use it for plowing or other work.

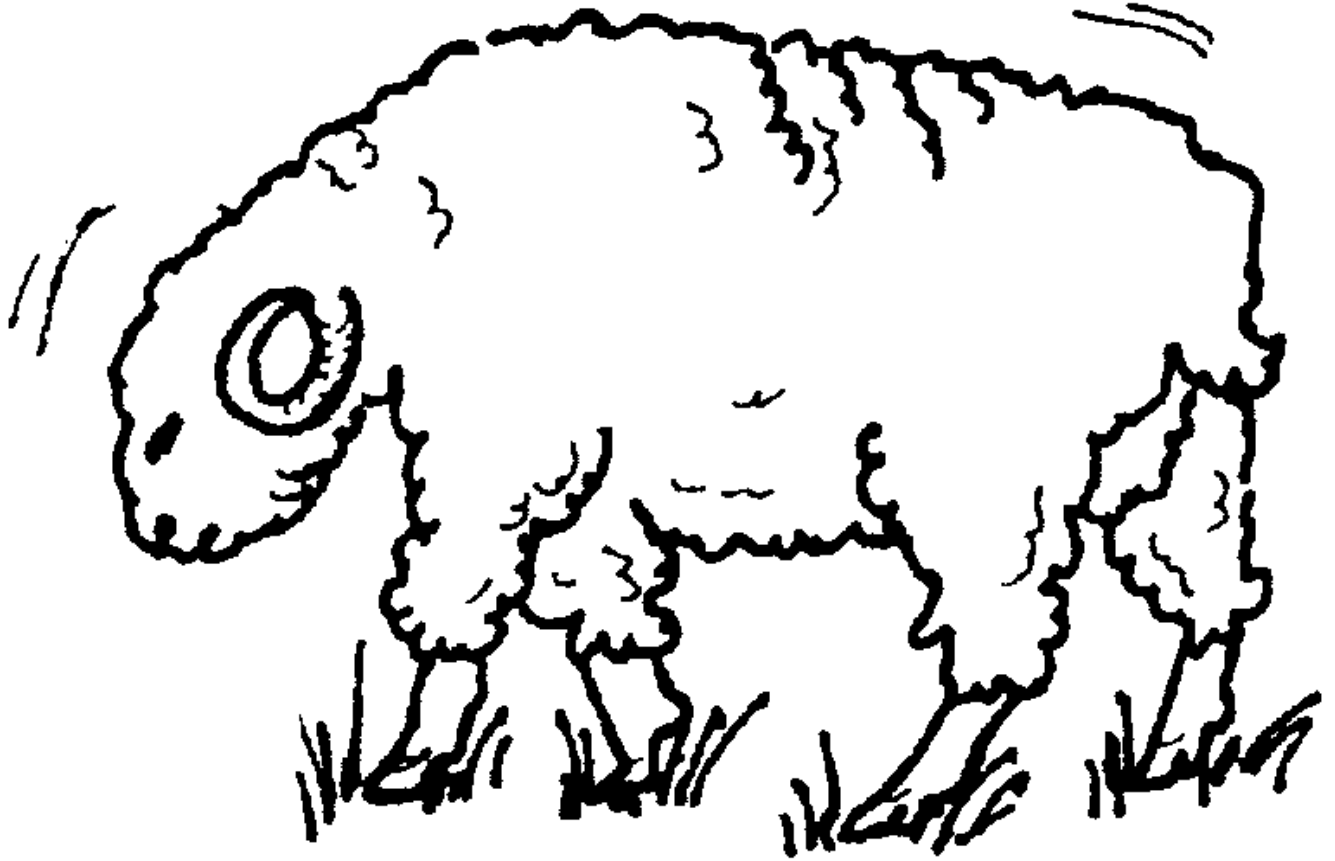
If the sprain has not improved within 5 days or so, take the animal to a specialized healer (vet or village healer).

Use one of the following treatments to warm the affected area and to prevent the limb from moving too much.

- Heat any vegetable oil and pour it over newspaper. Wrap the newspaper as a cast around the affected area. Do this every day for 3-5 days. (Philippines. 1, 2, 3, 4, 5)
- Tie a wide (7-10 cm) cloth firmly around the affected part. Make sure the cloth is not too tight so it does not stop the blood flow. (Throughout South and Southeast Asia. 1, 2, 3, 4, 5)

Difficulty in urinating

Difficulty in urinating occurs mostly in males, especially bullocks and rams. Bullocks of prime plowing age of 5-7 years are most affected. After 4-5 days, the bladder may rupture.



Difficulty in urinating

Symptoms

- The animal strains and grunts.
- The coat is rough.
- The animal stops chewing cud.
- It is restless.
- It gets up and sits down frequently.
- No or only a few drops of urine may be seen on the bare soil where the animal has been tied up.
- A peculiar smell comes from the mouth after 34 days.

- The body temperature may rise after 4-5 days.

Causes

- Blockage of the urinary tube by stones that form in the bladder and urinary canal.
- Swelling of the urinary bladder.
- Kidney disease.
- Swelling due to castration.

Prevention

- Give plenty of drinking water, especially during the dry season.

Treatment

Use one of the treatments below. The dosages given are for adult cattle and buffaloes. Use half of these amounts for calves, sheep and goats.

- Prepare a decoction of the whole plant of any or all of the following: 2 g of *Tribulus terrestris*, 3 g of *Boerhaavia diffusa*, 3 g of *Cratueva nuravala*, 2 g of *Hyoscyamus niger*, 3 g of *Pavetta indica*, 4 g of potassium nitrate, 4 g of sodium bicarbonate. Give cattle and buffaloes 200 ml of the decoction as a drench 2-3 times a day for 5-6 days as long as the problem lasts. For goats, sheep and calves, give 100 ml for every drenching. (India. 1, 3, 4, 5)
- Mix equal proportions of water and milk with a pinch of baking powder. Drench with 2 liters of this mixture or provide it as drinking water 2-3 times a day until recovery. (India. 1, 3, 4, 5)
- Drench with 1 liter of sugarcane juice 2-3 times a day until recovery. (Cambodia. 1, 2, 3, 4, 5)
- Boil 100 g of *Orthosiphon spicata* leaves in 1 liter of water. Cool, then drench. Repeat this treatment 2-3 times a day until recovery. (Indonesia. 1, 2, 3, 5)

@ Caution

- In case of complete or partial blockage of the urinary tube, surgery is needed.
- Do not give the medicinal herbs mentioned above if there is a complete blockage

Housing

Housing practices vary widely from place to place. In general, however, stock raisers do the following:

Protection

- People protect their animals from rain, sun, wind, cold, predators and thieves. For example: they may plant thorny bushes around the animal shed to keep predators and thieves away.
- They build a shed, house, barn or other structure to shelter the animals. Or sometimes, if people's homes are raised on stilts, they keep their livestock under the home.
- In many areas, farmers plant certain trees to provide shade near the livestock shed.
- They plant neem, eucalyptus or *Ocimum sanctum* around the shed to repel insects.
- They light smoky fires near or under the shed to drive away ticks, lice and insects.
- They do not plant mango, curry leaf (*Murraya koenigii*) or bamboo near the shed, as these species attract snakes and bats. For the same reason, they do not stock large amounts of firewood, hay or straw near the shed.

Space

- Farmers provide enough space for each animal to lie down and stand, turn around and defecate without the dung soiling itself or other animals.
- They avoid overcrowding.
- They provide adequate ventilation and light.

Feed and water

- People provide a container with clean drinking water.
- In certain areas, farmers build a small feeding manger to hold green or dry fodder.

Hygiene

- Traditionally in many areas, farmers slope the floor of the shed so the urine and dung can flow out. This helps keep the shed clean.
- They use straw from rice, wheat and other plants for bedding. They replace this regularly with fresh straw.

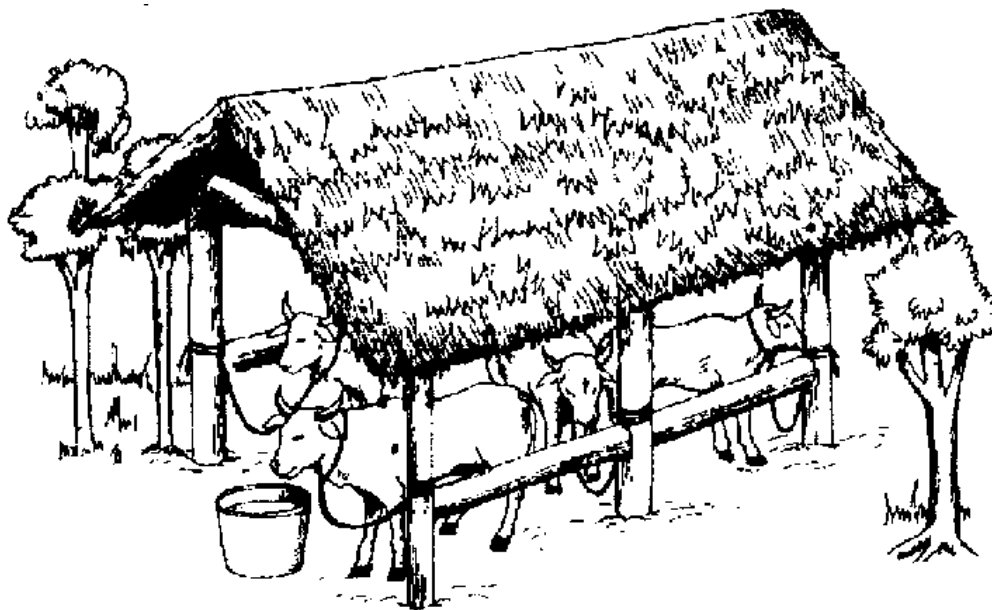
- The farmers clean away dung, urine and mud each morning.
- In some countries, they apply a layer of fresh mud on the floor of the shed.
- They may regularly sprinkle dry lime (calcium hydroxide) or powdered limestone on the floor 2-3 times a week as a disinfectant and to repel flies. Once a month, they wash the walls with limestone powder mixed with water.
- In India, farmers mix a handful of dung in a bucket of water and sprinkle this mixture on the floor. Over time, this produces a hard flooring that is easy to keep clean. It also keeps the ground even, so animals will not slip.
- They isolate or quarantine sick animals from other animals.

Some examples of ruminant housing

Housing types vary widely from place to place. Here are a few examples.

Tribal areas of India

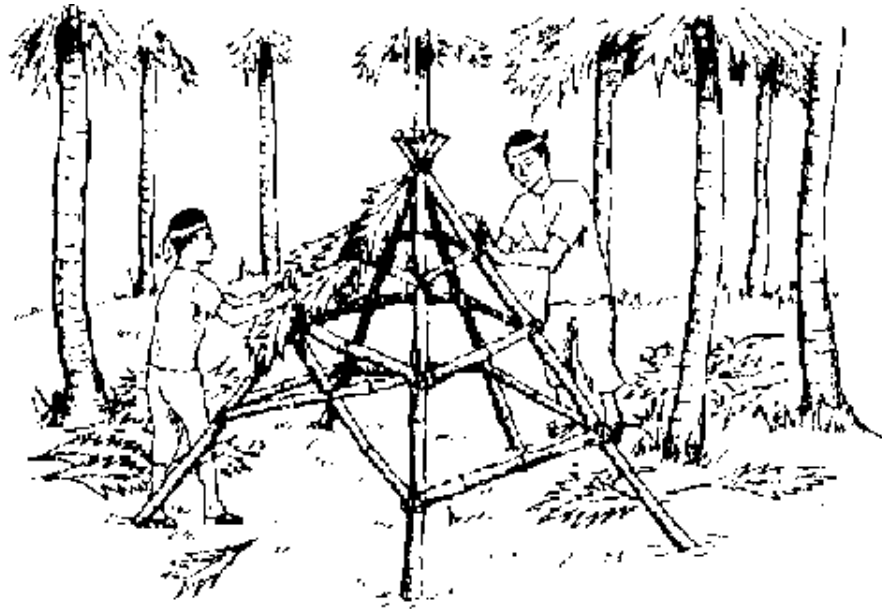
This shelter, built in the village near the owner's home, houses 10-20 animals. The roof is made of dried palmyra tree leaves (which are rainproof) or dried grasses. The posts are of bamboo, palmyra tree wood, teak, rose wood, or other strong wood. The floor is of mud. The animals are kept in the shed during the night and let out to graze in the forest during the day. The shed is cleaned and fresh mud is put on the floor before the animals return. The shed provides protection from the sun and rain, yet allows sufficient light and air to get in. It is very cool inside.



Tribal areas of India

Coastal areas of Andhra Pradesh, India.

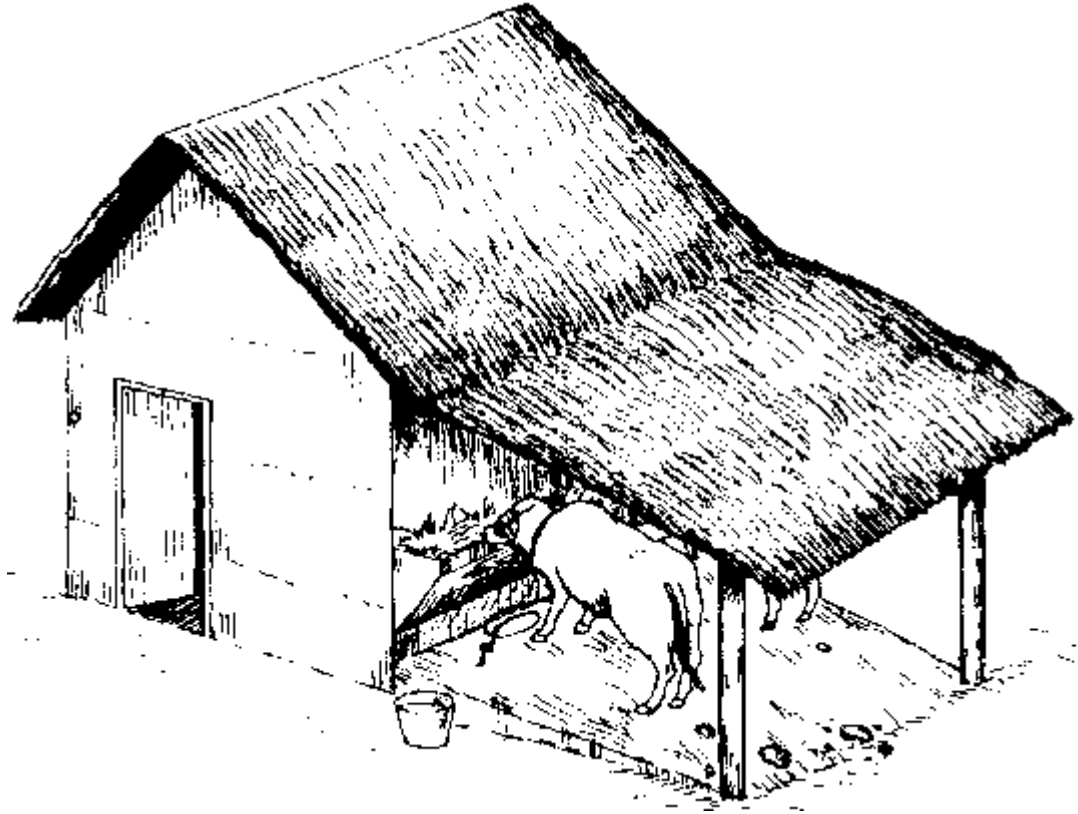
This area is prone to cyclones and has very heavy rainfall (more than 1800 mm per year). The round, conical shape provides minimum resistance to cyclones and the sloping roof reaching almost to the ground prevents the roof from blowing away. This shelter can house 2-3 animals. It is usually located in the fields. The roof is made of palmyra tree leaves and the frame of palmyra wood. The floor is of mud. The shelter is cool in summer and warm in winter. However, it is dark inside and ventilation is sometimes inadequate. A container of water is placed inside, but there is no manger for fodder.



Coastal areas of Andhra Pradesh, India.

Deccan (India) and Sri Lanka

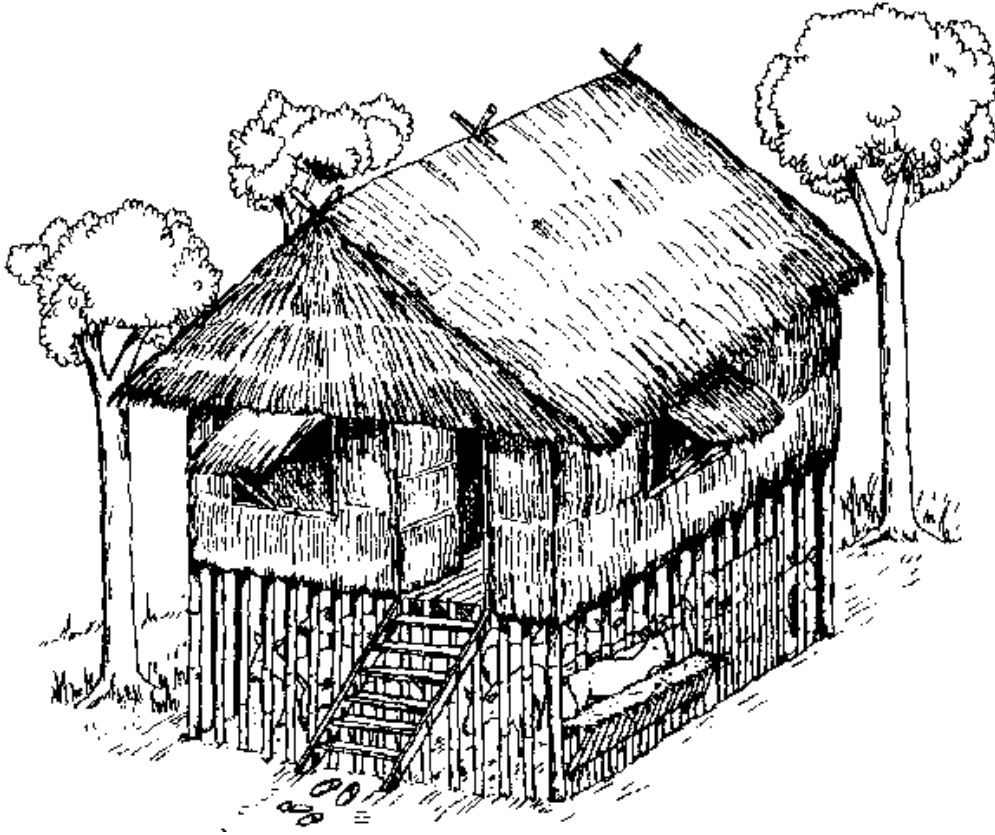
This shed is attached to the owner's house and is made of bricks, mud, wood or stone. It houses 1-2 animals. The roof is of dried wild hemp stalks or other grasses. The floor is of mud or brick, and it slopes so mud, dung and urine flow out. A feeding manger and a container for water are built in. The shed obviously is well-ventilated and cool.



Deccan (India) and Sri Lanka

Philippines

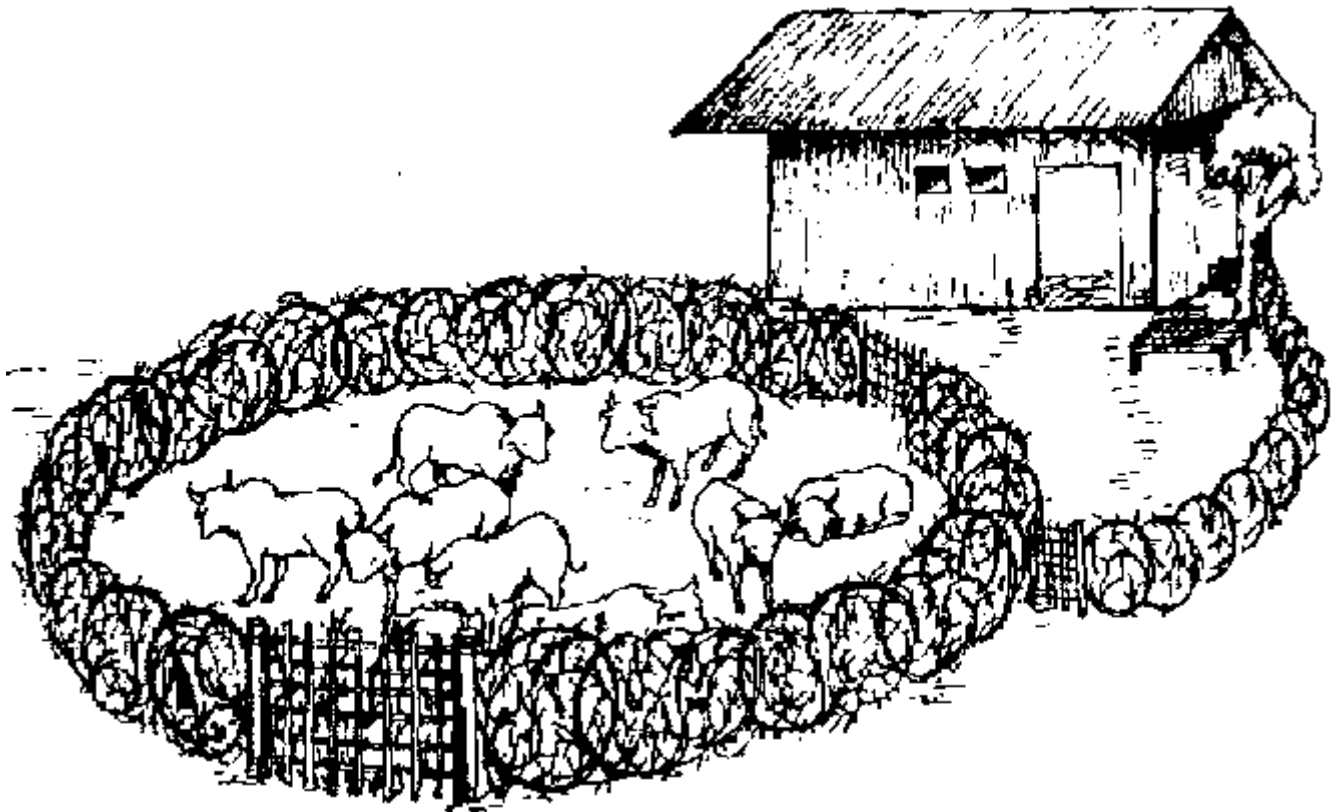
Many farmers in the Philippines and Laos keep their animals under the house, or in a room next to their own living area. The house is made of slatted bamboo and/or wood. The roof is thatched with local grasses. The animals body heat helps warm the house. Owners can give care to the animals very easily. However, pests and diseases such as mange, leishmaniasis and flies can spread from animals to humans. On the other hand, farmers in the Philippines say that—although the goats they keep under their houses have a strong and unpleasant odor—the smell helps keep mosquitoes away from the home.



Philippines

Gir Forest, Gujarat, Western India

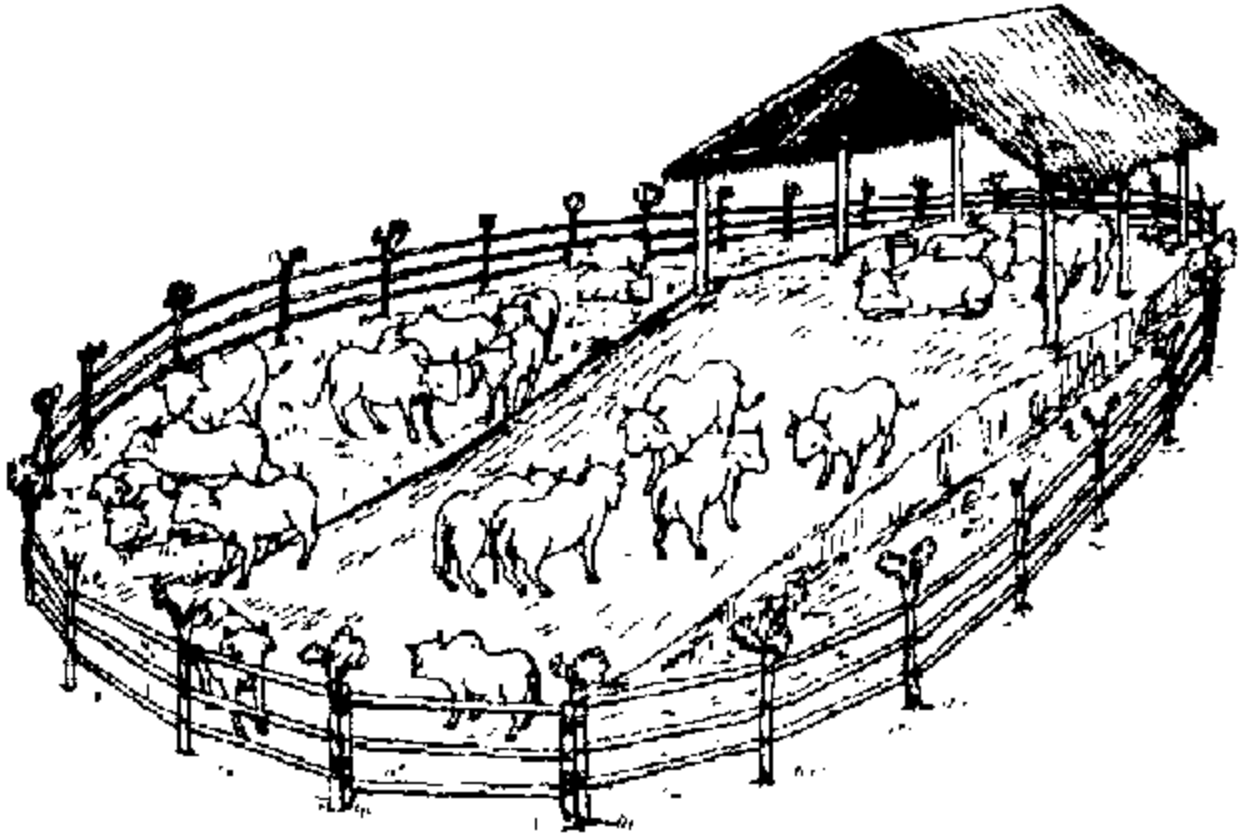
Farmers in the Gir Forest build a circular, thorny fence of *Acacia arabica* branches. They keep their buffaloes inside during the night to protect them from lions and wolves. During the day, the buffaloes are let out to graze in the forest, where they seek shade under the trees: Farmers throughout India build a thorny fence or plant cacti around their own and their animals' housing to deter predators.



Gir Forest, Gujarat, Western India

Sri Lanka

Farmers build a corral of trees, logs and wire. The animals rest inside the enclosure in a shed made of wood or bamboo, roofed with grass or leaves. This shed is built at the top of the slope, so water and waste materials run out of it.



Sri Lanka

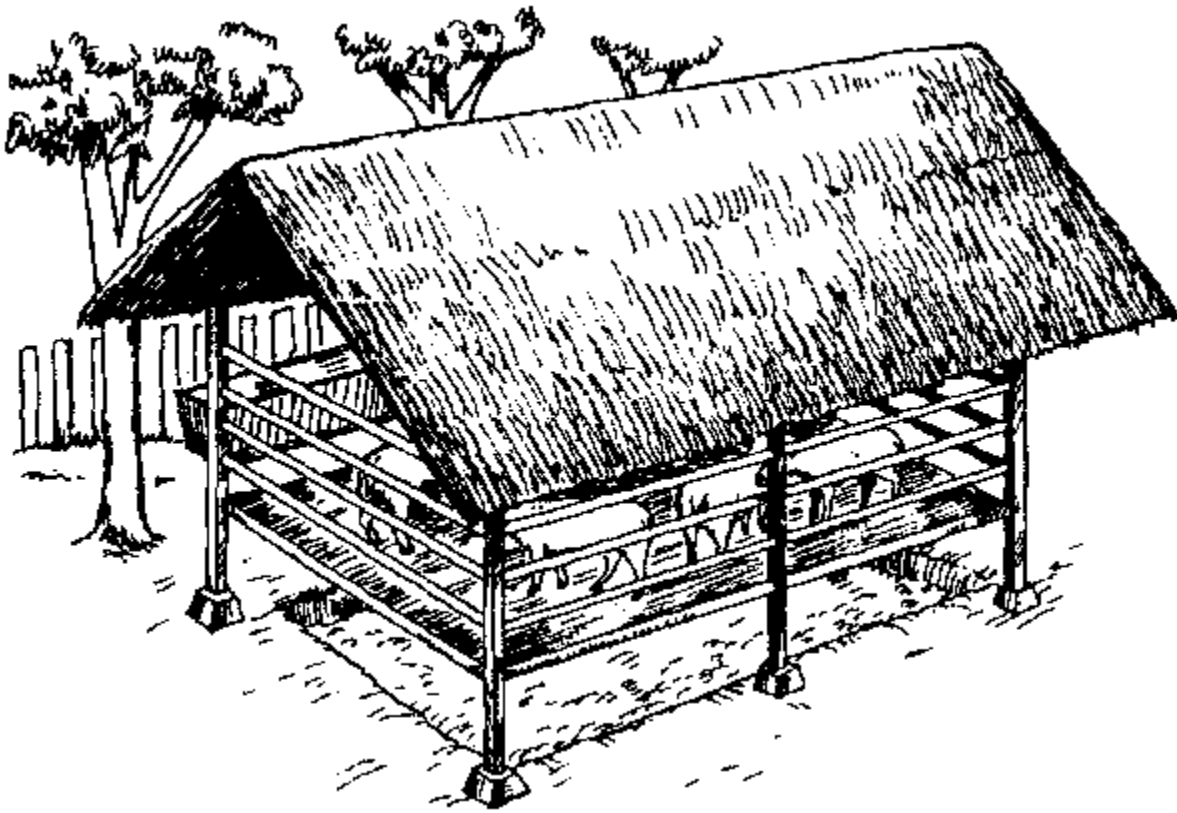
Sometimes, farmers tie their animals under a tree. In Thailand, they use a special bamboo spring on the tether. This prevents the rope from twisting and becoming tangled.



Throughout South and Southeast Asia

Indonesia, India, Sri Lanka and Thailand

Sheep and goat pens are often built on stilts. The floor is made of slatted wood or bamboo, so that the droppings and urine fall through. In India and Indonesia, there is a pit below to collect these valuable organic materials. The manure can be removed easily from beneath the pen for spreading in the fields. The roof is thatched with grass. The owners or their children cut grass from roadsides and field boundaries and put it in a manger attached to the pen for the animals to eat. Surplus grass can be stored at one end of the shed. This pen protects the animals from thieves and predators. It is clean and hygienic. In Indonesia and Sri Lanka, animals of different ages and sexes may be kept separate using dividers within the house. Pregnant animals and mothers with newborns are also separated from other animals.

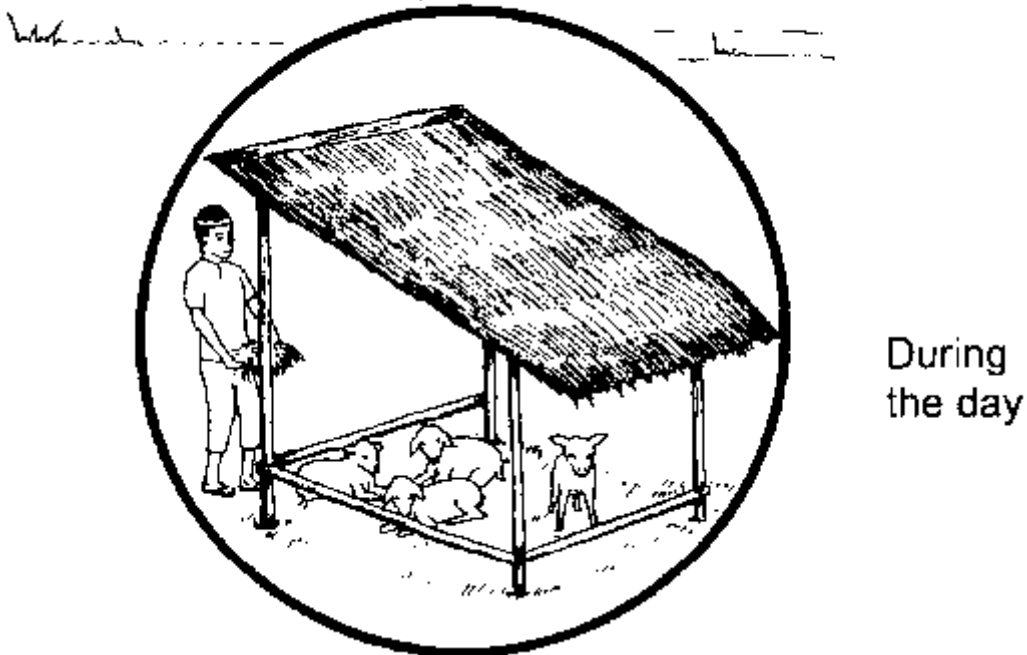
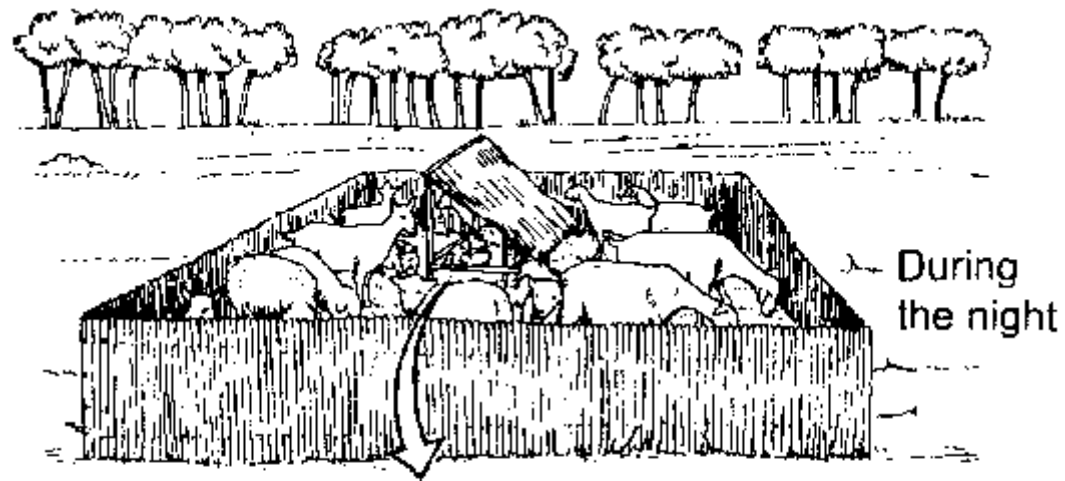


Indonesia, India, Sri Lanka and Thailand

Deccan, India

Semi-migratory shepherds use small branches to make moveable, collapsible fences. They erect these in the field to keep their goats and sheep in at night. The shepherd sleeps in the small shed in the center of the enclosure. During the day, the animals are released from the enclosure and allowed to graze. Outside, only animals that are too young to graze are kept inside the shed during the day with a shepherd who guards and feeds them.

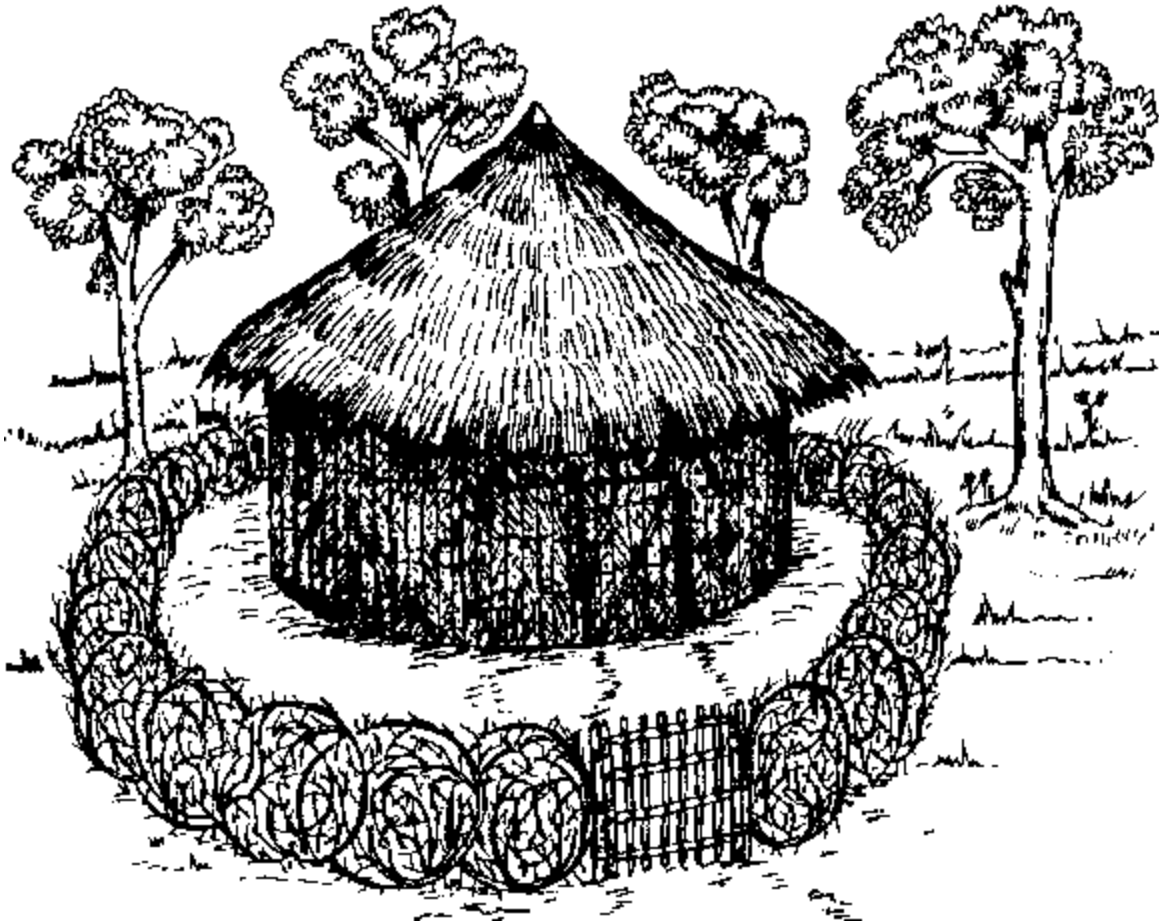
The shepherd moves the enclosure around the field, so that the entire field is manured at night. The farmer pays the shepherd for this manure.



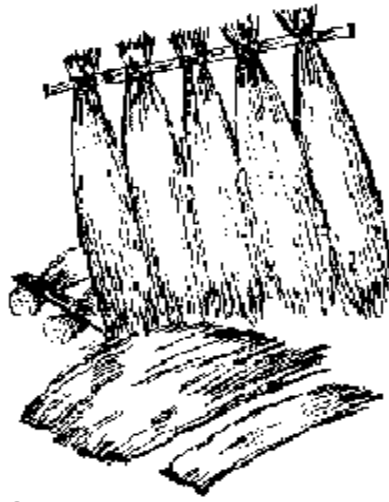
Deccan, India

Throughout India

Farmers build a thorny fence of *Acacia arabica* or *Acacia farnesiana* around their goat houses to deter thieves and predators. The house itself is round and made of bamboo, wood and mud. The roof is thatched with palmyra leaf or grass. The floor is of mud. Animals of all ages are housed together. Some farmers clean out the dung; others use the dung as bedding.



Throughout India



Cogon grass
(*Imperata cylindrica*)



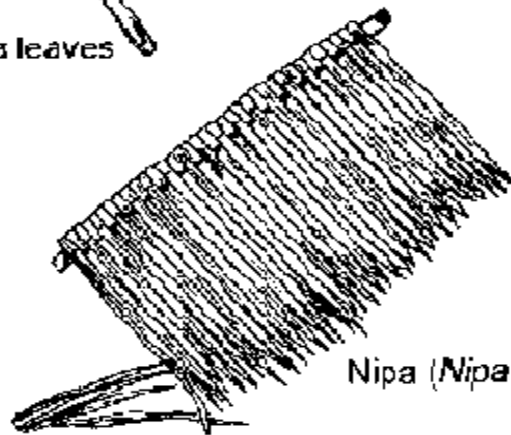
Coconut leaves



Banana leaves



Palmyra leaf



Nipa (*Nipa fruticans*) leaves

Various types of roofing materials

Feeding

Follow all these recommendations for improved feeding of ruminants.

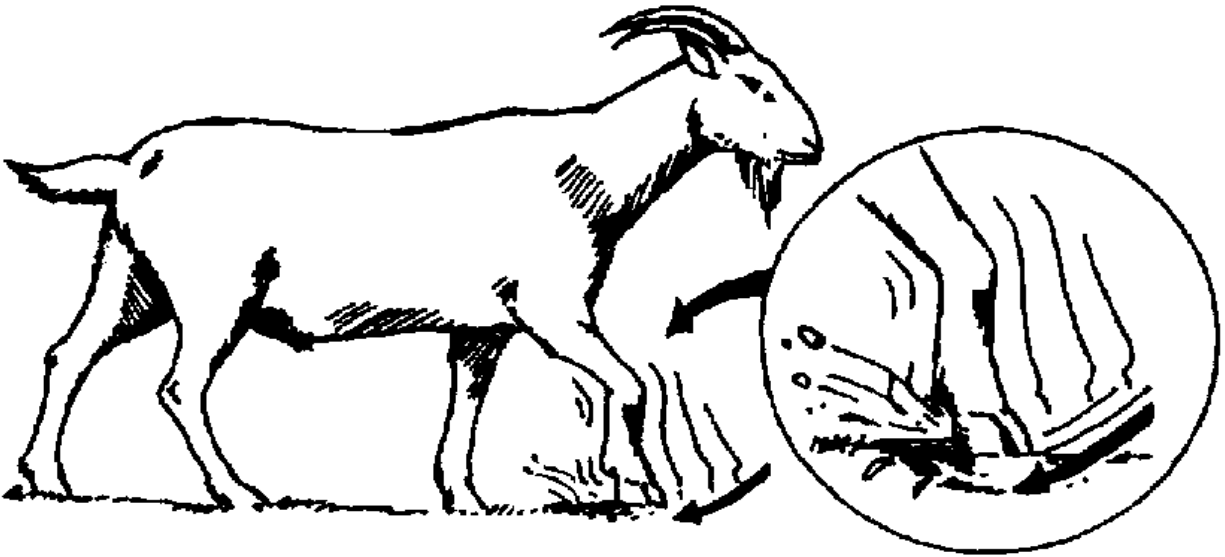
- Make water freely accessible to the animals all the time. Or give them as much water as they can drink 3 times a day.
- Give plenty of roughages such as straw and fresh grasses. In addition to grazing, provide small quantities of roughage at regular intervals. Regularly renew the left-over feeds with clean, fresh feed. Cut fodder and carry it to animals that are confined.
- As much as possible, also give quality feeds such as tender, leafy grass, *Gliricidia* leaves, *Leucaena leucocephala* leaves, jackfruit leaves and fruits and household or kitchen waste. See the table below of feeds and their nutritive values.
- Gather and store enough rice straw for feeding. Keep it for feeding during the dry season when grass is scarce. Keep the straw in a dry, well-ventilated place to avoid fungus and rodents.
- Give concentrate regularly, especially to dairy animals and mothers suckling their young. To make concentrate, mix 500 g of coconut cake (or other cake) with 500 g of good quality rice bran. Add about 50 g each of crushed limestone and fish meal. Mix all these materials with 1 cup of molasses and add this preparation to the feed. Use half this amount for sheep and goats. (Philippines, Sri Lanka. 1, 2, 3, 5)
- Watch the animals carefully and continuously. Adjust the feed requirements to suit the growth and reproductive stage of the animals. See the table below for good, cheap, and readily available sources of feed. Use these specially for young, pregnant, lactating and working animals.

Feeds rich in protein	Feeds rich in carbohydrates	Feeds rich in minerals
These help the animal grow faster and give more milk. They are also good for working animals and pregnant animals.	These provide energy, especially for work animals.	Minerals are especially important for animals that are pregnant, lactating or growing.
Acacia arabica leaves	Bagasse	Acacia pods
Acacia pods	Broken rice	All lentils and beans
Banyan tree (<i>Ficus bengalensis</i>) leaves	Brown sugar	Bone meal
Cassava leaves (dry)	Cane molasses	

Centrosema spp. leaves		
Chickpea hulls	Brown sugar	Crop fertilizers(Caution: Use only small amounts.)
Taro leaves	Cassava chips	Crushed shrimp and lobster shells
Copra	Castor leaves	Fish meal
Cottonseed cake	Corn	Limestone
Cowpea beans	Corn straw	Oyster shells
Cynodon dactylon grass	Fresh coconut	Rice bran
Edible oil cakes	Millet straw	Salt
Fish meal	Millets	
Fresh, green grass	Groundnut cake	
Horsegram	Pigeonpea leaves and pods	
Khajri leaves	Pineapple waste	
Launaea pinnatifida	Rice leaves	
Legume leaves, pods and straw	Rice straw	
Lentil hulls	Rice bran	
Leptadenia reticulate leaves	Saman pods	
Leucaena	Sorghum stalk (dry)	
leucocephala		
leaves (dry)		
Mango leaves	Sorghum	
Neem leaves	Sugarcane tops	
Palm kernel meal	Sweet sorghum	

Groundnut meal	Wild hemp	
Groundnut seed cake		
Redgram		
Rice bean		
Rubber seed meal		
Sesame seed cake		
Soybean		
Soybean meal		
Sunflower meal		
Wheat bran		

Mineral deficiency



Mineral deficiency

Symptoms

General

- Animal appears starved even when fed abundantly.
- Animal loses weight.
- Animal scratches the ground.
- Loss of appetite.

Specific deficiencies

- Breeding difficulties—repeated breeding is necessary (phosphorus and selenium deficiency).
- Convulsion and staggering (calcium and magnesium deficiency).
- Black-coated animals appear to have brown hair (copper deficiency).
- Enlarged joint (calcium deficiency, in calves).

Causes

- Insufficient minerals available to animals.
- Worm infestation.

Prevention

- Provide salt or mineral block for lick.
- Feed animals fresh grass and leaves.
- Supplement the animal's diet with high nutritive value plants such as sweet potato leaves and amaranth and feeds rich in minerals (see Feeding, page 108).

Treatment

Give any of the following treatments.

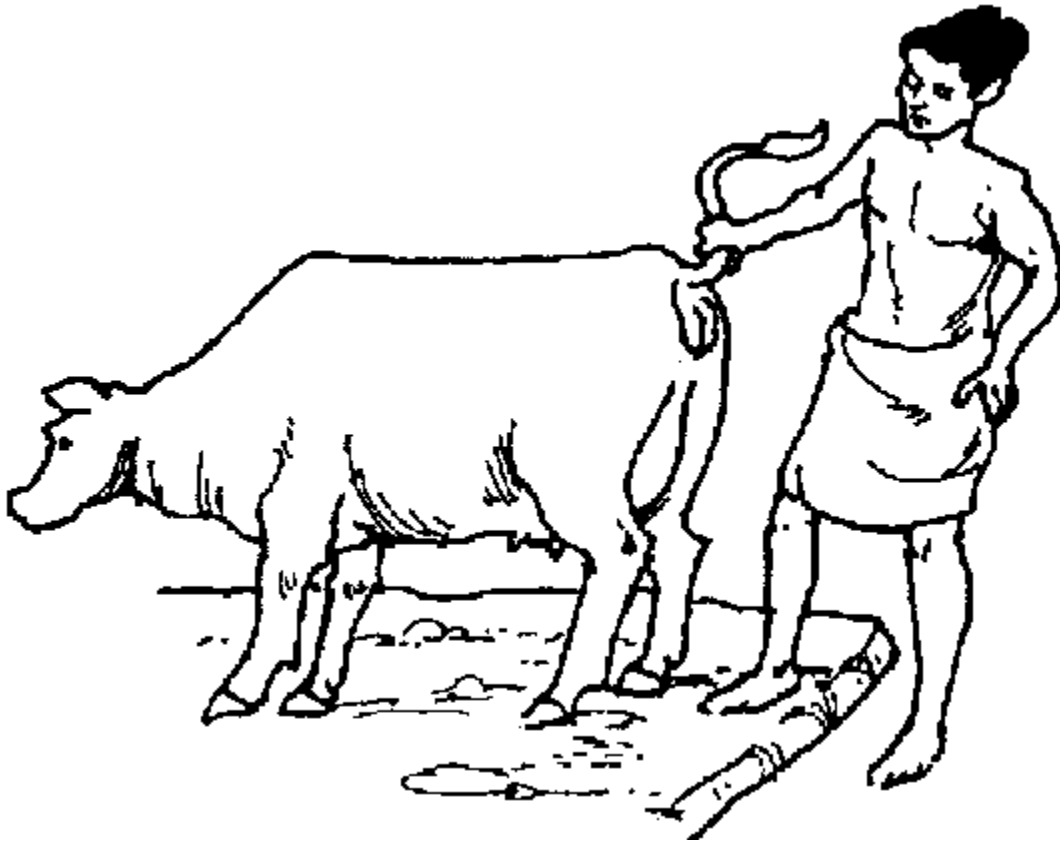
The dosages stated here are for adult cattle. For calves, goats and sheep, give half dosages. For further remedies, see Lack of appetite, page 1.

- Mix 5 liters of urine with 2-5 g yeast. Let stand for 24 hours. Dilute with 5 liters of water and give as drink to the animals. Do this daily until the animal regains appetite. (Cambodia. 1, 2, 3, 4)
- Mix 1 liter of palm toddy with 1/2 liter cattle urine. Drench the animal twice a day until it regains its appetite. (India. 1, 2, 4)
- Mix 1 part limestone powder to 1 part water. Sprinkle the mixture on the fodder ration. Do this daily for 3 days. (Philippines. 1, 2, 3, 4)

Breeding

Detecting heat

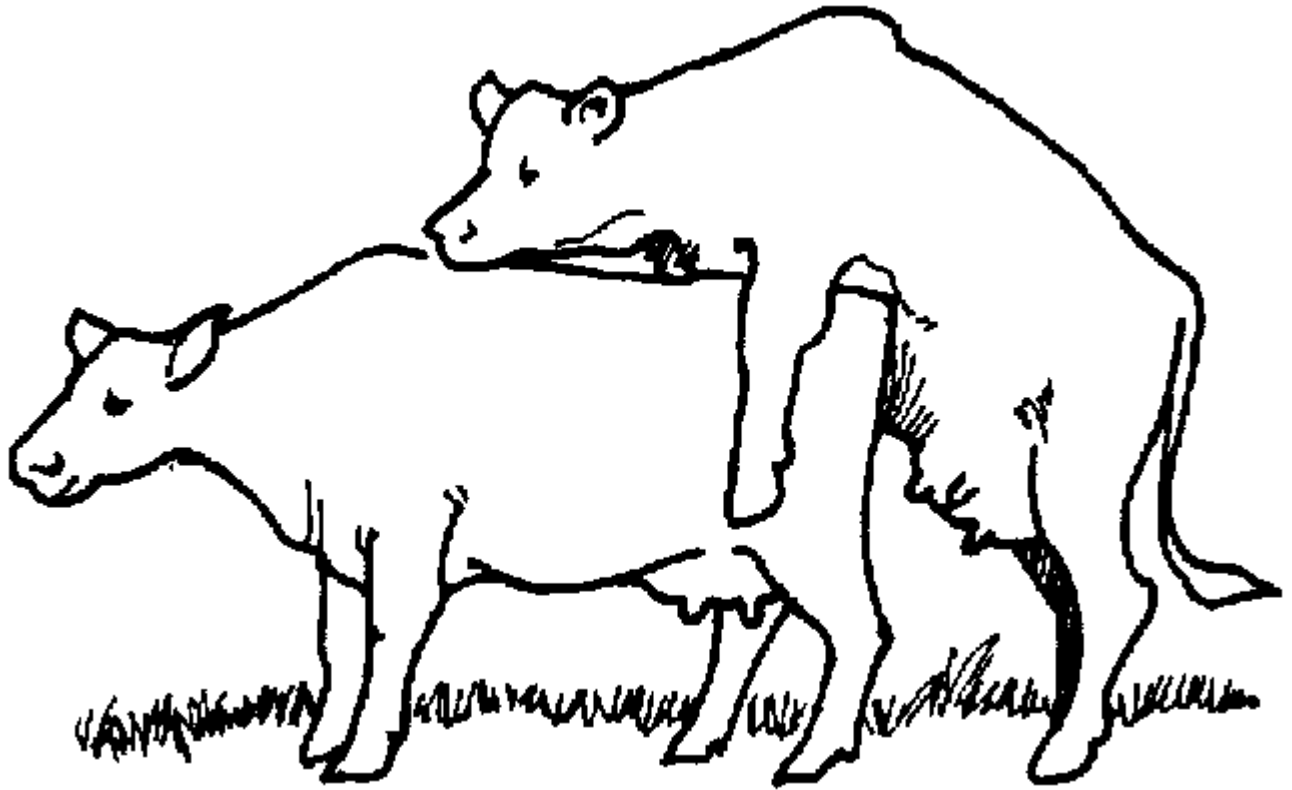
Heat, or "estrus," is the period when the mature female animal is fertile and can be mated. Check the animals for heat when they are resting. Do this early in the morning and in the afternoon. Check again before the animal rests at night.



Detecting heat

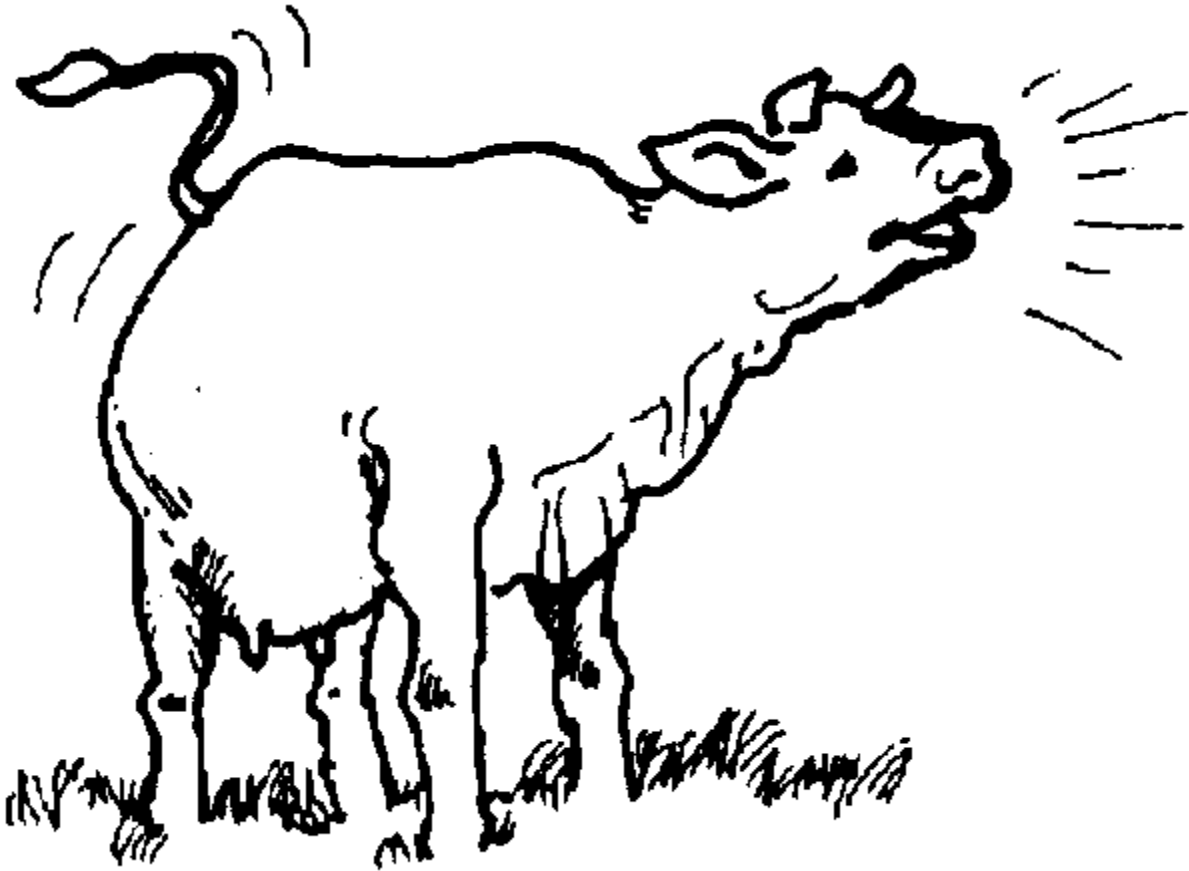
Look carefully for the following signs of heat.

- The female stands still when she is mounted by another animal (male or female). You can see this happen if the female is untied and allowed to go freely with other animals.



The female stands still when she is mounted by another animal (male or female).

- Clear mucus comes out of the vulva. It often looks like a string hanging from the vulva.
- The vulva is moist and swollen.



A cow in heat

- The animal is restless. A cow in heat bellows frequently. Sheep and goats waggle their tails constantly.
- Dairy animals are difficult to milk and production of milk decreases.
- Heat can be difficult to detect in buffaloes. Look for frequent urination. The only sure way to detect heat in buffaloes is to present a male to the female and see if he mounts her.

Breeding

When you see that the animal is in heat, mate it immediately. If the animal does not become pregnant on the first try, mate it twice within 12 hours at the next heat.

Some cows bleed from the vulva at the end of the heat period. This is a sign that the heat period has been missed so there is no point trying to mate her again until the next heat.

Lack of heat

Sometimes a female does not show any signs of heat even though she is not pregnant.

Causes

- Loss of weight due to poor feeding.
- Overweight.
- Mineral deficiency.
- Intestinal worms.
- Chronic disease.
- The animal has just given birth.
- The animal is lactating heavily.
- Lack of contact with male

Treatment

- Improve feeding, especially of mineral-rich feeds (see Feeding, page 108).
- Regularly deworm the animals (see Internal parasites, page 38).
- Allow the female to stay with a male animal. In Sri Lanka, some stock raisers keep an infertile but sexually active "teaser" male with their female animals to detect heat or to bring the females into heat.

If the female does not come into heat despite improved management, try one of the following treatments. The dosages are for adult cattle. Use half the dosages given below for sheep and goats.

- Crush 20 seeds from ripe fruits of *Couropita guianensis* (cannon ball). Mix the powder with 1 liter of water and drench the entire amount once a day for 15 days. Give half of this dose once a day for another 3 days and then 1/4 of the dose each day for the next 3 days.
- Dry in the shade and then powder 1 whole plant of *Leptadenia reticulata* (cork swallow). Put 20 g

(1 matchbox) of the powder on top of the animal's regular feed so she eats it with the first mouthful. Or make a bolus of the powder in brown sugar and feed it to the animal. Give this twice a day for 30 days.

If a male is not sexually active, treat it as follows.

- Rest the male animal and feed him with protein-rich feeds (see section on Feeding, page 108).
- Dry and pound: 1 whole plant of *Sida cordifolia* (country mallow), some mature seeds of *Mucuna pruriens* (cow-witch) and the roots of *Asparagus racemosus*. Take 20 g of each of the powdered ingredients and mix them with enough brown sugar to form a bolus. Feed to the animal twice a day for 15 days. (India. 1, 3, 4, 5)



Treatment for males not sexually active

Pregnancy and birthing

Care during pregnancy

In India, pregnant animals are allowed to graze with the rest of the herd so that they get exercise and sufficient green fodder. However, towards the end of the pregnancy, the animals are confined and stall-fed. This reduces accidents and allows the farmer to keep a close eye on the pregnant animals. To avoid abortion, farmers do not feed cottonseed or rape seed to pregnant animals.

If animals are in danger of aborting, Indian stock raisers dry and powder whole plants of *Leptadenia reticulata*. They place about 20g of the powder twice a day on top of the concentrate ration of the pregnant animal so that the powder will be eaten first. They continue this treatment for 20-30 days.

In Thailand, farmers add 1 kg per day of rice to the feed of the pregnant animal 1 or 2 weeks before it is due to give birth. They also mix 1 kg of molasses with 10 ml of water and then sprinkle this onto the rice straw feed.

Birthing

You will know if an animal will have normal or abnormal delivery by observing the length of time before the newborn comes out. Normally, a newborn emerges within 6

hours after the water bag comes out. Once the water bag breaks, the birth normally occurs within 2 hours.

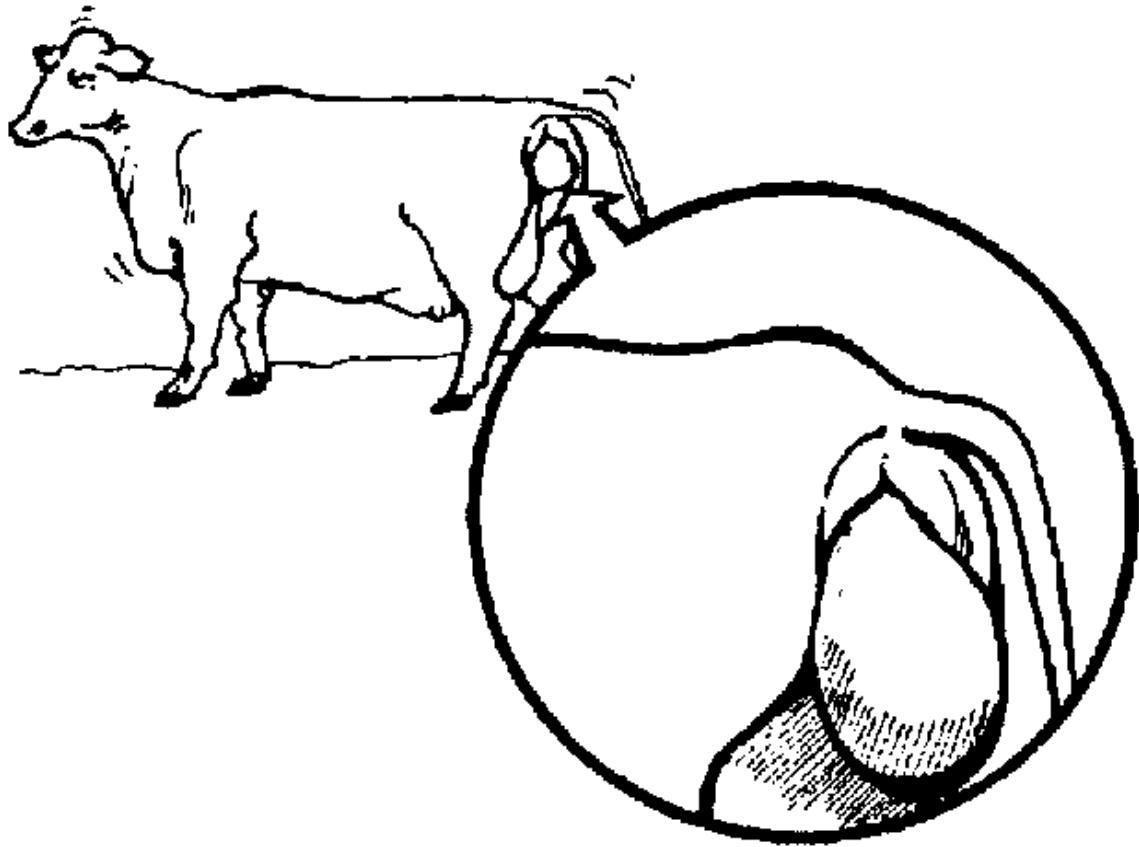
Reminder

Do not interfere with the natural birthing process unless absolutely necessary!

Before giving any assistance to the mother, trim your fingernails very short. Thoroughly wash your arms and hands with soap and clean water. If possible, disinfect them with alcohol.

Inadequate uterine contractions

Symptoms

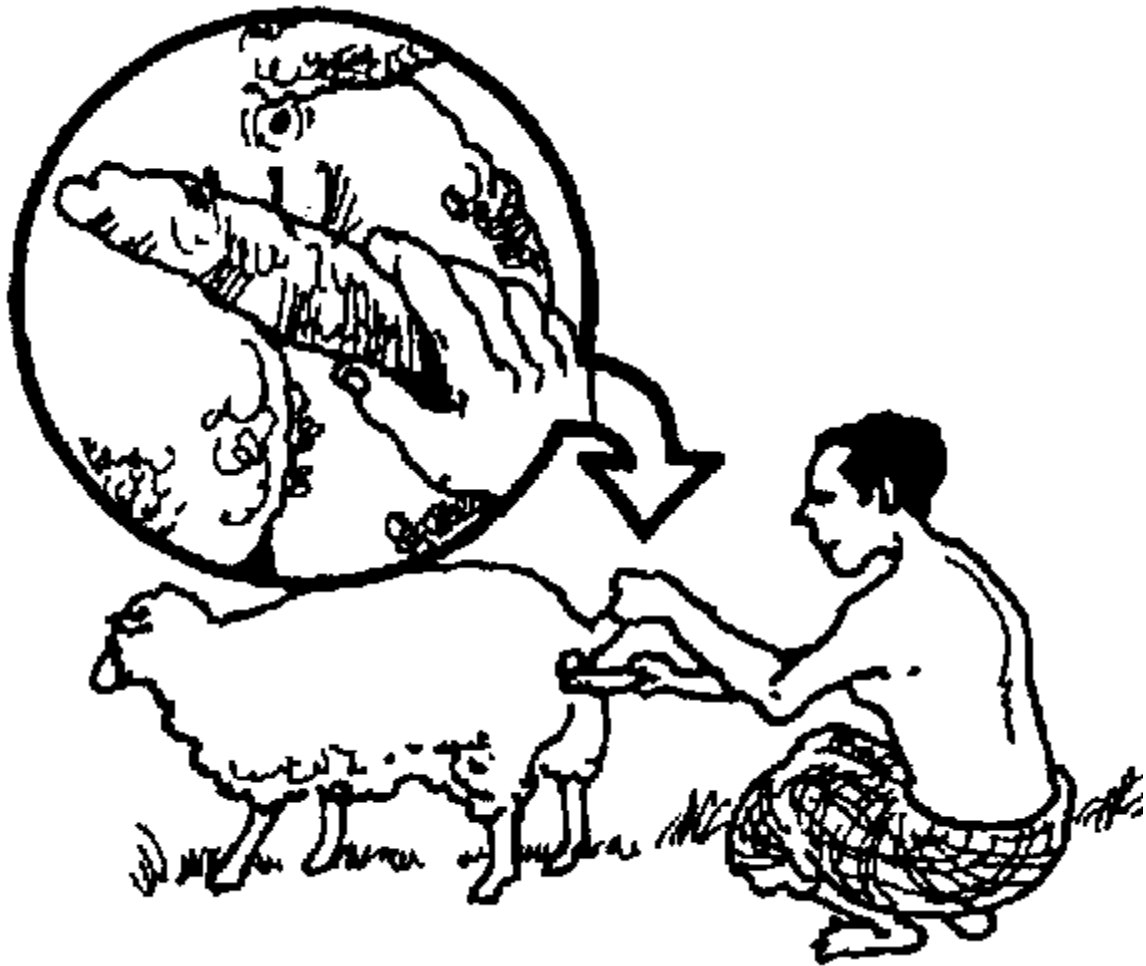


Birthing

- The water bag does not come out even after the cow has strained for 6 hours.

Treatment

1. Keep the animal comfortable and quiet.
2. Wash and remove the skin of a fresh Aloe vera leaf Rub it gently on the vulval lips, on the inside of the vagina and on the cervix.
3. If no change occurs within 3 to 6 hours, consult a veterinarian or anyone in the community experienced in attending to difficulties at birth in animals. (Sri Lanka. 1, 2, 3, 4)



Inadequate uterine contractions

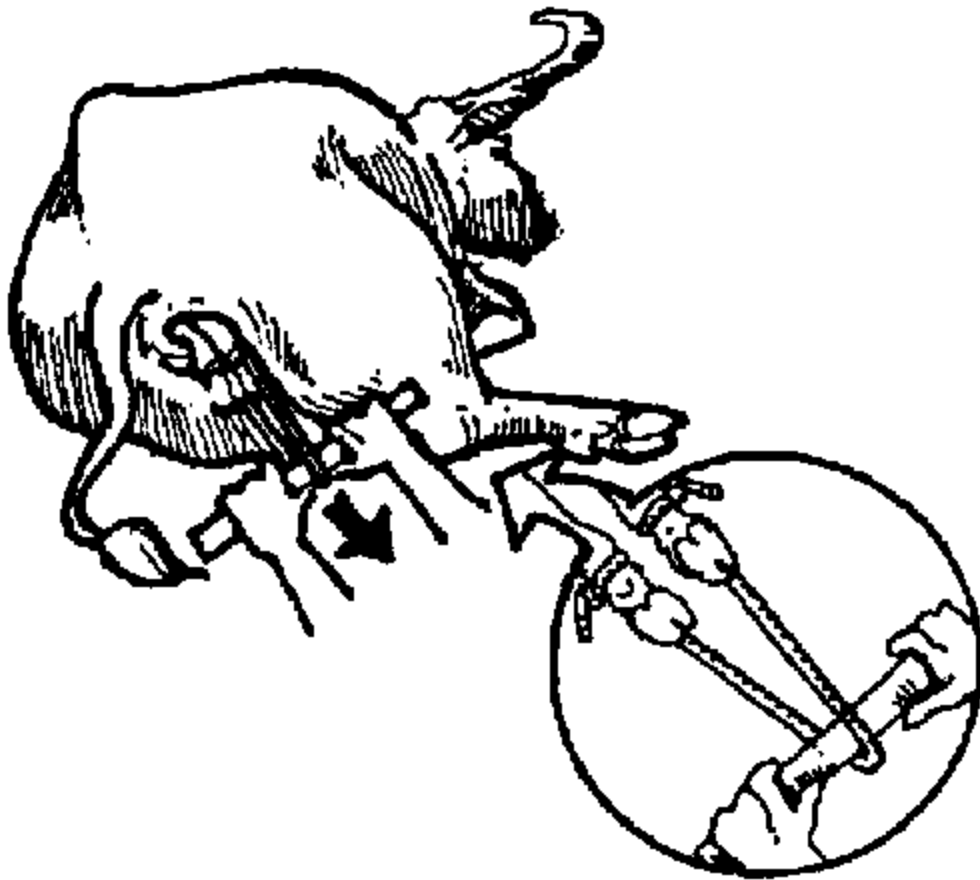
Prolonged delivery

Symptoms

Six hours after the legs and head of the offspring have appeared, if delivery has not yet been completed, try the following. This technique is used by stockraisers throughout Asia and is similar to techniques used by Western veterinarians.

1. Disinfect a 1 meter-long rope by washing it in laundry detergent. Bath soap can be used, too.
2. Carefully tie each end of the rope a little above the hoof joint of each of the front legs of the baby animal.
3. Insert a clean stick about 30 cm in length through the loop.

4. Pull on the stick only when the mother pushes.
5. Pull the baby animal only towards the udder. Never pull it straight out or upwards.
6. Occasionally the hind legs come out first. Make sure that both are hind legs and not one front and one hind leg. If both are hind legs, tie the rope on in the same way as above and pull when the mother pushes.



Helping the mother's delivery

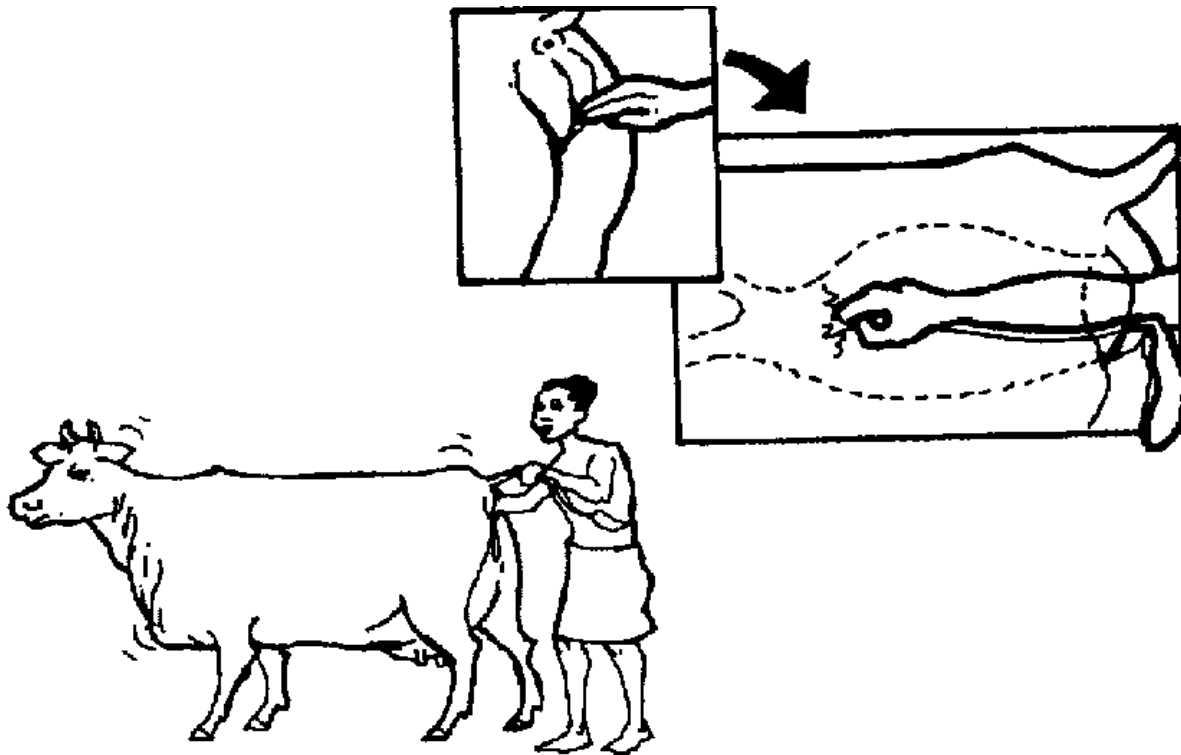
Retained placenta or "afterbirth"

If the placenta does not come out within 12 hours of birthing, try doing the following:

- Boil 1/2 kg of fresh bamboo shoots (*Bambusa* sp.) in 2 liters of water until the water is reduced to about half the amount. Cool the liquid and give the entire amount as a drench in one dose. (Sri Lanka. 1, 2, 3, 4)

If the afterbirth does not come out in the next 12 hours, get professional help. If help is not available, do the following. This is a technique commonly done by both traditional and modern veterinary doctors.

1. Clean your hands thoroughly and apply vegetable oil to them as a lubricant.
2. Cup one hand into a cone-shape.
3. Insert this hand into the vagina following along the length of the placenta and reaching as far as you can. Grasp the placenta.
4. Carefully separate the placenta from the uterus with your fingers and then take out as much as you can. The animal will deal with the placenta remaining inside the uterus in its natural way. It will not reduce the chances of the mother's bearing more offspring. The farmer can do this alone or with the help of a local livestock specialist. Make sure not to introduce any kind of infection into the vagina.



"Afterbirth"

@ Caution

Do not hang heavy weights on the membrane coming out of the vagina. This will be very harmful to the cow.

After removing the retained placenta, use one of the mixtures below to control bleeding from the uterus. These treatments will also help to contract the uterus.

- Boil 200-300 g of *Linum usitatissimum* seeds in 1 liter of water until only half the water remains. Drench all this amount twice a day for 7 days. (India. 1, 3, 4, 5)

- 20g *Zingiber officinale* (ginger) rhizome.

30g *Peucedanum graveolens* seeds.

30g *Trachyspermum ammi* (bishop's weed) seeds.

30g *Trigonella foenumgraecum* (fenugreek) seeds.

20g *Nigella sativa* (black cumin) seeds. 20g *Asparagus racemosus* (asparagus) roots.

20g *Bamhusa* sp. (bamboo) leaves.

10g *Saraca indica* (ashoka) tree bark.

10g *Pedaliium maurex* bark.

Powder these ingredients and mix in 1 liter of water. Boil the mixture until only half the water is left. Give as a lukewarm drench 2 times a day for 7 days.

After drenching the decoction, mix the remaining pulp with *Linum usitatissimum* (linseed) seeds, molasses or brown sugar and feed it to the animal. (India. 1, 3, 4, 5)

- Make a decoction of 1 kg of guava (*Psidium guajava*) leaves in 4 liters of water. Cool the liquid and then using a clean cloth, wash the vagina. (Philippines, Sri Lanka. 1, 2, 3, 4, 5)

Vaginal bleeding

Continuous bleeding from the vagina after birth is generally due to injury to the vagina or uterus during birthing, whether by accident or mishandling.

Prevention

If assistance is given in deliveries, minimum force should be applied and care taken not to injure the vagina or uterus.

Treatment

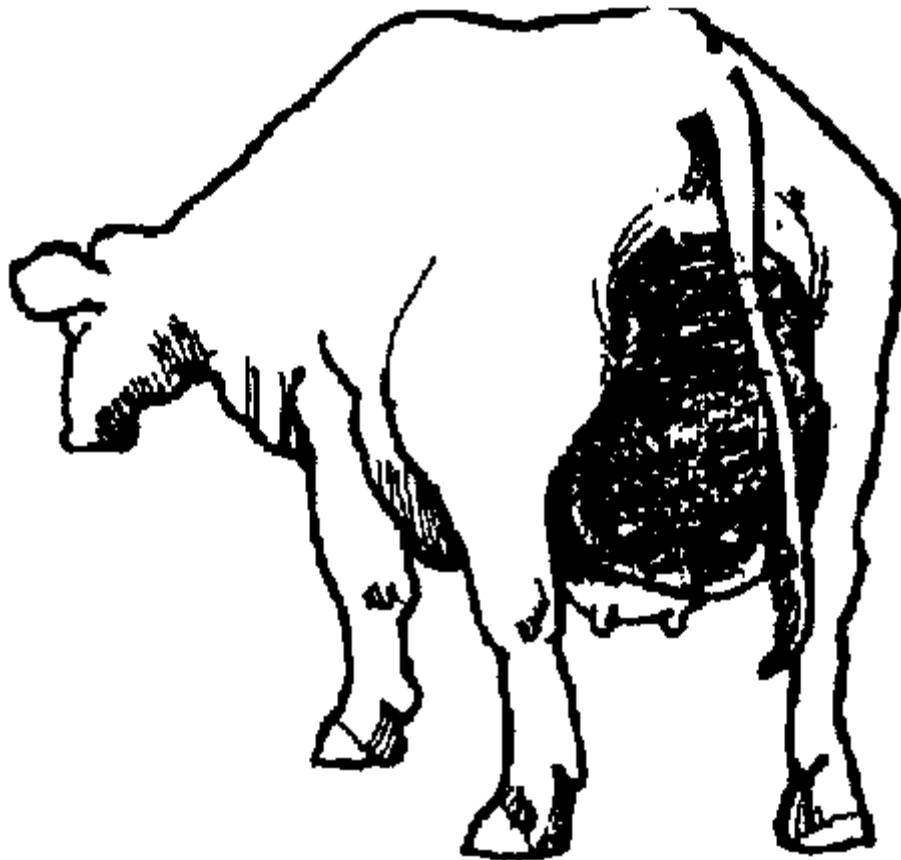
- Take 50 g of fresh *Acacia arabica* bark and 50 g of dried sesame seeds. Powder separately and mix together with 50 g of brown sugar. Make a bolus and put into the mouth of an adult animal

twice a day for 2-3 days or until the bleeding stops. Give half of the dosage to small animals. (India. 1, 2, 3)

Prolapse of the uterus

Sometimes the entire uterus comes out of the vulva after birth. It will look like a red, inflated inner tube of a car tire. If this happens, seek professional help. While waiting, do the following. Stockraisers in most Asian countries know of this technique.

1 If the animal is lying down, gently clean and wrap the uterus with a large, clean cloth. Be sure not to injure the uterus.

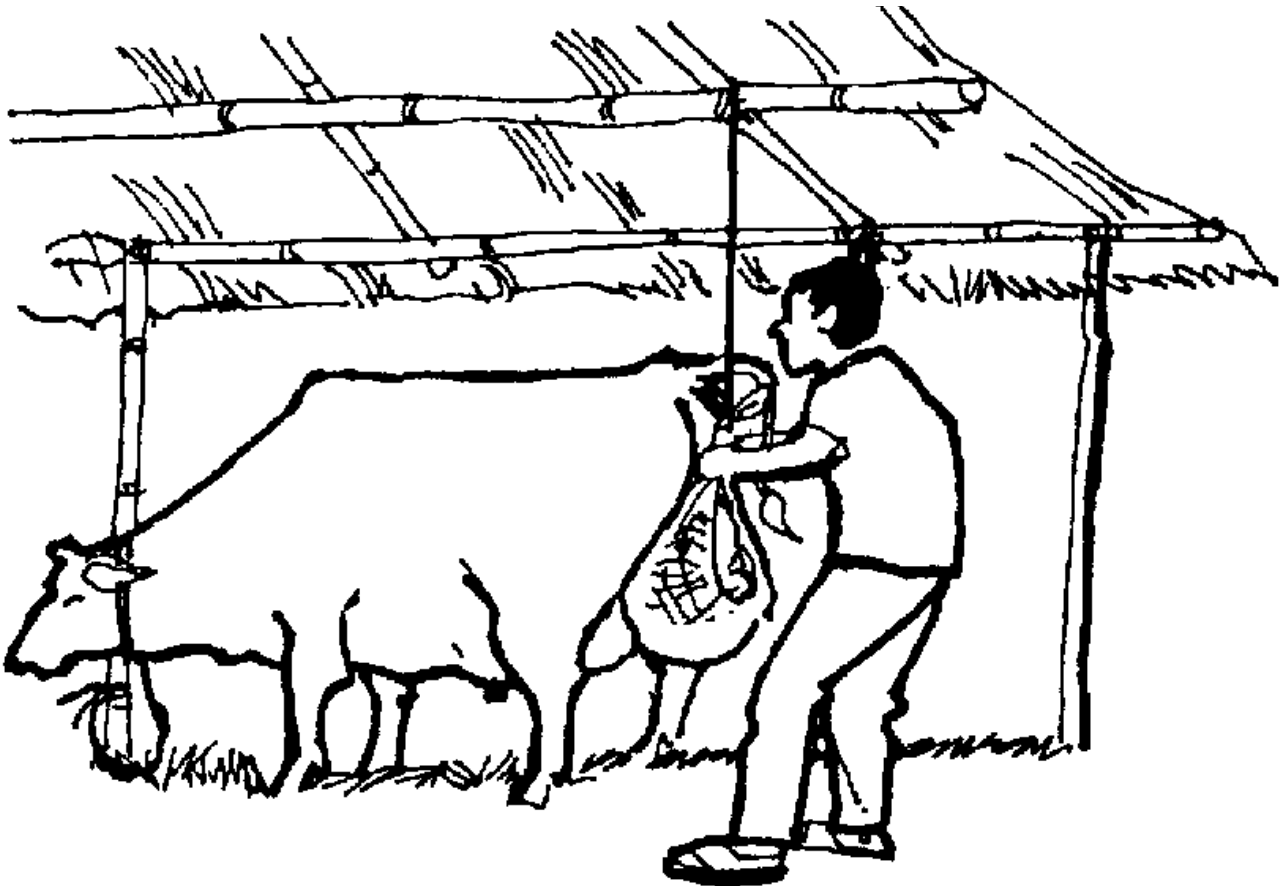


Prolapsed uterus

2. If the animal is standing, wrap the uterus with a large cloth. Raise the uterus up with another large cloth. Tie the cloth to the roof of the shed so the uterus is parallel to the ground. Firmly tie the animal to a post in such a way that it cannot move about.

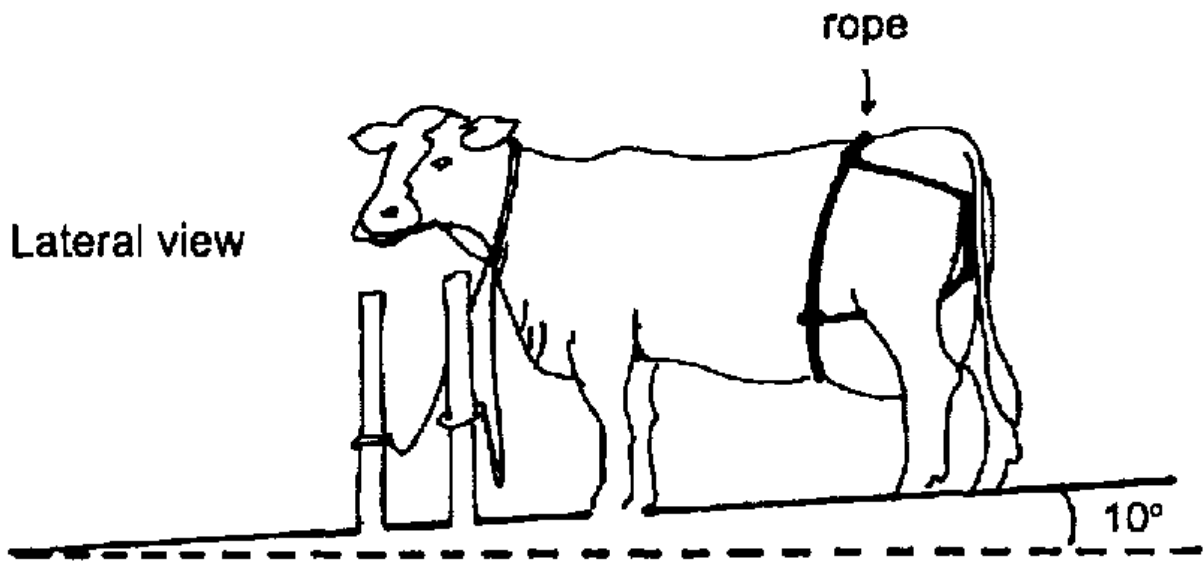
To replace the uterus inside the abdomen, do the following:

1. Tie up the animal on a sloped surface as shown in the picture. This sloping position will help the uterus stay in place.
2. Mix 2 tablespoons of alum powder or sugar in 2 liters of water. Apply this to the surface of the uterus. This will make it shrink slightly.
3. Push the uterus back in with your clean hands.

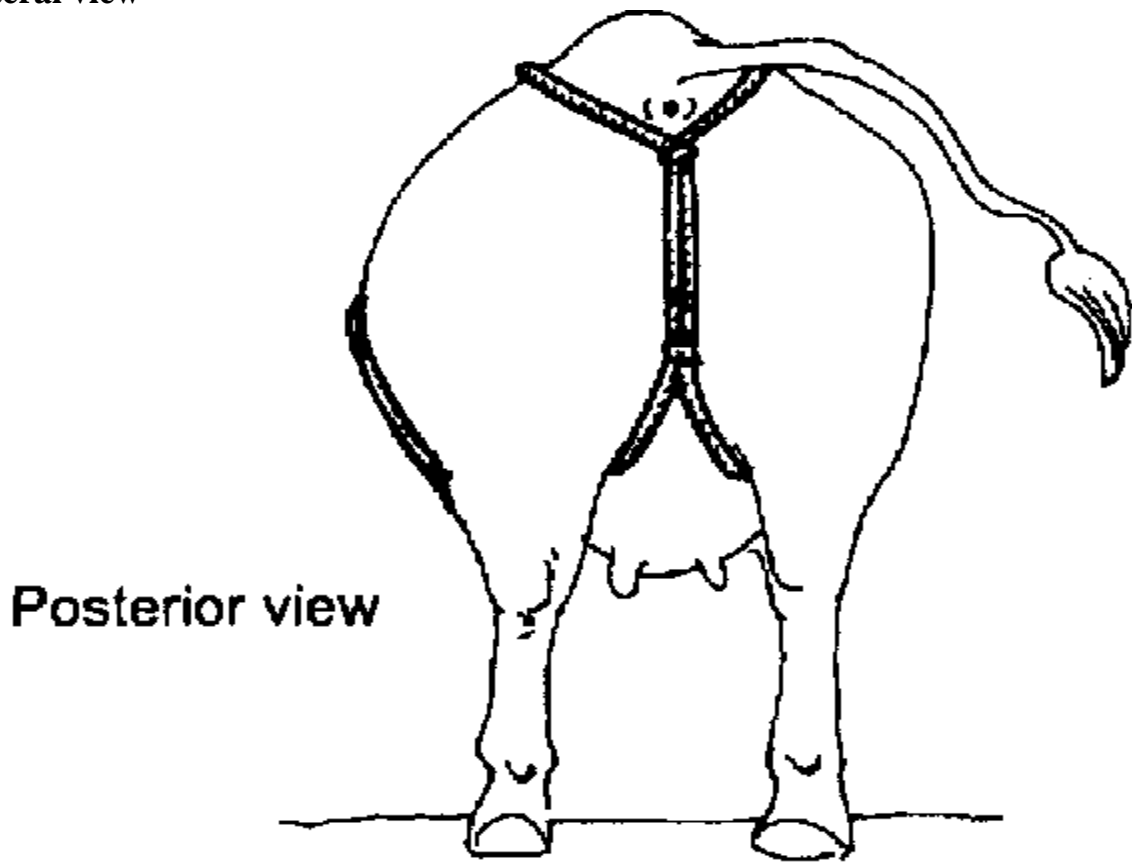


Tie up the animal on a sloped

4. When the uterus is replaced in the abdomen, press a rope in between the hind legs and over the tail and tie it up as shown in the picture. This will keep the vulval lips tight and supported for a few days. This will prevent the prolapse from occurring again.



Lateral view



Posterior view

Care of mother animals after birthing

Little should be done to interfere with the natural birthing process. The calf should be allowed to suckle the mother immediately. This helps expel the placenta or afterbirth.

Feed for the mother after calving

Any of the following mixtures can be given to the mother immediately after calving. They act as a uterine tonic, help cleanse the uterus, expel the placenta and dispel gas from the rumen of the mother.

· Grains: Finger millet (*Eleusine coracana*) seeds. Sorghum (*Sorghum vulgare*) seeds. Millet (*Pennisetum typhoideum*) seeds. Wheat (*Triticum aestivum*). Rice (*Oryza saliva*).

Cook 1 kg of any of these grains with about twice as much water to make a gruel (porridge). Then take the following ingredients:

Cumin (*Cuminum cyminum*) seeds. Bishop's weed (*Trachyspermum ami*) seeds. Fennel (*Foeniculum vulgare*) seeds. Black pepper (*Piper nigrum*) seeds. Fenugreek (*Trigonella foenum-graecum*) seeds. Asafoetida (*Ferula assa-foetida*) gum.

Pound together 10 g of each of these ingredients with 50 g of brown sugar. Mix the powder into the gruel and cook. Feed the whole amount to the mother cow twice a day for 1 week after the birth. For sheep and goats, use half of these quantities. (India. 1, 2, 3, 4, 5)

· Asafoetida (*Ferula assa-foetida*) gum. Bishop's weed (*Trachyspermum ami*) seeds. Cloves of garlic. Brown sugar.

Grind together 50 g of each of these ingredients. Divide into 3 equal parts. Feed to the mother cow in the morning and evening and the following morning. Wait 1 day, then repeat the treatment once. Use half these amounts for goats and sheep. (India. 1, 2, 3, 4)

· Mix 3 teaspoons of fenugreek (*Trigonella foenum graecum*) seeds with 1 kg of cereal and 1/2 kg of brown sugar. Cook together with 2 liters of water. Give this amount once a day to milking cattle. Use half this amount for sheep and goats. (India. 1, 2, 3, 4)

Boil 500 g of linseed (*Linum usitatissimum*) seeds in 1-2 liters of water until half the water remains. Drench 500 ml of the liquid. Repeat once a day for 3 days. This helps the mother gain weight after birthing. For goats and sheep, use 200 g of seeds. (India. 1, 2, 3, 5)

· 2 thumb-sized dried ginger rhizomes (20 g).

30 g (1 handful) *Peucedenum graveolens* dried seeds.

30 g *Trachyspermum ami* (bishop's weed) dried seeds.

30 g *Trigonella foenum-graecum*? (fenugreek) dried seeds.

20 g *Nigella sativa* (black cumin) dried seeds.

20 g *Asparagus racemosus* (asparagus) dried roots.

20 g Bamboo leaves (dried).

10 g *Saraca indica* (ashoka tree) dried bark.

10 g *Pedalium maurex* dried leaf, stem or fruit.

These quantities are enough for 2 doses for a cow or buffalo (use half the dosage for a sheep or goat). Grind these ingredients together to make a powder. Boil in 1 liter of water until half of the water remains. Separate the liquid and give the liquid as a lukewarm drench twice a day for 7-10 days after the birth. (Northern and Western India. 1, 2, 3, 5)

· You can use the solid pulp left after preparing the remedy above. Mix it with 100-200 g brown sugar or 300-500 g of boiled linseed (*Linum usitatissimum*) seeds and feed it to the mother animal. (India. 1, 2, 3, 5)

Improved nutrition to increase milk production

Farmers feed the mother animals with green fodder, concentrates (such as rice bran, copra, molasses and groundnut cake) and other feed-stuffs that are rich in energy, protein, minerals and vitamins. Farmers in Indonesia give the water used to boil vegetables. This improved diet increases milk production.

The table at the end of this section contains examples of feed given to mother animals after birth. The quantities listed are for cows and buffaloes. Use half these quantities for sheep and goats.

Specific medicinal plants to increase milk production

These remedies stimulate milk production. See Decreased milk flow (page 141) for further remedies.

· Provide fresh leaves of *Leptadenia reticulata* as feed. (Throughout India. 1, 2, 3, 4, 5)

· Grind together 3-4 handfuls of fresh *Leptadenia reticulata* leaves, 10 seeds of black pepper (*Piper nigrum*) and 50 g of brown sugar. Feed this to a mother cow or buffalo 1-2 times a day until the milk production increases. Give half this amount to goats and sheep. (India. 1, 2, 3, 4, 5)

· Cut *Launaea pinnatifida* (pathri) grass and feed to the animal. Give as much as the animal will eat. (Maharashtra, India. 1, 2, 3, 4)

Examples of feed given to mother animals after birth

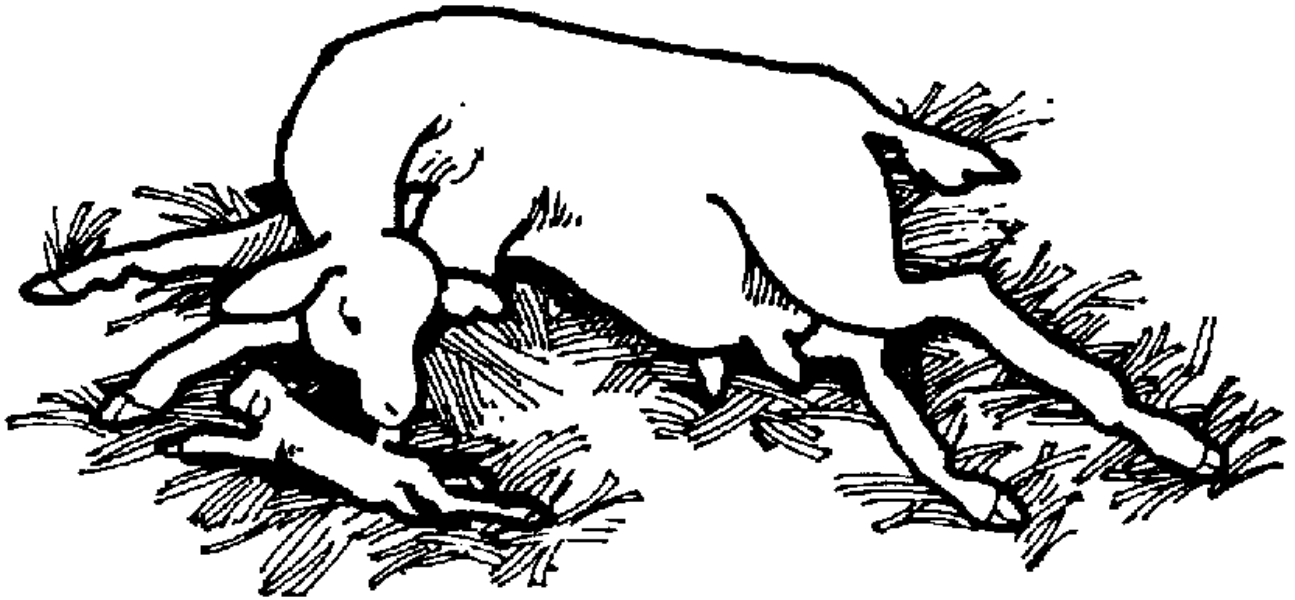
Scientific name	Common name	Part	Dosage	Application
Moringa oleifera	Drumstick	Leaves	As much as animal will eat	Feed (India)
Dolichos uniflorus	Horsegram	Seeds	1 kg	Soak in water overnight. Feed in the morning. (India)
Ricinus communis	Castor	Fresh leaves	3 handfuls	Feed (India)
Cocos nucifera	Coconut	Pulp of nut	3-4 nuts	Feed once a day (India, Indonesia)
Crotalaria juncea	Sun hemp	Fresh leaves	3-4 handfuls	Feed 2-3 times a week (India)
Glycine max	Soybean	Waste from making tofu (tahu, bean curd)	3-4 handfuls	Feed.
	Eggs and honey		10 eggs and ¼ kg honey	Feed once a week for 1 or 2 weeks. (Indonesia)
Manihot esculenta	Cassava	Roots	As much as animal will eat	Peel the skin, cut into pieces, air-dry for 3-4 days. Feed.
Mangifera indica	Mango	Peels, ground kernels, leaves	As much as animal will eat	Feed. (India)

	Copra, rice bran, copra meal, molasses(concentrates)		As much as animal will eat	Feed either alone or mixed together. (India, Indonesia, Philippines)
Sauropus androgynus	Katuk (Indonesian)	Leaves	1 kg	Boil leaves in 1 liter of water. Add 1 teaspoon of salt. Feed leaves and water every 2 days for 1 week. Continue as long as needed. This dosage is for sheep and goats. (Indonesia)
Carica papaya	Papaya	Leaves	2 leaves	Boil leaves in water. Feed leaves and water every 2 days for 1 week. (Indonesia)
Artocarpus heterophyllus	Jackfruit	Leaves	5-10 kg per day	Feed to animal with grass for 2-3 days. (Sri Lanka)
Bassia latifolia	Mahua	Dried flowers	1 fistful (50 g)	Feed once a day. (India)

Care of newborn

Right after birth

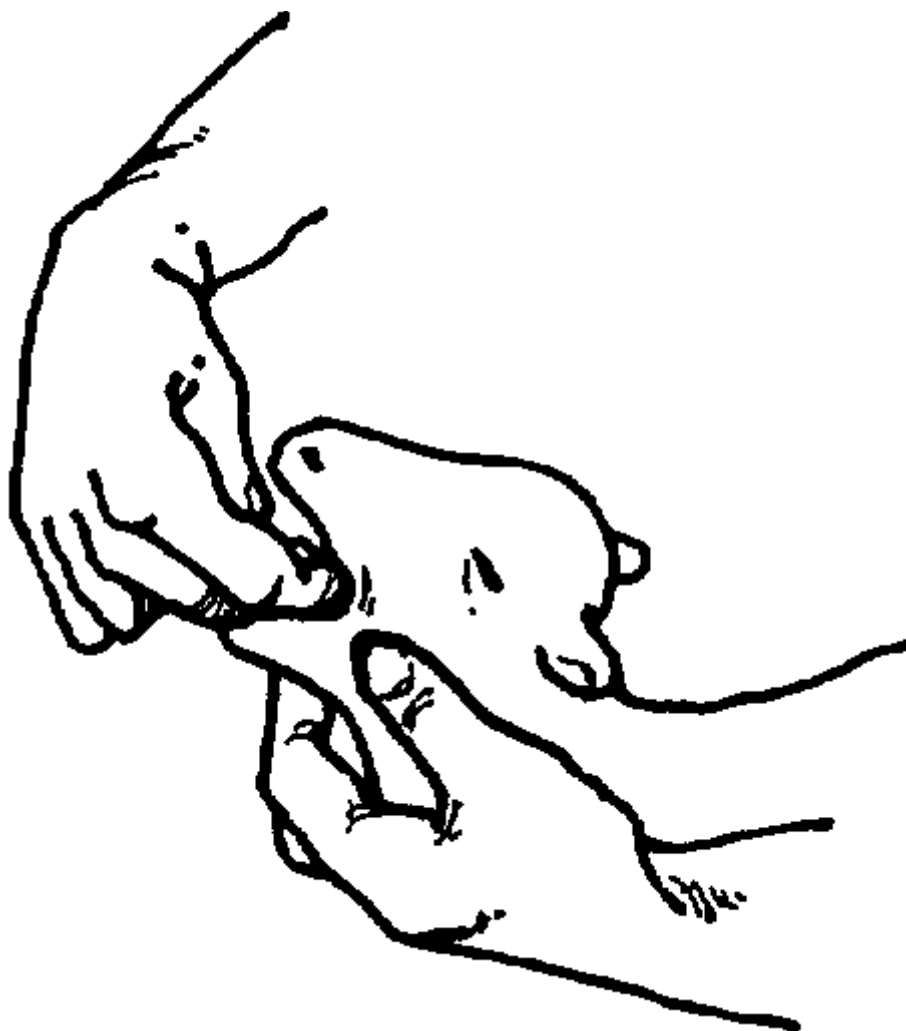
Allow the mother to lick the newborn and clean it completely. This also helps to induce milk flow in the mother.



Right after birth

If the mother does not lick the newborn thoroughly or is too weak to lick, help clean the newborn. Dry it with a clean, rough cloth and remove any mucus from its nostrils. Rub this cloth on the hooves to remove their plastic-like coating.

If the newborn is not breathing properly, insert a clean finger into the mouth to remove all mucus. Use a rice straw to tickle the nostril to make the newborn sneeze. This expels the mucus blocking the breathing passage.



Expelling the mucus blocking the breathing passage

Navel cord

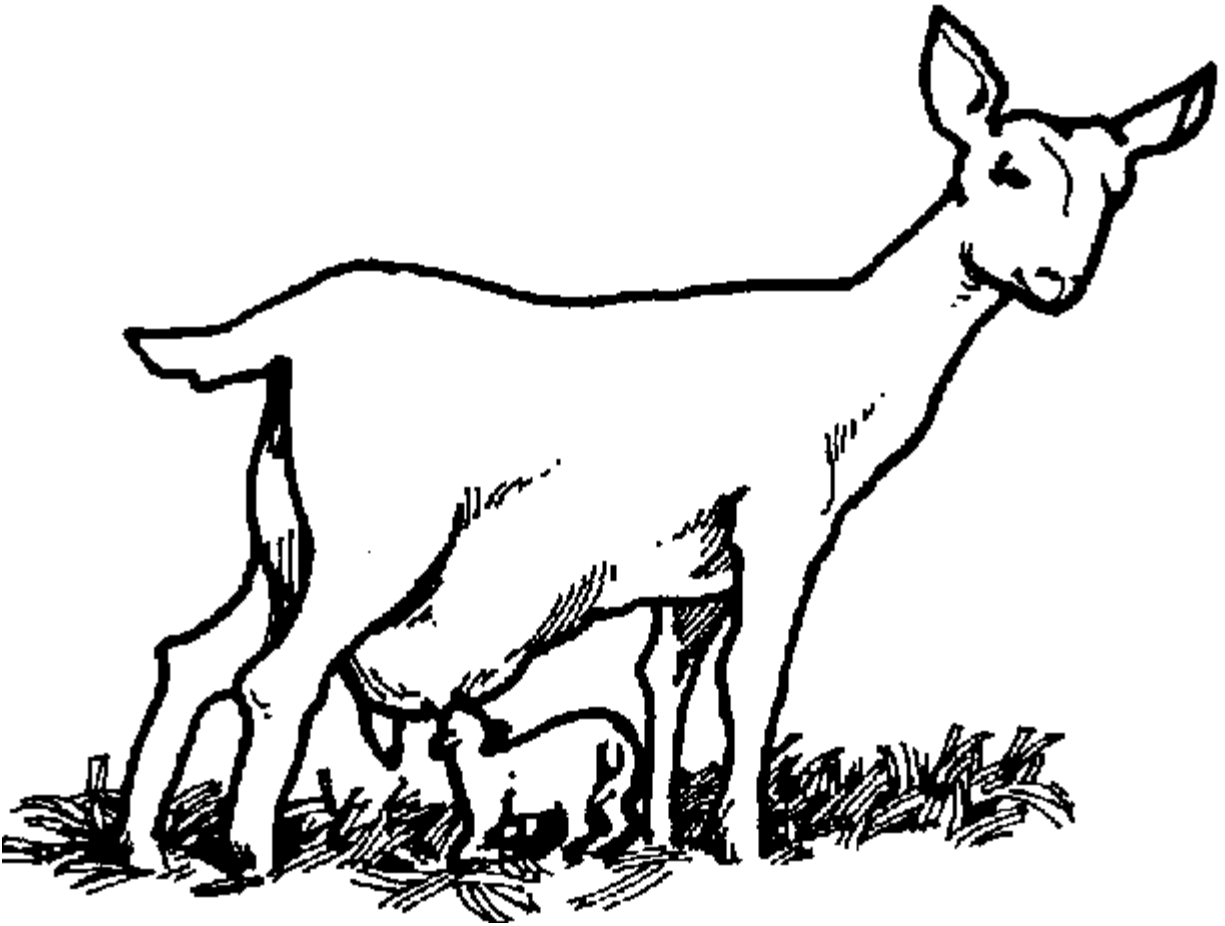
You can choose any of the following practices to dry the navel cord. These practices also prevent bacterial infection and infestation by maggots.

- Apply a spoonful of turmeric powder to the navel. Apply urine from the mother animal onto the navel.
- Pound 1 medium-sized bulb of garlic and apply it to the navel.
- Cover the navel with fresh, cooled kitchen ash.
- Apply vegetable oil to the navel and then cover it with wood ash.

Do not pull or irritate the navel cord unnecessarily. This could lead to hernia, a swelling in the navel region.

The mother's first milk

Within 2-4 hours, the newborn ruminant should suck the colostrum. This is the first milk from the mother. The colostrum contains antibodies that will provide resistance to diseases in the newborn's life.

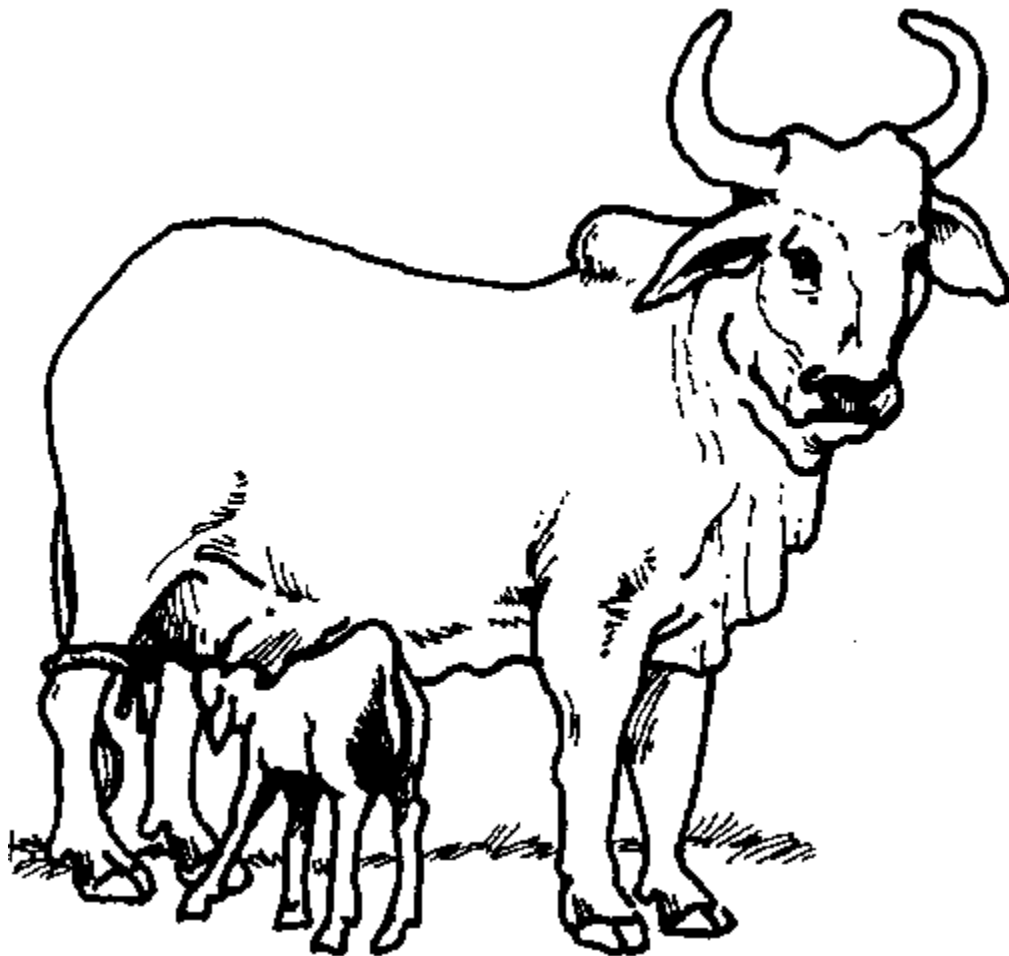


The mother's first milk

Reintroducing the newborn to its mother

Sometimes the mother refuses to accept her calf, kid or lamb. This usually happens when it is her first-born. In this case, you may try one of the following:

- Sprinkle milk on the nose of the mother and her newborn. Then, allow the mother to smell the newborn.
- Rub the rear end of the newborn on its mother's nose.
- Rub the newborn with vinegar or with the mother's urine.
- For cattle and buffaloes, tie the hind legs and horns of the mother to prevent her from kicking or hitting the newborn. Allow the newborn to suckle for 5 minutes and then free the mother. You may need to do this for three successive feedings, after which she usually will accept the newborn



Reintroducing the newborn to its mother

Fostering

If the mother has died, try to introduce the newborn to another female which has recently given birth. If she refuses to foster the newborn, try any of the practices suggested for reintroducing the newborn to its mother. If this does not work, milk the lactating animal and feed the newborn, using a small cup. Or you can dip some cotton in some milk and allow the newborn to suck on it.

Housing

Keep the mother and its offspring separated from the rest of the herd to prevent other animals from hurting the newborn. Provide clean, dry bedding for the newborn. If the barn has a slatted floor, cover it with grass or other materials. Otherwise, the newborn may get its legs caught between the slats.

Feeding To stimulate the appetite of the newborn, place one of these mixtures on its tongue:

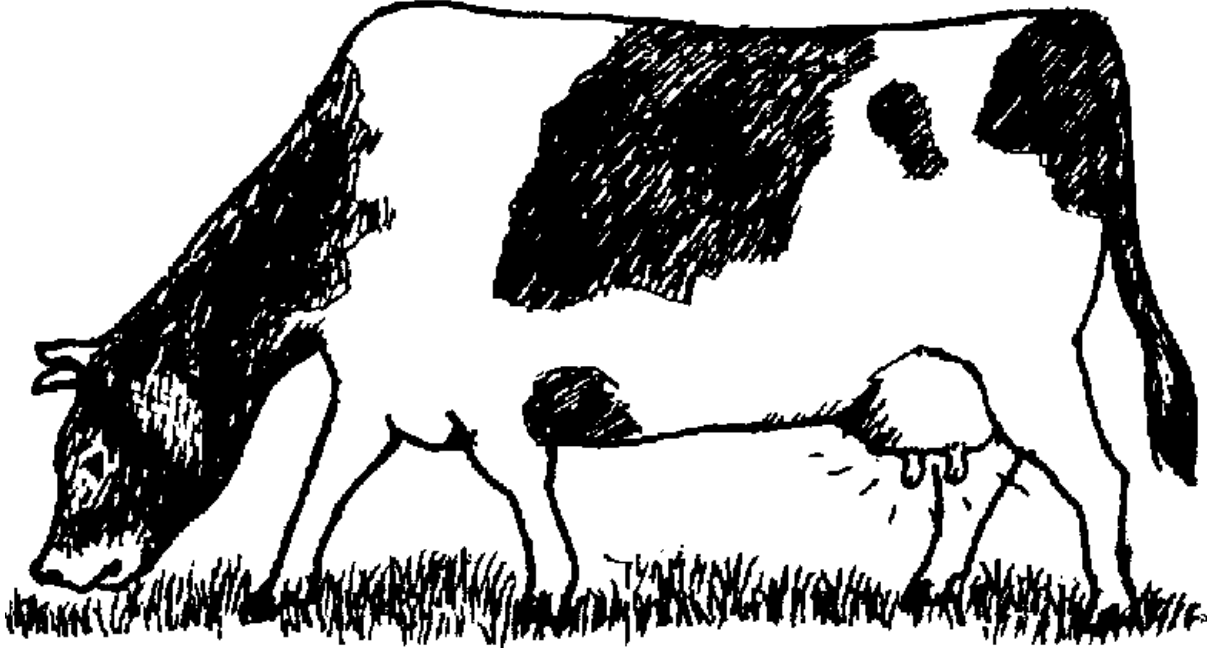
- A pinch of salt and 1/2 teaspoon of brown sugar. (India. 1, 2)
- Half a teaspoon of brown sugar and 1/2 teaspoon of sweet soy sauce. (Indonesia. 1, 2) Some farmers do this for several days.

Reminder

Do not intervene with the natural process of giving birth and early care by the mother unless absolutely necessary.

Udder infection

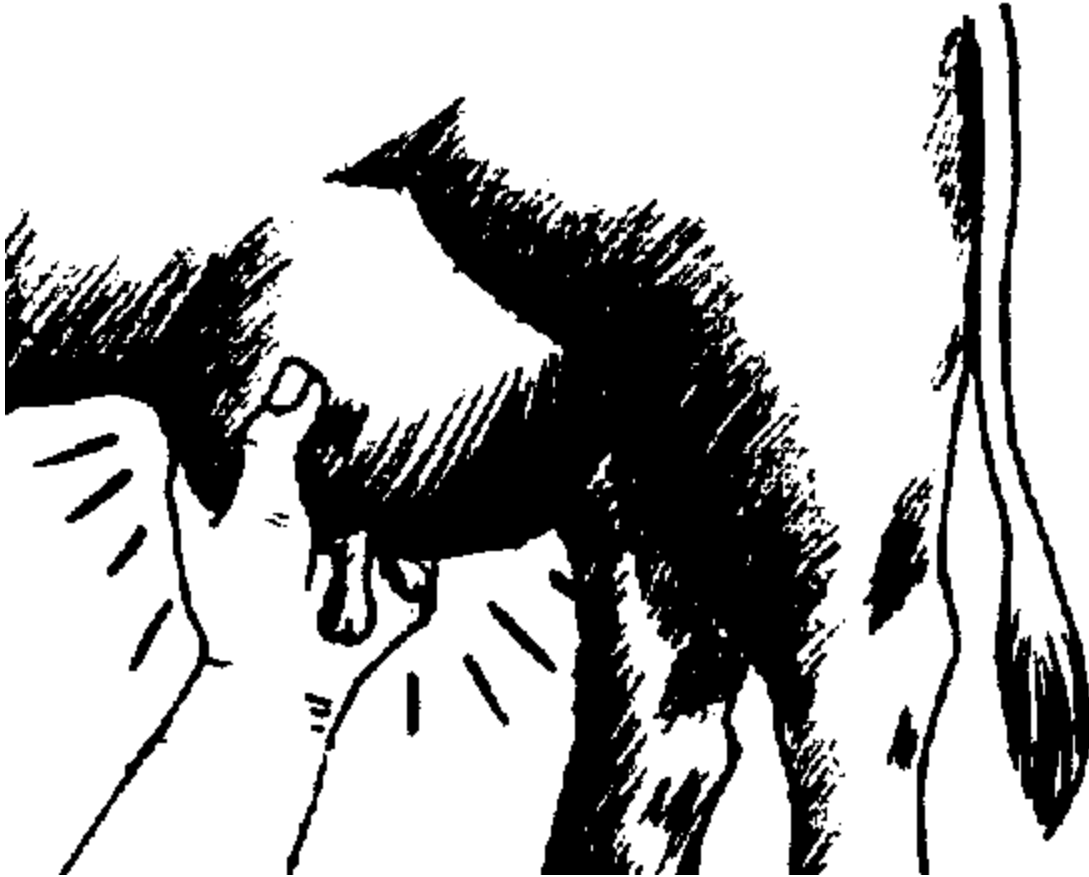
Udder infection (mastitis) and sore teats are common in milking ruminants. Prime milkers are more prone to udder infection. Animals with long teats may easily get teat infections.



Udder infection

Symptoms

- Cracked teats.
- Wounds, tenderness, swelling.
- Hard, knob-like, painful udder.
- Animal does not permit milking.
- Small curdles occur in milk.
- Udder feels hot (in severe mastitis).
- Milk can become watery or pus-like.



Infections

Causes

- Milking with the thumb inside the fist, touching the teat (see diagram in Decreased milk flow, page 141).
- Effect of cow pox or foot-and-mouth disease.
- Bad hygiene, leading to infection.
- Rough milking.
- Not fully draining the udder during milking.

Prevention

- Practice good hygiene.
- Use proper milking methods.

- Completely drain the udder of milk during milking.
- Inspect the herd frequently.

Treatment

Sore teats

- Gather fresh leaves of *Ocimum sanctum*, *Ocimum basilicum* or neem. Crush the leaves to obtain 10 ml juice. Mix with 80-100 g of butter or edible oil. Apply on teats 23 times a day until fully recovered. (India. 1, 2, 3, 4, 5)

Mastitis

Use one of the following treatments.

- Gather 200 g each of fresh *Ocimum sanctum* (or *Ocimum basilicum*) and neem leaves. Boil in 500 ml of vegetable oil for 1 hour over a slow fire. Strain through a clean thick cloth. Store in a sterilized bottle.

After milking, inject 5 to 10 ml of this oil in affected quarters of the udder using a milk siphon. Do this twice a day until healed. (India. 1, 2, 3, 4)

- Massage the infected udder with lukewarm water. This helps especially in early cases to reduce the swelling. You can also add a handful of guava or neem leaves to the boiling water. (Philippines. 1, 2, 3, 4)

- Boil a bucket of water. Dip a thick cloth in the water while it is still hot. Wring out the excess water and hold the cloth on the udder. You can also add a handful of guava or neem leaves to the boiling water. (India. 1, 2, 3)

- Pound and boil equal amounts of *Fumaria officinalis* and *Litsea sabifera* leaves in enough water to make a paste. Add a pinch of baking powder. Apply the warm paste on the udder. (India. 1, 2, 3)

For initial stages of infection

- Grind together 1-2 ripe bananas, 2 tablespoons of powdered, dried turmeric rhizome and 1 teaspoon of salt. Give this mixture as feed in the morning and evening and again the following morning. (India. 1, 2, 4)

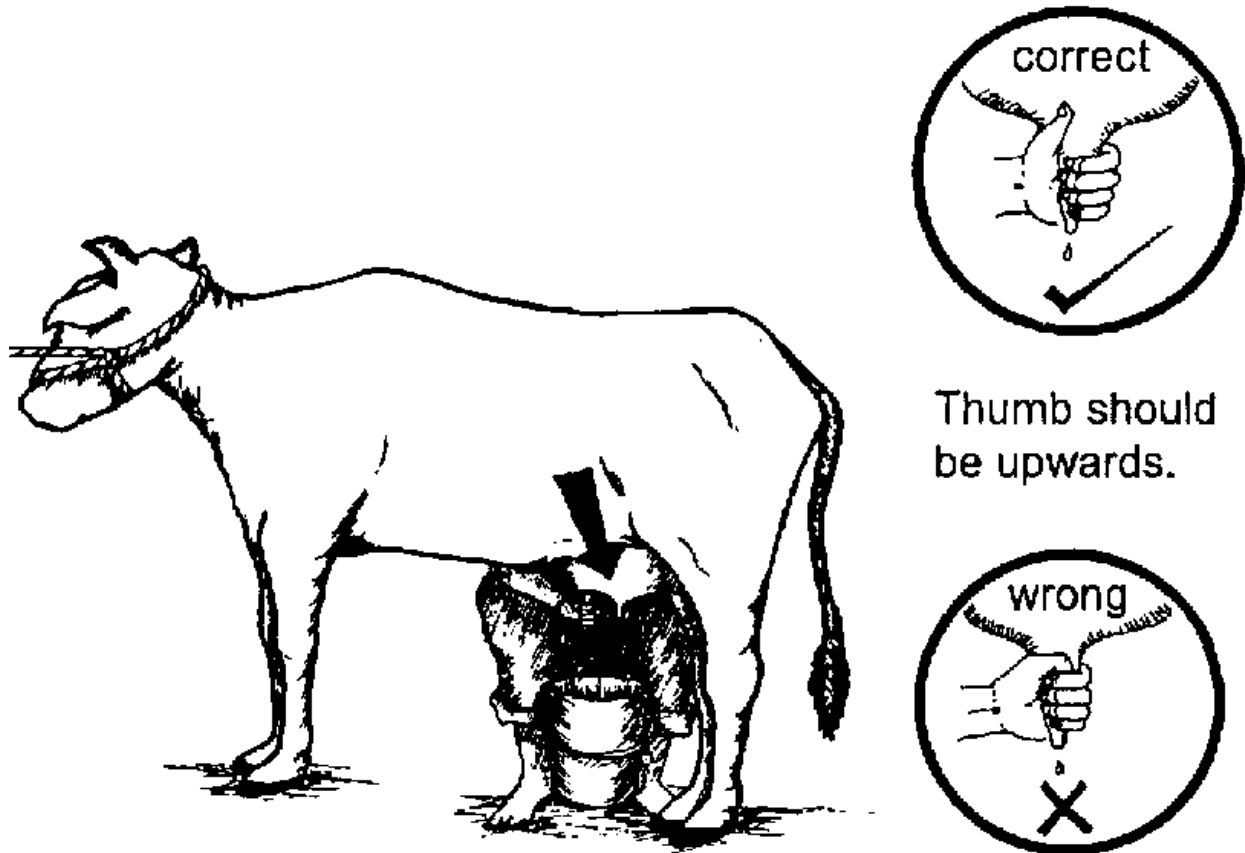
@ Caution

- To prevent the infection from spreading, milk the healthy animals first, then the sick ones
- Practice full milking. Strip the udder completely.

- Wash your hands with soap before and after milking.
- Discard and destroy milk from infected udders.
- Use the siphon in the teat very carefully. If you have no siphon, use the end of a hollow feather.
Boil it before using.

Decreased milk flow

The milk flow from all types of ruminants may decrease for several reasons: for instance, disease or the loss of a calf or kid at birth. Some animals are also normally hard milkers. Decreased milk flow usually occurs in an animal's first three lactations.



Decreased milk flow

Cows, goats and sheep normally give their maximum milk yield during their second and third lactations. Buffaloes give their highest yield in their third and fourth lactations.

Symptoms

- Animal produces less milk than expected (for instance, compared to previous lactations).
- Milk is drawn with difficulty.
- Sudden drop in milk production.

Causes

- During or after disease.

- Loss of calf or kid at birth. Hard milkers.

Prevention

- Proper health care.
- Feed coconut cake or cotton seeds.
- Supplement the feed with grasses such as *Andropogon annulatus* (marvel grass), *Panicum isachne* and *Cynodon dactylon*.
- Supplement the feed with sugarcane (cane and tops).

Treatment

The dosages given below are for cows and buffaloes. Use half the dose for sheep and goats. Give any of the treatments for at least 15 days.

- Dry and powder 5 g of *Breynia patens* leaves or bark and 10 g of *Leptadenia reticulata* leaves or bark. Mix with 1 liter of water. Drench twice a day. (India. 1, 2, 3, 5)
- Dry and powder black cumin (*Nigella saliva*) seeds. Mix with I liter of water. Drench twice a day. (India. 1, 2, 3, 5)
- Feed the animal twice a day with 1-2 kg of chopped sugarcane leaves or 200-300 ml of sugarcane juice. (India. 1, 2, 3)
- Dry and powder 10 g musk mallow (*Abelmoschus esculentus*) seeds, roots or leaves (10 g is approximately 25 leaves). Mix with 1 liter of water and boil for 1/2 hour. Allow to cool. Drench twice a day. (India. 1, 2, 3)
- Feed the animal with I liter of water from cooking rice, flavored with a little salt. Do this for 20-30 days. (Thailand. 1, 2)

Use one of the following remedies. Use the amount given as a "top dressing": add it on top of the concentrate (such as rice bran, wheat husks, lentil husks, cotton seeds, groundnut oilcake) so the animal will eat it with the first mouthful. Do not mix it with the feed. These remedies are also used to prevent abortion during the first month of pregnancy, after the removal of retained placenta and to maintain the pregnancy in case of threatened abortion. Sometimes' they are tried to treat female infertility.

Dry the whole plant of *Leptadenia reticulata* (cork swallow) in the shade. Grind to a powder. Add I matchboxful (20 g) to the concentrate as a top dressing. Do this once a day for 15-30 days. The milk yield should increase after 4-5 days. (India. 1, 2, 3, 5)

· Dry the roots of *Asparagus racemosus* (asparagus) in the shade. Grind to a powder. Add 1 matchboxful (20 g) of the powder to the concentrate as top dressing. Do this once a day for 30 days. (India. 1, 2, 3, 5)

· The two remedies above can also be used in combination (20 g of *Leptadenia* + 10 g of *Asparagus*). (India. 1, 2, 3, 5)

· The following ingredients can also be added to the mixtures above: 10 g of dried, ground seeds of *Nigella sativa* (black cumin) or 10 g of dried, ground roots of *Withania somnifera* (winter cherry). (India. 1, 2, 3, 5)

Ethnoveterinary Medicine in Asia : Swine

How to use this manual

This is one of four manuals on traditional animal health care practices (or "ethnoveterinary medicine") in tropical Asia. The manuals were compiled during a participatory workshop held at the International Institute of Rural Reconstruction in July 1994. The four manuals cover swine, poultry, ruminants (cattle, buffaloes, sheep and goats) and general information. For details, see the General information manual.

The topics in this manual have been broadly presented to include the whole spectrum of "conditions" which a field practitioner may encounter in the care and management of livestock.

Topics which describe a disease or condition present the following information:

Symptoms key symptom(s) by which the disease can be identified.

Causes primary cause(s) of the disease.

Prevention appropriate preventive measure(s) to avoid disease onset.

Treatment a detailed description of the treatment(s).

The treatments list the ingredients by their botanical (or Latin) name and a common English name. For some commonly known species (e.g., garlic, ginger, coconut, banana, guava), only the English name may appear in the text. The General information manual contains a complete list of plants named in the four manuals.

The treatments or remedies which require multiple ingredients are presented in a step-by-step "recipe" format which lists all ingredients to be used and describes how to prepare them. See the General information manual for details on how to prepare remedies such as fomentations, poultices and decoctions. Many remedies which require only a single ingredient are presented in tables. Each remedy is identified by the "." mark; where several remedies are presented, the choice of the remedy is left to the user.

After each treatment, the countries in tropical Asia where the treatment is practiced (as validated by the workshop group or through references) are presented in boldface

parentheses. Immediately after the names of the countries is a series of numbers that reflect the validation criteria used in the workshop:

1. Workshop participants agreed that the treatment would be useful.
2. Treatment is widely used in a region or a country (some remedies were also validated against practices from outside Asia).
3. Workshop participants had first-hand knowledge of the remedy's use on-farm.
4. Traditional healers are known to use the remedy.
5. The remedy is cited in the literature in one of two ways: (1) it is used to treat the same problem in humans or another animal species; or (2) this plant has proven pharmacological activity to treat the problem in question. For instance, laboratory tests have shown that *Nicotiana tabacum* (tobacco) leaf extract is effective against *Staphylococcus aureus* bacteria in vitro (Syat 1990). This tends to support the use of tobacco leaves in treating wounds.
6. The remedy has been scientifically validated as effective to treat the problem in the livestock species in question. Relevant references are given under the corresponding plant name in the Glossary of medicinal plants in the General information manual.

Dosages and preparation methods in indigenous practice are often imprecise and vary widely between individuals and regions. The dosages and methods given are those that, according to the professional judgement and experience of the workshop participants, are most suitable, are easy to prepare and are likely to be effective. The workshop participants and IIRR have made every attempt to ensure that the remedies are effective and are not harmful. However, they cannot guarantee this or be held liable for problems arising from these practices.

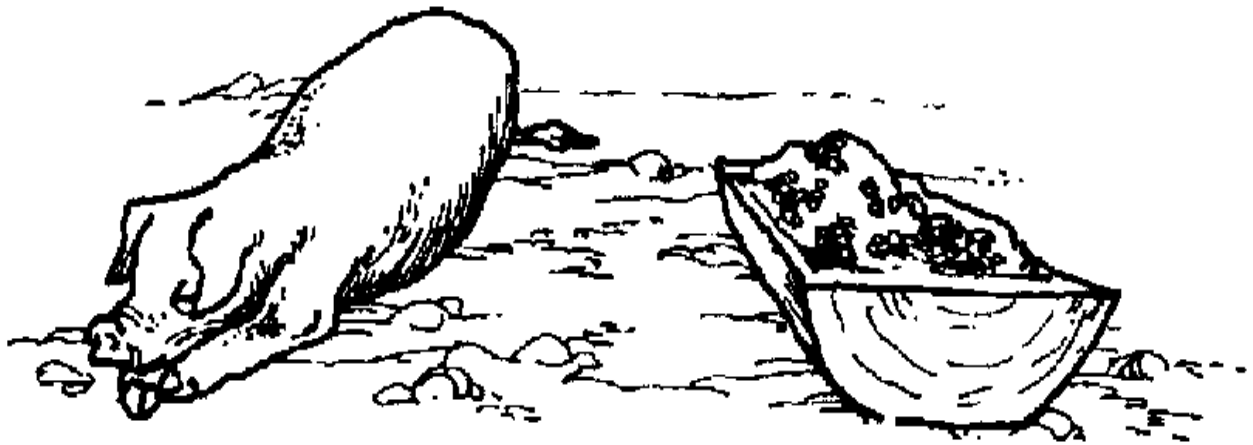
Unless noted to the contrary, all dosage quantities for treatments are for single dosage applications; in other words, each treatment should be prepared at the time of application according to the quantities specified. Dosages for treatments in swine are usually given in terms of live body weight (a simple calculation procedure for estimating live body weight for all species is explained in the Estimating live weight of animals section).

Where possible, simple measurements (handful, cup, etc.) have been given for ease of use by field practitioners. The General information manual contains a guide to commonly used weights and measures. More detailed measure meets (milliliters, etc.)

are also given to allow a practitioner to be as precise as the particular conditions may allow.

All references used in this manual are listed in the References section in the General information manual.

Lack of appetite



Lack of appetite

Symptoms

- Feed is left uneaten.
- Animals are inactive.

Cause

- Pain.
- Fever from infection.
- Stress.
- Severe incidence of parasites, such as intestinal worms or lice.
- Mouth wounds.

If none of these is the problem, something is wrong with the feed. Change the feed type.

Prevention

- Avoid abrupt changes in feed mixtures and rations.
- Deworm regularly (see Internal parasites, page 17).
- Maintain hygiene and sanitation.

- Provide good housing (see Housing, page 48).
- Vaccinate regularly against common diseases in the area.

Treatment

- Pour 1/2 cup of cane molasses on 1 kg of the animal's regular feed ration. Divide this into 3 parts. Feed 23 times a day for 2-3 days.

Instead of molasses, you can add 1 teaspoon of salt, 2 tablespoons of brown sugar or 2 tablespoons of fish sauce on 1 kg of the regular feed ration. Divide this into 3 parts. Feed 2-3 times a day for 2-3 days.(Cambodia, Philippines, Thailand. 1, 2, 3, 4, 5)

- Mix 3 fresh (raw) eggs with 1/2 cup of molasses. Drench the mixture 2-3 times a day for 2 days.

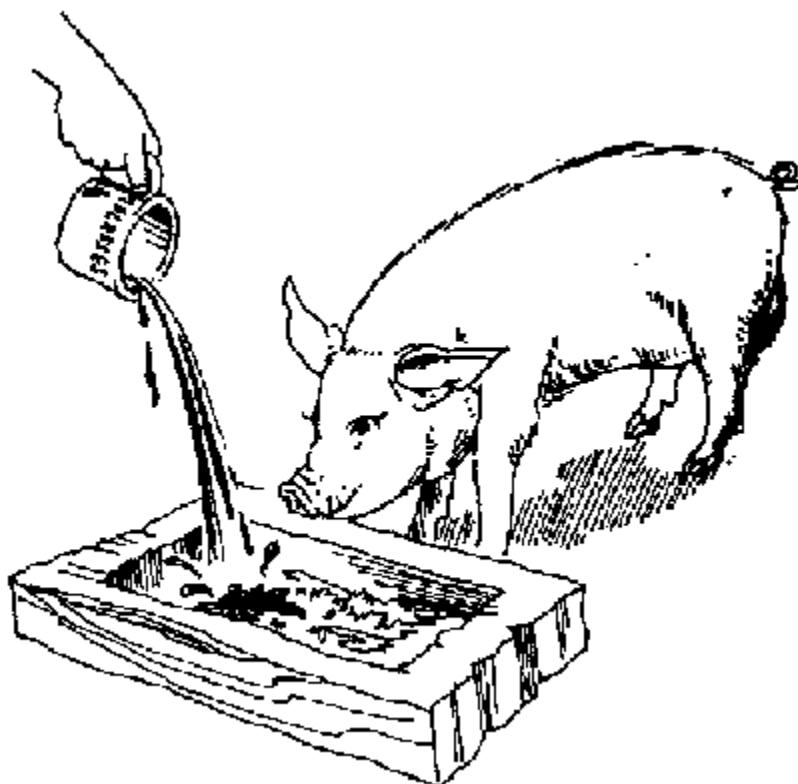
(Indonesia, Thailand. 1, 2, 3, 4)

- Give a small bundle of fresh sweet-potato tops as feed, 23 times a day for 2 days.(Cambodia, Philippines. 1, 2, 3, 4)

- Mix 1 teaspoon of salt with 1 teaspoon of dried seeds of *Trachyspermum ammi* and pound. Force-feed 1-2 teaspoons of the mixture 2-3 times a day for 23 days.(India, Philippines. 1, 2, 3)

- 2 g 1/2 teaspoon) of powder from each of the following dried plants: *Swertia chirata* (whole plant); *Alstonia scholaris* (bark, leaf and stem); and ginger (rhizome).

0.75 g (1/4 teaspoon) of powder from each OF THE following dried plants: *Picrorhiza kurroa* (roots); *Veronica anthelmentica* (leaf, seed or whole plant); *Trachyspermum ammi* (seeds); *Peucedenum graveolens* (seeds); *Trigonella foenum-graecum* (seeds); and *Brassica nigra* (seeds).



A pinch of salt. A pinch of baking soda.

Mix all ingredients. Force-feed 3-5 g (1 teaspoon) of the mixture twice a day. Treat the animal for 5-6 days or until it regains its appetite. The effectiveness of the mixture will not be affected if 2-3 of the plants mentioned are not available. (India. 1, 2, 3)

Fever



Fever

Symptoms

- Pigs are inactive.
- Animals are frequently thirsty and shivering.
- Animals are constipated.

Touch the neck or the base of the ears to feel the animal's body heat. If the body temperature of the animal is higher than usual, the animal has fever.

Causes

Fever can result from many types of infections or injuries.

Reminder

Very high fever can be dangerous to the pig and it almost always results in death. Cool down the animal immediately using the treatments discussed in this section.

Prevention

- Ensure proper ventilation through adequate housing.
- Keep surroundings clean.
- Vaccinate animals against common diseases in the area.

Treatment

Note: These treatments can help reduce the fever but do not cure the disease that causes it.

- Heat (not boil) 1.2 liter (500 ml) of vinegar in an earthen pot for three minutes. Moisten a clean cloth with lukewarm vinegar and gently rub it over the whole body. Repeat the application every 20 minutes until the fever subsides or when necessary. The warm vinegar gradually enlarges the skin pores and helps release the body heat. (Philippines. 1, 2, 3, 4)

- Dissolve 2 handfuls of table salt in 5 liters of water. Moisten a clean cloth in the solution and gently rub it over the whole body. Repeat application until the fever subsides. (India. 1, 2, 3, 4)

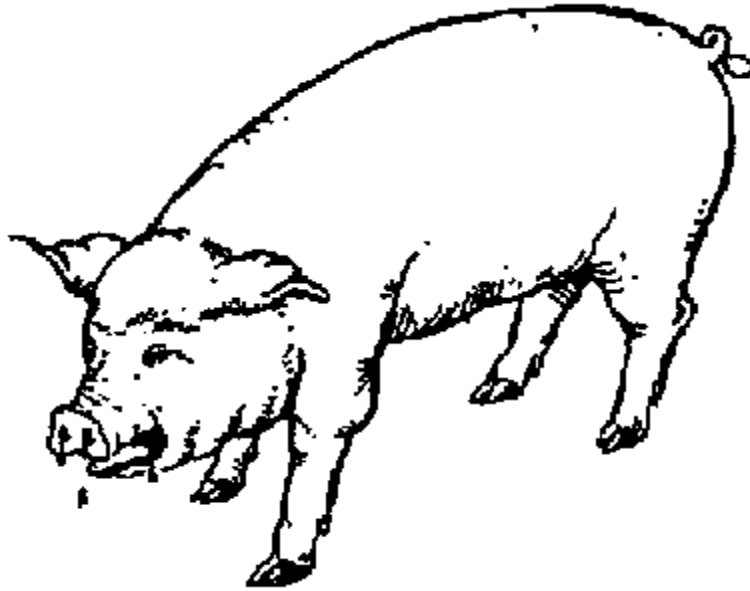
Other treatments for fever are given in the table on the next page.

Treatment for fever

Scientific name	Common name	Parts used	Preparation	Dosage	Application
Blumea balsamifera		Fresh or dried leaves	Pound 10 leaves. Extract juice.	2 teaspoons of juice	Drench 3 times a day until fever subsides. (Cambodia, India, Philippines. 1, 2, 3, 4, 5,)
Citrus madurensis		Fresh leaves	Boil 2 handfuls of		Bathe the animal. (Cambodia, Philippines. 1,

			leaves in 2 liters of water.		2, 3, 4, 5,)
Hibiscus rosa-sinensis	Hibiscus	Fresh leaves and flowers	Pound 1 kg of leaves and 1 kg of flowers. Mix with water.	Enough for a 60-kg pig	Apply gently all over the body until fever subsides (Cambodia, India, Philippines, Thailand. 1, 2, 3, 5,)
Picrorhiza kurrooa		Dried roots	Boil 10 g of roots in 1 liter of water.	10 ml	Drench twice a day for 2 days. (India 1, 2, 3, 4, 5,)
Swertia chirata		Fresh whole plant	Boil 10 g of plant in 1 liter of water	10 ml	Drench twice a day for 2 days. (India. 1, 2, 3)

Coughs and colds



Coughs and colds

Symptoms

- Coughing.
- Runny, wet nose.
- Difficult, rapid breathing.
- Yellowish discharge from nose.

Causes

- Infection, such as pneumonia.
- Internal parasites, especially lungworms.
- Changes in weather.
- Irritation to inside of throat caused by coarse feeds, such as rice bran.

Prevention

- Keep animal's pen dry and clean.

- Moisten fine feed mixtures (especially rice bran) before feeding animals.
- Provide a sheltered area for animals (see Housing, page 48).
- Regularly deworm (see Internal parasites, page 17).
- When giving a drench, apply the drench in a proper manner (see Application of herbal medicine in General information).

Treatment

- Pound and press the fresh fruit of *Diospyros mollis* and extract 100 ml (or 1 small Coke bottle) of juice. Mix the juice with 50 ml of honey. Drench the sick animal (1 ml or 1/4 teaspoon for each 5 kg of bodyweight) each morning for 2-3 days. Or, the mixture can be mixed with a small amount of feed and fed once a day for 2-3 days (same quantities as for the drench). This treatment will help ease coughs due to parasites. (Cambodia, Thailand. 1, 2, 3, 4, 5)
- 4 teaspoons *Albizzia myriophylla* bark. 4 teaspoons *Tamarindus indica*, mature fruit. 4 teaspoons *Acacia rugata* pods, grilled over a fire until soft. 10 g salt..

Mix the four ingredients with 3 liters of water. Boil them until only 2 liters are left. Cool and strain. Give one liter of the strained fluid to the sick animal as a drench each morning for 2-3 days. Or, mix it in the animal's feed as described above. This treatment will help remedy coughs and colds due to infections.

(Philippines, Thailand. 1, 3, 4, 5)

Diarrhea and dehydration



Diarrhea and dehydration

Symptoms

- Watery feces.
- Profuse yellowish feces
- Feces have a foul odor.
- Blood in feces.
- Dehydration.
- Very dry nose.
- Animal urinates less than normal.
- Skin is slack. Softly pinch the skin and pull it. Then let go. If the piglet is not dehydrated, the skin will snap back into place.
- Animal twitches uncontrollably (in late stage).

Causes

- Internal parasites.
- Bacteria.

- Virus.
- Digestive problems due to sudden change in diet.
- Eating unclean feed.

Diarrhea can result from poor sanitation. It can occur during any season and can affect pigs of all ages, but especially strikes newborn piglets up to 30 days old. The piglet becomes thin and too weak to stand up or suckle and finally it dies.

In young pigs, an abrupt change in the diet can cause diarrhea. This is called "baby pig scours". If an animal's diarrhea comes and goes, it might be caused by internal parasites. If the runny feces are flecked with blood and the animal is losing weight and strength, then the problem might be swine dysentery, which usually strikes when the pig weighs between 60 and 70 kg.

Diarrhea, excessive urination, vomiting and/or fever can lead to dehydration and death in young pigs.

Prevention

- Keep pens, feed and water troughs clean.
- Separate affected animals from healthy animals.
- Avoid stress on young pigs by keeping their feed schedule regular and by providing shelter.
- If the diet of animal must be changed, make the change gradually.

Treatments

Use any of the following remedies.

For diarrhea

- Wild ginger rhizome (*Zingiber zerumbet*) Clove, roots and bark of *Eugenia caryophyllus* Fresh pomegranate leaves (*Punica granatum*) Opium (poppy) gum from fruit (*Papaver somniferum*)

Common ginger rhizome (*Zingiber cassumunar*) Limestone (one thumb-sized piece)

(If available, a root nodule of a plant known as "Krasarn" in Thailand can also be included).

Dry the plant ingredients and grind each into a fine powder. Mix equal amounts (1 teaspoon) of each powder. Add 1 tablespoon of the mixture to a 1-liter mixture of water and powdered limestone. Boil the resulting mixture and let it cool. Drench the affected piglets with 1 teaspoon (5 ml) of the mixture twice a day (in the morning and evening) for 2-3 days. (Thailand. 1, 3, 4)

- Boil 1 kg of fresh *Punica granatum* (pomegranate) leaves and stems in 3 liters of water until 2 liters remain. Drench the affected animal with 1/2 liter of the cooled fluid, including plant material, 3 times a day for 2-5 days.(Cambodia, Philippines. 1,2, 3, 4)

- Boil 1 kg of fresh *Psidium guajava* (guava) leaves in 3 liters of water until 2 liters remain. Cool and strain the fluid. Drench the affected animal with 1/2 liter, 3 times a day for 2-3 days. In Indochina, the mature fruits of the native guava are also used in a similar preparation to treat diarrhea.(Cambodia, Philippines, Thailand. 1, 2, 3, 4)

- Boil 1/2 kg of fresh *Chrysophyllum cainito* (star apple) leaves in 1 liter of water. Drench animal with 1 cup of the strained, cool fluid 3 times a day for 1-3 days.(Cambodia, Philippines. 1, 2, 3, 4, 5)

- Carbonize the husk and shell of 1 mature coconut. (Do this by partially burning them in a fire. Put out the fire when the husk and shell are in full blaze.) Grind the carbonized coconut material into a powder and mix it thoroughly with 1 liter of clean water. Drench the affected animal with 1 cup of the mixture, 3 times a day for 2 days. (Cambodia. 1, 2, 3, 4)

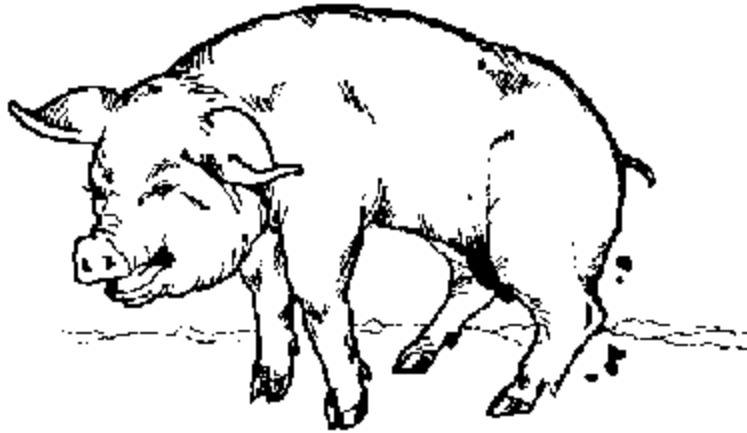
- Carbonize and grind rice (see above). Mix five teaspoons of the powder and one teaspoon of honey in 1/2 liter of clean water. Drench the affected animal 3 times a day 1/2 liter each time) for 3-5 days.(Cambodia, Thailand. 1, 2, 3, 4)

For dehydration

- Prepare an oral rehydration treatment by dissolving 1 teaspoon of salt and 3 teaspoons of sugar in 1 liter of clean water. Give 1/2 liter as a drench, 3 times a day for 3-5 days.(Widely practiced throughout Asia. 1, 2, 3, 4)

- Dissolve 3 handfuls of unrefined brown sugar and 5 teaspoons of salt in the water from 3 young coconuts. Drench 3 times a day until the animal is cured.(Cambodia. Philippines, Thailand. 1. 2. 3. 4)

Constipation



Constipation

Symptoms

- Animal has difficulty defecating.
- Feces are hard, dry, brittle and occasionally streaked with fresh blood.
- Lack of appetite.

Causes

- Diet contains either no fiber or too much fiber.
- Lack of exercise.
- Pain in the anus
- Excessive calcium in the diet (too much bone meal, eggshells, limestone, shells, etc., in the feed).
- Injury or fracture in the pelvis or hindquarters.

Prevention

- Provide drinking water at all times, especially during the hot season.
- Provide sufficient space for animal to exercise.
- Provide fresh, green vegetables daily.

- Avoid stress to the animal

Treatment

For simple constipation, any of the following treatments may be used.

- Split a ripe tamarind (*Tamarindus indica*) pod in half. Remove the pulp and seeds. Roll up the pod and insert into the anus as a suppository (part will stick out of the anus). Repeat every 6 hours for 2-3 days or until the animal becomes unconstipated. (Cambodia, Thailand. 1, 2, 3, 4)

- Feed 2-3 small bundles of fresh leaves of sweet potato (*Ipomoea batatas*) or *Amaranthus gracilis* or *Amaranthus spinosus* or swamp cabbage (*Ipomoea aquatica*) 2-3 times a day for 3 days. (Cambodia, Philippines, Thailand. 1, 2, 3, 4, 5)

- Drench 1 tablespoon of castor oil (*Ricinus communis*) 2 times a day for 1-3 days. Drench 1 cup of water after the castor oil drench. Also, soybean oil or sesame oil can be used. (Cambodia, Thailand. 1, 2, 3, 4)

- Prepare a decoction of one ripe papaya (*Carica papaya*) fruit and 1 liter of water. Drench 2 times a day until the pig recovers. (Cambodia. 1, 2, 3, 4)

- Shape a small piece of mild bar soap into a small suppository. Dip it into water and insert into the anus. Repeat treatment 12 hours later, if necessary. (Cambodia. 1, 2, 3, 4, 5)

Poisoning



Poisoning

Symptoms

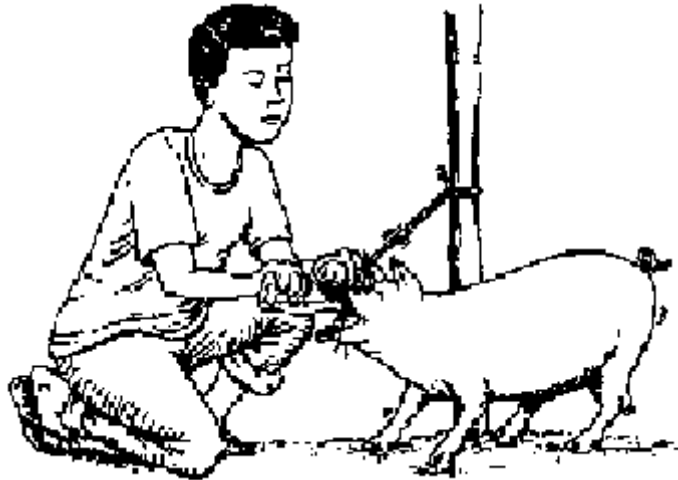
- Arched back.
- Salivation.
- Animals staggers or sways.
- Fever.
- Weakness.
- Bleeding from the mouth.

Causes

- Eating poisonous plants.
- Eating grass from pastures treated with insecticides.
- Being fed with fresh, raw cassava roots or cassava peels.
- Eating old and moldy feed.
- Bites from snakes, scorpions or centipedes.

Prevention

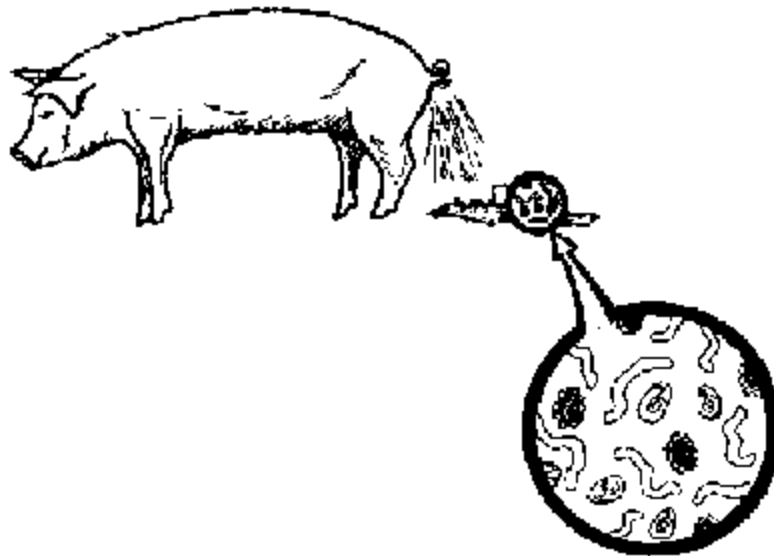
- After applying insecticides to an area, do not release animals in the area to eat.
- Keep feed dry and free from mold.
- Avoid feeding raw cassava peels and roots.



Treatment

- If an animal shows symptoms of poisoning after eating cassava peels, drench it with coconut oil (about 1 glass for an adult pig). This facilitates the expulsion of the peels and decreases the absorption of poisonous materials. (Philippines. 1, 2, 3)
- If you do not know the cause of the poisoning, mix 56 fresh, raw eggs with 1 cup of sugar and drench the animal. The dosage is for a 70-kg pig.

Internal parasites



Internal parasites

Symptoms

- Loss of appetite.
- Diarrhea.
- Anemia.
- Weight loss.
- Coughing.
- Slow growth.
- Dull, thick hair without the normal luster.
- Live worms expelled from the feces.

Cause

Roundworms and lungworms are transmitted by eating feed or drinking water that is contaminated. Worms affect animals of all ages and both sexes. They can be spread to people through hands contaminated with worm eggs. Also, worms can spread to humans who eat vegetables contaminated with eggs from pig manure used as fertilizer.

Prevention

- Keep animals and surroundings clean.
- Deworm the animals at least every 3 months. Or repeat the first deworming after 21 days to break the life cycle of the roundworm; then repeat every 3 months.
- Clean your hands with soap and water after feeding, treating or cleaning the animals to get rid of any worm eggs.
- Wash all vegetables before eating, especially those raised with pig manure as fertilizer.

Treatment

Treatment should preferably be done in the morning so you can check whether worms are expelled in the feces later in the day.

For lungworm

- Pound 6 handfuls (300 g) of mature, fresh fruit of *Diospyros mollis*. Squeeze the ground sample through a cheesecloth to get the extract. Mix 3 tablespoons of epsom salt (magnesium sulfate) in the extract. Mix with 1 bottle of water. Drench with 1 teaspoon of the medicinal juice per 5 kg of body weight. Treatment requires only 1 dose.

For roundworm (*Ascaris* species)

See tables in the next pages.

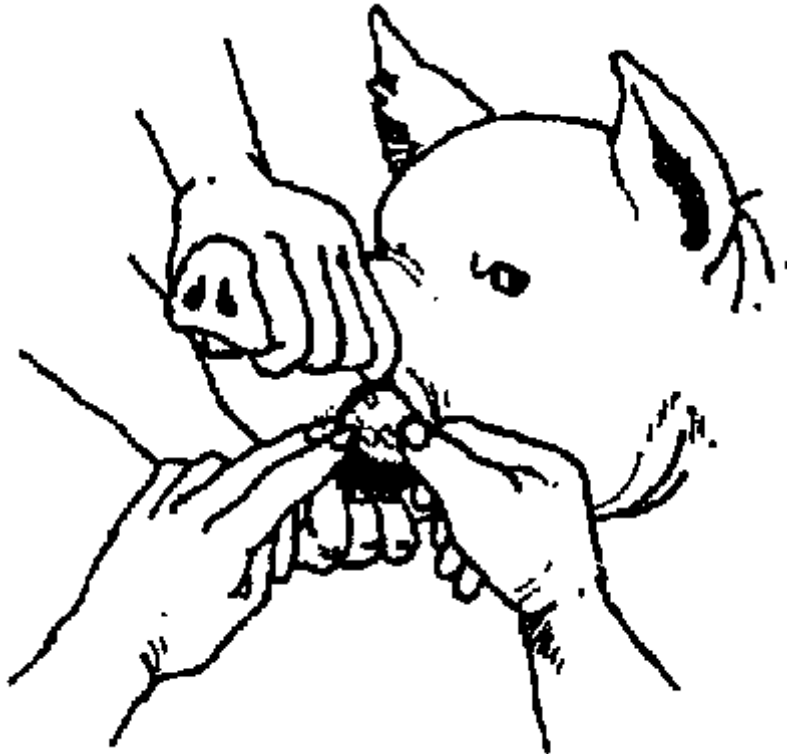
Treatments for roundworm

Scientific name	Common name	Parts used	Preparation	Application	Dosage
<i>Anona squamosa</i>	Sugar apple	Air-dried leaves	Crush leaves. Add a little water.	Give as drench.	15 g/50 kg body weight. Repeat treatment after 21 days and every 3 months thereafter. (Cambodia, India, Philippines, Thailand .1, 2, 3, 4, 5)
<i>Areca catechu</i>	Betel nut	Ripe, air-dried nut	Grind. Add a little water.	Give as drench.	15 mg/50 kg body weight. Repeat

					treatment after 21 days and every 3 months thereafter. (Cambodia, India, Indonesia, Philippines, Sri Lanka, Thailand. 1,2,3,4,5)
Artemisia vulgaris		Air-dried leaves	Grid, then add a little water. Hand-squeeze to get the juice.	Give as drench.	0.1 - 1.0 ml/kg body weight for small animals, 1.0 -1.5 ml/kg body weight for larger animals. Repeat treatment after 21 days and every 3 months thereafter.
Leucaena leucocephala	Leucaena	Air-dried, ripe seeds	Pound seeds to powder.	Mix powder into feed.	30 g powder for every 10 kg body weight. Repeat treatment after 3 months.
Leucaena leucocephala	Leucaena	Ripe, air-dried seeds	Grind seeds Add a little water.	Give as drench.	15 g/kg body weight. Repeat after 21 days and every 3 months thereafter.
Momordica charantia	Bitter gourd	Air dried leaves	Boil the leaves. For every 1 part leaves, use 2 parts water. Take the liquid and dilute the liquid with coconut milk in 1:1 ratio.	Give as drench.	6 ml per 10 kg body weight. Repeat treatment after 3 months.
Moringa oleifera	Horseradish tree	Air-dried, ripe seeds	Pound seeds to powder.	Mix powder into feed.	30 g powder per 10 kg body weight. Repeat treatment

					after 3 months.
Plumeria acuminata		Air-dried bark	Add 30 ml water for every 60 g bark. Grind. Boil the ground bark for 15-20 minutes. Strain to get the liquid.	Give as drench.	0.2 - 0.5 ml/kg body weight. Repeat treatment after 21 days and every 3 months thereafter.
Tamarindus indica	Tamarind	Air-dried leaves or bark	For every 30 g of leaves or bark, add 4 cups water, then pound. Boil the mixture for 15-20 minutes. Strain to get the liquid.	Give as drench.	5 -10 ml/kg body weight. Repeat treatment after 21 days and every 3 months there after.

Pork tapeworm



Pork tapeworm

Symptoms

- Cysts appear as small blisters at the base of the tongue.
- In most cases, no symptoms appear at all.

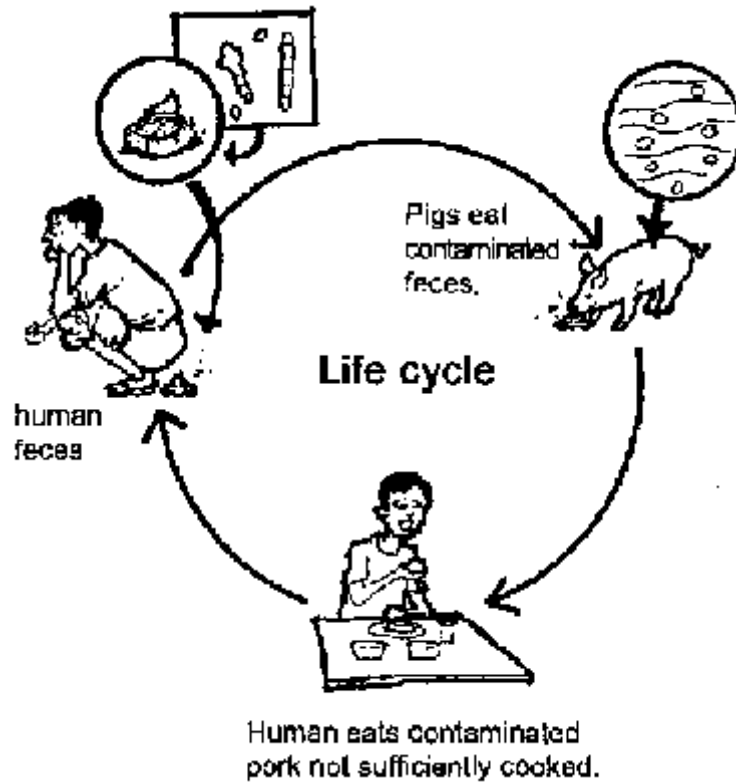
Pull the tongue out to the side of the mouth and dry it with a clean cloth. Feel the surface of the tongue at the base to check for cysts. This is the only way to confirm if the animal has cysticercosis.

Cause

Tapeworm infestation (cysticercosis) is a condition of cysts in the muscles of pigs caused by the larvae of tapeworm.

Each of the cysts in the tongue or muscle of the animal contains a tapeworm larva. This is the result of a pig eating human feces containing a whole or part of the tapeworm, or the eggs of the tapeworm. The tapeworm eggs are then absorbed into the intestines of the pig and are carried in the blood system. They are then trapped in the muscle of the animal and develop into larvae

which then become cysts. Humans get the tapeworm by eating contaminated pork which has not been sufficiently cooked.



Human eats contaminated pork not sufficiently cooked.

Prevention

- Keep the surroundings clean and free from human feces to prevent pigs from eating the feces and becoming infected.

Treatment

- Boil 5-10 fresh young leaves of *Spondias pinnata* in 1 cup of water for 5-10 minutes. Drench the animal 2-3 times a week with 3-5 ml (1 teaspoon) of the liquid for every 10 kg body weight. After 7 days, check if the cysts have disappeared. Repeat the treatment 2-3 times a week until the animal is cured. (Philippines. 1, 2, 3, 4)

Scabies or mite infestation



Scabies or mite infestation

Symptoms

- Itchiness.
- Scratching. Wrinkled and rough skin. Inflammation of the skin. Falling hair. Moist open wound may contain pus or serum.

Cause

The most common form of scabies in pigspigs is the one caused by

Sarcoptes scabiei var. *suis*, which burrows into the skin and causes intense itching. Scabies is also caused by *Psoroptes* mites. The areas of the body usually infested are the hairless portions, like the back of the pig's ears.

Fungal infection may also cause mild skin lesions and can also cause the above symptoms.

Warning

People can catch scabies easily. Avoid direct contact with the pig's infected area, especially when applying treatment. Use a stick or banana leaves to apply the treatment. You may also use plastic bags as improvised gloves for your hands. After application, wash hands with soap and water

Scabies is spread by direct contact with infected pigs and any surface or object which may contain the mites (such as bedding, stall walls, etc.). Scabies can easily be transmitted to humans and other animals.

Prevention isolate the infected animal to protect the other pigs living in the same pen. General sanitation is also important to prevent mite infestation. Keep the pen and the bedding clean. Also keep the animals clean and dry. Do not use infested animals for breeding purposes.

Treatment

Use any of the following treatments:

- Burn 1 coconut shell and mix the ash with 1 glass of coconut oil. Apply on the infected area twice a day for 3-5 days. (Cambodia. 1, 2, 3)

- Use an oil or alcohol liniment as base when applying medicinal plants. Here's how to prepare a liniment:

Oil liniment

Make lime water by mixing lime (calcium hydroxide) with water. Take the water off from the top of the container. This is "lime water."

Combine 1 part vegetable oil or used engine oil with 3 parts lime water and 1 part of any of the herbal medications given in the table below. Prepare the mixture by churning or by rapidly stirring the ingredients. Rub the mixture on the infected area part by part. Do not apply it to the whole body at the same time. After 10 days, repeat the medication.

Alcohol liniment

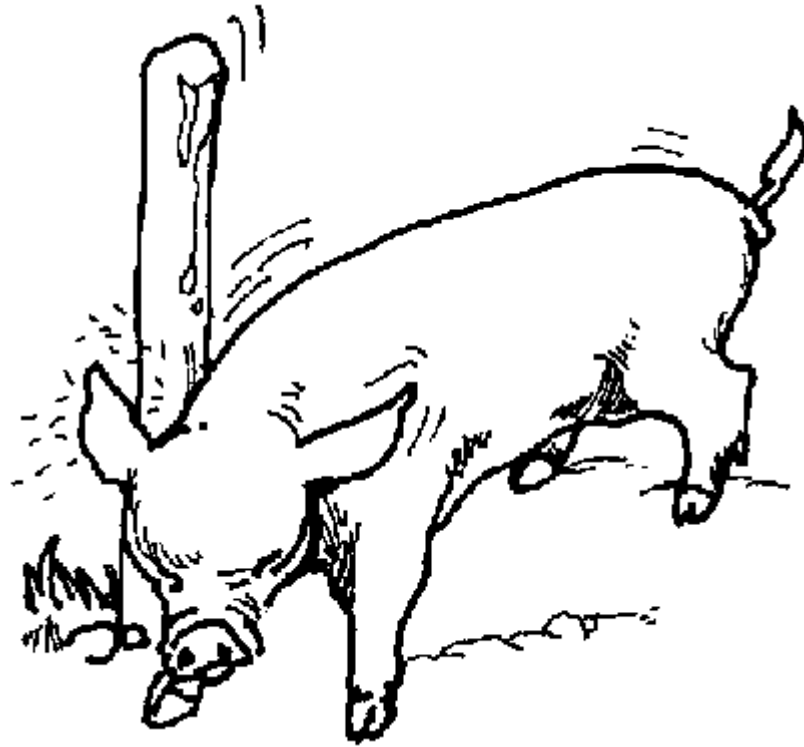
Combine 9 liters of diluted detergent solution (1 bar detergent soap dissolved in 9 liters of water) with 2 liters of distilled liquor (such as gin) and 1 part of any of the herbal medications listed in the table below. Prepare the mixture by churning or by rapidly stirring the ingredients. Rub the

mixture on the infected area part by part. Do not apply it to the whole body at the same time. After 10 days, repeat the medication.

Herbal medications to treat scabies in pigs

Scientific name	Common name	Parts used (pounded)
Annona squamosa	Sugar apple or sweet sop	Dried seeds(Cambodia, Philippines, Thailand. 1, 2, 3, 4, 5)
Artemisia vulgaris	Worm wood	Fresh leaves, roots, stems(Cambodia, Philippines. 1, 2, 3, 4, 5)
Cassia alata	Ringworm bush	Fresh leaves, stem, bark, roots (crushed) (Cambodia, Philippines. 1, 2, 3, 4, 5)
Chrysanthemum indicum	Chrysanthemum	Fresh leaves (crushed) (Philippines. 1, 2, 3, 4, 5)
Gliricidia septum	Gliricidia	Fresh leaves, bark, roots(Cambodia, Philippines, Thailand. 1, 2, 3, 4, 5)
Tinospora spp.		All parts (fresh) (Philippines, Thailand. 1. 2. 3. 4. 5)

Lice



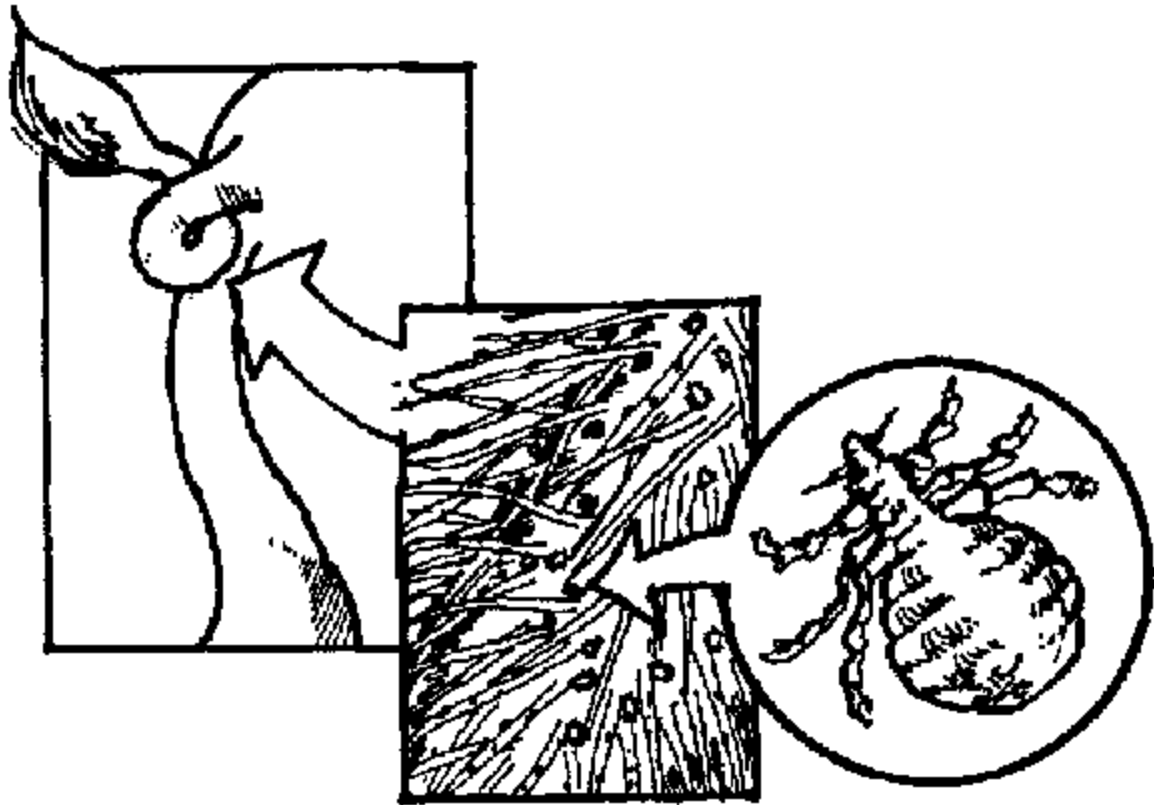
Lice

Symptoms

- Itching and scratching.
- Loss of hair due to rubbing and scratching.
- Lice can be seen moving around on the skin.
- Eggs can be seen attached to the hair.

Cause Presence of lice due to poor hygiene.

Prevention



General sanitation is important to prevent lice infestation.

- Keep the pen and bedding clean.
- Bathe the animals regularly and keep them clean.
- Isolate the infested animal.
- Do not use the infested animal for breeding purposes.

Treatment

Use any of the following treatments:

- *Annona squamosa*. *Annona reticulata*. *Annona muricata*.

Pound or grind 2 kg of ripe, air-dried seeds of any of the three plants above. Soak the ground seeds in 5 liters of water for 24 hours. Pour the water through a coarse cloth (such as mosquito netting) to remove the solids. Mix 1 part of the liquid with 5 parts of water before use. Use a brush or coconut husk to rub the solution on the whole body of the infected pig once a day. Treat the animal until all the lice and eggs are removed. For future use, cover and store the undiluted liquid in a cool, dry place. It can be kept for up to 20 days. (India, Thailand. 1, 2, 3, 4, 5)

- *Premna odorata* *Gliricidia septum*.

Pound or grind 2-3 small bundles of fresh leaves of either plant (this is enough for an average-sized adult pig). Rub the ground leaves over the whole body of the animal. Apply 2-3 times a day until all the lice and eggs are removed. (Philippines, 1, 2, 3, 4, 5)

- In severe cases of lice infestation, shave the animal to remove all hair, lice and eggs.

Infectious diseases

Infectious diseases are caused by microorganisms, such as viruses or bacteria. The treatments given in this section will alleviate the symptoms of the disease. They will not eliminate the organism that causes the disease.

Enteric colibacillosis

- Death is common.
- Spread by contact with sick animals.

Symptoms

- Profuse watery diarrhea, yellowish in color and may contain mucus.
- Dehydration.
- Shivering.
- Piglets are weak.
- Commonly found in nursing piglets and weanlings.

Prevention

- Thoroughly wash sow before farrowing.
- Proper hygiene and sanitation.
- Make sure every piglet suckles colostrum from the sow.
- One to two weeks before farrowing, feed fecal material or intestines from dead piglets to the pregnant sow.
- Provide good housing, adequate bedding and source of heat to piglets.

Treatment

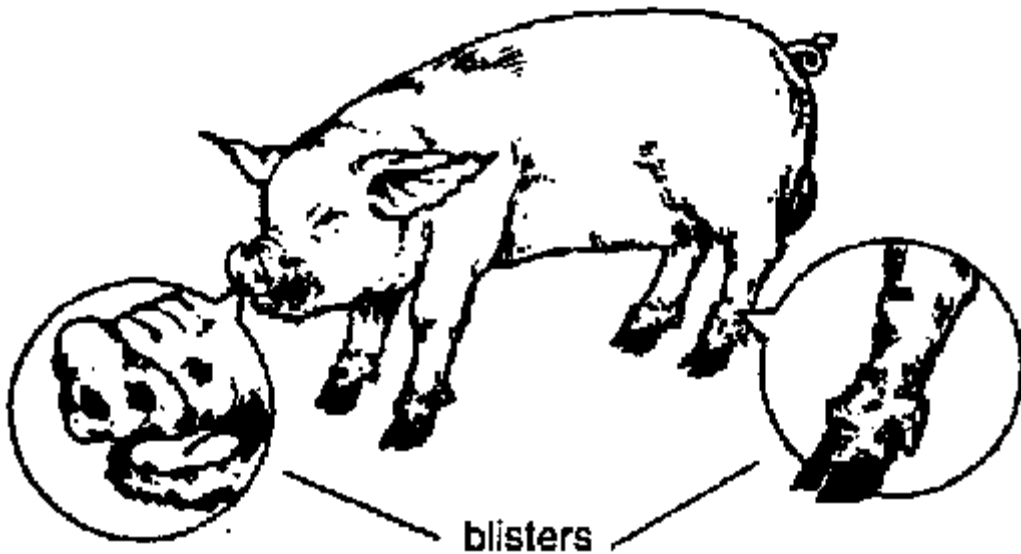
- See Diarrhea and dehydration, page 9.

Foot-and-mouth disease

Many young animals fall sick or die of this disease. It spreads by air or contact. People may serve as mechanical carriers.

Symptoms

- Wound lesions or blisters in the mouth, snout, feet and udder.
- Lack of appetite.
- Fever.
- Salivation.
- Lameness or limping.



- Difficulty in walking due to pain caused by the lesions on the feet.

Prevention

- Vaccinate regularly.
- Isolate sick animals and avoid contact with other animals.
- Disinfect pen area of infected animals.

Treatment

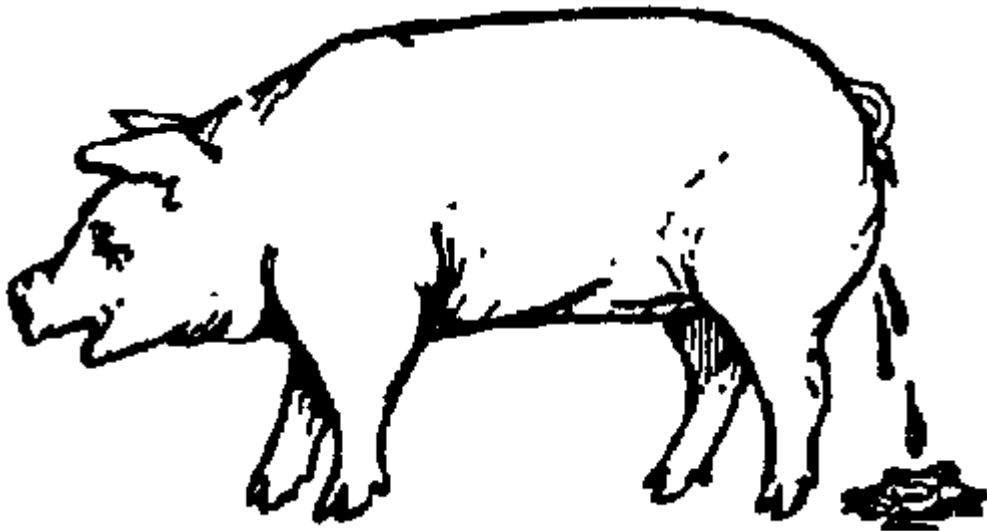
- See Wounds, page 43.

Hog cholera

This disease affects pigs of all ages. It appears suddenly and spreads rapidly through direct or indirect contacts with sick animals. It has a high death rate, sometimes reaching 100 percent in young piglets.

Symptoms

- Weakness.
- Loss of appetite.
- High fever.
- Discharge from the eyes and nose.
- Constipation, followed by diarrhea (bad odor).
- Difficulty in breathing.
- Paralysis and convulsions.



- Pigs pile up or huddle together.

Prevention

- Dead animals should be burned and buried with lime or wood ash.
- Cook kitchen scraps before feeding.
- Provide regular vaccination.

- Disinfect pen area of infected animals.

Treatment

No indigenous treatment is recorded.

Pasteurellosis

Symptoms

- Fever.
- Rapid breathing.
- Coughing.
- Discharge from the nose.
- Swaying walk as rear end is very weak.
- Bluish discoloration of skin, especially in ears, snout, abdomen and inside thighs.

Prevention

- Avoid stress to the animal like crowding, heat, etc.
- Proper hygiene and sanitation.

Treatment

- See Coughs and colds, page 7.

Swine dysentery

- This disease affects all ages. It is especially common in animals weighing 60-70 kg.
- Spreads by contact with sick animals.

Symptoms

- Mucus and blood appear in diarrhea.
- Alternating between constipation and diarrhea.
- Loss of appetite, with or without fever.

- Weakness and loss of weight.
- Dehydration.

Prevention

- Avoid contact with infected animals.
- Proper hygiene and sanitation.
- Isolate infected animals.
- Prevent feces of infected animals from mixing with feed.

Treatment

- See Diarrhea and dehydration, page 9.

Swine erysipelas

- Mortality may be very high. Death may occur up to 6 days after the first sign of illness.
- The disease is spread through contact with sick animals.

Symptoms

- Fever.
- Animals walk stiffly on their toes.
- Animals lie on their chest and abdomen.
- Animals lie separately instead of in groups.
- Purplish areas of discoloration in the ears, snout and abdomen.
- Diamond-shaped skin lesions all over the body, which may peel off in prolonged cases.

Prevention

- Cook kitchen scraps before feeding. These may contain infected materials that can affect the health of the animals.
- Proper hygiene and sanitation.
- Isolate infected animals.

- In Northern Philippines, new animals which are introduced into communities are allowed to be reviewed by other members of the community to ensure that the animals are not diseased or do not possess undesirable characteristics. This can serve as an indigenous method of quarantine.

Treatment

No indigenous treatment is recorded.

Warning

Swine erysipelas can affect people; avoid or minimize contact with affected animals.

Swine influenza

- Usually occurs in cold weather.

- Spread by air and contact.

Symptoms

- Difficulty in breathing.

- Animal is inactive.

- Fever.

- Coughing and discharge from the nose and eyes.

- Lack of appetite.

- Weakness.

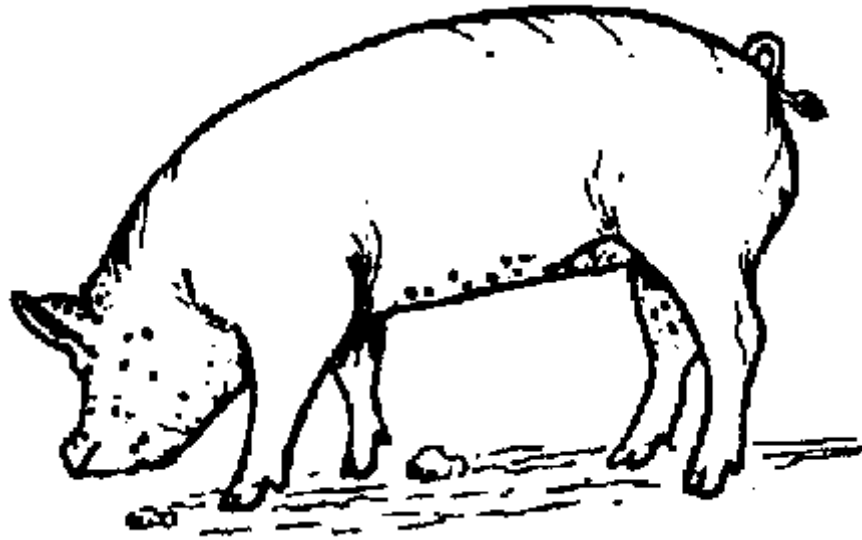
Prevention

- Keep animals away from damp conditions.

- Provide adequate housing and bedding, especially for piglets.

Treatment

- See Coughs and colds (page 7), Lack of appetite (page 1) and Fever (page 4).



Swine pox

- Occurs frequently in 3-6 week-old pigs, but all ages may be affected.
- Spreads through lice or by contact with skin blisters of affected animals.

Symptoms

- Skin blisters or lesions.
- Small red areas on the face, ear, inner thighs and abdomen. These later develop into scabs.
- Lack of appetite.
- Mild fever.

Prevention

- Vaccinate.
- Proper hygiene and sanitation.
- Eradicate lice and other biting insects (see Lice, page 29).

Treatment

These treatments are to help heal the wounds only. They do not eliminate the organism that causes the disease.

- Prepare a decoction of 1 whole fresh turmeric plant (*Curcuma longa*) in 1 liter of water. Use a cloth to wash the whole body with the liquid.(India, Philippines, Sri Lanka, Thailand. 1, 2, 3, 4)
- See also additional treatments in Wounds, page 43.

Problems of the eye



Problems of the eye

Symptoms

- Eyelids are pink.
- Eyes are swollen, itchy and watery
- Animal keeps eyes closed.
- Eyes are covered with dried material.
- Animal tries to stay away from direct sunlight.

Cause

- Bacteria, viral or systemic diseases.
- Object stuck in eye (such as dust, etc.)
- Vitamin A deficiency.

- Insects.
- Eye worms.

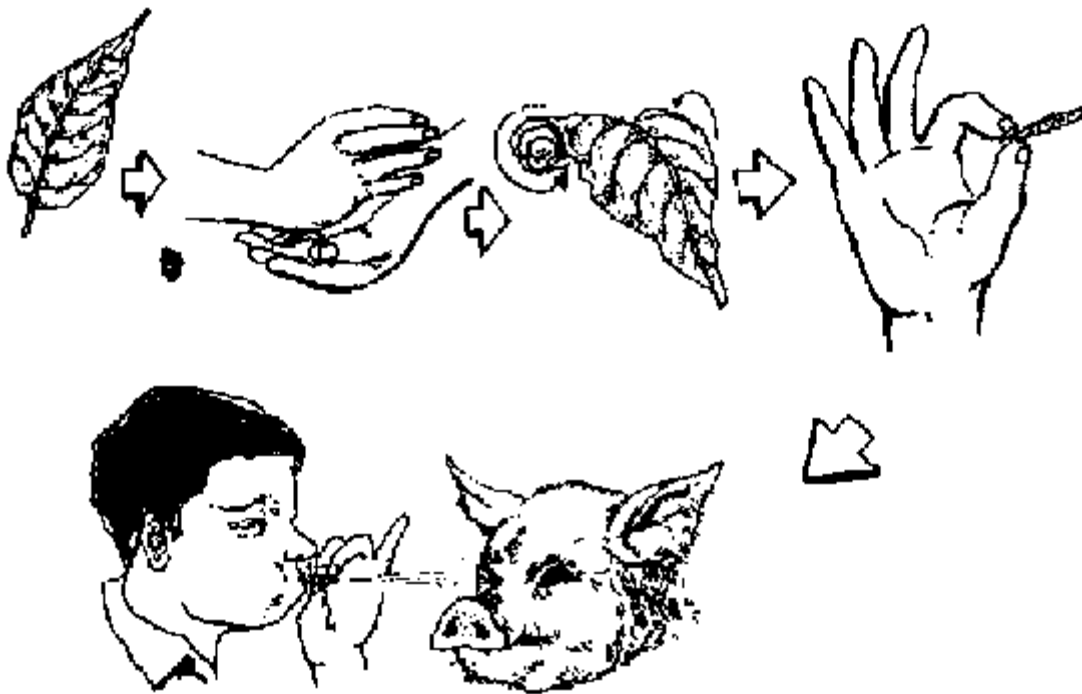
Bacteria can be spread by direct contact with infected animals or by flies or other insects.

Prevention

- Separate animals with eye problems from herd.
- Control flies and gnats by keeping the animals' surroundings clean.
- Feed green roughages as a source of Vitamin A.

Eye problems can affect animals of any age, any sex and during any season, but mostly during the dry season.

Treatment



Use any of the following treatments:

- Burn and grind 1 pod of *Sterculia foetida*, 1 handful of snail shells and 1 thumb-size piece of red limestone. Grind 1/2 teaspoon of alum very fine. Mix the ashes and alum thoroughly. Blow the powder into the affected eyes—a light dusting each morning—until symptoms disappear. (Thailand. 1, 2, 3, 4)

- Boil about 500 g tender leaves of *Leptadenia reticulata* (corkswallow) in water. Feed the leaves and cooking water twice a day until symptoms disappear.(India. 1, 2, 3, 4, 5)

- Boil 1 kg of fresh *Morifolium* leaves in 3 liters of water until 2 liters remain. Strain and cool. Give 2 cups as a drench to the affected animal 3 times for 3 days. Used in central and northern Cambodia to treat conjunctivitis, coughs and colds.(Cambodia. 1, 2, 3, 4)

- Bruise a fresh leaf of *Annona squamosa* (custard apple) and roll it like a cigarette between the thumb and forefinger. At a distance of about 10 cm from the eye of the animal, blow through the rolled leaf. Repeat each morning until symptoms disappear. Used in Cambodia to treat keratitis, the inflammation of the cornea. (Cambodia. 1, 2, 3, 4)

Any of the following treatments can be used as an eye wash:

- Rinse affected eyes with milk each day until symptoms disappear. (Cambodia, India. 1, 2, 3, 4)

- Rinse affected eyes each day with sea water until symptoms disappear. Instead of sea water, you can dissolve 1 flat teaspoon of salt in 1 liter of water.(India, 1, 2, 3, 4)

- Make an infusion using 1 teaspoon of tea leaves and 1 cup (250 ml) of water. Let stand overnight.. Strain the tea and rinse the affected animal's eyes each day until symptoms disappear (India. 1, 2, 3, 4)

- Pound and squeeze the juice from 2 teaspoons (10 g) of fresh ginger rhizome and leave it overnight. Rinse the affected eyes in the morning. Repeat the treatment for 23 days until the animal is cured.(Northern India. 1, 2, 4)

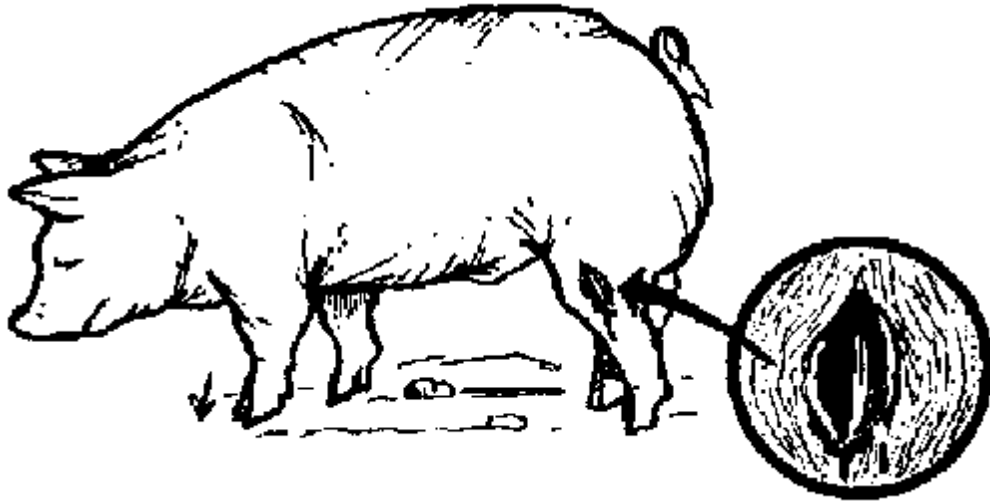
- Boil 3 leaves of betel (*Piper betle*) in 3 liters of water until 2 liters remain. Strain and cool. Rinse affected eyes each day until symptoms disappear.(Cambodia, Thailand. 1, 2, 3, 4)

- Rinse affected eyes with coconut water each day until the animal is cured. (Philippines, Thailand. 1, 2, 3, 4)

- Squeeze 1-2 drops of juice from the fleshy seeds of pomegranate (*Punica granatum*) fruit directly into the eyes of the affected animal. Repeat this 3 times a day for 3 days. (Thailand. 1, 2, 3, 4, 5)

- Make a powder from dried leaves and stems of ophthalmic burberry (*Berberis aristata*). Boil 1 teaspoon of the powder in 1 glass of water, strain and cool. Drop in infected eyes 3 times a day for 7 days.(India, 1, 2, 3, 5)

Wounds



Wounds

Wounds can be caused by mechanical injury and animal bites. They may become infected by bacteria.

Prevention

- Keep the housing free of sharp objects.

Treatment

Use any of the following treatments:



For abscesses

- Boil whole plant of *Spondias pinnata* for 10-15 minutes. Gently rub the decoction onto area around the wound. (Philippines, Thailand. 1, 2, 3, 4)

- Boil the skin of a python until the oil is extracted. Let it set for about 1 hour until it becomes waxy. Then apply the decoction to the abscess to remove the pus. (Cambodia, Laos, Thailand. 1, 2, 3, 4, 5)

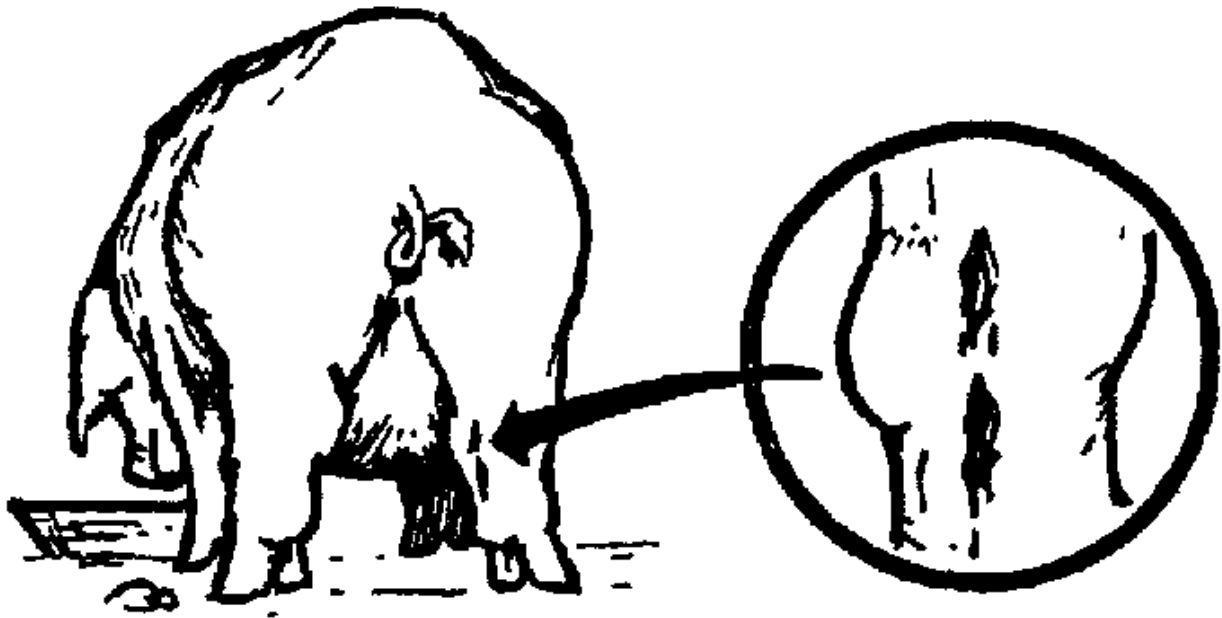
To stop bleeding

- Pound the whole plant of *Chromolaena odorata* and squeeze extract. Apply as poultice until the bleeding stops. (Philippines. 1, 2, 3, 4)

- Grind 5-10 upper leaflets of *Eupatorium odoratum* and mix with 1 teaspoon of salt (or urine). Apply as a poultice to the wound. (Cambodia, Laos, Thailand. 1, 2, 3, 4)

- Mix *Eupatorium odoratum* upper leaflets with alum and apply as a poultice to dry a wound.

(Thailand, 1, 2, 3, 4)



- Mix 1 part brown sugar with 1 part powdered limestone. Apply as a poultice until the bleeding stops. See Udder infection, page 69.

For oozing wounds (as astringent or disinfectant)

- Pound leaves of *Chromolaena odorata* and squeeze the extract. Mix 1 part water with 1 part extract. Gently apply to the wound as astringent. (Philippines. 1, 2, 3, 4, 5)

- Decoctions can also be made from any of these ingredients:

—banana leaves.

—neem (*Azadirachta indica*) leaves.

—guava (*Psidium guajava*) leaves.

—turmeric (*Curcuma longa*) rhizome.

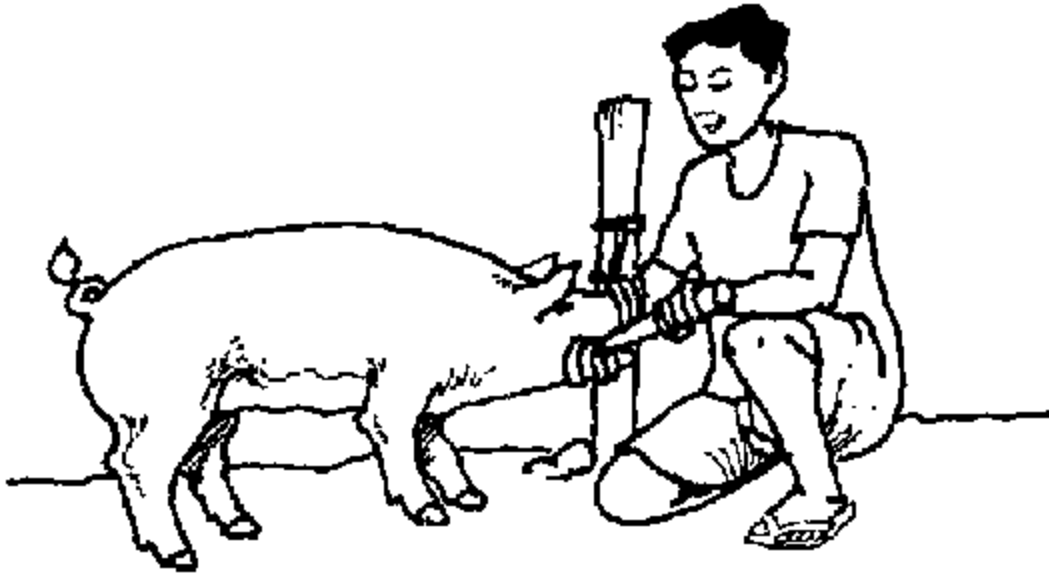
—sandalwood (*Santalum album*) paste.

(See Wounds in Ruminants for dosage details.)

For castration wounds

See Treating castration wounds in General information.

Sprains



Sprains

Symptoms

- Animal usually lying on its side in a corner of the pen.
- Limping.
- Affected area is swollen, warm and sensitive to touch.

Sprains are common in gestating animals, animals that are overfed and in Daland and Landrace breeds. It is a primary concern in breeding or other valuable animals, especially gilts being bred for the first time.

Causes

The following conditions may cause the animal to slip and suffer a sprain.

- Overfeeding, making the animal heavy.
- Uneven ground of the pen.
- Use of large boars for breeding gilts.

Prevention

- Level the floor of the pen.

- Provide ample space for the animal.
- Avoid smooth, slippery flooring.
- Prevent animals from becoming too heavy (especially breeding animals).

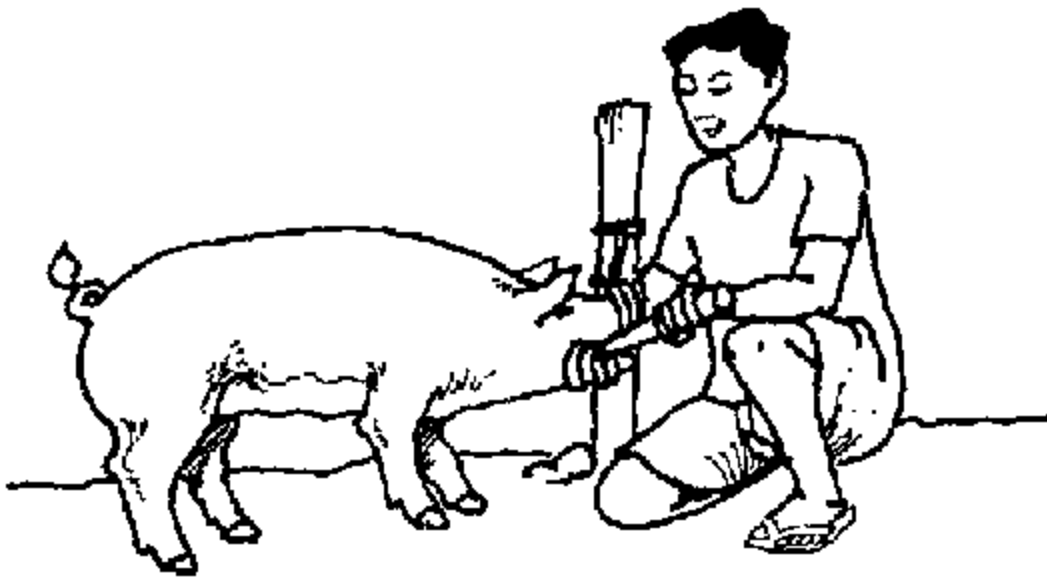
-Treatment

Use any of the following treatments to sedate the pig, so the animal will not move, thus allowing the sprain to heal. If the sprain has not improved within 1 week, consider calling a professional (local expert, respected healer or veterinarian).

- Boil a handful of mature, air-dried *Gliricidia septum* leaves, bark or roots in 1 liter of water for 15-20 minutes. Divide the resulting liquid into 3 parts. Give 1 part each day for 3 days as a drench.

(Philippines. 1, 2, 3, 4, 5)

- Boil a handful of air-dried, mature *Mimosa pudica* leaves, bark or roots in 1 liter water for 15-20 minutes. Strain and divide the resulting liquid into 3 doses. Give 1 dose per day as a drench. Caution *Mimosa pudica* contains mimosine, which can poison the animal; use only the recommended amount.(Philippines. 1, 2, 3, 4, 5, 6)



- Soak overnight a handful of mature, air-dried *Glycine max* (soybeans) in 500 ml of water. On the following day, strain and give the liquid as a drench.(Philippines. 1, 2, 3, 4, 5)

Housing

Pigs need protection from extreme cold and heat. They are housed in many different ways, depending upon the local practices.

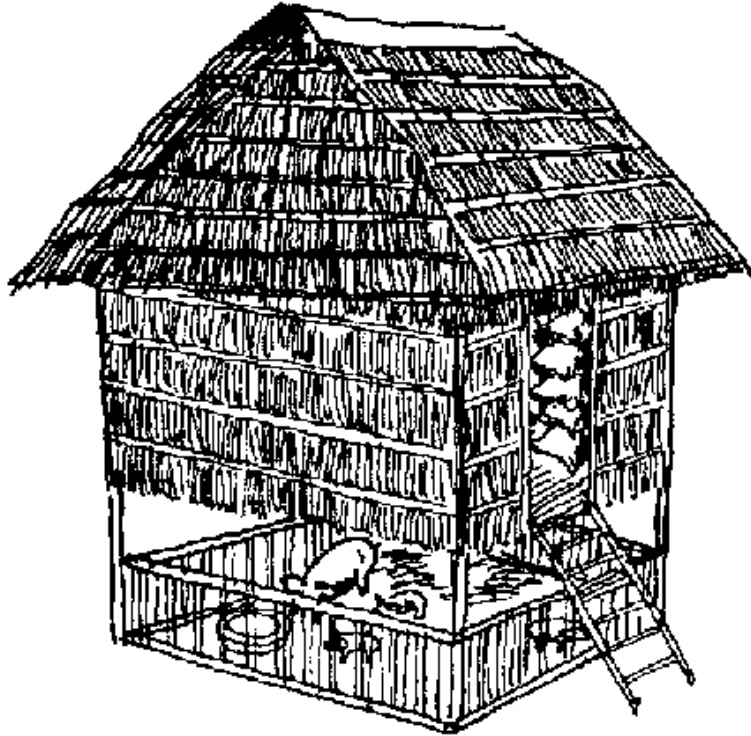
Low-cost housing materials If possible, pig pens should be built on higher ground, preferably near water sources. Orient the house in an eastwest direction. This orientation keeps the floor of the pen dry by allowing the sun to dry the pen floor as the sun crosses the sky during the day.

Roofing materials

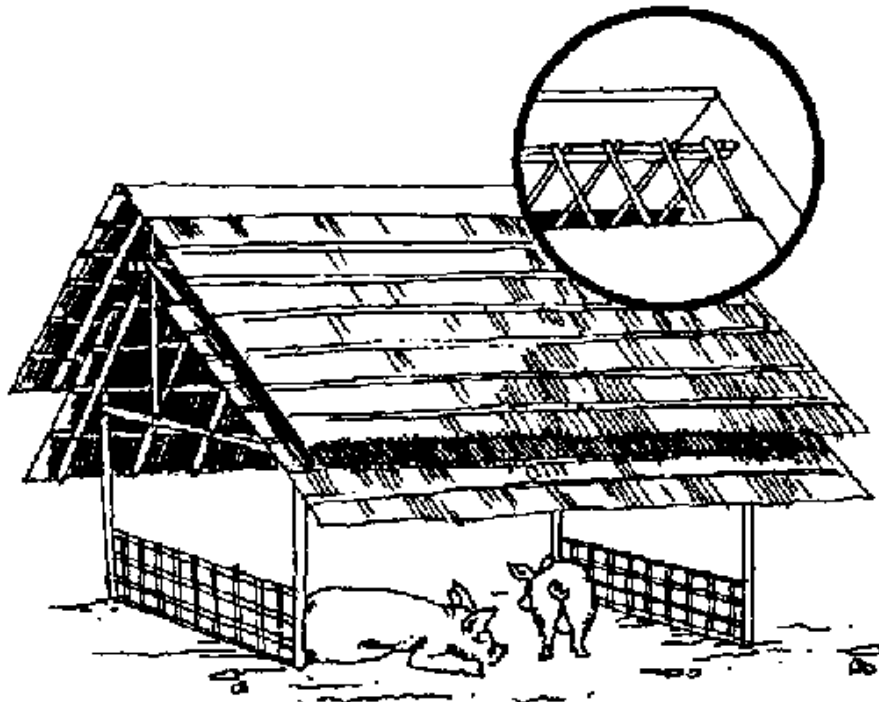
- Bamboo.
- Coconut leaves.
- Wooden tiles (layered).
- Cogon (*Imperata cylindrica*) grass.
- Palmyra (*Borassus flabellifer*) palm leaves.

Sidings/wall materials

- Bamboo.
- Wood planks.
- Stones.
- Nipa (*Nypa fruticans*) palm leaves.
- Old galvanized iron sheets.
- Betel nut leaves.
- Other locally available thatching materials.

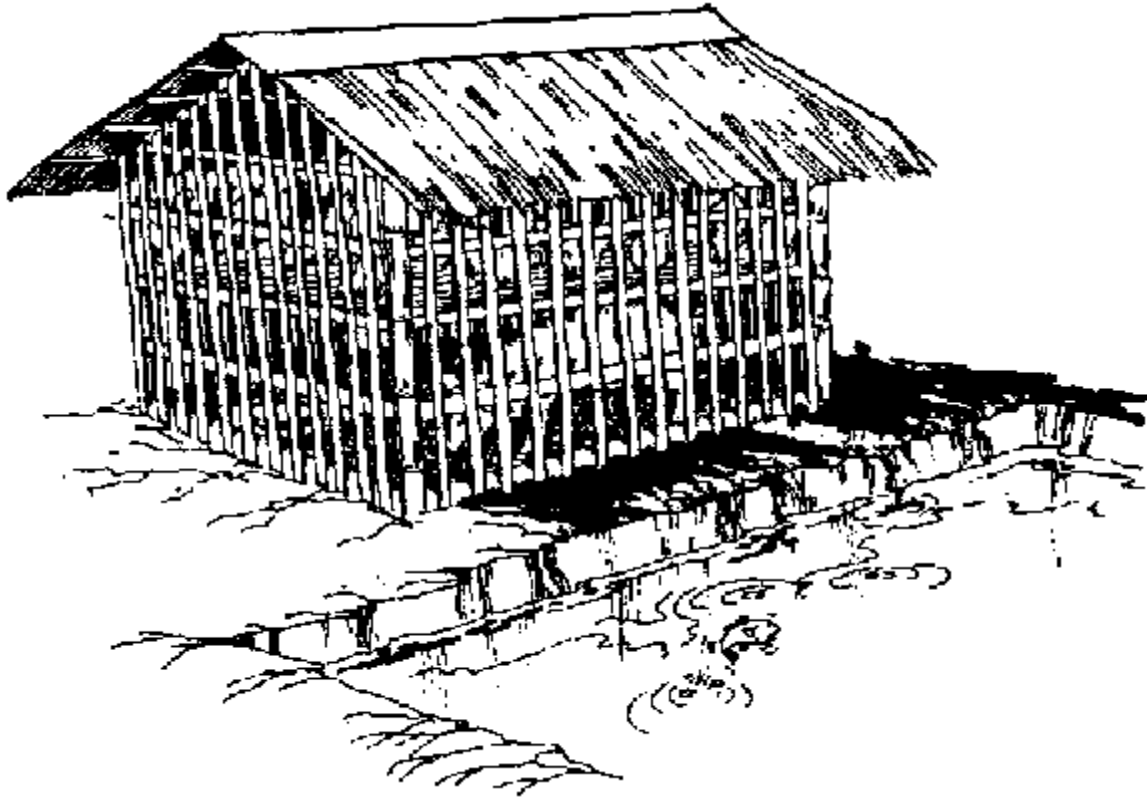


Shelter your pigs under storage sheds. This cuts construction costs and makes good use of space.

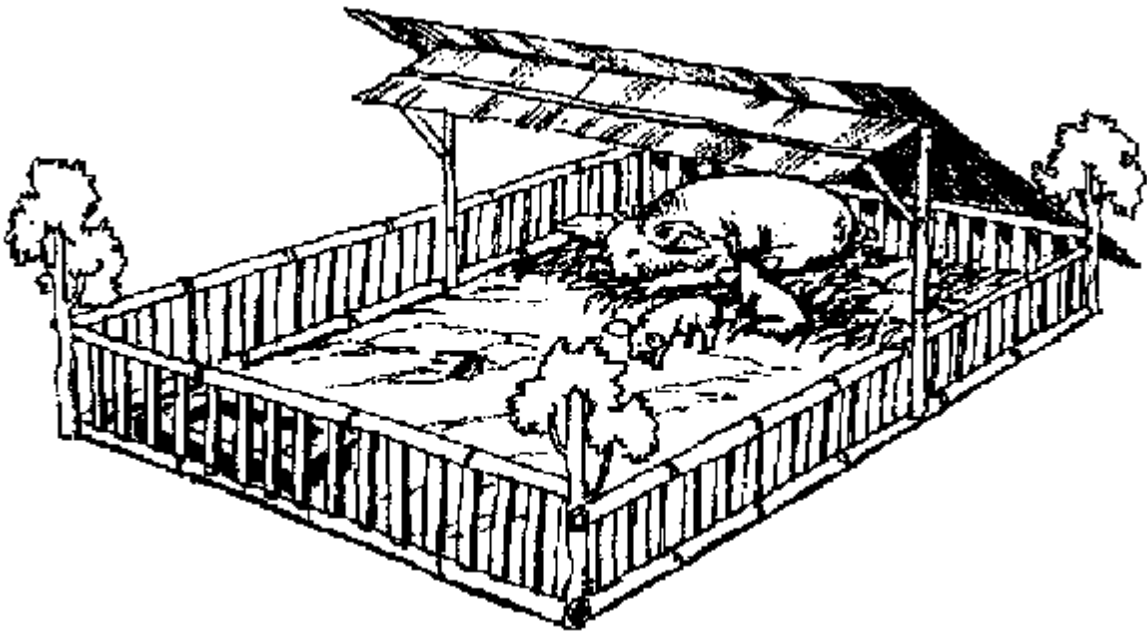


In Thailand, some farmers build open shelters with special ventilated roofs.

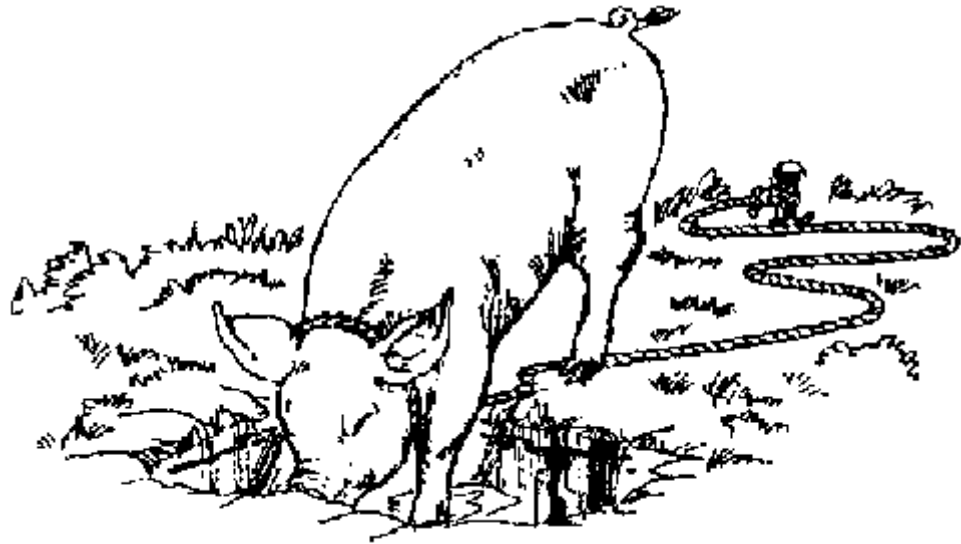
A space separates the inner roof, which has an open peak, from the outer roof



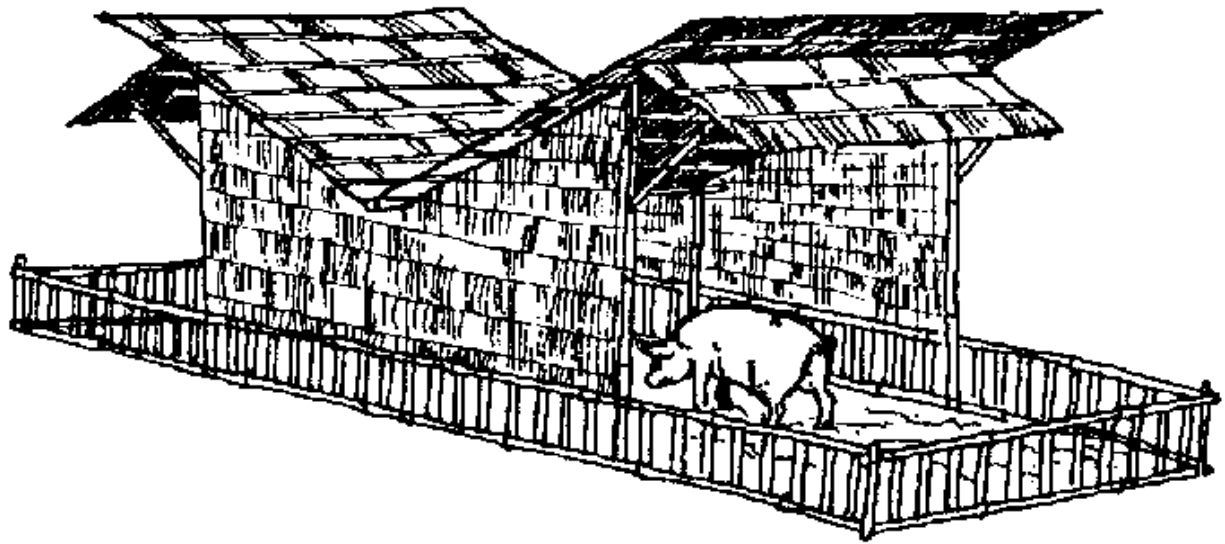
You can house pigs under your poultry. Pigs will eat chicken manure and, if you have a nearby pond, your fish will eat any nutritious runoff.



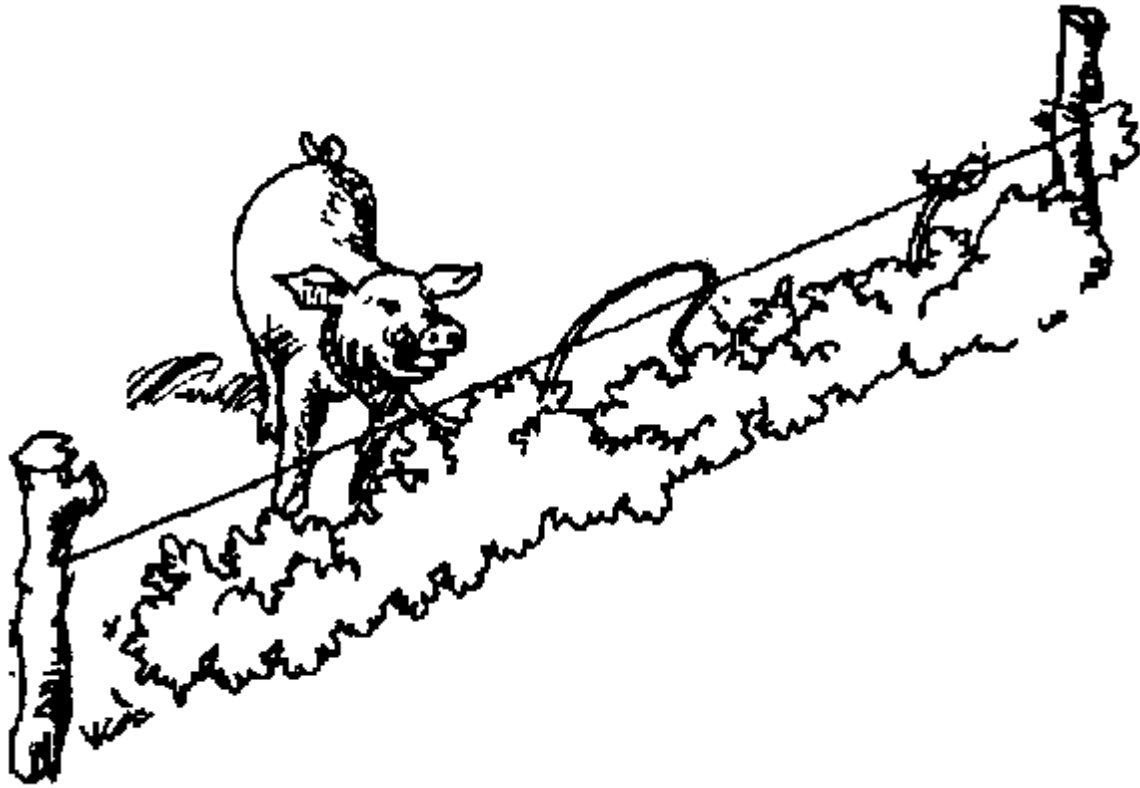
Farmers in some parts of the Philippines build open pens with thatched bamboo shades. The pigs have a cool place to rest and an open area in which to eat, defecate and roam.



Try tethering your pigs to a stake, within reach of drinking water and a cool wallowing hole.



In Thailand, farmers build back-to-back shelters of thatched bamboo and fencing.



To give your pig room to roam, tether it on a wire or cord stretched between two wooden stakes. When the forage is eaten away, the stakes can be moved.

Feeding

Good feed is necessary for growth, body maintenance and the production of meat and milk.

Stores sell pre-mixed rations that have the right amounts of ingredients for pigs of various ages. However, these pre-mixed feeds can be expensive. Instead, you can use locally available feeds that are less expensive, but can be nutritionally complete when properly prepared. In fact, pigs can be fed well, using only kitchen scraps from a family's household.

The nutritional needs of pigs can be divided into six categories or classes. These are water, carbohydrates, fats, proteins, vitamins and minerals.

Water

Pigs should have free and convenient access to water. The amount required varies with age, type of feed and environmental temperature. Normally, pigs will consume 25 kg of water per kg of dry feed. The range may be from 7 to 20 liters of water per 100 kg of body weight daily.

Water sources

- Banana trunks.
- Leaves of *Ipomoea batatas*, *Ipomoea aquatica*.
- Rind of watermelon (*Citrullus lanatus*).

Low-cost, locally available feeds

Protein-rich feeds

Help an animal grow faster, give more milk. Also give to pregnant animals.

Plant sources

- Grated coconuts.
- *Leucaena leucocephala* leaves.
- *Gliricidia septum* leaves.
- Beans.
- *Moringa oleifera* leaves.
- Pigeonpea (*Cajanus cajan*).

- Groundnut cake (leftover after oil extraction).
- Seed skins of mung bean sprouts.
- Waste of soybean cake (liquid).
- Rice bran.

Animal sources

- Fish rejects.
- Frogs.
- Shrimps.
- Snails.
- Earthworms.
- Maggots, grubs, other insects.
- Crabs (from the rice field).

Carbohydrate sources

Scientific name	Common name	Parts used
<i>Colocasia esculenta</i>	Taro	Corm
<i>Dioscorea alata</i>	Greater yam	Tuber
<i>Dioscorea esculenta</i>	Lesser yam	Tuber
<i>Ipomoea batatas</i>	Sweet potato	Root
<i>Manihot esculenta</i>	Cassava	Root
<i>Maranta arudinacea</i>	Arrowroot	Root
<i>Oryza sativa</i>	Rice	Bran
<i>Zea mays</i>	Maize	Grain

Vitamin and mineral sources

-Pounded bones.

-Leaves of Moringa

oleifera.

-Salt.

-Molasses.

-Fruit rejects/peelings.

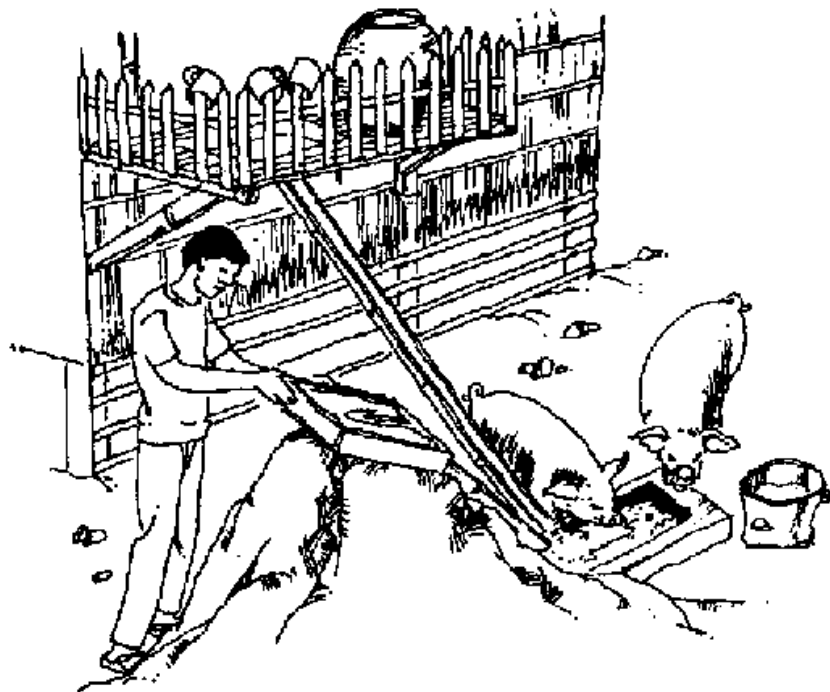
- Ipomaea aquatica.

- Water hyacinth

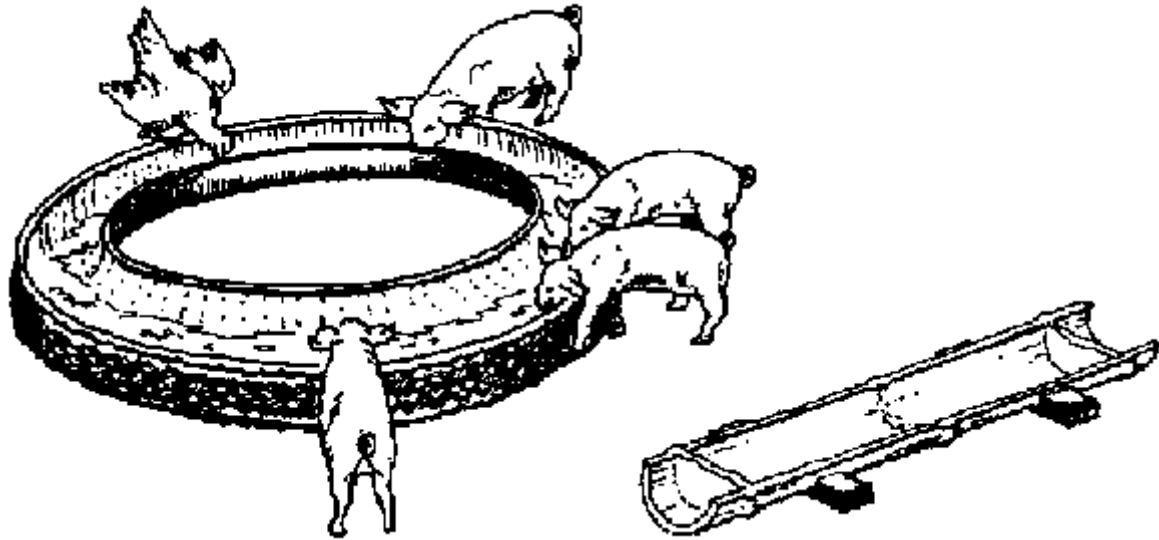
(Eichhornia crassipes).

- Green and leaf; vegetables

stables.

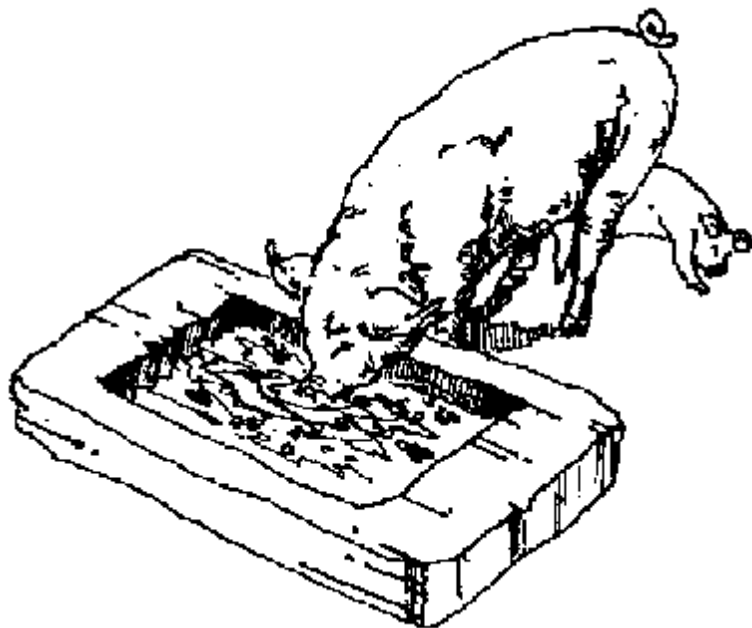


Pigs will eat insects and kitchen waste. Some farmers in the Philippines trap termites and feed them to their pigs. A wooden box is left on top of a termite mound. From time to time termites are shaken out of the box directly into the pig trough. A split bamboo duct can be used to send kitchen waste—first rinse only, without soap—to your pig trough.

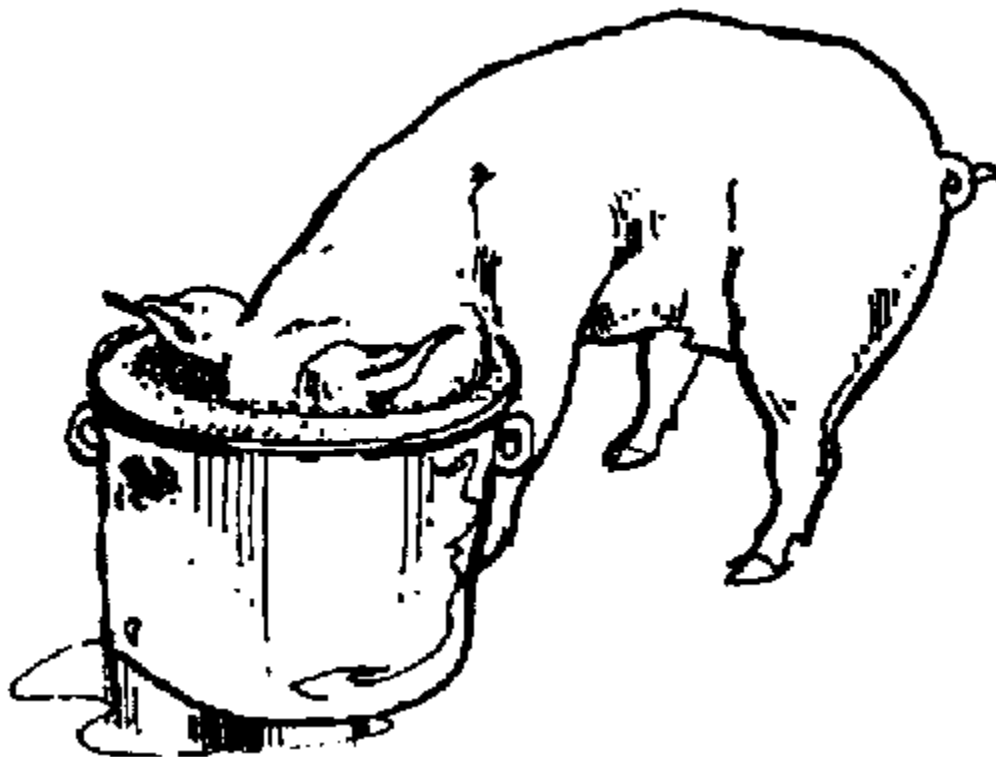


A piglet feeding trough can be made by cutting a car tire in half along its circumference.

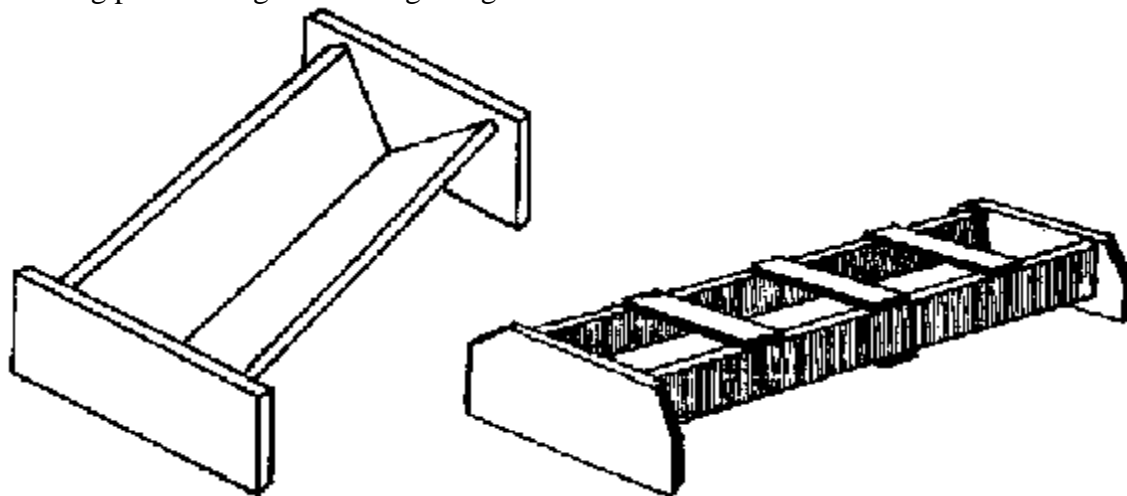
Or, a piglet feeding trough can be made from split bamboo.



A good trough can be made by hollowing out a section of log.



Old cooking pots make good feeding troughs.



A variety of feeding troughs can be made easily with lumber.

Breeding

Heat detection

Common signs of heat

- The sow's vulva is flushed (reddish) and swollen two or three days before standing heat.
- The vaginal discharge is watery.
- The vaginal discharge is watery.
- The sow is restless.
- As the sow comes into heat, she will mount other pigs or will allow other pigs to mount her. She will move away unless she is in full "standing heat".
- The sow stands still when she feels pressure on her back.

Heat lasts about 24 hours. After that, the sow will not stand still for the boar. Some sows bleed from their vulva following a heat Period.



How to induce heat

After farrowing, a sow may be slow to come into heat Here are a few methods used by farmers to induce heat.

- Gently stroke the sow's vagina with a freshly cut papaya stalk every morning for 3-5 days.
- Spray the sow's (or gilt's) pen with boar urine every morning for 3-5 days.
- Grind 1 kg of fresh or dried lotus (Semen nelumbinis) seeds. Mix with 20 kg of dry feed. Feed to the sow twice a day for 5-7 days.
- Bring the sow to the boar, or place the sow in a pen next to the boar.

Mating

During her 24-hour heat period, a sow should be mated 2 times at approximately 12-hour intervals. Do not mate animals during the hot time of day.



Assistance

Young boars may need assistance in lining up their mate. Make sure your hands and wrists are clean and your fingernails are trimmed.

Pigs mate slowly. The boar may take a minute or more to reach the point of ejaculation.

To improve conception

- Crush 1 kg of Semen nelumbinis (lotus) seed and mix with the sow's feed. Give 2 times per day for 3-5 days.
- Fat sows may have difficulty conceiving. Therefore, if a sow is too fat, reduce her feed.

Reasons for not conceiving

- The sow is too fat.
- It is the animal's first heat cycle.
- The boar is too young.
- The boar is overworked (used for more than five matings a week).

Pregnancy detection

If a sow does not show signs of heat three weeks after mating, then it is very likely that she is pregnant.

Care during pregnancy

- Separate pregnant sows from other animals.
- Protect pregnant sows from high temperatures.
- Do not transport a pregnant sow.
- Until the final stages of pregnancy, exercise is good for pregnant sows. Give the sow space to walk in.

Feed for pregnant sows

- Provide a good supply of clean drinking water.
- If you are feeding a concentrate ration, gradually reduce the ration one week before farrowing.

- Make green forage available to the pregnant sow.
- Throughout the pregnancy, feed pregnant sows rice water (the water left after cooking rice).

(Thailand. 1, 2)

- Add *Amaranthus gracilis* and *Amaranthus spinosus* to the pregnant sow's feed. Feed a ration of 2 percent of the sow's body weight per day throughout pregnancy.(Thailand. 1, 2, 3, 4)
- Feed the fresh leaves and stems of water spinach or swamp cabbage (*Ipomoea aquatica*) daily to pregnant sows. (Thailand. 1, 2, 3, 4)
- Feed sows a soup made of rice and one eel once each day for 7 days before birth. This is said to make farrowing easier. (Cambodia. 1, 2, 3, 4)
- Feed 3 to 5 lombrice (round earthworms) every day throughout pregnancy. Earthworms are a good source of protein. Some farmers also think that the earthworm's long, thin shape helps ease the birthing process. (Cambodia. 1, 2, 3, 4)
- If the sow is constipated during pregnancy, feed large amounts of rice bran or sweet potato leaves as a laxative. See Constipation, page 13.(Philippines. 1, 2, 3, 4)

Farrowing

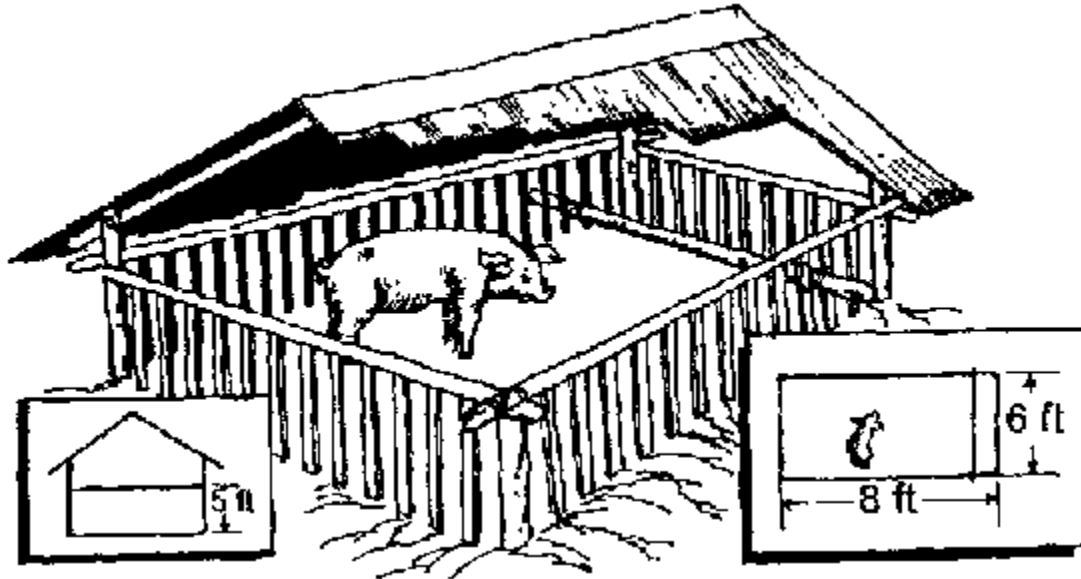
A sow needs a special place for farrowing (birthing). One week before the animal is expected to farrow, put it in the farrowing pen so it can adjust to the area. Provide a separate farrowing pen for each animal.

A farrowing pen should be 2 m by 2.5 m in size. The pen should have piglet guard rails along the sides. These can be planks or poles 20 to 25 cm off the floor, reaching about 30 cm from the walls. Guard rails will help prevent piglets from being crushed by the sow.

- Disinfect the farrowing each time before it is used. To disinfect, pour boiling water over the entire pen.
- Allow proper ventilation in the pen, but make sure there are no drafts or winds.
- Keep the birthing area clean and dry.
- Provide sufficient drinking water.
- Scrub the whole body of the sow with clean water and a clean cloth. One day before farrowing, brush the animal to remove external parasites. This will help protect the piglets from parasites.

If no special pen is provided, the sow will follow her mothering instincts and prepare her own farrowing area. She will dig a shallow pit in the ground as a farrowing place.

In tribal areas of northern Thailand, it is seen as bad luck for a sow to farrow inside the village. In such cases, the sow and piglets are killed. To avoid this, sows are encouraged to farrow in an area outside the village.



Pigs should have a place to go where they are protected from the elements. A simple open shelter can be constructed from sticks and thatch.

Bedding materials commonly used

- Chopped hay or straw.
- Coarse sawdust.
- Dried banana leaves.
- Jute or burlap sacks.
- Newspaper.

Birthing In a normal birth, piglets begin arriving within 30 minutes of the first labor signs. Normally, they are born at intervals of 10 to 15 minutes. All piglets are usually born within 3 hours. The placenta (afterbirth) should follow within 20 to 30 minutes.

Symptoms of birthing difficulties

- The sow makes an effort to expel the piglets, but no piglet will come out.

Cause

- Hard stool is putting pressure on the birth canal.
- Piglet is in an abnormal position.
- Sow is too fat and has a narrow birth canal.

Prevention Ensuring that the animal is in good condition is the best way to avoid problems at farrowing time. See the section on Feed for pregnant sows, page 59.

What to do if a piglet is stuck

If a piglet is stuck in the birth canal, you will have to help. First, trim your fingernails, wash your hands and arms well with soap and apply a lubricant of vegetable oil. Gently slide your hand into the sow's vagina and feel for the piglet.

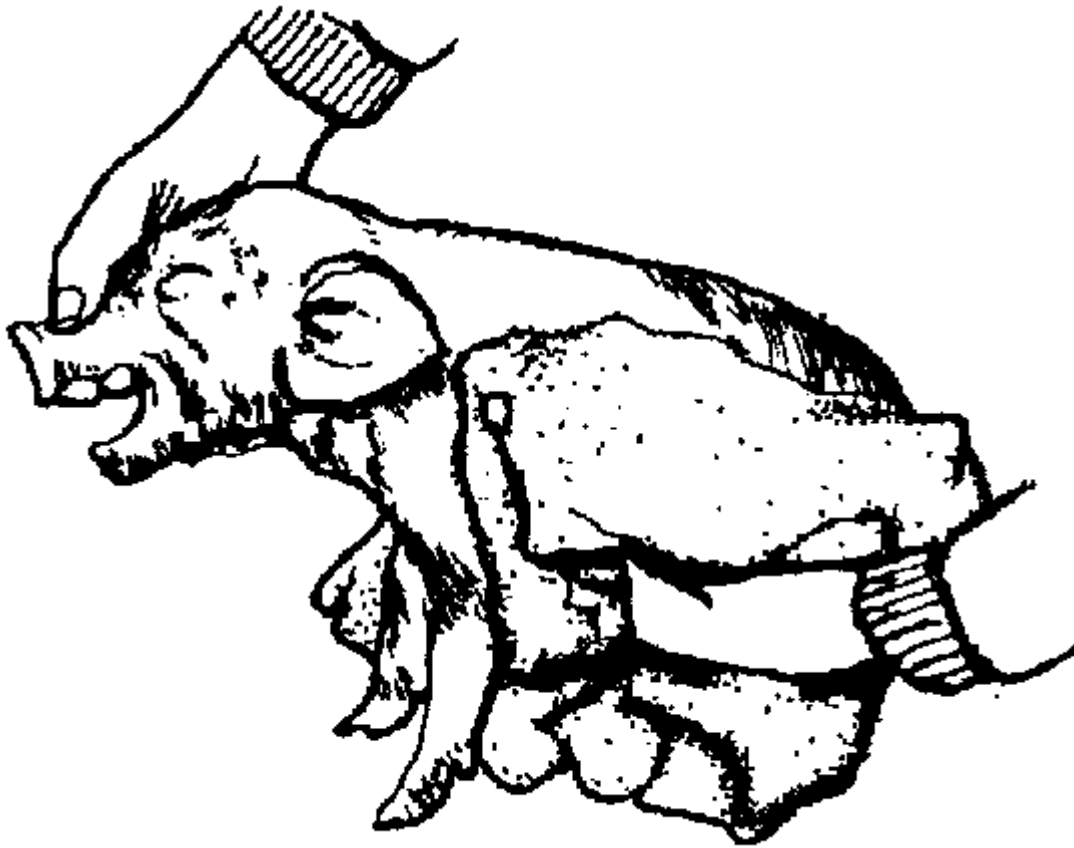
- If it is a large piglet, pull it gently but firmly in time with the sow's pushing.
- If the piglet is stuck sideways, push it back in and try to turn it so it comes out straight (head first or hind first).
- If you cannot correct the problem, call a professional (a local expert, respected healer or veterinarian).

Retained placenta

Sometimes, the placenta will stay inside the sow after farrowing. If this happens you can try one of the simple treatments below. See also the section on Pregnancy and birthing in Ruminants for more remedies.

- Grind together 7 dry garlic cloves, 7 dry black pepper seeds, 7 slices (5 mm thick) of fresh ginger rhizome and 7 upper leaflets of 7 cotton plants. Grind the ingredients together in 1/2 cup of whisky (do not strain) and give as a drench. If 1 drench does not work, repeat the treatment.(Northern Thailand. 1, 2, 3, 4)
- Grind 3 leaves of betel (Piper betle) and mix with 1 cup of water. Strain and give as a drench 1 time. If 1 drench does not produce results, drench again at 2 hour intervals.(Cambodia. 1, 2, 3, 4)

Care of newborn



Care of newborn

At birth, piglets are wet and covered in a thin mucous membrane. This membrane will dry and disappear very quickly. Most piglets will not need special attention from the farmer. However, sometimes they need help.

Newborn piglets

A newborn piglet may appear lifeless. Here are some methods for reviving piglets:

- Clear the piglet's nose and mouth of mucus.
- Gently shake the piglet with head down to drain the mucus.
- Briskly rub a cloth up and down the piglet's back.
- Gently blow air into the piglet's nose; or hold the piglet on its back and gently and rhythmically pump the back legs forward and back until the piglet breathes.

- Dip the piglet into a bucket of water (this might shock it to life) and then rub it dry with a cloth.
- If a piglet is listless, cover it with a large cooking pot. This protects the piglet from drafts and helps the piglet retain its body heat. (Cambodia)

When the piglet is born, the umbilical cord will hang from the animal. Within 2-3 days, it will dry and fall off. (Note: it is recommended to treat the navel by applying iodine, wood ash or powdered limestone.)

Keeping piglets warm

It is very important to keep piglets warm. Here are some techniques for doing this:

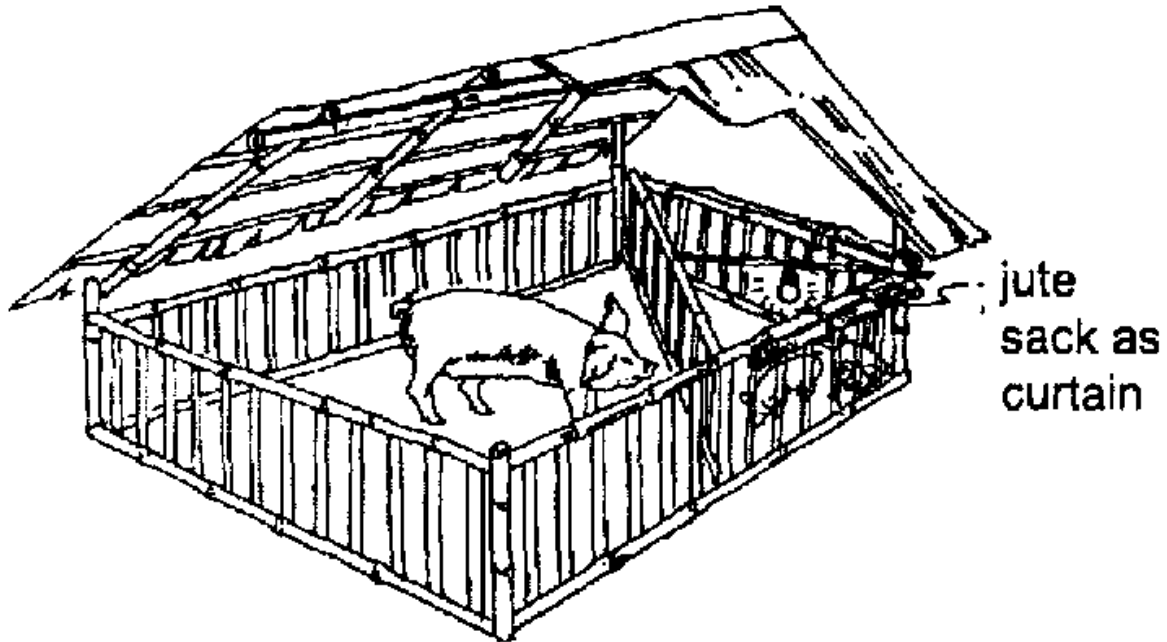
- Rub the piglets with vegetable oil.
- Put newborn piglets in a box.
- Provide a heating lamp (if electricity is available).
- Use chopped, dry rice straw or dried banana leaves for bedding.
- Use empty jute sacks as bedding.
- Burn rice husks, straw or charcoal in a metal bucket to supply warmth.

Caution

- Long rice straw might tangle the piglets, causing them to fall under the sow and be crushed.
- Care must be taken to ensure that the bucket is properly placed so pigs are not burned.

Build a piglet warm-box from sheets of wood, making sure to leave an exit and a portion of the roof open. To provide warmth, hang a light bulb over the roof opening.

A piglet shelter can be constructed from wood and jute. Build a low, rectangular frame of wood and wrap it tight with jute.



Avoiding crushing newborn piglets

Newborn piglets can easily be crushed by their mother, until they learn to get out from under her when she lies down. The farrowing area should have barriers to prevent the sow from crushing the piglets. After the first two weeks, the barriers can be removed.

Getting piglets to suckle

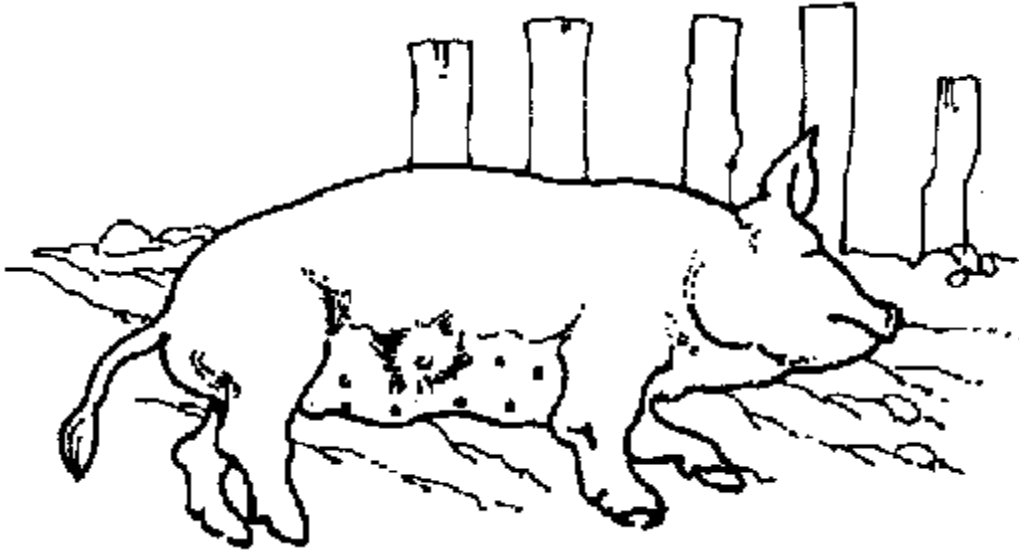
Sows develop their own styles of nursing. Sometimes, they stand up; sometimes they lie on their side. After a day or two, each piglet will establish ownership of a teat. In a small litter, piglets might share the extra teats. Weaker piglets get the hind teats. A sow might be able to raise more piglets than she has teats. But generally, it is better to take extra piglets away and place them with another recently farrowed sow (or raise the extra piglets on cow's milk).

Often, a sow will drive off or kill piglets that are not her own, but she can be fooled into accepting foster piglets. Rub the piglets and the nose of the foster sow with the urine of the foster sow or with vinegar. Also, keep the foster piglets in a box with the natural piglets of the sow so their smells will blend.

Reminder

Make sure the piglets get some colostrum (the first milk) from their natural mother before moving them to a foster mother

Udder infection



Udder infection

Symptoms

- Reddening of the udder.
- Swelling of the udder.
- The infected udder is warmer to touch than healthy udders.
- Wounds on the udder. Fever.
- Absence or reduction of milk in affected udder.

Cause

Udder infections are caused by bacteria, wounds caused by the milk teeth of baby pigs, insect bites and abscesses.

Prevention

- Provide adequate bedding.
- Keep the pig pen clean.
- Clip milk teeth of baby pigs.

Treatment

Before any treatment, wash the udder with soap or potassium permanganate (if possible) and clean lukewarm water. Do not allow the litter to suck milk from an infected sow. Remove and discard milk from the infected teat.

Allowing wounds to heal

- Separate sow from piglets and reduce their access to teats (allow a few piglets to suckle at a time).
- Begin hand-feeding the baby piglets.
- Give piglets to a lactating foster mother.

Wound treatments

Make a poultice from any of the remedies below and apply to the infected udder once a day until the redness disappears or the wound heals. Use either a strip of banana stalk or strips from old clothes to hold the poultice.

- Pound and extract the juice from 5-10 fresh leaves of betel (*Piper belle*). Mix it with 5-10 chopped fresh *Psidium guajava* (guava) leaves and 5-10 chopped, fresh tobacco leaves. (Philippines. 1, 2, 3)
- Pound 5-10 fresh leaves of *Ficus minahassae*. Extract and mix with 3-5 teaspoons of coconut oil.
(Philippines. 1, 2, 3)
- Pound 5-10 fresh *Psidium guajava* (guava) leaves and mix the extract with 3-5 chopped fresh leaves of *Stachyta jamaicensis*. (Philippines. 1, 2, 3)

These treatments are widely practiced by farmers in western Leyte, Philippines.

Note: For further treatments, see Wounds, page 43.

Anemia in piglets

Symptoms

- Gums, tongue or inside of eyelids are pale (normal color is pink).
- Loss of appetite.
- Piglet is weak and inactive.
- Shivering.

If left untreated, the disease worsens. The piglet's resistance to infections weakens. It can easily catch more serious diseases such as pneumonia and diarrhea. (See Coughs and colds, page 7 and Diarrhea and dehydration, page 9.) Big piglets are usually affected first.

Cause

Nutritional anemia can occur at any time of a pig's life. However, anemia caused by iron deficiency usually occurs in week-old baby pigs that are kept in pens without access to soil.

Newborn pigs are born with only a small supply of iron and they eat little dry feed before 3-4 weeks of age. It is usually necessary to administer iron to piglets. Milk, which is extremely low in iron, is the major or only part of the diet of these pigs.

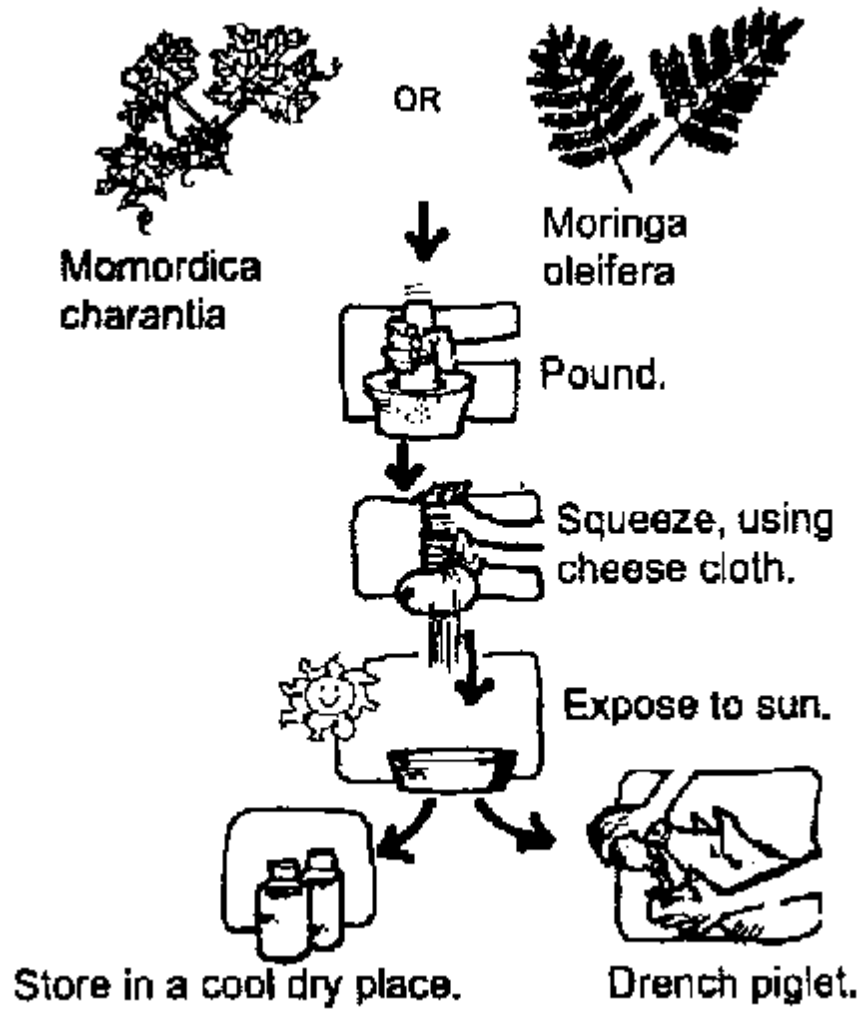
Prevention and treatment

Anemia in newborn pigs can be prevented by providing extra iron. Some people recommend providing red soil to newborn pigs to allow them to eat the soil as a source of iron. Some plants that are rich in iron are commonly used to prevent and treat anemia.

- Grind 40 g of fresh leaves of *Momordica charantia* or *Moringa oleifera* with 5-10 ml of water. Handsqueeze the ground leaves to get the juice. Pass the juice through a cheesecloth. Place the extracts in an uncovered container and concentrate them by placing the container in direct sunlight or inside a covered box. Give as a drench to the piglet in one dose each during the 4th and 5th day after birth.

For future use, keep the extracts in a bottle or any suitable container. Cover and store in a cool place. (Philippines, Thailand. 1, 2, 3, 4, 5)

Note: Farmers prefer to give *Moringa oleifera* over *Momordica charantia* because pesticides are sometimes applied to *Momordica charantia*, but rarely to *Moringa oleifera*.



- Fresh *Momordica charantia* fruits are fed to pregnant sow during gestation as a source of iron. (Thailand).

Ethnoveterinary medicine in Asia - an information kit on traditional animal health care practices - poultry

How to use this manual

This is one of four manuals on traditional animal health care practices (or "ethnoveterinary medicine") in tropical Asia. The manuals were compiled during a participatory workshop held at the International Institute of Rural Reconstruction in July 1994. The four manuals cover swine, poultry, ruminants (cattle, buffaloes, sheep and goats) and general information. For details, see the General information manual.

The topics in this manual have been broadly presented to include the whole spectrum of "conditions" which a field practitioner may encounter in the care and management of livestock.

Topics which describe a disease or condition present the following information:

Symptoms	key symptom(s) by which the disease can be identified.
Causes	primary cause(s) of the disease.
Prevention	appropriate preventive measure(s) to avoid disease onset.
Treatment	a detailed description of the treatment(s).

The treatments list the ingredients by their botanical (or Latin) name and a common English name. For some commonly known species (e.g., garlic, ginger, coconut, banana, guava), only the English name may appear in the text. The General information manual contains a complete list of plants named in the four manuals.

The treatments or remedies which require multiple ingredients are presented in a step-by-step "recipe" format which lists all ingredients to be used, and describes how to prepare them. See the General information manual for details on how to prepare remedies such as fomentations, poultices and decoctions. Many remedies which require only a single ingredient are presented in tables. Each remedy is identified by the "." mark; where several remedies are presented, the choice of the remedy is left to the user.

After each treatment, the countries in tropical Asia where the treatment is practiced (as validated by the workshop group or through references) are presented in boldface parentheses. Immediately after the names of the countries is a series of numbers that reflect the validation criteria used in the workshop:

1 Workshop participants agreed that the treatment would be useful.

2 Treatment is widely used in a region or a country (some remedies were also validated against practices from outside Asia).

3 Workshop participants had first-hand knowledge of the remedy's use on-farm.

4 Traditional healers are known to use the remedy.

5 The remedy is cited in the literature in one of two ways: (1) it is used to treat the same problem in humans or another animal species; or (2) this plant has proven pharmacological activity to treat the problem in question. For instance, laboratory tests have shown that *Nicotiana tabacum* (tobacco) leaf extract is effective against *Staphylococcus aureus* bacteria in vitro (Syat 1990). This tends to support the use of tobacco leaves in treating wounds.

6 The remedy has been scientifically validated as effective to treat the problem in the livestock species in question. Relevant references are given under the corresponding plant name in the Glossary of medicinal plants in the General information manual.

Dosages and preparation methods in indigenous practice are often imprecise and vary widely between individuals and regions. The dosages and methods given are those that, according to the professional judgement and experience of the workshop participants, are most suitable, are easy to prepare and are likely to be effective. The workshop participants and IIRR have made every attempt to ensure that the remedies are effective and are not harmful. However, they cannot guarantee this or be held liable for problems arising from these practices.

Unless noted to the contrary, all dosage quantities for treatments are for single dosage applications; in other words, each treatment should be prepared at the time of application according to the quantities specified. Dosages for poultry are usually the amount needed to treat 10 adult birds.

Where possible, simple measurements (handful, cup, etc.) have been given for ease of use by field practitioners. The General information manual contains a guide to commonly used weights and measures. More detailed measurements (milliliters, etc.) are also given to allow a practitioner to be as precise as the particular conditions may allow.

This symbol highlights precautions to heed when using a treatment.

This symbol highlights reminders.

This symbol marks diseases that can affect humans.

All references used in this manual are listed in the References section in the General information manual.

Reduced appetite

Symptoms

- Refusal to eat.
- Listlessness-not active, do not forage.
- No gain in weight.

Causes

- Illness.
- Bad food or water.
- Overcrowding, poultry house and surroundings are too hot or too cold.
- Disease which causes sores in the mouth.
- Worm infestation.

See section on Heat stress, page 36.

Prevention

- Clean the surroundings.
- Do not overcrowd the birds
- Ensure Poultry house is comfortable.

(See Housing, page 30.)

- Avoid sudden changes in diet.
- Provide fresh, clean and wholesome food.

Treatment

- Change the diet.
- If the birds show additional symptoms such as those of diarrhea or coughs and colds, see section on these diseases for the proper treatments.

- Feed meat scraps, especially chopped liver, to stimulate the appetite. Meat stimulates the birds' digestive system.

- Give water from fresh, tender coconuts as the only source of drinking water for a few days until the appetite returns to normal.

- Use any of the remedies given below. All dosages are for 10 adult birds and are to be mixed fresh every morning with the feed for the day. If the appetite of the birds still does not improve after three days of treatment, seek professional help.

- Crush 3-4 cloves of garlic and add to the feed. (India)

- Crush 10-15 curry (*Murraya koenigii*) leaves and add to feed.

- Scrape 10 g of ginger rhizome and mix with feed.

- Chop 5 chills (*Capsicum annum*) and mix with feed.

Coughs and colds

Symptoms

- Sneezing.
- Discharge from the nose.
- Watery eyes.
- Lack of appetite.
- Feed sticking to beak
- Ruffled feathers.

Cause

Coughs and colds often occur during sudden changes of weather and in the wet season.

Coughs and colds in poultry can be symptoms of many different diseases, including fowl plague, Newcastle disease and coryza. These diseases can be spread by air, drinking water and feed. There is no cure for some of them; the treatments below will help ease the symptoms only.

If the birds have colds with green diarrhea and fits or convulsions and, if many birds die, the problem may be Newcastle disease. There is no cure for this. You can prevent it with a cheap and effective vaccination. See the section on Infectious diseases, page 21.

If the birds have swollen faces, the disease may be coryza. Use one of the remedies made from *Heliotropium indicum* or *Spondias pinnate* below.

Prevention

- Proper hygiene-such as clean water and equipment.
- Good feeding.
- Avoid overcrowding.
- Protect the birds from the weather.
- Vaccinate the birds against Newcastle disease and other diseases.



Provide shelter from the weather.

- Mix 1/2 teaspoon of turmeric rhizome powder in every liter of drinking water. Used also for humans. (India)

Treatment

In administering any drug orally, keep the bird's head level (See Application of Herbal Medicine in General Information). Otherwise, the medicine may go into the bird's lungs.

- Boil 1 part mature leaves of *Heliotropium indicum* or young leaves of *Spondias pinnata* in 2 parts of clean water for 5-10 minutes. Give the decoction to the birds through the mouth, using a dropper, 2-3 times a day until the symptoms disappear. Use 3-5 ml (1/2 to 1 teaspoon) of decoction per kilogram of bodyweight. This treatment is effective for coryza.

(Leyte, Philippines. 1, 2, 3, 4, 5, 6)

- Crush garlic cloves and mix them with the feed. Use 1 clove for each bird per day to prevent and cure diseases. (Throughout India. 1, 2, 3, 4, 5, 6)

- Soak 10 g of seeds of *Trigonella foenum-graecum* (fenugreek) in 1 liter of boiling water. Allow to cool. Give as the only source of drinking water until symptoms disappear. (Parts of India. 1, 2)

· Chop 1/4 onion per bird and feed it to the chickens each day. This is a common practice in India to prevent and cure poultry diseases. (India, 1, 2, 3, 4)

· Boil a handful of basil (*Ocimum sanctum*) leaves in 1 liter of water until only half of the water remains. Mix this in the drinking water. The leaves can also be chopped and mixed with the feed.

(Parts of India. 1, 2, 4)

· Pound 10 g of fresh ginger rhizome, squeeze out the juice and mix the juice with 250 ml of water and 10 g of brown sugar. The mixture is enough for 10 birds. Give as drinking water every day. (India. 1, 2, 3, 4)

· Take a whole plant of *Andrographis paniculata*. Boil with 2 liters of water till 1 liter is left. Soak 2 handfuls of uncooked milled rice in this water overnight. Feed to chicken next morning mixed with other feed. This prevents disease in unaffected flocks.

Diarrhea

Diarrhea can be caused by many different problems. See the table below and the section on Infectious diseases (page 21).

Symptom	Causes
Bloody and watery diarrhea.	Most likely to be coccidiosis.
Worms in diarrhea. Frequent bouts of diarrhea. Watery diarrhea.	Worms.
Diarrhea is green or white.	Bacterial infection. (See section on Infectious diseases).
Diarrhea loose and grey.	Nutritional, due to sudden change in diet, excessive feeding of one grain, too much salt in diet.
Diarrhea watery and green, with foul odor. Many chickens in village die.	Newcastle disease. (See section on Infectious diseases).

Prevention

- Provide clean drinking water.
- Give clean feed.
- Sweep around and inside the home every day.
- Throw garbage and bird droppings into a manure pit.
- Crush together 7-10 cloves of garlic and a fingernail sized piece of dried turmeric rhizome. Mix this amount in the poultry feed every day (this is enough for 10 adult birds).

· Boil 250 g of brown sugar with 1 liter of water. Add 250 g of powdered turmeric rhizome and boil until only half the water remains. Allow to cool and store in a clean, dry bottle. Add 3 tablespoons of the mixture in the drinking water each day. This amount is for 10 birds.

(India, Indonesia. 1, 2, 3, 4)

Treatment

Use one of these remedies. The dosages are enough for 10 birds.

· Crush 7-10 cloves of garlic and mix with the poultry feed. Give for 2-3 days or until the diarrhea stops. This can also be used as a preventive (see above). (1, 2, 3, 4)

· 7-10 cloves of garlic.

1 onion bulb.

5-10 g (1/4 handful) of cumin seeds

1/4 handful of fenugreek seeds.

Thumb-sized piece of dry turmeric rhizome.

Grind these ingredients together and mix in the feed.

Give for 2-3 days. (1, 2, 3, 4)

· Grind 5 g of seeds (or 5 g of bark) of *Sesbania aegyptiaca*. Mix with feed.

(Andhra Pradesh, India. 1, 2, 3, 4, 5)

· Grind 1/4 of a dried mace (*Myristica fragrans*) fruit. Add to the feed for 2-3 day-. (1, 2, 3, 4)

· Grind a handful of leaves or roots of *Azima tetraacantha* and mix with enough yoghurt to make a paste. Add to the feed. (Andhra Pradesh, India. 1, 2, 3, 4)

· Give the water left after cooking rice (kanjee) instead of drinking water. This helps bind the stomach and is used to rehydrate the sick birds. (1, 2, 3, 4)

· Give refined wheat flour as feed as long as the diarrhea lasts. (India. 1, 2, 3, 4)

· Grind together 10 g of rock salt and 1/4dried fruit of nutmeg (*Myristica fragrans*). Mix with the feed for 3-4 days. (1, 2, 3, 4)

· 1 handfull of fresh *Tinosperma crispa* vines.

10 cm of fresh *Acacia insuavis* branch.

10 cm of fresh neem bark.

1 fresh *Andrographis paniculata* stem.

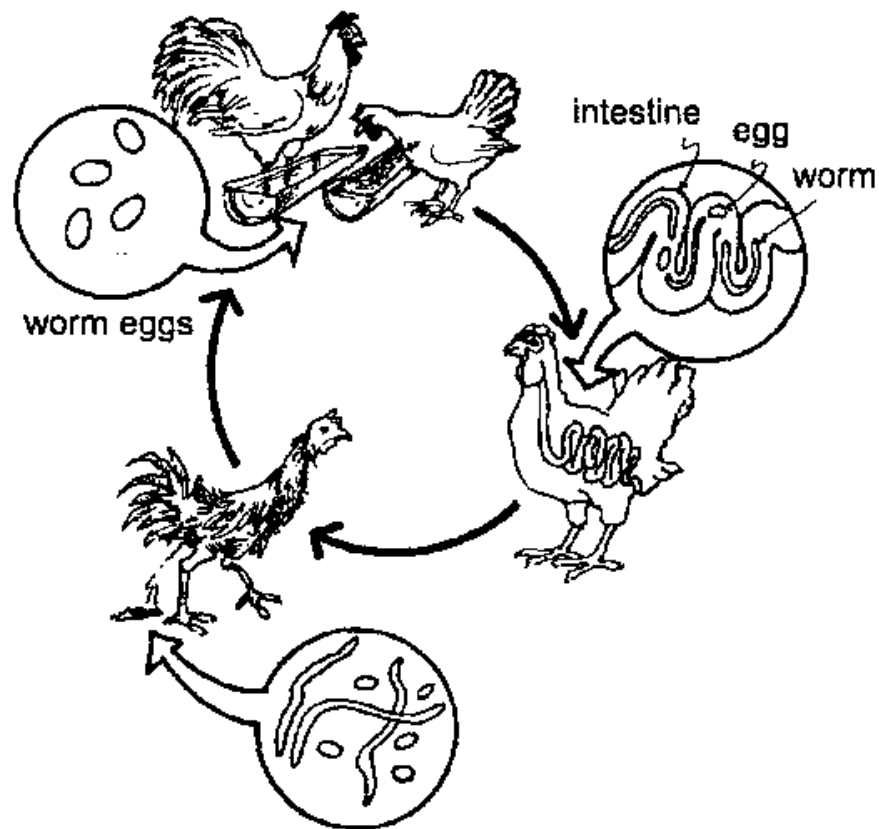
Mix together and pound all ingredients. Squeeze out the juice. Use a dropper or syringe to put two drops of juice into the chicken's mouth once a day for 3 days. Or mix the juice with rice and feed it to the birds.

(Thailand. 1, 2, 3, 4)

Intestinal worms

Symptoms

- Poor appetite.
- Poor weight gain.
- Worms in the feces.
- Inactivity.
- Pale comb and wattle.
- Dull eyes.
- Irregular diarrhea.
- Dull, ruffled feathers.
- Bare patches of skin without feathers.



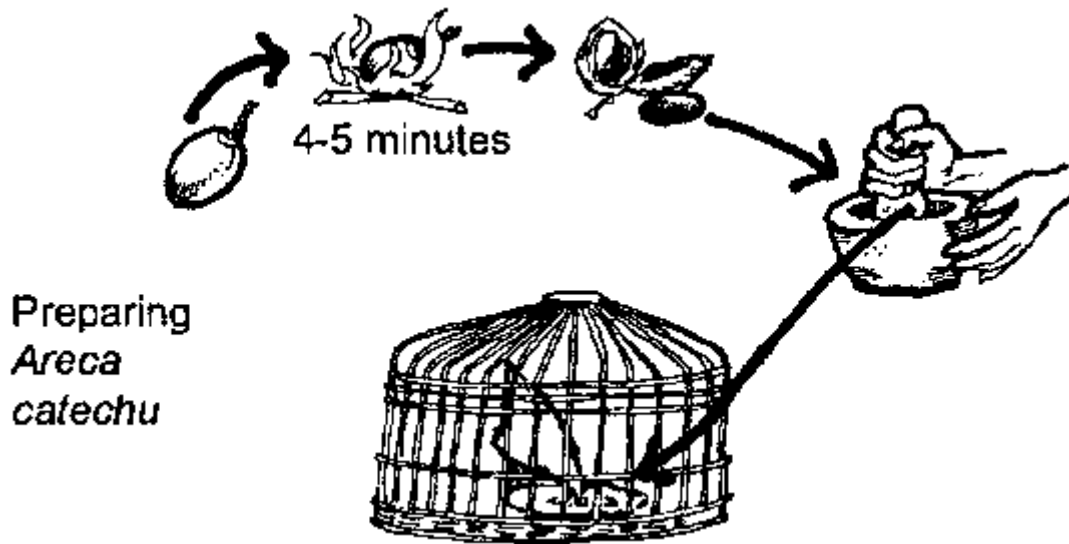
Intestinal worms

Cause

Chickens may consume feed or water that is contaminated with worm eggs. The eggs hatch into worms, which in turn lay eggs inside the chicken's body. The eggs are expelled in the chicken's feces and may mix again with the chicken's food and water. Eggs become worms; worms lay eggs. As long as the chicken is not dewormed, this cycle continues. Worms particularly affect young chickens (up to 2 months old).

Prevention

- Provide clean food and water.
- Deworm regularly using the treatments below.



Preparing Arecha catechu

Treatment

Use any of the following treatments. The dosages are for adult birds.

- Pierce the unripened fruit or stem of papaya with a knife to get the sap. To get a lot of sap, do this in the early morning before the sun rises. Mix 5 parts of sap with 1 part of water. Give 2-3 teaspoons of liquid (1015 ml) for every 10 chickens for 5 days. (Indonesia. 1, 2, 3, 5, 6)
- Heat air-dried Areca creche nuts in an open fire just enough to roast them. Open the shell and remove the nut. Pound the nut and mix with the poultry feed. Put a pinch of powder in the mouth of each bird once a day for a week. (India, Indonesia. 1, 2, 3, 4, 5)
- Pound 250 g of fresh turmeric rhizome. Squeeze out juice and use it as drinking water. Give this medication once every month. (India, Indonesia. 1, 2, 3, 4)

- Grind at least 6 fresh cloves of garlic and mix them into the feed. Give this quantity to 10 chickens for 1-2 days. Repeat the medication once a month. (India. 1, 2, 3, 4, 5, 6)
- Boil a handful of fresh bark or one whole fresh fruit of pomegranate in water for 15-20 minutes. Use half a glass (125 ml) of water for every handful (60 g) of bark or fruit. Strain to get the juice. Give juice as drinking water for 2-3 days. (India. 1, 2, 3, 4, 5)
- Boil 1 cup of air-dried leaves and seeds of *Quisqualis indica* in 2 cups of water for 15 minutes. Give 1 tablespoon of the juice, using a dropper for every adult bird once a month. (Philippines. 1, 2, 3, 4, 5)
- Boil 1 cup air-dried seeds of *Bixa orellana* in 2 cups of water for 15 minutes. Strain to collect the juice. Cool and force-feed 1 tablespoon juice per bird, using a dropper. Do this once a month. (Philippines. 1, 2, 3, 4, 5)
- Boil 1 cup air-dried seeds of *Lansium domesticum* in 2 cups of water for 15 minutes. Strain, cool and force feed 1 tablespoon of the juice per bird using a dropper.

Do this once a month. (Philippines. 1, 2, 3, 4, 5)

Ticks, lice and mites

Ticks

Symptoms

- Larvae attached to the skin.
- Anemia.
- Loss of weight.
- Red spots on the skin where the ticks have fed.
- Birds do not forage actively.
- Birds stay in one place and appear depressed.
- Birds are uneasy at night.
- Egg production decreases.

Cause

Ticks bite the birds at night, so they are rarely seen attached to the bird. After the ticks fall off. They breed in cracks in the walls and floor. The adult females lay eggs which hatch quickly in warm weather. Ticks are especially a problem when the temperature is high. They are difficult to eradicate because they do not stay on the bird during the daytime. Ticks can carry spirochetosis disease. They can also attach onto humans and suck the blood.

Lice

Symptoms

- Small, white lice eggs on the feathers.
- Lice moving on skin and feathers.
- Reduced egg production.
- Slower weight gain.
- Birds constantly peck at themselves or scratch themselves with their beaks.

Cause

Poultry are infected by biting (not sucking) lice. Lice, unlike ticks, stay all their lives on the bird's skin. They lay eggs on the feathers. Lice can also bite people but do not stay on humans for long.

Prevention

These methods are used against both ticks and lice.

- Smoke the chicken houses regularly (see remedies below).
- Fill in cracks in the walls
- Change the bedding regularly.
- Clean around the house.
- Put all waste into a manure pit.

Treatment

· Burn any of the plants listed below near or under the poultry house so the smoke goes into the house. The amount of leaves burned depends on the size of the house. This will drive away lice and ticks. Keep all birds and animals away from the smoke. People should keep away from the smoke, too.

-Dry leaves of *Diospyros ebenum*. (Central India. 1, 2, 3, 4)

-Dry tobacco leaves (do not allow birds to eat tobacco). (Throughout South and Southeast Asia. 1, 2, 3, 4, 5)

-Powdered bark of *Citrus acida*. (Thailand. 1, 2, 3, 4)

-Fresh, whole plant of *Jasminum sambac*. (Philippines. 1, 2, 4)

-Fresh or dry leaves of *Premna odorata*. (Philippines. 1, 2, 4)

-Fresh or dry leaves of *Vitex negundo*. (Philippines. 1, 2, 4)

Many women in India prefer to cook using traditional smoky stoves because they say the smoke drives away lice and ticks inside the home.

· Crush and dry fresh leaves of *Premna odorata*. Put these under the chicken house. This is used to drive away lice. It also kills lice on contact. (Philippines. 1, 2, 3, 4, 5)

· Hang a bouquet of *Vitex negundo*, *Ocimum sanctum* or lemon grass (*Cymbopogon citratus*) in the poultry house. (Throughout South and Southeast Asia. 1, 2, 3, 4)

- Rub any of the remedies listed below on the birds' skin. Use as much as needed to cover the entire skin.

- Fresh or dry tobacco leaves. (Throughout South and Southeast Asia. 1, 2, 3, 4, 5)

- A mixture of 2 parts neem (leaves or oil), 1 part of salt and 1 part of ash. (Karnataka, Tamil Nadu and Andhra Pradesh, India. 1, 2, 3, 4)

- A mixture of 1 part of salt and 2 parts of mustard oil. (Karnataka, India. 1, 2, 3, 4)

- Crushed fresh *Vitex negundo* leaves. (India. 1, 2, 3, 4)

- Pounded fresh or dried *Annona squamosa* seeds. (Throughout South and Southeast Asia. 1, 2, 3, 4, 5)

Mites

Symptoms

- Small, red bumps on the skin.
- One or more small red mites on the bumps. (Mites are the size of a pinhead.)
- Birds are uncomfortable and ruffle their feathers.
- Birds peck themselves.

Cause

Mites suck the blood of birds. They can attack all ages and both sexes. but layers are particularly affected. Mites can also bite people, causing irritation and itchiness anywhere on the body.

Prevention and treatment

- Regularly clean poultry houses, especially before hens start to lay.
- Put 1 handful of fresh lemongrass (*Cymbopogon citratus*) in the nest before the hen starts to lay. Leave it there while the hen lays and broods.

Fungal diseases

Cause Aspergillosis: *Aspergillus fumigates*.

Aflatoxicosis: *Aspergillus flavus*.

Thrush: *Candida albicans*.

Symptoms

- Birds have difficulty in breathing.
- They appear depressed: they are inactive and do not eat.
- They stagger around.
- They become thin

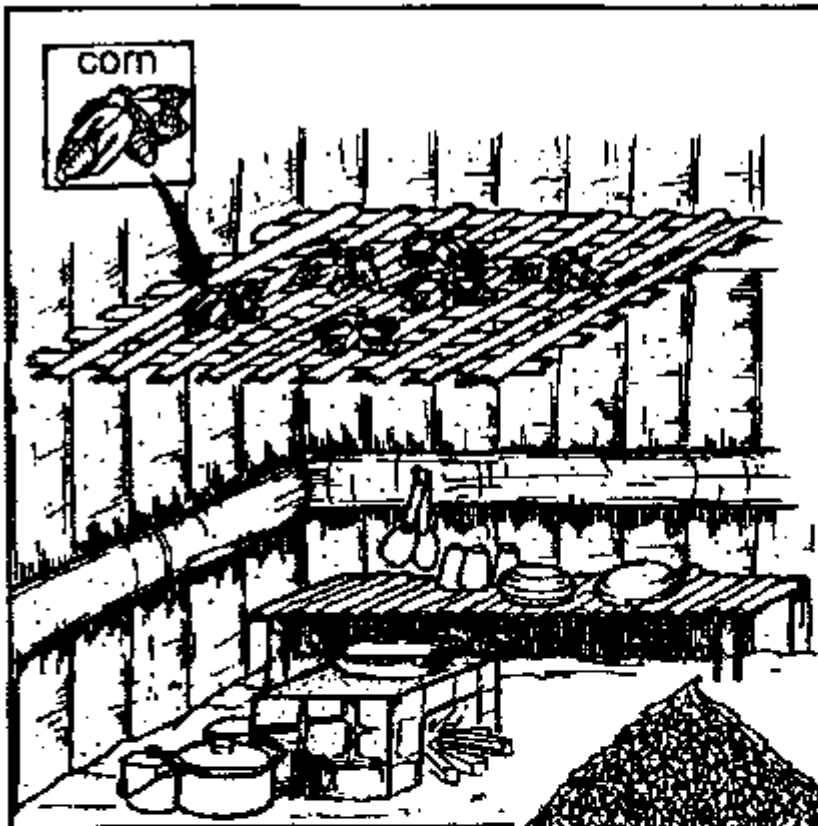
Fungal infections spread through moldy feed. Acute infections kill the birds.

Ducks are more likely to get infections than chickens.

Prevention

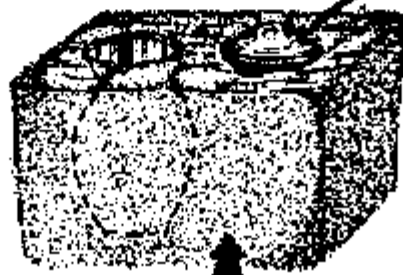
- Feed given to poultry must be thoroughly examined for signs of fungus. Moldy feed must be discarded. Boiling the feed will not get rid of the fungus completely.
- Dry and store feed carefully.
- Crush garlic cloves and add to the feed. Use approximately 1-3 cloves per chicken per day. (India. 1, 2, 3, 4)
- Grind dry turmeric rhizome and mix 1 teaspoon of the powder in 2 liters of drinking water. (India. 1, 2, 3, 4)

Both garlic and turmeric are reputed to have many beneficial properties. It is a good idea to include both every day in the diet of chickens and ducks.



In Indonesia, food for people and animals is dried above the stove inside the house.

Traditional ways of storing food for people and animals in Andhra Pradesh, India.



mud



Traditional ways of storing food for people and animals in Andhra Pradesh, India

Infectious diseases

Fowl cholera

Symptoms

- Rapid breathing.
- Mucous discharge from the mouth.
- Fever.
- Birds are inactive and do not eat.
- Diarrhea.
- Sudden death.

Spread by contact with infected birds.

Prevention

- Proper hygiene and sanitation.
- Vaccination.

Treatment See Reduced appetite (page 1), Coughs and colds (page 3) and Diarrhea (page 6). These treatments help relieve the symptoms only.

Fowlpox

Symptoms

- Blisters or boils which later form thick scabs.
- Blisters inside the mouth, nose and eyelids.
- Discharge from the nose.
- Watery or closed eyes.

Fowlpox is a slow-spreading viral disease of poultry. It kills few birds but reduces their resistance to other diseases, such as pneumonia and diarrhea. The disease is spread by insect bites and by direct contact with sores on affected birds.

Prevention

- Maintain hygiene and sanitation.
- Avoid stress.
- Control mosquitoes by removing stagnant water, pouring kerosene or oil on stagnant water, or hanging a bouquet of *Ocimum sanctum* leaves inside the poultry house. See Ticks, lice and mites, page 13.

Treatment

These treatments help relieve the symptoms only.

- Pound black pepper (*Piper nigrum*) seeds and force-feed the birds twice a day for 3 days. The seeds can also be used whole. Use 1 seed for chicks and 2-3 seeds for mature birds.
- Apply ground black pepper on the blisters.
- Grind dry seeds of mature chili pepper (*Capsicum annum*). Force-feed 5-10 seeds per day for 3 days for adult birds and 2-3 seeds for young birds.
- Grind a handful of leaves of *Abrus precatorius* with a handful of limestone (red lime). Apply on the affected part once a day for 3 days. (Thailand)

Infectious coryza

Symptoms

- Nasal discharge.
- Sneezing.
- Swelling of face under the eyes.

Chickens become susceptible to coryza at 4 weeks age. The susceptibility increases with age. The disease lasts two weeks. It is spread by contact with infected birds.

Treatment See Coughs and colds, page 3.

Newcastle disease

Newcastle disease (called "ranikhet" in India) is a serious problem in poultry. It can kill large numbers of birds. It spreads rapidly through the flocks in a village. It occurs mainly during changes in the weather (in Indonesia, Thailand, Philippines and Cambodia) and in April and October (in parts of India).

Symptoms

- Diarrhea watery and green, with foul odor.
- Discharge from the nose.
- Coughing and sneezing.
- Swelling of the head.
- Head and neck twisted to one side.
- Drooping wings, dragging legs.
- Sleepiness.
- Full, distended crop.
- Convulsions and paralysis.
- Death.

Prevention

- Vaccinate birds when they are one-day old. Give a second vaccination at 8 weeks of age or before the start of the rainy season. A vaccine is now available that can be added to the feed.
- Deworm the birds regularly. (Thailand. 1, 2)
- Farmers in Thailand mix the juice of *Andrographis paniculata* with rice and feed this to the birds to prevent Newcastle disease. (Thailand. 2)

Treatment

See Diarrhea (page 6) and Coughs and colds (page 3).

These treatments help relieve the symptoms only.

Salmonellosis

Symptoms

- Birds huddle together near the source of heat.
- Birds do not eat.
- Whitish feces around the vent.

. Death

Many young chickens and turkeys die of salmonellosis. It is spread through the egg and by direct and indirect contact.

Warning

People can catch salmonellosis by eating infected eggs and meat.

Prevention

- Proper hygiene and sanitation.

Treatment

No treatment is recommended since the disease can be transmitted to humans. Kill the affected chicken and cook the meat completely. Bury the other parts so that the disease cannot spread.

Wounds

Poultry can be wounded by sharp objects, pecks and bites.

Cocks are often wounded in cockfights. Chickens with large wounds are usually slaughtered.

Treatment

1. Control the bleeding.
2. Cut the feathers around the wound.
3. Clean with fresh water and soap. Remove dirt, stones and loose skin. Clean again with fresh or salty water.
4. Apply one of the medicines given below along with any of the fly repellents listed. All applications should be made twice a day.

Fresh, open wounds

- Grind together a clove of garlic and an equal amount of fresh or powdered turmeric rhizome with enough coconut oil to make a paste. Apply this to the wound twice a day until it heals. This remedy helps the wound heal fast. (India. 1, 2, 3, 4, 5)
- Grind fresh turmeric rhizome and apply the juice to the wound twice a day until it heals. (India. 1, 2, 3, 4, 5)
- Apply vegetable oil on the wound, then apply wood ash on top of the oil. (Throughout South and Southeast Asia. 1, 2, 3, 4)
- Mix vegetable oil and powdered lime (calcium hydroxide) and apply to the wound. This soothes the wound. (1,2,3, 4, 5)
- Apply fat from a python on the skin once a day until the wound heals. (Laos. 1, 2, 3, 4)
- Mix 1 tablespoon of fish oil and 1 tablespoon of charcoal powder. Apply on the wound 1-2 times a day. (1,2,3,4)
- Apply wood ash on the wound. (Throughout South and Southeast Asia. 1, 2, 3, 4, 5)

Fly repellents and antiseptics

These medicines repel flies and prevent the wound from becoming infested with maggots.

- Crush a handful of fresh neem leaves and make into a poultice. Apply on the wound. (India, Thailand. 1, 2, 3, 4, 5)

· Grind fresh leaves of *Vitex negundo* to make a poultice. Apply on the wound. (Throughout South and Southeast Asia. 1, 2, 3, 4, 5)

Wounds with maggots

· Drip the milky sap from the banyan tree (*Ficus bengalensis*) into the wound. After a little while, the maggots will crawl out. Dress with one of the fly repellent medicines. Repeat this once a day for 2-3 days until all the maggots have come out. Continue treatment as for an open wound. Used by Ms Ramanamma, paraveterinarian, Girijan Deepika, tribal areas of East Godavari district, Andhra Pradesh, India. (1, 2, 3, 4)

Crush unripe fruit and seeds of custard apple (*Annona squamosa*). Apply on wound once a day for 2-3 days (until all maggots are dead). Then dress with any of the other treatments for open wounds or fly repellents until the wound heals. (Throughout South and Southeast Asia. 1, 2, 3, 4, 5)

· Grind a handful of neem leaves and mix with enough coconut oil to make a paste. Apply onto the wound once a day until the wound heals. (Throughout South and Southeast Asia. 1, 2, 3, 4, 5)

Infected wounds

Pound a handful of *Eucalyptus globulus* leaves and squeeze out the juice. Pour the juice onto the infected wound. Repeat twice a day until the wound heals. (Throughout South and Southeast Asia. 1, 2, 3, 4, 5)

Burns

Wash the burn with cold or cool water. Make a poultice of either of the following medicines and apply it to the burn. Fresh latex or pulp of *Aloe vera*. (Throughout South and Southeast Asia. 1, 2, 3, 4, 5)

· Honey. (Indonesia. 1, 2, 3, 4, 5)

Housing

Housing practices vary from region to region. In general, housing:

- Protects poultry from the rain, wind, sun and cold.
- Protects poultry from predators and thieves, especially at night.
- Helps prevent and control diseases.

Farmers change the bedding and clean the poultry housing regularly. They sweep the ground inside and around their homes, especially if they raise free-range poultry. It is important to avoid overcrowding in the poultry house.

Types of housing

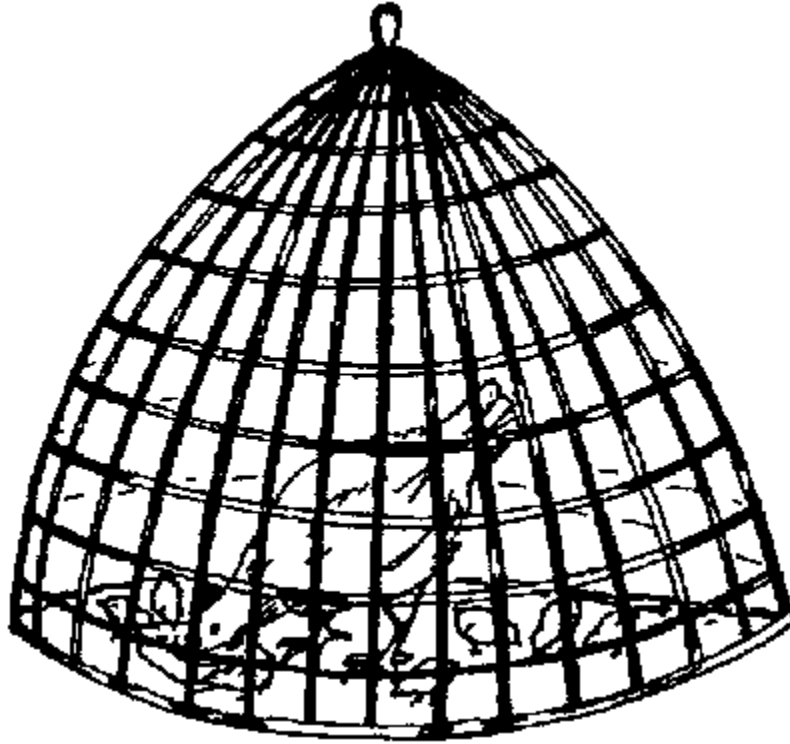
Cambodia, India, Indonesia, Thailand

During the day, the chickens are left out to forage. At night, they are covered with a bamboo basket (about 80 cm across and 45 cm high). This basket is big enough for one or two adults and seven to eight chicks. In India, it is kept inside the owner's house at night. In other countries, it is left outside.

Farmers in India place a basket on a beam inside their houses for layers to roost in.

The basket can be used to quarantine sick birds. You can also use it to make sure poultry eat the medicines you put out for them. Mix the medicine with the feed or drinking water and put it under the basket with the birds.

During the night, farmers put free-range birds in a big bamboo basket with a lid. They put the basket under the floor of their stilted homes.



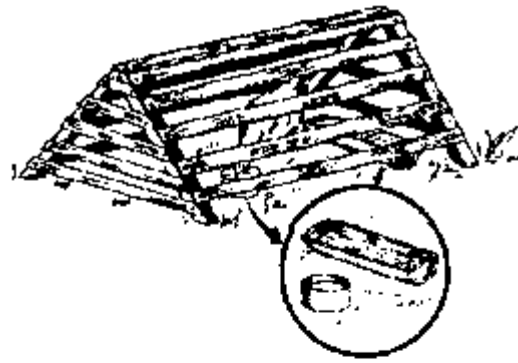
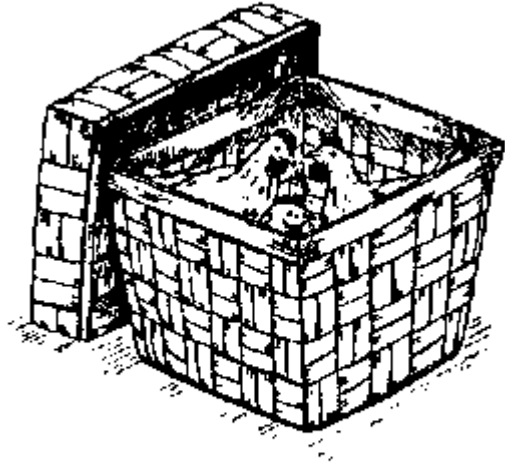
Cambodia, India, Indonesia, Thailand

Philippines

This cage is made of coconut wood or bamboo. One hen and her chicks are kept in the cage for 3-4 weeks after the chicks hatch to protect them from predators and thieves. A clay pot filled with water is put inside. In the wet season, the cage is put under the raised floor of the farmer's house.

For their fighting cocks, farmers in the Philippines build a shelter of two planks of wood. The cock can perch on the bamboo or wooden rod attached to the top of the shelter. A rope around its leg prevents the bird from flying away. A feeder and waterer are placed inside the shelter.

Philippines

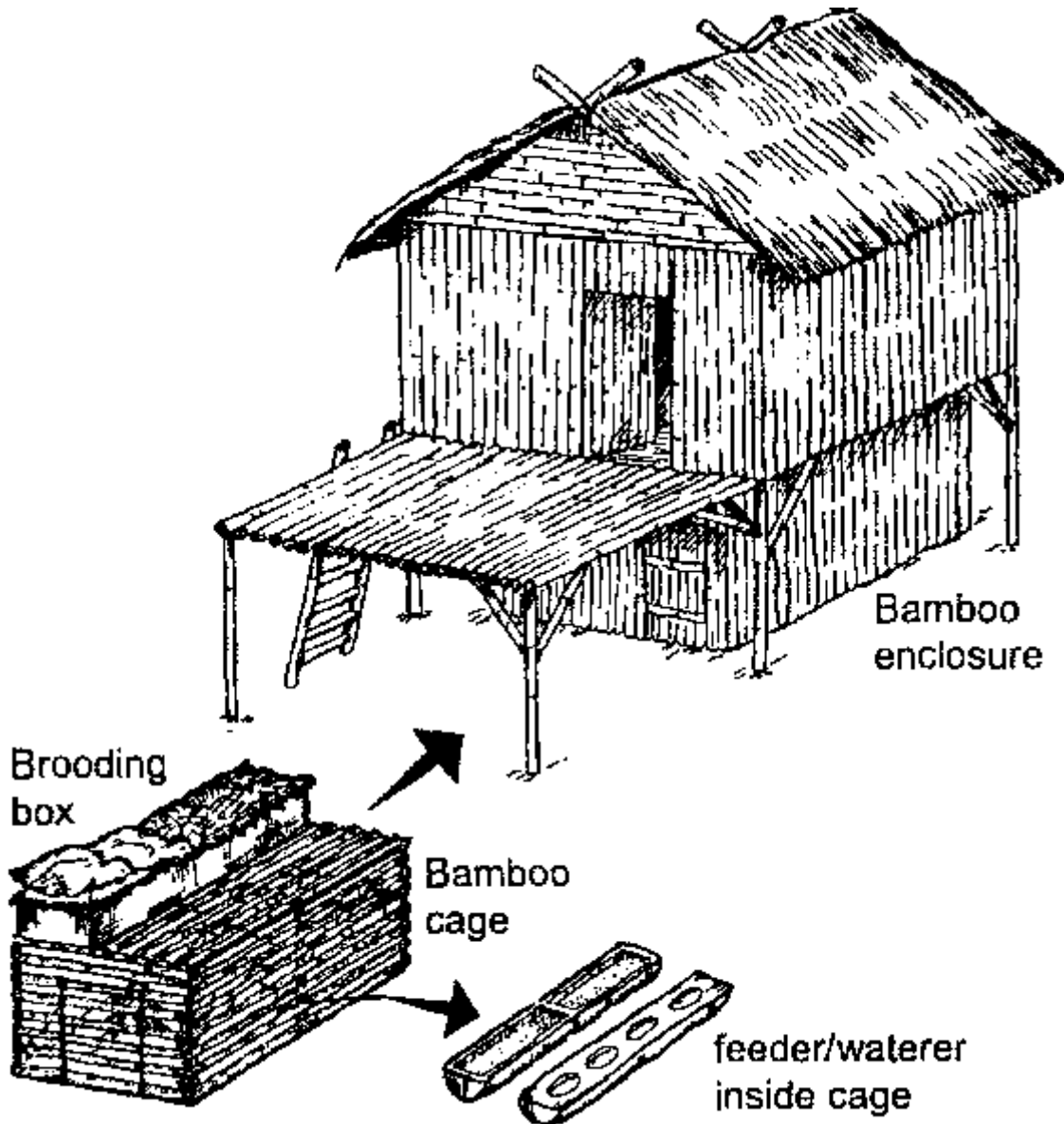


Philippines

Thailand

This bamboo cage can house five adult birds. It is placed on the ground underneath the farmer's house and the whole area under the house is enclosed by bamboo walls. The birds can go in and out through the opening and through the door in the enclosure. Bamboo troughs (made by splitting a large bamboo in half lengthwise) are put inside the cage to hold feed and water

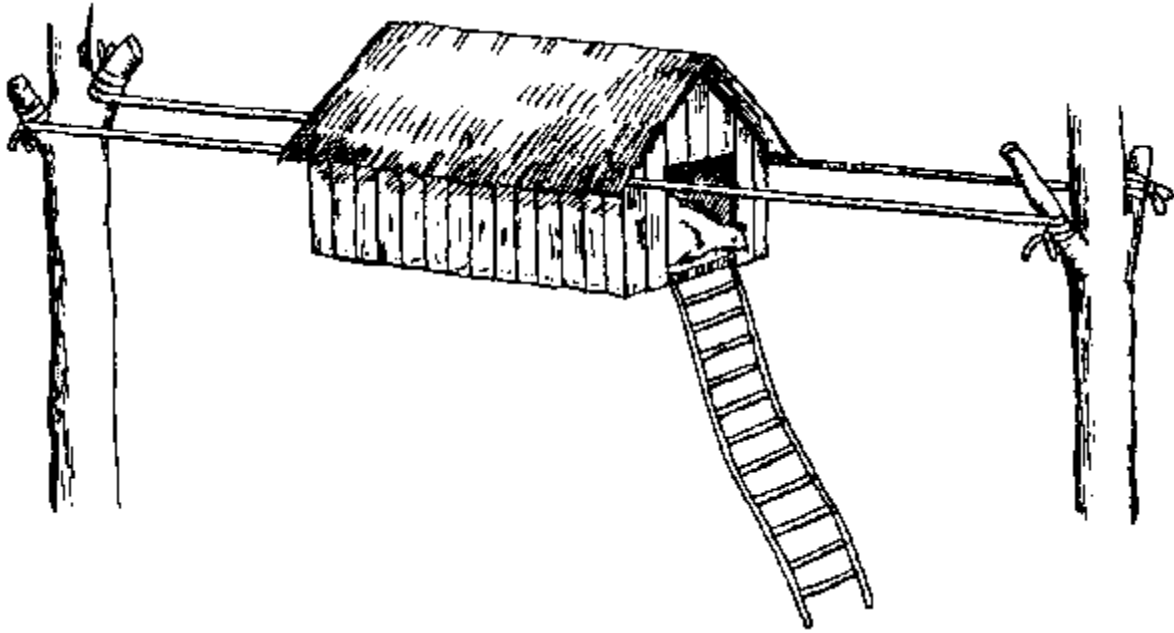
The farmers clean the clean with broom. They put a box on top of the cage for the hens to lay eggs and / brood.



Thailand

Sri Lanka

Two wires are strung between two trees, 3-6 m above the ground. A small poultry shelter for about five birds is placed on the wires. During the day, the birds forage about outside. When a predator approaches, the birds hop up the rope ladder into the shelter. During the night, they go back into the shelter and the ladder is tied up. It is let down again in the morning.

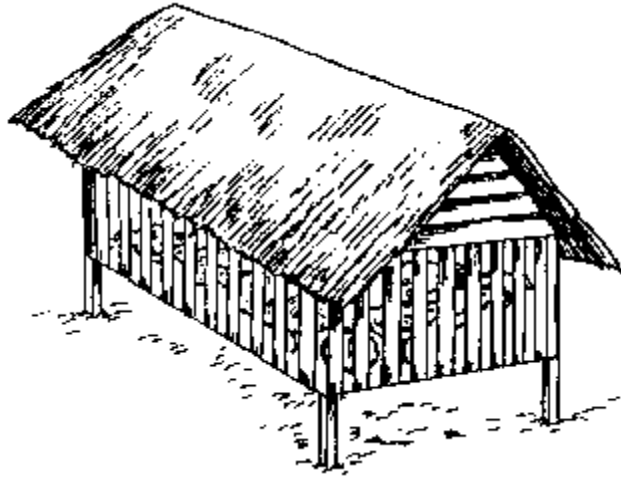


Sri Lanka

Cambodia, India, Indonesia, Philippines, Sri Lanka

This cage is built of wood or bamboo. It is located near the farmer's house (in Sri Lanka, the cage is not fixed but can be moved around). The roof is made of straw, hay, dried grass or dried nipa or other palm leaves. In the Philippines, walls are made by fixing wire mesh or nylon net between bamboo posts.

Bamboo feeders and waterers or tin cans are put inside the house. Rice hulls or rice straw are commonly used for bedding. The floor is made of slatted bamboo so the poultry droppings fall down into a manure pit below. The droppings are cleaned out regularly from both the cage and the pit below. They are used as manure in the fields.



Cambodia, India, Indonesia, Philippines, Sri Lanka

Cambodia

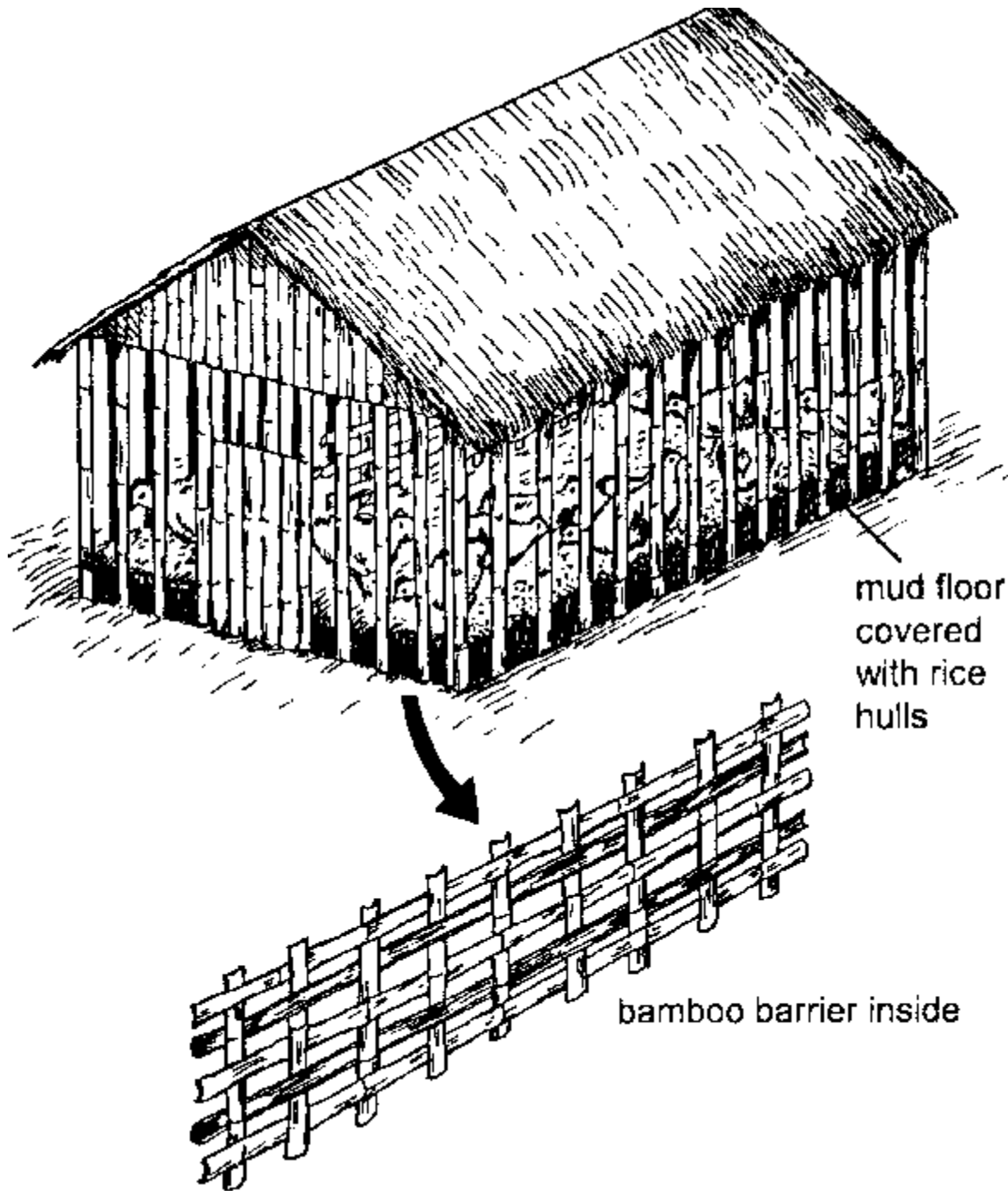
In Cambodia, poultry are allowed to range freely. They perch on tree branches at night and are protected from the rain by the tree leaves.

India

In India, farmers establish a fence around the poultry house to deter predators from entering the house. They either plant thorny bushes or build a fence of dried, thorny brambles (such as Acacia species). Wire and wood fences are sometimes also used.

Laos

This house is built of wood or bamboo, with a roof of thatched grass. A house measuring 4m x 8m can hold 250300 chickens. On the floor inside the house, farmers put a 10 cm layer of mud. On top of this, they put a 3-5 cm layer of rice hulls. They change the bedding once every two months. Barriers of woven bamboo, 50 cm high, run lengthwise down the house. The hens are let outside to forage during the day.



mud floor
covered
with rice
hulls

bamboo barrier inside

Laos

Heat stress

Heat stress occurs during hot weather. Some breeds of broiler cannot withstand heat.

Symptoms

- Panting, rapid breathing.
- Poultry eat little.
- Slow growth rate.
- Few eggs laid.
- Birds become ill more easily.
- Watery diarrhea of a yellow or white color.
- Chickens peck at each other.
- Death.

Prevention

- Keep the poultry house shaded and well-ventilated.
- Use grass or thatch roofs instead of galvanized tin roofing.
- Do not overcrowd the birds.
- Keep the litter dry.

Treatment

- Give water from young coconuts as drinking water.
- Mix 4 teaspoons of sugar in 1 liter of water and give as drinking water.

Feeding

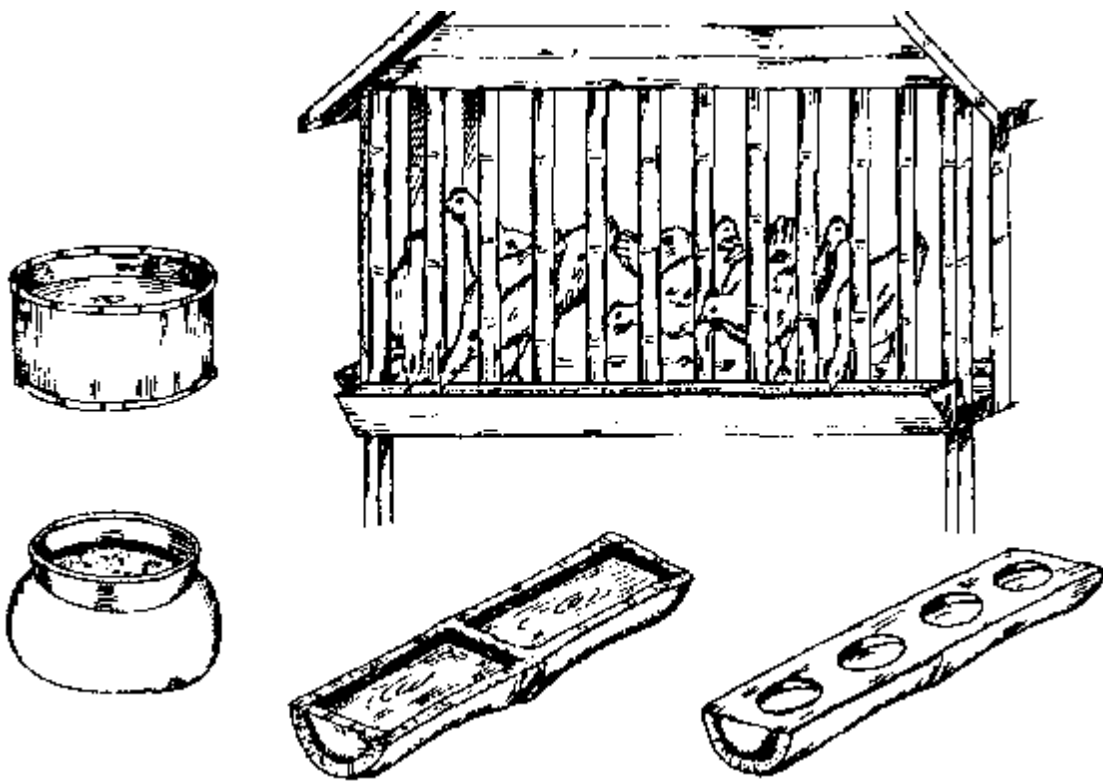
Small-scale poultry raisers in Asia generally use two types of feeding: free-range and using feeders.

Free-range feeding

Free-range poultry eat household wastes, worms, grain seeds, leaves, grasses and insects. Their owners supplement this diet with a small amount of grain each day. The amount varies from household to household and with the household's economic situation. The mother hen forages and feeds her chicks. In doing so, she teaches the chicks to forage for themselves.

Feeders

Farmers put the grain in a feeder in the poultry house or pen. They also provide water to the birds.



Containers for feed and water

Good nutrition

To give a balanced diet, make sure the birds eat ingredients from each of the four columns in the table below.

Cereals	Meat and beans		Oilseeds	Vitamins and minerals
Barley	Crab meat	Lentils	Coconut cake	Green
Corn	Fish	Mungbeans	Copra	grasses
Millets	Insects	Soybeans	Cotton seed	Leucaena
Rice	Meat scraps	Brewer's	Groundnut	leaves
Wheat	Snails yeast	Linseed		
	Worms	(distiller's	Mustard seed	
		corn)	Sesame	
	Cowpea	Buttermilk	Sunflower	
	Gram (black,	Rice polish	seeds	
	green, horse, red	Skim milk		

Medicinal additives

Farmers in India regularly provide these additives to prevent intestinal worms and other problems in their chickens.

- Mix 1 teaspoon of turmeric powder in every 2 liters of the drinking water (or a pinch for every glass of water). (India. 1, 2, 3, 4)
- Grind 6-7 cloves of garlic for every 10 chickens. Mix with the feed. (India. 1, 2, 3, 4)

Calcium deficiency

Symptoms

Lameness.

Slow growth.

Ruffled feathers.

Drop in egg production.

Eggs have thin shells and break easily.

Splayed legs.

Paralysis.

Treatment

· Grind 20 pieces of blackboard chalk or limestone into powder. Add 1 teaspoon of salt. Add to 10 kg of dry feed. Feed for 10 days. This is enough for 10 birds. (Cambodia. 1, 2, 3, 4)

· Mix half a fistful of any of the following with the feed (this is enough for 10 adult chickens).

Oyster shell flakes	Fish or shrimp meal	Skimmed milk
Coarse or ground limestone	Powdered crab shells	Citrus pulp
Ground eggshells Bone meal	Meat and bone scraps	Sesame seed
	Buttermilk	Soybean Cowpea