

6.2 Feeding Animals

Introduction

The availability of fodder is one of the limiting factors in animal husbandry. Unlike landless systems in conventional farming, organic husbandry should be mainly based on the fodder produced on the farm itself. As is the case with humans, there is a direct link between the quantity and composition of the food and the health status of the animals.

Lessons to be learnt

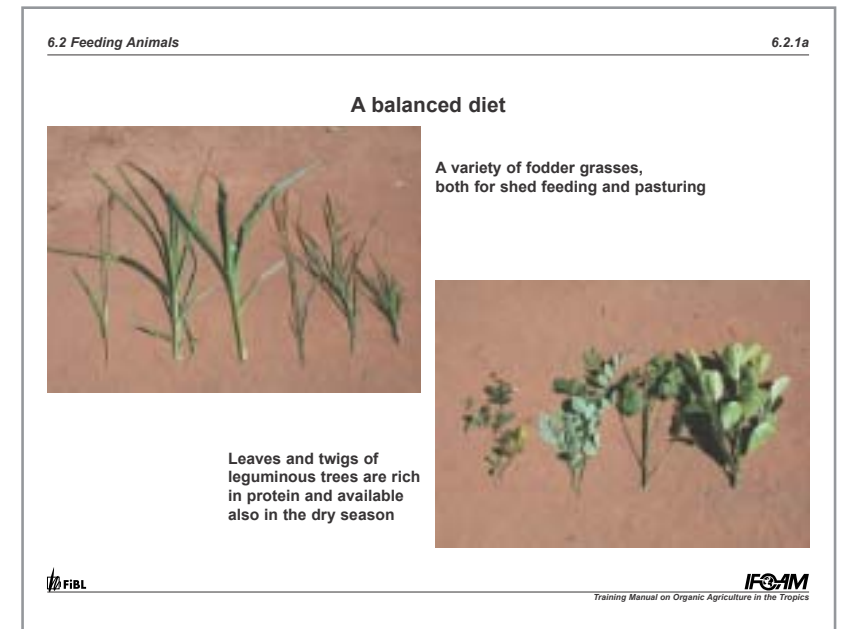
- *A diverse and balanced mixture of food is a pre-condition for good animal health.*
- *Grazing and shed feeding both have their advantages as well as disadvantages.*
- *Fodder cultivation can be integrated into the farm without too much competition with crop production.*
- *Overgrazing is a major threat to soil fertility.*

6.2.1 A Balanced Diet

Food Requirements of Animals

If farm animals are to be productive (milk, eggs, meat etc.), it is important that they get suitable food in sufficient quantities. If the fodder production of one's farm is limited (which usually is the case), it might be economically valid to keep less animals but supply them with sufficient food. The appropriate quantity and the mix of feed items will of course depend on the type of animal, but also on its main use (e.g. chicken for meat or egg production, cattle for milk, meat or draft etc.). In milk production for example, cows producing milk should be given fresh grass and possibly other feed items of sufficient protein content. On the same diet, draught animals would rapidly become exhausted.

A balanced diet will keep an animal healthy and productive. Whether or not a farm animal receives the appropriate amount and kind of fodder usually can be seen by the shine of its hair or feathers. For ruminants, a majority of the fodder should consist of roughage (grass, leaves). If concentrates or supplements are used (e.g. agricultural by-products and wastes), they should not contain growth promoters and other synthetic substances. Instead of buying expensive concentrates, there are a variety of leguminous plants rich in protein which can be grown in the farm as cover crop, hedges or trees. If mineral content in the available fodder is not sufficient to satisfy the animal's requirements, mineral salt bricks or similar feed supplements can be used as long as they do not contain synthetic additives.



Transparency 6.2.1a: Varieties of fodder grasses and leguminous tree plants used as fodder for cattle and goats.

Experience sharing: Which fodder plants to grow?

Group work or plenary discussion: Select a farm animal which is typically kept in the region. Discuss and note:

- Which fodder is used for feeding? in which season?
- Which other grass varieties could be cultivated as fodder? which tree crops?

Encourage the participants to share their experience, observations and opinions on fodder and feeding.

6.2.2 Fodder Cultivation


Grazing versus shed feeding

In many regions of the tropics, favourable periods with abundant fodder alternate with less favourable periods when there is almost nothing to feed to the animals. However, keeping animals means providing fodder throughout the year. Fodder can be produced on the farm as grazing land or as grass or tree crops used for cutting. While grazing requires less labour than shed feeding, more land is needed and appropriate measures to keep the animals away from other crops must be undertaken. Grazing may lead to a lower productivity (milk, meat) but usually is the more favourable option concerning health and welfare of the animals. Shed keeping, however, has the advantage that the dung can be easily collected, stored, or composted and applied to the crops. Whether grazing or shed feeding is the more suitable option will mainly depend on the agro-climatic conditions, the cropping system, and the availability of land. A combination of shed feeding and grazing in a fenced area may be an ideal combination of high productivity and animal friendly husbandry. In extensive grass lands of semi-arid areas, however, grazing may be the only suitable option.

6.2 Feeding Animals 6.2.2a

Grazing versus shed feeding

Combining grazing and shed feeding as an ideal solution?



Grazing:

- less labour
- more land required
- lower productivity
- more move/exercise
- dung is spread on the pastures

Shed feeding:

- more labour
- less land required
- higher productivity (?)
- less move / exercise
- dung can be collected easily

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Transparency 6.2.2a: The pros and cons of grazing and shed feeding, and the combination of both systems as a promising option.

Excursion: Grazing and shed feeding

If available in the area, farms with grazing and/or shed feeding systems can be visited. The advantages and disadvantages of each system are best discussed with the farmer in order to give the participants a realistic idea of the options. The excursion would also give opportunity to discuss topics of shed systems, fodder items, veterinary treatment etc. based on practical examples.

Integrating fodder cultivation in the farm

In most smallholder farms, fodder cultivation will compete for space with the cultivation of crops. Whether fodder cultivation (and thus animal husbandry) is economically more beneficial compared with crop production must be assessed case by case. However, there are some options for integrating fodder crops in farms without sacrificing much land. Below are some examples:

- Grass or leguminous cover crops in tree plantations
- Hedges of suitable shrubs
- Shade or support trees
- Grass on bunds against soil erosion
- Grass fallows or green manures in the crop rotation
- Crops with by-products such as paddy straw or pea leaves

Case study: Integrated fodder cultivation in Kerala, India

Innovative farmers in the humid tropics of South India started integrating fodder cultivation into their coffee and pepper plantations for the feeding of their dairy cattle. Besides the rice straw which has become more and more scarce in the region as paddy cultivation declines, they now feed also grass, legumes and twigs from trees and hedges to their cows.

Grass is planted on bunds, borders, or in between crops, wherever there is sufficient light. Farmers found varieties such as congo signal and napier to be the most suitable for their purpose and for the conditions. Trees such as jackfruit and leguminous shrubs such as gliricidia serve both as shade or support trees and provide protein rich fodder in times of scarcity of grass. Some farmers also use leguminous green manures in new tree plantations or intercropped into the annual crops, providing both fodder and fixing nitrogen to the soil. Others found it remunerative to specialise on animal husbandry and started growing grass and leguminous fodder plants on separate sites.

Integrating fodder cultivation in the farm



Grass varieties can be planted as pastures, for cutting, as a cover crop, on bunds etc.

Leguminous fodder plants can be grown as trees, hedges, cover crops, green manures etc.



Transparency 6.2.2b: A South Indian farmer combining grass cultivation, pasture land (photo left), fodder hedges and the cultivation of a leguminous fodder crop (photo right).

Integrated fodder cultivation in Kerala, India

Transparency 6.2.2c: Cultivation of fodder grass in a young pepper plantation in Kerala. Gliricidia, a protein rich fodder crop, is used as a support tree for the pepper vines.

Experience sharing: Fodder cultivation

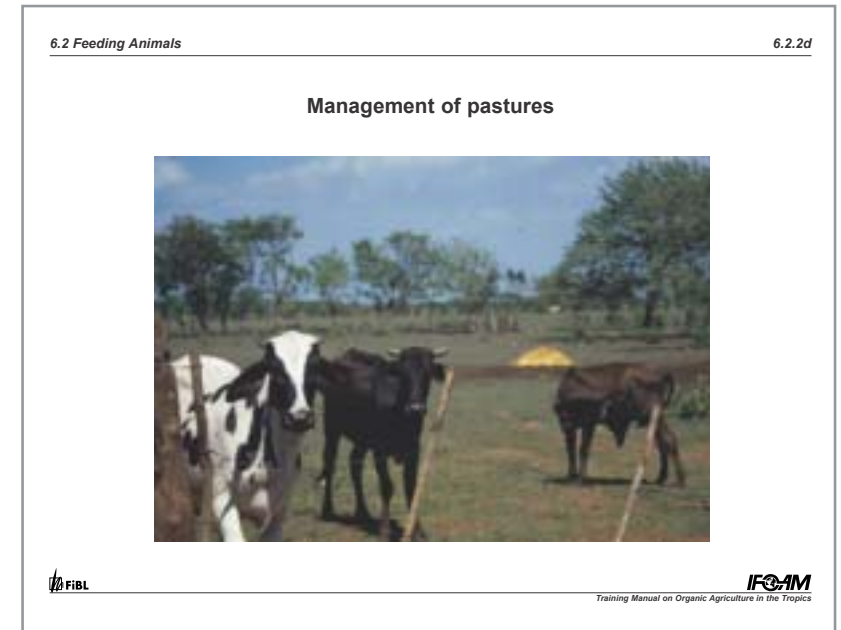
Which systems of fodder cultivation did the participants observe? If available, an innovative farmer of the region could be invited to share his experience on fodder cultivation.

Management of pastures

The management of pastures is crucial for a good herd management. It is also important to practice appropriate management throughout the year. There are many different types of grasses, and every climatic region has grasses which are specifically adapted to the conditions. In some cases it may be worth considering to till the grazing site and sow grass varieties that are more appropriate to the animal's needs.

Overgrazing is probably the most significant threat to grass land. Once the protective grass cover is destroyed, the top soil is prone to erosion. Degraded pastures or land with little plant cover is difficult to re-cultivate. Therefore, it is important that the use and intensity of grazing on a particular piece of land is appropriate to its production capacity. Sufficient time must be given to a pasture to recover after intensive grazing. Fencing off of areas and rotation of the grazing animals on several pieces of land is a suitable option. This will also reduce the incidence of infection from parasites encountered while the animals graze.

The intensity and timing of grazing as well as the cutting of the grass will influence the varieties of plants growing in the pasture. If certain weeds are a problem, the organic farmer will have to change his management practises as weedicides can not be used.



Transparency 6.2.2d: Cattle grazing on a pasture in Cuba

Experience sharing: Pasture management in practise

Invite a farmer who is having success keeping animals on pastures, or visit his farm. Let him explain his methods and experience. Which plants grown on his pastures? Which problems did he face and how did he solve them? Discuss with the participants what could be improved in this system.

Recommended Readings

- «Diary Cattle Farming», Agromisa Agrodok-series No.14.
- «Field Notes on Organic Farming», KIOF.