

The home garden in the tropics

Agrodok 9 - The home garden in the tropics



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Agrodok 9

The home garden in the tropics

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First edition: 2008

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Printed by: Digigrafi, Wageningen, the Netherlands

ISBN Agromisa: 978-90-8573-087-3

ISBN CTA: 978-92-9081-380-4

Foreword

This Agrodok replaces ‘The vegetable garden in the tropics’, which treated the garden as a series of plots for the production of vegetable crops. In this edition, features such as hedges and trees and shrubs that give a garden its permanent character, come to the fore. Moreover, the emphasis is on ensuring that some vegetables (and other products) are available throughout the year, even where the gardener faces water shortage. In this way, the garden can contribute substantially to an improved diet for the family. Hence the focus is on hardy perennials; the more demanding annual vegetables take second place.

Acknowledgements

Lanre Denton in Nigeria, and Gerard Grubben and Rudy Schippers in the Netherlands reviewed the manuscript; their suggestions for improvements are greatly appreciated. Piet Scheepens gave welcome comments on crop protection aspects. The Royal Tropical Institute in Amsterdam kindly permitted reproduction of photographs in its Communication 69: Tropical leaf vegetables in human nutrition, by H.A.P.C. Oomen and G.J.H. Grubben, published in 1977.

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1 Introduction

1.1 Outline

The main concern in agriculture in many countries has long been - and still is - food security: increasing the production of the major food crops, in particular the staples, mainly cereals. Most of these staples are energy foods: they still our hunger and provide the energy for our daily activities. In addition we need protective food - proteins, vitamins and minerals - which enable us to grow healthily. These protective nutrients are mainly found in meat, eggs, dairy products, fish, pulses, fruit and vegetables. For a balanced diet both energy food and protective food are essential, as explained in Section 1.2 below.

Unfortunately protective food is expensive. To buy ample quantities of protective food a family has to be fairly well off. But if you cannot buy it, perhaps you can produce it yourself. Protective food is vitally important for the health of you and your children, so it is worth the effort! AGROMISA and its partners try to help you: many Agrodoks deal with home production of protective food (see list on back cover).

Vegetables are an attractive source of protective food, as they yield relatively good crops, in a short period of time, on a small plot of land, without much investment. Which other source of protective food has these advantages?

This Agrodok is meant to help you manage a home garden so that you can gather some vegetables and fruits throughout the year without spending a lot of time gardening. General aspects are presented in Chapter 2. First garden crops are compared with field crops. This is followed by a comparison of home gardens and market gardens. There is considerable overlap between the two, but they also differ in important aspects. Traditionally home gardens flourish in wet climates, but in the last Section of Chapter 2 it is argued that there is great scope for home gardening in drier climates too.

The topic of Chapter 3 is setting up a home garden, using trees and shrubs to give the garden a permanent character. Chapter 4 deals with choosing trees and shrubs as well as annual vegetables to be grown. A great variety of crops is grown in home gardens, including fruits, spices, medicinal plants, forage, ornamentals. This Agrodok focuses on food crops in the garden, in particular vegetables. The emphasis is on ways and means to ensure that the garden does not collapse during the off-season. Without demanding undue effort there should be some produce to make the meals more tasty and nutritious throughout the year. Chapter 5 discusses soil management, including use of manure and fertilizers. In Chapters 6, 7 and 8 growing techniques are presented, from sowing to harvesting.

1.2 Fruit and vegetables in the diet

The food we eat can be broadly divided in energy-providing food and protective food. Our meals consist largely of energy foods supplied by the principal food crops: cereals, tuber crops such as cassava and tannia, cooking banana. These major crops are rich in carbohydrates (nutrients based on starch and sugars), which are burnt (with the oxygen we inhale by breathing) to provide energy. The energy is used both for our daily activities and for life processes in our body cells. Surplus carbohydrate is converted into fat, stored in the body as an energy source for lean periods. Fat or oil used in preparing meals reduces the amount of carbohydrate required.

Protective food is needed - in smaller quantities - for the maintenance of living cells and the growth of new ones. Meat, fish, dairy products and eggs contain most of the protective nutrients we need: proteins, vitamins and minerals. However, animal products are expensive (and vegetarians object to eating all or most animal products). This is where fruits and vegetables come in. The wide range of fruits and particularly vegetables (including pulses) provides all the protective food needed to supplement the energy foods we eat. They also add variety and taste to the meals, and are rich in fibre that aids digestion.

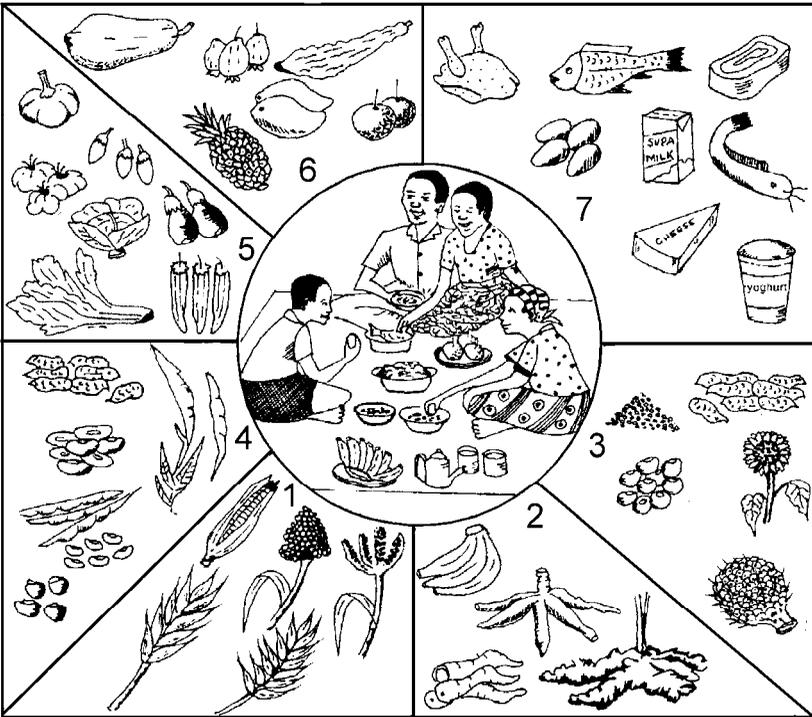


Figure 1: Food categories for a healthy diet: 1: cereals, 2: tubers, plantain, 3: oil crops, 4: pulses, 5: vegetables, 6: fruits, 7: animal products

The body requires only minute quantities of vitamins and minerals, but protein - together with carbohydrate and fat - belongs to the 'big three' when it comes to recommended quantities. Virtually all activities in living cells involve proteins (and the brain contains about 20% of all the protein in our body)! Because of their fast growth children need almost as much protein as adults, and they often suffer protein malnutrition (kwashiorkor). Protein deficiency also undermines the resistance against other diseases.

Among the energy foods cereals are relatively good sources of protein, but protein-content of tubers is quite low. Pulses are excellent sources

of protein, as good as or better than animal products. Note that protein can only play its protective role if the body is not short of energy. Eggs eaten by an undernourished person are burnt up to provide energy rather than being used for growth! Thus protective food can only play its proper role when hunger has been overcome.

Unfortunately consumption of protective foods is far too low in most tropical countries. In several African countries the average intake is less than half of the minimum quantities, 150 g vegetables and 50 g fruit per day, recommended by nutritionists. Even people who can afford to buy them often consume not nearly enough fruit and vegetables. Therefore diseases caused by what people eat - or rather by what they do not eat - are rampant, even where hunger is no longer a problem. Children suffer most from these shortages, and they are affected for life.

Deficiencies with respect to vitamins (A and C in particular) and minerals (especially iron) are widespread and debilitating. Vitamin A protects the skin, also the inner lining of nose, mouth and eyes; blindness in children is most often caused by lack of vitamin A.



Figure 2: Green leaves for bright eyes

Vitamin C functions in different ways. Little is stored in the body, so a regular supply of (fresh) fruit and vegetables is needed. Deficiency causes bleeding of the gums and affects the skin; children become irritable. Vitamin C improves the uptake of iron. Iron is needed for healthy blood; deficiency leads to excessive tiredness and poor resistance against infection.



Figure 3: Picking bitterleaf shoots for the next meal; monthly yield per 10 m hedge in Benin: 5 kg and 2 kg during wet and dry season respectively

Milk and eggs are good sources of vitamin A, but in the presence of fat the body can also make vitamin A out of carotene. Leaf vegetables (especially those with dark green leaves), and orange or yellow fruits and vegetables (papaya, orange; pumpkins, chillies, carrots) are rich

sources of carotene. The same vegetables and fruits provide vitamin C, especially when eaten fresh (prolonged cooking breaks down vitamin C). The dark green vegetable leaves contain much iron and so do pulses, cereals, meat and eggs.

There are many kinds of vegetables, especially leaf vegetables. The young shoots of many trees and shrubs can be eaten. Moreover, young leafy shoots are commonly gathered from certain field crops (cowpea, bean, cassava, sweet potato, pumpkins) and from the weeds growing between them (e.g. purslane, amaranth, African nightshades). However, this source is largely limited to the main growing season. The home garden is the proper place to produce vegetables (and fruits, spices, etc.) throughout the year.