

# Uses of Musa

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South-east Asia is the centre of origin of *Musa* species and it is likely that bananas have been used by humans throughout history in this region. Primitive communities probably used the male buds and inner sheaths of the pseudostem of wild bananas as a vegetable, and it is possible that the domestication of the banana began at the same time as food crop agriculture began.

The banana was highly esteemed in ancient times. In Indian Hindu legend, the banana was the forbidden fruit and the

island of Sri Lanka was paradise. As a result, Linnaeus, when originally classifying much of the botanical world, named the plant *Musa paradisiaca*. Some even say that the banana grew in the garden of Eden. The banana continues to have deep cultural significance, being a symbol of fertility and prosperity for many communities. In Nepal, banana plants ("Kera" in Nepali) are often placed at the gates during a ceremony as an auspicious sign, as the banana was supposedly a favourite plant of the Goddess Durga. However, as it is thought inauspicious to see a banana plant when departing, they are actually cultivated in the backyards.

In Hawaii, as the saying goes, "man is like a banana the day it bears fruit", that is, he dies when his work is done. On this island it is considered bad luck to dream of bananas, and until the early 1800s women were forbidden, under penalty of death, to eat bananas, with the exception of two varieties.

In India, the banana is popularly known as "kalpatharu", herb with all imaginable uses, and it is true that all parts of the plant, including the leaves, pseudostem, flower bud and corm can be used in one way or another.

## As a food crop

Today bananas and plantains are of course best known as a food crop. Sweet, dessert bananas are generally eaten fresh as a fruit, while cooking bananas and plantains are boiled, steamed, fried or roasted. Ripe bananas, as well as being eaten out of the hand, may be used in salads, breads, as a garnish for meats, or mashed with spices for making chutneys and sauces. Bananas and plantains are available in most tropical household compounds and are readily acceptable and digested by children. In fact bananas are often the first solid foods fed to infants. There are numerous recipes for preparing bananas and plantains, with each country that produces the crop having its own traditional dishes and methods of processing. In Uganda for example, the staple food is Matooke, which is banana, sometimes mixed with peanuts and spices, wrapped in a banana leaf and cooked by steaming, while in Nigeria, fufu is made from a mixture of plantain and cassava. In Jamaica, plantain tarts are produced as a small business and provide a good source of income.

As the fruit has a limited shelf-life, processing is important, and many techniques are used. Drying, either by the sun on screens, or in indoor ovens or dehydrators is an important method of processing. In some parts of Uganda, dried chips of the unripe fruit are stored as



famine food, while sticky sweet banana figs are prepared in many parts of the tropics by drying slices of ripe fruit. Both bananas and plantains are frequently made into chips, which involves peeling, slicing and frying the fruit. These may then be packaged and sold locally, or exported. Bananas can be puréed, frozen for storage and subsequently used in the manufacture of dairy products such as yogurts, milk shakes and ice creams, in baking breads and cakes, in making banana-flavoured drinks, and in producing baby foods and sauces. Bananas and plantains are also made into flour by drying and grinding the green fruit. Such flour is said to be more digestible than cereal flour. Similarly, banana powder for use in confectionery, is made from the ripe fruit. In the Philippines, bananas are used to produce ketchup which is sold commercially. It resembles tomato ketchup in appearance but not in flavour. Dried, ground, roasted green bananas are also used as a coffee substitute in some places.

## Alcohol production

In Central and East Africa, the juice from the ripe fruit of varieties known as "beer bananas" may be drunk fresh or fermented to make a beer with a low alcohol content and short shelf-life. Beer brewing has long been an important activity among various communities in this region and it is reported that consumption in Rwanda may reach 1.2 litres per capita per day (Stover and Simmonds 1987). The beer is important nutritionally and is rich in vitamin B due to the yeast content. In Uganda and Sudan, banana beer is distilled to produce banana alcohol, or "waragi".

The production of commercial or medicinal alcohol from bananas has been carried out for many years in several countries. In terms of alcohol production per hectare, bananas are among the crops giving the highest yields (Thompson 1995).

## Non-fruit food

Other parts of the banana plant may also be eaten. The banana "heart" can be removed from the centre of the pseudostem after harvest. This can be cooked and is like celery, with a texture and taste similar to bamboo shoots. New shoots and male buds, after the removal of the outer bracts, can also be cooked as vegetables. The male bud is generally produced even if the fruit themselves fail to develop or ripen properly. In South-east Asia, the male buds from wild *Musa* species, particularly *M. balbisiana* are commonly eaten.

## Animal feed

Large quantities of reject bananas are often available for animal feed, especially in banana exporting countries. Both cattle and pigs relish ripe bananas, but as an animal feed, bananas are mainly used for feeding pigs. A good silage can be made from equal parts of chopped green bananas and grass, or from chopped green bananas mixed with 1.5% molasses and on such a diet, pigs tend to have less carcass fat. Unripe bananas and plantains can also be dried and made into a meal which can be used to substitute up to 70-80% of the grain in pig and dairy diets with little change in performance. Banana meal has also been used in poultry diets, but high levels in the diet tend to depress growth and reduce feed efficiency. Banana and plantain pseudostems are also fed either fresh, or chopped and ensiled, to cattle and pigs.

## Medicinal

Because they contain vitamin A, bananas and plantains act as an aid to digestion, and it is reported that boiled, mashed ripe fruit can be good for constipation, especially when mixed with other recommended plants. The juice from the male bud provides an apparent remedy for stomach problems in people of all ages, while there are reports of the ripe fruit being used in the treatment of asthma and bronchitis. For strengthening babies, vitamin rich nectar sap can be taken from banana flower buds. The pounded peels of ripe bananas can be used to make a poultice for wounds and, as the inside of the peel has anti-septic properties it can be wrapped directly around wounds or cuts in an emergency. In Nigeria, a weaning food based on plantain and soybean has been developed which is nutritious for babies and can be used as a therapeutic diet for the treatment of malnutrition and kwashiorkor, which results from protein deficiency.

## Use as a fibre

Bananas and plantains are frequently used as a source of fibre, and the related species, *Musa textilis* (Abaca, Manila hemp) is produced on a commercial scale specifically for this purpose. Banana fibre is extracted from the dried petioles and pseudostems of the plant and yields a fiber used extensively in the manufacture of certain papers, particularly where great strength is required. The paper is used for, amongst other things making tea bags and bank notes. The fibre has numerous other



Nendran is the traditional variety used for making banana chips in India

Traditional bunch cover made with banana leaves in Papua New Guinea





Left : in India, banana fibres are used for making handicraft items...

...and banana leaves are produced for use as "biological plates" (right)



Banana leaves on sale in a market in Vanuatu

uses, including textile manufacture, for making ropes, string and thread, and for the production of such handicrafts as baskets, toys, table mats, wall hangings, and lamp shades. In the Philippines high quality clothing is made from such fibre, while in Germany work is ongoing on the production of a banana-fibre lining for car interiors. Banana fibre has the advantage of being completely non-toxic in the event of fire.

### Use of leaves

The large leaves of bananas and plantains are put to a diversity of uses. They make ideal green umbrellas and are frequently used as disposable plates. The use of banana leaves as a "biological plate" for serving food has gained such popularity in Southern India that bananas cultivated exclusively for their leaves are now being grown commercially. In many countries, banana leaves are also used for thatching and for wrapping food for cooking. They provide temporary mats, which are used for cocoa fermentation in West Africa. In Hawaii, the leaves were once used as truce flags, and they are still used as bowl covers, table cloths and for the covering of earth ovens to hold in the heat. They can be used for making cigarette papers and

hats and they also provide packing material. Leaf sheaths can be used as water runways and containers. Banana leaves or petioles are fashioned into small nursery containers, filled with soil and used to grow tree seedlings in East Africa. They are also used for making the circular pads used in carrying head loads.

### Other uses

Starch can be extracted from banana and plantain pseudostems, and such starch from the related species *Ensete ventricosum* provides a staple food crop in parts of Ethiopia. The pseudostems and corms are cut up and the pulp may be cooked when fresh or may be fermented in a silo for several weeks, after which it is eaten, usually after being made into bread. Banana starch has been used for producing glue used in the manufacture of cartons for exporting fresh bananas (Thompson, 1995). Pseudostems may also be used as temporary bridges, seats and supports. After harvest they provide a valuable mulch, suppressing weed growth in the production areas. In the Pacific islands, they are used as rollers to aid canoes enroute from shore to sea.

In mixed farming systems, bananas are used as a ground shade and nurse-crop for a range of shade-loving crops including cocoa, coffee, black pepper and nutmeg in the West Indies, South-east Asia, and in parts of East and West Africa. In horticulture, bananas themselves, as well as several related species, most notably *M. ornata* and *M. velutina* are prized as ornamentals worldwide.

Finally, some other minor, but extremely varied, uses of the plant include the use of banana seeds for making necklaces and other ornaments, the use of banana sap as a dye, the use of the fruit as a meat tenderizer and the use of banana ash in soap. In Indonesia, the production of floor wax and shoe polish from banana peels is also being explored.

### References

- Stover R.H. and N.W. Simmonds. 1987. Bananas. Longman. UK.  
 Thompson A.K. 1995. Banana Processing. Pp. 481-492 in Bananas and Plantains. (S. Gowen, ed.). Chapman and Hall, UK.