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By 1996, the structure of the content was agreed; later that year the
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THE ENCYCLOPEDIA OF MALAYSIA

Volume 2

PLANTS

Volume Editor
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Tea, coffee and cocoa

From the late 19th century, tea plantations were developed in the highlands of Malaysia and coffee was grown commercially. The cocoa industry, however, did not begin until the mid-20th century in Peninsular Malaysia. Today, tea, coffee and cocoa are three important minor crops that are produced for domestic use as well as for export. Not only are they of economic significance, but they are also an important part of Malaysian life and culture.

Tea

Tea (Camellia sinensis) belongs to the family Theaceae. It has long been grown in China, but its place of origin is near the source of the Irrawaddy River in Myanmar (Burma). From there it spread to southeastern China, Indochina and Assam, and with the establishment of Dutch and British trade routes in the 17th century, it arrived in Europe.

The earliest use of tea was probably medicinal, although tea leaves have for the last 2,000–3,000 years been used to make a beverage. In the 19th century, tea cultivation developed into an important plantation industry in Asia, in countries such as India, Sri Lanka (Ceylon) and China. In Malaysia, tea was, and still is, grown mainly on the mountain slopes of the Cameron Highlands, where the equable temperatures, moderate to high rainfall and high humidity are conducive.

A few botanical varieties have emerged, among which are C. sinensis var. sinensis, C. sinensis var. assamica and C. sinensis var. macrphylla.

The best soil for tea is deep, permeable, well-drained and acidic, conditions which are often found in tropical red earth. Wild tea grows into a small tree, but under cultivation it is pruned into a low, spreading bush. It has a strong tap root and lateral roots which give rise to a surface mat of feeding roots. The fragrant white or pink flowers, either solitary or clustered, and the fruit is a walled capsule. It takes 3–4 years before the first harvest. The young shoots and leaves of the best tea and so are sought after.

Most of the tea consumed in the world is tea. It is manufactured by a highly technical process carried out in factories on tea plantations. The leaves are heated by a hot air current, which liberates the caffeine and develops the flavor and color of the tea. Another type of tea, green

Coffee berries grow in clumps at regular intervals along the stems and branches of the coffee plant.

Drying coffee fruits takes about 10–12 days.

Aromatic coffee

Mature coffee fruits are processed by either dry or wet methods. In Malaysia, the dry method is more widely practised because it is simpler and cheaper.

Fruits are spread out to dry in the sun before being dried. The beans are then collected and roasted, during which much of the water is lost and the sugars partially caramelized. This process develops and seals the aroma and flavor, which are later released into the drink when the beans are ground and brewed with hot water.

Roasting plays an important part in determining the final flavor of the coffee, as do other conditions, such as the variety of the plant, the conditions under which it is grown and the location of the plantation.

Nutritional composition of coffee beans

<table>
<thead>
<tr>
<th>Nutritional Value</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbohydrate</td>
<td>35%</td>
</tr>
<tr>
<td>Protein</td>
<td>1%</td>
</tr>
<tr>
<td>Water</td>
<td>12%</td>
</tr>
<tr>
<td>Fat</td>
<td>13%</td>
</tr>
<tr>
<td>Sugar</td>
<td>1%</td>
</tr>
<tr>
<td>Caffeine acid</td>
<td>1%</td>
</tr>
<tr>
<td>Water soluble substances</td>
<td>1%</td>
</tr>
<tr>
<td>Ash</td>
<td>1%</td>
</tr>
</tbody>
</table>

These coffee beans from a plantation in Sabah are ready to be roasted.
made by steaming, rolling and drying the leaves. The dried tea is graded and sorted by colour and fineness, and the different grades are then blended to create varieties to suit the tastes and preferences of tea drinkers. Today, Malaysia produces tea both for export and home consumption.

Coffee
The coffee plant is a member of the family Rubiaceae, which has species distributed in Africa, Madagascar, Mauritius and Southeast Asia. All species are woody, but they range from slender, sprawling plants and lianas to shrubs of all sizes to robust trees. The most economically important species are Coffea arabica, C. canephora and C. liberica. The latter two species have been grown commercially in Malaysia since the 19th century and now occupy a total of about 25,000 hectares.

Coffea liberica was introduced to Malaysia from tropical West Africa. If not pruned, the plant can grow to a height of 8 metres. Its leaves are thick and large, and the berries do not soften or drop when ripe, but remain hard and fibrous. The best and most consistent crop comes from plants grown on peaty soil in the lowlands and in direct sunlight. The crop takes about 10 months to reach maturity. Seeds from only fully ripened berries are harvested.

Harvesting takes place twice a year, once in May or June and again in December or January. Coffea canephora grows more rapidly than C. liberica. Its branches are longer, its leaves thinner, larger and paler, and the berries much smaller. However, the beans of both species are practically the same size. C. canephora thrives on a loose clay-loam soil and in direct sunlight for the first two years, after which it requires shade.

Cocoa
The cocoa tree (Theobroma cacao) is a member of the Sterculiaceae, a family to which the cola nut tree also belongs. The name Theobroma, meaning ‘food of the gods’, was given by the Indians in Central America who cultivated cocoa and believed it to be of divine origin. It was brought to Southeast Asia by the Spanish and the Dutch around 1670, but it was only in the early 1950s that cocoa was planted commercially—at Jerangau in Terengganu. By the mid-1950s, it had also been introduced to Sabah. In Peninsular Malaysia, cocoa plantations are found in Perak, Selangor, Johor and Pahang, and in Sabah in Tawau, Sandakan and Kudat.

In 1989, the Malaysian Cocoa Board was established. Its aims are to increase bean production by improving the productivity of crops and methods of harvesting as well as to strengthen Malaysia’s existing cocoa markets and to penetrate new ones. Other organizations involved in the development of the cocoa industry are the Malaysian Agricultural Research and Development Institute and the Sabah Agricultural Department.

Cocoa is strictly a tropical crop. It grows best in well-drained soil with plenty of water and nutrients. Inflorescences are produced on the older, leafless part of the main stems and branches. The pod is indesicent (it does not split open and release its seeds spontaneously) and is white, green or red when young, turning a green, yellow or purple as it matures. Fresh seeds are surrounded by a mucilaginous, whitish, sugary and acidic pulp, which is removed during processing.

Cocoa pods are produced throughout the year. When ripe, they stay suitable for harvesting for 2–3 weeks. Beans from unripe pods do not process well, and overripe beans may have already germinated in the pod. After harvesting, the beans are cleaned, graded and dried before they are sent to chocolate factories where the critical roasting process takes place. Roasting the beans at 140 °C melts them into a chocolate-like substance, which is then mixed with milk and sugar. Malaysia is the seventh largest supplier of chocolate in the world, the two main producers being Ghana and Brazil.

The cocoa trade in Malaysia
Malaysia exports most of its cocoa, either in the form of raw cocoa beans or cocoa products, such as chocolate, cocoa powder, butter and paste. Singapore is the major importer of cocoa beans, full-fat cocoa paste and chocolate, whilst for low-fat cocoa paste and cocoa butter it is the United States of America.

![Cocoa cultivation started in Sarawak until 1974, and only on a very small scale.](image)

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