The Tea Plant

The tea bush was discovered in China and was thought to be indigenous to China until it was also discovered in Assam and parts of Indo-China. Here, the tea bushes had their origin from a fan shaped area bounded by the Naga, Manipuri and Lushai Hills along the Indo-Burma border in the West, China in the East and along the hills from Thailand and Burma to Vietnam in the South.¹

It was earlier thought that there were many species of the tea plant but was later discovered that there was only one species and that the China, Assam and Cambodia were varieties originating from the same species. All other tea bushes such as those found in Thailand, Vietnam and Indonesia were labeled as hybrids of these main varieties. 'Camellia sinensis' and 'Camellia assamica' are the botanical names of the China and Assam variety respectively. The term 'yat' is commonly used to denote the different varieties.²

The varieties differ in their appearance and the quality of tea. The Assam variety is broad leaved, quick growing and grows into a single stemmed tree, about 17 metres in height, if allowed to grow unimpeded. The China variety is a slow growing shrub with a number of stems arising from the ground and has small leaves. The china variety is harder than the Assam variety and can be grown at high altitudes but the China variety yields less than the Assam variety. The China variety produces flavoured teas but it lacks the strength of the Assam variety. In addition to its home country, China, this variety is found in Darjeeling and at higher altitudes in Sri Lanka. The Assam variety is grown in Assam, South India, West Bengal, Sri Lanka, Indonesia, Africa and South America.³

---

The Environmental Factors

Soil condition, rainfall and temperature are the climatic factors which are important for the tea plant. Acidic soils having pH levels between 4.5 and 5.6 that also drain water quickly from the root zone are the most conducive for the plant. Tea grows well in areas having precipitation levels of 115 – 800 cms per year but in addition to the overall level the distribution pattern is also critical. It has been observed that areas which have well distributed rainfall and uniform temperature show high productivity but the quality of tea is moderate to low. In addition to these factors, the altitude also affects the quality and flavour of tea with teas grown at higher altitudes generally being ranked higher on these attributes. 4

The productivity of a bush, measured by its photosynthetic rate, is the maximum between 30 degree Celsius and 35 degree Celsius and it falls rapidly after the temperature exceeds 37 degree Celsius. Between 39 degree Celsius and 42 degree Celsius there is no net photosynthesis and the leaf is irrevocably damaged after the temperature rises beyond 42 degree Celsius. However, the temperature band in the tea growing areas of the world varies from – 8 degree Celsius to 35 degree Celsius and the most productive temperature zones for plant growth are region specific. 5

Table A (i) : Optimum Temperature Zones for Tea Growth

<table>
<thead>
<tr>
<th>Region</th>
<th>Optimum Zone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Georgia</td>
<td>20 – 22C</td>
</tr>
<tr>
<td>East Africa</td>
<td>18 – 29C</td>
</tr>
<tr>
<td>Malawi</td>
<td>21 – 30C</td>
</tr>
<tr>
<td>Assam</td>
<td>30 – 35C</td>
</tr>
</tbody>
</table>


Besides influencing the growth of the tea plant, ambient temperatures also affect the processing of green leaf in the factory.

Tea Manufacture

In the tea industry quality of the raw material i.e., green leaf from a single variety varies from garden to garden, and on the same bush from one year to another and also from one

---

season to another. The degree of uncertainty in the raw material quality makes the tea industry unique. The field operations are aimed at reducing this element of variability and therefore have a significant role in determining the quality of final product. The manufacturing process may be divided into two parts – Field operations and Production operations.⁶

**Field Operation**
The tea plant is propagated by the planting seeds or by clonal multiplication. The seeds are taken either from a tea producing bush or from bushes which are maintained only for production of seed. The later bushes, called 'Seed bearers', are different from normal bush in that they are not pruned or harvested and are allowed to grow unchecked into a tree. Clones are plants genetically identical to the parent and are produced by planting leaf cuttings or by grafting. The clones, like seeds, are either obtained from successful bushes on the estate or from the research institutes in Assam and Tamil Nadu.⁷

**Plucking**
On a tea plantation the bushes are arranged in rows and the garden is divided into a number of sections based on the administrative convenience or year of planting, clonal varieties etc. The spacing between the rows allows space for the tea bush to grow and allows the pluckers to move along. Plucking refers to the harvesting of crop. The young bud along with two or three leaves below the bud are picked during this operation. Since these young shoots consume more energy than they produce they are a drain on the energy reserves of the plant. The continuous harvesting of these allows plants to throw up a new crop of shoots and thus stimulates plant growth.⁸

The chemical composition of the leaf varies, depending on its distance from the bud. Thus, the number of leaves plucked along with the bud decides the quality of tea. Plucking methods are classified as "Standard" and "Coarse" based on the number of leaves plucked. In standard plucking a bud and the 2 (two) leaves closest to the bud are plucked, while in coarse plucking 4 (four) or more leaves in addition to the bud are plucked.⁹

---

⁶ Ibid.
The time between two successive plucking from a bush is a function of the plant growth. The plant exhibits vigorous growth between March and July, excluding a brief period in April, when it takes 7 (seven) days for a bud and two leaves to develop. So during the peak season, from mid March to mid July, the entire garden is plucked once in 7 – 8 days while it takes about 12 – 14 days during the rest of the season. There is a marked difference in the quality of tea in different seasons. Therefore based on the period in which the leaf is plucked, teas are classified as belonging to one of the 4 flushes, which constitute one year, with each flush comprising 4 – 5 plucking cycles. Plucking is the most labour intensive operation on a garden and plucking expenses account for one –fourth of the total cost of sales.¹⁰

Pruning:
Pruning is an operation where the tea bush is clipped to a desired height. While plucking stimulates shoot production, sustainable plant growth and survival are dependent on having a sufficient number of leaves on the plant, denoted as maintenance foliage, to produce and store energy. Therefore a balance has to be struck between plucking and allowing the maintenance foliage to develop. The quantum of maintenance foliage is regulated by pruning, since excessive amounts of maintenance foliage prevents light from reaching lower branches and thus reduces photosynthetic efficiency. Some studies have shown that older leaves hinder plant growth by producing growth inhibiting enzymes and pruning tends to rid the plant of these older leaves. Pruning also ensures that the dead and diseased wood, if any, are removed and helps rejuvenate plant growth. It thus helps maintain the bush in a phase of continuous growth as the amount of harvestable shoots starts falling with increasing age of the bush. In the short term, pruning provides an impetus to growth and increases the yield from the bush. It also ensures that the bush height is kept at a level, called the plucking table, at which it is convenient for the pluckers to operate.¹¹

There are different ways of pruning a bush varying from the Collar prune to Light Skiff, but most common ones are the Light Prune and the Medium Prune. A light prune is done in every 3–4 years where as a medium prune is mandated after 25 – 35 years.

### Table A(ii): Types of Prune, Description and Objectives

<table>
<thead>
<tr>
<th>Types of Prune</th>
<th>Description and Objective</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skiffing</td>
<td>Sub-classified into deep, medium and light skiff. Less severe than light prune and helps achieve an early start and more crop.</td>
</tr>
<tr>
<td>Light Prune</td>
<td>Done once in 3-4 years and succeeding prunes are at a level 2 cm higher than the previous prune marks.</td>
</tr>
<tr>
<td>Medium Prune</td>
<td>Done at a level of 40-50 cms above ground level. This is done every 25-35 years. Removed dead woods.</td>
</tr>
<tr>
<td>Heavy Prune</td>
<td>Done at a level 15-45 cms above ground level.</td>
</tr>
<tr>
<td>Collar Prune</td>
<td>Bush cut to ground level, employed for treating diseased bushes.</td>
</tr>
</tbody>
</table>


The pruning operations are normally carried out between December and February. The two prime considerations in determining the pruning period are the production loss from the bush and the carbohydrate levels in the plant. The level of carbohydrate reserves is important since a reduction in the plant foliage during pruning results in a drop in the photosynthetic ability of the bush. The pruning period therefore has to coincide with the maximum levels of carbohydrate reserves which occur sometime between October and December. The pruning operation leads to a loss in the number of harvestable leaves with the severity of the loss being decided by the type of prune. It also takes the plant at least one year to reach previous levels of production. The period from December to February is a slack period which ensures that the production loss is minimized.  

However, pruning cycles vary across regions and companies. In Dooars a typical cycle comprises one year of light prunes followed by two years of unprunes. In Assam on the other hand light prunes, deep skiffs and couple of years of unprunes comprises one cycle.

### Weeding

Weeds compete with tea bush for moisture and nutrients thereby reducing the yield. Some of the weeds also act as hosts of pests. The problem of weeds is more acute in younger plantations and decreases as the bushes grow and occupy a larger ground area. While both

---

manual and chemical weed controls are practiced, the former is feasible only in new gardens.¹⁴

**Pest Control**

Like other agricultural crops tea is susceptible to fungal attacks. About 385 types of fungi, which attack the tea bush, have been identified, half of which are specific to North Indian gardens. These fungi attack the leaf, stem or roots. Mites, termites, green fly and borers are other pests which can destroy the bush. While most of these can be controlled by the application of pesticides, their use has resulted in an increase in the chemical residue in tea which has drawn protests from many of the European markets. In order to counter the adverse reaction, bio-pesticides are being used on a small scale. The efficacy of bio-pesticides as broad spectrum pesticides is as yet untested and planters are therefore averse to using these on large scale. They are also costlier than chemical pesticides.¹⁵

**Manufacturing Operations**

The green leaf is harvested by the pluckers who bring the leaf to predestinated points on the garden. The leaves are collected from the pluckers 4-5 times a day. The leaves are then weighed and transported to the factory.¹⁶

Four principal operations involved in the manufacture of tea are¹⁷:

i) Withering  
ii) Rolling  
iii) Fermenting  
iv) Drying

While cultural practices are important, the manufacturing process also influences the final characteristics of tea i.e. the liquor.

**Withering**

Withering comprises partial drying of the leaf by evaporation of the moisture. This is carried out to condition the leaf for the next stage of manufacture. After the leaf is plucked there is a small increase in amino-acids and sugars produced as result of the breakdown of starch and proteins. The leaves contain about 50 – 60 per cent moisture, the bud over 70

---

per cent and the stalk almost 80 percent. The removal of moisture from the leaf makes it less brittle, roll well and take a twist. When moisture is lost the weight of the leaf is reduced by one-fourth in Assam and one-third in Sri Lanka. The loss of moisture takes place mainly from the leaf and water is transferred from the bud and stalk to the leaves to maintain a hydrostatic balance.\(^{18}\)

**Table A (iii) : Changes during Withering**

<table>
<thead>
<tr>
<th>Description of Change</th>
<th>Importance of Change in Processing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loss in Moisture</td>
<td>Important in Orthodox Tea Manufacture but absolute importance is unknown</td>
</tr>
<tr>
<td>Increase in Amino Acids</td>
<td>Important for Colour and Quality</td>
</tr>
<tr>
<td>Increase in Caffeine</td>
<td>Important for Value of Tea</td>
</tr>
<tr>
<td>Changes in permeability of cell membranes</td>
<td>Important in obtaining even fermentation</td>
</tr>
</tbody>
</table>

Source: Same as Table A(ii).

The leaves are spread evenly on racks or shelves or in withering troughs. The withering may be done by allowing natural breeze to pass through or by blowing air through the troughs/racks. The current of air conveys heat to the leaf and also helps in carrying away the moisture. Good wither is obtained when the maximum surface of the leaf is exposed. A high temperature during withering is harmful. The rate of physical wither depends on the thickness of the bed, the humidity of the air, the temperature and the rate of air flow. The leaf is withered for 16–18 hours. With an increase in withering time, the colour and strength of made tea increases but the briskness decreases. Quality improves up to 30 hours of wither but then decreases. The harmful effects of a long wither can be reduced by a short fermentation but the reverse does not hold true.\(^{19}\)

**Rolling**

Rolling damages the leaf cells, and allows the exposed cell contents to mix in the presence of atmospheric oxygen, thus including enzymatic reactions. Rolling is done for 30 minutes. Apart from rupturing the cell walls, the tender leaf parts are torn off, and the leaves are separated from the stalk. Rolling is directed at finding the balance between appearance of the leaf and properties of the liquor. Before the advent of mechanization, the tea leaves

---


\(^{19}\) Ibid.
were rolled by rubbing them between the palms or against a flat surface. Currently, the two main methods of rolling in use are:

1) **Orthodox**, employing non-cutting rollers. This method duplicates manual rolling. This roller consists of three parts: a circular table, a cylindrical box or a jacket and a cap to apply pressure. There are two variations of this machine. In the first, the table is stationary and the box moves. In the other, both the table and the box move in opposite directions. This process produces more caffeine and volatile compounds which results in teas having superior flavour and lower strength.

2) **Crushing, Tearing and Curling (CTC)**, this process employs two cylindrical rollers which have raised edges along the circumference of the roller and running across the entire length of the rollers. The leaves are drawn between the two rollers rotating at different speeds, the most common ratio of speeds being 1:10, and then macerated. The CTC machine improves the briskness, brightness and thickness of black teas. This is the most important stage in the manufacture of black tea and this operation determines the strength, colour and quality of made tea. These properties are the result of chemical reactions that occur during fermentation. The most important chemical constituents in a tea leaf are polyphenols, with a higher polyphenol content being associated with better tea. There are various types of polyphenols in the leaf and the polyphenol content in a leaf varies inversely with its age. A coarse plucking result in older leaves being picked which results in low quality tea since the polyphenol content is lesser in these leaves. In fermentation, the polyphenol (which are colourless) change to theaflavins (contribute briskness) and then to thearubigins (contribute colour) both of which are highly coloured.

<table>
<thead>
<tr>
<th>Table A (iv): Polyphenol Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>Part of the Shoot</td>
</tr>
<tr>
<td>-------------------</td>
</tr>
<tr>
<td>Bud</td>
</tr>
<tr>
<td>First Leaf</td>
</tr>
<tr>
<td>Second Leaf</td>
</tr>
<tr>
<td>Third Leaf</td>
</tr>
<tr>
<td>Upper Stem</td>
</tr>
<tr>
<td>Lower Stem</td>
</tr>
</tbody>
</table>

*Source: Same as Table A(ii).*

---

20 Ibid.
The formation of theaflavins (TF) and thearubigins (TR) is central to fermentation. The cup quality and briskness of tea are determined by TF. The TF content in brewed tea varies from 1-6 per cent. Longer the leaf is fermented, lower is the TF content in made tea. TR constitutes 30-60 per cent of the solids in tea and affects the colour, strength and briskness of brewed tea. The proportion of TR content increases with the increase in fermentation time. The colour is determined by the ratio of TF to TR while the strength is a function of oxidation of the polyphonic content during this stage of manufacture. TF is also important in the production of cream and high TF content is associated with bright and acceptable cream colours, but a high proportion of TR produces a dull cream.

Fermentation is done either by spreading out the rolled or crushed leaf on a tiled or cemented floor or by placing the leaf on trays which move through a chamber. Fermentation continues for 2-4 hours depending on the method of rolling, temperature and humidity. Experience has shown that the fermentation process must be stopped within three hours after rolling; otherwise briskness and strength in the liquor give way to duliness and softness. The process of fermentation is actually oxidation and the oxidation is done by a catalyst and not by micro-organisms.

The enzyme which assists in the oxidation of the polyphenols to TFs and TRs is an oxidase. Its activity slightly decreases during withering. During fermentation the activity of this enzyme decreases at temperatures above 27 degree Celsius. In an intact leaf the enzyme and the polyphenols are kept apart by a semi-permeable membrane. When the leaf is withered and rolled, the polyphenols are oxidized within three hours. In the manufacture of green tea the preliminary heating either by stem or in hot pan, inactivates the enzyme and this accounts for the difference between green and black tea. After oxidation the polyphenols condense and form complex substances. The lower polyphenols or TFs combine with caffeine to give the property in a tea infusion known as briskness. The higher polyphenols or TRs are considered to account for strength, colour and then body. Since there is only a limited quantity of polyphenols in the leaf, one desirable quality in the liquor can be increased only at the expense of the other. The formation of volatile compounds, which impart aroma to the tea, starts during the withering but gains momentum during the

---


22 Ibid.
rolling and the fermentation phase. Different varieties of tea ferment at different rates and leaf from the same bush ferments at different rates at different times of the year.\textsuperscript{23}

**Drying**

Drying arrests further enzymatic reactions. The drying process also ensures that microorganisms are rendered inactive. The principal reaction is the conversion of chlorophyll to phenophytin which accounts for the black appearance in manufactured tea.\textsuperscript{24}

The tea drier comprises perforated sections mounted on a chain which moves in opposite directions. The fermented tea is fed on top of the first conveyor section and it drops down on to the second and so on until it exits. The drying is done by passing hot air from the furnace. The factors which influence the drying process are the temperature of the air, the volume of the air, the amount of the leaf fed into the dryer and the drying time. The leaf is dried for 30-40 minutes and the moisture content is reduced from 40-50 per cent to 3 per cent. This process also allows the aroma to develop.\textsuperscript{25}

**POST-PROCESSING OPERATION**

At the end of the drying stage the tea is a heterogeneous mixture and contains some plant residue. The post processing operations ensure that the mixture is sifted to remove the residue and graded into groups which are more uniform.\textsuperscript{26}

**Sifting**

Sifting is done by passing the teas through sieves of different sizes to classify the tea according to fineness.

**Stalk Extractors**

All grades of tea contain variable amounts of stalk and fibre. Some amount of stalk and fibre can be removed by careful plucking. The most modern and increasingly the more common method use the electrostatic difference between the stalk and the leaf to separate them.\textsuperscript{27}

\textsuperscript{23} Ibid.


\textsuperscript{25} Ibid.

\textsuperscript{26} Ibid.

\textsuperscript{27} R. C. Awasthi, 1975, op. cit., pp-90-91.
CLASSIFICATION OF TEA

At an elementary level teas may be classified as black, green and white depending on the colour of the liquor. Black tea liquors are deep and richly coloured. These undergo all the manufacturing steps of withering, rolling, fermentation and drying. Black teas are the most widely consumed as they are able to absorb sweet flavours and milk unlike green and white teas.28

Green teas have light coloured liquors. Withering and fermentation are absent in the green tea manufacturing process. After plucking, the leaf is heat treated to inactive the enzymes and they are then rolled and dried. Semi-fermented teas are a variation of green teas. These are lightly withered and fermented. Jasmine tea and wulong(Oolong) teas are examples of semi-fermented teas.29

White teas are the rarest and the most difficult to obtain. Unlike green and black teas whites undergo only two manufacturing steps – withering and drying. High qualities of whites come in the form of white buds and their liquor is very pale. The Chinese had their own method of classification based on the colour of liquor – red, green, yellow, red brick and green brick. Each of these primary grades was sub-divided into four secondary grades: rough, tender, old and new. To the twenty grades resulting from the first two stages of classification another two, well-made and ill-made, were added and finally the province and the district of origin were tagged alongside. Thus the Chinese system resulted in over 1000 grades of tea. Western tea traders found this system difficult to comprehend and implement and until 1945, the western traders classified teas on the basis of country of origin. Thereafter a multi-tier classification system came into being which classified teas on the degree of fermentation, size and form of leaves and the manufacturing process. However, this system is too complicated for a consumer to understand. Therefore, most international tea marketers still continue to market on the basis of country of origin for the benefit of the retail consumer.30

The multi-tier classification system is a five stage process. The first step is to identify the area of cultivation followed by the manufacturing process used. The tea is then classified

into different grades based on appearance and size. In the fourth stage of the classification system the fitness of leaf is examined. Finally the concentration of bud tips is estimated.31

**Contemporary Methods of Classification**

The most common method of classifying teas is on the basis of the country or location. This method helps the regular buyer to judge the teas available, the type of processing it has undergone and how close the grade is to the standard.32

*Darjeeling Tea:* These are the most priced amongst the black teas. These are almost always whole leaf, that is, orthodox teas. They are aromatic and light teas and consumed without adding milk.

*Assam Tea:* They can either be the leaf or CTC teas. They are strong teas and have a strong malty taste. They go well with milk.

*Dooars Tea:* These are teas grown on the plains of West Bengal and are mostly CTC teas. They are mild and less aromatic than the Assam variety and are consumed with milk.

*Ceylon Tea:* Refers to teas produced in Sri Lanka. These are black teas with aromatic amber coloured liquor. They are normally consumed with milk.

*Chinese Tea:* Comes in three forms, black tea, green tea and white tea. The black teas are normally taken with adding milk or sugar. The green and white teas are never drunk with milk or sugar.

*Kenyan Tea:* This is very similar in quality to Assam Teas. They are CTC grades and drunk with milk.

In the second stage of multi-tier system of classification of teas are classified either as Orthodox or CTC based on the manufacturing process employed. Orthodox and CTC teas are then sub-classified on the basis of the form of tea. CTC teas are classified into leaf, brokens, fannings and dust, while Orthodox teas are classified as whole-leaf, brokens, fannings and dust. Fannings measure 1-1.5 mm across. While broken grades are larger than this and particles smaller than 1 mm are classified as dust. Fannings and dusts give stronger tea than leaf grades.33

---

### Table A(v): Tea Grades

<table>
<thead>
<tr>
<th>Orthodox</th>
<th>CTC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wholeleaf</td>
<td>Leaf</td>
</tr>
<tr>
<td>Brokens</td>
<td>Brokens</td>
</tr>
<tr>
<td>Fannings</td>
<td>Fannings</td>
</tr>
<tr>
<td>Dust</td>
<td>Dust</td>
</tr>
</tbody>
</table>

Source: Same as Table A(ii).

Pekoe, Orange Pekoe and Flowery Orange Pekoe are three classes indicating the fineness of the leaf constituting the class. Flowery Orange Pekoe is the most subtle amongst the whole leaf black teas. It refers to teas harvested early and composed of only unopened buds and first two leaves beneath the bud. The word Pekoe comes from the Chinese word 'Pakho' which refers to the fine hair of the new born infant and by implication refers to young tea buds. Two interpretations of the prefix 'Orange' are advanced. One theory propounds that the term orange, was first used by the Dutch traders, and that it does not refer to colour but to the Princes of Orange descended from the house of Nassau and conveys quality. The second theory says that 'Orange' refers to the colour of the hairs on the stem and the underside of the leaf when fermented tea juice is smeared on it. Leaves which have more hairs are considered to produce better quality teas and therefore a darker hue would imply quality.34

The next higher grade is denoted Golden Flowery Orange Pekoe and the highest being denoted as Finest Tippy Golden Flowery Orange Pekoe. Tippy and golden refer to the number of bud tips that are there, with higher number of bud tips being associated with higher quality. The term 'golden' is leftover of the time when a gold coin was tossed into a tea chest to see the extent to which the coin blended into the tea. As one moves down along the scale referred to above, the strength of the brew decreases and the aroma increases.35

**Other Classification Methods**

Since the quality of tea varies from season to season, the season of plucking is also used to classify the teas. Dry season teas are of superior quality than monsoon teas. The first flush

---

34 Ibid, p-94.
and the second flush teas produced between March and July are the most highly sought after. Teas produced in the subtropical and higher reaches are of a better quality.\textsuperscript{36}

In Assam and China the leaf has quality and flavour in the spring and autumn when the atmosphere is dry. In Ceylon the best quality teas are made in the dry months. In Kenya and Indonesia, where the seasons are not marked and growth is steady through out the year there is no definite quality period. In Assam the peak cropping periods are from June to September and in South India from April to June and September to October.\textsuperscript{37}

Besides genetic properties and climatic conditions, cultivation and harvesting practices have an equally important role to play in deciding the quality of tea and garden productivity. The common feature of the field practices is that they are extremely labour intensive and are important determinants of cost of production.\textsuperscript{38}

\textbf{Defining Quality}

Since the quality of tea from a chemical point is not known precisely, the factors that go into fixing the market price may be considered to be constituents of quality. Aroma, taste, strength, brightness, colour and appearance are the parameters used by tea tasters to determine the quality of tea. While the extent of subjectivity in using these parameters to judge the quality is high, most tea tasters are likely to agree on the quality of different teas. A three stages process is employed to classify teas based on quality.\textsuperscript{39}

Tea is first visually examined and the quantity of tips, the colour of tips and the appearance of dry leaf are the factors examined. Visual examination aims at determining the plucking quality besides manufacturing standards. Since the important chemical constituents (polyphenols and caffeine) are the highest in the tips, a higher concentration of tips is associated with good quality, with golden coloured tips being the most coveted. The concentration of tips is an indication of the plucking quality. Poor quality teas, besides having fewer numbers of tips have large quantity of stalks and are brownish in colour. The tea infusion is examined in the second stage. The tea infusion is made by pouring a certain quality of boiling water on tea leaves placed in a covered container. After six minutes the tea is decanted and the tea leaves, called ‘infusion’, are examined. The factors scrutinized

\begin{itemize}
\item \textsuperscript{36} P. Goradia, 1979, op. cit., pp-19-20.
\item \textsuperscript{38} R.C. Awasthi, 1975, op. cit., p-93.
\item \textsuperscript{39} C.R. Harler, 1964, op. cit., p-169.
\end{itemize}
in an infusion are colour, brightness and its aroma. Bright red coloured and coppery coloured infusions are associated with good quality teas while dull or brownish coloured are not. Similarly there is a direct correlation between brightness and quality.  

The brew is examined at the next stage and the colour, briskness and aroma are the key parameters inspected. Bright and clear colours are indicators of quality. Briskness refers to pungency and is closely allied to quality. The quality of tea varies from estate to estate because of the variation in the soil and climatic conditions. Even within an estate the quality of tea produced is a function of plucking standards employed, the season in which the leaf is plucked and the processing techniques used. Estate specific conditions are exogenous and therefore not within the control of the planter but the cultural and manufacturing standards can be influenced by the planter.

Balancing Quality with Quantity

Process quality in most large factories is similar and the quality of the product is therefore determined by the plucking technique and field practices. The quantity of desirable chemical constituents, polyphenols and caffeine, is the highest in the bud and the leaves closest to this bud but decreases as one moves lower down the stalk. When only the bud is plucked the quality of tea produced is the best but it normally does not prove economical to do such fine plucking. Plucking 'a bud and two leaves' results in tea of acceptably high quality. Production may be increased by coarser plucking such as a bud along with three or more leaves but the quality of tea would suffer. The type of tea being produced, the harvest season and market prices determine the plucking standards. Darjeeling and orthodox varieties call for fine plucking while CTC dust teas are less affected by coarse plucking that is, teas from the first and second flush. The season starting in mid-April and ending in July command the highest prices and therefore plucking in these seasons reveals a higher proportion of finer fractions. Conversely, teas manufactured in the third and fourth flush are valued lower and plucking can be coarser. When the market firms up, producers may sacrifice quality and pluck coarse to maximise output. The amount of tea produced is also determined by the plucking cycle. It takes about 3 days for a bud to

---

41 Ibid, p-95.
develop into a leaf and in a period of 7 days one bud and two leaves are ready for harvest and therefore during the season one round of the entire garden is done in 7-8 days. In the off season the growth is slower and consequently the plucking cycle also lengthens to 12-14 days.44

**Age Profile and Crop Productivity**

Tea bush has a productive life of nearly a century but repeated pruning tends to bring down its life to about 60-70 years. Despite its longevity, productivity from the tea bush is not uniform over its life span. The plant takes about 15 years to develop fully and the most productive period is between 15–35 years when yields peak. The harvestable yield from a bush drops after the plant has completed 50 years.45

The age profile of the industry is an indicator of its ability to meet increasing demand in future. An ideal profile would be to have an equal number of young bushes which are less than 25 years and mature bushes between 25 and 50 years, while keeping the population of older bushes to a minimum.46 In India, about 50 per cent of the bushes are older than 50 years while only 25 percent are in their most productive phase. This contrasts with Kenya where most of the planting was done in the sixties and most of the bushes are in the middle of the productive period. Consequently their yields are higher than in India. On a regional basis Kerala has the highest population of old bushes with more than 75 per cent of bushes being more than 50 years old. The gardens in the North are better placed with a larger proportion of bushes being younger.

---

Table A(vi): Age Profile of Tea Bushes in India as on 31/12/2004

(Area in Hectare)

<table>
<thead>
<tr>
<th>Region/Area</th>
<th>&lt; 5</th>
<th>5-10</th>
<th>11-20</th>
<th>21-30</th>
<th>31-40</th>
<th>41-50</th>
<th>&gt; 50</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assam</td>
<td>15,508</td>
<td>33,496</td>
<td>33,959</td>
<td>30,780</td>
<td>28,940</td>
<td>19,951</td>
<td>67,676</td>
<td>2,30,310</td>
</tr>
<tr>
<td>West Bengal</td>
<td>5,114</td>
<td>13,363</td>
<td>9,313</td>
<td>8,907</td>
<td>10,688</td>
<td>8,979</td>
<td>40,184</td>
<td>96,548</td>
</tr>
<tr>
<td>Others (North India)</td>
<td>4,594</td>
<td>2,884</td>
<td>510</td>
<td>493</td>
<td>439</td>
<td>758</td>
<td>3,926</td>
<td>13,604</td>
</tr>
<tr>
<td>Tamil Nadu</td>
<td>11,224</td>
<td>15,031</td>
<td>5,612</td>
<td>4,116</td>
<td>3,823</td>
<td>4,641</td>
<td>18,809</td>
<td>63,256</td>
</tr>
<tr>
<td>Kerala</td>
<td>3,493</td>
<td>1,444</td>
<td>865</td>
<td>653</td>
<td>1,099</td>
<td>3,381</td>
<td>25,998</td>
<td>36,933</td>
</tr>
<tr>
<td>Karnataka</td>
<td>42</td>
<td>93</td>
<td>158</td>
<td>82</td>
<td>105</td>
<td>903</td>
<td>739</td>
<td>2,122</td>
</tr>
<tr>
<td>Total South India</td>
<td>14,759</td>
<td>16,568</td>
<td>6,635</td>
<td>4,851</td>
<td>5,027</td>
<td>8,925</td>
<td>45,546</td>
<td>1,02,311</td>
</tr>
<tr>
<td>Total India</td>
<td>39,975</td>
<td>66,311</td>
<td>50,417</td>
<td>45,031</td>
<td>45,094</td>
<td>38,613</td>
<td>1,57,332</td>
<td>4,42,773</td>
</tr>
</tbody>
</table>

(Figures in the parenthesis indicate percentage)

Besides low yields, a large population of old bushes implies larger expenditure on uprooting and replanting in the future and loss of production. If this uprooting coincides with an upturn in prices, the industry would be unable to benefit from an upturn in prices.\textsuperscript{47}

**Tea Promotion as a Health Drink**

Due to slow growth in domestic consumption in major producing countries, and the higher prevalence of coffee consumption in some major tea importing countries such as US, the tea industry has to focus on promoting tea as a 'health drink'.\textsuperscript{48}

Tea can be categorized into three major types according to the different levels of fermentation: green (unfermented), oolong (partially fermented), and black (fermented). Tea contains polyphenols (of which the most prominent components are flavonols, commonly known as catechins). Flavanols are regarded as the biologically active constituents of tea, constituting around 36% of the dry weight of tea. The main flavanols found in Green tea, and to a lesser extent in Black tea, are EGCG, EGC, ECG, and EC. EGCG and ECG have the highest antioxidant properties. Antioxidants reduce oxidative damage to cells and biochemicals.\textsuperscript{49} In general, Green tea shows stronger antioxidant activity than semi fermented tea and Black tea, mainly because of the manufacturing process. All varieties of tea come from the leaves of a single evergreen plant, *Camellia sinensis*. All tea leaves are picked, rolled, dried, and heated. With the additional process of allowing the leaves to ferment and oxidize, black tea is produced. Because it is less processed, Green tea contains higher levels of antioxidants than Black tea. Although, Green tea and Green tea supplements contain higher amounts of polyphenols than Black teas, Darjeeling and Ceylon Black teas contain even higher amounts of EGCG.\textsuperscript{50}

Because of the worldwide popularity of tea and because of the absence of toxicity, tea is an excellent candidate for dietary cancer prevention. Antioxidants may protect cells from the damage caused by unstable molecules known as Free Radicals. Free Radical damage may lead to cancer. Antioxidants interact with and stabilize free radicals and may prevent some of the damages caused by free radicals. In the laboratory, studies have shown that

\textsuperscript{47} V. Dudeja, 1990, op. cit., p-177.
Flavonoids present in tea also are claimed to inhibit the oxidation of low-density lipoprotein (LDL) cholesterol in patients, thereby reducing the risk of heart diseases. Oxidized LDL may promote atherosclerosis, so this property of tea may help prevent additional heart attacks, at least in some patients. Epidemiological studies suggest that people with a low intake of flavonoid had a higher death rate from coronary heart disease than did those who consumed more flavonoid (about 5-6 cups of tea per day). Flavonoids also have been shown to inhibit the aggregation and adhesion of platelets in blood, which may be another way they lower the risk of heart disease.\(^{52}\)

\(^{51}\) Ibid.

INTRODUCTION

Indian tea industry is highly competitive because of the large number of players involved. Around 5,000 big growers have an annual output of 800-825 million kgs, and around 0.12 million small growers have an annual output of roughly 100-125 million kgs. Small holders co-exist with large corporate holdings and medium proprietary gardens in the North and South of India.

Traditionally small growers were concentrated in South India with some distribution in Himachal Pradesh and the Kumaon region of Uttaranchal. However, buoyant tea prices in the mid-1990s encouraged an expansion in both the North and the South of India, either through conversion from other crops or plantings in new areas. Moreover, the significant increase in smallholders has led to the establishment of numerous Bought Leaf Factories (BLF) in both Assam and Tamil Nadu. There were around 455 BLFs in operation during 2004-05, with an estimated production of 214 million kgs.

In this section, marketing practices of three leading producer companies of India, who have significant market shares in export as well as domestic market and involved in marketing of bulk tea, packet tea and other value-added products are analyzed. These are namely, Tata Tea Limited, Duncan Tea Industries Limited and Goodrick Group Limited. We have not included the erstwhile Brooke Bond Lipton India Limited, since this company is involved mostly in merchandise activities and the company’s entity has undergone a series of mergers over last few years, culminating into its final merger with parent Hindustan Lever limited, making the previous records and accounts difficult to deal with on a comparable basis and of doubtful relevance, since dissolution of its independent entity. The companies under review accounted for 32 per cent of market share of Indian tea in 2004.
Tata Tea is one of the oldest tea companies in India and has both plantations and packaged tea. The company's headquarter is situated in Kolkata. With the recent launch of its Tetley brand in the Indian market, Tata Tea has embarked upon a new course of growth. Tetley, now a division of Tata Tea, is a leading tea brand in added-value teas in Britain and Canada, and is the vehicle for future growth especially in the international market, where Tata Tea intends to play a significant role.

Tata Tea spans the entire value chain of marketing in tea, viz., blending, packaging, branding, sales, and distribution. Its brand portfolio includes Tata Tea, Agni, and Kanan Devan – a successful brand in south India. In addition there is Chakra Gold, Gemini, and more recently, Temptations and Tetley. Tata Tea has a 21 per cent market share in packet teas, second after Hindustan Lever, which according to market research has a share of over 30 per cent.

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>1963</td>
<td>James Finlay.</td>
</tr>
<tr>
<td>1964</td>
<td>Tata Finlay established to develop value added Tea.</td>
</tr>
<tr>
<td>1976</td>
<td>Tata Finlay takes over tea production and marketing operations of James Finlay.</td>
</tr>
<tr>
<td>1983</td>
<td>James Finlay sells their shareholdings to Tatas heralding the &quot;Dawn of a new Era&quot; - Tata Tea is born.</td>
</tr>
<tr>
<td>1987</td>
<td>A wholly owned subsidiary, Tata Tea Inc, set up in the U.S.A.</td>
</tr>
<tr>
<td>1991</td>
<td>Acquisition of 52.5% shareholding in Consolidated Coffee Ltd (Tata Coffee Ltd.).</td>
</tr>
<tr>
<td>1993</td>
<td>Joint Venture alliance with Allied Lyons plc - Tata Tetley established.</td>
</tr>
</tbody>
</table>

Note: The information of concerned companies are compiled from their official web-sites, official publications and informal discussions with the companies' officials.
In *Economic Times' Brand Equity Survey, 2004*, Tata Tea has been ranked in the 20th position among 275 brands (195 consumer products and 80 service brands) which makes it the only tea brand to figure in the top 50 list.

**Tata Tea – Marketing Strategy**

i) The target group for Tata Tea cuts across all socio economic classes. High quality product offering at reasonable prices coupled with an effective communication strategy with the consumer has won the brand several thousand loyalists across the country.

ii) Tata Tea's distribution network in the country with 38 C&F agents and 2500 stockists caters to over 1.7 million retail outlets (ORG Marg Retail Audit) in India. The company has a 100% export-oriented unit (KOSHER & HACCP certified) manufacturing Instant Tea in Munnar, Kerala, which is the largest such facility outside the United States. The unit's product is made from a unique process, developed in-house, of extraction from tea leaves, giving it a distinctive liquoring and taste profile. Instant Tea is used for light density 100% Teas, Iced Tea Mixes and in the preparation of Ready-to-drink (RTD) beverages. With an area of approx 15,900 hectares under tea cultivation, Tata Tea produces around 30 million kg of Black Tea annually.

iii) Tata Tea has an R&D Centre at Teok (Assam) and a product development centre at Bangalore.

iv) The Tata Tea and Tetley portfolios of branded offerings caters specifically to the Australian, Middle East, West Asia, North Africa, Poland, Russia and Kazakhstan markets. This is independent of the manufacturing and supply operations of Tetley and other subsidiary companies.

v) Tata Tea has subsidiaries in Great Britain, United States and India. The Tetley Group has been a member of the Tata Group since March 2000 and now contributes around two thirds of the total turnover of Tata Tea Ltd.

vi) Teas for Company's various brands are sourced primarily from its own estates spread across Assam, Dooars and Kerala. All surplus requirements are met through the Auction centres located at Guwahati, Calcutta, Siliguri, Cochin, Conoor and Coimbatore.

Vii) Tata Tea has an experienced and skilled team of Tea Tasters and Blenders to deliver consistent quality of tea.
viii) There are a total of 5 wholly owned Packeting units and 4 Third Party units where a team of Quality Group Personnel are located to monitor and oversee laid down Quality standards.

ix) Well developed Customer Complaint Management System along with strict bench Marking is in practice.

**Major Products of Tata Tea Ltd**

A) Packet tea  B) Bulk Tea  C) Instant Tea

**A) PACKET TEA**

1) Tata Tea Premium

Tata Tea, the flagship brand of the company, was launched in 1987. The brand promises a cup of tea that gives real freshness (‘asli taazgi’) to the consumer. The garden freshness (‘bagano ki taazgi’) proposition appealed greatly to the consumers and made the brand a huge success.

Marketing mantras of this product are:

**Strong promotional activities** - with crisp catch words to identify with such as ‘Asli Taazgi, Asli Mazaa’ (Real Freshness, Real Fun), ‘Taste kamyabi ka’

**New Packaging with garden freshness** (highlighting ‘Bagano ki Tazgi’ in ads campaign)

**High profile brand icons** - spearheaded by Sania Mirza, India’s emerging tennis star, and Sunidhi Chauhan, the well-known playback singer, as Tata Tea’s brand icons

2) Tata Tea Gold

Tata Tea Gold, a tea that has aroma coupled with a refreshing taste. The product, introduced as an up grader variant of Tata Tea brand, has a blend of 85% CTC and 15% long leaf tea. This is a blend of tea which is visually unique and a superior taste – an innovation in the tea market. Indeed, its appeal matches its brand catch line “Na kahonge toh pachtaonge” (Repent, if you reject).

3) Temptation

Temptation – a premium, orthodox leaf tea. Temptation will offer tea connoisseurs a ‘rare flavour of Assam Leaf’ that delivers a unique taste and aroma. Its philosophy - “the customer is sovereign” has always strived to give its consumers the tea they desire
4) Kanan Devan
Specifically sourced from the Kanan Devan Hills, Kanan Devan tea is characterized by its unique taste preferred throughout South India. It is also perhaps India’s only single source Tea much akin to fine single malt. Today the brand is a leader in its own right throughout South India selling about 7 million Kgs of Tea. Kanan Devan’s Market Share in the south zone is 9.8% (according to ORG MARG Retail Audit, May 2001) and the brand sells in Kerala, Karnataka, Tamil Nadu and Goa.

5) Gemini
The brand Gemini is a dust tea, sold in the states of Andhra Pradesh, Madhya Pradesh, Chattisgarh, Tamil Nadu and Karnataka. However the focus of this brand is to be a strong regional player in the state of Andhra Pradesh. This brand has a high component of Assam tea, which lends to its unique strength, taste and colour. The brand has been successfully positioned as "a strong tea for strong family relations".

6) Chakra Gold
Chakra Gold Tea is a blend of high quality Assam CTC Dust teas. Chakra Gold is the No 2 brand in the high quality and high priced Premium Dust tea Market of South India.

7) Tetley
The Tetley brand was restaged in the Indian market in December 2004. The highlight of the restage was the launch of flavoured tea bags in four exciting flavours – Masala, Ginger, Lemon and Earl Grey. Flavoured tea bags are available in packs of 12 tea bags. Two humorous advertisements have been created, which are spoofs on two popular Hindi films – Sholay and Mughal-E-Azam. The creative idea in the advertising speaks of how Tetley has introduced a twist into our boring daily cup of tea through the range of exciting flavours, and the advertising tag-line is "Chai mein twist, Life mein twist".

8) Tata Tea Agni
By bringing the popular economy brand Agni under the stable Tata Tea, the flagship brand, the company intends to further consolidate its presence in the large and promising ‘economy’ segment by leveraging the tremendous equity of the flagship brand and allowing consumers access to the popular Tata Tea brand.
B) BULK TEA
Bulk Tea includes:

- all grades of CTC Teas,
- all grades of Orthodox Teas,
- Organic Tea - Orthodox grades.

C) INSTANT TEA (All products are cold water soluble).
Instant Tea Division caters to customer specific product and is used for light density 100% Teas, Iced Tea Mixes and in the preparation of Ready to Drink (RTD) beverages. The various products available in the market are:

- Instant tea powder - heavy density
- Instant tea powder - institutional density
- Instant tea powder - grocery density
- Micro milled instant tea powder
- Instant tea powder - for RTD
- Instant tea powder - (Green Tea)
- Micro milled decaffeinated instant tea
- Acidified green instant tea
- Instant tea pre mix for iced tea mixes
- Carbo instant tea – Decaffeinated
- Carbo instant tea - Institutional density
- Carbo instant tea - Heavy density
- Carbo instant tea - Pre acidified
- 100% instant tea in 3 oz. jars.
- NutraSweet instant tea mix in 3 oz. jars.
- NutraSweet decaffeinated instant tea in 3 oz. jars.
Global business lines of Tata tea

Tata Tea Limited, along with its subsidiary companies, has a significant presence in over 35 countries worldwide. It owns 51 tea estates in India and produces over 60 million Kg of black tea. The Global Business Division has two main lines of business: Branded Tea and Bulk Tea.

1) BRANDED TEA

a) Tata Tea

Principal Markets for this product are West Asia North African region which includes countries such as UAE, Oman, Saudi Arabia, Qatar, Bahrain and USA and Canada.

Products are available under the Tata Tea brand:

i) Tata Tea Premium

It market range spans the Middle East. The brand promises freshness and great taste to its consumers across the globe. In the Middle East market the brand has seen a substantial growth. The brand is available in packeted loose tea and teabag formats in the Middle East. The brand has been recently launched in the USA promising the consumer the perfect taste that Tata Tea delivers all over the world.

ii) Tata Tea Select

The ‘Tata Tea Select’ is a premium range of teas offering single origin speciality teas, flavoured teas, orthodox teas and organic teas.

Currently it has been launched in the USA in two variants of ‘Finest Assam’ and ‘Exquisite Darjeeling’. The brand is also available in packeted loose tea format in the USA and Canada.

b) Kanan Devan

Principal Markets for this product are West Asia and North African Region. It is preferred in UAE, Oman, Saudi Arabia, Qatar and Bahrain.

c) Tetley (India Ops)

Principal Markets for this product is Kazakhstan.

2) BULK TEA

Tata’s bulk tea business consists of both North Indian and South Indian teas. The Export Oriented blending/packaging factory is in the South Indian City of Coimbatore. Tata Tea
exports teas in bulk form to leading tea-importing destinations such as Iraq, Russia, Saudi Arabia, UAE, and Europe. Various Bulk tea varieties are:

i) South Indian Teas

ii) North Indian Teas - Assam Orthodox tea has a substantial market in Dubai and Europe while company exports Darjeeling Orthodox teas to the United Kingdom.

EXPORT TARGETS OF TATA TEA LTD.
The company firmly focuses on foreign markets with newer product lines. Its targets are:

Poland and Russia
The main products are different variants of tea bags and packet teas. The sales to Poland and Russia are by Tetley group of companies. The tea bags and packet teas are marketed in two brands, viz. 'Tetley' and 'Lyons'. Tea Bags include round tea bags with black and flavoured tea. Flavoured tea bags include Earl Grey, Lemon, Strawberry, Peach, Raspberry and Black Current and Drawstring Tea Bags includes black as well as flavoured tea. Flavoured drawstring tea bags include only Earl Grey. Packet Tea / Pouch teas include both black as well as flavoured tea. Flavoured packet tea is available only with Earl Grey.

Middle East
The main products are tea bags and packet teas. The sales to Middle East are invoiced to Tata Tea Limited/Tata International at agreed transfer prices. The products are marketed in the brand name of 'Tata Tea'.

II
DUNCAN INDUSTRIES LIMITED
Around 1859 Walter Duncan, a young Scottish merchant landed on the magical shores of the East Indies. Swayed by the beneficial climate of easy trade on the Indian shores, the intrepid traveler sets up the Playfair Duncan Company to cultivate the 'honey brew' of the Darjeeling slopes-tea. Under this one man entrepreneurship, the company begins the export of high quality tea to a growing market abroad, and within years the name Duncans become synonymous with tea. Gradually business expanded, the Duncan Brothers Limited was formed, and the first seeds of diversification were sown at the Birpara Tea Company and the Anglo India Jute Mills.
In 1951, the Goenka family, stepped in with generations of business expertise, took up the reins of Duncans Brothers Limited. With interests in two of the core industries of India, tea and jute, the now non-anglicized group soon creates a firm foothold in the subcontinent, and is ready for 'greener pastures'. Mr. G.P. Goenka took over operations of the Group's tea gardens, and laid the foundation for their professional management, which has made the company a force to reckon with in the tea industry today.

**Tea Gardens**
Duncans Industries Limited tea gardens encompass over 7500 hectares of land spread over the Dooars, Terai and Darjeeling regions of North Bengal. The average garden yields are almost 50% more than the all India average. The two prestigious gardens in Darjeeling are Marybong and Runglee Rungliot. Here 'Quality Systems' in line with ISO 9002 standards are successfully implemented. They have been awarded the ISO 9002 Certification from Det Norske Veritas (DNV).

**Clonal Gardens**
With Duncans' long expertise in plantation, its gardens are now being developed into one of the finest *clonal gardens* in the world. Here, instead of traditional tea plantation through seeds, the tea bushes are grown from hybrid clones. The bushes are planted using TV series clones developed by Tocklai Experimental Station. The fallow land now has a potential of giving yields in excess of 4,000 kgs per hectare, which is more than double the national average. With 70% of plantation already completed, the company plans to complete the balance plantation in another 4-5 years time. For processing the tea from these gardens, Duncans has set up a state of the art 1,800 tonnes per annum factory. The project has generated about 1,500 direct jobs and about 1,000 indirect employment opportunities for the people of the region.

**Principal Products**
Duncan Industries Limited is the third largest player in the packet tea segment after HLL (BBLIL) and Tata Tea. With a large part of the production from its gardens being packeted, its realizations are amongst the highest. Duncans introduced a new packaging innovation in tea. Recently, the firm presented the unique new DOBLE DIAMOND METALOCK® pack.

1) **Runglee Rungliot**

*(100% Darjeeling Tea)*
A premium Darjeeling tea, Runglee Rungliot is one of the oldest brands of Duncans, named exclusively after the garden it is grown in. It has been around since the inception of the
company, and promises pure delight in every sip. Legend has it that many years ago, in search of the finest tea, a Buddhist monk stepped into this garden. Inhaling the aroma, and observing the light colour, he exclaimed ‘Runglee Rungliot’, which meant, ‘this far and no further’. Thus was born a garden and a tea. Packaged in shades of cool green, with the Himalayan peaks as the backdrop, this brand is famed for its light liquor and lingering aroma. A connoisseur’s cup, it remains true to the age-old ritual of brewing the fragrant leaves in a traditional teapot.

Available earlier only in a 250gm caddy, Runglee was re-launched in Calcutta in January 1998 with an eye-catching 250 gm and 100gm carton. The launch was marked by what has now become the prestigious annual golf festival in Calcutta, the Runglee Rungliot Golf Championship.

2) **Double Diamond**

A premium CTC leaf brand, Double Diamond represents strength – that of character, achievement and elegance. Just a spoonful of this tea brews a rejuvenating cup, where strong flavour and aroma co-exist in fine balance.

Packaged in the Duncans home colours and iconize diamonds, this flagship brand is the chosen cup of the educated, young and forward-looking couple of today, who believe in the ‘right quality at the right price’.

A trendsetter in the jar segment, Double Diamond maintains an attractive inventory of jars, from the 250gm ‘Keep Fresh’ to the 500 gm ‘Vacuum Jars’. Cartons come in 500gm, 250 gm, 100 gm and 50 gm pack sizes. The brand is also conveniently available in soft packs and paise packs. The advertising slogan used to promote this brand “*Zara Si Chai Asar Dikhaye*" works satisfactorily.

3) **Sargam**

Sargam was born out of the poly revolution of the mid-eighties in the tea industry, and is now the biggest brand in Duncans’ portfolio in terms of sheer volume. This luxuriant, full-flavoured brand promises a true blend of ‘real colour’ and ‘real taste’, seasoned with the magic touch of the housewife’s hand. Packaged in majestic green, it is available in 250 gm to 1 kg jars, and 25 gm to 500 gm paise packs. “*Rang, Swad, Aur Aap Ka Hath Banaye Ek Surili Sargam*” – the advertising catch-line to promote this brand, seeking attraction of the ladies, particularly, who prepares tea in the house.
4) Shakti Tea

Introduced in 1983 as a dust tea and later as its leaf variant in 1995, Shakti, as the name gives away, represents strength and vigour. Especially processed for boiling, this tea brews bold, full-bodied liquor, and is the national brand in the fighter category, aimed at the economy segment. The advertising slogan used to promote this brand is "Shakti Chai Zabardast".

Packaged in vibrant red and yellow with a lightening in every cup, this 'zabardast' brand suggests machismo, virility, courage and strength.

Shakti CTC leaf is available in 1 kg to 50 gm poly packs, while CTC dust sells in 100 gm to 25 gm soft packs and 1 kg to 25 gm poly packs.

5) No. 1

It was launched in 1981 as a dust brand in the popular category, and this 'Champion of Strong Teas' gives strong colour, strong flavour and strong taste. The uncluttered look of the packs, with No.1 inscribed in bold, goes well with the no-nonsense, straightforward image of this brand.

Distributed in poly, carton and jar variants, the 500 gm, 250 gm and 100 gm cartons are popular in the domestic segments. The cartons come with a metallised foil lining to retain the freshness and strength of tea. The 'hot tea shops' prefer the 2 kg and 1 kg poly packs while the soft packs and paisa packs have captured the lower end of the market.

III
GOODRICKE GROUP LIMITED

The Company was incorporated in the State of West Bengal, India on 14th June, 1977 All the 17 existing tea gardens of Goodricke Group Ltd. were owned by eight Sterling Tea Companies. They had established tea gardens progressively in late 1800s and were carrying on business in tea in India. 12 estates are in the district of Jalpaiguri and 3 in Darjeeling in the State of West Bengal and 2 in Darrang district in the State of Assam.

The sterling companies were:
These 8 Sterling Companies were amalgamated with Goodricke Group Ltd. with effect from 1st January, 1978.

The Company has associated operational companies having tea gardens in Darjeeling and Assam:

<table>
<thead>
<tr>
<th>Companies</th>
<th>Tea Estate (With Tea Factory)</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tiru Tea Ltd.</td>
<td>2</td>
<td>Darjeeling</td>
</tr>
<tr>
<td>Stewart Holl (India) Ltd.</td>
<td>4</td>
<td>Assam</td>
</tr>
<tr>
<td>Amgoorie India Ltd.</td>
<td>2</td>
<td>Assam</td>
</tr>
<tr>
<td>Koomber Tea Co. Pvt. Ltd.</td>
<td>2</td>
<td>Assam</td>
</tr>
</tbody>
</table>

Marketing of 'Bulk Teas'

CTC and Orthodox teas from the Dooars, Darjeeling and Assam gardens are sold in bulk form packed in paper sacks, jute bags or tea chests. The marketing channels used for bulk teas include the Public Auction System, private and consignment sales, Exports and Direct Sales either in original or blended form.

Darjeeling Division

Located at around 7000 ft. above sea level with a unique combination of clonal China, soil, and climate, this region produces the finest teas known to man on its lush slopes shrouded by mountain mist.

The flavoury romance of Darjeeling is best exemplified in the quality that is produced by Group Gardens namely, Castleton, Margaret’s Hope, Thurbo and Barnesbeg, while the Green Teas of Badamtam are also greatly sought after. Quality buyers from Japan, Europe and the USA keenly compete for these teas.

Associate Company

<table>
<thead>
<tr>
<th>Goodricke Group Ltd.</th>
<th>Tiru Tea Ltd.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thurbo</td>
<td>Castleton</td>
</tr>
<tr>
<td>Badamtam</td>
<td>Springside</td>
</tr>
<tr>
<td>Barnesbeg</td>
<td>Margaret’s Hope</td>
</tr>
<tr>
<td></td>
<td>Dilaram</td>
</tr>
<tr>
<td></td>
<td>Edenvale / Maharani</td>
</tr>
</tbody>
</table>
Assam Division

Orthodox teas from gardens namely, Dejoo, Harmutty and Orangajuli among others have built up international reputations and are very popular with quality buyers from Germany, UK and the Middle East markets. Similarly, the finest CTCs are produced in gardens namely, Amgoorie and Borbam. Both Orthodox and CTC teas are produced in this premium quality region and the produce is consumed in India and exported mainly to the UK, Middle East and Germany and elsewhere.

<table>
<thead>
<tr>
<th>Goodricke Group Ltd.</th>
<th>Stewart Holl (India) Ltd.</th>
<th>Amgoorie India Ltd.</th>
<th>Koomber Tea Co. Pvt. Ltd.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orangajuli</td>
<td>Dejoo</td>
<td>Amgoorie</td>
<td>Koomber</td>
</tr>
<tr>
<td>Nonaipara</td>
<td>Harmutty</td>
<td>Borbam</td>
<td>Coombergram</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sessa</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Borpatra</td>
<td></td>
</tr>
</tbody>
</table>

Dooars Division

Group gardens in the Dooars have created a niche for themselves with their full bodied CTC liquors and are strongly competed for. Tea from Group gardens namely, Danguajhar, Leesh River or Jiti, among others, is extremely popular. The twelve Goodricke gardens which are sold both in bulk and packet forms are:

Danguajhar, Jiti, Gandrapara, Chalouni, Meenglas, Hope, Aibheel, Lakhipara, Kumargram, Sankos, Chulsa, Leesh River.

BRANDS

Both A) Packet Tea and B) Instant tea are offered by the Goodricke Group in the market.

A) PACKET TEA

Goodricke Group has a wide selection of ever consistent quality brands. These are either single estate for some of Group's Darjeeling brands or exclusively blended to bring out the best of every attribute the consumer desires.
a) Darjeeling:

1) Castleton Caddy
Its unique ‘muscatel’ tea is comparable to sweet summer wines, with fragrant top notes of musk. Apart from fetching world record prices in the recent past, Castleton is also the first tea garden in the world to receive the ISO 9002 certification. Packed attractively in metal caddies, this legendary tea is prized by tea connoisseurs and those seeking exclusive gift items.

2) Badamtam Chestlet
Badamtam is synonymous with exquisite quality tea. Together with Castleton’s caddies, Badamtam’s exclusive pinewood chestlets vie for space in gift shops as well.

3) Badamtam Sencha Green Tea Caddy
Japanese type green tea from Darjeeling with a typical sencha character i.e. tangy, full-bodied with a maritime aroma.

4) Green Tea Carton
This tea is light and refreshing. It is an ideal drink for the health conscious people.

5) Thurbo Carton
Thurbo’s indigenous clonal teas have unique character. These teas are appreciated by the discerning consumer looking for distinctive flavour and taste.

6) Margaret’s Hope Caddy
This is an exclusive and highly prized garden-fresh single estate tea, packed in an attractive metal caddy.

7) Premium Darjeeling Carton
An economically priced Darjeeling tea in carton pack proves to be one of Group’s largest selling Darjeeling ‘value brands’. The blend of Darjeeling brokens and fannings offers the consumer both flavour, bright colour and briskness. Cardboard cartons with Aluminum foils are generally used for packaging purpose.

8) Special Darjeeling – Roasted Jar
This garden fresh brand is available from Goodricke’s famous gardens. These, reusable pet jars are very popular because of the tea’s delicate roast to enhance the aroma and give it a malty taste.
9) Seasons - Three-in-one Pinewood Chestlet
A very special pack of choicest seasonal Darjeeling teas – Spring, Summer and Autumn
teas – 50 gms each.

10) Single Estate - Three-in-One Metal Caddy
This pack contains teas from the three top Darjeeling gardens – Margaret’s Hope,
Castleton, Thurbo.

b) Multi-Origin Blends
1) Goodricke Premium CTC Leaf
Premium Assam CTC leaf is packed in foil lined pouches, to preserve the freshness for a
long time. Teas from Group’s top- end gardens are blended.

2) Goodricke Perfect
This is a ‘Perfect’ combination of Assam and Darjeeling teas blended to give the strength
and colour of Assam with the flavour of Darjeeling teas.

3) Fine Estate Tea Bags
Assam teas blended to perfection for quick brewing, while maintaining flavour and aroma.
This brand is available in the brand name of Fine Estate

4) Goodricke CTC Leaf and Dust
The product gives strength, taste and colour, all in one, to the consumers.

5) Zabardast Leaf and Dust
Reasonably priced, this value poly pouch provides a strong cup of tea and rightly puts
‘tiger’ symbol on its pack.

6) Gold Estate (Leaf)
This is a unique blend of full bodied teas selected and blended carefully to provide great
aroma, taste, strength and colour. This brand is available in an attractive carton
pack designed to retain freshness of the product.

7) Nakshatra (Dust)
Blend of garden fresh teas from Goodricke’s premium estates available in an attractive
carton pack designed to retain its excellent aroma, taste, strength and colour.

B) INSTANT TEA
Instant Teas are available in ready to drink hot or cold form. The Goodricke Group
developed the concept of instant tea from green leaf at its R & D centre for 4 years before
setting up the world's first integrated Instant Tea Plant at Albheel Tea Garden in the Dooars in 1994 as an Export Oriented Unit. Goodricke's Ready to drink (RTD) is fast catching up customer's fascination.