

Tea Production Process

Tea Plantation

The Tea Plant: There are two major strains of the tea bush, which are:

- *Camellia Sinensis* - Pertaining to China, Tibet and Japan. 9 - 15 feet tall, 2 inch leaves. Resistant to very cold temperatures.
- *Camellia Assamica* - Pertaining to North East India. 45 - 60 feet tall? (More of a tree than a bush.) 6 inch leaves. Prefers warmer climates. There are numerous hybrids that originate from the above two species, which have been developed to suit different conditions.



Plant Grow: Tea grows mainly between the tropic of Cancer and Capricorn, requiring up to 1000-1250mm of rain per year, as well as a temperature ideally between 10 to 30 degrees centigrade. It will grow from sea level up to 2400 metres.

The tea garden (tea estate) is where the flavour potential of the tea will be generated, and so great care and attention is taken to insure that the best possible growing conditions are created. This means in some cases planting trees to generate shade, or planting wind breaks, to prevent damage from strong winds, particularly on the plains of Assam.



Plants are placed in rows some approximately one metre apart. The bushes must be pruned every four to five years in order to rejuvenate the bush and keeping it at a convenient height for the pluckers to pick the tea from. This is known as the "Plucking Table".

A tea bush may happily produce good tea for 50 – 70 years, but after 50 years the plants yield will reduce. At this time the older bushes will be considered for replacement by younger plants grown on the estates nursery.

Plucking: Plucking rounds depend on climate; new growth can be plucked at 7 - 12 day intervals during the growing season. Tea harvesting is exhaustive and labour intensive (between two and three thousand tea leaves are needed to produce just a kilo of unprocessed tea) and is a procedure of considerable skill.



Tea pluckers, learn to recognise the exact moment at which the flush should be removed. This is important, to ensure the tenderest leaves are plucked to produce the finest teas.

After plucking, leaves are transported to factories for processing. The fields are normally adjacent to the factory.

Manufacture

Black Tea manufacture:

Withering: The objective of withering is to reduce the moisture in the tealeaf by up to 70% (varies from region to region).

Tea is laid out on a wire mesh in troughs. Air is then passed through the tea removing the moisture in a uniform way.



This process takes around 12 to 17 hours. At the end of this time the leaf is limp and pliable and so will roll well.

Rolling: Tea is placed into a rolling machine, which rotates horizontally on the rolling table. This action creates the twisted wiry looking tealeaves. During the rolling process the leaves are also broken open, which starts the third process - oxidation.

Oxidisation: Once rolling is complete, the tea is either put into troughs or laid out on tables whereby the enzymes inside the tealeaf come in to contact with the air and start to oxidise. This creates the flavour, colour and strength of the tea.

It is during this process that the tealeaf changes from green, through light brown, to a deep brown, and happens at about 26 degrees centigrade.

This stage is critical to the final flavour of the tea, if left too long the flavour will be spoilt.

Oxidisation takes from between half an hour to 2 hours.

This process is monitored constantly with the use of a thermometer along with years of experience. The tea then passes to the final stage of drying.

Drying: To stop the oxidising process the tea is passed through hot air dryers. This reduces the total moisture content down to about 3%. The oxidation will be stopped by this process, and now the dried tea is ready to be sorted into grades before packing.

Green Tea manufacture:

The main difference when making green tea is that the oxidation process is omitted, which allows the tea to remain green in colour, and very delicate in flavour.

In order to ensure that the freshly picked leaf does not oxidise, before the tea is rolled, the leaf is either pan fried, or steamed. This will prevent the interaction of the enzymes in the leaf, and so no oxidation can take place.

In China some green teas are withered before being pan fried, but more usually in green tea manufacture, the withering process is omitted as well.

Rolling, drying, and sorting follow.

Tasting and Blending

Processing and grading are exhaustive, and vitally important to teas manufacture. The teas are not necessarily ready to be packaged and sold, and this is where the skills of the tea blender enter the picture.

At Twinings' Head Office in England, our expert blenders select teas from thousands of different tea estates and yet still arrive at the exact flavour for a particular blend. No two batches of tea are ever alike, even if they come from the same garden, which makes the art of blending extremely complex.

Weather, altitude, moisture and soil each contribute to tea characteristics; tea changes according to its season, and even to the time of day at which it is picked. To produce the same, optimum blend every time, the importance of the blender's art is inestimable.

At Twinings a tea taster and blender will train for five years, before they are fully qualified, although they are constantly learning and developing their skills.

Small samples of tea are first obtained from tea brokers and tasted for quality, flavour as well as being assessed for colour. Duly approved, the teas are then purchased from markets around the world.

Professional tasters will now select teas to produce the desired blend. Each sample blend is brewed, and undergoes a methodical tasting procedure.

Freshly drawn water is boiled in a copper kettle and poured over five grammes of tea in a special white, lidded ceramic cup. The leaves are infused for precisely six minutes, after which the "liquor" is poured off into a bowl ready for tasting.

Tasters examine both dry and wet leaves, judging the brew's colour and clarity. Then using special spoons, tasters suck the tea sharply against their palates and expel it into spittoons. So well seasoned are tasters' palates that they can detect the slightest variation on the standard they seek.

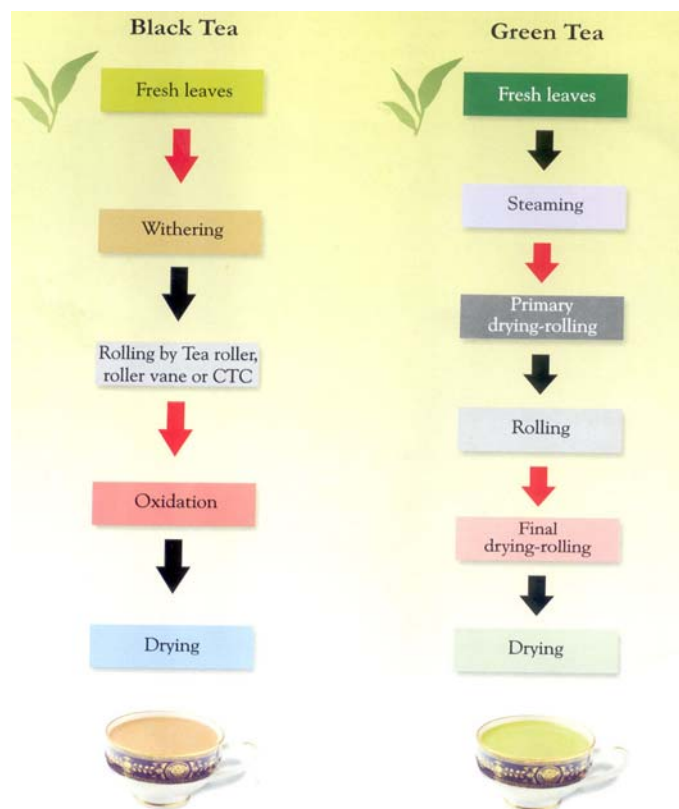
The taster's job however has not finished, as the tea still needs to be tasted after blending, and during the packing stage. Only when this has been approved, will the tea be ready for distribution to Twinings' many retail outlets throughout the world, and of course to consumer's teapots.

Sorting and Packaging

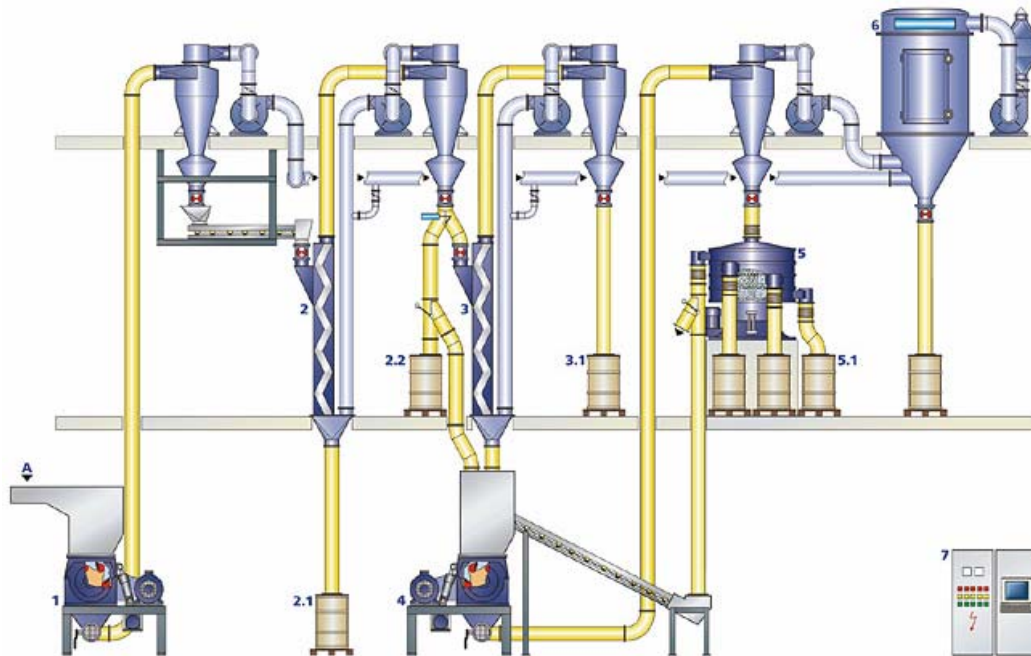
Sorting, or grading, is the final stage in the tea process and one of the most crucial. Here leaves are sifted into different sizes, then classified according to appearance and type.



When sufficient amount of each grade has been sorted, it is then packed. This is either packed into foil lined paper sacks, which provide a moisture barrier, keeping the tea dry. Tea chests, however, are used for larger leaf teas as they provide an extra degree of protection against the leaves being damaged in transit.



The system schematic shows a standard Alpine process for tea:



Legend

- 1 =** Rotoplex granulator with coarse screen for the coarse-crushing of stems, stalks, leaves and roots.
- 2 =** Multi-Plex zigzag classifier to clean the natural drugs from stones, stalks, metal and coarse material, etc.
- 2.1 =** Stones, stems, sand, metal, coarse material, etc.
- 2.2 =** Light fraction (dependent on product as end product or for downstream processing).
- 3 =** Multi-Plex zigzag classifier for the final cleaning and separation of paper, film, fibres and hair, etc.
- 3.1 =** Paper, film, fibres and hair, etc.
- 4 =** Rotoplex granulator for the uniform and low-dust processing of the heavy fraction or the light fraction from the first classifying stage and the sieve residues. Fineness dependent on product and application.
- 5 =** Classification of the cut product with single- or multi-deck sieving machines.
- 5.1 =** End product in the desired fraction.
- 6 =** Central dedusting unit
- 7 =** Control cabinet

References:

www.winsomeindia.com/manu.html
http://www.twinnings.com/en_int/tea_production