A BRIEF TOUR OF SELECTED TEA PLANTATIONS IN MALAWI

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The two of us alone visited Malawi on the 25th and 26th of June 1983. Arrangements were made for us to visit three estates belonging to the British African Tea Estates Ltd (BATE) and we were received by the Manager of Kasembereka Estate, Mr A.J. Korteweg.

General

The main source of revenue to the government is from the export of agricultural commodities. Tobacco ranks as the main export crop followed by tea, the total export volume of which is around 38 million kg per annum. The export volume of cotton and maize follow that of tea. The present annual production of coffee is yet under 300 tons per annum and this is increasing fast and will soon reach the 600 ton mark, when they will come into the quota barrier.

The total tea acreage in Malawi is only around 18,000 ha. Of this hectarage almost 16,000 ha are in the hands of the Plantation Sector and only around 2,000 ha are cultivated by the Small Holder Sector. There are only about 4,000 small holders in the whole of Malawi. The national average production figure is 2,200 kg/ha. The Plantation Sector is dominated by a few multinationals including Eastern Produce Company, the British African Tea Estates Limited (BATE) and Brooke Bond Limited.

There are a total of five estates belonging to the British African Tea Estates Limited and these include Kasenbereka, Gotha, Esperanza, Nasonia and

Kumadzi. Manufacturing factories are located only in Kesenbereka, Gotha and Esperanza, with a Central Workshop in Gotha, in-charge of a Senior Mechanical Engineer. The average capacity of these factories is around 75 to 80,000 kg green leaf per day and with an output of around 1.8 million kg of made tea per year. The manufacture of tea is by the LTP process.

The Plantation Sector

The tea in the above British African Tea Estates Group is grown between the elevation range of 600 m to 1,200 m. Although the bulk of the tea is seedling tea, replanting has been going on quite steadily from about 1968 with clonal tea. The old seedling tea average yield is around 2,400 kg/ha whilst the replanted mature tea yield is around 3,800 kg/ha with the highest yield in replanted tea at 4,400 kg/ha. The overall average is at 3,300 kg/ha.

Most of the overall cultural practices are similar to that practised in East Africa with minor variations. The planting season in Malawi is from December to April.

Infilling and consolidation of old seedling fields is being carried out with meticulous care. Specially raised plants in the nursery are used for infilling both as singletons or as double plantings as well as block planting.

Nursery plants are propagated from single as well as bi-nodal cuttings in 7.6 cm x 25 cm polythene sleeves filled with top soil at the bottom and a mixture of top soil and sub-soil in the middle and sub-soil on top which aids in the callusing and rooting of cuttings. Bi-nodal cuttings are left for nine months in the nursery while single node cuttings are kept for 18 months. Several polyclonal selections from controlled cross-pollinations from selected parent clones are recommended and used by the industry along with several field selections. The

polyclonal selections are labelled PC clonal series whilst some of the good field selections made by the Tea Research Foundation are the SFS series (Swazi Field Selection). Young clearings are planted at a spacing of 1.5 m x 0.8 m to 1.2 m x 0.8 m.

Young clearings are all heavily thatched from the very beginning using either Guatemala grass or with the Nsante grass, which is similar to a light reed, found growing under wet conditions along with bamboos. One important operation that is being presently adopted is the irrigation of young fields during the dry months using Sprinkler Irrigation. A block is continuously irrigated for 12 hours once a week. Although irrigation is not an official recommendation of the Tea Research Foundation of Malawi, the BATE Group of Estates do irrigate their young fields and they claim that the plants establish faster and very well and are brought into bearing earlier. Thirty six sprinklers with the piping and the necessary pumps cost around US $ 18,000.

Urea is being used as the main source of nitrogenous fertilizer and is applied to mature tea as straight prilled urea by air. This application is usually during September/October or closer to November. Young fields that are being irrigated receive application in two instalments, one half in August and the other in January. The upper limit of nitrogenous fertilizer application to mature tea is between 150 - 180 kg/ha. Most fields are on a two-year cycle and P and K are given separately in the pruned year only at 80 kg each per ha. Zinc is applied by air either as a dust in the form of Zinc oxide or as a solution using Zinc sulphate. Ground application of fertilizer is broadcast by hand usually by women, employing about seven women per ha (three women per acre) with a task of 50 kg per labourer.

It has been found that when fields are allowed to go into the third year the harvested leaf is small and is not suitable for the LTP manufacture to produce tea of a good liquoring character. Pruning therefore is carried out on a two-year cycle and all the prunings are retained as mulch in the field. Pruned frames are covered with prunings until bud growth.

20% of the total acreage under tea is planted to Gums (approximately 3.6 million ha). As observed in Kenya, all tea factories in Malawi use firewood and with the expansion of the production of tea, the planting of fuel-wood trees has been keeping abreast. The targetted hectarage to be planted is up to 40% of the hectarage in tea. Unlike in Sri Lanka, Gums are planted on land otherwise suitable for tea cultivation and is not restricted to the waste lands and ravines; planting Gums in ravines or near water courses is avoided. The trees are harvested on a regular eight-year cycle.

Manufacture

The manufacture of tea in Malawi is entirely by the LTP process. Tea was earlier manufactured by orthodox means until about 1963, when the factories switched to CTC process. Tea processing by the CTC method was going on from 1963 until around 1972, when the LTP process was introduced. Proto-type models of the LTP machines were introduced as early as in 1967/68 and commercial production began in early 1972. Since 1972, the manufacture of tea is entirely by the LTP process.

After more than 10 years of experience with the LTP process of manufacture, certain Senior Planters are of the view that LTP followed by one "open" CTC cut (wider setting than the usual first cut) is the ideal type of manufacture producing tea with excellent liquoring characteristics. However, the programme of manufacture in almost all commercial factories is entirely by the LTP process. Certain Brooke Bond owned estate factories that were on CTC until recently are on the above combined manufacture programme. Besides being much cheaper than a 100% CTC manufacture, this combined process produces tea that has an appearance very similar to that produced by the CTC manufacture.

The typical grade percentage of teas produced by the LTP process is as follows:

BOP	...	=	1%
OF (Orange Fannings)		=	1%
PF (Pekoe Fannings)		=	60%
PD (Pekoe Dust)		=	12.5%
Dust 1	...	=	7.5%
BTF (Broken Tea Fannings)		=	5%
F 2 (Fannings 2)		=	6%
Dust 2	...	=	4%

All tea factories use only firewood generated from the estates themselves. The efficiency of firewood heating is greater in the Davidson heaters in which 1 cu.m of solid fuel generates 310 kg of made tea, whilst on steam boilers the conversion is of the order of 1 cu.m of firewood generating 140 kg of made tea. Most factories are now switching to the Davidson heaters.

Packaging is still done in tea chests but a significant amount is packed in paper sacks lined with aluminium foil. Tea chests cost K 5.00 as against paper sacks which cost only K 1.50 (1 Kwacha is approximately equivalent to US $ 1).