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TEA CULTIVATION IN KOREA

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INTRODUCTION

The relics of ancient tea cultivation are still visible in the Pusan region of South Korea. Fully grown trees of the variety *sinensis* are yet found in the forests that envelope this region. The cultivation of tea was said to have spread to this country during the 8th century A.D. with the advent of Zen Buddhism from China.

Korea is a peninsula about 1000 km long and 216 km wide. It is situated south of Manuchuria between China and Japan. The population is in the region of 40,466,000 with an annual growth rate of 1.56 per cent. Its climate is temperate and the four seasons are distinct. The winter temperature often goes below $0^{o}C$.

The cultivation of tea in Korea did not develop into an industry like China and Japan. Nevertheless, some companies have recently taken an interest to grow tea to produce the traditional green teas. These tea gardens are small being about 45-60 hectares in extent.

Commercial plantations

The Pacific Chemical Company of Korea was founded in 1945. This company initially dealt with cosmetic products, but today it is one of the leading companies producing several other items as well like toiletries, household products, pharmaceuticals, food and enzyme products, etc. In 1978 a Research and

Development Institute section was established and over 200 professionals are working on research and development projects covering genetic engineering and plant propagation.

At present the Pacific Chemical Company has four estates, Kwang-ju in South Korea and Seong, Hala and Tosun in Cheju-do island. Cheju-do is a small volcanic island situated south of Korea and receiving an average annual rainfall of 2000 mm. The tosun tea estate is 60 hectares in extent and has a small modern factory equipped to manufacture Chinese and Japanese green teas.

The Tosun estate is at an altitude of 450 m above mean sea level. The soil is a black clayey loam with a pH of 5.0-5.5. The tea fields are in convenient blocks and almost flat or at a very slight gradient. The fields have a 1 1/2-2 m wide border for moving in plucking and forking machines. Thick wind belts are also established to protect the tea plants.

The tea grown is of the China jat and ninety per cent of the area is planted with a China jat clone, Yabukita, noted for the production of Japanese green tea. The balance area is planted with China seedling tea raised from the old tea plants found in Pusan district.

Propagation and field planting

The propagation of tea plants is by stem cuttings raised in nursery beds. These plants take about 1 1/2 years to be ready for planting out in the fields. The planting is done in almost straight rows at a spacing of 40 cm in the row and 1.8 m between rows resulting in a plant density per hectare of around 15,000. The inter-rows are thickly thatched with grass cuttings. The time of field planting is in spring and the young plants take approximately six years for economic production.

Crop Harvest

The young plants in the fields are trained into a dome shaped plucking table by suitable skiffing and plucking operations during the first 5-6 years, the harvesting being done by plucking machines. Usually, four crops are harvested a year. The spring crop i.e. the first crop is gathered during the latter part of April to mid-May. It takes about three weeks to complete the first round of harvesting. The summer crop i.e. the second and the third crop are gathered during the latter part of June and early August respectively. The autumn crop i.e. the last crop is gathered around the last week in September.

The spring crop is usually the heaviest and produces the best quality green tea. The spring crop from a mature Yabukita clonal field is around 4,000-5,000 kg per hectare. The average annual yield of green tea from a hectare is between 10-12 metric tons.

Soon after every harvest a light machine trimming is done to keep a smooth level so as to reduce coarse leaf and cut stem pieces in the subsequent pluck. The plucking machine is usually handled by two persons, but during the heavy cropping period two additional people are employed to assist in the removal of harvested flush from the machine. About 1200 to 1500 kg of flush could be harvested per day with one machine. The harvested flush is transported to the factory by motor vehicles.

The major set back for productivity is the severe form of winter. Unlike in Japan, tea cultivation in Korea is on an extensive basis and providing cloth cover to tea rows to protect from frost damage is not feasible. The seedling China variety shows a better resistance to winter but the yield compared to the Yabukita is rather poor. Hence the company is engaged in evolving a suitable clone by field selection, controlled pollination and tissue culture breeding methods.

Fertilizer application

Though the tea soils are rich in organic matter content, heavy doses of artificial fertilizers are applied. For mature tea fields an NPK mixture in the ratio of 6:2:3 is applied, the quantity being in proportion to the crop harvested. For a field yielding 10 metric tons of flush per annum 550 kg of the mixture is applied in four split applications after every harvest.

Pruning

Tosun estate adopts a nine year pruning cycle. Pruning is usually done after the last harvest in autumn by machines. The type of pruning done is comparable to a deep skiff. When the field flushes plucking is straightaway carried out without the tipping operation.

Forking and weeding

Every year after the last harvest the inter-row spaces are forked using the forking machine. Tea fields are practically free of weeds, because of the thick mulch and the dense growth of the bush. Weeds which grow on the border areas are periodically cut and added to the mulch.

Pests and diseases

The plantation is of recent origin planted on virgin soils and hardly any serious pests or diseases attack the tea. However, mite attack is of some concern in Tosun but no chemical control is being adopted.