

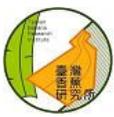
## BANANA INDUSTRY AMU ITS CULTURAL PRACTICES IN TAIWAN

Of the approximately 8,000 hectares of bananas grown in Taiwan, about 5,000 are grown in Kaohsiung and Pingtung prefectures in southern part of the island. These bananas are exported mostly from March through June. Another 3,000 hectares are grown in the more northern central district around Taichung mostly for local market with a few for export from July to October. Bananas are not exported during the cold winter months of November through February. In southern Taiwan the major crops other than bananas are rice and sugarcane. In addition, soybeans and other vegetables are widely grown following two crops of rice. Banana production has been declining because of the lower banana prices on the Japanese market and the increasing banana production in the Philippines. The amount of Taiwan bananas exported to Japan in recent years has maintained at 5 to 6 million boxes (16 kg/box) annually, with the remainder 4 to 5 million boxes being consumed locally. With few exceptions, bananas in southern Taiwan are grown in fields of 0.5-1.5 hectares in association with paddy rice culture. The major cultivars are "Pei Chiau" and "Hsien Zen Chiau" similar to "Giant Cavendish" and "Robusta", respectively. Sword suckers are removed from the plants with fruit in March through May and planted in rows between the adult plants at 1,800 to 2,000 plants per hectare. Beginning 1982, banana plantlets raised from the meristem culture have been planted in nonbanana land in some 700 hectares to compensate for the acreage lost to the Panama disease, one of the most devastating diseases of banana that has wiped out more than 5,000 hectares of bananas since it occurred in 1967. By planting annually at this time wind damage during the typhoon season of July through September is reduced. Fruit formation and flowering occur during the cold months of December through February when chilling temperatures frequently occur. The majority of the fruit is harvested from March through June.

In a few fields in southern Taiwan a ratoon crop is left by setting suckers in March and April. However, the ratoon crop is much taller than the plant crop, and the plants and fruit are larger. As a result, uprooting in the light textured soils is much more common especially during rainy periods. Props adequate in size and length for the shorter plant crop frequently fail to hold up the large, tall plants of the ratoon crop. A single creosote treated bamboo prop, inserted into the ground, is used for each plant which is tied to the prop. In central Taiwan ratoon crop suckers are set in April-May and there is no replanting. Bananas may be grown for up to 40 years in the same field and rotations are not practiced. Fields are kept free of weeds by hoeing or use of herbicides.

Fertilizer is applied at the rate of 2.0 kilograms per plant per year of 11 N-5.5 P<sub>2</sub>O<sub>5</sub>-22 K<sub>2</sub>O divided into 4-5 applications. Fertilizer is sometimes applied in furrows between the banana rows and then covered with a hoe. No drains are dug but the plants are often planted on ridges about 10 cm above the interrows. During the dry season from October to April, flood irrigation is used.

Climate and weather have a strong influence on banana production apart from losses from typhoon. Taiwan bananas are subjected to three months (December-February) of very low temperatures and to three months (July-September) of heavy monsoon rains. During typhoons or tropical depressions, rainfall can reach 400 mm (16 inches) in 24 hours.



Yields average about 25 kilograms per stem in the better fields. Some of the best fields, however, may produce up to 30 kilograms per stem. Yields of 35 tons of hands per hectare of which 80% are exportable were quoted. After the male bud and false hands are removed, the fruits are covered with a perforated polyethylene bag protecting from diseases, and chilling and sun burn injuries. Stems are carried to the packing station or deheaded in the field. A caliper system is employed for grade control. Carts, small trucks, and motorcycles are used to transport the fruit, during which measures are taken to protect the fruit from scarring or latex stain. There are many small packing stations within 1 or 2 kilometers of the banana fields. Fruit is packed as hands in 16 kilogram boxes without a slip sheet.

In the last two decades, Taiwan banana industry has undergone a dramatic change, with the acreage being declined from over 45,000 to the present 8,000 hectares. At present, the banana industry is being threatened by the ever increasing cost of production and a natural calamity—the Panama disease. Agronomist, horticulturist, plant pathologist, and soil expert in the Taiwan Banana Research Institute collaboratively are peering into the heart of these major problems.