Status report of banana fusarium wilt disease in China

From: Banana Fusarium wilt management: Towards sustainable cultivation – ed. by A.B. Molina, N.H. Masdek, K.W. Liew, INIBAP-ASPNET, Los Baños, 2001; p. 119-120.

There are eight provinces and an autonomous region where bananas are planted in mainland China. Bananas are produced primarily in Guangdong province totalling about 12 thousand ha, representing over 62% of the total acreage under bananas in China. Before 1980s, the popular banana varieties in Guangdong and Guangxi were the Gros Michel sub-group, then the Cavendish sub-group gained popularity. Cultivar 'Williams', introduced from Australia in the 1980s, was the major cultivar planted in Pearl River Delta. Many other cultivars introduced from other countries including Brazil, Australia, Thailand, etc. in the 1990s were also planted.

The banana fusarium wilt disease was thought to occur in Guangxi Province in the 1960s. It was said that the host was *Musa basjoo* Sieb. Chen Qung Tao found *Fusarium oxysporum* f. sp. *cubense* in the soils of Guangdong in 1963, but it was not published and there was not any formal report since. The reliable report was presented in the book entitled 'Diseases of Fruit Trees in Guangdong' written by Phytopathology Division of Guangdong Agriculture and Forestry College (the former of South China Agricultural University) in 1975, which introduced the wilt disease caused by *Fusarium oxysporum* f. sp. *cubense*. However, the fungus only infected Fenjiao (ABB) but not Dajiao (ABB) and Xiangjiao (AAA) at that time. Replanting with Dajiao (ABB) and Xiangjiao (AAA) after excavating and removing the diseased plant of Fenjiao (ABB) was considered as one of the control measures. The formal report was also presented in Guangxi Province soon. The diseased plant of Fenjiao (ABB) produced the typical symptoms of yellow leaves, brown and necrotic vascular tissues. The disease was very serious on well-known variety Longyajiao Zhongsan (AAB) in Zhongsan, Guangdong Province, which affected the export market tremendously. The pathogens in Guangdong were identified as race 1 of *Fusarium oxysporum* f. sp. *cubense* by Microbiology Institute of Guangdong Academy in the middle of 1980s.

The fusarium wilt of Xiangjiao (AAA) was first found in Wanqingsha Town of Panyu, Guangdong Province in 1996. The phytopathologists from the Institute of Plant Protection and Institute of Pomology, Guangdong Academy of Agricultural Science, and Department of Plant Pathology, South China Agricultural University investigated the disease locale together in 1997. In the same year, another group of phytopathologists organized by the Phytopathology Society of Guangdong Province also carried out an investigation. The two groups simultaneously thought that FOC caused the wilt of Xiangjiao (AAA). The fungus not only infect variety from Brazil (AAA), but also the variety Guangdong Xiangjiao No.1 and No.2 (AAA).

The disease incidence varies between orchards or field plots. There were several diseased plants only in Wanqingsha at the beginning, about 1-2% in the same field plot in 1997, and increase to about 5-6% incidence in 1998, and continue to spread from one plot to another. According to the investigation by the Agricultural Bureau of Dongguan City, Guangdong Province in 1997, the fungus could infect Dajiao (ABB) although the disease was not serious. But after diagnosing one diseased field was reported by farmers in 1999, I thought it might be wrong.

The current circumstances of disease occurrence could be the result of those cultivar introductions not following the quarantine procedures. The contaminated banana seedlings including tissue-cultured plantlets have not been quarantined during frequent exchange of banana resources across districts and countries.

Since FOC race 4 was spread from Taiwan to South East Asia in recent years, most probably, FOC race 4 has been introduced with the variety from Taiwan (AAA). The race 2 could also occur as a number of banana varieties were bred and introduced in Guangdong Province. Therefore, the races need to be identified further. But until now, there are no reports of FOC in Sichuan, Zhejiang and Guizhou provinces. The following counties or cities are infested with FOC: Counties of Pearl River Delta, Gaozhou (Guangdong); NanNing, BaiShai (GuangXi), Wenchang, WanNing, Danzhou, DingAn, DenMai (Hannan); Hekou, JingHong (Yunnan); Zhangpu (Fujian). The fungus FOC has not yet been found to infect Xiangjiao (AAA) in Guangxi, Hainan, Fujian and Yunnan provinces.