



Higher yields and environment- friendly production



The Chongqing Citrus Project
in China



Bayer CropScience

Where it all started

Chongqing in the south-west of China is one of the country's most important citrus production regions. In 2007 the total planted area was around 1.2 million ha, mainly oranges grown for juice. Citrus production has been strongly encouraged and supported by the Chongqing local government, which sees it as an important means of increasing farmers' income, reducing poverty and protecting the environment of the Three Gorge Region.

However, insufficient crop protection capabilities due to poorly educated farmers, small-scale farms and the presence of good- and bad-quality agrochemical products on the market have become a serious barrier to increasing yields. An additional problem has been the discovery of severe fruit and leaf drop in some areas of Chongqing as a result of poor controls on red mite (*Panonychus citri*), arrowhead scale (*Unaspis yanonensis*) and black spot (*Guignardia citricarpa*).

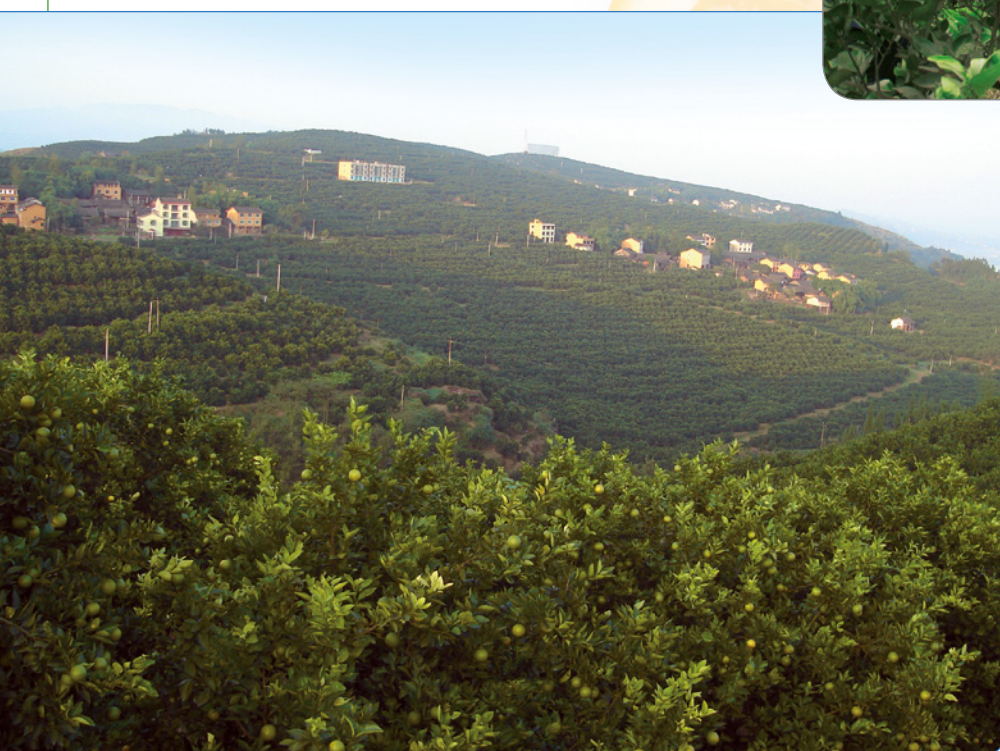
Besides increasing yield, the local government now attaches more importance to food safety as consumers in China are getting more and more concerned about what they are eating. Local government is also concerned about the run-off of agrochemicals used in citrus production into the region's body of water, as Chongqing is situated on the upriver section of the

Yangtze River, China's longest river. Another problem is that farmers often wear inadequate protective clothing when applying agrochemicals in the fields. Last but not least, labour shortage has rapidly become the major limitation to the expansion of the citrus industry in Chongqing.

In response to this situation, Bayer CropScience has developed and promoted a tailor-made Bayer CropScience citrus solution for the Chongqing Region together with Edgar M. Bronfman Citrus Company (EMBC), an American-based citrus grower and orange juice processor, and the local Fruit Industry Bureau (FIB). The aim is to ensure good yields based on EU MRL requirements and environment-friendly production methods.



A visit to a citrus field with EMBC in ZhongXian, Chongqing



Citrus production in the mountainous region of Chongqing



What the food chain partnership aimed to achieve

The initial aim of the cooperation with EMBC and local FIB was to offer an advanced citrus solution to the company, its contract growers and other individual farmers in Zhong County. This tailor-made solution consists of an effective, but environment-friendly crop protection programme combined with safety training for the farmers. The next step is to make this the standard solution in the entire Chongqing citrus-growing region in years to come.



Who got involved

Starting from intensive discussions with EMBC technical staff at the 11th International Citrus Conference held in Wuhan in October 2007, Bayer CropScience initiated this specific food chain partnership project with EMBC and FIB.

EMBC: A leading American-based orange juice processor in Chongqing with its own citrus-growing area. EMBC also offers advice to local government and individual farmers, and serves as a role model for other processors and individual farmers. EMBC was very interested in working with Bayer CropScience to develop an innovative solution for local citrus production, especially for black spot and arrowhead scale control as infestation through the two pests has become increasingly serious in recent years.

FIB: A local government organisation responsible for delivering technical service to individual growers. In cooperation with FIB, Bayer CropScience ran citrus production training courses for farmers, set up model farms that individual growers could visit to find out more about the citrus solution, and organised on-the-spot meetings with technicians at township and village levels.

Bayer CropScience: The leading citrus agrochemical company in China. Bayer CropScience, which has a broad pest control portfolio and a high level of citrus expertise in China, believes it is essential to develop the best possible solution and demonstrate the solution's value to all interested parties. Bayer CropScience is also dedicated to guiding citrus growers in the scientific use of agrochemicals and increasing their awareness of high-quality citrus via various training courses and in-field guidance. The company's goal is to increase citrus quality and yield, increase farmers' income and meet the Chinese consumers' demands for safe products.

The citrus solution

A customised crop protection programme combining high effectiveness and environmentally friendly products was drawn up by Bayer CropScience experts and finalised after detailed discussions with EMBC and the local FIB.

High-quality citrus production training: At the beginning of the season, Bayer CropScience experts organised an intensive training course on high-quality citrus production for EMBC and FIB technicians as well as other orange juice processors.

Crop protection programme brochure: Bayer CropScience produced a citrus crop protection programme brochure dealing, among other things, with pest identification, recommended products, correct application timing, dose rates and spray intervals for use by EMBC contract growers and other individual growers.

Farmer safety meetings: Since the safe and judicious use of crop protection products is a key priority, Bayer CropScience has organised farmers' meetings in the field to ensure that the prescribed crop protection products are used correctly and



safely. In addition, Bayer CropScience has also had protective clothing produced for the application workers to increase their awareness of the need for protective measures when applying agrochemicals.

Model farms and field evaluation: In cooperation with EMBC and FIB, Bayer CropScience set up five model farms to demonstrate the specific citrus solution and organised field evaluation meetings. Efficacy and residue data are to be regularly collected.

High-Quality Citrus Production Workshop: Bayer CropScience is planning to organise this workshop with EMBC in November 2009. Retailers, orange juice processors and local technical authorities will be invited to participate.



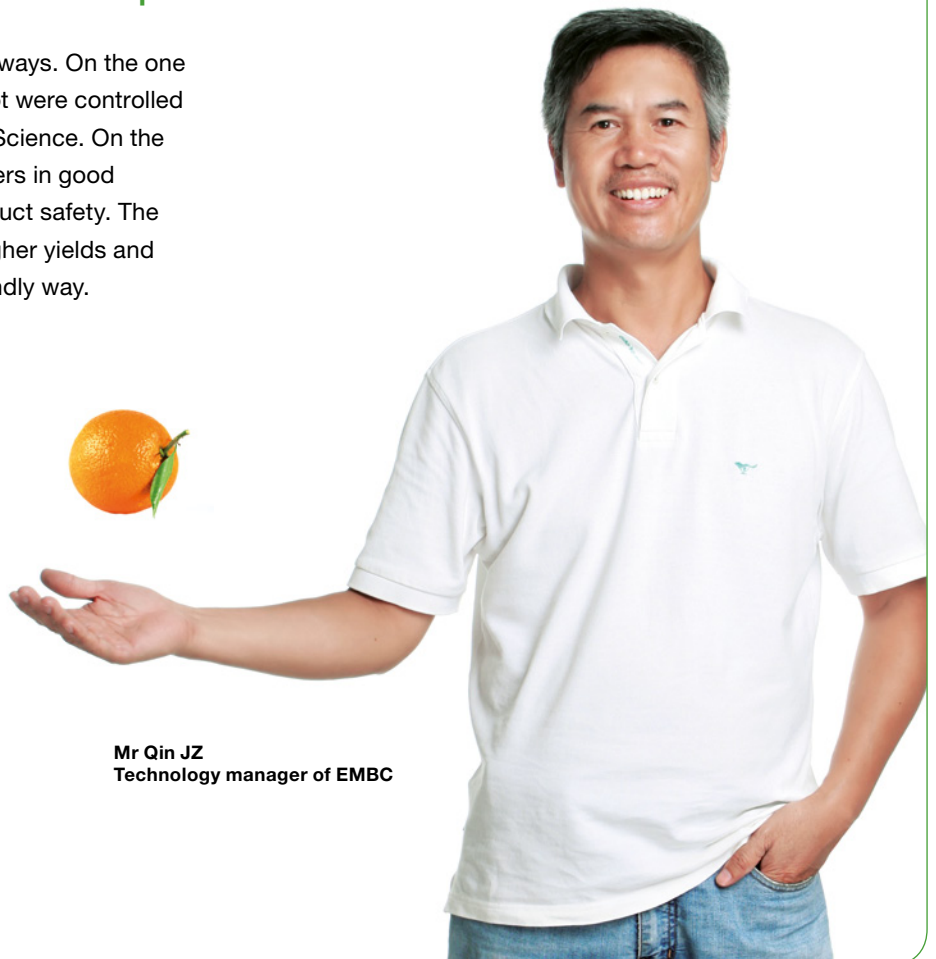
Bayer CropScience is partnering with technical managers of Edgar M. Bronfman Citrus Company (EMBC)



Citrus seedling nursery of EMBC in Chongqing

What the food chain partnership has achieved

The citrus project has been successful in many ways. On the one hand, red mite, arrowhead scales and black spot were controlled by innovative solutions provided by Bayer CropScience. On the other hand, the partners were able to train farmers in good agriculture practice including operator and product safety. The food chain partnership will eventually lead to higher yields and better quality in a sustainable, environment-friendly way.



Mr Qin JZ
Technology manager of EMBC



Consumers are becoming increasingly conscious of the need for healthy nutrition. Food chain partnerships help to supply consumers with high-quality fresh produce, which forms the basis of a healthy diet. But such partnerships can only succeed if they involve every player in the food chain – from the farmer and processor to the exporter or importer and retailer. Bayer CropScience has the global experience and cutting-edge expertise to create a successful partnership at every level.

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