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OBITUARY

Mike Gale and cereal genetics research in China

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Mike was one of the leading scientists in agricultural research internationally. The significant contributions he made to wheat linkage map construction, comparative genomics among cereals, and the cloning of genes of agronomic importance made him prominent in wheat genetics and agricultural biotechnology research. He was also tireless in offering advice to numerous national and international agricultural research institutions, in educating and training students and visiting scientists from every corner of the world, and in promoting international collaborations. Here we provide an outline on the contributions Mike made to agricultural biotechnology research in China.

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Mike's laboratory was a 'training centre' for many Chinese agribiotech scientists

In the late 1980s, Mike's laboratory at the former Cambridge Laboratory and then the John Innes Centre became one of the best in wheat genetic research in the world. Attracted by its fame, scientists from all over the world, among them more than ten Chinese students, post-docs and visiting scientists, went to his laboratory studying the then advanced molecular techniques such as genome mapping using RFLP markers.. Being fully aware of the language barrier and cultural differences, Mike cared very much of our daily needs and well being. He routinely invited us to his home at Christmas and other holidays, and he would visit us in hospital in person when someone got sick. He always tried his hardest in creating an ideal working environment so that we could focus on our experiments. A combination of Mike's visionary supervision, the excellent working environments he created as well as our hard work ensured high levels of outputs. Working with Mike was the most productive times for many of us, and this was exemplified by the work of Chunji Liu who managed to publish 13 journal papers (including nine as first author) from his PhD research; Peng et al. (1999) cloned the "Green Revolution gene", *Rht1*. Chao et al.

(1989), Wang et al. (1991), Xie et al. (1993), Jia et al. (1996) constructed the wheat RFLP of homoeologous group 7, 1, 5 and 6, respectively, in less than 1 year.

Mike was very strict with the quality of the data we published. No matter how busy his schedule was, he would meet with us and examine the data we had generated. He frequently worked late into the night, analysing data and revising manuscripts. He kept saying that checking data carefully is not a matter of trust. Rather, minimizing possible mistakes is one of the basic attitudes one should possess in scientific research. We not only learnt advanced technologies and methodologies on how to conduct scientific experiments from him, but also benefited from his attitude to get the best science out in the public.

The majority of us who studied or trained in Mike's laboratory have returned to China, now working at various national or provincial institutions. Together with other JIC alumni, they were often referred to as the 'John Innes School' in China. Scientists of this School have profoundly influenced biological research in this country. Mike was very proud that his laboratory and the JIC trained such a large proportion of leading scientists who subsequently excelled in their careers in China. Whenever he visited China, he would manage to find time to catch up with the scientists in this School. When he was thanked for his contribution in training such a large number of leading Chinese scientists, he would say that he was also grateful to many of these Chinese scientists, and that the appreciation was reciprocal. While receiving their training, Chinese students and visiting scientists made significant contributions to the achievements of his laboratory. He kept reminding people that the contributions made by Chinese colleagues in his laboratory included the constructions of linkage maps for four of the seven homoeologous groups of wheat, and the comparative maps between wheat and foxtail millet were also mainly due to the efforts of Chinese students and visiting scientists. In his mind Chinese students and visiting scientists were among the most diligent and hard-working in the world.

Promoting scientific exchanges between China and other national and international institutions

Mike was an Academician of the Chinese Academy of Engineering, Head of the Advisory Board of Foreign Experts of the Scientific Council of the Chinese Academy of Agricultural Sciences, an advisor of the State Key Laboratory of Plant Cell and Chromosome Engineering of The Chinese Academy of Sciences, and a member of the Advisory Board of the key Chinese Crop Germplasm and Improvement National Program. His first trip to China was in 1991, and it was followed by numerous trips visiting many institutions and universities in Beijing, Shanghai, Hangzhou, Wuhan, Hebei, Shaanxi, Huibei, and Fujian. Owing to his strong support, China successfully organised several international conferences including the Eight International Wheat Genetics Symposium and the First Symposium on Genomics Based Germplasm Research.

As the head of the Foreign Experts of the Scientific Council of CAAS, Mike actively sought and collated recommendations/opinions from the foreign experts in the committee on the directions of agricultural research in China. He was at an advanced stage in organising another meeting for the foreign members in the Scientific Council in Beijing in November, 2009. It is really sad that he passed away so suddenly and could not make it to this meeting anymore. Whenever Mike came to China, he would be invited to give presentations. An update on the latest progress in comparative genomics routinely formed part of the numerous presentations he had given. His seminars were always very popular and his knowledge in a wide range of topics had deeply impressed many.

Mike actively promoted collaborations between scientists in China and those in overseas institutions. He and scientists at the CAAS jointly obtained funds for a collaborative research project between China and the European Union on 'the exploitation and detection of alien chromatin from related species in wheat breeding'. In this joint project, alien chromatins were successfully detected in populations derived from wide crosses and the homoeologous relationships between these alien chromatins and wheat chromosomes clarified. These achievements were recognised by a national award on scientific advancement in China. He was very excited when told that several hundred populations of recombinant inbred lines (RIL) and introgression lines (IL) had been constructed using a core collection of wheat germplasm in China. He reckoned that if these populations could be widely studied and exploited in wheat breeding, China would make a huge impact on wheat

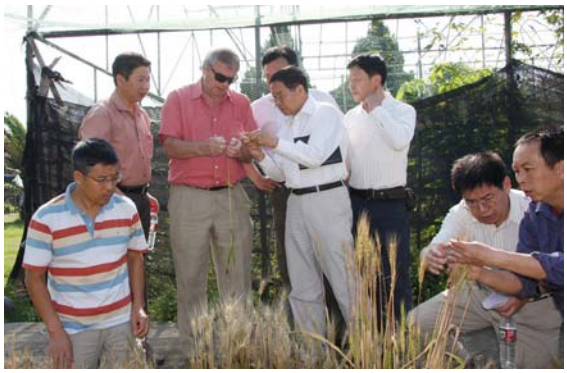

Fig. 1 In late April and early May, 2009, Mike visited the Fusarium head blight (*FHB*) nursery in Jianyang, Fujian Province

improvement in the world. Mike's last trip to China was made in late April and early May, 2009. Among the numerous stops, he visited the Fusarium head blight (FHB) nursery in Jianyang, Fujian Province during the trip. He was impressed by the severe and uniform disease symptom at the site. When he learned that researchers routinely get severe and uniformed FHB from natural infection due to the ideal environment for FHB in Jianyang, he suggested that an international nursery for FHB assessment may be established at this site (Fig. 1).

Although he has left us, the support Mike provided to the development of agricultural sciences in China, the enormous contributions he made in wheat research as well as his attitude towards scientific research will endure forever.

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