UGC AoE Center for Plant and Agricultural Biotechnology – Layman's Summary

The world's population has passed 7 billion in 2011. The food security issue again alarms us that it is a global social-economic issue affecting every citizen.

The support of the UGC-AoE scheme has enabled a deep collaboration among different institutions in Hong Kong to establish a world-class research team in plant and agricultural biotechnology. The collective effort is to perform cutting-edge basic science researches on applied agricultural problems worldwide and in China.

In the past 10 years, this team has accomplished several important tasks, including the invention of the high lysine rich that has become an integral part of the ProVitaMin Rice project supported by the Bill & Melinda Gates Foundation, the application of new scientific concepts of photosynthesis in a national project aiming at further enhancing the yield of China hybrid rice, and the successful completion of a large scale soybean genomic project which has become a cover story in a renowned international scientific journal.

Members of this center have published extensively (561 articles) on scientific findings, established important technological platforms, and generated international and national intellectual properties (16 patents). Through these state-of-the-art researches, this center trained high-caliber graduate students and technologists (332 in total) who subsequently serve in important academic and agricultural institutions.

The team has received high recognition from the central government as the Ministry of Science and Technology has approved the establishment of the State Key Laboratory of Agribiotechnology, Partnership Laboratory at The Chinese University of Hong Kong in 2008. In addition, individual members have also received various international, national, regional/ministry level, and local awards. For example, the project coordinator Prof. Samuel Sun was elected academician of the Chinese Academy of Engineering and the Eurasia Academy of Sciences in 2003 and 2008, respectively.

The successful story of this AoE center has demonstrated that strong supports from UGC will enable researchers in the tertiary institutes of Hong Kong to team up and participate in important projects that will affect the development of China and beyond. We have and will continue to bring forth new technologies and visions for a low-input (less water and agrochemicals) and reduced-emission (less green house gases and leaching) mode of agriculture. This is an ideal model for the sustainable agriculture in China and other developing countries which have a large population but limited arable lands and fresh water resources. For examples, we have constructed rice with enhanced photosynthesis that will increase yield without expansion of arable lands. The high-lysine rice will increase the nutrition value without fortification. The drought and salt tolerant soybeans we generated aim at exploring marginal lands for production and restoration. All these technologies and pilot products were put to field test in different regions in China.

Although the support of the UGC-AoE scheme had come to a conclusion, this team will continue to seek other supports and continue our missions.

**The above summary is written mainly by the project team. The views expressed in the summary do not necessarily represent those of the University Grants Committee/ Research Grants Council.*