Keynote Speech

Advanced Technologies and Training and Research for Optimizing Agricultural Production

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Humans are inventive; human innovations can be seen throughout timescale, back in the ice age, or even beyond that period. Humans of this modern-day are very innovative, and future generations will take further steps towards surpassing their ancestors continuously. Things were invented and evolved for two main reasons: necessity and curiosity; however, both play together most of the time. Curiosity is a mix of the desire to explore, investigate, and learn. The demand can be divided into quantitative and qualitative; quantitative demand comes first, and qualitative demand becomes second most of the time. Continuous demand and curiosity drive the complexity and advancement of technologies (literally everything around us). New technologies have been introduced, leaving older ones obsolete. Eventually, technological adaptations would be continual and rapid in order to reap the greatest benefit from the most recent technology. This holds true for all industries, including agriculture.

Technological advancement entails more than just upgrading or applying technologies; relevance and feasibility must also be addressed. The cost-effectiveness of the approach should also be examined. As a result, improvements should be carried out with caution and adjusted to minimize over- or under-utilization. It is necessary to go through a problem-solving cycle in order to identify acceptable technologies and optimize technological adaption. Developing economies, for the most part, do not use such approaches to identify efficient technology solutions to specific problems, most likely due to a lack of research, resources, and knowledge base. Furthermore, the implementation of imported technologies created to solve the same problem in another country may fail due to a lack of optimizations. Thus, the enhancement of training and research capacity of the agricultural sector is an absolute requirement. The capacity should be improved in two folds: research capability, particularly funding and laboratories with modern equipment, and human resources with not only knowledge and experience but also enhanced intellectual ability (difficult part of problem-solving is creative thinking and know-how. Knowledge is conveniently available).

With an aging population and shrinking land space, a country like Sri Lanka requires advanced technologies to satisfy future local agricultural demands. Furthermore, as society advances and pushes toward more advanced technologies, quantitative and qualitative expectations typically rise. Then, because export agriculture is competitive, profit maximization necessitates fewer labor-intensive technologies. As a result, the need for aggressive technological adaptation in the agriculture industry cannot be overlooked. Surprisingly, the human resources required to develop such technologies can be found within the country. However, the difficulty is that those resources were not successfully exploited in the agricultural sector. Moreover, agricultural curriculum and research should be expanded to train human resources with the capability to work conveniently with techniques such as mechatronics, machine learning, and artificial intelligence. Those are the critical skills expected from modern-day agricultural engineers, but the fundamental knowledge should not be forgotten.

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