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Opening Speech by Prof. Erastus N. Njoka, Vice-Chancellor, Chuka University during the 16th Horticultural Association of Kenya Workshop on Sustainable Horticultural Production in the Tropics held in Chuka University from 28th November to 2nd December 2016

The Deputy Vice-Chancellor (ARSA)-Prof. Dorcas K. Isutsa, German Team Leader and HAK Trustee-Prof Hartmut Stutzel, Horticultural Research Institute Director and HAK Trustee-Dr. C. Waturu, HAK Chairman-Prof. John Wesonga and your executive committee members, the Local Organizing Committee Chair-Dr. Geoffrey Gathungu, distinguished guests, researchers, scholars, participants, stakeholders, Chuka University staff present, ladies and gentlemen,

I am glad to preside over the official opening of the 16th Horticultural Association of Kenya (HAK) Workshop on Sustainable Horticultural Production in the Tropics. It is an opportune moment to showcase our work in the Horticultural sub-sector and identify challenges and measures to address them. I believe that the Forum will provide an opportunity to exchange ideas, information, knowledge and experiences in the respective value chains of Horticultural crops.

Personally, I am proud to be associated with horticulturists who are always thinking of conserving the environment and feeding people through the provision of quality flowers, fruits and vegetables.

The agricultural industry, of which horticulture is a major sector, remains a very important component in economic growth and social development. It directly contributes 25% GDP, 65% export earnings, livelihood to 80% of the country's population and 70% informal employment. The Government has outlined the key role that Agriculture plays in the Kenya Vision 2030 and the Agricultural Sector Development Strategy (2009-2020) paper. Both of these policies aim at improving the standard of living of Kenyans by substantially reducing the number of people affected by hunger, famine and starvation.

These policies are also in line with the United Nations' Sustainable Development Goals Number 1 to 7, namely: (1) End poverty in all its forms everywhere, (2) End hunger, achieve food security and improve nutrition and promote sustainable agriculture, (3) Ensure healthy lives and promote well-being for all at all ages, (4)

Ensure inclusive and quality education for all and promote lifelong learning, (5) Achieve gender equality and empower all women and girls, (6) Ensure access to water and sanitation for all, and (7) Ensure access to affordable, reliable, sustainable and modern energy for all.

Ladies and Gentlemen,

The Kenyan Government has recognized the critical role horticultural crops play in alleviating food scarcity given that they provide higher yields compared to other crops and are resilient to climate change. The horticultural industry needs to ensure efficient management of resources to increase, diversify and sustain agricultural productivity; commercialize agricultural products; adopt modern farming technologies and techniques; intensify irrigation and climate change management; match enterprise production with agro-ecological zones; mobilize communities to identify and prioritize solutions to their own problems; support communities to implement home-grown solutions to problems; increase value-added innovative products; and satisfy market requirements. The challenge is to achieve most of these basket options to sustain growth for wealth, food security and employment creation. The prevention of food loss is a highly important factor in securing the sustainable production required to combat hunger and raise incomes.

Kenya earned over Shillings 90 billion from horticultural exports in the last financial year and our horticultural produce is still highly marketable in European Union and other global markets. The horticultural industry is, therefore, an important economic sector in the country.

Ladies and Gentlemen,

New innovations are key to horticultural sector's growth and success. With a decreasing availability of workers and an increasing demand for sustainable management, producers are in dire need of innovations.

For example:

- Researchers and engineers at the University of Sydney's Australian Centre for Field Robotics have made tremendous progress in developing robots to assist farmers in monitoring, managing and harvesting crops. Drones equipped with cameras, sensor sprayers and more can leverage some workload and increase efficiency. With that knowledge, it is possible to extrapolate the type of harvest to expect from the crops.
- In Sweden a new app, developed by a company Ignitia and that can predict chances of rain with twice the accuracy of previous models is helping farmers

in Sub-Saharan Africa to increase their yields. With GPS and an accuracy of 84% compared to just 39% of other models, the app makes it easier for farmers to make informed decisions on their management practices. The new information and communication technology is currently available to farmers in six African countries; namely: Cote d'Ivoire, Ghana, Mali, Niger, Nigeria and Senegal and has attracted 80,000 users in just half a year. If the app is made available to more farmers in more African countries it can assist increase efficiency of operations.

- In Nunavut in northern Canada, Ben Canning, a 21-year-old student at Ryerson University, with his group GROWING NORTH built the first greenhouse for local vegetable production. In a region where fresh produce costs up to three times more than down south and most people have never seen locally produced fruits or vegetables, a greenhouse, with hydroponic towers is a true novelty. The greenhouse has enabled production of vegetables at half the cost of their import price, and ultimately enabled locals to eat healthier diets than before. It is also used for educational purposes and work provision to the local community. Ben and his team have combined a vertical hydroponic system with a passive solar design to heat the greenhouse, which is based on a large black water tub and a reflector that together capture the energy of the sun. Three to four hours of daily sunlight are able to create temperatures that the plants need for about seven months a year. With more efficient heating and light installation, the greenhouse is expected to allow year-round production.
- Again in Canada, shocked by the amount of food going to waste in a friend's shop, Caroline Pellegrini developed an app that informs consumers about offers on left-over food close to the end of a business day. While giving people the opportunity to save money, the app helps stores market their products. Furthermore, the app helps to save the environment by reducing waste, which in turn saves energy, emissions and environmental pollution. The app is currently only available in Canada but promising to spread to other countries soon.
- Across Africa countries are committed to scaling up renewable energy production to meet the growing needs. It is important to fight food-waste. As the first of its kind in East Africa, 8000 ha vegetable farm in Kenya, called Gorge Farm (Nakuru County) uses an anaerobic digester plant to produce energy from crop residues. It feeds surplus electricity into the national grid. Besides electricity, the Gorge Farm Energy Park is also producing organic fertilizer as a byproduct of the digestion process, which is recycled back into farming processes to support plant growth and health.

- A Kenyan agripreneur, Peter Ouma Okoth Aluoch, has recently started a stall in Kisumu city to sell organic fruits and vegetables, which he produces on a sack-bag farm. In the long run, the stall is to sell organic produce of over 200 farmers that Peter wants to facilitate train in sack-bag gardening. He says the 50 kg sacks can “carry up to 25 tomato seedlings until harvest”, require very little space compared to field farming, do not need chemicals, and have reduced water and labour requirements, which makes production possible even in dry conditions. The collaboration will enable farmers to be included in the value chain and to have a regular income.
- In the US, United States Department of Agriculture and University of Florida researchers are investigating sound waves in control of citrus psyllids, which spreads citrus greening. This disease has devastated citrus production worldwide and even in Kenya. Due to the absence of effective substances against the causal bacteria, control methods are focused on the vector. Richard Mankin and other researchers have developed an electronic device, which emits acoustic signals to disrupt the mating behaviour of the psyllid.
- While postharvest losses in the United States are roughly 12%, it is estimated that these losses can be as high as 80% in many developing countries. For smallholder farmers, watching so much of their hard work spoil on the way to the paying consumer is particularly disheartening. Postharvest losses erode the farm gate value of their produce and reduce the amount of fruits and vegetables available to consumers, who end up suffering from high rates of micronutrient deficiency. The Coolbot is the answer! It provides inexpensive cold storage to developing countries’ farmers. It is a small black box that is wired into a standard air conditioner. It overrides the air conditioner’s temperature gauge and tricks it into working harder, thus turning an insulated room and air conditioner into a cold room. It reduces the cost of cold storage from thousands of dollars to mere hundreds, making it affordable in developing countries.

Ladies and Gentlemen,

The new technologies need to be improved especially to be cost-efficient. The horticultural industry is founded on an intensive interaction between governmental research institutions and private companies with knowledge transfer being crucial.

As stakeholders, your task is to develop and prudently manage the horticultural crops to sustain growth and rural industrialization beyond the Vision 2030 time horizon. For this to happen, more of our efforts need to be directed towards

intensive land use for increased production per unit area at low costs. It will be more prudent to choose enterprises that will earn farmers higher gross margins per unit of land and with ease of conversion into innovative value-added products.

This Horticultural Association of Kenya Workshop is a step towards recognition of these valuable crops in the sector reform agenda. The stakeholders present in this Workshop, who include: farmers, processors, produce distributors, researchers, extension officers, policy-makers and consumers should come up with workable solutions to address constraints facing the horticultural enterprises.

Critical areas of consideration revolve around policy, legal and institutional frameworks to establish systems and structures that guarantee implementation of sub-sector activities. The Workshop should focus on how to enable players in respective value chains to achieve set targets. The Workshop should formulate clear-cut measures to improve the overall efficiency in respective value chains to achieve cost-effectiveness and profitability to growers and customers alike.

Industrialized countries have not only protective policy and legal frameworks for their strategic enterprises, but also provide financial support to institutions whether private or public until they become financially self-sustaining. Government support to botanicals will be realized through provision of a protective environment and financial support for specific value chains that occupy strategic positions in the global market. **We should not be ashamed to protect and support what is strategic for us. It is patriotism.** Charity begins at home.

Ladies and Gentlemen,

As a concept, Agricultural Product Value Chain entails adoption of the whole continuum of technology development and utilization (production-processing-formulation-distribution-retailing-consumption). Thus, develop and offer *the right product, at the right price, in the right place and at the right time*. So, inputs, post-harvest management, processing, product quality, and markets are central to designing, planning and implementation of research activities. Research and development in horticulture fit well in agribusiness and rural industrialization for attainment of poverty reduction and food security.

Agricultural research should target technologies that lead to yield increase and quality improvement, cost reduction, value addition and market linkages. It should also catalyze uptake because increased production of both crops and livestock depends on the adoption of improved technologies. Agricultural development is also increasingly concerned with diversifying, value adding, capturing markets,

mixing on-farm and off-farm income, addressing gender parity in agricultural activities, forming and entering market chains, improving product quality and food safety, and balancing equity and environmental interests with those of economic growth while limiting the negative effects of agriculture. The quality of horticultural products should be enhanced. This is because we are not able to sell our vegetables and fruits outside Kenya because of excess pesticides. That is why Chuka University is having plans of establishing a Science and Technology Park to solve some of these problems.

Ladies and Gentlemen,

In the course of this Workshop, you will deliberate on the missing links in the respective horticultural crops value chains, prioritize and make recommendations. The idea is to bring together the private and public sector actors for partnerships to synergize efforts for effective delivery as clearly demonstrated by the variety of workshop participants.

In closing, I would like to thank the Horticultural Association of Kenya for having the foresight in laying the right foundation and building blocks for actualization of the Kenya Vision 2030. I trust that this is just but the beginning and that the synergies to be created through upcoming Workshops will have a positive impact.

I would also like to thank your collaborators from Germany and other countries for honouring us by coming to participate in this workshop.

I now have the pleasure to declare the 16th HAK Workshop on Sustainable Horticultural Production in the Tropics officially opened.

Thank You and God Bless You All.

Prof. Erastus N. Njoka, Ph.D.

Vice-Chancellor/CEO, Chuka University