Food and Agriculture Organization of the United Nations

Talking points by Mr Vincent Martin, Director Office of Innovation

"The Role of IP in providing Sustainable Agriculture and Food Systems in the context of Climate Change"

FAO's role in supporting Innovation for sustainable agriculture

WIPO

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In the context of escalating threats to sustainability, FAO's 2021 Science and Innovation strategy has been developed to harness the potential of science, technology, and innovation (STI) in driving sustainable actions and supporting agrifood systems transformation. The strategy's objective is to provide guidance, coherence, and alignment in the realm of science and innovation, ensuring universal access to the necessary STI for overcoming challenges within agrifood systems.

The strategy recognizes that innovation in agriculture cuts across all dimensions of the production cycle along the entire value chain - from crop, forestry, fishery, or livestock production to the management of inputs and resources and market access. It also recognizes that innovation is not just about technology. Perhaps most importantly, it is about social, economic, institutional, organizational and policy processes, business models and innovative financing. These elements, in combination or in isolation, can have a positive impact on the production, nutrition, environment and livelihoods of people, notably smallholder famers.

FAO supports a wide range of innovations for sustainable agriculture that address key challenges such as: climate change; sustainable natural resource management; food insecurity, hunger and malnutrition; and job creation, with a focus on youth. FAO's portfolio of solutions to support member countries include the promotion of stress tolerant (drought, floods, high temperature, pests and diseases etc.,) crop varieties and crop species using emerging crop improvement technologies including biotechnologies and gene editing where relevant; precision agriculture technology (focusing on monitoring and application of key determinants and inputs of crop production to reduce the spatial variability in crop yields), as well as the optimal combination of crops and trees through approaches such as agroecology and agroforestry.

Hydroponic solutions to strengthen the livelihoods of communities that enable to grow food and vegetables, the use of mobile apps for monitoring and early detection of the desert locust or nuclear technology known as the sterile insect techniques (SIT) for rearing millions of flies in special facilities

where male pupae are sterilized with radiation, have also been developed and tested in many different agroecological settings.

On the digital front, blockchain technology can connect all the stakeholders in the supply chain from the farmer to the end consumer. By making the value addition of each step in the supply chain transparent, the industry, as well as consumers, become aware of the where and how the food is produced. Artificial Intelligence (AI) is also an emerging field that makes it possible to increase efficiency of the farm activities, including planting and harvesting, making farming more efficient and as a result in efficient use of natural resources. AI in farming is emerging in four major areas: agricultural robotics, soil and crop monitoring, predictive analysis and agricultural advisories with automated chat functions. However, there are ethical issues around the application of AI and should be carefully addressed with robust global standards and guidelines to maximize the benefits while minimizing the downside risks.

From a policy and institutional perspective, FAO's strategy to promote innovation focuses on strengthening agricultural innovation systems and co-developing innovative solutions tailored to address specific challenges. This includes strengthening the capacity of national agricultural research systems, extension and advisory services, as well as fostering collaboration with businesses and market intermediaries, from a holistic food system perspective. In addition, FAO places great emphasis on integrating innovation priorities into national policies and strategies, recognizing their critical role in promoting sustainable and transformative agricultural practices.

FAO is also committed to the innovative use of behavioural science to understand and influence behaviour and promote sustainable choices, hygiene practices, healthy diets and climate-resilient decisions through collaboration with food system actors.

Together with its commitment to a global movement towards a more sustainable and resilient agrifood system, FAO ensures a better food future for generations to come.