

24 August, 12:00pm: **Keynote address on Congress Theme 1** (Food Security and Livelihoods)

Agroforestry for an Ever-Green Revolution - MS Swaminathan, Founder, M.S. Swaminathan Research Foundation

Vanessa Meadu

Africa needs an 'ever-green' revolution to sustainably feed itself while dealing with the adverse impacts of climate change. So said MS Swaminathan, father of the green revolution in India in the 1960s, and founder of the MS Swaminathan Research Foundation. An ever-green revolution means increasing agricultural productivity in perpetuity without associated ecological harm. Technological advances must be married with ecological thinking in order to create true sustainable benefits. Agroforestry systems that enhance soil fertility is an example of ever-green practice; helping communities share and sustain diverse seed resources for food security and healthy ecosystems is another pathway to an ever-green revolution. More research and policy support is required to promote and scale-up successful examples from Africa.

Why an ever-green revolution? In Africa, about 80% of food production comes from smallholder farmers, for whom agriculture is the backbone of the livelihood and security. Ever-green agriculture integrates human and ecological objectives to create sustainable solutions to the most pressing global challenges – climate change, food security, and ecosystem degradation. An ever-green revolution can help soften the impacts of higher temperatures on agriculture; water scarcity, varying lengths of growing periods, heat and drought stress to crops and livestock, can be addressed through the right combination of technology and ecological thinking.

Africa already has some successful examples of ever-green agriculture, which are bringing benefits to people and ecosystems. Indigenous nitrogen fixing shrubs like *Faidherbia albida* restore soil health and improve farmers' productivity in the short and long term. In fact, Africa is very rich in terms of plants that fix nitrogen. Integrated pest management is another ever-green practice. In Africa, biological control of the cassava mealy bug, restores productivity without harmful or expensive inputs.

Genetic biodiversity is also a key challenge and opportunity for an ever-green revolution. Local community managed food and water security systems, such as seed banks, grain banks, and rainwater harvesting, can enhance the capacity of local communities to cope with climate change impacts. African agriculture also needs to quickly adapt to real world challenges. As freshwater resources become more scarce, there are opportunities for integrated sea water farming, for example intercropping salt-water tolerant species of rice with mangroves. "The loss of every species and gene limits our options for the future," said Swaminathan, referring to the need for more research on species that tolerate saltwater, drought and other harsh conditions that may result from climate change. "The ethical dimensions of the use of new technology must not be forgotten," he added.

Building a successful ever-green revolution requires four components: technology, services, favourable public policies, and farmer enthusiasm. Successful examples of ever-green agriculture from Africa urgently need further research and scaling up, to create a real ever-green revolution.

