

## Swaminathan: Time to shift from green to evergreen revolution

Written by Gothenburg Times  
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LINCOLN—To ensure global food security amid climate change and price volatility, the world must transition from the Green Revolution to an evergreen revolution, and the University of Nebraska-Lincoln can be a key player, the world's first World Food Prize laureate told a Lincoln audience Monday.

Dr. M.S. Swaminathan spoke at UNL as the inaugural speaker in the Institute of Agriculture and Natural Resources' Heuermann Lecture series.

Swaminathan is known as a world leader in sustainable food security, and as the catalyst of the green revolution movement in India from 1960-1982 that moved the country from having the world's largest food deficit to producing enough grain to feed its people.

But the increased chemical use and irrigation that were key to that progress are no longer environmentally sustainable, Swaminathan said, adding that annual yield growth rates of major cereal grains have begun to slow in developing countries. Climate change is likely to exacerbate that problem, as scientists estimate that for each 1 degree Celsius rise in mean temperature, wheat yields in India drop about 6 million tons a year.

What's needed, he said, is an evergreen revolution that eliminates chemical use, reduces irrigation and produces long-term, sustainable growth in yields to feed the world's growing population, Swaminathan said.

"We need to promote climate-resilient farming," he added.

Swaminathan said part of the solution to "widening the food basket" is to curb the growth in food demands of developed countries such as the United States, which consume much more animal protein than less-wealthy nations. "The vegetative diet is much more efficient," he said.

He also said the expanded use of farmland to produce biofuels rather than food in developed countries raises an important question: "How much land can you divert from food purposes?"

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Efforts in Swaminathan's native India to address the food-security challenges include proposed legislation that would guarantee a monthly supply of grain to families, establish a national system of grain storage and reform the public distribution system. Critical to this effort, he added, is the adoption of a "life-cycle approach" to food security that places special attention on children's nutrition in their first 1,000 days of life.

As in the original Green Revolution, Swaminathan said, "political will and farmers' skill are two major determinants" of future agricultural progress.

On the political side, Swaminathan warned that funding for agricultural research has dropped in both developed and developing countries. That's a concern because continuing, publicly funded research remains a key to ag progress. He noted, for instance, development of a new, more efficient rice hybrid with 25-50 percent higher yields and improved water- and nutrient-use efficiencies.

Swaminathan referred to his late friend, Norman Borlaug, known as the father of the Green Revolution, whose "anticipatory research" was so important to feeding the world. That same spirit is needed today, he added.

"The University of Nebraska is a flagship university in terms of responding to these needs and taking advantage of these opportunities," Swaminathan said.

Swaminathan's lecture came at the invitation of University of Nebraska President James B. Milliken and the Robert B. Daugherty Water for Food Institute. In March 2011, Milliken and Swaminathan jointly hosted a symposium in Chennai, India, on managing water resources for food security, sponsored by the Indo-US Science and Technology Forum.

After Swaminathan spoke, he was given the Willa S. Cather Medal, conferred on individuals whose words and actions uphold the highest values of humanity and service to the world. Previous honorees include Archbishop Desmond Tutu, Harry Belafonte and Mikhail Gorbachev.