Report calls for energy-smart food

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Professor Ralph Sims

(PhysOrg.com) -- A Massey University energy expert says the global agriculture industry, including that of New Zealand, must reduce its dependence on fossil fuels to secure food supply in the future.

Professor Ralph Sims has just launched a report at the United Nations Climate Change Conference in Durban, South Africa. It was produced for the UN Food and Agriculture Organisation.

Professor Sims, from the School of Engineering and Advanced

Technology, is also a contributor to the Intergovernmental Panel on Climate Change and a senior analyst for the International Energy Agency .

He says the report, Energy-Smart Food for People and Climate, shows the current dependence of the food sector on fossil fuels may limit the sector's ability to meet future global food demands.

“The world will need to produce 75 per cent more food by 2050 so the challenge is to decouple food prices from fluctuating and rising fossil fuel prices,” he says. “The food supply chain already uses 32 per cent of total global energy and produces 22 per cent of greenhouse gases. But then we fail to consume one third of all the food the world produces. So from ‘paddock-to-plate’ the industry has to become smarter.”

High and fluctuating prices of fossil fuels and doubts regarding their future availability mean that agri-food systems need to shift to a more "energy-smart" model, Professor Sims says, “and energy-smart is climate smart”.

At each stage of the food supply chain, current practices can be adapted to become less energy intensive, he says. “Such efficiency gains can often come from modifying, at no or little cost, existing farming, fishing, food processing, transport, storage, retailing and cooking practices.”

Steps that can be taken at the farm level vary between subsistence farming in developing countries and corporate farming but can include the use of more fuel efficient tractor operation, the use of compost and precision fertilizing, irrigation monitoring and targeted water delivery, adoption of no-till farming and conservation practices and the use of crop varieties and animal breeds that need fewer inputs.

After food has been harvested, improved transport infrastructure, better

insulation of food storage facilities, reductions in packaging and food waste, and more efficient cooking devices offer the possibility of reducing energy use throughout the entire food system.

In addition, farmers, fishers and food processing companies usually have renewable energy resources available on-site (such as wind, solar, mini-hydro, animal wastes, crop residues, food processing rejects), that can be converted cost-effectively to provide heat, electricity and transport fuels (including bio-gas) for their own use or for sale off-site to generate additional business revenue.

Professor Sims says many good examples already exist in New Zealand. “Fonterra, for example, has reduced the greenhouse gas emissions from its farm suppliers by 8.5 per cent per litre of milk and its energy inputs per tonne of milk product by 13.9 per cent,” he says.” This is a start, but purchasers of our food products continue to investigate farm and food processing practices with ever-increasing scrutiny – feeding dairy cattle on palm oil residues being just one example.

“A positive message for New Zealand from the report is that food miles are less important than choosing food from regions of high productivity not involving high input levels. Producing urea fertiliser from lignite would be just one example of failing to maintain our present natural advantage, which is imperative if New Zealand is to become a leader of energy-smart food production.”

More information: Read the full report here: www.fao.org/docrep/014/i2454e/i2454e00.pdf

Provided by Massey University