

MULTI-FUNDER INITIATIVE

Canadian International Food Security Research Fund (CIFSrf)

Affordable natural product reduces fruit losses, increases incomes

Researchers from India, Sri Lanka, and Canada have proven that an affordable and natural plant product extends harvests and lengthens the shelf life and quality of mangoes. Now government agencies, farmers, grower federations, and packaging companies from Asia, Africa, and the Caribbean are stepping up efforts to commercialize this technology and expand its use for a variety of fruits.

Keeping fruit fresh longer

Reducing spoilage from perishable fruits is a global challenge. In the developing world, the problem is compounded due to a lack of cold storage facilities and marketing infrastructure. In India and Sri Lanka alone, post-harvest losses for mangoes are up to 40 % annually (estimated at more than CA\$800 million a year). Spoilage also disrupts commodity prices: farmers need to sell bumper crops quickly, driving prices down because of oversupply.

Delaying ripening and reducing fruit losses has the potential to increase the incomes of nearly one-third of the population in these countries—the majority of whom are small-scale farmers. It would also encourage higher fruit consumption in regions where only half the recommended levels of fruit are consumed.

A safe and green solution

Patents are pending for an innovative technique that uses nano-technology to extend and optimize the use of hexanal to keep fruits fresh and firm longer. Initial research in India and Sri Lanka showed that treated fruits stayed on trees up to two weeks longer, stored up to four weeks longer, and improved fruit quality—all of which boosted farmer revenues by 15% (CA\$100 per hectare).

A team of 35 men and women researchers is working with academic and industry leaders to develop nine easy-to-use commercial products, including hexanal sprays and dips for pre- and post-harvest use, and wax coatings. They are also working on smart packaging systems using nanotechnology to incorporate hexanal into packing materials made from banana stems and other agriculture waste.

Field trials will be conducted in five countries (India, Sri Lanka, Kenya, Tanzania, and Trinidad and Tobago) to test these applications on mangoes, bananas, oranges, and papayas. Field trials will also be conducted on nectarines and peaches in Southern Ontario—one of Canada's most important fruit-growing regions.

Expected outcomes

- Refine and scale up nine hexanal-based technologies
- Develop commercial agreements with small and medium packaging companies
- Improve economic returns for farmers and increase access to markets
- Improve the nutritional security of participating farmers
- Create new economic opportunities for women farmers engaged in post-harvest operations and processed fruit products (e.g. mango bars)

LEAD RESEARCHERS

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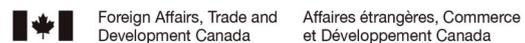
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Countries: India, Sri Lanka, Trinidad & Tobago, Kenya, Tanzania

Funding: CA\$4.2 million

Duration: December 2014 to March 2018

The **Canadian International Food Security Research Fund (CIFSrf)** is a program of Canada's International Development Research Centre (IDRC) undertaken with the financial support of the Government of Canada provided through Foreign Affairs, Trade and Development Canada (DFATD).



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