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MEDIA RELEASE

Food loss and waste: why food storage is so important

A recent economic analysis estimated that food loss and waste (FLW) in South Africa are estimated at 9.04 million tonnes per year, or 177kg per capita per year.

This accounts for an estimated R61.5 billion – equivalent to about 2.1% of the national gross domestic product – in financial losses (2012 figures). Reducing food loss and waste is essential in a world where the number of people affected by hunger has been rising steadily since 2014, and tonnes of edible food are lost or wasted every day in different food value chains.

Globally, around 14% of food produced is lost between harvest and retail, while an estimated 17% of total global food production is wasted – 11% by households, 5% in food service, and 2% in retail, according to the United Nations.

The International Day of Awareness of Food Loss and Waste is commemorated annually on 29 September. The day is aimed at prioritising efforts and initiatives to cut FLW to enhance efficient use of natural resources, mitigate climate change, and support food security and nutrition, thereby contributing to the UN's Sustainable Development Goals.

Dr Honest Machekano, Lecturer in the Department of Zoology and Entomology at the University of Pretoria, said it is important to separate food loss and waste. “Whichever food value chain you look at, food loss occurs from the point of crop maturity up to wholesale market, whereas food waste refers to a decrease in the quantity or quality of food suitable for human consumption as a result of decisions and actions by retailers, food service providers and consumers post-wholesale.”

With the Food and Agriculture Organisation of the United Nations reporting that about 11% of global food waste occurs at household level, this indicates that more work needs to be done at this level. The reasons for food loss and waste vary depending on the specific value chain, but the main reasons include lack of effective storage capacity, lack of awareness and information, poor transportation systems, poor food budgeting techniques, and lack of policy support. At household/ individual level, reasons for food waste include poor storage, unplanned meals, poor cooking decisions, food overstocking, improper cooking, cooking too much, and attitude.

“My research focuses on stored product protection, specialising in reducing food loss and waste in stored cereal and pulse grain,” Dr Machekano said. “The need to effectively store grain for prolonged periods is not only overemphasised under the current pandemics and global instability-related delivery restrictions, but also climate change-related limitations in the availability of reliable, productive seasons.”

One of his projects focusses on creating a low-cost, climate-smart metal silo tailored for small-scale farmers in South Africa. “Through investment in such research UP plays a leading role in addressing storage deficits at grassroots level, creating awareness on FLW and generating knowledge that can be used as a basis for future national food policy adjustments to mitigate FLW,” he said.

Insect pests are one of the major causes of food loss through grain damage. Entomologists work to find economic and safe ways of reducing insect damage on grain without compromising grain quality. Warm temperatures increase insect movement, mating and feeding, which means climate warming in sub-Saharan Africa has led to increased grain damage and loss due to high insect populations and increased feeding activities.

“In my research, I use the adage ‘It takes a thief to catch a thief.’ If insects use climate to proliferate, why not use the same ‘climate’ at lethal levels to kill the insects? To do this, some knowledge gaps need to be filled. For example, what are the lethal thermal thresholds of stored product pests at each extreme side of the temperature scale? How long should the insects be exposed to the extreme temperatures for 90% mortality?”

These are the types of questions that Dr Machekano tries to answer in his laboratory every day. “That information is critical to ‘catch the thief’ by developing low-cost, low-capacity, climate-smart storage systems customised for small-scale farmers. There are also many commercially available products that kill insect pests through reduction in oxygen and an increase in carbon dioxide. Other efficacious/ repellent indigenous plants are also available, but their effectiveness needs to be confirmed by science-based evidence.”

As the world commemorates the International Day of Awareness of Food Loss and Waste Dr Machekano says it’s important to not only focus on FLW reduction. “We must also focus on securing investment in futuristic post-harvest technologies for effective storage, particularly in rural areas where food insecurity is a fiscal responsibility.”

Photo captions:

Oxygen impermeable (hermetic) bags sealed using a simple rubber band. During sealing, air is minimised by ensuring that the inner plastic lining is in direct contact with the grain, leaving no air pockets. The use of a candle flame for rapid depletion of oxygen in a metal silo to kill storage pests. It is affordable and accessible to rural communities based on understanding of combustion and respiration.

Picture credits: Dr Honest Machekano

Media enquiries:

Please email Prim Gower at Primarashni.gower@up.ac.za or call 083 229 9011

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WASTE NOT: Economic analysis shows food loss and waste in SA are estimated at 9 million tonnes per year. Proper post-harvest storage and the use of smart technology targeting insects can reduce small-scale farmers' losses, UP researcher says. Read more: <https://twitter.com/compose/tweet>

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WASTE NOT: A recent economic analysis showed that food loss and waste in South Africa are estimated at 9.04 million tonnes per year. Dr Honest Machekano, Lecturer in the Department of Zoology and Entomology at UP, explains his work focused on integrated pest management in stored products. “Insect pests are the major cause of grain damage, so entomologists strive to find economic and safe ways of reducing insect damage and food loss in grain value chain without compromising the grain quality.” Read more:

