

IF I COULD INVENT A MACHINE

Today Nigeria faces dire food security issues. The country has much arable land and also produces a lot of food. Immediately after harvest, food is usually abundant and affordable. However, due to inadequate storage and preservation, a large proportion of the produce is lost to spoilage a few weeks or months after harvest. This creates scarcity and an attendant increase in the prices of these commodities.

To combat this pressing issue, I would invent neutrowave - a machine that applies the principle of radiation to ensure that all microorganisms and enzymes in fresh food are eliminated whilst preserving the nutrients, taste and consistency of food. The major principle is to use radiation instead of other forms of heat to create the heating effect in the pasteurization and sterilization process.

There are existing technologies for preservation of fresh food namely- pasteurization and sterilization. Pasteurization is a process of heating food very quickly to a high temperature to kill microorganisms. The process was invented by a French microbiologist, Louis Pasteur and it was originally developed for milk. Today, it is used in the food preservation industry. Sterilization is a process of completely eliminating every form of life including vegetative and spore forms.

Radiation is energy that travels in the form of waves that are sent out from radioactive substances. It is already used in microwaves, x-ray machines, accelerators, the electron microscope and other machines.

In this machine the food and pack (made of paper or cardboard) are inserted into the neutralization chamber (a vacuum) where the machine applies radiation to completely eliminate microorganisms and enzymes from both the food and wrapper. Inside the machine, the food is inserted into a neutralized pack and hermetically sealed. The machine kills bacteria like salmonella, listeria, campylobacter, staphylococcus aureus and Escherichia coli among others that cause diseases like tuberculosis, brucellosis and scarlet fever.

This machine will solve some of the problems that have held the food industry down for a long time. We have an agrarian society and small holder farmers who have poor storage and preservation facilities which means that a large proportion of produce is lost per harvest season.

With this machine, the farmer earns a lot more because he does not sustain losses caused by spoilage and there is no loss of nutrients because the machine employs radiation principles to preserve fresh fruits, vegetables and tubers such that they retain their freshness for up to 12 months. Also, the food when treated does not require special storage.

Consumers enjoy a wide variety of food as they no longer need to wait for food to be in season to enjoy it. It also reduces fluctuation in supply which means a more balanced and affordable pricing for food.

Neutrowave preserves the nutrients in the food and reduces spoilages in farm produce. It reduces waste and makes food more affordable. Overall, it contributes to food security in

Nigeria and elsewhere.

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