From Farm to Mouth: Where Food Meets Science

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Introduction

Eating is one of the crucial things we do for our daily existence. We cannot survive starvation for a very long time. We will lose our ability to function if we do not eat. Before we get the substances (nutrients) in food that are required for our daily sustenance, there is a branch of science involved called Food science and technology.

Food science is the study of the production, processing, preparation, evaluation, and utilization of food (Institute of Food Technologists, 2011). Food technology, on the other hand, is the use of the information generated by food scientists in the selection, preservation, processing, packaging, and distribution, as it affects the consumption of safe, nutritious and wholesome food (Potter and Hotchkiss, 1986). This branch of science is a union among several other core or branches of science including: mathematics, engineering, biology, chemistry, physics and psychology.

Since ancient times, human beings have been concerned with the science of food; but it is not until recently that it has become a course in various senior high schools and a degree programme in tertiary institutions. People who major in Food Science and Technology from degree-awarding institutions are called food scientists or food technologists.

Importance of Food Science and Technology

Between harvest and consumption (i.e., from farm to mouth), postharvest losses usually occur. However, postharvest losses are minimised or prevented through processing and packaging that are integral parts of food science and technology. Through the application of food science and technology, the supply of raw food is increased and conserved for a relatively long period of time for human benefit. Food scientists and technologists have significantly complemented agriculturists to ensure the supply and availability of safe food with consistent high quality available at all time, and a wide range of delicious foods for consumption (Floros et al., 2010).

Food Science has again led to a reduction in nutrient deficiency-related diseases. For example, in Ghana, the Department of Food Science and Technology, University for Development Studies, is collaborating with developmental partners to promote the production and consumption of orange-fleshed sweetpotato to help address the astronomically high vitamin A deficiency in the country. Products including bread, gari and yoghurt have been developed from the orange-fleshed sweetpotato which contains significant amount of dietary provitamin A, which is converted to vitamin A in humans.

Also, food scientists or technologists have contributed to the provision of foods that are less costly, convenient and require less preparation time, reduction in food waste and efficient global food distribution and storage (Floros et al., 2010). Thus, in today's world, food scientists or technologists play a vital role by improving the quality of food consumed by human beings in a sustainable way.

Career Opportunities

Food technologists or scientists apply science and engineering to food production, processing, packaging, distribution, preservation, evaluation and utilisation. Their goal is to ensure adequate, acceptable, and safe supply of food both at home and around the world. Many career areas are related to food science and technology due to its diversified branches as mentioned earlier. These include: food product development and processing, biotechnology, technical sales, quality control, teaching, research, etc. (Mehas and Sharon, 1989).

Among several industries in the world, the food industry is one of the largest and as long as human beings continue to eat, it creates employment opportunities with good salaries for food scientists or technologists. From the annual salary report of the Institute of Food Technologists (2011), a degree in food science offers several opportunities to earn top-dollar salaries. The average annual salary in 2011 for people with a B.Sc. in Food Science or Technology worldwide was $80,000 (1$ = GHC 4.43) and even higher for those with postgraduate degrees (Institute of Food Technologists, 2011).

Food scientists or technologists may find employment with companies or industries that produce canned, dried, refrigerated, frozen, freeze-dried, fermented, smoked, pickled, irradiated or baked food products. They can also work in such companies or industries to find tasty, nutritious and appealing food substitute that are cost effective. Also, they may work in large fishing vessels where they ensure that fish caught maintains the highest quality as long as the ship remains at sea for weeks. Other potential career opportunities include being inspectors for regulatory bodies to protect the public from foodborne illness.

In the Public Health Act 851 of Ghana, Section 106, it stated that "A person shall not manufacture a food for sale unless the food is manufactured under the supervision of a person with appropriate knowledge and qualification who can ensure the purity, quality and wholesomeness of the food". Therefore,

any business of food for consumption should have a food scientist or technologist. But more importantly, the training acquired equipped food scientists or technologist to start their own food processing business.

Conclusion

It is commonly accepted that we are what we eat, this may not be wholly true. A food technologist trained at University for Development Studies knows that we are not only what we eat, but we are what we do not excrete. Thus, if you are considering a career to improve upon the life of humans, consider this noble discipline: Food Science and Technology, where food meets science.

Just for Your Information

Entry Requirements for BSc. Food Processing Technology in University for Development Studies

One must obtain (A1 – C6 in WASSCE or A – D in SSCE) in three Elective subjects: Physics, Chemistry and Biology; and three core subjects (English, Mathematics and Integrated Science). Diploma graduates in applied sciences with passes in core sciences (Physics, Chemistry and Biology) or related subjects can apply. Higher National Diploma (HND) graduates with at least 2nd Class Upper Division in Food Technology/ Science related field (excluding Home Economics) would be admitted from second year.

References

Floros, J. D., Newsome, R., Fisher, W., Barbosa-Cánovas, G. V., Chen, H., Dunne, C. P., … Ziegler, G. R. (2010). Feeding the world today and tomorrow: The importance of food science and technology. Comprehensive Reviews in Food Science and Food Safety, 9(5), 572–599. https://doi.org/10.1111/j.1541-4337.2010.00127.x

Institue of Food Technologists (IFT). (2011). Institute Of Food Technologists Biennial Employment and Salary Survey. Retrieved from http://www.foodnavigator-usa.com/R-D/Food-scientist-salaries-back-on-track-more-young-women-in-the-industry-IFT.

Institute of Food Technologists. (2011). 2011 Resource Guide for Approval and Re-approval of Undergraduate Food Science Programs. Retrieved from http://www.ift.org/community/students/%0Aapproved-undergrad-programs/undergraduate-program-resources.aspx.

Mehas, K. S. R. (1989). Food Science and You. (1st ed.). Mission Hills: CA: Glencoe Publishing.

Potter, N.N., Hotchkiss, J. H. (1986). Food deterioration and its control. In: Food Science. Chapman and Hall, NY.