

I have selected to review an article from EMO reports for this assignment. The article titled 'Science for food' talks about how molecular biology contributes to the production and preparation of food. Written by Howard Wolinsky & Kristofor Husted, the article looks at various aspects of GMO, 3D printed food, food production alternatives and alteration that exist and how the role they could play in the near future. In most popular cooking shows and food documentaries like Chef's Table, Masterchef Australia or others like Salt Fat Heat Acid, you see chefs experimenting with molecular techniques and food chemistry. Heston Blumenthal is known for his scientific approach towards cooking. Food preparation is going to be influenced and adapt to meet future requirements through the influence of chemistry and biological modifications. The elephant in the room is still going to be, how this can become mainstream and reach the masses. Enzymes like 'transglutaminase' is used by professional chefs to bind different meats together and achieve creative food challenges. While people working in the food service sector might use it to cut costs or increase shelf-life. On one hand, in the supermarket or as a pizza topping, you might not know the quality or composition of the meat you are consuming. High-end restaurants would market their dish and state the method of preparation, there is a certain level of transparency. William Meyers, executive chef at the Stone Harbour Golf Club talks about the advantages of using meat glue. He is able to prepare dishes for diners with delicate digestive systems or those who are gluten intolerant, as the enzyme acts as a binder and replaces the use of flour. He goes on to talk about the chemical tapioca maltodextrin which has the ability to turn any liquid fat into a powder. By using this powdered fat, chefs are able to enhance complex flavour profiles into the dish while adding a theatrical effect to a dining experience. A common example of this would be a waiter mixing sodium citrate and warm beer to a wheel of aged cheese and achieving a velvety melted cheese effect to pour over a burger or maybe a bowl of pasta. Food producers and especially wine makers are looking for new methods to infuse scientific reactions to tackle climate change, resource depletion, water conservation, reduced soil health, infestation of invasive species. Researchers are looking towards genetically tinkering with micro-organisms to adapt them to meet our demands daily but to quote Howard Wolinsky that "...it is the application of science in agriculture that will enable farmers to feed a world population of 9.5 billion". The world needs to work towards

developing technologies to decrease energy consumption, air and water pollution and wastage of resources in the food production and preparation sector. Our time and money must be re-evaluated in terms of what areas we should be focusing on. Farming and ecological practices should be borrowed from our ancestors and combined with new-age technology to work towards a circular economy. A new world where the the creation of by-products are put back into the system and utilised to feed into another process. This in turn will help fight problems of climate change, resource depletion and infestation of invasive species. A paper on Research Gate titled, Development of an Agricultural Biomaterial Industry in Ontario by Aung Oo, Nafis Muntasir, Kenneth Poon, Alfons Weersink, and Mahendra Thimmanagari talks about food and agricultural in terms of a biomaterial resource for an economy. They have studied and analysed data collected in Ontario and looked at how biofarms for biomass collection have been implemented. The effect on the nation's economy and where there is a scope to use biomaterials from agriculture biomass in various production lines. We should look towards other nations that are developing new materials and collaborate and share methodologies on moving towards a highly efficient and self-sufficient way in growing and consuming food.