Stay Home or Go Global: Local versus Imported Fruit

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The purpose of “Stay Home or Go Global - Local Versus Imported Fruit?” is to study what pesticides we may be eating and which fruits might be the worst ones. Pesticides can be fungicides or insecticides. Fungicides are chemical compounds used to kill fungus and insecticides are chemical compounds used to kill insects. Some fungicides are sprayed on fruits post-harvest which means after they are picked. This study will analyze for both fungicides and insecticides in grapes, pears and berries. This study will also analyze local organic and imported berries, grapes and pears to better understand which might contain the least pesticides and fungicides. According to the United States Department of Agriculture (USDA) “organic is a labeling term that indicates that the food or other agricultural product has been produced through approved methods that integrate cultural, biological, and mechanical practices that foster cycling of resources, promote ecological balance, and conserve biodiversity. Synthetic fertilizers, sewage sludge, irradiation, and genetic engineering may not be used”. (USDA 2012) A method called QuEChERS (Quick, Easy, Cheap. Effective, Rugged and Safe) will be used to extract the pesticides from the fruit samples. It is a clean-up method that removes sugars, lipids, organic acids, sterols, proteins, pigments and excess water from the fruit sample. A mass spectrometer setup with a method to look for 196 common pesticides will be used to analyze the samples. The mass spectrometer is a powerful analytical instrument used in many labs to detect targeted analytes like pesticides at really low levels.

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