Regulations on Agricultural Contaminants Stickers on Produce

1. Introduction

When people consume fresh produce, they are exposed to several contaminants, including dirt, bacteria, insects, wax, chemicals, pesticides, heavy metals, etc. While most of these contaminants are eliminated during the process of fruit washing or processing, pesticides and heavy metals are persistent and can still remain on produce when it arrives at the consumers’ plates. Seeing that pesticides and heavy metals are agricultural contaminants that are capable of causing severe consequences on our bodies, they require substantial attention from the public (Tchounwou, et al., Good).

A. On Pesticides

More than one thousand kinds of pesticides are used globally, and each of them has different toxic effects on humans and the environment. For instance, chronic exposure from pesticides may cause some of many deadly and terminal diseases: cancer, Alzheimer's disease, Parkinson's disease, endocrine disorders, and developmental disorders (World Health Organization). In fact, about 200,000 - 300,000 people worldwide die every year from toxic exposure to pesticides (United Nations). Over recent years, 10-15% of Taiwanese produce each year does not satisfy the maximum residue levels (MRL), which is defined as “the highest level of a pesticide residue that is legally tolerated in or on food...when pesticides are applied correctly” (European Union). Just last month, “21.6 percent of the tested items had pesticide residue exceeding” the MRLs, according to Taipei Times, which is much higher than the 10-15 % reported by the Taiwanese FDA (Taipei Times). On the other hand, an overwhelming 98% of...
produce tested by the European Union (EU) and the US Food and Drug Administration (FDA) is below MRLs. In fact, Taiwan is ranked as the country with the highest pesticide usage per land area (Food and Agriculture Organization).

B. On Heavy Metals

Similarly, heavy metals are tremendous hazards to human and environmental health. In 2016, lead caused about 540,000 deaths (World Health Organization). The danger of heavy metals, which is largely unknown to consumers, can be exposed to them through bought produce. Only 38% of the people we surveyed know that their produce can potentially be contaminated with heavy metals, whereas 81% know that pesticides are on their fruits and vegetables (Figure 1). Such disparity in knowledge between the two emphasizes the need for consumers to be educated about heavy metals in addition to pesticides.

Figure 1: Out of 473 respondents, 386 knew that there are pesticides on produce, yet only 183 knew that heavy metals are also present on produce.
C. Gathering Information on the Status Quo

To further understand why the percent of Taiwanese produce that surpass the MRL is much greater than that of European and American produce, we decided to call produce distributors and governmental organizations, such as the Taiwanese FDA, to ask how produce is tested in Taiwan and other relevant policies. We called 35 distributors and asked them these five questions:

1. Do you know if there are residues on your produce?
2. Do you test for residues (heavy metals, pesticides)?
3. How do you test for residues?
4. How often do you test for residues?
5. What do you/would you do with your produce if you detected residues on them?

For 4 out of the 5 questions, approximately 40% of distributors refused to disclose any information to us. When we asked them the second question, about 3% of distributors replied that they do not test for residues and about 6% of distributors replied that they do not know whether or not the producers or distributors they source from check for residues. Some distributors from this interview replied that they were unaware of residue detection methods and redirected our team to contact the distributors that they bought their produce from. When we asked those distributors how they processed produce after detection, only 29% replied that they dispose of the produce, while 11% were clueless and 57% refused to reply (document link).

From this information, we identified a substantial lack of communication between producers, distributors, and consumers.
2. Our Proposal

Thus, we would like to increase transparency between each of these three sectors: producers, distributors, and consumers. As we visited many traditional markets around Taipei, we noticed that some produce have a sticker attached to it. Such a sticker certifies that certain produce are safe to consume agricultural-contaminant free. In addition to this aspect, there is a QR code printed on the sticker. This QR code informs the consumers that are concerned about the specifics of residue testing results by directing them to an online page. However, we believe that the current implementation of the QR codes is insufficient to properly inform consumers on the food they’re consuming. Thus, we would like to propose two changes to the current QR code system.

First, we want to ensure that inspection results of all produce are uploaded to a governmental website. Currently, the QR codes on produce in distributor markets open up to the Taiwan Agricultural Products Production Traceability System’s (TAPPTS) website, where information about the source of the consumers’ produce is located. However, while the purpose of this website is to upload all of the inspection results onto the website, in reality, we discovered that many of the producers’ inspection results are not uploaded at all. After a call with TAPPTS, we have found out that there is another governmental website that uploads the testing results of these produce. However, two separate websites make it inconvenient and misleading for consumers because they do not know where to find these test results without the stickers leading them directly to the test reports. Therefore, we hope that the government can upload their randomized testing results onto producers’ pages of the TAPPTS website, the day the results come out. Furthermore, the government should also require producers to upload their self-testing
results if government reports are not available. The rapid self-testing reports should only be accepted by the government if they come from government-accredited rapid detection kits to prevent counterfeit reports.

By requiring distributors to upload information about their produce’s testing results, consumers can ensure that their food is safe for consumption. For people who are not very concerned about the specific results of the agricultural contaminants in crops, the sole presence of the sticker reassures them that the food they buy has been tested for consumption safety. For those who are more concerned about the testing reports, they scan the QR code to access the governmental website and learn about the detailed testing procedure and reports on each produce. Such a website will also allow distributors to understand what kind of tests their produce have been through to help increase their awareness of the products they sell. This website will also hold producers accountable to destroy the crops that do not surpass the MRL, instead of selling their produce off to distributors and consumers.

Second, we hope that these stickers will also include subtitles about the health effects of consuming pesticides and heavy metal contaminants on produce, such as what has already been done on cigarette packs. Doing so will increase consumer awareness of the food they purchase, and they will be more willing to wash their produce thoroughly before consumption.

3. Conclusion

With the detrimental effects of pesticides and heavy metal residues on produce, it is clear that agricultural contaminants are a prevalent problem that should be addressed immediately. Through our surveys, the three sectors - producers, distributors, and consumers - lack communication with each other about the produce they grow, sell, and consume. We believe that
improving the current QR code implementation by enforcing the uploading of testing reports on TAPPTS, and the adding of warning labels will be an effective solution to facilitate communication between these sectors.

Works Cited


