

Trends Food and Packaging

By John Miller & Shoshana Massarik
Images: Dave Miller / ML1Media 2016

Trends. When it comes to food, nothing is out of bounds, unless it involves the packaging and handling. In 2015, innovative methods of putting protein into diets included bugs and reptiles parts. Rattlesnake stew and cricket salads were two of the many creative innovations. Unfortunately, the most noteworthy bug trends in 2015 were the most undesirable type: E. coli, salmonella, and norovirus were repeatedly in the news and had significant effects on certain restaurant chains. And out of these crisis, comes innovation.

How does food become compromised? Bugs, or scientifically, infectious organisms, including bacteria, viruses and parasites are found on almost all of the food that humans consume. Heat from cooking usually kills most bacteria on food before it reaches our plates. Occasionally, food can come in contact with bugs in waste/fecal matter. This most commonly happens when a person preparing food doesn't adequately wash their hands before handling or cooking—aka, the human factor.

This is where emerging technologies step in: safe handling of food. Two of the more innovative solutions tackle the issue from a handling and packaging perspective rather than trying to remove the infectious organisms during processing. In 2016 expect to see the introduction of antioxidant-multilayer packaging. This innovation in packaging (of food) uses a green tea extract. The initial rollout will be used in the packaging of certain dark chocolate snacks and milk chocolate cereals. The new packaging material have shown to safely double the shelf life of the products to that of identical products in conventional packaging.

A proposed extension of this concept involves use of antimicrobial materials in food packaging and other food contact surfaces via (application of) new polymer materials and anti-microbials. Often referred to as nanotechnology, the illustrations (left) shows how the layering of packaging and anti-microbials are being combined as a single packaging product. Of course, emerging technology can go too far ---developments in biochemical treatments for the food chain bring new risks to the humans that consume those treated food products.

Another emerging technology in food packaging that will see wider adaptation in 2016 is Controlled Release Packaging. Controlled

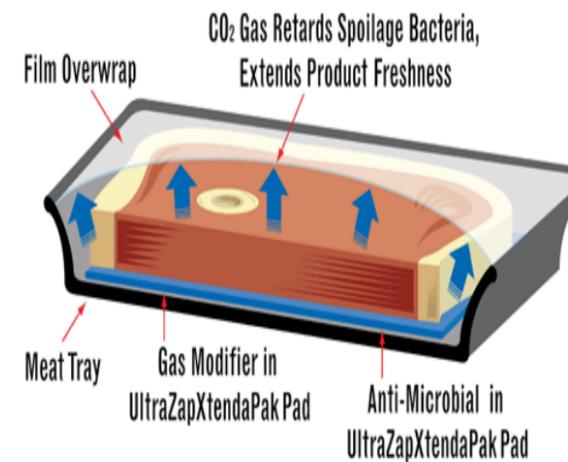
“Recall Irradiation. While ruled by the FDA to be safe, it faced significant objection at the consumer level.”

release packaging (CRP) is a technology by which active compounds such as antimicrobials or antioxidants are incorporated into the package and released to

the food in a controlled, timely manner to inhibit microbial growth, spoilage, or other deteriorations. The goal is enhancing safety while extending the shelf life of the food product. A planned extension of CRP is so-called Intelligent packaging. Intelligent packaging contains indicators (electronic measurement instruments such as RF sensor tags) to monitor time-temperature, microbial growth, and pathogen detection and quickly-easily monitor quality control of packaged food. A significant impact on shelf-life extension of meat and meat products as well as the identification (and elimination) of compromised food products would be possible via this enhanced packaging.



Nanotechnology package layering examples



Of course, emerging technology can go too far--developments in biochemical treatments for the food chain bring new risks to the humans that consume those treated food products. Recall Irradiation. While ruled by the FDA to be safe, it faced significant objection at the consumer level. New food preservation techniques need to satisfy consumer requirements while maintaining nutritional and esthetic aspects of foods. Ensuring food safety and at the same time meeting such demands for retention of nutrition and quality attributes has resulted in increased interest in emerging 'natural' preservation and packaging solutions. These emerging technologies can extend the shelf life of unprocessed or processed foods reducing the food spoiling microbial growth without altering the food quality (including flavor, odor, color, texture, etc) and enhancing the foods overall safety.

