

Recent advances innovation to extend shelf life for Horticultural products packaging and waste reduction in Thailand

Presentation - June 5, 2025

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AGENDA

- Innovations in extending the shelf life of fruits and vegetables
 - Public-Private partnership
 - Active PAK™
 - Private-Private partnership
 - OptiBreathe
- Innovations for sustainability
- Innovations in odor control

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Public-Private Partnership



Public
Private
Partnership

Active PAK™

The Innovative Bag for Lasting Freshness.

- This innovation was developed by the National Science and Technology Development Agency (NSTDA). It is originated from challenges faced by the fresh fruit and vegetable industry and has been continuously tested in collaboration with the private sector. This bag is made from a special type of transparent plastic that does not fog up during storage, allowing consumers to clearly see the produce. Inside, it creates a balanced modified atmosphere, which helps preserve the freshness, nutritional value, and flavor of fruits and vegetables for 2–5 times longer compared to regular bags which required perforation for air circulation, which often leads to wilting due to water loss.
- **Active PAK™ can extend the shelf life of fresh vegetables by an additional 7–14 days**, reducing spoilage rates during sale and storage for consumption. It also helps **reduce vegetable loss by approximately 7–8%**, leading to a tangible decrease in food waste and environmental impact.



Packaging for Tropical Fruit and Vegetables





KC Fresh Company Limited

One of members of the Thai Chamber of Commerce and the Board of Trade of Thailand, as an exporter of fresh fruits and vegetables to the UK and the EU, has adopted the Active PAK innovation for packaging their products. The company has focused on prioritizing standards, safety, freshness, and cleanliness throughout the supply chain, from the source of production to the delivery of goods to consumers, in order to build confidence.



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Private-Private Partnership

OptiBreath® - Food Packaging Innovation from SCGP to extend the Freshness of Fruits and Vegetables.

Based on the principle of controlling the exchange of oxygen and carbon dioxide gases between the inside and outside of the bag at optimal levels, it helps reduce the growth of microorganisms to preserve product quality, maintain freshness, nutritional value, and good taste for a longer period. It can extend the freshness of vegetables by an additional 3-5 days and fruits by an additional 7-11 days compared to traditional methods. This helps reduce storage costs and increases opportunities for selling products to other provinces or exporting them overseas, which typically involves longer transit times.



NC Coconut Co., Ltd., a Thai exporter of coconut products has collaborated with SCG Packaging Public Company Limited (SCGP) to develop a new product under the brand "COCO BUCKET." by designing a wrapping bag for aromatic coconuts that helps maintain freshness, extend the shelf life of the product, and offer convenience for consumption, with a focus on exporting to international markets.



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Sustainable Packaging examples

Charoen Pokphand Foods Public Company Limited (CPF) has collaborated with PTT Global Chemical Public Company Limited (GC) and packaging manufacturers to **develop 100% recycled PET plastic egg trays for packaging fresh and processed chicken eggs**. These trays consist of 55% post-consumer recycled (PCR) PET plastic and 45% post-industrial recycled (PIR) plastic.



Sustainable Packaging examples

- Biodegradable Bioplastic Tray Sealing Film
- The National Metal and Materials Technology Center (MTEC), the National Science and Technology Development Agency (NSTDA), in collaboration with the Royal Project Foundation, and Thantawan Industry Public Company Limited, have developed a biodegradable bioplastic tray sealing film.
- This film has 3 main outstanding features: it is thin and transparent, resistant to fogging, and helps extend the shelf life of pre-packaged salad vegetables on retail shelves from the original 3 days to 5 days. The Royal Project Foundation has already piloted the use of this film with their 'ready-to-eat salad menu' packaging for sale in Royal Project shops.



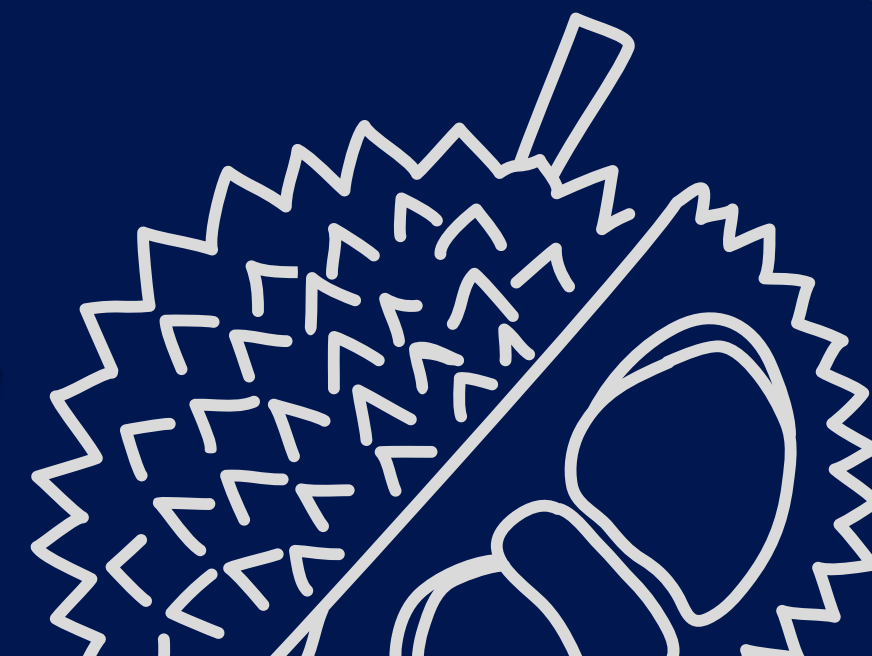
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“Odor Lock™”

Odor-Containment Food & Fruit Packaging Innovation

Made from a special type of plastic that can prevent food odors from leaking and causing odor disturbance, such as durian, chili paste, and salted fish. It also solves the problem for consumers who want to store strong-smelling foods in the same compartment. Available in both 3-side seal and gusseted bag types, it can be easily heat-sealed. Furthermore, it has been researched and developed to withstand refrigeration or storage in ice without water seeping into the bag. It can also be stored in the refrigerator without condensation forming inside, thus preserving the food's flavor.





APEC 2025
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