

Food Losses and Waste Reduction

APEC Member Economy Report
-Chinese Taipei-

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Outline



Government Policy



Private Sector Policy



Current Status of R&Ds



Programs/Toolkits

Government Policy (1/2)

Technology	<ol style="list-style-type: none">1) <u>Plant Products</u>: (1) reduce post-harvest wastes, (2) build early warning systems, (3) develop value-adding processing technologies2) <u>Livestock Products</u>: (1) adjust feed nutrients and enhance animal health care, (2) introduce transportation regulations and increase slaughter efficiency, (3) better manage meat-processing plants, (4) improve quality control for livestock products3) <u>Fishery Products</u>: (1) Work toward whole fish utilization, (2) develop value-adding technologies for leftover fish by-products
Education	<ol style="list-style-type: none">1) Promote the concept of healthy diet2) Set up online platform for learning exchange3) Bolster education on diet and agriculture for students
APEC region	<p>Lead APEC “Strengthening Public-Private Partnership to Reduce Food Losses in the Supply Chain” project:</p> <ol style="list-style-type: none">1) Share practical experience with APEC member economies2) Reduce 10% food losses and waste by 2020

Government Policy (2/2)

Public Assistance Act & Goods and Food Banks

- 1) Public Assistance Act provides a legal basis for enhancing the implementation of goods and food banks
- 2) Provide various types of reliefs to low and low-to-mid income families and victims of hardships and disasters
- 3) Assist in collecting and re-distributing food

Managing Food Waste

Domestic retailers and supermarkets are required to file the destination of their food wastes online for future reference.

Private sector

Associations, Foundations, Commercial Companies, Social Enterprises

Education

Cooperate with
logistics
company on
collecting and
distributing food

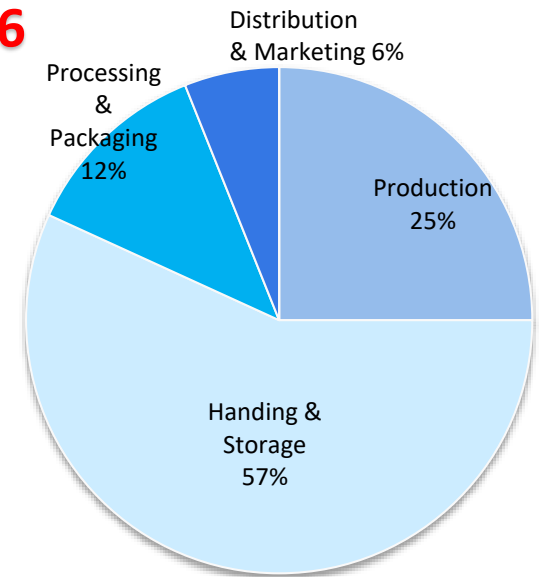
Goods
and Food
Banks

Current Status of R&Ds

- Overview of Supply Chain Research from 2012-2016

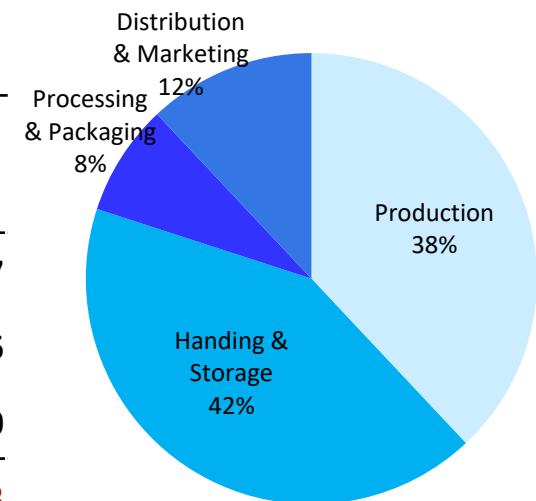
- Main focuses were on plant and handling & storage during 2012 to 2016

Number of Studies	Production	Handing & Storage	Processing & Packaging	Distribution & Marketing	Total
Plant	30	74	13	8	125
Fishery	2	1	2	0	5
Livestock	1	0	1	0	2
Total	33	75	16	8	132



- Research funding were also guided toward plant and handling & storage during 2012-2016

Funding (Thousand NTD)	Production	Handing & Storage	Processing & Packaging	Distribution & Marketing	Total
Plant	82,570	95,450	14,352	29,255	221,627
Fishery	5,205	1,838	3,073	0	10,116
Livestock	630	0	280	0	910
Total	88,405	97,288	17,705	29,255	232,653



Programs/Toolkits (1/9)

- Bulk Vegetable Seedlings Information System



→ Establish a warning system to prevent overproduction and food wastes

→ Estimate cultivated area on the basis of vegetable seedlings in nursery grounds

→ Provide accurate information to help farmers decide the cultivation items in order to avoid overproduction

Programs/Toolkits (2/9)

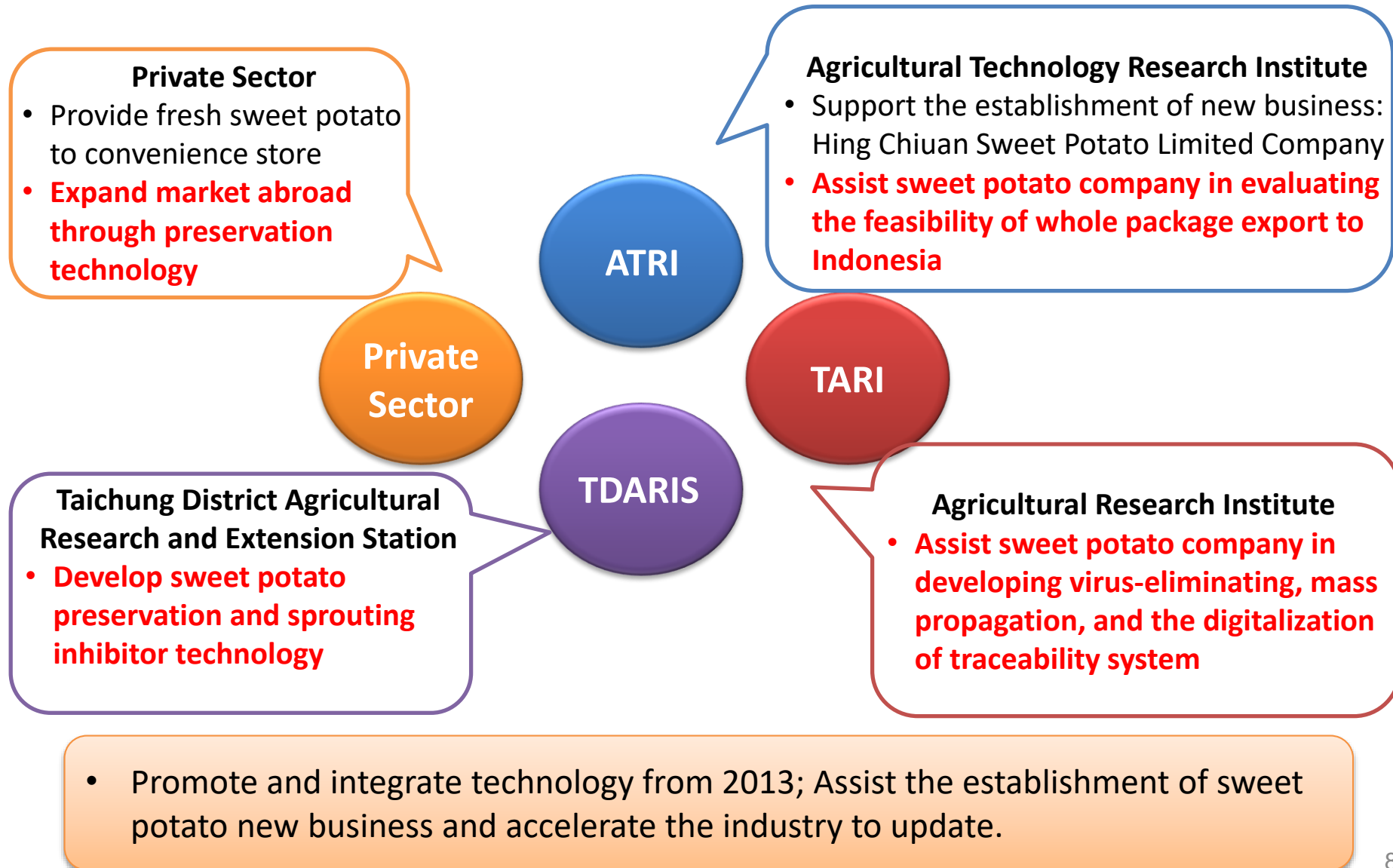
- Invest in Rice Cold Storage Facility

- 1) Assist farmers' association in building up low temperature storage center and temporary storage silos.
- 2) Alleviate the workload of farmers through automatic storage system, which can also improve rice quality and reduce food loss.



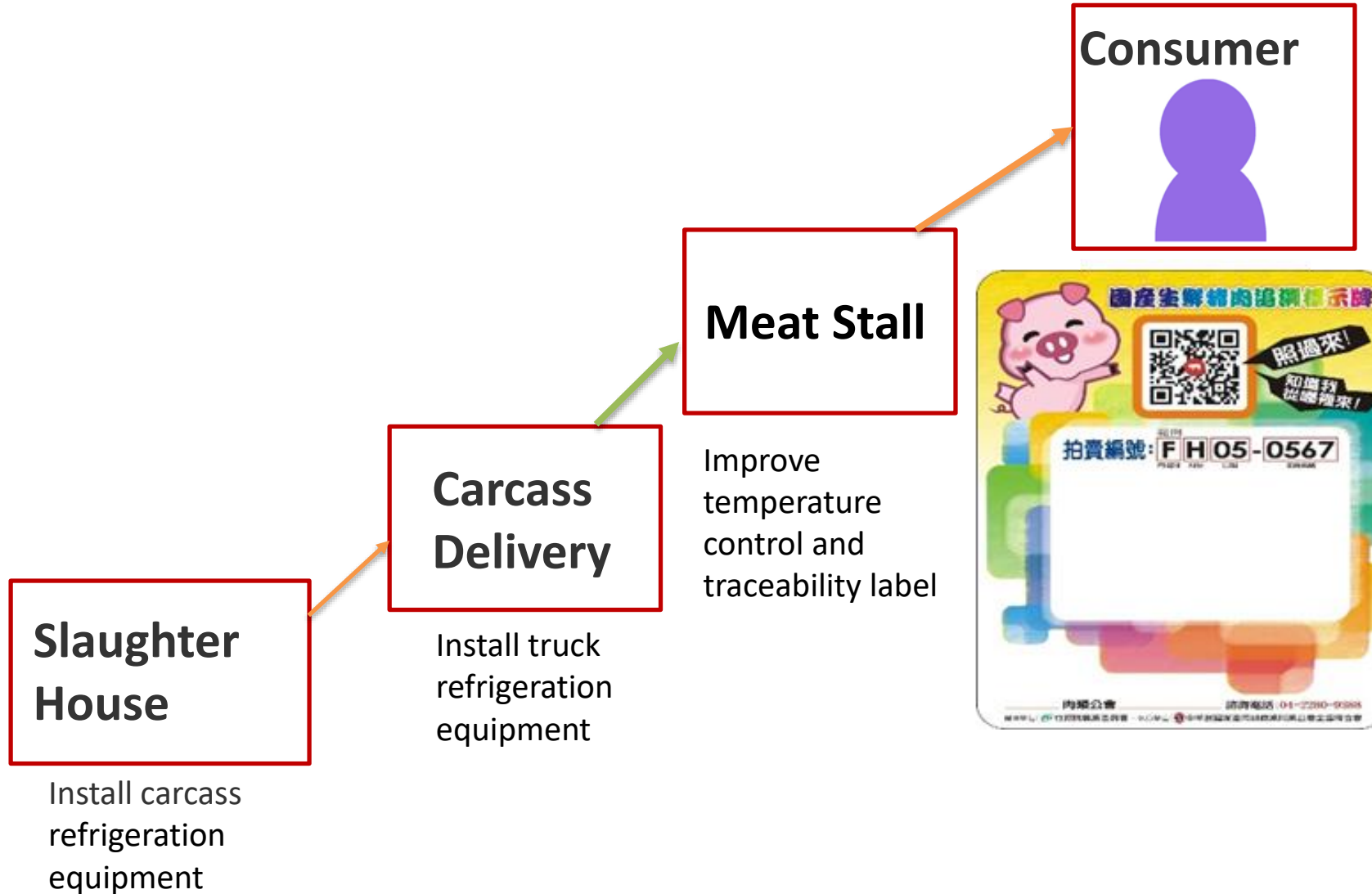
Programs/Toolkits (3/9)

- Reduce Post-harvest Damage to Sweet Potato



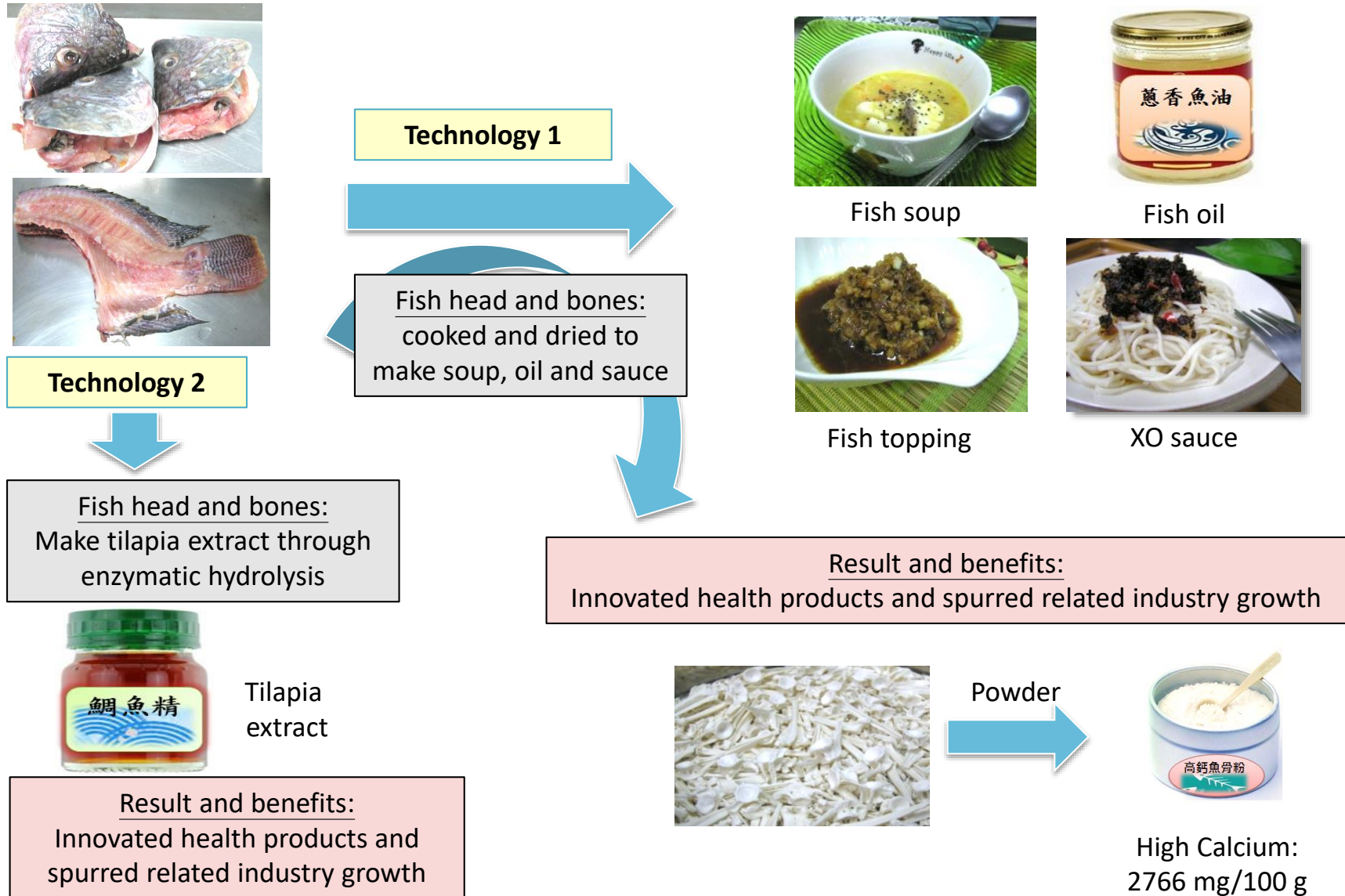
Programs/Toolkits (4/9)

- Improvement of Pork Delivery and Tracing System



Programs/Toolkits (5/9)

- Utilization of Tilapia's By-product



Programs/Toolkits (6/9)

- Utilization of Tilapia's By-product

The processing technology for fish skin



Result and benefits:
Made crispy cookies through processing and seasoning technology



Original



Seasoned

The processing technology for fish liver and glandular

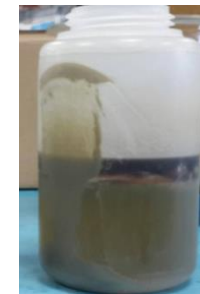


Fish soluble

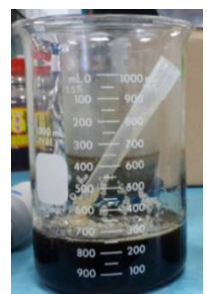
Fish oil



In processing



Fish soluble



Fish oil

Condensing process



Fish soluble as feed

Decolorizing process



Fish oil extract

Result and benefits:
Made animal feed or skin care products from fish liver and glandular

Programs/Toolkits (7/9)

- Reuse of General and Commercial Waste as Feed

Collected from households or commercial premises

Swill



- Pig farms with reuse permission by local competent authority.
- Heat $\geq 90^{\circ}\text{C}$ (central temperature) and stirred for 1hr minimum

Reduced the feed cost by 30-50%

Feed



Processed for feed use

- Regulations Governing Administration of Reuse of Enterprise Waste (by Ministry of Economic Affairs) (e.g. distillers' grains, animal residues)
- Regulations Governing Administration of Reuse of Agricultural Enterprise Waste (e.g. Feather, oyster shell)

- Meat and bone meal
- Animal fat
- Feather meal
- Oyster shell meal
- Others

Programs/Toolkits (8/9)

- Post-harvest Treatment of Vegetables

- 1) Eliminate the heat from field
- 2) Alleviate water loss rate
- 3) Reduce respiration rate
- 4) Inhibit the proliferation of pathogenic bacteria
- 5) Avoid the harmful impact of ethylene
- 6) Prolong the extension period



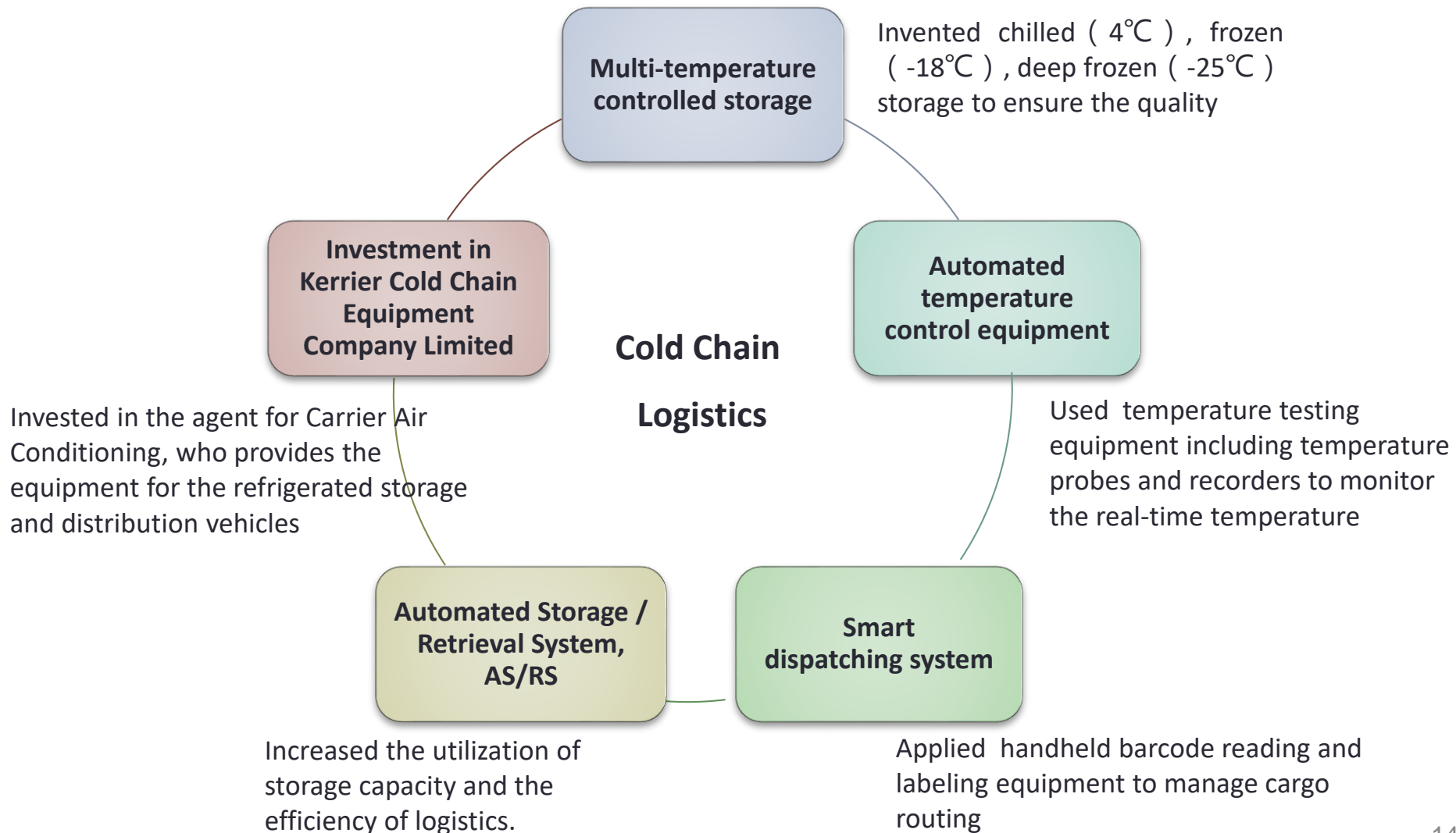
- Post-harvest Automation and Cold Chain Improvement for Fruits

- 1) Post-harvest process will affect the fruit quality, extension period, and directly impact the farmers' benefit
- 2) Expand market abroad
- 3) Upgrade pineapple, mango, guava and atemoya industry



Programs/Toolkits (9/9)

- Logistics Platform for Taichung, Changhua and Nantou Region



Thank you !