



Implementation Approach of Cold Chain Systems for Emerging Economies Asia Pacific

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**APEC High Level Public-Private Forum on Cold Chains
to Strengthen Agriculture and Food Global Value Chain**

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Constraints in building capacity of Small / Rural Farmer in the Value Chain



Concerns of the Asia Pacific Food Economy

| Concerns | Classic Interventions |
|--|-----------------------|
| ▪ Food Insecurity | |
| ▪ Cost of Food | |
| ▪ Farm Productivity | |
| ▪ Market Access | |
| ▪ Economics of small farms, rural poverty, length of food chain, etc | |
| ▪ Food Safety | |
| ▪ Ecological concerns on farming | |
| ▪ Climate Change | |

Concerns of the Asia Pacific Food Economy

| Concerns | Classic Interventions |
|--|--|
| ▪ Food Insecurity | Protection of trade, expand planting acreage |
| ▪ Cost of Food | Subsidize food prices, price ceilings |
| ▪ Farm Productivity | Increase farm yield, P&D management, Post-harvest handling |
| ▪ Market Access | Promotion, price competitiveness |
| ▪ Economics of small farms, rural poverty, length of food chain, etc | Infrastructure investment, farm aid, subsidy, get rid of the middleman |
| ▪ Food Safety | Food safety regulations |
| ▪ Ecological concerns on farming | Regulations |
| ▪ Climate Change | No consensus in resolving problem |

Concerns of the Asia Pacific Food Economy

| Concerns | Progressive Interventions |
|--|---|
| ▪ Food Insecurity | Save Food Loss and Food Waste (30 – 50%) |
| ▪ Cost of Food | Value of food |
| ▪ Farm Productivity | Efficiency, unit cost and farmer income |
| ▪ Market Access | Certification, market linkages |
| ▪ Economics of small farms, rural poverty, length of food chain, etc | Value chain, farm cluster, cold chain systems, logistics management |
| ▪ Food Safety | Food safety assurance, GAP |
| ▪ Ecological concerns on farming | Farm ecology conservation plan, GAP |
| ▪ Climate Change | Recognizing farm impacts |

Carambola

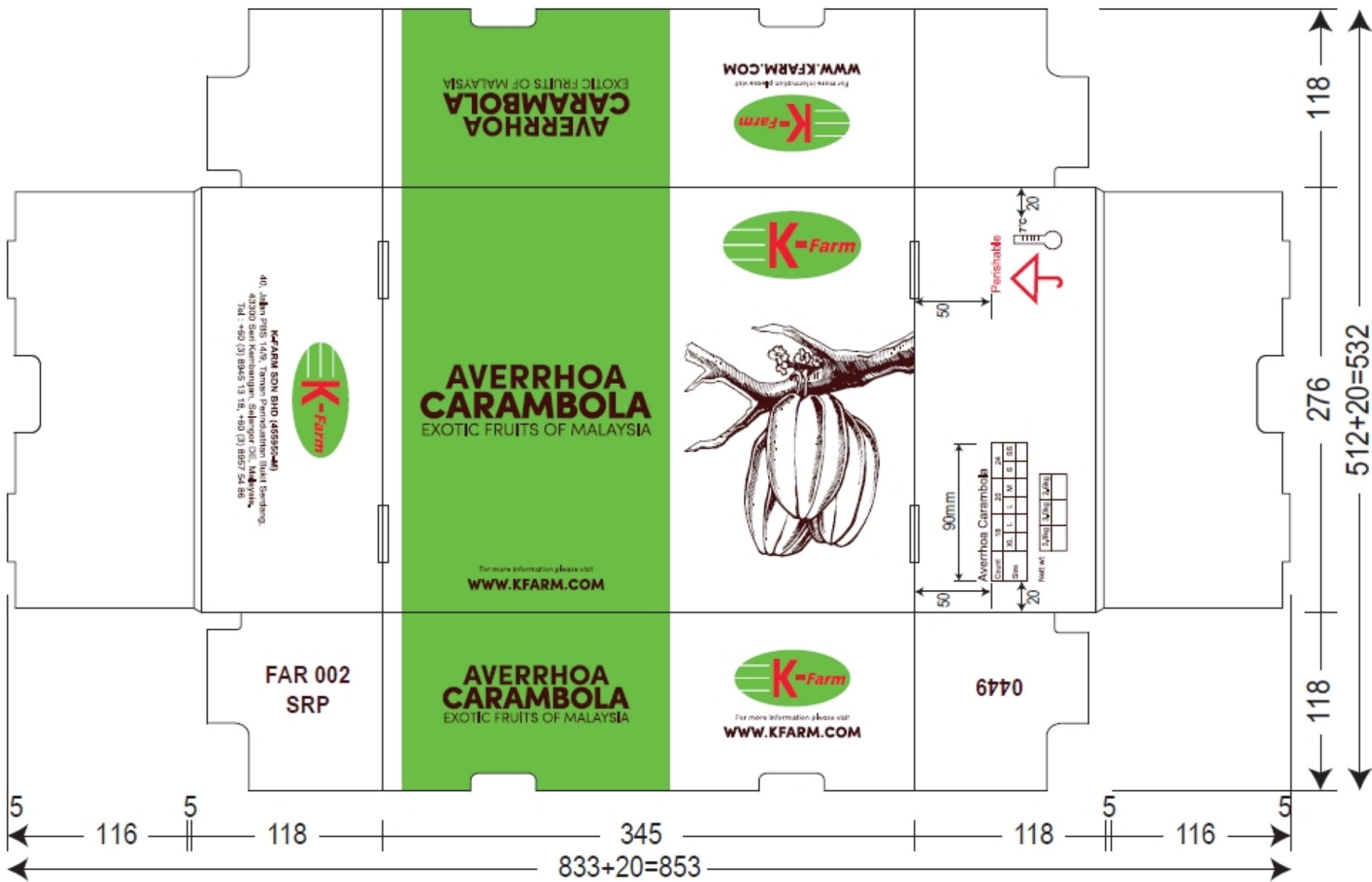


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K - Farm Sdn Bhd from Malaysia

- ❖ K-Farm grows Carambola in Malaysia
- ❖ Exports fresh Carambola to EU countries
- ❖ Low volume, Niche and Specialist Market
- ❖ About 4 tons / week, year round, air & sea shipments
- ❖ Sea shipment transit port to port is 24 days
- ❖ Sea transit temperature @ 7° C, humidity 85%, MAP Packaging
- ❖ Carambola flowers all year round, full sun exposure,
> 70 inches rain and good drainage





5 116 5 118 345 118 5 116 5

833+20=853

118 276 118

512+20=532







Developing K-Farm GAP Program - 1

| | |
|--------------------------|--|
| Problem: | Non compliance of production safety standards for EU markets |
| Scale: | Work with contracted existing small holder farmers |
| Solutions: | Adoption of GlobalGAP Protocol into current farm practices |
| Objective: | Seek GlobalGAP certification for the farms |
| Immediate Action: | Ensure that MRL pesticide residue is not breached |

Developing K-Farm GAP Program - 2

Plan of work:

- Develop incentives & contractual commitments with farmers
- Replace toxic pesticides with lower toxicity or biological pesticides
- Review fertilizer application regime
- Introduce IPM, ICM and K-Farm GAP QMS Codes of Practices
- Develop production schedules to match export demands

Technical In-house agriculture expert
Support: National Research Institute
Department of Agriculture
Agrochemical companies





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*The quality of horticulture produce is achieved
when it is still attached
and growing on the plant*

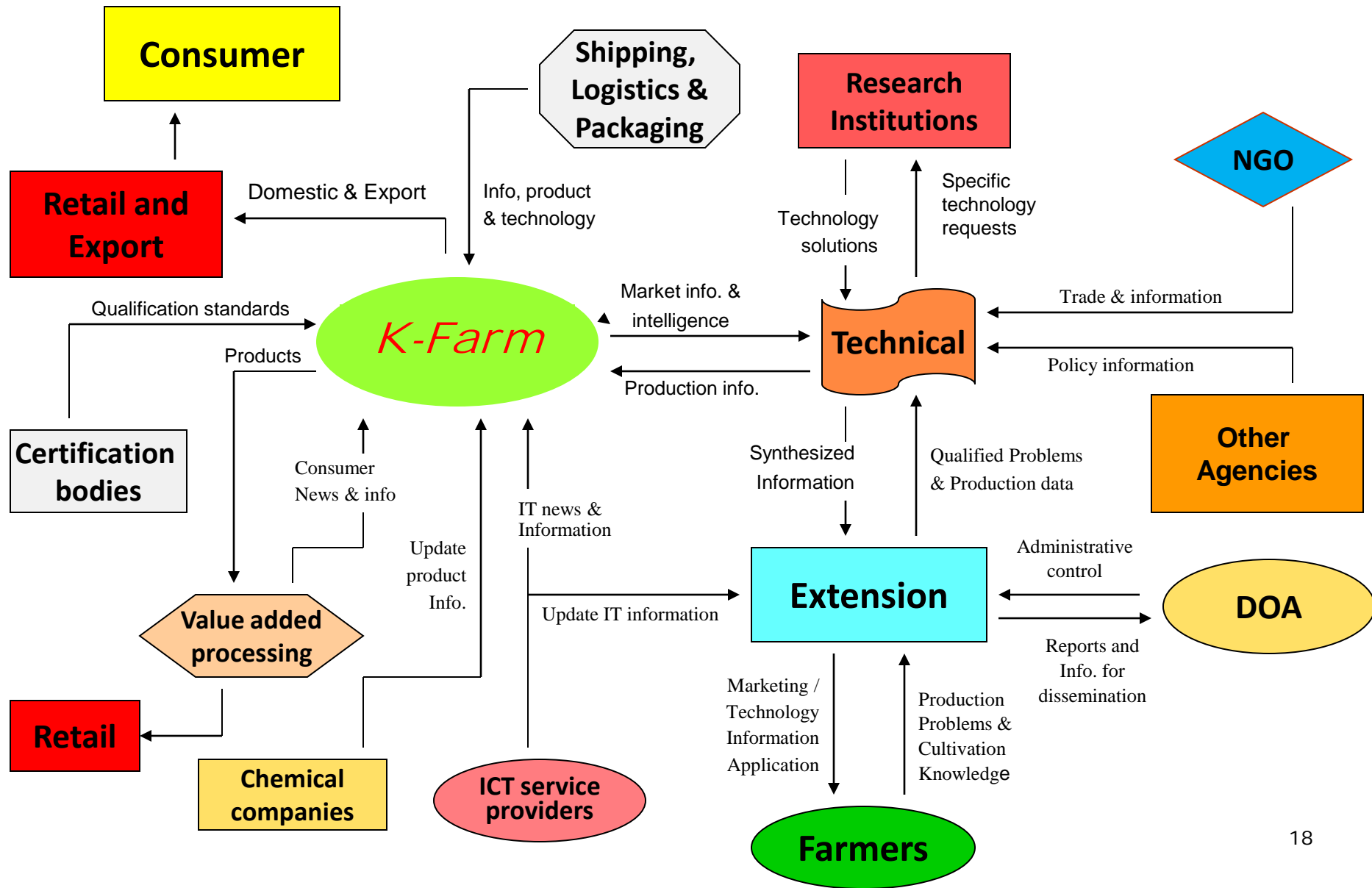
Parting Knowledge to Farmers



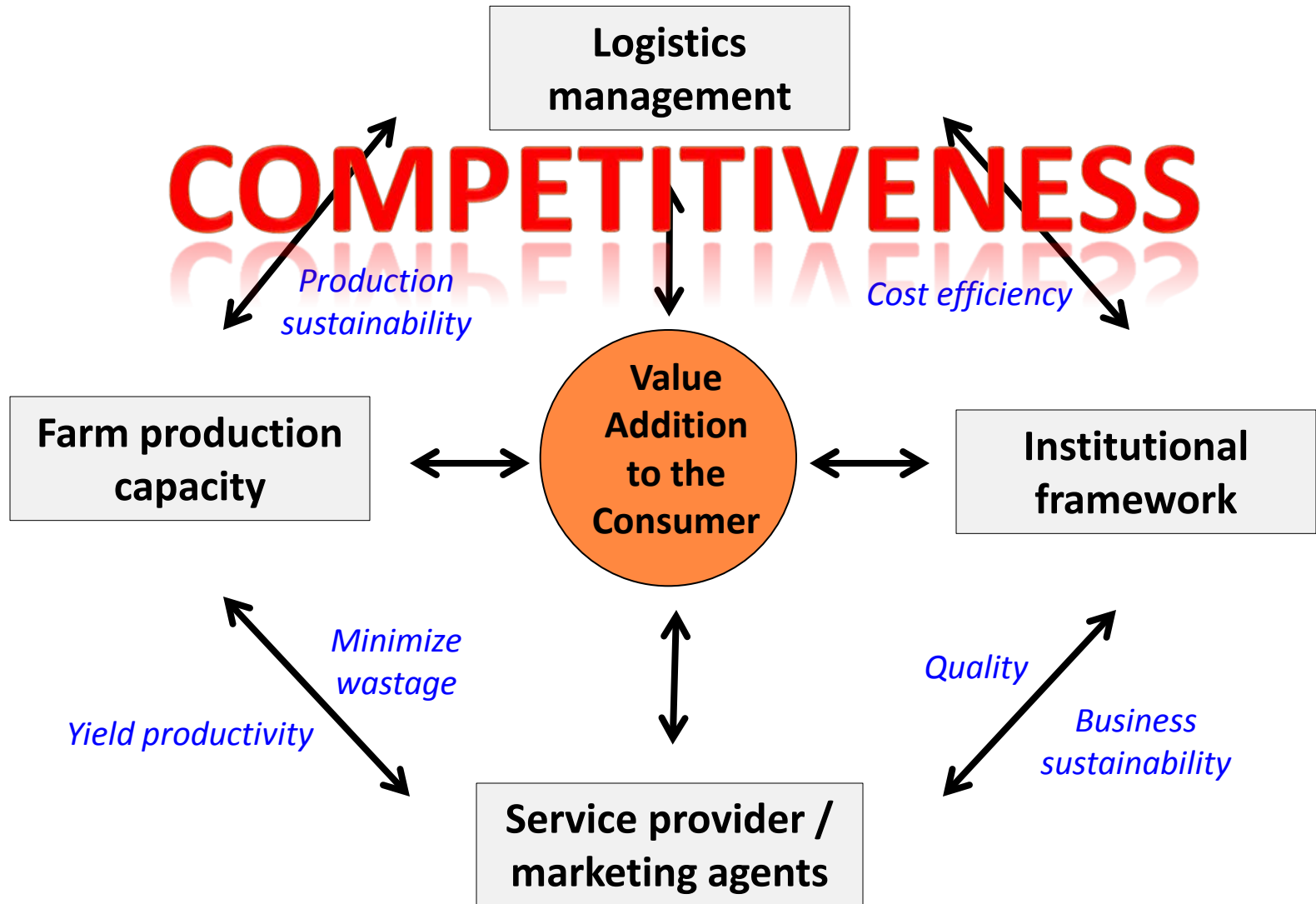
GAP Essentials – Monitor and Control



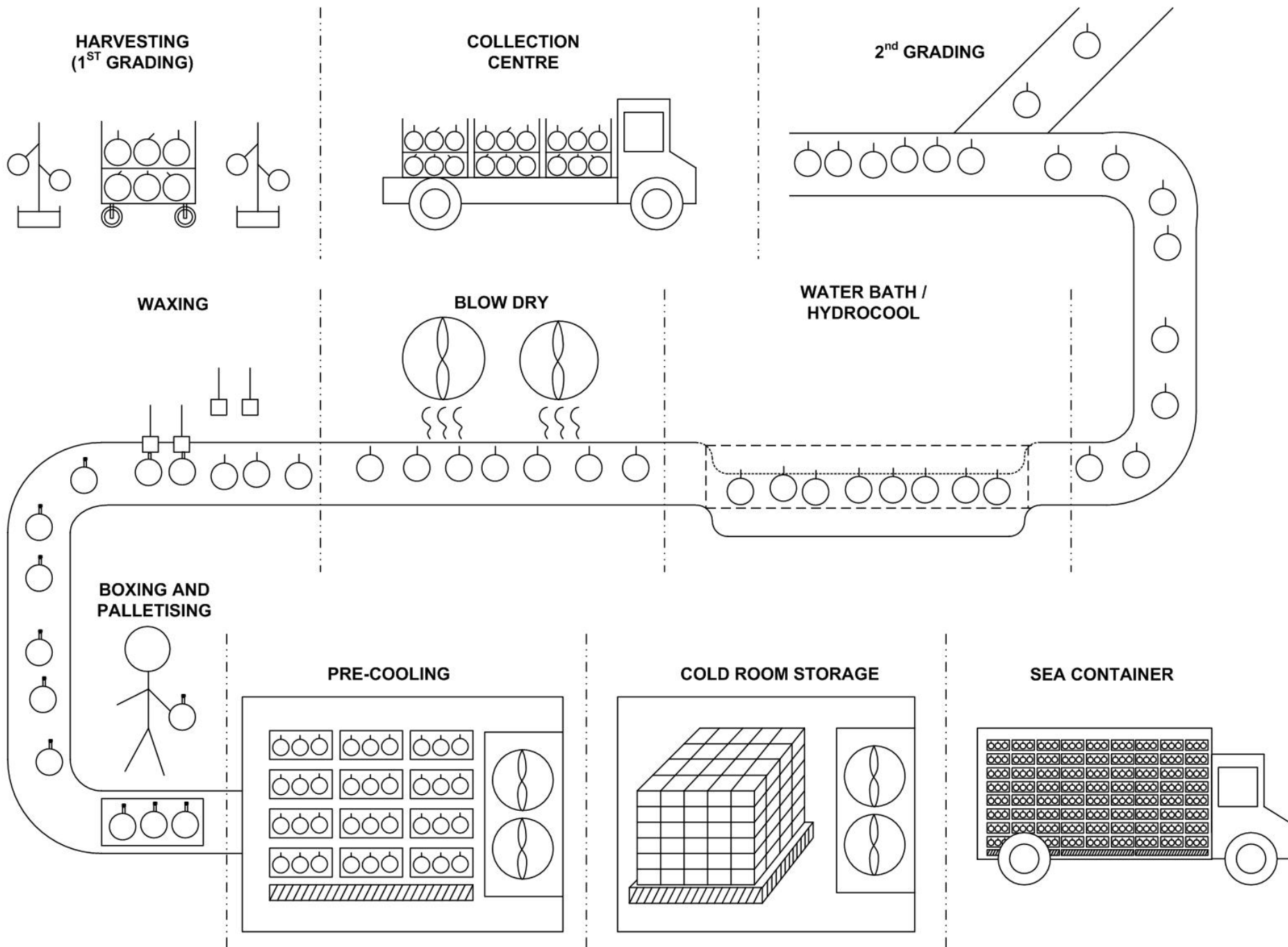
Creating the Network and the Connectivity



Value Addition Framework for Horticulture Chain



Typical Value Chain Process Critical Control Points of Fruit Handling



Considerations in developing Cold Chain Agenda for Pacific Asia

- *The high cost of Cold Chain implementation warrants the analysis of the value chain bases of the commercial project.*
- *The market for the said product remains the raison d'être for any decisions made*
- *It is possible to reach out to small farmers*
- *Farm and post harvest extension training for farmers is essential*
- *Need to develop inclusive connectivity with the farmers through the development of market linkages*

Thank you



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www.kfarm.com





Factors affecting shelf life / quality of horticulture produce

Horticulture produce are living structures. They continue to perform life sustaining physiological and metabolic reactions even after they have been detached from the mother plant. The extent of shelf life of the fresh produce is depended on the food reserve status and moisture content accumulated within the tissues of the produce.

Pre-Harvest factors

- Crop variety and farm resources
- Environmental factors
- Agronomic and cultivation practices

Post-Harvest factors

- Physical handling
- Physiological factors - Dehydration, Respiration, Ripening
- Microbial factors affecting quality - Post harvest disease
- Transportation system

Post harvest – cold chain handling

Post harvest handling techniques will not improve the quality of the produce upon removal from the plant. At best it slows down the rate of deterioration of the produce. The shelf life is the extend by which the produce could still have a commercial value in the retail. Low temperature storage is able to extend a longer shelf life of fresh produce.

Efficiency of cold chain storage and transit

- Keep cold chain intact
- Each produce has an optimal cold storage temperature
- Chilling injury with low temperature
- Pre-cool produce before long storage or loading onto transport
- Ensure carton and pallet air circulation and ventilation