

## Tackle global post-harvest losses

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## More global sourcing by western markets

- Big volumes: year-round; high quality; safe food!
- Elongated **storage & transport time: shelf life guarantees!**

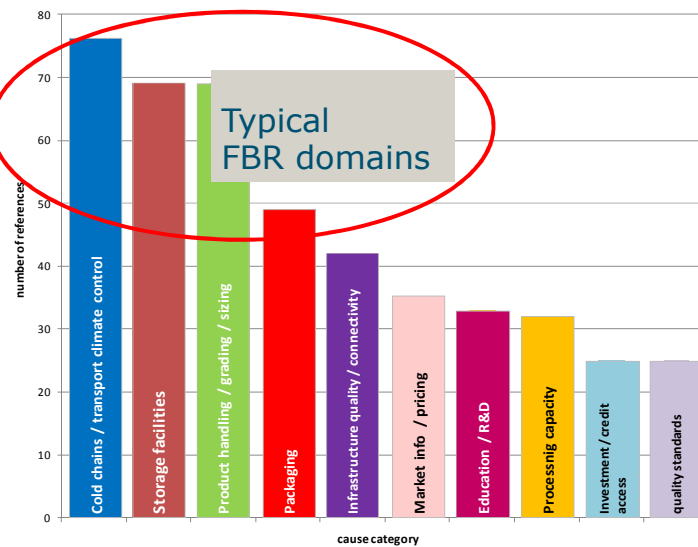


- **Minimise post-harvest losses: food security & social issue**
- **Prevention of disorders: rot, decay, injuries**
  - None chemical disinfection
- **Close the cold chain**
- **Do not ship too (un)ripe**



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## Top-10 reported causes PHL in F&V Supply Chains



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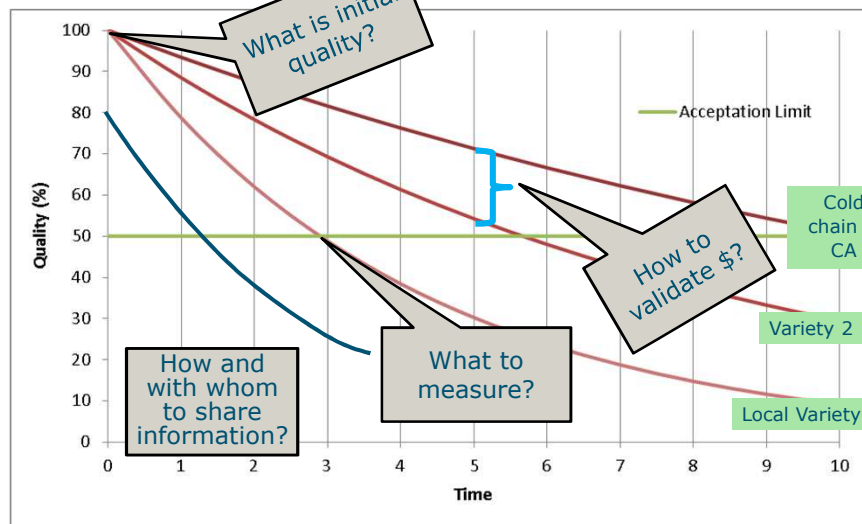
## FBR's Post-harvest fresh chain solutions

- **Storage** facilities improved: CA; ULO; DCS, hum., ozone
- **Transport** protocols: for commodity & modality (ctr.)
- **Pre-cooling** systems & **protective package** design
- **Quality** control systems, analysing methods, **bio-markers**
- **Cold chain** closed: monitoring systems (RFID tags)
- **Ripening** control for ready-to-eat, tasty products



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## FBR chain approach: below green line = PHL

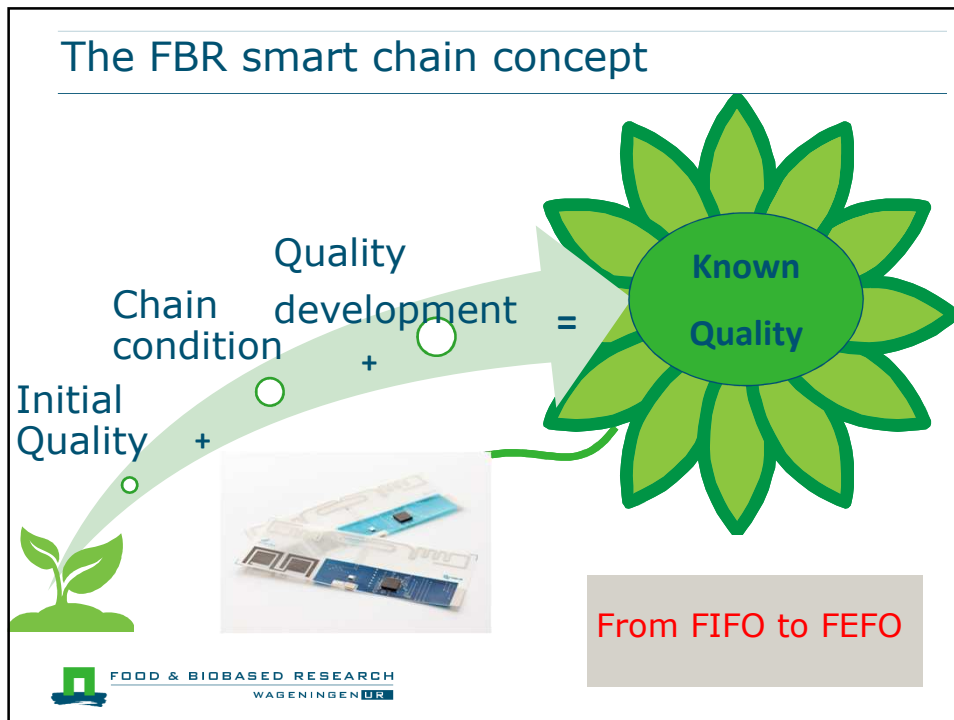


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## Variety may have huge impact on losses



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## Global sourcing challenges PHL

- New production area's: commodities i.e. big volumes
  - Melons, Table grapes, Avocado, Mango, Green Beans, Cut Flowers, soft fruits, Kiwi, Apples, Asparagus, Peaches etc.
  - Africa (SAF, Kenia), SAM (Peru, Chile, Brasil, Colombia), CAM (Costa Rica, Mexico), India, others.
- New exotic products; special varieties
  - Mangosteen, Lychee, Rambutan
  - None Cavendish bananas
  - Alphonso and Kesar Mango
- Limited shelf life: air freight

The image shows several mangoes on a white surface. There are two whole mangoes, one green and one yellow, and two sliced pieces of mango, one yellow and one orange.

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## Poorly developed PH knowledge

- Strengthen the PH-knowledge base in production regions to:
  - do effective PH research with fresh harvested products
  - realise supply chains with cash crops for NL-trade
  - lower PHL by effective interventions: pilots/monitoring
  - connect more (medium) farmers to the world markets
  - contribute to "Food Security" by avoiding PH-losses
- Current agronomic R&D focus
  - breeding, production, pests, water, greenhouses.
- Not in place: PH R&D capacity
  - not sexy; poorly funded; no academia available i.e. local institutes/uni's do not fulfill PH business demands

## Vine tomatoes NL.: other products need local efforts for same sort of info

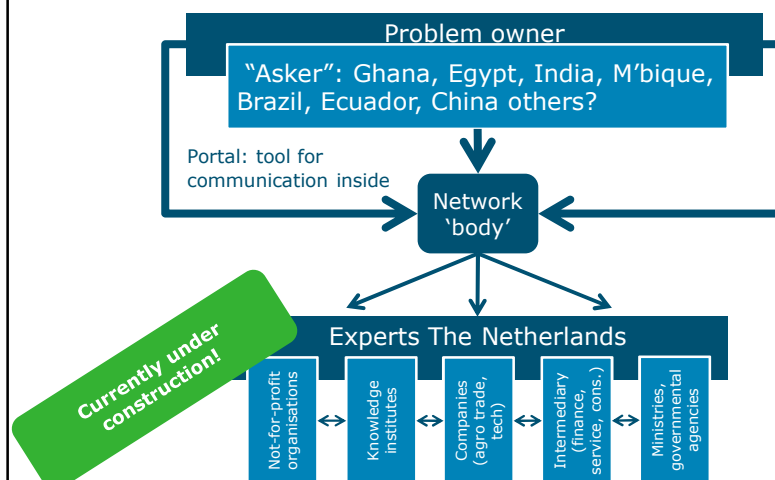
Distribution [days]	Temperature			
	8°C	10°C	12°C	18°C
9	++	++	+	---
11	++	+	+	---
14	+	+	--- / +	---
17	+	--- / +	---	---
19	--- / +	--- / +	---	---



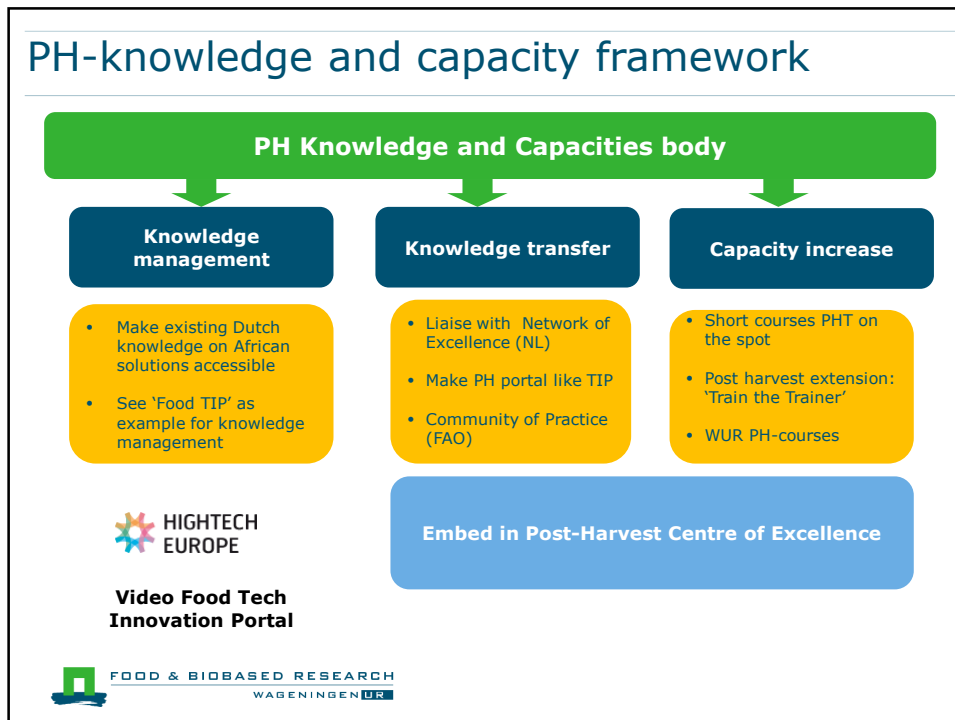
FBR consultants solve actual PH & chain issues:  
not sustainable enough on the long term!



## Network of Excellence (NoE): *What is it?*




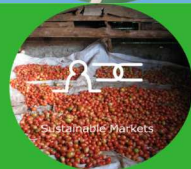
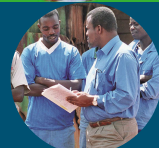







## Knowledge capacity increase

With local knowledge institutions building on existing courses

<b>Technical courses for:</b> <ul style="list-style-type: none"> <li>Horticulture industry</li> <li>Food processors</li> </ul>	<p><b>Course</b></p> <p><b>Postharvest Technology</b></p> <p>An in-depth view on postharvest issues for fruit, vegetables, cut flowers and ornamental plants</p> <p style="text-align: center;"></p> 
<b>General course for:</b> <ul style="list-style-type: none"> <li>Policy makers</li> <li>Staff involved in supply chains</li> </ul>	<p><b>International course</b></p> <p><b>Lost harvest and wasted food</b></p> <p style="text-align: center;"></p> 
<b>Tailor made interventions:</b> train the trainer	



## Next step: PH Centre of Excellence (CoE)

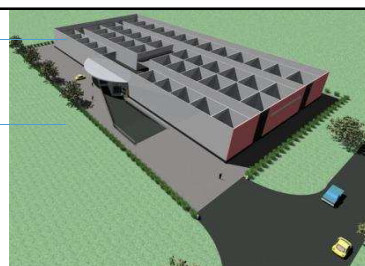
- Locate in clustered regional production
  - Mix of local, urban and export market issues
- Start up commodity based **PHL!!**-CoE's to build up local knowledge capacity to make it sustainable
- **Success factors for this:**
  - Golden triangle: agribuss.-govern.-institutes
  - 3 pillars: Training; R&D; extension services
  - Programmes as an umbrella for pilot projects
  - Share with competitors: study groups



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## CoE design

- Feasibility study
  - Stakeholders - investors
  - Location - allocation
  - Select: technologies, facilities, equipment needed
- Functional design:
  - Exterior (architect) & interior (FBR Wageningen UR)
- Select the technology supplier
- Realise the CoE
- Initial FBR coaching
- FBR certification (WUR inside)



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## Support of FBR -> PH - CoE

- New PH CoE = long lead time before start
  - Feasibility – planning - fund raising – building – organising = endurance
- Narrowing the time gap:
  - Use for the time being a **mobile/floating lab (MFL)** from FBR
  - Industry and regions (makers, users, gov.): very interested
- Exchange of GP & experimental design
  - **WUR certification!!!**

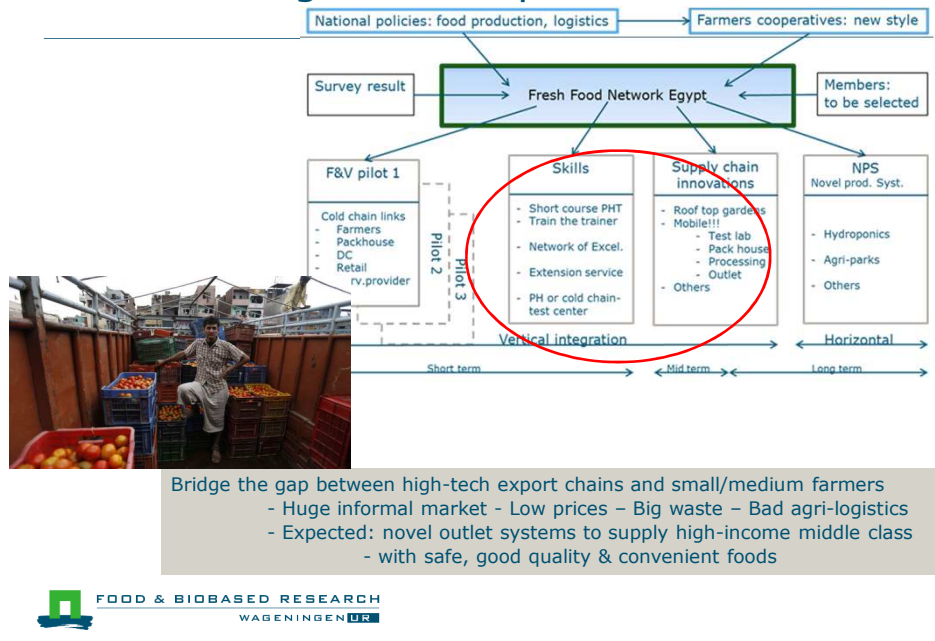


## Options for collaboration

- **FBR advice for a tailor made CoE:**
- **Hardware:** labs, analysers, scaled storage facilities
- **Software:** methods for an effective research approach
  - Procedures, protocols
- **Orgware:** make the right teams
  - Expertise groups to safeguard scientific level
  - Effective project management: skills/tools
  - Project management tools: Kameleon, KPI
  - Connect to agri-business: input & pilots
- **Well defined research projects**
  - **Aims, goals, methods, effects, capacities, finances**



## Case Cairo: good example



## Lessons learned

- Knowledge system: essential for “food security”
  - Post-harvest is important part of the whole food chain
  - PH R&D needs to be established/revitalized in new regions
- PH-expertise demands from industry/regions/chains
  - Must fit in a supply (value) chain approach: holistic
  - Supply Chain R&D = multidisciplinary
    - Techn.-Physiol.-SCM-Microbiol.-Econom-ICT.
- Value chain: Include Food processing and Biorefinery (side streams valorisation)

FBR supporting NL agri-business in global sourcing: win-win

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All this for the benefit of the consumer

- Year-round supply
- Safe food
- Excellent quality
- Tasty
- High nutritional value
- **Not wasted**
- Available
- Sustainable

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