Building sustainable agri-food supply chains

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POSTHARVEST NETWORK.COM

FRESH PRODUCE INDIA

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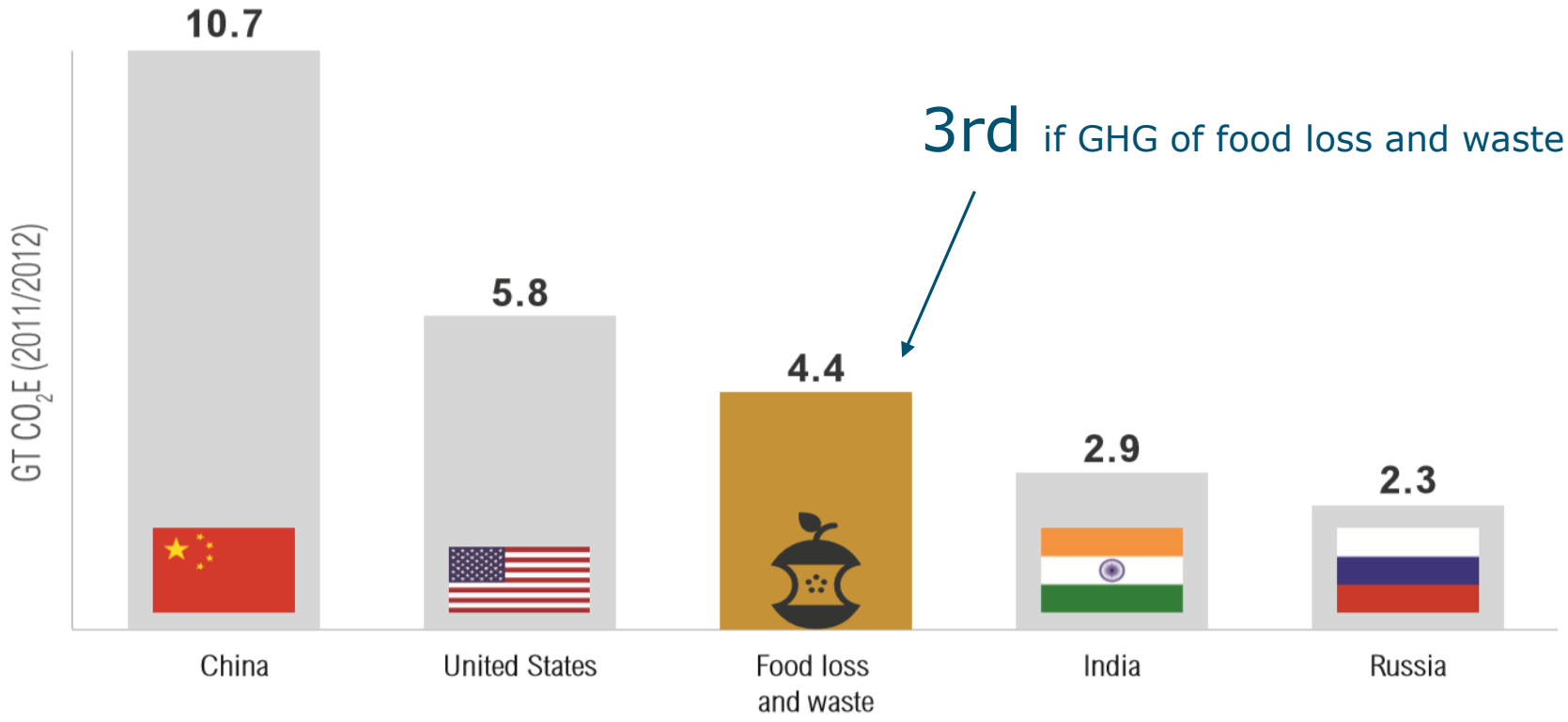
Global greenhouse gas emission per country



Note: Figures reflect all six anthropogenic GHG emissions, including those from land-use change and forestry (LULUCF). Country data are for 2012 while the food loss and waste data is for 2011 (the most recent data available). To avoid double counting, the food loss and waste emissions figure should not be added to the country figures.
Source: CAIT 2015; FAO 2015.

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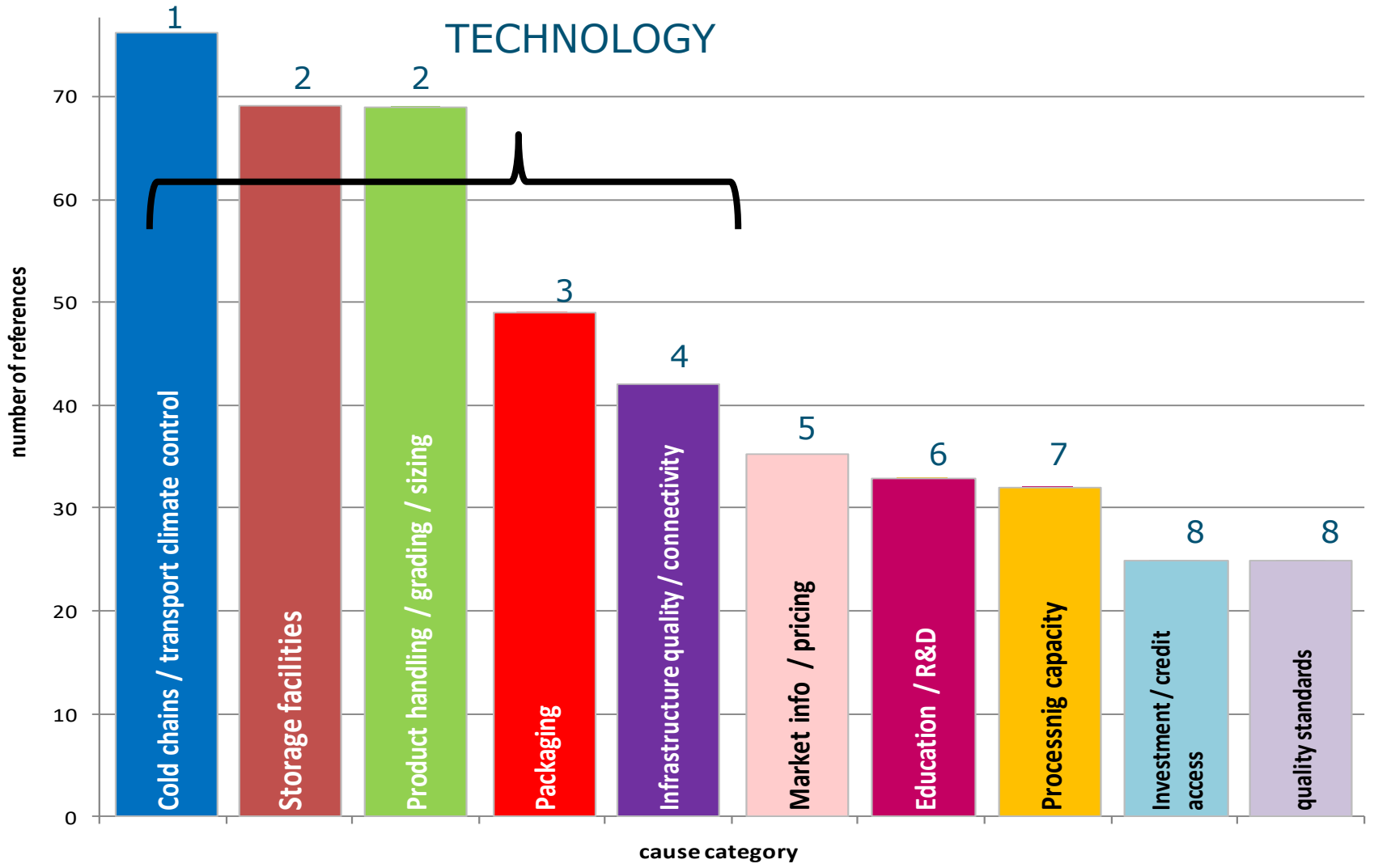
The greenhouse gas emissions associated with this food loss and waste come from a variety of sources, including (Searchinger et al. 2019)


The Food Waste Iceberg
what we see
Bill at producer price:
$750 000 000 000
Bill at retail price:
$1000 000 000 000
Eroded Land
GHG Emissions
Cleared Forests
Increase in Food Prices
Increased Water Scarcity
Bill from nature:
$700 000 000 000
what we don't see
Loss of Wetlands
Loss of Biodiversity
Climate Change Damages
Food and Agriculture Organization of the United Nations

Top-10 causes postharvest losses



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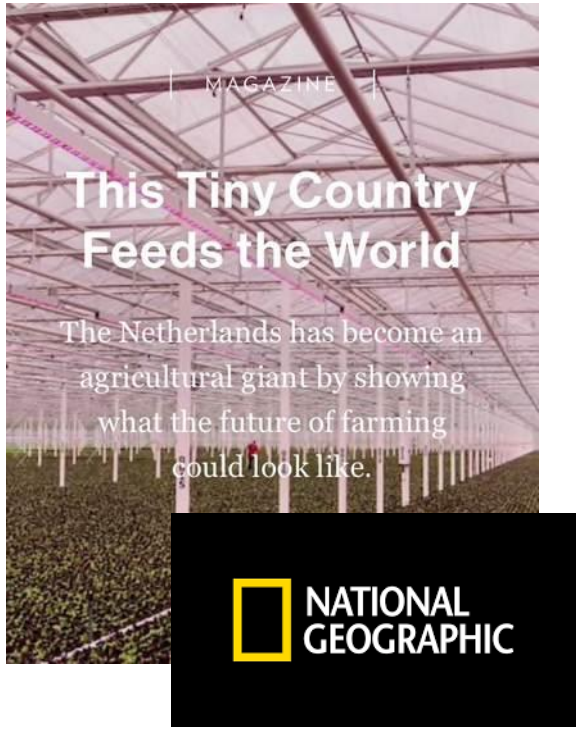

National Geographic article

- Global #1 in AgroFood

- 45% of graduate students from abroad, representing > 100 nations.

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Wageningen University

Employees: 2,700
students:> 12,000

Wageningen Research

Employees: 2,600

- Education: BSc, MSc, PhD
- Fundamental and Strategic research
- Scientific Publications: >4.000 p.a.

- Contract Research Organisation
- Applied and Pre-competitive research
- Patents & Licences

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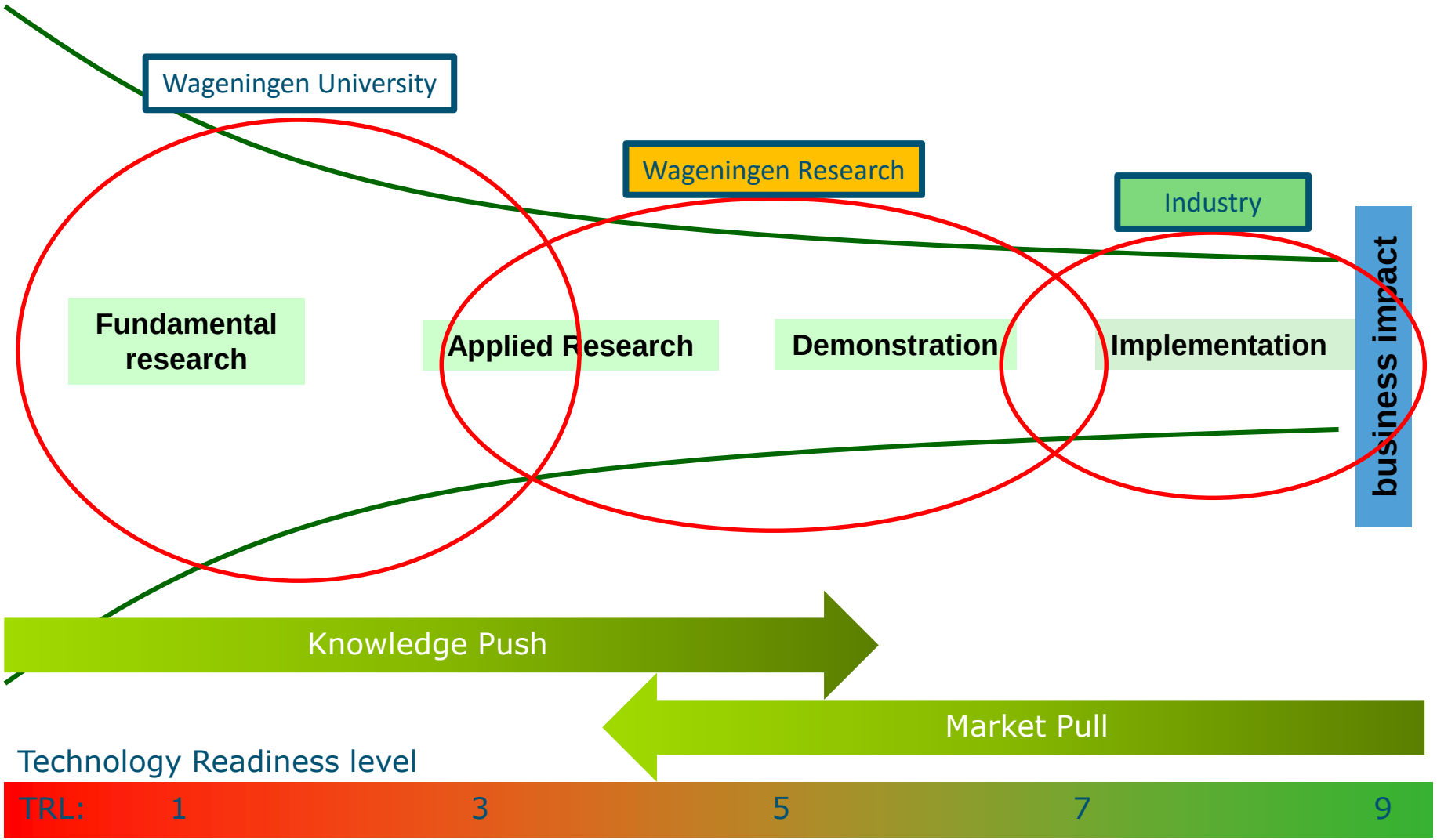
Wageningen innovation funnel



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3 principles for sustainable fresh supply chains

1. Demand driven

2. Quality driven

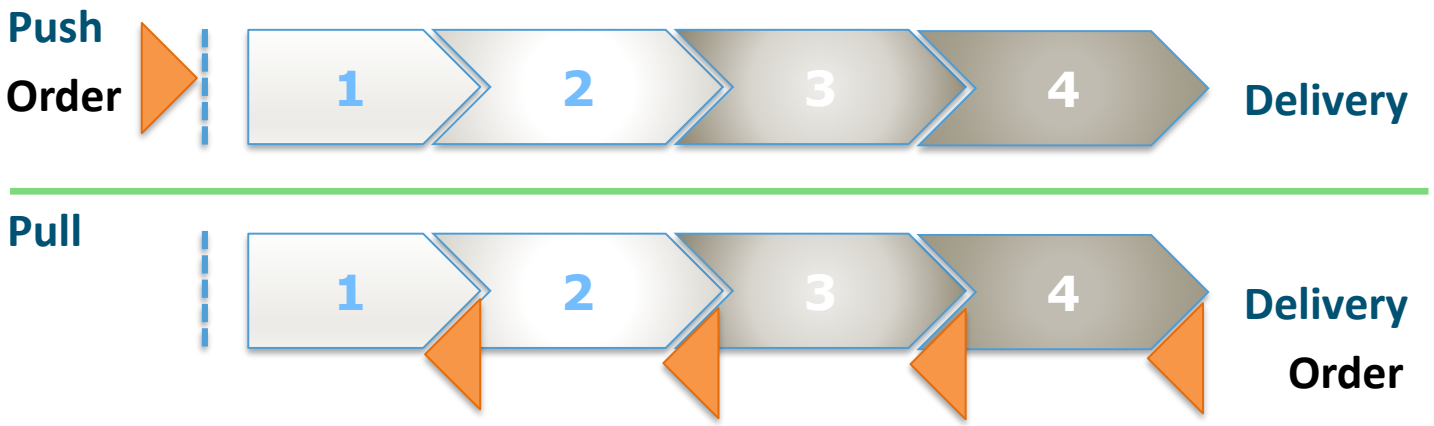
3. Holistic approach

Principle 1: Demand driven

Driven by production or demand?

Source: https://oxfordculturalcollective.com/photography/jeremy-lee-on-kanshat-mango-market-by-mohammed-rahman/

Principle 1: Demand driven



Product oriented

- Focus is on product
- Strive towards production maximization
- Planning is operational
- Information exchange is limited
- End-market is unknown

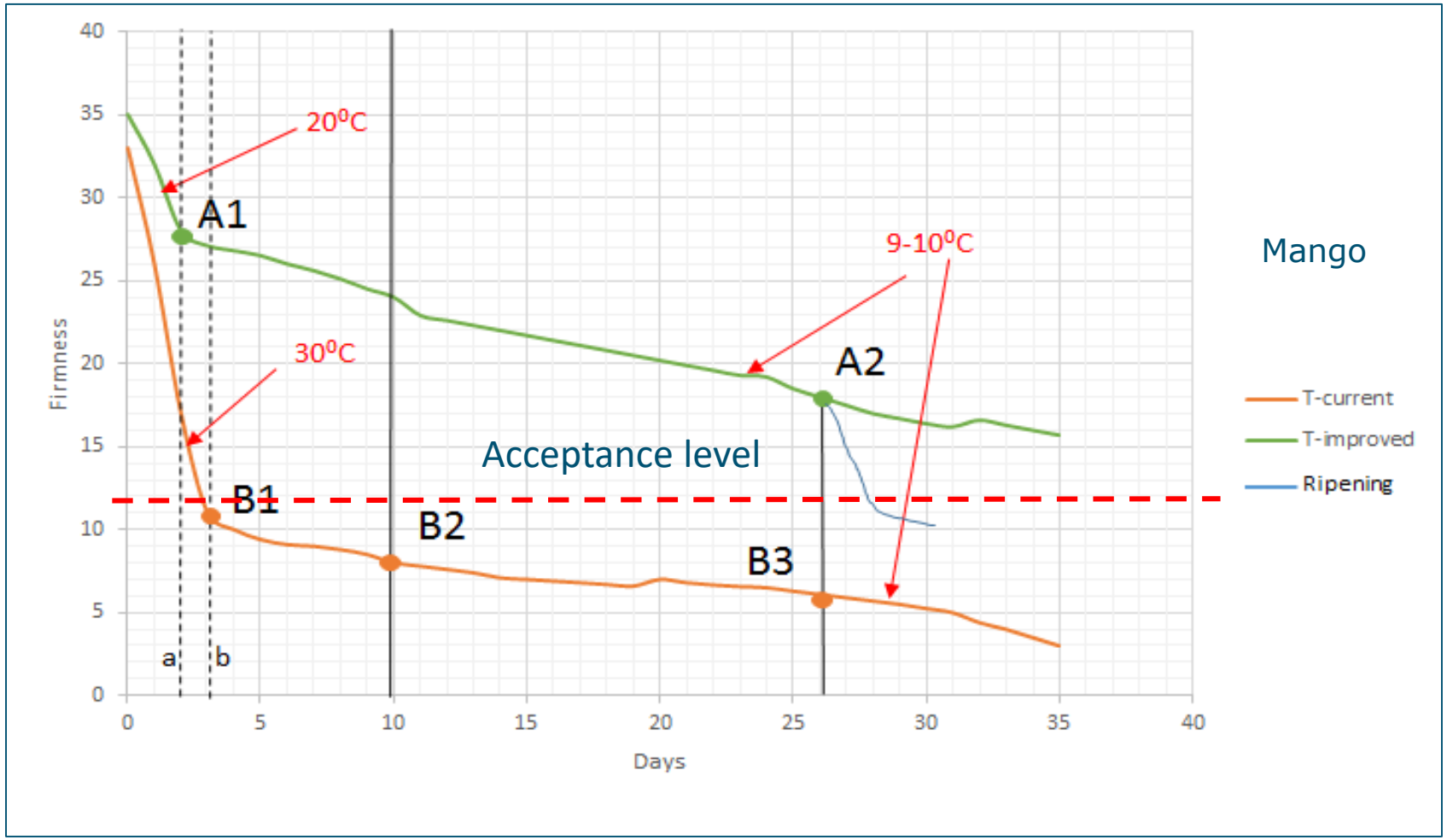
vs.

Market oriented

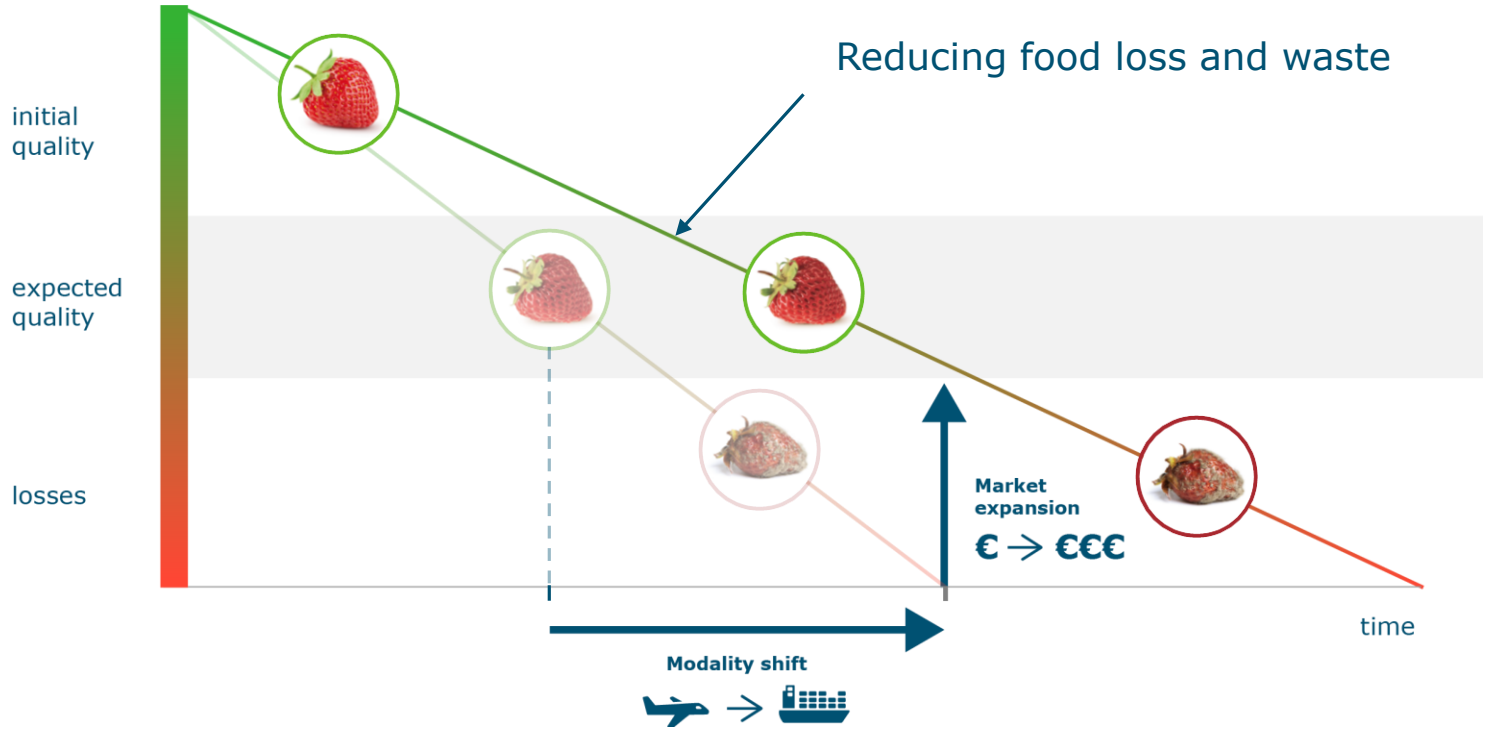
- Focus is on market requirements
- Strive is to maximize added value
- Planning is strategic
- Information is shared along the supply chain
- End-market is know

Principle 2: Quality driven

Mango cold chain from Asian to America



Principle 2: Quality Driven



Implementing quality driven supply chains results in reduction of food loss and waste. In addition provides opportunities for modality shifts (less costs) or market expansion (more profit).

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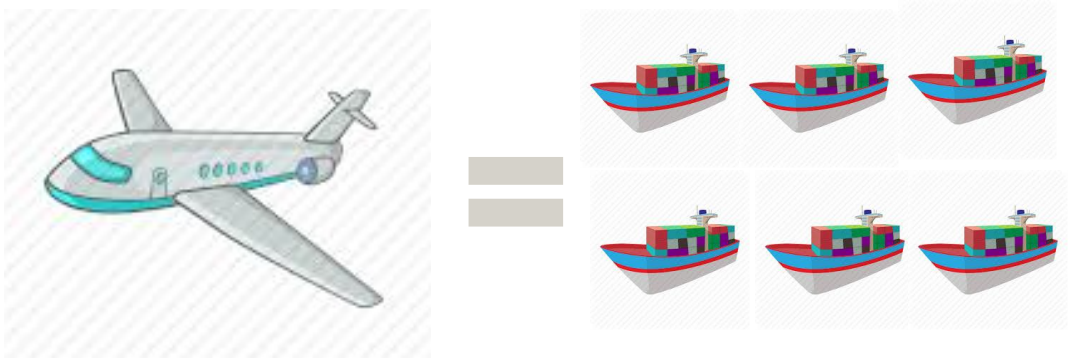
Principle 3: Holistic approach
Modality shift for perishable products



- Careful selection of the variety
- Proper cold chain management
- Improved packaging
- Post-harvest methods
- Use of CA-Reefers

Re-design Supply Chains

Principle 3: Holistic approach

Hardware	Software	Orgware
 Low vs High tech	 Train the trainer	 Power balance
 Full cold chain	 Product knowledge	 Organization of people
 Packaging	 Supply chain knowledge	 Trust

Typically, the optimization of fresh food supply systems requires a different approach for hard- soft- and orgware project goals. Project success rates increase significantly when all three are embedded by the stakeholders.

3 principles for sustainable fresh supply chains

1. Demand driven
2. Quality driven
3. Holistic approach

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Prioritisation of actions

Climate smart actions:

- Hitting at least two birds with one stone
- Focus on greatest impact

Hot spot analysis Food loss and waste

Food loss and waste

Greenhouse gas emission

Yield gaps

Protein content

Land use

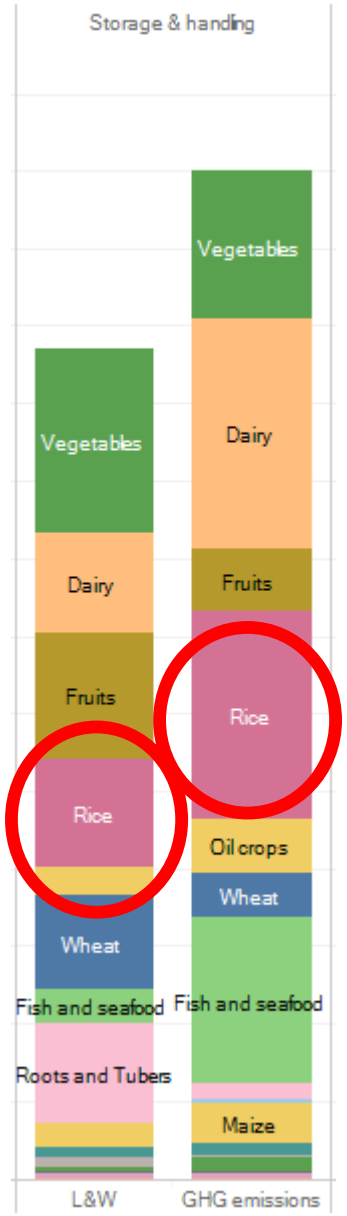
Food price

Water food print

Fertiliser use

Food security

Gender equality



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CGIAR RESEARCH PROGRAM ON Climate Change, Agriculture and Food Security CCAFS

India by item by stage

PRIORITY

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CGIAR RESEARCH PROGRAM ON Climate Change, Agriculture and Food Security

CCAFS

Thank You!

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TopSector Agri&Food Seed Money Projects

- The Netherlands invests actively in 9 key sectors (a.k.a Topsectors) where she holds globally leading position. Topsector Agri&Food is one of them

- Call for Seed Money Projects[1] (deadline 20th Dec 2019)

- Building new international networks (industry, knowledge institutions, public entities) is central to this call.

- Projects must fit within the Dutch Knowledge, Innovation and Agriculture Agenda for Agriculture, Water and Food.

[1] https://topsectoragrifood.nl/wp-content/uploads/2019/10/Call-SMP-2020-EN-final.pdf

TopSector Agri&Food Seed Money Projects

- Wageningen University and Research is a world renowned knowledge leader in these areas with several research activities in India[2]

- Aim: to connect with knowledge institutes in India working in the domain of AgroFood Robotics[3] and cooperate on knowledge sharing and impact

- We are looking for partners in India for this call and open for ideas on collaboration!

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[2] https://www.wur.nl/en/Research-Results/Research-programmes/International-programmes/Asia/India-1.htm

[3] https://www.wur.nl/en/Research-Results/Projects-and-programmes/Agro-Food-Robotics.htm