



HM • CLAUSE

**Innovation &
Technology in
Horticulture: A
global perspective**

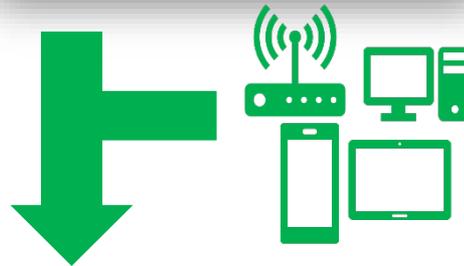
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**USAID Feed the Future
Innovation Lab for
Horticulture**

Rwanda May 9th, 2018



Agricultural practices have evolved to incorporate technology in an effort to boost productivity/output



Technologies that reshaped modern agriculture:

Tomato variety & harvester



Harvesting tomatoes and loading them into bulk bins on a tractor-drawn trailer.



Prof. G. C. Hanna of University of California, developer of tomato variety VF 145. This is first and still most popular machine-harvestable tomato variety.

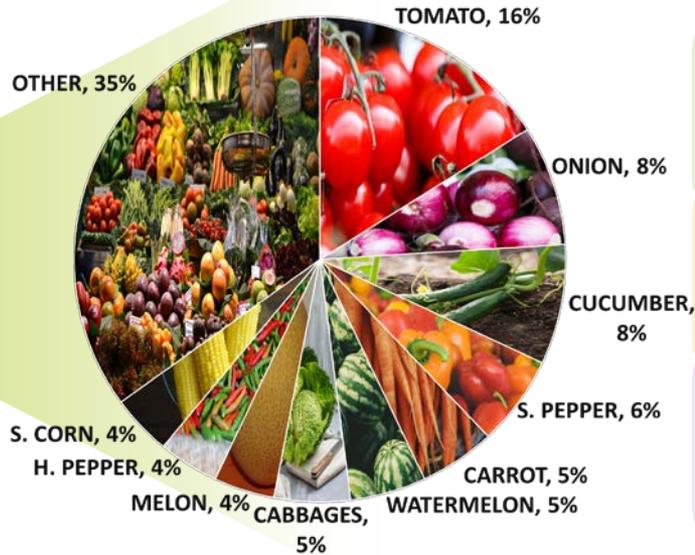
Photo Source: Web & Bruce, Redesigning the Tomato for Mechanized Production

Global seed market

Total seed market: **\$50 billion**

10%
vegetable
seeds;
~ \$5 billion

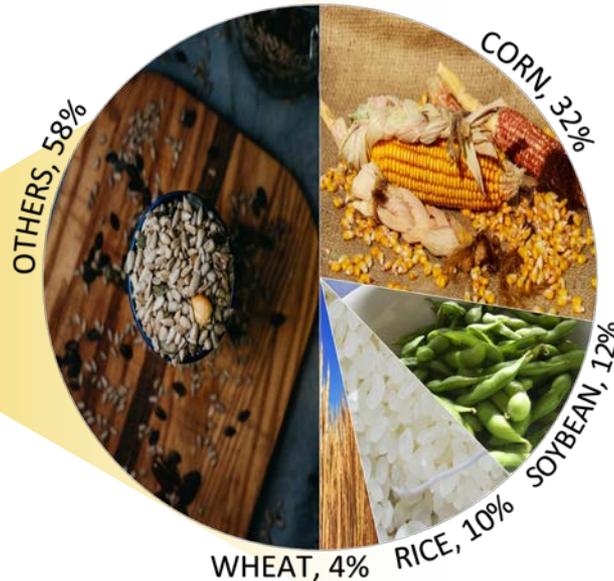
90%
field & other
seeds;
~ \$45 billion



U.S. vegetable seed exports:
\$500 million

U.S. vegetable & vegetable
product exports: **\$7 billion**

U.S. vegetable farm gate: **\$11 billion**



Source: ASTA, 2016

https://seedinginnovation.org/wp-content/uploads/2016/10/ASTA_VEGEflyer_Overview_0714_FINAL.pdf

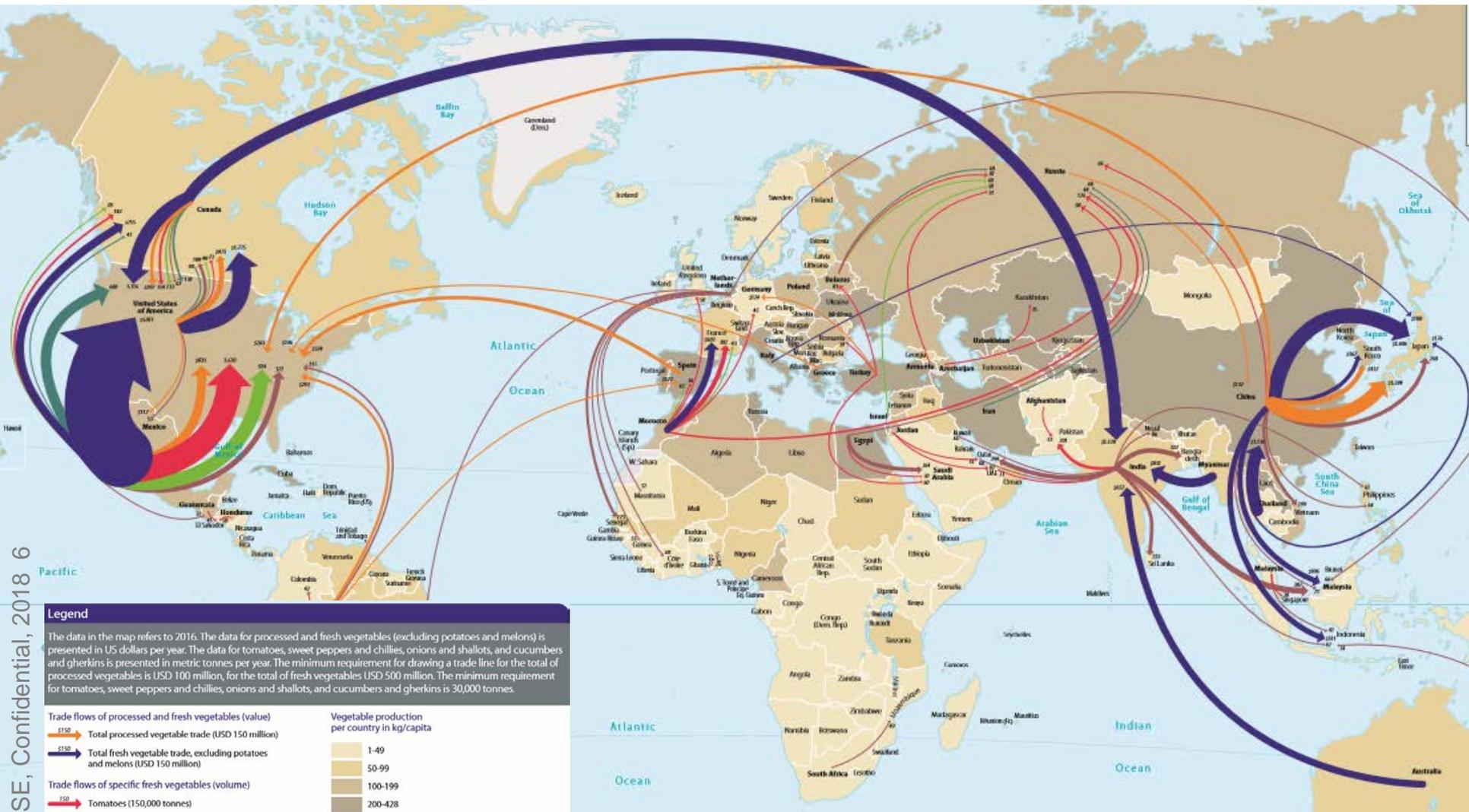


DETERMINATE tomato



INDETERMINATE tomato

AgTech Solutions for today's & tomorrow's Global Vegetable Business

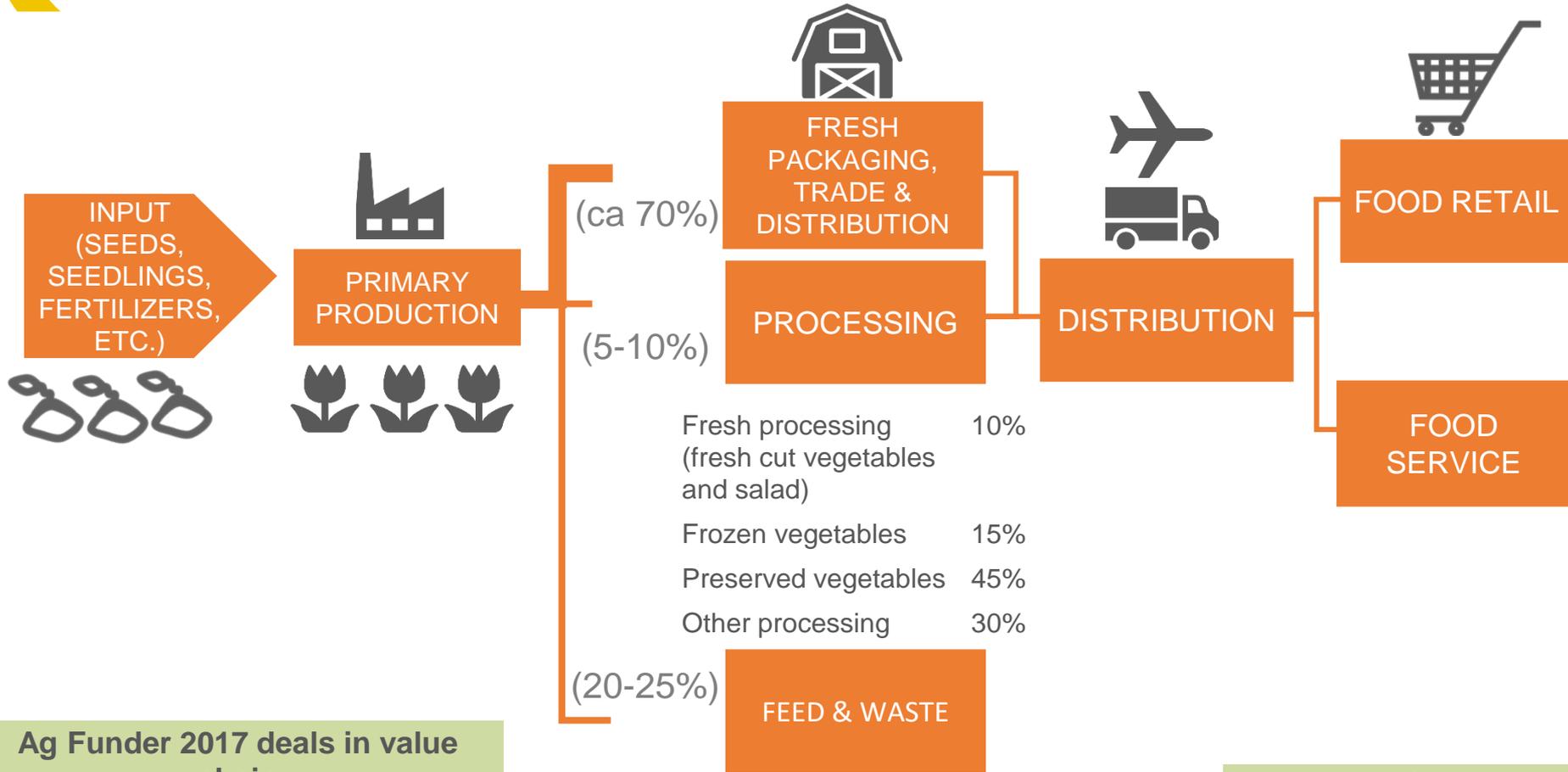


Legend

The data in the map refers to 2016. The data for processed and fresh vegetables (excluding potatoes and melons) is presented in US dollars per year. The data for tomatoes, sweet peppers and chillies, onions and shallots, and cucumbers and gherkins is presented in metric tonnes per year. The minimum requirement for drawing a trade line for the total of processed vegetables is USD 100 million, for the total of fresh vegetables USD 500 million. The minimum requirement for tomatoes, sweet peppers and chillies, onions and shallots, and cucumbers and gherkins is 30,000 tonnes.

- Trade flows of processed and fresh vegetables (value)
 - Orange arrow: Total processed vegetable trade (USD 150 million)
 - Dark blue arrow: Total fresh vegetable trade, excluding potatoes and melons (USD 150 million)
- Trade flows of specific fresh vegetables (volume)
 - Red arrow: Tomatoes (150,000 tonnes)
 - Green arrow: Sweet peppers and chillies (150,000 tonnes)
 - Brown arrow: Onions and shallots (150,000 tonnes)
 - Light green arrow: Cucumbers and gherkins (150,000 tonnes)
- Vegetable production per country in kg/capita
 - Lightest tan: 1-49
 - Light tan: 50-99
 - Medium tan: 100-199
 - Dark tan: 200-428
 - Grey: unknown
 - White: uninhabited
- State boundary (thin grey line)
- EU boundary (thick grey line)

AgTechnology throughout the vegetable production value chain



Ag Funder 2017 deals in value chain

ON FARM: \$1.13 billion

SUPPLY CHAIN: \$762 million

RETAIL: \$3 billion
CONSUMER: \$164 million

MULTI-VALUE CHAIN: \$543 million