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Waste Not, Warm Not: Poverty, Hunger and Climate Change in a Circular Food System

Karen Brooks

The Crawford Fund Annual Conference “Waste Not, Want Not: The Circular Economy to Food Security”

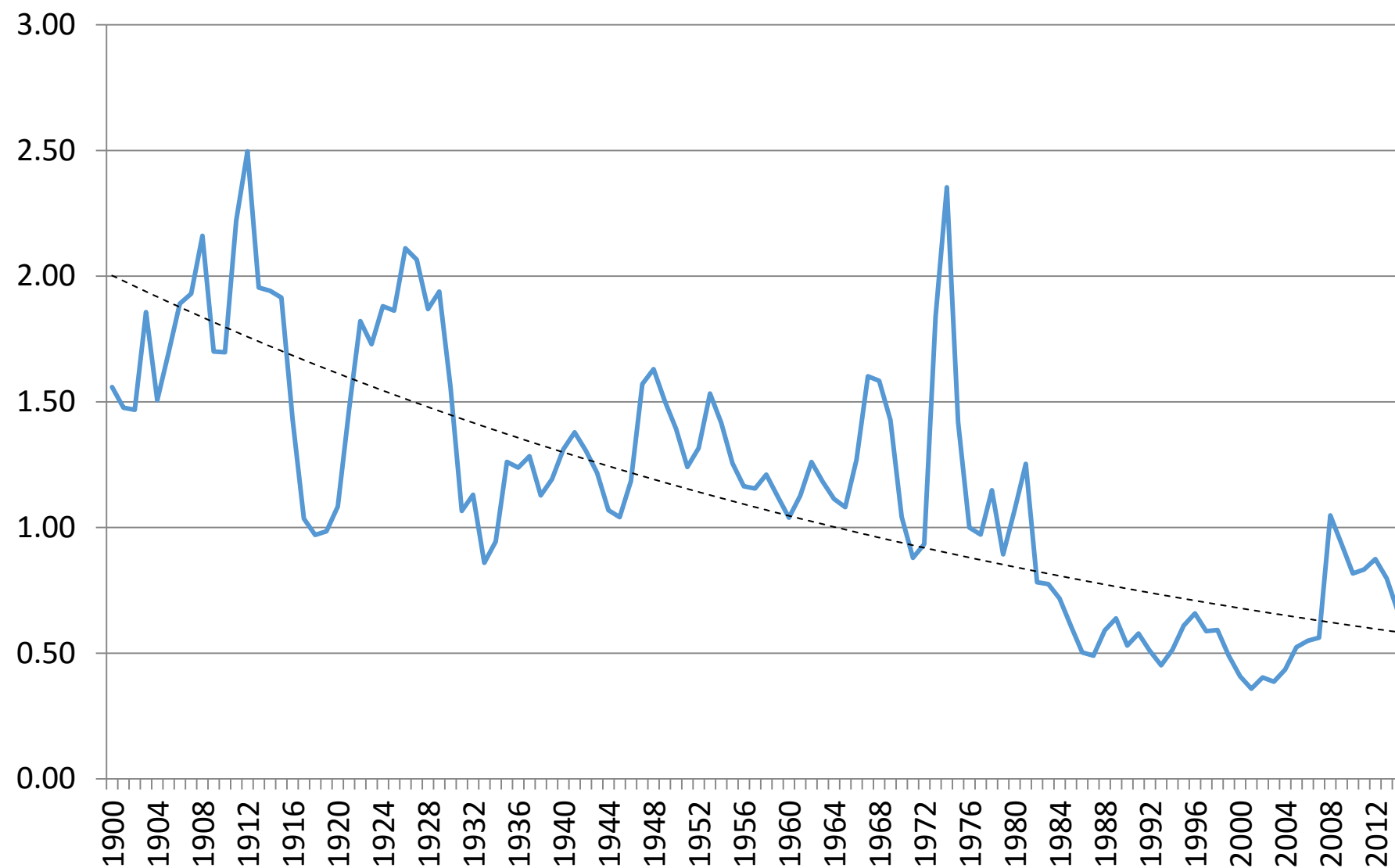
August 29, 2016





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Attention to food loss and waste tracks spikes in prices



Price of rice, Thai 5% broken, indexed to 100 in 1977-79

Need **steady attention** and **clarity** about what problem we are solving in order to make progress:

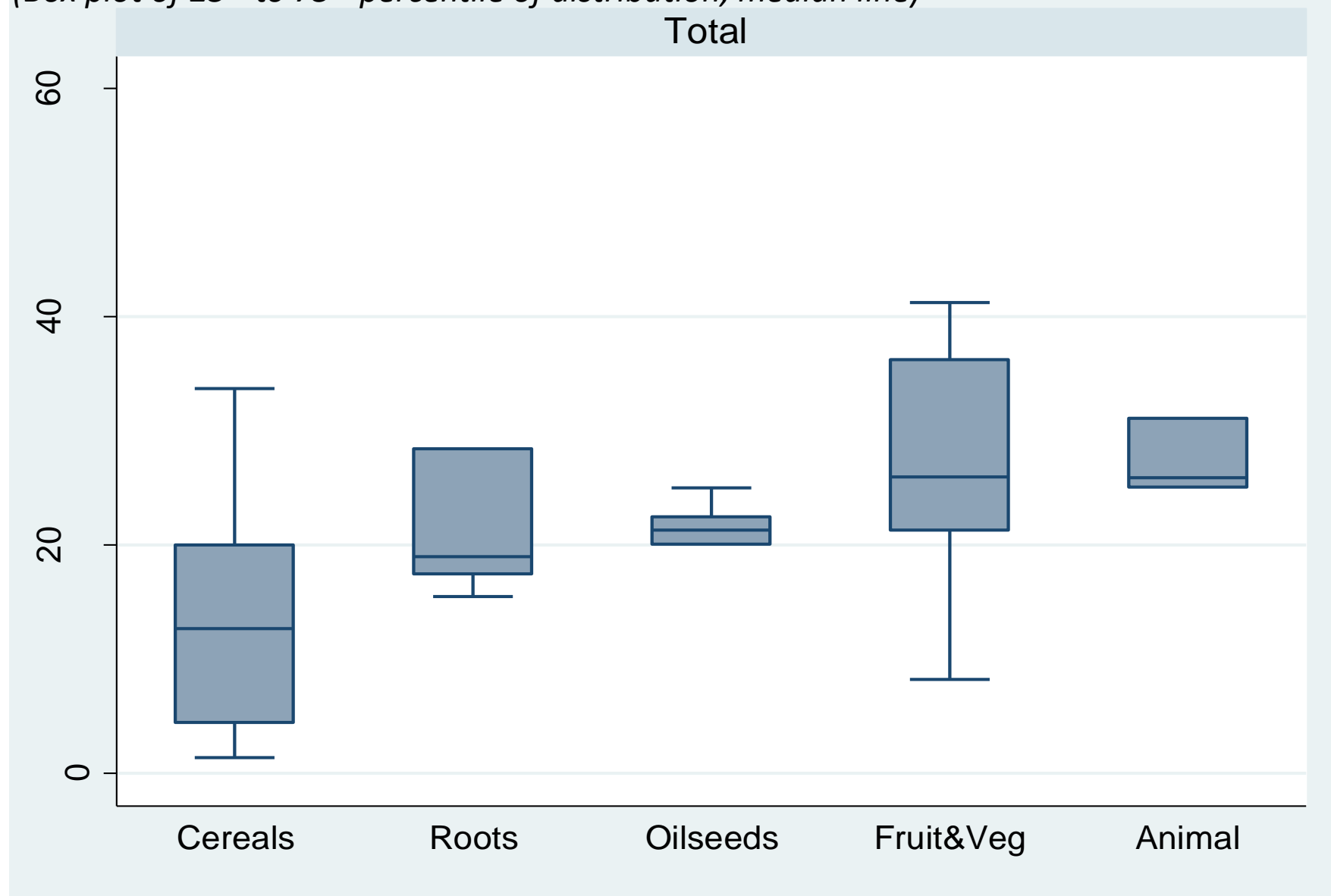
Hunger? Poverty? Environment? Climate change?

Diagnosis: How much?

Literature review shows wide variation

Percent of reported postharvest losses by commodity

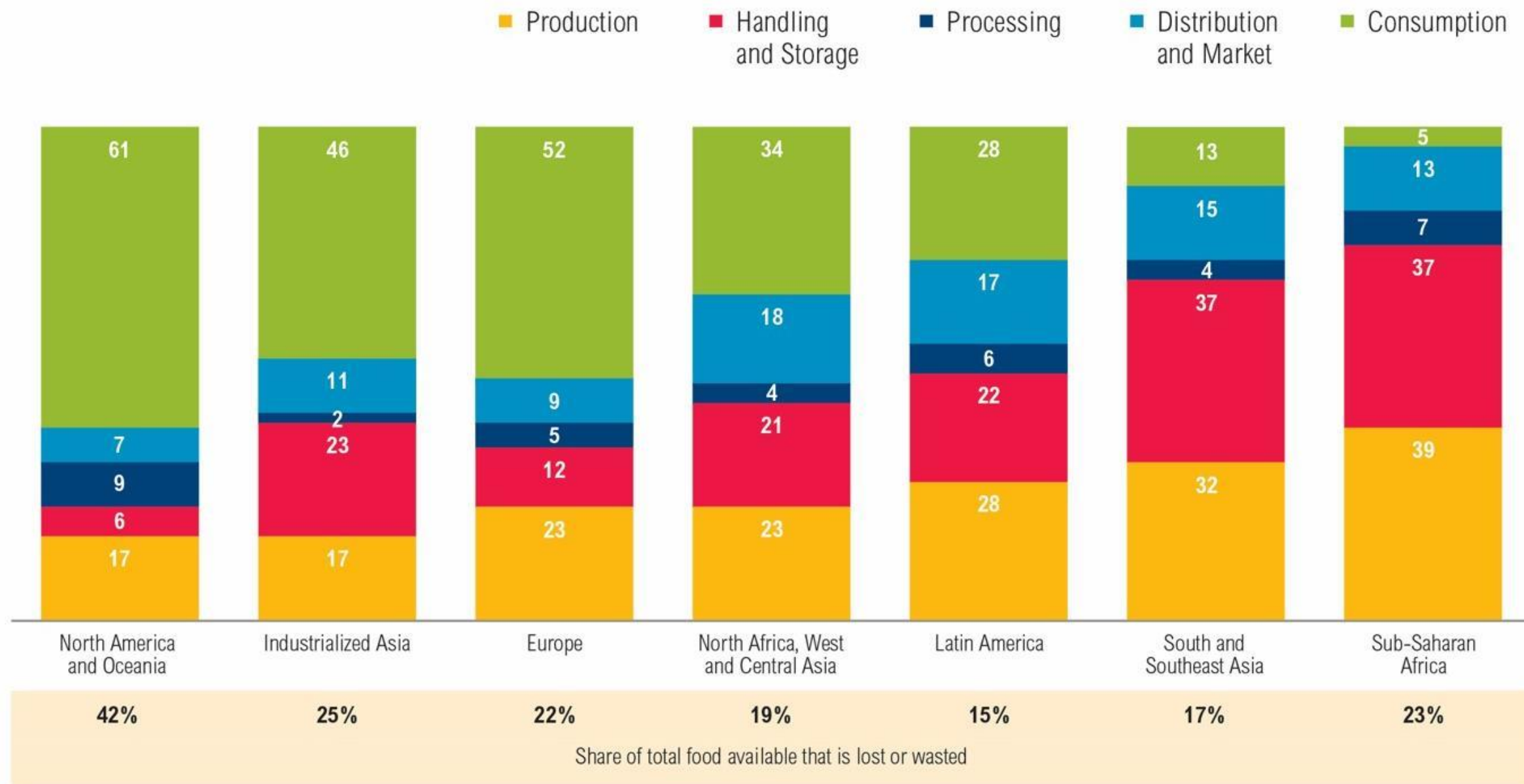
(Box plot of 25th to 75th percentile of distribution, median line)



Source: Rosegrant et al., 2015. Returns to Investment in Reducing Postharvest Food Losses and Increasing Agricultural Productivity Growth. Food security and nutrition assessment paper. Copenhagen Consensus Center.

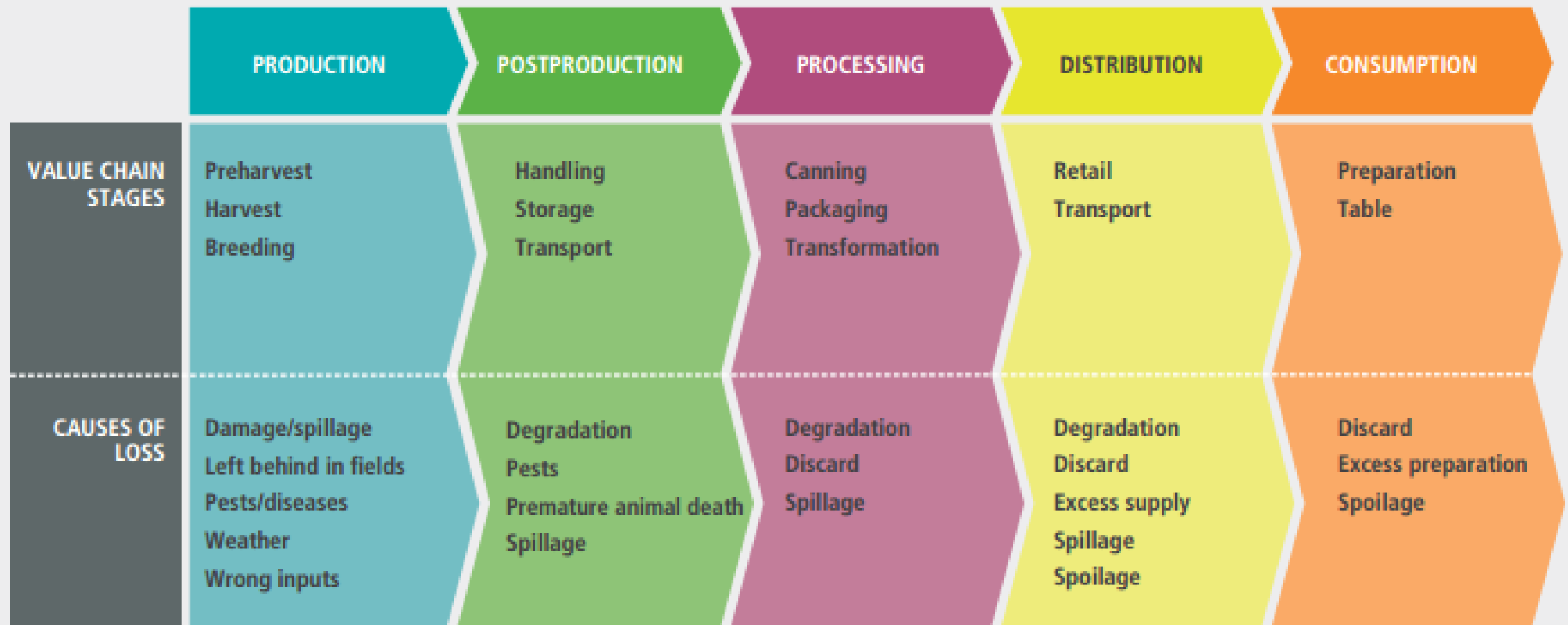
Diagnosis: Where?

Food loss and waste occurs more 'near the fork' in developed regions and more 'near the farm' in developing regions (Percent of kcal lost and wasted)



Note: Number may not sum to 100 due to rounding.

Diagnosis: Why?



Source: 2016 Global Food Policy Report. Washington, D.C.: International Food Policy Research Institute (IFPRI). P. 24.
<http://dx.doi.org/10.2499/9780896295827>

Remedies

Infrastructure

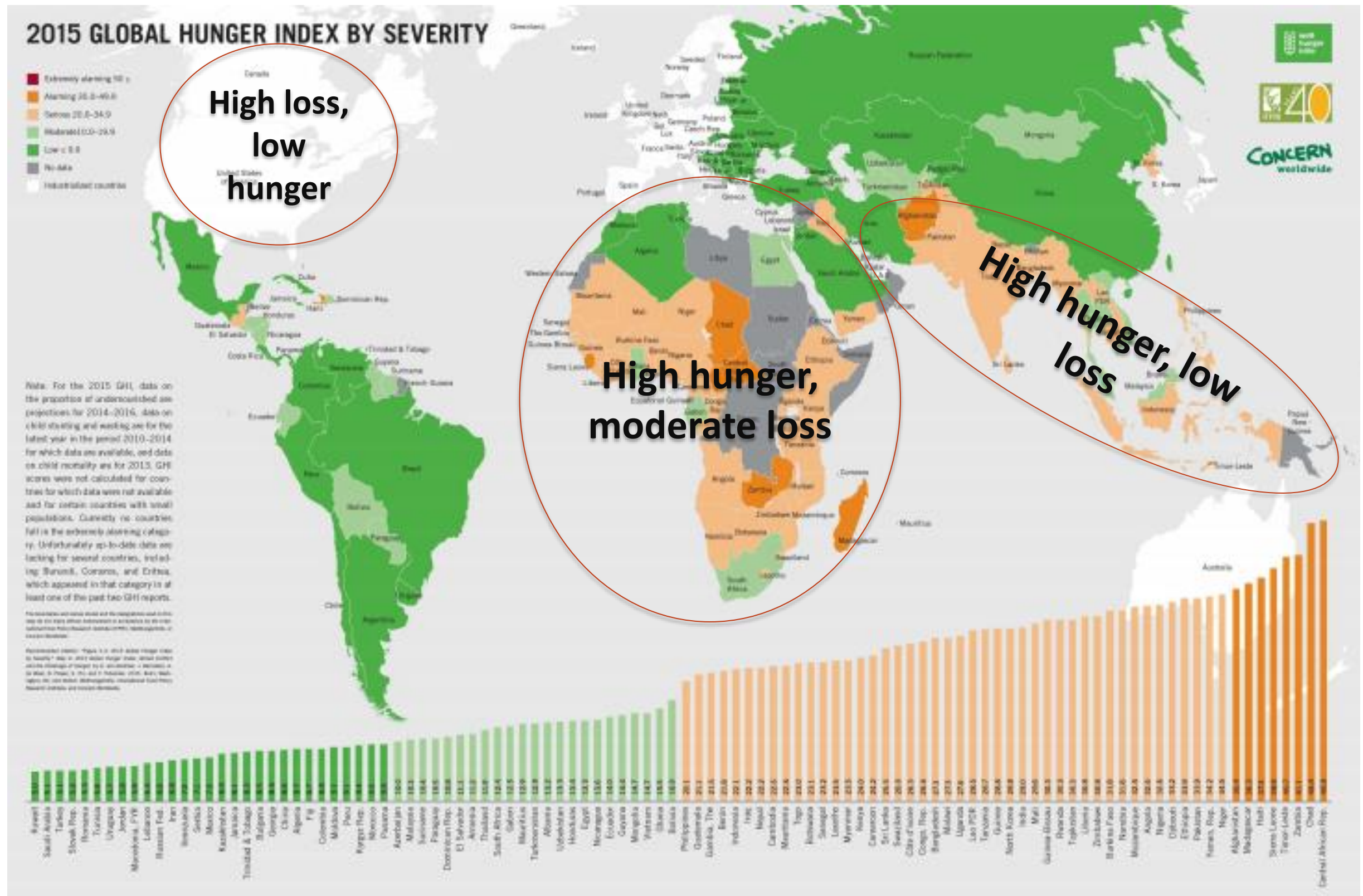
New technology

Policy

Regulation

Education

Are today's hungry people in areas where losses are high?





Consider reduction of loss and waste as equivalent to a productivity shock: a one time boost to agricultural output

Who gains and how much? (closed economy example)

Shock equivalent to 1% of GDP

Poverty falls by just under 1 percentage point (-.86). Individuals...

- ...gain as consumers

- ...lose as producers (prices fall more than output rises)

- ...gain as wage earners

Poverty reduction would reduce hunger, but distribution of gains and losses depends on relative importance at the household level of consumption, production, and wages.

Component	Agriculture
Agricultural profits	0.32
Other profits	-0.33
Cost of food consumption	-0.93
Cost of other consumption	0.37
Wage earnings	-0.29

Source: Maros Ivanic and Will Martin, 2014. Sectoral Productivity Growth and Poverty Reduction: National and Global Impacts. World Bank.

Can we feed the hungry in 2050 by reducing loss and waste?

Population at Risk of Hunger in 2050

Region	Million People				% Change from baseline		
	Baseline	Reduced losses, developing world (6% by 2025)	Reduced losses, global (10% by 2030)	Faster productivity growth, no change in losses (.4% crops, .2% livestock)	Reduced losses, developing world	Reduced losses, global	Faster productivity growth, no change in losses
East Asia and Pacific	126	118	116	115	-6.3	-7.5	-8.6
Europe and Central Asia	38	37	37	37	-2.9	-3.7	-4.1
LAC	48	45	44	44	-6.0	-7.7	-8.6
MENA	38	37	36	36	-3.9	-4.9	-5.8
South Asia	162	138	134	131	-15.3	-17.6	-19.2
SS Africa	137	116	112	108	-15.8	-18.6	-21.2
Developing	509	452	442	434	-11.2	-13.1	-14.7
Developed	59	56	55	55	-4.7	-6.1	-6.9
World	568	508	497	489	-10.5	-12.4	-13.9

Calculations from IFPRI IMPACT Model version 3. Source: Rosegrant et al., 2015. Returns to Investment in Reducing Postharvest Food Losses and Increasing Agricultural Productivity Growth. Food security and nutrition assessment paper. Copenhagen Consensus Center.



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Avoided loss can help feed the hungry...

...but will not do the full job and costs money.

Even with lower food prices, many poor people will be hungry.

Access matters!
Feeding programs, food stamps, and special distribution networks must improve access.



School feeding program in Kibera slums, Nairobi, Kenya GPE/
Deepa Srikantaiah, 2012. [Flickr](#)



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What about middle and high income countries?

Poverty: Income inequality

Access: Food deserts

Skills: Food preparation



This photo by **Amy Toensing** illustrates the *National Geographic Magazine* article by Tracie McMillan [The New Face of Hunger](#)

What role for reduced waste?

Prices: Modest

Food stamps: Major, but not enough

Special distribution: Food pantries, kitchens: important, innovations appearing



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Summary message on the “want not” agenda

Increased supply helps consumers, but does not necessarily reach the hungry

Producers often lose income as prices fall, whether from productivity growth or reduction of losses

Ownership matters: The owner of avoided losses (together with consumers) reaps benefits

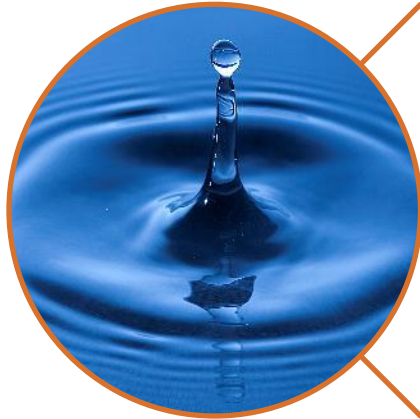
Investment in agricultural research and increased trade should complement reduction of loss

Safety nets, special stores or distribution centers, and feeding programs must channel help to the hungry; general market measures will not be sufficient



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The circular economy focuses attention on environmental aspects of waste and loss



Resources used in production
(environmental externalities, such as
water)



Environmental footprint of disposal



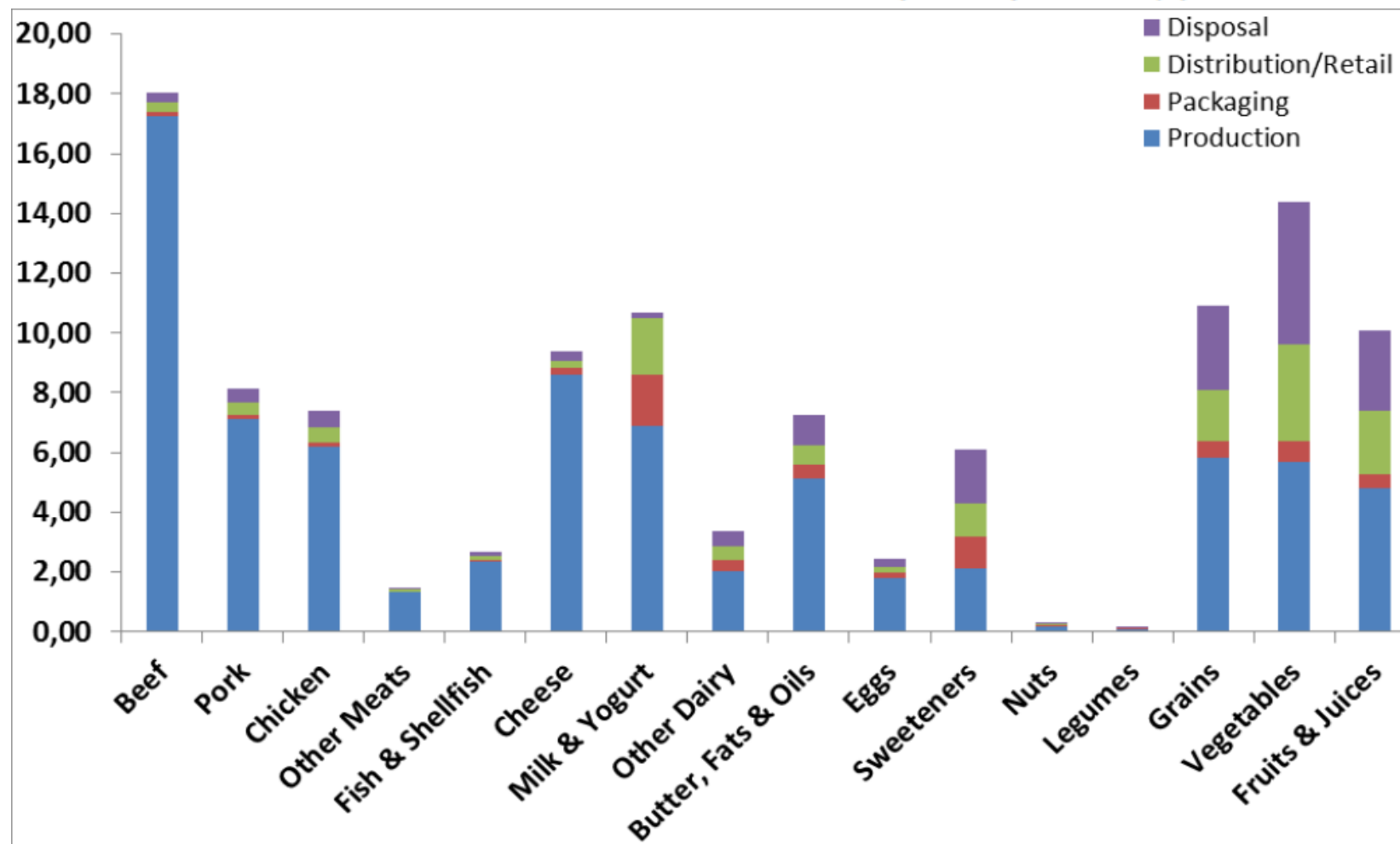
Greenhouse gas emissions from
production, marketing, disposal



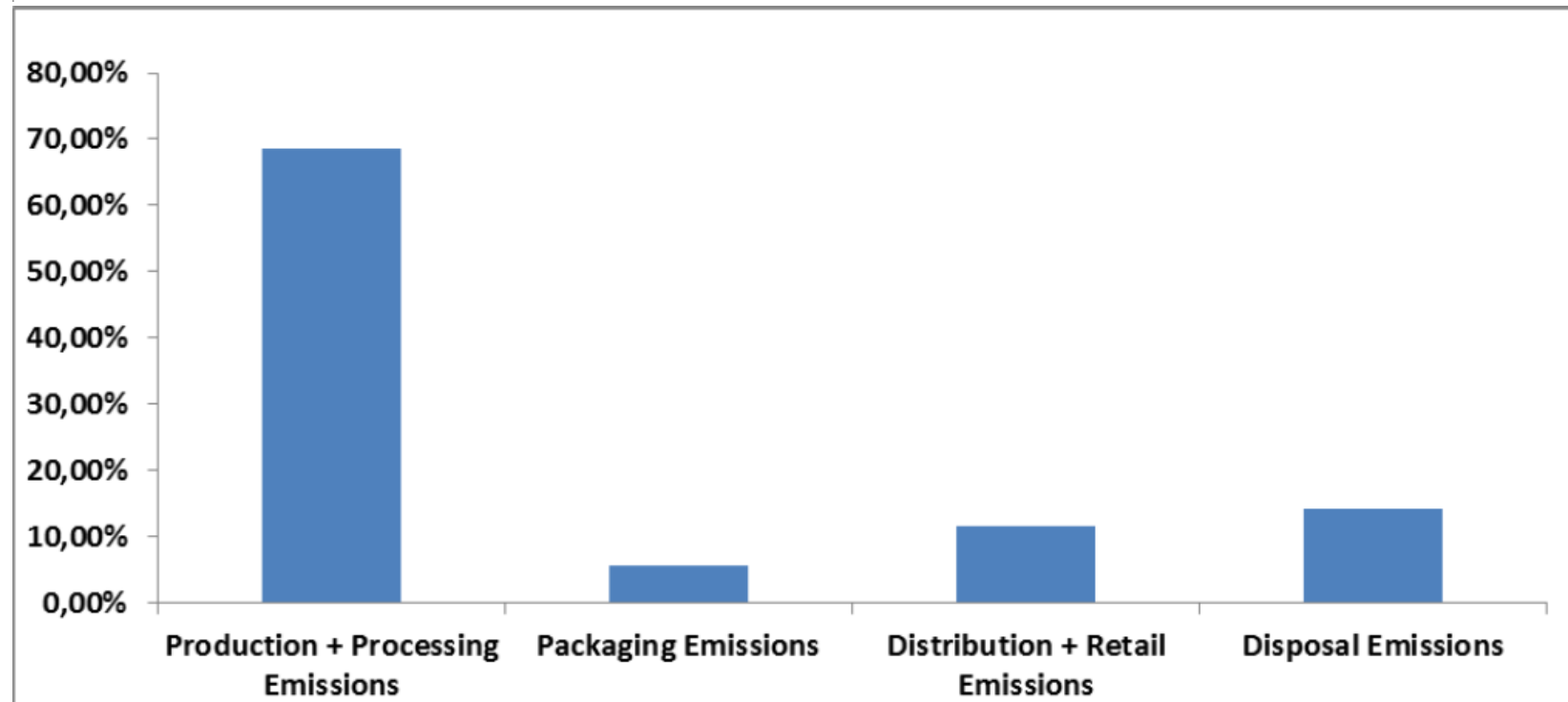
Greenhouse gas and climate change

Kumar Venkat / Int. J. Food System Dynamics 2 (4), 2011, 431-446

US national GHG
emission from
avoidable food
waste in 2009
(MMT
CO₂e/year)



Components of
US national GHG
emissions from
avoidable food
waste in 2009



These
emissions are
equivalent to
**2% of net US
GHG emissions
for 2009** based
on the national
emissions
inventory
published in
the US
Environment
Protection
Agency (EPA,
2011)



Combined attention to hunger and environment warrants sustained attention to loss and waste, not episodic preoccupation then neglect

The “want not” and “warm not” agendas complement each other

- The combination of food security and environmental management should underpin action

Action requires multiple interventions:

- Good measurement: how much, how, where
- Increased investment in multi-purpose infrastructure
- Increased investment in agricultural research, particularly climate smart technologies
- Targeted assistance to the poor and hungry
- Innovation in the retail and hospitality sectors
- Price incentives—taxes and subsidies—to reduce loss and waste and encourage adoption of climate smart agriculture
- Awareness and behavior change by producers and consumers



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Thank you!

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