

Farm to Plate

Big Data & Analytics Reducing Food Waste

in Value Chains

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Food problems?

- 9 + billion people by 2050: doubling or more of food production
- One in six Canadian children faces food insecurity

- **BUT**

- Less water
- Variable climate
- Limited land expansion & competing with urbanisation
- Energy constraints
- Fewer people in agriculture (farming)
- Changing consumer preference
- Socially equitable food production systems
- Profitable

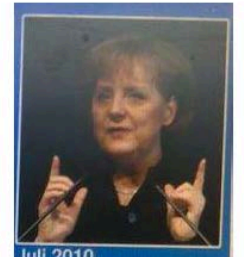
The problems are no longer nano problems



Oktober 2009



April 2010



Juli 2010



März 2011



Juni 2011



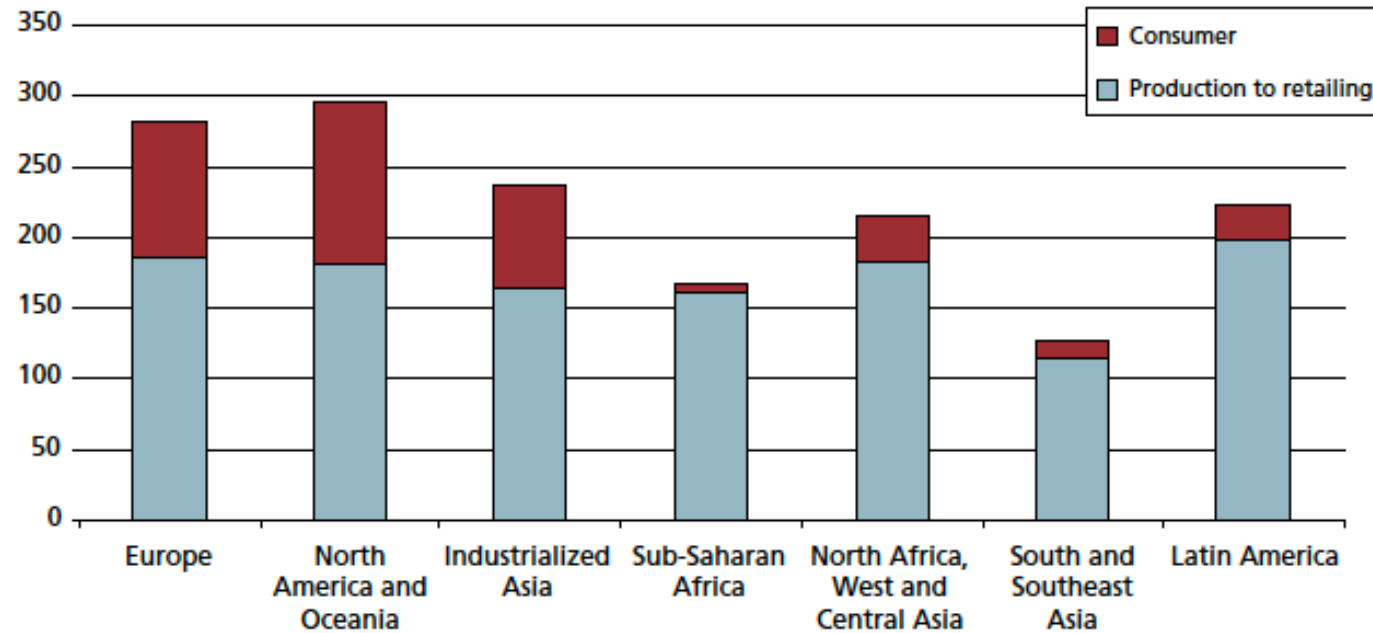
September 2011

Value Chain Management



- Collaboration to create efficiency in production **AND** supply
- Efficiency **can reduce waste**
- Big Data and Analytics can help

Global Food Waste

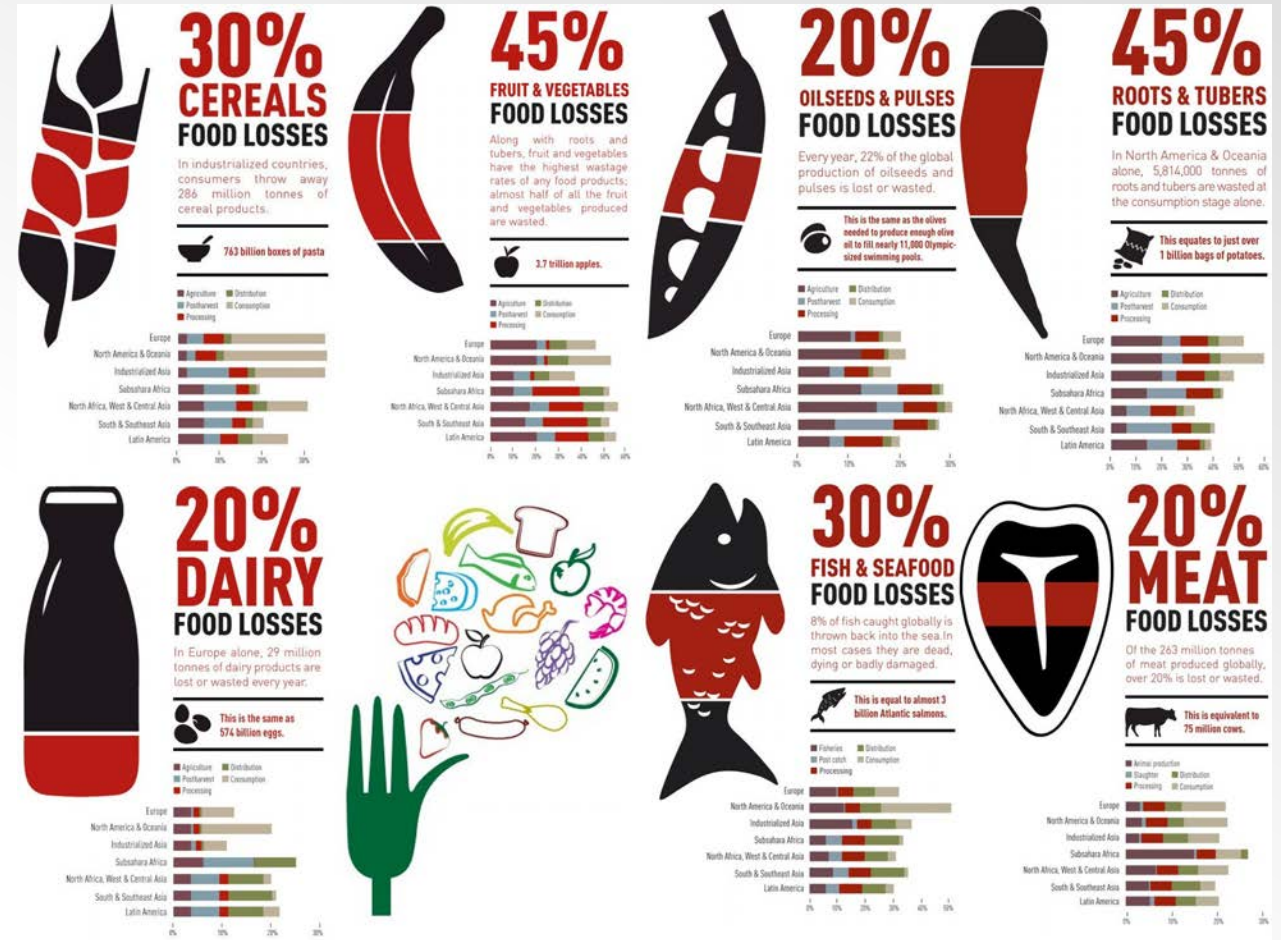


- Developing economies: waste at production
- Developed economies: waste post-farmgate

Per capita food losses and Waste, at consumption and pre-consumption stages, in different regions (FAO, 2011)

Global Food Waste

- Cutting post-harvest food loss in 1/2 = feed extra 1 billion people
- And reduce carbon and water foot print
- Big data and analytics has potential in both developed and developing economies



(FAO, 2011)

Developing Economies: BD & Analytics

- On farm
- Precision Agriculture
- ✓ Crop monitoring
- ✓ Reduced pest/ herb/ fungicide usage
- ✓ Weather forecasting
- Automating systems in supply chain=linking to demand
- Payment & financial services
- Analytics for market information= pricing/ demand



Developed Economies: Big & Analytics

- **Post-farmgate**
 - ✓ **Food safety**
 - ✓ **Optimizing inventory levels**
 - ✓ **Predicting consumer demand**
 - **Promotion & sales structured around best before and expiry date**
 - **Accurate forecasting of consumer demand lead to less wasted food**
 - **Accurate forecasting leads to less product moved (no LTL) minimizing impact**



- Tesco UK data analytics, linking weather forecasting to sales showed salad consumption increases 42% on warm weekends during summer**
- **Aided in inventory maintenance**
 - **“Holy Grail” in Agriculture: planting for almost guaranteed demand**

Big Data & Analytics= Reducing Food Waste in Value Chains

- **Pros**

- ✓ Higher quality, nutritious food
- ✓ Reduced production inputs
- ✓ Weather forecasting
- ✓ Market informatics
- ✓ Predicting consumer demand thereby optimizing inventory levels at each level of chain



- **Cons**

- ✗ Cost? Developed economies and investment by each level chain
- ✗ Trust? Data rights conflicts= as a farmer what direct benefit do I get for being a “data farmer”?
- ✗ Consumer acceptance of ”food technification”? Not “GMO” scary but fits with consumer romantic notion of “natural” food?
- ✗ Agri-food chains generally fragmented, fraught with adversarial relationships and lack of trust, outdated practices. Willing to invest for betterment of whole chain?
- ✗ Farming trends? Modern vs Progressive?



VS



Thank you!!

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