



Role of Pesticides in Reducing Food Loss

Heidi Irrig
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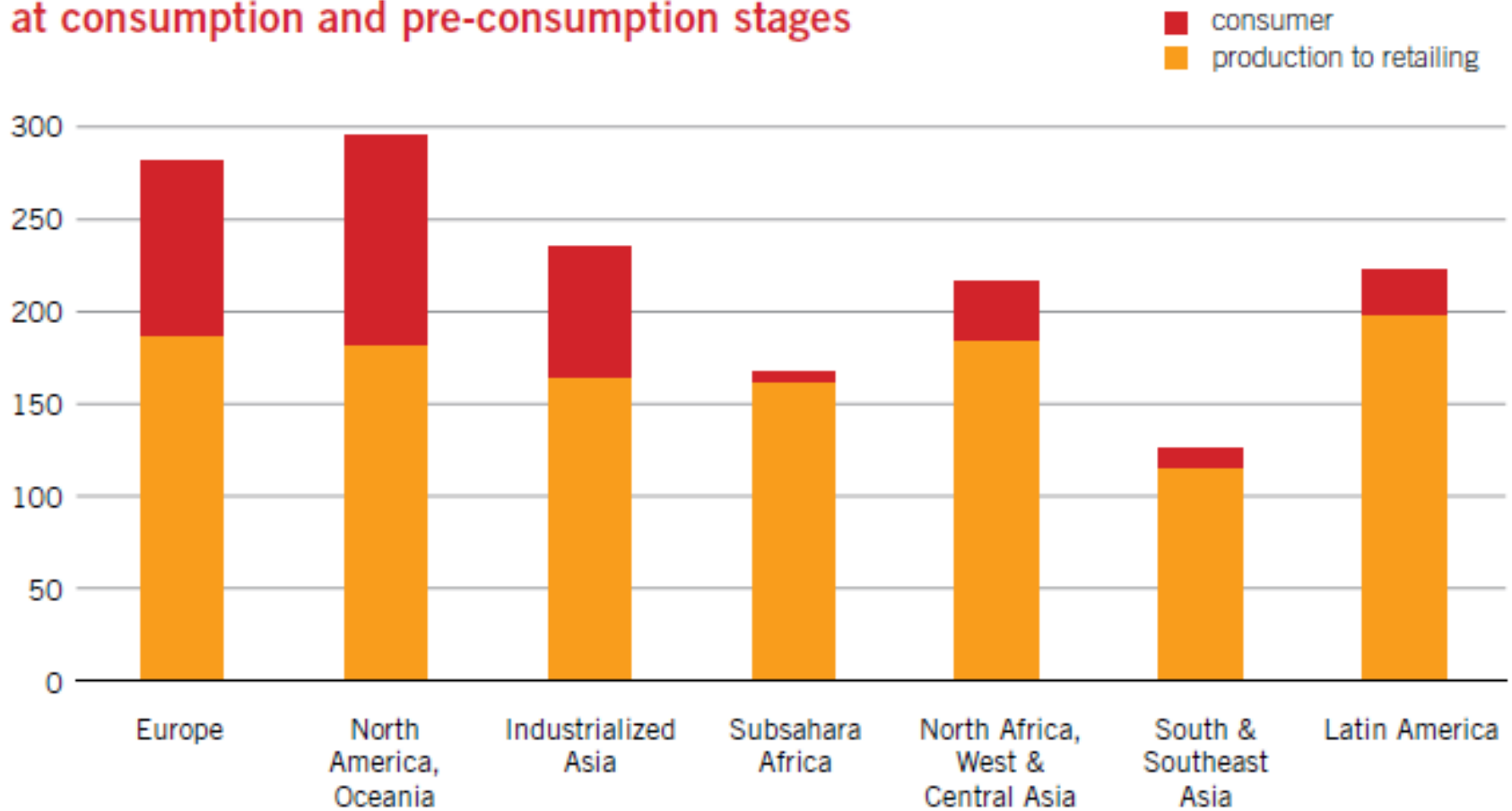
Overview

- Food Loss vs Waste
- Food Security – Hunger
- Arable Land
- Global Food Challenges
 - Developing/Developed Countries
- Pesticide Use
 - Reduce Food Loss
 - Increase Crop Yields
 - Postharvest Pesticide Role in Reducing Food Loss and Food Waste
- Conclusions



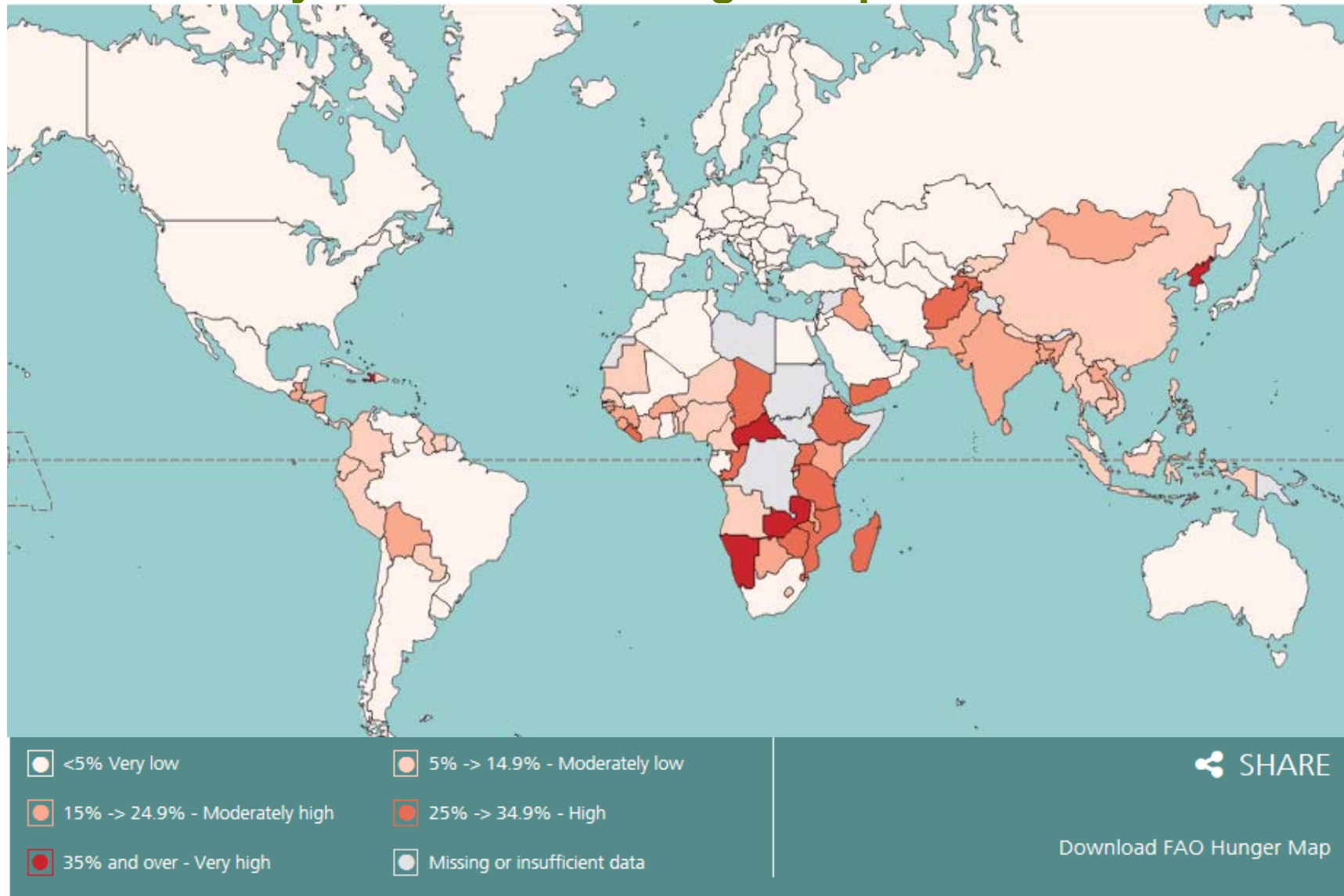
Loss vs Waste

Per capita food losses and waste (kg/year),
at consumption and pre-consumption stages



Source: FAO

Food Security – FAO World Hunger Map

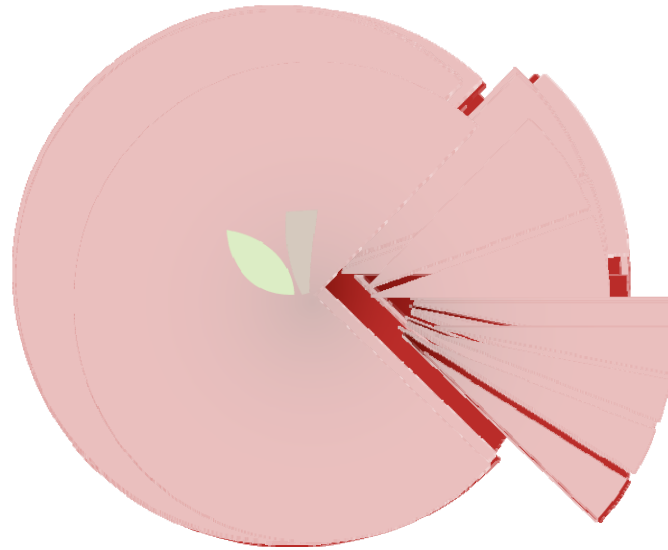


Arable Land



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This tiny bit represents the topsoil, the very thin skin of the earth's crust upon which man depends. Less than 5 feet deep, it is a very fixed amount of food producing land

Global Food Challenges

- Developing nations
 - Financial
 - Managerial
 - Technical
 - Consumption changes
- Developed nations
 - Retail & consumer
 - Organic
 - National laws to reduce food waste
 - GMO



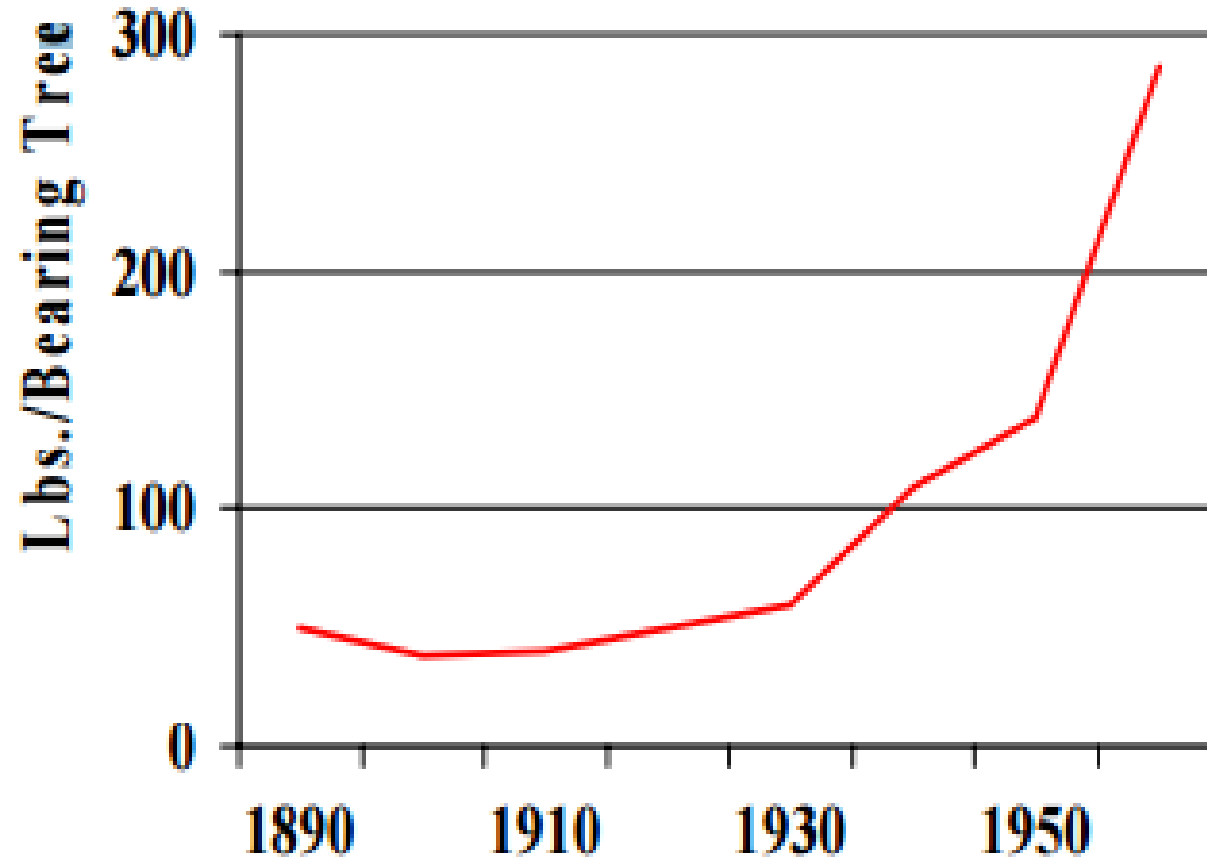
Pesticide Use – Reduce Food Losses in Production

- **Tools**

- **Fungicides** - destroy or prevent the growth of more than 50k diseases that poison or kill plant cells
- **Herbicides** - kill or stop the growth of 30K species of weeds which fight with food crops for space, water & nutrients
- **Insecticides** - kill more than 10K species of plant-eating insects and 3K species of roundworms attack farmer's crops resulting in damaged and inedible food
- **Postharvest Fungicides** - maintaining the quality & value of the harvested crop as it leaves the farm

Fungicides

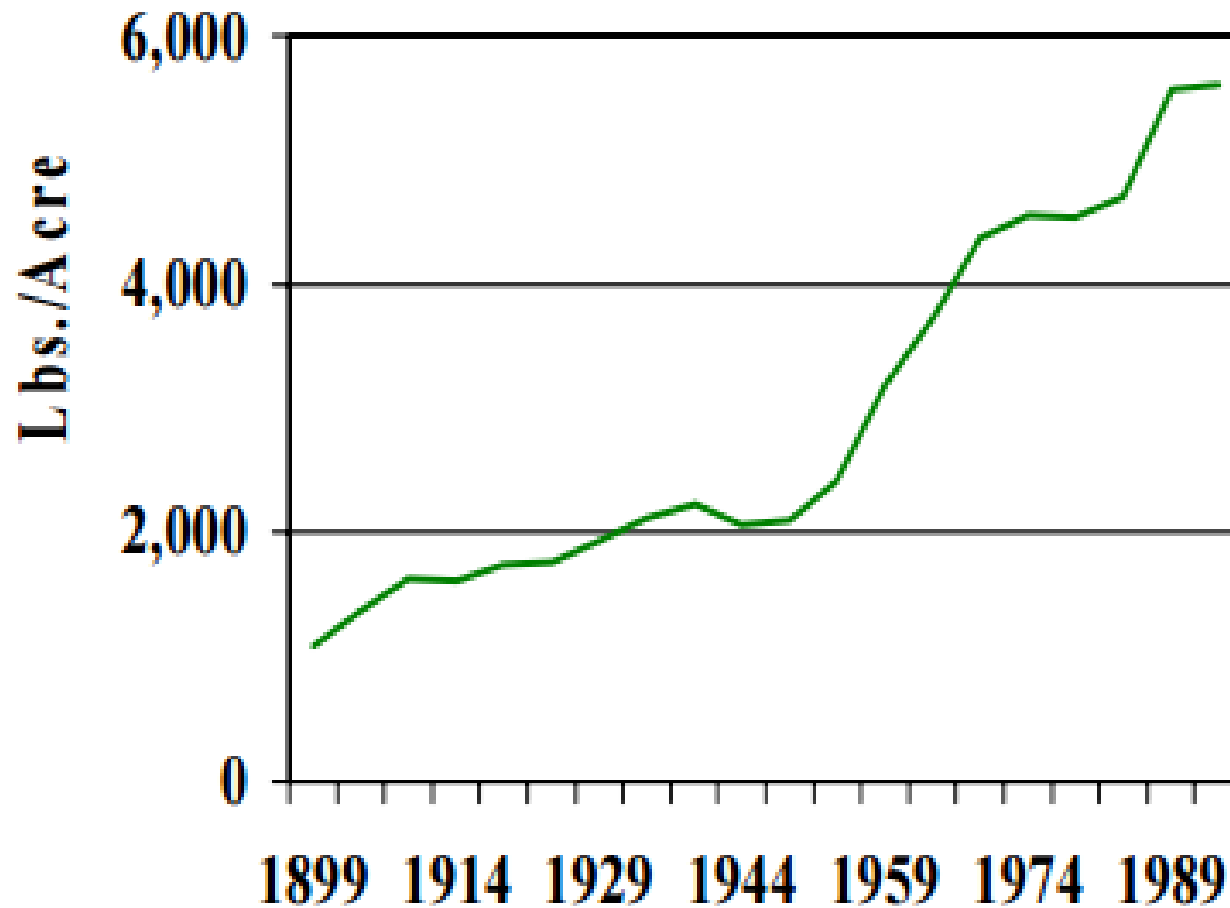
U.S. Apple Production



Source: CropLife Foundation

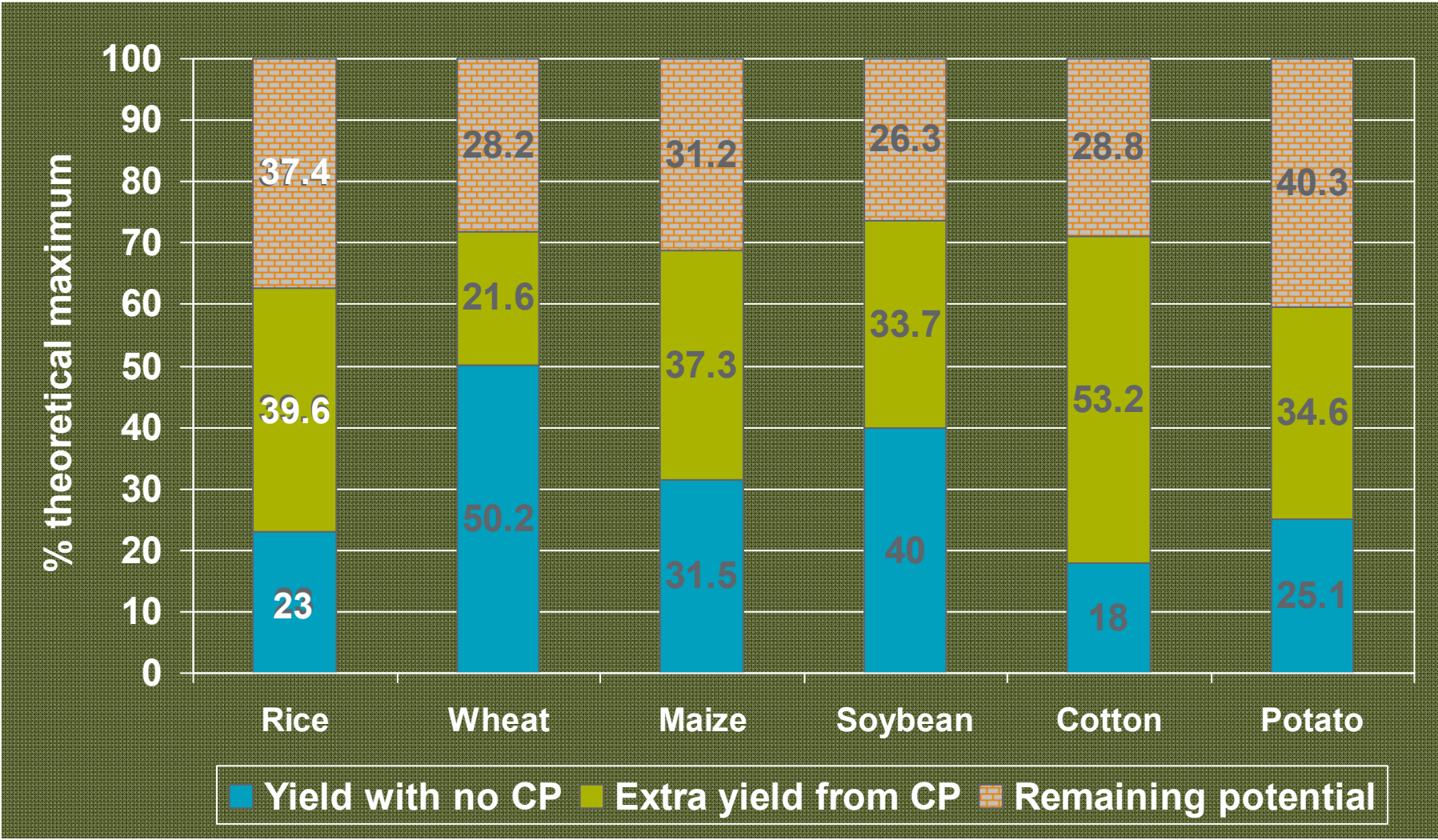
Herbicides

U.S. Rice Yields



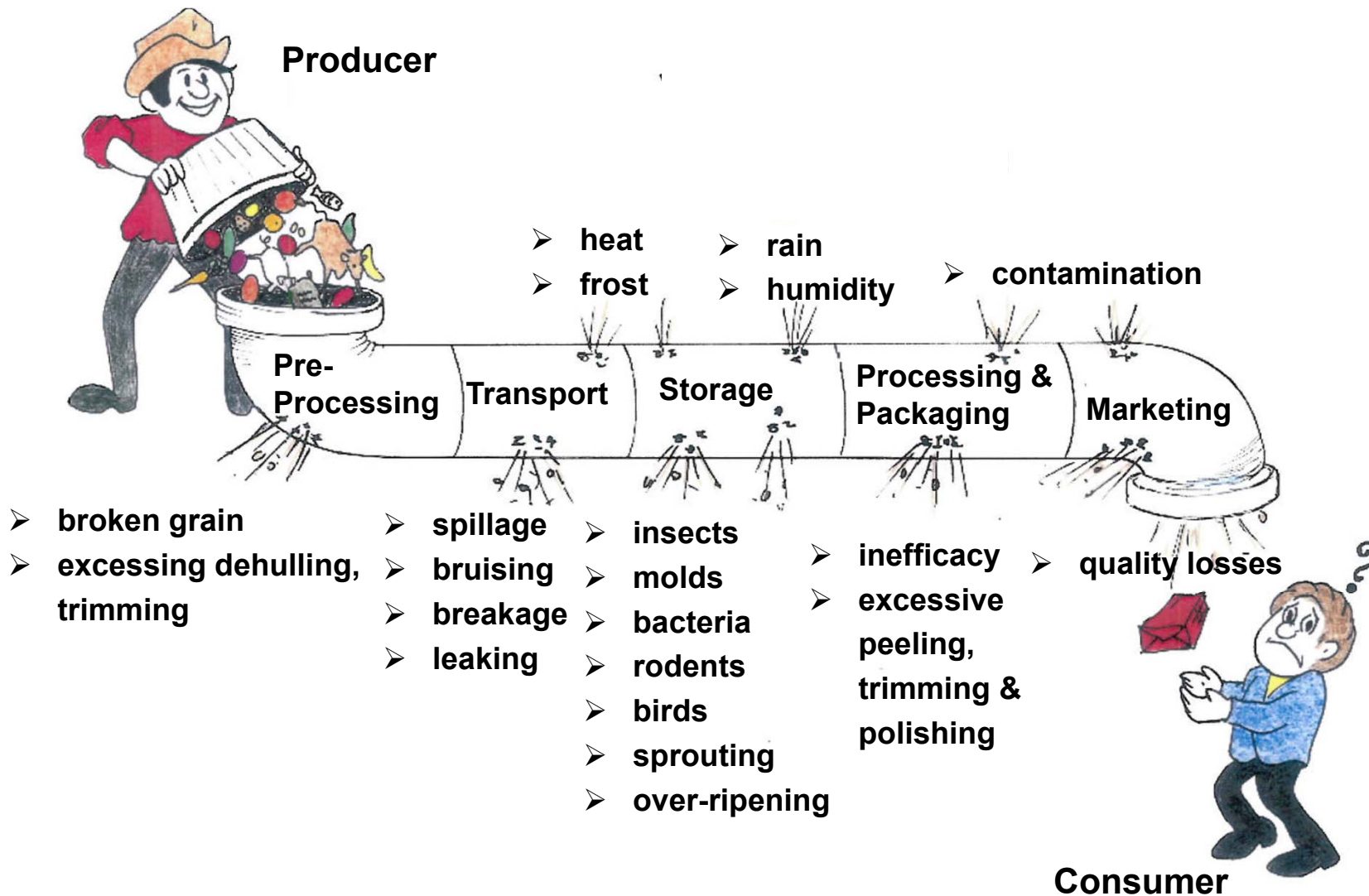
Source: CropLife Foundation

Pesticide Use - Crop Yields and Unrealized Potential



Source: Crop Losses to Pests; E-C Oerke, Journal of Agricultural Science (2006), 144, 31-43

Pesticide Use – Losses in the Food Chain



Source: Cornell University

Role of Post-harvest Fungicides

Long term storage



Role of Post-harvest Fungicides

Transport over long distances



Role of Post-harvest Fungicides

Delayed Ripening



1-Methylcyclopropene

Role of Post-harvest Fungicides

Control of global spread of diseases



Maintain quality of food supply; meeting sanitary & phytosanitary standards



Post-harvest Use to Reduce Food Loss and Food Waste

...post-harvest fungicides can help

**More food
Less waste**



**Make crops
more efficient**

Increase average
productivity of the world's
major crops by 20%
without using more land,
water or inputs

Source: FAO

Conclusion

- ✓ *Food security is linked to strong economies and stable societies*
- ✓ *Investment in agriculture helps people move out of poverty*
- ✓ *Efficient use of arable land is required to feed the world*
- ✓ *Pesticides have a vital role in feeding the world*



Thank you!!

Bringing plant potential to life

Questions

References

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- <http://science.sciencemag.org/content/327/5967/812.full>
- E.-C. OERKE (2006). Crop losses to pests. The Journal of Agricultural Science, 144, pp 31-43. doi:10.1017/S0021859605005708.
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- <https://croplife.org/case-study/highest-sugar-beet-yields-ever-in-the-uk-thanks-to-new-fungicides/>
- The role of producer organizations in reducing food loss and waste <http://www.fao.org/docrep/016/ap409e/ap409e.pdf>
- Post Harvest Food Losses – The Neglected Dimension in Increasing the World Food Supply <https://ecommons.cornell.edu/handle/1813/28900>
- University of Greenwich, National Resources Institute - <http://postharvest.nri.org/losses-information/quantifying-losses>