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EASAC Working Group: Progress to date and next steps

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EASAC Working Group timetable following Halle kick-off meeting

- *November 2015* co-chairs planning meeting
- *January 2016* confirmation of Working Group participants following academy nominations from broad range of disciplines, incl. from EU, Norway, Russia
- *April 2016* First meeting of Working Group (Brussels), including policy experts from the European Commission
- *August 2016* Circulation of project objectives and scope to contact list and publication of details on EASAC website
- *October 2016* Second meeting of Working Group (Brussels)
- Progress reviewed by Council meetings of EASAC, *November 2015* (Slovakia), *May 2016* (Norway) and *November 2016* (UK)

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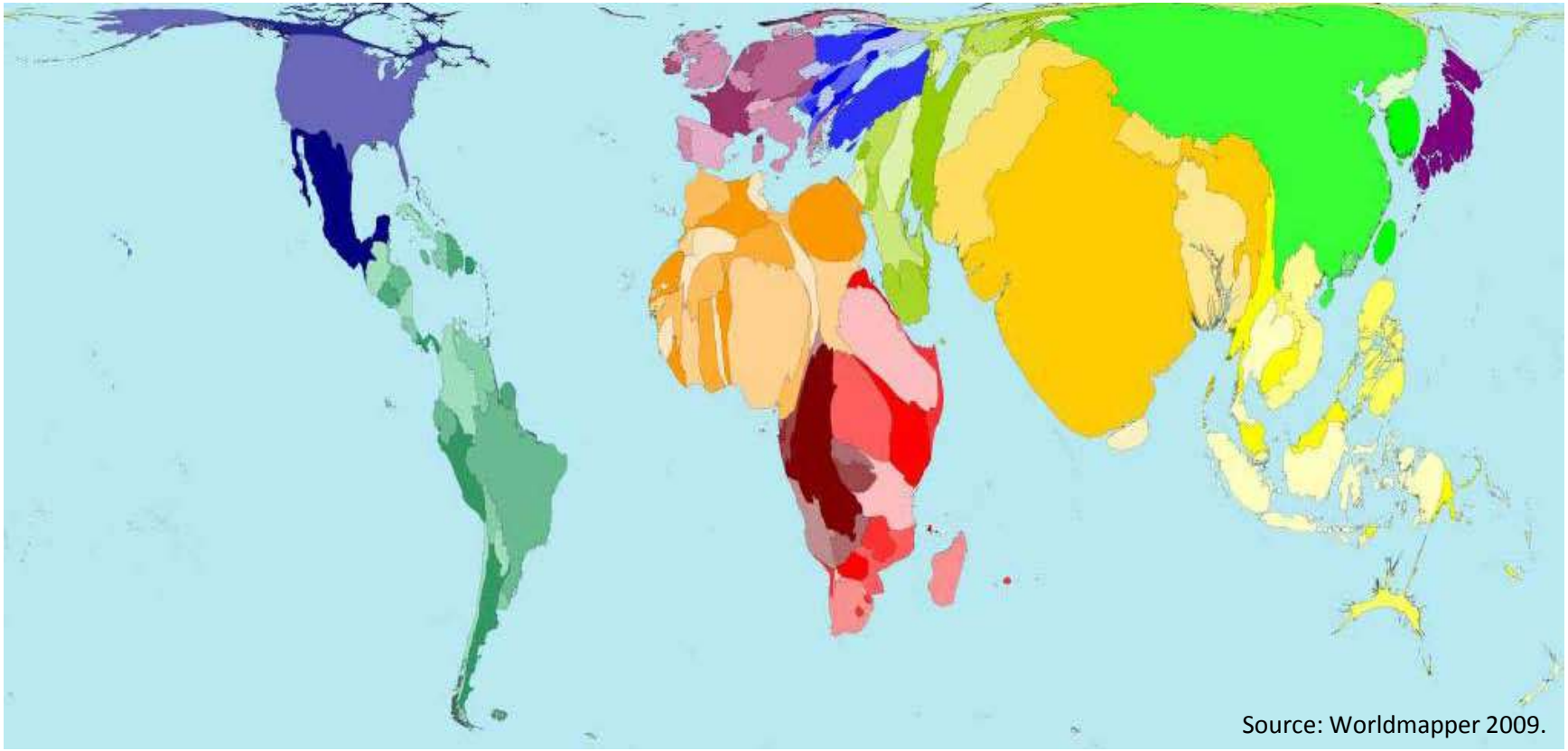
World population 2050 (from 7 to 9 billion) and demographic transition



and consuming like 12 billion…

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Not only Goal 2, but all 17 Goals relate to Food, Nutrition, Agriculture

and there are trade offs between goals which science needs to address

Working Group Food and Nutrition Security (FNS) starting points

- Guided by IAP template, desired outcome for FNS defined as ***"Access for all to a healthy and affordable diet that is environmentally sustainable"***
- Major challenge for Europe is over-abundance of calorie-dense foods with high prevalence of **obesity** (16% of population), overweight (52%) and non-communicable diseases;
- Europe is not immune from other concerns about **FNS** (especially in vulnerable groups) and also important to consider **impact of European food system on rest of world**
- Thus, Working Group evaluated both **supply-side and demand-side issues** in taking a **food systems approach** and emphasising **local-global** connections

Food, Nutrition & Agr. System and Science Points of Entry

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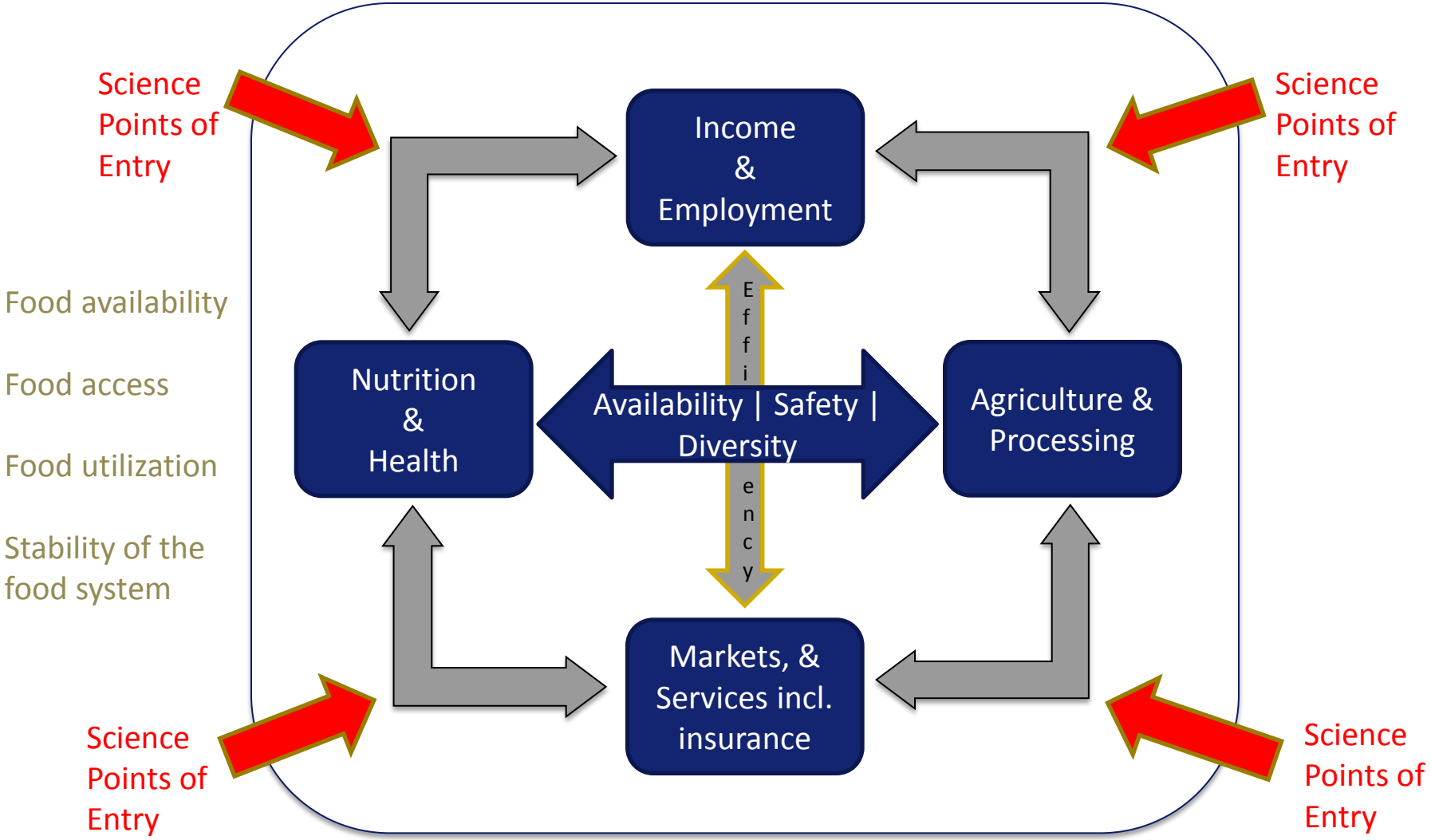


EASAC report: **to be relevant and timely for European policy makers**

- EASAC visibility is already being raised e.g. by dissemination of scope/objectives to contact list and other networking
- **Many EU policy initiatives underway e.g. Food 2030, CAP reform, development of Bioeconomy, Circular Economy strategies**
- Also important time for interaction of EU with wider international activities e.g. **G20 Ministers of Agriculture 2017, SDGs, COP22**

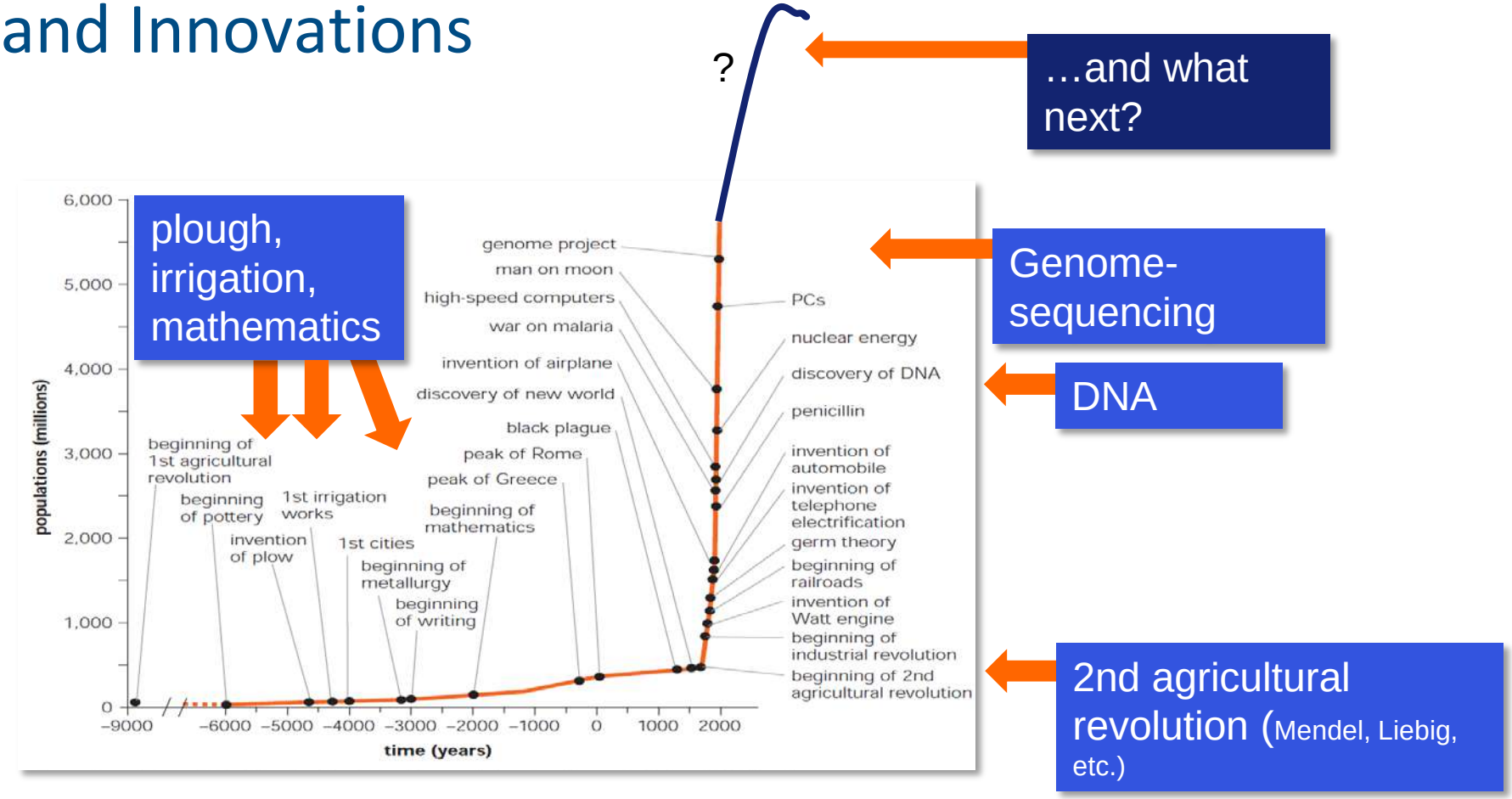
EASAC report: some **strategic dimensions** relevant to all our recommendations

- Connecting the food value chain, nutrition, and natural resources
- Vulnerable groups in the population
- Compiling, assessing, sharing and using large data sets
- Identifying evidence gaps to inform policy
- International relations, including collaborative research, technology transfer and its governance

EASAC report: chapter topics map onto IAP template **themes -1**

- ***Review of relevant research activities*** and current use of research by key groups to advise regional policy makers
- ***Current status of FNS in Europe*** including definition, increasing challenges, e.g. climate change, and issues for mobilising scientific capacity
- ***Prospects for increasing efficiency of food systems sustainably*** e.g. by reducing waste, tackling food safety issues, using food science and technology, understanding global markets and options for reducing volatility, increasing resilience

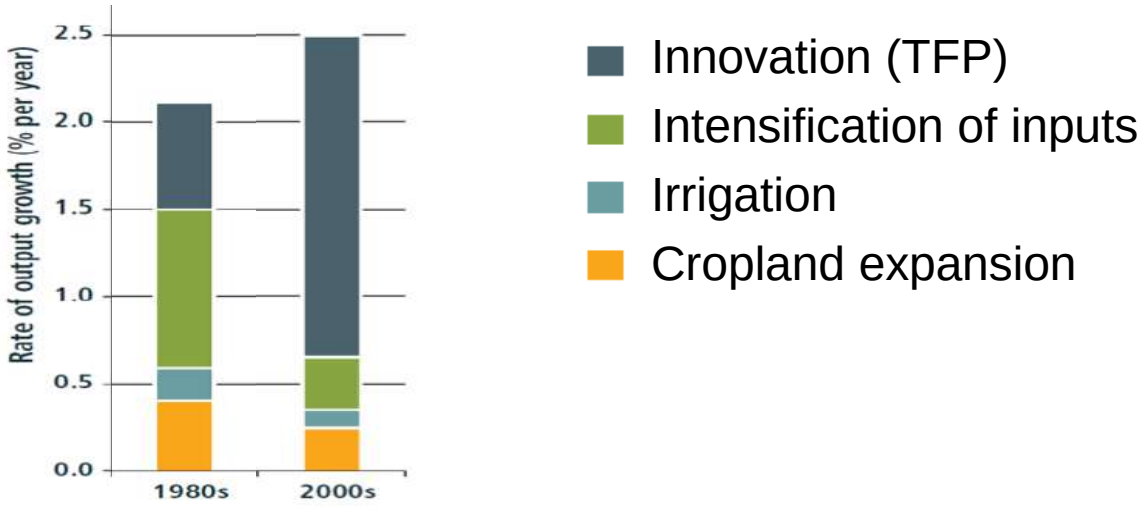
World Population since 11000 Years and Innovations



Source: modified based on R. Fogel 1999. “Catching Up with the Economy.” American Economic Review 89(1): pp 1–21.

Meanwhile: Innovation feeds the world

Innovations account for 75% of agricultural production growth



Source: K. Fuglie, IFPRI, Global Policy Report, 2013.

EASAC report: **chapter topics** map onto IAP template **themes - 2**

- ***Nutrition and human health*** **policy opportunities**, scientific frontiers, e.g. personalised nutrition, microbiomics, innovative foods and diets
- ***Sustainable intensification and innovation at the farm scale*** including livestock breeding, plant science, marine science, biosecurity, precision agriculture, digitalisation of agriculture and food chains
- ***Managing competition for land use*** including bioenergy production, water and food security, soil sustainability, climate change mitigation
- *Appendices* describing relevant previous EASAC reports and IAP template themes

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EASAC report: focusing on **scientific opportunities** in deriving our conclusions

- How will our report add value to what has already been said by many other groups?
- How can the current scientific evidence base be best used to shape opinion, serve as a resource for innovation and inform public policy options?
- **What should be the scientific agenda to fill current knowledge gaps?**
- Capitalising on scientific opportunities should pervade policy making widely; they are relevant not just to those involved in funding and prioritising research

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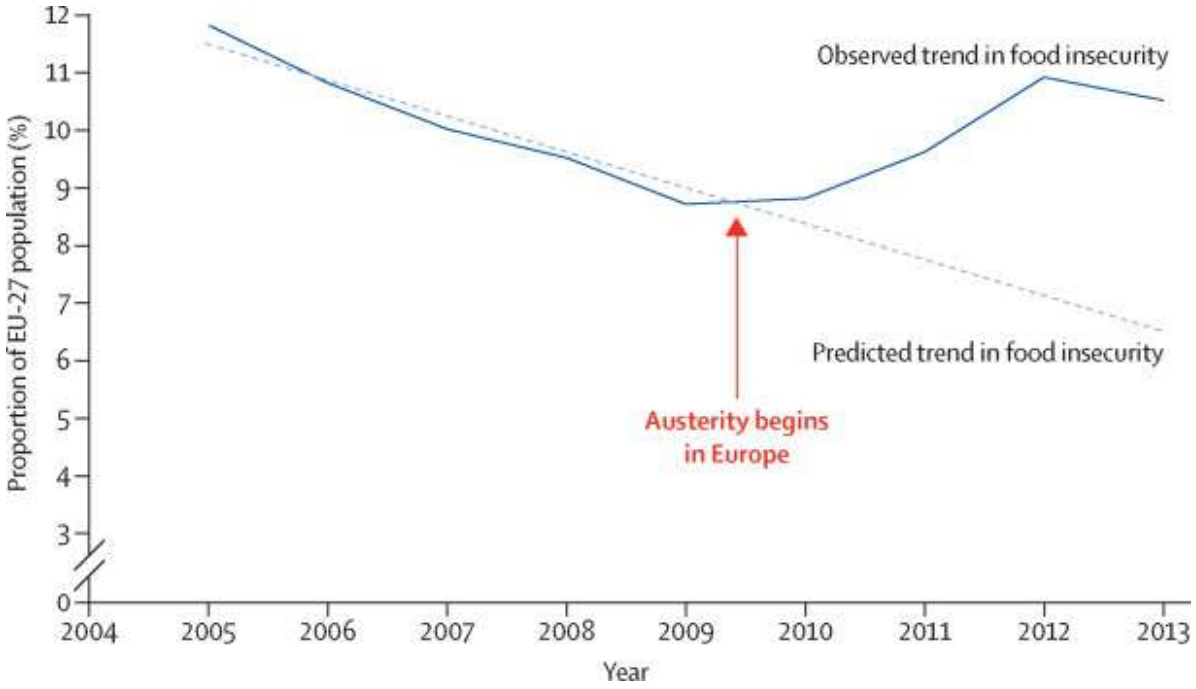
EASAC report: recommendations exemplifying particular priorities, taking account of scientific opportunities – **1 Nutrition choices and food safety**

- Collecting robust **longitudinal data** on FNS across Europe and special groups in population
- Cross-disciplinary research to understand determinants of **consumer demand**
- Characterising **individual responsiveness** to nutrition and links to health
- Assessing and authenticating **food quality**
- Tackling potential **disconnects** e.g. between COP21 objectives and standard healthy diet guidelines

Rising food insecurity in Europe



- Prevalence of households that are unable to afford meat (or a vegetarian equivalent) every second day as measure of food insecurity

Source: Loopstra, Rachel et al. (2016), Rising food insecurity in Europe, The Lancet, Volume 385, Issue 9982, 2041. Data are from EuroStat database as of March 1, 2015.

Nutrition and Lifestyle in European Adolescents: The HELENA (Healthy Lifestyle in Europe by Nutrition in Adolescence) Study

- Adolescents eat: 1/2 of the recommended amount of fruit and vegetables and less than 2/3 of the recommended amount of milk and milk products
- They consume more meat and meat products, fats, and sweets than recommended
- deficient in folate (15%), vitamin D (15%), β-carotene (25%),…

Luis, AM et al. (2014), Nutrition and Lifestyle in European Adolescents: The HELENA (Healthy Lifestyle in Europe by Nutrition in Adolescence) Study, Adv Nutr vol. 5: 615S-623S

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EASAC report: recommendations exemplifying particular priorities, taking account of scientific opportunities – **2 Environmental sustainability**

- Evaluating food system climate resilience and transforming food systems to mitigate their global warming impact
- Food-bioenergy competition issues in agriculture; bioeconomy opportunities
- Understanding soil functions
- Developing evidence base to underpin strategic options for land use

How much food will be needed?

so ? ……

Worldwide consumption 2007-2050

Cereals: +46%

Meat: +76%

Oilseeds: +89%

Source: Alexandratos, Bruinsma. 2012. *Global Perspective Studies Team, FAO*

Change in consumption and waste reduction will not be enough. More production remains essential, but in a sustainable manner.

Or so?

Will consumption become healthier?

Will consumption become more sustainable?

Will the food system become less wasteful?

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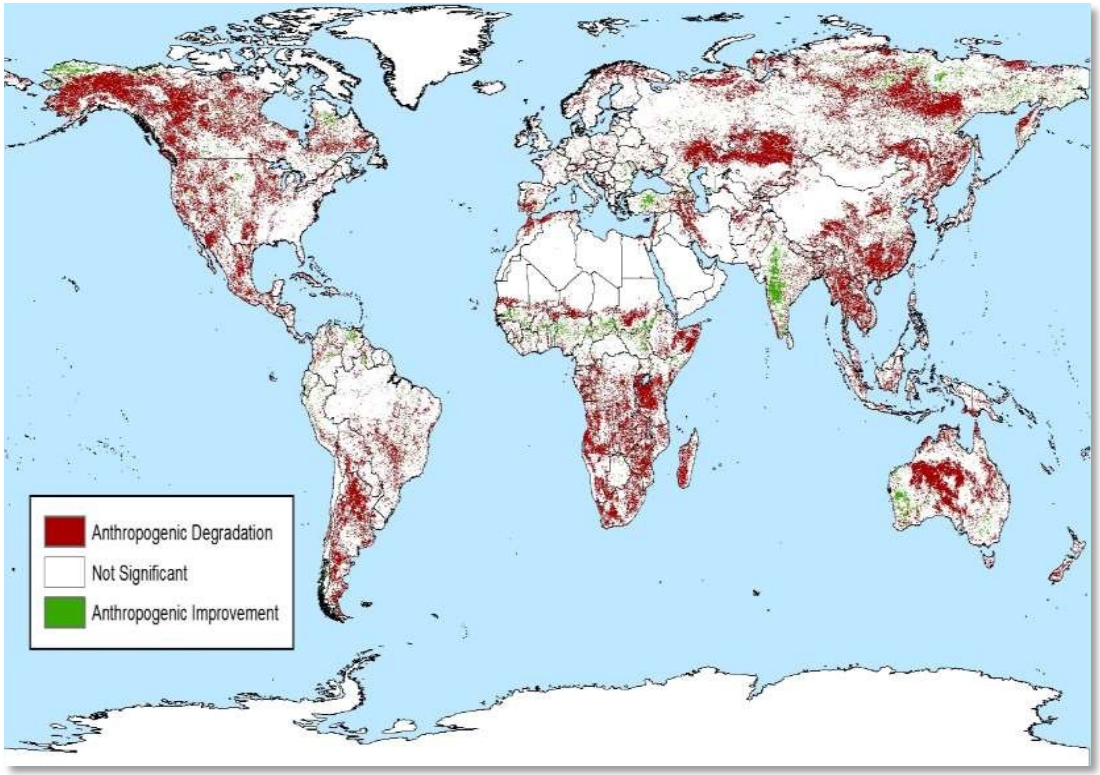
Global Land- and Soil Degradation



Degraded:
25% crop land
33% pastures

Economic loss per annum: 300 Bill. US$
Lost production and lost ecosystems services

Source: Nkonya, Mirzabaev, von Braun (2016) http://link.springer.com/book/10.1007/978-3-319-19168-3

EASAC report: recommendations exemplifying particular priorities, taking account of scientific opportunities – **3 Food systems efficiency**

- Waste:
  - Collecting and using consistently robust data
  - Novel approaches to reducing waste in food systems
  - Integrating objectives from different policy initiatives e.g. Bioeconomy and Circular Economy
- Food trade networks:
  - Collecting and using consistently robust data
  - Examining linkages and determinants of global price volatility

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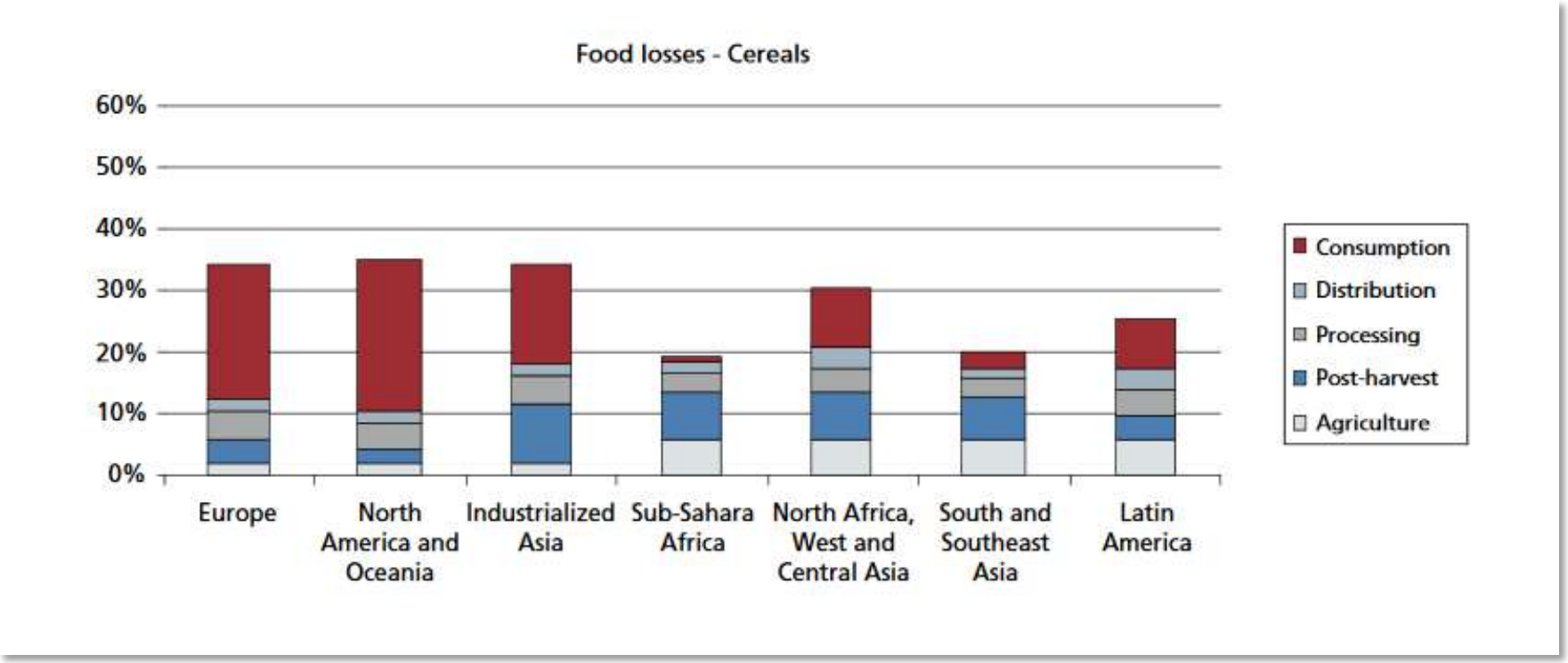
Cutting losses and waste – is this a big opportunity ?



Source: FAO (2011). Food losses and food waste – Extent, causes and prevention. Rome

Precision farming

Source: bioökonomie.de, available at http://biooekonomie.de/content/hightech-spione-auf-dem-feld-0

Source: bioökonomie.de, available at http://biooekonomie.de/content/bonirob-agrarroboter-beeindruckt-kanzlerin

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EASAC report: recommendations exemplifying particular priorities, taking account of scientific opportunities – **4 Plants and animals in agriculture**

- Capitalising on genomics research e.g. genome sequencing, genome editing
- Livestock breeding goals to improve animal health as well as agricultural productivity
- Developing and implementing proportionate, evidence-based, flexible regulatory policy, e.g. on new biotechnologies
- Improving knowledge base for sustainable harvest and culturing of marine resources (food and biomass)

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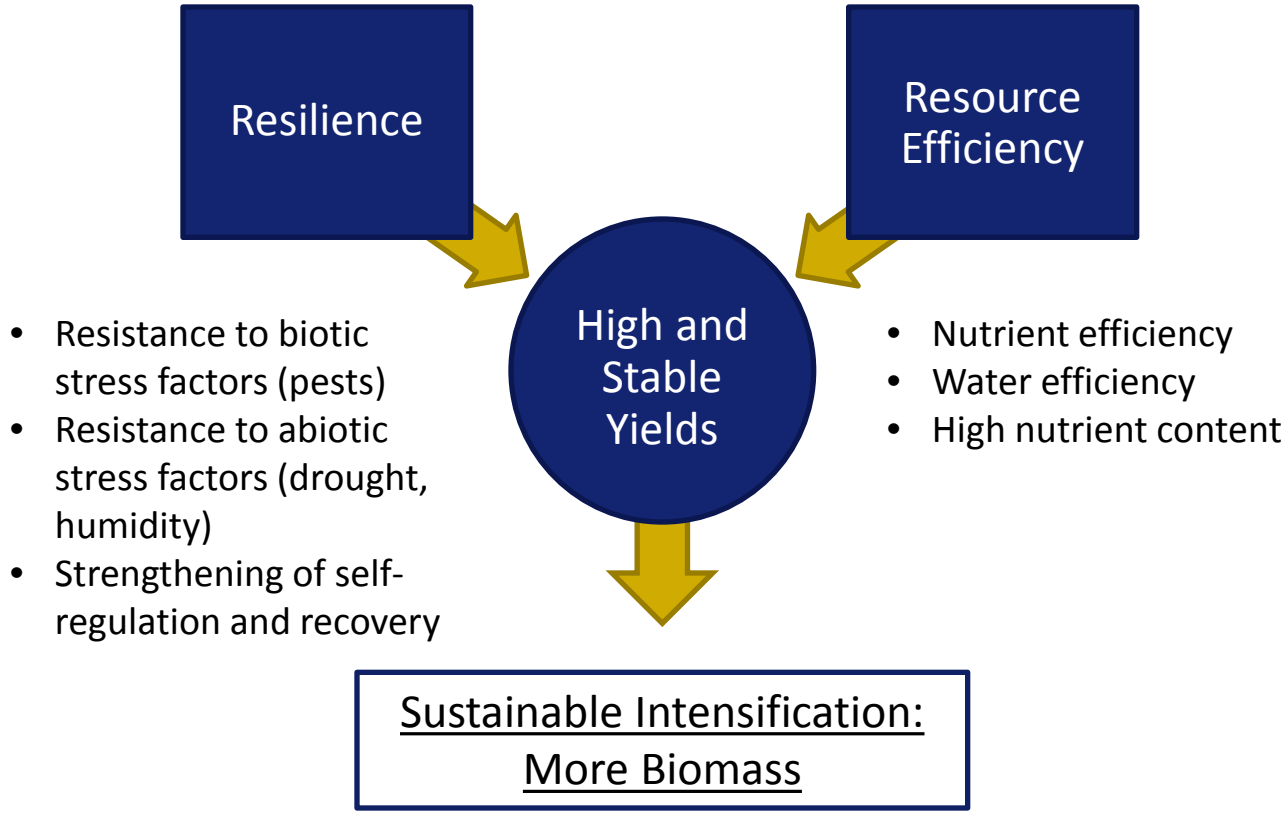
Aims of modern plant research



EASAC report: **finalising and using the deliverables**

- Tasks to complete drafting: preparing summary, then peer review and academy endorsement phases (2-3Q 2017)
- Planning EU launch meeting
- Follow up with regional policy makers:
  - European Commission, Parliament and other EU bodies
  - Other pan-Europe e.g. FAO, WHO, G7, G20, …
- Encouraging member academies to use as resource at country level
- Using learning and conclusions to advise IAP global phase