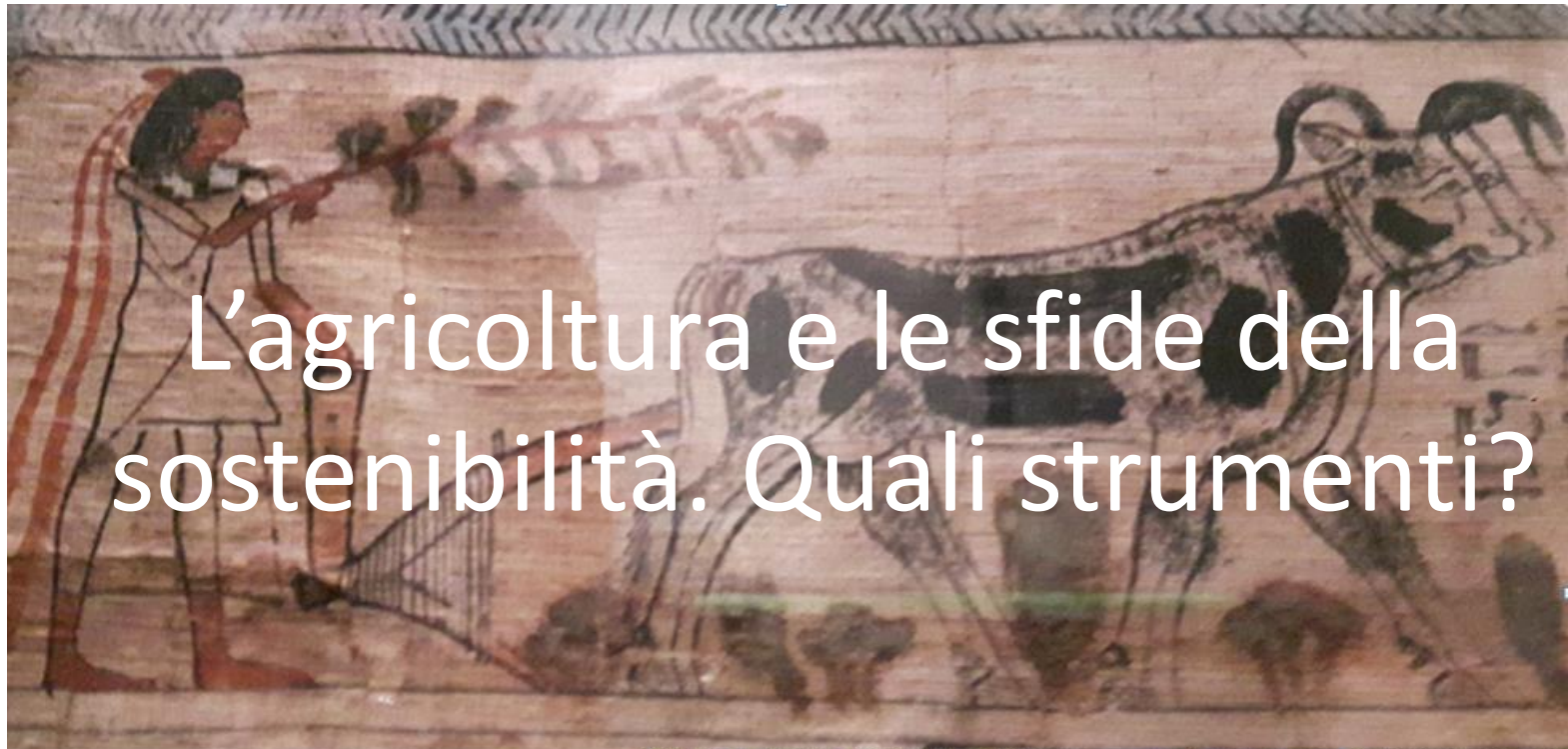


Deborah Piovan

FIDAF 1 aprile 2022



Innovare oggi, perché?

Le sfide

- **Economiche**
- **Demografiche**
- **Climatiche**
- **Avversità biotiche e abiotiche**
- **Sostenibilità ambientale**
- **Comunicazione**



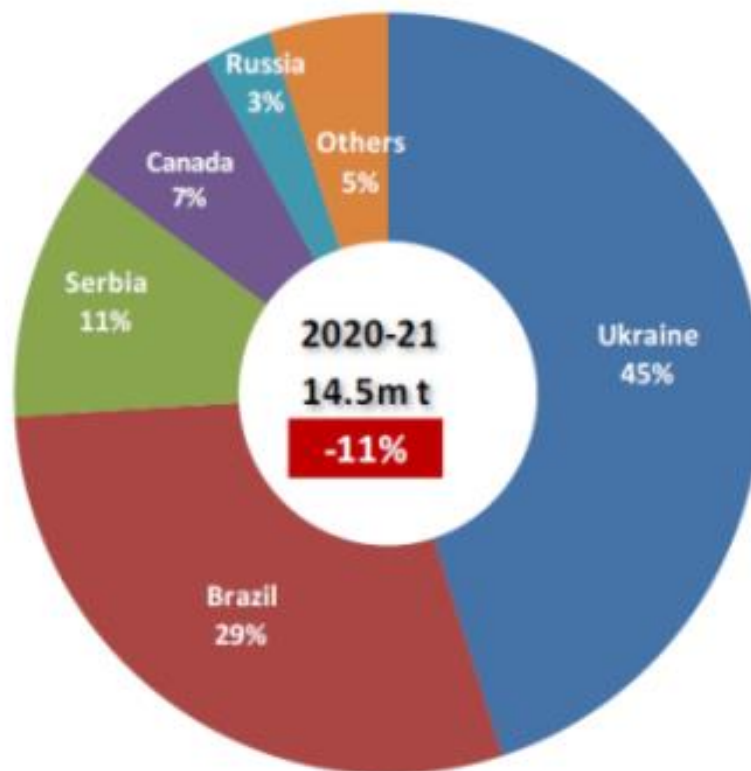
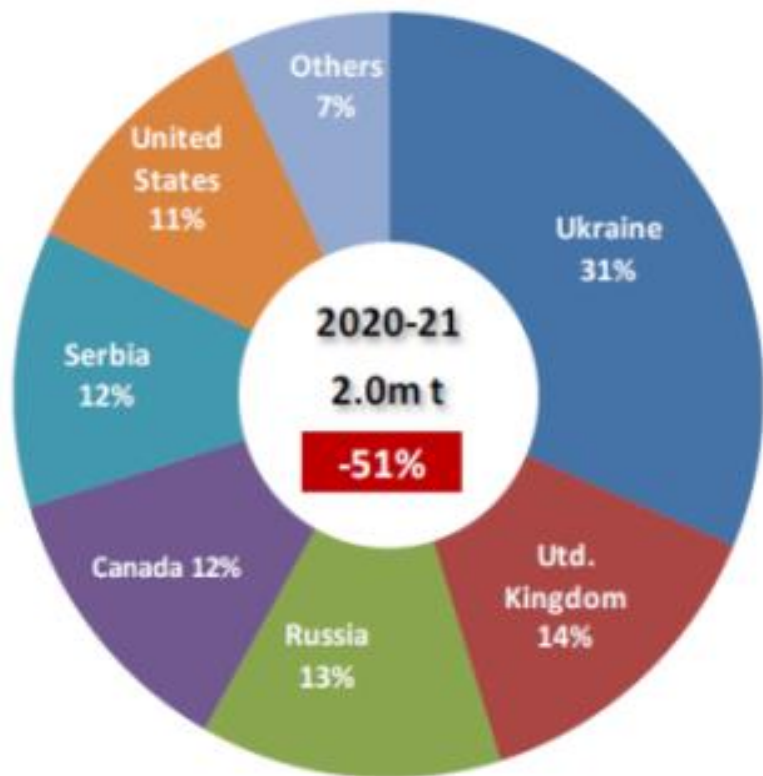
ANALISI CONGIUNTURALE DI MERCATO

Antefatto:

- rialzo dei prezzi delle materie prime e delle *commodities* che non si registrava così intenso dalla “crisi dei prezzi” del 2007-2008
- prezzo dei fertilizzanti è aumentato del 30% nell’ultimo anno, quello dei mangimi è cresciuto di circa il 15%, trainato dagli listini di soia e mais (con aumenti del 21%)
- costi sementi duplicate per cereali a paglia
- prezzi energetici in rialzo (+18%), dei carburanti (+25%), dei lavori in contoterzismo (+24%)

(dati Ismea)





- Frumento tenero e mais, importazioni UE.

Elaborazione dati Centro Studi Confagricoltura

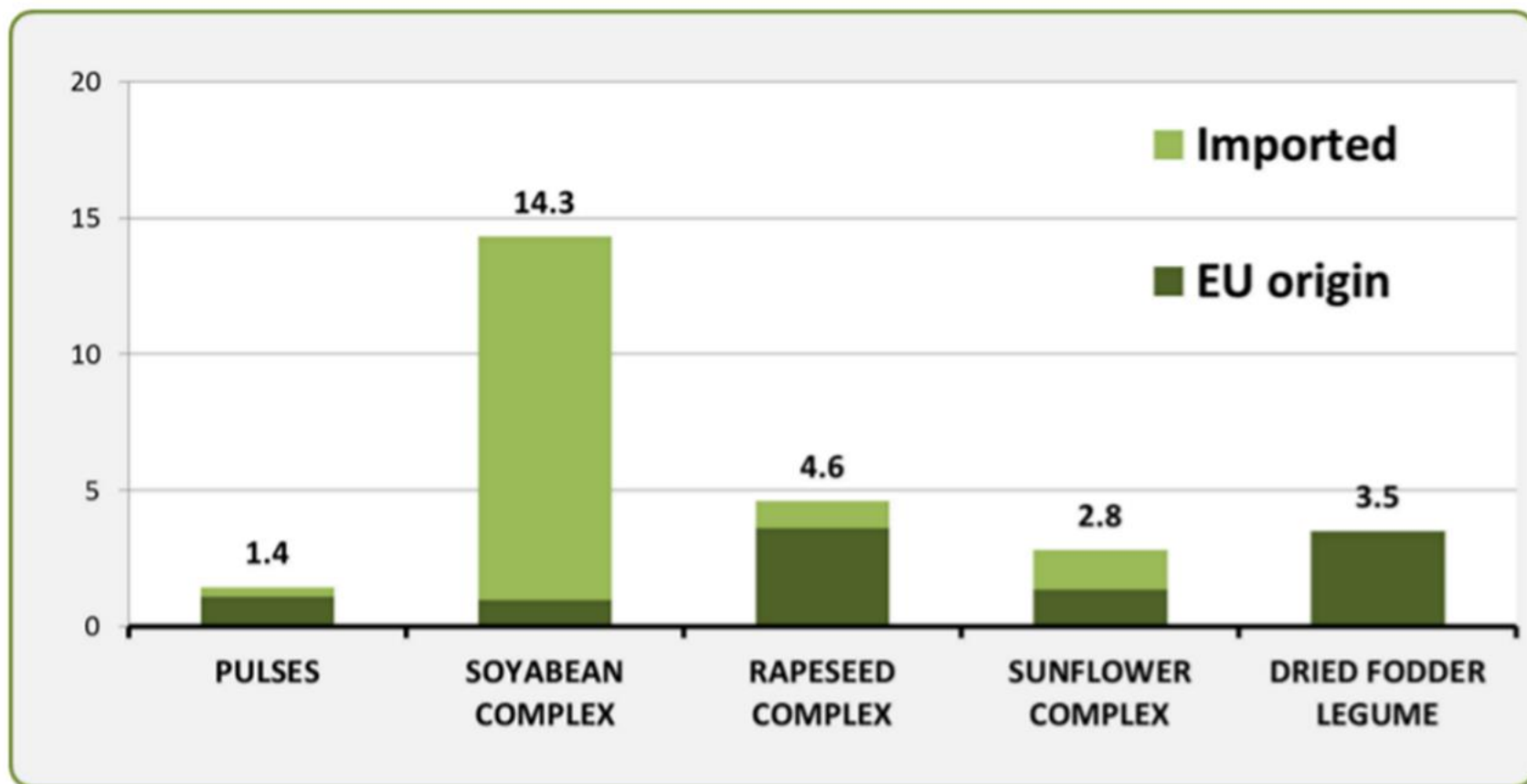
EU sunflowerseed oil import origins (July - June)



Source: Eurostat- Comext @ 22 Aug 2021

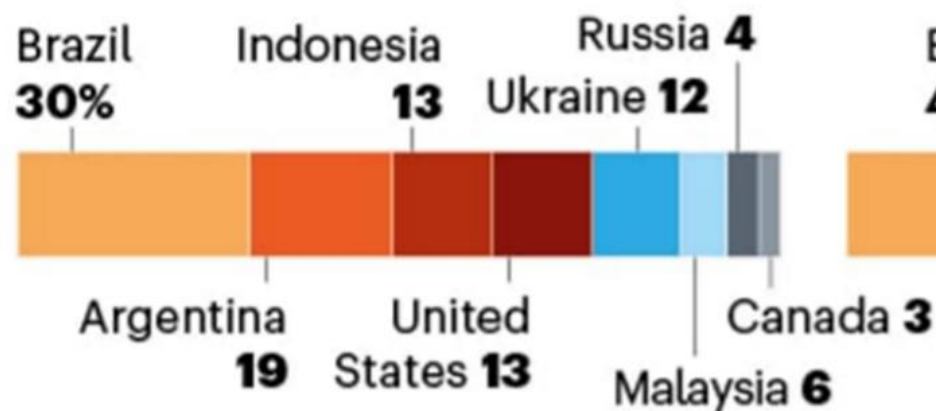
Russia e Bielorussia contano per il 40% delle esportazioni mondiali di potassio e per oltre il 20% di quelle di ammoniaca, prodotti basilari per la realizzazione dei fertilizzanti.

Graph 1 2016/17 EU use of proteins and their sources (in million tonnes of crude protein)

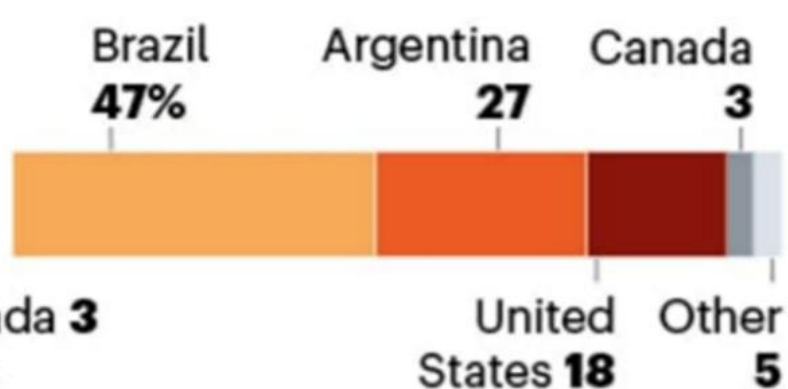


Source: EU Commission. "Complex" includes meals, seeds and beans

Share of EU oilcrop imports



Share of EU soya-bean imports

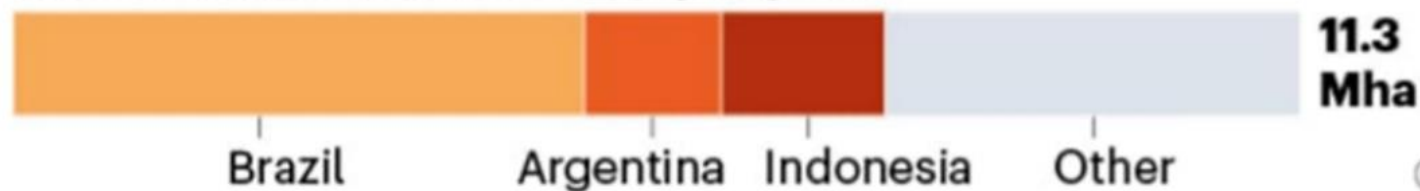


Forestation 1990–2014

Increase in EU



Loss elsewhere linked to EU crop imports



©nature





Garantire che gli europei possano contare su alimenti sani, economicamente accessibili e sostenibili



Far fronte ai cambiamenti climatici



Proteggere l'ambiente e preservare la biodiversità



Garantire un giusto compenso economico nella catena alimentare



Potenziare l'agricoltura biologica

2030 Targets for sustainable food production

PESTICIDES



Reduce the overall use and risk of chemical and hazardous pesticides

NUTRIENT LOSSES



Reduce nutrient losses by 50% whilst retaining soil fertility, resulting in 20% less fertilisers

ANTIMICROBIALS



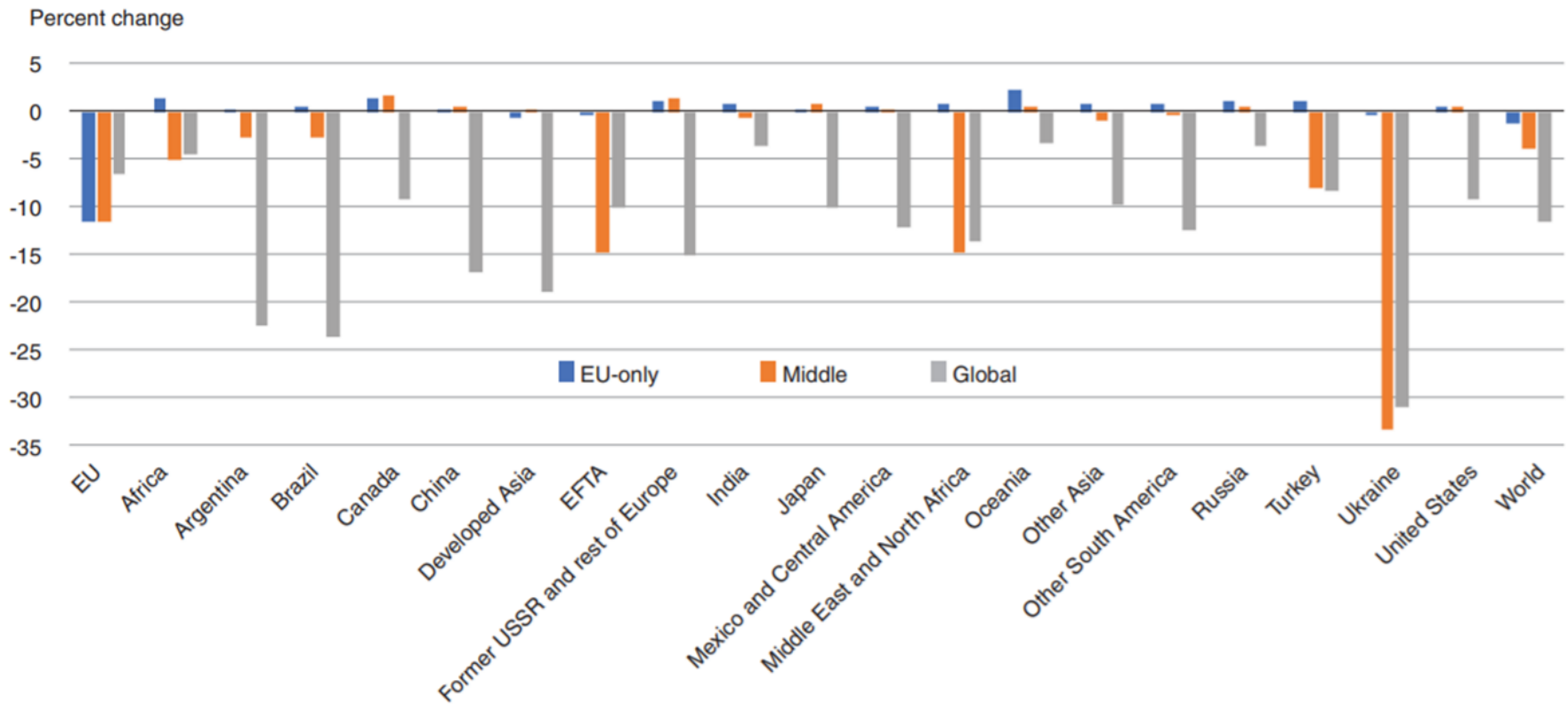
Reduce sales of antimicrobials for farmed animals and aquaculture

ORGANIC FARMING



Increase the percentage of organically farmed land in the EU

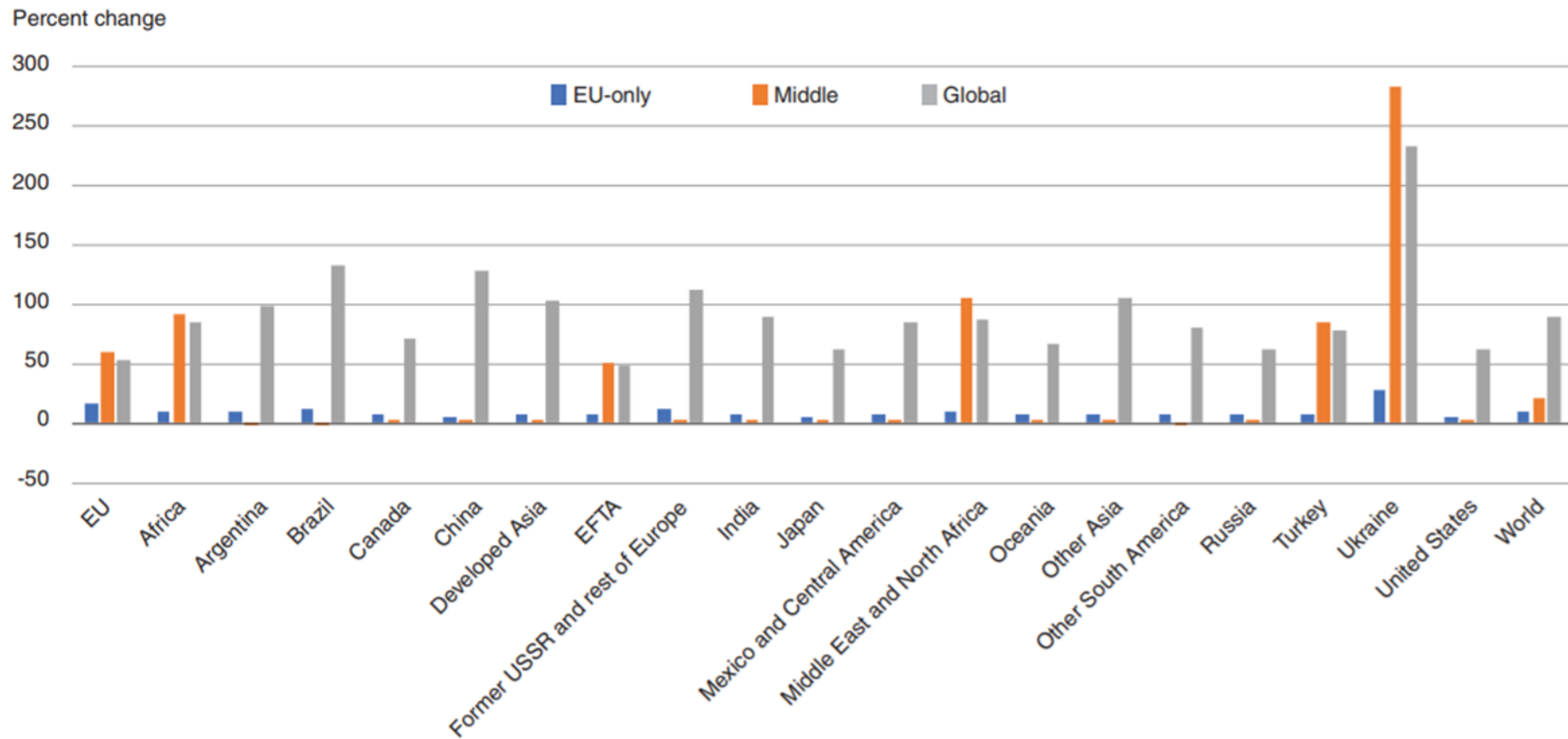
Figure 4
Changes in agricultural/food output volumes for the three scenarios



Note: EU-only is defined as only the European Union (EU) implementing the Strategies; in the middle scenario, trade partners who depend on food and agricultural exports to the EU also adopt the Strategies; and global is defined as all regions adopting the Strategies. EFTA refers to the European Free Trade Association.

Source: USDA, Economic Research Service calculations using the Global Trade Analysis Project–AgroEcological Zones (GTAP-AEZ model).

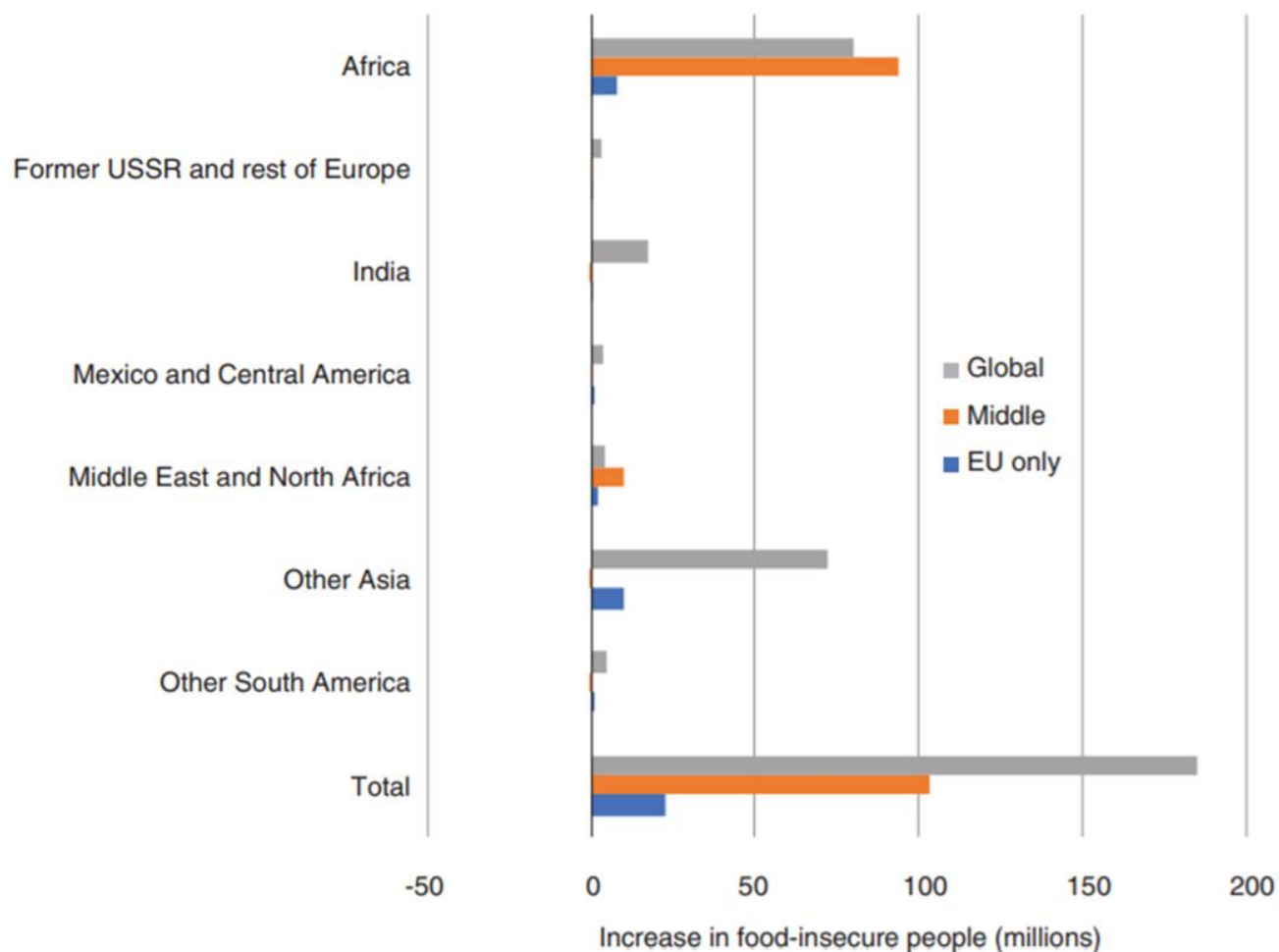
Figure 5
Change in agricultural/food market prices for the three scenarios



Note: EU-only is defined as only the European Union (EU) implementing the Strategies; in the middle scenario, trade partners who depend on food and agricultural exports to the EU also adopt the Strategies; and global is defined as all regions adopting the Strategies. EFTA refers to the European Free Trade Association.

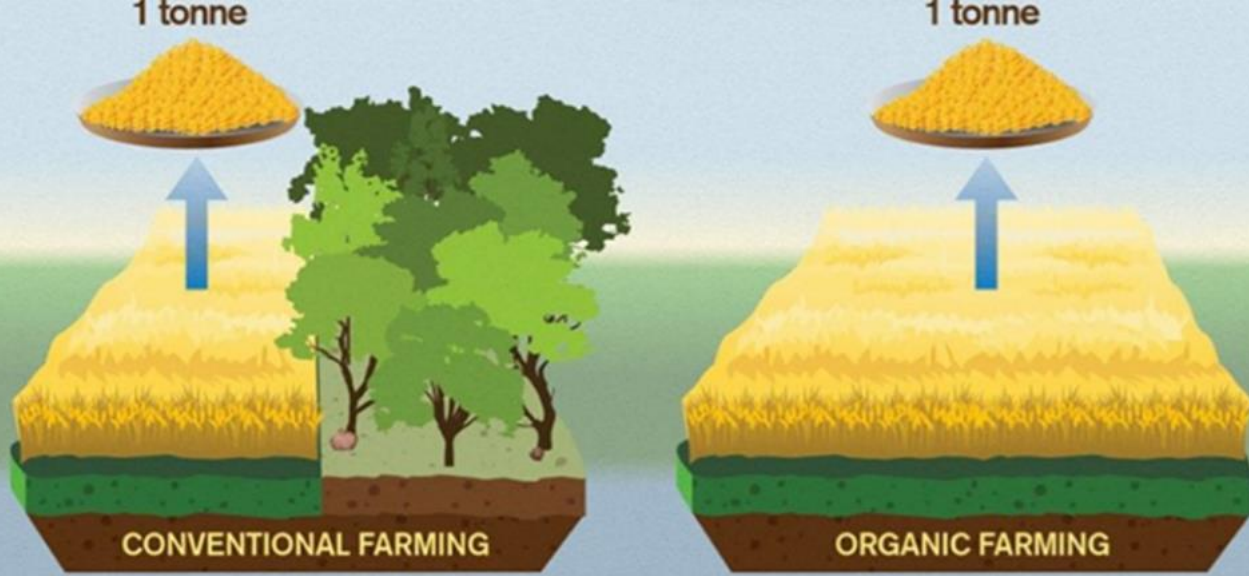
Source: USDA, Economic Research Service calculations using the Global Trade Analysis Project–AgroEcological Zones (GTAP-AEZ) model.

Figure 10
Net increase in food-insecure people by 2030 for the three scenarios



Note: EU-only is defined as only the European Union (EU) implementing the Strategies; in the middle scenario, trade partners who depend on food and agricultural exports to the EU also adopt the Strategies; and global is defined as all regions adopting the Strategies.

Source: USDA, Economic Research Service calculations using the International Food Security Assessment Model.



(Chalmers University of Technology)

ENVIRONMENT

New Paper Shows How Much Worse Organic Farming Can Be For The Climate

DAVID NIELD 15 DEC 2018

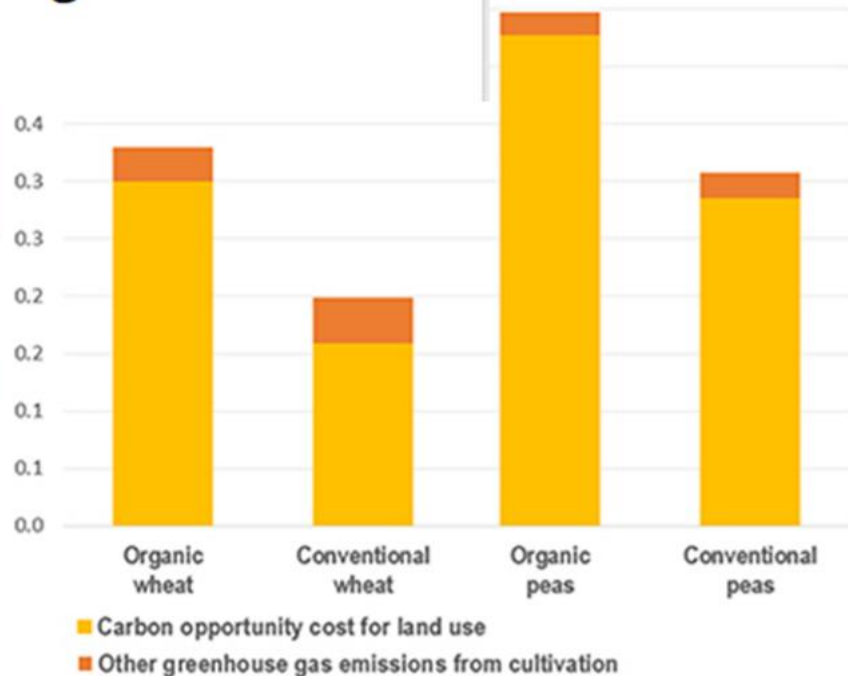
nature
International journal of science

Letter | [Published: 12 December 2018](#)

Assessing the efficiency of changes in land use for mitigating climate change

Timothy D. Searchinger, Stefan Wirsenius, Tim Beringer & Patrice Dumas

Nature 564, 249–253 (2018) | [Download Citation](#)





Food and Agriculture
Organization of the
United Nations



INTERNATIONAL YEAR OF
PLANT HEALTH

2020

**PROTECTING PLANTS,
PROTECTING LIFE.**



FAO: 40% dei raccolti mondiali va perso a causa
di insetti e malattie

Le perdite in assenza di protezione

Mele – 67%

Frumento tenero -57%

Pomodoro da industria -81%

Mais -87%

Riso -84%



Trattato che istituisce la Comunità Economica Europea (1957)

ARTICOLO 39

1. Le finalità della politica agricola comune sono:

a) incrementare la produttività dell'agricoltura, sviluppando il progresso tecnico, assicurando lo sviluppo razionale della produzione agricola come pure un impiego migliore dei fattori di produzione, in particolare della mano d'opera,

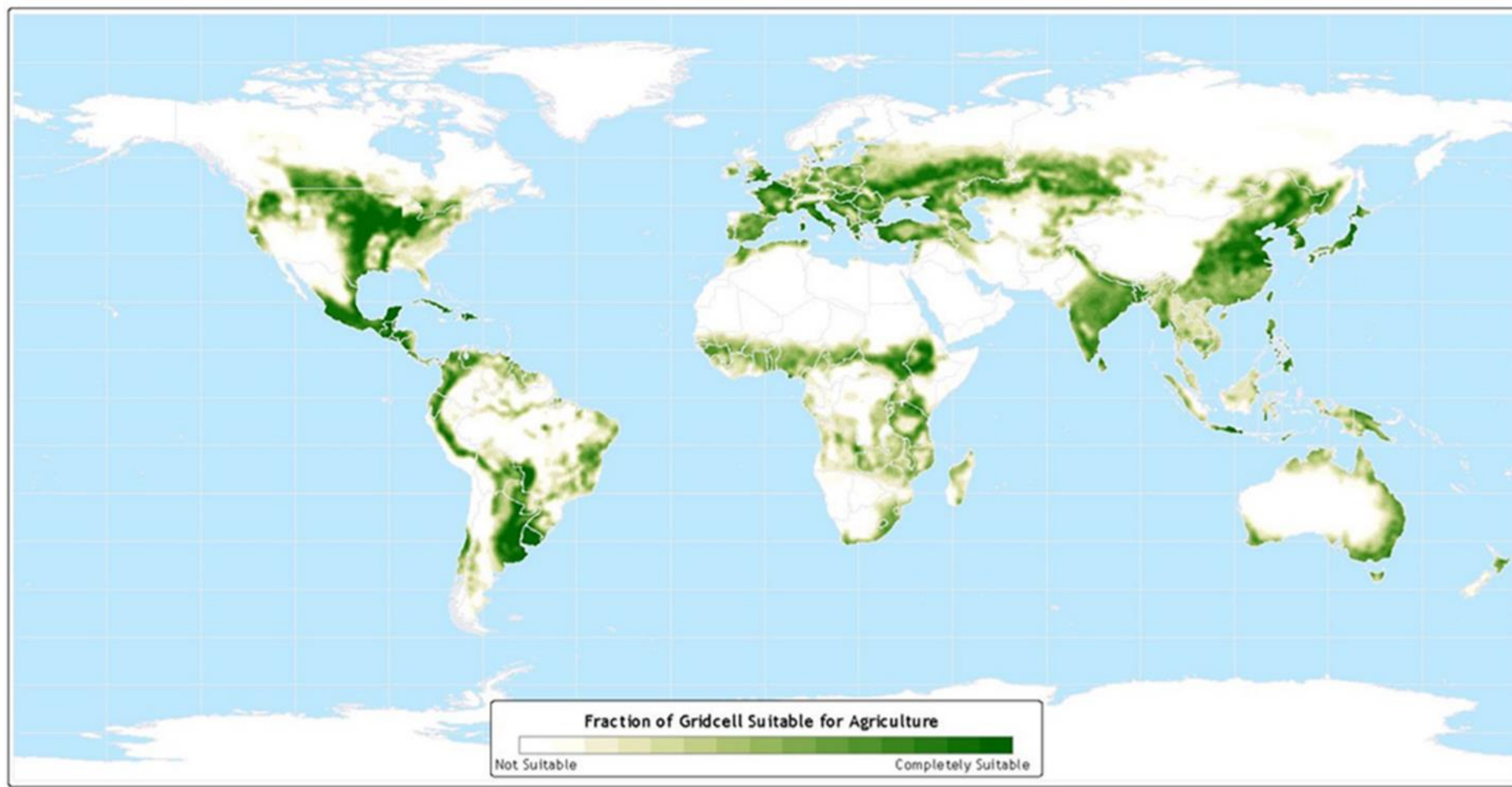
b) assicurare così un tenore di vita equo alla popolazione agricola, grazie in particolare al miglioramento del reddito individuale di coloro che lavorano nell'agricoltura,

c) stabilizzare i mercati,

d) garantire la sicurezza degli approvvigionamenti,

e) assicurare prezzi ragionevoli nelle consegne ai consumatori.

Agriculture Suitability

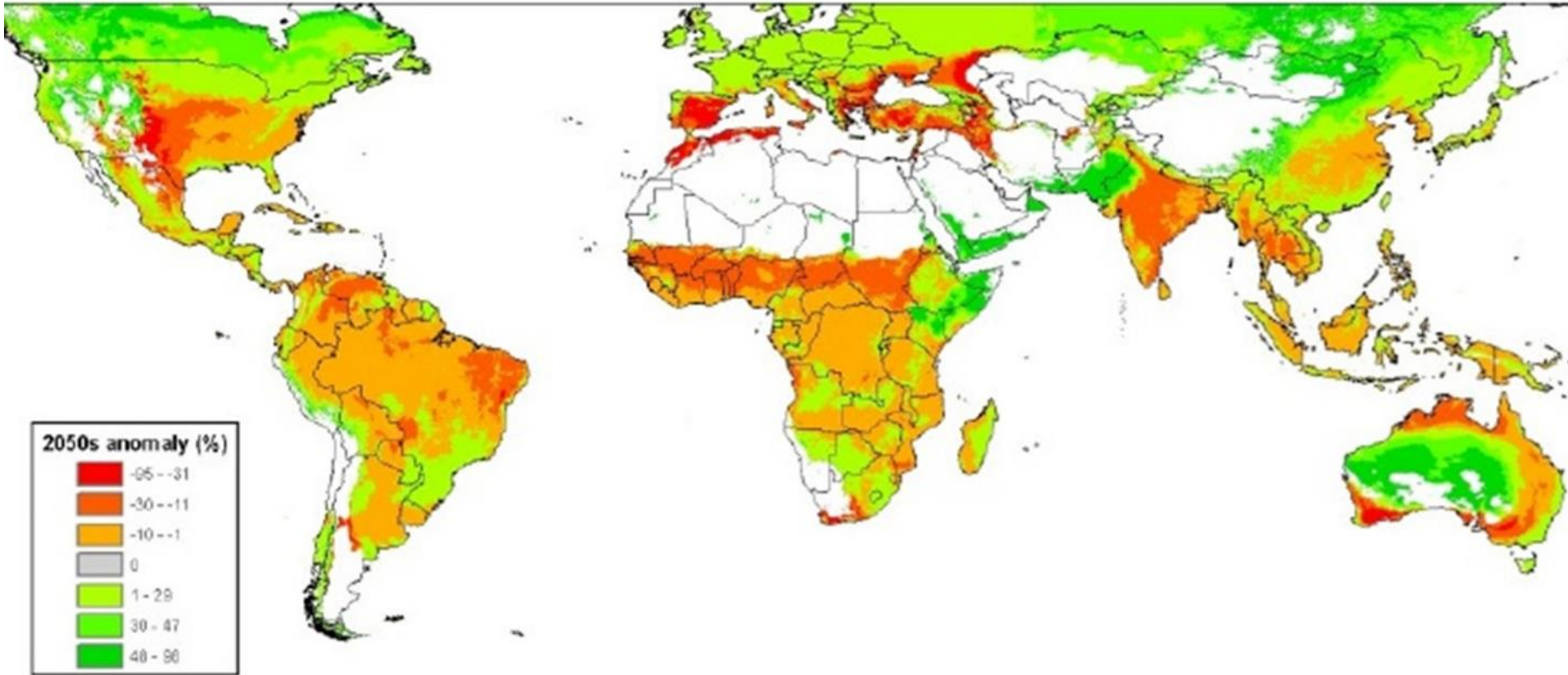


Data taken from: Ramankutty, N., et al. The global distribution of cultivable lands. Submitted to Global Ecology and Biogeography, March 2001.

CRU 0.5 Degree Dataset (New, et al.)

Atlas of the Biosphere
Center for Sustainability and the Global Environment
University of Wisconsin - Madison

Crop suitability is changing



Average projected % change in suitability for 50 crops, to 2050

Growing world population + climate change

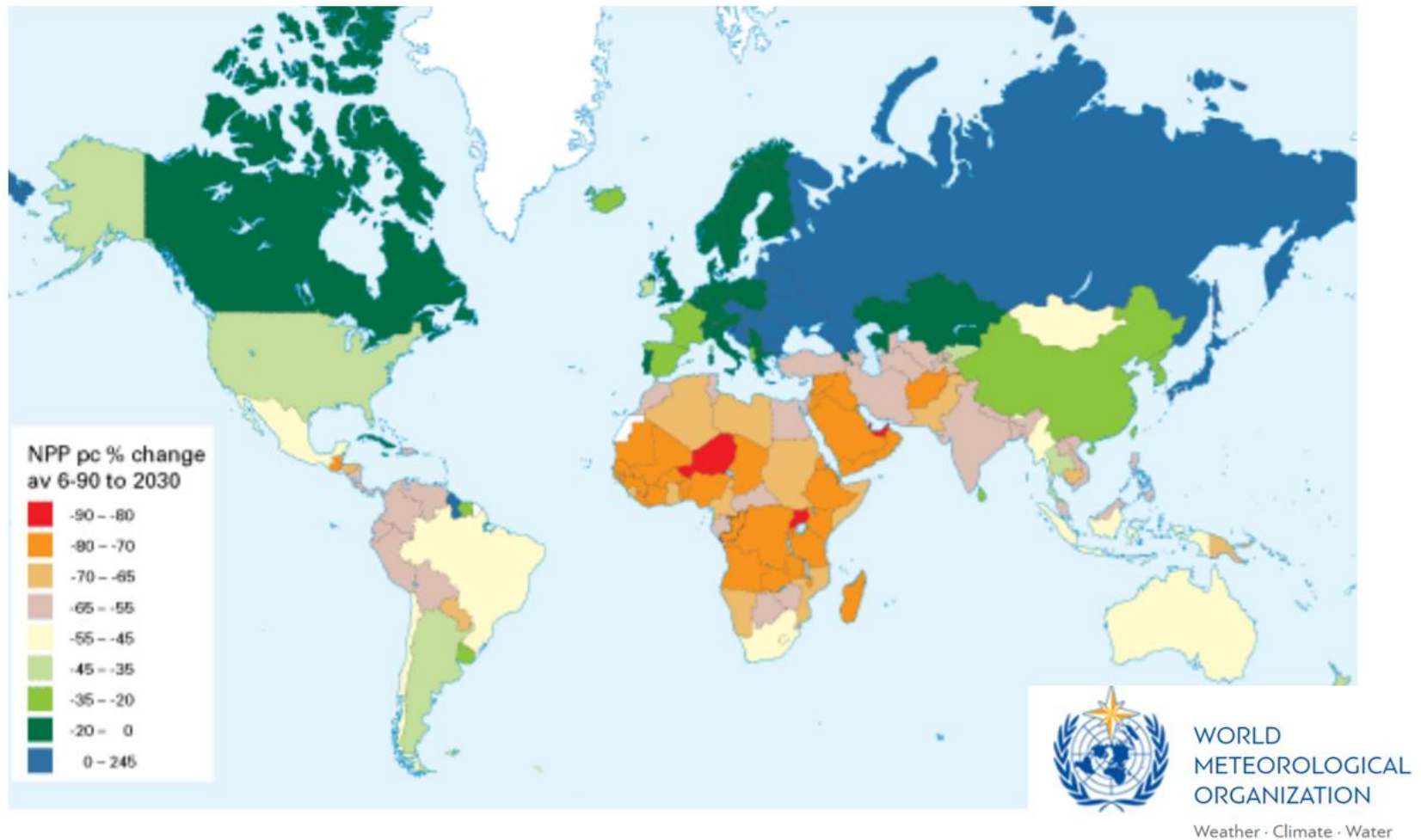
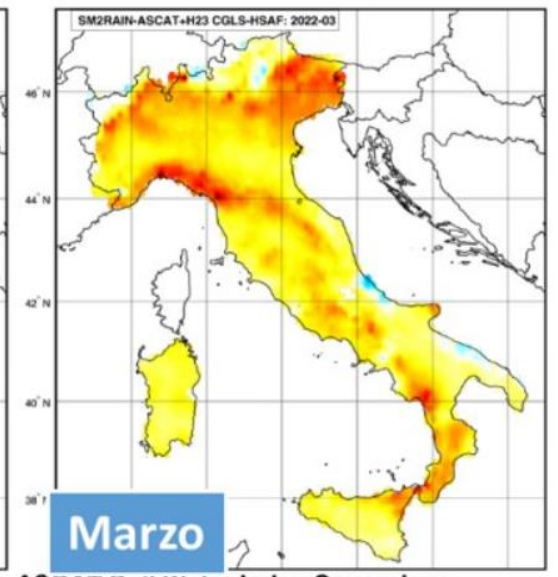
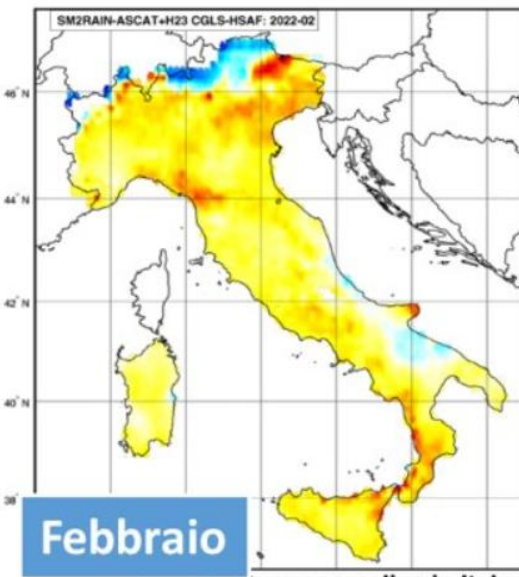
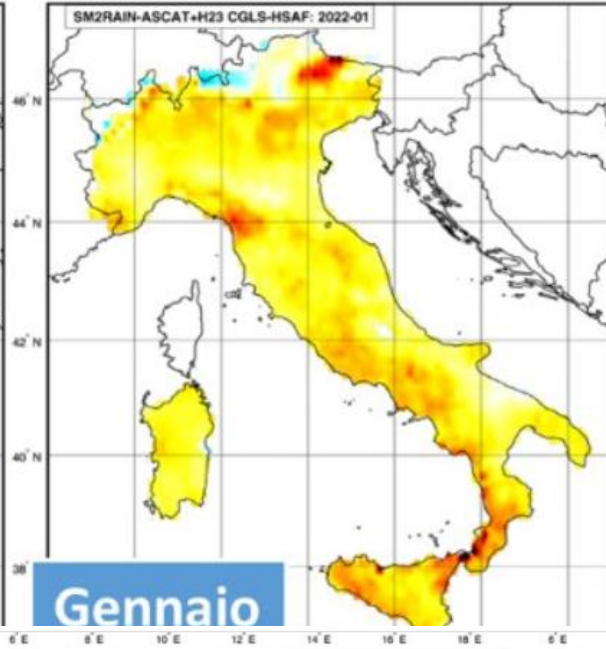
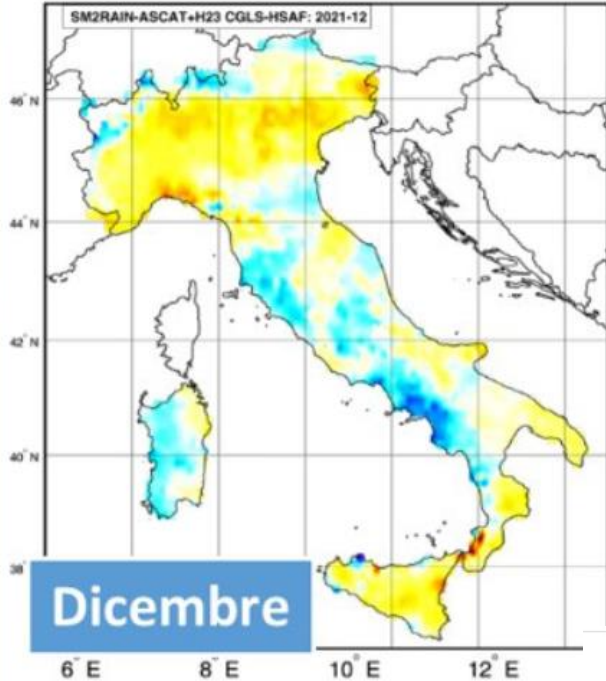
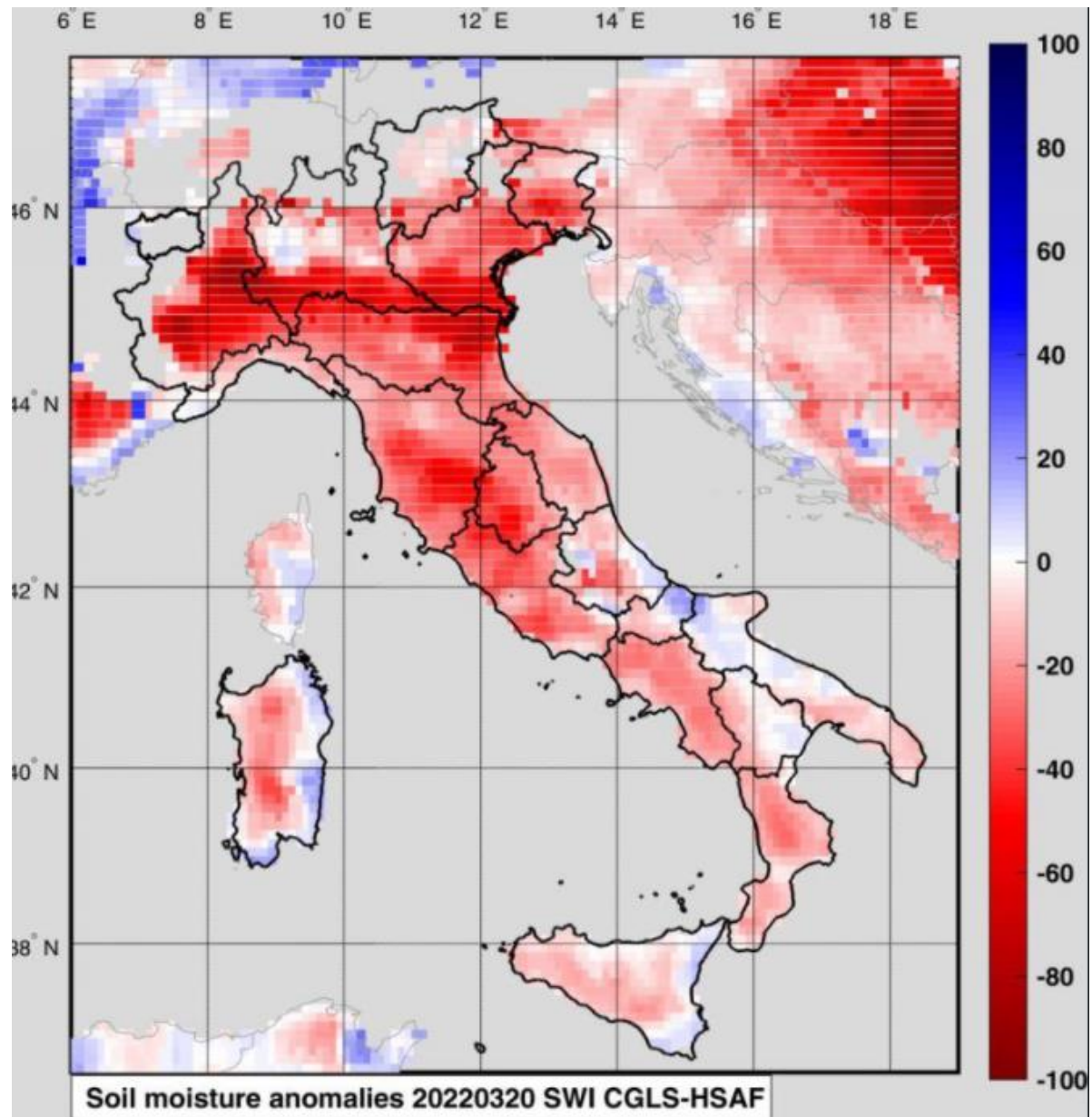


Figure 1 — Net primary production of biomass per capita percent change (from 1961-1990 mean to 2030): data compiled and adjusted by FAO Environment, Climate Change and Bioenergy Division, based on [“World maps of climatological net primary production of biomass \(NPP\)”](#) (2006)

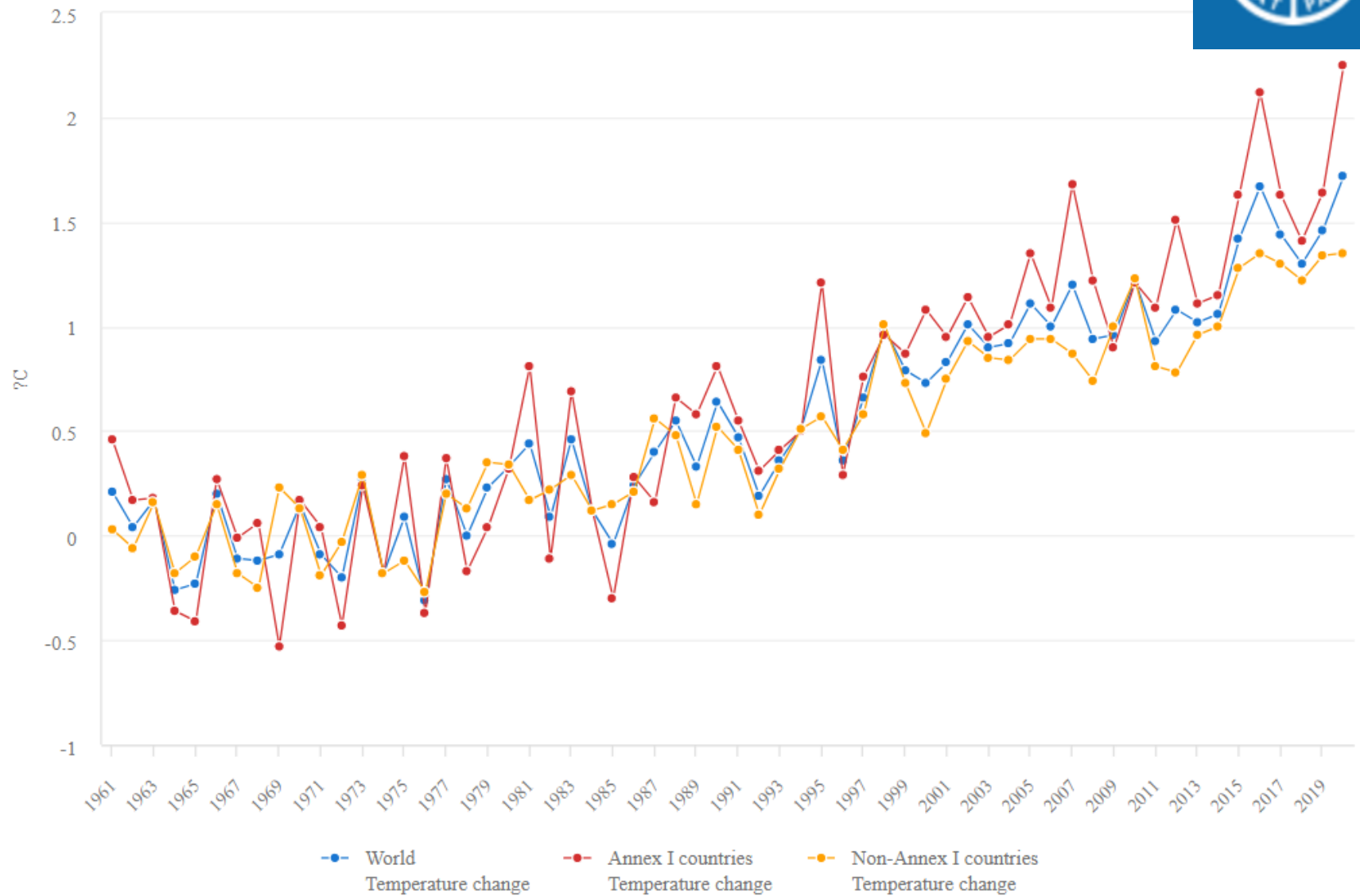
ANOMALIE DI PIOGGIA (mensili)





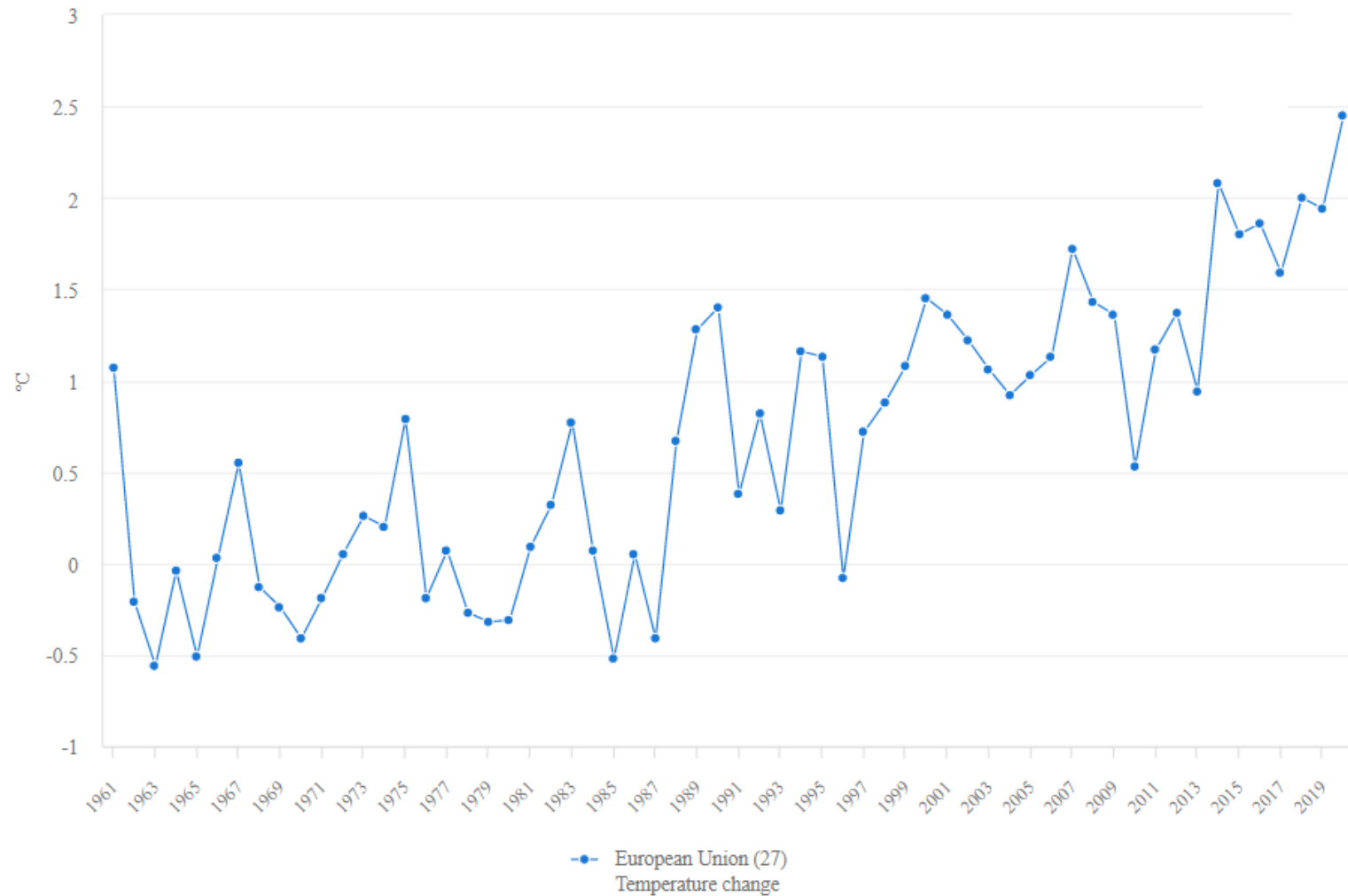
Mean Temperature Change of Meteorological year

1961 - 2020



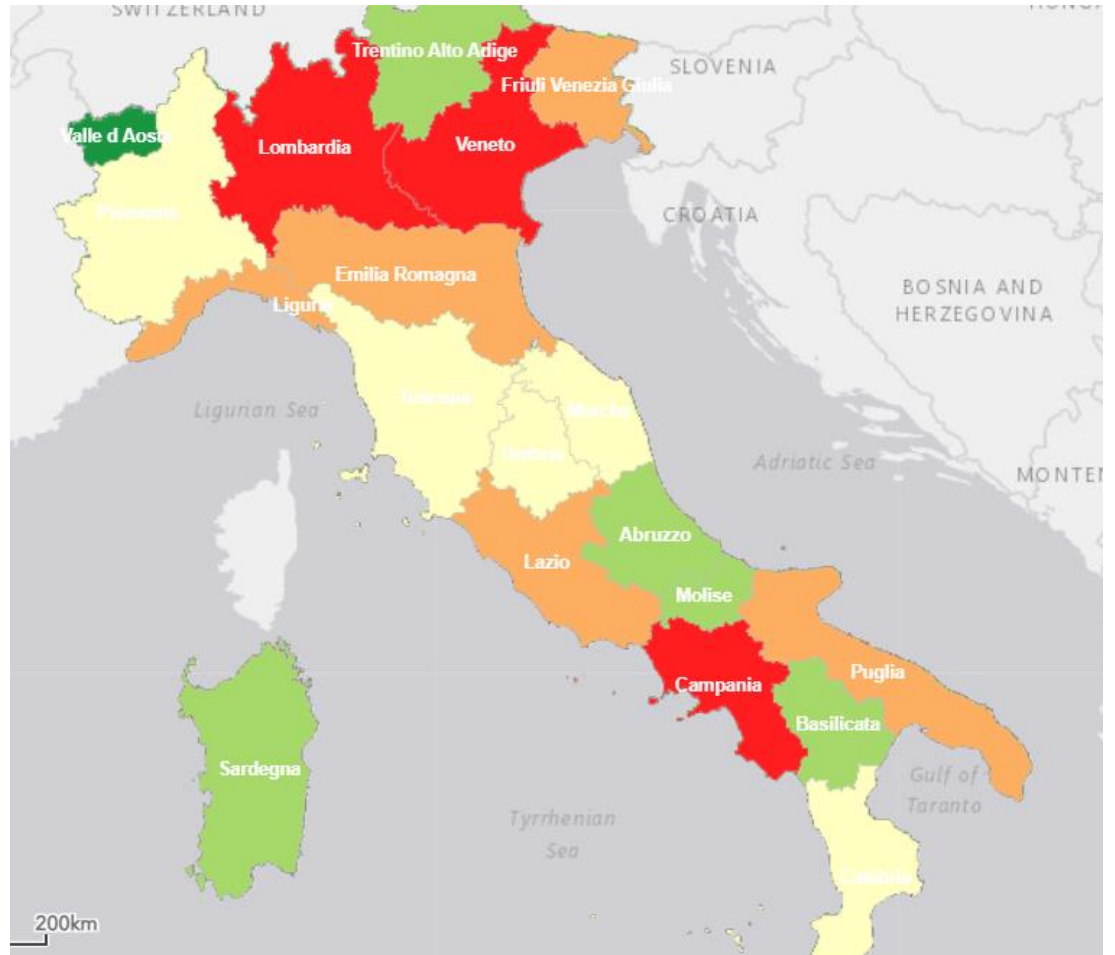
Mean Temperature Change of Meteorological year

1961 - 2020



Climate change





Statistiche regionali sul consumo di suolo 2006 - 2020

Suolo Consumato 2020 [%]

- > 9
- 7 - 9
- 5 - 7
- 3 - 5
- ≤ 3

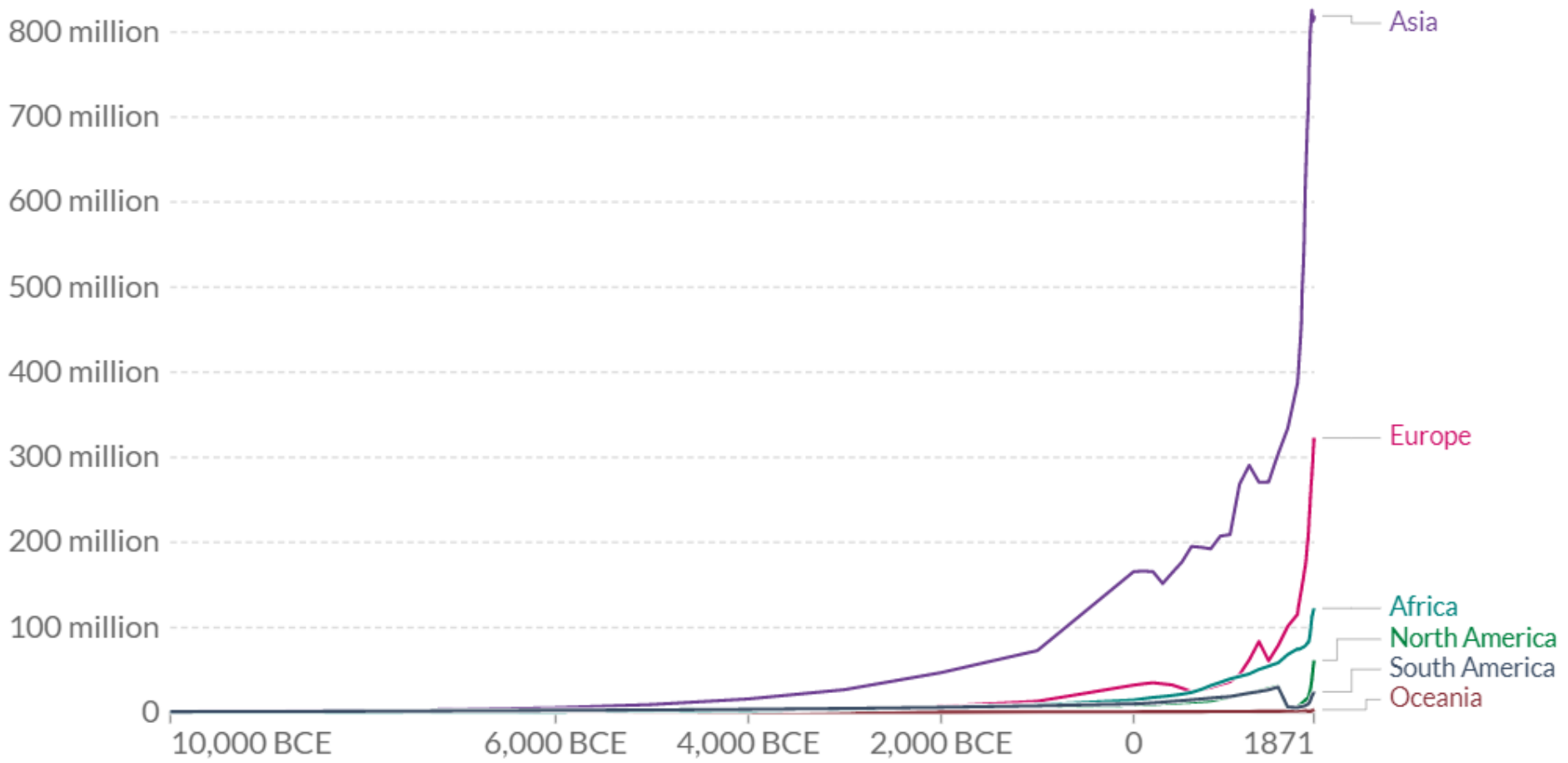


ISPRA

Istituto Superiore per la Protezione e la Ricerca Ambientale

Population, 10,000 BCE to 1871

LINEAR LOG [+ Add country](#)



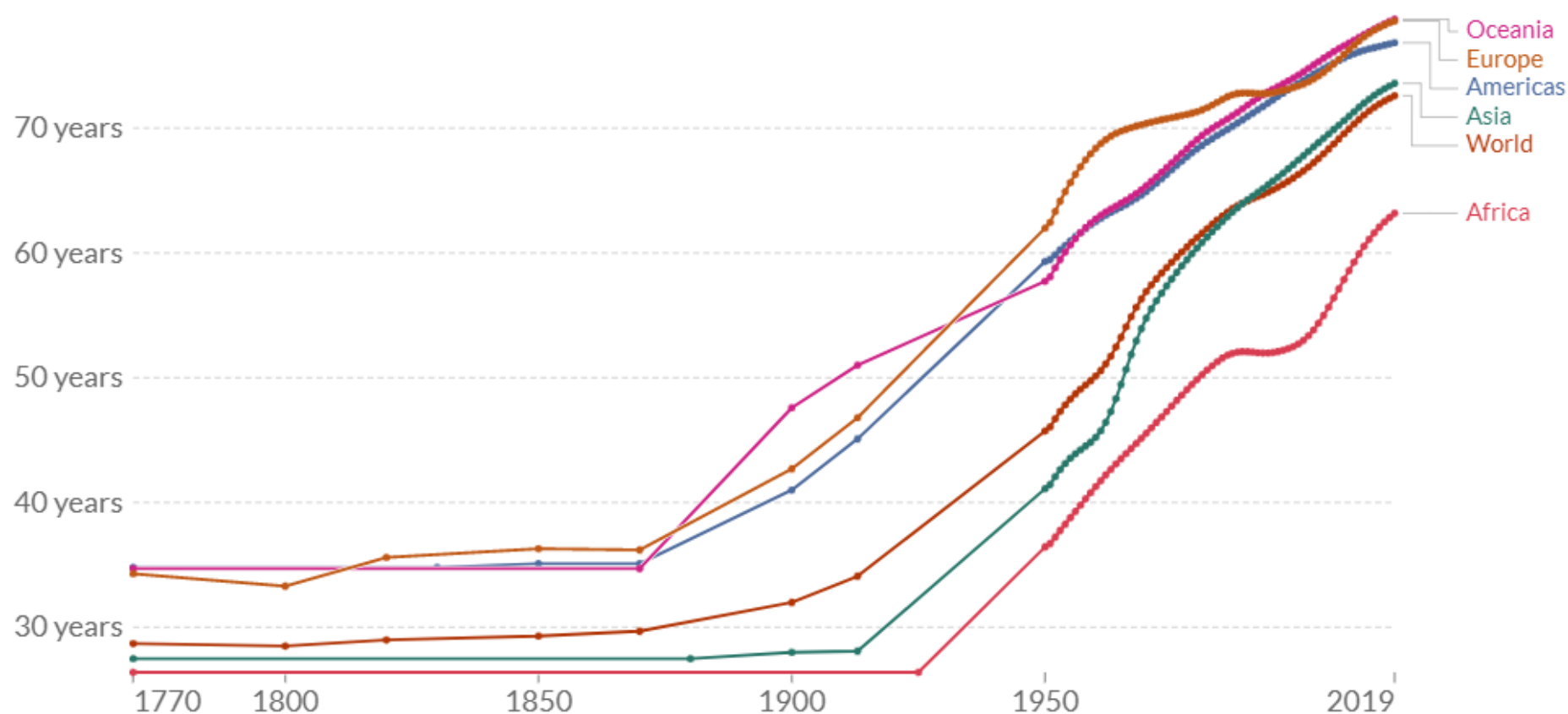
Source: Gapminder (v6), HYDE (v3.2), UN (2019)

Life expectancy, 1770 to 2019

LINEAR

LOG

+ Add country

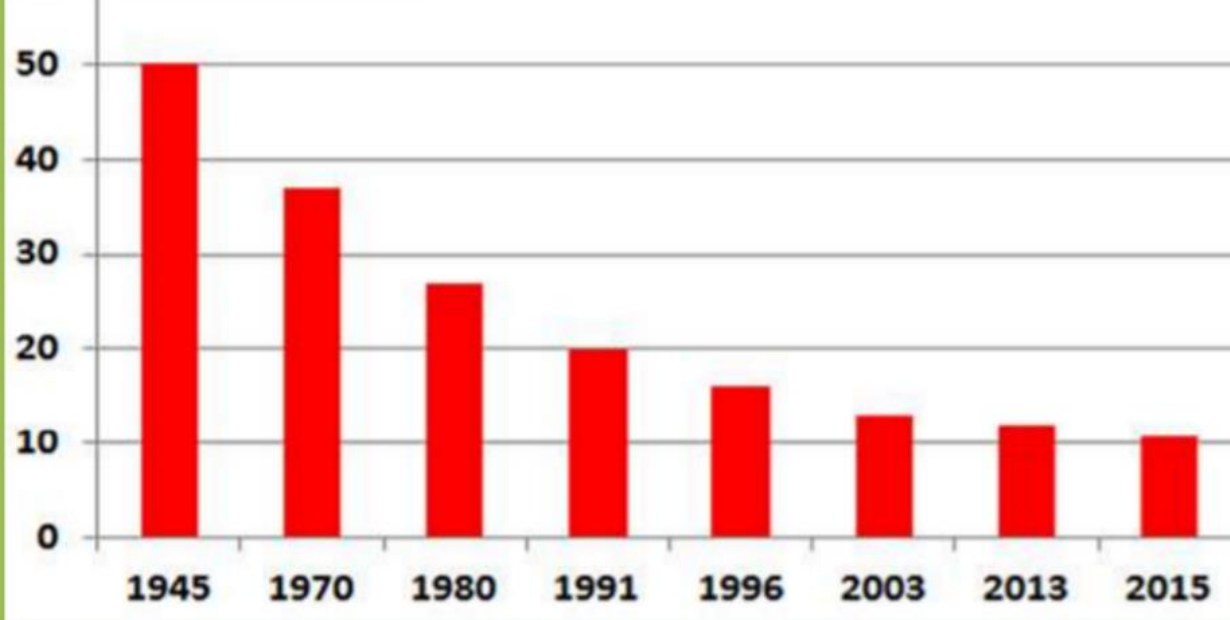


Source: Riley (2005), Clio Infra (2015), and UN Population Division (2019)

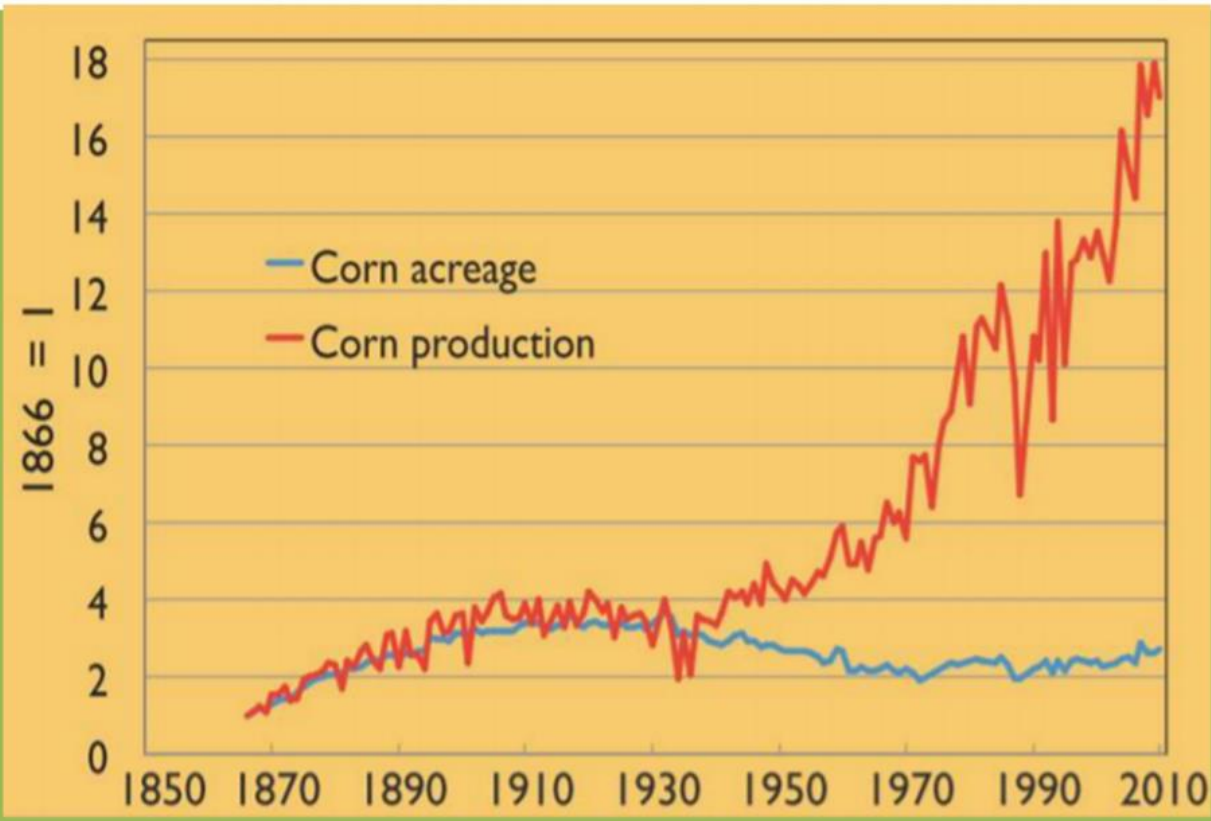
OurWorldInData.org/life-expectancy • CC BY

Note: Shown is period life expectancy at birth, the average number of years a newborn would live if the pattern of mortality in the given year were to stay the same throughout its life.

% of world
undernourished people
(FAO)



U.S. decoupling of corn
production and acreage
(Ausubel, Wernick and
Waggoner, 2012)

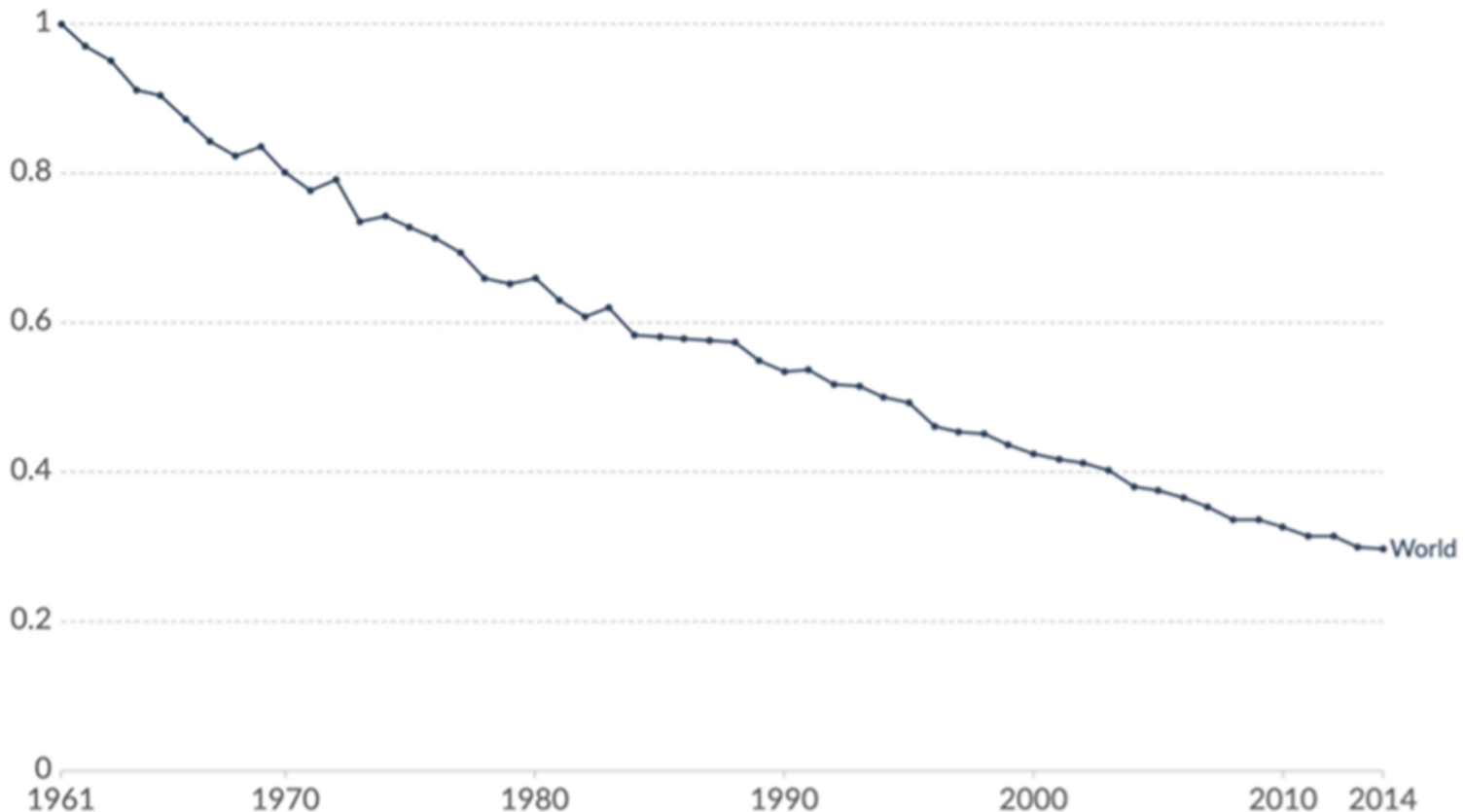


Per produrre la stessa quantità di cibo oggi ci serve il 30% della terra che serviva nel 1961

Arable land needed to produce a fixed quantity of crops (1961 = 1), 1961 to 2014



Arable land needed to produce a fixed quantity of crops is calculated as arable land divided by the crop production index (PIN). The crop production index (PIN) here is the sum of crop commodities (minus crops used for animal feed), weighted by commodity prices. This is measured as an index relative to 1961 (where 1961 = 1).



Share of people who are undernourished

Undernourishment measures the share of the population that has a caloric intake which is insufficient to meet the minimum energy requirements necessary for a given individual.

[+](#) Add region

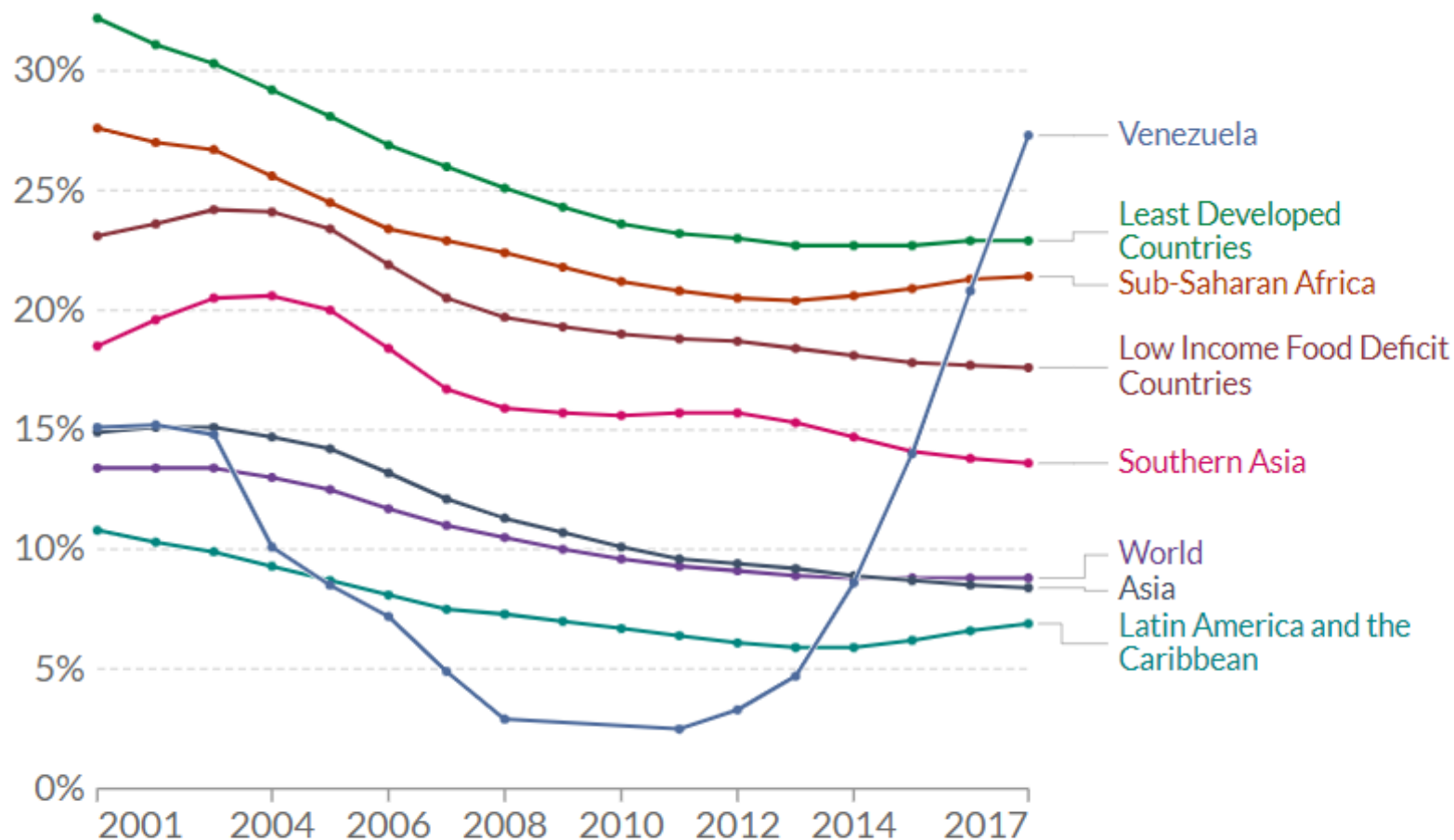








Foto: www.veronasera.it



Foto: www.genteveneta.it





Rispondere
alle sfide:
gli obiettivi
della ricerca

- protezione delle colture da malattie e parassiti
- miglioramento dell'impatto ambientale
- resilienza, cambiamento climatico
- miglioramento delle produzioni, in quantità e qualità

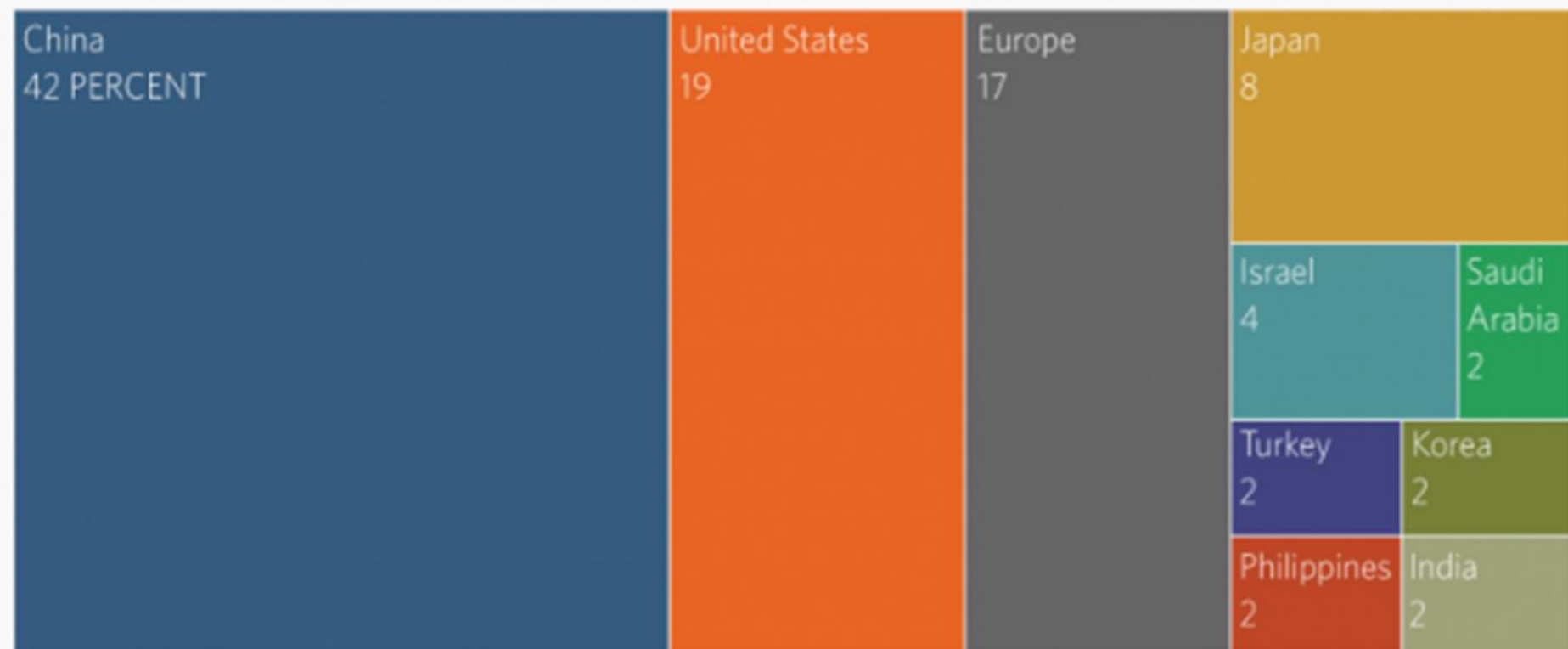
"I think it's very important for women to see a clear path," she said. "I think the fact that Jennifer Doudna and I were awarded this prize today can provide a very strong message for young girls."



Jennifer Doudna, PhD, and Emmanuelle Charpentier, PhD, pioneers in the development of CRISPR technology as a "genetic scissors," have won the 2020 Nobel Prize for Chemistry.

Agricultural CRISPR Studies by Region, 2014-2017

China is the largest contributor to research in CRISPR systems in plant genome editing, when measured by percentage of articles published.



Source: *Emerging Topics in Life Sciences* (2017) 1169-182

Copyright Stratfor 2018





<https://www.nytimes.com/by/knvul-sheikh>

Automation of farming practices





La via d'uscita?

- Comunicare, condividere, coinvolgere
- Concedere punti di vantaggio alla mente
- Curiosità!





Grazie



@dPiovan

Deborah Piovan

