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Ombating malnutrition in all its forms – overweight and obesity as well as undernutri-

tion and micronutrient deficiencies – is a
global problem.

The European Academies Science Advisory

Council (EASAC) recently published a report calling

for urgent action on food and nutrition security: this

action will need to include consideration of

the options for changing European diets to mitigate

cclimate change, conferring co-benefits for health.

EASAC brings together EU member states’ na-
tional science academies with the aim of offering

evidence-based advice to European policy makers.

EASAC provides a means for the collective voice of

European science to be heard and its recent report

is part of a global project led by the InterAcademy

Partnership (IAP). The analysis and recommenda-
tions for Europe are accompanied by parallel activi-
ties focusing on Africa, Asia and the Americas. The

IAP report will be published later in 2018.

In the EASAC report, based on the work of a

group of experts nominated by EASAC member

academies, we emphasise that research and

innovation are central to finding solutions. We rec-

ommend being more ambitious in identifying and

using scientific opportunities: how can the current
evidence base shape understanding of both sup-

ply- and demand-side challenges? And how should

the research agenda be defined, including basic

research, to fill knowledge gaps?

Climate change will have negative impacts on

food systems, necessitating the introduction of

climate-smart agriculture such as the adoption of

plant breeding innovations to cope with drought.

Agriculture and current diets also contribute signifi-
cantly to climate change. Mitigating this contribu-
tion depends on land-sparing and agronomic man-
agemen

t practices together with efforts to influence

consumer behaviours associated with excessive
greenhouse gas emissions from agriculture, includ-
ing the over-consumption of calories and meat.

Among the core findings in our report are:

Food consumption will need to change to im-

prove consumer health. It is important to explore

individual responsiveness to nutrition and the links
to health, and to consider the particular needs of

vulnerable groups. As part of the changes to food

consumption patterns, a decrease in the consump-
tion of animal protein could be important for both

health and the environment but, globally, more

research is needed to clarify these relationships

and to measure sustainability related to consump-
tion of healthy diets. We also call for policy makers
to introduce incentives for affordable nutrition.

Meanwhile, there are new opportunities emerg-
ing from technological advances in analytical tests,
to tackle sources of food contamination and assure

food origin and quality. And lastly, European coun-
tries must collect more robust data on the extent of

waste in food systems and interventions to reduce

waste, as part of achieving Circular Economy and

Bioeconomy objectives.

Agriculture has significant impacts on the environ-

ment: We call for the revamp of the Common Agri-
cultural Policy to focus on innovation rather than

subsidies; in order to play a key role in European

competitiveness and the bioeconomy. Europe is

dependent on food and feed imports. This depend-

ence leaves us vulnerable to market fluctuations. It

also increases Europe’s footprint in many develop-
ing countries that will be most affected by climate

change and environmental degradation.

Alternatives to traditional forms of animal

protein include food from the oceans, laboratory-
grown meat and insects. Research is needed to

understand and inform consumer attitudes to

innovative food and diets.

Also, research objectives for the next generation

of biofuels should include examining the potential

of cellulosic raw materials. Further ahead, energy

research must continue to explore how to engineer

systems with improved photosynthesis.

Finally, more effort is warranted to understand

the function of soils in carbon sequestration and

for the bioeconomy, for example, the soil microbi-

ome as a source of novel antibiotics.

Europe should not stall on opportunities for in-
novation coming within range. Breakthroughs in ge-

nome editing and other genetic research are crucial
to the future of agriculture. European policy makers

must capitalise on these scientific advances. For

improved plant and animal breeding, it is impor-
tant to protect and characterise wild gene pools

and to continue sequencing and functional assess-
ment to unveil the potential of genetic resources.

Precision agriculture offers many opportunities to

improve productivity with reduced environmental
impact. Large data sets are vital to support innova-
tion and prepare for risk and uncertainty.

Underpinning all our recommendations is the

recognition that research and innovation must be

better integrated, across disciplines and the public

and private sectors, in order to understand better

the interfaces between health, nutrition, food and

other ecosystem services. EASAC emphasises that

efforts to increase food systems’ efficiency should

not focus on increasing agricultural productivity by

ignoring environmental costs.

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COMMENT