

# Agriculture and Public Health

Impacts and pathways for better  
coherence

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european public health alliance

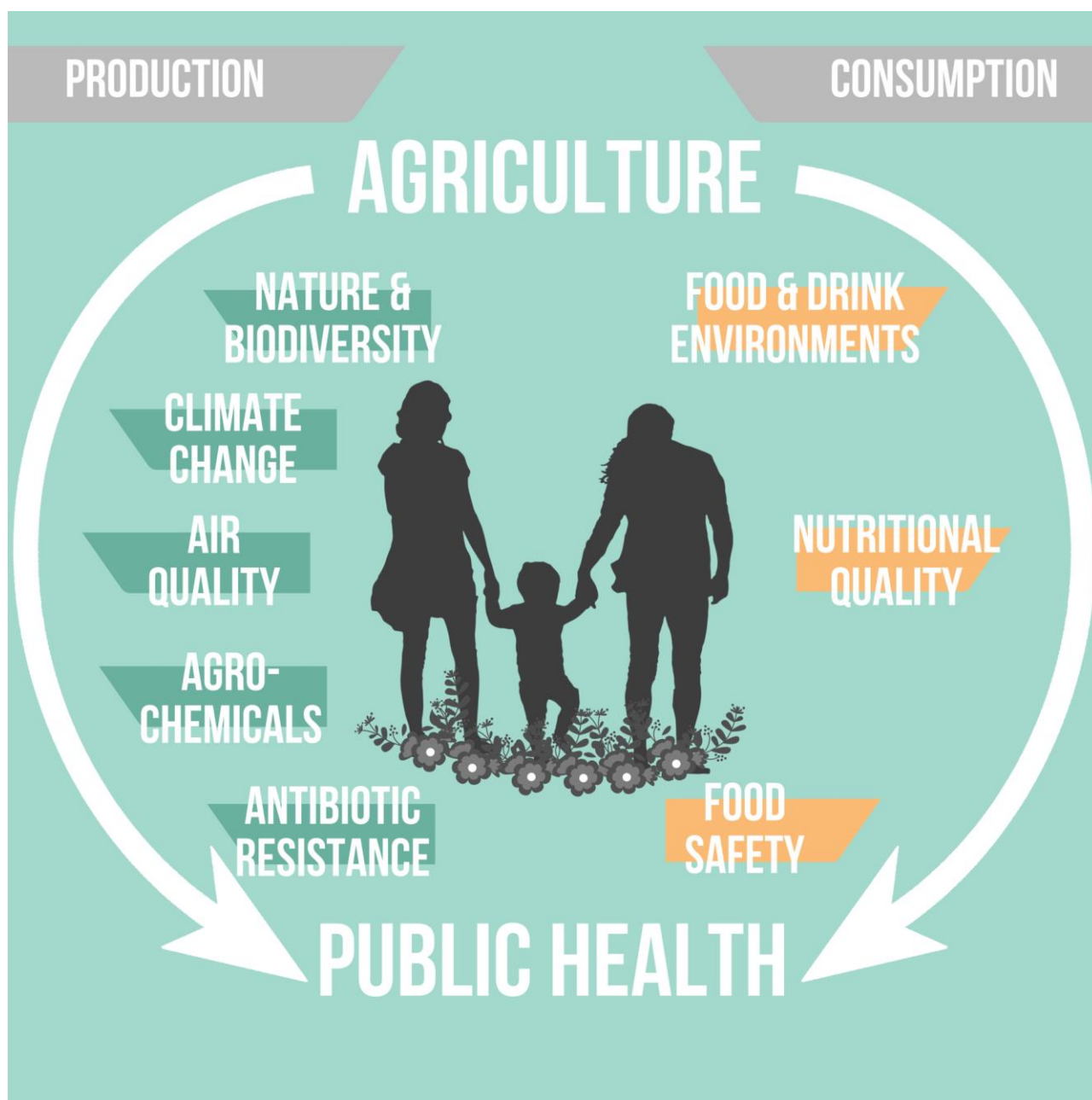




# Agriculture and public health

Agriculture's impacts on public health

Figure 1. Two pathways of influence: production methods and consumption





## Agriculture and health: consumption linkage

### **Food and drink environments**

A healthy diet underpins a healthy life. While great advances have been made in reducing food insufficiency, unhealthy diet today is the single largest risk factor for the entire burden of premature death and disease in the EU.<sup>1</sup>

Diet is a major risk factors for three main chronic diseases: cardiovascular diseases, cancers and type-2 diabetes. They are also the main driving force behind the obesity epidemic.<sup>2</sup> Chronic diseases represent 70-80% of healthcare spending in the EU, or an estimated €700 billion annually.<sup>3</sup> The average European diet is too high in salt, processed meat, red meat, sugar, saturated fat and trans fat. It is too low in fruit, vegetables, whole grains, nuts, fibre and Omega-3.<sup>4</sup>

People's eating patterns are shaped by food and drink environments, which are the *physical and socio-economic surroundings that influence what we eat and drink.*<sup>5</sup> Today's food and drink environments, which shape the relative availability, accessibility, affordability and acceptability of consumer food items, are widely seen as promoting unhealthy consumption practices.<sup>6</sup>

Agricultural policies can influence food and drink environments by creating incentives for food producers to specialise in specific crops or products, resulting in greater than normal quantities supplied or lower relative prices, with knock-on effects on final consumption patterns.

*This paper addresses in further detail the links between agricultural policy, nutrition, consumption and health.*

### **Nutritional quality**

There are firm indications that the nutrient content of various vegetables and fruit has declined compared to about fifty years ago, which may be related to changes in the food system.<sup>7</sup> Animal product quality is also correlated with agricultural choices, with grass-fed meat and milk consistently showing superior nutritional profiles.<sup>8</sup> Organic products appear to have better nutritional compositions on several indicators than non-organic ones, but the question is still debated.<sup>9</sup>

The wider impact on public health of differences in nutrient levels however remains unclear.

### **Food safety**

More than 200 types of diseases are spread through food, causing a wide scope of symptoms ranging from diarrhoea to cancer. In 2013 310,000 cases of bacterial food borne diseases were reported in the EU, resulting in 322 deaths. Individual disease outbreaks can lead to peaks in the harm caused.<sup>10</sup>



## Agriculture and health: production linkage

### **Antibiotic resistance**

A 'post-antibiotic era', in which common infections and minor injuries can kill, could become a 21st century reality. By 2050 this could mean 10 million deaths per year globally at a cumulative cost of 100 trillion USD.<sup>11</sup> For now, more than 25,000 people die in the EU each year from infections caused by antibiotic resistant bacteria. The rise of antibiotic resistance is attributable to antibiotics overuse in both human and veterinary medicine.<sup>12</sup> Intensive livestock systems and antibiotics use are closely linked.<sup>13</sup>

### **Climate change**

Tackling climate change could be the 21st century's greatest public health opportunity. Climate change is expected to lead to systemic changes in ecological conditions and social dynamics with far-reaching effects on public health, including through heat waves, floods, water shortages, infectious diseases, respiratory and cardiovascular diseases, under-nutrition, mental health and migration.<sup>14</sup>

The food system is responsible for up to 30% of total greenhouse gas emissions and agriculture represents approximately 10% of EU-based emissions.<sup>15</sup>

### **Air quality**

More than 400,000 people die prematurely from air pollution in the EU each year. Agriculture is a major emitter of ammonia and methane which are key contributors to air pollution.<sup>16</sup>

### **Agrochemicals**

Agrochemicals use contributes to ecosystem degradation and pesticides are an occupational threat extending to farm workers, their families and potentially inhabitants of areas exposed to application.<sup>17</sup> Evidence on the effects of endocrine disrupting chemicals found in various pesticides is raising concerns.<sup>18</sup>

### **Nature and biodiversity**

Human progress is supported by the earth's ecological and biophysical systems. Trends like soil erosion, land use change, nitrogen and phosphorus overload, chemical pollution, water depletion and loss of pollinators threaten to reverse the last century's significant gains in health.<sup>19</sup>

Agriculture has made a major contribution to the fight against food deprivation in Europe, but the health of future generations may have been mortgaged to realise these gains. Occupying 40% of the EU land area, agriculture is a main driver of ecosystem degradation and biodiversity loss. Only 16% of European natural habitats are considered to be in a good state and under current trends, most ecological indicators are set to decline further.<sup>20</sup>



## Agricultural policy and diets: how are they linked?

### 1. Through the quantity of food supplied

Increased food availability has been identified as a main driver of weight gain in populations. The rise in food energy supply between 1971–2010 is associated with increased body weight, particularly in high income countries.<sup>21</sup> Greater food availability can help explain the surge in overweight and obesity in the USA from the 1970s onwards and in the UK since the 1980s.<sup>22</sup>

There is widespread consensus that changes in agricultural production and productivity have allowed a major expansion in the food supply. Policy played an important part in enabling this development. The EU Common Agricultural Policy (CAP), for example, was adopted with the explicit aims to increase productivity, ensure a stable supply of agricultural outputs and reasonable prices for consumers.<sup>23</sup> The policy was thus from the outset predicated on the link between agriculture and consumption and in current debates on the future of the CAP it is still often asserted that the policy should enable the ‘feeding’ of an increased world population. Dietary quality however was never an explicit aim.

### 2. Through the types of food subsidised?

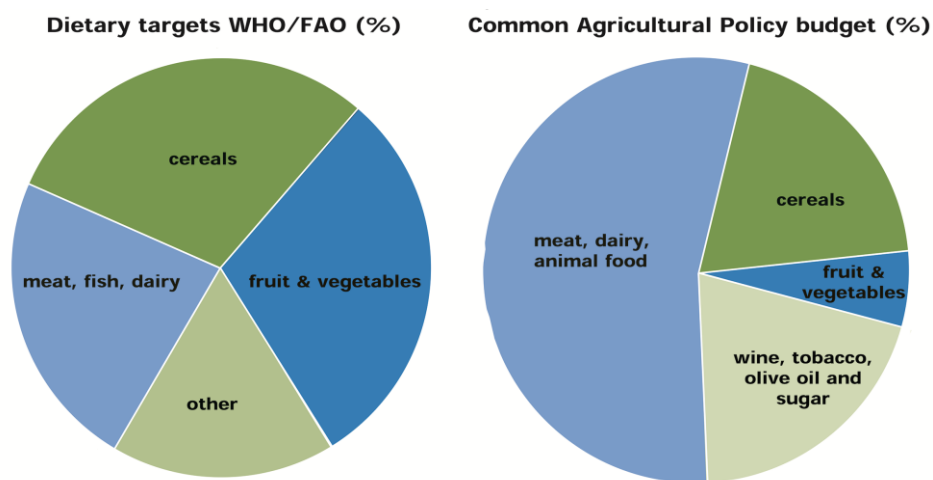
Various studies claim that agricultural policies and subsidy schemes adopted in Western countries, the EU and US in particular, have systematically favoured certain types of agricultural products, including sugar, cereals and animal products and products most amenable to further processing over others, such as fresh fruit and vegetables, legumes and nuts, leading to suboptimal and even harmful dietary outcomes.

→ A ground-breaking report from 2003 by the Swedish National Institute of Public Health singled out a number of the CAP’s public health harmful incentives. It argued that the policy boosted milk production by setting high minimum prices and then subsidised excess butter and skimmed milk back into the food supply, increasing saturated fat intake and replacing vegetable protein. It also drove up the price of fruit and vegetables by subsidising withdrawals (destruction), rather than finding ways to market these products at lower prices to stimulate consumption by low-income households. Wine and tobacco subsidies were highlighted as inconsistent with public health.<sup>24</sup>



- ➔ Two other studies published in the European Journal of Public Health and the Bulletin of the World Health Organisation presented similar findings while attempting to quantify the impacts of reforming the fruit and vegetables support regime on cardiovascular health and the contribution of the CAP to excessive saturated fat consumption.<sup>25</sup>
- ➔ A report by the UK Faculty of Public Health from 2005 asserted that CAP subsidies favour animal products both through direct subsidies and support for arable crops used for feed. It contrasted dietary targets with the observed allocation of CAP funding.<sup>26</sup>

Figure 2. Dietary targets and CAP budget allocations, 2005 (Faculty of Public Health)



- ➔ Similarly, a number of reports from the US assert that agricultural support policies have primarily favoured a few bulk commodities, in particular soybeans, maize and wheat. Relying on government payments for economic stability, farmers plant these crops to the detriment of fruit, vegetables and other grains which are penalised by agricultural policy. These incentives have skewed markets towards overproduction of commodities that act as the basic ingredients of processed, energy-dense foods resulting in a food market flooded with such products, fuelling the obesity crisis.<sup>27</sup> At present more than half of the American diet consists of ultra-processed foods,<sup>28</sup> while only three crops – maize, rice and wheat – make up nearly two-thirds of global food energy intake.<sup>29</sup>



Other authors refute that EU and US farm subsidies have contributed to making products high in fat and sugar more easily and cheaply available to consumers, for instance:

- It is asserted that payments to farmers do not significantly influence the affordability of retail food because the agricultural share of the cost of final consumer products is low. Removing all subsidies in the US is not expected to result in any significant difference in retail prices.<sup>30</sup>
- Another argument is that CAP measures may have effectively taxed beef, milk and sugar by consistently keeping the intervention prices above the world market. This suggests that without subsidies and under free market conditions these health-sensitive products would be cheaper.<sup>31</sup>
- A study in Health Economics found a positive link between agricultural support policies and calorific intake in the US, but the effect was very small with a decreasing impact over time.<sup>32</sup>
- The European Commission often claims that if CAP subsidies were distortive in the past, they ceased to be so after reforms that decoupled payments from production.<sup>33</sup>

There is a lack of consensus among policy observers on whether and how agricultural subsidies promote the final consumption of certain farm products over others. Analyses to date, however, appear to have insufficiently appreciated the complexities of the food system. Public health approaches may have assumed too direct a relationship between production support and consumption without sufficiently appreciating the role of intermediary industries and consumer demand.

Studies countering public health claims are contradictory; either finding little impact of subsidies or asserting that they actually played a positive role by increasing prices of health-sensitive products. They also fail to appreciate that from a consumer's perspective, food affordability is more usefully measured against income and in relation to other products, not world prices. The arguments inadequately reflect on how past policy incentives may have shaped consumer expectations, farming culture, business models, technological infrastructure and logistics and that post-reform incentives in the CAP may not have neutralised these path dependencies. There is a lack of reflection on how research, innovation and investment policies, the importance of which is stressed by all authors, may be inseparable from farm support mechanisms, as the latter contribute to demand for inputs and technologies.

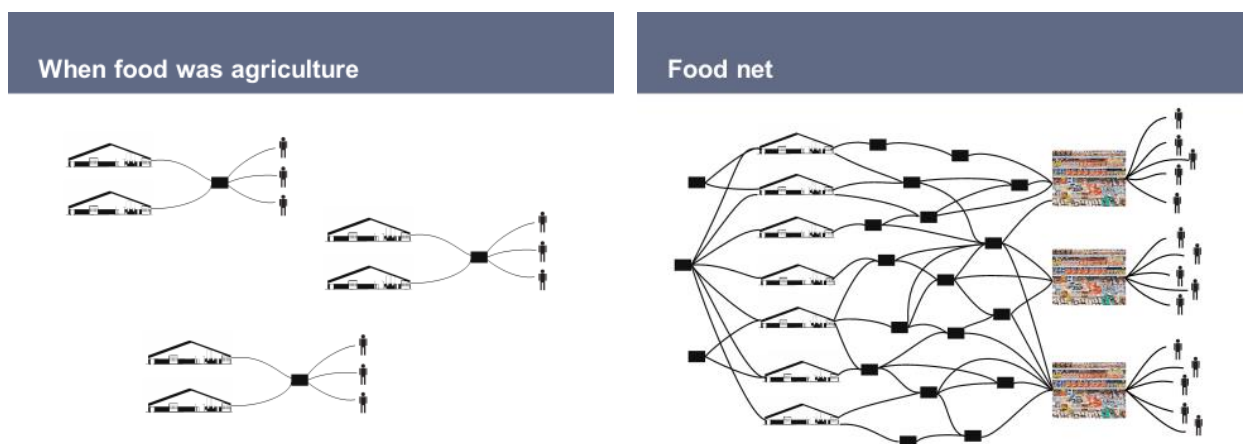


### 3. By shaping food and drink environments

Today, the main ‘consumers’ of agricultural products are food industries including traders, processors, retailers and food service outlets, not the final consumer – the citizen. When food industries are approached as the primary consumers of agricultural products, various arguments raised in the previous section appear to be validated. Agricultural policies can indeed influence food and drink environments by creating incentives for food producers to specialise in specific crops or products, resulting in greater than normal availability or lower relative prices, with knock-on effects on final consumption patterns.

Over the last decades the food chain transitioned from a rather direct link between production and consumption into a longer, more complex net of interactions. Consumption patterns are now increasingly determined by the processing, distribution and retail industries in the context of international supply chains.<sup>34</sup>

Figure 3. From farm to fork: then and now (images by WRR)<sup>35</sup>



There is ample evidence on how incentives in agriculture, including through trade policy, have resulted in supply-side changes with major impacts on food and drink environments. Examples include palm oil, chicken, soybeans, vegetable oils and apple juice globally<sup>36</sup> and tomato paste<sup>37</sup> and the imminent abolition of sugar quotas in the EU.<sup>38</sup> A case study from the US describing how subtle changes in agricultural policy resulted in a major shift from sugar to high-fructose-corn syrup in the food system, illustrates the case.<sup>39</sup>





## From sugar to high-fructose corn syrup: case study of a policy-induced transformation

Prior to the 1980s the US soft drink industry was the main industrial user of sugar. In contrast, sugar use is very small today, but the industry is now the largest buyer of high-fructose corn syrup (HFCS) instead. This development is attributed to two main factors: research and price policies.

Public investment in agriculture has lowered the overall unit cost of farm products. The effects have been asymmetric however, favouring higher yields and lower prices for corn compared to sugar. This is partly attributable to more funding and consequently a larger number of researchers working on corn. Another factor influencing the shift from sugar to HFCS is farm price policies that have raised the price of sugar relative to that of maize.

The industrial substitution process from sugar to HFCS started in the 1970s and took more than a decade to complete. Today the two sweetener markets have virtually become independent with very limited possibilities for substitution. A long-term transition would be needed with significant adjustments in technology and logistics before the soft drink industry would be able to substitute back to sugar.

This case study shows that agricultural policy, including research and price support measures, can fundamentally impact the food supply chain with significant effects on final consumption. It also shows that consumers can be reduced to passive recipients of transformations in agriculture and the food chain. It furthermore throws a light on the importance of technological path dependency, inferring that historical incentives have a far longer lifetime than the date of their abolition.



Agricultural policy can also play a role in facilitating supply chain models. The last decades showed a parallel trend of increased farm consolidation, specialisation, globalisation of supply chains, the rise of transnational food companies, expansion of ultra-processed foods and increased concentration in the retail sector. This process of lengthening supply chains also coincided with the ‘nutrition transition’ and the global rise in obesity.<sup>40</sup> The driving logic behind EU agricultural policy, including the CAP, as laid bare by its main architect Sicco Mansholt, was to modernise farming making it akin to an industrial sector with increased farm size as part of the process.<sup>41</sup> Such specialised farms are considered to be the chosen suppliers of a commodity-based food system in which food industries are in the driving seat.<sup>42</sup>

Agricultural policy, conversely, could also foster investments in production for local markets by promoting infrastructures for more direct relationships between farmers and consumers. Shorter, more manageable supply chains could decrease reliance on extensive processing and may act as a vehicle for improving dietary quality. Shorter chains can also contribute to the diversity and resilience of the food system at large, local economic opportunities and allow smaller-scale farmers to recapture value from intermediary food industries.<sup>43</sup>

***“Agriculture, as part of the food system, is not detached from consumption patterns but its effects are mediated by supply chains, which are themselves co-shaped by agricultural policy.”<sup>44</sup>***

## Towards a constructive agriculture and health agenda



### **A forward-looking approach to agriculture and health**

Public health and agriculture need a constructive agenda to facilitate concrete synergies between the promotion of better agriculture and better health. Such an approach is not utopian, as evidenced by a Finnish case study from the 1970s, where a multicomponent approach to nutrition covering agricultural incentives produced strikingly good results.<sup>45</sup>

#### **A Finnish success story**

In the early 1970s cardiovascular mortality in Finland was amongst the highest in the world and the region of North Karelia was most affected. A community-based intervention mobilising a wide range of stakeholders started in 1972 and was able to reduce the incidence of coronary heart disease by 85% in part by significantly changing dietary practices.

Overconsumption of saturated fat was identified as a key problem and the intervention initially focused on reducing fat intake by reducing butter and full fat milk and later by increasing fruit and vegetable consumption.

With smallholder milk producers at the backbone of the North Karelian rural economy, the approach initially met with some resistance. This was overcome by a number of activities, including by building producer capacity to locally develop low-fat milk products and by stimulating demand for these products. Also, a large scale project to encourage regional berry consumption contributed to economic diversification opportunities and induced the conversion of some dairy operators to berry production. Likewise, collaboration with the food processing industry allowed locally produced canola oil to be marketed in the region.

Even with a limited substitution potential to dairy given the special climatic conditions in the area, the project was able to offer economic diversification options in line with nutritional requirements. Agriculture proved to be a key contributor to the success.

Failure to take account of health considerations in the formulation and implementation of agricultural policy is increasingly becoming unaffordable and is in clear breach of the EU



Treaties, particularly the Health in All Policies obligation which states that: “A high level of human health protection shall be ensured in the definition and implementation of all Union policies and activities.”<sup>46</sup>

Using agricultural policy as a lever for public health is most effective when the systemic nature of the challenges facing agricultural production and food and drink consumption are recognised. A transition in the food and agricultural economy will require a food policy approach to policy-making.<sup>47</sup>

**“Attempting to reduce obesity and nutrition-related, non-communicable diseases while ignoring the influence of food supply reduces the options for dealing with the problem.”<sup>48</sup>**

### Steps forward

1. Implement an in-depth Health Impacts Assessment (HIA) of agricultural policy within the framework of a formal CAP ‘Refit’<sup>49</sup> which should at least:
  - Evaluate how the CAP can contribute to promoting sustainable diets.
  - Identify credible mechanisms to improve the environmental health performance of agriculture.
  - Identify health harmful subsidies (HSS), such as for wine productivity enhancement and tobacco cultivation, as well as pathways for their elimination.

Doing a proper HIA is complex, but possible. The Slovenian government made a first attempt by carrying a HIA of its agricultural policy.<sup>50</sup> EPHA in its recent report ‘A CAP for Healthy Living’ made observations on ways to increase consistency between the CAP and public health.<sup>51</sup>

2. Elaborate and implement a policy-focused research agenda that conceptualises and pilots concrete measures to simultaneously promote better agriculture and better health.



## Notes

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## About EPHA

EPHA is a change agent – Europe's leading NGO advocating for better health. We are a dynamic member-led organisation, made up of public health NGOs, patient groups, health professionals, and disease groups working together to improve health and strengthen the voice of public health in Europe. EPHA is a member of, among others, the Social Platform, the Health and Environment Alliance (HEAL), the High Level Forum for a Better Functioning Food Supply Chain and the Better Regulation Watchdog.

EPHA's Transparency register number is 18941013532-08.

### Further reading

Towards a Sustainable Food Policy

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Three steps towards a healthy food future. Submission to the Informal EU Agriculture Council of 30-31 May 2016

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Report: A CAP for Healthy Living

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