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Security of UK Food Supply

The security of UK food supply is a key priority for the Government, particularly in light of the UK's forthcoming withdrawal from the EU. This note outlines current UK trade in food and animal feed, examines the challenges raised to the security of UK food supply by withdrawal from the EU and analyses the policy options available for improving UK food security.

Overview

- Nearly half of the food consumed in the UK is imported, mostly from the EU.
- Leaving the EU means that the Government will have to secure new agreements to maintain a diversity of markets for food trade and a ready supply of labour.
- Intentions for a new agriculture policy were announced in the Queen's Speech to replace the Common Agricultural Policy (CAP) and make decisions on farming subsidies.
- Policy options for maintaining UK food security include supply side measures such as increasing UK productivity and diversifying production and supply side measures such as changing consumption patterns, reducing food waste and ensuring equitable distribution of food.

Background

According to the Department of Environment, Food and Rural Affairs (Defra) food security exists when people have "access at all times to sufficient, safe, sustainable and nutritious food, at affordable prices".[1] Global food security is affected by a range of complex and inter-linked factors. These include urbanisation, climate change, population growth, changes in diet, unsustainable agricultural production systems, and competition for land and water. Furthermore food supply chains are subject to fluctuations that can dramatically affect the affordability of foods. For example, factors implicated in the food price spike of 2007/08 include poor harvests, export bans, market speculation, changes in demand, rising energy prices and the use of food crops for biofuels.[1]

Currently, the UK produces around half (52% by value)[2] of the food it consumes and imports the rest, mainly from the EU. There is on-going debate over where the balance should lie between UK food production and food imports to achieve good food for all. However, there is agreement that UK self-sufficiency in indigenous foods (those that can be produced in the UK) has been falling since the early 1990s and an increase in the diversity of international suppliers importing into the UK is needed to achieve food security. Achieving a balance between food production and imports will be a key consideration for the new UK agriculture policy announced in the Queen's Speech. The new policy will have to reconcile UK food security with other policy areas such as energy, public health, environmental management and employment policy. This briefing outlines where the UK gets its food from and what the main export markets are for the UK food and farming sector. It identifies potential challenges for UK food security and examines the main policy options for increasing UK food security. These include supply side measures such as new trade agreements, new technologies and diversification of production, as well as demand side policies to change patterns of procurement or consumption.

UK food trade

In 2016, the EU accounted for most (70%) of the food imported to the UK and received most (60%) of the food exported from the UK.[3] Figure 1 shows a breakdown of UK food imports and exports for the main categories of food products for 2016.[3] For each of the categories shown in Figure 1, food imports exceeded exports, the sole exception being beverages where exports (£6.3 billion) exceeded imports (£5.5 billion), largely due to UK whisky exports. The biggest trade deficits across the other categories were for fruit and vegetables (£10.3 billion imports and £1.1 billion exports) and meat (£6.2 billion imports compared with £1.6 billion exports).[3] With total UK food and drink exports valued at £20.1 billion and imports at £42.6 billion, the UK had an overall trade deficit of £22.5 billion in the food, drink and animal feed sector in 2016.[3]

In some cases these deficits represent foods that cannot be grown in the UK (such as bananas), but in other cases they are indigenous foods such as meat, fruits and vegetables. Defra notes that sourcing food from a diverse range of stable regions, in addition to domestically, enhances UK food security. However, as discussed in the following section, the diversity of sources varies from one food category to another.

Potential challenges for UK food security

The Global Food Security (GFS) programme, supported by the UK's main public sector funders of food research has identified strategic drivers and challenges for global food security (Box 1)[4]. In addition to these global factors, specific challenges for UK food security include negotiating new trade deals, maintaining diversity in import markets and accessing labour for the UK food and farming sector.

New trade deals

UK withdrawal from the EU necessitates the negotiation of new trade arrangements with the EU and with other nations. The nature of these arrangements will have implications for UK food security. The House of Lords European Union Committee has considered the pros and cons of the four main 'off-the-shelf' frameworks for a possible new UK-EU trade deal (see Box 2).[5] The 2015 Government ruled out two of these, potentially leaving just two options: negotiating a free trade agreement (FTA) between the UK and the EU; or trade under World Trade Organisation (WTO) rules.

Of these two options, the Committee saw an FTA as the most flexible but noted that the negotiations were likely to take longer than the two years allowed under Article 50. It has been estimated that a new FTA could lead to UK price increases of around 5% due to higher transaction costs.[6] On the final option, the Committee suggested that trade under WTO rules would have the most dramatic impact on UK trade. It noted that average tariffs for agricultural goods are higher (14.5% on average) than those for industrial goods (4.5%) and that tariffs can vary widely within these averages. Research commissioned by the National Farmers Union (NFU) suggests that this option may result in a price increase in many sectors of 8% and could reduce imports. Overall, the NFU concluded that the FTA and WTO options would both lead to price increases. This could be beneficial to producers but may be disadvantageous for both food importers and exporters alike.[6]

Diversity of markets

Currently UK food security relies on sourcing produce from a wide variety of nations many of them within the EU. While this should allow for continuity of supply in the event of poor harvests or adverse weather, there are certain sectors of the food market where the UK is heavily dependent either on just a few countries for imports or on the EU for trade in general. For example:

- The UK relies on imports of fruit and vegetables (Figure 1), with just two countries (Spain and the Netherlands) accounting for 69% of imports of fresh vegetables and four countries for 44% of fresh fruit imports.[2]
- The UK also depends on the EU as an export market for food, feed and drink. For example, 95% of UK lamb, 90% of beef,[7] 80% of wheat,[8] and 70% of pork exports[9] are to EU states.
- The UK also depends on animal feed imports for livestock production, particularly in the poultry and pig sectors, with the bulk of its imports of soy beans coming from Argentina and Brazil.[10 11]

Availability of agricultural labour

The availability of both seasonal and permanent agricultural labour post-Brexit has been highlighted as an issue by the Agriculture and Horticulture Development Board (AHDB)[12] and the NFU. The UK food and farming sector relies on a high number of skilled and unskilled migrant workers to fill roles at all stages of food production and processing. Census data suggest that there are 115,000 full-time agricultural workers in the UK and 67,000 seasonal casual or gang workers.[13] The Office for National Statistics (ONS) estimates that around 22,517of these are (non-UK) EU nationals and that this figure has risen since 2011[13] (when

Box 1. Drivers and challenges for global food security

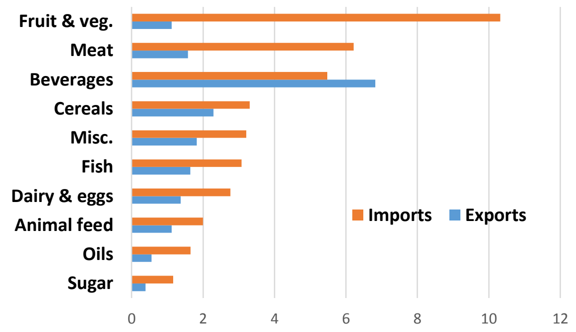
Among the key drivers identified by the GFS programme are:[8]

- social and demographic drivers including increasing global population, urbanisation and alterations in consumption patterns
- environmental drivers including climate change, the environmental impacts of farming, fishing and food manufacturing and limitations in key resources such as land, water and energy
- political and economic drivers including trade policies and economic volatility within global food markets.

Key challenges arising from these drivers include:

- increasing productivity while using fewer resources
- reducing losses, waste and environmental impacts
- producing safe, nutritious and affordable food
- balancing different (often competing) uses of land and seas
- managing risks to the food system, maintaining animal welfare and supporting innovation.

Figure 1 UK Food Imports and Exports (£ billion)[3]



Box 2. The Four Main Frameworks for UK-EU Trade
The Lords European Union Committee examined the extent to which each of the four main options for UK-EU trade below might form the basis of a bespoke agreement between the EU and UK.[5] The 2015 government ruled out the first two of these options:
- the UK retaining partial access to the single market by becoming a non-EU member of the European Economic Area (EEA).
- the UK negotiating continued access to the EU customs union in a manner similar to that negotiated by Turkey.
- the UK negotiating a free trade agreement (FTA) with the EU.
- defaulting to trade by World Trade Organisation (WTO) rules.

it was 15,957).[13] For example the seasonal agricultural workers scheme (SAWs) which operated until 2012 allowed 21,250[14] workers from Romania and Bulgaria to work in the UK and uptake of this quota was always high (98% in 2012). Finally, the ONS Labour Force Survey 2014 found that foreign-born workers accounted for 38% of the workforce in food manufacturing.

Migrant labour is key for horticulture and meat production and processing. Agricultural roles are hard to fill with UK labour for a number of reasons.[13] These include a lack of interest in the sector, inaccessible locations, long working hours and the temporary nature of many of the jobs.

Food security policy options
The coming years are important for the UK food and farming sector. Withdrawal from the EU means leaving a system where some agricultural sectors have received subsidies from the Common Agricultural Policy (CAP). For example in 2015, UK farmers received €3,150 million to ensure competitiveness (pillar 1 funding) and €959 million to manage the rural environment (pillar 2 funding).[15] It also means moving from a system where trade has been protected to one with new, unknown, arrangements for production and trade. Policy options for maintaining UK food security include supply side measures such as ensuring access to agricultural labour, changing UK production and ensuring the resilience of UK infrastructure as well as demand side measures such as reducing food waste and changing patterns of consumption.

Supply side measures
Addressing the demand for labour
The extent to which migrant workers from the EU will be accessible to UK farmers and food processors post-Brexit depends on the nature of the trade framework agreed between the UK and the EU. The AHDB has identified the following policy options to meet the demand for labour:[12]
- Maintaining the availability of migrant workers. This might include a working visas scheme for seasonal labour, a new SAWS-type scheme for EU agricultural workers, a student agricultural workers scheme or increased recruitment from the Commonwealth.
- Reducing the demand for labour by increasing automation and/or productivity. Options here include robotic milking and robotic harvesting of horticultural produce. However, this would require high investment and it is not clear if the technology is sufficiently well developed (see Box 3).
- Increasing the attractiveness of the UK agricultural sector to UK labour by providing incentives. The ONS estimates that 1.6 million people in the UK are unemployed and a further 8.86 million between the ages of 16 and 64 are economically inactive.[20]

Box 3. Emerging Technologies in Agriculture
The UK Agri-Tech strategy[16] has identified a need to bring together automation and agronomy to reduce the reliance on human labour. Increased use of agricultural technologies to reduce labour demands may lead to a smaller, more highly skilled workforce. Harper Adams University is using automation in its 'hands free hectare' project[17]' where an area of land will be planted, tended and harvested without a human entering the field. Examples of automation include.
- Robocrop uses video image analysis to identify the locations of weeds that may then be removed mechanically, reducing the need for gang labour.[17]
- Driverless tractors and drones provide accurate irrigation, fertilisation and planting of fields to increase yields and reduce labour costs. These products are in the early stages of commercialisation.[18]
- Robotic harvesting of crops such as tomatoes and lettuces which are already harvested mechanically. New automation and robotic technologies are being developed to reduce labour needs and improve product quality. These include a robotic strawberry harvesting[19] system where growing techniques have been altered for automatic harvesting and care. This type of technology is available for a limited range of produce and initial outlay costs are high but may reduce labour requirements.

Another key aim of the UK Agri-Tech strategy is to increase UK agricultural productivity. Among the approaches are crop and livestock genome approaches, agri-engineering and precision agriculture (see POSTnote 505), plant breeding (see POSTnote 548) and novel food production methods (see POSTnote 499) for example using controlled environment farming to extend the growing season.

UK agriculture is the least labour intensive in Europe with UK farms employing fewer workers per unit of land than any other member state.[21] This is partly due to the high levels of pasture-based agriculture in the UK.[22] However, the annual increase in total productivity is lower in the UK (0.7%) than in other developed countries such as the USA (2%), Germany (1.8%) and France (1.7%).[22] The Government announced a £160 million Agri-Tech strategy in 2013 to position the UK at the forefront of agriculture and improve productivity. However the Environment Food and Rural Affairs Select Committee has identified a need for more farm level research and knowledge transfer mechanisms.[1] The NFU suggests that UK productivity has been affected by cuts in public funding for research and the privatisation of farm advice in England.

Changing UK agricultural production
A key question for any new UK agriculture policy is whether to continue with the pillar one and two-type funding, and if so, what to reward. To date such funding has largely focused on ensuring competitiveness and meeting environmental objectives. However, future payments could be used to improve food security by encouraging:

- changes in farming practice to reduce (for example) reliance on commercial animal feed by utilising more food waste as a feedstuff; however use of certain specific animal by-products in animal feed is currently prohibited because of the potential for spreading disease
- domestic production in sectors such as horticulture and animal feed where the UK is heavily reliant on imports
- uptake of new technologies to improve productivity (Box 3) or to reduce reliance on seasonal labour.

The Government has confirmed that it will continue pillar one payments until the current CAP expires in 2020 but has made no commitment thereafter. There is on-going debate among economists about the role of subsidies in agriculture, for example over whether they should be used to encourage greater self-sufficiency or to fund 'public goods' such as managing the environment.[23]

Resilience of UK infrastructure
Disruption to national water, energy or transport infrastructure by factors such as natural disasters could undermine UK food security. For example, resilient transport infrastructure requires a diverse range of entry points to be available that are well distributed nationally.[24] [25] The free movement of goods across borders is another essential component in ensuring national food security. Any new future trade deal that involves the UK leaving the EU customs union may require UK food producers to undertake additional steps designed to ensure that produce meets required national standards in the destination countries.

Demand side measures

Reducing food waste
In the UK it is estimated that 10 million tonnes of food and drink with a value of £17 billion is wasted each year once the food has left the farm.[26] Most (73%) of this is household food waste (for example food that is purchased and thrown away because it is beyond its use by date, or where too much is prepared leading to waste).[27] However significant quantities of food waste are also generated elsewhere along the food supply chain in manufacturing (17%), in the hospitality and food service sector (9%) and in retail (2.5%).[27] Globally, one third of the food produced is wasted.[28] Measures to reduce food waste could increase UK food security by altering consumer behaviours[29] and increased efficiency within the supply chain.[30]

Reducing food waste also has significant environmental benefits, for instance by saving the resources required for its production and reducing the impact of waste disposal (most food wasted is disposed of in landfill sites where it produces the greenhouse gas methane). The food charity WRAP runs the Love Food Hate Waste consumer campaign. Since 2007, it has helped householders to reduce the amount of food wasted in the UK by 1 million tonnes a year.[31] WRAP also runs Courtauld 2025, a joint project with industry to reduce waste in the food chain by one fifth over the next decade.[32]

Changing patterns of consumption
Another approach to increasing UK food security is to encourage people to change their patterns of consumption,[33] for example to eat more seasonal produce, to eat more British-produced food or to reduce meat consumption. Examples of the latter include Friends of the Earth *Let's Eat Better* pledge and the *Meat Free Monday* campaign, both of which could reduce UK dependence on the imported animal feed needed to raise livestock. A survey for the GFS programme suggests that older people are more likely to buy seasonal produce than younger people (36% of those aged 65 or more compared to 12% of 18-24 year olds) but that the younger age group were more amenable to consider changing their diet than the older group (only 28% of 18-24 year olds would never consider vegetarianism compared to 49% of those aged 65 or more).[34] Such approaches are compatible with UK public health policy to encourage greater consumption of fruit and vegetables such as the *5-a-Day* campaign or the Department of Health's Eatwell Guide to encourage healthy diets and reduce environmental impacts.[35] [36]

Another approach suggested by the Soil Association is for the public sector to take the lead by procuring more of its produce from UK suppliers. The UK Government spends £2.4 billion each year procuring food or catering services.[37] Increased procurement of UK-produced food in hospitals and leisure centres could also mesh with public health measures to ensure such organisations provide healthier diets. Supporting high standards of UK food production is already a key area of the Defra public procurement plan and could be used to support UK food production.[38]

Equitable food distribution
The UK is considered to have relatively high levels of food security at the national level. However, the Food Foundation estimates that up to 8 million people in the UK are in food poverty[38] while a recent survey for the Food Standards Agency found that one in four low income families struggled to eat healthily or regularly.[39] Furthermore, the Trussell Trust has reported that it dispensed more than 1.18 million three day food packages between April 2016 and March 2017, an increase of 73,645 compared to the previous year.[40] Such figures illustrate that ensuring food security is not just about producing or importing sufficient food at a national level, but also ensuring that food is affordable and accessible to the UK population.

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