

Impact of labour shortages: Labour shortages in UK food systems

2.1 Evolution of key occupations in the food supply chain in the UK

The analysis we have carried out looking at the evolution of key occupations in the food supply chain in the UK has shown that labour shortages are now a main feature for some occupations, this is affecting the stability of the food supply chain overall. This section contains figures showing the evolution of key occupations in the food supply chain (farm workers, butchers and meat processors, horticultural trades, and drivers of large and heavy vehicles). For all of these, a similar pattern emerges around nine months before the EU Withdrawal Agreement came into effect in January 2020, there was a significant drop in the number of workers occupied in these professions. The first quarter of 2020 is also the time of the first COVID-19 lockdown and the beginning of the pandemic which had a significant impact on the labour market. This makes it very difficult to disentangle the impact that both Brexit and the COVID-19 pandemic has had on the downward evolution of these key occupations across the food supply chain in the UK. However, what our work shows is that all of these professions, as of the last quarter of 2021, occupy a lower share of workers than they used to before the first quarter of 2020.

In our view these labour shortages across key occupations in the food supply chain are due to a combination of labour shortage types. Firstly, weak seasonal labour shortages, especially in all occupations included in this report that have relied heavily on seasonal migrant workers, including the agricultural sector. Secondly, incentive driven labour shortages, especially for butchers, meat processors and HGV drivers, all of which are often low pay occupations. The lack of incentives to attract and retain these workers is particularly relevant for all of those in these occupations facing a new regulatory framework to come and work in the UK as migrant workers after Brexit.

2.2 Current state of labour shortages in UK food systems

The UK food system's labour supply comprises a mix of local and migrant workers, though many sectors are heavily reliant on migrant seasonal labour for flexibility and competitiveness ([footnote 1](#)) in key farmgate and processing operations as well as inspections ([footnote 2](#)). Work within food systems is often classed as unskilled or lower skilled ([footnote 3](#)), but most of these occupations require tacit procedural knowledge that is acquired over time.

Systemic shocks such as Brexit and the COVID-19 pandemic have affected the dynamics of labour demand and supply in the UK food industry. Since the last quarter of 2021, the number of workers aged 55 and over going into voluntary redundancy and early retirement has doubled compared with previous years (Office for National Statistics, 2021b). This includes a significant proportion of workers in the agri-food sector, including HGV drivers, Meat Hygiene Inspectors (MHIs), Official Veterinarians (OVs) and butchers (EFRA).

The number of vacancies in the food sector increased sharply since the economy reopened in late 2020 following the lifting of lockdowns, although current unemployment levels have remained lower than five years prior to the pandemic (Office for National Statistics, 2021b). Recent ONS surveys show that vacancies are difficult to fill in the food system and, despite migrant policy interventions, the labour shortages across the industry persisted into the first quarter of 2022

(Office for National Statistics, 2022a). Unfilled vacancies remain a major cause of concern in the food and drink sector. In 2022 the vacancy rate per 100 employees increased to 6.3% in Q2, up from 5.2% in Q1 (Food and Drink Federation, 2022). These vacancies were reported across a wide range of roles and skills including for highly skilled workers (for example, engineers, R&D scientists and HR), technical specialists (for example, butchers, laboratory technicians) and production operatives (for example, drivers, packers, seasonal workers and machine operatives) (ibid). However, these data are based on forecasts from 2019-20 shortage trends and there are very few comprehensive qualitative studies on the distribution of labour shortages to complement existing quantitative data such as that from the ONS. This report is the first to combine primary qualitative insights with quantitative data to assess the impact of wider labour shortages on the FSA's remit. A future 'Independent Review into Labour Shortages in the Food Supply Chain' (due in 2023) has been commissioned by Defra which will examine shortages across the wider food system including production, manufacturing, retail and logistics.

In the UK farming is not seen as a desirable career choice, often classed as poorly paid, low skilled work which lacks career prospects (McDonalds 2022, Royal Association of British Dairy Farmers (RABDF) EFRA submission 2021). Other features making it unattractive include its rural locations, long, often unsociable hours and its physical nature, which means that many can and do find more agreeable work elsewhere for the same wage (Food & Drink Federation (FDF), 2021; Centre for Rural Policy Research EFRA submission, 2021). For example, the RABDF reports difficulties in recruiting staff on dairy farms (RABDF EFRA submission, 2021), and a recent YouGov poll found that less than 5% of UK citizens surveyed would consider working on a dairy farm (Food & Drink Federation, 2021). COVID-19 and the EU exit have exacerbated this issue, according to the National Pig Association (EFRA submission). Similarly, the Pick for Britain Campaign, launched in 2020 in response to the COVID-19 pandemic and targeting primarily the fruit and vegetable sector, did not attract UK workers to the sector in any meaningful way. One of the biggest recruiters told the BBC that of the approximately 30,000 applications they had from Britons, only 4% took up jobs and around 1% stayed past the initial six weeks. In 2017 the FDF found that within food and drink manufacturing 30.8% of roles were classed as low skilled, requiring little or no experience, 36.7% were classed as semi-skilled, requiring some experience and training and 32.5% were skilled or high-skilled, requiring a degree or experience. There have been some attempts to address this within the sector, e.g., the National Pig Association developed a Continuous Professional Development scheme, the Pig Industry Professional Register, to enable people working in the industry to demonstrate competence and to document training when moving from one employer to another. However, other evidence suggests that farm businesses are unwilling or unable to invest in training, with most respondents to the Centre for Rural Policy Research's (Exeter University) 2020 South West Farm Survey (N=1117) agreeing that learning took place on the job (Centre for Rural Policy Research EFRA submission, p. 6). In their submission to EFRA, among the list of recommendations made to policymakers, the Centre for Rural Policy Research also advocated the establishment of a cross sector working group to identify ways of encouraging gender and ethnic diversity in the industry.

Following a global trend, migrant labour is often used to fill key agri-food sector roles in the Global North. Defra's in-house review of the seasonal worker pilot (conducted with the Home Office) indicated that the immigration system has the capacity to effectively supply sufficient seasonal workers ([footnote 4](#)). However, it is unclear if the demand for seasonal workers will remain at current levels – due to rising wage rates in workers' home countries; uncertainty relating to the growth/reduction in horticulture sector; and global geopolitical factors.

The interplay of these factors has resulted in labour shortages across key sectors in the UK food system. We summarise key data for each sector below.

2.3 Meat sector

The UK meat processing sector employs around 97,000 people directly and supports 50,000 farmers in the supply chain, with skilled butchers making up 40% of the workforce (British Meat Processors Association (BMPA), 2022). Our focus is largely on processors, rather than farmers. Like many western economies such as the USA (see for instance Broadway, 2007; Sinclair, 1906), the meat processing sector in the UK is characterised by a reliance on low wage workers, often positions that are filled by migrants. Being part of the EU for 40 years brought with it free movement of workers and resulted in 62% of the meat sector's workforce being sourced from outside the UK (BMPA, 2022). Because of free movement, this was a relatively unstructured process and so work visas were not necessary. The aforementioned challenges faced in recruiting domestic labour into the UK agri-food sector also play a role here. Whilst rates of EU workers employed in the sector are now reducing, there is still a heavy reliance on migrant labour (largely from the EU), and these workers are fundamental to the successful functioning of the meat supply chain.

The BMPA's own survey data from late 2021 indicates that their members are short of just over 15% of the workforce they would like to have, up from 10% in the same survey conducted in June 2021, many of those vacancies are in butchery roles (BMPA EFRA submission, 2021). Key challenges for meat wholesalers are related to recruitment and retention, rising wages, increased overheads and increasing costs related to compliance and raw materials (Addy, 2022a, FDF 2022). The meat sector has shrunk since 2019 (FDF 2022). Our own analysis of the Labour Force Survey identifies specific shortages in staff working within the meat sector including veterinarians, butchers and meat processors, illustrated in Figure 1 and Figure 2 below:

Figure 1: Evolution of occupations: Veterinarians

Figure 2: Evolution of occupations: Butchers and meat processors

Notably, the BMPA indicates that the recent increase in worker losses has come mainly in the skilled worker category i.e., veterinarians and skilled and semi-skilled butchers. These skilled workers are essential to the running of meat processing plants and dictate how many animals can be processed. However, butchers are among the hardest employees to recruit and can take up to three years to train fully. Our research (interviews) also indicates there are challenges in recruiting veterinary staff from within the UK, with many UK-trained vets preferring to work with “small and furry” animals, rather than in meat processing. Historically, this has meant that many veterinarians have come from Europe, however, post-Brexit immigration changes means that increasingly, veterinarians are being recruited from non-EU countries, which is increasing the administrative burden of recruitment into those roles.

Beyond these general challenges which affect the meat industry as a whole, there are a number of sub-sector specific labour shortage challenges, which we detail below.

2.4 Pigs and Poultry

The National Pig Association reported 10,000 job vacancies across all pig processing roles, including vacancy rates in pork processing plants of 10-15% on average (submission to EFRA 2021). Cranswick, one of the largest meat processing companies in the UK, specialising in pig and poultry demonstrates the range of vacancies in these sectors, reproduced in Table 1 (Cranswick submission EFRA 2021):

Table 1 Vacancies for key roles in a major pig and poultry business in 2021 (Cranswick/Wayland Farms Ltd)

Job Role	Number of Vacancies
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General Operative	830
Skilled Operative	55
Engineers	6
Administrators	3
Butchers	53
Abattoir staff	14
Cleaning	36
Quality Assurance	9
Warehouse	7
Management	33
New product development	1
Stock People	10
Total	1057

Approximately 60% of pork eaten in the UK is imported and processed for retail within UK factories. Pork processing plants are estimated to have vacancy rates of 10-15% and there are approximately 10,000 vacancies across all roles in the processing sector (National Pig Association, EFRA submission 2021; Goddard 2022).

The temporary visa scheme (extended to the end of March 2022) for 800 pork butchers resulted in take up by only 100 individuals (Rowell, 2022). Other measures to support the pig sector are a Private Storage Aid scheme and a Slaughter Incentive Payment Scheme (although these schemes are noted to be highly restrictive (Riley, 2022)). The government is working with the Agricultural and Horticulture Development Board to identify new export markets for pork, particularly lightly processed pork.

The poultry industry directly employs 40,000 people in the UK, contributing £5.4 billion GVA to the UK economy (British Poultry Council, EFRA 2021). As mentioned earlier, like many food systems in western economies, there is a reliance on migrant labour to fill labour intensive positions. Before the beginning of 2021, 60% of the workforce were EU nationals and with Brexit and a new immigration scheme which does not favour low wage workers, there has been an impact on the workforce as the sector struggled to recruit from the UK-based workforce. The temporary visa scheme had mixed results and as of March 2022, businesses reported a vacancy rate of 16%

(6,000) of their total workforce, most in processing and operations (McDougal, 2022). The industry cites this downturn in labour supply as the main challenge facing the sector (Kaul, 2021; McDougal, 2021; Riley, 2021), although rising production costs – feed inflation, packaging, energy costs, wage inflation and equipment are also putting strain on the industry (Addy, 2022b). As a result of this, the British Poultry Council reports that many members cut back on production by 5-10% (The Poultry Site 2021).

Our own analysis of the LFS, presented in Figure 3, demonstrates the falling labour supply:

Figure 3: Evolution of occupations: Fishmongers and poultry dressers

While the industry has concrete plans to invest in supply chain resilience, including investing in technologies that align with the FSA's objectives and that could reduce the demand for labour (for example, farm management packages, waste reduction and green energy adoption, technology for veterinary diagnostics and egg handling solutions (Berkhout, 2021; Brockotter, 2022)), it has indicated that temporary and seasonal workers are needed in the near term to plug the gap before benefits from these investments can be realised.

Interestingly, further pressure is being placed on labour needs by the ongoing drive to improve animal welfare in the sector. Although almost 90% of Britain's poultry flock is indoor reared to Red Tractor standards (Maxwell, 2022), there are targets to improve standards further, including lowering dead on arrival birds, reducing time from farm to slaughter to four hours, and regulations that would restrict the transportation of birds at certain temperatures unless trucks are thermo-regulated (Eustice, 2002). This will increase costs for the industry, with potential implications for food safety and availability (see section 3) and will increase demand for veterinarians (Maxwell, 2022). This example illustrates how important it is to take a whole systems approach to fully understand the ripple effect of one change within the food system on labour shortages – here enhancing animal welfare will require more veterinarians, which are already in short supply.

2.5 Fruit and Vegetables

The fruit and vegetable sector struggles to recruit, a trend observed more broadly in agriculture. The shortages are most acute in seasonal work due to its seasonality, low earnings and the location of farms. UK farming reflects similar challenges across the Global North where migrants often fill seasonal work roles (Martin 2021). Difficulties to recruit labour in UK farming are caused by low population density, an aged population, low unemployment in rural communities, long distances, and a lack of transport links from nearby cities and semi-urban towns to farms. Workers in the sector look after the crops, replant, harvest, and work in the packhouse – washing, inspecting the produce, packing and labelling. To remain competitive many UK farms have invested in their own packhouses, with fresh fruit and vegetables leaving directly for the supermarket with no intermediary involved. Other farms use their packhouses for imports thus increasing their market position on certain crops. Temporary and seasonal work such as harvesting, when a significant number of workers are needed, is particularly difficult to recruit locally. The challenging access to labour in farming has become more acute over the last five years as observed in Figure 4 and Figure 5 below.

Figure 4 Evolution of occupations: horticultural trades

Figure 5 Evolution of occupations: Farm workers

Since the Second World War, the fruit and vegetable sector has relied heavily on migrant labour, and this has continued until recently via a special immigration scheme known as the Seasonal Agricultural Workers Scheme or SAWS. Acting upon recommendation from MAC, the scheme was suspended in 2013. After this date the seasonal workers in agriculture were recruited via freedom of movement and EU workers quickly become the dominant workforce. A Seasonal Workers Pilot under the Temporary Visas T5 route was introduced in 2019. The visa requires farmers to be authorised by the Gangmaster and Labour Abuse Authority and only a select number of recruitment agencies known as 'operators' that are certified by Defra can bring in migrant workers. The 'operators' rather than the farmers are the formal employers of the migrants and so visas are strictly linked with the operators.

The reintroduction of Seasonal Worker visas started in 2019 when 2500 visas were made available. In 2020 it was extended to 10,000 and in 2021 increased to 30,000. In December 2021 Defra and the Home Office confirmed the Seasonal Worker visa for another three consecutive years, with the numbers of visas offered beginning to decrease from 2023 as more automation solutions are expected to be implemented (Defra 2021). Whilst the visa route provides for half of the labour demand, half of the workforce is predominantly made up of EU workers with settled status and a small number of British workers (Barbulescu, Vargas-Silva and Robertson 2021). The government expects that automation will reduce demand for migrant workers. However, Defra's own review of automation in horticulture (Defra 2022a) reveals significant barriers among horticulture growers and those developing the automation. They include the ability to raise sufficient capital to purchase equipment and growers' concerns about the capacity of the policy environment for example, the Seasonal Workers Pilot to bridge the transition towards automation. Further challenges are caused by fragmentation along the development pipeline and developers not fully understanding users' needs.

The demand for seasonal workers in agriculture is disputed, with the industry suggesting a demand of more than 75,000 workers (NFU, 2017) whilst the ONS indicates 64,000 (ONS, 2018). The Seasonal Worker visa scheme does not proactively support long term relations between workers and agencies: return workers have higher productivity than novice workers who on many occasions have no prior experience in agriculture (Barbulescu, Vargas-Silva and Robertson,

2021; McAreavey, 2019). The Horticulture Trade Association reports decreased levels of productivity and increased costs amongst its members (submission to EFRA, 2021), ultimately resulting in increased costs for consumers. Freedom of movement allowed direct employment and thus farmers had workers they trusted and that returned to work in the summer over many years, this resulted in better relations between employers and employees (McAreavey, 2019). For example, one producer, G's Fresh, reported a reduction in return rates from its normal rate of 75% in 2020 to 46% in 2021 post EU exit. The cause for low return rates is that recruitment has now shifted from EU to non-EU countries, with Ukraine having provided over two thirds of the seasonal workers on visas since 2019 (Home Office, Migration Quarterly Statistics). Furthermore, if a migrant wishes to return they will return to the same pool as first-time applicants.

A survey of farmers and farm managers in the UK (N=53) evaluating labour shortages in 2021 found that in the fruit and vegetable sector, 46% of UK farmers had a shortfall above 10% (Barbulescu, Vargas-Silva and Robertson, 2021). Compared with pre-pandemic and pre-UK exit from the EU, 76% of farmers said it was 'more difficult' to recruit seasonal workers to staff picking and packing teams in 2021 than in 2019. To adapt to these changes, farmers increased their efforts to recruit British workers and UK domiciled migrant workers. However, 79% of farmers said the number of domestic workers in 2021 was 'about the same' as or 'less' than in 2019 (Barbulescu, Vargas-Silva and Robertson, 2021). Large producers such as The Fresh Produce Consortium similarly noted that roles are harder to fill, often requiring several different agencies to attempt to fill temporary positions alongside greater staff turnover (EFRA submission, 2021). In their EFRA submission (2021), the British Growers, representing edible horticulture, said it was more difficult to recruit seasonal workers in 2021 compared to 2020, with overall lower numbers. While all mentioned the effort to bring in local workers, 59% of respondents reported to have recruited 'about the same' number of British seasonal workers as in 2019 (EFRA, 2021). There is a geographical effect and shortages in Scotland were more acute than in other UK nations. Northern Ireland and Wales are both less at risk with respect to seasonal workers because horticulture there is a minority sector (although they remain heavily reliant on EU workers with settled status).

An industry report by the NFU, the British Growers Association, British Summer Fruits and British Apples and Pears (Fresh Plaza 2020), noted that costs associated with labour during the COVID-19 pandemic including training, accommodation, transport logistics and operations increased labour costs in horticulture by 15% in 2020.

Overall, the fruit and vegetable sector faces several risks associated with the following:

access to labour in rural communities is challenging given the lower population density, relatively low unemployment rates and an ageing workforce;

lack of access to suitable immigration routes for low-skilled migrants (the current immigration system is designed for high-skill migrants and includes higher immigration fees);

- lack of available technological solutions such as automated harvesting;
- higher fertiliser and energy costs; the war in Ukraine;
- stagnant food prices;
- rising inflation;
- longer supply chains for sourcing imports;
- restructuring of agricultural policy in the UK.

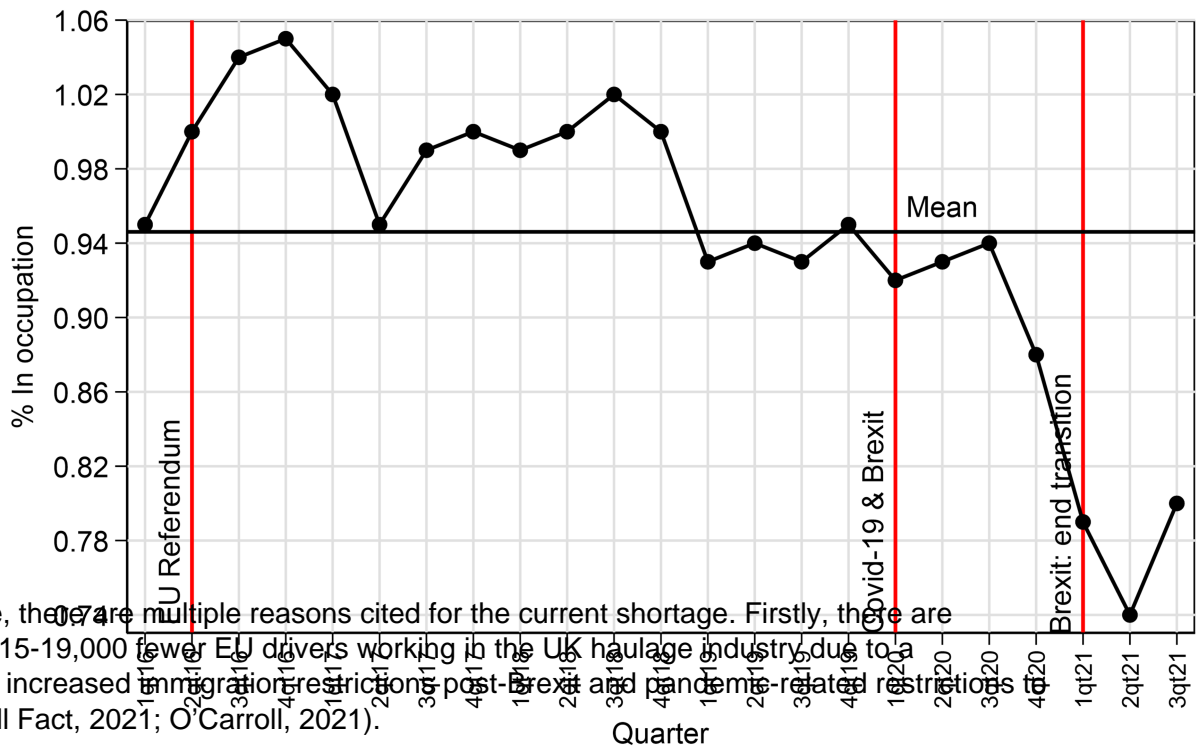
In the short-term, food imports and emergency visa schemes provide relief. In the medium and long term there are food security risks as longer supply chains have more exposure to external risks. In the medium term, automation is likely to mediate these risks, with more benefits of automation concentrated in pack house transformation and the transportation of fresh fruit and vegetables. Looking after the crop and picking are more difficult to automate, as technological solutions need to be developed for each crop.

these risks translate to different food safety and availability risks which are explored in section 3.

2.6 Heavy Goods Vehicles (HGVs)/Large Goods Vehicles (LGVs)

Shortages of HGV and LGV drivers in the UK food supply chain were highlighted as early as 2016 by the UK government Transport Select Committee (UK Parliament, 2016). Logistics UK note that before the pandemic, there was already an industry shortfall of 76,000 drivers ([footnote 5](#)) (Holmes, 2021). However, these shortages did not receive sustained focus from policymakers until driver shortages started compromising the food supply chain (see section 3) in mid-to-late 2021. According to Logistics UK (2022), the workforce is currently 15.6% smaller than it was pre-pandemic. Data from the Office of National Statistics (ONS, 2021a) shows a decrease of approximately 30,000 drivers between 2019/20 and 2020/21 alone – this is about 10% of the workforce. Our own calculations from the Labour Force survey, presented in Figure 6 below, illustrate the decline in those employed in the sector from 2016.

Figure 6 Evolution of occupations: Heavy goods vehicle drivers (HGV)



In the literature, there are multiple reasons cited for the current shortage. Firstly, there are approximately 15-19,000 fewer EU drivers working in the UK haulage industry, due to a combination of increased immigration restrictions post-Brexit and pandemic-related restrictions on movement (Full Fact, 2021; O'Carroll, 2021).

The pandemic also resulted in fewer people passing HGV driving tests compared to the previous year, due to fewer tests being offered (Driver and Vehicle Standards Agency, 2021; Full Fact, 2021). The Secretary of State for Transport in 2021 (Grant Shapps) stated that nearly 40,000 fewer tests were offered 2020-2021 (O'Carroll, 2021).

Furthermore, the Food & Drink Federation's (FDF) 2021 report on prices in the food and drink manufacturing sector notes that the introduction of IR35 ([footnote 6](#)) in spring 2021 is commonly cited as a main reason for driver shortages (Food & Drink Federation, 2021). This has impacted HGV drivers because it prevents individuals from operating as a 'limited company' when they are essentially employees. Agencies have thus had to employ them as staff, paying NI and offering pensions. To keep incomes at the same level as they were pre-implementation of IR35, costs are, therefore, now approximately 25% higher (Driver Require). Average HGV driver pay surged by nearly 12% in the 12 months to the 1st of January 2022, while advertised salaries increased by 21% in the year to Q4 2021. The FDF report that agency staff are withdrawing their services as they cannot sustain an increase of £5-6 per hour (FDF submission EFRA, 2021). One of the impacts of the shortage is circularity as drivers move between companies to secure higher wages, it has been described as a 'merry-go-round' (Defra oral evidence 09.11.21). Lots of labour has gravitated towards supermarkets as they pay premium wages within the sector, reinforcing trends of centralisation.

Finally, of longer-term concern, HGV drivers have a significantly older age profile than the general population, with an average age of 51 years, and there is a dearth of younger people training into the profession. Driver Require analysis of Q4 dynamics of the LFS shows how the numbers of drivers in the under 30 age brackets had decreased by 28%, down from 18,000 to 13,000 between 2019 and 2021. However, there was a 22% increase in drivers aged 30-45 from 69,000 to 84,000. The over 45 age group revealed a drop in drivers of 5% which is estimated to be retirement amongst the over 65 age group.

2.7 Retail and hospitality

According to the British Retail Consortium (BRC) EFRA submission, although labour shortages in the UK supply chain have been a concern for some time, they became more acute following the lifting of COVID-19 restrictions in mid-2021. The BRC highlights that, for retailers, the most acute and pressing shortage is that of qualified HGV drivers.

In hospitality, vacancies were 50% higher in 2021 than they were pre-pandemic, and many restaurants and food providers had to reduce the number of hours they were open due to staff shortages ([footnote 7](#)). These staffing shortages were due to various issues, including students not moving into cities due to COVID-19 and therefore not being in the right place at the right time; a hiatus in training, with catering colleges having to close during the pandemic; and staff illnesses.

2.8 Framework for assessing labour shortages risks to the FSA

Labour shortages present food system risks, with different probabilities of occurrence, levels of vulnerability and subjective perceptions and behaviours of stakeholders (Louis & Pagell, 2019; see also Figure 10 in Appendix A3). To improve the FSA's ability to assess, treat and monitor potential labour shortage risks in the food system, our study focused on defining and categorising the probabilities, vulnerabilities, and risk behaviours of food actors to inform the FSA's prioritisation of labour shortage interventions (Lacombe et al., 2021). We reviewed and compiled a range of risk classification criteria and sub-criteria to facilitate the FSA's categorisation of the potential impacts of several types of food system labour shortages on the delivery of FSA official controls (see Appendix A3).

Food chains comprise a complex array of participants carrying out overlapping and labour-intensive operations including growing (farmers), harvesting (pickers), processing (operators), packaging (packers), transporting (logistics), holding (warehousing), and retailing. Since food chain stakeholders lack unified risk management frameworks, we sought to understand how different labour shortages predispose the FSA to risk probabilities such as:

- i. Safety hazards from the unintentional or accidental contamination of food (either chemical or microbial) due to the mismanagement of production and handling operations at critical control points.
- ii. Food threats and vulnerabilities resulting from unintentional behavioural/ideological and intentional adulteration or contamination (threats) or economically motivated and intentional adulteration or contamination of food (vulnerabilities).
- iii. Food quality compromised via intentional or unintentional manipulation for economic reasons, including food mislabelling.

We used two broad risk identification criteria from the supply chain management literature to categorise the risk impact of different forms of labour shortages on the FSA's official mandate in the food system:

1) The first criterion assesses the risk locality of labour shortages or the location in the food system where a given type of labour shortage (weak seasonal, incentive-driven, or skills underutilisation) might impact the FSA's mandate (Christopher & Peck, 2004). A labour shortage risk locality is considered as:

- a. internal if the shortage directly affects the FSA internal processes (oversight and inspection activities) or controls (rules, systems, and procedures).
- b. external to the FSA but internal to the food network if the shortage impacts either the supply side (upstream-farmgate) or the demand side (downstream-customers) of the FSA's official mandate.
- c. external to the network if the shortage emanates from the broader institutional or policy environment where the FSA executes its official mandates.

2) The second criterion pertains to the quantification of the impact of different forms of labour shortage on the FSA's mandate. Risk quantification is concerned with assessing the probability and consequences of negative events, measuring them in a suitable and acceptable way. Using this criterion, the impact of labour shortages in the food system could be quantified as perceived or foreseen (Sjöberg, 1980):

- a. Perceived risks are the assumptions regarding the consequence or seriousness of the penalties of labour shortages, and the subjective feeling about how unfavourable such risk consequence would be if they materialised (Wong & Jensen, 2020)
- b. Foreseen labour shortage risks are those that can be forecast and measured using quantitative historical data (Sjöberg, 1980).

1. 11% of workers in dairy, 60% in poultry and nearly 70% in red and white meat are seasonal migrant workers from central and eastern Europe. See page 68, [European Union Committee 20th Report of Session 2016–17 - UK Parliament](#). 11% of workers in dairy, 60% in poultry and nearly 70% in red and white meat are seasonal migrant workers from central and eastern Europe. See page 68, [European Union Committee 20th Report of Session 2016–17 - UK Parliament](#).
2. 95% of veterinarians working in British abattoirs are migrant workers. e.g., see [Parliament Live](#).
3. Within food and drink manufacturing, 30.8% of roles were classed as low skilled requiring little or no experience, 36.7% were classed as semi-skilled requiring some experience and training and 32.5% were skilled or high-skilled and required a degree or experience (Grant Thornton, 2017).

4. Although it should also be noted that the evaluation also states: “whilst many of the compliance visits to growers and farms were positive, some identified welfare issues, demonstrating there is clear room for improvement in this objective” (UK Home Office and Defra, 2021).
5. We note that different sources estimate this figure differently; this is an approximation.
6. Off-payroll working rules mean that workers, who would have been employees if they were providing their services directly to the client, pay broadly the same income tax and National Insurance contributions as employees. See [Understanding off-payroll working \(IR35\) - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/consultations/understanding-off-payroll-working-ir35).
7. Data in this section from UK Hospitality EFRA oral evidence 09.11.21