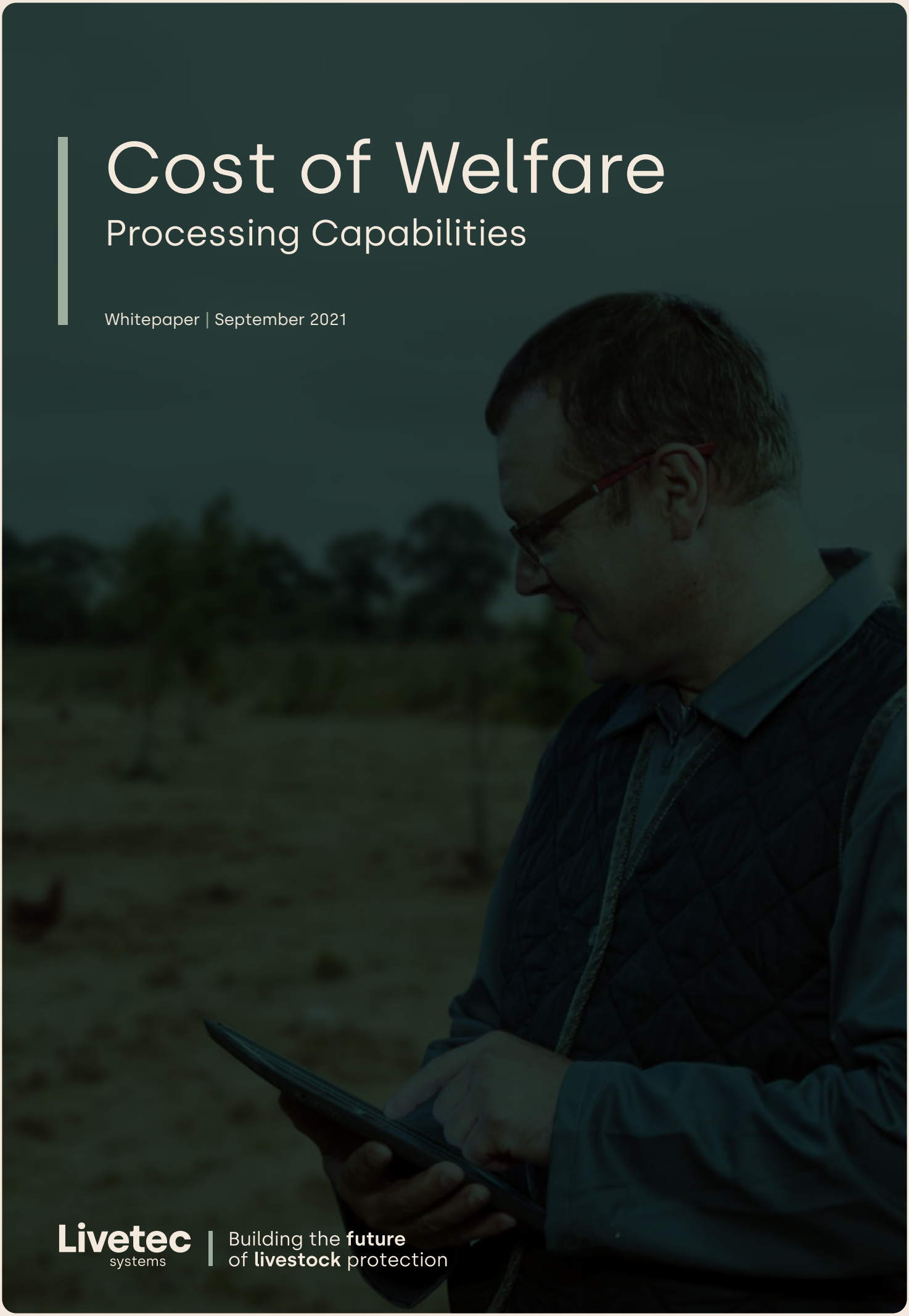
Cost of Welfare

Processing Capabilities

Whitepaper | September 2021



Livetec systems | Building the **future** of **livestock** protection

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Executive Summary

The farming industry continues to be a critically important sector, contributing £9,435 billion to the UK economy in 2020 alone[1]. Yet despite this importance, UK agriculture continues to face challenges.

The removal of Britain from the European Union, the handling of the COVID-19 pandemic, the scrapping of short haul tariff discounts by Ofgem, and regulation changes in livestock transport are coming together to create major disruptions across the supply chain.

Sparking Welfare Concerns

These disruptions are not only impacting animal welfare, but are sparking welfare concerns across the entirety of the supply chain, from farmer wellbeing to consumer food security, as a result of processing delays that challenge everyday production.

At **Livetec Systems,** we have been working at the forefront of the industry for over 10 years. We have been continually transforming technology, research and development whilst applying industry knowledge to create tangible solutions for UK farmers.

We believe that today's agricultural industry cannot afford to wait for Government solutions to the multiple challenges facing us today. We believe that it's up to us all to come together and create strategic action plans to improve welfare across the sector.

In this report, we take a closer look at the key challenges standing in the way of agricultural production today, the devastating welfare impacts that are being noted in animals, humans, and the environment, and leading solutions to tackle the problem.

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[1] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1027599/AUK-2020-evidencepack-21oct21.pdf

Introduction

2020 was a year that most of us will never forget. This is particularly true for farmers, who reportedly faced one of the most challenging years on record. In the 2020 Sentiment Survey by Farmers Weekly*, just 2% of participants said their business[2] had experienced a 'great' year, and only one quarter noted they'd had a 'good' year.

The majority, of course, struggled with the long lasting impacts of Brexit and the COVID-19 outbreak, with 73% concluding that the previous 12 months had been 'so-so', 'bad', or 'terrible'. The good news is that 2020 is now behind us. The bad news is that 2021 has come with its own set of challenges; some unique, and others lingering from the events of the past.

And the primary problem with the challenges of today is that they're having both direct and indirect consequences on processing capacities and capabilities, introducing delays in the supply chain that are affecting how efficiently farmers are able to move animals from the farm - and restock - to maintain successful and compliant businesses.

Drop In Production

The obvious knock on effect of this is a drop in production that produces financial implications for the farmer. However, what isn't always so closely examined - despite it creating an equally devastating impact - is the welfare implications of reduced livestock movement. Welfare, in this instance, not only refers to the welfare of animals on the farm, but also extends to farm workers, end consumers, and the environment.

An inability to move animals from the farm as scheduled - or as needed - can increase the risk of disease spread, pose negative effects on mental health, heighten the agricultural industry's role in accelerating climate change, and potentially undo much of the progress that has been made towards improving food security across the UK.

Today, it is an urgent requirement for farmers to ensure they fully understand the modern risks to processing and production capacity, the extent of the impact that delays in the process can create, and how contingency planning, pre-emptive measures, advice, and consultancy can help to both reduce and negate the welfare effects of common obstacles, and also to avoid experiencing these awful effects.

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[2] https://www.fwi.co.uk/news/survey-markets-and-policy-top-farmers-concerns-for-2021

Understanding the Challenges

While there are a multitude of challenges that today's farmers are facing, the past two years have introduced three specific challenges that pose a direct risk to normal production and processing capabilities.

Many factors that are contributing towards the growth and severity of these challenges have been sparked by political actions - or even political inactions - with the agricultural industry especially bearing the brunt.

The three biggest threats to processing capabilities today include:

1 Labour Shortages

Normal processing activity cannot take place without the human resources required to maintain standard, day-to-day operations. And sadly, the availability of resources up and down the supply chain is reaching critical levels for three very distinct reasons:

Brexit, the **COVID-19 pandemic**, and the **advancing age** of **UK agricultural workers**.

Britain's exit from the European Union is the first factor impacting production and processing.

It's estimated that about **20%**[3] of the **2.3 million EU citizens working in the UK**[4] hold positions in the **food and drink** supply chain.

[3] Food and Drink Federation (2016) 'Breaking the Chain: Key workforce considerations for the UK food and drink supply chain as we leave the EU'

[4] Labour Force Survey (July 2021) Office for National Statistics

However, **1.3 million foreign born workers** left the United Kingdom following Brexit[5], leaving massive - and growing - vacancies in areas including **on-farm labour**, **transport & logistics**, and **factory work**.

The second factor to consider here is the COVID-19 pandemic, which spread notably through poultry processing plants for a number of reasons.

Some of the most significant reasons are believed to be the close proximity of factory workers, a potential language barrier resulting in a misunderstanding of social distancing requirements, and a reluctance to self isolate following possible exposure to reduce time on sick pay.

Finally, the industry's aging workforce must be taken into account. A quarter of workers across the UK's food and drink industry is expected to retire by 2035[6], with some areas of the supply chain being hit harder than others.

Fewer than **1% of UK HGV drivers**, for example, are under **25 years old**, with the **average age** currently standing at **55 years**[7].

Together, these issues are sparking a nationwide skills shortage that's resulting in a breakdown of the supply chain, making it difficult to move birds from the farm as necessary.

The Cold Chain Federation estimates that there are currently around 500,000 vacancies in the food & drink sector, with around 100,000 vacancies for HGV drivers[8].

5 Economic Statistics Centre of Excellence (2021) 'Estimating the UK population during the pandemic'

6 https://natwestbusinesshub.com/articles/food-and-drink-sector-faces-labour-shortage

7 Road Haulage Association (July 2021) 'A report on the Driver Shortage'

8 https://www.coldchainfederation.org.uk/wp-content/uploads/2021/08/Labour-Availability-Final-report-2021- 26-August.pdf

2 CO2 Shortages

Following the announcement by Ofgem that it would be scrapping its short haul tariff discount from October 2021, CF Fertilisers decided to 'reevaluate our options' after discovering that the changes would create a 6x increase in the business' bills.

As a result, the company ceased production at two of its UK-based fertiliser plants, which are understood to be responsible for 60% of all carbon dioxide available to UK suppliers[9]. CO2 is vital across many industries, and is heavily relied on in poultry farming.

Between **60-70% of all UK poultry** is humanely stunned or slaughtered using **CO2 gas**[10], and in **September 2021** it's believed that the **CO2 shortage** was **directly responsible** for a **5-10% reduction** in weekly **chicken output**[11].

"If CO2 supplies become tighter and more unpredictable then supply chains will have to slow down. Ultimately, no CO2 means no throughput" says Richard Griffiths, Chief Executive at the British Poultry Council[12].

Even once supplies are back to normal, Secretary of State for Environment, Food and Rural Affairs George Eustice has warned that the shortage could result in a 500% rise in CO2 prices, taking the price per tonne from £200 to around £1000[13], making it challenging for many processing firms to return to business as usual.

This is sparking concerns over the availability of Christmas turkeys, with Iceland's Managing Director Richard Walker stating that ***"we need a permanent solution to keep the wheels turning"***.

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9 https://www.foodmanufacture.co.uk/Article/2021/09/22/CO2-shortage-problems-not-over-yet-what-now

10 https://www.fwi.co.uk/business/markets-and-trends/meat-prices/pig-poultry-producers-face-slaughtering-delays

11 https://www.bloomberg.com/news/articles/2021-09-16/co2-and-chicken-supplies-are-latest-u-k-gas-crunch-casualties

12 https://britishpoultry.org.uk/new-co2-crisis-risks-food-security/

13 https://www.pmtoday.co.uk/britain-tells-its-food-industry-to-prepare-for-co2-price-shock/

3 Welfare in Transport

Recent changes to the Government's Welfare in Transport regulations are highly controversial. While the act is intended to create better welfare conditions for millions of animals being transported around the UK, one clause in particular is being met with reservations from the poultry industry, with many farmers believing that the changes will result in significant and damaging delays in moving healthy livestock from the farm.

Changes that have been praised include a cap on journey times, and the need to ensure adequate headroom for animals during transit. However, the controversial clause in question states that poultry journeys when the temperature is above 25 degrees celsius or below 5 degrees celsius will be banned in England and Wales.

The Poultry Site estimates that most journeys in January and February, and a significant portion of journeys in November, December, March, and April, would need to be cancelled under the new legislation[14]. NFU Cymru Poultry Group Chairman Richard Williams says that historical trends suggest that an average of 10 days every January will be lost due to the rules[15], with no chickens being collected from farms on cold days.

Morgan Jones-Parry, FUW Livestock, Wool and Marts Committee Chairman in Wales, says that ***"livestock have been farmed here for about 6000 years and are basically designed to cope well with Welsh winters, and temperatures below 5 degrees are hardly unusual in our country"***[16].

These changes hold the potential to cripple the poultry industry, especially if farmers are ill prepared to manage increased flock numbers.

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14 https://www.thepoultrysite.com/news/2021/03/bpc-says-proposed-safeguards-on-welfare-in-transport-rules-may-not-reflect-modern-practices

15 https://www.inyourarea.co.uk/news/nfu-cymru-voices-concerns-over-proposed-welfare-in-transport-consultation/

16 https://www.fuw.org.uk/en/news/14405-fuw-livestock-wool-and-marts-and-hill-farming-committee-s-highlight-animal-welfare-in-transport-consultation-concerns

Impact on Welfare

It's often easy to think of processing delays and reduced processing capabilities as being the problem. But it's only one part of the equation.

The real problem lies in the knock-on effects that processing delays have on welfare, not only the welfare of the animals that cannot be moved in a timely manner from the farm, but also the welfare of farmers, of their workforce, of the end consumer, and of our environment.

Animal Welfare

When processing delays mean that animals cannot be moved from the farm as needed, serious overcrowding can occur very rapidly. Research into this area suggests that 13 birds weighing 2.5kg/bird at 6 weeks of age can be stocked per square metre compliantly in line with the EU's maximum density (and therefore minimum welfare standards) of 33kg/m2 but with extra requirements and dependent on different breeds and species, this can be increased to 39kg/m2.

Overcrowding in itself is a breach of legislation, with experts believing stress to be contagious, and with distress calls from crowded flocks resulting in lower weight gain and an increased risk of mortality not only amongst themselves, but in any flock that hears the call[18]. Overcrowding also comes with secondary welfare issues, including increased opportunities for infectious spread throughout flocks living in very confined spaces.

Processing plant capacity issues and closures have not always resulted in an ability to remove birds from the farm, of course. Some farmers have been able to move as scheduled by utilising alternative plants with available processing capacity. However, this often results in longer transport times, which again impacts the welfare of animals.

[17] https://www.frontiersin.org/articles/10.3389/fvets.2020.585787/full

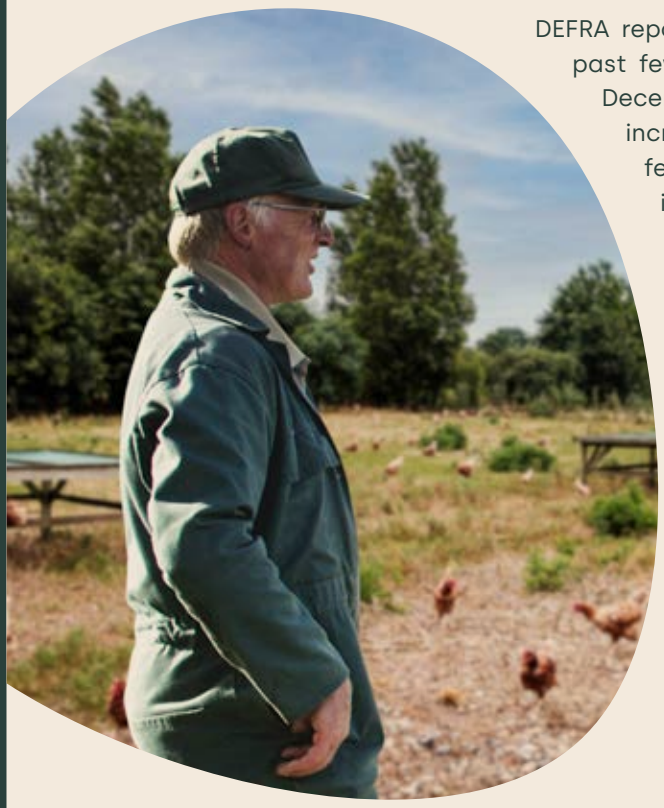
[18] https://www.poultryworld.net/Health/Articles/2021/4/The-future-of-bird-welfare-732236E/

Farmer Welfare

During the 2001 Foot & Mouth outbreak, it was discovered that farmers facing the crisis were more likely to present with signs of poor wellbeing, including stress and depression[19]. There are concerns that today's challenges are having a similar effect.

Poor wellbeing amongst farmers at times of reduced processing capabilities can be caused by a number of different factors. The first, and perhaps most obvious, is the emotional impact of having to cull healthy animals simply because there is nowhere for them to go. Mass depopulation of healthy livestock can often be highly upsetting.

The second factor is financial in nature. When processing delays hit, farmers often face higher costs at the same time as reduced profits, causing financial worries. Increased costs are often associated with the need to purchase greater quantities of feed to sustain larger flocks.



DEFRA reports that the cost of feed has been rising over the past few years, with wheat costs increasing by 35% from December 2019-December 2020, and soybean meal costs increasing by 31% during the same period[20]. The need to feed unpredictably large flocks can have a significant impact on business outgoings.

At the same time, farmers may experience a lower income from reduced production rates. Processing delays resulting from a lack of availability of EU workers, for example, is believed to be responsible for 27% of agricultural leaders deciding to scale back productivity[21].

The **British Poultry Council** estimates that **chicken output** in the UK is **down by 5-10%**, while **turkey supply** is **reduced by 10%**, and **seasonal bird** production **by 20%**[22].

19 https://www.tandfonline.com/doi/abs/10.1016/S1573-5214%2804%2980001-0

20 https://www.thegrocer.co.uk/eggs-and-poultry/free-range-egg-sector-threatened-by-high-feed-costs-and-low-prices/652868.article?adredir=1

21 Food and Drink Federation, 'Breaking the chain: Key workforce consideration for the food and drink supply chain as we leave the EU'

22 https://www.fwi.co.uk/livestock/poultry/poultry-industry-slashes-production-as-labour-crisis-worsens

Worker Welfare

An inability to process birds as normal can have very significant impacts on worker welfare. Reduced staffing levels caused by Brexit and COVID-19, for example, can result in workers being tasked with activities outside of their skill level, increasing the risk of injury and professional dissatisfaction.

And, as with farmers, casual labourers can also experience very notable emotional effects from the culling of healthy birds.

Another element to consider at this point is on-farm overcrowding. With disease spreading more quickly through animals living in very close proximity, the risk of infectious disease being transmitted to workers is naturally greater. While Avian Flu is unlikely to affect humans, parasites such as red mite can spread to people very easily.

We also must consider worker development. In any role, employee welfare can rely heavily upon training opportunities and professional development. **At this time, many have reported an inability to advance their workers in this way, for two reasons.**

Firstly, because of a lack of face-to-face training opportunities during the pandemic. Secondly because of an inability to spare essential resources for training purposes during a period when COVID and Brexit-related labour shortages are a problem.

Consumer Welfare & Food Security

Lack of processing capacity means that food is either not being delivered where it's needed, that it's going to waste, or that it's available at higher-than-normal costs. All three of these factors impact the welfare of the end consumer, and risk undoing much of the progress that has been made in enhancing food security in the UK, and fighting food poverty. There are concerns that meats will become inaccessible for many.

This inaccessibility can either be due to empty supermarket shelves or reduced restaurant menus, or increased costs that make meat unaffordable for the working class.

Food and Drink Federation Chief Executive Ian Wright says that ***"food will become a much bigger part of people's outgoings limiting their ability to afford other consumer products"***, and the Office for National Statistics notes that the price[23] of chicken in the UK has been rising continually since the start of 2021, reaching 273p/kg by August[24].

[23] https://www.theguardian.com/business/2021/jul/11/uk-food-worker-shortages-push-prices-up-and-risk-christmasturkey-supplies

[24] https://www.ons.gov.uk/economy/inflationandpriceindices/timeseries/czom

Environmental Welfare

Unlike in the US, it is illegal to dispose of carcasses through on-farm burning, unless using an approved incinerator or burying in the UK, which reduces the impact of disposal on the planet. However, when processing capacity is reduced, and farmers must adopt emergency depopulation measures to effectively manage flocks during a crisis, environmental welfare can suffer greatly.

Reports show that 'any form of involuntary culling of animals raises GHG emissions'[25], including the emergency depopulation of farm animals due to problems with processing capabilities.

While emissions from UK agriculture have dropped notably from 58.9 million tonnes in 1990 to 45.6 million tonnes in 2017, more than one third of farmers place 'little' or 'no' importance on reducing their carbon footprint[26], which raises concerns that during times of crisis such as this, the environment could suffer.

And it's not just the physical process of disposal following emergency depopulation that's worrying in terms of fighting climate change. At a more basic level, we must consider the resources that are used to raise healthy animals - including feed, water, land, and fossil fuels for heating - that are wasted when healthy animals are culled.

[25] https://www.frontiersin.org/articles/10.3389/fvets.2020.585787/full

[26] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/835762/agriclimate-9edition-02oct19.pdf

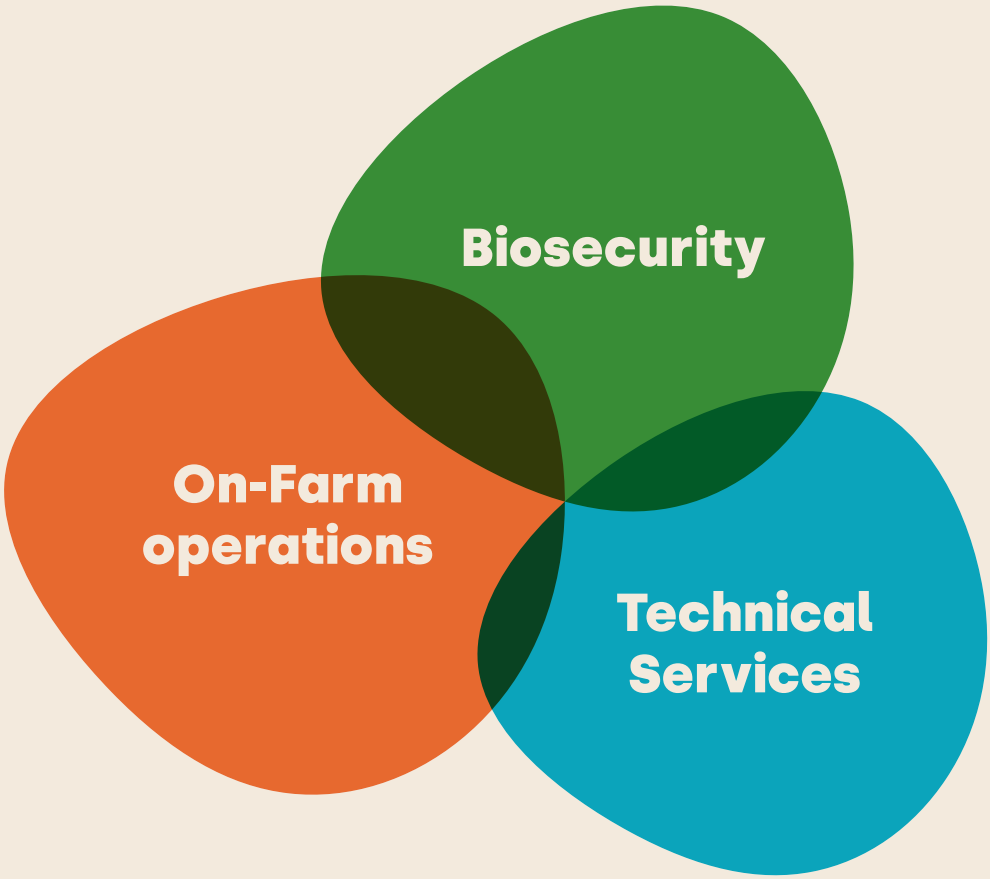
Solutions

The challenges facing farmers today are not only significant, but can also have significant impacts on many different aspects of welfare. However, we don't have to simply sit back and accept the effects that these modern day issues are having.

Contingency planning is a largely overlooked solution that can help farmers to hope for the best, but plan for the worst.

While some forms of processing delays may be out of our control, and could be unavoidable, pre-emptive measures, advice, and consultancy can ensure that plans are in place to minimise the welfare impacts.

Important areas to focus on are biosecurity and on-farm processes. Together, these aspects can help farmers to effectively and humanely undertake emergency depopulation measures on-farm and reduce the risks associated with overcrowding.



Biosecurity

Crowding due to an inability to move animals from the farm can mean that disease can spread more quickly through healthy livestock. Improved biosecurity measures and consultancy services that work to identify vulnerabilities in existing processes can work to minimise this risk and protect your healthy animals, removing the need for depopulation if you have the capacity to stock larger flocks during processing delays.

A Government-funded study of UK broiler farms found that although biosecurity standards in the UK are 'generally high', some basic hygiene measures and best practices are not followed by farmers and their labourers.

The report noted significant lapses in specific areas of biosecurity during warmer weather especially, such as workers wearing cooler boots that cannot be dipped rather than protective boots[27].

It is clear that biosecurity must become a priority, and here at **Livetec Systems** we specialise in forming, developing, and implementing bespoke biosecurity strategies and contingency plans that protect, prevent, and help farmers build resilience against today's biggest issues.

[27] https://acss.food.gov.uk/sites/default/files/multimedia/pdfs/biocampaignph2.pdf

Technical Services

The tech services team have a number of solutions to provide advisory/consultancy services and assistance in overcoming these challenges. Example of producing new documentation in case of processing capability that meets requirements ahead of submitting to OIE ahead of slaughter changes.

On-Farm Operations

Should the worst happen and you are unable to maintain larger flocks on-site during a loss of processing capacity, it is important - for many reasons - to have peace of mind that you have the ability to efficiently and humanely cull animals, protecting welfare.

This is an area where **Livetec Systems** specialise, and we believe that emergency culling should always meet the same humane criteria as scheduled slaughters. For us, this means keeping manual handling to a minimum, and ensuring that all techniques result in immediate death, or in stunning to ensure animals are unconscious prior to death.

Many farmers find this challenging to achieve with emergency mass depopulations, which is why we've developed a number of solutions to address this particular problem.

Industry-wide preferred methods for emergency depopulation include foam generators, whole-house gassing, containerised gassing, and cervical dislocation. However, skills gaps can mean these methods are not as humane as they seem;

A European Food Safety Authority report found that, of the 29 total hazards identified with on-farm stunning and killing, 26 were directly related to a lack of skill of the operator[28]. That's why, at **Livetec Systems**, we offer on-farm solutions undertaken by our experienced professionals that give you the capacity you need, when you need it.

[28] https://efsa.onlinelibrary.wiley.com/doi/full/10.2903/j.efsa.2019.5850

Protecting the Future of Farming

Major disruptions to any part of the agricultural supply chain pose epic risks to processing capacity and, in turn, to the welfare of not only your animals, but yourself, your business, and your workers, as well as to end consumers, and to the environment.

At **Livetec Systems**, we think that these disruptions present exciting opportunities in innovation and technology, enabling us to research solutions and adapt our response to generate new models, new processes, and new products and services that will help our clients to navigate today's - and tomorrow's - challenges with confidence, and which will be instrumental in both shaping and protecting the future of farming.

For more information on **Livetec Systems**, and our bespoke, science-backed solutions to the modern day challenges affecting today's farmers, visit **www.livetecsystems.co.uk/**

"We continually explore new ways to improve the future of farming and give farmers peace of mind that they're doing everything they can to protect their animals, ensure their welfare, and operate their business in the very best way."

Julian, Technical Director

Livetec is the leading provider of livestock protection - the go-to partner for all biosecurity issues across the industry.

We provide an extensive range of innovative solutions for our clients:

- **Technical Services**
  - Bespoke Biosecurity Services
  - 5 Year Contingency Planning Package
  - Biosecurity Services for Insurance Purposes
  - Enterprise Level Biosecurity Solutions
- **On-Farm Operations**
  - Mobile Stunning & Commercial Culling
  - Disease Outbreak & Emergency Depopulation
  - Catching & Disposal
  - Cleansing & Disinfection Services
- **On-Farm Products**
  - The NEX®
  - Containerised Gassing Units
  - Smart Oxygen Meter
  - Whole-House Gassing
  - Nitrogen Foam Delivery System
- **Research & Development**
  - Poultry
  - Pigs
  - Rodents
  - Crustaceans
  - African Swine Fever

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