

# Digital Passport (Combinable Crops) Business Case

FINAL VERSION - JUNE 2024

## Cross-industry stakeholder acknowledgement

This business case has been proposed by the Digital Passport Leadership Group. The Leadership Group's work has been supported and facilitated by AHDB. The Digital Passport Development and Data Groups have overseen and approved their respective sections (5 and 6) relating to system design and data governance.



UK FLOUR  
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## 1 Introduction

This business case, written by the Leadership Group and developed through cross industry collaboration, sets out how a digital combinable crop passport system could operate, its benefits and how much it will cost.

### What's new in this version?

The introduction and executive summary have been updated:

- Reshaped the description of the choice facing industry – it is not a question of paper versus digital passports, it is whether one digital passport is preferable to several different digital passports.
- The cross-industry commitment to feedback weight and quality data in real-time has been strengthened to an obligation.
- At this time, the Seed Crushers & Oil Processors Association (SCOPA) are unable to support the reworded proposals and specifically the obligation to feedback weight and quality data in real-time through the DP system. This means oilseeds deliveries into crushing plants operated by SCOPA members will not require a digital passport. This also means SCOPA will not form part of the ownership consortium and that they have withdrawn from the Leadership Group as of June 2024. The way in which SCOPA members require food and feed safety information to be shared with them is now outside the scope of this business case. If the rest of industry decide to proceed with the digital passport proposals in this business case, SCOPA members will discuss and agree their requirements with their supply base.
- Changed the funding description to include initial grant requirement.

The financial sections have been updated:

- Build cost now £986k.
- Annual paper passport cost is 1.6p/t and the annual digital passport cost would be 1.77p/t.
- Annual running cost has reduced to £332k net.
- The grant funding requirement is £2.8m, thus reducing the cost to industry by the same amount.
- Return on investment has improved. It is now £1.66 for every £1 spent by industry over ten years.
- Net present value to industry has increased to £2.374m over ten years.
- DP charge has reduced to 47p<sup>A</sup> per passport. Total income per year is predicted to be £30k.
- Integration costs have been revised upwards significantly.
- Extra industry implementation costs have been added, e.g. haulier waiting time and merchant time to onboard growers and hauliers.

The Development Group have added:

- An option for growers to add the merchant they have sold loads to, at the start of the process.
- A process for growers without computers or smartphones to set up digital passports via the telephone helpdesk in the same way that pig producers can today with movement licences.
- Emphasised system resilience and security features.
- Clearly described backup processes for local issues, e.g., power cuts or system-wide issues.
- Integration case studies and more clarity on integration options for mixed businesses such as merchants with their own storage and haulage operations.

The Data Group have:

- Updated the data table to include purchasing merchant data and outlines what data is visible to them.
- Provided clarity on how passport data added by growers and hauliers can be corrected or updated if required up to the point a load and passport are accepted.
- Brought forward permission 3 data usage for AHDB, to the start of the rollout period.
- Included clarity on covering costs of data requests including freedom of information requests.

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<sup>A</sup> Based on annual running cost divided by the estimated total passport number of 768,000

## Why move to digital now?

Much industry discussion focuses on weighing up the pros and cons of digital passports (DP) versus today's paper system. However, the landscape is changing and the impending likelihood that industry will require a platform enabling a wider range of data to be shared through supply chains means that some individual processor and merchant businesses are looking at options to facilitate this. So, the question now is, is one universal industry-wide digital passport system preferable, or several alternative digital passport systems introduced by larger processors and merchants to meet their own needs. Refer to section 4.4 for more information.

One universal digital passport system improves supply chain transparency and fairness and establishes clear data governance rules with data ownership protected. It also provides industry and government with access to robust, aggregated, anonymised food security datasets, overseen by a representative Data Governance Group, for a sector underpinning key domestic and export markets, e.g.:

- £26.2bn gross value added in the brewing and distilling sector.
- £7.1bn gross value added in the Scotch whisky sector.
- £2bn turnover from flour mills.

For many years, data sharing has been achieved with paper passports. Livestock sectors are further ahead and moving to fully electronic ID (EID) systems and electronic movement licences. Some horticulture supply chains have digital systems, yet combinable crop passports are some way behind.

Digital technology is increasingly prevalent across UK agriculture and businesses routinely use digital tools to drive operational efficiencies. Email, smartphone apps and internet usage on the move transform growers' ability to manage their businesses. Technological advances and regular use of satellite guidance technology reduces the human input into field operations. In 2024:

- Over 94% of the UK's adult population have smartphones.<sup>B</sup>
- Over 93% of the UK landmass has 4G coverage from at least one operator.<sup>C</sup>

## Why are combinable crop passports required?

Sharing data through supply chains is essential in fulfilling businesses' legal obligations under food and feed safety legislation and associated codes of practice.

In combinable crop supply chains merchants are trading grain between growers and processors with a range of possible destinations available for loads after they have been collected from growers. The only feasible solution for ensuring buyers have access to the food and feed safety data at the point they need it is for a passport to travel with each load.

Some other crop sectors, e.g. potatoes and vining peas require passports per load, but in those supply chains, universal industry-wide passports are not used, instead, passports are specific to individual companies. Regardless of crop type, all buyers will require food and feed safety information to be shared either per load or per contract.

## System

The industry-led Development Group's task was to create the simplest system possible for all parties. This means replicating the paper system in digital form, with growers/suppliers starting the process and hauliers adding their information before transferring passports to recipients at intake. The DP system is not designed to replace existing grain trading software or contractual communication between trading businesses. The DP will be complementary to existing digital systems and administrative processes, ensuring food and feed safety and security information is shared in the most secure and efficient way.

In addition to the present paper system, two significant items have been added:

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<sup>B</sup> August 2023 - <https://www.statista.com/statistics/271851/smartphone-owners-in-the-united-kingdom-uk-by-age/>

<sup>C</sup> March 2024 - <https://researchbriefings.files.parliament.uk/documents/SN07069/SN07069.pdf>

- Live assurance checks during collection and delivery for growers, stores, hauliers and merchants.
- An obligation on recipients to supply real-time weight and quality data into the DP system, visible to suppliers.

Where there is no internet, proposals mean data passes from one participant's device to another via QR codes both at collection and delivery intake, not holding up logistics. The system will update automatically when devices pick up signal in transit.

In instances with no internet at collection or delivery point, the system will show the most recent assurance check results including the certificate expiry date. Preventing non-assured grain movement into an assured supply chain is hugely valuable to the sector, supporting food and feed safety.

## **Data**

Keeping data secure is an integral part of digitising passports. Each piece of data will be owned by the business entering it. A clear set of rules, overseen by the Data Governance Group, ensures data usage is controlled by the data owner. This group will also ensure users adhere to the system's principles, e.g., the obligation that weight and quality data will be returned to growers in real-time (section 6) and that data can be used and/or aggregated for food and feed safety and security purposes.

The commercial sensitivity of data passing through supply chains is acknowledged and respected. Only those contractually required to see counterparty data will be able to do so.

## **Ownership, funding and operation**

The Leadership Group's ownership preference is a consortium agreement between these parties:

- Agricultural Industries Confederation (AIC)
- Agriculture and Horticulture Development Board (AHDB)
- Maltsters' Association of Great Britain (MAGB)
- National Farmers' Union (NFU)
- National Farmers' Union Scotland (NFUS)
- UK Flour Millers (UKFM)

Under this model, the consortium will collectively own the digital passport concept and oversee its direction. AHDB would be the legal entity owning the DP system software and database on behalf of the consortium and industry. This arrangement would continue indefinitely with the consortium's agreement. If at any point in future AHDB were unable to perform this function on behalf of the consortium or were AHDB Cereals & Oilseeds to cease to exist, the consortium can decide what alternative arrangements should be put in place.

Industry representative groups would oversee all aspects of the DP, like the group structure used in the preparation of this business case:

- Ownership Group
- System Governance Group
- Data Governance Group

Under the consortium, day-to-day system operation and management oversight will be by individuals employed by AHDB based on key input and decisions taken by representative industry groups. The Leadership Group is committed to openness and transparency across governance structures and will ensure meeting outputs are publicly available. Clear system performance management metrics will be monitored by the Ownership Group, ensuring the system operates efficiently.

Grant funding will be sought to cover the initial build, development, rollout and running costs. For the business-as-usual (BAU) phase, agreement with the AHDB Cereals & Oilseeds sector council will be sought to use a combination of statutory AHDB levy and to continue pursuing further options for grant funding to cover the annual running costs. This is alongside income from DP usage charges (for non-levy payers and those trading non-levied crops, e.g. imports and domestic peas and beans) based on the number of passports used. It is important to note that there will not be a charge to individual pea and bean growers - refer to section 7.5.

## 2 Executive summary

Sharing data through supply chains is essential in fulfilling businesses' legal obligations under food and feed safety legislation and associated codes of practice. The landscape is changing, and it is inevitable digital means of sharing data and tracing grain movements will replace the paper system. The question for industry is whether it's preferable to have one universal industry-wide DP system, or a number of individual different DP systems introduced by larger processors and merchants to meet their requirements.

The Leadership Group believes there is a strong case for a single, industry led DP system, with data control and value retained by those entering data into the system. This model includes mechanisms to arrive at industry consensus if further data is required to be shared in future. The alternative is multiple commercially led DP systems, with data and its value held, controlled and exploited by the company whose system it is.

Multiple DP systems means:

- Much higher costs for industry overall.
- Passport system owners can unilaterally increase the data growers need to supply.
- Growers and hauliers having to use multiple different DPs.
- Merchants having to tell growers and hauliers which DPs to use for each load.
- Reduced choice – loads en route have the wrong passport to be switched to another intake.
- Reduced competition resulting in fewer options for smaller growers and merchants.

This business case sets out the industry Leadership Group's proposals for a single universal digital passport (DP) system, enhancing supply chain transparency and fairness and transforming data sharing between trading businesses:

- Buyers fulfilling feed and food safety responsibilities more comprehensively and efficiently.
- Growers receiving crop quality results in 'real time', allowing time to react with increased supply chain transparency. Real time means that as soon as the test results are known by the recipient they are shared with growers via the DP.
- Data securely aggregated, guarding individual confidentiality and yet providing valuable insights, to the advantage of the whole supply chain.

It also sets out how this could be achieved and the benefits and costs of such a system. The system is expected to cost £986k to build. Annual running costs are estimated at £362k gross (£332k net after deducting income from DP charges - refer to section 7.5).

Implementation costs will not be an issue for most businesses already using computers and smartphones. There will also be the possibility to integrate the DP with business software to automatically send and receive data. The cost to achieve this will be reflective of the software used.

We anticipate benefits across the supply chain will amount to £652k per year from stopping the paper passport system. Over 10 years, this yields £5.948m.

In addition, for some businesses, there is scope to reduce costs associated with rejections and opportunity to maximise revenue by monitoring crop quality result trends for accepted loads and adjusting supplies to closely match contracted specifications. In the malting sector alone, rejected loads downgraded to feed cost the supply chain over £4m per year. Individual loads downgraded are costing over £1,740 at present and similar costs are seen in the milling sector.

Automated universal real-time assurance checks with statuses shared through the DP are another benefit. This reduces duplication, where multiple checks are performed by different businesses on the same grower or haulier. In other instances, with over-reliance on stickers, and no real-time checks, food and feed safety is enhanced and the integrity of assured supply chains is maintained

If widespread support is established, grant funding will be sought to cover the initial build, development, rollout and running costs. For the business-as-usual (BAU) phase, a combination of statutory AHDB cereals and oilseeds levy and pursuing further options for grant funding will fund the annual running costs, alongside income from the DP usage charge.



### Increased saving potential for adopting digital passports even with fractionally higher running costs:

Digital passport gross running costs per tonne (1.77p) are slightly higher than today's paper passport costs (1.6p). Other cost savings can be added to give overall savings of 3.3p per tonne. In addition, there are several non-financial benefits outlined in the table below.

Paper passport and sticker costs		Digital passport costs (gross)	
Per year	£327k	Per year	£362k
Per tonne	1.6p	Per tonne	1.77p

Savings (years 1-10)		Set up costs (years 1-3)		Annual running costs (year 4 on)		Potential benefits
Passport & sticker printing	£327k	Build costs	£986k	Staff costs	£301k	
<b>Other costs saved:</b>		System support	£455k	Other costs (per year)	£61k	
Passport archive/storage	£5k	Staff costs	£1.161m	<b>Total gross cost (per yr.)</b>	<b>£362k</b>	
Haulier wait time reduction	£320k	Other costs	£233k	<b>Total gross (per tonne)</b>	<b>1.77p<sup>E</sup></b>	
				DP charge income (per yr.)	-£30k	
<b>Total (per year)</b>	<b>£652k</b>			<b>Total net (per year)</b>	<b>£332k</b>	
<b>Total savings (10 yrs.)</b>	<b>£5.9m<sup>D</sup></b>	<b>Total funds sought (yr 1-3)</b>	<b>£2.835m</b>	<b>Total net cost (yrs. 4-10)</b>	<b>£2.327m</b>	
		Industry implementation	£1.053m			
<b>Total savings (per tonne)</b>	<b>3.18p<sup>E</sup></b>			<b>Total net (per tonne)</b>	<b>1.61p<sup>E</sup></b>	

<sup>D</sup> The savings are phased in gradually over the rollout period; the 10-year saving is less than the annual saving multiplied by 10.

<sup>E</sup> Based on 20.5m tonnes. The per tonne figures will vary depending on the size of the domestic crop and the proportion of crop moved into central stores and requiring two passports for the journeys from grower to central store and central store to first processor. Gross cost likely range between 1.6 and 1.9p per tonne.

### 3 Glossary

Term/Acronym	Definition
<b>4G</b>	Fourth generation of mobile data networks, giving faster speeds for mobile devices.
<b>Aggregated data</b>	Grouped data, gathered from anonymised individual data.
<b>Agrimetrics</b>	A UK agri-tech centre focused on supporting industry to realise the value in its data.
<b>AHDB</b>	Agriculture and Horticulture Development Board.
<b>AIC</b>	Agricultural Industries Confederation.
<b>Android and iOS</b>	Mobile operating systems.
<b>API</b>	Application programming interface – a piece of intermediary software allowing two applications to share data, e.g., a company’s IT system and the digital passport system.
<b>BAU</b>	Business as usual.
<b>C&amp;O</b>	Cereals and Oilseeds.
<b>CISA</b>	US Cybersecurity and Infrastructure Security Agency.
<b>DP</b>	Digital Passport (Combinable Crops).
<b>eAML2</b>	Electronic Animal Movement Licence 2 – pig movement licence system.
<b>FAQs</b>	Frequently asked questions.
<b>GM</b>	Genetically modified.
<b>HTTPS</b>	Hypertext transfer protocol secure – when you access a webpage via an encrypted connection.
<b>ID</b>	A unique series of numbers/letters used to identify data.
<b>LG</b>	Leadership Group.
<b>Macro</b>	Large-scale questions or details which form part of the decision on whether the DP goes ahead.
<b>MAGB</b>	Maltsters’ Association of GB.
<b>Merchant</b>	Any business buying grain from one party and selling to another. For these businesses not operating their own stores (where they act as senders and recipients), interaction with the DP will be optional.
<b>Micro</b>	Small-scale questions or details of lesser importance which can be worked through at the appropriate stage if the project goes ahead.
<b>Multi-directional data flow</b>	The transit of passport data, including weight and quality data, up and down the supply chain, between growers, stores, hauliers, merchants, ports and processors.
<b>NCSC</b>	National Cyber Security Centre.
<b>NFU</b>	National Farmers’ Union.
<b>NFUS</b>	National Farmers’ Union Scotland.
<b>QR code</b>	Quick response code – a square barcode used for storing information which can be read by a smartphone camera.
<b>Ransomware</b>	Malicious software which typically encrypts data and demands payment for its return.
<b>Recipient</b>	Any business receiving loads with a passport, e.g., processors, TASCC/UFAS stores and ports.
<b>RED</b>	Renewable Energy Directive (RED II came into effect on 1 July 2021).
<b>RESTful architecture</b>	When an API makes use of simple standard web technology to make and deliver requests.

<b>Term/Acronym</b>	<b>Definition</b>
<b>RFI</b>	Request for information – procurement term used to describe a process through which it is possible to seek information from potential service providers which can be used in a future RFQ process.
<b>RFQ</b>	Request for quotation – procurement term used to describe a formal tender process where a specification of requirements is published for interested parties to tender against.
<b>RHA</b>	Road Haulage Association.
<b>RT</b>	Red Tractor.
<b>RTFA</b>	Renewable Transport Fuel Association.
<b>SCOPA</b>	Seed Crushers & Oil Processors Association.
<b>Sender</b>	Any business despatching loads requiring a passport, e.g., growers, TASCC/UFAS stores and ports.
<b>SI</b>	Statutory instrument.
<b>Smartphone</b>	A mobile phone with a touchscreen interface and internet access.
<b>SMS</b>	Short messaging service (a standard text message).
<b>SQC</b>	Scottish Quality Crops. The combinable crops quality assurance scheme for Scotland.
<b>String trade</b>	A supply chain where a merchant sources crop from another merchant instead of from a grower. Chains can include more than two merchants.
<b>Systems integration</b>	The joining of a company's IT system to the digital passport system to enable automated sharing of key passport data, by the means of an API.
<b>TASCC</b>	Trade Assurance Scheme for Combinable Crops – assurance scheme for hauliers, off-farm stores and merchants operated by the AIC.
<b>Transition</b>	The period it will take for industry to move from the paper passport to the digital passport.
<b>Transporter</b>	Any business transporting loads requiring a passport, e.g., contract hauliers, growers or merchants and processors with their own haulage fleet.
<b>UAT</b>	User acceptance testing.
<b>UFAS</b>	Universal Feed Assurance Scheme – assurance scheme for the feed sector which also covers some haulage and storage participants in combinable crop supply chains.
<b>UKFM</b>	UK Flour Millers.

## 4 Rationale

### 4.1 What is the purpose of digitising the passport?

Originally introduced in the 1980s to comply with the food and feed safety act, passports initially communicated details of post-harvest pesticide applications to onward parties as consignments moved through supply chains. The passport expanded over time to include vehicle cleanliness and mycotoxin data, alongside genetic modification (GM) and Renewable Energy Directive (RED) declarations.

Sharing data through combinable crop supply chains is essential in fulfilling businesses' legal obligations under food and feed safety legislation and associated codes of practice. Moving to a digital passport would help fulfil these responsibilities more effectively and reliably than using paper:

- Driving efficiencies:
  - Automating passport checks rather than relying on manual checks, by importing key passport data into software where businesses choose to integrate systems. Passport data checks will vary from business to business. However, the three previous loads materials, post-harvest treatments and assurance status could be checked automatically against the company's agreed parameters and present the intake staff with a simple 'yes' or 'no.'
  - Access your data securely, online, wherever, whenever, and however it is needed.
  - For some businesses, there is scope to reduce costs associated with rejections and the opportunity to maximise revenue by monitoring crop quality result trends for accepted loads and adjusting supplies to closely match contracted specifications. This is achieved by providing a multi-directional data flow complementing existing digital systems communicating quality data back to growers. The DP will provide a universal platform for this data to be sent and received in those instances where that data is not shared today.
- Improving data accuracy:
  - Tailoring passport data fields for each crop so that users are clear on what data needs to be provided in each case.
  - Improved data integrity with permissions restricted so that passport sections can only be populated by the party whose responsibility it is. Audit trails in the system record who entered which data and when.
  - Providing solutions within the DP system which do not rely on users spelling correctly. For example, providing a tailored drop-down list containing the recognised terms for materials in the three previous loads section.
  - Integrating the DP system with other software systems used in industry, enabling automated data sharing, also reducing incidence of mistyping.
- Allowing data to be shared in as close to real time as possible enabling:
  - Real-time visibility of grower, TASCC/UFAS store, haulier and merchant assurance status
  - Growers and stores to monitor grain quality results.

All these points enhance industry's ability to meet its obligations and responsibilities under the requirements of assurance scheme standards and food and feed safety legislation.

### 4.2 Why now?

Industry first started discussing the concept of a digital passport in 2011. Since then, many hours have been dedicated by people across the supply chain investigating how it could work, the benefits and challenges of switching from paper to digital and debating how data should be managed, secured and protected. This is alongside levy funds invested particularly in developing and building the system piloted in 2014/15. That pilot provided evidence that a digital passport can efficiently and effectively provide a multi-directional data flow up and down supply chains.

The landscape is changing and the impending likelihood that industry will require a platform enabling a wider range of data to be shared through supply chains means that individual processor and merchant businesses are looking at options to facilitate this. So, the question now is, is one universal industry-wide digital passport system preferable, or a multitude of individual different digital passport

systems introduced by larger processors and merchants to meet their requirements. Refer to section 4.4 for more information.

One universal digital passport system improves supply chain transparency and fairness and establishes clear data governance rules with users' data ownership protected. It also provides industry and government with access to robust aggregated food security datasets, under the supervision of a representative Data Governance Group, for a sector underpinning key domestic and export markets, e.g.:

- £26.2bn gross value added in the brewing and distilling sector
- £7.1bn gross value added in the Scotch whisky sector
- £2bn turnover from flour mills

In line with other industries, digital technology has become prevalent across UK agriculture, and more and more businesses in all parts of combinable crop supply chains are using digital tools to drive operational efficiencies. Routine use of email, smartphone apps and internet access on the move has transformed the ability of growers to manage their businesses from anywhere. This is in addition to the technological advances in agricultural equipment with regular use of satellite guidance technology on field equipment and automation reducing the human input into field operations.

In 2023:

- Over 94% of the UK's adult population have smartphones.<sup>F</sup>
- Over 93% of the UK landmass has 4G coverage from at least one operator.<sup>G</sup>

Some in industry are frustrated at the ongoing lengthy discussions on whether to adopt a digital passport and need no further convincing of the benefits. However, others are concerned about the costs of such a system, and the ability of the minority to adopt digital technology and about the minority who still do not have reliable Wi-Fi or mobile data coverage.

Were industry to design and introduce a passport for combinable crop supply chains in 2024, it would not be a paper-based solution. Industry engagement in the DP debate is at its highest level than at any stage in the preceding 13 years. There is momentum behind the current discussions. Looking ahead, it is highly likely that the data required to be shared through supply chains will increase. If industry is not able to provide a straightforward means of sharing this extra data universally, the solution is likely to either be to extend the passport to a second sheet of paper, which is far from practical, or multiple digital systems will be introduced. Refer to section 4.4 for more detail. Overall, this picture indicates that this is the time to resolve the question of a digital passport once and for all and whether to put in place an efficient digital system fit for the twenty-first century.

## 4.3 Benefits to individual businesses and industry as a whole

### 4.3.1 Non-financial benefits

There are a wide range of benefits of moving to a digital passport. Some are industry-wide. Others are specific to individual areas of a supply chain.

Industry-wide:

- Enhanced food and feed safety and traceability with accessible digital data and real-time assurance checks and a system fit for industry's future needs.
- Improved transparency and enhanced supply chain fairness with the potential to reduce costs across the supply chain associated with rejections and the opportunity to maximise revenue with real-time crop quality data feedback. This could be of significant benefit to some businesses but is dependent on their ability to react to trends in results. Using rolling 10-year average data just from the malting sector indicates that 2,275 loads per year are rejected and downgraded from malting to feed. With premiums currently over £60 per tonne and with added transport costs, this amounts to £1,740 per load, or approximately £4m in total cost and lost income for growers per year, without factoring in waiting time for vehicles or extra testing and admin costs for processors.

<sup>F</sup> August 2023 - <https://www.statista.com/statistics/271851/smartphone-owners-in-the-united-kingdom-uk-by-age/>

<sup>G</sup> March 2024 - <https://researchbriefings.files.parliament.uk/documents/SN07069/SN07069.pdf>

- Avoids multiple systems and the associated complications and costs, with one standardised universal digital platform providing multi-directional data flow.
- Aggregated industry-wide data will be held and protected centrally in a trusted, secure and robust way with industry-controlled governance, instead of today's fragmented and dispersed paper-based system with no data governance framework and lack of clarity on who owns what data and what receivers can or cannot do with passport data.
- Improved passport data integrity with permissions restricted so that passport sections can only be populated by the party whose responsibility it is. Audit trails in the system record who entered which data and when.
- Gives confidence and credibility to customers, stakeholders and regulators by bringing the passport into the twenty-first century with its governance established and documented.

Growers using the DP will save time, reduce costs and increase revenues:

- Efficiencies from bulk passport completion ahead of time and automating load destination records.
- For some growers, there is scope to reduce costs associated with rejections and the opportunity to maximise revenue by monitoring crop quality result trends for accepted loads and adjusting supplies to closely match contracted specifications. Examples include:
  - Rejection of malting barley and downgrade to feed, costed a Scottish grower over £60 per tonne or £1,740 per load at harvest 2023.
  - Claim on malting barley of £1 per tonne, per percentage point above 8% for skinned grains.
  - Claim on milling wheat of £1.50 per tonne for a load supplied at 15.5% moisture.
  - Claim on milling wheat of £5 per tonne for a load supplied at 12.5% protein on a 13% protein contract.
- Avoid the complications and costs of multiple processor and merchant digital passports and the uncertainty of not knowing which digital passport is required for which load.

Processors using the DP will benefit from:

- Enhanced food and feed safety and traceability with accessible high quality digital data with improved integrity.
- Reduced duplication and time saved with industry-standard automated grower, TASCC/UFAS store, haulier and merchant assurance checks.
- Efficiencies by exchanging data seamlessly through one universal data sharing application programme interface (API) rather than multiple, by choosing systems integration.

Merchant benefits:

- Efficiencies from fewer claims and rejections to handle because growers have real-time quality data to help manage their supplies.
- Reduced duplication and time saved with industry-standard automated grower, TASCC/UFAS store and haulier assurance checks.
- Efficiencies by exchanging data seamlessly through one universal API rather than multiple, by choosing systems integration.

Haulier benefits:

- Reduced hassle and waiting time, with visible grower assurance statuses at collection point, no illegibility problems and fewer rejections resulting in redirection.
- More certainty that passports are complete prior to departure and growers being clear on the passport details required for each crop type.
- Streamlined admin processes, with automated return of weight data.
- Avoid the complications and costs of multiple processor and merchant digital passports and the uncertainty of not knowing which digital passport is required for which load.

#### 4.3.2 Financial benefits

The financial benefit has been conservatively calculated at circa £652k per annum based on an assessment of costs removed by discontinuing the paper passport. Industry data forms the basis of these calculations. These savings fall across all supply chain participants. For more information on how this figure has been calculated, refer to section 8.4.

There is potential for further financial benefits across the supply chain. However, these have not been calculated as they are difficult to reliably predict and quantify.

For the full cost benefit analysis, refer to section 9.

#### 4.4 Why one system rather than fragmentation?

The introduction of one universal DP would bring several benefits, including:

- All businesses in all parts of combinable crop supply chains are familiar with one system which can be used in all instances where contracting parties require passports. This is particularly important for growers and hauliers working with multiple merchants.
- There is one central universal method of displaying grower, TASCC/UFAS store, haulier and merchant assurance status in real-time to those who need this information.
- If an update to the data needed on a passport is required, this can be rolled out centrally to the whole industry in a practical and coordinated way.
- Data is held centrally in a trusted and secure way. Robust governance structures, controlled by the data owners, means data use can be trusted and controlled effectively, including for food and feed safety issues.

To provide an overview of the potential impact on industry of multiple DP systems, it is useful to consider how they could come into being. Three scenarios follow, and there could be others:

1. Individual processors develop their own DP unilaterally.
2. Processors work together within one crop sector, e.g., a DP for millers, designed and funded by milling businesses.
3. Processors team up with large merchant businesses.

There are three broad groups of inefficiencies, consequences and therefore costs of multiple DP systems being introduced:

- Added complexity and costs for growers, merchants and hauliers:
  - Potential for extra hardware and/or software costs for businesses to equip themselves to use DPs introduced by others.
  - Requirement to train staff to use multiple different DP systems.
  - Merchants would need to communicate to growers, stores and hauliers which DP is required for each load.
  - Costs of developing multiple DPs across industry are likely to be passed back to growers to maintain margins higher up the supply chain.
  - For businesses choosing integration as their preferred way of interacting with DPs, they will incur the cost of integrating with multiple DP systems rather than one.
- Competition/loss of choice:
  - Complexity brought about by multiple DPs is likely to suppress competition. There would be reduced options for smaller merchants and growers.
  - Last-minute logistical changes would be problematic, e.g. switching grower or haulier.
  - Rejection or redirection to a different processor with a different DP system would be very difficult. It would likely require a paper passport or a second different DP after a load has left the collection point.
  - String trades – some merchants involved in a string might not be set up to use a particular DP required by the buyer.
- Data governance and control:
  - Processors could unilaterally add extra data requirements to their DP without industry discussion or consensus, resulting in different data requirements across different DPs.
  - How can growers retain the value associated with their data if provided to a company-specific DP?
  - Processor-led DP systems may not provide a platform for returning quality data to growers.
  - Data fragmentation:
    - No clear ownership – will growers retain ownership of data they supply?
    - Different data standards and security models.

- Lost opportunity to aggregate data, e.g. replacing AHDB surveys on cereals quality and enhancing monthly usage data surveys to save levy funds (refer to section 6.2).
- Overall lack of control
- Who gets the data's value?

#### 4.5 How has this business case been developed?

The DP project was reset following the Cereals Liaison Group meeting in November 2022. Following discussion by the AHDB Cereals & Oilseeds sector council, a fundamental restructuring of the project's governance took place to put cross-supply-chain industry leadership at the core. A detailed industry consultation took place from late November 2023 to early February 2024. This business case version has been revised to include answers to questions raised during the consultation. Key activity through 2023 and 2024:

Month	Activity
<b>January 23</b>	Leadership Group formed. Group met weekly for most of the year
<b>March</b>	Development Group formed
<b>April</b>	Development Group first meeting. Data Group formed
<b>May</b>	Data Group first meeting
<b>June</b>	Data & Development Groups continued their work
<b>July</b>	Leadership Group focused on ownership and funding
<b>August</b>	Data and Development Group outputs written up into business case
<b>September</b>	Data and Development Groups signed off their business case sections
<b>October</b>	Leadership Group finalised key sections
<b>November</b>	Business case completed and industry consultation started
<b>February 24</b>	Industry consultation ended
<b>March</b>	Industry feedback assessed and 80 key clarification questions emerged
<b>April</b>	Leadership, Data and Development Groups discussed and answered key questions
<b>May</b>	Business case revised including answers to key questions
<b>June</b>	Business case released to industry. Grant funding work continues

Figure 1. 2023-2024 timeline and activity summary.

##### 4.5.1 Leadership Group

An industry DP Leadership Group was formed in early 2023. Refer to appendix 11.1 for the industry membership list. The group's purpose was to:

- Provide senior-level industry project leadership.
- Ensure cross-industry input and participation from relevant individuals, organisations and companies.
- Establish and oversee the operation of the Development and Data Groups, including approving their membership and terms of reference.
- Discuss options and agree the preferred ownership and funding model.
- Review and build on the earlier costs and benefits work, leading to a revised comprehensive business case, by delegating tasks to the groups.
- Take key decisions, including deciding whether industry wishes to move to build and adopt one universal DP system.
- Maintain project momentum.
- Sign off any outputs and recommendations from the groups.
- Provide project updates to the wider industry and the Cereals Liaison Group.

The Leadership Group has met most weeks since January 2023 and has overseen the creation of the Development and Data Groups and reviewed and signed off their outputs, taking key strategic decisions along the way. The Leadership Group has also led on industry communications and been careful to ensure that all parts of industry have had an opportunity to join groups and workshops throughout and input into proposals. The Leadership Group has also signed off fortnightly updates which have been shared with wider industry.



With the agreement of the AHDB Cereals & Oilseeds sector council, AHDB staff have facilitated the work undertaken by the Leadership Group and by the Development and Data Groups.

#### 4.5.2 Development Group

The Development Group was formed in February 2023 with chair George Mason (miller – Heygates) and facilitator Angela Gibson (merchant – Viterra). Refer to appendix 11.2 for the industry membership list. The group's purpose was to:

- Agree what data needs to be collected and contained within the system and, how data flows through the system for one system to work effectively.
- Consult all parts of the supply chain to map out existing processes and data flows. This includes workshops.
- Establish implementation costs for both industry and the system.
- Establish where extra work will fall in the supply chain.
- Functions of the system.
- Provide the differences in moving from a paper passport to a digital passport for articulation in the business case.
- Identify macro issues to be resolved before the business case can be agreed.
- Identify micro issues to be resolved during any build phase.

The group has taken feedback from across industry on the earlier proposals and this has resulted in a simplified DP process being proposed, which can be seen in section 5. Industry also requested more definitive information on the minimum system access requirements across the supply chain which in turn enables an assessment of the implementation costs. This work has been completed and more information can be found in section 5.

The Development Group worked through the detail of how the DP will operate and referred their proposals to the Leadership Group for approval and sign-off. Those proposals are included in this business case.

#### 4.5.3 Data Group

The Data Group was formed in April 2023 with chair Matt Culley (grower) and facilitator Rose Riby (AIC). Refer to appendix 11.3 for the industry membership list. The group's purpose was to:

- Develop proposals on all matters relating to data governance and sharing.
- Review the earlier Agrimetrics data governance framework.
- Discuss and propose to the Leadership Group the principles for acceptable levels of transparency considering the risks and benefits across supply chains.
- Discuss and propose to the Leadership Group if, and under what terms and conditions it might be acceptable to look at and use aggregated industry-wide data.
- Propose to the Leadership Group how decisions about how any changes to what data is shared will be made.
- For each data type (as provided by the Development Group), develop proposals for:
  - What data will be shared within a supply chain and in which direction.
  - What data will be publicly available.
  - Clarify ownership and control of data.
- Review how data will be kept secure.

The group has taken feedback from across industry on the earlier proposals and added new layers of detail to provide answers to key questions which were previously unanswered. The Data Group's proposals were referred to the Leadership Group for approval and sign-off before being included in this business case. For more information, refer to section 6.

## 5 System

### 5.1 Scope

The clear requirement agreed with the Development and Leadership Groups is that the DP should incorporate the same data as on the paper passport today. Industry have also agreed to include real-time grower, TASCC/UFAS store, haulier and merchant assurance checking and functionality for

multi-directional data flow to accommodate the obligation to feedback weight and quality data to the source grower or store. To facilitate this will mean adding these data points:

- Accept or reject status for each passport.
- If rejected, the rejection reason.
- For both accepted and rejected loads, the relevant quality parameters, including facility for a second set of quality results for rejected loads when redirected to a second recipient.
- For accepted loads, the net weight.

Beyond this, optional extra data fields requested by industry will make it easier to manage digital passports alongside existing load administration processes:

- The ability to add load reference or ID numbers. This will be particularly useful in allowing hauliers and merchants to track weights and quality data.
- The ability for processors to add contract ID numbers to passports at intake.
- The requirement for processors to add the merchant company they have purchased from, allowing weight and quality data to be shared with them in addition to the source store or grower. Where processors have purchased directly from growers, this will not be necessary.
- The option for growers to add the merchant company they have sold to, allowing them to have passport visibility from the start which could be useful if an issue requires resolution.

It is proposed that, where appropriate, data will be imported from assurance (Red Tractor, SQC, TASC and UFAS) databases, replacing the need to add this data manually. This will ensure consistency, following the concept of 'one single source of the truth':

- For Red Tractor members, collection addresses will be imported from the assurance database, rather than growers adding them in the DP separately. (SQC do not hold this data for their members). They will then be available via a drop-down list, to populate that passport section. There will be an option for senders to add unassured collection locations where digital passports are required for non-assured grain.
- Where available, store data will be imported from assurance databases, including whether stores are long-term or temporary. Temporary stores will show as unassured after the 31 October cut-off date. For growers with production only memberships, and without storage on-farm, their business level assurance status will be shown as 'assured' for movements up to 31 October.
- Senders' RED II declaration will be enhanced by importing the business's status from the relevant assurance database.

It is also proposed that where loads are rejected for food or feed safety reasons the DP system will automatically send the delivery point rejection (DPR) information to the certification body and/or the assurance body, including a copy of the passport, in line with assurance scheme rules.

Looking ahead, if growers and industry collectively decide to share additional data in either direction through supply chains, it will be easy and cost effective to achieve. To provide this foundation, the DP will be extendable without requiring a fundamental system rebuild. Building the DP with this objective in mind will not be any more costly.

The DP specification, outlining industry's requirements which was used to procure the build partner, has been drafted by AHDB based on the Development Group's discussions and decisions. This specification was signed off by AHDB before being approved by the Leadership Group. The Leadership Group is aware that digital projects such as this can suffer from inadvertent scope creep without appropriate controls. To prevent this, the Leadership Group will review the scope to ensure it covers all known industry requirements. The budget required to build the system is in section 8.1.

## 5.2 System Governance Group

A core System Governance Group is proposed to oversee development and take key decisions both for the build phase and long-term. A larger user group representing all crop sectors and all parts of the supply chain will be called on as required, especially to input into system design and user testing and acceptance. For further information on the System Governance Group's remit, refer to section 7.2.2.

Role/Expertise	Representing
----------------	--------------

<b>Chair</b>	Elected from:
<b>Farmer</b>	NFU (National Farmers Union)
<b>Farmer</b>	NFUS (National Farmers Union Scotland)
<b>Haulier</b>	RHA (Road Haulage Association)
<b>Miller</b>	UKFM (UK Flour Millers)
<b>Maltster</b>	MAGB (Maltsters' Association of Great Britain)
<b>Feed compounder</b>	AIC (Agricultural Industries Confederation)
<b>Merchant</b>	AIC (Agricultural Industries Confederation)
<b>Assurance bodies</b>	RT (Red Tractor) SQC (Scottish Quality Crops)
<b>AHDB</b>	Levy board

Figure 2. System Governance Group membership structure.

### 5.3 How easy will it be to use, enter data and access data?

The Development Group reviewed the recipient-led process piloted in 2014/15 and decided that a simpler sender-led model closely matching the paper process would be more appropriate, garnering more widespread industry support. Refer to figure 3. In this process, the passport is always initiated by the sender, i.e., a grower, TASCC/UFAS store or port.

At the system's core is a database and internet-based portal which businesses of all types can access. A mobile application available on Android and iOS will enable access to the DP on the move for senders and drivers. There will also be an option to integrate systems (refer to section 8.2.4 and appendix 11.10), which will be an efficient way for businesses handling large quantities of grain to avoid duplication of processes or double keying.

Figure 4 shows the proposals for how each individual party will interact with the DP system where there is connectivity at both collection point and at intake. Refer to section 5.4 for proposals for how the system will work where there is no connectivity at either collection point, intake or both.

The role for merchants is much reduced compared to earlier proposals. Merchants will use the system when acting as senders and recipients of grain into and out of TASCC/UFAS stores. The option to integrate business software with the DP system for this purpose will be a decision for individual merchants. Merchants will need to register on the system, allowing them to be added to passports by growers at the start of the process and/or by processors at the end. Being connected at the start of the process provides visibility of the passport as it progresses and an opportunity to support growers and hauliers in the event of an issue requiring resolution. Merchants will be connected to passports at the end of the process, once a passport has been accepted by a recipient, and this means they will be able to receive weight and quality data at the same time as senders.

Where processors purchase directly from growers, it will not be necessary to add merchants. For string trades, the only merchants connected to a passport will be the merchant purchasing from the grower and the merchant supplying the processor. Both merchants will have access to the weight and quality data. Communication of this data to any other intermediary merchants involved in a string will take place outside of the DP as it does today.

There are other grain movement scenarios which the DP system will need extra functionality away from the core process to accommodate. Refer to appendix 11.4 for more information.

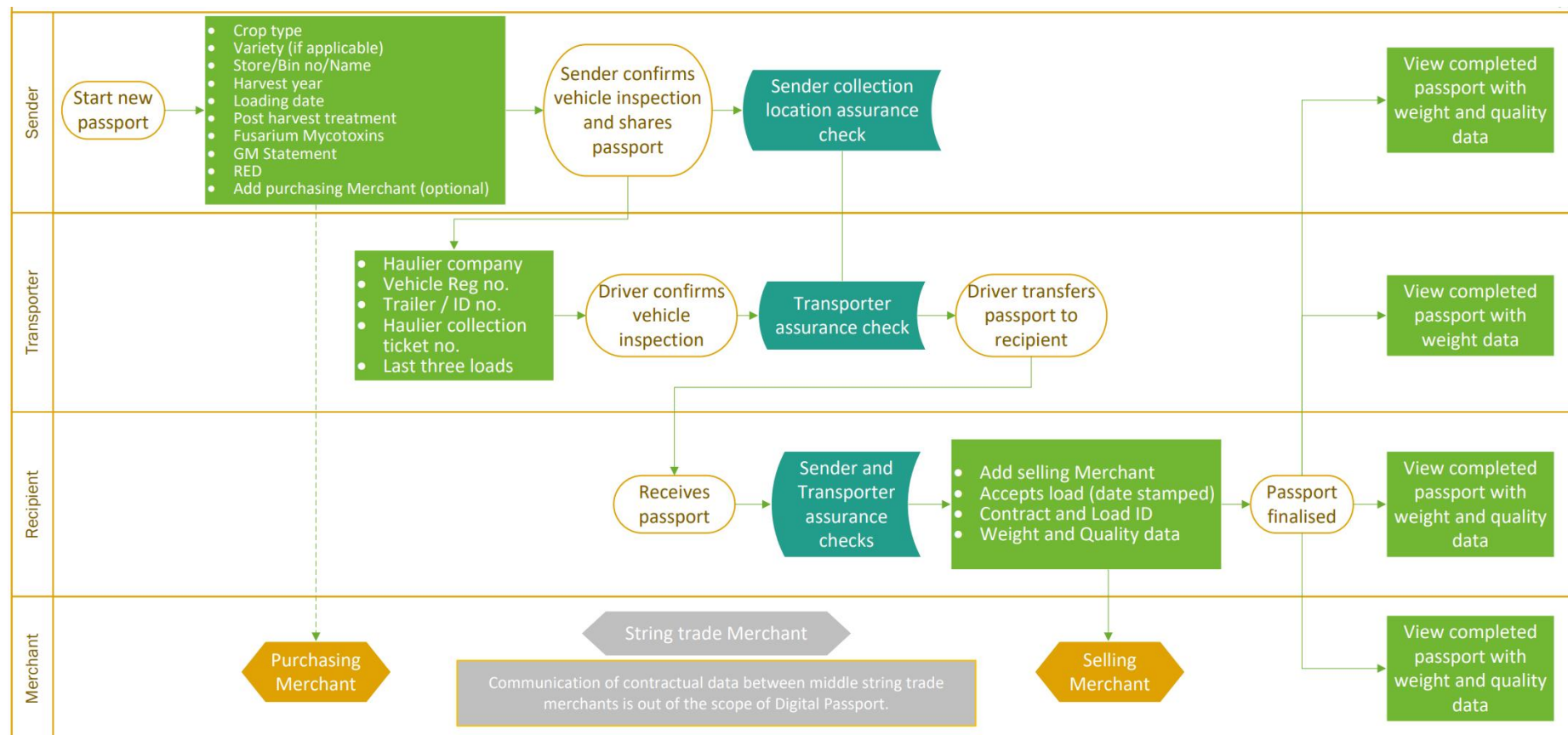


Figure 3. Proposed sender led process providing multi-directional data flow.

Key:

- Senders (create passports) – any business despatching loads, e.g., growers, TASCC/UFAS stores and ports.
- Transporters – any business transporting loads, e.g., contract hauliers, growers or merchants and processors with their own haulage fleet.
- Recipients (receive passports) – any business receiving loads, e.g., processors, TASCC/UFAS stores and ports.
- Merchants – any business buying grain from one party and selling to another. For these businesses not operating their own stores (where they act as senders and recipients), there will be no pre-determined level of interaction with the DP and each merchant can choose how to operate the system in their business.

For this model to work sender and driver devices must have connectivity at collection point and driver and recipient devices must have connectivity at intake.

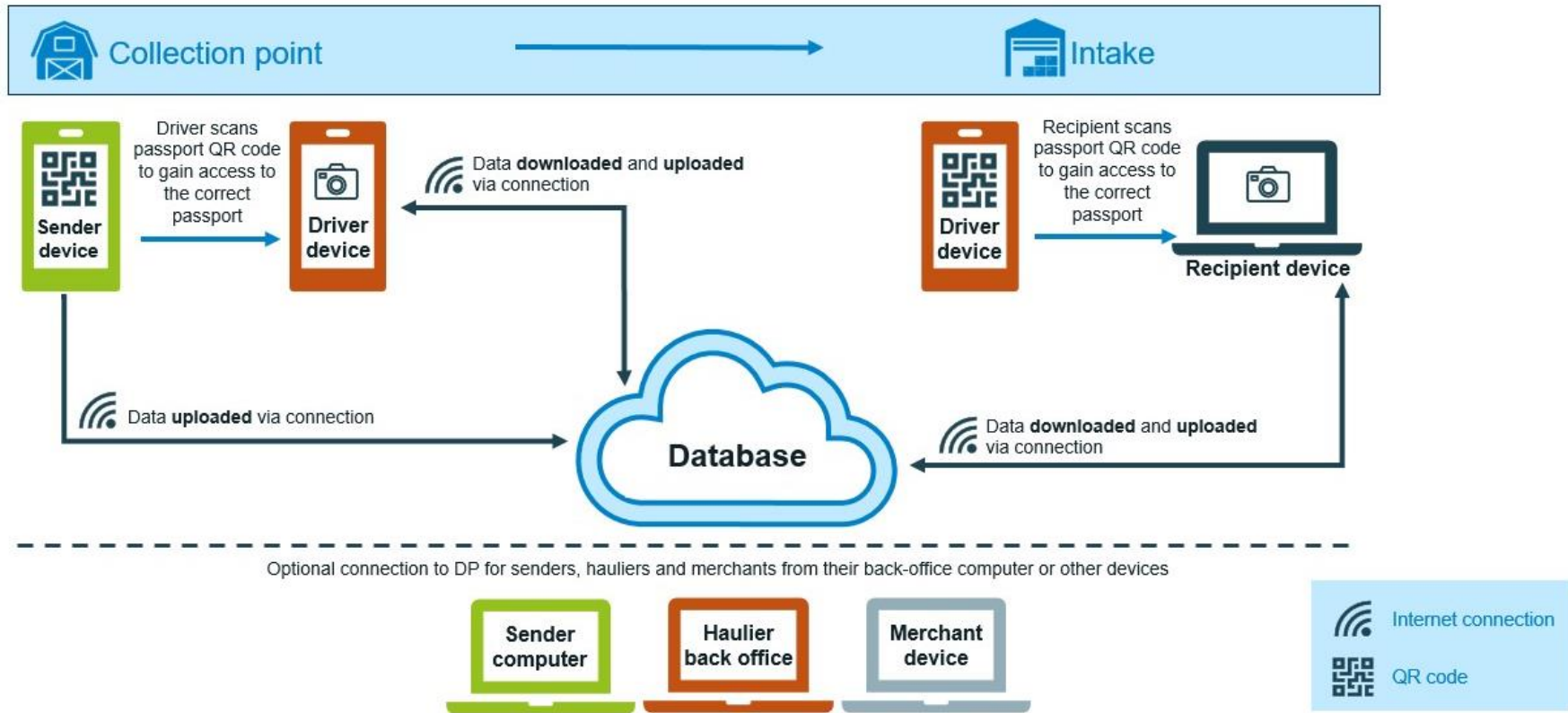


Figure 4. Diagram showing the DP process in terms of devices for each party and how data will flow when there is full connectivity at both collection point and intake.

System design will ensure a highly intuitive solution based on conventional functionality rather than customisation, e.g., navigation menu on the left and user profile menu top right. Constant industry feedback will be required throughout the web and mobile app design phases to ensure ease of use. An intuitive system will reduce training requirements and support costs.

Other key features:

- Tool tips (i icons) throughout will give user guidance.
- One easily navigable workflow for the most common passport 'path'.
- Automated input for repeatable information.
- Ability to create multiple identical passports for the same crop.
- Ability for companies to tailor and restrict drop down list options to those applicable to their business, e.g., hauliers tailoring the materials drop down list just to those materials applicable to their business.
- Passport data fields tailored to the crop being moved.
- Alerts by email/SMS can be subscribed to.

#### 5.4 How will areas with poor reception or no Wi-Fi be accommodated?

Nationally, over 93% of the UK landmass has 4G coverage by at least one operator. The remaining 7% is largely more rural areas, including those where grain is grown and stored. An AHDB survey of grain receiving sites, e.g., TASC/UFAS stores, processor intakes and ports indicates that 8% of respondents currently have no connectivity either by Wi-Fi or mobile data at intake. Refer to appendix 11.7 for an explanation of the difference between Wi-Fi and 4G.

For this reason, it is important that the DP works effectively with no internet access at either collection point or at intake. In these situations, it is possible to design a solution by matching the current paper passport process in passing the passport from one party to another. Figure 5 shows the proposals in diagram form.

1. Senders create a passport on their device and populate all their information (either online or offline).
2. When the driver arrives, they scan the sender's passport QR code, which transfers it to the driver's device. No internet access is required for this to work.
3. The driver adds their information, and the system provides the driver with confirmation that the passport is complete.
4. It is expected that the driver will pick up signal en route to the intake which will allow the data to be synchronised back to the database, but this is not essential.
5. At intake, the intake team will scan the QR code on the driver's device which will allow transfer of the passport to the recipient's device. No internet access is required for this to work.
6. Once the recipient is ready to accept the load, they do so in the DP system, add the weight and quality data and once the recipient's device picks up signal, it will synchronise with the main database and this information will be visible to the sender. For this reason, if no internet access is available at intake, recipients will need to use a portable device (rather than a desktop device) to receive passports. That way, at the end of the day, the device can be moved into a location with internet access to synchronise with the DP database.

It is important to note that where intakes do not have internet connectivity, it will not be possible to perform real-time assurance checks. Instead, the DP will display the most recently checked assurance status along with the date and time it was taken for both the sender and haulier.

Refer to appendix 11.8 for diagrams outlining how the DP will work where there is:

- Internet access at intake, but not at collection point.
- Internet access at collection point, but not at intake.

For this model to work sender and driver devices will not need to have connectivity at collection point however driver device will ideally pass through connectivity on route to intake. Similarly, driver and recipient devices do not need to have connectivity at intake. The recipient would need to upload once connection has been gained.

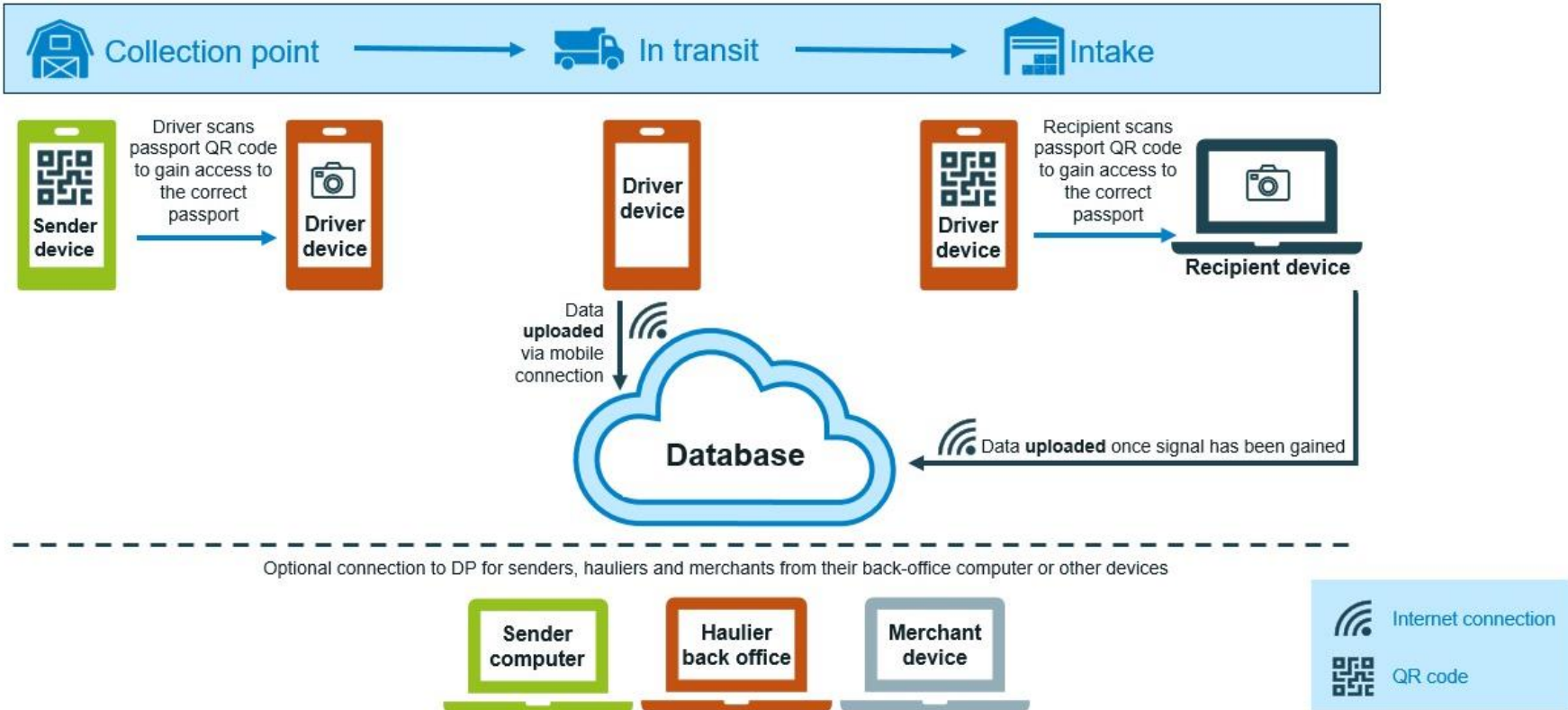


Figure 5. Diagram showing the DP process in terms of devices for each party and how data will flow when there is no connectivity at either collection point or intake.

## 5.5 How accessible will the system be for non-tech-savvy users, etc.?

The DP system will be built in line with web content accessibility guidelines, which means considering a range of disabilities when designing the system including:

- Visual
- Auditory
- Physical
- Speech
- Cognitive
- Language
- Learning
- Neurological

For those growers with no computer or smartphone today and who are not familiar with using such technology, there will be an option to telephone the helpdesk who on their behalf can go through the one-off process of registering their business and users, and subsequently, creating and populating passports. There is also an option to log in using the driver's device if the driver is happy for them to do so. For more information on this process, please refer to appendix 11.9. The AHDB helpdesk has operated in this way supporting pig producers without access to computers or smartphones with electronic pig movement licences for over 10 years.

## 5.6 What are the back-up proposals?

Well known and familiar back-up processes will be required both in case of local issues affecting individual businesses or in case of industry-wide issues affecting the central DP system.

### 5.6.1 Local issues

There are several ways in which users can be supported in the event of devices being broken or flat or local power cuts etc. Users will be able to log in using any available digital devices, including smartphone, tablet, laptop or desktop computer. In-built functionality making it easy to download a completed passport as a pdf, and the ability to email it to self or to someone else, will provide flexible options for individual users to work around central system unavailability or local issues. In addition, any passport created by a grower or store can be accessed by other users registered with that business.

It is important to note that through the transition period, working practices are likely to adapt to mitigate these risks too. If a phone is broken, individuals would need to contact the helpdesk who would be able to help, although it is recognised that they may need to borrow someone else's phone to do this if the device could not make a call. This could include transferring a passport from one user to another, provided that the appropriate security checks were passed. It could also include adding data to a partially complete passport in order to complete it.

### 5.6.2 System-wide issues

The focus throughout the build phase will be to design and architect a system which is highly available with stringent service level agreements. The build contractor is ISO 22301 certified which means for services they develop, they have audited processes in place focusing on business continuity and disaster recovery management. The system will be hosted in Microsoft Azure meaning the service will be highly secure, resilient and with high availability. There will be automated data replication, backup and recovery regimes to support business continuity, coupled with hosting across two geo-redundant datacentres. This means that if there is an issue with one system it will automatically switch to the other hosted in an entirely different location. This will limit system downtime to an absolute minimum.

Service level agreements will include system uptime requirements which will be agreed with the system ownership and governance groups. AHDB has an Incident Management Policy which covers eventualities like this and other cybersecurity events like ransom attacks. This policy provides clear processes to be followed based on the incident severity. In addition, practical contingencies will be required not just in case the central system goes down but in the event that there are local issues such as a phone with low or no battery. It has been clearly stated by industry that reverting to a paper passport such as the one used today is not an option in emergencies. In-built functionality making it



easy to download a completed passport as a pdf, and the ability to email it to self or to someone else, will provide flexible options for individual users to work around central system unavailability or local issues. Planned maintenance events will be rare as it is proposed to use technology which allows new deployments without taking the system offline. Any required planned maintenance will take place overnight or at weekends in time windows agreed with industry.

### 5.6.3 Where does liability lie for errors or losses as a result of system failure?

As owner of the system on behalf of the consortium, AHDB will remain liable, and it is up to AHDB to ensure there is sufficient liability insurance cover for these instances.

## 5.7 How will small merchants and processors access the system efficiently?

The simplified sender-led process described in section 5.3, will result in a much-reduced role for merchants, compared to the recipient-led process piloted in 2014/15. Where merchants organise loads moving from growers to processors, their day-to-day role in the DP becomes entirely a decision for that business. The principal role for merchants in the DP is when they are the sender or receiver of grain into or out of their own stores.

For merchants and processors, integrating systems with the DP will allow data to be shared seamlessly and automatically between the DP and business software. The majority of DP functionality will be available as industry standard using RESTful web services, a high-performance and robust industry standard for APIs. Communication between systems and the DP APIs will be encrypted. Users and systems will be secured using industry standard authentication OAuth 2.0. All API documentation will be available online, and technical support will be in place to assist technology teams to integrate your systems with the DP.

Fifty-five percent of respondents to AHDB's recipients' survey of processor, TASC/UFAS stores and ports indicated they would like a one-to-one discussion to better understand systems integration options when the time is right. For businesses operating at scale, integration is the most efficient way of interacting with the DP and will reduce duplication. Without systems integration, recipients will be required to accept passports, add weight and crop quality results into the DP as well as within their own systems.

Of those survey respondents using software, 34% have bespoke systems. This makes it very difficult to provide within this business case, all the information required for those considering systems integration and highlights the importance of one-to-one discussions. Refer to section 8.2.4 and appendix 11.10 for more information.

For the 20% of businesses not using bespoke or proprietary software, a range of systems are used including spreadsheets, ledgers or other manual systems. For these businesses, the DP will be designed to be as simple to use as possible and one of the industry requirements in the build specification is the ability to upload spreadsheets of weights and crop quality results into the DP for loads received over the course of a day, rather than requiring this data to be input manually.

Refer to section 8.4 for more information on the costs and inefficiencies removed by moving from paper to digital.

## 5.8 Build and rollout timeframe

In 2021, AHDB conducted a Request for Information (RFI) in the marketplace, asking interested businesses a range of questions including one about how long it might take to build. Responses indicated an initial development period of between six and eight months from almost all respondents. This was backed up by tenders received in the 2021 and 2023 Request for Quotation (RFQ) exercises.

The ongoing discussions and industry consultation on whether to adopt a digital passport are anchored by this business case. The Development Group have discussed the rollout and transition and agreed that an overnight switch is not practical. Similarly, a lengthy period of dual running with paper alongside digital would be complex, time consuming and costly. The group agreed that the success of the beta testing stage is likely to dictate the pace of the rollout and therefore the potential length of the dual running phase.

Useful references were made to the rollout of other digital systems across the grain sector and examples were given of growers and hauliers adapting to merchant digital systems quicker than was originally anticipated.

The proposed timeline is based on a 27-month period from a greenlight to proceed to the phase-out of paper passports being complete. It is not envisaged that any crop sector or type of grain movement would require any special consideration in terms of timelines and that the proposed transition is feasible for all companies. An indicative timeline is included below. This timeline could commence in autumn 2024 subject to the next steps outlined in section 10.1, being achieved. It is important to note that the timeline will flex to ensure that key points in the DP process do not coincide with harvests.

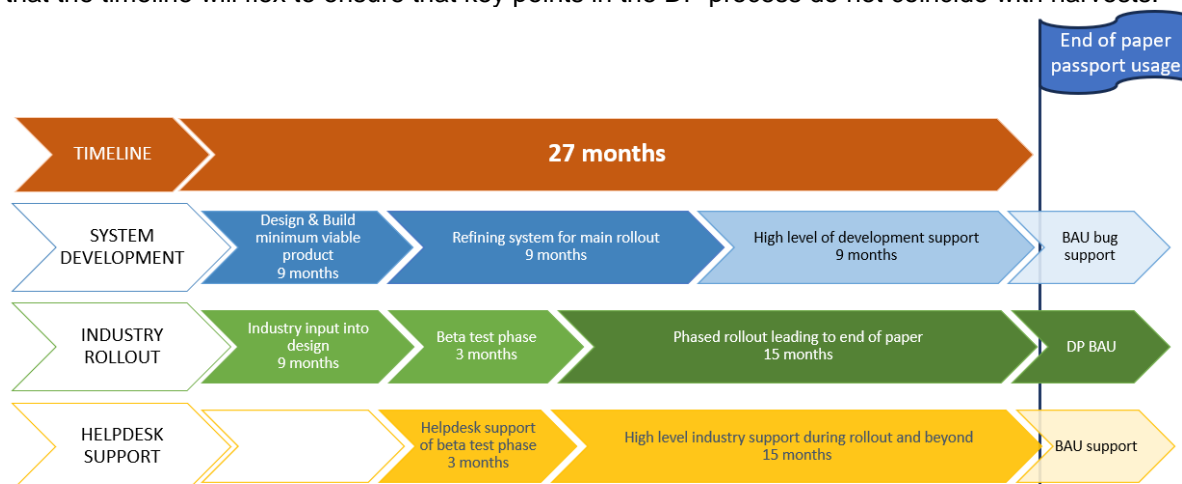


Figure 6. Timeline showing system build, industry rollout and helpdesk support key phases.

### 5.9 How will the system be maintained after launch?

Once industry has fully transitioned from paper to digital passports there will be a period where industry will potentially require a high level of support. This is because it is likely that those businesses and individuals who are less open to change and those who will require more support to change will leave their transition as late as possible. For this reason, it is not expected that the developer or support teams will be scaled back to the level required for the 'business as usual' phase for at least six months after full transition. In real terms, the proposed DP Ownership Group will be responsible for reviewing progress and ensuring that the correct level of support is in place.

The business as usual (BAU) phase is the stage at which the developer team will move into maintenance mode. This will include:

1. Resolving bugs reported by users through the support function.
2. Working through and implementing any recommendations from the annual security and penetration tests.
3. Implementing any new or improved functionality as agreed by the industry Development and Ownership Groups.

Funds to cover the costs of points one and two above have been included in the BAU budget, which can be found in section 8.3. Funds to cover the costs associated with any new development (point three) are not included in the BAU budget and will need to be quantified and agreed on a case-by-case basis. Refer to section 5.10 for more information.

One of the key responsibilities for the system operator and the system governance board will be to ensure the DP remains available for industry usage 24/7 and that it functions reliably. The digital passport system and the ability to share passport data will be heavily relied on by industry. The system will be built to ensure that no information is lost due to system breakdown. If the website is unavailable for any reason, the digital passport system will have contingencies in place to ensure industry logistics are not interrupted. System unavailability even for a few minutes would prove extremely disruptive for industry.

Any system updates or bug fix releases will be scheduled on discussion with the system governance group to ensure there's no disruption to day-to day usage.

## 5.10 How will new developments be agreed and introduced after launch?

Building on the previous section, industry's requirements for a digital passport system were agreed and factored into a comprehensive specification put to tender in autumn 2023. This will form the basis of what is built if industry choose to adopt.

As with all software development, over time as users get used to the system, ideas will be generated for ways in which the system could work more efficiently or be more intuitive for users. In addition, there may be changing requirements for the data required to be communicated through the system. In any of these cases, once in BAU phase, a case will need to be put together by the System Governance Group explaining what is required and the cost of implementing the development. However, there is a clear expectation from industry that the DP's scope should remain focused, and no further development will take place unless decided by the Ownership and System Governance Groups (refer to section 7.2 for more information). The Ownership Group will also need to secure funding for the development.

## 5.11 How will users access ongoing help and support?

From the point industry starts to use the DP, a user support function will be required. This will include support available by email and telephone to any user requiring assistance. The support function will need to be flexible over the course of the rollout and scale up as usage of the DP increases. Over time, in response to reducing interactions, it will scale back to a BAU service.

AHDB operates a helpdesk to support a range of industry services, including the pig industry's electronic movement licences. The helpdesk is comprised of 5 full-time call/email handlers and a manager. The proposal is to add two full-time people to this team. All team members will be trained to support the digital passport, so there will be seven people available to support at peak times. The transition from paper to digital, from the start of beta testing to the end of paper passport usage is planned to be 27 months, with businesses switching to digital throughout that period. This will give time to see what level of support industry requires and adjust the level of support through the helpdesk accordingly. It is recognised that grain intakes do not operate on a 9-5, five-days-a-week basis, so a pattern of extended hours will be agreed with industry which will flex through the season and be extended further during harvest. The call centre technology allows the team to closely monitor the timing of calls and emails, meaning that extra resources can be made available if it's shown for example that there's a regular daily peak at 8am. Examples of areas where the helpdesk will be able to support users are:

- Initial business and user registration processes.
- Log in and password problems.
- Help in completing data, especially when users have local issues such as loss of Wi-Fi or a broken device.
- Assist with the transfer between users.
- Reporting system bugs for resolution.

## 6 Data

It has been clear throughout all Data Group discussions that a clear and robust data governance structure is required. The Data Group's remit has been to create this governance structure to ensure that data is managed safely and securely.

### 6.1 Who owns and sees what data?

Figure 7 below outlines which data is entered and owned by which party, and who can see what data at which point through the passport lifecycle. Each party remains contractually responsible for entering their own data in the same way they do today with the paper system.

The DP system will be developed in a way to ensure integrity of commercial and personal data through the supply chain. This framework will remain a central pillar of the DP ensuring that data access and ownership does not deviate from that agreed by industry.

Data point	Who enters the data	Who sees data live, i.e. as soon as it is entered	Who sees the data on a completed passport						Who owns the data
			Sender	Transporter	Recipient	Purchasing Merchant <sup>H</sup>	Selling Merchant	2 <sup>nd</sup> Recipient	
<b>Sender company</b>	Sender	Sender, Transporter, Purchasing Merchant Recipient	Y	Y	Y	Y		Y	Sender
<b>Collection address</b>	Sender	Sender, Transporter, Purchasing Merchant Recipient	Y	Y	Y	Y		Y	Sender
<b>Assurance number</b>	Sender	Sender, Transporter, Purchasing Merchant Recipient	Y		Y	Y		Y	Sender
<b>Assurance scheme</b>	Sender	Sender, Transporter, Purchasing Merchant Recipient	Y		Y	Y		Y	Sender
<b>Certification body</b>	Sender	Sender, Transporter, Purchasing Merchant Recipient	Y		Y	Y		Y	Sender
<b>Crop type</b>	Sender	Sender, Transporter, Purchasing Merchant Recipient	Y	Y	Y	Y	Y	Y	Sender
<b>Variety (if applicable)</b>	Sender	Sender, Transporter, Purchasing Merchant Recipient	Y		Y	Y	Y	Y	Sender
<b>Store or bin ID</b>	Sender	Sender, Transporter, Purchasing Merchant Recipient	Y		Y	Y		Y	Sender
<b>Harvest year</b>	Sender	Sender, Transporter, Purchasing Merchant Recipient	Y	Y	Y	Y	Y	Y	Sender
<b>Loading date</b>	Sender	Sender, Transporter, Purchasing Merchant Recipient	Y	Y	Y	Y	Y	Y	Sender
<b>Post harvest treatment</b>	Sender	Sender, Transporter, Purchasing Merchant Recipient	Y		Y	Y		Y	Sender
<b>Fusarium mycotoxins</b>	Sender	Sender, Transporter, Purchasing Merchant Recipient	Y		Y	Y		Y	Sender
<b>GM statement</b>	Sender	Sender, Transporter, Purchasing Merchant Recipient	Y		Y	Y		Y	Sender
<b>Sender declaration</b>	Sender	Sender, Transporter, Purchasing Merchant Recipient	Y	Y	Y	Y		Y	Sender
<b>Sender load ID (optional)</b>	Sender	Sender, Transporter, Purchasing Merchant Recipient	Y	Y	Y	Y		Y	Sender

<sup>H</sup> The purchasing merchant will only have visibility if they have been added by the grower.

Data point	Who enters the data	Who sees data live, i.e. as soon as it is entered	Who sees the data on a completed passport						Who owns the data
			Sender	Transporter	Recipient	Purchasing Merchant <sup>H</sup>	Selling Merchant	2 <sup>nd</sup> Recipient	
<b>Transporter company</b>	Transporter	Sender, Transporter, Purchasing Merchant, Recipient	Y	Y	Y	Y		Y	Transporter
<b>Assurance number</b>	Transporter	Sender, Transporter, Purchasing Merchant, Recipient	Y	Y	Y	Y		Y	Transporter
<b>Assurance scheme</b>	Transporter	Sender, Transporter, Purchasing Merchant, Recipient	Y	Y	Y	Y		Y	Transporter
<b>Certification body</b>	Transporter	Sender, Transporter, Purchasing Merchant, Recipient	Y	Y	Y	Y		Y	Transporter
<b>Vehicle reg no.</b>	Transporter	Sender, Transporter, Purchasing Merchant, Recipient	Y	Y	Y	Y		Y	Transporter
<b>Trailer ID</b>	Transporter	Sender, Transporter, Purchasing Merchant, Recipient	Y	Y	Y	Y		Y	Transporter
<b>Collection ticket no.</b>	Transporter	Sender, Transporter, Purchasing Merchant, Recipient	Y	Y	Y	Y		Y	Transporter
<b>Last three loads</b>	Transporter	Sender, Transporter, Purchasing Merchant, Recipient	Y	Y	Y	Y		Y	Transporter
<b>Transporter declaration</b>	Transporter	Sender, Transporter, Purchasing Merchant, Recipient	Y	Y	Y	Y		Y	Transporter
<b>Sender RED II status</b>	Automated	Sender, Transporter, Purchasing Merchant, Recipient	Y	Y	Y	Y	Y	Y	Assurance body
<b>Sender assurance status</b>	Automated	Sender, Transporter, Purchasing Merchant, Recipient	Y	Y	Y	Y	Y	Y	Assurance body
<b>Sender certification expiry date</b>	Automated	Sender, Transporter, Purchasing Merchant, Recipient	Y	Y	Y	Y	Y	Y	Assurance body
<b>Transporter assurance status</b>	Automated	Sender, Transporter, Purchasing Merchant, Recipient	Y	Y	Y	Y	Y	Y	Assurance body
<b>Transporter certification expiry date</b>	Automated	Sender, Transporter, Purchasing Merchant, Recipient	Y	Y	Y	Y	Y	Y	Assurance body
<b>Selling merchant assurance status</b>	Automated	Recipient, Selling Merchant			Y	Y	Y	Y	Assurance body
<b>Selling merchant certification expiry date</b>	Automated	Recipient, Selling Merchant			Y	Y	Y	Y	Assurance body
<b>Recipient company</b>	Recipient	Sender, Transporter, Selling Merchant, Recipient	Y	Y	Y	Y	Y	Y*	Recipient

Data point	Who enters the data	Who sees data live, i.e. as soon as it is entered	Who sees the data on a completed passport						Who owns the data
			Sender	Transporter	Recipient	Purchasing Merchant <sup>H</sup>	Selling Merchant	2 <sup>nd</sup> Recipient	
<b>Recipient delivery location</b>	Recipient	Sender, Transporter, Selling Merchant, Recipient	Y	Y	Y	Y	Y	Y*	Recipient
<b>Store, bin or vessel ID (optional)</b>	Recipient	Sender, Transporter, Selling Merchant, Recipient	Y	Y	Y	Y	Y	Y*	Recipient
<b>Load ID (delivery/booking no.)</b>	Recipient	Sender, Transporter, Selling Merchant, Recipient	Y	Y	Y		Y	Y*	Recipient
<b>Contract ID</b>	Recipient	Recipient, Selling Merchant			Y		Y		Recipient
<b>Accept or reject status</b>	Recipient	Sender, Transporter, Both Merchants, Recipient	Y	Y	Y	Y	Y	Y* Y**	Recipient
<b>Reject reason (spec or food and feed safety)</b>	Recipient	Sender, Transporter, Both Merchants, Recipient	Y	Y	Y	Y	Y	Y* Y**	Recipient
<b>Net weight</b>	Recipient	Sender, Transporter, Both Merchants, Recipient	Y	Y	Y	Y	Y	Y*	Recipient
<b>Weighbridge ticket no.</b>	Recipient	Sender, Transporter, Both Merchants, Recipient	Y	Y	Y	Y	Y	Y*	Recipient
<b>Crop type</b>	Recipient	Sender, Transporter, Both Merchants, Recipient	Y		Y	Y	Y	Y*	Recipient
<b>Variety (if applicable)</b>	Recipient	Sender, Transporter, Both Merchants, Recipient	Y		Y	Y	Y	Y*	Recipient
<b>Quality</b>	Recipient	Sender, Both Merchants, Recipient	Y		Y	Y	Y	Y*	Recipient
<b>Selling merchant company</b>	Selling merchant	Recipient, Selling Merchant			Y		Y	Y	Selling merchant
<b>Assurance number</b>	Selling merchant	Recipient, Selling Merchant			Y		Y	Y	Selling merchant
<b>Assurance scheme</b>	Selling merchant	Recipient, Selling Merchant			Y		Y	Y	Selling merchant
<b>Certification body</b>	Selling merchant	Recipient, Selling Merchant			Y		Y	Y	Selling merchant
<b>Purchasing merchant company</b>	Purchasing merchant	Sender, Transporter, Recipient	Y	Y		Y			Purchasing merchant
<b>Assurance number</b>	Purchasing merchant	Sender, Transporter, Recipient	Y	Y		Y			Purchasing merchant
<b>Assurance scheme</b>	Purchasing merchant	Sender, Transporter, Recipient	Y	Y		Y			Purchasing merchant
<b>Certification body</b>	Purchasing merchant	Sender, Transporter, Recipient	Y	Y		Y			Purchasing merchant

Figure 7. Who enters, sees, and owns each passport data point.

## Notes:

- 2<sup>nd</sup> Recipient – where a load is rejected and redirected to a second recipient.
- Y\* - where 1<sup>st</sup> Recipient rejects for contractual spec, 2<sup>nd</sup> Recipient will add their own data and will not see any data from 1<sup>st</sup> Recipient.
- Y\*\* - where 1<sup>st</sup> Recipient rejects for food & feed safety reasons, 2<sup>nd</sup> Recipient will see the status and the reason.
- Where the selling merchant and purchasing merchant are the same business, i.e., the load is not string traded, both merchant sections in the table above will apply to that business.

### 6.1.1 Amending passport data

Data fields will remain editable by growers/storekeepers and drivers, after a passport is completed, up to the point it is accepted at intake. This will allow users to rectify mistakes and allow updates to fields such as the vehicle registration number which may require updating if a different tractor is used to deliver a trailer, to the one that collected it. Users will only be able to update the data they are responsible for. Once any updates have been made to data points by either grower/storekeeper or driver, after they have completed their declarations (which would usually signify the point their part is complete), the system will automatically perform fresh assurance checks. It will be possible for purchasing merchants who are linked to the passport by growers to sign up for notifications alerting them to passports where data has been updated. The helpdesk will also be able to update data on behalf of growers/storekeepers and drivers if they are unable to perform the updates themselves. The in-built system audit trail will record which user updated which datapoint and when.

## 6.2 Data Governance Group

Data management will be overseen by a Data Governance Group. This group will be made up of all those who input and own data within the DP. Each group member will have ownership and responsibility for the data which they own in the system (as outlined in figure 7).

Role/Expertise	Representing
<b>Chair</b>	Independent
<b>Farmer</b>	NFU (National Farmers Union)
<b>Farmer</b>	NFUS (National Farmers Union Scotland)
<b>Farmer</b>	Independent
<b>Haulier</b>	RHA (Road Haulage Association)
<b>Haulier</b>	TASCC (Trade Assurance Scheme for Combinable Crops)
<b>Miller</b>	UKFM (UK Flour Millers)
<b>Maltster</b>	MAGB (Maltsters' Association of Great Britain)
<b>Oat/barley miller</b>	British Oat & Barley Millers' Association
<b>Industrial processor</b>	RTFA (Renewable Transport Fuel Association)
<b>Feed compounder</b>	AIC (Agriculture Industries Confederation)
<b>Merchant</b>	Independent
<b>Merchant</b>	AIC (Agricultural Industries Confederation)
<b>Data expert</b>	Independent
<b>Data protection officer</b>	Independent
<b>AHDB</b>	Levy board
<b>Assurance bodies</b>	RT (Red Tractor) SQC (Scottish Quality Crops) TASCC (Trade Assurance Scheme for Combinable Crops) UFAS (Universal Feed Assurance Scheme)
<b>Defra (if grant funding received)</b>	Independent

Figure 8. Data Governance Group membership structure.

At DP registration each user will be asked to agree to the key principles and data handling and sharing requirements of the DP. The user designated as company administrator will be expected to do this on behalf of the company they work for.

These principles are that:

- Data will be shared up and down the supply chain with real-time data transfer (depending on existing digital feedback mechanisms, intake structure, speed of testing, technological capacity, contractual, commercial and legal restrictions).
- Data can be aggregated and anonymised for use in food and feed safety related data requests.
- Data handling practices, and retention periods are adhered to.

This affirmation process would occur on an annual basis ensuring all businesses continue to agree and adhere to the DP's principles. An extra interim affirmation process would be applicable in instances where significant change is required to the system (e.g., removal or addition of new data usage permissions) or where a complaint regarding a user needs rectifying. Legal oversight will be sought in drafting these documents and in any subsequent updates to ensure they are fit for purpose.

The Ownership Group and Data Governance Group will formally review the principles annually.

Any reaffirmation that is not completed, or where a user does not agree to the terms will be raised to the Data Governance Group chair to investigate. Once complete, the Data Governance Group will give recommendations to the Ownership Group on how to proceed. If a party does not sign, then their usage of the DP will be paused; if the party wishes to leave the DP, then the data governance principles laid out in section 6.2.9 will be enforced.

#### 6.2.1 Real-time data

There is a cross-industry commitment and obligation to feedback weight and quality data to growers in real-time. Real-time means that as soon as weight and quality data are known by the recipient they are immediately uploaded to the DP and are available to growers and stores. Where internet access is available, software is used and integrated with the DP, data will flow from recipient to grower immediately and automatically. Real-time can also be achieved by manual data entry into the DP website or app at the point the data is first available. However, several factors will affect this, particularly at the start of the industry transition from paper to digital. These include:

- Paper-based records used at intake, rather than software.
- Manual entry of test results into the recipient's software rather than automatic entry where testing equipment and recipient software are integrated.
- Manual entry of test results into the DP rather than automatic entry where recipient software and the DP are integrated.
- Lack of internet access at intake.
- A contracted third-party operating an intake on behalf of the recipient, e.g., a port superintendent or a contracted store operating on behalf of a merchant.

The ambition is that during the transition period, where paper-based or manual data transfer systems are used, instead companies will fully adopt software and move to systems integration. The benefits will be two-fold:

- It will mean data can be shared quicker, particularly weight and quality data being fed back to growers.
- It will drive efficiencies and reduce instances of mistakes where data is transferred manually from one system to another.

As a minimum where technology at intake currently prevents real-time data sharing, data will be required to be uploaded to the DP at least daily.



During the transition period, businesses will need to align trading contracts and terms and conditions to ensure they permit weight and quality data to be shared directly between recipients and growers via the DP. This will ensure there are no barriers to sharing this information in this way.

It is acknowledged that some supply chains already have digital systems in place to share weight and quality data with growers. Where this is the case, in addition to uploading this information to their existing platform, recipients will be required to upload it to the DP in-line with industry's ambition for aggregated DP data to be available for food and feed safety investigations. In these situations, growers can choose whether to access this data from the DP or from the third-party platform.

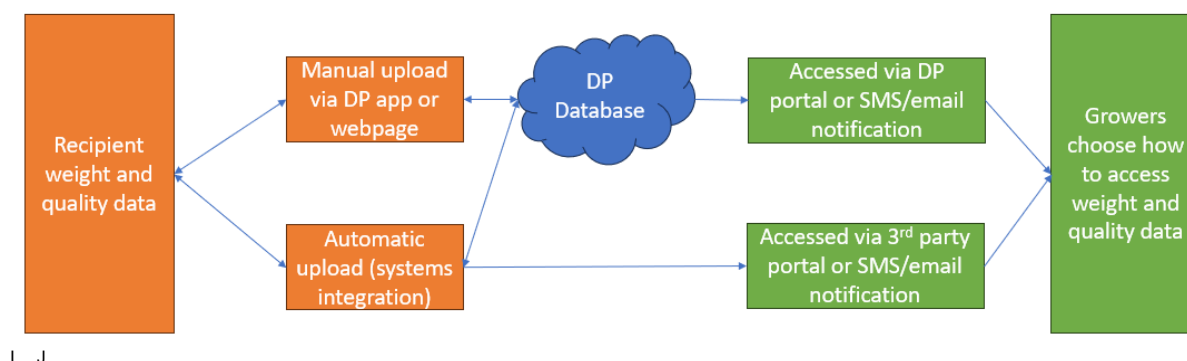


Figure 9. Diagram outlining the two methods to feedback weight and quality data to growers where digital third-party systems already exist to do this.

Appendix 11.11 lists the quality tests for each crop. It is expected that the results of all tests performed at intake will be shared with growers. It is not expected that all tests will be performed on all loads on all occasions. Where a test is not performed, no result will be uploaded.

Real-time data is also a consideration for data flowing *into* the system. For assurance data in particular, the definition of real-time will depend on the frequency with which assurance database updates are made public. This is usually done once every 24 hours (overnight). Therefore, any change made to a company's assurance status on one day, would not be reflected in the publicly available data until the next day.

## 6.2.2 Data permissions

Four separate permissions for data usage are proposed for the DP system. In all situations, AHDB as system host will act as the data processor. The Data Governance Group will take overall responsibility for deciding the approach to each of these permissions. It is envisaged that their approach will be conservative, particularly in the first years of operation.

### 6.2.2.1 Permission 1

General everyday use of the passport, sharing data for food and feed safety purposes, including feedback of quality data via the DP.

Data is not aggregated or anonymised, this is the standard daily use of the passport and data feedback within individual contractual supply chain agreements.

### 6.2.2.2 Permission 2

Aggregated and anonymised datasets created for food and feed safety purposes (e.g., food scares, contamination).

<sup>l</sup> All weight and quality data must be uploaded to the DP database regardless of how it is accessed by the grower.

<sup>j</sup> Double headed arrows represent data flows for inbound passport data from the database into recipient systems and outbound weight and quality data from recipient systems into the DP database.

Examples include use of cereals quality data to monitor food safety rejections, or a request from the Food Standards Agency for data relating to post harvest treatment applications.

#### 6.2.2.3 *Permission 3*

Aggregated and anonymised datasets for analysis to benefit the industry.

Examples include using DP data to replace the existing AHDB Cereals Quality Survey and to supplement the monthly usage data statistics AHDB produce on behalf of Defra. This data could also be used to offer more insight into export and import volumes by reporting on the deliveries and collections at ports. The data usage could also support the Recommended Lists.

#### 6.2.2.4 *Permission 4*

Aggregated and anonymised datasets used for bespoke data requests from third parties.

Examples such as a seed breeder asking for quality data relating to a specific variety. Or a request from a research institute for the tonnage of crop traded at a particular quality etc.

The Data Group recommends that Permissions 1 and 2 are prioritised as the first key permissions. Permission 3 structures and processes will be agreed by the Data Governance Group during the transition. Permission 4 will be completely off the table until full industry adoption and business as usual implementation. At this point, the Ownership Group will review the terms of Permission 4 to decide if it should be progressed.

Development phase	Phase 1 - Business Case Creation / Discussion / Decision	Phase 2 - DP build	Phase 3 - proposed transition	Phase 4 - Industry adoption and business as usual
<b>Permission 1 – data used to communicate passport data up and weight/quality down supply chain</b>	<p>Agreed as core component of DP process.</p> <p>Data Governance Group as per Agrimetrics recommendations agreed – terms tbc.</p>	Data Governance Group oversees data usage.		
<b>Permission 2 – aggregated and anonymised for food and feed safety and security</b>  <b>e.g., Defra request on food safety matters</b>	<p>Receive confirmation from Data Governance Group that this is a desired outcome.</p> <p>Agree what constitutes a request on this matter – who can request the data and under what circumstance.</p> <p>Agree basic principles of who decides which data is used in these requests – is it by supply chain or business.</p>	Data Governance Group agrees detailed structure to handling data requests.	Data Governance Group oversees data usage.	

Development phase	Phase 1 - Business Case Creation / Discussion / Decision	Phase 2 - DP build	Phase 3 - proposed transition	Phase 4 - Industry adoption and business as usual
<b>Permission 3 – industry data analysis such as usage data</b>	Agreed as core component of DP process.  AHDB to use the data from DP system to enhance, replace and develop existing data sets listed as: <ul style="list-style-type: none"> <li>- UK Cereal Supply and Demand Balance Sheets</li> <li>- Monthly usage data for animal feed, human consumption, industrial purposes and brewing, malting and distilling</li> <li>- AHDB Cereal Quality Survey</li> </ul>		Data Governance Group agrees detailed structure on data handling and communication.  AHDB to create recommendations for further analytical work, such as flows in/out of port facilities.	Principles adopted and in place for day 1 delivery.
<b>Permission 4 – ad-hoc data requests from third parties</b>	Off the table			For Ownership Group to discuss and set Data Governance Group task to create decision structure if wanted.

Figure 10. Phasing of permissions through build, transition and BAU phases.

### 6.2.3 Data Governance Group remit

The Data Governance Group's remit will cover the areas first suggested in a 2021 [Agrimetrics report](#) into data governance.

For data usage Permission 1, the group's remit includes:

- Data **security** standards.
- **Legal** framework for collection, storage, processing and deletion of data and GDPR.
- **Technical** aspects of data transfer.
- Data and system security standards **oversight** – breach reporting, annual security and penetration testing standard, aspiration for accreditation.
- **Oversight** of the development and implementation of **real-time feedback** within the DP – including acting as the point of feedback through development and transition periods by individual companies to ensure system is developed to best facilitate real-time feedback.
- **Complaints over data transfer** e.g., if a company is not complying with the terms of data transfer timelines. **Complaints over data quality** - that data is being inputted correctly and fully. The group will need to ensure a clear and common naming protocol is used within the DP.
- **Transparency** and scrutiny.
- Data **permissions** covering adaption/addition.
- Potential **development** of data capture areas (field change request process).
- Remit to ensure **data sharing** agreements are in place and correct.

For data usage Permission 2, the remit for Permission 1 will be extended to oversee and implement the data request process for food and feed safety, which will include:

- Oversight of a **triage process** for incoming requests to ensure all requests are valid and meet the validation criteria for amalgamating and anonymising data.
- Agreeing **charging structure** for requests to ensure any data-requests are cost neutral.
- Implementation of data-sharing protocols for amalgamated and anonymised datasets; to include **time-limits** for usage of datasets, **encrypted** data transfer, **sharing** restrictions, data **destruction** schedule and confirmation requirements.
- Agree terms for data **validation** to ensure appropriate aggregation and anonymisation of datasets.

Depending on the instigator, nature, scale, and timeliness of data requests, access to the data may be presented in multiple ways. For those data requests that are simple, non-sensitive and not timely, the data request may be facilitated directly by the AHDB data team with no requirement to share data outside of the system.

Other data requests may require further sharing of direct data. For instance, where APHA requires data for managing a contaminant issue. Under these circumstances, the data will be shared with a clear data-sharing protocol in place. It will be the responsibility of the Data Governance Group to ensure that all data-sharing protocols are agreed and in place in time for industry adoption.

For data usage Permission 3, the remit for Permission 1 and 2 will be extended to oversee and review AHDB's use of data in industry datasets:

- Annual **review** of AHDB data usage, ensuring accuracy and commercial sensitivities are not being breached.
- **Submissions** for new / novel uses of the data to be submitted to the Data Governance Group prior to AHDB starting development work.
- **Complaints** over AHDB data provision or accuracy related to DP data to be escalated to Data Governance Group for review.

#### 6.2.4 Permission 2 data request process and validation

For permission 2 data requests a triage check will ensure all requests are valid. This will form part of a formal process to manage and validate the data that is being asked for.



Figure 11. Permission 2 data request process.

Each permission 2 data request will be accompanied by a detailed assessment of why the data is needed including answering these key questions:

1. Does the requester have a remit to manage, respond to or analyse the impact of food and feed safety and security issues, e.g., known bodies that operate in this area, APHA, Defra, FSA asking for data on grain movement after finding a contaminant issue.
2. Is there a food contamination risk e.g., ergot?
3. Is there a risk of supply being reduced?
4. What is the scale of risk - county level/regional/national?
5. Is the scope of the data request reflective of food security/safety issue?
6. How sensitive is the data requested?
7. How long will the data be held for?
8. How do they intend to use/publish the data?
9. Does the data request meet the validation criteria for anonymity (see figure 12 below)?

10. Is the data request already being covered by existing industry/AHDB work?
11. Is the data for research purposes rather than dealing with on-going risk?
12. Are there any other material concerns not covered in the list above?

The Data Governance Group will act as the impartial review board for data requests and decide if the data request is approved. Further questions may be required depending on the purpose of the data request. Examples are:

- i. Does the data requested offer any form of commercial advantage?
- ii. Does the data create any privacy issues to other stakeholders?
- iii. Does the data cause any degree of compromise from a commercial perspective beyond standard price commerciality, e.g., sustainability claims etc.?

With regards to question 9 a set of validation criteria is suggested for amalgamating datasets for permission 2. This validation is required for two reasons. Firstly, to ensure the data is robust, and secondly, to ensure the data is sufficiently anonymised to protect individual businesses commercial data.

The validation threshold will be a standing point of annual Data Governance Group meetings.

<b>Data validation thresholds</b>
At least five company datasets are required in any supply chain dataset
No single company predominant in the dataset e.g., can take up no more than 50% of the sample
For farm level data, at least 1000 farm datasets are required

Figure 12. Validation criteria.

For supply chains with fewer than five companies, e.g., oilseeds crushers, specific agreement on data aggregation will be needed with all parties agreeing to the dataset being created. Provision will be made in the system for emergency requests to be sent to all users in the case of sudden or fast-moving requirements regarding food safety issues.

For farm level data, 1000 farms represent approximately 5% of the assured growers in GB. This 5% level allows for sufficient data robustness to allow extrapolation to national levels. Data regionality will also need to be assessed to ensure no bias is built in. For national datasets, at least 5% of DP users from each Defra region will be required to allow for data to be amalgamated on a national scale. If this 5% level is not reached, it will be at the discretion of the Data Governance Group to allow the data to be shared.

Refer to section 6.2.6 for more information on AHDB's responsibilities and rules around data processing.

### 6.2.5 Permission 3 data process

The Data Governance Group will oversee AHDB's DP data use to help develop, replace and enhance existing datasets:

- UK Cereal Supply and Demand Balance Sheets - AHDB will use the DP data to internally review the assumptions being made within the balance sheet process. No data will be published, this will be an internal AHDB process only which will help to supplement existing data management processes for the balance sheet.
- Monthly Usage Surveys - AHDB will replace part of the data collection process with data collected from the DP. Currently, AHDB gathers data through email submissions for processor usage and output of key commodities (e.g. wheat processed in animal feed mills and the volume of each feed type produced). The DP will be able to replace the processors intake data submissions to AHDB in real-time. The benefit is threefold:
  - AHDB can save time and resource on the data collection.
  - Processors will save time in their data submissions.
  - Industry will benefit from more timely information as aggregated and anonymised data (using the same validation and aggregation methods used in the Defra defined delivery) could be provided more frequently (daily/weekly) than the current monthly provision.

- Cereal Quality Survey - AHDB undertakes an annual survey of cereal quality. Most of the data currently shared with AHDB is from the results of tests undertaken when grain is moved into TASC stores at or shortly after harvest. Once industry has fully transitioned, all this data will already be held within the DP, along with the results of tests undertaken for deliveries received by processors. It is envisaged that this survey can be replaced by DP data.

A further use of the data could be for AHDB to report on grain delivered into and loaded out of port facilities. This would help give an earlier indication of what's happening than the current HMRC reporting timelines on potential export volumes. However, there is a risk that the flat provision of the data reporting deliveries into ports may not reflect the current or future market potential. For example, grain delivered into a port facility at harvest could leave on a vessel, be tendered onto futures or move back inland into the internal market. These commercial options would change depending on the season and market conditions. It would be crucial therefore that AHDB provide wider market commentary to this data to explain the market potential to not provide misleading information.

The intricacy of this point needs to be explored further with industry participants. Therefore, it is proposed that this data use is aspirational, and the Data Governance Group would request a more detailed AHDB proposal on how this could work during the build phase.

Refer to section 6.2.6 for more information on AHDB's responsibilities and rules around data processing.

#### 6.2.6 AHDB data responsibilities, rules and procedures

AHDB will be the data processor for the DP system. The AHDB Economics & Analysis Data Operations Team will be responsible for undertaking any data processing work. The team will employ the same rules and working procedures as for commercially sensitive supply chain usage data. These include individuals having restricted data access, confidentiality contracts signed annually and secure data storage on AHDB archives. The AHDB Cereals & Oilseeds Market Specialists will have access to the processed data for the purposes outlined in section 6.2.5 and communication of the outputs to levy payers and stakeholders.

The AHDB team have a confirmed track record in handling industry sensitive data from six years of managing cereal and oilseed supply chain data such as the UK Cereals Balance Sheet and monthly usage data. In this time there has been zero data breaches due to stringent procedures and management.

#### 6.2.7 Cost of data sharing requests

As outlined in figure 11, as part of the process of assessing any data requests made under permission 2, the cost of fulfilling the data request will be calculated, and the option to charge the requested equivalent sum will be available. This will also apply to permission 4 requests in future if industry decide to permit those in future.

Freedom of information (FOI) request costs will be calculated and charged in the same way. Current regulations outline an appropriate limit of £450 (18 hours charged at £25/hr).

#### 6.2.8 GDPR

The Data Governance Group will have responsibility to ensure the DP adheres to GDPR (which covers specifically personal and sensitive data). The DP will collate personal data in respect of name and address which will be visible on passports. The importance of protecting both commercial and personal data is of huge significance to the project and has been thoroughly considered in the preparation of this business case.

Therefore, a defined data sharing agreement for all parties will need to be agreed to at registration. This data sharing agreement will confirm that participants are allowing their personal data to be shared over specified retention periods.

This is not optional within the DP as the personal data in the form of address and name (signature for confirming load status) must be shared along the supply chain to complete the food and feed traceability process.

These principles of operation for GDPR have been overseen and approved by AHDB's Data Protection Officer. The requirement of a DPO to sit on the Data Governance Board was a key requirement from industry and AHDB will continue to offer DPO support to the project to ensure that all personal data is protected and secured.

### 6.2.9 Data retention

Proposed retention periods for data are:

- Personal data will remain available for eight years to comply with audit purposes.
- After eight years, personal data in the main database will be deleted (name and address) and the record anonymised. This anonymisation process will retain a reduced postcode which will act as a geographical identifier in the absence of the full address, i.e., LE17 6AS changes to LE17). In those instances, where this anonymisation will not be sufficient, for instance, only 2 farms under one postcode area, multiple postcodes will be merged.
- Other non-personal data will be archived after eight years but will remain available should any business wish to access it.

The system will automatically manage retention periods and delete data as appropriate. If a company must withdraw from the DP, their individual data can be extracted from the system.

For datasets that contain data from a company that is withdrawing, then the personal data will be deleted and anonymised to a sufficient level to replicate the second point made above on retention periods.

## 6.3 How will data be protected?

This system will create a new platform for data sharing up and down supply chains. Strong governance structures will be required to ensure safe systems are put in place to protect data. There is an unwavering commitment to always protect commercially sensitive data.

This system, once rolled out, will be integral to the day-to-day operation of combinable crop deliveries for food and feed markets. As such the security requirement is two-fold, firstly to ensure the data is held securely, and secondly to ensure the system operation is protected from outside interference.

The Leadership Group and participants in the Development and Data Groups have all been unanimous in how important this is to the supply chain. Data and system security will be at the heart of all aspects of the system's build and test phase. As system host and the legal entity owning the DP system on behalf of the consortium, AHDB will be responsible for data security.

To protect all users' commercial and personal data, AHDB's Security Architect has established a robust and well-defined security specification and approach to be implemented by the contracted developer. This includes annual independent penetration testing, with any recommendations being implemented as soon as practicable. The security specification is available to any business to review and AHDB welcomes feedback from industry on this. Contact the DP project team to obtain a copy.

In developing this business case, the Data Group and AHDB representatives have been in contact with the National Cyber Security Centre (NCSC). As the DP could be considered critical national infrastructure in the food supply chain, it is imperative that the security of the system from outside actors is as strong as it can be.

The NCSC have shared information on ransomware and protecting bulk data as well as guidance from the US Cybersecurity and Infrastructure Security Agency (CISA) on digital signatures and digital certificates. The DP will be signed up to the NCSC Early Warning Tool, which collates several live threat intelligence feeds to provide specific targeted warnings when threats develop against our network. All NCSC recommendations have been factored into the DP's baseline security specification.

## 7 Governance and funding

### 7.1 Who will own the DP system?

The current DP Leadership Group explored different options for digital passport ownership, each with pros and cons. Refer to appendix 11.5 for the discounted options. Their preferred model is a consortium agreement between the key parties represented on the current Leadership Group plus AHDB, i.e.:

- Agricultural Industries Confederation (AIC)
- Agriculture and Horticulture Development Board (AHDB)
- Maltsters' Association of Great Britain (MAGB)
- National Farmers' Union (NFU)
- National Farmers' Union Scotland (NFUS)
- UK Flour Millers (UKFM)

The consortium model (with different parties) has worked effectively for the AHDB Recommended Lists for many years.

Under this model, the consortium will collectively own the digital passport concept and oversee its direction. AHDB would be the legal entity owning the DP system software and database on behalf of the consortium and industry. This arrangement would continue indefinitely with the consortium's agreement. If at any point in future AHDB were unable to perform this function on behalf of the consortium or were AHDB Cereals & Oilseeds to cease to exist, the consortium can decide what alternative arrangements should be put in place.

The roles and responsibilities for each consortium partner, along with the governance structure would be clearly defined and outlined in the consortium agreement with legal input. These same parties, plus the British Oat & Barley Miller's Association would form the Ownership Group taking responsibility for legal oversight and overall DP governance and decision making, being the successor to the current Leadership Group.

#### 7.1.1 Pros and cons

##### 7.1.1.1 Pros

- Industry has a clear and legally defined role in the DP through the consortium agreement which outlines each party's role, rights and responsibilities.
- Lower cost system than others, e.g., a limited company.
- Existing AHDB structures could be used for employing staff to provide day-to-day operation and oversight.
- Clear structures outlined in the consortium agreement would guarantee industry's ability to steer the DP's future direction.

##### 7.1.1.2 Cons

- Slightly more complex (and therefore more costly) than it being owned and operated by AHDB alone. These costs include the legal input into drafting the consortium agreement up front, and factoring in regular reviews to ensure the agreement remains fit for purpose over time.

### 7.2 Who will govern the DP system?

A similar structure of industry representative groups would be set up mirroring the structure used in working to build this business case.

#### 7.2.1 Ownership Group

This group would provide the senior level industry leadership the DP requires. Key responsibilities include:

- Acting as the consortium management group.
- Ensuring there is cross-industry input and participation from all parts of the combinable crop supply chains.
- Owning the concept of the 'combinable crop passport', ensuring the passport communicates the food and feed safety information required by all combinable crop supply chain businesses and



ensuring that the required weight and quality data is returned to growers and stores within agreed timeframes.

- Ensuring that the DP remains focused and that its scope is not extended unless agreed by all stakeholders.
- Taking key strategic decisions.
- Setting up System Governance and Data Governance Groups and signing off those groups' recommendations.
- Ensuring industry communications are effective and all stakeholders are consulted and informed.

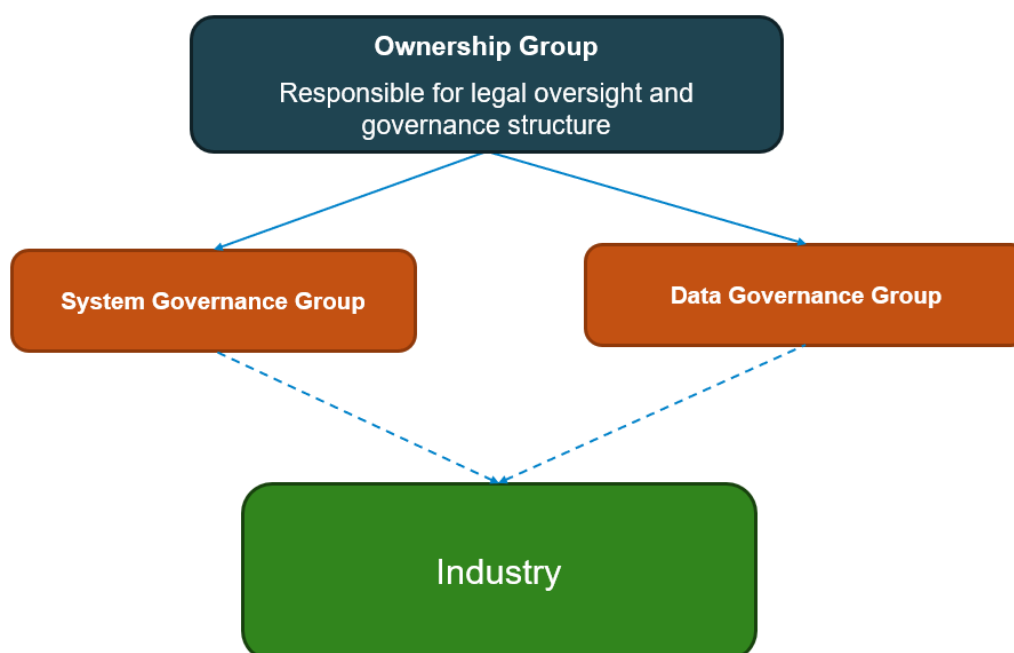


Figure 13. Diagram outlining the proposed structure of industry groups overseeing all aspects of the DP.

### 7.2.2 System Governance Group

The Ownership Group would oversee the creation and set up of a System Governance Group which would be the successor to the current DP Development Group. Key responsibilities include:

- Determining how the DP operates, who uses it and how it impacts others in industry.
- Working with the Data Governance Group to ensure that the right data is available to the right businesses at the right time, and to no one else.
- Working with AHDB and the system build contractor to oversee system build, reviewing options, taking decisions and ensuring that the system works effectively and efficiently for all businesses.
- Prioritising development tasks, being involved in user acceptance testing (UAT) and signing off development as fit for purpose.
- Overseeing the industry transition from paper to digital.
- Once in the business as usual (BAU) phase, identifying and planning further system enhancements ensuring the system remains fit for industry's requirements long-term.
- Ensuring that the DP remains focused and that its scope is not extended unless agreed by all stakeholders.
- Ensuring the system's security is maintained.
- Ensuring appropriate levels of industry and user support are in place, including training materials and the customer support function available by telephone and email.

### 7.2.3 Data Governance Group

The Data Governance Group will work alongside the System Development Group. Refer to section 6.2 for more information on this group's remit.

## 7.3 Who will operate the DP system?

Under the consortium ownership model, the day-to-day system operation and management oversight would be by individuals employed by AHDB. This includes working with the appointed system build contractor and the System Governance Group through the build phase, and beyond that into the 'business as usual' (BAU) phase. AHDB would also provide the customer support helpdesk function, supporting industry through the transition and beyond.

AHDB would operate and manage the system day-to-day based on key input and decisions taken by the three representative industry groups.

Clear system performance management metrics would be established by the Ownership Group who would monitor these regularly ensuring the system operates efficiently as required by industry.

## 7.4 How is the development phase funded?

Grant funding from Defra and others will be sought to cover initial build, development, rollout and running costs.

The Leadership Group also agreed that income from DP usage charges (for non-levy payers and those trading non levied crops) should form part of the overall funding picture. These would be paid by businesses who are not statutory levy payers, and businesses trading crops not liable for levy, e.g., imported crops and combinable peas and beans. These charges would be based on the number of passports a business uses. Therefore, this method will not work for the development phase, refer to section 7.5 for more information.

The Leadership Group considered and discounted other funding models. Refer to appendix 11.6 for more information on these.

## 7.5 How are long-term running costs funded?

Once rollout is complete and industry has transitioned from paper to digital passports, the project will enter the business as usual (BAU) phase. During this phase, the system will be supported and maintained, but no further enhanced or additional functionality will be built unless specifically agreed. For more information on how new developments or enhancements will be discussed, prioritised, actioned and funded refer to section 5.10.

For this phase, agreement with the AHDB Cereals & Oilseeds sector council will be sought to use a combination of statutory AHDB levy, alongside continued pursuit of further grant funding to cover the annual running costs.

The statutory cereals and oilseeds levy is paid at differing rates by growers, merchants and processors across the UK. As such, most businesses it is envisaged using the DP pay levy and no extra administration costs would be incurred in setting this up. This makes this the most appropriate and efficient model for funding the ongoing running costs in the BAU phase.

There is no firm data on how many passports per year are used across GB however the working industry estimation is 803,000. Following SCOPA's decision to withdraw at this time, the 35,000 passports used for loads delivered into SCOPA member crushing plants will be deducted to leave a total of 768,000. Once industry has fully transitioned, the total number of passports used per year will be known and this figure can be used to calculate the per passport cost in future years. Taking this figure and the gross annual running cost of £362k equates to approximately 47p per passport or 1.62p per tonne based on a 29-tonne load.

The Leadership Group have agreed in principle, those using the DP to move combinable crop not liable for AHDB levy should pay to use the DP. This will ensure fairness across the supply chain. The Leadership Group are clear however that individual pea and bean growers will not be charged directly to use the DP system for pea and bean passports. The sectors of industry and commodities identified so far where statutory levy is not paid are:

<b>Business type / crop usage</b>	<b>Imports (whole, unprocessed combinable crops)</b>	<b>Domestic</b>
<b>Animal feed compounding</b>	Wheat and barley	Combinable peas and beans
<b>Integrated poultry units</b>	Wheat and barley	
<b>Flour milling</b>	Wheat	
<b>Brewing, malting, distilling</b>	Barley, wheat and maize	
<b>Oat and barley milling</b>	Oats and barley	
<b>Industrial – bioethanol, glucose, starch etc</b>	Wheat and maize	
<b>Cereal breakfast foods</b>	Maize	
<b>Pet food manufacturing</b>	Wheat and maize	
<b>Crushing</b>	Oilseeds	Oilseeds
<b>Growing</b>		Combinable peas and beans

Figure 14. List of imported and domestic crops where statutory levy is not paid.

This list is not exhaustive and will be developed through the transition period. Further clarification is needed on the proportion of this material not requiring a passport due to logistics and proximity to docks, e.g., dockside flour mills where grain is elevated into the mill from the vessel or shunted from vessel/store to main intake point.

Using actual figures taken from the 2022/23 season, the imported crops listed in figure 14 amounted to 2.234m tonnes of chargeable grain and oilseeds. This would equate to a total possible chargeable income of £36k. However, we know there is a significant proportion of imported crops received at dockside facilities that does not require a passport, the actual figure could be much lower. Industry insight puts this figure at potentially 50%, which if correct would halve the charging income to £18k.

In the case of non-levied crops such as combinable peas and beans, a pragmatic approach would need to be taken recognising that most businesses creating and receiving passports for these crops are statutory levy payers for other crops they trade. The rolling five-year average pea and bean production figure is 721,000 tonnes which would equate to approximately £12k of income at 47p per passport. It is envisaged this charge would be split equally between those creating passports and those receiving passports.

<b>Crop</b>	<b>Business charged</b>	<b>Rate per passport</b>	<b>Tonnage base</b>	<b>Total possible income (based on 29t loads)</b>
<b>Imports requiring a passport</b>	First processor	47p	1.117m	£18,102
<b>Domestic combinable peas and beans</b>	TBC (not individual growers)	23.5p	721k	£5,843
<b>Domestic combinable peas and beans</b>	First processor	23.5p	721k	£5,843
<b>Total</b>				<b>£29,788</b>

Figure 15. Summary of potential DP charge income sources.

If imported crops, domestic oilseeds and combinable peas and beans are moved from grower or port into a TASC store and then onwards to the first processor with two separate passports, the TASC store will not be charged for passports received or created at their premises.

Income from the DP usage charge will reduce the amount of funding required from levy and further grants. If the digital passport goes ahead, the chargeable tonnages and DP running costs will be closely monitored to ensure there is neither a surplus nor deficit. Adjustments can be made annually to ensure the appropriate DP charge is set.

## 8 Value

### 8.1 What will it cost to develop the DP system?

The winning tender from January 2024 included a cost of £986k to build the DP system outlined in the specification of industry's requirements. This includes the cost to develop the core database and web portal, the mobile app and the systems integration platform.

The tender also includes a monthly system support fee of £15k to be paid from the point at which industry starts to use the system. It is difficult to predict precisely when this point will be, and therefore when the charge will start to apply. If it is assumed that the design and build phase will take at least six months, then the charge will apply for the second half of the first year and the second and third contract years and will therefore total £455k. This support arrangement will continue to the end of the developer's three-year contract.

The AHDB staff costs for this three-year build phase are estimated to be £1.161m. At the end of the three-year contract period, it is envisaged that the system will be supported and maintained wholly by AHDB's digital team and the costs of this are included in section 8.3.

Additional costs such as system hosting, legal and assurance API development amount to £233k.

### 8.2 Individual business implementation costs

There are a number of potential costs to be borne by industry in implementing the DP system which are outlined in the sections below. **The total on one-off implementation costs for industry are calculated to be approximately £1.053m.** Read on in this section for more detail on how this figure has been calculated.

#### 8.2.1 System access cost

There will be no cost at point of access for any business to use the DP, however once in the BAU phase, the Ownership Group will implement a charging structure for non-levy paying businesses and those trading non-levied crops, as outlined in section 7.5 which will result in businesses being invoiced in arrears for passports used. The Leadership Group are clear however that individual pea and bean growers will not be charged directly to use the DP system for pea and bean passports.

#### 8.2.2 Hardware

The system will be as accessible as possible to businesses, with no specialist hardware or devices required. The minimum requirements for use are outlined in figure 16. Where a business does not meet the minimum requirement, implementation costs will be incurred. Also outlined are optional ways in which businesses can interact with the DP system. It is likely that if businesses take advantage of these, additional efficiencies can be gained.

- Senders (create passports) – any business despatching loads requiring a passport, e.g., growers, TASCC/UFAS stores and ports.
- Transporters – any business transporting loads requiring a passport, e.g., contract hauliers, growers or merchants and processors with their own haulage fleet.
- Recipients (receive passports) – any business receiving loads with a passport, e.g., processors, TASCC/UFAS stores and ports.
- Merchants – any business buying grain from one party and selling to another. For these businesses not operating their own stores (where they act as senders and recipients), interaction with the DP will be optional.

	<b>Desktop or laptop computer with internet connectivity</b>	<b>Handheld device with camera, and internet connectivity</b>	<b>Systems integration</b>
<b>Senders</b>	<ul style="list-style-type: none"> <li>• A computer OR handheld device required (to create passports and view weight and quality data) to interact directly with the system.</li> <li>• For those growers without computers or handheld devices, the option to create passports via the helpdesk will be available. Weight and quality data can be received by text message.</li> </ul>		Optional (to exchange data efficiently and automatically)

	Desktop or laptop computer with internet connectivity	Handheld device with camera, and internet connectivity	Systems integration
<b>Transporters</b>	Optional (to view weights)	Required as a minimum with ability to scan QR codes. (to receive senders' passports and add haulier data)	Optional (to populate previous three loads from software automatically)
<b>Recipients</b>	A computer OR handheld device required as a minimum with ability to scan QR codes (to receive passports and add weight and quality data) *		Optional (to exchange data efficiently and automatically)
<b>Merchants</b>	Optional (to view passports, weights and quality data)	Optional (to view passports, weights and quality data)	Optional (to exchange data efficiently and automatically)

Figure 16. Minimum requirements for business hardware and devices.

\*If recipients use a desktop computer, then it will need internet access and a QR scanner. If recipients use a laptop computer, Wi-Fi will be beneficial but not essential, but the device will need to synchronise with the DP with internet access daily. NB if recipients' devices do not have internet connectivity at intake, it will not be possible to perform real-time assurance checks at that stage and the senders' and hauliers' last available assurance check status will be displayed.

#### 8.2.2.1 Senders

Senders not meeting the minimum requirement – based on NFU survey data, it is estimated that between 5 and 8% of growers do not have a computer or smartphone (broadly in-line with the general population). Growers will need access to either a computer or smartphone to use the digital passport system themselves. However, growers without a computer or smartphone will have a choice of either buying a computer or smartphone, or, to use the helpdesk to create passports. There is also an option to log in using the driver's device if the driver is happy for them to do so. For more information on the helpdesk process for creating passports, refer to appendix 11.9.

#### 8.2.2.2 Transporters

Drivers not meeting the minimum requirement (having a smartphone) is estimated to be 1% of 10,400 drivers, based on a recent survey of drivers delivering grain. Typical cost to buy a smartphone is £250. **Therefore, £26,000 total cost.**

#### 8.2.2.3 Recipients

Recipients not meeting the minimum requirement – 8% of respondents to AHDB's recipients survey (processors, stores and ports) are using paper-based recording systems at intake. To access the DP, these companies will need to invest in a computer or handheld device for each intake point by the end of the transition period. Working on 1,135 processor, store and port intakes across GB, this equates to 90 sites requiring investment. Typical cost to purchase a tablet or laptop computer is £500. **Therefore, £45,000 total cost.**

#### 8.2.3 Mobile data costs

It has been conservatively estimated that each passport handled by a grower/storekeeper or a driver on their mobile device, will require up to 50KB of data when the device is operating without Wi-Fi. This means that for a grower with 2000 tonnes of crop (approx. 70 artic loads), this would consume 3.5MB of data if all passports were completed using mobile data and no Wi-Fi access. For a full-time driver, handling three passports per day for a five-day week, for a full year, (780 passports) with no Wi-Fi and 100% mobile data, would require 39MB of data. With mobile data prices having dropped significantly over recent years, this means that depending on the contract, the typical data cost associated with a year's worth of passports could cost less than £1 per user.

#### 8.2.4 Systems integration

Integration between industry software such as that used by merchants and processors and the DP system will allow data to be exchanged automatically. This brings several efficiencies and reduces instances of mistyping and double keying data into two systems. It also often means that data will be available quicker, rather than waiting for someone to type it into a second system.

There are two ways systems integration will be achieved:

- AHDB and the system build contractor will work with companies supplying proprietary software to industry and to develop an integration solution which the software provider can roll out to any business using it. Exploratory discussions have been held with several software providers who indicated their willingness to do this. If industry decides to go ahead with the DP, contact will be established with all software providers. This is an efficient and achievable solution which would provide 34% of recipient businesses with a no or low-cost integration solution.
- Businesses with bespoke software develop their own integration solution using the DP API. Businesses could use in-house IT teams to achieve this or could contract out the work. Experience during the 2015 pilot showed that integration could be achieved successfully with relatively low input from IT teams. The three companies who integrated during the pilot in this way incurred between 40 and 70 hours of time from their in-house IT teams to successfully integrate. Rounding this up to 100 hours and costing this time at £50 per hour (annual total employment cost circa £100k) amounts to £5,000 per business.

Integration means different things to different businesses depending on their supply chain role. For some, such as merchants with their own stores and haulage fleet, there will be several integration options, each one being standalone, and businesses could integrate one or two roles and use the web portal and app for the others.

Role	Example businesses	What does integration mean?
<b>Crop dispatch</b>	Growers, TASC/UFAS stores, ports	Automatically populate blank passports in the DP with crop data held in business software.
<b>Merchandising</b>	Merchants	Automatically receive weight and crop quality data into business software, from the DP as entered by processors.
<b>Haulage</b>	Hauliers	Automatically populate passports with previous load data and cleaning methods for a trailer ID, held within business software.
<b>Crop intake</b>	Processors, ports, central & co-op storage	Automatically receive passport data from the DP into business software. Option for automated passport checks within business software. Automatically populate the DP with weight and crop quality data held within business software.

Figure 17. Supply chain roles and integration options.

There are several considerations and assessments for businesses to make in relation to integration:

- Does it suit the business to use:
  - The web portal or app
  - Bulk upload of load intake data such as weights and quality results via spreadsheet (refer to section 5.7)
  - Integration
  - Or a combination of these depending on the roles outlined in Figure 17 above.
- Potential benefits and efficiencies such as:
  - Automatically import all weight and quality data for all loads into business software, via the DP rather than the manual methods of receiving this data today
  - Reducing double entry of data and mistyping.
- Work and cost to integrate - how up to date is the business software and does it have an API? Or is a major upgrade required including an updated different operating system? If a major upgrade is required, would this bring other benefits not associated with the DP, allowing the cost to be spread?
- Capacity of in-house IT resource to undertake the work or are contractors required?
- How many sites does the business operate at and what infrastructure is available at each?
- Business scale – how many loads does the business handle per week, month or year? Integration costs are unlikely to increase in proportion to business scale.
- What other efficiencies could integration bring?

#### 8.2.4.1 Case study 1 – in-house development – existing software with API

Two large sized merchant businesses operating software with API and integration capability, maintained in-house, successfully integrated with the piloted digital passport system in 2015. The range in time taken by their teams to achieve this was between 40 and 70 hours. Rounding this up to 100 hours and costing their team's time at the equivalent of £50 per hour (total employment cost) amounts to £5k.

#### 8.2.4.2 Case study 2 – contracted development – existing software with no API

A medium sized merchant business with a bespoke grain trading programme with no API or integration capability today would need to move to a new operating system and framework with an API server in order to integrate with the DP system. Their IT contractor has quoted a cost of £50k with an ongoing annual support cost increase of £3k.

#### 8.2.4.3 Integration cost

Fourteen percent of survey respondents had both bespoke software and had an interest in systems integration. This equates to 70 businesses. It is important to note that integration is optional, and there are other options available to interact with the DP system. No two businesses are the same, and there are a range of considerations. Refer to section 8.2.4 for more information. Some businesses like the one in case study 2, whose existing software requires a significant upgrade will need to be certain of the potential benefits of integration in order to commit to the investment.

<b>Breakdown of the 70 businesses interested in integration</b>	<b>Number of businesses</b>	<b>Integration cost per business</b>	<b>Total</b>
<b>Option 1 - integrate in line with case study 1 (in-house development, software already has API)</b>	20	£5k	£100k
<b>Option 2</b>	10	£10k	£100k
<b>Option 3</b>	10	£20k	£200k
<b>Option 4 - integrate in line with case study 2 (contracted development, no current API capability)</b>	5	£50k	£250k
<b>Option 5 - choose not to integrate</b>	25	£0	£0
<b>Total cost across industry</b>			<b>£650k</b>

Figure 18. Integration option costs

For information on the data that would be exchanged via systems integration refer to figures 7 and 17. Refer to appendix 11.10 for more technical information on systems integration.

#### 8.2.5 Training

System design will be based on normal app conventions rather than customisation. This means the system will be intuitive to use without users requiring a lot of training or having to refer to instructions or support functions. It is envisaged there will be one easily navigable workflow through the system for the most common passport 'path'.

However, it is likely that DP system users throughout the supply chain could require training and support when they first come to use it if they are not routine computer or smartphone users. A range of training materials will be developed and made available to all. This will include tool tips (i icons) throughout the system, short videos on how to perform certain tasks and downloadable worksheets. A targeted full training programme will be assembled and made available to all businesses and users ready for the start of the transition.

It would be prudent for businesses to factor in one hour of staff time for training and onboarding for each staff member required to use the DP system.

#### 8.2.6 Merchant costs – signposting growers and hauliers

For a key 12-month period as industry transitions to the DP system, merchants will inevitably be the first point of contact for growers and hauliers looking for advice on what they need to do, and how to complete digital passports. It is envisaged that merchants will need to redirect growers and hauliers to the helpdesk who will be best placed to guide users and businesses through these queries. Over time, this will become recognised as the first point of contact for help.

<b>148 certified TASCC merchants</b>		
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<b>10 large merchants</b>	1 day per week for 6 months @ £20/hr	£41k
<b>38 medium merchants</b>	½ day per week for 6 months @ £20/hr	£79k
<b>100 small merchants</b>	1 hour per week for 6 months @ £20/hr	£52k
	<b>Total across industry</b>	<b>£172k</b>

Figure 19. Merchant staff time costs.

### 8.2.7 Haulier wait time at collection point

Whilst industry transitions to the DP system, there may be occasions where a haulier is held up at collection point because of grower or storekeeper issues in creating digital passports. These issues will gradually decline as people become familiar with the system and what it entails. Based on 3% of loads being affected with an extra wait time of 10 minutes across one year. **Therefore, £160k cost.**

## 8.3 Ongoing central system and individual business running costs

After the initial period of development and transition, it is envisaged the DP will enter the business as usual (BAU) phase. At this point, DP functionality will be complete, and the system will enter a maintained and support phase with staff costs reduced significantly from the development phase peak.

### 8.3.1 Central system running costs

The development cost will be capitalised and amortised over 10 years with £50k included each year for 10 years.

<b>Cost</b>	<b>Business as usual phase - cost per year</b>
<b>Staff</b> (system operation and management, ownership, system and data governance group support)	£236k
<b>Staff</b> (industry helpdesk support)	£65k
<b>AHDB platform hosting</b>	£33k
<b>Assurance schemes API maintenance</b> (RT, SQC, TASCC, UFAS)	£18k
<b>Sundry costs</b> (e.g., legal advice, governance group meetings)	£10k
<b>Total annual running cost (gross)</b>	<b>£362k</b>
<b>Income from DP usage charges</b> (refer to example in section 7.5)	<b>-£30k</b>
<b>Total funded by statutory levy (net)</b>	<b>£332k</b>

Figure 20. Central system running costs.

### 8.3.2 Individual business running costs

Once the system is in business as usual (BAU) phase, the running costs for individual businesses are expected to be minimal:

- Creating passports – it is likely that with the option to bulk complete multiple identical passports, time could be saved, but this will only be significant for larger businesses, so the working assumption is that it will take a similar time to complete digital passports compared to paper passports.
- Driver passport input – once the system is up and running, it is envisaged that the same time will be required to complete a digital passport compared to a paper one, so no extra costs are expected in terms of time input.
- Receiving passports – for businesses receiving passports and not choosing to integrate systems (where data is exchanged automatically between their software and the DP) there will be some process duplication. This is because the passport will need to be accepted and weight and quality data added to the DP system in addition to recording it in the business's existing system. However, to mitigate this, there is also an option to upload spreadsheets to the DP containing weight and quality data for batches of loads received in a day. This will be particularly useful for merchant businesses who have contracted out grain intake operations at third-party stores or ports. Using data from AHDB's recipient survey, the proportion of businesses not prepared to consider systems integration and saying the requirement to feedback weight and quality through DP would duplicate existing processes amounts to 18%.



Many of these businesses are small scale, taking in on average less than 10 loads per week, just 2% are larger scale receiving over 200 loads per week.

- If industry requires new or enhanced functionality after the initial build phase:
  - Training may be required to ensure staff are familiar with how to use the updated functionality.
  - For integrated businesses there may be opportunities to exchange more or different data through the API and that would require time from in-house or contracted development teams to implement.

#### 8.4 What costs and inefficiencies are removed?

Introducing a universal DP will remove costs across supply chains particularly in relation to printing and distributing paper passports and stickers. The key ones are outlined briefly here. Refer to appendix 11.12 for more detail on how these figures have been calculated. Please note, all figures have been rounded down to the nearest thousand.

- a) The cost of passport and sticker printing and distribution across GB is calculated to be £340k. Subtracting the cost of passports printed for oilseed rape deliveries into crushing plants leaves a figure of **£327k** per year with that cost being borne by growers, merchants and assurance bodies.
- b) Processor paper passport storage costs. Surveys indicated that some processor businesses pay for paper passport archiving and storage off-site. Across industry this is calculated to be **£5k** per year.
- c) Haulier time saving at intake with fewer delays caused by illegibility and sticker problems and by arriving with an incomplete passport. A month-long survey undertaken by UK Flour Millers in November 2023, indicates that 3% of all passports received have an issue which results in a load being held up for one of these reasons:
  - a. Incorrect or old passport version
  - b. Incorrect or missing sticker
  - c. Data points missing or illegible.

By definition, a well-designed digital system will remove these issues, e.g., by not allowing a passport to be transferred between grower and haulier before the grower section is complete.

	% of 768,000 loads delayed	Delay time	Delay cost / hour	Total cost
<b>Best case</b>	2%	10 minutes	£30	£76,800
<b>Worst case</b>	3%	40 minutes	£50	£768,000
<b>Average</b>	<b>2.5%</b>	<b>25 minutes</b>	<b>£40</b>	<b>£320,000</b>

Figure 21. Calculation of best case and worst-case haulage delays with the paper passport

The reduction in waiting time cost calculated to be **£320k** per year.

**In total, these potential cost savings amount to £652k per year.**

If industry decides to go ahead with the DP, it would be prudent to evaluate its impact after an agreed period. Depending on timing, this data could be quite powerful in driving the DP's roll out to businesses that had not yet switched. It could also be of value in securing future funding for system enhancements as required by the Ownership Group.

#### 8.5 What additional value is created and for whom?

Greater data transparency and availability by moving to digital provides opportunities for value creation throughout the supply chain. The passport's primary purpose is to share data to protect food and feed safety, by communicating to the next party how grain has been stored, handled and treated. Moving to digital systems improves the data's accessibility and integrity and combined with real-time assurance status checking, providing industry with enhanced confidence that high feed and food safety standards are being maintained throughout the supply chain.

One of the ways in which this is achieved is through the opportunity to automate passport data checking processes instead of relying on manual checks. Specifically, systems integration offers processors and other businesses receiving grain the chance to import passport data into their own software for each load and for bespoke passport data checks to be performed automatically by each business, depending on which data is important to them. At peak times, removing the element of manual data checking provides a greater layer of protection ensuring food and feed safety.

For some businesses, there is scope to reduce costs associated with rejections and the opportunity to maximise crop sales revenues by monitoring crop quality result trends for accepted loads and adjusting supplies to closely match contracted specifications.

In the medium-term, once industry has fully transitioned to the digital passport, usage of aggregated and anonymised data from the DP system will be possible under permission 3. This will be overseen by the Data Governance Group. There is potential for industry to benefit from real-time data driven insights not available from today's datasets. This will be of benefit to levy payers across the country in their decision-making processes. Refer to section 6.2.5 for more information.

## 9 Industry-wide cost benefit analysis

This is the cost breakdown over the first 10 years:

	Cost	Years	Business case section	Amount	Cost frequency
1	System build	1	8.1	£986k	One-off
2	System support	1-3	8.1	£455k	One-off
3	Staff	1-3	8.1	£1.161m	One-off
4	Other costs	1-3	8.1	£234k	One-off
5	Industry implementation	1-3	8.2	£1.053m	One-off
6	Ongoing gross running costs	4-10	8.3	£362k	Per year
7	Income from DP charge <sup>k</sup>	2-10	7.5	£30k	Per year
8	Ongoing net running costs	4-10	8.3	£332k	Per year

Figure 22. Cost breakdown over first 10 years.

This gives a total cost over a 10-year period of £6.453m. The proposed breakdown of sources of funding for this cost is:

Source of funds	Item number in figure 22 above	Amount
Grant funding application	1, 2, 3 & 4	£2.835m
Industry	5 & 7	£1.291m
AHDB levy	8	£2.327m
<b>Total</b>		<b>£6.453m</b>

Figure 23. Proposed breakdown of funding sources.

Cost benefit analysis over 10 years	
Total costs funded by industry and AHDB levy	£3.573m
Total quantifiable direct benefits	£5.948m
Net present value	£2.374m
Return for each £1 spent by industry and AHDB	<b>£1.66</b>

Figure 24. Cost benefit analysis.

<sup>k</sup> Paid by non-levy payers annually and phased in over first three years as industry transitions.

## 9.1 Financial and non-financial benefits versus costs across the supply chain

This section outlines the financial and non-financial benefits and costs across each role in the supply chain. Figure 25 below describes how the financial benefits or cost savings are distributed across industry alongside the one-off implementation costs.

	Total	Growers	Hauliers	Processors	Merchants	Assurance bodies
Passport and sticker printing and distribution	£327,000	£187,000	-	-	£34,000	£106,000
Passport storage costs	£5,000	-	-	£4,000	£1,000	-
Haulier time saving at intake	£320,000	-	£320,000	-	-	-
<b>Total saving (per year)</b>	<b>£652,000</b>	<b>£187,000</b>	<b>£320,000</b>	<b>£4,000</b>	<b>£35,000</b>	<b>£106,000</b>
<b>Saving (per tonne)</b>	<b>3.18p</b>					

<b>Implementation costs (one-off)</b>	<b>£1,053,000</b>	<b>-</b>	<b>£186,000</b>	<b>£347,500</b>	<b>£519,500</b>	<b>-</b>
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Figure 25. Comparison of the financial benefits (cost savings) and costs incurred to implement the DP, by party.

### 9.1.1 Growers

Collectively, growers:

- Will collectively **save approximately £187k per year** because of lower costs by not printing passports.
- Will contribute to the DP running costs via the statutory levy.

Long-term, growers will save time, reduce costs and increase revenues with:

- For some, there is scope to reduce costs associated with rejections and the opportunity to maximise crop sales revenues by monitoring crop quality result trends for accepted loads and adjusting supplies to closely match contracted specifications.
- Efficiencies from bulk passport completion ahead of time and automating load destination records.

### 9.1.2 Hauliers

Collectively, hauliers:

- Will collectively **save approximately £320k per year** because of fewer intake delays and therefore lower costs.
- Who do not currently have a smartphone will incur a one-off cost to purchase them. **Total cost £26k across the sector.**
- Do not pay statutory levy and will not incur any charges to use the DP.

Long-term, hauliers using the DP will benefit from:

- Reduced hassle and waiting time with visible grower assurance statuses at collection point, no illegibility problems and fewer rejections resulting in redirection.
- More certainty that passports are complete prior to departure and growers being clear on the passport details required for each crop type.
- Streamlined admin processes with automated return of weight data.

### 9.1.3 Processors

Collectively, processors:

- Will collectively **save approximately £4k per year** because of lower costs.
- Who do not currently have a laptop/computer at intake will incur a **one-off cost** to purchase one. Total **cost £22.5k across the sector**.
- Will incur a **one-off cost to integrate systems** with the DP for those businesses with bespoke software interested in this option. Total **cost £325k across the sector**.
- Will contribute to the DP running costs via the statutory levy.
- Requiring passports for imported crops or for oilseeds crops will pay the DP usage charge as decided by the Ownership Group.

Long-term, processors using the DP will benefit from:

- Enhanced food and feed safety and traceability with accessible high quality digital data with improved integrity.
- Reduced duplication and time saved with industry standard automated grower, TASCC/UFAS store, haulier and merchant assurance checks.
- Efficiencies by exchanging data seamlessly through one universal data sharing application programme interface (API) rather than multiple, by choosing systems integration.

### 9.1.4 Merchants

Collectively merchants:

- Will collectively **save approximately £34k per year** because of lower costs.
- Who store grain and do not currently have a laptop/computer at intake will incur a **one-off cost** to purchase one. Total **cost £22.5k across the sector**.
- Will incur a **one-off cost to integrate systems** with the DP for those businesses with bespoke software interested in this option. Total **cost £325k across the sector**.
- Will contribute to the DP running costs via the statutory levy.
- Required to supply a passport for imported crops will pay the DP usage charge as decided by the Ownership Group.

Long-term, merchants using the DP will benefit from:

- Efficiencies from fewer claims and rejections to handle because growers have real-time quality data to help manage their supplies.
- Reduced duplication and time saved with industry standard automated grower, TASCC/UFAS store and haulier assurance checks.
- Efficiencies by exchanging data seamlessly through one universal API rather than multiple, by choosing systems integration.

## 9.2 What future costs or inefficiencies would the DP prevent from being introduced?

Section 4.4 outlines in detail the inefficiencies and consequences of multiple DP systems being introduced. Most of these involve the introduction of complexity and uncertainty into combinable crop supply chains. The result is more time taken to achieve the basic objective which is to move grain efficiently from A to B whilst sharing information to maintain food and feed safety.

One of the key DP tenets is providing a platform for multi-directional data flow, including the return of weight and quality data through supply chains. A proliferation of different DP systems is unlikely to prioritise and therefore provide the quality data growers require and the predicted reduction in rejections and resultant efficiencies and cost savings is unlikely to happen.

Multiple DP systems introduced by processors and/or merchants could also increase costs for growers and hauliers, by requiring different hardware or software and provision of training for their employees in how to use multiple systems.

Costs would also increase for those processors, merchants and stores wishing to trade with those businesses introducing their own DP systems. For larger businesses looking for efficiency this could mean developing and maintaining multiple APIs instead of one.

In addition to the costs and inefficiencies of multiple systems, there are potential inefficiencies of not moving away from paper and the lack of ability to react at short notice, if industry required the passport to be extended to accommodate extra data required to protect food and feed safety. This would be very difficult to achieve with the existing A4 sheet, and a second sheet would likely be needed. Alternatively, a separate means of communicating this extra data would be required.

## 10 Conclusion

This business case's purpose is to outline proposals for a digital passport system, weigh up the costs and benefits alongside operating requirements, ownership and funding models.

We appreciate that this is a very detailed and thorough set of proposals and are grateful to all from industry who have contributed.

This business case outlines significant benefits and potential efficiencies across the supply chain, alongside the costs removed by ceasing the paper passport system. Moving to a digital passport will mean:

- Allowing data to be shared in as close to real time as possible enabling:
  - Growers and stores to react to grain quality results, the sooner the quality of a load delivered is known, the sooner decisions can be made about loading or marketing the next load.
  - Real-time visibility of grower, TASC/UFAS store, haulier and merchant assurance status.
- Driving efficiencies:
  - Allowing you to access your data securely, wherever, whenever and however needed.
  - Providing multi-directional data flow including a universal way for growers to access quality data.
  - Automating passport checks.
- Improving data accuracy:
  - Tailoring passport data fields for each crop making the system more user friendly.
  - Providing solutions for accuracy of data-entry so that spelling mistakes are a thing of the past.
  - Improved data integrity with each section populated only by the party whose responsibility it is.
  - Integrating the DP with other software systems enabling automated data sharing.
- £2.374m worth of net benefits and cost savings over 10 years amounting to a return of £1.66 for every £1 invested (for more detail please see section 8 and 9).

A digital passport will provide more than just financial savings. It would improve the accuracy and integrity of data provided by growers to processors and enhance traceability. Digitally accessible passport data will ensure industry is able to react swiftly and investigate if a food or feed safety or security issue arises. This will help give further confidence to industry's onward customers and will be in-line with other developments like this in the supply chain, e.g., electronic phytosanitary certificates for export consignments.

Importantly, a single universal digital passport system with robust data governance mechanisms and a cross-industry representative Data Governance Board, ensures that data management and control remain with the businesses entering the data into the system.

Industry has collaborated to propose a simple system mirroring the existing paper passport process. The addition of live assurance checks will give greater transparency in the supply chain. The real-time flow of data back to growers allows for more informed business decisions. Digitising the passport will create an agile way of data sharing for combinable crop supply chains, enhancing food and feed safety and giving consumers more confidence in the products they purchase.

## 10.1 What next steps are proposed?

This revised business case was published in June 2024 following detailed industry feedback on the first version.

The next steps are for Leadership Group organisations to confirm that their memberships wish to proceed based on the revised business case. In addition to their support, the digital passport will only proceed, if the following two points are achieved:

- Securing funding to cover initial build, development, rollout and running costs.
- Securing agreement from the AHDB Cereals & Oilseeds sector council that they are prepared to take on responsibility for long-term ownership, management and funding on behalf of all levy payers.

To share your views on this business case, or to ask any questions please contact your representative at the respective trade association or contact AHDB via [Derek.Carless@ahdb.org.uk](mailto:Derek.Carless@ahdb.org.uk) or [David.Eudall@ahdb.org.uk](mailto:David.Eudall@ahdb.org.uk).

## 11 Appendices

### 11.1 Leadership Group membership

Member	Representing
<b>Robert Sheasby</b>	Agricultural Industries Confederation
<b>Jonathan Lane</b>	Agricultural Industries Confederation
<b>Stephen Briggs</b>	Agriculture and Horticulture Development Board (and Leadership Group chair)
<b>Julian South</b>	Maltsters' Association of Great Britain
<b>Anthony Hopkins</b>	National Farmers' Union (to December 2023)
<b>Luke Cox</b>	National Farmers' Union (from January 2024)
<b>Matt Culley</b>	National Farmers' Union (and Data Group chair) (to March 2024)
<b>Jamie Burrows</b>	National Farmers' Union (from March 2024)
<b>David Michie</b>	National Farmers' Union Scotland (to September 2023)
<b>Willie Thomson</b>	National Farmers' Union Scotland
<b>Jack Stevenson</b>	National Farmers' Union Scotland (from March 2024)
<b>Philip Kimber</b>	Seed Crushers & Oil Processors Association (to May 2024)
<b>Alex Waugh</b>	UK Flour Millers (to September 2023)
<b>Alistair Gale</b>	UK Flour Millers (from September 2023)
<b>George Mason</b>	UK Flour Millers (and Development Group chair)

### 11.2 Development Group membership

Member	Representing	Business type
<b>Andrew Connon</b>	NFUS	Scottish grower
<b>Andrew Miller</b>	Road Haulage Assoc.	Haulage
<b>Andrew Moir</b>	NFUS & SQC	Scottish grower and assurance scheme
<b>Angela Gibson</b>	Viterra UK	Merchant and storage
<b>Claire Eckley</b>	NFU	English grower
<b>David Padgett</b>	Argrain	Merchant and storage
<b>George Mason</b>	Heygates	Miller
<b>Howard Leland</b>	Allied Mills	Miller
<b>Hugh Burton</b>	AB Agri	Animal feed processor
<b>Ian Barclay</b>	Roger Warnes Transport	Haulage
<b>James Mills</b>	NFU	English grower
<b>Jonny Roberts</b>	Boortmalt	Maltster
<b>Lee Butler</b>	Freshlinc	Haulage
<b>Mark Ryland</b>	Independent Merchants	Observer
<b>Martyn Bailey</b>	Bairds Malt	Maltster
<b>Matt Culley</b>	NFU (& Data Group chair)	English grower

<b>Mike Goodyear</b>	Openfield	Merchant, storage and haulage
<b>Neil White</b>	NFUS	Scottish grower
<b>Owen Southwood</b>	Scotgrain	Merchant and storage
<b>Philip Kimber</b>	Cargill	Oilseed crusher
<b>Rose Riby</b>	AIC (& Data Group facilitator)	Trade association
<b>Simon Briscoe</b>	Openfield	Merchant, storage and haulage
<b>Stewart Easdon</b>	Ensus	Biofuels processor
<b>Stewart Hymas</b>	Alfred Hymas	Haulage

### 11.3 Data Group membership

<b>Member</b>	<b>Representing</b>	<b>Business type</b>
<b>Adam Short</b>	N/A	English grower
<b>Andrew Moir</b>	NFUS & SQC	Scottish grower
<b>Angela Gibson</b>	Viterra UK (& Development Group facilitator)	Merchant and storage
<b>George Mason</b>	Heygates (& Development Group chair)	Miller
<b>Ian Barclay</b>	Roger Warnes Transport	Haulage
<b>Jack Stevenson</b>	NFUS	Scottish grower
<b>Jenny Buchanan</b>	Carr's Flour Mills	Miller
<b>John McKinney</b>	Whitworth Bros	Miller
<b>Jonathan Lane</b>	ADM Agriculture	Merchant and storage
<b>Magdalena Farrelly</b>	Whitworth Bros	Miller
<b>Mark Worrell</b>	Openfield	Merchant, storage, haulage
<b>Matt Culley</b>	NFU (& Data Group chair)	English grower
<b>Mike Dagg</b>	Simpsons Malt	Maltster
<b>Mike Walsh</b>	Vivergo Fuels	Biofuels processor
<b>Rebecca Gee</b>	Crisp Malt	Maltster
<b>Richard Howe</b>	Cargill	Oilseeds crusher
<b>Rose Riby</b>	AIC	Trade association
<b>Sarah Bell</b>	N/A	English grower
<b>Steve Owbridge</b>	Thompsons Feeds	Animal feed processor
<b>Steven Atherton</b>	Whitworth Bros	Miller
<b>Stewart Easdon</b>	Ensus	Biofuels processor
<b>Tom Rivett</b>	H Banham Ltd	Merchant and storage

### 11.4 Grain movement scenarios

These grain movement scenarios will require additional functionality adjustments beyond the core DP process to accommodate them.

<b>Scenario</b>	<b>Detail</b>
<b>Rejected and redirected</b>	The recipient would need to return the passport to the driver who would transfer it to a second recipient. This could be a second processor or store, or it could be returned to the original sender.
<b>Reject – Retest – Accept</b>	A load may be retested following a rejection. The recipient agrees to undertake a second quality test which leads to the load being accepted. Two sets of quality data will need to be accommodated.
<b>Part of load accepted; part rejected</b>	Where part way through tipping a load, something is found which means that the rest of the load is not tipped and therefore rejected.
<b>Change of vehicle or driver after collection</b>	This could occur when one driver collects a load, and a second driver delivers it (in this instance the passport will need to be transferred from one driver to a second driver). It could also occur if the tractor has suffered a breakdown and needs to be changed (resulting in the registration number needing to be updated on the passport).

<b>Multiple Sender load</b>	Where the first sender is emptying their store and they do not have enough grain to fill the lorry. The lorry then travels to a second sender who tops up the load with the same quality grain. It results in two passports for one load delivered. The passports need to be linked in the system. In this case there would be no feedback of weight and quality data
<b>Imported grain moved from a port</b>	A passport may be required by the recipient to confirm crop details, haulier assurance status and vehicle hygiene data. There would be no sender assurance status and instead the passport would need to display 'IMPORTED'.
<b>Export by lorry</b>	Grain exported by lorry travelling to recipients on the continent. If a passport is required by the recipient, a means of transferring it to them without them being registered on the DP system would be required.
<b>Non-assured grain movements</b>	Where a recipient buys unassured grain and requires a passport. In this scenario the haulier's assurance status would be checked and displayed. There would be no sender assurance status and instead the passport would need to display 'NON-ASSURED'.
<b>Grain moving to store – One passport many loads.</b>	Some TASC stores permit multiple deliveries per day of the same crop using the same vehicle and the same driver under one passport.

## 11.5 Ownership options discounted

### 11.5.1 AHDB ownership

AHDB is an established independent organisation representing businesses in all parts of cereals and oilseeds supply chains across the UK. It has a track record of sensitively and responsibly handling commercially sensitive data on behalf of industry and developing new tools and services for levy payers for over 50 years.

Industry turned to AHDB when it wanted to look at the question of developing a digital passport to replace the paper-based system. AHDB's independence means it is well-placed to develop new schemes, tools and services on behalf of industry. This includes working with industry to drive a digital passport system forward and through the development phase if, and when, industry formally decide to adopt it. However, there is also precedence for AHDB to handover a product, tool, or service to a different industry ownership model once it is established and in a 'business as usual' phase.

Discussions with Defra have confirmed that the existing Statutory Instrument (SI) governing what AHDB can and cannot do permits AHDB to develop and operate the DP on behalf of industry with no modification.

#### 11.5.1.1 Pros

- AHDB's independence as a body representing all parts of supply chains across the UK.
- AHDB's track record of handling and storing commercially sensitive data over a period of 50 years plus.
- AHDB's experience of managing and supporting the electronic pig movement system (eAML2) albeit within a different sector.
- Funding model clear.

#### 11.5.1.2 Cons

- If AHDB ownership were preferred for the development phase, and a different ownership model for the BAU phase, costs of set-up and transfer to a different ownership model would be incurred.
- Lack of industry ownership.
- Risk of insufficient link to companies and individuals using the system.

### 11.5.2 Not-for-profit company limited by guarantee

This model would operate on a 'not-for-profit' basis. Industry trade associations could become members and act as guarantors. AHDB could also be a member if required. The company would appoint its own team to manage and operate the system on a day-to-day basis.



### 11.5.2.1 Pros

- Separate structure with flexibility to appoint its own team or contracted body to manage and run the system on a day-to-day basis.
- Clear linkages between industry and the service through the trade associations in their role of members of the company.

### 11.5.2.2 Cons

- Costs of setting up the company and running it on an ongoing basis
- Potentially involves setting up a team from scratch to manage and run the system with no experience.
- Unless the ownership structures and group were robust with very clear leadership, it's possible the system could lose its way.
- Funding model not clear.

## 11.6 Funding options discounted

### 11.6.1 Voluntary contractual levy

In order not to add unnecessary cost and complexity to this option, it could be administered by AHDB, using the same merchant-led collection process and be based on the same tonnage base as that used for the statutory levy. However, the DP levy would not be statutory unlike the existing levy.

Growers, merchants and processors would pay the DP levy. The most efficient way to achieve this would be to include it in the relevant AIC contracts. Grower DP levy would be collected by merchants and paid to AHDB alongside the merchant DP levy. The processor DP levy would be paid directly to AHDB.

The Leadership Group would decide what the relevant DP levy rates are and determine how it is spent, with authority to revise rates depending on DP budgetary requirements.

#### 11.6.1.1 Pros

- Separate from the statutory AHDB levy and therefore more flexibility in how it is spent and managed.
- Same processes and structures used for collection and administration as the statutory levy.

#### 11.6.1.2 Cons

- Processes and structures would need to be put in place to administer and collect the DP levy incurring additional costs for AHDB and for merchants.
- Difficult to collect a levy from all as it would not be statutory and therefore some may choose not to pay.
- Some users of the DP are outside of the statutory levy, and others will be using the DP for consignments of non-statutory levy crops, e.g.:
  - Oilseeds crushers
  - Those creating and receiving passports for imported grain.
  - Those creating and receiving passports for combinable peas and beans.

Therefore, the statutory levy tonnage base will not accurately represent some business' DP usage.

### 11.6.2 DP usage charge for all businesses

It would be paid by all businesses creating passports (senders) and receiving passports (recipients), i.e.

- Growers (senders)
- Operators of off-farm TASCC/UFAS stores (senders and recipients)
- Importers and exporters (senders and recipients)
- Processors (recipients)

It is not envisaged that hauliers would pay to use the DP under a commercial charging model.

The charges could be based around membership fees and/or charges in relation to the grain handling tonnage of each business i.e., how many passports the business creates or receives.

The charging mechanism would be built into the DP web portal and businesses would need to pay per passport created and received. Whether payment is required up front in the form of passport credits or in arrears depending on passport usage each month would need to be discussed and decided by the Leadership Group.

#### 11.6.2.1 Pros

- All businesses creating and receiving passports pay according to scale and would include a contribution from some businesses who are not levy payers, e.g., oilseeds crushers.
- It would include charges for businesses creating and receiving passports for imported tonnages and for non-statutory levy crops, e.g., peas and beans.

#### 11.6.2.2 Cons

- A linkage from DP into a third-party payment site would be required which would need to include reference back to the DP for the number of passports 'purchased'.
- New processes would be required to administer the charging system adding further cost.
- There is potential for grain movements to be held up if payment has not been made and the ability to create or receive passports is withdrawn until resolved.
- Increased incentive for companies to not use the industry passport and put in alternative system?

## 11.7 Wi-Fi and 4G definitions

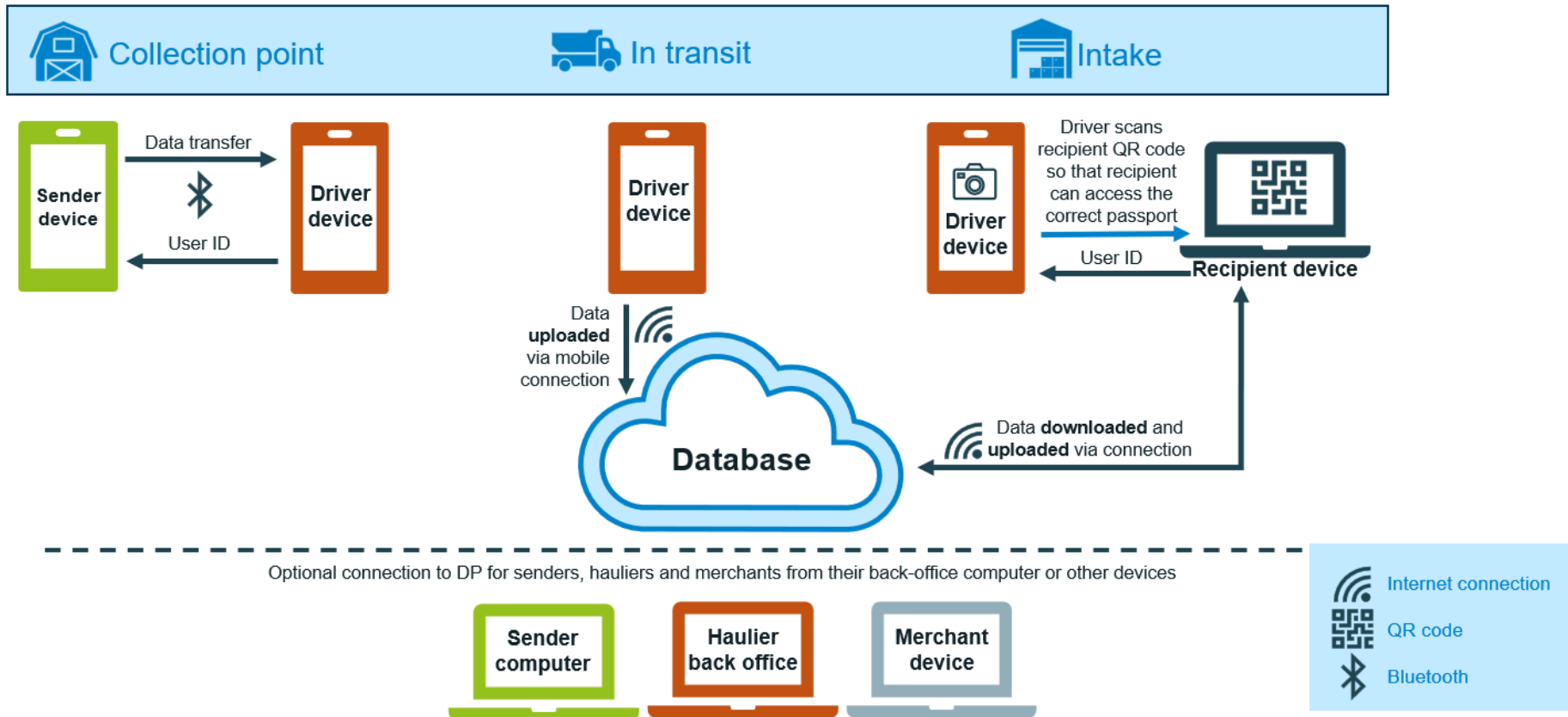
Wi-Fi and mobile phone data such as 3G or 4G are two different ways of connecting to the internet. Wi-Fi uses a fixed access point such as a router within an office or home which devices can access, usually by logging on with a key or password. Mobile phone data (3G, 4G, 5G) is distributed by mobile signal masts. Wi-Fi is usually faster than mobile phone data networks.

Data allowances are purchased as part of mobile phone contracts or by pay as you go. When you access the internet via mobile networks, you will use some of this allowance. 4G is over five times faster than 3G networks. 5G networks which are currently being rolled out across UK cities are up to 10 times faster than 4G.

## 11.8 Technology and connectivity diagrams

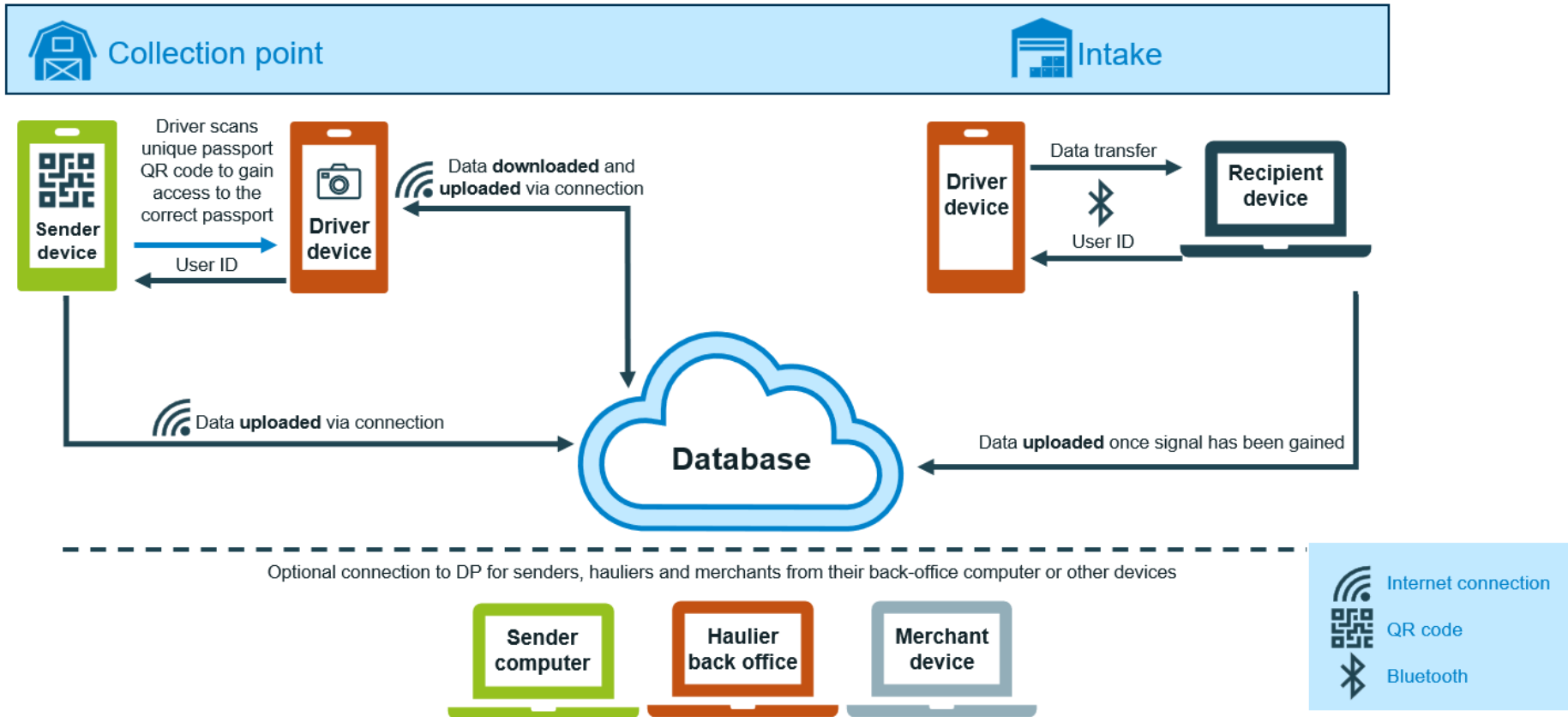
Internet access at intake, but not at collection point.

For this model to work sender and driver devices will not need to have connectivity at collection point however driver device will have to pass through connectivity on route to intake and driver and recipient devices must have connectivity at intake.



Internet access at collection point but not at intake.

For this model to work sender and driver devices must have connectivity at collection point however driver and recipient devices do not need to have connectivity at intake. The recipient will need to upload once connection has been gained.



## 11.9 Helpdesk registration and passport creation process

One off process to register the company and any users:

- Provide the helpdesk with the data needed to set up their account. This includes assurance scheme membership details, and the data will need to match before the DP account is created.
- Appropriate security protocols would be followed to ensure that the individual can verify their identity and their connection to the business.
- Further extra users for the business can be set up as required.
- Growers can also sign up to receive weight and crop quality data notifications via text message if required.
- This one-off registration process will probably take around 10 minutes provided the caller has all their details to hand.

Once completed, the grower can phone up to create passports as required, usually when the lorry has arrived. The helpdesk will follow the security protocol to verify the caller's identity and then:

- Run through the necessary questions to obtain all the data needed to populate the passport.
- This data can populate a template to be used to create further identical passports in future.
- The passport will be completed by the grower completing the declaration over the phone.
- The grower will then provide the helpdesk call handler with the identity of the haulage business and driver and the passport will be allocated to that driver.
- The driver will be able to access the passport in the DP app whenever they have internet access and will be able to complete their passport sections and declaration.
- This passport creation process will take around five minutes for the first one for each crop. Any subsequent identical passports can be replicated from the template and be created quicker, with the helpdesk checking that no details have changed since the template was initially created.

## 11.10 Technical information for systems integration

For any processor or merchant business considering systems integration, this is the proposed approach:

### 11.10.1 Rollout approach

One of the developed applications will be a public-facing web API. This will allow third-party systems with the appropriate permissions to integrate to read/write passport information.

All requests will be served over HTTPS and only to authenticated users.

### 11.10.2 Documentation

Full documentation for the API will be provided to third parties wanting to integrate with the DP. We will endeavour to generate documentation directly from the source code to avoid documentation becoming stagnant or out of date. There will be worked examples provided for the more common requests, along with a list of endpoints.

### 11.10.3 API versioning

API documentation will be version specific. Where breaking changes cannot be avoided, deprecated flags will be put on necessary endpoints, and users will be required to use new endpoints that are provided. [https://en.wikipedia.org/wiki/OpenAPI\\_Specification](https://en.wikipedia.org/wiki/OpenAPI_Specification)

### 11.10.4 Authentication

The client is assigned an API key – a unique string of characters that only they and the API service know. The key is attached to each API request. The API server checks for the key when it receives an API request to make sure it is from an authenticated client.

We will encrypt requests and responses to and from an API using an encryption protocol like [Transport Layer Security \(TLS\)](#).

### 11.10.5 API design

The API design will adhere to industry-standard practices to ensure a comfortable experience for systems integration. It will have a RESTful architecture, and HTTP response codes will be documented and utilised to ensure responses are as descriptive as possible.

## 11.11 Quality test results by crop type

This section is an illustrative list outlining the range of tests performed for each crop.

### 11.11.1 Milling wheat

- Moisture
- Admix
- Screenings
- Specific weight
- Ergot
- Protein
- Hagberg falling number
- Hardness
- Appearance/taint
- Variety
- Gluten (weight and quality)
- Other (physical contaminants etc)

### 11.11.2 Malting barley

- Moisture
- Admix
- Screenings
- Specific weight
- Ergot
- Germination (tetrazolium staining)
- Nitrogen
- Retention
- Fusarium (pink grains)
- Skinned grains
- Appearance
- Taint
- Variety
- Other (physical contaminants etc)

### 11.11.3 Oats (human consumption)

- Moisture
- Admix
- Screenings
- Specific weight
- Ergot
- Protein
- Black tips
- Black seeds
- Appearance
- Taint
- Variety
- Other (physical contaminants etc)

### 11.11.4 Rye (human consumption)

- Moisture
- Admix
- Screenings
- Specific weight
- Ergot
- Protein
- Hagberg falling number
- Appearance
- Taint
- Variety

- Other (physical contaminants etc)

#### 11.11.5 All cereals (feed consumption)

- Moisture
- Admix
- Specific weight
- Ergot
- Fusarium (pink grains)
- Other (physical contaminants etc)

#### 11.11.6 Oilseed rape, linseed, beans (feed) and peas (feed)

- Moisture
- Admix
- Other (physical contaminants etc)

#### 11.11.7 Beans (human consumption)

- Moisture
- Admix
- Bruchid beetle damage
- Split
- Other (physical contaminants etc)

## 11.12 Cost saving calculations

Data has been provided by industry and where a range was given, an average has been used. Where industry data was unavailable, assumptions have been made using feedback from industry. All assumptions and estimates are conservative.

### 11.12.1 Printing and distributing paper passports and stickers

It is estimated that 803,000 loads are moved per year across GB. Deducting the number of oilseeds loads delivered to SCOPA member intakes, leaves 768,000

- There are a range of different ways in which passports are sent and printed across England and Wales, the cost for this is calculated in numbers 1) and 2) below.
- Red Tractor provide English and Welsh growers with stickers to use on passports. A cost for this is included in 3) below.
- TASC/UFAS provide members across GB with stickers to use on passports. A cost for this is included in 3) below.
- SQC provide Scottish growers with pre-printed passports specific to each harvest year (approximately 180,000 are used). A cost for this is included in 3) below.

Industry feedback suggests that far more passports are printed than are used in England and Wales where passports are not generated and distributed by the assurance bodies. The total for England and Wales has been increased by 50%, resulting in a figure of 882,000 passports being printed.

Two methods of passport printing and distribution have been costed. There may be other methods. The costs include paper, printing, envelopes, postage and admin time for merchants or farms.

Print and distribution method	Proportion of 882,000 passports	Cost / passport	Total cost
<b>1. Merchant print and post to farm (E&amp;W)</b>	10%	38.9p	£34,310
<b>2. Merchant provides weblink and farm print (E&amp;W)</b>	90%	23.5p	£186,543
<b>3. Printing and distributing:</b>			
• <b>SQC passports (Scotland) (180,000 passports)</b>	N/A	N/A	£106,000
• <b>Red Tractor stickers (E&amp;W)</b>			
• <b>TASC/UFAS stickers (GB)</b>			
<b>Total / average</b>	<b>100%</b>	<b>28.4p</b>	<b>£326,853</b>

Detail:

1.

Item	Pence/passport	Notes – calculation based on batch size - 20
Paper	1p	500 sheet reams £5.00
Print cost	10p	Printer ink cartridges or photocopy
Merchant admin time	11p	Employment cost £13.00/hr based on 10 min to print out 20 and post to farm
Envelope	0.4p	C4 - £20.00 for 250
Postal cost	16.5p	1 <sup>st</sup> class large letter up to 750g = £3.30
<b>TOTAL</b>	<b>38.9p</b>	

2.

Item	Pence/passport	Notes – calculation based on batch size - 20
Paper	1p	500 sheet reams £5.00
Print cost	10p	Printer ink cartridges or photocopy
Farm admin time	12.5p	Farm secretary cost £15.00/hr based on 10 min to arrange printing (20)
<b>TOTAL</b>	<b>23.5p</b>	