REVIEW OF THE INDIRECT COSTS BORNE BY FARMERS, AS A RESULT OF BOVINE TB (BTB) – FINAL REPORT

Compiled For

LMC Livestock & Meat Commission

Dairy Council Northern Ireland

Ulster Farmers' Union

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Disclaimer

This report, prepared for the Dairy Council for Northern Ireland (DCNI), Ulster Farmers' Union (UFU) and the Livestock and Meat Commission (LMC) presents the findings from a research project undertaken during the latter part of 2025 and early 2026. This document has been prepared in association with the clients involved in the study. We have taken all reasonable steps to ensure that the information in this report is correct. However, we do not guarantee that the material within the report is free of errors or omissions. We shall not be liable or responsible for any kind of loss or damage that may result as a consequence of the use of this report.

Executive Summary

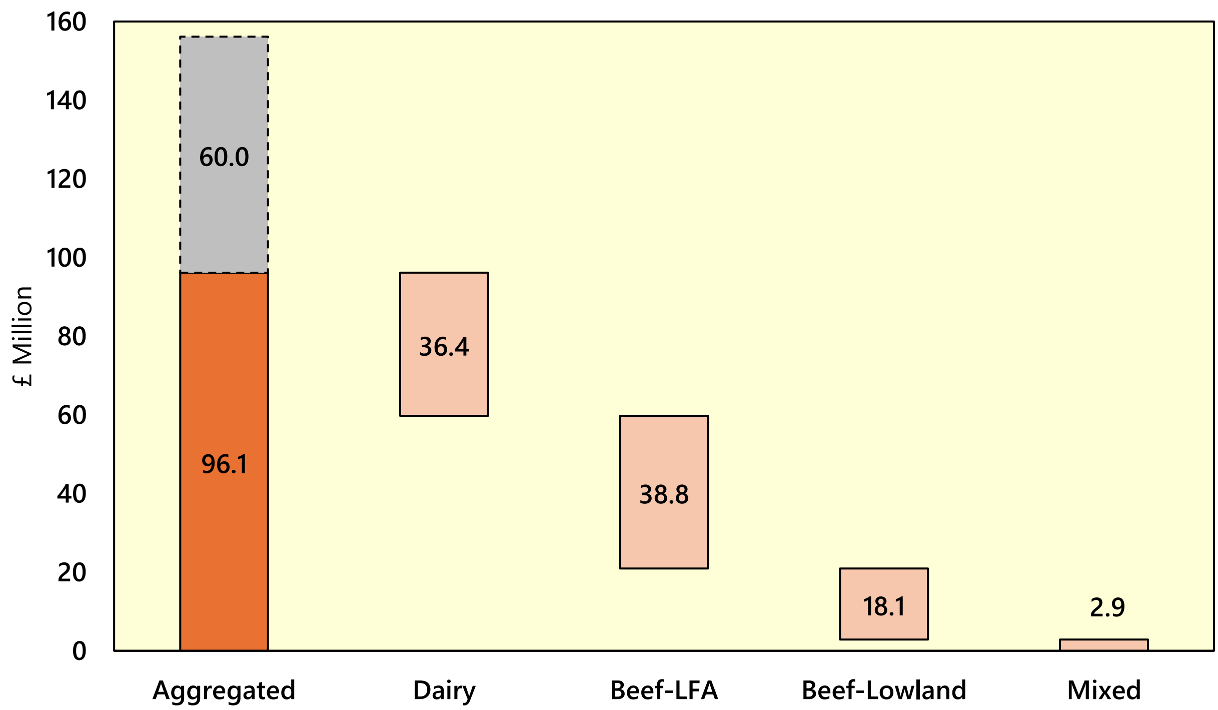
Bovine Tuberculosis (bTB) continues to represent one of the most significant and persistent challenges facing Northern Ireland's farming industry. Whilst the disease has long been recognised as an animal health and regulatory issue, this study demonstrates clearly that its impacts extend far beyond reactor removal and compensation payments. bTB imposes substantial financial, environmental and mental health costs on farming businesses, many of which are not visible within existing policy frameworks or official cost estimates. These impacts are widespread, cumulative and have become increasingly embedded within farm systems as disease incidence has risen.

This independent study quantifies, for the first time, the scale and composition of the indirect costs of bTB borne by NI farmers. It draws on Stakeholder Interviews, a large-scale Farmer Survey, farm-level and aggregated Modelling to provide a robust assessment of how bTB affects farm businesses in practice.

Key Findings:

- **Indirect cost impacts:** Indirect bTB costs borne by farmers are estimated at just over £96 million per year, equivalent to almost one-third of total agricultural support in Northern Ireland. As such, bTB represents a major and persistent drag on farm profitability.
- **Full economic impact on NI Farming:** When combined with DAERA's direct expenditure on testing, compensation and programme delivery, the total annual economic cost of bTB on NI agriculture is approximately £156 million. Accordingly, farmers bear the largest share of the full economic cost of bTB, with indirect costs significantly exceeding direct public expenditure.

Figure A: Breakdown of Aggregated bTB Costs in Northern Ireland 2025 - £ Million



Sources: The Andersons Centre (2025) and DAERA

- **Farm level costs:** there is a wide variation in costs depending on farm size and scenario. Typical farm cost ranges are estimated as follows;
  - **LFA Beef farms:** costs range from about £3,500 per farm to nearly £167,000 per farm across the sizes and scenarios assessed.
  - **Lowland Beef:** farm-level costs ranged from about £3,400 to nearly £77,000.
  - **Dairy:** farm level costs ranged from about £2,300 to about £125,000.
  - **Mixed:** farm-level costs are estimated to range from about £5,000 to around £49,000.
- **Major cost drivers:** include the following:
  - Reduced productivity and long-term output losses.
  - Additional labour requirements associated with testing and compliance.
  - Cashflow and financing pressures arising from delayed sales and prolonged restriction.
  - Biosecurity expenditure and increased risk of secondary disease.
  - Environmental inefficiencies linked to overstocking and extended housing.

  Importantly, these costs are incurred not only during breakdowns, but also in the absence of infection (with costs on farms with no breakdowns accounting for just over half of total indirect costs). This reflects the ongoing baseline burden associated with routine testing and disease risk across the sector.
- **Breakdown severity and duration are critical:** the modelling and scenario analysis show that breakdown severity and duration are the critical drivers of farm-level costs. Farms experiencing prolonged or recurrent restrictions face sharply higher losses across all cost categories.
  - Relatively small increases in restriction length or testing intensity lead to large increases in total farm-level costs.
  - Measures that reduce breakdown duration and recurrence offer the greatest potential to lower total economic harm.
- **Compensation addresses only part of the problem:** existing compensation mechanisms address only a limited subset of bTB-related costs. These payments reflect the value of slaughtered animals but do not cover productivity losses, labour disruption, financing pressures or environmental impacts. Extending compensation to cover all indirect losses would be fiscally unsustainable and risks entrenching inefficiency. bTB should, therefore, be addressed by tackling the underlying drivers of disease persistence, rather than relying on financial mitigation after losses occur.
- **Impacts vary by farm type but are widespread:** while bTB affects all cattle farming systems, impacts are not uniform. Dairy farms are particularly exposed, due to higher biological intensity, fixed cost structures, and limited flexibility in herd management. Losses associated with reduced milk output, increased replacement rates, inflated youngstock numbers and constrained culling strategies are especially pronounced.

  Significant impacts are also evident across beef and mixed farms, particularly in Less Favoured Areas (LFAs) and smaller systems with limited capacity to absorb disruption. When scaled to the NI farm population, extensive beef systems account for a substantial share of total indirect costs.

- **Environmental impacts:** bTB leads to material environmental inefficiency, driven by overstocking, extended housing and reduced technical performance. The modelling estimates that farms carry around 5% additional stock during restriction periods as a contingency response, increasing slurry volumes, nutrient loading and ammonia emissions, while reduced productivity raises the carbon intensity of milk and beef output. These impacts become more pronounced as breakdowns lengthen and interact directly with tightening environmental regulation. On the whole, environmental emissions and pollutants are estimated to increase by 5-10% due to bTB.
- **Mental health impacts:** bTB imposes a significant mental health burden on farming families, with stress and anxiety peaking during testing and breakdown periods but persisting beyond them. Farmer survey results and stakeholder interviews highlight prolonged uncertainty, loss of control and repeated disruption as key drivers, with Rural Support reporting consistently high and rising bTB-related contacts, estimated to account for about 14% of all calls. These pressures undermine confidence, decision-making and long-term business resilience, particularly in dairy systems experiencing recurrent or extended breakdowns.

Implications for Policy-Makers

The findings confirm that bTB is not a short-term or episodic issue, but a major structural constraint on Northern Ireland's livestock sector. Key implications for policy-makers include:

- bTB policy needs to be framed around reducing total economic impact, not managing compensation costs alone.
- Priority should be given to measures that minimise the risk of a bTB breakdown on farms, shorten breakdown duration, reduce recurrence and address disease persistence.
- There is a strong case for integrating bTB considerations into wider farm resilience, environmental and capital support frameworks.
- Effective progress will require stronger governance, improved industry ownership and policies grounded in on-farm realities.

There is no single intervention that will resolve the bTB challenge. However, experience from earlier periods and from other countries shows that incidence can be reduced substantially through sustained, coordinated action across a multitude of areas. Farmers must be central to this process if meaningful and lasting progress is to be achieved.

CONTENTS

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ACRONYMS

APHIS – Animal and Public Health Information System

bTB – bovine Tuberculosis

BTB – Bovine TB

C&S – Cattle and Sheep

DAERA – Department of Agriculture, Environment and Rural Affairs

DCNI – Dairy Council for Northern Ireland

DARD – Department of Agriculture and Rural Development (now DAERA)

EU – European Union

IFA – Irish Farmers' Association

IFAC – Irish Farm Accounts Co-operative

LFA – Less Favoured Area

LMC – Livestock and Meat Commission

NI – Northern Ireland

SLR – Standard Labour Requirement

TIFF – Total Income from Farming

UFU – Ulster Farmers' Union

UoE – University of Exeter

1 Introduction

1.1 Purpose and Background

Bovine TB is estimated to have cost DAERA up to £60 million in 2024-2025,[1] with some industry experts suggesting that costs could end up being even higher. Whilst public spending on disease control is documented, the financial, environmental, and social burden on Northern Irish farmers has not been systematically analysed. With herd incidence exceeding 10%, and a sizeable rise in reactor animals of late, the Ulster Farmers' Union (UFU) in association with the Dairy Council for Northern Ireland (DCNI) and the Livestock and Meat Commission (LMC) commissioned a detailed evaluation to inform future strategies.

This study's aim is to evaluate the financial, social (mental health), and environmental costs of Bovine Tuberculosis (bTB) borne by NI farmers. The findings will support evidence-based policy development and inform strategies (e.g. DAERA blueprint to eradicate bTB in Northern Ireland[1]) to mitigate the burden on farmers while contributing to bTB eradication efforts.

Below are the study's objectives:

1. Quantify the financial costs of bTB beyond public expenditure (i.e. indirect costs), including lost productivity, income foregone, and biosecurity measures.
2. Assess environmental consequences, such as increased carbon intensity and nutrient management challenges.
3. Analyse the social and psychological (mental health) impacts on farmers and rural communities.
4. Provide evidence-based recommendations to support policy and industry advocacy.

1.2 Approach and Structure of the Report

This Report outlines the key findings from the study which has consisted of a combination of desk-based research (Evidence Review) and primary research, consisting of stakeholder interviews and an online farmer survey as well as detailed farm-level financial modelling.

Chapter 2 details the study's methodological approach. The key findings from the Evidence Review (undertaken during summer and autumn 2025) are set-out in Chapter 3. Chapter 4 summarises the input from the stakeholder interviews whilst Chapter 5 outlines the findings from the online farmer survey.

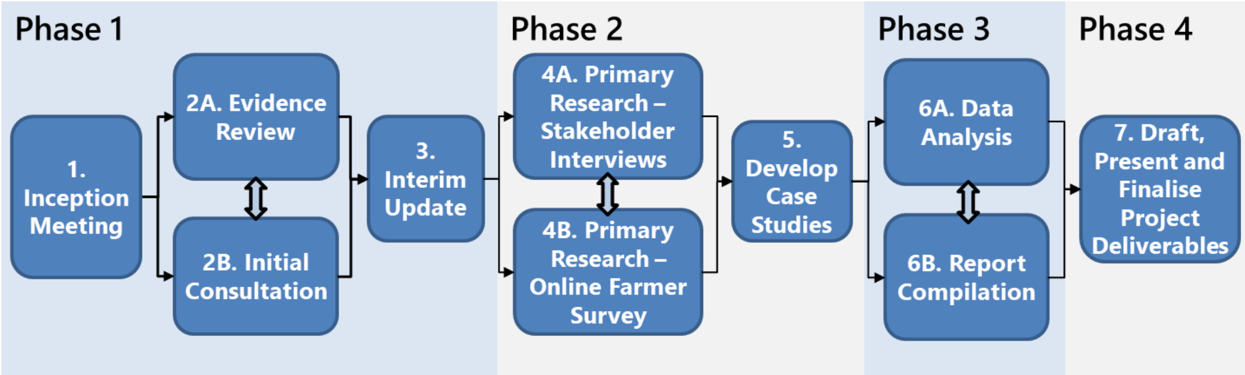
The financial modelling results which takes account of all input received is detailed in Chapter 6. Finally, the study's key conclusions and recommendations are set-out in Chapter 7.

2 Methodology

2.1 Introduction

To deliver on the study's aim and objectives, a mixed-methods approach was adopted. This encompassed a desk-based literature (evidence) review, primary research (qualitative stakeholder interviews and an online farmer survey), quantitative economic and farm-level modelling, and the compilation of case studies to demonstrate the impacts, including the environmental effects. This has enabled a holistic assessment of the bTB issue and its impact on NI farming. Figure 2-1 provides an overview of the proposed approach and further detail is provided for each step thereafter.

Figure 2-1: Proposed Methodological Approach



Source: The Andersons Centre

2.2 Step-by-Step Methodology

A step-by-step overview of the methodology used to conduct this study is set out below;

2.2.1 Phase One

Step 1: Inception (Kick-Off) Meeting

This was held at the outset to clarify the project's priorities, timelines and existing data and other resources to support the research. It facilitated further explanation, where needed, and feedback on the research objectives and topics of particular interest to the Project Steering Group. This enabled participants to firm-up action plans with regards to the scheduling of meetings and the resources (data), additional logistics and liaison required to complete the study.

Step 2: Desk-Based Research

This consisted of two strands which ran simultaneously.

a. **Evidence (Literature) Review:** examined what research has been undertaken in recent years on the bTB issue and its impacts on the agricultural sector. It forms the foundation for the study by examining existing research, reports, and data sources relevant to the financial, social, and environmental costs of bTB across the UK, Ireland and further afield. This step has ensured that the project has built upon established evidence. It also helped to identify knowledge gaps, and any refinements of key cost categories for investigation during the research. The Evidence Review encompassed four key areas, namely:

i. **Financial and economic costs of bTB to farmers:** this covers areas such as the economic burden on farmers, covering lost productivity, herd restrictions, veterinary costs, and refinancing risks.

ii. **Environmental impacts:** encompasses issues such as carbon footprint, ammonia emissions, and slurry production.

iii. **Social and mental health effects on farmers:** examines studies which have assessed the stress, mental health challenges, and community impacts of bTB.

iv. **Effectiveness of bTB control measures:** assesses how cost-effective control measures such as testing regimes, movement restrictions and other biosecurity measures have been across the countries examined, based on evidence from previous studies.

A multitude of sources have been used including government and public body reports (DAERA, DEFRA, Teagasc etc.), industry reports, academic research, veterinary and environmental studies, and other policy papers. The review has helped to refine the cost assessment framework, shape the survey and modelling approaches, and ensure that the study's findings are credible, data-driven, and aligned with best practices.

b. **Initial Consultation:** with industry stakeholders ran concurrently with the Evidence Review. Arising from suggestions put forward at the Inception Meeting, it engaged farmers, industry representatives, DAERA, veterinarians, and economists to discuss and refine the study's scope and validate financial, environmental, and social cost categories. These discussions shaped the survey design, economic modelling, and case study selection, ensuring alignment with farmer experiences and policy needs. It consisted of five in-depth one-to-one discussions.

Step 3: Interim Report Update

This consisted of a 25-page report to summarise the key findings as at the end of Phase One. It highlighted key knowledge gaps which needed addressing during the remainder of the research. It also served as a useful review point, in conjunction with undertaking Phase Two.

2.2.2 Phase Two

Step 4: Primary Research

This step also consisted of two strands which ran simultaneously and informed each other as they proceeded. These sub-steps are:

a. **Stakeholder Interviews:** consisted of 30 in-depth, mainly qualitative interviews with key industry stakeholders including farmers, veterinarians, supply-chain representatives, policy-makers and other experts. The purpose of these discussions was to explore in detail the full range of impacts of bTB across the NI agri-food industry and the main elements that needed inclusion within the cost assessment framework. They also captured quantitative insights.

The interviews focused on uncovering and quantifying hidden costs, including, from a farmers' perspective, productivity losses, additional labour, herd restrictions, and mental health impacts, while also exploring the effectiveness of current control measures. Stakeholder views on the environmental effects were also sought. As these interviews were structured to capture both qualitative and quantitative insights, they helped to shape and complement the online farmer survey (next sub-step).

b. **Online Farmer Survey:** The online farmer survey, administered via SurveyMonkey, gathered quantitative and qualitative data on the financial, operational, and personal impacts of Bovine Tuberculosis (bTB) on farmers across Northern Ireland. This included capturing the indirect costs outlined in the draft Terms of Reference as well as any additional costs uncovered during the stakeholder interviews. It also assessed the mental health and stress-related effects of bTB outbreaks. The survey was designed to differentiate impacts by farm type (beef vs. dairy), herd size, and disease history, ensuring a comprehensive analysis of cost variations

   The survey was stratified by farm type (dairy, beef), herd type (lowland, LFA) and size, geographic region, and disease history (e.g. recurrence of outbreaks) to capture variation in financial, environmental, and social impacts.

   As outlined in Chapter 5, 415 responses were received. Based on DAERA June Agricultural Census data for 2024[1], there are just over 20,650 cattle and sheep farms in NI and approximately 2,500 dairy farms. This suggests a population of approximately 23,150 farms. Accordingly, this gave a sampling rate of 1.8%.

Step 5: Case Studies Development

Arising from the primary research, a couple of farmer case studies were also compiled to illustrate the impacts of bTB at a farm level. For each farm, the full financial costs of bTB were set-out, as well as a detailed overview of the environmental effects, and any mental health impacts that the farmers were comfortable in sharing.

2.2.3 Phase Three

Step 6: Data Analysis and Report Development

Two sub-steps were undertaken during this phase and again ran concurrently.

a. **Data Analysis:** synthesised findings from the farmer survey, stakeholder interviews, case studies, and environmental assessments to quantify the financial costs of bTB in Northern Ireland. A combination of statistical analysis, economic modelling, and qualitative thematic assessment was employed to ensure robust and meaningful insights.

   The economic modelling drew upon Farm Business Survey data, published by DAERA, to model the average ('typical') farm size, using the Standard Labour Requirement (SLR) and by farm type (i.e. dairy, LFA beef, lowland beef and mixed). These information was then used in conjunction with financial data from survey responses, stakeholder interviews, DAERA reports, and industry sources to construct an economic model to estimate the full range of costs associated with bTB. Further detail on the process undertaken to develop this model as well as the key parameters used is detailed in Section 6.2).

[1] See: https://datavis.nisra.gov.uk/daera/ni-agricultural-census-2024.html

In addition, stakeholder interviews and open-ended survey responses were analysed using thematic analysis to identify common challenges, psychological impacts, and perceptions of current bTB control measures.

b. **Report Compilation:** consolidated the findings from the data analysis into a structured and evidence-based document that clearly quantifies the indirect financial costs as well as the environmental and mental health impacts of bTB in Northern Ireland. The report has sought to be data-driven while remaining accessible to key stakeholders, including farmers, policy-makers, and industry representatives.

   As detailed in Section 6.3, the report sets-out clear cost breakdowns, including economic loss estimates per farm and industry-wide projections.

   The study also includes scenario modelling to show the impact across farms with no bTB breakdown and on farms with recent or recurring bTB breakdowns. The report contains a detailed set of conclusions and recommendations which have been compiled independently. It is intended that the final report will serve as a valuable resource for policy discussions and industry action to address the significant challenges posed by bTB.

2.2.4 Phase Four

Step 7: Draft, Present and Finalise the Project Deliverables

This step extends from the report compilation and firstly encompasses the provision of a draft report to the Project Steering Group.

Approximately 1-2 weeks after the draft report was supplied, a presentation of the key findings was made to the Project Steering Group and other key stakeholders. Thereafter, any refinements or feedback from the presentation was then incorporated into the final report.

3 Evidence Review

3.1 Introduction

This Chapter summarises the research that has been undertaken in recent years on the costs of bTB and its impacts on the agricultural sector, encompassing the UK, Ireland and other overseas studies. It examines existing research, reports, and data sources relevant to the financial, social, and environmental costs of bTB. In so doing, it forms an established baseline of evidence for the study and identifies the key knowledge gaps that need to be addressed when assessing the impacts of bTB on Northern Irish farming.

3.2 Financial and Economic Costs

3.2.1 UK

A key UK study into the costs of bTB was published in 2019 by SRUC for Defra, the Welsh Government and the Scottish Government in 2019[2]. This study aimed to quantify the consequential costs of a TB herd breakdown beyond the direct costs of the slaughtered animals. However, the study only covered 'in breakdown' costs – those that occurred whilst the farm was under restrictions. It specifically excluded any longer-term costs, environmental costs or mental health costs.

The study conducted a review of earlier research to determine cost categories to estimate. It found nine relevant studies published between 2000 and 2010. These are outlined within the References in Annex I (see[3]). Costs were found to fall into three broad categories;

- time (labour) costs
- additional spending on inputs
- reduced output (sales) values

These are summarised in Figure 3-1 below for various 'events' connected with bTB. Longer-term, structural, cost categories are also included in Figure 3-1.

It was felt that this is a good starting point for a framework in which to consider economic costs to farmers.

The Defra report also summarised some cost elements that were calculated within the previous studies. Whilst an interesting cross-check, these are considered too dated to be of much use within this study. A high-level summary of the final costings within the Defra report are set out in Figure 3-2 below.

It can be seen that the average (median) total costs of a breakdown had a value of c. £6,600. There was a large variation between farms as shown by the interquartile range between the 25th and 75th percentile. The study preferred to use the median figure rather than the arithmetic mean as a small number of farms with very large costs meant the mean resulted in a high figure.

Figure 3-2 also illustrates other findings that are perhaps not altogether surprising;

- dairy farms had higher costs from a breakdown than beef farms
- the bigger the farm, the higher the costs
- breakdowns with larger number of animals increased the average (median) cost
- longer breakdowns incurred larger costs

Figure 3-1: Cost Categories

Event	Short-Term *(in Breakdown)*			Longer Term
	Labour	↑ Costs	↓ Output	
Testing	Arranging tests Gathering stock	Equipment costs Delays to other farm tasks	Lower milk yields / liveweight gain (lwg) due to stock stress	Shift in marketing approach
Isolation of Reactors and Inconclusive Reactors (IR)	Extra handling of separate groups	Extra housing and bedding Additional biosecurity	Loss of market value (above compensation)	
Reactor Culling	Arranging valuation, haulage and slaughter	Destruction of contaminated bedding *(Input costs saved)*	Loss of milk output Loss of value on other animals	Persistent change in herd size Loss of bloodlines / genetics
Movement Restrictions	Additional animal handling	Additional feed, housing and bedding	Disruption to sales & purchasing plans Loss of specific contracts Lower yields / growth rates Breach of quality assurance / cross compliance Loss of bull hire or grass let fees	Delays or cancellation of investment and expansion Increased spend on biosecurity
Cleansing and Disinfection	Cleaning	Disinfectant Cleaning equipment (+ maintenance)		Threat of reinfection
Replacement Animals	Identifying, and viewing candidate stock	Haulage Reduction in thrive whilst settling-in		Persistent change in herd size Loss of bloodlines Extra biosecurity
Staff Illness and Layoffs	Attracting and interviewing replacement staff	Redundancy pay		Loss of skilled labour reduces productivity
Insurance	Arranging cover	Higher fees		
Diversification	Shift of labour to other enterprises	Investment in alterative enterprises	Lower returns from replacement enterprises	Change in scale and mix of farm enterprises
Debt Financing and Servicing	Arranging financing	Interest and arrangement fees		Delays/abandonment of planned expansion
Carcass Condemnation			Loss of carcass value	

Source: Adapted from SRUC (2019)

Figure 3-2: Farm bTB Cost Summary – Defra Study

£ per Farm	25th Percentile	Median	75th Percentile	*Mean*
Total Breakdown Cost	£1,750	**£6,554**	£22,518	*£23,636*
Beef Farms	£1,377	**£4,348**	£15,914	*£14,537*
Dairy Farms	£3,837	**£11,472**	£35,612	*£36,627*
By Farm Size	1-50 cattle	51-200 cattle	201-300 cattle	>300 cattle
Median Cost	£1,659	£4,714	£10,956	£18,573
No. of Confirmed Animals	0	1	2-3	>3
Median Cost	£5,102	£5,147	£9,618	£15,524
Length of Breakdown	Very Short <150 days	Short 150-184 days	Medium 184-273	Long >273 days
Median Cost	£4,554	£3,805	£7,686	£15,593

Source: Adapted from SRUC (2019)

Of the earlier studies referred to in the Defra work, the most relevant is that conducted by the University of Exeter (UoE) in 2010[3ix]. Farming in the South West of England has some similarities with Northern Ireland – relatively small farms of predominantly grazing livestock, with a mix of dairy and beef. This report used a case-study approach involving in-depth interviews and analysis of eight bTB-affected farms. The authors themselves acknowledge that such a small sample size cannot be representative of all farms in the region. It should also be remembered that the results are now over 15 years old, with significant cost inflation during that time. For example, the farmers' labour costs used in the analysis were £12.17 per hour for beef farms and £12.67 for dairy; significantly below costs experienced today. Figure 3-3 provides some key results from the study.

Figure 3-3: Farm bTB Cost Summary – UoE Study (2010)

Eight Farms	Average	Range
Total Breakdown Losses	£24,917	£6,544 - £50,940
Breakdown Losses per Month	£1,734	£505 - £3,184
Testing Cost per Animal		*£1.36 - £6.10*

Source: University of Exeter (2010)

Both the Defra study and the earlier University of Exeter study, did not attempt to gross-up the on-farm costs to arrive at an industry-level total.

In addition to the studies cited by Defra, an analysis of the administrative burden (mainly labour) costs associated with mandatory bTB testing was included in the Better Regulation Review,[4] which was published in 2009, and was commissioned by the Northern Ireland Ministers for Agriculture and Rural Development and for the Environment to identify and reduce the most burdensome regulations on the agri-food sector. Dr. Paul Caskie led study of bTB costs as part of the Better Regulation Review.

Overall, it estimated that the administrative burden associated with bTB in NI was £8.64 million, based on 2007 prices, which equates to £13.3 million in real-terms (2024/25 prices). A breakdown of the costs associated with the key administrative tasks underpinning this burden is set out in Figure 3-4. It shows that nearly two-thirds of the burden associated with bTB testing occurred during the housed period between October and April, whilst the testing of beef cattle during the grazing period (May – September) accounted for just over the quarter of the burden. Testing of dairy herds during the grazing period only accounted for 4% of the total admin burden.

Figure 3-4: Main Administrative Tasks Placed on NI Farm Businesses due to bTB (2007)

Administrative Tasks	Admin Burden – 2007 Prices (£m)	Admin Burden – 2024 Prices (£m)	% of Admin Burden
Preparation for and providing assistance at herd tests carried out during the housed period*	5.49	8.46	63.6%
Preparation for and providing assistance at herd tests carried out on beef herds during the grazing period **	2.32	3.57	26.8%
Preparation for and providing assistance at herd tests carried out on dairy herds during the grazing period**	0.36	0.56	4.1%
Other minor tasks	0.47	0.73	5.5%
Totals	**8.64**	**13.31**	

Source: DARD (DAERA) (2009) analysed by The Andersons Centre (2025)
*between 1 October and 30 April
** between 1 May and 30 September

The Better Regulation Review also provided a further breakdown time and unit costs per administrative activity during the housed and grazing periods during 2007. These are set-out in Figure 3-5 below and the real-terms costs per test (using 2024 prices) are included in parenthesis. When converted into 2024 prices, the costs per test range from £368 to £487 depending on whether the tests took place during the grazing period or during the housed period.

This is based on each test (consisting of two visits) taking 15 to 20 hours. Further segmentations are also provided on the time required to gather and disperse the stock and the time needed to assist the veterinarian during the testing itself. Unsurprisingly, during the grazing period (7 hours (dairy) to 11 hours (beef)), it takes significantly longer to gather and disperse cattle than during the housed period (5 hours) as more animals will be further away from the on-farm testing site.

For the test itself, an estimated 9-10 hours were required during 2007. Herd sizes will have grown since then, and the number of herds tested are likely to have decreased somewhat, although the bTB test itself has not changed that significantly over the period.

Finally, based on the cost estimates provided, the hourly cost (circa £15.80 per hour in 2007 prices) might be deemed by some to be relatively generous as it equates to around £24.35 per hour in 2024/25 prices' terms. This is significantly higher than the employment costs referred to by NI industry participants (circa £21-22 per hour when additional national insurance, pension and other costs are considered). This hourly rate is also notably higher than the 2024/25 hourly wage rates quoted by the NI Agricultural Wages Board.[5] That said, there will be elements of management time included in these estimates which will be more costly than standard labour time on-farm.

Overall, this study signifies that the bTB Control Programme imposed significant administrative demands on Northern Ireland farmers back in 2007, principally due to the time and labour required for annual herd testing. These costs are likely to have evolved further since then especially given the recent increases in bTB incidences across NI. The labour requirements for bTB testing estimated during this study are detailed in Section 6.2.

Figure 3-5: Main Administrative Tasks Placed on NI Farm Businesses due to bTB (2007)

Administrative activity	Herd test (two visits) conducted during the "housed period"	Herd test (two visits) conducted during the "grazing period" on beef herds	Herd test (two visits) conducted during the "grazing period" on dairy herds*
Time required to gather and disperse stock	5 hours (3 hours per farmer + 2 hours per helper)	11 hours (6 hours per farmer + 5 hours per helper)	7 hours (4 hours per farmer + 3 hours per helper)
Time required to assist the veterinarian during the test	10 hours (5 hours per farmer + 5 hours per helper)	9 hours (4.5 hours per farmer + 4.5 hours per helper)	9 hours (4.5 hours per farmer + 4.5 hours per helper)
Total time per test	15 hours	20 hours	16 hours
Unit Cost per test	£239^ (£368)	£316^ (£487)	£255^ (£393)
Number of tests completed in 2007** (% of total tests)	22,969 (71%)	7,901 (25%)	1,401 (4%)

Source: DARD (DAERA) (2009) analysed by The Andersons Centre (2025)

** Dairy herd is defined as: Herds with a Dairy Supplier Number and/or Milk Licence Number recorded on APHIS and currently have dairy cows in the herd. A dairy cow is defined as a female > 2 years old and of a dairy breed.

** This is the combined total of routine annual herd tests (23,538) and risk tests (8,733).

^ Based on 2007 prices (2024 real-terms prices in parenthesis)

An online survey by the Welsh NFU[6] in 2023 gathered some data on the costs to farmers of a breakdown. There was a question in the survey asking farmers to estimate the cost to their business of the disease and its associated testing regime. The estimated average financial cost over the previous 12 months to the 478 farms that provided cost details was £25,677. Across all respondents, over 30% estimated their costs at over £10,000 and 13% said the figure was over £50,000. It should be noted that this was a single question for farmers' to estimate their own costs. There is no breakdown of categories and all the information is self-submitted. Despite these caveats, the data should provide a useful cross-check on the figures produced in this study.

More recently, the Godfray bTB Evidence Review Update was published in mid-2025[7] and reinforces the scale and persistence of the public cost burden associated with bovine TB in England. The review estimates that bTB continues to cost the taxpayer around £100 million per year, reflecting expenditure on testing, compensation, surveillance and programme delivery. It also suggests that costs to the farmers associated with bTB are "probably" adding a further £75 million. Although it is not entirely clear how these costs have been arrived at.

The Godfray study also referenced previous work undertaken back in 2019[8] which estimated the average cost of a confirmed new TB breakdown in a high-risk area of England. This study suggested that new breakdown would cost just over £19,400 per farm (in 2018 prices), however, the costs to farmers (just over £10,300) were higher than the costs attributed to Government (£9,107). This acknowledges that, at least where a confirmed TB breakdown is concerned, that farmers' costs (in England) surpass those incurred by Government. That said, there appears to be limited acknowledgement in these 2018 estimates of the impacts of TB on milk output and productivity. Furthermore, it would appear that some of these estimates relate to much earlier work, which reinforces the need for an updated study of the costs of bTB incurred by farmers.

3.2.2 Ireland

Looking further afield, an analysis of farmers' costs undertaken by IFAC in the Republic of Ireland was published by the Irish Farmers' Journal in May 2025[9]. This both set out some cost categories and put financial figures to them. The categories are largely the same as set out in Figure 3-1. However, the analysis includes an estimation of the longer-term costs of a breakdown through loss of future production. This is limited to relatively immediate losses through having less mature animals in the herd. It does not specifically cover loss of future genetic potential or effects on investment decisions etc. The analysis focuses on the aggregate cost for the entire industry, rather than farm-level costs. However, it is calculated on a bottom-up basis, and thus, is a useful cross-check on the figures produced in this Northern Irish study. Figure 3-6 below summarises the key costs. Note that farmers in the Republic have to pay a contribution to bTB control through a levy and also pay for one test per bovine per year. *The cost of these items are not included in the table as they do not apply in Northern Ireland.*

Figure 3-6: Republic of Ireland Farm Costs – IFA/IFAC

£ per Farm		Resource	€/unit	€	£*
Testing Labour	Preparation, collecting, etc.	3 hrs	€24.50	€73.50	*£62.10*
	Per animal tested	0.02 hrs	€24.50	€0.49	*£0.41*
Reading Labour	Preparation, collecting, etc.	3 hrs	€24.50	€73.50	*£62.10*
	Per animal tested	0.01 hrs	€24.50	€0.25	*£0.21*
Washing	After Testing/Reading	2 hrs	€24.50	€49.00	*£41.41*
Lost Production		*methodology of calculation unclear*			
Dairy Future Loss	1st calver v. mature cow	22%	5,190 ltrs	€825	*£697.50*
	2nd calver v. mature cow	10%	0.497€pl		
Beef Future Loss	Reduced calf value versus 1st calver		€70	€100	*£84.50*
	Reduced calf value versus 2nd calver		€30		
Post-Breakdown Cleaning	Labour	24 hrs	€55	€1,320	*£1,115.40*
	Materials	10 ltrs	€17	€170	*€143.65*
Buying Replacements	Buying Costs	per head	€30	€30	*£25.35*
	Transport	per head	€25	€25	*£21.13*
	Time Spent	8 hrs	€24.50	€196	*£165.62*
Admin Time		8 hrs	€24.50	€196	*£165.62*
Loss of Production Due to Testing	Dairy	3 ltrs	0.497€pl	€1.491	*£1.26*
	Beef	1.5kg	€4.00pkg	€6.00	*£5.07*

Source: IFA/IFAC (2025) * converted at May 2025 exchange rate of €1 = £0.845

Overall this study found that the full financial contribution of farmers to the Bovine TB eradication scheme is estimated to be in excess of €150 million.

Also from the Republic of Ireland was a cost-benefit analysis[10] of the Irish Bovine TB Eradication Scheme. This did not look specifically at farm-level costs; being more concerned with the costs of the programme itself. However, an additional cost was calculated for farmers' time taken to administer the mandatory testing as this was not included in the official scheme costs. The methodology for this calculation is based on one day of farmers' time in total per herd per test – '*the assumption used is that the overall process requires a single day to muster the animals, administer the test and consider results*'. It came to an overall figure of €8.8m to the industry for this cost.

3.2.3 Concluding Remarks

*It is instructive that, prior to the Defra 2019 study, little research appears to have been undertaken in the UK on the **cost to farming** of bTB. There had been a gap of a decade since the University of Exeter study which was privately funded and only covered a small region of the UK. It could be inferred that policy-making is focused on the cost to the public exchequer rather than the private costs to farming.*

3.3 Environmental Impacts

As set out earlier, this study aims to look at the environmental impacts associated with bTB. These include the carbon footprint of production, ammonia emissions, and slurry production.

The vast majority of these impacts derive from farms carrying more stock than would normally be the case, due to bTB. In the short term, this will be due to movement restrictions. Longer-term, farms carry extra replacement stock as an 'insurance policy' in case animals are slaughtered due to bTB. There may also be additional emissions effects from animals not being as productive due to the effects of testing, or the altered profile of herds.

From our research, there appears to have been little or no work undertaken on the environmental impact and cost of bTB. Any studies[11] into the interaction of the disease and the environment have tended to flow the other way (i.e. what effect does the local environment have on the incidence of the disease?).

It is believed that this is largely because environmental issues such as carbon emissions and nutrient run-offs have risen up the agenda of farming and policy-makers only in recent years. In the past, these were simply not seen as large concerns. There will also be an interaction with the increasing prevalence of bTB. If the disease is relatively rare then its environmental impact is seen as negligible – it is simply not an issue. As bTB has become more widespread, its effect on the environment has moved to become far more relevant.

Part of the reason for the lack of research on the environmental impacts associated with bTB could be the difficulty in quantifying them and/or lack of data. The study in the UK[2] referred to above covered extra costs incurred due to movement restrictions – housing, bedding, feed etc. However, these costs were simply self-reported by farmers and did not include data on the number of additional animals having to be housed – this is the data required to estimate the environmental impact. The study was also focused on immediate 'breakdown' costs, so did not investigate the issue of long-term additional replacement stock being carried.

Similarly, the recent study into on-farm costs in Ireland[3] did not provide any detail on stocking-rate changes which is the key metric for these environmental calculations.

It should be noted that linkages between bTB and environmental outcomes are complex and not always direct. This makes it hard to produce robust calculations. This report aims to make a start on this analysis, but given the constraints on the project it is unlikely to produce definitive answers. This is an area where additional future research would be valuable.

3.4 Social and Mental Health Effects on Farmers

Previous studies have documented that a bTB breakdown, or even the threat of bTB on a business, can have a significant negative effect on the mental wellbeing of farmers. This extends to the wider farming family as well.

By their nature, these effects can be difficult to quantify. However, extracts from previous reports illustrate the issues;

The 2019 Defra[1] study found 'psychological and emotional stress of the outbreak, more pessimism within the enterprises but also more working on non-farm enterprises'.

From University of Exeter 2010 study[2ix] – 'This study… has illustrated the stress and upset that the disease can bring to the farming industry through illuminating how bTB can impact on the way a farm operates and the additional workload that movement restrictions bring. In addition, interviewees have expressed feelings of helplessness in the management of the disease, with farmers feeling like 'bystanders', which is deeply upsetting for many farmers and their families, for whom breeding cattle is more than just a business.'

From University of Exeter 2005 study[3vi] – 'There are also important social impacts on the farm family and farm staff, a finding which again is consistent with the earlier studies. Our research found that up to one in five of the calls to the Rural Stress Information Network arise from the direct and indirect effects of bovine TB. The personal costs arise from several sources, including emotional responses to the loss of particular animals, concerns about welfare implications of retaining stock, the implications in terms of business uncertainty, the 'hassle factor' involved, and sheer frustration at the apparent lack of progress in controlling the disease'.

The online survey of over 500 farmers by the Welsh NFU[4] in 2023 found that 85% of respondents said that the disease had negatively impacted their own mental health or someone in their family.

Possibly the most relevant recent study comes from the Farm Community Network (FCN). Published in 2025, it[12] examines the impact of bTB on farmers and the wider rural community. It updates and expands on a previous FCN report[13] released in 2009. The study includes the findings from in-depth interviews with 195 farmers across the UK (including Northern Ireland). It found significant effects from bTB – 'The direct financial impact of bTB is undoubtedly often severe and acute….. The recurrent message from respondents, however, was that the greatest impact of TB on the farm household … came from the uncertainty involved and the cumulative impact on their mental health and wellbeing'.

The report also notes that it is not just farmers and their families that are affected, but the veterinary profession is also impacted by the chronic nature of the disease.

Although the mental and social costs have been known and discussed for some years, they have, perhaps, tended to be underplayed. The farming industry likes to think of itself as stoic and there is an attitude of 'just getting on with things' – pushing such issues to the background. But, as the FCN report states 'There is now much greater public discussion and open acknowledgement of mental health issues than there once was, although there may well continue to be some under-reporting'.

One of the main recommendations of the report is that 'a new agency, independent of Government, is created for the management of TB in the agricultural sector'. This point is picked up in the following section.

There is nothing unique about mental health being an issues for farmers in the UK. A study in Canada[14] found very similar outcomes.

Conversely, although it is largely seen as a 'given' that bTB outbreaks cause stress in farming businesses, a 2019 study[15], conducted in Wales, suggests there is ***no*** clear correlation between disease incidence and well-being. This was a surprise to the authors themselves. It is suggested that, due to the long-term nature of bTB, farmers develop coping strategies and learn to live with the disease.

It is worth noting that there have been a number of 'social science' papers[16, 17] that have looked at farmer characteristics and how this affects their engagement with bTB policies. The first of the reports referenced highlights the 'fatalism' of farmers in the face of bTB. They feel whether they get an infection is largely down to luck or external factors with little they can do to influence outcomes. Therefore, they tend not to engage with control measures.

Whilst not definitive, for the purposes of this report, the issues involved with mental and social costs will be categorised under the following broad headings. These are not absolute and there will be a significant degree of overlap between them;

- stress associated with financial effects of a bTB breakdown – issues such as increasing borrowings and lower profitability, but also the reduction in funds to spend on the family
- extra workload that bTB brings – especially if the farm proprietors are already over-stretched
- animal welfare concerns – farmers care for their stock and do not like to see them ill, or stressed through additional testing. There is also the impact of seeing animals that have been bred and reared on the farm being culled
- even if a farm is not subject to a breakdown, there is worry over future test results and the effect that this may have
- loss of control – farmers cannot manage their farms in the way they want and feel powerless in the face of the disease
- lack of hope – there has been little success in controlling the disease. If there was a sense that 'progress was being made' then farmers would be happier putting up with the cost and hassle of control measures.

For farmers, these pressures are amplified as the business site is also the family home. There is limited ability to get away from problems.

One final point is the effect on diversification enterprises and the wider rural economy. One of the studies[3vi] highlighted the perverse outcome that bTB is so poorly understood or even known among the wider public that an outbreak of the disease in an area has no obvious effect on things such as farm tourism accommodation.

3.5 Effectiveness of Control Measures

As alluded to in the previous section, there is a widespread feeling that Northern Ireland is not on the right track when it comes to bTB. NI is not unique in this regard, the recent Bovine TB strategy review update in England, led by Professor Godfray,[18] expresses similar sentiments regarding bTB control in England. Whilst noting there have been some improvements in recent years, it suggests that incremental progress is insufficient and that a "step change" in urgency, resources and operational delivery is required to have a chance of meeting Defra's 2014 target of TB-free status by 2038.

In Northern Ireland, farmers can see clear evidence that the disease is getting worse not better; despite all the effort, and cost, incurred by the farming sector. Disillusionment with the lack of progress leads to the disengagement of farmers[11].

Behind this, lies a series of fundamental questions around bTB control policy in NI. '*Are the current control measures fit for purpose?*'; '*Why does NI seem to struggle with control compared to other countries?*'; and perhaps, most fundamentally, '*Is it even worthwhile trying to control the disease at all?*'.

The final question is potentially outside the scope of this study, but will be briefly considered. It is assumed that the Government and the wider farming industry are still committed to eliminating the disease. When cost-benefit analyses[19] are undertaken on the disease, the three main (financial) benefits of controlling the disease are taken to be;

- **Public health:** preventing the spread of TB in humans
- **Animal productivity and welfare:** ensuring the prevalence of bTB does not compromise the health of animals and also their output
- **Market access:** allowing exports of bovine products to key export markets

Over time, the public health strand has decreased in importance as TB has almost disappeared in the developed world. To quote from the Irish Cost-Benefit analysis[13] '*Over the years … TB as a public health issue has dramatically decreased to the point where it is no longer considered a significant public health risk*'. This can be seen as a success story for the food chain, with pasteurisation of milk and robust slaughterhouse checks dramatically reducing the risk to human health. However, there should be no complacency in this area.

The economic benefits, therefore, are mainly within the second and third categories. Controlling bTB for animal welfare reasons can often produce only a marginal economic benefit[20] (although this does not encompass the moral imperative to keep stock healthy, and the ongoing desire of the farming industry to reduce the number of endemic diseases). An associated issue which is, again, beyond monetary valuation, is the value of keeping *wildlife* healthy and free from an infectious and debilitating disease.

Studies from Ireland[13] and New Zealand[21] show the largest financial benefit comes from preventing restrictions on trade. However, these studies also point out that, as these benefits are focused on markets and prices, they flow principally to the private sector. The Irish analysis suggests that 78% of benefits of the control policy are private benefits and only 22% are public benefits. This has implications as to who funds the programme but also who should be responsible for it.

A key question is why the UK and Ireland (and especially Northern Ireland[22]) have struggled to eradicate bTB whilst countries such as Australia[23], New Zealand[24] and also many in Europe[25] (including Scotland) have managed to do so? Studies[26], [27] have identified some contributing factors which can be summarised *inter alia* as;

- density of cattle farming
- structure of the industry – including intra-farm trading patterns and fragmented holdings
- the prevalence of a disease reservoir in wildlife
- effect of other diseases masking and exacerbating bTB
- climate
- engagement and partnership between the Government and the cattle industry

There is an interaction between many of these factors.

When looking at the experience of Australia and New Zealand it is interesting to note that Australia did not have any infected native wildlife reservoirs[28] (the main issue was with feral cattle). In New Zealand[29, 30] there were wildlife reservoirs in brushtail possums and, to a lesser extent, ferrets, feral pigs and wild deer. All of these were non-native species to New Zealand. As such, there was little public or political opposition to control measures – indeed, there were seen to be environmental benefits in dealing with these invasive species beyond the benefits for bTB. Both these countries adopted a 'partnership' approach between Government and the farming industry. Indeed, the farming sector played the leading role in directing elimination efforts. This saw the industry having a much greater say in policy-making and ensured a greater degree of industry buy-in than is currently seen in Northern Ireland. However, the *quid pro quo* from a Government perspective is that the farming industry took on a far greater share of the costs of eradication.

The Godfray study also calls for greater shared ownership between Government, industry and other stakeholders to successfully tackle the disease in England. It notes that without stronger farmer involvement and clearer responsibilities, the disease control burden remains overly state-centric. It provides a robust evidence base that frames bTB control as much a farm business resilience challenge as a veterinary one. For agricultural advisers, economists and policy-makers it signals that impacts on farming go well beyond the visible herd breakdowns: the regulatory burden, diagnostics, trading risk, data access and mental health costs are all integral, and all have cost implications.

It is also noteworthy that not all countries in Europe, aside from the UK and Ireland, have found it easy to eradicate bTB. In Spain[31], for example, although the incidence of the disease has been reduced, its prevalence in herds has remained between 1% and 2% since the Millenium (for comparison, the herd incidence rate in Northern Ireland in 2024 was 10.7%). France, which has been officially bTB free since 2001 has ongoing outbreaks[32], especially in the South West, with the number of outbreaks in regions such as Nouvelle Aquitaine rising (albeit from a low base) since 2004. Other European countries mainly in the Mediterranean and the Balkans[19] are also not bTB free.

To conclude this chapter on a more positive note, it is worth remembering that the UK came very close to eradicating TB is the past[33]. In the mid-1970's the disease had been almost eliminated from UK cattle herds with only very small pockets of infection remaining. Changes in control measures and a likely complacency in Government and the industry have seen a deterioration over the past 50 years. However, should there be enough willingness, past experience in the UK, plus that seen overseas, would suggest that full control of the disease is a possibility.

4 Stakeholder Consultation and Interviews

4.1 Introduction

From June to November 2025, interviews were undertaken with 30 industry stakeholders in Northern Ireland's dairy and beef sectors to get their insights on the key cost issues associated with bovine TB (bTB). These 'industry interviews' provided essential qualitative insight into the indirect costs and wider effects of bovine TB (bTB) on farming businesses across Northern Ireland. They formed a central part of the study's primary research phase, complementing the quantitative data from the farmer survey and subsequent economic modelling. As illustrated in Figure 4-1, the interviews captured farm-level experiences and perspectives from across the dairy and beef sectors, encompassing input from processors, veterinarians, government officials and other industry stakeholders (e.g. levy boards, environmental Not-for-Profits etc.).

Figure 4-1: Summary of Industry and Stakeholder Interviews

Stakeholder Type	No. of Discussions
Farmers	4
Veterinarians & Government Officials	6
Academics and Researchers	5
Trade Associations	3
Processors and Industry	5
Banks	2
Others	5
Total	**30**

Source: The Andersons Centre

Participants consistently described bTB as one of the most financially, operationally, and emotionally disruptive challenges facing Northern Irish livestock producers. While the disease is well-documented from a regulatory and veterinary standpoint, the interviews revealed how its broader impacts extend far beyond compensation figures or official testing costs. Farmers outlined the cumulative toll of prolonged herd restrictions, repeated testing cycles, and the erosion of business confidence. The testimonies highlighted the extensive ripple effects on farming families, supply chains, and rural communities.

Across all interviews, three main categories of indirect cost emerged:

- **Financial and productivity impacts:** encompassing lost income, higher feed and housing costs, and cashflow strain.
- **Environmental effects**: arising from overstocking, increased slurry output, and delayed stock movements.
- **Social and mental health pressure:** stemming from uncertainty, stigma, and the emotional burden of herd loss.

The following sections present these findings in two parts, reflecting the differing nature and intensity of bTB's impacts on dairy and beef farms. Each sub-section examines the key themes identified by interviewees, including financial and labour costs, herd health and welfare, environmental consequences, and the social and mental health implications for farming families. Together, these findings provide a detailed, farmer-led perspective on how bTB continues to affect the economic and human sustainability of livestock farming in Northern Ireland.

4.2 Financial Impacts - Dairy Sector

4.2.1 Overview

The stakeholder interviews revealed that bTB continues to impose a large financial, operational, and emotional toll on Northern Ireland's dairy sector. For most interviewees, bTB was described as the most persistent and destabilising influence on farm management over the past decade for the farms affected. While the direct costs of testing are visible, the interviewees highlighted a far wider spectrum of indirect losses that extend into productivity, herd genetics, labour, environmental compliance, and mental health.

The nature of dairy farming makes it particularly exposed to bTB's cumulative effects. Continuous milk production, high fixed costs, and the biological lag involved in breeding replacements mean that even short disruption periods can have disproportionate financial consequences. On some large farms, breakdowns spanning five to six months were reported to cause cashflow losses of £80,000 to £120,000, equivalent to a significant share of annual turnover. Several interviewees stressed that recovery from a breakdown often takes more than a year, especially when high-yielding cows are lost or replacement quality declines.

In addition to financial losses, the interviews underscored recurring operational inefficiencies and rising stress levels. Repeated testing, biosecurity requirements, and uncertainty about herd status contribute to an environment of fatigue and diminished resilience. The following sections examine these effects in detail. The economic impacts of bTB extend well beyond the animals that are removed from herds. The key quantifiable impacts are summarised as follows:

4.2.2 Labour and Operational Disruption

All interviewees cited the additional labour required and associated disruption to daily farming operations as major challenges, especially when multiple testing cycles are required in the aftermath of a bTB breakdown. Below is an overview of the key costs involved.

- **Labour – bTB testing:** all interviewees reported that labour requirements increase sharply during testing and breakdown periods. The testing process itself typically absorbed 12–30 hours per cycle, involving two to four staff members, including family labour. This includes preparation, testing, and post-test washdown procedures. On fragmented farms which common in Northern Ireland, the logistics become even more complex. One interviewee estimated that a farm experiencing repeated breakdowns could face 12-16 days of full-time equivalent labour annually, costing around £2,000-£2,700 in direct labour costs alone.

  Coupled with this, some farms will draft-in family members during testing. Often, these family members will be either taking time off their other jobs, via annual leave, or would be potentially losing out on alternative work. In addition, with more labour being focused on TB testing, other jobs around the farm will not be undertaken or contractors are required which incurs more expense. This becomes particularly important when key tasks such as silage-making get delayed due to TB testing. This further impedes productivity.

Furthermore, when a farm gets clear of a breakdown a significant amount of labour is required to undertake a deep-clean (washdown) of the farmyard and buildings. One farmer reported that it took the best part of a working week to undertake this task and had the added cost of incurring power-washing equipment costs.

- **Labour – staff lay-offs and retention:** for farms suffering a severe bTB outbreak, good staff often have to be laid-off as there's insufficient work available. Others look for other jobs due to concerns about being potentially laid-off. This issue is also associated with mental health effects as outlined in Section 4.4. That said, there is a significant financial cost associated with lay-offs, retention and re-hiring when a farm is rebuilding its herd.
- **Transportation**: is another sizeable cost for fragmented farms. Examples were cited of requiring the best part of two days to transport animals to a single site for testing and another day to return them. This has both fuel cost and labour implications (as outlined above). There are also environmental and logistical implications, particularly for complex larger farms.
- **Cleaning and infrastructural requirements:** in addition to labour costs, bTB breakdowns can incur significant materials costs on larger farms particularly. Facility upgrades may also be required to meet safety standards for repeated testing. Some farms will also need to invest in additional housing specifically to manage TB-related disruption. Fencing and badger-proofing infrastructure was not considered to be a significant cost based on the input received thus far.

4.2.3 Financial and Productivity Impacts

Financial strain was consistently reported as the most immediate and measurable effect of bTB. Several of the dairy farmers interviewed had experienced at least one breakdown over the past five years, with some recording repeated restrictions. The combination of lost milk sales, higher feed costs, and working capital pressures resulted in sustained income volatility.

- **Productivity (milk) losses**: emerge as a consistent theme across all interviews. Losses were typically cited at 8–10% following a breakdown, equating to £250–£400 per cow. In prolonged breakdowns, where reactors were removed and herd dynamics disrupted, total losses on one farm reached £80,000–£120,000 over a six-month period. Other severe cases reported losses equating to 25-40% of potential capacity during severe outbreaks. These figures reflect both direct output reductions and knock-on effects such as unplanned calving intervals and reduced fertility. Interviewees also pointed out that bTB compensation schemes do not cover these types of losses which can quickly cause severe cashflow challenges.

  Interviewees also cited yield impacts during the testing days themselves. A few claimed that a 10% yield loss for all milking cows on the day of the test is not uncommon. They also claimed a lingering loss in the days following the test, with the loss potentially halving in the day after the test.
- **Insurance Stock and Overstocking:** a frequently mentioned response to bTB risk is carrying "insurance stock" – sometimes this can mean keeping 10-15% more animals than the system is designed for. Although others suggest that the amount of insurance stocking is lower, and cite

contingency stocking estimates closer to the 5% mark. Farmers tend to do this is so the farm has sufficient stock even if some are culled due to bTB, whilst protecting some of its genetics. This creates structural inefficiencies through additional feed, housing, labour, and environmental compliance costs. The practice represents a defensive adaptation to TB risk but contributes to increased environmental issues (see Section 4.3) and reduces farm efficiency (see Chapter 6).

- **Movement restrictions**: create cascading economic pressures. Some farmers who are unable to restock following an outbreak face increased fixed cost burdens per animal. A typical example cited involved a dairy farmer normally running 250 cows being restricted to 120 cows, dramatically affecting the economics of the operation. According to some, the inability to sell animals at optimal market windows resulted in reduced sale values, extended feeding periods and also led to overstocking on the affected farms.

  That said, some interviewees pointed out that cattle populations in NI have remained relatively constant in recent years, despite the increased bTB incidence. Therefore, at the macro-level, overstocking on some farms might be mitigated by other farms not having enough stock, and their costs would be lower as a result. However, for the affected farms, movement restrictions do create some increased costs.

- **Replacement costs**: of £1,800 - £2,000 per dairy heifer were cited in a historic context. These have increased in recent years due the high prices being reported at livestock marts. For instance, 2025 prices in Ballymena Mart suggest prices of £2,400 - £2,700 per head for freshly calved heifers (cows).[34]

  Linked with this, some interviewees highlighted that bought-in replacements take longer to settle-in and can become more stressed until 'pecking orders' are established. In some cases, replacements do not settle in at all and may be deemed as not being productive enough to remain in the herd. One interviewee suggested that livestock valuers tend to use the rule of thumb that when infected by bTB a farmer needs 20% more replacements than the number of animals being removed from the herd. Whilst this perspective was not shared by many other stakeholders, most input indicates that replacements are not as productive as native cattle for a period after they are introduced to the herd and that there are notable performance impacts as a result.

- **Working capital**: linked with the previous points, working capital constraints are a major hidden cost cited by all interviewees. Restricted cashflows forced many herds into overdraft, with additional borrowing of £30,000–£275,000 reported among larger or repeat-incident herds.

- **Investment issues**: some interviewees described postponing investments worth £50,000–£200,000 in parlour upgrades, housing, or automation, citing the uncertainty caused by bTB.

- **Cash flow disruption**: interest costs of around £10,000 per year were not uncommon. Another interviewee in the banking sector noted that some dairy farms budget £30,000-£40,000 annually for TB-related disruption. This forces farmers to rely more on overdrafts and merchant finance, which incur additional interest costs. The compensation system, whilst providing full market value for removed animals, creates timing mismatches between income and expenditure that can persist for months, even years, after an outbreak.

- **Taxation impacts:** create significant distortions. Compensation received at full market value conflicts with accounting standards that value homebred livestock at 60% of market value. This can inflate taxable profits substantially in breakdown years, creating tax liabilities before replacement costs are incurred. The complexity requires additional professional advice and can result in unfair tax burdens. Accounting complications arise from the mismatch between when compensation is received and when consequential costs are incurred. This timing difference can persist for multiple years, affecting financial planning and investment decisions. Despite this, some interviewees suggested that, with appropriate accounting advice, many of the taxation impacts could be mitigated.

- **Land rental values:** several interviewees noted that herds under restriction have to carry more cattle, and that can mean a greater demand for land, which can drive up the cost of land rentals in localities where there is an upsurge in bTB incidence. Some interviewees pointed out extreme rises. In one (extreme) case, conacre rental tripling in price in an area where there was heavy bTB incidence and largescale dairy farms urgently needing land. Another interviewee also cited a 50% increase in conacre rentals in their locality. However, in other areas, land rental increases were deemed to be less pronounced.

  No interviewee saw any tangible impacts on land sale value. According to most, as demand (and cost) is already high, with supply being very limited. In this context, it is thought that bTB incidence would not deter prospective land purchasers.

4.2.4 Animal Health and Welfare

- **Breeding programme disruption:** this has many facets including the disruption to block-calving patterns which is key to efficiency in dairy herds, the prevention of timely acquisition or sale of breeding stock, and interfering with planned genetic improvement strategies. A number of interviewees reported that replacement heifers typically produced 10–15% less milk than the animals they replaced, creating a persistent productivity gap.
- **Lameness and injury:** was cited by all interviewees. Farmers and veterinarians described an increase in stress-related conditions, including mastitis, lameness, and pneumonia, following testing cycles. The handling and confinement of heavily pregnant cows contributed to abortion rates of 2–5%, while lameness and injury rates of 1–2% were not uncommon, particularly where facilities were outdated. In addition to injury to animals, the risks of injury to farm staff was also cited. These issues are explored in more detail in Chapter 5.
- **Increased biosecurity costs and risks:** interviewees highlighted increased biosecurity risks when sourcing replacement animals, thus introducing potential endemic diseases. This latter point is seen as particularly challenging to quantify. However, one interviewee suggested that to deal with potential diseases arising from a recent bTB infection, that it costs an extra £20 per head for additional vaccinations etc. to deal with potential disease risks. This would encompass efforts to minimise increased incidences of rotavirus (scour) and other similar diseases, which are much higher on farms with bTB restrictions (likely double the incidence on farms unaffected by bTB).

  Other interviewees disputed this and suggested that increased veterinary costs would be in the region of £10-£20 per head and this would be only for the animals undergoing treatment. When averaged across the entire herd, costs per head would be significantly lower.

Additional wildlife-proofing of yards and troughs was also cited by several interviewees with one suggesting that stainless steel troughs which are easier to washdown (and reduce bTB spread) are three times more expensive than the standard concrete alternative (i.e. £600 versus £200 per unit).

4.3 Financial Impacts – Beef Sector

4.3.1 Overview

The interviews highlighted that bTB presents a substantial and often prolonged burden on beef and suckler farms across Northern Ireland. While the nature of the impacts differs from those experienced in the dairy sector, the scale of disruption is equally significant. Beef producers consistently described bTB as the single most disruptive factor affecting their business planning, cashflow, and long-term viability. Many farms face repeated breakdowns, often with extended movement restrictions that constrain sales at critical marketing windows.

Compared with dairy enterprises, beef farms tend to experience fewer productivity-related losses but far greater constraints on market access, working capital pressures, increased feed requirements, and logistical disruptions. The beef sector operates within tighter profit margins, with annual income heavily dependent on a small number of sales events. When breakdowns coincide with weaning, store cattle sales, or finishing periods, farms face major financial and operational setbacks that ripple across the business.

4.3.2 Labour and Operational Disruption

As with the dairy sector, all interviewees that focused on beef farming highlighted additional labour and other operational issues associated with bTB.

- **Labour – bTB testing:** Despite often smaller holdings, beef farmers consistently described the logistics of bTB testing as far more complex than in dairy systems. Fragmentation plays a key role as many beef herds operate across multiple parcels of land, often with stock dispersed on satellite land parcels or rented grazing. Relative to the scale of some farming operations, gathering cattle for testing required substantial labour inputs, typically 12–20 hours per test, rising to 30 hours or more on fragmented holdings. Most farms relied on two to four people for testing, often supplemented by family members who take time off from their main jobs to help out.
- **Transportation:** Linked with the above, transporting animals for testing also incurred additional costs for beef farms in particular. A few interviewees claimed that some herds required two to three days of vehicle use per test, including trailers, fuel, and the labour needed to bring stock from satellite land parcels to central handling facilities. For some farms, these logistics became the most burdensome aspect of the entire testing process.
- **Ongoing operational disruption:** Beyond the test itself, beef farms faced ongoing labour and operational impacts. Retained stock require extra feeding, bedding, and monitoring, particularly where animals are housed for longer periods than intended. Some interviewees estimated that ongoing labour requirements during a breakdown equated to three to five additional working days per episode, representing an additional cost of £1,500–£3,000 once labour and overheads were accounted for.
- **Machinery and contracting costs:** Some interviewees highlighted that during testing some farms are forced to hire machinery operators or contractors during peak periods, as testing can displace

essential tasks such as silage-making, fencing, and pasture management. This can create knock-on delays affecting forage quality and field conditions.

4.3.3 Financial and Productivity Impacts

Below are the key impacts cited by interviewees

- **Blocked Sales and Market Disruption:** In the event of a bTB breakdown, NI beef farms are highly exposed to movement restrictions, given their reliance on the timely sale of weanlings, stores, or finished cattle, depending on the business model of a given farm. Many interviewees reported losing access to their primary market for months, forcing cattle to be retained far longer than planned. The financial implications are sizeable. One major finisher noted that missing a key contract window resulted in £60,000–£80,000 in lost income. Several others also cited significant losses.

  Extended retention of cattle also results in higher feed demand, increased slurry output, and delays in re-stocking cycles. Farmers described bTB as creating a "backlog effect" that disrupted planning for multiple seasons. Even after restrictions lifted, it often took up to a year to fully realign the production cycle. Again, some interviewees noted that whilst individual farms may experience backlogs (e.g. in selling stores), it means that these animals have not moved on to other farms, so those others might experience shortages (and differing costs having not taken on the additional livestock). Therefore, at a macro-level the cost impacts might differ somewhat from the picture on individual farms.

- **Feed, Housing and Working Capital Requirements:** Interviewees claimed that retaining stock beyond normal sale points typically incurred feeding costs of approximately £1,000 per animal per year (if held for a full year), with some variability depending on forage stocks, concentrate requirements, and housing availability. Store cattle held into the winter period generated particularly high variable costs.

  Working capital pressures were a recurring theme. Many herds required additional borrowing to finance feed and bedding for retained animals. Overdraft extensions of £30,000–£200,000 were reported, depending on herd size and the length of restriction. Interest costs of £5,000–£10,000 per year were reported in some cases where prolonged breakdowns we involved. Some farmers claimed that lenders showed less flexibility now than in the past, increasing financial strain during repeated restrictions. However, banking sector interviewees disputed this, stating that there were numerous instances where banks would move farms onto interest-only loans for the duration of a breakdown in a bid to ease the financial burden.

- **Compensation issues:** Whilst many farmers acknowledged that the compensation received was based on market value, given the increases in prices of recent years, several opined that the compensation received 6-12 months previously, was often insufficient to purchase breeding stock of the same quality. This has led to some claims that productive performance can be eroded as a result of bTB if the replacement animals are of inferior quality.

- **Infrastructural investment:** Interviewees reported postponing projects worth £50,000–£100,000, including shed upgrades, handling facilities, or purchases of new equipment. This deferral created a cycle in which ageing infrastructure increased handling risks and disease vulnerability, reinforcing the operational impacts of bTB. This was seen as a particular issue within the beef sector where cashflow can be more severely impeded during a breakdown as livestock cannot be sold and there's no regular income (i.e. from milk sales) to fall back on.

4.3.4 Animal Health and Welfare

The issues highlighted above for dairy farms (i.e. lameness, breeding disruption and biosecurity costs) were also identified as being applicable to beef farms. Below are some additional points specifically relating to beef.

- **Lameness:** When asked, interviewees found it challenging to put exact numbers to lameness and injury rates although several did mention ranges of at least one issue per testing cycle. Some highlighted that often, beef cattle are not as used to being handled as dairy cows which can create a greater risk of injury to both livestock and people.
- **Handling facilities:** Several interviewees noted that poor or outdated handling facilities increased stress for both animals and handlers, required more staff, and increased the risk of handling injuries. Planned improvements were often deferred due to the financial uncertainty caused by bTB.

4.4 Cross-Sector Environmental Issues

Linked with the economic losses, there are also significant environmental challenges which give rise to additional costs in their own right. Many of these are challenging to quantify and the same issues arise across both the dairy and beef sectors (i.e. are cross-sector issues). Below is an overview of the key issues which were highlighted during the stakeholder interviews.

- **Carbon intensity:** Increases significantly during TB breakdowns, especially on dairy farms. One interviewee calculated that his dairy herd became 25-30% less efficient during a breakdown period, directly translating to higher carbon emissions per unit of production. The retention of older, less productive animals and extended finishing periods all contribute to higher GHG emissions (particularly methane) per unit of meat produced. That said, the increases are not deemed to be as acute as the dairy sector, as livestock are eventually sold/slaughtered albeit with the potential for lower daily liveweight gains and higher ages at slaughter. In contrast, for dairying lost output is more immediate and has a bigger impact.

  Some interviewees also claimed that inefficient production resulting from TB disruption undermines environmental sustainability goals. With processors and retailers increasingly assessing suppliers' carbon intensity for corporate ESG reporting, TB-affected farms face competitive disadvantages, in an increasingly carbon-conscious marketplace. Whilst it was challenging to put precise price (cost) impacts on this, it is clear that in future, this is likely to feature more prominently as another indirect cost of bTB, possibly in the form of a lower prices, but there is insufficient evidence to quantify this at present.
- **Ammonia emissions:** Several interviewees suggested that these increase as a result of a bTB breakdown and estimated provided suggested an increase of 5-10% on dairy farms. This is chiefly due to overstocking and extended housing periods, based emissions on a per litre of milk produced basis. Similar levels of overstocking were also mentioned in the beef sector. These effects have broader implications for Northern Ireland's agricultural sustainability targets.

- **Slurry management and nutrient loading:** Slurry management becomes more complex and costly when optimal spreading windows are missed due to testing schedules. Phosphorus (P) and nitrogen (N) loading also intensifies. Again, interviewee estimates suggested an 8-10% increase in N and P output, due to farms carrying additional stock and disrupted slurry management schedules. Some interviewees also highlighted that additional slurry applications may be required as a result of a bTB breakdown, often at peak contractor rates, increasing both costs and environmental pressure.
- **Waste:** Linked with previous points, some interviewees highlighted the from a dairy perspective in particular, any animal that needs to be slaughtered before its expected replacement date due to TB-related issues will create inefficiencies. This is because part of a given cow's potential milk yield will not be realised due to it becoming a bTB reactor.
- **Fuel and transportation:** Although covered above, and whilst fuel and transportation generally represent a small proportion of on-farm GHG emissions, gathering and transporting animals for additional TB testing also has an environmental cost in terms of emissions, which merits noting.

4.5 Cross-Sector Mental Health Impacts

Whilst challenging to cost in an economic sense, it is clear that the mental health impacts arising from bTB in NI farming are significant. This section features input from the initial industry interviews as well as input from Rural Support.[2] Together, these sources highlight the extent to which bTB affects mental health of farming families and the extent to which this extends into the wider community. Further information on the mental health impacts on farmers is provided in Chapter 5, based on farmer survey input.

Across beef and dairy farms, the mental health effects were strikingly similar, with only the sources of stress differing slightly between systems. Dairy farmers tended to emphasise the cumulative pressures of continuous daily management, whereas interviewees from the beef sector highlighted the emotional strain associated with movement restrictions and the inability to sell stock when they needed to. Despite these nuances, all interviewees agreed that bTB is one of the biggest contributors to stress in the Northern Ireland farming community.

The interviews have highlighted the following impacts:

- **Psychological Strain and Stress:** acute stress from TB breakdowns can be severe and long-lasting. Many interviewees described bTB as a "never-ending cycle" for some farms that erodes confidence and decision-making capacity. Those who had experienced multiple breakdowns said the anticipation of another positive test was often as stressful as the breakdown itself. Several respondents spoke of the dread that accompanies each testing cycle, with one noting that "you hold your breath for the vet's car coming up the lane".

  Interviewees described cases of farmers developing acute stress disorders, becoming "unrecognisable" within months of herd depopulation. The psychological impact extends beyond financial concerns to encompass loss of control, fear of business failure, and emotional attachment to animals. For some farmers, there's also the fear of the work of several generations being undone

[2] Rural Support is a charity that provides impartial guidance for NI farmers and farm family members in support of their farm business and personal wellbeing.

in terms of valuable genetic lines being lost due to a significant TB outbreak. For dairy farmers, the removal of high-yielding cows was particularly distressing, as these animals often represented years of careful breeding. Beef farmers expressed similar feelings when losing productive suckler cows or replacements. The emotional response was frequently described as grief-like, particularly in cases where multiple animals were removed at once.

- **Impact on family live:** This strain and stress also extends to farming families and can cause all sorts of challenges. It is particularly prevalent where a spouse might be supporting the farmer by managing the finances and cashflow constraints start to exert a significant impact. It is also prevalent where a farm business might be supporting two families with the younger generation often having to go and find work elsewhere if the breakdown is significant and long-lasting.

  Several interviewees reported strain within households during breakdowns, including irritability, poor sleep, inability to switch off, and feelings of guilt or inadequacy. Some farmers described bTB as "coming into the house with you", noting that it intrudes into family time and disrupts normal routines.

  Younger family members were also affected. One parent noted that their teenage children became withdrawn during prolonged restrictions, while another said their spouse found it "hard to watch the toll it takes". Many farmers indicated that their families avoided talking about bTB to prevent arguments or emotional distress, creating a silent pressure within the home.

  In the most severe cases, this can result in family breakdown. According to some interviewees, extreme bTB breakdown cases can contribute to relationship strain, marriage difficulties and, in the most serious instances, suicide risk.

- **Chronic anxiety:** can develop amongst some farming families from repeated testing cycles and the constant threat of breakdown. This sometimes results in spouses reducing off-farm employment to provide support during difficult periods. In addition to the emotional strain, there are also negative spillover effects from an economic perspective in terms of lower productivity in the wider economy if people stop working due to bTB. This is highly challenging to quantify but was highlighted as an issue multiple times.

- **Decision-making paralysis:** can develop in severely affected farmers, leading to delayed or poor business decisions. Reduced investment appetite results from both financial constraints and psychological disengagement from long-term planning.

- **Social withdrawal:** A common theme among interviewees was social withdrawal. Farmers often reduced their participation in marts, community events, or discussion groups during breakdowns. This was driven partly by embarrassment at having a "TB herd" and partly by the heavy workload and emotional fatigue that left them feeling unable to socialise.

  Some respondents spoke of sensing judgement or speculation within their local community, particularly when a large number of reactors were removed. Others avoided public spaces to minimise questions or comments. The cumulative effect was a growing sense of isolation at a time when farmers most needed support.

Veterinarians also noted this trend – that farmers experiencing repeated breakdowns can became less communicative, more defensive, and less willing to seek advice. This withdrawal reduced their access to informal coping mechanisms and peer support, exacerbating emotional strain.

- **Anger, frustration and loss of control:** Another key theme was frustration with the bTB control system. Interviewees frequently cited a sense of powerlessness amongst farmers. They highlighted delays in reactor removal, perceived testing inconsistencies, and concerns about local wildlife reservoirs. Many felt that despite doing everything asked, they remained vulnerable to reinfection from outside sources, creating resentment and a sense of injustice.

  The administrative burden associated with bTB also contributed to frustration. Farmers described difficulties in obtaining movement licences, navigating testing schedules, or complying with re-opening requirements. These tasks were seen as time-consuming and stressful, adding to an already heavy workload.

  In the worst cases, interviewees described moments of despair, where the combination of exhaustion, financial pressure, and loss of control led them to question the future viability of their farm. All interviewees valued having Rural Support as a support mechanism, whether they used its services or not.

- **Staff impacts:** extend beyond the farm family. One interviewee noted that an employee left the family farm during a major breakdown due to job security concerns, whilst repeated handling and culling of animals creates emotional fatigue amongst all staff involved. Other farms are likely to experience similar effects, especially in the dairying sector.

- **Succession planning and generational tensions:** Succession planning is disrupted when younger generations witness the psychological and financial toll on their parents. Several interviewees noted that young people are deterred from taking over farms when they observe the stress and struggles associated with TB breakdowns. It also contributes to farmers losing interest in strategic planning. One farmer commented: *"You stop thinking about the next five years. You think about getting through the next five weeks."*

  This short-term mindset has wider implications. A lack of motivation to invest, innovate, or expand undermines business resilience and affects the next generation's willingness to continue farming. Some expressed concern that bTB was contributing to a gradual erosion of family farming morale across Northern Ireland. There were some mentions of older farmers (often 70+) having no exit strategy whilst children step away from farming due to TB-related trauma. This can result in older farmers working longer hours under greater stress, creating additional health and safety concerns.

- **Coping mechanisms and support gaps:** several interviewees noted that bTB-affected farmers primarily rely on family, neighbours and informal networks for emotional support. There were some suggestions that farmers sometimes find strength in discussing challenges with peers, while others use simple coping strategies such as taking short breaks. However, several interviewees noted that accessing professional mental health support felt difficult or unrealistic. Barriers include stigma, cost, time pressures, and a perception that external professionals might not understand the realities of farming.

Veterinarians highlighted that they increasingly find themselves acting as an informal support system, with farmers opening up about emotional strain during routine visits. However, vets also noted that they are not trained counsellors and expressed concern for the wellbeing of some of their clients. Indeed, there were also concerns around the toll taken on some veterinarians having to disclose potentially devastating news to farmers that they have suffered a bTB breakdown.

Additional input has also been obtained from Rural Support which corroborates the input from interviewees that bTB has a sizeable impact on NI farming. Figure 4-2 provides an overview of requests for help to Rural Support in the last 5 years. TB is a consistently reported stressor and is linked with 12-15% of calls to the Rural Support Helpline.

Dairy producers are more likely to contact given their scale and financial pressures and Rural Support data shows that 58% of calls relating to bTB come from the dairy sector (see Figure 4-3). This input aligns with industry views which indicate that TB incidence is skewed towards larger herds, with larger dairy farms more likely to be under TB restrictions at any one time.

Input from Rural Support also confirms that financial and psychological burdens are closely linked. Compensation schemes do not cover indirect losses. Rural Support also highlights that financial pressures compound mental health impacts & generational tensions.

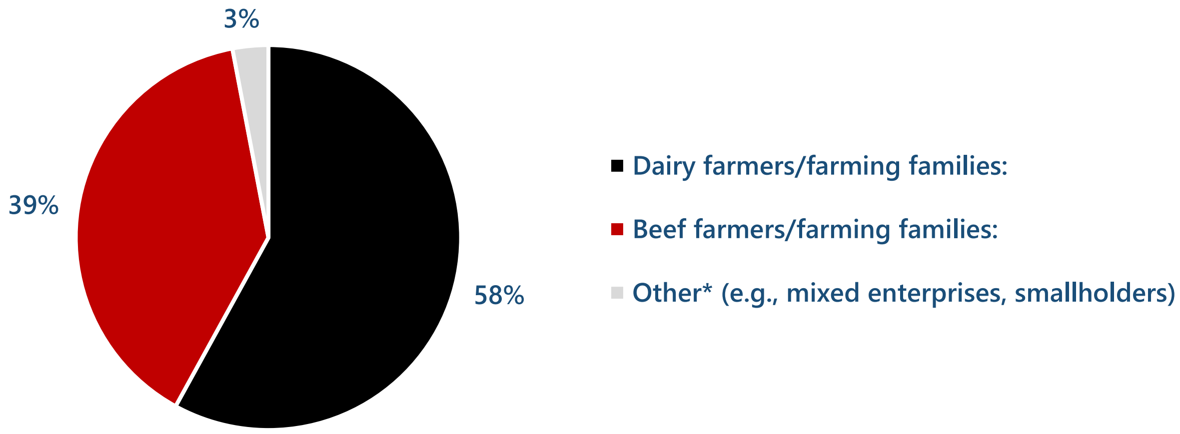
Although the cost impacts of bTB from a mental health perspective are going to be challenging to quantify during this study, they merit highlighting and illustrate why bTB needs to be tackled with urgency. As the Evidence Review above illustrates, significant progress in reducing bTB incidences was achieved in the UK in the 1970's. Whilst it may feel like nothing has changed since the 1960's, as one interviewee put it, progress can be made if controlling bTB is prioritised by policy-makers.

Figure 4-2: Five Year Overview of Rural Support Helpline Requests Related to bTB*

Year	Total Helpline Contacts	No. Contacts Citing bTB	Proportion (%)
2020	816	104	~12.7%
2021	878	127	~14.5%
2022	905	121	~13.4%
2023	963	146	~15.1%
2024	1,021	138	~13.5%
5-Year Average	**917**	**127**	**~13.9%**

Source: Rural Support (2025), analysed by The Andersons Centre.

Figure 4-3: Breakdown of Calls Related to bTB by Sector



Source: Rural Support (2025), analysed by The Andersons Centre.

4.6 Market Access and Other Issues

In addition to the core financial, environmental and mental health impacts identified across beef and dairy farms, the interviews highlighted several wider issues that influence the functioning of the livestock sector. These concerns were raised consistently by farmers, processors, veterinarians and industry representatives, indicating that the effects of bTB extend well beyond the farm gate and into markets, supply chains and policy frameworks. These include:

- **Market access and trade:** processors highlighted that bTB affects export competitiveness. In particular, the inability of Northern Ireland to access certain international markets, notably China for beef, was attributed in part to the region's bTB status. Interviewees argued that this limits carcase balance opportunities and reduces the value of fifth-quarter and offal products, with knock-on effects on overall processor margins and, ultimately, farmgate prices. It was also noted that regional disparities in bTB incidence across the UK create competitive disadvantages for Northern Ireland particularly compared to Scotland where incidence is very low and testing only occurs every 5 years), with more extensive and isolated farms being a key factor.

  Local livestock marts also felt the impact, especially in high-TB areas. Throughput declines when multiple farms are under restriction, reducing revenue and diminishing the vibrancy of regional cattle markets. Mart operators noted that restricted sellers often miss peak demand times, creating fluctuations in supply that affect pricing and buyer confidence.

- **Wider economic impacts:** a number of interviewees highlighted that if a farmer is affected by bTB, their spending in the local economy decreases. This has both a commercial and a social element. From a commercial perspective, they will cut discretionary spending at local agricultural merchants etc. There will also be effects on merchants' cashflows due to delayed repayments etc. In addition, discretionary spending in the local community outside of farming will also decrease. There were suggestions of a 25-33% reduction in discretionary spending was likely amongst the affected farms. This suggests that the indirect economic footprint of bTB extends beyond individual farm businesses into the wider agri-food supply chain and local economy.

- **Veterinary profession impacts:** Arising from the emotional strain on practitioners who must repeatedly deliver bad news to farmers, there were mentions of reduced interest amongst young veterinarians in particular in large animal practice. This affects the sustainability of rural veterinary services. There is also a danger that the relationship between farmers and their veterinarian gets damaged. Farmers start to perceive their vet as the "TB tester", and the bearer of bad news, and not the trusted advisor (partner) that they ought to be in helping farmers with their wider herd health strategies.

  This issue was also noted by veterinarians who expressed frustration that, due to the amount of time that TB-testing takes, they cannot help farmers to more proactively address wider herd health issues. In this context, successfully addressing and eradicating bTB is perceived as the "keystone" to achieve better herd health and productivity on NI farms, which will also have strong environmental and mental health benefits.

- **Secondary disease risks:** increase when farms are forced to purchase replacement animals from external sources, potentially introducing other endemic diseases such as Johne's disease or IBR.

- **Beef processing and supply chain costs:** condemnation costs at slaughter facilities represent direct losses. One interviewee estimated that 100 cattle per year are condemned within their Northern Ireland business, costing approximately £270,000 annually in lost market value, disposal costs, and processing revenue. This interviewee claimed that processors bear this burden and not the farmers, as the identification of TB only occurs after slaughter. That said, it is likely that some provision for such costs will be made in the margins that processors will be targeting, and by implication, the prices that they offer to NI farmers.

  Some processors also reported inefficiencies arising from uneven supply. When multiple farms experience breakdowns simultaneously, plants face short-term tightening of supply, followed by surges of cattle when restrictions lift. This variability creates scheduling challenges, reduces processing efficiency and increases logistical pressures. Several noted that the sector's long-term competitiveness is undermined by the unpredictability of cattle availability.

- **Dairy supply chain disruption:** Although not cited as frequently, there were also claims that dairy processors are affected through reduced milk supply stability and increased per-unit processing costs. This erodes the competitiveness of Northern Ireland's food industry against processors elsewhere (e.g. Republic of Ireland) where there is lower TB incidence.

- **Policy issues**: the lack of industry ownership and perceived inefficacy of Government-led schemes creates apathy and reduces cooperation with control measures amongst farmers. Some interviewees had strong opinions about the seriousness of DAERA officials in tackling bTB. Interviewees cite examples in New Zealand for instance where industry has a direct role in setting bTB control measures and this results in greater buy-in from farmers and more practical measures to tackle the disease head-on.

- **Control of bTB in Wildlife:** many interviewees claimed that the continued absence of a strategic approach to wildlife health is a major omission. Without addressing wildlife as a source of infection, efforts within the farm gate will be continually undermined in their view. Interviewees stated that this approach should include proper health surveillance, not just culling alone, and highlighted that farmers and taxpayers could benefit from lower costs and that both livestock and wildlife would benefit from improved animal welfare, if done correctly.

Some interviewees highlighted that many farmers have invested in wildlife-proofing measures such as fencing, trough design changes and improved feed storage, often at significant personal cost. However, they questioned their effectiveness in areas of high wildlife density. The consensus among interviewees was that meaningful progress on bTB eradication required a stronger integration between cattle measures and wildlife management to prevent reinfection cycles, supported by long-term policy and scientific evidence.

Wildlife-sector contributors expressed differing views. They perceived bTB as a multi-factor disease challenge that cannot be resolved through wildlife measures alone. They claimed that too much emphasis is often placed on badgers, while limitations in cattle testing, diagnostic accuracy and movement controls also play a significant role. Their preference was for science-led, non-lethal approaches such as vaccination, improved surveillance and practical on-farm biosecurity as well as greater biosecurity at livestock marts where they perceived the risk of transmission as being particularly elevated.

These interviewees cautioned that culling can undermine public trust and may be ineffective without parallel improvements in cattle-based controls. Overall, they argued for a more integrated strategy that addresses cattle, wildlife and farm practices together, supported by clearer communication and shared responsibility across sectors.

- **Information flow problems:** have been cited by a number of interviewees as they claim that available biosecurity and disease risk information does not reach farmers effectively, representing a missed opportunity for improved disease management.
- **DAERA bTB Eradication Plan:** feedback from interviewees on how the implementation of the bTB Eradication Plan would costs incurred by NI farmers was limited. Those that commented expected some additional costs but did not give much detail on which areas would be most affected.
- **Administrative issues:** Farmers and vets raised concerns about administrative demands associated with bTB control. These included applying for movement licences, complying with re-opening requirements, and managing paperwork for repeated tests. Some felt the process lacked flexibility, particularly during busy farming periods. DAERA staff were generally described as helpful (but there were exceptions), but they perceived that the system itself was rigid and time-consuming.

  Delays in reactor removal were also highlighted as a source of stress and operational disruption. In a few cases, cattle remained on farm longer than expected after a positive test, complicating housing plans and contributing to biosecurity concerns. Some farmers also called for more timely communications and better alignment between testing schedules and logistical realities on farms.

4.7 Concluding Remarks

The stakeholder interviews provide a clear and consistent message that bTB continues to impose a far-reaching and multifaceted burden on Northern Ireland's livestock sector, with costs extending well beyond the scope of DAERA compensation. Interviewees described the scale of financial losses, operational disruption and emotional strain experienced by farmers, with repeated breakdowns eroding confidence and weakening long-term resilience. Inefficiencies across the wider supply chain were also highlighted, including carcass condemnations and fluctuations in cattle availability that reduce processing efficiency and affect overall market performance.

Despite some differences in emphasis, there was strong agreement that the cumulative effects of bTB extend well beyond test days and influence every aspect of business planning, labour organisation and family life. Stakeholders noted that pressures arise from a combination of cattle movements, wildlife interactions and practical management challenges, reinforcing the need to consider bTB as a whole-system issue rather than an isolated on-farm event.

Overall, the interviews show that bTB is not only an animal health problem but a persistent structural pressure that continues to have a sizeable and costly impact on farming businesses and rural communities in Northern Ireland. Chapter 6 builds on this evidence by combining stakeholder insights with the findings from the farmer survey to estimate the overall indirect impact of bTB across the sector.

5 Farmer Survey

5.1 Introduction

The farmer survey, conducted online via SurveyMonkey between August and October 2025, provides a strong quantitative basis for assessing the wider impacts of bTB across Northern Ireland. With 415 completed responses covering beef, dairy and mixed enterprises, it reflects the diversity of farm structures and land use across the region. The results give clear insight into how bTB affects daily farm operations, including the scale of the testing burden, labour and handling pressures, and the continued influence of breakdowns on business decisions and stock management. The breadth of responses also reinforces and enriches the themes identified through the stakeholder interviews.

The survey captures impacts that are not easily observed in financial accounts. These include additional stock kept due to perceived risk, effects on performance indicators such as fertility and daily liveweight gain, and pressures linked to housing, slurry and environmental compliance. The findings also highlight the considerable mental strain associated with both the threat and the experience of a breakdown.

The key results from the survey are outlined below. Taken together with the stakeholder interview input, the insights provide a robust basis for assessing the wide-ranging indirect cost impacts of TB, the focus of Chapter 6.

5.2 Farmer Survey – Respondents Characteristics

5.2.1 Enterprise Types

Figure 5-1 provides a comparison of survey respondents by farm type versus the breakdowns for 2023-24 provided by DAERA for dairy, cattle & sheep and mixed farms. Across NI, there are nearly 8,580 farms with significant numbers of grazing livestock which are likely to be susceptible to bTB (a limited number of these are likely to be sheep farms). Based on 415 farms responding to the Farmer Survey, the sampling rate stands at nearly 5%, which suggests a robust sample size.

Within the Farmer Survey, over half of the respondents (56%) cited beef as their main enterprise. About two-thirds of these are lowland farms (37% of all farms surveyed) with the remainder being LFA farms (19% of total surveyed). This is in contrast to NI generally, where nearly 62% of cattle and sheep farms are classified as LFA. This suggests that bTB is a more concerning issue for lowland farms as their response rate is notably higher. The same is also true for dairy farms as 40% of respondents cited dairying as their main farm type, yet only 29% of ruminant livestock farms across NI are classified as dairy farms.

The prevalence of mixed farms is low across both the survey and DAERA data (4% in both cases). In general, despite the differences listed above, it is believed that the survey responses broadly reflects the composition of NI grazing livestock farming. Any differences in the survey responses can be calibrated (weighted) in accordance with the DAERA data on the numbers of farms by farm-type in NI.

Another notable point is that many NI farms operate more than one cattle-related activity. For beef farms participating in the survey, this is most commonly combinations of suckler cows, beef finishing and store cattle. Approximately 62% of dairy farms reported that they also had a beef enterprise. The presence of multiple-enterprise farm holdings is a prominent feature of NI farming and is relevant when interpreting how bTB affects different production classes and the flexibility in running grazing livestock units.

Figure 5-1: Survey Respondents by Farm Type and Comparison with DAERA Data (2023/24)

Farm Type - Survey	No. Farms	% Surveyed Farms	DAERA Farm Types	No. Farms	% of NI Farms
Beef-Lowland	155	37%	Lowland C&S	1,707	20%
Beef-LFA	77	19%	LFA Cattle & Sheep (C&S)	4,056	47%
Dairy	167	40%	Dairy	2,489	29%
Other	16	4%	Mixed	327	4%
Sub-Total	**415**		**Sub-Total**	**8,579**	

Source: The Andersons Centre (2025) and DAERA

5.2.2 Age Demographics

At the end of the survey, respondents were asked to provide an indication of their age. A breakdown of the age ranges by farm type is provided in Figure 5-2 below. As this question was posed at the end and given that some respondents are sensitive about disclosing their age, it is unsurprising that there has been some drop-off in responses. Yet, nearly 280 farms answered the question.

On beef farms, only 15% of respondents were aged under 45, with over 30% being 65+. For dairy farms, the proportion of younger farmers was slightly higher, with a quarter of respondents aged under 45. As dairying is more labour intensive, it is also unsurprising that the 65+ age bracket has a lower representation (14%) of all dairy farming respondents. Although data on the age profile of NI farmers does not appear to have been published in recent years, data from 2018 suggests that the average age of NI farmers is 59 years,[35] with only 8% of farmers aged under 40. There's no evidence to suggest that the age profile of NI farmers has changed significantly in recent years, thus suggesting that the farmer survey is again an accurate reflection of the situation across Northern Ireland as a whole.

Figure 5-2: Age Ranges of Survey Respondents by Farm Type

Age Range	No. Beef Farms	% Sub-Total	No. Dairy Farms	% Sub-Total	All Surveyed Farms	% Sub-Total
18-24	2	1%	3	3%	5	2%
25-34	8	5%	11	10%	20	7%
35-44	15	9%	13	12%	30	11%
45-54	42	26%	29	27%	74	27%
55-64	45	28%	37	34%	83	30%
65+	48	30%	15	14%	66	24%
Sub-Total	**160**		**108**		**278**	

Source: The Andersons Centre (2025)

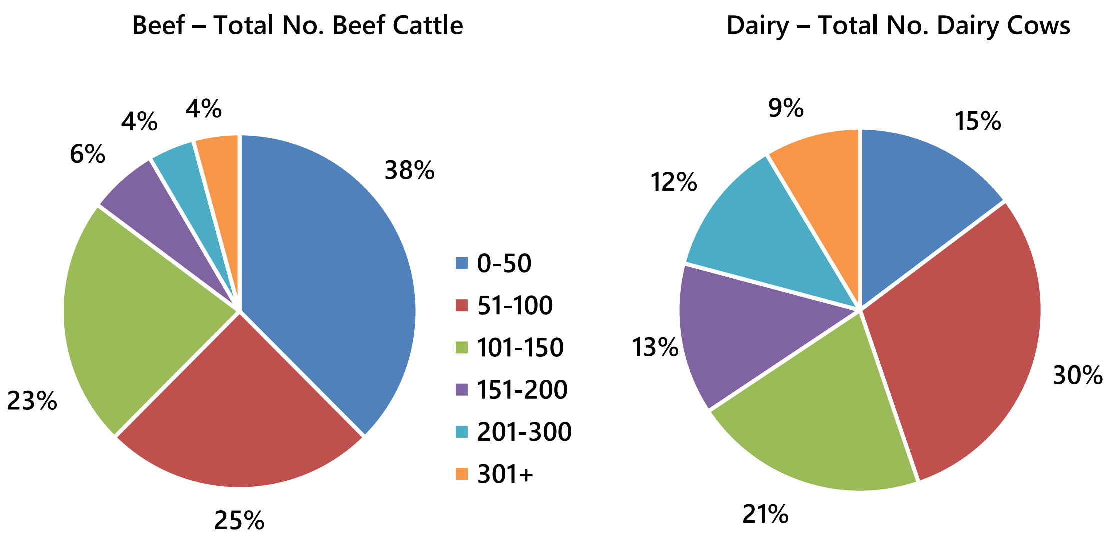
5.2.3 Herd Size and Structure

Based on survey data, Figure 5-3 provides a breakdown of respondents farms by herd size for both beef (left-hand side) and dairy herds (right-hand side). In the case of beef, the segmentation is provided based on the total head of beef cattle on the farm (i.e. includes breeding cows and finishers (of all ages). For dairy herds, the size ranges are segmented based on the no. of dairy cows on farm as this is believed to be a more accurate gauge of farm size for dairy farms.

Beef farms are generally smaller, with 38% of respondents have herd sizes of less than 50 beef cattle. The proportions of farms running 51-100 and 101-150 head of beef cattle are broadly similar (approximately a quarter each). Larger farms are in the minority with only 14% running herd sizes of over 200 head of cattle.

Dairy herds in contrast are somewhat larger, particularly considering only the numbers of dairy cows are being considered in Figure 5-3. Only 15% of dairying respondents have a milking herd of 50 or less. 30% of respondents are running herds sized between 51 and 100, with just over a fifth of respondents having a milking herd of between 101 and 150 head. Another quarter of farms run milking herds of between 151 and 300 head, with the remaining 9% of respondents running milking herds of over 300 head.

Figure 5-3: Average Herd Size Breakdowns – Beef and Dairy Herds



Source: The Andersons Centre (2025)

Figure 5-4 provides a breakdown of survey respondents by Standard Labour Requirement (SLR).[3] The SLR segmentation again highlights clear structural differences between beef and dairy enterprises. Beef-Lowland and Beef-LFA farms are concentrated in the lower SLR bands, with more than two-thirds of respondents in each category operating with an SLR of less than 1. This is consistent with the predominantly part-time, forage-based production systems typical of Northern Ireland's beef sector. Only a small minority of beef farms (14% of lowland farms and 7% of LFA farms) report an SLR above 2.

Dairy farms present a contrasting profile. Over half of dairy respondents (52%) operate at an SLR above 3, reflecting the more intensive land use and higher stocking densities associated with milk production. Very few dairy farms fall within the lower SLR categories, underlining the sector's structural dependence

[3] According to DAERA, a farm's total Standard Labour Requirement (SLR) is a method used to determine its business size. The SLR for each farm is calculated by multiplying its crop areas and livestock numbers by the appropriate SLR coefficients and then summing the result for all enterprises on the farm.

on higher output per hectare. This divergence between beef and dairy systems is important when interpreting wider survey findings, as pressures linked to higher stocking densities, tighter land availability and the increased disruption that herd restrictions create which can result in significant differences in the indirect cost impacts of bTB.

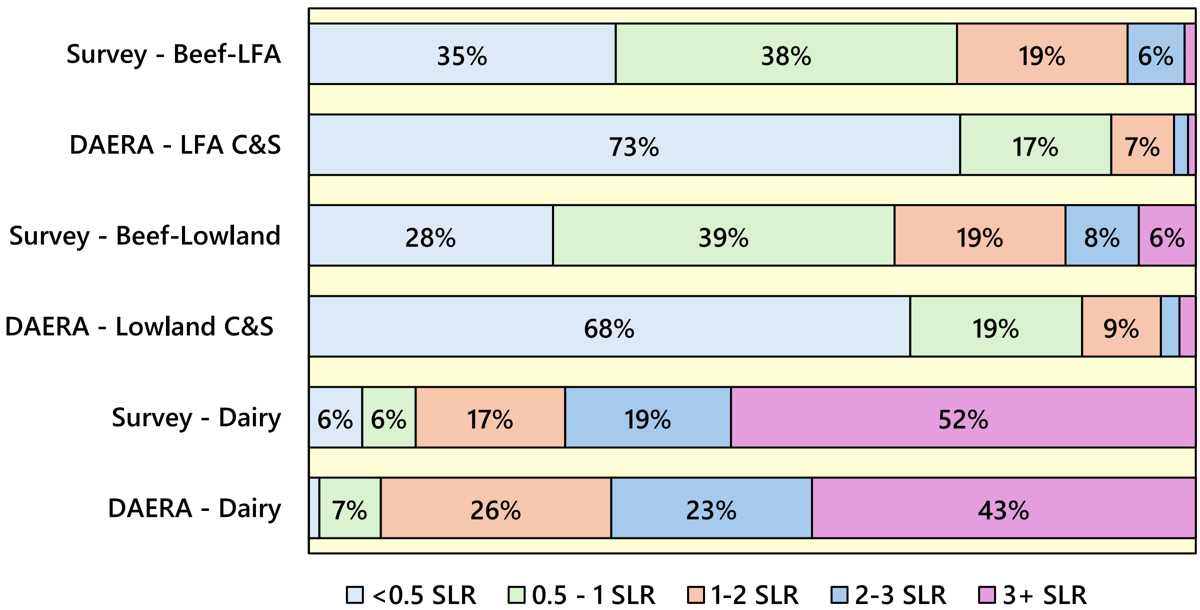
Figure 5-4: Farmer Survey – Segmentation by SLR Range

SLR	Beef-Lowland	% Sub-Total	Beef-LFA	% Sub-Total	Dairy Farms	% Sub-Total
< 0.5 SLR	30	28%	27	35%	10	6%
0.5 < 1 SLR	42	39%	30	38%	10	6%
1 < 2 SLR	21	19%	15	19%	28	17%
2 < 3 SLR	9	8%	5	6%	31	19%
> 3 SLR	7	6%	1	1%	87	52%
Sub-Total	**109**		**78**		**166**	

Source: The Andersons Centre (2025)

Figure 5-5 compares the proportion of surveyed farms by SLR size versus comparable DAERA data for 2023/24, from the Agricultural Census. Whilst the size breakdowns for dairy farms are broadly comparable, there are some differences in both lowland and LFA beef farms when compared with the DAERA data on cattle and sheep (C&S) farms in Northern Ireland. This is most prevalent for the <0.5 SLR category, with small farms being under-represented in the farmer survey. However, although these farms are substantial in number across NI as a whole, their contribution in terms of economic output is relatively small. In any event, cost impacts taken from the survey will be weighted in accordance with the number of farms by SLR category based on the DAERA data. This will, therefore, give an accurate reflection of the indirect costs of bTB across NI farms more generally.

Figure 5-5: Comparison of Size Breakdowns by SLR Between Farmer Survey and DAERA Data



Sources: The Andersons Centre (2025) and DAERA (2023-24 data)

5.2.4 Land Use Characteristics

Figure 5-6 compares the proportion of land that is rented on dairy, lowland beef and LFA beef farms in comparison with DAERA data for 2024. Unsurprisingly, given the larger farm sizes and more intensive operations, a higher proportion of land on dairy farms is rented (32%) versus on beef farms (27% and 18% for lowland and LFA respectively). These numbers are broadly consistent with DAERA data which estimates that just over 27% of NI's 1.04 million hectares of agricultural land is rented, which equates to nearly 285,000 hectares.

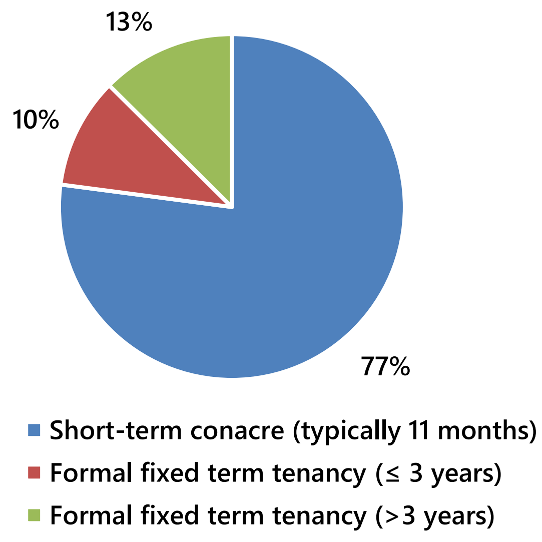
Using farmer survey data, Figure 5-7 segments rented land by tenancy type. Unsurprisingly, short-term conacre rentals (77%) account for the clear majority of rented farmland. This aligns closely with findings from the stakeholder interviews. That said, fixed term tenancies account for nearly a quarter of rented land and based on stakeholder interview input, this proportion is increasing, particularly amongst larger dairy farms where there is a greater impetus to secure land for a longer term.

Figure 5-6: Comparisons of the Proportion of Farmland Rented in the Survey versus DAERA Data

Land Rentals by Farm Type	% Rented
Survey - Dairy Farms	32%
Survey – Lowland Beef Farms	27%
Survey – LFA Beef Farms	18%
DAERA – Proportion of All Agricultural Land Rented	27%

Sources: The Andersons Centre (2025) and DAERA (2024)[36]

Figure 5-7: Breakdown of Rented Land by Tenancy Type – Farmer Survey



Source: The Andersons Centre (2025)

As implied by the data in Figure 5-5, there are a substantial number of very small (<0.5 SLR) farms in Northern Ireland. When such small land parcels come up for sale and are purchased by farmers several miles away, this contributes to significant fragmentation of farm businesses. An issue which was highlighted by a number of studies looking at bTB as illustrated in Chapter 3.

Figure 5-8 shows that 38% of dairy farms are spread out across 5 or more land parcels. This reflects the fact that farms remaining in dairying have had to increase their scale in recent decades and this entails purchasing any land parcels that become available in a locality even if, in most cases, these parcels are not adjoining. Indeed, only a small proportion (6%) of NI dairy farms are in one contiguous block. Although a higher proportion of beef farms (14%) consist of a single block, there is also evidence of fragmentation in this sector with 27% of farms consisting of 5 or more blocks of land.

Land fragmentation (and risk of bTB spread) become much more apparent when the data on the number of neighbouring farms that farmers responding to the survey have. This breakdown is shown in Figure 5-9. It shows that less than a third of beef farms and less than one-fifth of dairy farms have fewer than 5 neighbouring (adjoining) farms across their whole farm. Although the biggest proportion of farms for both farm types (40% for beef and 45% for dairy) have 6-10 neighbouring farms, 36% of dairy farms have more than 11 neighbouring farms, which is a higher proportion than for beef farms (27%). Indeed, a handful of farms had more than 40 neighbouring farms.

Taken together, these two sets of data illustrate just how fragmented farms are across Northern Ireland. This adds greatly to the risk of bTB spread, particularly via adjoining farms. It is also a factor why the likes of Scotland continues to have limited bTB risk as farms tend to be much larger, more consolidated and fragmentation is much less.

Figure 5-8: Number of Blocks of Land per Farm by Farm Type

No. of Blocks	Beef Farms	% Sub-Total	Dairy Farms	% Sub-Total
1	31	14%	10	6%
2	62	28%	24	15%
3	35	16%	41	26%
4	35	16%	24	15%
5 or more	60	27%	61	38%
Sub-Total	**223**		**160**	

Source: The Andersons Centre (2025)

Figure 5-9: Number of Neighbouring Farms by Farm Type

No. of Neighbouring Farms	Beef Farms	% Sub-Total	Dairy Farms	% Sub-Total
0 - 5	68	32%	30	19%
6 - 10	85	40%	69	45%
11 - 15	31	15%	29	19%
16+	26	12%	26	17%
Sub-Total	**210**		**154**	

Source: The Andersons Centre (2025)

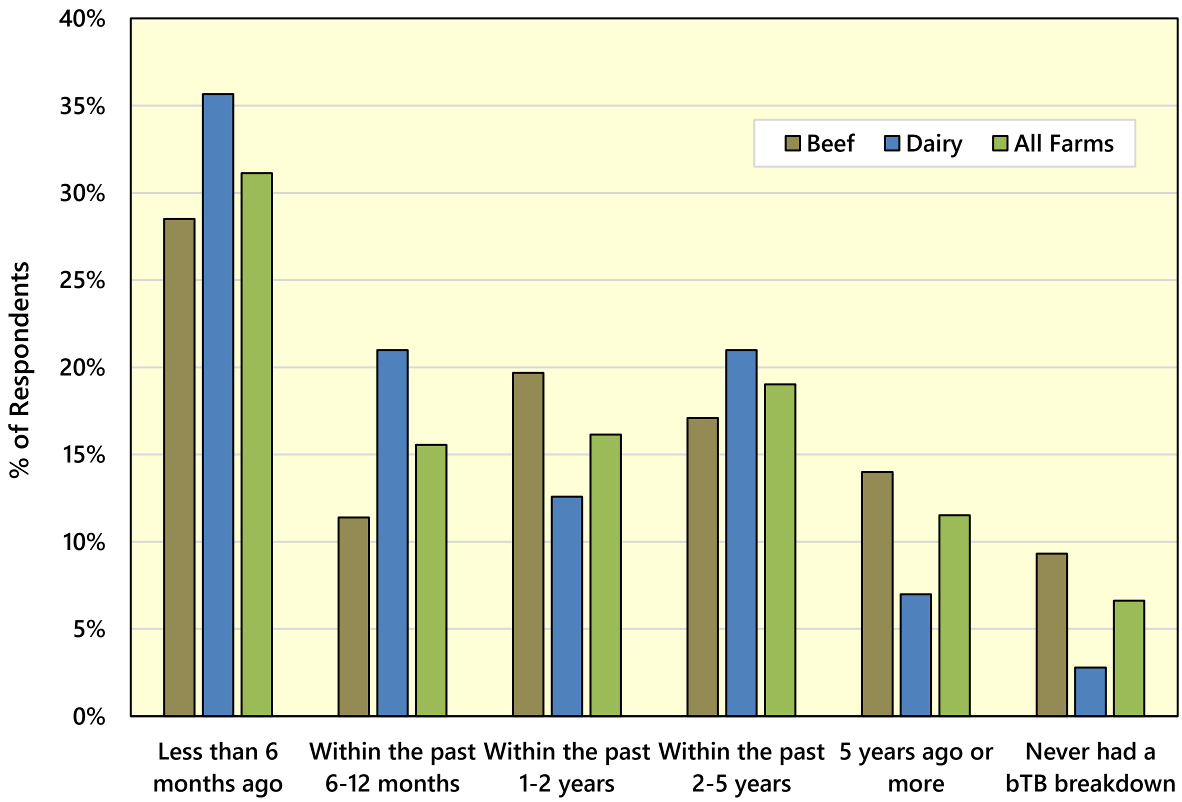
5.3 bTB Breakdown History and Testing Burden

5.3.1 bTB Breakdown Incidence and Recency

The recency of TB breakdowns are depicted in Figure 5-10, based on the farmer survey data. It shows that the disease remains an active and widespread challenge across all farm types, with dairy herds particularly affected. Over one-third of dairy respondents reported a breakdown within the past six months, compared with just under 30% of beef farms. Dairy herds also show a higher concentration of recent incidents within the past year overall, reflecting their larger herd sizes, higher stocking densities and more frequent animal movements, all of which can increase exposure and risk.

Beef farms display a more even spread of breakdown timings, with notable proportions reporting incidents 1 to 2 years ago and 3 to 5 years ago. This suggests that while beef enterprises experience bTB less frequently on an annual basis than dairy farms, the cumulative incidence remains sizeable. Only a small minority of farms in either sector report never having had a TB breakdown, based on the survey data input.

Figure 5-10: Farmer Survey – Recency of TB Breakdowns by Farm Type



Source: The Andersons Centre (2025) No. of Responses: 347

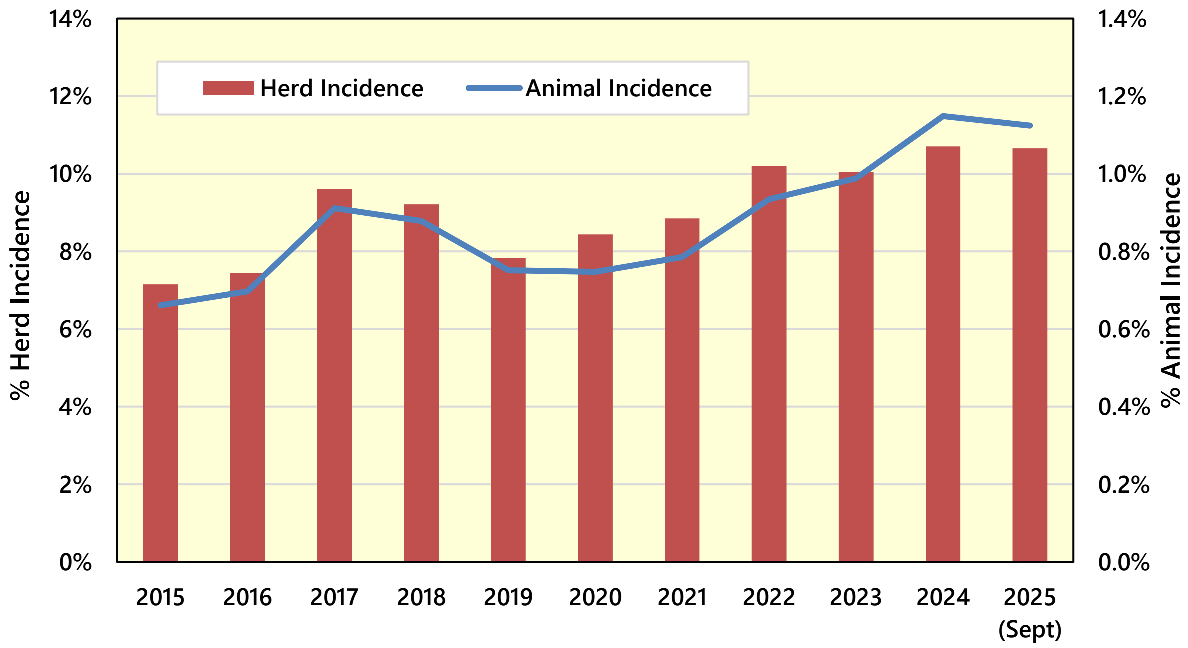
Of course, it is noteworthy that those most likely to respond to a survey of this nature are those who have experienced a bTB breakdown in recent years. In this context, it is also worth reviewing DAERA data on bTB incidence. This is outlined in Figure 5-11. It shows that over the past decade, herd incidence of bTB has risen from 7.2% in 2015 to 10.7%, as at September 2025. Animal incidence has also risen over this period from 0.7% to 1.1%. Unfortunately, it is not possible to segment the DAERA data by herd type.

Furthermore, it is worth noting how DAERA defines bTB incidence. It is based on new reactor breakdowns which is defined as "*the proportion of new reactor herds in NI disclosed with bTB infection over the past 12 months, with animal incidence rates indicating the proportion of reactor animals slaughtered under bTB control measures over this period*." [37]

Based on this definition, herds with recurring bTB breakdowns (i.e. recurring restrictions) are not included. Accordingly, this incidence estimate underestimates the prevalence of bTB – a fact acknowledged by the DAERA CVO in his November 2024 report. This report noted that "whilst herd incidence levels are 10.41% (as at October 2024) this does not represent the total number of herds across NI under restriction as a consequence of bTB. Approximately 12% of herds are currently under restriction for bTB, with these herds constituting 24% of the total bovine population reflecting the fact that bTB breakdowns are skewed towards the larger herds, also disproportionately impacting dairy enterprises." Therefore, whilst the farmer survey might be over-estimating the proportion of NI farms which have recently experienced a breakdown, the DAERA bTB incidence data is likely to be under-estimating the number of NI herds under restriction.

In any event, when setting out the Results (see Chapter 6), the estimates will be weighted based on the proportion of herds under bTB restriction in Northern Ireland.

Figure 5-11: DAERA Statistics on bTB Incidence in Northern Ireland as at September 2025



Sources: The Andersons Centre (2025) and DAERA (2025)

5.3.2 Injury and Lameness Issues

A recurring theme during the stakeholder interviews was the mention of injuries (particularly lameness, but also abortions) that occur due to bTB testing with some of these resulting in animals having to be culled. The farmer survey asked respondents to provide more detail on the impact of lameness and injuries as a result of bTB testing over the past 5 years. This data was then used to compile an average incidence of injuries and cullings to livestock on a 'per Test' basis.

Whilst on the face of it, injury rates associated with TB testing appear relatively low in absolute terms, and show consistently higher rates in beef herds than in dairy herds, the data broadly concurs with stakeholder input that an issue will arise during most tests, especially for larger herds. Beef farms report 2.65% of animals sustaining some form of injury during a test, compared with 1.33% in dairy systems. The majority of these incidents relate to non-life-threatening lameness or minor injuries, yet the pattern highlights the additional handling challenges faced by beef enterprises, where cattle are often less accustomed to frequent handling and fixed handling systems may be more limited than in dairy units.

Although injuries requiring culling are more occasional in both sectors, occurring in only around 0.2–0.3 % of cattle tested where injury issues were reported, they account for roughly one in ten of all reported injuries. This proportion is consistent across farm types and underscores the occasional severity of incidents that can arise during compulsory bTB testing. While infrequent, these outcomes represent a tangible welfare concern and a direct financial loss for affected farms. The findings reinforce the importance of appropriate handling facilities, well-planned test procedures and adept livestock handling skills to minimise avoidable harm during mandatory disease control activities.

Injuries to workers and veterinarians was also identified as an issue. Respondents answering this question estimated that there was an issue occurring once every 2.5 years on average. Whilst some injuries will be minor, it nonetheless represents a health & safety issue and, again, demonstrates the importance of adequate handling facilities and safe working practices.

Figure 5-12: Farmer Survey – Incidences of Injuries and Cullings - % of Herd per Test

Injury Type	Beef Farms (%)	Dairy Farms (%)
Lameness & injuries (not life threatening)	2.38%	1.19%
Injuries requiring culling	0.26%	0.14%
All injuries to livestock	2.65%	1.33%
Culls as a % of all injuries	**10%**	**10%**

Source: The Andersons Centre (2025) No. of Responses: 307

5.4 Financial and Productivity Impacts

This section summarises the cost impacts of bTB based solely on the farmer survey input. Given the differences in the characteristics of the farmers responding to the survey versus Northern Ireland more generally, input from the farmer survey, whilst being a key component of estimating the overall cost impact, is weighted in accordance with the characteristics of NI farmers more generally. The methodology underpinning this is outlined in Chapter 6.

When interpreting the results below it is also worth highlighting that the results are primarily based on the Median. This is because there were some significant outliers in the data as some very large farming businesses responded to the survey.

In light of the above, whilst the indirect cost estimates of bTB from the farmer survey are insightful, they should be treated with some caution, particularly as respondents inputted their own data. Chapter 6 includes cross-checks of some of these cost estimates to derive the study's finalised estimates of the indirect cost impacts of bTB in NI farms.

5.4.1 Labour Requirements and Costs

In the stakeholder interviews, labour was identified as a major cost by all interviewees. Unsurprisingly, it has also emerged as a major cost during the Farmer Survey. Respondents were probed on labour costs from two perspectives. Firstly, respondents were asked to estimate the number of hours required for tests for both owner/occupiers and for any other labour used (i.e., family, employed or casual labour). Secondly, respondents were asked to provide an estimate of the monetary cost of labour per annum associated with bTB testing. Figure 5-13 examines the former whilst Figure 5-14 summarises the findings for the latter. These are both set-out by scenario, with scenarios based on the timing of the last bTB breakdown and the number of tests per year carried out on these farms. If a farm has only 1 test in the last 12 months and no breakdown in the past year, they are categorised as "Low". If a farm has had a breakdown in the last year and 2-3 tests in the last 12 months, they are categorised as "Medium". Farms with breakdowns within the past year and with 4 or more tests per year are categorised as "High".

Based on farmers' self-reported estimates of the hours needed per bTB test (including both testing and 'reading' phases), it is estimated that on average (using the mean), approximately 15 to just over 82 FTE hours are needed per test cycle across the scenarios assessed. This equates to around 2 to 10 working days of an FTE's time. For the High scenario, there were some very large dairy and beef herds, some of which have multiple herds and tests as well as a substantial number of blocks of land. This is likely to have skewed the mean upwards significantly as 10 working days of FTE time is above the estimates cited in the stakeholder interviews. Also, with any self-reported survey, there is a risk that respondents subconsciously inflate the number of hours needed for various reasons.

Figure 5-13 also provides a derived estimate of the labour costs per test based on the number of hours estimated by respondents for each type of labour (i.e. owners, family, employed etc.). This has been calculated based on a £50 hourly rate for owners (managers) and a £15 hourly rate for all other labour which is assumed to be mostly manual. Applying these hourly rates gives a cost range of just over £550 to nearly £3,000 per test cycle across the farm types and scenarios listed. This highest cost is for Beef-LFA farms as the owner labour accounts for 87% of the estimated labour cost, whereas for dairy farms in the High scenario, owner labour accounts for 70% of the estimated labour cost.

When compared to the ranges quoted in the stakeholder interviews and the farmers' own reported annual labour costs associated with bTB (see Figure 5-14), these costs are very high and there's a risk that respondents are over-estimating the actual cost impact.

Figure 5-13: Farmer Survey Estimates of Labour Needed per Test (and Associated Derived Costs)

Farm Type	Labour Needs (FTE Hours per Test)*			Derived Labour Costs (£ per Test)^		
	Low	Medium	High	Low	Medium	High
Beef-LFA	22.0	23.2	77.5	£707	£794	£2,993
Beef-Lowland	14.9	27.0	57.5	£553	£976	£1,537
Dairy	24.6	42.0	82.1	£770	£1,344	£2,383

Source: The Andersons Centre (2025) No. of Responses: 343

Note: * Calculated using the Mean and based on what farmers self-reported during the online farmer survey. ^ Derived number based on a £50 per hour management labour rate (charged to owner occupier) and £15 per hour rate for all other manual labour.

When annual labour costs are considered, as Figure 5-14 depicts, the estimated labour costs and associated FTE hours needed per year are much lower. Indeed, in many cases, the derived number of hours needed per year are lower than the FTE hours per test that respondents estimated that are required (from Figure 5-13). Importantly, the estimates presented in Figure 5-14 are based on the Median (simply the middle value in a set of numbers, arranged from the smallest to the largest). As such, it is not skewed by the very large farms which can exert an overbearing influence on the Mean (used in Figure 5-13).

The estimated FTE hours ranges, based on the median, also align much more closely with the stakeholder interview input whilst generally remaining within the 2-3 days per test cycle estimate in the Low scenario (1 test per year and no breakdown in the past 12 months). For lowland beef and dairy farms in the Medium scenario, both the costs and estimates of annual hours needed increase versus the Low scenario. For LFA beef farms by contrast, the estimated hours required per test decrease. This is an anomaly and could be due to a number of factors. For instance, it includes farms suffering a breakdown within the last 6 months and have had only a limited number of follow-up tests. There could also be more smaller farms within this cohort.

The estimated costs and FTE hours per annum increase significantly in the High scenario as one would expect. For a dairy farm, an estimated 55 FTE hours are needed per annum, equating to around 7 days. This equates to around £1,200 per year in the High scenario which is £200 above the median for LFA beef farms (£1,000 per annum) and £400 above the corresponding median for lowland beef farms (£800).

Figure 5-14: Estimates of Annual Labour Costs of bTB Testing (and Derived Hours per Annum)

Farm Type	Labour Cost (£/Farm/Year)*			Labour Needs (FTE Hours/Farm/Yr)^		
	Low	Medium	High	Low	Medium	High
Beef-LFA	£400	£285	£1,000	18	13	45
Beef-Lowland	£350	£400	£800	16	18	36
Dairy	£500	£775	£1,200	23	35	55

Source: The Andersons Centre (2025) No. of Responses: 399
Note: * Estimates are based on the Median for each farm type and scenario. ^Derived based on "synthesised" hourly rate of £22 per Hour (weighted 20% management rate (£50/hr) and 80% manual labour rate (£15/hr)

The analysis above illustrates the challenges which can sometimes emerge with using self-reported farmer survey data for a complex challenge such a bTB, where labour is often mixed in with completing other day-to-day farm tasks (e.g. milking, feeding and monitoring livestock etc.). It demonstrates the importance of using cross-checks when compiling estimates of bTB costs. This is a point that will be covered in more detail in Chapter 6.

Overall, what is clear is that labour costs associated with bTB are consequential for farmers and rise significantly in the event of a bTB breakdown.

5.4.2 Contingency Stocking and Productivity

Figure 5-15 reports the median percentage of additional livestock kept on farm versus what respondents would anticipate in a "normal" year (i.e. free of bTB). For lowland beef farms, the median response across all scenarios was 0% additional contingency stock. For both dairy and LFA beef farms, contingency stock tend to be kept by most farms and the median rises by scenario. In the High scenario, respondents estimate that 18-20% additional stock are kept on-farm versus normal circumstances. This is sizeable and adds significantly to cost for the affected farms.

Of course, these are estimates of additional contingency on individual livestock farms. As noted during the stakeholder interviews, there is a danger that some of this data can be skewed when looking at a farm level solely, because across NI as a whole, the population of cattle and cows is broadly stable. This signifies that whilst some farms are holding additional stock and not selling them, there will be other farms that ideally would like to have more stock and cannot procure them. This, in turn, drives a supply-demand imbalance where there's extra demand versus the supply of animals going to market, thus increasing prices. High prices have certainly been a feature of NI livestock farming in recent years. Therefore, estimates of additional livestock are likely to be lower on a macro-level versus the farm-level picture.

That said, and considering stakeholder interview input, NI farmers are holding some more livestock than what they might normally do, and this has cost implications.

Figure 5-15: Median Estimates of Percentage of Additional Cattle Kept per Year versus "Normal"

Farm Type	% Additional Cattle Kept		
	Low	Medium	High
Beef-LFA	2.5%	5%	18%
Beef-Lowland	0%	0%	0%
Dairy	3.5%	3.5%	20%

Source: The Andersons Centre (2025) No. of Responses: 278

5.4.3 Biosecurity Costs

For this cost-subcategory, there were insufficient responses to provide cost estimates on a scenario basis for all farm types. Accordingly, the costs were estimated based on the median cost for each farm type across all scenarios. Figure 5-16 shows that dairy farms tend to incur higher biosecurity costs associated with bTB at a median of £1,000 per farm per year. This compares with £500 and £750 per farm for lowland and LFA beef farms respectively.

However, dairy farms tend to be larger than their beef counterparts which contain a greater prevalence of part-time farms. When costs are assessed on a per hectare basis, dairy farms again show the highest median at £12.58 per hectare, but are closely followed by lowland beef farms at £12.20 and LFA beef farms at £11.54. These per hectare estimates highlight that, regardless of farm type, producers face a broadly consistent level of financial pressure to maintain or improve biosecurity standards in response to bTB. On dairy farms, many of which have livestock housed for long periods, more of these costs are likely to be associated with biosecurity around the farmyard and milking parlours. Meanwhile for beef farms, a greater proportion of the cost is likely to be focused on improving biosecurity in fields (e.g. badger-proof water troughs) although these costs will also feature on dairy farms too.

Figure 5-16: Median Estimates of Additional Biosecurity Costs associated with bTB

Farm Type	Median Cost (£/Farm/Year)	Median Cost (£/Ha)
Beef-LFA	£750	£11.54
Beef-Lowland	£500	£12.20
Dairy	£1,000	£12.58

Source: The Andersons Centre (2025) No. of Responses: 127

5.4.4 Other Cost Issues

As it was not obligatory to fill in all costs data, some respondents inevitably only provided costs for some categories and not others. This has meant that when assessing costs by scenario, the median estimates were only based on a small number of farms. Accordingly, and considering that there were several instances where fewer than 30 valid responses were provided, the cost estimates listed in Figure 5-17 are only provided across all farms. Key points to mention for each sub-category are:

- **Reduced value of output:** This is reported across all farm types, but dairy farms are the most affected with a median loss of £2,400. Beef LFA farms record a £1,000 decline, while lowland beef farms face smaller median losses of £550 per annum. This reflects how herd restrictions and cow cullings reduce milk output from dairy farms. In a couple of extreme cases, estimated losses of £100,000 per annum were reported. Whilst median losses are much lower on dairy farms, it is evident reduced output is a major issue and one which needs to be examined closely when modelling the overall impact of additional bTB costs.
- **Additional feed and forage**: Dairy farms again experience very high additional feed costs which have a median of £10,000 per farm. This is far greater than the £1,000 reported for beef LFA farms and the £500 reported for beef lowland farms. These figures point to prolonged housing periods, reduced grazing opportunities and the higher nutritional needs associated with dairy herds during breakdowns. That said, additional feed and forage is also a key challenge for beef farms, which are often much smaller and run on a part-time basis.
- **Veterinary and medical:** Dairy and beef LFA farms report sizeable veterinary costs at around £400 to £500 per annum. Beef lowland farms show much lower costs at £100. As reported in the stakeholder interviews, running additional stock during breakdowns often results in disease pressure increasing and more veterinary visits and costs due to treating livestock of administering vaccinations where possible.
- **Transportation and haulage:** Transport related costs remain moderate, with medians ranging from £150 for beef lowland farms to £300 for beef LFA farms, with dairy farms having median costs estimated at £200. These costs relate to additional animal movements, particularly associated with testing. Farms with more blocks of land located further apart experience higher transport and haulage costs both generally and during bTB breakdowns.
- **Other overheads:** LFA beef farms face higher additional overheads (median: £1,000) in comparison with dairy farms (£600) and lowland beef farms (£200). Here, the more expansive nature of some LFA farms could be a factor, although the reasons for the differences are unclear.
- **Finance and interest:** Dairy and beef LFA farms both report medians of £500 in finance related costs per annum. This suggests additional borrowing or cash flow pressures during breakdown periods. Beef lowland farms do not report a cost in this category, consistent with their lower reported exposure elsewhere.
- **Land rental:** Only dairy farms report additional land rental costs at £1,000. This is likely to relate to securing temporary grazing or forage ground. During the stakeholder interviews, land rental pressures were primarily associated with dairy farms where there is more pressure to go for scale and to secure forage for high-yielding dairy cows.
- **Tax:** Dairy farms face the highest tax related cost with the median estimated at £2,000, with beef LFA farms at £1,500. The median additional tax cost for lowland beef farms is zero. These outcomes reflect how restrictions can affect profitability and financial structures across different

farm systems if the compensation arrives at an inappropriate time, farmers cannot secure replacements soon after the breakdown and if they are forced to treat the compensation as profit (and therefore get taxed). As noted in the stakeholder interviews, some experts expressed scepticism about this being a notable indirect cost as accountants should be able to offset it in most cases. Furthermore, there can be a myriad of other factors affecting tax which is payable in any given year, making this cost sub-category particularly challenging to estimate with accuracy.

- **Other additional bTB costs:** A median cost £350 is reported only for dairy farms, indicating a broader set of incidental expenses linked to breakdowns that are not captured on beef farms.

Figure 5-17: Estimated Additional Costs due to bTB – Excluding Labour & Contingency Stocks

Farm Type	Cost Sub-Category	Median Cost
Beef-LFA	Reduced value of output	£1,000
	Additional feed & forage	£1,000
	Veterinary & medical	£400
	Transportation/haulage	£300
	Biosecurity investments	£750
	Other overheads	£1,000
	Finance & interest	£500
	Land rental	£-
	Tax	£1,500
	Other additional bTB costs	£-
Beef-Lowland	Reduced value of output	£550
	Additional feed & forage	£500
	Veterinary & medical	£100
	Transportation/haulage	£150
	Biosecurity investments	£500
	Other overheads	£200
	Finance & interest	£-
	Land rental	£-
	Tax	£-
	Other additional bTB costs	£-
Dairy	Reduced value of output	£2,400
	Additional feed & forage	£10,000
	Veterinary & medical	£500
	Transportation/haulage	£200
	Biosecurity investments	£1,000
	Other overheads	£600
	Finance & interest	£500
	Land rental	£1,000
	Tax	£2,000
	Other additional bTB costs	£350

Source: The Andersons Centre (2025) No. of Responses: 399

5.5 Environmental impacts of bTB

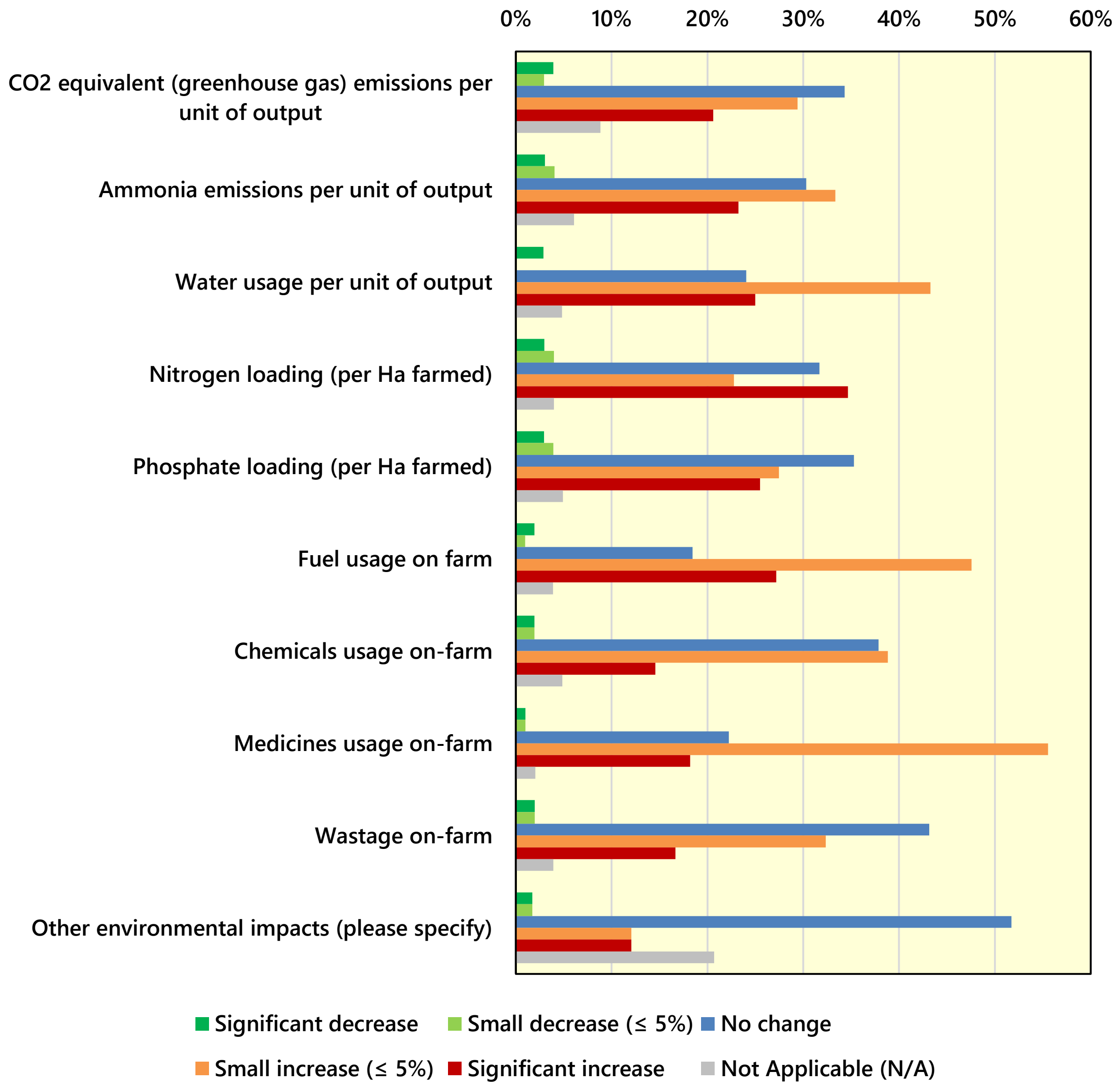
5.5.1 Dairy Farms

Figure 5-18 shows that a majority of dairy farmers report that bTB has increased environmental pressures on their farms. This is because when the small increase and significant increase categories are combined they account for more than half of responses for several areas. These include CO_2 emissions per unit of output, phosphate loading per hectare, nitrogen loading, fuel usage and medicines usage. This means that the operational disruption caused by bTB breakdowns, such as reduced output, extended housing, delayed animal movements, disrupted grazing patterns and higher veterinary needs, is translating into clear environmental impacts for a substantial share of dairy farms. These impacts become more pronounced when expressed on a per unit of output basis, particularly if there's a large breakdown where significant numbers of milking cows are removed from the herd.

The pattern is even more pronounced for the usage of water, fuel and medicines, where increases are more prevalent than any other response. This reflects the practical challenges farmers face during a breakdown, including greater reliance on housed systems, more time spent managing animals, and additional treatments or preventive measures that raise input use. Across all indicators the proportion of farmers reporting increases is far higher than those reporting decreases, which reinforces that the environmental effects of bTB are consistently upward rather than neutral or positive.

Overall, Figure 5-18 highlights that bTB is widely associated with heightened environmental pressures on dairy farms. Although the increases are often incremental rather than dramatic, they occur across multiple categories and accumulate over time. This demonstrates that bTB is not only an animal health and business continuity issue but also a significant driver of reduced environmental efficiency within dairy production systems.

Figure 5-18: Dairy Farmers' Views on the Environmental Impacts of bTB across Selected Areas



Source: The Andersons Centre (2025) No. of Responses: 106 (Dairy only)

5.5.2 Beef Farms

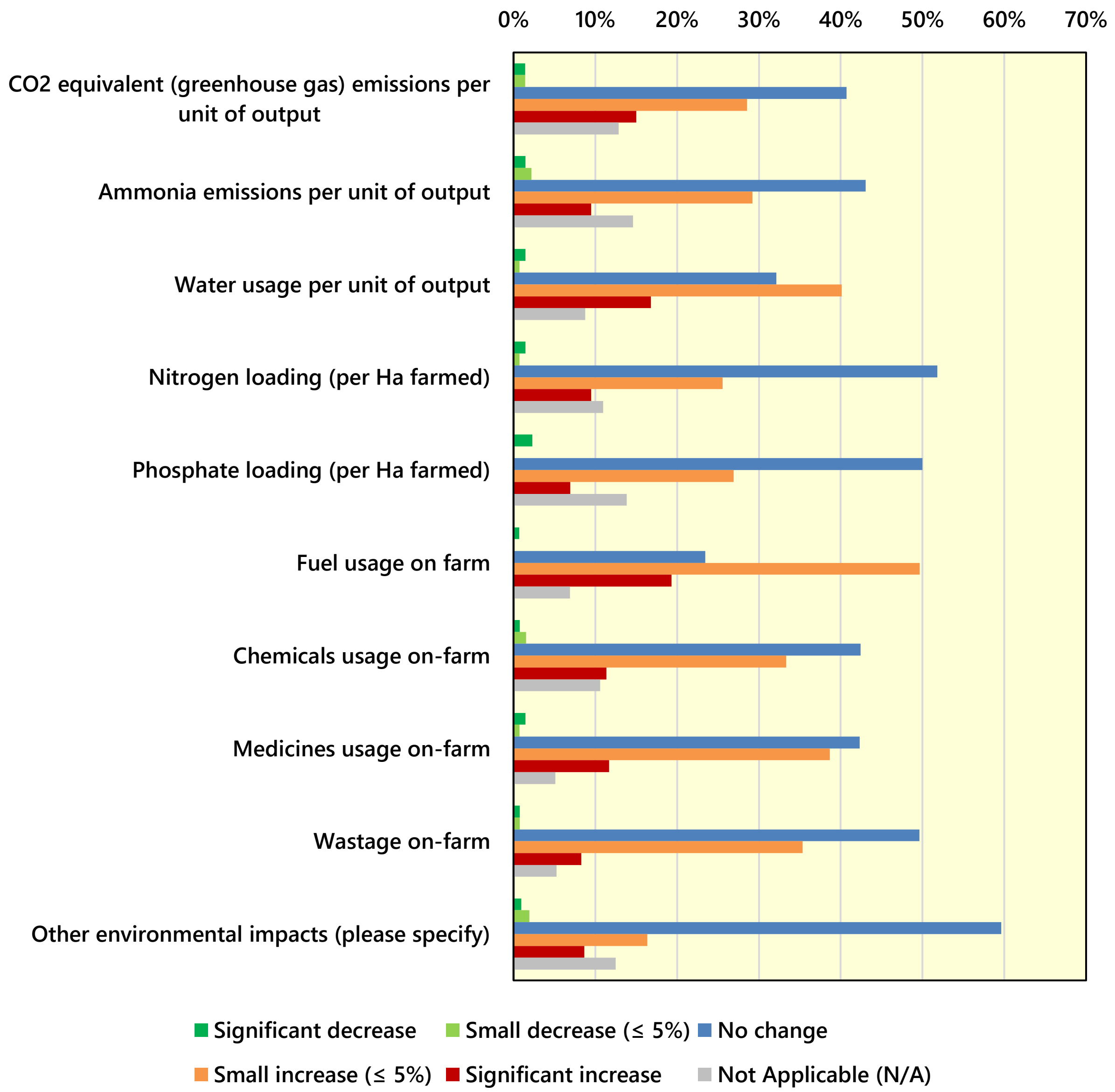
Figure 5-19 shows that beef farmers, similar to dairy farmers, report widespread increases in environmental pressures associated with bTB breakdowns. Again, when small increase and significant increase responses are combined they account for the majority of answers across most indicators. This is especially pronounced for CO_2 emissions, ammonia emissions, nitrogen and phosphate loading, fuel usage and medicines usage. These patterns reflect the operational disruption caused by bTB restrictions, with animals often retained on farm for longer, which raises feeding requirements, increases slurry output and results in higher fuel use for handling, feeding and testing activities.

The scale of these increases is particularly evident for fuel usage and emissions per unit of output. Nearly half of farms report a small increase. Taken together with the "significant increase" category, this rises to nearly 70% of farms reporting some negative impacts. This aligns with the need for additional vehicle movements and mechanical operations during breakdowns.

Nutrient loading also shows a strong upward trend, as holding cattle for longer periods elevates the volume of slurry that must be stored and spread, thereby raising nitrogen and phosphate pressures on land. This reinforces that bTB has consequences not only for business efficiency but also for nutrient management and local environmental quality on beef farms.

Chemicals and medicines usage also show notable increases, reflecting the additional health and biosecurity interventions often required when cattle movements are restricted. At the same time, very few farmers report decreases in any category, which confirms that bTB rarely leads to environmental improvements. The overall pattern is consistent and clear: bTB breakdowns tend to push environmental indicators in an unfavourable direction on beef farms, increasing emissions, input use and resource pressures across a wide range of areas.

Figure 5-19: Beef Farmers' Views on the Environmental Impacts of bTB across Selected Areas



Source: The Andersons Centre (2025) No. of Responses: 153 (Beef only)

5.5.3 Additional Farmer Perspectives on Environmental Issues

When probed on additional environmental impacts of bTB, farmers (representing all sectors) identified a range of additional environmental pressures arising from bTB. A common theme is the indirect impact of herd movement restrictions, which can lead to overstocking, higher slurry volumes and increased pressure on land availability for nutrient management. Some respondents perceived that this, in turn, raises risks of soil erosion, nutrient loading and reduced water quality. Several noted increased feed requirements for cattle held longer on farm also contribute to a larger carbon footprint through additional concentrate imports, haulage and fuel use. Farmers also highlighted that disease burden reduces animal efficiency, resulting in slower growth, lower productivity and higher emissions per unit of output.

Wildlife interactions feature prominently in respondents' comments, with several comments pointing to badgers and deer as key vectors in disease transmission and a source of wider ecological disturbance. There were some concerns include soil disturbance around badger setts, increased rooting activity and perceived negative impacts on biodiversity, including small mammal populations. Some respondents also emphasised the animal welfare dimension, noting the stress caused to both livestock and wildlife. Collectively, these responses underline that bTB creates a series of environmental knock-on effects that extend well beyond the immediate management of infected cattle, influencing land use, resource efficiency, wildlife dynamics and long-term sustainability planning on farms.

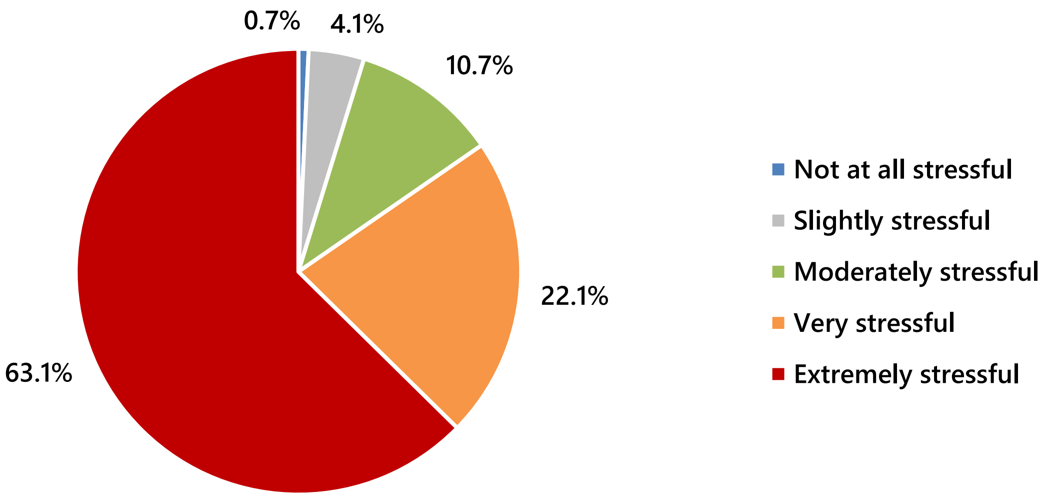
5.6 Mental Health Impacts

5.6.1 Stress

Figure 5-20 shows that bTB testing is a significant source of stress for most respondents. More than six in ten farmers (63.1%), described the experience as extremely stressful, making this by far the most common response. A further 22.1% indicated that testing was very stressful, while 10.7% considered it moderately stressful. Taken together, over 95% of the 271 farmers who answered this question reported a notable degree of stress during the testing process.

Only a very small minority reported low stress levels. Slightly stressful accounted for 4.1% of responses and not at all stressful for just 0.7%. These findings signify the widespread emotional burden that bTB testing places on farm businesses and provide clear evidence that the process is viewed as very demanding for the vast majority of farmers. The data also indicate the significant potential for mental health issues to arise in the event of a bTB breakdown.

Figure 5-20: Farmers' Perceived Stress Levels Associated with bTB Testing



Source: The Andersons Centre (2025) No. of Responses: 271

5.6.2 Other Mental Health Impacts

Figure 5-21 shows that bTB breakdowns have substantial mental health implications for many farmers (respondents). Across several categories, a significant proportion of respondents reported high levels of impact. Difficulty sleeping, anxiety or low mood, cashflow strain and reduced confidence in the future of the business stand out, with high impact responses often approaching or exceeding one third of farmers. This illustrates that the pressures associated with a breakdown extend well beyond operational challenges and directly affect wellbeing, financial resilience and confidence in the long-term outlook of the farm business.

Medium impact responses are also widespread, indicating that even when effects are not at their most severe, they are still commonly experienced. Only a small minority reported no impact, suggesting that mental health pressures during a breakdown are almost universal. Strain on family relationships and instances of more serious mental health issues add to the broader social and emotional consequences for farming households.

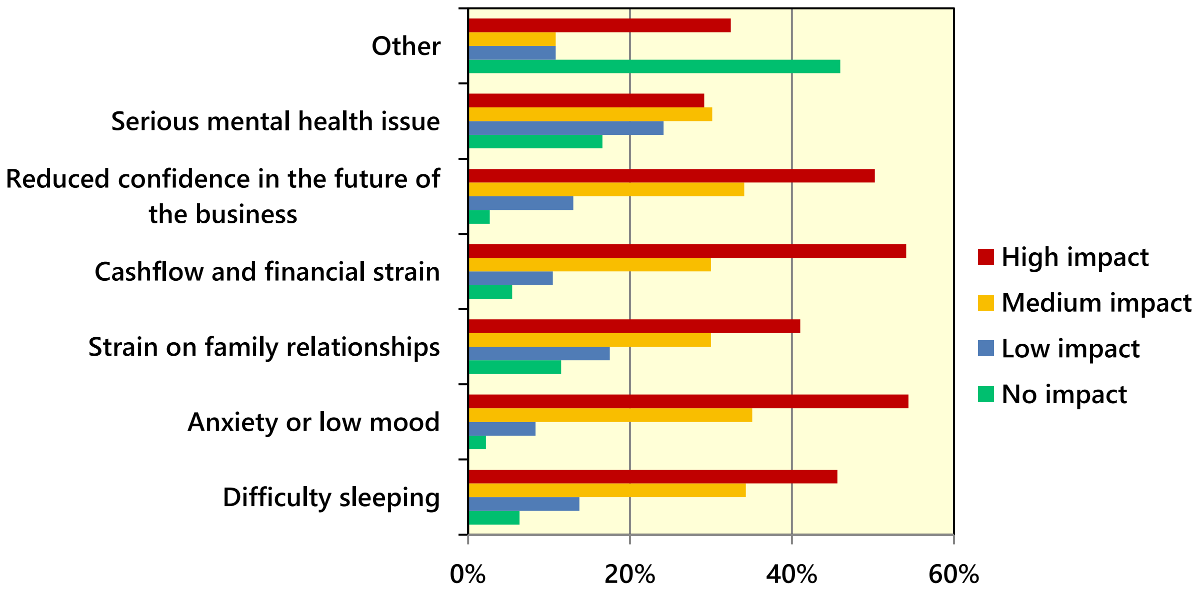
Accordingly, when the perceived impact on family members is assessed (see Figure 5-22), a pronounced impact of TB breakdowns is again shown. High impact responses are especially evident for reduced confidence in the future of the business, cashflow and financial strain, strain on family relationships and anxiety or low mood. In several of these categories, around one third or more of respondents reported a high impact on family members, highlighting that the emotional and financial pressures associated with a breakdown extend beyond the primary decision-maker and affect the wider household.

Medium impact responses are also widespread across all categories for family members, indicating that even when the effects are not severe, they are still felt by a large proportion of families. Only a minority reported no impact, suggesting that the pressures created by a breakdown are almost always shared within the family unit. Difficulty sleeping and instances of more serious mental health issues also feature, reinforcing that bTB breakdowns can lead to meaningful stress, uncertainty and emotional strain within farming families.

Mental health impacts on employees was also assessed. Here the respondents perceived that for most, the impacts were low or minimal. That said, there were some reports of reduced confidence in the business, particularly where there were sizeable breakdowns and this is associated with anxiety and low mood which can have a detrimental impact on morale.

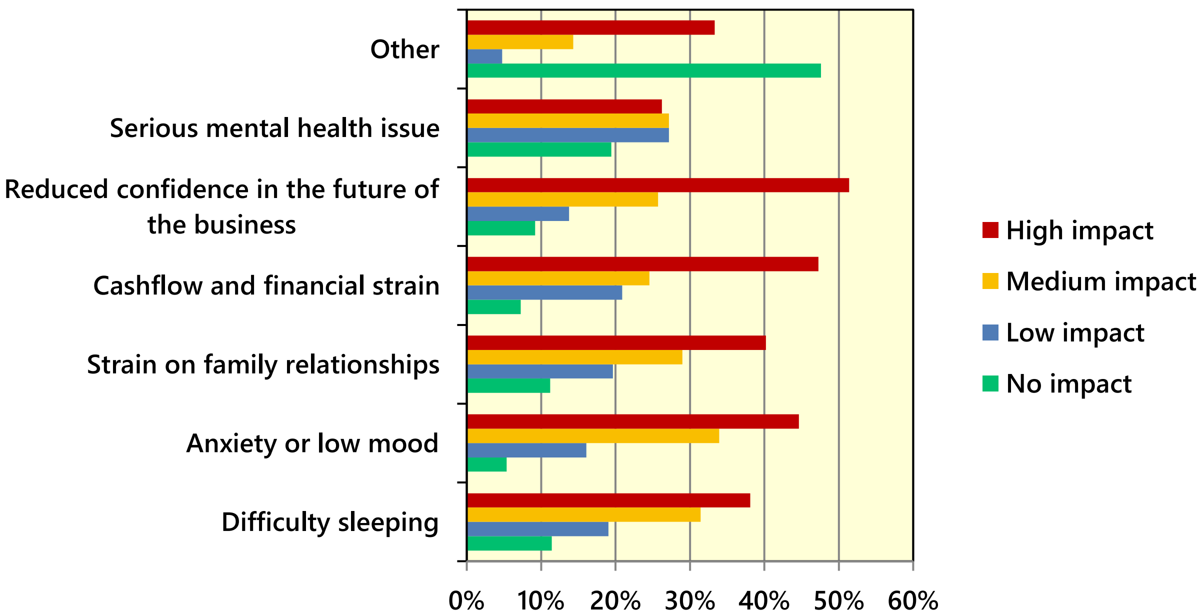
Overall, Figures 5-14 and 5-15 highlight the depth and breadth of the psychological and mental health pressures faced by farmers during a bTB breakdown.

Figure 5-21: Impact of Mental Health-Related Issues on Respondents During a bTB Breakdown



Source: The Andersons Centre (2025) No. of Responses: 249

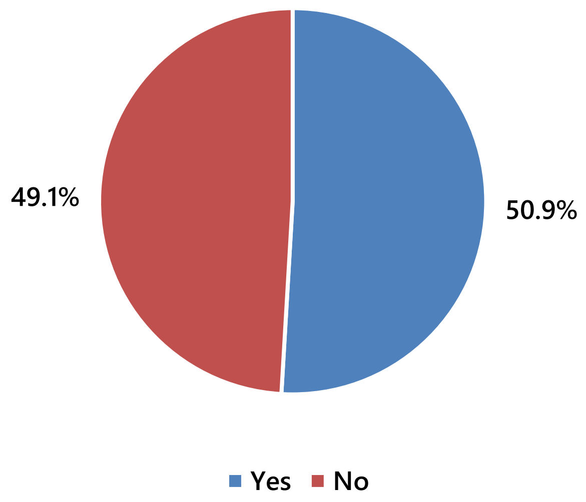
Figure 5-22: Perceived Impact of a bTB Breakdown on Family Members



Source: The Andersons Centre (2025) No. of Responses: 249

Despite the widespread mental health issues reported above, Figure 5-23 shows that farmers are almost evenly split on whether bTB has led them to consider leaving the industry. Just over half of respondents, (50.9%) indicated that they had considered leaving farming due to the pressures associated with bTB, while 49.1% said they had not. This near-equal division highlights the significant strain that bTB places on farm businesses and the extent to which prolonged breakdowns, financial uncertainty and operational disruption can influence long-term decisions about remaining in the sector. The findings underline the seriousness of the issue, with a substantial proportion of farmers contemplating exiting agriculture as a direct result of their experiences with bTB. It does also signify a resilience and determination amongst some farmers to persevere despite the challenges that bTB poses.

Figure 5-23: Farmers' Views on Whether They Have Considered Leaving Farming due to bTB



Source: The Andersons Centre (2025) No. of Responses: 269

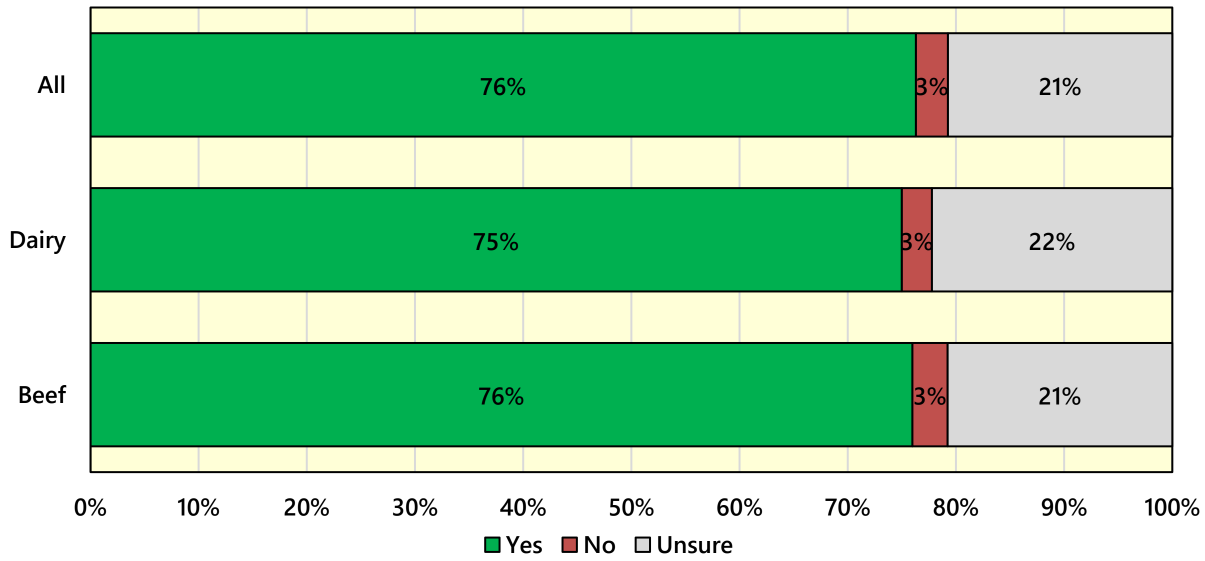
5.6.3 Support Services and Attitudes

The results presented in Figure 5-24 show a strong consensus across all farm types for increased access to mental health services for NI farmers to help address the effects of bTB. Overall, 76% of respondents support enhanced provision, with virtually identical levels of support among beef and dairy farmers. Only a very small minority, 3%, do not support such measures. This reflects a clear recognition among farmers that bTB presents not only financial and operational pressures but also notable emotional and psychological strain. It also chimes closely with the findings from the stakeholder interviews and associated analysis (see Section 4.5) which highlighted the growing demand for mental health support due to bTB across NI farms.

A further 21-22% of respondents remain unsure about the provision of additional mental health services to help deal with the effects of bTB. This indicates that whilst most farmers acknowledge the value of improved mental health support, a sizeable minority remain reluctant. Some might still perceive that there's a stigma associated with availing of such support. Others were more forthright suggesting that increasing the provision of mental health services will not cure the root-cause of the problem (increased bTB incidence) which needs to be the main focus, as this is the main source of stress. Others suggested that greater empathy from public servants and officials would be more helpful whilst others were reluctant if it resulted in greater bureaucracy and a diversion away from other support that farmers receive.

Nevertheless, the vast majority of respondents support greater access to mental health services. This signals a strong mandate for policymakers and industry bodies to integrate mental health considerations more explicitly into bTB support frameworks. However, it needs to be undertaken efficiently whilst the main focus continues to be on addressing the bTB issue.

Figure 5-24: Support of Increased Access to Mental Health Services due to Effects of bTB



Source: The Andersons Centre (2025) No. of Responses: 270

5.7 Concluding Remarks

The Chapter 5 findings show that bTB creates substantial indirect costs for NI farmers across financial performance, environmental efficiency and farmer wellbeing. The farmer survey results confirm that labour demands for testing are sizeable, some contingency stocking is common, and environmental pressures affect many farms. Mental health impacts are pronounced, with most farmers reporting high stress during testing and frequent anxiety, reduced confidence and family strain during breakdowns. These results underline how bTB disrupts routine operations and longer term business planning.

The comparison with Chapter 4 shows strong consistency between stakeholder interviews and survey evidence.

That said, some differences remain between both evidence sources. The farmer survey indicates that labour costs can be higher in certain cases, with responses on hours required per test contrasting with reported annual labour costs. Similar variations appear in some other cost categories (e.g. taxation). These inconsistencies highlight the need for further cross-checking before finalising the estimates that will feed into the modelling. This is the focus of Chapter 6.

6 Farm-Level Modelling Results

6.1 Introduction

This Chapter brings together the evidence from the stakeholder interviews and the farmer survey, alongside the practical experience of Andersons' consultants, to produce a consolidated and robust set of indirect cost estimates for bTB in Northern Ireland. Whilst the two evidence sources align closely across the main themes, some variations remain within specific cost categories, particularly labour, feed, contingency stocking and taxation. These differences highlight the need to triangulate all available inputs to ensure that the modelled outputs reflect realistic and defensible cost ranges. This Chapter, therefore, focuses on reconciling these datasets, applying appropriate weighting and sense-checks, and establishing the finalised figures that underpin the economic modelling of bTB's overall indirect impact on the sector.

6.2 Economic Modelling of bTB Costs

6.2.1 Overview

The assessment of the indirect economic costs to farmers of bTB in Northern Ireland has been undertaken using an Excel spreadsheet-based model. This works out the total costs for different farm sizes in each category of farm.

The farms are based on data from the Farm Business Survey in NI undertaken by DAERA. Key cost items (e.g. labour rates) are common across all farm types and are held within the spreadsheet as core data. A number of assumptions are made which are used within all the farm types – these are set out below. These assumptions have been informed by multiple sources including the evidence review, stakeholder interviews, the online farmer survey and the experience of Andersons' consultants. Taken together these have informed how the model is calibrated, including the key assumptions used.

For ease of analysis, the cost calculations have been split into four broad categories, corresponding with the information gathered during the Evidence Review. These are;

- Testing Costs
- Reactor Culling and Isolation Costs
- Movement Restriction Costs
- Business Operations Costs

Under each of these categories are a number of sub-categories. The assumptions behind them are covered in the sections that follow.

These average 'per farm' costs are then grossed-up to arrive at a total figure for NI. This is based on the number of farms of each type that are present in Northern Ireland.

6.2.2 Farm Types and Sizes

The farm types that are the most likely to have cattle on them have been modelled. These are;

- Dairy Farms
- Grazing Livestock Farms (beef & sheep) – Lowland
- Grazing Livestock Farms (beef & sheep) – Less Favoured Areas (LFA)

- Mixed Farms – *as the name suggests, these farms have a mix of enterprises and so cannot be neatly categorised into a single farm type (e.g. 'dairy). However, on average they do have both dairy and beef cattle so have been included in the analysis*

In terms of size categories, these follow the breakdowns contained with the FBS. This categorises farm size by Standard Labour Requirements (SLRs) and separates farms into Part-Time, Small, Medium, and Large. Figure 6-1 below shows the physical features (area and cow numbers) for each farm type at each size category – to provide a sense of the business sizes modelled.

Using SLRs rather than land area means these categories follow more closely the economic size of the business; for example, an intensive dairy farm on 50 hectares would actually be a far larger business than an extensive beef & sheep farm on the same area.

The SLR is a notional amount of labour that would be used in the business considering the enterprises it is operating. This covers labour input from all workers, owners, and contractors on the basis of SLR rates. These 'standard' labour figures do not necessarily correspond to what happens in the real world. The labour use criteria in the FBS are quite historic and labour efficiency has improved over time. They are also relatively 'generous' and do not consider the contribution that extra hours (overtime) make. Therefore, the FBS figures tend to overstate the amount of full-time people a farm actually requires. For example, a 'Medium' dairy farm is unlikely to justify 2 to 3 full-time workers for the 97 cows in Figure 6-1.

Figure 6-1: Farm Sizes used in the bTB Modelling

Farm Type		Part Time (0.5 < 1 SLR)	Small (1 < 2 SLR)	Medium (2 < 3 SLR)	Large (> 3 SLR)
Dairy	Land Area (Ha)	30	53	78	122
	Cow Numbers	*30*	*63*	*97*	*197*
Grazing Livestock (LFA)	Land Area (Ha)	70	117	267	410
	Cow Numbers	*23*	*35*	*65*	*74*
Grazing Livestock (Lowland)	Land Area (Ha)	49	89	No medium/large farms in FBS	
	Cow Numbers	*20*	*36*		
Mixed	Land Area (Ha)	92 (only a single average given)			
	Cow Numbers	*39*			

Source: DAERA

The FBS defines farms too small to occupy the time of one full-time person as 'Part-Time'. However, in many cases, these farms would be the full-time occupation of the proprietors.

It should be noted that the average farm for each type and farm size does not always look like a 'real farm' – simply because it is an average of all the farms in that group. The dairy sector provides an example; the stock numbers indicate that some calves are being sold whilst a proportion are being reared as beef. Most dairy farms will be selling *all* calves or running a finishing enterprise rearing *all* progeny – not a mix. This comes about because of the averaging effect.

Finally, it is also noteworthy that there are 'very small' farms (i.e. <0.5 SLR) which are not covered by the FBS. At a macroeconomic level, these farms, whilst many in number, make a relatively small contribution to economic output. That said, the eventual bTB cost estimates need to reflect their contribution. In the FBS, DAERA applies a 'raising factor' to the aggregated FBS results to reflect their contribution. This study follows a similar approach and the contribution of these farms is also reflected in the results outlined in Section 6.3.

6.2.3 bTB Impact Level

For each of the farm types and sizes a set of 'impact levels' has been modelled. These are as follows;

Low Impact: the farm is subject to the statutory testing requirement. It does one 'testing cycle' per year – the initial administering of the test and then reading. There are no reactors found during the test. Based on DAERA statistics, it is assumed that 90% of each farm type fall into the Low impact category.

Medium Impact: as with Low Impact the farm undertakes the statutory bTB test. However, the test finds one or more reactors. The following process is then followed;

- Removes reactors, does RH1 test after 60 days, goes clear
- Does RH2 test after another 60 days, goes clear - unrestricted
- Does CH1 test after another 6 months.

Therefore, these farms face four tests (testing cycles) in the year. It is assumed that they are restricted for 130 days in total - 60 days + 60 days + (est.) 10 days (organising time). For modelling purposes, when aggregating the results to the NI level, it is estimated that 5% of farms fall into this category.

High Impact: the farm tests and is found to have reactors. Unlike the Medium impact however, cattle continue to be affected and the farm does not 'go clear'. It is, therefore, faced with continuous movement restrictions. It tests every 2 months so is faced with 6 testing cycles per year. It is assumed that it does not find reactors at *every* test – 4 out of the 6 tests generate reactor events. Again, for modelling purposes, it is estimated that a further 5% of farms fall into this category.

Very High Impact: this is the same scenario as 'High' but the farms is more severely affected. Reactors are found at every testing event and a greater proportion of cattle are culled than under the High scenario. This scenario is only applied to the Large farm size as it is assumed that only these businesses will have the cattle numbers to generate these types of losses. It has not been incorporated into the economic modelling of the aggregated results as it is very difficult to gauge what proportion of NI farms fit into this category. Accordingly, the results were only examined at an individual farm-level.

6.2.4 Testing Costs

The first of the four overall categories is Testing costs. The assumptions behind the various elements within this are set our below. All costs are multiplied by the number of tests (testing cycles) each farm faces each year – i.e. for Low Impact this is only one, but for the High Impact it is six.

Direct Labour

This is based on the time taken by proprietors and farm staff to collect cattle, undertake the test, and then return the cattle to fields/sheds. The time is doubled to account for both the initial skin test and the reading of it.

Larger farms have a larger labour requirement – but not pro-rata on animal numbers as it is assumed there will be some economies-of-scale to testing.

A standard labour rate is applied to the hours estimated. This is a 'synthesised' rate using mainly a manual labour rate, but also some 'management time' for the organising of the tests. This rate is estimated at £22 per hour and reflects the range of rates cited in the stakeholder interviews.

Post-Test Cleaning

The time taken to wash-down facilities after each test. This includes labour, the cost of pressure-washer hire (£70 per day) and the cost of chemicals.

Post-Breakdown Deep Clean

This cost category only applies to the Medium Impact farms – as those are the only farms that have a breakdown and then go clear. It is the cost of a thorough clean of the farmstead. As above, there is labour, hire charges and chemicals included.

Haulage

Covers the cost of collecting stock from off-lying parcels of land. Assumed to be higher for beef farms than for dairy farms due to more fragmented nature of holdings. Costs are also higher for larger farms.

Effect on Other Farm Operations

This category was mentioned in both the Evidence Review and the stakeholder interviews. However, it has not been costed within the model as it is impossible to know what the average farm would have been doing if not TB testing. It should be remembered that the time taken for testing is included as a cost above, so this category is only looking at 'knock-on' effects.

Post-Testing Yield Loss

It is assumed that animals will perform less well immediately after testing (both the initial test and reading). This is due to the stress of unfamiliar and additional handling. For dairy cows it is costed as a loss of milk production for two days following. On the day of the test, a 10% decline in daily yield is assumed which reflects feedback from the Stakeholder Interviews. On the day after the test, a 5% decline in daily yield is assumed. This applies to both the injection and reading stages (days) of testing. For beef enterprises it is a loss of daily liveweight gain in finishing animals. On the day of the test, a 0.75 Kg loss is estimated, followed by a 0.25Kg loss on the day after the test.

Injuries / Lameness / Abortions

Testing cattle increases the chances of injury. This cost category looks at the number of animals affected per test and the likely level of economic loss (related back to the replacement value of stock). Reflecting farmer survey input, an estimated 1.3% of dairy cattle and 2.5% of the beef herd are estimated to be injured in some shape or form (e.g. minor lameness, major lameness etc.). Of this, 10% (i.e. 0.13% of dairy cows and 0.25% of beef cattle) are assumed to be lost (i.e. culled), again reflecting the farmer survey input. This is separate to reactor culling which is outlined in the next section.

6.2.5 Reactor Culling and Isolation

The costings in this category are largely driven by two factors. Firstly, the number of 'reactor events' – i.e. the number of tests in a year where reactors are found. As outlined above, these are 0, 1, 4 and 6 for the Low, Medium, High and Very High impact levels respectively. The second main driver is the percentage of the herd that is culled in the year due to bTB. This is put at 6%, 15% and 25% for Medium, High and Very High respectively.

As they have no reactors, those farms under the Low Impact scenario have no costs under this heading.

Compensation Below Market Value

Compensation for animals culled for TB is supposed to represent full market value. However, this was disputed during some of the stakeholder interviews. Therefore a (small) percentage allowance (4%) has been included in the costings to reflect this. It is acknowledged that some farmers will claim to have experienced more significant write-downs in market value; however, input from various sources suggests that this is limited, hence the low percentage allowance.

Time Organising Collection

Once reactors are identified then there will be management time to organise their collection. It is taken to be a single cost per 'reactor event'.

Reactor Segregation Costs

The animals identified as reactors need to be separated from the rest of the herd. It is assumed they will be segregated on for five days before they can be removed. This will almost certainly be within a separate farm building. This element includes a daily cost for feed and bedding per animal plus labour costs.

Securing Replacements

This cost is based on the time taken for the proprietor/manager of the farm to visit other farms or markets to assess and secure suitable replacements for those animals culled.

Cost of Replacements

This has not been included as a cost as it is assumed that reactor compensation will enable farmers to purchase replacement stock of a similar quality.

Lower Productivity from Replacements

This is the short-term effect on animals of moving to a new herd – the unfamiliar surroundings and potential bullying by other animals until their position in the herd is established. It is believed to be primarily an issue with replacement dairy cows and is modelled by a reduced milk yield over the lactation when they enter the herd.

Loss of Future Output

There will also be longer-term productivity effects from introducing replacement cows. It is assumed that the replacement brought in will be younger animals (1st or 2nd calvers) compared to mature animals. For dairy cows this is modelled as a loss in milk yield. Foe beef cows it is a slightly lower calf value.

Lower Output – Smaller Herd

In most cases the assumption has been that sufficient replacement animals are available and they are purchased to retain stock numbers at usual levels. However, those farms in the Very High impact category have a high percentage of animals culled per year (25%). As they are also large farms, that requires a high number of replacements to be sourced and purchased. It is assumed that this is not always possible and, for these farms, an additional cost of lost production is included.

6.2.6 Movement Restriction Costs

The costs under this heading are largely driven by the number of days the farm is under restriction. This is assumed to be 0, 130, and 365 for the Low, Medium, and High (including Very High) impact levels respectively.

For dairy farms, there is a cost of not being able to sell calves, cull cows and the (small) number of reared finishers on farm. For beef enterprises it is the cost of keeping culls and finished cattle that would otherwise be sold.

Extra Feed and Bedding

A daily cost for feed and bedding for different classes of animal are included as base data in the model. These are then multiplied up by the number of animals 'restricted' (i.e. those that would have been sold, but couldn't be) and the days they are restricted.

It is assumed that all restricted animals will be kept indoors.

Labour Hours

A value is also included for the labour involved in feeding and bedding the additional animals on farm.

This category also includes extra machinery costs involved in caring for the animals under restriction.

Space Rental

A figure has been included to reflect the fact that farms may not have enough space for all the additional stock they have to house. Therefore, they have to rent addition space in the local area.

Lower Sale Value

Under the Medium impact scenario the farm goes clear and retained stock can then be sold in the normal way. Under the High impact scenario there is a hope that the farm will go clear and so stock are also retained for a period of time. However, when it becomes clear that the farm is unlikely to go clear, then stock have to be sold – in many cases simply to make space and free-up feed stocks. At this point, a discount has been applied to the value of stock sold from the High impact farms to reflect that the destinations for this stock are limited – either direct to slaughter or to an Alternative Control Herd (ACH).

6.2.7 Effect on Business Operations

This category includes many associated costs arising from bTB. Some are not possible to cost, but they have been included to recognise they are an issue on farms.

Rearing Extra Replacements

During the farmer survey and stakeholder interviews, it was commented that many farms carry a larger number of replacements than would normally be the case. This is a type of 'insurance' to ensure there is enough home-produced stock to keep the herd at the optimum size even if some cows are culled due to bTB.

The rearing of additional replacements is not a simple cost item. If the replacements are not actually required then they can be sold. This should be at least cost-neutral (and possibly profitable?). If the replacements are needed on farm, then having them available offsets the need to go and purchase replacements.

However, it is recognised that there will be some additional cost in having extra animals on the farm – probably beyond the optimum stocking level. An example is purchasing extra bought-in feed.

Loss of Genetics / Bloodlines

Many farmers commented how it culling cows sees good genetics removed from their herds and slows the overall productivity improvement. This is recognised in the model by having replacement animals have a lower average yield than standard.

It should be noted, however, that on an NI-wide basis, the quality of stock should still be showing a genetic improvement – as long as farmers *on average* are achieving these breeding gains. Therefore, the stock being purchased should still, on average, be as good as that which has been culled. The biggest losses from this element will be on herds that have better genetics than the average.

Additional Biosecurity and Veterinary Costs

A cost has been included, based on the area of each farm, to reflect additional capital spending in areas such as double-fencing and protecting feed and water troughs from wildlife.

Additionally, extra veterinary costs have been included. These are on a per head basis. The figure is higher for calves as it assumed that affected farms will engage in more vaccination to offset the wider health effects associated with bTB being prevalent.

Extra Financing Costs

There is a requirement for higher working capital as a result of bTB. This includes the cost of (unsold) restricted animals, extra feed and bedding costs, capital spend on infrastructure, and extra vet costs. The interest charge on this extra working capital is included in the model

Additional Insurance Costs

Whilst the effect of a bTB breakdown on insurance costs was mentioned in some stakeholder interviews, it was not clear that this was a real cost for all affected farms. Therefore, it was not costed in the model.

Additional Tax Payments

The effect of the timing of compensation payments on farm profitability and thus tax was mentioned. However, it was felt that, with good tax advice, most negative effects could be mitigated. It would also depend on the individual tax affairs of the farm and was difficult to come up with any average effect. Therefore, this was not costed.

Effect on Farm Labour

This element was only costed for the larger farm businesses. For both 'Part Time' and 'Small' businesses it assumed that the farm is run by the proprietor with some family help. For the larger businesses a number of full-time employees was estimated. A figure was included for 'first-year costs' to reflect recruitment, training and lower productivity of new staff. Then a percentage for increased staff turnover was included to reflect the fact that staff within businesses affected by bTB are likely to be less satisfied with their jobs and look to leave.

Increase in Land Rental Costs

Movement restrictions mean that farms in Northern Ireland are, on aggregate, carrying more stock than they would otherwise do in the absence of bTB. Through normal supply and demand effects this will push up the demand for land and thus land rents. This effect is particularly seen in bTB 'hotspots'. It is assumed that a standard percentage of the farm is rented and the rent is pushed up by 10%.

Delays to Expansion / Investment

The worry and uncertainty caused by bTB and particularly the threat of an outbreak on farm, does not provide a certain and stable business environment in which people are happy to invest. However, it is not possible to cost the effects of this 'investment that never happens'. It has, therefore, not been included in the model but should be recognised as an issue.

Change in Farm System

Faced with bTB some farms have changed their farming system to reduce their exposure to the disease. This might be moving from dairy to beef production, or even coming out of cattle completely and running a sheep enterprise. It has not been possible to model the financial effect of this, either at the farm or aggregate level. However, for the specific businesses considering such a change there will be a significant financial impact.

6.3 Modelled Results

This section summarises the modelling results by firstly examining the overall costs of bTB at an NI level before analysing the results by farm type. Thereafter, some sensitivity analyses are undertaken to illustrate how the costs would likely change if key parameters (variables) underpinning the model were to change. Importantly, these results focus on the estimated costs for 'typical' farm types in NI. Costs at an individual farm level will inevitably vary from the results presented in this Chapter. Looking specifically at individual farm-level impacts Section 6.4 sets-out some case studies illustrating the impact of bTB on dairy and beef farming operations.

6.3.1 Overall Results – All Farms

Drawing upon the assumptions outlined above, Figure 6-2 below shows the overall bTB costs at an NI level by farm type. Farm numbers by type and size are derived from DAERA Census data for 2023/24, ensuring these results are scaled to reflect the current structure of the NI agricultural sector.

Using the Aggregated (Central) estimate, it shows that total indirect costs of bTB are estimated at £96.1 million across the region. As the notes underneath Figure 6-2 allude to, this is on the basis a bTB incidence rate of 10%, which reflects the situation during 2024/25 with half of the farms (5% of all farms) being categorised as 'Medium' and the other 5% categorised as having 'High' scenario costs. Notably, the farms with no breakdown (90% of farms) incur costs of over £49 million, illustrating significant indirect costs of bTB testing even if the farm is clear.

Unfortunately, it was not possible to get more detailed segmentations of the proportion of NI farms that might be categorised as having Medium or High scenario costs. Therefore, it was assumed that both categories would have an equal share of farms. The analysis shows that the indirect costs of bTB in

Northern Ireland are substantial and, based on latest DAERA estimates, surpass the direct costs incurred by DAERA (circa £60 million).

Figure 6-2: Projected Aggregated Indirect bTB Costs Across all NI Farms - £ Million (£m)

Farm Type	No Breakdown (Low)	Farms with Breakdown (Medium)	Farms with Breakdown (High)	Aggregated* (Central)
Beef-LFA	£22.9m	£6.4m	£9.5m	**£38.8m**
Beef-Lowland	£8.9m	£3.6m	£5.6m	**£18.1m**
Dairy	£16.1m	£8.9m	£11.4m	**£36.4m**
Mixed	£1.5m	£0.6m	£0.8m	**£2.9m**
All NI Farms	**£49.4m**	**£19.4m**	**£27.3m**	**£96.1 m**

Source: The Andersons Centre (2025)

Notes: When reviewing the results, consider the following:

- **No Breakdown (Low scenario):** 90% of NI farms are assumed to fall into this category.
- **Breakdown (Medium):** projected costs if 5% of NI farms were in this category.
- **Breakdown (High):** projected costs if 5% of NI farms were in this category.
- **Aggregated*:** Weighted estimate based on combining the Low, Medium, and High categories. This is assumed to be the 'Central' cost estimate.

When examining the aggregated costs by farm type, Beef-LFA farms incur the highest costs based on the Central estimate (£38.8 million). This is a reflection of the significant numbers of NI farms in that category rather than individual farm level costs. This is closely followed by the Dairy sector with Central costs of £36.4 million. As section illustrates, individual farm-level costs tend to be much higher on dairy farms.

The estimated indirect bTB costs for lowland beef farms are smaller, but still sizeable, at £18.1 million. This reflects fewer farms at an NI level vis-à-vis LFA farms. The contribution of mixed farms is relatively small at just under £3 million.

Overall, the results in Figure 6-2 highlight that indirect bTB costs are substantial at the NI level and arise across all major farm types. The results demonstrate that indirect bTB costs are not confined to dairy systems alone, and that extensive beef systems, particularly LFA farms, represent a significant component of the overall cost burden when results are scaled to the NI farm population. The use of an aggregated estimate provides a balanced Central measure that avoids overstating high-impact outcomes while still reflecting the material costs borne by farms experiencing breakdowns.

6.3.2 Results by Farm-Type

This section examines the indirect bTB cost estimates by farm-type in further detail, starting at a more aggregated level within each farm-type before analysing the 'typical' costs at a farm-level based on DAERA's SLR segmentation.

6.3.2.1 Beef-LFA

Figure 6-3 provides further granularity on the aggregated costs presented in the previous section by showing the estimated indirect bTB costs by farm-size (and SLR) as well as by scenario. The estimated number of farms by SLR category is also shown and is based on DAERA data for the 2023-24 period. Across NI, there are over 15,200 LFA cattle (and sheep) farms estimated to be operating in the region. The majority (74%) of these are categorised as being very small (i.e. <0.5 SLR), which would also be operating on a part-time basis. Taken together with 'part-time' farms (0.5<1 SLR) these farms account for over 90% of LFA farms in NI.

Accordingly, Figure 6-3 shows that projected indirect bTB costs for Beef-LFA farms are concentrated in the smaller size bands when scaled to the NI level. On the central, aggregated basis, part-time farms (with an SLR of 0.5 < 1) account for the largest share at £14.3m (37% of the Beef-LFA sub-total as illustrated in Figure 6-4). This is followed by small farms (£9.3m) and very-small farms (£6.2m). Medium and large farms contribute materially less in NI-level terms at £4.4m and £4.5m respectively. In aggregate, the central estimate for Beef-LFA indirect costs is £38.8m, underlining the significance of the Beef-LFA sector within overall bTB cost burdens.

Across the scenario columns, the Low (no breakdown) costs dominate the NI-level totals for Beef-LFA, reflecting that 90% of farms are assumed to sit in this category. The Low scenario sub-total is £22.9m compared with £6.4m in the Medium breakdown scenario and £9.5m in the High breakdown scenario. This pattern reinforces that, even without a breakdown, sector-wide requirements and routine control activities generate substantial indirect costs at scale, and these baseline costs are particularly important in extensive systems with limited capacity to absorb additional overheads.

The very-small category warrants particular care in interpretation. DAERA does not provide costings for these farms, so Figure 6-3 applies a raising factor of 1.19 aligned with DAERA's approach for estimating their contribution. This is a reasonable and transparent method for maintaining coverage across the full farm population, but it means the very-small line is more derived than the other categories. Even with that caveat, the results still suggest indirect bTB costs are mainly concentrated on very-small, part-time and small farms. This should, therefore, be a consideration when assessing the distributional impacts and the practical burden of bTB controls on the Beef-LFA sector.

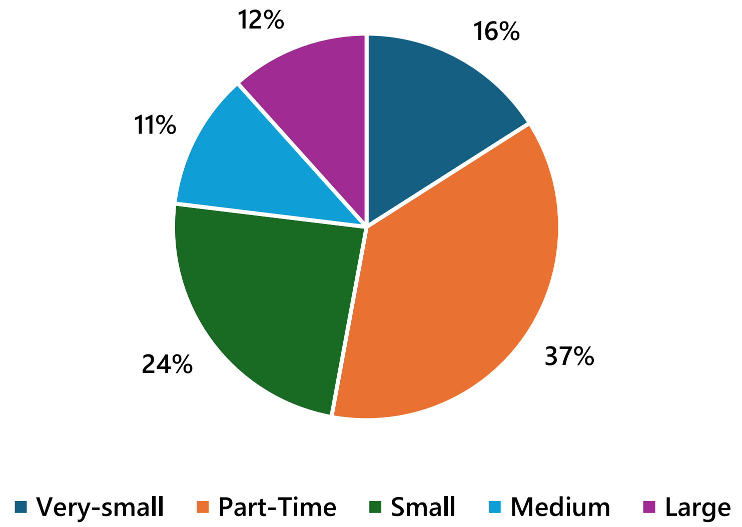
Figure 6-3: Projected Aggregated Indirect bTB Costs Across Beef-LFA Farms - £ Million (£m)

Farm Size	No. Farms	SLR	No Breakdown (Low)	Farms with Breakdown (Medium)	Farms with Breakdown (High)	Aggregated* (Central)
Very-small	11,211	<0.5	£3.66m	£1.02m	£1.52m	**£6.20m**
Part-time	2,602	0.5 < 1	£8.37m	£2.37m	£3.60m	**£14.34m**
Small	1,078	1 < 2	£5.59m	£1.50m	£2.23m	**£9.32m**
Medium	243	2 < 3	£2.62m	£0.77m	£1.06m	**£4.44m**
Large	133	> 3	£2.67m	£0.74m	£1.11m	**£4.51m**
Sub-Total	**15,267**	**All**	**£22.90m**	**£6.39m**	**£9.52m**	**£38.81m**

Source: The Andersons Centre (2025) and DAERA (2025)

Notes: the scenarios referred to in Figure 6-2 also apply here. For the very small farms, as DAERA does not provide costing data for these farms, the costs are estimated using a raising factor of 1.19 to the cost estimates for the other size categories. This approach is aligned with the methodology that DAERA uses for estimating the contribution of very small farms.

Figure 6-4: Share of Aggregated Indirect bTB Costs by Farm Size



Source: The Andersons Centre (2025)

Moving from the aggregated estimates to the farm-level perspective, Figure 6-5 shows the 'typical' estimated farm-level costs associated with bTB for Beef-LFA farms, broken down by farm size, (expressed in Standard Labour Requirements (SLR)), and by scenario. The figure illustrates how costs scale with farm size and how the composition of those costs changes as disease severity increases from the Low to the High scenario. At lower levels of disease impact, costs are relatively contained and dominated by routine testing and ongoing business costs. As severity increases, the balance of costs shifts towards movement restrictions, production losses and wider operational disruption, with these effects becoming increasingly material on larger, more labour-intensive farms.

A detailed breakdown of on-farm costs is also provided. Below are the key points to note:

- **Testing costs**: increase with herd size and scenario, but the composition shifts materially. Direct labour, cleaning and haulage rise steadily across sizes. Although all stakeholder interviewees and online survey respondents cited direct labour costs arising from testing as a key issue, these costs are relatively small when viewed in the context of other indirect costs that farmers also incur. Even taking farms in the Low scenario (which does not have a bTB breakdown), indirect labour accounts for 8% of overall indirect bTB costs on part-time farms and reduces in proportional terms to 6% on small farms and just 2% on large farms. These costs reduce further in proportional terms in the Medium and High scenarios as other costs (e.g. movement restrictions) are incurred.

  For this category, the major escalation comes from consequential yield loss and injury-related impacts arising from additional tests in the Medium and High scenarios (4 and 6 tests per year respectively). This equates to a four- to six-fold increase versus the Low scenario with yield losses which are estimated at 4kg per animal for each test in addition to injuries, lameness and abortion, (estimated to affect 2.5% of animals during each test).

  For large farms, testing-related costs become a central driver in the Medium and High scenarios (for example, post-testing yield loss reaches £25,499 in Medium and £38,249 in High), which accounts for about 23% of overall indirect costs of bTB testing in both scenarios. This illustrates how the practical disruption and production loss associated with testing can far outweigh the "visible" on-farm testing inputs (e.g. labour) for large farms.

- **Reactor culling and isolation costs:** are absent in the Low scenario, as there are no outbreaks. They are a modest burden in the Medium scenario, rising to nearly £5,600 on large farms in a High scenario. This equates to around 3-5% of total indirect bTB costs in these scenarios.

  While smaller in scale than movement restriction costs, they still rise meaningfully with size, reflecting greater numbers affected and higher replacements and management input. The compensation below market value element (estimated at 4% of market value) is the main factor, followed by the cost of securing replacements as well as reactor collection and segregation.

- **Movement restrictions costs:** again, these costs don't apply in the Low scenario but are the dominant cost block in the Medium and High scenarios. On small and large farms, they account for just over half of indirect costs in these scenarios, but for mid-sized farms (2<3 SLR) they account for over 60% of total costs.

  Additional feed and bedding and additional labour are consistently the biggest items, with additional space rental also being notable, particularly for larger units. The High scenario introduces a sizeable "loss of value of stock" component which is estimated at 5% for culls and 15% for finishers. This drives the sharp step-change in costs between Medium and High scenarios. For a large typical LFA beef farm, this loss is estimated at £35,322, thus highlighting that market and marketing constraints can become as important as the direct husbandry costs of holding stock for longer periods.

- **Business operational costs:** these costs provide a sizeable baseline across all scenarios and increase with farm size. Across LFA farm sizes assessed, they are estimated to range from nearly £2,600 on part-time farms to nearly £19,000 on large farms.

  In the Low scenario, as a number of the cost categories outlined above do not apply, these costs are the most significant in percentage terms, accounting for around three-quarters of total costs for small and mid-sized farms and about 62% of indirect bTB costs on large farms. In contrast, this cost category generally accounts for less than 20% of indirect bTB costs in the Medium and High scenarios.

  Across all farms, additional biosecurity forming the single largest and most consistent element (for example, £1,834 on part-time farms rising to £9,650 on large farms). Extra financing is strongly scenario-sensitive. It increases sharply in the Medium and High scenarios, peaking at nearly £66,000 for large farms. This signifies the cashflow stress that can arise from a bTB breakdown, particularly as disruption lengthens.

  By contrast, contingency replacements and additional land rental are relatively stable across scenarios. That said, there is evidence that the increasing bTB incidence has led to greater demand for land, resulting in increased land rental prices, estimated in this study to be around 10%.

  As highlighted in section 6.2.7, tax and insurance are not costed given the wide variation in input about how these issues affected farms, and the resultant uncertainty that this gives rise to.

Figure 6-5: Beef-LFA – Estimated Farm-Level Costs by Size (SLR) and by Scenario - £ per Farm

Physical Factors & Cost Parameters	Part Time (0.5 < 1 SLR)			Small (1 < 2 SLR)			Medium (2 < 3 SLR)			Large (> 3 SLR)		
Physical Factors												
Standard Labour Requirements (SLR)	0.7			1.4			2.4			3.6		
Farm Size (Ha)	70.0			117.1			266.5			409.9		
Total Cattle	71			108			179			357		
Scenario	**Low**	**Medium**	**High**	**Low**	**Medium**	**High**	**Low**	**Medium**	**High**	**Low**	**Medium**	**High**
Testing Costs												
Direct Labour Costs	286	1,144	1,716	374	1,496	2,244	462	1,848	2,772	550	2,200	3,300
Cleaning Costs	133	786	798	155	978	930	177	1,150	1,062	199	1,344	1,194
Other (e.g. Haulage) Costs	100	400	600	150	600	900	200	800	1,200	250	1,000	1,500
Post-Testing Yield Loss	216	863	1,295	494	1,976	2,964	1,291	5,164	7,746	6,375	25,499	38,249
Injuries / Lameness / Abortion	243	973	1,459	365	1,462	2,192	638	2,553	3,830	1,106	4,424	6,636
Reactor Culling & Isolation Costs												
Compensation Below Market Value	0	233	584	0	351	877	0	613	1,532	0	1,062	2,655
Reactor Collection & Segregation	0	274	1,258	0	294	1,307	0	337	1,416	0	417	1,615
Costs of Securing Replacements	0	239	899	0	259	948	0	314	1,084	0	328	1,120
Loss of Productivity and Future Output	0	24	59	0	35	89	0	68	171	0	77	192
Movement Restrictions Costs												
Additional Feed + Bedding Costs	0	5,025	5,025	0	7,575	7,575	0	13,323	15,442	0	28,142	28,142
Additional Labour Costs	0	3,451	3,451	0	5,207	5,207	0	21,494	21,494	0	20,261	20,261
Additional Space Rental	0	1,345	1,345	0	2,029	2,029	0	3,180	3,180	0	7,894	7,894
Loss of Value of Stock	0	0	5,664	0	0	8,555	0	0	12,987	0	0	35,322
Business Operational Costs												
Running Contingency Replacements	91	91	91	136	136	136	261	261	261	295	295	295
Additional Biosecurity Costs	1,834	1,834	1,834	2,976	2,976	2,976	6,422	6,422	6,422	9,650	9,650	9,650
Extra Financing	147	932	932	238	1,423	1,423	514	3,554	3,723	772	5,276	5,276
Additional Land Rental	525	525	525	879	879	879	1,999	1,999	1,999	3,074	3,074	3,074
Other Costs	0	56	141	0	84	211	0	162	405	0	183	457
Total Costs	**3,574**	**18,196**	**27,675**	**5,766**	**27,759**	**41,440**	**11,965**	**63,243**	**86,726**	**22,271**	**111,126**	**166,833**

Sources: The Andersons Centre (2025) and DAERA

6.3.2.2 Beef-Lowland

Looking at the Beef-Lowland sector, Figure 6.6 provides further granularity on the aggregated costs presented in section 6.3.1 by showing the estimated indirect bTB costs for Beef-Lowland farms by farm size (expressed in SLR terms) and by scenario.

The estimated number of farms by SLR category is also shown. This is again based on DAERA data for the 2023–24 period. Across Northern Ireland, there are an estimated 5,300 Beef-Lowland farms included in the analysis. The majority are categorised as very small (i.e. <0.5 SLR), accounting for around 68% of holdings. Part-time farms (0.5 < 1 SLR) have an estimated 19% share. Taken together, these categories account for 87% of Beef-Lowland farms.

In line with this structure, Figure 6.6 segments the indirect bTB costs for Beef-Lowland farms by SLR. Notably, as there are insufficient numbers of mid-sized and large lowland farms, these are grouped with 'small' farms to derive estimates at an NI level. In so doing, this broadened 'small' category accounts for the largest share of indirect costs at £8.6m (48% of the Beef-Lowland sub-total), as illustrated in Figure 6.7. Part-time farms contribute nearly £6.6m (36%), while very-small farms account for £2.9m (16%).

Across the scenario columns, the Low (no breakdown) scenario accounts for the largest share of aggregated indirect costs for Beef-Lowland farms at £8.9m, compared with £5.6m projected in the High scenario and £3.6m in the Medium scenario. While the Low scenario remains significant in aggregate terms, the results indicate that the relatively small proportion of farms experiencing more severe disruption contribute disproportionately to total indirect costs.

As with Beef-LFA farms, the very-small category warrants careful interpretation. DAERA does not publish costings for these farms, so costs have been estimated using a raising factor of 1.19 applied to the other size categories, consistent with DAERA's established methodology. This provides a transparent means of maintaining full population coverage. In this context, although very-small farms represent the largest number of holdings, their contribution to total costs is lower.

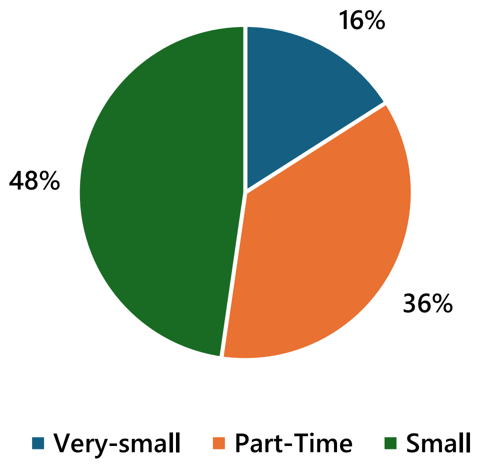
Figure 6-6: Projected Aggregated Indirect bTB Costs Across Beef-Lowland Farms - £ Million (£m)

Farm Size	No. Farms	SLR	No Breakdown (Low)	Farms with Breakdown (Medium)	Farms with Breakdown (High)	Aggregated* (Central)
Very-small	3,593	<0.5	£1.42m	£0.58m	£0.94m	**£2.94m**
Part-time	1,027	0.5 < 1	£3.14m	£1.33m	£2.09m	**£6.56m**
Small	680	1 < 2	£4.32m	£1.70m	£2.61m	**£8.62m**
Sub-Total	**5,300**	**All**	**£8.88m**	**£3.60m**	**£5.64m**	**£18.12m**

Source: The Andersons Centre (2025) and DAERA (2025)

Notes: the scenarios referred to in Figure 6-2 also apply here. For the very small farms, as DAERA does not provide costing data for these farms, the costs are estimated using a raising factor of 1.19 to the cost estimates for the other size categories. This approach is aligned with the methodology that DAERA uses for estimating the contribution of very small farms. Note that due to data confidentiality reasons, DAERA FBS data for Medium and Large lowland Beef farms (111 farms and 98 farms respectively) was not provided. Instead, these farms were combined with the 471 small farms to give and estimated 680 'small' farms for modelling purposes.

Figure 6-7: Share of Aggregated Indirect bTB Costs for Beef-Lowland by Farm Size



Source: The Andersons Centre (2025)

Turning attention to the farm-level, Figure 6-8 shows the estimated indirect costs associated with bTB for 'typical' Lowland Beef farms, again segmented by farm size (expressed in SLR terms), and by scenario. As with Beef-LFA farms, the figure illustrates a clear scaling of costs with farm size and a pronounced shift in the cost profile as disease severity increases in the Medium and High scenarios. Whilst total costs are lower in absolute terms than for larger LFA systems, particularly at the part-time segment, the Medium and High scenarios nonetheless give rise to substantial indirect costs. These are driven primarily by movement restrictions and testing-related production losses. The results again point to strongly distributional impacts, with bigger Lowland Beef farms facing significantly higher absolute exposure as disruption intensifies.

Below are some of the key points arising from this detailed breakdown of on-farm costs:

- **Testing costs:** unsurprisingly increase with both farm size and scenario severity. There is a marked shift in composition as testing intensity rises. Direct labour, cleaning and haulage costs rise steadily across scenarios, but remain relatively modest when set against wider indirect impacts. In the Low scenario, direct and associated labour costs account for around 8% of total indirect bTB costs on part-time farms and on small farms. Similar to Beef-LFA systems, these proportions roughly halve in the Medium and High scenarios as other costs become more significant.

  Again, the main increase in testing costs arises from the post-testing yield loss and injury-related impacts associated with increased testing frequency in the Medium and High scenarios. Yield losses rise from £516 in the Low scenario to £2,066 and £3,099 respectively on part-time farms, and from £1,673 to £6,693 and £10,039 on small farms. Injuries, lameness and abortion costs follow a similar pattern. For small farms in particular, post-testing yield loss alone accounts for around 20% of total indirect testing-related costs in the High scenario. This again underlines the importance of consequential production impacts rather than direct testing inputs.

- **Reactor culling and isolation costs:** are absent in the Low scenario and emerge as a secondary but notable cost in the Medium and High scenarios. On part-time farms, these costs rise to around £2,900 in the High scenario, increasing to approximately £4,200 on small farms. This represents around 6–7% of total indirect bTB costs in the High scenario for both size categories. As with LFA farms, compensation below market value is a key component as are the costs associated with reactor collection and segregation, with the of securing replacements also significant in the High scenario. Here again, the scale effects of bTB breakdowns and associated testing are evident.

- **Movement restriction costs:** are once again the main driver of overall indirect costs in the Medium and High scenarios, accounting for around 60% of total costs in both instances. Additional feed, bedding and labour costs are the main components, reflecting prolonged housing and restrictions on normal cattle movements that bTB breakdowns entail.

  As with LFA farms, the High scenario incorporates a substantial loss of value of stock component, reflecting assumed price discounts on cull and finished animals (5% and 15% respectively). This results in an estimated loss of £10,242 on part-time farms and £18,260 on small farms. It is, again, the single largest factor explaining the step-change in total costs between the Medium and High scenarios.

- **Business operational costs:** provide a consistent baseline across all scenarios and increase with farm size, ranging from just over £2,000 on part-time farms to about £6,400 on small farms in the High scenario. As with LFA farms, this category is the most significant in the Low scenario, accounting for about 55-60% of costs across the farm sizes assessed, as movement restriction and reactor-related costs do not apply. Unsurprisingly, where such costs apply in the Medium and High scenarios, the share of operational costs declines to roughly 13% and 8% respectively.

  Additional biosecurity costs is the most significant and stable element across all scenarios. The extra financing costs again increase sharply in the Medium and High scenarios with extra financing peaks at around £1,400 on part-time farms and about £2,500 on small farms. This again reflects cashflow pressures associated with delayed sales and extended disruption. Other elements, including contingency replacements and additional land rental, remain relatively stable across scenarios.

In general, these results reinforce the finding that, while baseline operational costs are predictable, the combination of increased testing intensity, prolonged movement restrictions and financing pressures leads to a rapid escalation in indirect costs once farms move beyond low-severity bTB impacts.

Another noteworthy point for Lowland Beef farms is that tighter finishing and marketing windows mean that even short periods of bTB-related disruption can lead to disproportionate financial impacts through delayed sales, forced retention of stock and exposure to adverse price movements. These effects are not captured in the modelling on a 'typical farm' basis but merit particular attention when interpreting the results for more intensive lowland beef units.

Figure 6-8: Beef-Lowland – Estimated Farm-Level Costs by Size (SLR) and by Scenario - £ per Farm

Physical Factors & Cost Parameters	Part Time (0.5 < 1 SLR)			Small (1 < 2 SLR)		
Physical Factors						
Standard Labour Requirements (SLR)		0.8			1.4	
Farm Size (Ha)		49.1			88.5	
Total Cattle		101			182	
Scenario	**Low**	**Medium**	**High**	**Low**	**Medium**	**High**
Testing Costs						
Direct Labour Costs	286	1,144	1,716	550	2,200	3,300
Cleaning Costs	133	786	798	199	1,344	1,194
Other (e.g. Haulage) Costs	100	400	600	250	1,000	1,500
Post-Testing Yield Loss	516	2,066	3,099	1,673	6,693	10,039
Injuries / Lameness / Abortion	299	1,196	1,793	559	2,237	3,355
Reactor Culling & Isolation Costs						
Compensation Below Market Value	0	287	717	0	537	1,342
Reactor Collection & Segregation	0	284	1,284	0	327	1,390
Costs of Securing Replacements	0	231	877	0	263	957
Loss of Productivity and Future Output	0	19	46	0	38	94
Movement Restrictions Costs						
Additional Feed + Bedding Costs	0	7,990	7,990	0	14,450	14,450
Additional Labour Costs	0	5,808	5,808	0	10,435	10,435
Additional Space Rental	0	2,263	2,263	0	4,066	4,066
Loss of Value of Stock	0	0	10,242	0	0	18,260
Business Operational Costs						
Running Contingency Replacements	71	71	71	144	144	144
Additional Biosecurity Costs	1,438	1,438	1,438	2,666	2,666	2,666
Extra Financing	115	1,400	1,400	213	2,529	2,529
Additional Land Rental	442	442	442	797	797	797
Other Costs	0	44	110	0	89	223
Total Costs	**3,401**	**25,868**	**40,694**	**7,052**	**49,814**	**76,742**

Sources: The Andersons Centre (2025) and DAERA

6.3.2.3 Dairy

Following a similar structure to the beef farm categories above, Figure 6-9 further segments the aggregated indirect bTB costs for dairy farms by showing estimated costs by farm size (SLR), and by breakdown scenario. The number of farms in each size category is based on DAERA data for 2023–24, with around 2,520 dairy farms included in the analysis. While smaller farms account for a material share of farm numbers, dairy production is more concentrated on medium and large units, which is reflected in the distribution of aggregated costs.

Accordingly, Figure 6-9 shows that aggregated indirect bTB costs for dairy farms are heavily concentrated among larger units at the NI level. Based on the 'Aggregated-Central' set of estimates, large farms (>3 SLR) account for £22.5m (~62%) of overall indirect costs in the dairy sector, as illustrated in Figure 6.10. Medium-sized farms (2 to <3 SLR) contribute £7.4m (~20%), while small farms (1 to <2 SLR) account for

£5.6m (~16%). Part-time and very-small farms together contribute less than 3% of total costs. This reflects both the scale of operations and the concentration of milking cow numbers within larger dairy systems.

Across the scenarios, aggregated costs are estimated at £16.1m in the Low (no breakdown) scenario, which is assumed to account for 90% of farms. If 5% of farms which are assumed to have a bTB breakdown, were classified as Medium, these farms would incur costs of £8.9m. In High scenario, the estimated costs are almost £11.4m, assuming that 5% of farms fall into this category. In contrast to the Beef-LFA results, farms with breakdowns make a more material contribution to total costs in the dairy sector, reflecting higher per-farm impacts where breakdowns occur. Here, lost yield plays a crucial role as outlined at the farm-level as shown in Figure 6-11.

As DAERA does not provide costings for very-small dairy farms, a raising factor of 1.001 has been applied, consistent with DAERA's methodology. Given the small number of such farms, this has a negligible effect on the aggregated results.

Overall, the analysis confirms that indirect bTB costs in the NI dairy sector are strongly concentrated among mid-sized and, in particular, large farms. This implies that changes in breakdown incidence or duration on larger units can have a disproportionate effect on total sector-wide indirect costs. This is an important consideration when interpreting the aggregate burden of bTB in the dairy sector.

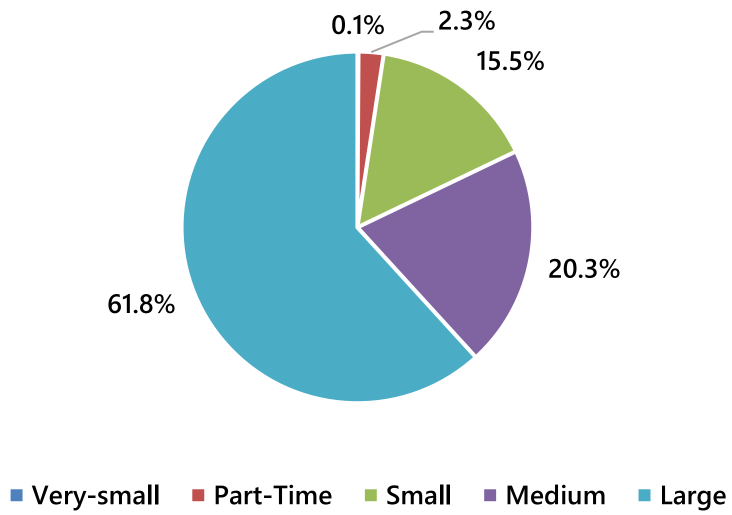
Figure 6-9: Projected Aggregated Indirect bTB Costs Across NI Dairy Farms - £ Million (£m)

Farm Size	No. Farms	SLR	No Breakdown (Low)	Farms with Breakdown (Medium)	Farms with Breakdown (High)	Aggregated* (Central)
Very-small	30	<0.5	£0.02m	£0.01m	£0.01m	**£0.04m**
Part-time	174	0.5 < 1	£0.36m	£0.21m	£0.27m	**£0.84m**
Small	655	1 < 2	£2.35m	£1.46m	£1.83m	**£5.64m**
Medium	570	2<3	£3.05m	£1.94m	£2.41m	**£7.40m**
Large	1,090	>3	£10.31m	£5.32m	£6.86m	**£22.49m**
Sub-Total	**2,519**	**All**	**£16.08m**	**£8.94m**	**£11.38m**	**£36.40m**

Source: The Andersons Centre (2025) and DAERA (2025)

Notes: the scenarios referred to in Figure 6-2 also apply here. For the very small farms, as DAERA does not provide costing data for these farms, the costs are estimated using a raising factor of 1.001 to the cost estimates for the other size categories. This approach is aligned with the methodology that DAERA uses for estimating the contribution of very small farms.

Figure 6-10: Share of Aggregated Indirect bTB Costs for Dairy Farms by Farm Size – Central Scenario



Source: The Andersons Centre (2025)

Turning to the farm-level perspective, Figure 6.11 shows the estimated indirect costs associated with bTB for 'typical' dairy farms, segmented by farm size (again based on SLR), and by scenario. As with the other farm types assessed, there is a clear scaling of costs with farm size and a pronounced change in the cost profile as disease severity increases from a no breakdown (Low) to the Medium and High scenarios. While baseline costs are relatively modest in the Low scenario, the Medium and High scenarios give rise to substantial indirect costs, particularly on mid-sized and large dairy farms. These are driven by the interaction between increased testing intensity, prolonged movement restrictions and the limited flexibility inherent in continuous milk production systems.

A detailed breakdown of on-farm costs highlights the following key points.

- **Testing costs** increase with both farm size and breakdown severity, with a notable shift in composition as testing intensity rises. Direct labour, cleaning and haulage costs increase steadily across size categories, but remain relatively small in monetary terms when viewed alongside other indirect impacts, as illustrated below.
  In the Low scenario, direct and associated labour costs account for a relatively modest share of total indirect bTB costs across all dairy farm sizes (generally ranging from 5-13% of total costs). As with Beef-LFA and Lowland Beef systems, these proportions decline markedly in the Medium and High scenarios as other costs become more significant.

  The main escalation within testing costs arises from post-testing yield loss and injury-related impacts associated with more frequent testing. Post-testing yield losses increase from £85 on part-time farms in the Low scenario to £508 in the High scenario, rising to £3,105 on large farms, which is similar to the corresponding direct labour cost for the farms (£3,300). Injuries, lameness and abortion costs follow a similar pattern, increasing sharply with both herd size and testing frequency. For larger dairy farms, these consequential impacts form a material component of overall testing-related costs, when viewed in monetary terms (e.g. peaking at just over £4,700 for large dairy farms in the High scenario). This highlights that disruption to production, before even considering whether there are any reactors, can outweigh the more visible testing inputs.

- **Reactor culling and isolation costs:** as elsewhere, these do not apply in the Low scenario and emerge as prominent costs in the Medium and High scenarios, especially for large farms. This reflects higher numbers of affected animals and greater management complexity. On large dairy farms, reactor culling and isolation costs are estimated at over £30,000 in the High scenario (24% of total costs). This is driven primarily by loss of future output and productivity losses as well as compensation below market value. Other costs relating to reactor collection, segregation and securing replacements are smaller but still notable.
- **Movement restriction costs:** are the dominant driver of overall indirect costs in the Medium and High scenarios and heavily influence the sharp escalation in costs across all dairy farm sizes. In all cases, these costs account for anywhere between 54% and 70% of overall costs in these scenarios. These costs reach over £60,000 per farm in the Medium and High scenarios for large dairy units. Additional feed and bedding is the largest component, broadly accounting for half of the estimated movement restriction costs. Additional labour also mount up as breakdowns increase with costs in the region of £20,000 per farm for mid-sized and large farms, where breakdowns occur. Additional space rental also becomes notable and is estimated at nearly £4,500 for large farms, significantly larger than the direct labour costs associated with bTB testing (£3,300).

  The High scenario also introduces a loss of value of stock component, reflecting assumed price discounts on affected animals. While smaller in absolute terms than feeding and labour costs, this further contributes to the step-change in total costs between the Medium and High scenarios, especially on larger farms. Extra replacements as well as additional feed, bedding and space requirements also lead to increased environmental impacts. As noted in Chapters 4 and 5 this is becoming increasingly problematic as issues such as emissions and pollution are now key focus areas for customers (processors, retailers and consumers) as well as for policy-makers.
- **Business operation costs:** provide a consistent baseline across all scenarios and increase with farm size, ranging from around £1,600 on part-time farms to nearly £14,000 on large farms in the High scenario. In the Low scenario, where movement restriction and reactor-related costs do not apply, business operational costs account for the majority of total indirect costs (generally ranging from a 70 to 80% share across the farm sizes assessed). As breakdown-related costs arise in other cost categories (e.g. movement restriction) in the Medium and High scenarios, the proportional contribution of business operation costs declines sharply, falling to approximately 10-15% of overall indirect costs.

  Additional biosecurity is the largest and most stable component across all scenarios, increasing with farm size. Extra financing costs are strongly scenario-sensitive and rise sharply in the Medium and High scenarios, reaching over £5,400 on large dairy farms. This reflects the cashflow pressures associated with delayed sales, extended disruption and the need to finance ongoing operating costs during breakdowns.

Overall, the farm-level results for dairy farms reinforce the finding that while baseline operational costs are relatively predictable, the combination of increased testing intensity, prolonged movement restrictions and financing pressures leads to a rapid escalation in indirect bTB costs once farms move beyond low-severity impacts. These effects are particularly pronounced on mid-sized and large dairy farms, where continuous production systems limit the scope to mitigate disruption without incurring substantial additional costs.

Figure 6-11: Dairying – Estimated Farm-Level Costs by Size (SLR) and by Scenario - £ per Farm

Physical & Cost Parameters	Part Time (0.5 < 1 SLR)			Small (1 < 2 SLR)			Medium (2 < 3 SLR)			Large (> 3 SLR)		
Physical Factors												
Standard Labour Requirements (SLR)	0.9			1.7			2.6			4.9		
Farm Size (Ha)	30.1			52.6			78.4			122.3		
Dairy Cows	32			62			96			197		
Total Cattle	61			123			193			358		
Scenario	**Low**	**Medium**	**High**	**Low**	**Medium**	**High**	**Low**	**Medium**	**High**	**Low**	**Medium**	**High**
Testing Costs												
Direct Labour Costs	286	1,144	1,716	374	1,496	2,244	462	1,848	2,772	550	2,200	3,300
Cleaning Costs	144	852	864	166	1,044	996	188	1,216	1,128	210	1,410	1,260
Other (e.g. Haulage) Costs	50	200	300	100	400	600	150	600	900	200	800	1,200
Post-Testing Yield Loss	85	339	508	162	648	972	253	1,010	1,515	518	2,070	3,105
Injuries / Lameness / Abortion	132	526	789	258	1,033	1,550	405	1,621	2,431	785	3,141	4,712
Reactor Culling & Isolation Costs												
Compensation Below Market Value	0	243	607	0	477	1,192	0	748	1,870	0	1,450	3,625
Reactor Collection & Segregation	0	235	1,086	0	283	1,206	0	339	1,346	0	486	1,711
Costs of Securing Replacements	0	260	951	0	315	1,089	0	380	1,250	0	569	1,722
Loss of Productivity & Future Output	0	1,546	3,864	0	2,955	7,389	0	4,609	11,524	0	9,445	23,612
Movement Restrictions Costs												
Additional Feed + Bedding Costs	0	8,583	8,583	0	16,317	16,317	0	25,416	25,416	0	36,202	36,202
Additional Labour Costs	0	6,694	6,694	0	12,430	12,430	0	19,256	19,256	0	21,756	21,756
Additional Space Rental	0	800	800	0	1,675	1,675	0	2,663	2,663	0	4,495	4,495
Loss of Value of Stock	0	0	1,367	0	0	2,640	0	0	4,127	0	0	5,463
Business Operational Costs												
Running Contingency Replacements	201	201	201	385	385	385	600	600	600	1,230	1,230	1,230
Additional Biosecurity Costs	1,027	1,027	1,027	1,916	1,916	1,916	2,947	2,947	2,947	5,474	5,474	5,474
Extra Financing	82	1,368	1,368	153	2,587	2,587	236	4,023	4,023	438	5,434	5,434
Additional Land Rental	271	271	271	473	473	473	705	705	705	1,101	1,101	1,101
Other Costs	0	39	97	0	74	185	0	115	288	0	236	590
Total Costs	**2,278**	**24,329**	**31,095**	**3,987**	**44,508**	**55,844**	**5,946**	**68,097**	**84,761**	**10,505**	**97,499**	**125,994**

Sources: The Andersons Centre (2025) and DAERA

6.3.2.4 Mixed

Figure 6-12 summarises the aggregated indirect bTB costs for Mixed farms, showing estimated costs by breakdown scenario and farm size. In total, there are an estimated 510 Mixed farms in operation in NI which represents a relatively small share of total holdings (23,740 farms). As a result, aggregate indirect bTB costs for Mixed farms are materially lower than those estimated for specialist beef or dairy systems, but nonetheless remain non-trivial at the sector level.

On the central, aggregated basis, indirect bTB costs for Mixed farms are estimated at about £2.9m. The majority of this cost burden arises from farms with an SLR of 0.5 or greater, which account for £2.8m, equivalent to 97% of the sector total. Very-small Mixed farms (<0.5 SLR) contribute a miniscule share at less than £0.1m, reflecting both their limited numbers and lower per-farm exposure.

Across the scenarios, aggregated costs are highest in the Low (no breakdown) scenario at £1.5m, compared with £0.5m in the Medium scenario and £0.8m in the High scenario.

Similar to Lowland Beef farms, interpretation of the Mixed farm results requires particular care. Due to data confidentiality constraints, DAERA does not segment Mixed farms by size within the Farm Business Survey. Accordingly, costs for farms with an SLR of 0.5 or greater are presented as a single category, while costs for very-small farms are estimated using a raising factor of 1.026, consistent with DAERA's methodology. While this limits the granularity of the analysis, the general magnitude and distribution of costs are considered robust for sector-level interpretation.

Overall, the results confirm that while Mixed farms contribute a relatively small share (circa 3%) of total indirect bTB costs at the NI level, the burden is concentrated on the more commercial Mixed farms. This reinforces the importance of considering both sector size and farm structure when interpreting aggregated bTB cost estimates across the agricultural economy.

Figure 6-12: Projected Aggregated Indirect bTB Costs Across Mixed Farms - £ Million (£m)

Farm Size	No. Farms	SLR	No Breakdown (Low)	Farms with Breakdown (Medium)	Farms with Breakdown (High)	Aggregated* (Central)
Very-small	183	<0.5	£0.04m	£0.01m	£0.02m	**£0.07m**
Other Mixed	327	≥0.5	£1.46m	£0.53m	£0.8mm	**£2.79m**
Sub-Total	**510**	**All**	**£1.50m**	**£0.54m**	**£0.82m**	**£2.86m**

Source: The Andersons Centre (2025) and DAERA (2025)

Notes: the scenarios referred to in Figure 6-2 also apply here. For the very small farms, as DAERA does not provide costing data for these farms, the costs are estimated using a raising factor of 1.026 to the cost estimates for the other size categories. This approach is aligned with the methodology that DAERA uses for estimating the contribution of very small farms. Note that due to data confidentiality reasons, DAERA FBS does not segment Mixed farms by size. Therefore, an overall estimate of the indirect bTB costs was provided for the 327 mixed farms estimated by DAERA to have an SLR of 0.5 or greater.

Figure 6-13 presents the estimated indirect bTB costs for a 'typical' Mixed farm with an SLR greater than 0.5, drawing together the main cost components across the Low, Medium and High scenarios. As with the other sectors above, this provides a useful cross-cutting reference point, illustrating how indirect costs escalate as breakdown severity increases. While costs in the Low scenario remain relatively contained, but still notable at just under £5,000 in total, the Medium and High scenarios are associated with a sharp increase in total indirect costs, peaking at almost £49,000 in the High scenario. This again reflects the cumulative effects of additional testing, movement restrictions and wider operational disruption.

Figure 6-13: Mixed Farms – Estimated Farm-Level Costs by Size (SLR) and by Scenario - £ per Farm

Physical Factors & Cost Parameters		All Farms (>0.5 SLR)	
Physical Factors			
Standard Labour Requirements (SLR)		2.2	
Farm Size (Ha)		92.3	
Total Cattle		132	
Scenario	**Low**	**Medium**	**High**
Testing Costs			
Direct Labour Costs	396	1,584	2,376
Cleaning Costs	199	1,278	1,194
Other (e.g. Haulage) Costs	125	500	750
Post-Testing Yield Loss	118	473	710
Injuries / Lameness / Abortion	356	1,547	2,320
Reactor Culling & Isolation Costs			
Compensation Below Market Value	0	427	1,068
Reactor Collection & Segregation	0	289	1,257
Costs of Securing Replacements	0	269	972
Loss of Productivity and Future Output	0	892	2,230
Movement Restrictions Costs			
Additional Feed + Bedding Costs	0	10,362	10,362
Additional Labour Costs	0	6,717	6,717
Additional Space Rental	0	2,617	2,617
Loss of Value of Stock	0	0	10,897
Business Operational Costs			
Running Contingency Replacements	62	62	62
Additional Biosecurity Costs	2,204	2,204	2,204
Extra Financing	181	1,757	1,757
Additional Land Rental	831	831	831
Other Costs	500	555	638
Total Costs	**4,973**	**32,363**	**48,961**

Sources: The Andersons Centre (2025) and DAERA

As there are no movement or reactor costs incurred, Low scenario indirect costs are dominated by baseline business operational costs, which account for about 75% of overall costs. Here, additional biosecurity costs (circa £2,200) are the most significant with additional land rental (£831) also of note. Testing costs are estimated at £1,194 across the category, with direct labour (£396) and costs arising from injuries, lameness and abortion (£356) also of significance.

In the Medium scenario, total indirect costs rise markedly to around £32,000 per farm. As with other sectors, movement restriction costs emerge as the single largest cost block, accounting for about 60% of overall indirect bTB costs for Mixed farms. This is again driven by additional feed and bedding, labour and space requirements.

Testing-related costs also rise sharply and accounts for 17% of total costs in the breakdown scenarios. This reflects increased testing frequency and associated production impacts, while reactor culling and isolation costs begin to contribute meaningfully through compensation shortfalls, replacement costs and losses of productivity.

Following on from this business operation costs rise by about £1,600 in the Medium scenario, versus the Low scenario, but its share of overall costs plummets to 17%, due to cost increases elsewhere.

In the High scenario, total indirect costs rise further to just under £49,000 per farm. Movement restriction costs again dominate, with a 62% share. The addition of a material loss of value of stock component, is a key factor in driving the step-change between the Medium and High scenarios. Reactor-related costs also increase significantly, particularly losses associated with future output and productivity. While operational costs change little in cash terms, extra financing becomes increasingly important, again reflecting cashflow pressures associated with prolonged disruption.

Overall, this consolidated analysis reinforces the broader findings across individual sectors: baseline operational costs create a predictable cost 'floor', but once farms move beyond low-severity impacts, indirect bTB costs rise rapidly.

6.3.3 Sensitivity Analysis

The analysis presented in the previous sections is based on a consistent set of parameters (e.g. labour costs of £22 per hour) being applied across all farm types, sizes and scenarios. Whilst these parameters were informed by a combination of stakeholder interviews, farmer survey feedback and evidence review inputs, it is acknowledged that in practice, some of these cost inputs could vary. Accordingly, it was decided to compile sensitivity analysis across a selection of key variables.

For brevity purposes, the sensitivity analysis presented below in Figure 6-14 focuses on cost changes at an aggregated level, using the 'Central' overall indirect cost impact of £96.1 million. The sensitivity analysis is predicated on three key cost parameters reducing and increasing by 5%, 10% and 20% respectively. These parameters (variables) are:

- **Labour costs:** the status quo cost is estimated at £22 per hour, under the sensitivity analysis, this hourly rate ranges from £17.60 (-20%) to £26.40 (+20%).
- **Output and livestock price impacts:** this parameter encompasses a range of items including milk price, beef price, as well as the value of various livestock such as cull cows, calf and rearer prices. All prices are assumed to rise and fall in unison, again ranging from -20% to +20%. Taking the milk price for instance, this equates to a range of 32ppl to 48ppl. For beef prices, the prices range from 460ppkg to 690ppkg.
- **Feed costs:** taking cow feed as an example, the 'Central' cost is estimated at £2.88 per cow per day, under the sensitivity analysis, these costs range from £2.30 per cow to £3.46 per cow. Other feed prices are similarly adjusted. Taking calf feed as another example, this means that Central cost estimate (£1.70 per calf per day) ranges from £1.36 to £2.04.

The effect of these set of parameters changing was assessed individually with the results summarised in Figure 6-14. For Labour costs, the adjusted aggregated indirect bTB cost estimates range from £92.9 million to £99.3 million when the sensitivity analysis is considered. With a 20% reduction in labour costs, the aggregated bTB cost is 3.3% lower than the Central estimate, and unsurprisingly are 3.3% higher, if labour costs are estimated to be 20% higher. This shows that whilst the model is sensitive to changes in Labour costs, due to the wide range of factors being considered, the impact is not that sizeable.

In terms of output and livestock prices, the sensitivity analysis effects are slightly more pronounced than labour which indicate that this set of parameters has a greater influence on the bTB model more generally. Under a scenario where these costs are reduced by 20%, it reduces the aggregated bTB cost estimates by just over £4 million with a similar-sized rise associated with a 20% cost increase, in which case aggregated bTB costs would rise to just over £100 million.

The effect of feed prices is relatively less pronounced, with aggregated costs estimated to decline by around £2.3 million from the Central estimate when feed costs reduce by 20%, again a similar-sized increase is observed when these costs increase by 20%.

Taking these three sets of parameters together (i.e. when these costs are 'Combined'), the aggregated costs deviate by nearly £10 million from the Central estimate in the more extreme -20% and +20% scenarios. Overall, this indicates that whilst these costs have a notable influence on the indirect bTB costs, there are a range of other factors which also come into play. This includes the time taken to undertake tasks associated with bTB testing and breakdowns (i.e. labour hours per test, time spent cleaning etc.), bedding costs, contingency stocking, replacement rates, as well as the lost output (yields, particularly on dairy farms).

For the latter, Figure 6-15 shows the effect of a similar range of reductions and increases (i.e. from -20% to +20%) in milk yield on the aggregated bTB costs. This factor not only affects changes to milk yield during and in the days immediately following the bTB tests, but it also considers the impact when reactor cows are removed from the dairy herd and not replaced. Of course, the impact of milk yield changes essentially only influences the dairy sector (there is a very slight impact on mixed farms. Overall, costs deviate by up to £0.8 million from the Central estimates in the sensitivity scenarios assessed.

Figure 6-14: Sensitivity Analysis Results – Key Cost Parameters

Farm Size	Central Estimate	Cost Reductions			Cost Increases		
		-20%	-10%	-5%	+5%	+10%	+20%
Labour	£96.1m	£92.9m	£94.5m	£95.3m	£96.9m	£97.7m	£99.3m
Output and livestock prices		£92.0m	£94.0m	£95.1m	£97.2m	£98.2m	£100.3m
Feed costs		£93.8m	£95.0m	£95.6m	£96.7m	£97.3m	£98.5m
Combined		**£86.3m**	**£91.2m**	**£93.7m**	**£98.7m**	**£101.1m**	**£106.0m**

Sources: The Andersons Centre (2025) and DAERA

Note: estimates are rounded to the nearest decimal place.

Figure 6-15: Sensitivity Analysis – Milk Yield

Farm Size	Central Estimate	Yield Reductions			Yield Increases		
		-20%	-10%	-5%	+5%	+10%	+20%
Milk Yield	£96.1m	**£95.4m**	**£95.8m**	**£95.9m**	**£96.3m**	**£96.5m**	**£96.9m**

Sources: The Andersons Centre (2025) and DAERA

Note: estimates are rounded to the nearest decimal place.

Finally, it was also decided to undertake a sensitivity analysis around the compensation levels incorporated into the modelling. As outlined above, the modelling incorporated a 4% reduction in the compensation price versus the market value as there was feedback from some participants that compensation levels do not necessarily match market prices.

By bringing the 4% reduction to 0% (i.e. putting compensation at the full market value) across all farm types, the estimated indirect costs reduced by approximately £0.8 million to just over £95.3 million. Therefore, this price reduction only has a relatively small influence on the overall indirect bTB cost. However, it was decided on balance to keep the 4% price reduction element in the central modelling estimates as it was reported by several interviewees as an issue and was also mentioned during the online farmer survey.

6.4 Case Studies – Demonstrating Farm-Level Impacts

Two case studies are presented to complement the wider quantitative analysis, illustrating through real farm examples the operational and financial impacts of bTB on dairy and beef farms in Northern Ireland. The dairy farm (Lisowen Farm) is operated by Mr. David Rea and is situated in Co. Down. The beef farm is run by Mr. Roy Mayers and is situated on LFA land in Co. Fermanagh.

6.4.1 David Rea – Lisowen Farm

Farm Profile and Background

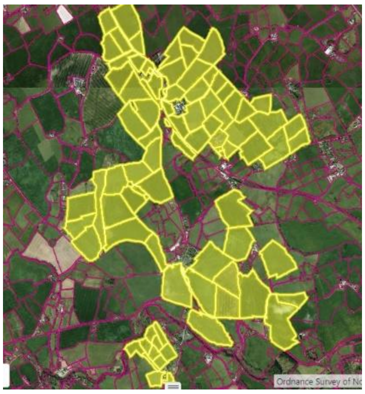
Lisowen Farm is a 195 hectare dairy farm, run by David Rea. It has a small cereals enterprise of approximately 15 hectares. The farm operates a 250-cow dairy herd with homebred replacements and a small beef enterprise. Boundary fencing extends for seventeen kilometres and herd health is supported by vaccination, high quality hygiene practices and modern housing facilities. David Rea has both a farming and a veterinary background. Accordingly, he has a detailed understanding of disease management and policy implications. Yield performance, genetic progress and herd efficiency were strong, with a replacement rate of approximately 18%. The outbreak fundamentally altered the operational and financial trajectory of the business, illustrating the scale of indirect losses that remain largely unrecognised in the current compensation system.

bTB Breakdown Overview

Between November 2019 and May 2025, Lisowen Farm has undergone 21 conventional bTB tests, two gamma tests and substantial associated veterinary and administrative activity. The frequency and duration of testing has created significant disruption to routine management. Movement restrictions have prevented timely restocking, which is critical for a high output dairy system. Repeated testing has required extensive farm preparation, additional labour and prolonged handling of cattle. It also disrupts grazing patterns, with cows often held off pasture for some time before and after tests, leading to additional stress and reductions in yield.

The scale of physical disturbance within the herd has been sizeable. The influx of multiple batches of purchased cattle has altered herd hierarchy, leading to increased fighting and injuries. Several cows have had broken legs due to social disruption, along with heightened behavioural stress linked to repeated handling and reorganisation of groups. These operational frictions illustrate how the practical realities of bTB control extend well beyond the test event itself and create sustained costs for dairy enterprises which go well beyond the scope of any compensation.

Figure 6-16: Lisowen Farm Overview and bTB Cost Impacts

Farm Map		Key Farm Characteristics	
		**Location**	Crossgar, Co. Down, NI.
		Farm size	195 Ha (180 Ha grassland; 15 Ha cereals)
		Herd Size	*250 cows*
		Other enterprises	*Small beef enterprise*
		Boundary fencing	*17 Km*
		No. Land Blocks	*2*
		No. Neighbouring Farms	*16 (12 cattle farms)*
Key Performance Indicators (KPIs) – Pre-TB		**KPIs – Peak TB**	**Trend**
Bactocount (000's/ml)	16	11	↓
SCC (000's/ml)	*82*	*76*	↓
Age at 1st calving	24 months	28 months	↑
Replacement rate	*18%*	*44%*	↑
Yield per cow	8,296 litres	7,644 litres	↓
Rolling lifetime yield/cow	*>40,000 litres*	*<30,000 litres*	↓
DAERA (Direct) bTB Costs (£) (Estimated)		**Indirect bTB Costs (£)**	
TB Tests	*£31,500*	Labour - testing	£18,432
Gamma herd blood tests	*£11,250*	Labour - cleaning	£18,750
DAERA admin costs	*£25,000*	Calf value reduction	£27,500
Reactor removal compensation (250 Head)^	*£434,000*	Milk quality (lost bonuses)	£24,998
		Milk output losses	£196,000
		Additional replacements	£165,000
Total Estimated Cost (£)	***£501,750***	**Total Estimated Cost (£)**	**£450,680**
Cost per annum (5.5 yrs)	***£91,227***	**Cost per annum (5.5 yrs)**	**£82,000**

Sources: Lisowen Farm (2025), analysed by The Andersons Centre (2025) Notes: ^ Actual cost, not estimated.

Impacts on Farm Performance

bTB restrictions have generated deep and persistent impacts on herd performance. At the height of the outbreak, milk yields fell by approximately 1,500 litres per cow on a rolling average basis. Milk composition deteriorated from 4.56% butterfat and 3.50% protein to 4.45% butterfat and 3.43% protein, with an estimated cumulative loss of £25,000 and an ongoing annual penalty of about £18,000 as milk quality recovers only gradually.

Restrictions on restocking have forced the retention of cows that would normally have been culled. This has increased the proportion of lower yielding and older animals within the herd, depressing overall performance and increasing mortality risk. As a result, the compromised herd structure, delayed culling and the emergence of a long tail of inefficient cows have created a sizeable drag on feed efficiency, fertility and labour use.

Linked with this, genetic progress suffered a major reversal. The cumulative genetic improvement achieved over 35 years has been severely compromised by forced stock retention and the need to source replacements from multiple herds with variable health status. This genetic loss is permanent, cannot be recovered, and represents an enduring cost to the business. The replacement rate rose to between 27% and 44% during the outbreak and required 138 additional heifers to be reared at a cost of £165,000 (averaging at £1,196 per head). High levels of youngstock have also contributed to increased environmental burdens and greater slurry output.

Labour impacts have also been considerable. Sixteen major tests required an estimated £18,432 of labour (£1,152 per test), with further time lost to disruption surrounding each test. In addition, staff morale has been adversely affected, with one employee leaving the farm due to uncertainty created by the prolonged breakdown. These labour pressures illustrate how bTB restrictions reduce business resilience both operationally and from a staffing perspective.

Financial Consequences

The indirect financial losses sustained by Lisowen Farm during the five and a half year restriction period have been substantial. The total farm level loss has been estimated at £450,680 to date, equal to around £82,000 per annum. These costs include labour requirements for testing (£18,432), enhanced cleaning and disinfection (£18,750), reduced calf values (£27,500), elevated replacement rearing costs, genetic losses, milk yield and milk quality losses (£52,000), and foregone margin on 1.25 million litres of milk worth approximately £196,000. Meanwhile, the compensation received (£434,000) covered only the loss of the livestock at market value, but does not compensate for any subsequent milk output losses as well as a host of other costs.

Fixed costs have remained largely unchanged despite reduced output. Land, labour, insurance, machinery and overheads could not be flexed in response to lower production, which magnified the financial losses. Additional biosecurity measures, limitations on stock procurement and purchase of cows under constrained conditions have created further cost pressures and increased risk exposure.

Cashflow disruption arising from sharply reduced milk output also emerged as a significant consequence for Lisowen Farm, particularly as severe outbreaks make effective budgeting extremely difficult. Volatility in profitability, combined with associated taxation effects, adds further financial complexity. Working capital is also placed under considerable pressure, especially where large numbers of cattle need to be sourced externally or where additional enterprises, such as temporary beef systems, are introduced to maintain throughput, often involving material changeover costs.

Taken together, the case study demonstrates how indirect costs markedly exceed compensation for reactor removal. It also illustrates that consequential losses persist for many years after the herd regains official TB free status, thus exerting a drag on profitability and productive performance.

Environmental Impacts

David Rea estimated that Lisowen Farm's carbon intensity during restriction averaged 1.53 kg CO_2e per kg FPCM, compared with 1.18 kg CO_2e per kg FPCM for comparable TB free farms in its local discussion group. This represents a 29% increase attributable to the bTB breakdown. The main drivers were a larger herd age profile, reduced lifetime performance, poorer feed efficiency and increased numbers of youngstock held for insurance purposes.

Additional slurry and nutrient loading were generated by the higher number of animals on farm. Internal calculations by the farmer, supported by unpublished research, indicate notable increases in phosphorus and ammonia emissions associated with extended restriction and stock retention. Taken across Northern Ireland, such effects reduce the sector's ability to meet environmental targets and increase commercial challenges for processors who are required to report aggregate carbon performance to customers.

David Rea also observed that reduced efficiency caused by bTB undermines the competitiveness of the NI dairy sector. Lower yields, delayed culling and inflated youngstock populations drive up the carbon footprint of milk production, which poses commercial risks as processors engage increasingly with sustainability metrics in customer contracts.

Mental Health and Wider Community Effects

The prolonged breakdown has had significant emotional and psychological impacts. Financial uncertainty and the inability to plan ahead placed considerable strain on family life, management decision making and long term business confidence. It caused a sense of helplessness due to factors beyond farmer control, particularly relating to the wildlife reservoir and perceived shortcomings in the governance of the bTB control system.

Staff also experienced stress, both from the physical demands of testing and from the wider instability associated with restriction. David Rea also highlighted distressing cases within the NI farming community where prolonged breakdowns contributed to acute mental health crises and severe emotional consequences for some faming families. These human impacts are material costs in their own right and reduce the capacity of farm businesses to recover once restrictions are lifted.

Key Lessons and Cost Implications

This case study demonstrates the full scale of indirect costs associated with bTB breakdowns in large commercial dairy system. Compensation payments for reactors do not reflect the sustained and compounding nature of consequential losses. For Lisowen Farm, the farm level financial loss has approached £0.5 million. Yet the most significant costs fall outside the compensation regime.

The major financial impacts include long term genetic loss, depressed milk yields, persistent milk quality penalties, elevated replacement rates, increased youngstock numbers, labour disruption and fixed cost dilution. Taxation effects, biosecurity risks, disrupted culling strategies and investment delays add further cumulative pressure. These influence the trajectory of the business for many years.

At industry level, the environmental inefficiencies created by bTB restrictions increase carbon intensity and nutrient pressure, reducing competitiveness and amplifying commercial risks associated with sustainability reporting. The case highlights the structural nature of these costs and the importance of recognising them in future policy design and support frameworks.

6.4.2 Roy Mayers

Farm Profile and Background

Mayers Family Farm is a 73-hectare (180-acre) livestock farm located in Tempo in County Fermanagh, operated by Roy Mayers who runs the farm with his son who is also employed elsewhere. The farm is situated at about 600 feet above sea-level, with about 120 acres consisting of grassland and remaining areas consisting of a mixture of woodland, bogland, lakes and some rough grazing which are not as viable for agricultural use. The farm is in one contiguous block and is bordered by 6 neighbouring farms – 3 of these are beef farms, 1 is a dairy farm and the remaining 2 are sheep farms. Most of the farm's perimeter is double fenced and includes approximately 8km of hedges along the boundary.


Imagery: Joanne Coates ©

Mr. Mayers farm has a commercial breeding ewe flock of approximately 250 head and operates a Wagyu beef enterprise consisting of around 100 cattle, with 40-50 animals finished each year. These cattle are fed intensively with about 8-10Kg of a special ration feed per head per day, with an associated daily liveweight gain (DLWG) of between 1.2 and 1.3Kg per head per day. As a Wagyu herd, the cattle are targeted at the premium end of the beef market and whilst the value of output is high, the costs, particularly for beef, are also significant.

bTB Breakdown Overview

The initial bTB breakdown happened back in mid-2024, and was identified when lesions were noticed at slaughter. In the initial breakdown, 8 cattle were culled. Since then, the farm has been subject to multiple bTB tests in accordance with the testing protocols. Each time there is a test, it takes 2 days of both Roy's and his son's time to undertake the testing. For Roy's son, this means taking time off work for each day of the test and forgoing income on those days.

A few months' back, it was thought that the farm had become clear of bTB, only for more cattle to be sent to the abattoir with further lesions identified. This is a significant set-back, both from a performance perspective but also from a stress perspective, as it means that the cycle of regular testing begins again with the possibility of further reactors being identified.

Impacts on Farm Financial Performance

The bTB outbreak has affected the farm's performance in several ways. As outlined above, with 2 people having to take 2 days off work each time there is a test. For the Mayers family, this equates to around £400 in lost income per test.

However, a bigger impact on the farm is the loss in daily liveweight gain (thrive) which is estimated to be £1,000 to £1,200 per test across the herd. On the day of the test animals do not gain much weight and there is easily a loss of £5-6 per head per day. With 2 days of testing, this equates to £10-12 per head across 100 cattle.

An arguably just as significant impact on Wagyu cattle is the effect on quality arising from the stress that is caused in some cattle when brought in for testing. For the animals that are highly susceptible to stress, this can result in sizeable differences in quality (e.g. in marbling scores) which can amount to £450 per head for the animals affected. On average, this could affect around 10% of the herd, so the impact can equate to around £4,500 across the herd on a yearly basis.

Linked with the above, there is also a direct feed cost to be considered, if the animals are not gaining weight on the days of the bTB tests, they still have to be fed. Using an 8Kg per head per day average feed rate, this equates to 1.6 tonnes of feed per testing cycle (across 100 cattle). Based on a feed price of around £300 per tonne, this equates to about £480 per test cycle and an additional £1,920 per annum, on the basis of 4 test cycles being undertaken.

Bringing all of these impacts together, Figure 6-17 shows the combined effect of these costs, which amount to between about £12,000 and £13,000 over the course of a year. This represents a substantial proportion of farm business income (profit). Whilst there are other cost impacts that come from washing down buildings etc. as well as any preventative measures (e.g. wildlife-proofing the farm yard), these were not quantified and were considered to be relatively low on the Mayers Family Farm.

Figure 6-17: Impact of bTB on the Mayers Family Farm

Cost Categories	£ per Test	£ per Year (4 Tests)
Labour	£400	£1,600
Loss of DLWG	£1,000 - £1,200	£4,000 - £5,000
Quality impacts	£450 (per head)	£4,500
Feed costs	£480	£1,920
Sub-Total	**£1,880 - £2,080 (excludes quality impact)**	**£12,020 - £13,020**

Sources: Mayers Family Farm (2026), analysed by The Andersons Centre (2026)

Other Impacts

Mr. Mayers acknowledged two three areas where there are notable additional impacts – namely inability to source replacements, environmental and stress-related issues.

During the breakdown, there have been times when Mr. Mayers has been unable to secure the replacements needed for his herd. This has meant that instead of procuring 40-50 cattle per year, there have been times when only 30 calves have been purchased as it has not been possible to purchase calves from the rearing unit, again due to a bTB breakdown in that herd. With breakdowns also occurring elsewhere and given the demand for Wagyu cattle, the Mayers farm has had to do with fewer cattle, meaning that overhead costs (e.g. labour and the like) have had to be spread across fewer animals.

In terms of the environment, while a formal quantification of the impact has not been undertaken, looking at the loss of thrive alone, if there are 8 days of testing (1 day each for injecting and reading) per year, this equates to a 1.6% loss versus the potential liveweight gain which could have been achieved if the animals were only subject to the statutory annual test. Despite initially going clear of TB, with the latest outbreak, regular bTB testing has been a feature for the current cohort of livestock over the entire period that they have been on the farm.

This added to the feed which had still to be given to the animals and the loss of reactors, means that an additional carbon footprint of 5% or more is likely.

The bTB breakdown has also resulted in added stress in running the family farm. The fact that they thought they had regained their bTB-free status only then to have more lesions identified in slaughtered cattle, has had a notable impact on stress in the family. This is added to by challenges in securing the replacements needed for the farm to function (and to cover overhead costs) and in having to contingency plan around taking time off work also adds to the burden. This illustrates the added challenges around managing a farm enduring a bTB breakdown and balancing this with off-farm employment.

Once again, whilst at a lower cost level than Lisowen dairy farm, it illustrates that part-time grazing livestock farms are not immune from the sizeable cost and other impacts that bTB can give rise to.

6.5 Concluding Remarks

Taken together, the modelling results and the farm-level case study evidence presented in this Chapter confirm that bTB imposes a substantial, systemic and long-lasting economic burden on Northern Ireland farms. The analysis shows that indirect costs are widespread across the sector and are not confined to periods of active breakdown, reflecting the persistent baseline costs associated with routine testing and ongoing disease risk.

The aggregated and farm-level modelling demonstrates that these costs are highly variable between farms and strongly influenced by breakdown severity, duration and management response, with dairy systems particularly exposed. The case study evidence illustrates how impacts accumulate over time, with losses extending well beyond the breakdown period through sustained productivity effects, increased replacement rates, labour disruption and constrained business decision-making. In the example presented, the financial impact for a single farm approaches £0.5 million over a five-year period, with the dominant cost drivers sitting entirely outside the compensation framework.

Overall, the findings confirm that bTB is not a short-term shock, but a structural constraint on farm performance, profitability and resilience. If disease incidence increases and disruption becomes more prolonged, these effects intensify, placing continued pressure on the viability of livestock farms across Northern Ireland and reinforcing the scale of the challenge facing the sector.

7 Conclusions

7.1 Introduction

This study provides a comprehensive assessment of the indirect costs of bTB borne by NI farmers. Drawing together evidence from all aspects of the study, it confirms that bTB imposes a substantial, persistent and largely unrecognised burden on farm businesses. These impacts extend well beyond the immediate effects of reactor removal and compensation and affect financial performance, environmental efficiency and farmer wellbeing across the sector.

The findings demonstrate that bTB should not be viewed as a short-term issue affecting only a subset of farms at a point in time. Instead, it represents a structural constraint on livestock farming in NI, with impacts that are widespread, cumulative and increasingly embedded as disease incidence rises.

7.2 Key Conclusions

The key conclusions arising from this study are:

1. **Economic costs of bTB are substantial and pervasive:** these costs, when aggregated, are estimated at over £96 million. In profitability terms, this equates to around 12.5% of Total Income From Farming (TIFF) for Northern Ireland agriculture in 2024, or nearly one-third of total agricultural support (£332.5 million).[38] When combined with the direct costs incurred by DAERA, the overall cost impact rises to £156 million. This equates to 20% of NI TIFF and about 46% of total support given to NI agriculture.

   The indirect costs of bTB borne by farmers are large in scale and affect all major grazing livestock systems. These costs arise not only during breakdowns but also in the absence of infection, reflecting the baseline burden imposed by routine testing and ongoing disease risk. Importantly, a significant proportion of these costs fall on farms that do not experience a breakdown in any given year, underlining the pervasive nature of the burden.

   Indirect bTB costs significantly surpass the direct costs already incurred by DAERA and looking at this another way, farmers are already incurring the majority of costs associated with bTB.

2. **Breakdown severity and duration are critical cost drivers:** The modelling and sensitivity analysis demonstrate that breakdown severity and duration are among the most important determinants of total farm-level costs. Farms experiencing prolonged or repeated restrictions face sharply higher costs across multiple categories, including:
   - **Additional labour:** associated with repeated testing and compliance activities.
   - **Reduced technical efficiency:** due to disrupted breeding, delayed culling and altered herd structure.
   - **Increased feed, bedding and housing costs:** arising from extended retention of stock.
   - **Future output losses:** linked to reduced lifetime performance of affected animals.

   Relatively small changes in key parameters such as restriction length, labour inputs per test or contingency stocking levels generate large changes in farm-level costs. However, the sensitivity analysis also shows that, across a wide range of key cost input parameters, the overall conclusion remains unchanged i.e. that bTB exerts a major and persistent drag on NI farm profitability.

3. **Compensation fails to cover the full range of costs borne by NI farmers:** given the findings above, compensation mechanisms address only a subset of bTB-related costs. Reactor payments relate to the market value of slaughtered animals, but other dominant cost drivers identified in this study sit entirely outside the compensation framework. Several of these have been listed above but issues relating to financing pressures (interest and cashflow), biosecurity costs and environmental inefficiencies are also problematic.

   Accordingly, compensation does not offset the true economic impact of bTB at farm level, particularly for farms experiencing prolonged or repeated disruption. This highlights the structural nature of bTB impacts and the limitations of existing support mechanisms in addressing them. That said, simply extending the level of support/compensation to cover all of these costs is not sustainable either. Therefore, it is clear that the underlying drivers of the spread of bTB need addressing with urgency.

4. **Dairy systems are particularly exposed, but impacts are widespread:** while bTB affects all cattle-based livestock systems, the study confirms that dairy farms are particularly exposed to indirect costs. Higher biological intensity, output impacts and limited flexibility in herd management mean that disruption has a disproportionate effect on dairy businesses.

   Losses associated with reduced milk output, increased replacement rates, inflated youngstock populations and constrained culling strategies are especially pronounced. These effects also have wider commercial implications as milk processors place increasing emphasis on efficiency, consistency and environmental performance.

   Even so, significant impacts are also evident across beef and mixed farms, particularly LFA farms, and smaller systems with limited capacity to absorb additional costs. Aggregated results show that extensive beef systems account for a substantial share of total indirect costs when scaled to the NI farm population.

5. **bTB creates structural inefficiency and undermines resilience:** Beyond the immediate financial impacts, bTB introduces persistent inefficiency into farm systems. Management responses aimed at reducing risk, such as contingency stocking, may be rational at the individual farm level but lead to higher costs, reduced productivity and increased environmental pressures. These effects weaken farm resilience by:

   - Increasing working capital requirements and exposure to cashflow stress.
   - Delaying or deterring other (sometimes more productive) investment.
   - Placing increased pressure on existing infrastructure (e.g. buildings) which, in many cases, need upgrading but the funds and capacity to do this is lacking.

   The evidence suggests that, as bTB incidence increases, these inefficiencies become more deeply embedded within farm systems, reinforcing long-term performance constraints.

6. **Environmental impacts are material and closely linked to economic inefficiency:** the study confirms that bTB has clear environmental consequences, although these have received little attention in previous research. Increased carbon intensity, higher ammonia emissions and additional nutrient loading, which are generally 5–10% higher than would otherwise be the case, arise primarily from overstocking, extended housing and reduced technical efficiency.

These impacts are not incidental. They are a direct consequence of disease control measures and management responses and intensify as disruption becomes more prolonged. As environmental regulation tightens and sustainability metrics play a greater role in market access and supply-chain relationships. These effects represent an additional and growing risk to farm businesses.

7. **Mental health impacts are significant and interact with economic pressures:** evidence from both the farmer survey and stakeholder interviews confirms that bTB imposes a substantial mental health burden on farming families. Stress and anxiety are particularly acute during testing and breakdown periods, but the wider effects extend beyond these episodes. Prolonged uncertainty, repeated disruption and perceived lack of control undermine confidence, strain family relationships and reduce the capacity of farmers to plan ahead. These impacts interact with financial pressures to weaken business decision-making and resilience, particularly in dairying.

Taken together, the evidence confirms that bTB represents a major, systemic and growing constraint on the performance, profitability and sustainability of Northern Ireland's livestock sector. The indirect costs borne by farmers are substantial, persistent and insufficiently reflected in existing policy frameworks. Where disease incidence increases or breakdowns persist, these costs intensify and become more deeply embedded within farm systems. This reinforces the scale and urgency of the challenge facing the sector.

7.3 Recommendations

The conclusions of this study indicate that bTB is imposing a substantial and growing burden on Northern Ireland's livestock sector, much of which sits outside existing policy, compensation and support frameworks. Addressing this challenge requires a shift away from viewing bTB primarily as a narrow animal health issue, towards recognising it as a systemic constraint on farm performance, environmental efficiency and resilience. The following recommendations are grounded directly in the evidence presented and are intended to inform both short-term prioritisation and longer-term strategy.

1. **Reframe bTB policy around total economic impact, not reactor compensation alone:** current approaches to bTB control and support remain heavily centred on reactor removal and compensation payments. While these are necessary components of disease management, they address only a minority of the costs borne by farmers.

   Policy-makers and industry stakeholders need to recognise the full indirect cost burden of bTB, as highlighted in this study. The scale of indirect costs relative to direct public expenditure should be reflected more clearly in policy impact assessments, business cases and budgetary discussions. Linked with this, there also needs to be recognition that farmers are already bearing the majority of the overall economic costs of bTB.

   This reframing is essential in assessing what future interventions are needed to tackle the disease and these should be judged against their ability to reduce total economic harm, rather than simply managing visible programme costs. Whilst doing this, consideration must of course be given to wider environmental, animal welfare and mental health impacts.

2. **Prioritise measures that reduce breakdown duration and recurrence:** the modelling and sensitivity analysis demonstrate that breakdown severity and duration are the dominant drivers of farm-level costs. As a result, interventions that reduce recurrence offer the greatest potential

to lower total economic losses. Disease control strategies should be assessed against their ability to reduce the length and frequency of restrictions at farm level.

3. **Reorientate support measures so that they focus more on reducing disease impact:** the evidence shows that existing compensation mechanisms address only a limited share of the costs associated with bTB, while extending compensation to cover indirect losses would be fiscally unsustainable and risk reinforcing inefficiency. Future support should, therefore, be more explicitly linked to actions that reduce disease risk, shorten breakdown duration or lower the likelihood of recurrence. This implies prioritising measures that enable behavioural and structural change on farms, in return for compensation that is offered, thus placing greater emphasis on tackling the underlying drivers of disease persistence.
4. **Integrate bTB considerations into wider farm resilience strategies:** bTB should be treated as a core business risk within wider farm resilience, productivity and succession planning, rather than as a standalone animal health issue. Policy frameworks and advisory support should recognise how bTB interacts with labour availability, investment capacity, infrastructure constraints and regulatory pressure, particularly on dairy and LFA farms. Failure to integrate bTB into broader business planning risks entrenching under-investment, delayed structural change and declining resilience in affected systems.
5. **Explicitly incorporate environmental impacts into bTB policy design:** environmental impacts associated with bTB are material and closely linked to economic inefficiency, yet they are not prevalent in current policy discussions. Future assessments of bTB control options should account for their implications for carbon intensity, ammonia emissions and nutrient management.

   As environmental compliance and sustainability metrics increasingly influence market access and supply-chain relationships, ignoring these effects risks compounding commercial pressures on affected farms and for NI agri-food more generally.

   Aligning disease control with environmental objectives would improve overall policy coherence and reduce unintended trade-offs.
6. **Use targeted capital grant support to help farms address bTB-related issues:** there is a strong case for targeted capital support to help farms reduce the operational and economic costs associated with bTB control. Evidence from this study shows that inadequate handling, housing, segregation and slurry infrastructure increases labour demand, prolongs disruption during breakdowns and exacerbates environmental pressures. Supporting investment in practical, farm-level infrastructure that improves animal handling, segregation (e.g. double-fencing particularly around perimeters) and biosecurity would not remove disease risk, but would reduce inefficiency and align bTB management with wider productivity and environmental objectives.
7. **Strengthen mental health support as a complementary, not substitute, response:** the mental health impacts of bTB interact directly with economic stress, uncertainty and prolonged disruption. While improved access to support services is important, this cannot substitute for addressing the root causes of stress. For instance, mental health support should be embedded within bTB response frameworks, particularly during prolonged or repeated breakdowns.

At the same time, policy design should recognise that reducing uncertainty and improving system transparency are among the most effective ways of alleviating stress.

Support services should, therefore, be seen as complementary measures, and not something to be done in isolation. Indeed, there is merit, when a farm experiences a breakdown, to inform them of the mental health services which are available (i.e. via Rural Support) to farmers, should they require them. Linked with this, DAERA staff also need to exercise empathy and not come across as officious or uncaring when dealing with farmers, during what can be a very distressing time. This does not come at much cost, but makes a notable difference to farmers.

8. **Strengthen governance and industry ownership of the bTB programme:** stakeholders consistently highlighted weak industry buy-in and limited ownership of the bTB programme. Farmers, veterinarians and processors need to be fully-involved in programme design and oversight along with other key stakeholders. This would improve credibility, compliance and long-term effectiveness, drawing on lessons from New Zealand and elsewhere.

9. **Adopt a genuinely integrated cattle, wildlife and public health disease strategy:** interviewees were clear that progress on bTB will remain limited without a coordinated approach to cattle controls, wildlife health surveillance and biosecurity.

   A science-led, long-term strategy addressing all transmission pathways would reduce reinfection risk and improve value for money for both farmers and the public purse. This should include closer integration between veterinary and public health authorities to strengthen surveillance of zoonotic disease risks, including monitoring potential transmission pathways through livestock, wildlife and the food chain, and ensuring rapid laboratory diagnosis where cases are suspected. Improved data sharing between animal health and public health systems, alongside joint contingency planning for emerging disease threats, would help ensure that risks to farm workers, veterinarians and the wider public remain extremely low, despite the recent increase in the number of human TB cases arising from the Mycobacterium bovis (M. bovis) pathogen, albeit from a very small base.

   This must be implemented carefully so that wildlife populations are not placed under threat as a result of control measures.

10. **Improve communication and information flow to farms and frontline vets:** several interviewees noted that existing disease risk, biosecurity and management information does not consistently reach farmers in a usable form. Better information flow through vets and advisers represents a low-cost opportunity to improve on-farm decision-making and reduce avoidable risk.

11. **Build on this study as a baseline for ongoing assessment of bTB impacts:** this study has addressed a significant gap in the evidence base by quantifying, for the first time in Northern Ireland, the scale and composition of the indirect costs of bTB borne by farmers. It provides a robust baseline against which future developments in disease incidence, control strategies and farm impacts can be assessed.

    Future bTB policy evaluation should use this analysis as a reference point when assessing changes in total economic impact, not solely public expenditure. Periodic updating of key parameters, such as breakdown duration, testing intensity and productivity impacts, would allow changes in the burden of bTB on farmers to be tracked over time.

Using this framework would help to ensure that future decisions are informed by how bTB affects farm businesses in practice, rather than relying on partial or outdated cost estimates.

7.4 Final Remarks

This study confirms that bTB imposes significant economic, environmental and mental health costs on Northern Ireland farming that extend well beyond reactor removal and compensation payments. While DAERA incurs substantial direct costs through testing, compensation and programme delivery, the evidence shows that, once indirect impacts are accounted for, farmers bear the majority of the overall economic burden. As such, whilst there may be moves in some circles for farmers to share the burden of public (direct) expenditure on bTB costs, there must also be acknowledgment that farmers are already paying more than their fair share when the full economic costs are considered.

With rising disease incidence and more prolonged and recurrent breakdowns, the findings underline the need for urgent and sustained action. Experience from other countries and from earlier periods demonstrates that bTB incidence can be reduced, but there is no single intervention that will deliver this outcome in isolation. Progress will depend on a coordinated set of measures, with farmers placed firmly at the centre of disease control efforts, supported by policies that are grounded in on-farm realities and that give due weight to wider environmental and stakeholder considerations.

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