FUTURE AGRICULTURAL POLICY PROPOSALS FOR NORTHERN IRELAND

BACKGROUND EVIDENCE PAPER

January 2022

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Department of Agriculture, Environment and Rural Affairs
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Contents

This paper provides background analysis to the future agricultural support consultation. It is split into sections as appropriate.

1. Background Paper: Resilience - analysis of the importance of Direct Payments to Northern Ireland Farms

1.1 Introduction

Following the UK's departure from the EU, DAERA now has responsibility for developing and implementing agricultural support schemes in Northern Ireland. It is proposed that a Resilience Payment will constitute a proportion of agricultural support payments in Northern Ireland with the aim of enhancing farm incomes and ensuring that farm businesses can withstand market price fluctuations and other shocks, that is a safety net. In line with the outcome of improving environmental sustainability, specific conditionalities including participation in soil testing, are proposed to form part of this Scheme moving forward. It is, therefore, appropriate to examine the dependence of different farm types on agricultural support.

The current system of direct payments is decoupled from agricultural production and linked to the amount of land that is farmed. This form of payment is less trade distorting than linking payments to production and more efficient at ensuring the direct payments translate into farm income instead of being capitalised into higher input costs or causing a reduction in market prices. However, it also encourages types of farming where the aim is not productivity nor efficiency, but to qualify for the subsidy or to maintain farm status in order to qualify for taxation or other benefits.

This analysis sets out the level of reliance of Northern Ireland farms on direct payments. The data used have been obtained from the Farm Business Survey over the period 2014/15 to 2018/19.

There were 25,896 farms in Northern Ireland as of the 2020 agricultural census, predominantly made up of LFA cattle and sheep (15,137), lowland cattle and sheep (5,230) and dairy (2,603). Some 23,800 farms in Northern Ireland were in receipt of

direct payments to the total value of £322m in 2020. As **Table 1** shows, the output of the overall farming sector is not related to the number of farms. Dairy is the largest contributor to agricultural output followed by beef and sheep.

Table 1. Agricultural Output in Northern Ireland

Output	Total Value of Output (£m) (2020)	Number of Farms (main production)	Output per farm (£'000)
Milk	667	2,603	256
Cattle + Sheep	521	20,376	26
Pigs	216.9	173	1,254
Poultry + Eggs	426.6	628	679
Horticulture	95.4	226	422

NB. Obtaining a precise amount is difficult given that many farms operate more than one enterprise and a significant amount of beef output is generated from dairy enterprises

1.2 Farm Incomes and Direct Payments

At an industry level, total income from farming (TIFF) is a measure of the return to farmers, partners and directors, their spouses and other family workers for their labour, management input and own capital invested. In 2020, the Northern Ireland agriculture sector produced a TIFF of £456.3m which included a total direct payment value of £322m. This suggests that farms in Northern Ireland had an average income of £17,661 with the inclusion of direct payments and £5,186 when direct payments were deducted.

The same statistics for the period 2014 – 2019 are shown in **Table 2**. The data show that TIFF is variable with a range between £223m to £506m over the period. The importance of direct payments is illustrated by the fact that in their absence, on average farms would have been loss-making in 2015. The presence of direct payments provides a cushion with average farm income ranging from £8,953 to £20,295 over the 5 year period.

Table 2. Total Income from Farming

	2014	2015	2016	2017	2018	2019
Number of Farms	24,228	24,907	24,528	24,956	24,895	24,825
CAP Direct Payments (£m)	248.3	235.2	274.0	289.4	286.5	289.1
TIFF (£m)	328.1	223.0	290.5	506.5	386.3	341.7
TIFF - CAP (£)	79.8	(12.2)	16.5	217.1	99.9	52.6
TIFF/Number of Farms (£)	13,541	8,953	11,844	20,295	15,515	13,764
TIFF - CAP/Number of Farms (£)	3,292	(490)	673	8,699	4,011	2,118

Data from the 2014/15 to 2018/19 Farm Business Survey showing average direct payment as a percentage of farm business income for farm types are shown in **Table 3**. Direct payments made up the largest proportion of output for LFA and lowland cattle and sheep farms and cereal farms. It is important to note that the labels of farm type describe the main enterprise of the farm but it does not preclude these farms from having other activities on the farm, for example, a farm classified as a pig farm may also have a beef and sheep enterprise.

Excluding direct payments from the Farm Business Income (FBI) provides an indication of the incomes generated from farming activities. The data over the period indicates that pig and mixed farm types return a positive FBI when direct payments are removed. Dairy farms show a variability with generally strong income but a dip occurred in 2015/16 and 2016/17 which was due to low milk prices. Cattle and sheep (LFA) and cattle and sheep (lowland) farm types generate losses with the removal of direct payments across the period. When measured across all farm types the average FBI with direct payments removed is positive with the exception of the 2015/16 and 2016/17 years, most likely also due to low milk prices in these years.

Table 3. Direct Payments as a Percentage of Total Income across Farm Types

Farm Types	2014/15 (%)	2015/16 (%)	2016/17 (%)	2017/18 (%)	2018/19 (%)
Cereals	118	114	182	127	55
General Cropping	84	142	66	111	11
Pigs	29	68	25	15	21
Dairy	48	184	102	37	43
Cattle and Sheep (LFA)	195	173	150	169	201
Cattle and Sheep (Lowland)	164	167	147	145	176
Mixed	64	121	90	62	79
All	**103**	**169**	**126**	**80**	**90**

Figure 1 shows that without direct payments, cattle and sheep farms on average have not returned a positive farm income and dairy and cereals farms experienced negative incomes in particular years. It can be concluded that cattle and sheep farms especially, but also some dairy and cereal farms (sectors which were historically supported under the CAP) would be vulnerable without direct support. It also must be emphasised that breaking even in terms of farm income is not sufficient – to be viable an adequate return to labour, capital investment and entrepreneurial skills is required.

Figure 1. Average Farm Business Income minus Direct Payment

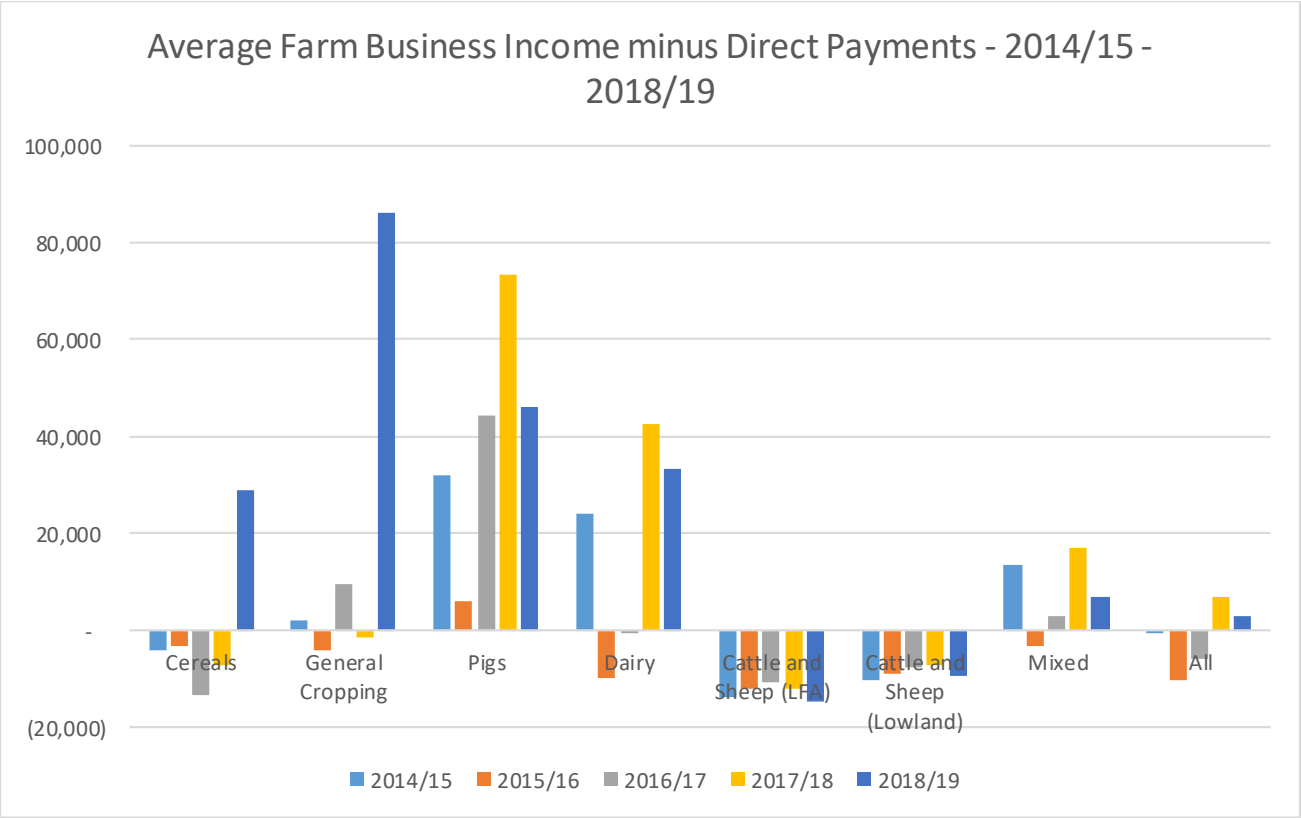


Table 4 shows the decrease in farm incomes from a percentile decrease in average direct payments across different farm types. The results show the average across the period of 2014/15 to 2017/18, the 2018/19 results have not been included as these were provisional at the time the analysis was undertaken.

Table 4 also shows that all farms on average would produce a positive FBI with direct payments being reduced by up to 50%. For cattle and sheep farms a positive FBI would be produced up to a 60% reduction in direct payments for LFA and 70% reduction for lowland. Cereal farms would produce a positive FBI up to an 80% reduction in direct payments.

Table 4. Farm Business Income when percentile reductions in current direct payments are made

Average 2014/15 - 2017/18		Farm Business Income @ Percentage of current Direct Payment									
Farm Types	FBI (£'000)	90%	80%	70%	60%	50%	40%	30%	20%	10%	0%
Cereals	22.5	19.5	16.6	13.6	10.7	7.7	4.87	1.8	-1.1	-4.1	-7019
General Cropping	15.7	14.3	12.9	11.4	10.0	8.6	7.2	5.7	4.3	2.9	1.5
Pigs	52.1	50.8	49.5	48.1	46.8	45.5	44.2	42.8	41.5	40.2	38.9
Dairy	37.4	35.0	32.7	30.4	28.0	25.7	23.4	21.0	18.7	16.4	14.1
Cattle and Sheep (LFA)	17.7	14.7	11.7	8.7	5.7	2.7	-0.3	-3.3	-6.3	-9.3	-12.3
Cattle and Sheep (Lowland)	15.6	13.2	10.8	8.3	5.9	3.5	1.1	-1.3	-3.8	-6.2	-8.6
Mixed	31.3	28.9	26.5	24.1	21.7	19.3	17.0	14.6	12.2	9.8	7.4
All	**23.9**	**21.2**	**18.6**	**16.0**	**13.3**	**10.7**	**8.1**	**5.5**	**2.8**	**0.2**	**-2.5**

It should be noted that the above analysis does not include other factors that would impact upon farming resulting from the reduction of direct payments; for example changes in prices of output and trade flows with the EU and GB. Furthermore as outlined above, the FBI must be adequate to generate an adequate return to labour, capital and entrepreneurial skills.

1.3 Potential impacts on the main farming sectors of removing direct payments

1.3.1. Beef and Sheep

The beef and sheep sector is made up of a large number of small farms that are predominately in Less Favoured Areas (LFA) in Northern Ireland. These farms are predominantly run on a part-time basis and have a reliance on family labour.

The stepped analysis (Table 4) showed that beef and sheep farms would produce a positive business income with reductions in direct payments of 60% for LFA and 70% for lowland.

Tables 5, 6 and **7** show the level of reliance on direct payments for different farm sizes of lowland beef and sheep. It can be seen across the period that for all sizes that are captured by the Farm Business Survey, there is a reliance on direct payments to produce a positive FBI.

Table 5. Lowland Cattle and Sheep Average Farm Income by Farm Size

Size	2014/15 (£)	2015/16 (£)	2016/17 (£)	2017/18 (£)	2018/19 (£)
<0.5 SLR	1,930	(1,722)	4,561	4,188	6,543
0.5 - 1 SLR	9,168	6,159	12,978	11,534	8,213
1 - 2 SLR	11,751	14,289	15,330	21,667	16,144
2 - 3 SLR	**	**	**	**	**
>3 SLR	**	**	**	**	**
All	**15,726**	**13,456**	**16,578**	**16,637**	**12,274**

**Data not presented by FBS (possibly due to small sample size).

Table 6. Lowland Cattle and Sheep Average Direct Payments by Farm Size

Size	2014/15 (£)	2015/16 (£)	2016/17 (£)	2017/18 (£)	2018/19 (£)
<0.5 SLR	*	**	**	*	**
0.5 - 1 SLR	17,120	14,487	16,417	16,640	13,988
1 - 2 SLR	23,920	22,043	25,125	25,360	27,502
2 - 3 SLR	**	**	**	**	**
>3 SLR	**	**	**	**	**
All	**23,939**	**22,447**	**23,108**	**24,048**	**20,375**

**Data not presented by FBS (possibly due to small sample size).

Table 7. Lowland Cattle and Sheep Average Farm Income minus Average Direct Payment by Farm Size

Size	2014/15 (£)	2015/16 (£)	2016/17 (£)	2017/18 (£)	2018/19 (£)
0.5>1 SLR	(7,952)	(8,328)	(3,439)	(5,106)	(5,775)
1>2 SLR	(12,169)	(7,754)	(9,795)	(3,693)	(11,358)
All	**(8,213)**	**(8,991)**	**(6,530)**	**(7,411)**	**(8,101)**

Tables 8, 9 and **10** show the level of reliance on direct payments for different farm sizes of LFA beef and sheep. It can be seen across the period that at all sizes that are captured by the Farm Business Survey there is a reliance on direct payments to produce a positive FBI.

Table 8. LFA Cattle and Sheep Average Farm Income by Farm Size

Size	2014/15 (£)	2015/16 (£)	2016/17 (£)	2017/18 (£)	2018/19 (£)
<0.5 SLR	3,631	1,973	4,785	4,595	2,113
0.5 - 1 SLR	9,153	10,018	12,106	11,229	7,581
1 - 2 SLR	19,414	17,882	25,581	19,179	19,387
2 - 3 SLR	35,298	43,918	60,213	44,946	52,284
>3 SLR	57,751	109,302	129,977	131,795	73,926
All	**14,745**	**16,837**	**21,352**	**17,725**	**14,368**

Table 9. LFA Cattle and Sheep Average Direct Payment by Farm Size

Size	2014/15 (£)	2015/16 (£)	2016/17 (£)	2017/18 (£)	2018/19 (£)
<0.5 SLR	**	**	**	*	**
0.5 - 1 SLR	21,243	20,356	23,348	21,820	21,968
1 - 2 SLR	35,295	30,044	37,238	35,403	37,715
2 - 3 SLR	63,234	71,280	82,531	75,205	67,080
>3 SLR	29,195	109,231	91,246	87,326	80,214
All	**28,726**	**29,093**	**32,027**	**29,883**	**28,877**

**Data not presented by FBS (possibly due to small sample size).

Table 10 presents a similar analysis for LFA beef and sheep which shows across the period that at all levels except for the largest farms, there is a consistent reliance on direct payments. For the smallest farms sampled in the FBS (0.5 - 1 SLR) farm direct payments account for an average 220% of FBI. Although, the largest (>3 SLR) LFA beef and sheep farms were, in some years, producing a positive FBI with the deduction of direct payments, these make up a very small amount of the total beef and sheep farm population (<1%).

Table 10. LFA Cattle and Sheep Average Farm Income minus Average Direct Payment by Farm Size

Size	2014/15 (£)	2015/16 (£)	2016/17 (£)	2017/18 (£)	2018/19 (£)
0.5 - 1 SLR	(6,676)	(17,671)	(16,003)	(10,591)	(11,233)
1 - 2 SLR	(8,615)	(39,934)	(35,259)	(16,224)	(12,376)
2 - 3 SLR	(11,997)	(54,445)	(36,751)	(30,259)	(7,014)
>3 SLR	4,240	(43,144)	(20,800)	44,469	(494)
All	**(13,981)**	**(12,256)**	**(10,675)**	**(12,158)**	**(11,121)**

*Note that the FBS does not cover farms below 0.5 SLR, beyond a small subsample.

**Data not presented by FBS (possibly due to small sample size).

1.3.2. Dairy

The dairy sector is made up of a smaller number of farms in comparison to beef and sheep but produces a larger total output. Dairy farms have less of a reliance on the labour of the farm family and are generally within areas with higher land quality. Dairy farms are also less reliant on direct payments to produce a positive FBI.

Tables 11, 12 and **13** present the average dairy income by farm size, and average dairy farm income minus direct payments.

Table 11. Dairy Average Farm Income by Farm Size

Farm Size	2014/15 (£)	2015/16 (£)	2016/17 (£)	2017/18 (£)	2018/19 (£)
0.5 - 1 SLR	10,967	1,394	4,818	12,502	17,239
1 - 2 SLR	24,400	10,640	15,780	36,216	31,684
2 - 3 SLR	49,278	24,889	26,000	62,286	48,452
>3 SLR	69,299	7,678	32,059	105,737	87,360
All	**45,728**	**11,925**	**23,618**	**68,148**	**57,798**

Table 12. Dairy Average Direct Payment by Farm Size

Size	2014/15 (£)	2015/16 (£)	2016/17 (£)	2017/18 (£)	2018/19 (£)
0.5 - 1 SLR	6,151	6,474	6,914	8,344	6,754
1 - 2 SLR	11,648	10,475	12,459	14,137	13,684
2 - 3 SLR	18,743	17,546	19,559	21,001	19,425
>3 SLR	32,217	29,421	34,675	39,662	35,637
All	**21,731**	**21,991**	**24,036**	**25,460**	**23,698**

Table 13. Dairy Average Farm Income minus Average Direct Payment by Farm Size

Size	2014/15 (£)	2015/16 (£)	2016/17 (£)	2017/18 (£)	2018/19 (£)
0.5 - 1 SLR	4,816	(5,080)	(2,096)	4,158	10,485
1 - 2 SLR	12,752	165	3,321	22,079	18,000
2 - 3 SLR	30,535	7,343	6,441	41,285	29,027
>3 SLR	37,082	(21,743)	(2,616)	66,075	51,723
All	**23,997**	**(10,066)**	**(418)**	**42,688**	**34,100**

Table 13 shows that on average dairy farms would produce a positive FBI in the absence of direct payments. Very small dairy farms are, however, more reliant on them.

1.3.3. Pigs and Poultry

For poultry and pig farms, only a very small proportion of revenue and farm business income comes from direct payments. These farms produce intensively within small areas and, therefore, do not receive direct payments directly connected to these activities, but rather for other farm activities, such as keeping cattle or sheep. These farms are less likely to claim direct payments as they may not have land that is eligible.

1.3.4. Horticulture

No data are available from the Farm Business Survey on horticultural enterprises. This is a sector that historically did not receive direct payments. Their inclusion in the direct payments regime is due to the decoupling process and all agricultural land

becoming eligible for payment. Direct payments constitute a small proportion of output on these farms and the removal/reduction of direct payments would return the sector to the position prior to 2005. Therefore, major impacts on the sector are not expected.

1.4 Conclusions

- In general, farms in Northern Ireland obtain a large proportion of their income from direct payments. This can exceed 100% in years of low market prices.

- Cattle and sheep farms are very dependent on direct payments and on average do not generate a positive FBI in their absence.

- In years of particularly low prices, dairy farms can also struggle to generate a positive FBI without direct payments. In most years, FBI is negative on cereal farms without direct payments.

- On average over the 2014/15 – 2017/18 period, FBI is negative for specified farm types under the following reductions to direct payments:
  - Cattle and sheep LFA – 60% reduction;
  - Cattle and sheep lowland – 70% reduction;
  - Cereals – 80% reduction; and
  - All farm types – 100% reduction.

- Small farms are more dependent on direct payments than larger farms.

This analysis is based on average farm performance and the position on the best performing farms will be considerably better, with much less reliance on direct payments. It is recognised that the beef and sheep sectors face particular challenges in terms of their economic resilience, viability and exposure to volatility.

1.5 Additional Resilience Payment Analysis

It is proposed that the future Resilience Payment will be a safety net that helps a farm business to respond to and withstand shocks outside of its control, particularly those impacting on farm incomes that would cause otherwise viable businesses to fail.

In determining the amount of the Resilience Payment and to whom it should be paid, it is necessary to examine a number of issues. These are the type of businesses that should receive the payment, the limit on the amount of payment any business can receive and the minimum area required to receive the payment.

1.5.1. Businesses that should be eligible to receive the resilience payment

EU law was changed in 2015 to clarify that in order to receive BPS entitlements, applicants had to have the decision making powers, benefits and financial risks of the agricultural activity being undertaken on the land concerned. The impact of this change was that non-farming landowners who rented out all their land under conacre arrangements were no longer eligible for direct payments (unless there were exceptional circumstances). Hence the claimant population fell from around 38,000 in 2013 to approximately 25,500 in 2015 and now stands at approximately 24,000.

In order to be eligible for payments, businesses must be undertaking agricultural activity, but the definition of agricultural activity does not require any specific production or indeed any production at all. Keeping land in a state suitable for grazing and cultivation can suffice. The reason for this definition is to satisfy the criteria for the current BPS to be classified under the WTO Green Box (non- or minimally trade-distorting subsidy) of which one of the requirements is that there must be no production requirement after a fixed reference period. Given that the Resilience Payment will have to meet WTO Green Box requirements, this limits the scope for changes to the definition of agricultural activity and year on year eligibility requirements will have to continue to allow an option for businesses to qualify without having to undertake agricultural production. However, the ability to set production requirements in a reference period does provide some opportunity to tighten requirements for businesses to receive entitlements under the proposed new Resilience Payment Scheme.

At present businesses that solely produce grass silage (including those that produce grass silage for use in anaerobic digesters), or only maintain land in a state suitable for grazing or cultivation (in that they undertake no actual agricultural activity and have no measurable agricultural output), can qualify for BPS. Agricultural support is not put

in place to assist such businesses where the main aim is in most cases to be classified as a farmer (for perceived benefits outside agriculture) or to qualify for the payment, as opposed to an agricultural production aim. Given that the purpose of the Resilience Payment is to enable otherwise viable farm businesses to withstand market shocks, the inclusion of businesses that do not undertake agricultural production or produce only grass silage is difficult to justify.

The Department is, therefore, considering restricting the allocation of entitlements for Resilience Payment to farm businesses which met the following criteria during the reference period which would be a historic year:

- Had cattle or sheep registered on APHIS and/or
- Had at least 3 ha of an arable or horticultural crop.

DAERA analysis of 2020 claimants indicated that 1,384 farm businesses (5.8% of the total) may not meet this requirement. These businesses received £6.5m in payments (2.2% of the total). Given the minimal amount of agricultural activity carried out by these businesses, no impact on the agricultural industry is anticipated.

It is recognised, however, that the approach set out above has limitations as it will not exclude businesses with very small numbers of cattle and may not prevent grass silage producers from trying to enter the scheme in future years. Furthermore, it could be possible for the businesses excluded to transfer in entitlements and claim payments in future years and for other farm businesses to move to solely producing grass silage or non-agricultural production activity in the future. The number of businesses doing so is anticipated to be minimal given the cost of acquiring entitlements and producing grass silage only, which is normally only undertaken when a business wishes to continue farming but is not in a position to keep animals.

1.5.2. Capping of Payments

Large farms can receive very large amounts of direct payments which it is argued are not justified given that such farms can utilise economies of scale and have high levels of income. In response to this criticism, the Department introduced a cap of €150,000 on BPS in 2015 which was the maximum permitted under EU rules. This was modified

to a cap of £190,000 in 2021 to take account of the incorporation of the Greening Payment into BPS and the conversion to sterling. This level of capping impacted less than 10 farm businesses in Northern Ireland. In deciding to implement a cap account needs to be taken of the fact that capping does not prevent farm businesses from becoming more efficient by expanding or encouraging farm businesses to split (artificially or otherwise) in order to avoid the impact of the payment limit as such actions could impact the competitiveness of the industry.

There are 2 broad approaches to capping. An absolute limit can be set on payments that any farm business can receive or a progressive cap can be applied. Under a progressive cap, payments falling within a particular payment band would be subject to a set percentage reduction.

The impact of a 100% reduction to payments above £60,000, £80,000, £100,000 and £150,000 is shown in **Table 14**.

Table 14. Impact of 100% reduction to payment at various levels

Capping Level (£)	Number of Farms Businesses affected	Total Reductions (100% above capping level, £'000)	Total Cattle on affected farms and percentage of NI total	Total Sheep on affected farms and percentage of NI total
190,000	6	300	1,824 (0.1%)	10,280 (0.5%)
150,000	17	736	7,163 (0.5%)	27,274 (1.4%)
100,000	98	3,160	42,267 (2.7%)	78,492 (4.1%)
80,000	195	6,009	77,205 (4.9%)	143,571 (7.5%)
60,000	432	11,928	163,620 (10.4%)	232,538 (12.1%)

Table 14 shows that a 100% direct payments cap at £150,000 would only apply to 17 farms with total reductions of just over £735,000. A Resilience Payment cap at or below £100,000 begins to impact a significant number of farm businesses, many of which rear cattle and sheep. The total deductions are £3.16m (1.1% of total payments) with a cap at £100,000. Payments deducted and the number of cattle and sheep on these farms is a small proportion of the Northern Ireland total, enterprise size on the 98 farms receiving more than £100,000 is very large and averages at 431 cattle and

801 sheep. At capping levels of £80,000 and £60,000 the number of farms affected and payments deducted increase but remain at a small proportion of the Northern Ireland total (1.8% of farms and 4.1% of payments at a capping level of £60,000). However, farms receiving above £60,000 account for more than 10% of total Northern Ireland cattle and sheep farms.

Farms that receive payments above £60,000 and, therefore, would be impacted by a capping level set at £60,000 are predominantly in the SDA with SDA farm types accounting for 215 farms which is just over half the total. Approximately 60% of farms with payments above £60,000 are classified as cattle and sheep types and 25% are classified as dairy farms. The proportion of all farm businesses that receive more than £60,000 is small across all farm types with the largest proportion being in the lowland dairy sector where 6.1% of farms had a payment above £60,000.

The other approach to capping is one of progressive reductions. **Table 15** shows the total amount of direct payments which fall into each payment band from which it is possible to work out the total amount deducted which would arise from a certain percentage reduction applying to payments within that band. For example, if payments between £60,000 and £80,000 were subject to a 20% reduction, the total amount deducted would be £1,183,888 (£5,919,438 x 20%).

Table 15 shows both the value of payments falling within the specified payment bands, and the number of farms which receive a payment within those bands.

Table 15. Value of payments falling within specified payment bands and the number of farms receiving a total payment within the band.

Bands of total payments £	Number of Farms	Value of payments £'000
1 – 60,000	23,429	281,072
60,000 – 80,000	237	5,919
80,000 – 100,000	97	2,849
100,000 – 150,000	81	2,424
150,000 – 190,000	11	436
190,000+	6	300
All	**23,861**	**293,000**

Note: As an example, a farmer receiving £70,000 in direct payments would be recorded in the £60,000 - £80,000 payment band while £60,000 of the payment is recorded in the £1 - £60,000 band and £10,000 in the £60,000 - £80,000. Hence the table shows that 237 farmers received payments ranging from £60,000 - £80,000 and the value of those payments **over £60,000** was £5,919,438.

A progressive approach to capping along with the percentage reduction within each band increasing gradually over a period of time rather than an absolute cut off imposed with little lead-in time reduces the incentive for businesses to split to minimise the impact of the cap and also allows time to prepare to adjust to a reduced payment.

There are numerous payment bands and percentage reductions that could be applied to each band. As an example, if the reductions to payments were set as follows:

- £60,000 - £80,000 – 20%;
- £80,000 - £100,000 – 40%;
- £100,000 - £150,000 - 60%;
- £150,000 - £190,000 – 80%; and
- £190,000+ - 100%.

A business which would have received £190,000 prior to the introduction of capping would see their payment reduced to £116,000 as set out in **Table 16**.

Table 16. Example of payment bands and percentage reductions for progressive capping

Payment Band	Payment amount falling within the band	Percentage reduction (%)	Payment deduction (£)	Payment after deduction (£)
£150,000-£190,000	£40,000	80	32,000	8,000
£100,000-£150,000	£50,000	60	30,000	20,000
£80,000-£100,000	£20,000	40	8,000	12,000
£60,000-£80,000	£20,000	20	4,000	16,000
£0-£60,000	£60,000	0	0	60,000
Total	**£190,000**		**74,000**	**116,000**

The total amount deducted from direct payments at the Northern Ireland level as a result of these progressive reductions is shown in **Table 17**.

Table 17. Deductions under progressive capping scenario

Capping Level (£)	Rate of Reduction within band (%)	Payment falling within band £'000	Amount deducted within band £'000
190,000+	100	300	300
150,000-190,000	80	436	349
100,000-150,000	60	2,425	1,455
80,000-100,000	40	2,849	1,140
60,000-80,000	20	5,919	1,184
Total value of reduction			**4,427**
Percentage of total payments			**1.5%**

1.5.3. Minimum Claim Size

Farms which are farming small areas of land are likely to have very low levels of agricultural activity. Their level of outlay on agricultural activity, and risk-taking is likely to be low (although there are exceptions) and, therefore, it is questionable whether such farms should receive a resilience payment. The impact of increasing the minimum claim size from the current 3 ha to 5 ha, 7.5 ha and 10 ha is shown in **Tables 18** and **19.**

Table 18. Number of farms affected by minimum claim size by farm type

Farm Type	5 ha	7.5 ha	10 ha	All farm businesses
Cereals	18	34	46	238
General Cropping	149	289	375	854
Horticulture	15	32	49	128
Pigs	>10	>10	16	99
Poultry	12	31	49	480
SDA Dairy	>5	>5	>5	515
DA Dairy	>5	>5	9	939
Lowland Dairy	>5	>5	>5	1,123
SDA Sheep	114	259	394	1,955
SDA Beef	177	469	835	5,076
SDA Mixed	17	46	85	1,238
DA cattle and sheep	367	857	1,360	5,498
Lowland cattle and sheep	304	698	1,033	4,358
Mixed	6	15	33	443
Other	5	14	17	22
No match	271	460	571	895
Total	**1,463**	**3,219**	**4,880**	**23,861**
% of Total	**6.1**	**13.5**	**20.5**	

Table 19. Value of farm payments affected by minimum claim size by farm type

Farm Type	5 ha (£ '000)	7.5 ha (£ '000)	10 ha (£'000)	Value of payments to all businesses (£'000)
Cereals	26	57	88	3,516
General Cropping	252	535	783	6,616
Horticulture	20	49	93	862
Pigs	*	*	36	1,577
Poultry	21	70	127	6,197
SDA Dairy	*	*	*	11,034
DA Dairy	*	*	22	21,242
LL Dairy	*	*	*	31,615
SDA Sheep	128	390	738	28,546
SDA Beef	229	794	1,800	55,443
SDA Mixed	21	79	188	23,384
DA Cattle and Sheep	491	1,449	2,826	47,161
LL Cattle and Sheep	403	1,180	2,082	42,556
Mixed	6	27	78	8,594
Other	7	25	32	66
No match	417	799	1,090	4,592
Total	**2,033**	**5,481**	**9,999**	**293,000**
% of total	**0.7**	**1.9**	**3.4**	

* withheld due to data disclosure issues

Tables 18 and **19** show that the number of farm businesses excluded from receiving the proposed Resilience Payment increases when the minimum claim size is increased, particularly for 7.5 ha and 10 ha with over 20% of current farm businesses no longer eligible if a 10 ha requirement was applied. Numerically, cattle and sheep farms account for the largest number of businesses no longer eligible due to an increase in the minimum claim size. Just under 25% of current DA cattle and sheep farms would not meet a 10 ha requirement. As regards other sectors, 44% of general cropping farms and 38% of horticulture farms are under 10 ha. The large number of

small general cropping farms is explained by the fact that they include businesses solely producing grass silage on small areas of land while horticultural businesses produce high output per hectare. However, the amount of direct payments received by the horticulture sector both in absolute terms and relative to output is low. As regards payments, the total amount that would no longer be paid is a low proportion of the total, ranging from 0.7% with a 5 ha minimum claim size to 3.4% when increased to 10 ha. Cattle and sheep farms account for 76% of the payments affected at a 10 ha minimum claim size while SDA farm types account for 27%.

Table 20 sets out the number of farms affected by minimum claim size by farm size. **Table 21** shows the value of farm payments which are affected.

Table 20. Number of farms affected by minimum claim size by farm size

Farm Size	5 ha	7.5 ha	10 ha	All farm businesses
Very Small	1,178	2,717	4,231	17,478
Small	6	29	53	2,751
Medium	3	6	8	1,147
Large	5	7	17	1,590
No Match	271	460	571	895
Total	**1,463**	**3,219**	**4,880**	**23,861**

Table 21. Value of farm payments affected by minimum claim size by farm size

Farm Size	5 ha (£ '000)	7.5 ha (£'000)	10 ha (£'000)	Value of payment to all businesses (£'000)
Very Small	1,592	4,592	8,713	130,902
Small	10	60	128	58,996
Medium	5	11	16	31,812
Large	9	18	50	66,698
No Match	417	799	1,090	4,596
Total	**2,033**	**5,481**	**9,998**	**293,000**

As would be anticipated, increasing the minimum claim size impacts mainly on very small farm types. Approximately 25% of very small farms accounting for 6.7% of payments would not qualify for the proposed Resilience Payment under a minimum claim size of 10 ha.

As set out in **Table 22**, a closer examination of the impact of an increase in the minimum claim size on the cattle and sheep sector shows that while the number of affected businesses seems high, ranging from 5.4% to 20.5%, the proportion of cattle and sheep on these farms is very low with a range of 0.5% to 5.6%.

Table 22. Impact on Cattle and Sheep sector of increase in the minimum claim size

Minimum Claim Size (ha)	5 ha	7.5 ha	10 ha
Number of cattle and sheep farms (% of population)	979 (5.4%)	2,329 (12.8%)	3,707 (20.5%)
Number of cattle (% of population)	8,488 (0.5%)	24,433 (1.5%)	46,958 (3%)
Number of sheep (% of population)	22,640 (1.2%)	64,085 (3.3%)	107,679 (5.6%)

Note: Cattle and sheep present on farm types other than cattle and sheep farms are included in the totals in this Table.

In summary, increasing the minimum claim size to 10 ha excludes a number of farm businesses, mostly very small farms in the cattle and sheep sector from receiving the Resilience Payment. A significant proportion of businesses solely producing grass silage would also no longer be eligible. However, the impact on payments is very small. Hence changes to the minimum claim size will have no noticeable impacts on production levels and consequently the issues to be considered are the objectives of the Resilience Payment and whether those would be achieved by making a payment to businesses that farm very small areas.

2. Background Paper: Headage Sustainability Package

Purpose

The purpose of this paper is to provide additional background information on the Headage Sustainability Package.

2.1 Beef and Sheep sector in Northern Ireland

The beef and sheep sector in Northern Ireland is important to the Northern Ireland economy. **Table 1** provides figures which illustrate direct full time employee equivalents and gross turnover, by sub sector in 2018[1]. It shows that the beef and sheep sector had the second highest number of direct employees, employing over 5000 of the agri-food sectors 24,000 employees. It also had the largest gross turn over across all the sectors of £14,436 million.

Table 1. Employment linked to the processing of Agri-Food 2018

Sub Sector	Direct Employees (FTE)	Gross Turnover (£m)
Animal by-products	115	47
Bakeries	4,057	376
Beef and Sheepmeat	5,048	1,436
Drinks	1,399	415
Eggs	413	182
Fish	633	90
Fruit and Vegetables	2,788	363
Milk and Milk Products	2,351	1,143
Pigmeat	1,652	365
Poultrymeat	5,171	745.4
Total Sector	**23,625**	**5,162**

Annually Northern Ireland produces 274,000 tonnes of beef and 41,000 tonnes of sheep meat.

[1] https://www.daera-ni.gov.uk/publications/statistical-review-ni-agriculture-2007-onward

2.2 Farm Sector size

In June 2020, there were **25,896** farms in Northern Ireland, with a total area of 1,029,822 hectares.

On a purely numeric basis, the beef sector and sheep sector make up the largest number of farms in Northern Ireland. **Table 2** provides a breakdown of the number of farms and animals by sector[2].

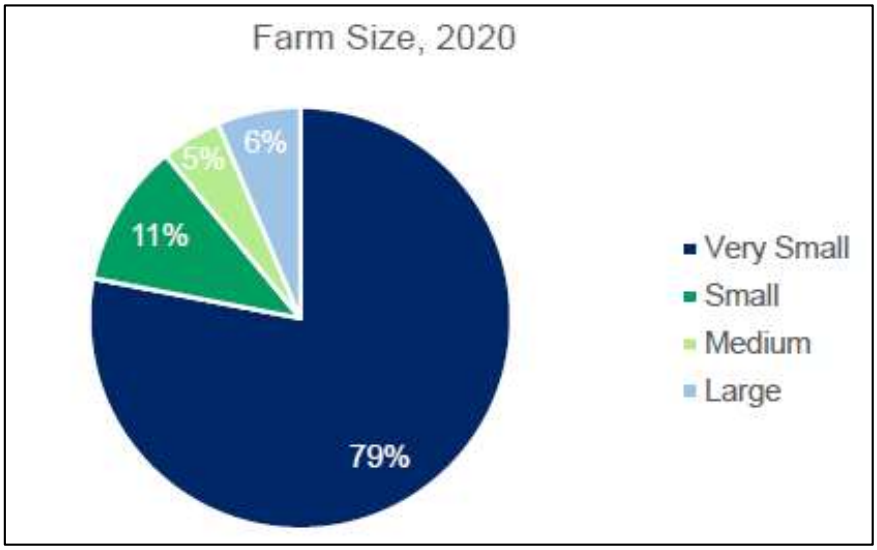
Table 2. Number of farms and animals per sector 2020

Farm Type	No. of Farms (main production)	No. of Animals ('000s)
Cereals	254	n/a
General Cropping	1,105	n/a
Horticulture	226	n/a
Pigs	173	681
Poultry	628	24,352
Dairy	2,603	313 Dairy Cows
Cattle & Sheep	20,367	245 Beef Cows 1,991 Ewes
Mixed & Others	540	n/a

The level of farm business activity in Northern Ireland is captured by categorising farms into four bands: very small, small, medium or large. **Figure 1**[3] illustrates that Northern Ireland farms are predominantly very small in size at 79%, with the small, medium and large farms only representing 22% of the total farm business in Northern Ireland.

[2] https://www.daera-ni.gov.uk/publications/statistical-review-ni-agriculture-2007-onward
[3] https://www.daera-ni.gov.uk/publications/agricultural-census-northern-ireland-2020

Figure 1 Representation of farm business size in NI (2020)[4]



Of the 79% of the very small farms, approximately 60% of them are beef and 53% of them are sheep farms. The majority of these beef and sheep farms (67%) are located in the Severely Disadvantaged Areas (SDA) and the Disadvantaged Areas (DA)[5].

Many of these very small farms are run on a part-time basis. **Table 3** shows the labour split on very small farms, where over half of the labour force is part time (54%) and only 38% of the labour force are employed on a full time basis. Of the 'other workers' there is a small percentage (8%) who are casual/seasonal workers.

[4] Due to rounding – percentages do not total 100.
[5] https://www.daera-ni.gov.uk/sites/default/files/publications/daera/Stats%20Review%202020%20final_1.pdf

Table 3. Labour split on very small farms (2020)[6]

		Labour force	% Labour force
Farmers, Partners, Directors & Spouses	Full Time	12,281	36
	Part Time	16,328	48
Other workers	Full Time	613	2
	Part Time	2,178	6
	Casual/Seasonal	2,738	8
Total agricultural labour force		34,138	

2.3 Northern Ireland farm outputs

Farm outputs for the different agricultural sectors are illustrated in **Table 4**. While the beef and sheep sector is the predominant sector in terms of agricultural activity being undertaken, the data[7] shows the beef and sheep sector as the lowest performing sector, which is lagging well behind the other sectors.

Table 4 Farm Outputs by Sector, 2020 (excluding crops, horticulture and cereals)

Farm Type	Total Value of Output (£m)	No. of Farms (main production)	Output per Farm (£'000)
Pigs	217	173	1254
Poultry & Eggs	427	628	680
Dairy	667	2,603	256
Cattle & Sheep	521	20,367	26

[6] https://www.daera-ni.gov.uk/publications/agricultural-census-northern-ireland-2020
[7] https://www.daera-ni.gov.uk/publications/statistical-review-ni-agriculture-2007-onward

2.4 Farm Income by Sector

The 2019 farm income breakdown for Northern Ireland[8] is shown in **Table 5**. Cattle and sheep farms in the LFA and lowland areas have the lowest income across the sectors.

While Farm Business Income measured across all farm types is expected to increase from an average of £25,935 in 2019/20 to £33,039 in 2020/21, the forecasts for cattle and sheep in both the LFA and lowland are below these averages.

Table 5. Average Farm Business Income by type of farm (£ per farm)

Farm Type	2019/20	2020/21 (forecast)	% change
Cereals	30,440	28,969	-5
Dairy	51,803	63,846	23
Cattle & Sheep (LFA)	15,244	20,307	33
Cattle & Sheep (lowland)	11,869	16,227	37
Pigs	59,728	72,324	21
Mixed	30,029	40,042	33
All Types	25,935	33,039	27

2.5 Livestock Location and Numbers

Table 6 shows that the largest number of cattle and sheep farms across both the LFA and lowland are classed as very small farms.

[8] Farm Level Incomes 2019/20 & 2020/21 (forecast), Statistical bulletins

Table 6. Number of Cattle and Sheep farms in LFA and lowland areas, and farm size by SLR 2020[9]

	Very Small	Small	Medium	Large	Total
Cattle and Sheep Farms LFA	13,698	1,093	215	131	15,137
Cattle and Sheep Farms Lowland	4,559	486	112	73	5,230
Total Number of Farms NI	20,329	2,765	1,167	1,635	25,896

Table 6 provides further information on the size of farm and its location[10]. Geographically the majority of suckler herds and sheep flocks are found in the LFAs.

The LFA is further divided between the Severely Disadvantaged Area (SDA) and Disadvantaged Area (DA). Data[11] in **Tables 7** and **8** show the majority of suckler cows and sheep respectively are located in the SDA.

Table 7. Number of suckler cows by LFA category, June 2020

	Mainly SDA	Mainly DA	Mainly LFA	Mainly non-LFA	LFA% of total	Total
Suckler Cows ('000)	113	72	185	59	75.8	245

Table 8. Number of Sheep by LFA category, June 2020

	Mainly SDA	Mainly DA	Mainly LFA	Mainly non-LFA	LFA% of total	NI Total
Total Sheep ('000)	1,126	453	1,579	412	79.3	1,991

[9] https://www.daera-ni.gov.uk/sites/default/files/publications/daera/Agricultural%20Census%202020%20Publication.pdf
[10] https://www.daera-ni.gov.uk/publications/statistical-review-ni-agriculture-2007-onward
[11] https://www.daera-ni.gov.uk/publications/agricultural-census-northern-ireland-2020

2.6 Herd and Flock size

Tables 9 and **10** provide information on herd and flock sizes[12]. The average herd size has remained much the same size over the last ten years but flock sizes have steadily reduced over this period.

Table 9. Average number of suckler cows per herd

	1999	2009	2017	2018	2019
Suckler Cows	19	16	18	18	17

Table 10. Average flock size of ewes, sheep and lambs

	1999	2009	2017	2018	2019
Ewes	124	105	99	98	96
Sheep & lambs	253	220	205	200	200

2.7 Minimum claim size

One of the proposals under the Resilience Payment is to increase the minimum claim size. Any increase to minimum claim size would have an impact on beef and sheep farms and inevitably the larger the minimum claim size is, the greater the impact on the sector would be, as shown in **Table 11**.

[12] Enterprises: Numbers and Average Size NI Taken from Farm enterprise details for Northern Ireland, 1981 - 2019

Table 11. Number and Proportion of cattle and sheep farms impacted by increase in minimum claim size.

Minimum Claim Size (ha)	5 ha Number & % of farms affected	7.5 ha Number & % of farms affected	10 ha Number & % of farms affected
Farm Type			
Sheep farms in SDA	114 (6%)	259 (13%)	394 (20%)
Beef farms in SDA	177 (3%)	469 (9%)	835 (16%)
Mixed farms in SDA	17 (1%)	46 (4%)	85 (7%)
Cattle and sheep farms in DA	367 (7%)	857 (16%)	1360 (25%)
Cattle and sheep farms in lowland	**304 (7%)**	**698 (16%)**	**1033 (24%)**
Total beef/cattle and sheep farms	**979 (5%)**	**2329 (13%)**	**3707 (20%)**

A minimum claim size of 5 ha would exclude 4% of beef, sheep and mixed farms in the SDA and 7% of cattle and sheep farms in both the DA and the lowland. Overall, 5% of cattle and sheep farms would be excluded.

A minimum claim size of 7.5 ha would impact on 9% of beef, sheep and mixed farms in the SDA, and 16% of cattle and sheep farms in the both the DA and the lowland. Overall, 13% of cattle and sheep farms would be excluded.

The largest minimum claim size being considered, 10 ha would exclude 16% of beef, sheep and mixed farms in the SDA, and 24/25% of cattle and sheep farms in the DA/lowland. Overall, 20% of cattle and sheep farms would be excluded.

2.8 Suckler Cows

DAERA has reviewed evidence from a range sources across Northern Ireland, Ireland and Scotland which included:

- DAERA - Animal and Public Health Information System (APHIS);
- BETTER Farm Beef programmes - the CAFRE/IFJ/ABP BETTER Farms Beef Challenge NI and the Teagasc/IFJ BETTER Farms Beef Challenge

looked at profitability and sustainability of suckler farms through new and improved and knowledge transfer; and

- Scottish Rural College (SRUC) and the Suckler Beef Climate Group (SBCG) – using SRUC research, the group looked at improved production practices to drive environmental outcomes. This work was published in the Scottish Beef Climate Scheme – Final Report[13].

2.8.1. Reducing the age of first calving

The Northern Ireland industry average and an analysis of APHIS data for age of first calving has shown the current average is 31 months.

At the end of phase 2 of the BETTER Farms Beef Challenge, as part of its focus of improving breeding efficiency, Teagasc found age at first calving at 22-26 months under their programme went from just under 25% in 2012 to 43% in 2015. In comparison the Irish national average went from 2% to 18% in the same time period[14].

2.8.2. Improving efficiency

Teagasc reports that cows first calving at 24 months are more productive over their lifetime as they produce more calves in that time period compared with cows first calving at an older age. This can help reduce costs – research has shown that reducing the calving age of a suckler cow from 36 to 24 months increases margin/cow by £45[15].

Reducing the calving age under some circumstances can act as a helpful management tool to artificially reduce mature cow size[16], which in turn improves profits as less feed is required to maintain a smaller cow.

[13] https://www.gov.scot/publications/suckler-beef-climate-scheme-final-report-2/documents/
[14] https://www.teagasc.ie/media/website/publications/2016/BETTER-Farm-Programme-Book.pdf
[15] https://www.cafre.ac.uk/2020/11/25/maximising-performance-efficiency-of-the-suckler-cow/
[16] Scottish Rural College Suckler Beef Climate Scheme Final Report – October 2020 https://www.gov.scot/publications/suckler-beef-climate-scheme-final-report-2/pages/18/

2.8.3. Environmental benefits

Research has shown that a reduction in first calving age from 36 to 24 months can reduce emissions intensity by up to 6.9%, which for saleable meat equates to 2.43 kg CO2e/kg/dry weight beef[17].

SRUC also reported some additional emissions reductions through reduced mature cow size. A beef system could reduce emissions intensities by up to 8% by calving heifers younger and as a result reducing cow size by 10% from 700kg down to 630kg[18].

SRUC further reported that efficiency improvements from reducing calving age can also reduce total feed, fertiliser, and lime use and reduce slurry and farmyard manure production, and storage requirements[19].

Earlier first calving can highlight fertility issues to farmers at an earlier stage and enable less fertile cows to be replaced sooner rather than later. This creates environmental gains as it will reduce the number of replacement heifers as well as time spent as unproductive animals.

2.9 Calving interval

The Northern Ireland industry average for calving interval in suckler herds has been reported to range from 394 days to 420 days in recent years. An analysis of APHIS data for 2020 showed an average calving interval of approximately 395 days.

2.9.1. Improving efficiency

A reduced calving interval will minimise the time a cow is 'empty' which will help improve profits by reducing feeding costs. In 2020, CAFRE estimated the cost of feeding a 700kg cow was approximately 87p per day[20] and when applied to a 50 cow herd, which will be on farm an extra 50 days under a 415 day interval each cow would

[17] Bell J., Beaton C., Young M., Hill G., Stout D., Sellars A., Thomson S., Spencer M., Moxey A. (2020). Suckler Beef Climate Change Group – Farm Carbon Case
[18] https://www.gov.scot/publications/suckler-beef-climate-scheme-final-report-2/documents/
[19] Suckler Beef Climate Change Group Farm Carbon Case Studies - October 2020
[20] https://www.cafre.ac.uk/2020/11/25/maximising-performance-efficiency-of-the-suckler-cow/

be on farm for an extra 50 days (an extra 2,500 days across the entire herd), which equates to an additional feeding spending of £2,175 a year on an 'empty' herd.

Under a 365 day interval, a farm with a 50 cow herd will produce 50 calves per year compared with a 415 day interval which will only produce 44 calves per year. The shorter interval will produce 6 more calves a year.

Furthermore, on farms that sell calves as weanlings, those born to a 365 day interval will be 50 days older at the time of sale[21]. Calves that are 50 days older will have a greater overall weight gain and, therefore, should achieve a higher sale price.

CAFRE has calculated under the scenarios above, that a farmer with a 50 cow suckler herd who has moved from a 415 to a 365 day interval, could potentially benefit through greater calf numbers and reduced feed costs, by approximately £8,000 per year[22].

[21] https://www.cafre.ac.uk/2020/11/25/maximising-performance-efficiency-of-the-suckler-cow/
[22] https://www.cafre.ac.uk/2020/11/25/maximising-performance-efficiency-of-the-suckler-cow/

2.10 Beef Transformation Measure

Consideration is being given to providing support for earlier slaughter of clean finished beef cattle with the aim of achieving better productivity, environmental performance and resilience.

Table 12. shows cattle numbers on Northern Ireland farms over the last three years. It indicates that at the 2020 June census[23], outside of dairy and beef cows and breeding bulls, there were approximately 150,000 fattening cattle over 24 months of age present on these farms. This amounts to almost 10% of total cattle numbers. The presence of the majority of cattle of this age is unnecessary and unproductive and they could be finished at an earlier age through improved breeding, health interventions and herd management.

Table 12. Cattle Numbers on Northern Ireland Farms 2018 – 2020

	2018	2019	2020
Dairy Cows	310,718	313,549	313,283
Beef Cows	255,904	247,009	244,702
Breeding bulls	16,860	16,458	19,993
Other Cattle 2 years old and over			
Male	48,423	51,595	47,606
Female – Other beef cattle	62,235	67,312	62,569
Female – Other dairy cattle	49,235	45,987	41,530
Total 2 years old and over	159,893	164,894	151,705
1-2 years			
Male	172,094	164,285	160,204
Female – Other beef cattle	156,142	150,551	146,524
Female – Other dairy cattle	82,667	85,913	88,212
Total 1-2 years	410,903	400,749	394,940
0-12 months			
Male	220,243	216,280	222,930
Female	254,547	252,837	263,914
Total 0-12 months	474,790	469,117	486,844
TOTAL CATTLE	**1,629,068**	**1,611,776**	**1,611,467**

[23] https://www.daera-ni.gov.uk/publications/agricultural-census-northern-ireland-2020

Data published by the Department provides figures for the numbers of finished clean cattle slaughtered each year[24]. **Table 13** illustrates that approximately 451,000 of these animals were slaughtered in 2020.

Table 13. Number ('000) Finished clean cattle slaughtered per quarter in 2020

	Heifers	Steers	Young Bulls	Total Cattle
Q1	37	44	8	118
Q2	32	38	9	102
Q3	31	42	9	111
Q4	34	47	7	120
Annual	134	171	34	451

It has been found that cattle finished at an earlier age by reaching their slaughter weight no later than 24 months of age can help drive both improved productivity and environmental performance.

Research undertaken by Scotland's Rural College (SRUC) - Suckler Beef Climate Change Group has shown that improved environmental outcomes can be achieved through a reduction in age of slaughter particularly when combined with other productivity efficiencies such as a reduced age at first calving, diet, and better grassland management.

Reducing finishing periods can reduce total emissions as earlier finishing reduces the length of time cattle need to be maintained. A higher percentage of their lifetime diet contributes to their growth rather than maintenance, which therefore, increases overall efficiency of production[25]. In addition, cattle that spend unnecessary time on the farm and are kept beyond their target slaughter weight or take longer to reach slaughter weight can incur unnecessary GHG emissions[26].

[24] https://www.daera-ni.gov.uk/publications/cattle-and-sheep-slaughterings-2001
[25] https://pure.sruc.ac.uk/ws/portalfiles/portal/37015670/low_carbon_beef_case_study.pdf
[26] https://pure.sruc.ac.uk/ws/portalfiles/portal/37033783/estimated_suckler_beef_climate_scheme_effects_within_national_ghg_smart_inventory.pdf

Further work has been undertaken by SRUC using a "Smart" inventory to calculate emissions from beef cattle[27] and has shown that clean cattle slaughtered over the age of 24 months account for 3% of total beef emissions. SRUC suggested that by finishing these animals all at 24 months, these additional emissions could be avoided and a further reduction in slaughter age to 21 months would yield another 3% emission saving.

Research has examined a number of different suckler herd systems and associated carbon savings with each one. A reduced finishing time for steers from 23 months to 18 months can create a carbon saving of 10%[28]. This means that, broadly speaking, every month reduction of age at slaughter results in a 2% carbon saving.

Position in Northern Ireland

Analysis of APHIS data on the average number of clean finished beef animals slaughtered from 2020 in, **Table 14** below, shows that nearly half of the animals slaughtered in Northern Ireland during that period were over 24 months at time of slaughter. However, that leaves the remaining 52% over 24 months and of these, 15% were over 30 months.

Table 14. Number (percentage) of Steers, Heifers and Young Bulls against slaughter ages

	Slaughter ages in months				**Total**
	≤ 24	**≤ 30**	**≤ 36**	**> 36**	
Steer, Heifer, Young Bulls	164,270 (48%)	127,335 (37%)	33,234 (10%)	15,384 (5%)	340,223

Under the proposals currently out for consultation, nearly 50% of animals will need to be finished more quickly than that at present, therefore, a transition period would be necessary for all animals slaughter to meet a target age of 24 months with a phased

[27] https://pure.sruc.ac.uk/ws/portalfiles/portal/37033783/estimated_suckler_beef_climate_scheme_effects_within_national_ghg_smart_inventory.pdf

[28] https://stabiliser.co.uk/industry-information/carbon-efficient-cattle/

reduction in target age over a number of years. This would allow farm businesses time to adjust and put in place the necessary management changes to finish their animals at an earlier age. A transition period would also help avoid unnecessary market disruption.

2.11 Breeding Ewes

DAERA collates data on an annual basis through the Farm Business Survey and the results are reported annually in the NI Farm Performance Indicators report[29]. Data on sheep is also collected directly from farmers through the annual sheep and goat inventory.

The annual Farm Performance Indicators Report break the sheep data down under lowland, DA and SDA. Information is provided under a number of headings including total enterprise output (£/Ewe) – lamb, wool and flock replacement; lambs reared per 100 ewes; ewe mortality (%); lamb mortality per 100 ewes and ewes per hectare.

Analysis of the productivity from the Farm Business Survey information, that is, lambs per 100 ewes for lowland, DA and SDA along with a NI average is shown in **Table 15.**

Table 15. Productivity – Lambs per 100 ewes for Lowland, DA, SDA and NI Average.

	Lambs reared per 100 Ewes			
	Lowland	**DA**	**SDA**	**NI Average**
2015/16	152	141	130	137
2016/17	149	145	131	138
2017/18	145	145	127	135
2018/19	137	137	127	132
2019/20	148	139	131	136

Table 15 shows a greater level of productivity in the lowland varying from 137 to 152 lambs per 100 ewes and a lower level of productivity in the SDA which varied from 127 to 131 across the five years.

[29] https://www.daera-ni.gov.uk/publications/northern-ireland-farm-performance-indicators-2005-onwards

Across Northern Ireland the average productivity ranges from between 132 to 138 lambs reared per 100 ewes. It is recognised that annual figures may fluctuate from year to year due to external weather events. In particular, the decline in 2018 is consistent with the cold weather experienced during lambing season[30].

[30] Lambing losses estimated at record levels for 2018 - Agriland.ie

3. Background Paper: Farming for Nature

The environmental challenges across Northern Ireland are far reaching. They range from deteriorating water and air quality, a decline in biodiversity and habitat loss and fragmentation, to the wide-ranging impacts of climate change. The agricultural sector is vital to our food security and underpins our rural communities but some agricultural practices have detrimental impacts on our environment.

With over 70% of the land in Northern Ireland under agricultural management, our environment is vulnerable to changes in farming practices. Intensification of production has resulted in a decline in biodiversity and habitat loss and fragmentation across our farmed landscape. Agricultural practices contribute to air pollution and climate change through emissions of ammonia and greenhouse gases. Many of our water bodies are not meeting the standards to be classified as being at good status, and nutrients from agriculture are part of the problem.

The four key areas of biodiversity, water and air quality, and climate change and their interactions with agriculture are discussed below.

3.1 Biodiversity

Biodiversity is the variety of all living things, including every species of plant and animal and the genetic variety both within and between species and within the communities that they form. The benefits that we derive from biodiversity are critical to our survival and cannot be overstated. We depend on biodiversity for the very basics of life – clean air, water, shelter and food, which together support our health and well-being.

A healthy natural environment with a wide range of biodiversity is the source of a vast array of products we use on a daily basis and provides employment to those involved in their development and production. People are part of that system, benefiting from it as well as influencing how it functions. Reductions in biodiversity impact on the ability of complex natural systems to function and to deliver the goods and services we depend upon.

Higher levels of biodiversity tend to lead to greater system stability and resistance in the face of changes such as climate variability and plant and animal diseases. Loss of some individual species can have large and unexpected impacts on entire systems – for example, the loss of a pollinator or seed disperser. The services pollinator species provide are important for healthy diets, agricultural economies and nutritional security. Insect pollinated plant species have important ecological roles such as producing fruits and seeds for birds and other wildlife, contributing to nutrient cycling, and climate change adaptation. It is estimated that the annual value of animal pollination to home-produced food crops in Ireland may be up to €59 million per year[31].

Protecting biodiversity helps ensure continued enjoyment of the benefits of the environment. It is not restricted to rare or threatened species but includes the whole of the natural world from the commonplace to the critically endangered.

Northern Ireland has experienced significant and sustained biodiversity loss since the 1970s, and particularly in the last 20 years[32]. The Northern Ireland Countryside Survey (NICS) 2007 reported a continued loss of semi-natural habitat compared with assessments conducted in 1998. Conversion of neutral grassland to improved agricultural grassland was recorded but at a slower rate than in 1998. A decrease in the area of species-rich dry grassland and conversion to a more productive, less species-diverse agricultural grassland was noted. A net decrease in field boundaries, a major source of biodiversity in the farmed landscape, was also seen in the lengths of hedges, dry stone walls and earth banks[33].

In 2019, the State of Nature Report[34] collated the best available data on UK biodiversity, focusing on trends in species as the key evidence of the state of nature. The findings for Northern Ireland indicated that:

[31] https://pollinators.ie/wp-content/uploads/2021/03/All-Ireland-Pollinator-Plan-2021-2025-WEB.pdf
[32] Cooper, A., McCann, T. and Rogers, D. (2009) Northern Ireland Countryside Survey 2007: Broad Habitat Change 1998-2007. Northern Ireland Environment Agency Research and Development Series No. 09/06
[33] McCann, T., Rogers, D. and Cooper, A. (2012) Northern Ireland Countryside Survey NICS2007: Field Boundary – Summary Report 1998-2007. Northern Ireland Environment Agency Research and Development Series No. 12/13.
[34] Hayhow DB, Eaton MA, Stanbury AJ, Burns F, Kirby WB, Bailey N, Beckmann B, Bedford J, Boersch-Supan PH, Coomber F, Dennis EB, Dolman SJ, Dunn E, Hall J, Harrower C, Hatfield JH, Hawley J, Haysom K, Hughes J, Johns DG, Mathews F, McQuatters-Gollop A, Noble DG, Outhwaite

- Of the 2,450 species assessed using the IUCN (International Union for Conservation of Nature) Regional Red List criteria, 11% were classified as threatened with extinction from the island of Ireland;
- Average species abundance of 9 butterfly species has fallen by 43% since 2006; and
- Average species abundance of 36 wintering waterbird species has fallen by 38% since 1998.

Areas of Special Scientific Interest (ASSI) are designated for protection under the law for their nature and earth science value and are selected on the basis of specific qualifying features such as habitats, species, and earth science features. Results of assessments carried out in 2020 indicate that 54% of ASSIs with biological features were in favourable condition[35].

In a recent statement[36], the RSPB commented on the rapid decline of biodiversity in Northern Ireland and reported that, although the DAERA Biodiversity Strategy (2015-2020) was designed to halt the decline in biodiversity, 35 of the 42 commitments have not been adequately met.

3.2 Interactions between agriculture and biodiversity

Over 70% of the total Northern Ireland land area of 1.35 million hectares is used for agriculture, including common rough grazing[37]. Most farmland is under grass and in 2007, more than 40% was improved grassland[38]. This dominance of farmland means that any changes in agricultural practices can have significant impacts on biodiversity.

CL, Pearce-Higgins JW, Pescott OL, Powney GD and Symes N (2019) The State of Nature 2019. The State of Nature partnership.

[35] DAERA (2021). Northern Ireland Environmental Statistics Report. (https://www.daera-ni.gov.uk/sites/default/files/publications/daera/ni-environmental-statistics-report-2021.pdf)

[36] https://www.rspb.org.uk/about-the-rspb/about-us/media-centre/press-releases/rspb-ni-northern-ireland-biodiversity-strategy-failing-after-years-of-inaction/

[37] DAERA (2020). Statistical Review of Northern Ireland Agriculture.

[38] https://www.daera-ni.gov.uk/sites/default/files/publications/doe/natural-report-broad-habitat-change-1998-2007.pdf

In the 2007 NICS[39,40] the losses reported for semi-natural habitat and for field boundaries were attributed to agricultural land use and rural building. These continued losses in semi-natural habitats, particularly in lowland landscapes, were noted as a key biodiversity issue. The NICS indicated that recorded reductions in bent-fescue grassland and poor fen through conversion to agricultural grassland, that agriculture is the key driver of semi-natural habitat loss in the marginal uplands.

Nitrogen deposition from agriculture has been identified as a key driver of biodiversity decline, including declines in invertebrates and other species groups, habitats and ecosystems. Critical loads for nitrogen deposition and critical levels for atmospheric ammonia have been set for each designated site[41]. Critical loads are defined as a quantitative estimate of exposure to one or more pollutants below which significant harmful effects on specified sensitive elements of the environment do not occur according to present knowledge. Critical levels are defined as concentrations of pollutants in the atmosphere above which direct adverse effects on receptors, such as human beings, plants, ecosystems or materials, may occur[42]. Nitrogen deposition at concentrations above the critical load or ammonia above the critical level is potentially detrimental to habitats. The Trends Report 2020[43] stated that:

- 98% of Special Areas of Conservation (SACs) and 83.3% of Special Protection Areas (SPA) in Northern Ireland have nitrogen deposition rates which indicate a risk to ecosystems;
- 88.3% of ASSIs in Northern Ireland have nitrogen deposition rates which indicate a risk to ecosystems; and

[39] Cooper, A., McCann, T. and Rogers, D. (2009) Northern Ireland Countryside Survey 2007: Broad Habitat Change 1998-2007. Northern Ireland Environment Agency Research and Development Series No. 09/06

[40] McCann, T., Rogers, D. and Cooper, A. (2012) Northern Ireland Countryside Survey NICS2007: Field Boundary – Summary Report 1998-2007. Northern Ireland Environment Agency Research and Development Series No. 12/13

[41] http://www.ammonia-ws.ceh.ac.uk/documents/ece_eb_air_wg_5_2007_3_e.pdf

[42] http://www.apis.ac.uk/critical-loads-and-critical-levels-guide-data-provided-apis#:~:text=Critical%20levels%20are%20defined%20as,according%20to%20present%20knowledge%22.%20

[43] Rowe EC, Mitchell Z, Tomlinson S, Levy P, Banin LF, Sawicka K, Martín Hernandez C & Dore A (2020) Trends Report 2020: Trends in critical load and critical level exceedances in the UK. Report to Defra under Contract AQ0843, CEH Project NEC05708. https://ukair.defra.gov.uk/library/reports?report_id=100

- 90.7% of SACs, 92.3% of SPAs and 88.6% of ASSIs in Northern Ireland received ammonia concentrations higher than the long term critical level (1 µg m^3 is the long term annual average critical level for lichens and mosses and for ecosystems in which they are important).

To date, much of the legislative effort in relation to protecting our habitats and species has been directed towards sites of high nature value. The authors of the 2007 Northern Ireland Countryside Survey[44] commented that the focus of government conservation policy on protecting and managing high-value habitats highlights the vulnerability of intermediate-value habitats which have no protection. These habitats contain much of the species diversity in the countryside. They also provide ecosystem services that provide food, materials and water, contribute to flood control and store carbon. They can be damaged or lost relatively quickly as land use and economic circumstances change.

3.3 Water Quality

Water is an essential component of life and a valuable resource that we all rely on. Maintaining the quality of our water environment will help protect and improve public health, support agricultural production and industry, protect and improve biodiversity and ecosystems, support tourism and recreation, and contribute to adaptation and mitigation of climate change.

The recently published Draft 3rd Cycle River Basin Management Plan for the North Western, Neagh Bann and North Eastern River Basin Districts (2021 – 2027)[45] reports that the overall status of water bodies at 'good or better' status remains unchanged from 2015. For river water bodies, 37 improved in status between 2015 and 2018 but this was offset by deterioration in 52 water bodies.

The biggest deterioration was attributed to soluble reactive phosphorus (SRP) concentrations. In 2015, SRP accounted for 20% of cases where water bodies failed

[44] Cooper, A., McCann, T. and Rogers, D. (2009) Northern Ireland Countryside Survey 2007: Broad Habitat Change 1998- 2007. Northern Ireland Environment Agency Research and Development Series No. 09/06

[45] Draft 3rd cycle River Basin Management Plan: For the North Western, Neagh Bann and North Eastern River Basin Districts (2021-2027

due to one test element and this increased to 40% in 2018. On average across Northern Ireland, flow weighted mean concentrations of SRP in rivers has increased from a low of 0.047 mg/l in 2012 to 0.63 mg/l in 2019[46].

Lake water status has declined significantly since 2015, with only 1 of the 21 lake water bodies being classified as 'good' status in 2020. Ten lakes deteriorated to 'moderate' status due to levels of cypermethrin (an ectoparasite treatment), while 3 deteriorated due to total phosphorus concentrations[47].

Of the 25 transitional and coastal water bodies, 40% achieved 'good' status or better.

3.4 Interactions between Agriculture and Water Quality

Nutrient enrichment of the aquatic environment (eutrophication) is a widely recognised problem. Phosphorus is the key nutrient responsible for eutrophication in freshwater ecosystems, whilst nitrogen is the driver in estuaries and coastal waters. Monitoring in Northern Ireland extends back to the 1990s, and demonstrates how controls of wastewater treatment works discharges have led to improvements. Further reductions in nutrient concentrations in the water environment have also been attributed to the implementation of the Nitrates Action Programme and the Phosphorus (Use in Agriculture) Regulations which have now been combined into the Nutrients Action Programme (NAP). More recently, the rate of improvement has slowed down and may now be reversing[48].

An evaluation of nutrient loadings undertaken for Northern Ireland catchments (2001-2009) attributed 83% nitrate and 45% of phosphorus to lowland agriculture[49]. More

[46] https://www.daera-ni.gov.uk/sites/default/files/publications/daera/ni-environmental-statistics-report-2020_0.pdf
[47] Lake Classification 2020 Status.PDF (daera-ni.gov.uk)
[48] Agricultural Nutrients and Water Quality June 2021_0.pdf (daera-ni.gov.uk)
[49] https://www.daera-ni.gov.uk/publications/evaluation-nutrient-loading-freshwater-lakes-estuarine-waters-and-sea-loughs-northern

recently the RePhoKUs[50] project identified 62% phosphorus as coming from agriculture[51].

Key findings from the recently published Agricultural Nutrients and Water Quality Report[52] are outlined below:

- Nutrient efficiency in agriculture has increased but since 2009 there has been an upward trend in nutrient surpluses due to recent increases in imported concentrated feedstuffs and chemical fertilisers;
- Soil sampling programmes in the Upper Bann, Colebrook and Strule catchments have identified relatively high levels of phosphorus, often in areas that are of high risk of run off contributing phosphorus to water courses. At a Northern Ireland level, rates of nutrient export in recent years have reduced for nitrogen losses from catchments dominated by pasture; however this is not the case for phosphorus, where export to water has increased; and
- For freshwater, increasing concentrations of both nitrogen and phosphorus, especially since 2015, have been recorded. Increasing nitrogen concentrations may be driven by particular conditions of drought and wet periods in 2018, leading to high maximum concentrations in autumn 2018. These tend to be localised in the south and east of the region, potentially due to more intensive/arable farming. Phosphorus concentration increases were observed across Northern Ireland, including areas where concentrations were previously low, such as the North West with less intensive land use.

In 2018, 471 farm businesses (1.9% of direct aid claimants) operated under an approved nitrates derogation. This equates to 4.08% of the available grassland and 10.6% of cattle livestock nitrogen produced. Nitrate concentration trends indicated that average nitrate concentrations in surface freshwater were stable or decreasing at 69.2% of monitoring sites. Increasing nitrate concentrations were reported at 30.8%

[50] RePhoKUs is a collaboration between Lancaster University, the University of Leeds, Agri-Food and Biosciences Institute (AFBI), University of Technology Sydney (UTS), UK Centre for Ecology and Hydrology (CEH), and the N8 AgriFood Programme.

[51] Rothwell, S.A., Doody, D.G., Johnston, C., Forber, K.J., Cencic, O., Rechberger, H. and Withers, P.J.A., 2020. Phosphorus stocks and flows in an intensive livestock dominated food system. Resources, Conservation and Recycling, 163, p.105065.

[52] Agricultural Nutrients and Water Quality June 2021_0.pdf (daera-ni.gov.uk)

of sites, with the majority of these increases (68%) coinciding with catchments with a high proportion of derogated farms[53].

Since the publication of the first River Basin Management Plan in 2009 there has not been a demonstrable improvement in overall waterbody status or progress towards meeting the 2027 objectives of no deterioration and all water bodies reaching good status (or ecological potential). Nutrients from agriculture have contributed, in particular, to increasing phosphorus concentrations in the water environment. The key piece of legislation for managing agricultural nutrients is the Nitrates Directive and its associated supporting legislation. Progress of implementation can be determined through the evidence provided by cross-compliance inspections and the detail of pollution incidents that are agricultural in nature.

Under the Nutrient Action Programme Regulations (Northern Ireland) 2019 (NAP), 1% of farm businesses claiming direct aid are selected for inspection annually using a risk based approach. In addition, 5% of the farm businesses operating under a NAP derogation are also inspected. These inspections, in addition to the number of inspections conducted in response to referrals from other competent authorities and complaints from members of the public, mean that just 1.4% of the total number of farm businesses in receipt of Basic Payment Scheme are inspected annually. Although overall compliance in most areas inspected is good, for all years between 2008 and 2019 the top three areas of non-compliance related to pollution to a waterway, followed by livestock storage requirements and land application restrictions (spreading distances, rates, methods). Pollution from fertiliser entering a waterway, both directly and indirectly, is the most common non-compliance issue and this directly links with referral inspection observations of pollution impacts caused by farm effluents discharged from poorly managed or inadequate manure storage facilities. The number of pollution incidents from agricultural sources has remained fairly constant during the period 2005-2019, accounting for 29% of all confirmed incidents[54].

[53] Nitrates Directive 2018 Derogation Report for Northern Ireland in accordance with Article 10 of Commission Decision 2015/346/EC https://www.daera-ni.gov.uk/sites/default/files/publications/daera/2018%20NI%20Nitrates%20Directive%20Derogation%20Report.pdf

[54] https://www.daera-ni.gov.uk/sites/default/files/publications/daera/Agricultural%20Nutrients%20and%20Water%20Quality%20June%202021_0.pdf

3.5 Air Quality

One of the main air pollutants impacting the natural environment is ammonia. The effects of ammonia pollution on biodiversity are seen in the impact of nitrogen accumulation on plant species diversity and composition within affected habitats. Ammonia pollution also affects species composition through soil acidification, direct toxic damage to leaves and by altering the susceptibility of plants to frost, drought and pathogens. At its most serious, certain sensitive and iconic habitats may be lost. In Northern Ireland this includes our sensitive bogs and peatlands.

In 2019, Northern Ireland accounted for 12% of the UK's total ammonia emissions despite having only 3% of the UK's population and 6% of the UK's land-mass[55]. A 7% increase in ammonia emissions occurred between 2011 and 2017 and since 2017 the trend has plateaued.

3.6 Interactions between agriculture and air quality

The agriculture sector is responsible for the majority of ammonia emissions in Northern Ireland. In 2019, agriculture accounted for 97% of ammonia emissions. This was associated with:

- Cattle manure management (37%);
- Manure applied to soils (37%);
- Other manure management (11%);
- Inorganic fertilisers (7%); and
- Grazing animal excreta (7%).

From 2010 to 2017 the increases in ammonia emissions were mainly due to increasing dairy cow numbers and emissions associated with cattle manure management related to greater use of indoor housing systems, and insufficient uptake of ammonia reduction measures. Although a slight decrease of 1% was registered in 2018,

[55] https://uk-air.defra.gov.uk/assets/documents/reports/cat09/2109270949_DA_Air_Pollutant_Inventories_2005-2019_Issue1.1.pdf

sustained and tangible reductions in ammonia are required to protect nature, to meet Northern Ireland's legal obligations, and to ensure a sustainable agri-food sector[56].

3.7 Climate change

Methane (CH_4) and nitrous oxide (N_2O) are the second and third most important long-lived greenhouse gases after carbon dioxide (CO_2) and have 100-year global warming potentials of 34 and 298, respectively. Global warming potential is a measure of how much energy one tonne of atmospheric gas will absorb over a specific period relative to CO_2 and so gives an indication of how much heat a greenhouse gas traps in the atmosphere. There is considerable interest in quantifying emissions at the national level for the purposes of policy and reduction measures because of their importance to climate change[57].

In 2019, Northern Ireland's greenhouse gas emissions were estimated to be 21.4 million tonnes of carbon dioxide equivalent (MtCO2e), a reduction of 18.0% since 1990. Carbon dioxide accounted for 68% of all greenhouse gas emissions in Northern Ireland in 2019, with the proportions for other greenhouse gases being 22% methane, 8% nitrous oxide and 1% hydrofluorocarbons. Northern Ireland accounted for 4.7% of total UK greenhouse gas emissions in 2019, whilst accounting for 2.8% of the UK's population and 2.2% of the UK's economic output (Gross Value Added). Northern Ireland's contribution of methane (8.9%) and nitrous oxide (7.5%) contributed proportionately higher amounts to their respective UK totals[58].

3.8 Interactions between agriculture and climate change

At 79% of the UK total, agriculture is the largest source of N_2O emissions in the UK. Emissions from agricultural systems are largely associated with the use of nitrogen

[56] Air Pollution in Northern Ireland 2019 (https://www.daera-ni.gov.uk/sites/default/files/publications/daera/Air Pollution in Northern Ireland 2019 Print Version_0.pdf)

[57] Ganesan, A. L. et al (2015). Quantifying methane and nitrous oxide emissions from the UK and Ireland using a national-scale monitoring network. Atmospheric Chemistry and Physics. 15, 6393–6406.

[58] https://www.daera-ni.gov.uk/sites/default/files/publications/daera/NI%20Greenhouse%20Gas%20Statistics%201990-2019_2.pdf

fertilisers and manures. These generate N_2O as a result of microbial processes going on within the soil to which they are applied (direct emissions), but also as a result of microbial transformations that occur following transport of nitrogen away from the site of application by volatilisation and leaching (indirect emissions).

Nitrous oxide is one of the six greenhouse gases for which emission reduction targets were agreed internationally under the Kyoto Protocol[59]. For the first commitment period (2008-2012) the UK target was to reduce total greenhouse gas emissions by 12.5% below base year (1990). This target was met. Under the second commitment period (2013-20) the EU has a collective target to reduce its emissions by 20% relative to base year levels over the period. The exact details of the UK's target for the period are still being finalised.

Agriculture is estimated to have been the source of 50% of the UK's methane (CH_4) emissions in 2017[60]. Methane is produced as a by-product of enteric fermentation and from the decomposition of manure under anaerobic conditions. Enteric fermentation is a digestive process whereby feed constituents are broken down by micro-organisms into simple molecules. Both ruminant (e.g. cattle and sheep), and non-ruminant (e.g. pigs and horses) animals produce methane, although ruminants are the largest source per unit of feed intake. When manure is stored or treated as a liquid in a lagoon, pond or tank it tends to decompose anaerobically and produces a significant quantity of methane. When manure is handled as a solid or when it is deposited on land/grassland, it tends to decompose aerobically and little or no methane is produced.

[59] dkpeng.pdf (unfccc.int)
[60] Agricultural Statistics and Climate Change

4. Background Paper: Farming for Carbon

The CCC has advised[61] that going further to reach Net Zero in 2050 would be likely to require either (or both) of the following:

- A larger reduction in output from Northern Ireland's livestock sector compared to the rest of the UK; and
- A much greater than equitable share of all UK greenhouse gas removal technologies being located in Northern Ireland.

Specifically in the context of agriculture, the CCC has said that even their most stretching 'Tailwinds scenario' (which entails a 50% fall in meat and dairy production in Northern Ireland by 2050 and significantly greater levels of tree planting on the land released) is not enough to get Northern Ireland to Net Zero emissions in 2050. Without a corresponding reduction in consumption of such products, the view of the CCC is that this would simply shift emissions overseas in order to meet food supply demands, leading to carbon leakage but no overall reduction in global emissions. In fact, it is possible this could actually result in an increase in greenhouse gas emissions due to emissions from shipping/aviation to get goods to Northern Ireland and foodstuffs being produced using less efficient, sustainable and/or environmentally friendly methods.

While the CCC recognised the risks associated with failing to act quickly enough, it also recognised that going too fast, and in particular aiming to decarbonise significantly faster than the rest of the UK, also poses risks. These include:

- Setting emissions reduction targets that are too ambitious to be delivered can undermine their credibility;
- Going beyond the natural rate of stock turnover would lead to premature scrappage of assets (e.g. vehicles, boilers). This may be costly, risks undermining popular support for transition, and could cause increased embedded emissions.
- Unfair distributional impacts, particularly if Northern Ireland's targets are out of line with HM Treasury actions to support a Just Transition to the UK target.

[61] https://www.theccc.org.uk/wp-content/uploads/2021/04/20210401-Letter-CCC-to-Minister-Poots.pdf

The Climate Change Bill laid before the Northern Ireland Assembly on 5 July 2021 proposes to set total net greenhouse gas emissions reduction targets for Northern Ireland based on the CCC 'Balanced Pathway' scenario compared to the baseline year. The CCC has detailed sectoral emissions reductions within the 'Balanced Pathway' for eleven sectors in Northern Ireland including agriculture and the Land Use, Land Use Change and Forestry (LULUCF) sectors. The Agriculture and LULUCF emission reductions modelled in the CCC Balanced Pathway are shown in **Table 1.**

Table 1. Carbon emission reductions for Northern Ireland within the CCC Balanced Pathway scenario

Year	Total emissions	Agriculture emissions	LULUCF emissions
2030	At least 48%	22	21
2040	At least 69%	29	62
2050	At least 82%	34	97

Source: CCC Communication to DAERA Green Growth August 2021

The CCC has also detailed their 'Balanced Pathway' assumptions in relation to land use as indicated in **Table 2.** The proportions of land currently farmed as: cropland, permanent grassland, temporary grassland, and rough grazing are modelled to reduce from between 1.6% and 17.3%. The areas of land used for: forestry, agroforestry and hedgerows, energy crops and restored peatland are modelled to increase.

Table 2. CCC Balanced Net Zero Pathway percentage change in land use

Land use	2019 (%)	2050 (%)
Cropland	3.4	-1.6
Permanent Grassland	48.8	-17.3
Temp grassland	11.0	-3.9
Rough grazing	10.6	-4.6
Forestry	8.5	4.6
Agro-forestry & hedgerows	2.4	1.9
Energy crops & SRF	0.0	2.7
Peat extraction	0.0	0.0
Restored peatland	9.6	11.2
Settlements	4.8	0.8
Other	0.9	0.0
Surplus land released (TBC by CCC)	0.0	6.3

(Source: The above data supplied to DAERA Green Growth by CCC is subject to ongoing queries)

5. Background Paper: Farm Sustainability Standards

The Cross Compliance requirements consist of:

- Statutory management requirements (SMRs). These are legislative standards relating to the environment, food safety, animal and plant health, and animal welfare.

- Standards consistent with keeping land in 'Good Agricultural and Environmental Condition' – (GAECs). These standards relate to soil protection, maintenance of soil organic matter and structure, and land and water management. They are set out in Schedule 1 to the Common Agricultural Policy Direct Payments and Support Schemes (Cross Compliance) Regulations (Northern Ireland) 2014.

The need for farmers to comply with the SMRs and GAEC requirements under Cross Compliance is a legacy of EU membership.

5.1 Cross Compliance - Statutory Management Requirements

These are specific articles contained within 13 European regulatory requirements covering the environment, food safety, animal and plant health and animal welfare.

SMR1	Protection of water against Nitrates pollution
SMR2	Conservation of Wild Birds
SMR3	Conservation of Natural Habitats and of Wild Flora and Fauna
SMR4	Food and Feed Law
SMR5	Restrictions on the use of substances having hormonal or thyrostatic action and beta antagonists in farm animals
SMR6	Pig identification and registration
SMR7	Cattle ID and registration
SMR8	Sheep and goat identification and registration
SMR9	Prevention, control and eradication of transmissible spongiform encephalopathies (TSE)
SMR10	Restrictions on the use of plant protection products
SMR11	Minimum standards for protection of calves.

SMR12	Minimum standards for the protection of pigs
SMR13	Protection of animals kept for farming purposes

5.2 Cross Compliance - Good Agricultural and Environmental Condition requirements

Farmers must maintain all their agricultural land in GAEC. The Northern Ireland GAEC Measures were developed within a framework set out by the EC.

GAEC1	Establishment of buffer strips along watercourses.
GAEC2	Irrigation Authorisations
GAEC3	Protection of ground water against pollution.
GAEC4	Minimum soil cover
GAEC5	Minimum land management reflecting site specific conditions to limit erosion
GAEC6	Maintenance of Soil Organic Matter level through appropriate practices including a ban on burning arable stubble, except for plant health reasons.
GAEC7	Retention of landscape features.