



# Review Summary and Recommendations for Developing Sustainable Arable Production in Northern Ireland

**Steering Group.**

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# 1. Introduction

## 1.1 Background.

In late 2020 it was recognised that the Ulster Arable Society (UAS) and Horticulture Forum Sectoral Reviews produced in 2012 / 2014 were now dated and needed updated to reflect the current situation, but especially to take account of the post Brexit markets and potential changes to industry support mechanisms.

Industry led reviews had been carried out for other sectors during 2020, so the time was right for a similar exercise to be carried out for the arable sector. The three arable land-based sectors, combinable crops, field vegetables and potatoes, have been combined in the belief that these share many similar challenges and opportunities.

An application for support through the Agri-food Co-operation Scheme was deemed ineligible and so Ulster Farmers Union (UFU) and UAS came together to fund this review and from this to recommend actions to Develop Sustainable Arable Production in Northern Ireland.

The members of the Steering Group were chosen to provide strong linkages and communication conduits to the industry and organisations representing the sector.

**Roy Lyttle** – UFU Vegetable Committee.

**Robert Moore** – UFU Seed and Cereals Committee

**David McElrea** – UFU Potato Committee

**Bruce Steele** – Agri-supply / Voluntary PPP / IPM Initiative and Chair UAS.

This Report was been produced by this Group assisted by Ian Duff.

## 1.2 Purpose and Scope of the Review.

For the purposes of this review the **arable sector** includes combinable crops, potatoes and outdoor or field vegetables; and a **sustainable agricultural industry** is one which -

- “Ensures the continuing availability to the consumer of adequate supplies of wholesome, varied and affordable food, produced in accordance with accepted environmental and social standards; and
- Maintains a competitive and flexible industry which contributes to an economically viable rural society; and
- Ensures effective protection and, where possible, enhancement of the environment, including climate change mitigation, and prudent use of natural resources; and
- Conserves and enhancing the landscape, wildlife, biodiversity, cultural and archaeological value of agricultural land; and
- Respects a high level of animal welfare”.

**The overall purpose of the Review was to -**

- a) **To identify the opportunities and challenges** facing the arable sector of the industry in the next 10 years as it moves to develop a future which is sustainable economically, environmentally and socially; and from this to -
- b) **Recommend the actions required** to exploit the opportunities and address the challenges.

## 1.3 Methodology and Approach.

The review was progressed in 6 interlinked stages.

- Stage 1.** Background research, summary of current situation and various political, environmental and market interests.
- Stage 2.** Initial drafts of Opportunities (Strengths / Opportunities) and Challenges (Threats and Weaknesses) relating to individual crops within the sectors.
- Stage 3.** Opportunities and Challenges were refined after consultation with “interest groups” e.g UFU Committees, and other Supply Chain actors, Environmental Link / RSPB, NIGTA, YFCU, CAFRE, AFBI etc as appropriate.
- Stage 4.** Gaps / possible opportunities were, as necessary, further researched to help firm up recommendation.
- Stage 5.** Report was then finalised and Conclusions and Recommendations compiled with actions and justifications.
- Stage 6.** Report published and presented by Group Members to key influencers and policy makers.

## 1.4 Timeframe.

The timeframe was to complete the review as quickly as possible and target completion within 4 months.

### **Report Structure.**

The full Report, of which this is a very brief summary, is a comprehensive review of the arable sector in Northern Ireland, contained under seven section headings.

1. Introduction
2. Arable Sector overview – sector production and structure.
3. Arable Sector overview – production and market trends.
4. Environmental context.
5. Political Context.
6. Technological Developments.
7. Conclusions and Recommendations.

In addition, ten appendices contain analyses of the strengths, weaknesses opportunities and threats, relating to the sustainable development of individual crops.

## 2. Our Vision for Sustainable Arable Production in Northern Ireland.

### Our Vision.

*The future of the Arable Sector in Northern Ireland will be best delivered as an integral part of a **Progressive Mixed Farming Region** in which all farm types combine to deliver safe and affordable food in a way which is both economically and environmentally sustainable. To achieve this will require –*

- *Tillage farms which, through a high degree of professionalism, can optimise productivity through the application of modern innovative production methods, which deliver an economic return, appropriate to their investment, risk and effort, while delivering a diverse nature friendly environment.*
- *Market information, supply chain arrangements, and product promotion which enable businesses to achieve a fair return from the marketplace and minimise reliance on public funds.*
- *Returns from the market, supported by access to public funds, which generate sufficient income to develop business resilience and productivity while enabling investment in environmental development for the benefits of wider society.*
- *The development of close working relationships with grassland and intensive farm businesses to optimise the use of the nutrients available in organic manures.*
- *A progressive entrepreneurial and technically competent workforce supported by industry-focused research, innovation, educational and continuing professional development provision.*
- *Land tenure arrangements which encourage and enable long term investment in the productive assets i.e. land, soil and storage facilities, while facilitating rentals as required for arable enterprises which need long rotations of “clean” land.*
- *Practical and transparent processes which generate and assure public and consumer confidence.*
- *Effective use of new technological developments which enable increased precision of input use and provide information to enable and support informed management decisions.*
- *Protection from unfair competition arising from importation of products produced with enhanced economic support, technological advantage (e.g. GM breeding) or lower production / plant health standards*

# 3. Our Ambition.

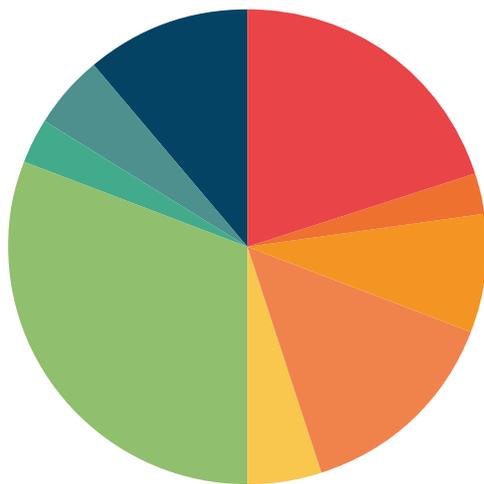
## Our Ambition.

- To see processes which ensure that returns from the marketplace are maximised, related directly to the costs and risks associated with production and are fairly distributed through effective supply chains.
- To secure, for so long as is necessary, support from public funds to provide farmers and growers with the financial reward needed to sustain vibrant farm families and ensure farm and horticulture businesses which deliver both efficient production and environmental benefit.
- To sustain a highly skilled and enthusiastic workforce through active continuing professional development and generation renewal.
- To foster and support the establishment of a centrally funded organisation to work with producers in promoting local fresh produce.
- To provide both economic and environmental benefit through increasing the area of arable crops grown locally.
- To capitalise on the renewed interest in plant-based food and increase the quantity and value of field vegetables produced and marketed locally.
- To increase the proportion of cereal and protein crops which meet market requirements for both human and animal feed.
- To develop and service new markets for crops and crop products such as certified seeds, milling wheat and oats and malting barley.
- To rejuvenate the local seed potato sector and so meet the increased demand for quality potato seed on the island of Ireland.
- To reduce the importation of chipping potatoes through servicing demand throughout the year with quality local potatoes held in well managed high-grade stores.
- To increase the proportion of home-grown table potatoes which meet and service the supermarket prepack trade.
- To see Northern Ireland move rapidly to become a leader in the application of technology to increase precision in the use of inputs and the management of information at all stages of the supply chain from production to consumer.

# 4. Summary Overview.

## 4.1 Arable Crop Production

- The arable sector in Northern Ireland provides in the region of 8% of Gross Output of the industry with an output of £70.8m in 2019 from 42,900 hectares.

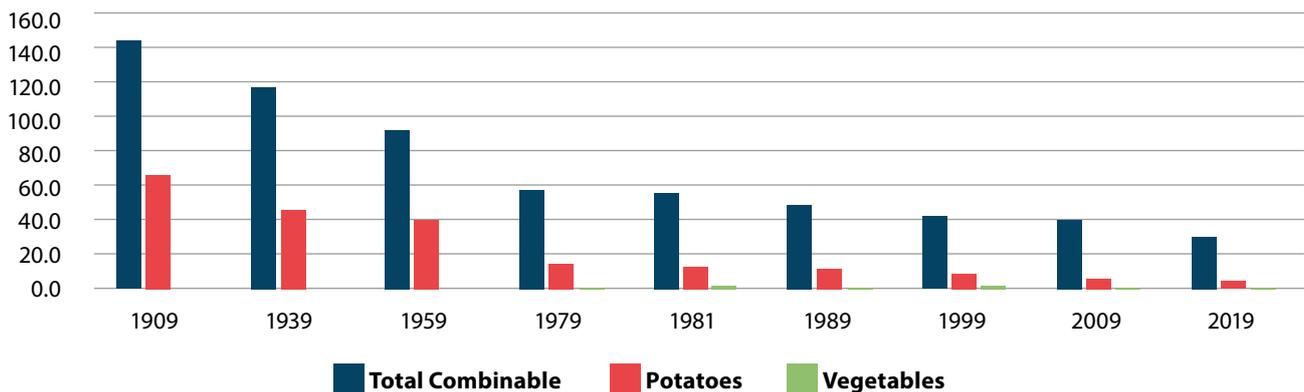


Gross Output NI Agriculture 2019 Ref DAERA

Cattle	20%
Sheep	3%
Pigs	8%
Poultry	14%
Eggs	5%
Milk	31%
Crop	3%
Horticulture	5%
Others	3%

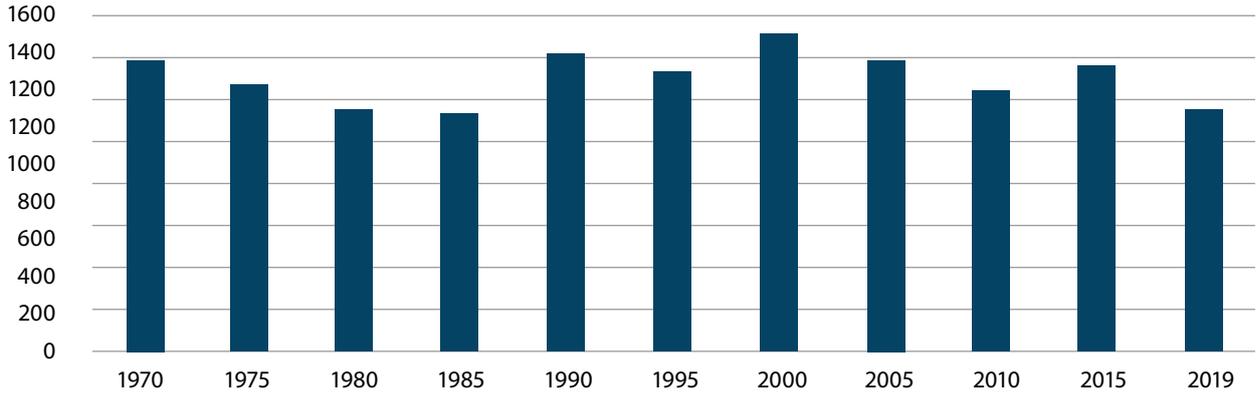
- The area of arable crops in NI has declined steadily over the last century from over 400 thousand hectares in the 1850's as the demand for meat and dairy products increased and with mechanisation, the requirement for oats to feed horses reduced. The trend still continues, with a 20% reduction in crop area in the last 10 years, driven largely by differences in profitability between the crop and livestock enterprises.

Crop Areas ha x 1000 Ref DAERA



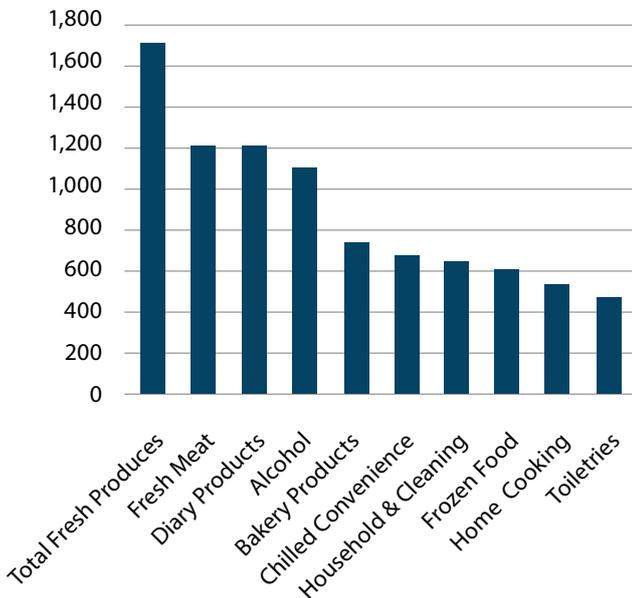
Benchmark Performance 2017/18 (CAFRE)	Top 25	Average	Bottom 25%
Yield /hectare	7	6	5.2
% Land in Spring Barley	29%	58%	60%
Profit / tonne	£44	-£1	-£101

## Field Vegetable Areas, 1967 to 2019 Ref DAERA

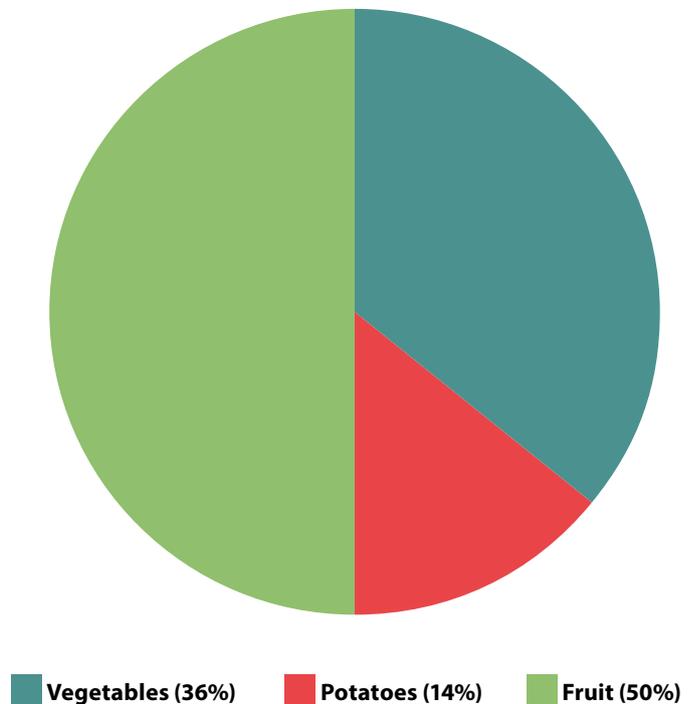


- The area of field / outdoor vegetables peaked in 1988 at 1554 hectares and this too has declined steadily in recent years to its current level of just over 1100 hectares. There is limited information on the importation of vegetables into Northern Ireland, but the UK is a net importer of over £2 billion vegetables each year. While opportunities for substitution may exist much of this will be out of season supplies and produce which cannot be grown locally at a cost which competes with imported product. Competing countries such as Senegal and Mexico benefit from much lower labour costs.
- Fresh produce is an extremely valuable segment of the food supply offering in Irish supermarkets.

## Value in Total Irish Retail Market (y2000) € million

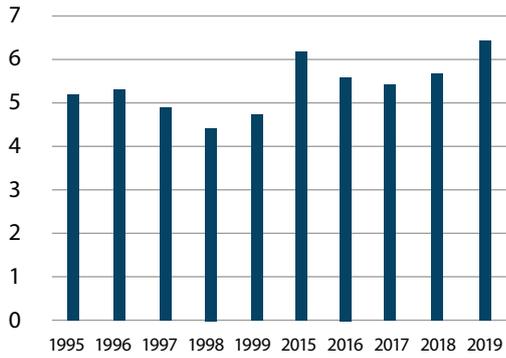


## Fresh Produce Market Ireland 2020 Bord Bia

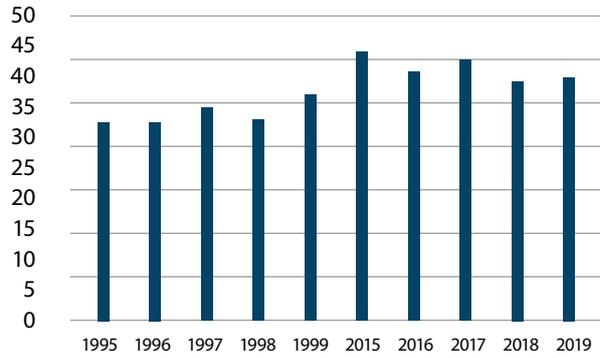


- The crop area reductions overestimate the reduction in output and product demand, due to the huge increases in yield being achieved due to the technological advances adopted by growers since the latter half of the 20th century. This was in part due to the shift to higher yielding winter cereals, and away from the more traditional spring crops.

### Barley Yield t/ha

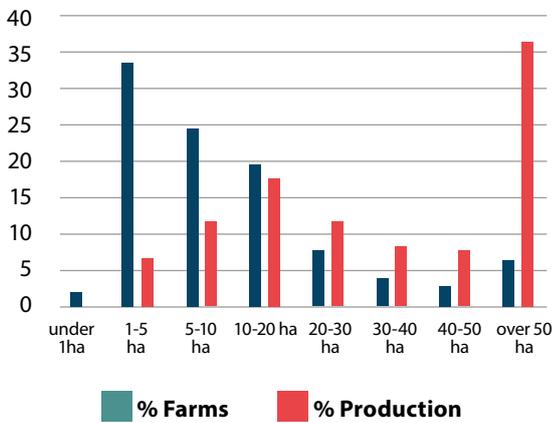


### Potato Yield t/ha

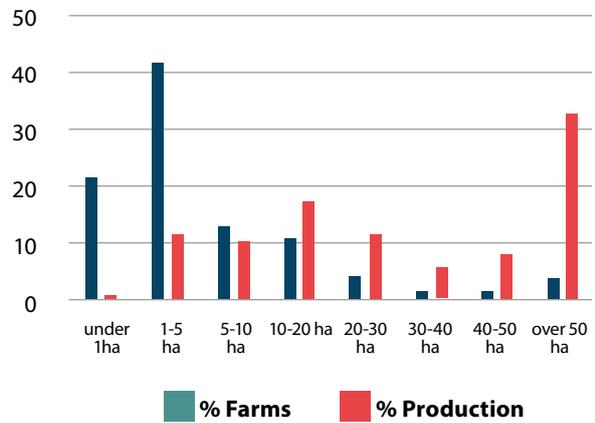


- Productivity gains in cereal crop production between the 1950s and 1990s were rapid, growing 2-3 fold over this period. Since the turn of the millennium however, cereal yields in the UK have been relatively stagnant. Trials have consistently found that Northern Ireland can produce cereal yields on a par with anywhere else in the world.
- Similarly, productivity gains by potato growers have been most impressive over the latter half of the 20th century. Since 1960 potato yields have also almost doubled, increasing from just over 20 tonnes in 1960 to more than 40 tonnes per hectare in 2014.
- Breeding and production improvements have, in recent years, also significantly increased the yield of field vegetables.
- The increases in productivity have been enhanced through specialisation and economies of scale – as illustrated by the concentration into larger production units with 50% of the arable area being down to about 200 cereal farms and 20 potato growers. This specialism is required to justify the major investment in new technology and high-capacity equipment.

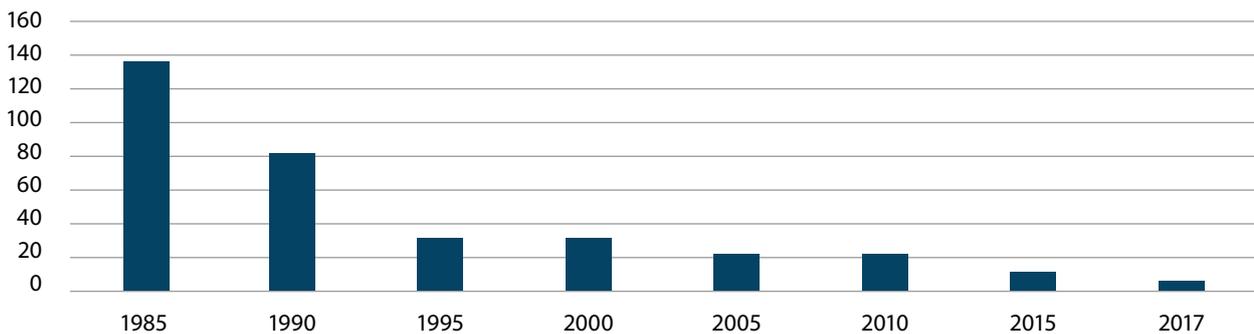
### Cereal Farm Structure



### Potato Farm Structure

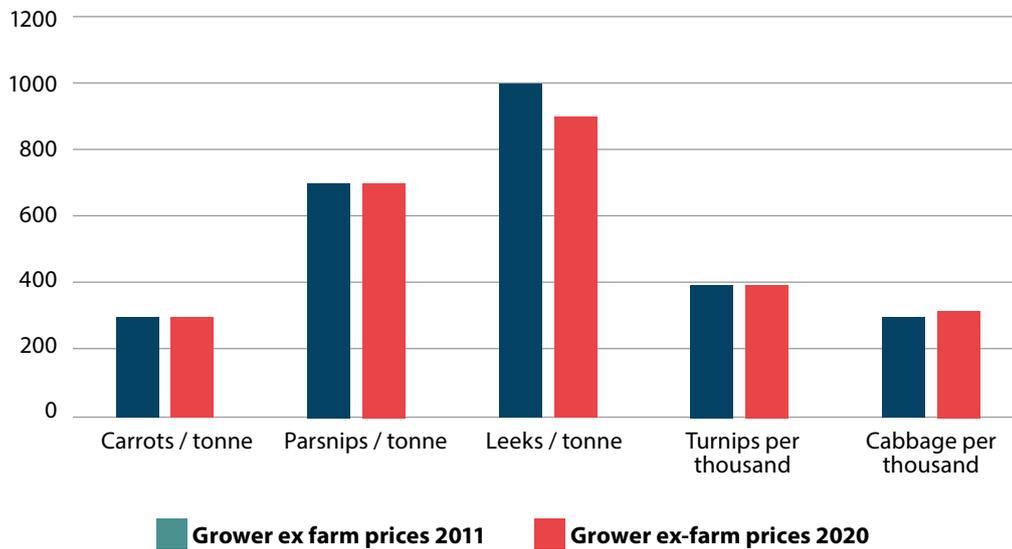


### Seed Potato Production x 1000 tonnes



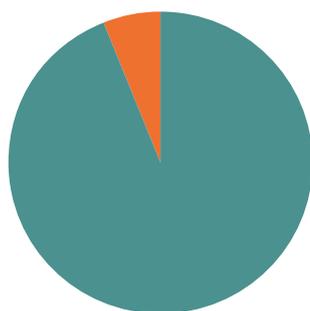
- Seed potato production has declined rapidly from the early 1980s when large tonnages were exported to GB and the Mediterranean basin. In 2020, 378 hectares of seed potatoes from 51 varieties were certified in Northern Ireland. Many reasons have been suggested for the decline in potato production in NI but essentially it comes down to a failure to consistently meet customer quantity and quality expectations and to build sufficient trust along the supply chain.

### Typical Fresh Produce returns to Growers £ Industry survey



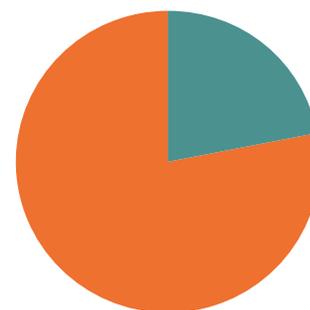
- The overall driver for this shift to grass-based livestock enterprises has of course been the relative profitability of the livestock enterprises. The price pressure has been particularly intense on the fresh produce supplied to the supermarket trade, where prices have remained static or even decreased over the past decade.

### Cereal self sufficiency - commercial feed production



Home (6%) Imported (94%)

### Cereal self sufficiency - includes use on farm of production



Home (22%) Imported (78%)

- All enterprises within the arable sector in Northern Ireland have considerable potential to increase production and deliver import substitution benefits. Imports of both potatoes and field vegetables have the potential to be replaced by local produce while locally-grown cereals meet only 22% of the needs of the livestock industry and over 600k tonnes of protein feed is imported each year.

## 4.2. Environmental interaction

This shift to livestock production and intensive crop production has had environmental impacts – both positive and negative.

- Biodiversity and loss of species has become an issue of increasing concern and action has been initiated to reverse the trend. Water quality in rivers and lakes has changed little in the last seven years.
- It is however recognised that agriculture continues to play a positive role, through participation in agri-environment schemes and associated management changes, which deliver environmental benefits.
- Farmers in Northern Ireland have embraced agri-environment schemes over the years. Between 2007-2013 the Agri-environment Programme supported on average 11,699 farm holdings and 433,263 hectares (around 43% of agricultural land in Northern Ireland) with the aim of enhancing biodiversity, improving water quality, enhancing the landscape and mitigating climate change. Recent engagement has been constrained by the lack of sufficient financial incentives to compensate for loss of productive capacity.
- Maintaining diverse habitats on farmland is a vital part of sustainable production – so agriculture and arable farming must be part of the solution. Feed for wildlife and habitat loss is exacerbated through the overall reduction in cereal areas and the dominance of grassland farming has reduced habitat and feeding diversity.
- Arable farming already provides a valuable outlet for the positive utilisation of organic manures from livestock farms, effectively reducing nutrient intensity and utilising the associated nutrients for crop production. There is scope to increase this symbiotic relationship.
- Fungicides and herbicides remain essential tools for a viable and productive arable sector in Northern Ireland and contribute greatly to farmers capacity to produce affordable food. Considerable progress has been achieved in improving the safety, for both people and the environment, of the plant protection products (PPPs) used in crop production. Any adverse impact of pesticides on the environment is now largely through indirect effects on the availability of feed and habitats, and through reduced weed populations.
- The industry-led Voluntary Initiative for agriculture and enhanced legislative requirements have greatly improved active ingredient selection and this now ensures a high level of professionalism and precision in the application of plant protection products on arable farms.
- Integrated Pest Management (IPM) is already practiced widely by the industry through crop rotation etc.. Integrated pest management is a sustainable approach to managing pests by combining biological, cultural, physical and chemical tools in a way that minimises economic, environmental and health risks.

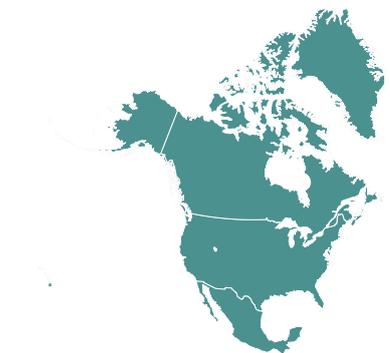


- Technology to increase precision in application of both fertiliser and pesticides continues to be developed apace. This has positive benefits for both productivity and the environment, but adoption is constrained by the expense of the sophisticated equipment required.
- There is negligible release of ammonia from arable enterprises so their indirect impact on biodiversity is much less than livestock enterprises.



**Specialist tillage farms in Ireland  
emit 1.18t CO<sub>2</sub> eq per hectare**

*This is just 15% of the rate for dairy farms  
and 25% for beef farms.*



**North American Maize  
produces 4 t CO<sub>2</sub> eq per hectare**



**South American Maize  
produces 27 t CO<sub>2</sub> eq per hectare**

*(Reference Teagasc Crops 2030)*

- With increasing concern about climate change and the need to reduce greenhouse gas emissions from agriculture, crop production has a relatively low carbon footprint, compared to livestock production, so is well placed to contribute to this reduction locally and globally by substituting for livestock production and replacing imported feed ingredients.

### 4.3. Present Support.

Government has agreed to sustain the existing level of Direct Funding to farmers for the duration of the present Government i.e. up to and including the 2024/25 financial year. After that the situation remains unclear, but value for money and “public good” will be important considerations.

The present situation is summarised as -

Funding Stream	Amount 2021/22	Reference
Basic Payment Scheme (BPS)	£293m	Estimate from DAERA 2020 / 2021 budget paper discussion at NI Executive AERA Committee and figures provided in August 2018 consultation
<b>Other support paid direct to farmers</b>		
Environmental Farming Scheme (EFS)	£5.6m	DAERA Budget Paper February 2021
Farm Business Improvement Scheme	£15.7m	DAERA Budget Paper February 2021
<b>Total Direct Payments</b>	<b>£314m</b>	

#### NOTES:

1. DAERA Policy Framework consultation indicates that the above is separate from EU funding for Storage Aid, Crisis Aid, Price Reporting, Market Standards and Producer Organisations etc..
2. There is also a further stream of funding for initiatives such as the School Milk scheme intended to “improve the access to food” and to “assist the efficient operation of the market”. This funding is also used to administer and promote the protected food name schemes.
3. Basic Payment Scheme rates in 2020 were in the region of £240 per hectare.
4. Total Area of agricultural land (2019 Statistical Review) is 1,023,000 hectares.

The UK’s departure from the European Union has presented the opportunity to take a fundamental look at the funding support for the industry, how it is distributed and to explore how it should be changed to best meet the requirements of both the industry and society. **The recommendations below are based on the considered views of the arable sector and associated supply chain actors, as to how this can best be achieved in Northern Ireland.**

# 5. Our Recommendations

## 5.1 Funding Projections.

DAERA budgets identify Basic Payment Scheme levels separately and are subject to annual review but are assumed to be sustained at approximately the 2021 level of £293m through until 2024. DAERA 2021/ 22 budgets also identify Environmental Farming Scheme payments (£5.6m) and Farm Business Improvement Scheme payments (£15.7m) under a separate heading of Capital spend.

It is generally accepted that any replacement for the Environmental Farming Scheme should have payment levels which provide a positive income stream to participating farmers. Also, our consultations suggest that an increase in capital support (Farm Business Improvement Scheme) funding is required to avoid the unpopular discounting and bidding system, used for Farm Business Improvement Scheme Tier 1 to establish the merit order for the allocation of scarce funds. Therefore, for these estimated projections we are suggesting that the budgets for Environmental Farming Scheme (or its replacement) and for Farm Business Improvement Scheme (or its replacement) are enhanced by the transfer of some £40m from the Basic Payment Scheme. We also suggest that a further £1m should be set aside for funding on-farm innovation projects.

These projections are of course purely indicative and subject to Government annual allocations and funding protocols but suggest that the Basic Payment Scheme 2022 payment could be pitched at 85% of the 2020 level while providing enhanced payments for capital investment and environmental enhancement support.

Looking forward past 2024 the situation is less clear and the Steering Group are concerned that the levels should be reviewed regularly and adjusted to take account of inflation, increasing costs and commercial returns to the industry.

## 5.2. Recommended action to develop sustainable arable production in Northern Ireland.

No	Development Support Action	Elements	Need and Benefits delivered	Amount and source
1	<p><b>Focused Sector Specific capital grant support to enhance productivity and innovation</b></p>	<ul style="list-style-type: none"> <li>• Arable sector requires dedicated Capital Investment Schemes to support and stimulate investment in buildings, fixed and field equipment by active farmers.</li> <li>• Schemes need to be focused on individual sectors and ring fenced within enterprises and/or areas of need.</li> <li>• Scheme must be sufficiently flexible to meet the needs of individual businesses and provide for low volume specialist equipment.</li> <li>• Required to provide funding to encourage investment in innovative production and management technology including sensing, control, and integrated management systems. e.g. disease monitors / threshold determination.</li> <li>• Eligibility and priority funding should be based on simple VFM analysis with recognition of the combined benefits to productivity, quality, waste reduction and the environment.</li> <li>• Due to low profitability and the lack of financial reserves within businesses, support rate needs to be 50% or more.</li> <li>• Funding cap should be significantly higher (at least £70,000) than that for Farm Business Improvement Scheme Tier 1.</li> <li>• Pre-owned high value specialist equipment should be eligible for support, subject to warranty. Pre-owned equipment from GB / EU provides good VFM for the smaller businesses in NI as well as for the funders. <u>See Note 1.</u></li> <li>• Preferential rates should continue to be used to support generational renewal objectives.</li> </ul>	<p>Will drive innovation and increase productivity.</p> <p>Increased precision reduces plant protection product quantities used, and higher productivity reduces inputs per unit of output thus aiding biodiversity and water quality.</p> <p>Technology to replace scarce labour and upgrade low grade jobs will be critical for the future of the industry.</p> <p>Improved storage raises quality, reduces waste and carbon footprint. Processors are keen to have more crop stored in high quality farm facilities to extend season and spread any disease risk.</p> <p>Efficient production of good quality produce will encourage processors to use local supplies with benefits to the economy; reduction of imports and carbon footprint.</p> <p>Without support, local production will reduce and be replaced by imports from Rol etc. where such support is provided at rates of up to 60% through TAMS.</p>	<p>£30m per year. (£15.7m capital budget plus top up from BPS)</p>

No	Development Support Action	Elements	Need and Benefits delivered	Amount and source
2	<p><b>Area Based Land Management Support</b></p>	<ul style="list-style-type: none"> <li>Should be designed and funded to–               <ol style="list-style-type: none"> <li>drive activities by active farmers which deliver economic, and environmental benefits, including sustaining and enhancing biodiversity, habitats, soil, water and air quality; and to provide</li> <li>a degree of resilience where the return from the market is inadequate to sustain these activities.</li> </ol> </li> <li>Rate of payment of up to 85% of 2021 Basic Payment Scheme, in return for delivery of sustainable commercial and environmental performance.           </li> <li>Support could be available at 2 levels. <b>Standard Level</b> is paid to all growers who meet agreed management and sustainability criteria. Payment could be at 85% of the standard Basic Payment Scheme rates.           </li> <li><b>Base Level</b> is available to those who are unable to meet the Standard criteria on certain parts of their farmed area e.g. rented land.           </li> <li><b>Standard Rate</b> - should be linked to the elements of the “maintenance stream” of UFU draft “Farming for Nature” proposals. Paid at 85% of standard Basic Payment Scheme rate. Can be applied for in respect of selected parts of the farm.           </li> </ul> <p><b>Possible Criteria</b></p> <ul style="list-style-type: none"> <li>Positive commercial management through participation in some form of business management recording and/or benchmarking; with evidence of active Continuous Professional Development participation.</li> <li>Positive environmental performance – a few key actions drawn from a menu of opportunities such as;</li> </ul>	<p>Sustains production and diverse habitats. Without support 75% of cereal producers are currently not profitable. (Ref <i>CAFRE Table 2 P 12 Full Report</i>).</p> <p>Without support, cereal production for many will be unviable and will retreat to specialist growers, leaving a grass monoculture in most of the country.</p> <p>Provides some resilience against poor weather, disease and low prices.</p> <p>Recognises and rewards positive environmental standards and will enhance water quality, carbon sequestration and environmental stewardship.</p> <p>A two level approach maintains good farming practice in all farms and allows rewards for more positive action where land, enterprises and tenure arrangements permit. i.e provides some funding for all land, including that in short term rental for potatoes and vegetables, while full rate funding could be available for appropriate areas of the “home” farm.</p>	<p>£250m Basic Payment Scheme per year.</p> <p>Administration funded by DAERA</p>

No	Development Support Action	Elements	Need and Benefits delivered	Amount and source
2	<b>Area Based Land Management Support</b>	<ul style="list-style-type: none"> <li>• Land farmed in a long rotation which ensures soil and organic matter sustainability.</li> <li>• Baseline habitat and heritage features mapping and scoring by farmer – after training.</li> <li>• Tidy farm – physically including safe storage of plant protection products etc.</li> <li>• Field margin / active buffer strip management.</li> <li>• Farm Water Management Plan with risk areas identified.</li> <li>• Use of Precision Farming technology and management information.</li> <li>• Soil testing and recording at least every 4 years.</li> <li>• Nutrient Management Plan confirming acceptable nutrient loads.</li> <li>• Use of livestock manures in line with RB209 guidance.</li> <li>• Evidence of the application of Integrated Pest Management and use of Plant Protection Product use, as required by disease / pest thresholds.</li> <li>• Carbon balance / audit (once valid protocols are developed and recognised)</li> <li>• Or others to be suggested.</li> </ul> <p>Can be scored by the farmer himself/herself after training. Items listed above are examples of a menu of options, each of which carry scores. Eligibility is triggered when above an agreed threshold. One or two high scoring elements can be sufficient to reach threshold.</p> <p>Details to be subject to industry consultation. <a href="#">See Note 2.</a></p> <p><b>Base Rate Payment.</b> Paid at reduced rate (35%) where unable to meet the higher standards for all or part of the farm.</p> <p>Requirement would be related in part to business management and in part to environmental practices.</p>	<p>Ensures habitat and landscape diversity while encouraging letting / leasing of grassland for crop production.</p> <p>Without support, local arable production will reduce and be replaced by imports from Rol. etc where more generous support is provided.</p> <p>Arable farms are well placed to use the excess nutrients from livestock farms but require recognition / reward for the additional cost involved in carriage and application of these organic manures.</p> <p>The limited enforcement of the current manure export system for excess nitrogen from intensive grassland farms does little to ensure the actual transfer of nutrients, to the potential detriment of the environment, water quality and the industry's reputation.</p> <p>The differentiation between Regular and Base Rate schemes will need to be clearly defined and agreed in consultation.</p> <p>Could include cover cropping of wide headlands in potato and vegetable crops will reduce soils loss and provide wildlife habitats.</p>	

No	Development Support Action	Elements	Need and Benefits delivered	Amount and source
2	<b>Area Based Land Management Support</b>	<ul style="list-style-type: none"> <li>• <b>Sustainable commercial performance evidenced</b> through participation in some form of simple enterprise recording and active Continuing Professional Development participation.</li> <li>• <b>Sustainable environmental performance</b> through compliance with defined examples of good environmental practice – for example. <ul style="list-style-type: none"> <li>• Field margin / buffer strip management.</li> <li>• Sustainable hedgerow management.</li> <li>• Fertiliser application records.</li> <li>• Use of plant protection products in compliance with legislation and Voluntary Initiative.</li> <li>• Or other to be suggested.</li> </ul> </li> </ul>		

No	Development Support Action	Elements	Need and Benefits delivered	Amount and source
3	<b>Marketing, Promotion and Information Body</b>	<ul style="list-style-type: none"> <li>• Centrally funded generic promotion of local produce and foods – (Locality, Seasonality and Provenance).</li> <li>• Technical marketing support for individual businesses along the supply chain.</li> <li>• Market research and consumer trends.</li> <li>• Brand development and building.</li> <li>• Working with others to support initiatives such as raising the appreciation of local food and drink and developing NI as a food tourism destination.</li> <li>• Development of practical sustainability indicators.</li> <li>• Encourage local procurement by Government and its agencies.</li> <li>• Consider piloting initially with an organisation focused solely on local fresh produce (vegetables, fruit, and potatoes).</li> <li>• The combinable crop sector has been well served by the AHDB and would wish to retain this linkage in any future arrangements</li> </ul>	<p>Economic benefit through local sourcing and import substitution.</p> <p>Help to embed sustainability into production methods and stimulate its inclusion within consumer choices.</p> <p>Work with others in promoting a healthy diet.</p> <p>Consumers in Northern Ireland are concerned about the environment, but research (Consumers Association 2020) found that more than half lacked confidence in the green claims of suppliers. This mistrust of “Greenwashing” by suppliers indicates the need for sustainability to be included in all assurance schemes – as for Origin Green in Ireland.</p>	<p>Other sources / Shared Prosperity Fund. (SPF).</p> <p>Administration funded by DAERA.</p> <p><u>See Note 3.</u></p>

No	Development Support Action	Elements	Need and Benefits delivered	Amount and source
4	<p><b>Development of effective supply chains - including introduction of new and improved supply chain arrangements.</b></p>	<ul style="list-style-type: none"> <li>• Should cover all products and processes along the entire supply chain, and adequately recognise costs within each element of the chain.</li> <li>• Requires a greatly enhanced role and powers for a locally based Grocery Code Adjudicator / Ombudsman type function – to work along the fresh produce supply chain and proactively investigate and publish results to encourage a fair distribution of margins.</li> <li>• Any Adjudicator needs authority and competence to investigate costs of production, processing etc. and publish results as well as publicising good and bad supply chain practice.</li> <li>• Funding and promotion required to build open supply chain relationships and develop coordinated promotion and representation.</li> <li>• Generous funding is needed for legal, capital and sustained personnel inputs to develop cooperative enterprises. e.g. Producer Organisations.</li> <li>• The “Walk the Supply Chain” Initiative or equivalent should be reactivated.</li> <li>• Effective supplier /supply chain arrangements should be part of the evaluation process conditional for Invest NI support for processors.</li> </ul>	<p>Economic benefits through sustaining local production.</p> <p>Failure to address this issue will lead to loss of local production and an increase in imports with associated carbon footprint.</p> <p>Short term contracts or free market purchases provide no basis on which growers can invest for the future or stimulate generation renewal.</p> <p>A period of sustained and generous funding is required to deliver significant change and build trust in the supply chains.</p> <p>Understanding of the operation of supply chains and how they function need to be increased and shared throughout the industry. Communication and understanding are prerequisites for effective cooperation.</p>	<p>Statutory and other DAERA functions – not linked to Direct Payments.</p>

No	Development Support Action	Elements	Need and Benefits delivered	Amount and source
5.	<b>Modernise Land Tenure Practice</b>	<p>Steps need to be taken to –</p> <ol style="list-style-type: none"> <li>provide increased clarity and confidence in the taxation position relating to long term lease compared to conacre, and</li> <li>introduce some form of incentive to encourage long term leasing of farmland in NI, such as the income tax relief which has proved so successful in encouraging long term land lease in Ireland.</li> <li>Whatever action is taken, <b>must</b> accommodate the need for potato and vegetable enterprises to obtain “fresh” land, with minimal bureaucratic constraints.</li> <li>Some form of innovative incentive is required to encourage new forms of tenure, including clustering amongst grassland, cereal and vegetable/potato farmers, to farm land in a responsible sustainable rotation before returning it to the grassland farmer in prime condition.</li> <li>Sample lease agreements should be drafted and agreed with HMRC which enable sub-lease (e.g. for potato production) within a long- term lease without affecting any tax incentives.</li> <li>Financial incentives should be provided to encourage sub-lease of quality land from grass to tillage, thus increasing the pool of land available for arable production while enhancing habitat and landscape diversity.</li> </ol>	<p>With 28% of land currently on short term lease (conacre) the potential for productive use for both commercial activity and environmental improvement will be increased if move to ownership or long-term lease – especially by younger farmers.</p> <p>Any reform must retain the ability for potato and vegetable growers to “obtain” fresh land as required for disease control and to deliver reductions in the use of plant protection products.</p> <p>There is genuine concern about the shortage of quality land for potato and vegetable production leading to short rotations which punish soil and lead to disease build up. This is exacerbated by the need for dairy farmers to retain land to meet N loading requirements.</p>	<p>DAERA functions. Not linked to direct payments. Possibly funded through Shared Prosperity Fund.</p>

No	Development Support Action	Elements	Need and Benefits delivered	Amount and source
6.	<b>Delivering Innovation</b>	<ul style="list-style-type: none"> <li>Mentoring and financial support should be provided for the development, through both individual businesses and cooperative partnerships, of novel products and innovative supply chain arrangements.</li> <li>DAERA and its agencies need to be empowered and funded to provide technical and financial support for industry initiatives and, where necessary, to initiate coordinated and prompt action, to meet challenges and lead developments which arise within the sectors.</li> <li>Lack of clarity on who should take the lead in initiating action to meeting such opportunities, results in inaction and failure to grasp opportunities which arise.</li> </ul> <p>Examples of potential innovations which emerged during consultations with industry and others in developing this strategy include.</p> <ul style="list-style-type: none"> <li>Coordinated marketing and supply of home-grown protein.</li> <li>Fibre crops and farm-pharma.</li> <li>Reinvigoration / rebranding of NI seed potato production.</li> <li>Exploiting the production potential for malting barley, milling wheat and oats; and cereal seed production.</li> <li>Extended storage and supply of chipping potatoes.</li> <li>Provision of an RTK signal across NI to enhance operation precision and encourage adoption. This could establish NI as a lead area for this technology and associated management information, while increasing productivity and environmental benefits.</li> <li>Pioneer the use of QR codes and data technology to generate consumer confidence and loyalty by providing producer and production information to consumers.</li> <li>Inward investment package to encourage seed houses to establish multiplication hubs in Northern Ireland.</li> </ul>	<p>Delivered through the education / development programmes at CAFRE and industry activity with financial support.</p> <p>Innovation can be stimulated through a revised version of the European Investment Partnership scheme to support on-farm and supply chain innovation within the arable sector.</p> <p>This should embrace but not be restricted to group activity.</p> <p>RTK networks are expensive to establish for individual businesses and for agriculture alone, especially for small businesses. Area based examples already exist in Europe and by American Extension Services. Network could be integrated with other applications e.g Surveying.</p>	<p>DAERA / CAFRE activity working with industry.</p> <p>£1m funding to encourage innovation and cover the early adopter risks taken by pioneers within the arable sector.</p> <p>See <a href="#">Note 4</a>.</p>

No	Development Support Action	Elements	Need and Benefits delivered	Amount and source
7.	<b>Availability of labour</b>	<ul style="list-style-type: none"> <li>While scarcity of labour for vegetable and potato harvesting is not such a seasonal issue as for soft fruit and apples, the sector does suffer from labour shortages at peak times.</li> <li>It is also recognised that vegetable harvesting in winter is a strenuous and uncomfortable job and has an adverse effect on convincing young people that horticulture is an attractive career choice. Investment in technology and facilities is critical to overcoming this and sustaining a quality workforce.</li> <li>Grading is a critical quality skill for potatoes and vegetables. The tasks can be very seasonal making it difficult to automate or to develop the skill levels required and then retain the workforce. A unique “pool labour” service or equivalent, operating within the supply chain has been suggested as one possible solution to be encouraged.</li> </ul>	<p>Delivers productivity and environmental benefit through the retention and attraction of high calibre competent people receiving rewards commensurate with their skills and experience.</p> <p>Provision of education and continuing professional development opportunities is essential; as is promotion of the career opportunities by industry as well as CAFRE.</p> <p>Increasing wage rates are directly linked to lack of profitability in the labourintensive fresh produce sectors.</p>	<p>Investment delivered through well targeted capital funding – section 1.</p> <p>Seasonal Agricultural Workers Scheme is important but does not provide for nonseasonal activities.</p>

No	Development Support Action	Elements	Need and Benefits delivered	Amount and source
8.	<p><b>Regulation of plant protection products approval and precision breeding methods</b></p>	<ul style="list-style-type: none"> <li>Plant Protection Product approvals and withdrawals must be based solely on valid factual scientific evaluation.</li> <li>Support and administration arrangements must be resourced and implemented as a matter of urgency to ensure that NI has access to the same plant protection products chemistry and novel precision breeding technology as our competitors in GB and/or EU/Ireland.</li> <li>Take action to ensure that applications for Emergency Authorisations and plant protection product approvals can be rapidly progressed in Northern Ireland through access to suitably resourced science and technology services. and administration support.</li> <li>DAERA must actively support any regulation changes under consideration in GB and EU/Ireland, to enable the use of new genetic editing / marker technology, biological pesticides etc., in NI.</li> <li>Ensure that existing and future regulation of plant pest and disease controls are applied in NI through open consultation and communication with industry.</li> <li>Support and enhance the work of the Voluntary Initiative and help raise public awareness of the facts about plant protection products approval and their responsible use in agriculture.</li> </ul>	<p>As plant protection products chemistry is withdrawn or authorisations and MRLs amended, NI is now being increasingly placed at a seriously competitive disadvantage compared to producers in Ireland/EU and/or GB.</p> <p>There is particular and urgent concern amongst vegetable producers that Extension of Authorisations for Minor Use (EAMUs) granted in GB will not apply in NI. This process, as it relates to Northern Ireland, need urgent and fundamental change.</p> <p>Changes to plant protection product authorisations require rapid and precision breeding, as enabled by gene marking and/or editing, to quickly and cheaply improve plant disease resistance and facilitate Integrated Pest Management.</p> <p>Scientific expertise and capacity must also be available to support industry in seeking emergency approvals, off label approvals and approval extensions.</p> <p>Increasing awareness of the legislative and positive voluntary actions implemented by the industry is necessary. Could be linked to Action 3 – Promotion.</p> <p>Crop storage has depended on controlled temperature and chemical treatment (CIPC) to store over winter for processing to crisps and chips. DMN 1,4- dimethylinaphthalene (DMN) has now received restricted approval for use by processors in GB. Without access to DMN for the final three months of storage, the crisping sector here will have to resort to importing potatoes to fulfil the storagegap.</p>	<p>DAERA functions. Not linked to direct payments</p> <p>AFBI resource requirement.</p>

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9.	<p><b>DAERA Support Instruments.</b> (Science and innovation, Education, Knowledge Exchange, Investment and restructuring)</p>	<ul style="list-style-type: none"> <li>• There must be improved scientific and development support for the minor enterprises. There is an imbalance in the level of scientific, technical support and education provision for all but the major enterprises.</li> <li>• While recognising the difficulty of provided this support locally, for all enterprises, financial support should be provided to enable access to “specialist expertise” from outside NI, including facilitating education and continuing personal development opportunities.</li> <li>• An individual or Group within CAFRE and /or AFBI should be charged with seeking out relevant global research (Horizon Scanning), assessing its relevance to NI arable production and sharing the potential with the industry through an annual technical review forum. This forum should have a role in determining research priorities and encouraging appropriate development, innovation and evaluation activity.</li> </ul>	<p>Productivity and environmental improvement require coordinated education, development, research and innovation support.</p>	<p>DAERA activity.</p>

No	Development Support Action	Elements	Need and Benefits delivered	Amount and source
10.	<b>Generational Renewal Programme</b>	<ul style="list-style-type: none"> <li>• Scheme required to free up land being held by farmers, wishing to leave the industry.</li> <li>• Needs to be tightly designed to ensure applicants truly exit the industry and new entrants are supported.</li> <li>• Requires positive incentives to engage young people and deliver generational renewal.</li> <li>• Needs to link readily to the Land Tenure element (5).</li> <li>• Retirement scheme should apply, provided they sell to an active farmer or new entrant with approved competence.</li> <li>• Consider support for competent new entrants through low interest loans when buys land from an exiting farmer.</li> </ul>	<p>The crop and horticulture sectors have particularly poor age profile with farmers in all enterprises being below the industry average of 27% under 50 years.</p> <p>Generational renewal will lead to increased productivity and innovative activity by competent active farmers.</p> <p>Reducing the average age of the farmers in the arable sectors will encourage long term investment in infrastructure and environmental enhancement. Competence assessment should be just that and not be restricted to qualification levels alone.</p>	<p>DAERA functions. Not linked to direct payments. Possibly funded through Shared Prosperity Fund.</p> <p>Administration funded by DAERA</p>

No	Development Support Action	Elements	Need and Benefits delivered	Amount and source
11.	<b>Carbon Footprint Calculations and Audit Protocols.</b>	<ul style="list-style-type: none"> <li>• Urgently need to develop and introduce net carbon footprint calculation and audit procedures appropriate for Northern Ireland arable rotation farming Systems.</li> <li>• Must include carbon sequestration allowances and facilitate future carbon trading.</li> <li>• Must extend to include the whole production footprint including imported inputs and alternatives.</li> <li>• Needs to be developed to an internationally accepted protocol.</li> <li>• Must be suitable for use within crop / grass rotations.</li> <li>• Only, after valid calculation system is agreed, should values be incorporated into carbon labelling and promotion of food products.</li> </ul>	<p>Tillage farming has the capacity to make a major contribution to reducing the national carbon footprint.</p> <p>Measurement is the first stage of managed carbon footprint reduction.</p> <p>Once baseline is established, action to reduce the Greenhouse Gas production can be integrated within a menu of options including in the Area Based Land Management Support – section 2.</p>	Incorporated and funded as part of 2.

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12	<b>Environmental Enhancement Programmes</b>	<ul style="list-style-type: none"> <li>• New schemes to replace existing Environmental Farming Scheme should be co-developed between DAERA, industry and environmental NGOs.</li> <li>• Positive action to deliver and sustain environmental enhancement must be funded at levels sufficient to generate a positive income stream for growers, not just recovery of costs and losses.</li> <li>• Schemes must include flexibility to adapt to individual farm circumstances.</li> <li>• Should encourage regional and contiguous programmes such as developing wildlife corridors.</li> <li>• Schemes must be simple, and “outcome based” where possible.</li> <li>• Should include high levels of self-design and self-regulation coupled with focused training workshops.</li> <li>• Sanctions for failure to meet targets should have the emphasis on encouraging improvement rather than punishing discrepancies.</li> </ul>	<p>Delivers environmental enhancement – water, soil, air, habitat / biodiversity and built heritage) through payments to farmers.</p> <p>UFU “Farming for Nature” scheme, discussion and design of which is well advanced, will provide a useful basis for future development.</p>	<p>£30m per year. (£5.6 m capital plus top up from BPS.)</p> <p>Administration funded by DAERA.</p>

<b>Note 1.</b>	<p>Insisting on new equipment encourages over investment in situations where used equipment will be sufficient and more economically justified.</p> <p>In the longer-term consideration needs to be given to how support can be provided as equipment becomes more dependent on software and moves to lease and contract hire.</p> <p>Active farmer definition correlates with that used in section 2. i.e. evidenced through participation in some form of simple production recording / benchmarking and active continuing professional development participation.</p>
<b>Note 2.</b>	<p>An alternative option is to pay according to the score achieved. This would be complex and subject to dispute but could encourage improvement.</p>
<b>Note 3.</b>	<p>Growers' preference is always to earn the highest possible proportion of their income from the market and reduce the reliance on public funding. To achieve this, effective marketing and promotion is clearly essential; yet despite numerous reports by many illustrious groups and organisations over several decades – the most recent of which being the Agri-Food Strategy Board "Going for Growth" Report in 2013, - no such body has been established. In our consultations, contrasts were frequently drawn with the highly respected and effective Bord Bia organisation in Ireland.</p> <p>As identified in Section 4.3 of these Recommendations there are DAERA funding streams identified for activities such as price reporting, market standards, assisting the efficient operation of the market and promotion of protected food names. While these activities could be re-tasked to form part of a food marketing / promotion body we recognise that additional funding may be required.</p> <p>The 2017 Conservative manifesto pledged to create a 'United Kingdom Shared Prosperity Fund' to replace Structural Funds. This fund is intended to "reduce inequality between communities across the four nations" and to deliver "sustainable, inclusive growth": It remains unclear, and indeed there is some concern amongst devolved administrations, as to how this fund will be administered and distributed but "improved promotion and marketing" must surely be an area for investment to deliver value for money and long-term benefits for society. This could, if necessary be topped up by transfer of a small amount from the "direct payment / Basic Payment Scheme funds" albeit with suitable industry engagement and effective input on how this is spent.</p> <p>We surmise that the complexity of the industry and the multitude of supply chains and product markets makes the introduction of an industry-wide Body extremely complex. Within the scope of this review the greatest enthusiasm for this Body came from the fresh produce sector and perhaps this sector could form the basis of an initial pilot for such an organisation.</p>
<b>Note 4.</b>	<p>Required for the arable sector because of the limited research and technology capability and capacity dedicated to the arable sector enterprises within Northern Ireland.</p>

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