



Annual Report

2022/23

Legal and Administrative Information

Trustees

Mr S McCaffrey
Mr C J Henning
Mr C Donnelly (*Resigned 28 April 2023*)
Mr W Mayne (*Resigned 9 December 2022*)
Mrs J E Dobson
Mr J M Blair (*Resigned 30 April 2022*)
Mrs V McConnell
Mr D Rea
Mr I Ferguson
Prof. G E Boyle
Mr I G McCluggage
Mr J N McMordie
Mr P Morrow (*Resigned 20 June 2022*)
Mr A McCay (*Appointed 20 June 2022*)
Mr S Chesney (*Appointed 20 June 2022*)
Mr R Cleland (*Appointed 9 December 2022*)
Mr D McLaughlin (*Appointed 21 July 2023*)

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Jason Rankin

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Thomas Chambers
Andrew Clarke
John Egerton
David Gibson
Stephen Hennan
Hugh McCollum - Chairman
Pat McKay
Thomas Moorehead
John Payne
Mark Scott (Non-voting CA-FRE liaison)
William Sherrard
Ian Stevenson
Alan Turkington - Vice Chairman

Dairy Advisory Committee

Robert Beck
Claire Beckett
Phillip Donaldson
Neville Graham
Alan Irwin
Ivor Lowry
Robert Martin (Spa)
Samantha McCarroll
Samuel McElheran
Don Morrow (Non-voting CAFRE liaison)
John Oliver
James Purcell
Thomas Steele - Chairman
Gary Thompson - Vice Chairman

Sheep Advisory Committee

Alistair Armstrong
William Beattie
Roger Bell
Brian Cromie
James Davison
Clement Lynch
Nigel McLaughlin - Acting Chairman
Brendan Kelly
Kenneth Linton
Mark Scott (Non-voting CA-FRE liaison)
Colin Smith

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Chairman's Report

Gerry Boyle

AgriSearch continues to deliver for the ruminant livestock sector in Northern Ireland working to improve efficiency, innovation and profitability on farms. It is a great privilege to lead the Board of Trustees and to play a part in making our levy income work for farmers. I would like to acknowledge the work of my predecessor Seamus McCaffrey from whom I took over the Chair in December 2022. I would also like to thank my joint Vice-Chairs Ian McCluggage and Norman McMordie and the Senior Vice-Chair John Henning for their invaluable assistance.

We remain a local, independent organisation established by farmers for farmers and are conscious of our responsibility to manage finances wisely and maximise research 'value' from the farmer levy that we spend. Key to this success has been using the multi-actor approach – working with many partners including AFBI, AHDB, CAFRE, CIEL, DAERA, QUB / IGFS, UU and others to deliver for the ruminant livestock sector.

After two years of restricted activity due to Covid it was pleasing to see a very full calendar of farm walks and other knowledge exchange events taking place in 2022/23.



Staff continue to play a key role in the success of AgriSearch and in 2022/23 we continued to benefit from the achievements of Jason Rankin, ably supported by Jillian Hoy, Denise Aiken, Sarah Brown, Courtney Colgan and Jonathan McAleese. On behalf of AgriSearch I thank each for their contribution.

During the year Peter Morrow, Martyn Blair and Wilbert Mayne stepped down from the Board and I would like to thank them for their service. Alan McCay was appointed as a new Independent Farmer Trustee in June 2022 to fill the vacancy created by the retirement of John Martin the previous year, and the Ulster Farmers Union nominated

Sam Chesney and Crosby Cleland to fill the vacancies created by Martyn Blair and Wilbert Mayne.

Since the year end Conall Donnelly has stepped down from the Board and has been replaced by Daryl McLaughlin.

Over the past two years there have been fewer opportunities to obtain grant funding with which to leverage our modest levy income. This had led to a build-up in AgriSearch's reserves which led to the Trustees commissioning two major new multi-year projects. The first was a three year extension, enhancement and enlargement of our flagship Grass-

Check programme which will mark its 25th anniversary in 2024. The second is our new ZeroNile project, a five year initiative which will establish and monitor red clover and lucerne swards on 15 farms across Northern Ireland.

Since the year end we launched our new AgriSearch PhD Scholarships Programme. Fully financed by AgriSearch, these PhD scholarships will support the development of a new generation of applied research scientists that can improve the competitiveness of Northern Ireland's dairy, beef and sheep industries.

Farming and food continue to face challenging times and it is increasingly important that scientific evidence from

research is used to improve sustainability on farms and counter some of the misinformation about our grass-based beef, dairy and sheep farming systems.

We recognise that the industry will be facing major challenges in the near future and we are continually reassessing our activities to ensure that AgriSearch is doing all it can to help farmers meet those challenges.

We see a key role for AgriSearch to articulate the Research and Innovation needs of Northern Ireland's ruminant livestock farmers and to hold our academic and government institutions to account to ensure they are delivering on those needs. To that end we will shortly

be holding our first Research and Innovation Needs Conference. In preparation for this we have prepared a summary paper of research and innovation needs identified by our Trustees and Advisory Committees which is included in this annual report. It is envisaged that the Conference will be an annual event.

I will continue to work with the Trustees and staff to keep farmers at the centre of what we do and ensure we maximise our knowledge exchange activities so that the positive messages from research get utilised on farm to improve the efficiency, profitability and sustainability of the ruminant livestock sector in Northern Ireland.



General Manager's Report

Jason Rankin

KNOWLEDGE EXCHANGE

After two years of minimal physical knowledge exchange events due to the Covid Pandemic the 2022-23 financial year afforded AgriSearch the opportunity to hold multiple events.

Having held no farm walks in 2020-21 and only one event in 2021-22 we made up for lost time in the past year holding five farm walks for European Innovation Partnership Projects as well as assisting in a further four on-farm events organised by CAFRE in response to rising costs on farm.

We also partnered with CAFRE, Queen's University and AFBI in the holding of two "Planning for Performance" autumn seminars in Greenmount and Enniskillen aimed at the Beef & Sheep sector. With increased interest in the use of clover given higher fertiliser prices we organised for two leading experts to speak at a "Capitalising on Clover" seminar in Cookstown.

By the kind invitation of the Fermanagh Grassland Club we also delivered an evening talk on our Leatherjackets EIP project in Enniskillen in January. We rounded off the financial year with two webinars held in partnership with CAFRE on "Options for Improved Nutrient Efficiency"



RISING COSTS SURVEY

In partnership with the members of the Rising Costs Industry Group which was co-ordinated by CAFRE we organised a survey of farmers in spring 2022 on the impact of rising costs on farms and the decisions farmers were making in response to those prices increases. The results of this were presented at the Ulster Farmers' Union stand at the Balmoral Show. A further survey was conducted in the autumn.





EUROPEAN INNOVATION PARTNERSHIP PROJECTS

Throughout the 2022/23 financial year AgriSearch led three European Innovation Partnership projects:

- Multi-Species Swards for Beef and Sheep
- Targeted Selective Treatment of Anthelmintics
- Leatherjacket Mitigation Strategies

AgriSearch is also a partner in the ARCZero (Accelerating Ruminant Carbon Zero) EIP project which was led by Prof. John Gilliland.

The six farmers involved in the Multi-Species Swards for Beef & Sheep group established a total of 37ha of MSS. This was a steep learning curve for all involved and the mutual support given by the group to its members was invaluable. The project has gone from strength to strength and has attracted a lot of interest. Our second farm walk for this project was held in June 2022 and attracted 200 people. I would like to thank all the group members (including AFBI & QUB colleagues) for the commitment they have made to this project.

On farm activity also continued for the seven farms taking part in the Anthelmintic Targeted Selective Treatment EIP project. We are indebted to Prof. Eric Morgan and Dr Chris McFarland from Queen's University for their support and assistance with this project. I

would also like to thank the farmers involved for the hard work they have put in. Targeted Selective Treatment is not an easy option but the problem of anthelmintic resistance is growing rapidly and should be an area of concern for all farmers and doing nothing is simply not an option.

Further monitoring was carried out by the Leatherjacket Mitigation Strategies EIP project and did find significant leatherjacket infestations in a number of fields within the project. We also worked with farmers from outside the group who were having regular issues. It is clear that there is no single "silver bullet" solution to leatherjackets but rather a range of smaller scale mitigations which can be used to minimise impact risk. The results of the project were presented at a meeting of the Fermanagh Grassland Club in January 2023.

During the year the ARCZero project also continued with its process of detailed benchmarking of carbon on the seven farms involved in the project. This included soil carbon surveys being undertaken at a level of detail never seen before. The study has highlighted that farmers are the custodians of huge amounts of carbon, a fact that has hitherto gone unrecognised.

BEACON FARM NETWORK

Early in the year we completed the carbon benchmarking of the Beacon Farm Network. We also completed a series of case studies on seven farms. Leading consultants from



SRUC worked with the farms to assess options for reducing net farm carbon emissions.

The results of these plans were presented at a workshop for all the Beacon Farmers. At the workshop the farmers present identified areas they would like to explore in future. These were:

1. Genetics
2. Soil health
3. Legumes
4. Feed additives
5. Animal Health

Given the ongoing developments with a new genetics initiative and the emergence of Sustainable Ruminant Genetics it was felt prudent to leave genetics until there was more clarity around the future direction of genetic evaluations in Northern Ireland.

While it has not been possible to conduct any work on-farm on feed additives as yet DAERA are in the final stages of preparing a new research funding call on this very topic.

We have already been doing work on some animal health issues (particularly with regard to the use of anthelmintics) so it was felt best to start with soil health and legumes. There was a lot of interest from the farmers in these areas.

We organized a series of workshops for the Beacon Farmers on these topics. The first two were on soil health and were conducted by Charlie Morgan (formerly of IBERS) in Trillick and Crumlin. The second two workshops were on the use of Legumes and were conducted by Liz Genever in Cookstown and Hillsborough.



NEW PROJECTS

In addition to our workshops with the Beacon Farmers we also held workshops with our Trustees and Advisory Committees and with our GrassCheck farmers to get their thoughts on where our future work should be.

Due to the lack of co-funding opportunities AgriSearch had built up a considerable level of reserves in the previous years. With limited prospects for co-funding coming forward in the near future the decision was made to press ahead with our own initiatives.

ZERONSILE

Having had great success with our European Innovation Partnership project on Multi-Species Swards we felt that this approach should be replicated. Being very aware that MSS are primarily of interest to beef and sheep farmers and those in drier climates and also of the huge importance of conserved forage (silage) to the ruminant livestock sector in Northern Ireland (and the dairy sector in particular) we decided to embark upon an ambitious plan to trial the use of red clover based silage swards on farms right across Northern Ireland. Six dairy and six beef and sheep farms were selected and all but one have established red clover swards during 2023.

As a smaller component of the study, three farms in County Down were selected to trial Lucerne. While 2023 wouldn't exactly be perceived as a particularly ideal year for growing Lucerne these swards have performed remarkably well.

GRASSCHECK 2023-25

GrassCheck had been on a year to year

funding arrangement since 2020. To give this project some more security AgriSearch committed to three years of funding for an enlarged GrassCheck project. This was to include the recruitment of 15 additional farmers to fill gaps in our network. This included six farmers (one per county) who were recruited as Low N GrassCheck farmers. At the same time AgriSearch funded the establishment of a new set of CloverCheck plots were established at AFBI Hillsborough. One of the weaknesses of GrassCheck had been that its plots are based on a full rate of N fertiliser (272 kgN/ha/year). With farmers being encouraged to make more use of clover and reduce the rate of manufactured N fertiliser it is important that we get a handle on the growth patterns of clover based swards.

REVIEW OF NUTRIENT MANAGEMENT PLANNING DECISION SUPPORT TOOLS

One of our early objectives for the Beacon Farm Network was to work with the farmers to develop a nutrient management plan. However, it soon became apparent that none of the available tools met all of the requirements. Nutrient management planning is an topic of increasing importance and relevance with the increased cost of manufactured fertilisers and the pressure to improve water quality. AgriSearch commissioned ADAS to conduct a review of Nutrient Management Planning Decision Support Tool available in the UK and further afield and to make recommendations. This work is now drawing to a close and we will be publishing the report in December 2023.

SUPER-G: DEVELOPING SUSTAINABLE PERMANENT GRASSLAND SYSTEMS AND POLICIES.

Throughout the year AgriSearch continued its involvement in the Super-G project (which is the largest project in our portfolio). This Horizon 2020 project involves 20 partners from 14 countries and has a total budget of €10M over 5 years. Between AgriSearch and AFBI almost €1M is being spent in Northern Ireland. The main objective is to develop integrated approaches for permanent grassland management that are cost-effective, environmentally sound and easily manageable. The project will:

- Define systems
- Benchmark
- Provide decision-support tools for farmers, advisors and policy makers.
- Influence policy

RESILIENCE FOR DAIRY (R4D)

AgriSearch also continued its involvement in the “Resilience for Dairy” (R4D) Horizon 2020 Thematic Network which has 17 partners from 15 countries.

The overall objective of R4D is to develop and to strengthen a self-sustainable EU Thematic Network on “resilient and robust dairy farms” designed to stimulate knowledge exchanges and cross-fertilisation among a wide range of actors and stakeholders of the dairy industry. The aim of R4D is to widely disseminate relevant ready-to-use best practices based on innovations, facilitating knowledge exchange from farmers to farmers.

The topics it is addressing are:

1. Economic and social resilience
2. Technical efficiency
3. Environment, welfare and society friendly production systems





In partnership with Teagasc, AgriSearch hosted the first cross-visit of the project in June 2022 with around 80 delegates attending from 15 countries.

AGRISEARCH PHD SCHOLARSHIPS

Since it was established in 1997 AgriSearch has supported 25 PhD studentships. Many of these students now occupy senior positions within industry, academia and government.

Towards the end of the year AgriSearch developed a new PhD Scholarship Programme aimed at improving the overall resilience and sustainability of the ruminant livestock sector in Northern Ireland. Fully financed by AgriSearch, these PhD scholarships will support the development of a new generation of applied research scientists that can improve the competitiveness of Northern Ireland's dairy, beef and sheep industries.

Following a short competition three PhD Scholarships were awarded to Queen's and Ulster Universities after the end of the financial year.

STAFFING

In June 2022 Jonathan McAleese (an Agricultural Science Undergraduate from Harper Adams) took over from Rachel Knox. Jonathan finished his placement at the end of June 2023. No placement student was employed to replace him.

In July 2022 AgriSearch recruited Courtney Colgan to the new post of Farm Liaison Officer.

ACKNOWLEDGEMENTS

I would like to thank the Trustees and members of the advisory committees for their invaluable commitment to AgriSearch. In addition, CAFRE continue to assist with

knowledge exchange alongside cutting plots and providing management notes for the GrassCheck programme.

I would also like to acknowledge the ongoing support of Nigel Scollan, Eric Morgan and Chris McFarland, at Queen's University Belfast and Francis Lively, Steven Morrison, David Patterson, Conrad Ferris and Archie Murchie at AFBI, as well as Jonathan Birnie and Ashely Hassin at Birnie Consultancy.

A special mention must also go to our growing network of pilot farmers and farmer co-researchers who play an increasingly important role in so many of our projects. In particular I would like to acknowledge the tremendous enthusiasm and drive shown by the farmer members of our European Innovation Partnership groups.

Last but by no means least I would like to acknowledge the enormous contribution our staff members Denise Aiken, Jillian Hoy, Sarah Brown, Courtney Colgan and Jonathan McAleese. Each of them has shown diligence and initiative which has made my job much easier.

CONCLUSION

The pace of change in the ruminant livestock sector continues to accelerate and in these changing and challenging times the role of science and innovation has never been so important. The ruminant livestock sector is coming under unprecedented pressure, particularly with regard to the environment. Yet, agriculture has great potential to deliver a wide variety of ecosystem services to meet these challenges.

AgriSearch continues to adapt to address these challenges, however, we are still a small organisation with limited resources. It is only by working collaboratively with industry, our research partners, our enthusiastic and growing team of farmer co-researchers, and government that we can hope to achieve our aim – to make the Northern Ireland ruminant livestock sector more competitive, profitable and sustainable.

Research and Innovation Needs

AgriSearch Summary Paper

It is often said that farming is at a crossroads or at a pivotal moment, given the many challenges it has faced in the past few decades. What perhaps makes the present moment particularly challenging is the complexity of the issues that the industry faces, combined with an unparalleled level of scrutiny from wider society.

Sustainability is an overused and often misused word, but when considered in the round, with its three constituent pillars of people, planet and profit, it is the bedrock on which AgriSearch bases its activities and on which future research needs are prioritised.

Profit / Resilience

As a farmer-funded body, Agrisearch prioritises profit at the top of its list, as without profit farmers cannot deliver for the planet or for people. Hand in hand with profit must be resilience. In this context, it is essential that the focus is on maximising profit over a 5–10-year horizon, rather than taking a shorter-term view. Given the huge fluctuations in input prices as well as in the prices for our produce, coupled with the impacts of climate change, it is essential that farmers adopt production systems which are resilient and capable of absorbing short-term shocks.

Planet

There is no doubt that the environmental challenges being faced by farmers are the most daunting. At present there is myopia on carbon and on reaching the extremely ambitious (and unrealistic) targets set out in the Northern Ireland Climate Change Act. This is even more concerning as, when measured on an intensity basis, Northern Ireland's milk, beef and lamb is amongst the lowest CO₂e per kilogram of product anywhere in the world. However, carbon is not the only environmental challenge we face. Water quality,

air quality and maintenance of species biodiversity are all pressing environmental challenges for the Northern Ireland ruminant livestock sector. It is vital that these challenges are considered in the round as there is the undoubted potential for some mitigation measures for carbon to have negative effects on air and water quality, or on biodiversity.

Whilst there is currently a major focus on mitigating the impacts of agriculture on the environment, farmers also face the major challenge of climate adaptation, including the need to adopt more resilient production systems. Data from the AgriSearch Grass-Check project demonstrates that we are already seeing considerable shifts in grass growing patterns across the growing season, in addition to increased annual rainfall and more extreme rainfall events, which makes management of grazing systems and the timeliness of silage-making much more challenging. A changing climate also affects both animal and plant disease.

RECOMMENDATION 1

Research is needed to examine, and mitigate, the effects of predicted climate change on the resilience of ruminant livestock farms when considering impacts on grass growth, the ability to utilise grass under both grazing and cutting management, and potential impacts on animal and plant disease.

People

The majority of Northern Ireland farms are family run units. Increasingly farmers are time poor with many beef and sheep farmers going “part time” with off farm employment, and dairy farmers having to achieve economy of scale through increasing cow numbers with no additional labour, in order to remain profitable. The ability to attract, pay and keep labour is also a critical issue for our farms. If

we are to continue to attract young people into farming then we need farming systems that afford a good quality of life – work / life balance.

RECOMMENDATION 2

Research is needed to examine the social sustainability and work/life balance on dairy, beef and sheep farms and to identify opportunities to develop new socially sustainable work practices. The potential of advances in Artificial Intelligence and other automated technologies to monitor animal performance and behaviour and reduce labour requirements for breeding and herd management should also be investigated.

Holistic Solutions that deliver multiple benefits

In recent decades, ruminant production research has moved away from large scale production research studies towards more component- or project-based research. In part, this is due to the high cost of large-scale systems type research, given the many variables (inputs and outputs) which must be

monitored to fully establish cause and effect. However, a significant drawback of component type research is that fewer variables are monitored, and this can result in difficulties in extrapolating results to whole farm systems.

The challenges that farmers face are multi-faceted, as illustrated in Figure 1 below. There is no one single solution which will deliver the answers we need. Research to address these challenges needs to include a wide range of scientific disciplines (including social science), to fully understand all the interactions between different input and output variables, and needs to incorporate a multi-year approach, given the increasing variation in climate both within and between seasons.

Soil

In farming, everything begins and ends with the soil. It is often the most neglected and least understood of all the resources which a farmer must manage. Most of our understanding tends to be one dimensional, focusing primarily on the chemical characteristics (mainly N, P, K, S and pH). How-

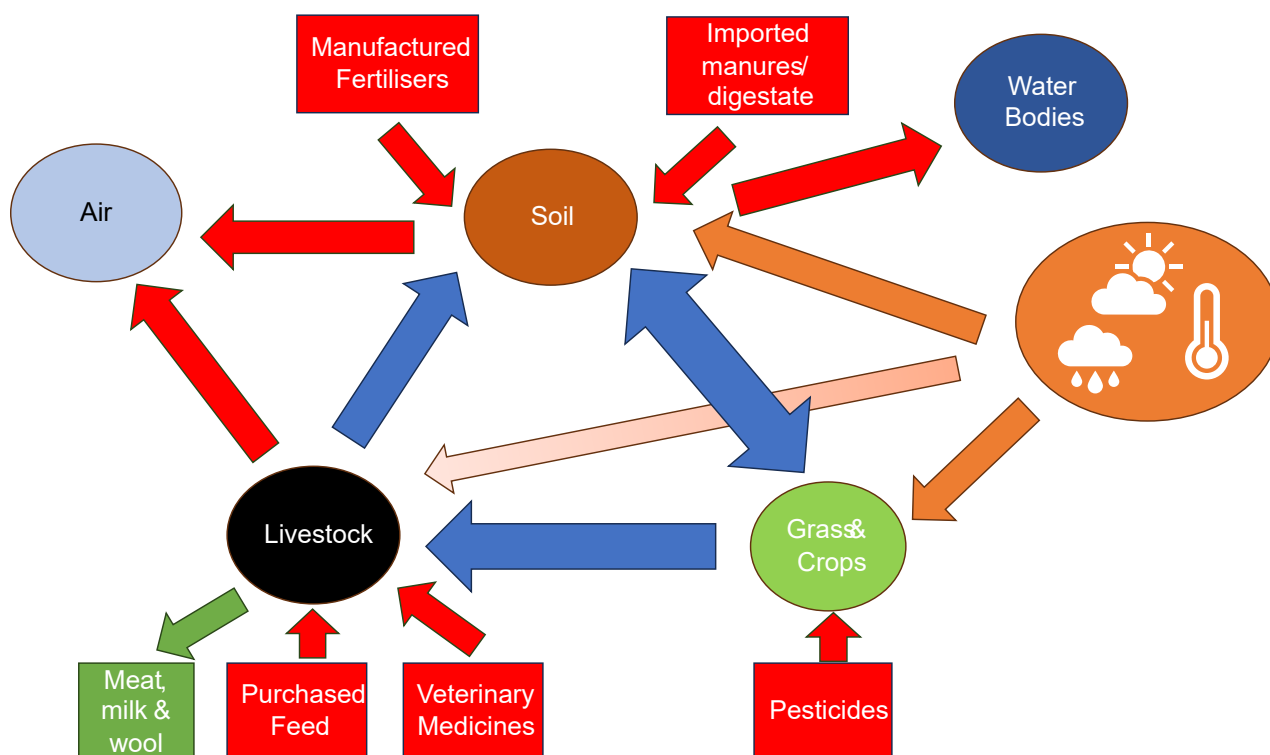


Figure 1: Example of the many input variables required in meat, milk, and wool production.

ever, there is a growing understanding of the importance of the physical characteristics of soil and the need to avoid compaction. In addition, it is now recognised that the biological characteristics of soil are extremely important and current research is focussed on improving our knowledge and understanding of the soil microbiota and its impact on sward and crop productivity. “The soil is the rainforest beneath our feet” is an often-used phrase, yet we have the barest inkling of the vast and complex ecosystem otherwise known as the soil microbiome.

Almost everything we do as farmers will have an impact on the soil. There are the obvious impacts such as the chemical fertilisers and organic manures we apply, and the use of plant protection products, but there are also the less obvious ones such as sward composition and diversity, the type of livestock and whether they are grazed or housed, and our inputs of purchased feed and veterinary medicines (particularly anthelmintics). “One Health” starts with the soil.

Optimising the application of organic manures is a critical component in improving soil health and fertility whilst minimising nutrient losses, with key factors being the timing and method of application. The use of Low Emission Slurry Spreading Equipment (LESSE) is a very effective way to reduce ammonia emissions and improve water quality, whilst maximising the nutrient value of slurry. However, farmers have identified some issues with LESSE slurry application, particularly during dry weather where the slurry can cake on silage regrowth's, leading to contamination of silage, which can have silage quality and animal health impacts. Whilst LESSE technologies are essential to reduce ammonia and N₂O emissions we believe that research should be commissioned to investigate these issues and consider means of mitigating risks of silage contamination.

There are a wide variety of slurry additives on the market which are claimed to improve ease of mixing and nutrient value, but there is little published peer reviewed research on these to verify their efficacy or their potential

impact on ammonia emissions.

Research into cost effective solutions for the removal of phosphorus from slurry for those farms who have a high P balance is also needed. We note some of the positive work ongoing as part of the SBRI initiatives and fully support the continuation of this work.

RECOMMENDATION 3

Research is needed to evaluate the impact of LESSE technology on slurry contamination of swards and subsequent implications on silage quality and animal health, whilst exploring opportunities to mitigate contamination and further reduce ammonia emissions. This work should include an evaluation of the impact of slurry additives on the nutritive value of slurry and potential impact on ammonia emissions.

Nutrient management planning is fundamental to economic and environmentally sustainable farming systems as it enables farmers to match inputs of nutrients (in fertiliser and organic materials) to crop demand thus minimising production costs and losses to the environment. Whilst several nutrient management planning tools are available to farmers and advisors in Northern Ireland, AgriSearch is concerned that many of these tools are not up-to-date or easily accessible for on farm use. We have therefore recently commissioned a comprehensive review by ADAS of existing nutrient management planning tools for grassland and forage crops available for use by farmers in the UK or Ireland.

The review recommends that the current CAFRE web-based tools continue to be the standard recommended tools for use in NI. However, as these web-based tools are dated and not user-friendly, the review recommends that the calculators are updated with the aim of improving their functionality, accuracy, and usability, with a particular focus on:

- inclusion of lime, SO₃ and MgO recommendations;
- enabling the recording of organic ma-

nure imports and exports;

- including calculation of farmgate nutrient balances for N and P and K;
- including information on nutrient prices to adjust recommendations;
- stream-lining data entry (for example automatic data transfer of the mapping functions from the NI Soil Nutrient Health Scheme, and sharing data between calculators); and
- enabling users to download results into an excel workbook (or equivalent).

RECOMMENDATION 4

Work is required to update Nutrient Management Planning tools to ensure they are fit-for-purpose, user friendly, based on the latest recommendations for crop nutrient requirement and stream-line data entry from the NI Soil Nutrient Health Scheme.

The most recent focus on soil concerns the carbon reserves that are held within it. Whilst the science of carbon sequestration is still very much in its infancy, the ARCZero project has highlighted that farmers are the custodians of vast amounts of soil carbon. Whilst most research to date has examined soil C in the top 30 cm of soil, this represents only around 60% of total soil C. We need a much better understanding of how we measure and safeguard the carbon that is already stored in our soils, as well as the best means of sequestering additional carbon. We also need to better understand how we can minimize N₂O losses from soil through changing management practices, for example through more precise timing of application based on crop requirement and climatic conditions, and by transitioning to the use of urea fertilisers which include a urease inhibitor.

Soils contain large quantities of stored carbon and in many cases there is potential to increase this further via carbon sequestration by changing farm management practices, for example through modifying grazing management practice, rewetting of peatlands, creation of agroforestry etc. This potentially opens up a new market opportunity for farmers, but

research is needed to establish improved methods for measurement and verification of soil carbon reserves, and to identify the most effective management practices to increase carbon sequestration. Furthermore, work is needed to develop carbon markets for farmers with clear guidelines on the implications of selling carbon offsets on the farm carbon inventory.

RECOMMENDATION 5

Research is needed to develop new on farm methods to assess soil carbon, both in the top 30 cm of soil and deep soil carbon, and to explore opportunities to enhance soil C sequestration through novel land management strategies.

Grass & Crops

We now move from the medium for growing animal feed to considering the grass / swards and crops. There is increasing legislative pressure for farmers to reduce the amount of chemical N fertiliser applied to grass and crops. However, most new grass varieties on the market (which are predominantly perennial ryegrasses) were selected using very high levels chemical nitrogen. In contrast, today's grasses need to be able to thrive and perform with lower N inputs and coexist with clovers, other legumes and herbs.

RECOMMENDATION 6

Research is required to identify grass species and varieties which are productive at lower N levels and which are compatible with legumes and other species.

Recent work on multi-species swards has yielded some promising results, but this has been almost entirely based along Ireland's East coast, and we need to be aware of the increased management complexity required with these sward types. We also need to consider options for heavier soils and wetter climates, and in many cases grass/clover swards, combined with tactical use of N fertiliser may be a more appropriate choice than multi-species swards. The use of leg-

umes and herbs in swards also brings additional challenges of weed control. Indeed, the options for weed control are narrowing all the time and we need to consider alternative weed control strategies.

Many of the current fertiliser recommendations for grass crops are based on trials undertaken in the 1980's and 1990's. Our climate and grass varieties have changed considerably since then and evidence around appropriate fertiliser recommendations for legumes and more diverse swards types is close to non-existent. There is much to be said for detailed plot-based agronomic trials over several years on a variety of soil and sward types to provide the basis for nutrient application recommendations for the future. Results of such studies could be used to update farm nutrient management planning tools to include guidelines on precision management of fertiliser application, taking full account of nutrient supply from soil, organic manures and N fixation by legumes.

Climate change is resulting in more extreme weather events, with increasing periods of heavy rainfall and/or periods of drought. Deeper rooting grasses have potential benefits in either scenario, both by improving water infiltration into the soil during wet periods, and by being able to draw moisture from further down the soil profile during periods of drought.

Ruminant livestock production in Northern Ireland has a high reliance on imported feed (especially protein). Previous research at AFBI, Hillsborough has shown the potential for home grown proteins to replace a substantial amount of imported protein, however uptake remains relatively low.

Given continuing seismic geo-political shocks and the splintering of the global economy / marketplace (which in turn has led to considerable supply chain disruption), there is a strong case for considering research on mixed farming systems. This could have the benefit of reducing exposure to fertiliser and feed price shocks and improving water quality at the same time.

RECOMMENDATION 7

Further research is needed to optimise the potential of grass/clover swards in areas with heavy soils and high annual rainfall. Research should seek to identify compatible grass, white and red clover varieties and to develop management guidelines for precision application of N,P and K fertilisers based on crop requirement and nutrient supply from soil, organic manures and N fixation by legumes.

Livestock

There is considerable diversity in production systems across Northern Ireland's dairy, beef and sheep systems, reflecting the wide range in land, labour and capital available on individual farms. With increasing focus on the environmental impacts of farming, a number of key performance indicators (KPI's) will become increasingly important across all systems, including:

Age at first calving; Life time performance (Lifetime milk components yield (dairy), Age at slaughter and lifetime growth rate (beef and lamb); and CO₂e per kilogram of product.

The major drivers for improvement in these KPI's include use of appropriate livestock genetics for the specific production system, provision of high-quality grazing and silage, and maintenance of high animal health status.

Genetics

Selective breeding has always played a key role in livestock production systems. Recent research in the beef sector has shown that genetic selection can be used to reduce age at first calving, improve lifetime carcass yield, increase feed efficiency, reduce susceptibility to disease and lower methane emissions per unit of output. New technologies and data capture methods provide the opportunity to further accelerate the speed and scope of genetic progress. Given the pressure to reduce the use of antibiotics and the continuing spread of anthelmintic resistance, the breeding of more resilient livestock should be a key aim for the future.

AgriSearch very much welcome the recent establishment of Sustainable Ruminant Genetics Ltd and look forward to working with the company to advance livestock genetics in Northern Ireland. We welcome proposals to genotype the breeding cattle herd and annual calf crop and also highlight the importance of collecting accurate phenotypic data, not only on animal performance, but on a wide range of health and fertility traits. In this context, the BovIS database is a rich source of historical data which should be exploited and expanded.

RECOMMENDATION 8

AgriSearch considers that there is considerable potential to accelerate the rate of genetic progress in both the beef and sheep sectors through the adoption of a national genotyping programme coupled with improved recording of animal performance, health and fertility traits. Further analysis of the BovIS database should be undertaken as a priority to understand factors influencing age at calving and age at slaughter in the beef sector.

The adoption of Estimated Breeding Values (EBVs) in the beef and sheep sectors is still at low levels. While this does not need research as such (except perhaps social research to understand the reasons for poor uptake) more innovative ways of getting farmers to adopt the use of EBV's are needed.

Herd Health

With increasing restrictions on the use of antimicrobial drugs in livestock systems, other approaches will be needed to reduce the incidence of endemic disease, including a fundamental redesign of housing and grazing management systems to reduce the level of disease challenge. Recent research at AFBI Hillsborough (The Optihouse Calf Project) has shown the importance of housing environment in early life in reducing calf mortality and improving lifetime performance.

The high incidence of Bovine Tuberculosis remains a major impediment to improved efficiency of the dairy and beef sectors in North-

ern Ireland, resulting in significant financial loss, huge stress to farmers and a major cost to public expenditure as a result of the annual culling of around 2.5% of the mature cattle herd. AgriSearch fully supports the TB Eradication Strategy proposed by the Northern Ireland TB Strategic Partnership Group and calls for it's full implementation.

Greenhouse Gas Emissions and Ammonia

Given that the agriculture sector accounts for approximately 28% of Greenhouse Gas (GHG) emissions in Northern Ireland, of which methane comprises 66%, a reduction in emissions is a key priority for the ruminant livestock sector. AgriSearch has lobbied strongly for a co-ordinated policy approach by DAERA to address the issue, whilst ensuring the economic and social sustainability of farmers and the wider agri-food sector and Northern Ireland's rural economy, in addition to consideration of other environmental issues (such as water and air quality and biodiversity).

In considering the timescale needed to adopt new approaches in the livestock sector, AgriSearch has highlighted that farmers have a current mindset which has been programmed by previous DAERA and CAP policies. Plans to change payments are still at a very early stage and will take time to have an impact. We would also highlight the need for further investment in science and in particular social science as farmers will be asked to make significant changes to their businesses which many will find difficult to accept.

We are also concerned that many scientists working on GHG issues are working on individual projects, with little connection or coordination between them. There is need for government to address this when commissioning and co-ordinating research, with much more emphasis being given to a programme-based approach to research commissioning

AgriSearch have also highlighted the need for new research to examine the implications of using GWP* in assessing the impact of the

ruminant livestock sector on GHG emissions and the use of GWP* assessments in setting targets for the agrifood sector for 2030 and beyond. Limitations in the current GWP100 measurement approach were identified some years ago at the University of Oxford, with the main limitation being that it assumes that all greenhouse gases are stagnant in the atmosphere and remain there for many years. However, methane is a short-lived gas and is removed from the atmosphere relatively quickly after being emitted. As GWP100 does not fully account for the shorter-term impacts of methane in the atmosphere, this leads to an overestimate of its contribution to global warming patterns. An alternative assessment, GWP*, was developed as a means of measuring carbon in the atmosphere, taking the shorter lifespan of methane into consideration. GWP* appears to provide a better estimate of temperature change for different GHG emissions as it captures differences in short- and long-lived GHGs.

RECOMMENDATION 9

AgriSearch recommend new research to examine the implications of using GWP* in assessing the impact of the ruminant livestock sector on GHG emissions and the use of GWP* assessments in setting targets for the Northern Ireland agrifood sector for 2030 and beyond.

AgriSearch recognise that the ruminant livestock sector is a major contributor to ammonia emissions, with approximately 92% of ammonia emissions in Northern Ireland attributed to the agriculture sector. DAERA are currently consulting on a Future Operational Protocol in relation to ammonia and AgriSearch have expressed concerns that the models currently used to estimate atmospheric ammonia levels in Northern Ireland are based on UK wide emission models. We are concerned that these models use nutritional data and information on manure storage systems based on livestock systems in England. These systems are not representative of those used in Northern Ireland, given differences in livestock diets and manure storage systems (lower protein levels in livestock di-

ets and greater reliance on slatted floor housing systems in Northern Ireland). Furthermore, the models have not been rigorously ground-truthed or independently verified and this could lead to inaccurate estimation of atmospheric ammonia levels.

RECOMMENDATION 10

AgriSearch would like to see new research initiated and published to validate the current atmospheric ammonia emission models, which are being used in policy development, based on measurements undertaken under local farming conditions. We also recommend new research to examine the potential to lower ammonia emissions through dietary management (lower protein diets and use of feed additives), coupled with innovative housing and slurry storage systems

Natural capital This is a topic that is of increasing interest (including to the banks) but is very poorly defined. We cannot afford to be bystanders as methodologies for measuring this are developed. This is of particular importance for our upland farmers.

Capacity for Research

A fundamental concern for AgriSearch is the reduction in capacity to undertake research to support the ruminant livestock sector in Northern Ireland in recent years. These concerns relate to both the lack of investment in research facilities and the shortage of research scientists with appropriate expertise in livestock systems. There are currently no facilities for beef production research, sheep research facilities are outdated and the dairy research facilities are in urgent need of modernisation, as they are below the standards of livestock housing on the majority of local dairy farms.

In relation to research staff, many experienced research scientists have moved into the commercial sector leaving an intergenerational gap in transfer of research knowledge and skills. AgriSearch is currently attempting to address the staff/skill shortages through the introduction of its Postgraduate Scholar-

ship Scheme, which is focussed on commissioning postgraduate projects with particular relevance to ruminant livestock, but we recognise that it will take a number of years for these scholars to fill the current vacuum.

AgriSearch strongly supports closer working relationships between the three main research providers in Northern Ireland – the Agri-Food and BioSciences Institute (AFBI), Queens University Belfast (QUB) and the University of Ulster (UU). Given the multi-faceted nature of the challenges currently facing the ruminant livestock sector, there is a need for an integrated approach across research pro-

viders to bring all the scientific disciplines together in large scale research programmes. AgriSearch also contends that the current DAERA research funding model needs to become much more innovative, timely and proactive if it is to play any role in assisting the ruminant livestock sector to address the significant challenges it now faces. Research commissioning needs to be streamlined to facilitate the rapid initiation of new research programmes, with a greater input from industry and research providers to ensure that research is focussed on areas of greatest need and opportunity.



Trustees' Annual Report

The trustees, who are also the directors for the purposes of company law, present their report and the financial statements of the charity for the year ended 31 March 2023.

CHAIR'S REPORT

The accounts have been prepared in accordance with the accounting policies set out in note 3 to the accounts and comply with the Charity's Memorandum and Articles of Association, the Companies Act 2006 and "Accounting and Reporting by Charities: Statement of Recommended Practice applicable to charities preparing their accounts in accordance with the Financial Reporting Standard applicable in the UK and Republic of Ireland (FRS 102) (effective 1 January 2015)"

STRUCTURE, GOVERNANCE AND MANAGEMENT

Nature of governing document and how charity is constituted

'AgriSearch' is the trading name for the Northern Ireland Agricultural Research & Development Council, a charitable company, limited by guarantee with no share capital. It is governed by its Memorandum and Articles of Association.

Methods to recruit and appoint new trustees

The Board of Trustees, who are also the Directors of the Charitable Company, are appointed by the Council. The Trustees appoint three Advisory Committees to consider and monitor appropriate research projects.

Nominations are received from the Ulster Farmers' Union for three farmer Trustees. On behalf of processors (who are levy collectors) DairyUK and NI Meat Exporters Association (NIMEA) nominate one trustee each.

Three farmer Trustees are recruited independently with the aim of ensuring that relevant differing aspects of farm husbandry are represented as far as possible and that there

is widespread representation across Northern Ireland.

Additional independent Trustees are recruited who are not active farmers but have standing within the agricultural community and have experience of a commercial environment.

Members of the charity are approved at the AGM following nomination by the Trustees. While nominations for Trustees are received from the Ulster Farmers' Union, DairyUK and NIMEA the final decision as to who to appoint is at the discretion of the members of the charity.

Indemnity provision for trustees

Every member of the Charity undertakes to contribute such amount as may be required (not exceeding £1) to the Charity's assets if it should be wound up while he or she is a member or within one year after he or she ceases to be a member, for payment of the Charity's debts and liabilities contracted before he or she ceases to be a member, and of the costs, charges and expenses of winding up, and for the adjustment of the rights of the contributors among themselves. Trustees are also covered by a management and corporate liability insurance policy.

Organisational structure and how charity makes decisions

The Board of Trustees meets five times per year and each of the Advisory Committees meets when required to review funding and expenditure proposals. The Chairman, Vice-Chairman, Senior Vice-Chairman and the General Manager meet frequently to review the day to day operation and governance of the organisation.

The three advisory committees are made up of farmer members, independent scientific advisors and representatives of the processing sectors. The Beef and Sheep Advisory Committees also have a representative from the Livestock and Meat Commission for NI. Their role is to identify and evaluate research

proposals and recommend projects to the Trustees. Each committee includes one representative of College of Agriculture, Food and Rural Enterprise (CAFRE) in an advisory capacity.

The Trustees review all proposals from advisory committees, taking into account the finances of the organisation and the strategic direction before deciding to approve the recommendations or return them to the relevant committees for further consideration or rejection.

How decisions are made

Decisions are taken by the Board of Trustees which meets at least five times a year. Meeting papers which include an agenda, minutes of the previous meeting, General Manager's report, financial statements and details of any project proposals being considered for funding are circulated in advance of the meeting.

Policies and procedures for induction and training of trustees

New Trustees are provided with information about the role and about the Council as part of an application 'pack'. Following selection, new Trustees have an induction briefing from the Chairman and General Manager which provides information and guidelines on their tasks and responsibilities together with an outline of the objectives of AgriSearch. They also receive copies of past Trustee minutes and other corporate documentation.

Arrangements for setting pay and remuneration of key management

A remuneration committee is appointed by the Trustees and meets on annual basis to consider the remuneration of key management. Its recommendations are submitted to the Trustees for approval.

The remuneration committee is currently made up as follows:

- Norman McMordie (Chairman)
- John Henning
- Jo-Anne Dobson

A Disciplinary and Grievance Committee has also been established to review the employee handbook and if necessary act as an appeal panel for disciplinary and grievance issues.

The Disciplinary and Grievance Committee is currently made up as follows:

- Ian McCluggage
- Norman McMordie
- Alan McCay

Since the end of the financial year a new PhD Scholarship committee was established with the following members:

- Gerry Boyle
- Alan McCay
- Ian McCluggage

Relationships with related parties and other charities/organisations with which it co-ordinates in the pursuit of its charitable objectives One Trustee, two members of the AgriSearch Sheep Advisory Committee, three members of the AgriSearch Dairy Advisory Committee and two members of the AgriSearch Beef Advisory Committee received payments during the financial year for activity undertaken as "farmer co-researchers" or "Beacon Farmers", these are detailed on pages 35 and 39 under 'Trustee Remuneration' and 'Related Party Transactions'. Farmer co-researchers are appointed on-merit in consultation with the relevant lead scientist. Beacon Farmers were appointed on merit by an independent expert panel.

AgriSearch has a conflict of interest policy and each Trustee and Advisory Committee member is asked to complete a declaration of interests. In addition, declaration of conflicts of interest is a standing item at the top of the agenda for every meeting of Trustees.

OBJECTIVES AND ACTIVITIES

Charitable objective

The principal activity of the Council is to commission research and development in the agricultural industry. The Charity's objectives are to advance education, for the public benefit, in particular, by conducting and commis-

sioning research into the improvement and development of sheep, beef and dairy farming and to disseminate and publish the useful results of such research and also to promote the improvement of animal health and welfare in sheep, beef and dairy farming in Northern Ireland.

Aims of charity

Like all industries, the Northern Ireland ruminant livestock sector needs to constantly advance to meet the challenges it faces. These include competitiveness in an increasingly globalised market, meeting government and consumer expectations in the fields of animal health and welfare, reducing the environmental impact of farming, delivery of ecosystem services and improving food quality and safety.

Research and innovation have a major role to play in helping farmers to increase their socio-economic resilience, improve their environmental sustainability and enhance the health status of their herds and flocks.

Purpose

To make the Northern Ireland Ruminant Livestock Sector more competitive profitable and sustainable.

Vision

AgriSearch is committed to being an important driver of excellence and innovation in the Northern Ireland ruminant livestock sector, and being recognised as such by government and industry.

Mission

To realise this vision, our mission is to drive profitability and sustainability, as a trusted, valued conduit of knowledge and innovation based on sound science and widely applied research.

Values and Principles

Our values and principles below will be prevalent in all of our activities and reflected in all of our work.

- Honesty and integrity

- Ethical leadership and good governance
- Accountability to farmers - levy payer led
- Consultation, engagement, and effective communication at all levels of government and the industry
- Collaboration and partnership across all our sectors
- Seeking value for money in all of our research and innovation projects and programmes
- Advocating excellence in all research, science, and innovation activities

In light of further significant change within the agri-food sector and AgriSearch's operating environment, the Trustees instigated a strategy review process in February 2020. As part of this process the Trustees engaged extensively with farmers, processors, experts and other key stakeholders in the industry. The review highlighted the need to have a more targeted and focused programme of work. Sustainability was identified as the main challenge for the industry. The three pillars of sustainability are:

- **People** - Farming systems that are offer a reasonable work/life balance and that protect farming's social license.
- **Planet** - Farming systems that deliver ecosystem services (e.g. biodiversity and carbon sequestration) as well as minimising nutrient losses and carbon foot print.
- **Profit** - Farming systems are not sustainable unless they are profitable. A lack of profitability is a major challenge for many farms, particularly those in the beef and sheep sectors. In addition increased volatility in the price of milk, beef and lamb and farm inputs can also threaten the economic resilience and sustainability of farms.

How achievement of aims furthers objectives

The charity is dependent on the goodwill of its levy funders. Given this, the Trustees have put in place a range of systems to try to ensure appropriate research projects are commissioned, that research findings are innovatively disseminated and that feedback and engagement are sought. Innovative research and development is a key strategy within Government targets. AgriSearch is also committed to innovative research and development and aims to maximise its influence and impact. AgriSearch also seeks to collaborate with government and industry bodies within Northern Ireland and further afield. By doing so we can leverage our limited levy funds to achieve a much greater impact than by working alone.

It is also the policy of the Trustees that the return on investment of the funds directed to research is analysed and measured to ensure optimum value for money on behalf of the charity's funders. Increasingly, as research projects reach conclusion, greater emphasis is being placed on the dissemination of findings and the adoption by industry of the key recommendations into every day working practice. Environmental and animal welfare considerations continue to be more significant factors in the sustainability of farming and AgriSearch takes increasing notice of these.

Strategies for achieving aims and objectives

- To build understanding of global advances in production systems, practices and techniques, through the funding of new research, the sharing of knowledge, and widespread innovation and development.
- To lever funding and deliver programmes through collaborative research partnerships, actively seeking partners locally, nationally and internationally, and developing mutually beneficial relationships.
- To communicate more effectively and directly with farmers, increase the num-

ber of farmers we reach and increase their active participation.

- To facilitate bottom up, industry led priorities for research and innovation, based on need.
- To support the NI science community, working to ensure the future capacity and capability of NI scientists and agri-culturalists.

Criteria or measures used to assess success

- Improvements in productivity and efficiency at farm level
- Improvements in systems, processes, and practices
- Increased profitability from farming ruminant livestock
- Reduced carbon footprint per kg of milk/ beef/ lamb
- Reduced input, overhead, and energy costs per unit of output
- Increased or more productive use of land
- Strength of AgriSearch profile locally and internationally
- Level of industry/farmer confidence in AgriSearch research models, methods, and outcomes
- Strong collaborative relationships in government, in the agri-food industry, and in the scientific and academic community
- Increase in effectiveness of communication
- Value for money and impact on farming (economic and environmental)

Statement of compliance with Charity Commission guidance

The Charity has paid due regard to guidance issued by the Charity Commission in deciding what activities the Charity should undertake.

Significant activities undertaken

Main objectives for the year and strategies for achieving them

- To further develop the Beacon Farm Network including the holding of workshops for the participating farmers
- To continue with the GrassCheck programme and expand the GrassCheck farm networks
- To continue our involvement in Super-G (a Horizon 2020 Project on Permanent Grassland)
- To continue our involvement in Resilience for Dairy (R4D) Horizon 2020 Thematic network
- To lead three European Innovation Partnership operational groups and provide comms and KE services to a fourth group (ARCZero)
- To establish an AgriSearch PhD Scholarships Program
- To participate in the building of further networks and consortia to pool resources, avoid the duplication of research and draw down external funding.
- To continue our membership of and involvement in the Centre for Innovation Excellence in Livestock.
- To hold further Knowledge Exchange events in collaboration with AFBI and CAFRE.
- To increase the reach of our knowledge exchange programme through further on-farm events, seminars and increasing traffic to the website and social media.
- To further develop our communications and knowledge exchange strategy.
- To engage with DAERA to ensure a high priority is given to research and knowledge exchange and ensure co-ordination of research and knowledge transfer activities and maximise synergies.

Grant-making policy

Investments in research programmes take into account value for money, affordability and the potential for the research to be adopted in practice on farms in Northern Ireland.

Any research proposal must address at least one of the following key pillars:

- Sustainability / profitability
- Environmental Impact
- Animal Welfare/Health
- Food quality / safety

The Trustees also look for additional external funding in any research projects they approve. This is mainly obtained through the Department of Agriculture's Evidence and Innovation Strategy and Research Challenge Fund programmes and more recently the InvestNI funded Agri-Food Quest Competence Centre. AgriSearch has also obtained funding from the European Union under the Horizon 2020 programme. However, the opportunities for leveraging funding for research projects has greatly diminished in recent years. Thus AgriSearch is increasingly looking to undertake smaller scale farm-level initiatives which it can fund using its own resources.

Use of volunteers

The charity makes significant use of volunteers in the course of its work. In addition to the Trustees, the members of the three sectoral advisory committees give freely of their time in attending and preparing for committee meetings as well as supporting events run by AgriSearch.

In addition, many of AgriSearch's research programmes are based on commercial Northern Ireland farms who only receive a small payment for the time they spend on these projects and who make their herds and flocks available for research as well as allowing access to farm records and hosting extension events on their farms.

TRUSTEES' STRATEGIC REPORT

The following sections for achievements and performance and financial review form the strategic report of the charity.

ACHIEVEMENTS AND PERFORMANCE

Summary of main achievements

- Completed case studies on seven Beacon farms looking at means of lowering their carbon footprint and published these results.
- Recruited additional GrassCheck farmers and committed resources to support GrassCheck for the next three years (2023-25)
- Commissioned a new ZeroNsile project which will look at making winter forage which required minimal or no manufactured nitrogen fertiliser and recruited 15 farmers to participate in the project and held an induction meeting
- Continued involvement in SUPER-G (a Horizon 2020 project)
- Led three European Innovation Partnership operational groups:
 - Targeted Selective Treatment of Anthelmintics
 - Multi-Species Swards for Beef & Sheep
 - Leatherjacket Mitigation Strategies
- Led KE and Comms Activities for ARC Zero EIP operational group.
- Website continuously updated along with use of social media.
- Conducted two farmer survey's on behalf of the Rising Costs Industry Taskforce
- Led or were involved in 9 farm walks
- Held 9 workshops for Advisory Committees, Beacon Farmers and GrassCheck farmers and others
- Hosted 2 webinars

- Held a "Capitalising on Clover" seminar
- Presented findings of the Leatherjacket Mitigation Strategies EIP project at a meeting of the Fermanagh Grassland Club
- Presented findings of the Anthelmintic TST EIP project at two CAFRE Planning for Performance events
- Continued work on "Resilience for Dairy" (R4D) a new Horizon 2020 Thematic Network
- Took a stand at the RUAS Winter Fair

Investment performance against objectives

Cash flow and reallocation of funds between accounts has been managed to maximise the limited returns available on deposit accounts. The Danske Bank (Davy) managed portfolio has returned a reasonable performance with a return of -4.3% this year. The St. James's Place managed portfolio has also returned satisfactory performance with a return of -5.2% this year. The Trustees have reviewed the portfolio and returns and are satisfied with the management of risk and investment income.

Balanced picture of charity's progress against objectives

While AgriSearch has been successful at leveraging a significant amount of funding from government and other sources in the past, many funding streams which AgriSearch has availed of in the past are no longer open to new applications. Knowledge exchange is a key component of our work. Over the course of the year we have run or assisted in the running of 13 successful knowledge exchange events.

Key performance indicators explaining outputs achieved by objectives

Given the straightforward nature of the business, the company's directors are of the opinion that analysis using KPI's is not necessary for an understanding of the development, performance or position of the business.

Significant positive and negative factors

that affected the achievement of objectives and how future plans affected

Given the relatively small amount of levy income the commissioning of research projects is dependent on the availability of leveraged funding. Funding competitions for such projects do not follow a regular cycle. In the last three years there have been fewer funding calls open and those that have been open have not aligned particularly well with the goals and aspirations of AgriSearch. As a result of this the Trustees instigated a major review of AgriSearch's strategy. Further to this they have engaged the services of Dr Sinclair Mayne as an Independent Scientific Advisor to advise the Trustees and management. AgriSearch is now undertaking smaller scale farm-level initiatives which it can fund using its own resources.

FINANCIAL REVIEW

Review of financial position at the end of the reporting period

The statement of financial activities for the year is set out on page 23 of this report. The net movement in funds for the financial year is net expenditure spent of £630,831 (2022: net resources received of £508,729). During the year AgriSearch agreed to fund 5 projects totalling £773,857 on the basis that complementary funding in the region of £96,000 would be sought from the Department of Agriculture, Environment and Rural Affairs and other sources. When other sources of funding are added, the total expenditure on the related research and development since the formation of AgriSearch in 1997 is over £63m, with the input from AgriSearch amounting to £9.6M.

Significant events that affected financial performance and financial position during the period

Events during the year did not give rise to any material financial impact.

The Trustees monitor financial performance on a regular basis and take a low risk stance on finance. It is the Trustees' policy to achieve the best financial return on longer term funds

with a prudent investing attitude whilst ensuring that sufficient funds are available to meet the operational expenditure of the organisation. Invested funds can be accessed at short notice. Financial risk is considered as part of the Trustees' ongoing assessment of its operating environment and a risk register is maintained.

The organisation is largely dependent on a revenue stream from voluntary levies paid by farmers and agri-food processors. The risk to future financial performance based on this is regularly considered and assessed. Budgets are set for each financial year in light of this. At the end of the financial year, there are no events or circumstances which would significantly impact the organisation's future financial performance.

Over the two previous accounting periods due to the lack of opportunities for co-funding for new research AgriSearch had built up considerable reserves well beyond what would be normal for the organisation. During the financial year the Trustees commissioned two new large projects ZeroNsile (a five year project) as well as approving funding for an enlarged GrassCheck project from the period 2023-2025. The budget allocations include provision for AgriSearch staff costs associated with these projects

INVESTMENT POLICY AND OBJECTIVES

The overall investment policy is low risk. During the 2022-23 financial year the majority of funds were held in deposits across a number of institutions as agreed by the Trustees. A portion of funds which are not required in the short term continue to be invested within investment portfolios managed by Davy & St. James's Place. All funds are accessible at less than one week's notice.

Principal sources of income and how expenditure meets objectives

Principal funding sources are terms-of-trade levies collected on a voluntary basis by Northern Ireland processors of dairy, beef and sheep.

Reserves policy (including amount of reserves and why held, restricted funds, designated funds, free reserves against reserves policy)

The Trustees have established a policy whereby the company's 'Free' reserves, being funds not committed to third parties for research should represent at least 12 months management and administration costs. At this level, the Trustees are of the view that the company would be able to continue its activities in the event of a significant drop in funding. The level of reserves held at the year ended 31 March 2023 is £511,922. In addition, in order to ensure continuity of operations, further reserves are held for the ongoing commissioning of research, to ensure AgriSearch has the capacity to commission urgent research at short notice to address any emerging critical issues that may arise. AgriSearch works with other stakeholders to ensure maximum leverage of funds. Reserves held can vary depending on the timing of decisions made by co-funders. Reserves held can vary based on the expected or anticipated timing of research funding calls and the time taken for co-funders to consider applications made under such calls. The Trustees consider that the present level of reserves adequately meets these combined objectives.

Risk factors

The Trustees are responsible for ensuring effective risk management, and that internal controls are in place to appropriately manage the risk exposure of AgriSearch. When reviewing risks the Board considers:

- the major risks to which AgriSearch is exposed;
- the potential impact and probability associated with each risk;
- existing internal controls and accountability for them;
- mitigating actions needed to reduce each risk to a level that the Trustees considered to be acceptable.

The Trustees have drawn up a comprehensive and detailed risk register which is for-

mally reviewed by the Trustees every year and is regularly monitored by the Office Bearers' Committee.

The major financial risks are each subject to ongoing monitoring and management. AgriSearch investments are regularly reviewed by the Office Bearers. Income and cost control are subject to detailed review and challenge on at least a bimonthly basis. An annual budget for non-project related expenditure for the forthcoming year is placed before the Trustees for approval before the start of each financial year. During the year a Financial Control Document was drawn up and adopted by the Trustees and is kept under regular review.

AgriSearch is reliant on the co-operation of dairy and red meat processors to collect producer levies on its behalf.

PLANS FOR FUTURE PERIODS

- To launch AgriSearch PhD Scholarships
- To continue our involvement in Super-G (a Horizon 2020 Project on Permanent Grassland).
- To work with academic and research partners to lever funding for projects to utilise the Beacon Farm network.
- To continue our involvement in the Resilience for Dairy (R4D) Horizon 2020 Thematic network
- To manage the delivery of three European Innovation Partnership projects (concluding 30th June 2023).
- To participate in the building of further networks and consortia to pool resources, avoid the duplication of research and draw down external funding.
- To continue our membership of and involvement in the Centre for Innovation Excellence in Livestock.
- To hold further knowledge exchange events in collaboration with AFBI and CAFRE.
- To increase the reach of our knowledge exchange programme through further on-farm events, seminars and increas-

ing traffic to the website and social media.

- To further develop our communications and knowledge exchange strategy.
- To engage with DAERA to ensure a high priority is given to research and knowledge transfer and ensure co-ordination of research and knowledge transfer activities and maximize synergies.

TRUSTEES' RESPONSIBILITIES STATEMENT

The trustees, who are also directors for the purposes of company law, are responsible for preparing the trustees' report and the financial statements in accordance with applicable law and United Kingdom Accounting Standards (United Kingdom Generally Accepted Accounting Practice).

Company law requires the charity trustees to prepare financial statements for each year which give a true and fair view of the state of affairs of the charitable company and the incoming resources and application of resources, including the income and expenditure, for that period.

In preparing these financial statements, the trustees are required to:

- select suitable accounting policies and then apply them consistently;
- observe the methods and principles in the applicable Charities SORP;
- make judgments and accounting estimates that are reasonable and prudent;
- state whether applicable UK Account-

ing Standards have been followed, subject to any material departures disclosed and explained in the financial statements;

- prepare the financial statements on the going concern basis unless it is inappropriate to presume that the charity will continue in business.

The trustees are responsible for keeping adequate accounting records that are sufficient to show and explain the charity's transactions and disclose with reasonable accuracy at any time the financial position of the charity and enable them to ensure that the financial statements comply with the Companies Act 2006. They are also responsible for safeguarding the assets of the charity and hence for taking reasonable steps for the prevention and detection of fraud and other irregularities.

AUDITOR

Each of the persons who is a trustee at the date of approval of this report confirms that:

- so far as they are aware, there is no relevant audit information of which the charity's auditor is unaware; and
- they have taken all steps that they ought to have taken as a trustee to make themselves aware of any relevant audit information and to establish that the charity's auditor is aware of that information.

The trustees' annual report and the strategic report were approved on 28 November 2023 and signed on behalf of the board of trustees by:

Prof. G E Boyle
Trustee

Mr I G McCluggage
Trustee

Mr J N McMordie
Trustee

Independent Auditor's Report

OPINION

We have audited the financial statements of The Northern Ireland Agricultural Research and Development Council T/A Agrisearch (the 'charity') for the year ended 31 March 2023 which comprise the statement of financial activities (including income and expenditure account), statement of financial position, statement of cash flows and the related notes, including a summary of significant accounting policies. The financial reporting framework that has been applied in their preparation is applicable law and United Kingdom Accounting Standards, including FRS 102 The Financial Reporting Standard applicable in the UK and Republic of Ireland (United Kingdom Generally Accepted Accounting Practice).

In our opinion the financial statements:

- give a true and fair view of the state of the charity's affairs as at 31 March 2023 and of its incoming resources and application of resources, including its income and expenditure, for the year then ended;
- have been properly prepared in accordance with United Kingdom Generally Accepted Accounting Practice;
- have been prepared in accordance with the requirements of the Companies Act 2006 and the Charities Act (Northern Ireland) 2008.

BASIS FOR OPINION

We conducted our audit in accordance with International Standards on Auditing (UK) (ISAs (UK)) and applicable law. Our responsibilities under those standards are further described in the auditor's responsibilities for the audit of the financial statements section of our report. We are independent of the charity in accordance with the ethical requirements that are relevant to our audit of the financial statements in the UK, including the FRC's Ethical Standard, and we have fulfilled our other ethical responsibilities in accordance

with these requirements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

CONCLUSIONS RELATING TO GOING CONCERN

In auditing the financial statements, we have concluded that the trustees' use of the going concern basis of accounting in the preparation of the financial statements is appropriate.

Based on the work we have performed, we have not identified any material uncertainties relating to events or conditions that, individually or collectively, may cast significant doubt on the charity's ability to continue as a going concern for a period of at least twelve months from when the financial statements are authorised for issue.

Our responsibilities and the responsibilities of the trustees with respect to going concern are described in the relevant sections of this report.

OTHER INFORMATION

The other information comprises the information included in the annual report, other than the financial statements and our auditor's report thereon. The trustees are responsible for the other information. Our opinion on the financial statements does not cover the other information and, except to the extent otherwise explicitly stated in our report, we do not express any form of assurance conclusion thereon.

In connection with our audit of the financial statements, our responsibility is to read the other information and, in doing so, consider whether the other information is materially inconsistent with the financial statements or our knowledge obtained in the audit or otherwise appears to be materially misstated. If we identify such material inconsistencies or apparent material misstatements, we are required to determine whether there is a material misstatement in the financial statements

or a material misstatement of the other information. If, based on the work we have performed, we conclude that there is a material misstatement of this other information, we are required to report that fact.

We have nothing to report in this regard.

OPINIONS ON OTHER MATTERS PRESCRIBED BY THE COMPANIES ACT 2006

In our opinion, based on the work undertaken in the course of the audit:

- the information given in the trustees' report for the financial year for which the financial statements are prepared is consistent with the financial statements; and
- the trustees' report has been prepared in accordance with applicable legal requirements.

MATTERS ON WHICH WE ARE REQUIRED TO REPORT BY EXCEPTION

In the light of the knowledge and understanding of the charity and its environment obtained in the course of the audit, we have not identified material misstatements in the trustees' report.

We have nothing to report in respect of the following matters in relation to which the Companies Act 2006 and the Charities Act (Northern Ireland) 2008 requires us to report to you if, in our opinion:

- adequate accounting records have not been kept, or returns adequate for our audit have not been received from branches not visited by us; or
- the financial statements are not in agreement with the accounting records and returns; or
- certain disclosures of trustees' remuneration specified by law are not made; or
- we have not received all the information and explanations we require for our audit.

RESPONSIBILITIES OF TRUSTEES

As explained more fully in the trustees' responsibilities statement, the trustees (who are also the directors for the purposes of company law) are responsible for the preparation of the financial statements and for being satisfied that they give a true and fair view, and for such internal control as the trustees determine is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, the trustees are responsible for assessing the charity's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless the trustees either intend to liquidate the charity or to cease operations, or have no realistic alternative but to do so.

AUDITOR'S RESPONSIBILITIES FOR THE AUDIT OF THE FINANCIAL STATEMENTS

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with ISAs (UK) will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

Irregularities, including fraud, are instances of non-compliance with laws and regulations. We design procedures in line with our responsibilities, outlined above, to detect material misstatements in respect of irregularities, including fraud. The extent to which our procedures are capable of detecting irregularities, including fraud is detailed below:

Our approach to identifying and assessing

the risks of material misstatement in respect of irregularities, including fraud and non-compliance with laws and regulations, was as follows:

- the engagement partner ensured that the engagement team collectively had the appropriate competence, capabilities and skills to identify or recognise non-compliance with applicable laws and regulations;
- we identified the laws and regulations applicable to the company through discussions with trustees and other management;
- we assessed the extent of compliance with the laws and regulations identified above through making enquiries of management and inspecting legal correspondence; and
- identified laws and regulations were communicated within the audit team regularly and the team remained alert to instances of non-compliance throughout the audit.

We assessed the susceptibility of the company's financial statements to material misstatement, including obtaining an understanding of how fraud might occur, by:

- making enquiries of management as to where they considered there was susceptibility to fraud, their knowledge of actual, suspected and alleged fraud; and
- considering the internal controls in place to mitigate risks of fraud and non-compliance with laws and regulations.

To address the risk of fraud through management bias and override of controls, we:

- performed analytical procedures to identify any unusual or unexpected relationships;
- tested journal entries to identify unusual transactions; and
- assessed whether judgements and assumptions made in determining the accounting estimates set out in note 3

were indicative of potential bias.

In response to the risk of irregularities and non-compliance with laws and regulations, we designed procedures which included, but were not limited to:

- agreeing financial statement disclosures to underlying supporting documentation;
- reading the minutes of meetings of those charged with governance; and
- enquiring of management as to actual and potential litigation and claims.

There are inherent limitations in our audit procedures described above. The more removed that laws and regulations are from financial transactions, the less likely it is that we would become aware of non-compliance. Auditing standards also limit the audit procedures required to identify non-compliance with laws and regulations to enquiry of the directors and other management and the inspection of regulatory and legal correspondence, if any.

Material misstatements that arise due to fraud can be harder to detect than those that arise from error as they may involve deliberate concealment or collusion.

As part of an audit in accordance with ISAs (UK), we exercise professional judgment and maintain professional scepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opin-

ion on the effectiveness of the internal control.

- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by the trustees.
- Conclude on the appropriateness of the trustees' use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the charity's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the charity to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the financial statements, including the disclosures,

and whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation.

We communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

USE OF OUR REPORT

This report is made solely to the charity's members, as a body, in accordance with section 65 of the Charities Act (Northern Ireland) 2008. Our audit work has been undertaken so that we might state to the charity's members those matters we are required to state to them in an auditor's report and for no other purpose. To the fullest extent permitted by law, we do not accept or assume responsibility to anyone other than the charity and the charity's members as a body, for our audit work, for this report, or for the opinions we have formed.

Aubrey Campbell (Senior Statutory Auditor)

For and on behalf of
Aubrey Campbell & Company
Chartered accountants & statutory auditor
631 Lisburn Road
Belfast
BT9 7GT

28 November 2023

Statement of Financial Activities

Year ended 31 March 2023

		2023		2022
		Unrestricted funds	Total funds	Total funds
	Note	£	£	£
Income and endowments				
Donations and legacies	5	540,092	540,092	832,118
Investment income	6	14,469	14,469	15,545
Total income		<u>554,561</u>	<u>554,561</u>	<u>847,663</u>
Expenditure				
Expenditure on charitable activities	7,9	(1,140,109)	(1,140,109)	(350,405)
Total expenditure		<u>(1,140,109)</u>	<u>(1,140,109)</u>	<u>(350,405)</u>
Net losses/(gains) on investments	11	45,283	45,283	(11,471)
Net (expenditure)/income and net movement in funds		<u>(630,831)</u>	<u>(630,831)</u>	<u>508,729</u>
Reconciliation of funds				
Total funds brought forward		1,142,753	1,142,753	634,024
Total funds carried forward		<u>511,922</u>	<u>511,922</u>	<u>1,142,753</u>

The statement of financial activities includes all gains and losses recognised in the year.
All income and expenditure derive from continuing activities.

Statement of Financial Position

31 March 2023

	Note	2023 £	2022 £
Fixed assets			
Tangible fixed assets	16	7,639	3,568
Investments	17	678,536	718,329
		<u>686,175</u>	<u>721,897</u>
Current assets			
Debtors	18	234,659	327,843
Cash at bank and in hand		457,581	533,918
		<u>692,240</u>	<u>861,761</u>
Creditors: amounts falling due within one year	19	395,747	402,826
Net current assets		<u>296,493</u>	<u>458,935</u>
Total assets less current liabilities		982,668	1,180,832
Creditors: amounts falling due after more than one year	20	470,746	38,079
Net assets		<u>511,922</u>	<u>1,142,753</u>
Funds of the charity			
Unrestricted funds		511,922	1,142,753
Total charity funds	22	<u>511,922</u>	<u>1,142,753</u>

These financial statements were approved by the board of trustees and authorised for issue on 28 November 2023, and are signed on behalf of the board by:

Prof. G E Boyle
Trustee

Mr I G McCluggage
Trustee

Mr J N McMordie
Trustee

Statement of Cash Flows

Year ended 31 March 2023

	2023 £	2022 £
Cash flows from operating activities		
Net (expenditure)/income	(630,831)	508,729
<i>Adjustments for:</i>		
Depreciation of tangible fixed assets	2,677	1,813
Net (losses)/gains on investments	45,283	(11,472)
Dividends, interest and rents from investments	(13,776)	(15,447)
Other interest receivable and similar income	(693)	(98)
Accrued expenses/(income)	1,078	(72,298)
<i>Changes in:</i>		
Trade and other debtors	93,184	98,892
Trade and other creditors	424,510	(321,139)
Cash generated from operations	(78,568)	188,980
Interest received	693	98
Net cash (used in)/from operating activities	<u>(77,875)</u>	<u>189,078</u>
Cash flows from investing activities		
Dividends, interest and rents from investments	13,776	15,447
Purchase of tangible assets	(6,748)	(1,678)
Purchases of other investments	(196,020)	(446,168)
Proceeds from sale of other investments	190,530	432,368
Net cash from/(used in) investing activities	<u>1,538</u>	<u>(31)</u>
Net (decrease)/increase in cash and cash equivalents	(76,337)	189,047
Cash and cash equivalents at beginning of year	<u>533,918</u>	<u>344,871</u>
Cash and cash equivalents at end of year	<u>457,581</u>	<u>533,918</u>

Notes to the Financial Statements

1. GENERAL INFORMATION

The charity is a public benefit entity and a private company limited by guarantee, registered in Northern Ireland and a registered charity in Northern Ireland. The address of the registered office is Innovation Centre, Large Park, Hillsborough, Co. Down, BT26 6DR, Northern Ireland.

2. STATEMENT OF COMPLIANCE

These financial statements have been prepared in compliance with FRS 102, 'The Financial Reporting Standard applicable in the UK and the Republic of Ireland', the Statement of Recommended Practice applicable to charities preparing their accounts in accordance with the Financial Reporting Standard applicable in the UK and Republic of Ireland (FRS 102) (Charities SORP (FRS 102)) and the Companies Act 2006.

3. ACCOUNTING POLICIES

Basis of preparation

The financial statements have been prepared on the historical cost basis, as modified by the revaluation of certain financial assets and liabilities and investment properties measured at fair value through income or expenditure.

The financial statements are prepared in sterling, which is the functional currency of the entity.

Going concern

There are no material uncertainties about the charity's ability to continue.

Judgements and key sources of estimation uncertainty

In the application of the Charity's accounting policies, the Trustees are required to make judgements, estimates and assumptions about the carrying amount of assets and liabilities that are not readily apparent from other sources. The estimates and associated assumptions are based on historical experience and other factors that are considered

to be relevant. Actual results may differ from these estimates.

The estimates and underlying assumptions are reviewed on an ongoing basis. Revisions to accounting estimates are recognised in the period in which the estimate is revised where the revision affects only that period, or in the period of the revision and future periods where the revision affects both current and future periods.

Fund accounting

Unrestricted funds are available for use at the discretion of the trustees to further any of the charity's purposes.

Designated funds are unrestricted funds earmarked by the trustees for particular future project or commitment.

Restricted funds are subjected to restrictions on their expenditure declared by the donor or through the terms of an appeal, and fall into one of two sub-classes: restricted income funds or endowment funds.

Incoming resources

Incoming is recognised when the Charity is legally entitled to it after any performance conditions have been met, the amounts can be measured reliably, and it is probable that income will be received.

The levy rates charged to the producers are as follows:

Milk 0.02p per litre
Beef 30p per head
Sheep 5p per head

Cash donations are recognised on receipt. Other donations are recognised once the Charity has been notified of the donation, unless performance conditions require deferral of the amount. Income tax recoverable in relation to donations received under Gift Aid or deeds of covenant is recognised at the time of the donation.

Legacies are recognised on receipt or otherwise if the Charity has been notified of an

impending distribution, the amount is known and receipt is expected. If the amount is not known, the legacy is treated as a contingent asset.

Resources expended

All expenditure is accounted for on an accrual basis and has been classified under headings that aggregate all costs related to the category. Expenditure is recognised where there is a legal or constructive obligation to make payments to third parties, it is probable that the settlement will be required and the amount of the obligation can be measured reliably.

Grants payable to third parties are within charitable objectives. Where unconditional grants are offered, this is accrued as soon as the recipient is notified of the grant, as this gives rise to a reasonable expectation that the recipient will receive grants.

Expenditure on charitable activities includes costs undertaken to further the purposes of the charity.

Support costs are those functions that assist the work of the charity but do not directly undertake charitable activities. Support costs include office costs, management charges and governance costs which support the Council's activities. These costs have been allocated to charitable activities.

Operating leases

Lease payments are recognised as an expense over the lease term on a straight-line basis. The aggregate benefit of lease incentives is recognised as a reduction to expense over the lease term, on a straight-line basis.

Tangible assets

Tangible assets are initially recorded at cost, and subsequently stated at cost less any accumulated depreciation and impairment losses. Any tangible assets carried at revalued amounts are recorded at the fair value at the date of revaluation less any subsequent accumulated depreciation and subsequent accumulated impairment losses.

An increase in the carrying amount of an as-

set as a result of a revaluation, is recognised in other recognised gains and losses, unless it reverses a charge for impairment that has previously been recognised as expenditure within the statement of financial activities. A decrease in the carrying amount of an asset as a result of revaluation, is recognised in other recognised gains and losses, except to which it offsets any previous revaluation gain, in which case the loss is shown within other recognised gains and losses on the statement of financial activities.

Depreciation

Depreciation is calculated so as to write off the cost or valuation of an asset, less its residual value, over the useful economic life of that asset as follows:

Fixtures and fittings - 20% straight line

IT Equipment - 20% straight line

Investments

Fixed asset investments are initially recorded at cost, and subsequently stated at cost less any accumulated impairment losses. Changes in fair value are recognised in net income/(expenditure) for the year. Transaction costs are expensed as incurred.

Investments in associates

Investments in associates accounted for in accordance with the cost model are recorded at cost less any accumulated impairment losses.

Investments in associates accounted for in accordance with the fair value model are initially recorded at the transaction price. At each reporting date, the investments are measured at fair value, with changes in fair value taken through income or expenditure. Where it is impracticable to measure fair value reliably without undue cost or effort, the cost model will be adopted.

Dividends and other distributions received from the investment are recognised as income without regard to whether the distributions are from accumulated profits of the associate arising before or after the date of acquisition.

Investments in joint ventures

Investments in jointly controlled entities accounted for in accordance with the cost model are recorded at cost less any accumulated impairment losses.

Investments in jointly controlled entities accounted for in accordance with the fair value model are initially recorded at the transaction price. At each reporting date, the investments are measured at fair value, with changes in fair value taken through income or expenditure. Where it is impracticable to measure fair value reliably without undue cost or effort, the cost model will be adopted.

Dividends and other distributions received from the investment are recognised as income without regard to whether the distributions are from accumulated profits of the joint venture arising before or after the date of acquisition.

Impairment of fixed assets

A review for indicators of impairment is carried out at each reporting date, with the recoverable amount being estimated where such indicators exist. Where the carrying value exceeds the recoverable amount, the asset is impaired accordingly. Prior impairments are also reviewed for possible reversal at each reporting date.

For the purposes of impairment testing, when it is not possible to estimate the recoverable amount of an individual asset, an estimate is made of the recoverable amount of the cash-generating unit to which the asset belongs. The cash-generating unit is the smallest identifiable group of assets that includes the asset and generates cash inflows that largely independent of the cash inflows from other assets or groups of assets.

For impairment testing of goodwill, the goodwill acquired in a business combination is, from the acquisition date, allocated to each of the cash-generating units that are expected to benefit from the synergies of the combination, irrespective of whether other assets or liabilities of the charity are assigned to those units.

Financial instruments

A financial asset or a financial liability is recognised only when the charity becomes a party to the contractual provisions of the instrument.

Basic financial instruments are initially recognised at the amount receivable or payable including any related transaction costs.

Current assets and current liabilities are subsequently measured at the cash or other consideration expected to be paid or received and not discounted.

Debt instruments are subsequently measured at amortised cost.

Where investments in shares are publicly traded or their fair value can otherwise be measured reliably, the investment is subsequently measured at fair value with changes in fair value recognised in income and expenditure. All other such investments are subsequently measured at cost less impairment.

Other financial instruments, including derivatives, are initially recognised at fair value, unless payment for an asset is deferred beyond normal business terms or financed at a rate of interest that is not a market rate, in which case the asset is measured at the present value of the future payments discounted at a market rate of interest for a similar debt instrument.

Other financial instruments are subsequently measured at fair value, with any changes recognised in the statement of financial activities, with the exception of hedging instruments in a designated hedging relationship.

Financial assets that are measured at cost or amortised cost are reviewed for objective evidence of impairment at the end of each reporting date. If there is objective evidence of impairment, an impairment loss is recognised under the appropriate heading in the statement of financial activities in which the initial gain was recognised.

For all equity instruments regardless of significance, and other financial assets that are individually significant, these are assessed individually for impairment. Other financial

assets are either assessed individually or grouped on the basis of similar credit risk characteristics.

Any reversals of impairment are recognised immediately, to the extent that the reversal does not result in a carrying amount of the financial asset that exceeds what the carrying amount would have been had the impairment not previously been recognised.

Defined contribution plans

Contributions to defined contribution plans are recognised as an expense in the period in which the related service is provided. Prepaid contributions are recognised as an asset to the extent that the prepayment will lead to a reduction in future payments or a cash refund.

When contributions are not expected to be settled wholly within 12 months of the end of the reporting date in which the employees render the related service, the liability is measured on a discounted present value ba-

sis. The unwinding of the discount is recognised as an expense in the period in which it arises.

Employee benefits

The cost of any unused holiday entitlement is recognised in the period in which the employee's services are received.

Termination benefits are recognised immediately as an expense when the Charity is demonstrably committed to terminate the employment of an employee or to provide termination benefits.

4. LIMITED BY GUARANTEE

The company, being a company limited by guarantee, does not have share capital. The liability of members of the company is limited to £1 per member.

5. DONATIONS AND LEGACIES

	Unrestricted Funds £	Total Funds 2023 £	Unrestricted Funds £	Total Funds 2022 £
Donations				
Donations and Gifts	476,040	476,040	502,779	502,779
Grants				
Grants receivable	64,052	64,052	329,339	329,339
	540,092	540,092	832,118	832,118

5. DONATIONS AND LEGACIES (CONTINUED)

	2023 £	2022 £
Donations and Gifts		
Milk Levy	316,053	335,117
Beef Levy	128,106	114,474
Sheep Levy	22,586	22,595
AHWNI	9,296	30,593
	<u>476,040</u>	<u>502,779</u>
Grants for Core Activities		
DAERA Research Challenge Fund	64,052	275,473
EU Horizon 2020	–	53,866
	<u>64,052</u>	<u>329,339</u>

Agrisearch collected funds for AHWNI which were then paid across to AHWNI. These funds have been included with income and expenditure in the financial statements. This agreement ended in March 2022 and the final payments were made during the year. The funds are now paid directly to AHWNI from the Levy Bodies.

6. INVESTMENT INCOME

	Unrestricted Funds £	Total Funds 2023 £	Unrestricted Funds £	Total Funds 2022 £
Income from other investments	13,776	13,776	15,447	15,447
Other interest receivable	693	693	98	98
	<u>14,469</u>	<u>14,469</u>	<u>15,545</u>	<u>15,545</u>

7. EXPENDITURE ON CHARITABLE ACTIVITIES BY FUND TYPE

	Unrestricted Funds £	Total Funds 2023 £	Unrestricted Funds £	Total Funds 2022 £
Research and development in the agricultural industry.	1,068,389	1,068,389	294,112	294,112
Support costs	71,720	71,720	56,293	56,293
	<u>1,140,109</u>	<u>1,140,109</u>	<u>350,405</u>	<u>350,405</u>
			2023 £	2022 £
Staff costs			136,041	111,079
Legal and professional fees			4,781	9,000
Dissemination costs			28,370	13,934
AHWNl funding			9,296	30,593
			<u>178,488</u>	<u>164,606</u>
Grant funding activities			889,901	129,506
Share of support costs			56,565	49,198
Share of governance costs			15,156	7,095
Unrestricted fund			<u>1,140,109</u>	<u>350,405</u>

8. RECONCILIATION AND PROJECT COMMITMENTS

	2023 £	2022 £
Grants to institutions		
Opening commitments	370,653	640,959
Agri-Food & Biosciences Institute	769,857	85,240
(Decreased)/Increased project in year	(14,684)	(132,964)
Paid during the year	<u>(291,828)</u>	<u>(222,582)</u>
	<u>833,998</u>	<u>370,653</u>

9. EXPENDITURE ON CHARITABLE ACTIVITIES BY ACTIVITY TYPE

	Activities undertaken directly £	Support costs £	Total funds 2023 £	Total fund 2022 £
Research and development in the agricultural industry.	1,068,389	56,565	1,124,954	343,310
Governance costs	–	15,155	15,155	7,095
	<u>1,068,389</u>	<u>71,720</u>	<u>1,140,109</u>	<u>350,405</u>

10. ANALYSIS OF SUPPORT COSTS

	Analysis of support costs activity 1	Total 2023	Total 2022
	£	£	£
Staff costs	35,278	35,278	28,939
Premises	5,938	5,938	6,003
Communications and IT	2,235	2,235	2,860
General office	2,578	2,578	1,571
Finance costs	4,276	4,276	5,263
Governance costs	15,156	15,156	7,095
Support costs - depreciation	2,677	2,677	1,813
Support costs - other costs	3,582	3,582	2,749
	<u>71,720</u>	<u>71,720</u>	<u>56,293</u>

11. NET (LOSSES)/GAINS ON INVESTMENTS

	Unrestricted Funds	Total Funds 2023	Unrestricted Funds	Total Funds 2022
	£	£	£	£
Gains/(losses) on other investment assets	<u>(45,283)</u>	<u>(45,283)</u>	<u>11,471</u>	<u>11,471</u>

12. NET (EXPENDITURE)/INCOME

Net (expenditure)/income is stated after charging/(crediting):

	2023	2022
	£	£
Depreciation of tangible fixed assets	<u>2,677</u>	<u>1,813</u>

13. AUDITORS REMUNERATION

	2023	2022
	£	£
Fees payable for the audit of the financial statements	<u>5,000</u>	<u>5,000</u>

14. STAFF COSTS

The total staff costs and employee benefits for the reporting period are analysed as follows:

	2023	2022
	£	£
Wages and salaries	158,158	130,058
Social security costs	9,928	7,347
Employer contributions to pension plans	3,233	2,613
	<u>171,319</u>	<u>140,018</u>

14. STAFF COSTS (CONTINUED)

The average head count of employees during the year was 6 (2022: 5). The average number of full-time equivalent employees during the year is analysed as follows:

	2023 No.	2022 No.
General Manager	1	1
Project Officer	1	1
Finance Officer	1	1
Research Manager	1	1
Field Officer	1	1
Student Researcher	1	–
	<u>6</u>	<u>5</u>

No employee received employee benefits of more than £60,000 during the year (2022: Nil).

15. TRUSTEE REMUNERATION AND EXPENSES

None of the Trustees (or any persons connected with them) received any remuneration during the year (2022: £Nil). Trustees were reimbursed travel expenditure totalling £2,036 (2022: £202) and in addition, one trustee received £2,500 (2022: £2,000) for taking part in projects including GrassCheck, EcoSward and Beacon Farm Network.

16. TANGIBLE FIXED ASSETS

	Fixtures and fittings £	IT Equipment £	Total £
Cost			
At 1 April 2022	3,675	9,157	12,832
Additions	–	6,748	6,748
At 31 March 2023	<u>3,675</u>	<u>15,905</u>	<u>19,580</u>
Depreciation			
At 1 April 2022	2,530	6,734	9,264
Charge for the year	469	2,208	2,677
At 31 March 2023	<u>2,999</u>	<u>8,942</u>	<u>11,941</u>
Carrying amount			
At 31 March 2023	<u>676</u>	<u>6,963</u>	<u>7,639</u>
At 31 March 2022	<u>1,145</u>	<u>2,423</u>	<u>3,568</u>

17. INVESTMENTS

	Other investments £
Cost or valuation	
At 1 April 2022	718,329
Additions	196,020
Disposals	(190,530)
Fair value movements	(45,283)
At 31 March 2023	<u>678,536</u>
Impairment	
At 1 April 2022 and 31 March 2023	<u>—</u>
Carrying amount	
At 31 March 2023	<u>678,536</u>
At 31 March 2022	<u>718,329</u>

All investments shown above are held at valuation.

18. DEBTORS

	2023 £	2022 £
Trade debtors	153,657	154,350
Prepayments and accrued income	81,002	173,493
	<u>234,659</u>	<u>327,843</u>

19. CREDITORS: AMOUNTS FALLING DUE WITHIN ONE YEAR

	2023 £	2022 £
Trade creditors	11,487	39,026
Accruals and deferred income	16,199	15,121
Social security and other taxes	4,809	2,118
Other creditors	363,252	346,561
	<u>395,747</u>	<u>402,826</u>

Other creditors relates to project expenditure committed to by the charity. During the financial year the Trustees commissioned two new large projects ZeroNsile (a five year project) as well as approving funding for an enlarged GrassCheck project for the period 2023-2025. The budget allocations include provision for AgriSearch staff costs associated with these projects.

20. CREDITORS: AMOUNTS FALLING DUE AFTER MORE THAN ONE YEAR

	2023 £	2022 £
Other creditors	<u>470,746</u>	<u>38,079</u>

Other creditors relates to project expenditure committed to by the charity. During the financial year the Trustees commissioned two new large projects ZeroNsile (a five year project) as well as approving funding for an enlarged GrassCheck project for the period 2023-2025. The budget allocations include provision for AgriSearch staff costs associated with these projects.

21. PENSIONS AND OTHER POST RETIREMENT BENEFITS

Defined contribution plans

The amount recognised in income or expenditure as an expense in relation to defined contribution plans was £3,233 (2022: £2,613).

22. ANALYSIS OF CHARITABLE FUNDS

Unrestricted funds

	At 1 April 2022 £	Income £	Expenditure £	Gains and losses £	At 31 March 20 23 £
General funds	<u>1,142,753</u>	<u>554,561</u>	<u>(1,140,109)</u>	<u>(45,283)</u>	<u>511,922</u>

	At 1 April 2021 £	Income £	Expenditure £	Gains and losses £	At 31 March 20 22 £
General funds	<u>634,024</u>	<u>847,663</u>	<u>(350,405)</u>	<u>11,471</u>	<u>1,142,753</u>

23. ANALYSIS OF NET ASSETS BETWEEN FUNDS

	Unrestricted Funds £	Total Funds 2023 £
Tangible fixed assets	7,638	7,638
Investments	678,536	678,536
Current assets	692,240	692,240
Creditors less than 1 year	(395,746)	(395,746)
Creditors greater than 1 year	(470,746)	(470,746)
Net assets	511,922	511,922

	Unrestricted Funds £	Total Funds 2022 £
Tangible fixed assets	3,568	3,568
Investments	718,329	718,329
Current assets	861,761	861,761
Creditors less than 1 year	(402,826)	(402,826)
Creditors greater than 1 year	(38,079)	(38,079)
Net assets	1,142,753	1,142,753

24. FINANCIAL INSTRUMENTS

The carrying amount for each category of financial instrument is as follows:

	2023 £	2022 £
Financial assets that are debt instruments measured at amortised cost		
Financial assets that are debt instruments measured at amortised cost	153,657	154,350
Financial assets that are equity instruments measured at cost less impairment		
Financial assets that are equity instruments measured at cost less impairment	678,536	718,329
Financial liabilities measured at amortised cost		
Financial liabilities measured at amortised cost	861,683	438,787

25. ANALYSIS OF CHANGES IN NET DEBT

	At 1 Apr 2022 £	Cash flows £	At 31 Mar 2023 £
Cash at bank and in hand	533,918	(76,337)	457,581

26. OPERATING LEASE COMMITMENTS

The total future minimum lease payments under non-cancellable operating leases are as follows:

	2023	2022
	£	£
Not later than 1 year	3,492	3,492
Later than 1 year and not later than 5 years	6,984	10,476
	<u>10,476</u>	<u>13,968</u>

27. LIMITATION OF AUDITORS LIABILITY

The company has entered into a liability limitation agreement with its auditor, Aubrey Campbell and Company, on the following basis:

(a) the maximum aggregate amount of the auditor's liability to the company shall not exceed the sum of five times the fees payable (excluding expenses and value added tax) under the engagement letter agreed for the financial period, or £30,000, whichever is the lesser amount.

(b) the agreement was passed by a resolution of the company's trustees on 05th September 2023.

28. RELATED PARTIES

During the year there were members of the Agrisearch advisory committees and Board of Trustees who were involved as farmer co-researchers in projects which Agrisearch co-funded. The advisory committees are in place to review funding and expenditure proposals.

A total of £7,000 (2022: £6,700) was paid out to two members of the Beef advisory committee, three members of the Dairy advisory committee and two members of the Sheep advisory committee.

One trustee and one member of the Sheep advisory committee sit on the board of AHWNI. Agrisearch collected levies of £9,296 (2022: £35,089) on behalf of AHWNI and made payments of £9,296 (2022: £35,089) to AHWNI during the year. The balance owing to AHWNI at the year end was £ nil (2022: £11,424). This levy agreement between Agrisearch and AHWNI ended during the year and the amount now goes directly to AHWNI.

John Henning, Senior Vice-Chairman of Agrisearch is also a director CIELivestock Limited, who provide services to the charity within the terms of their charitable activities. CIELivestock Limited was paid a total of £1,025 (2022: £1,200). John Henning was also a director in Countryside Services Ltd until his resignation from this position on 26/08/22. A total of £446 (2022: £1,054) was paid to Countryside Services Ltd for services provided across charitable activities.





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