OFFICIAL REPORT
AITHISG OIFIGEIL

Rural Affairs, Islands and Natural Environment Committee

Wednesday 27 April 2022

Session 6

The Scottish Parliament
Pàrlamaid na h-Alba

Wednesday 27 April 2022

CONTENTS

RURAL AFFAIRS, ISLANDS AND NATURAL ENVIRONMENT COMMITTEE
13th Meeting 2022, Session 6

CONVENER

*Finlay Carson (Galloway and West Dumfries) (Con)

DEPUTY CONVENER

*Beatrice Wishart (Shetland Islands) (LD)

COMMITTEE MEMBERS

*Karen Adam (Banffshire and Buchan Coast) (SNP)
*Dr Alasdair Allan (Na h-Eileanan an Iar) (SNP)
*Ariane Burgess (Highlands and Islands) (Green)
*Jim Fairlie (Perthshire South and Kinross-shire) (SNP)
*Rachael Hamilton (Ettrick, Roxburgh and Berwickshire) (Con)
*Jenni Minto (Argyll and Bute) (SNP)
Mercedes Villalba (North East Scotland) (Lab)

*attended

THE FOLLOWING ALSO PARTICIPATED:

Patrick Krause (Scottish Crofting Federation)
Elspeth Macdonald (Scottish Fishermen's Federation)
Professor Alan Matthews (Trinity College Dublin)
Dr Mike Rivington (James Hutton Institute)
Steven Thomson (Scotland's Rural College)
Scott Walker (NFU Scotland)

CLERK TO THE COMMITTEE

Emma Johnston

LOCATION

The Mary Fairfax Somerville Room (CR2)

Scottish Parliament

Rural Affairs, Islands and Natural Environment Committee

Wednesday 27 April 2022

[The Convener opened the meeting at 09:30]

Decision on Taking Business in Private

The Convener (Finlay Carson): Good morning, everyone, and welcome to the 13th meeting in 2022 of the Rural Affairs, Islands and Natural Environment Committee. Apologies have been received from Mercedes Villalba. I remind committee members who are using electronic devices to switch them to silent.

Our first item of business is a decision on whether to take agenda item 4 in private. Do members agree to do so?

Members *indicated agreement.*

Petition

Control of Wild Goose Numbers (PE1490)

09:31

The Convener: Our second item is an evidence session on petition PE1490, on control of wild goose numbers. The petition, which was lodged by Patrick Krause on behalf of the Scottish Crofting Federation, was referred to the committee following previous consideration by the Public Petitions Committee and the Rural Affairs, Climate Change and Environment Committee in session 4, and the Environment, Climate Change and Land Reform Committee in session 5.

The petition calls on the Scottish Parliament to urge the Scottish Government to address the problems created by increasing populations of wild geese in crofting areas as a matter of priority, reassess its decision to stop funding existing goose management programmes and assign additional resources to crop protection and adaptive management programmes to ensure that the threat to the future of crofting is averted.

I am pleased to welcome to the meeting the petitioner, Patrick Krause—I hope that I have pronounced his surname correctly. As this is the committee's first consideration of the petition, I invite Patrick Krause to make an opening statement.

Patrick Krause (Scottish Crofting Federation): Thank you very much for allowing me to come in and support the petition.

The petition was been in existence for a number of years: it was lodged in 2013. We need to keep it live because things have not got any better. I know that constituents of some members who are here are saying the same thing to them.

In 2013, it was estimated that there were around 8,000 greylag geese—those are the Icelandic greylags—across the crofting counties. In Uist alone now, there are 8,000 Icelandic greylag geese, and they are now resident. At one time, they were just passing through, but they have become resident birds now, so they are a problem throughout the year.

Back in 2012, Scottish Natural Heritage, which is now NatureScot, established adaptive management projects. Adaptive management means doing a bit of culling, taking counts, doing a bit more culling and taking counts. That sounds like a very sensible approach but, after five years of a very successful pilot, it was decided not to continue with that. I could never understand the logic of that. Surely that is what a pilot is: something is tested and, if it works, it is done.

However, something was tested and it worked, but it was not done.

Every year after the adaptive management schemes were stopped, the budget for control of geese reduced. It went down from just under £50,000 for the whole of the crofting islands—Tiree, Coll, the Uists, Lewis, Harris and Orkney. Just below £50,000 was used for the adaptive management projects, and that amount was reduced every year until it was finally decided in 2021 that no funding at all would go to the control of geese and NatureScot's role would simply be advisory.

I just do not understand the logic of that. There did not seem to be a plan in place for continuing the control. We went and had a meeting with the minister and expressed our extreme concern about that, because we are at a point where crofters are giving up crofting because of the goose problem. That is not an exaggeration. We have said in the press that geese are protected but crofters are not, that crofters are now an endangered species, and so on.

In the islands, particularly Uist and Tiree, we have a really unique machair environment and a lot of traditional crops—landraces—that are not found anywhere else. The seed is available only on the islands. The minister announced that she would provide up to £50,000 towards goose management in the crofting areas. In her press release, she acknowledged that the machair is a very important environment, yet most of that £50,000 has gone to Orkney, which does not have the same machair. I am certainly not mocking Orkney, which also has a really big problem with greylags. It has about 21,000 birds, whereas Lewis and the Uists have about 8,000 and Tiree has the same sort of number. The Western Isles are getting £6,000 per island to control the birds.

Do tell me to shut up when I have to shut up. I have only a couple more things to say.

In Orkney, they are trialling a thing called corralling, whereby canoeists round up moulting birds, which cannot fly, and then qualified people have to catch them and administer a lethal drug to kill them. The cost of that works out at about £25 per bird. In the Uists and Lewis, we have had a shooting programme that cost about £8 per bird. Again, I am quite surprised by the logic of this.

NatureScot has let the situation get completely out of hand to a point where people are having to use corralling. No lethal method is nice, and of course the public perception is not nice. I add that crofters and the marksmen who do the work really do not like it. However, it is something that we have to do, because keeping the bird numbers down to a tolerable level is the only way that we are going to manage this. The minister said in her interview that she expects crofters and geese to be able to live alongside each other. We agree with that, but it will work only when there are manageable numbers.

It was estimated about five years ago that Uist, which is a good example, could tolerate 2,500 birds. The adaptive management scheme got the numbers down to 4,000 and we were still complaining then, but there are now 8,000 birds. The provision of £6,000 is not even going to make a dent in that. We are going to need £32,000 just to bring the number down to 4,000 by shooting them. I am sorry to throw all these figures at you, but I want to give you an idea of the proportions. I am sure that the Scottish Parliament information centre will have all the figures anyway. We need about £32,000 to bring the numbers down to the threshold of tolerability and we have only £6,000.

I urge you to keep the petition open particularly because, this year, NatureScot carries out its five-yearly review of the management programme. Therefore, it is timely to keep the petition open. We do not ask for the birds to be eradicated; we just ask for them to be reduced to a manageable level.

Thank you very much for hearing my argument.

The Convener: Thank you very much, Patrick. That has certainly given us lots of food for thought. When we look back, we will find plenty of briefings and committee papers that will inform us of a lot of the background, but I am sure that members have many questions.

You suggest that there are about 5,500 birds too many in Uist at the moment, which is very concerning. If we are talking about £25 per head for humane slaughter, that seems unreasonable.

You also said that there are now resident birds. Why is that? What has changed so that, rather than being visitors, they now stay there full time?

Patrick Krause: Most people put it down to climate change. Whether it is long-term climate change or whether we are just going through a phase in which it has been warmer is all part of the argument. However, the fact is that the climate has changed such that the birds find that the environment is suitable for them year round now, so they stay.

To answer the first bit of your question, I also meant to say that the corralling involves using specialist organisations. As well as it costing just over three times the amount per bird in other shooting programmes to cull them, the money is going to specialist organisations, so it goes out of the area. NatureScot has said that it wants the situation to be sustainable. If we use public money and it goes to marksmen to keep the numbers

down by shooting, at least the money stays in the local economy.

The Convener: Thank you. Quite a few members want to ask questions. Jim Fairlie is desperate to comment on one of your points.

Jim Fairlie (Perthshire South and Kinross-shire) (SNP): Patrick, thanks very much for coming in. It is a fascinating issue. From a farming perspective, I absolutely get the reasons why you need to control numbers.

What you said about corralling blew my mind. I did not realise that it was happening. I did not realise that we are paying people to go out and poison the birds. What happens to the carcasses after they are poisoned? I presume that they get dumped.

Patrick Krause: Yes, they get dumped.

Jim Fairlie: That takes me on to the point that we were talking about beforehand. I will ask a couple of questions, and Alasdair Allan will probably come in and mop up what I miss.

I see the situation as an opportunity to use goose meat as a product. Why is there no recreational shooting? People will pay to go out and shoot, so I do not understand why we need to pay people to go and shoot geese. It gives us a good-quality source of protein. Why do we need Government intervention at all? Why has it not become a microbusiness for the places where goose numbers are large? As far as I can see, the marketing opportunities would be immense.

Patrick Krause: That seems logical. Part of the problem is that NatureScot has assumed that the cull can be self-funding. I think that the reason that it is not is because there are too many birds.

There is a limited market for what you can do with goose meat. The business that was dealing with the situation had a licence for it and then there was a mess-up with the relicensing. It was NatureScot's fault. It had forgotten to ask the European Union for a licence so it interrupted the business.

Jim Fairlie: So, a licence is needed to sell goose meat. Let us clear that up first. Why did the business need a licence to sell goose meat?

Patrick Krause: I am not sure, but it is necessary to have a licence to sell goose meat.

It is licensed now, which is good. I know of one business that is starting to use goose meat by doing things such as making salami from it, but it is a limited market. The numbers of geese are so huge that a small business cannot deal with the situation.

09:45

Jim Fairlie: Is it a limited market in the sense that goose meat has only ever been used or exposed in a very limited marketplace—in other words, does the meat have to be sold only in the Western Isles? The availability of goose meat could be rolled out, in the same way as was done with Orkney Gold beef. It represents a marketing opportunity for big supermarkets at a time when we potentially face food shortages and we want to have a resilient food and drink sector. I do not understand why, with proper marketing, the product could not be sold right across the United Kingdom.

Patrick Krause: You are right—I think that it could be. The issue is the differential between the existing numbers of geese and the number of businesses that are trying to access the market. At the moment, the market is too small and the numbers of geese are too big. With any such venture, it takes time to open up a market. It takes a long time for initiatives such as the Scotch lamb and Orkney Gold beef initiatives to establish a market; it also takes a lot of money to get such a market going, because of the advertising, promotion and so on that is required.

Jim Fairlie: Surely that would be a better way of spending money than poisoning geese and sticking them in a hole.

Patrick Krause: Absolutely—I agree.

Jim Fairlie: I will leave it there, convener.

The Convener: That is a whole other line of questioning that we could go down. I am reminded of my late dear friend Alex Fergusson, who was the convener of the Rural Development Committee some years ago. I remember the dread on his face whenever the subject of geese or deer was brought up. I think that, in much of what you have said, the word "geese" could be replaced by the word "deer". There are opportunities there.

Is the fact that it is necessary to have a licence to sell goose meat a consequence of there being a funded control system in place? Is the licensing requirement general across the whole of Scotland or is it specific to the isles?

Patrick Krause: It is a general thing. My understanding is that we have to have a European licence to sell the meat from a species that has a restriction on it. That is the point. Even though there is a general licence to shoot greylag geese, all geese are controlled in some way.

The Convener: Thank you. That is useful.

Dr Alasdair Allan (Na h-Eileanan an Iar) (SNP): I declare not so much an interest as an appreciation of what you have said, given that I live in a place where, when I look out of my

window, I sometimes feel as though I am in a Hitchcock film, so great is the number of greylag geese that are landing around my house.

Could you explain why the problem with geese is a particular problem in crofting areas? Not everyone appreciates the degree to which crofters are part time and the pressures that there are on their time. Could you say something about the scale of the task that would face a crofter or a village in trying to deal with the issue without external assistance?

Patrick Krause: It is quite a complex issue, as you know. Part of the problem is that shooting is not done as much. To go back to what Jim Fairlie said, there is sport shooting. Most crofters in the Western Isles are tenants, which means that the landlords retain the shooting rights. Therefore, shooting geese is a business for the landlords, but they simply do not have the numbers of shooters.

On the whole, crofters do not shoot. The situation has changed over generations. In the past, it was fairly usual for crofters to shoot whatever they could for the pot, but that has gradually diminished. A lot of crofters no longer have guns.

It is also very difficult to shoot geese, which is why people do it as a sport. The marksmen have all said that, over the years, it is getting more and more difficult, because geese are quite clever, to the point of recognising the marksman's car and moving on; as he or she comes down the hill, the geese take off, because they know who it is.

Some crofters are doing some shooting—in Lewis, for example, the local goose management group pays for the ammunition but people come out as volunteers. There is a gathering of people at this time of year to go out and do some shooting.

The answer that I can give to almost any question is that the problem is that we are completely overrun. The numbers are just way too high. That is the root of the problem. If we had controlled them five years ago or seven years ago, when we had the numbers at a more practical level, we would not be in this situation. It has just got completely out of hand now.

Dr Allan: On your point about cars, I have had people put it to me that geese can recognise number plates. [*Laughter.*] However, the serious point around that is the one that you have just made, which is that there is a dramatic change in the number of greylag geese landing on crofts. Can you say a bit about what it is that greylag geese do when they land on a croft?

Patrick Krause: They are grazers, for one thing. Crofters are livestock keepers, on the whole. The cattle grazing the machair increases the biodiversity, and if the geese have already got the fresh grass, the cattle cannot graze. The trouble is that geese do not just graze the grass—they completely destroy it. Geese have quite big feet and they plod about, flattening the grass. They can also produce an amazing amount of dung. Cattle will not go and graze where geese have messed the grass. People are literally finding that they cannot use a field that they were using the day before because, during the early hours, a flock has come down and completely taken the field out of use.

The consequences are huge. The crofter thinks that he has a certain amount of grazing for a certain number of animals and then suddenly it is halved, literally overnight, and he has to either buy feed in or start selling animals, quickly.

Dr Allan: This is an example of an issue where agriculture and environmentalists are actually on the same side. You have described the situation about the machair landscape and the need for that landscape to be grazed in order to be a habitat. Is there a common cause here?

Patrick Krause: There is absolutely a common cause. RSPB Scotland, for example, is probably the biggest environmental organisation involved and has the most concern about the welfare of the birds, but it agrees with us. In fact, it ran a project to bring down the goose numbers.

There is a whole point to consider around the fact that how crofters manage the land enhances the environment. Not that long ago, how crofters managed the land was looked on as a bit old fashioned. The attitude was, "That will change—they'll catch up." However, with all the emphasis on the twin emergencies of climate change and biodiversity loss and the fact that we hosted the 26th United Nations climate change conference of the parties—COP26—there is now very much a spotlight on the environment, which is quite right, of course. I believe that the way in which crofters have been managing the land is now being recognised as a sustainable way forward. Otherwise, we will lose the old varieties of grain, for example, because the seed is only produced on the islands and once it is gone, it is gone.

The Convener: Are you aware of any biodiversity research that has been done on the islands? With the petition, the emphasis has been on protecting livelihoods—the grazing and the sustainability of agriculture—but the other direction in which to take it, as you have clearly set out, is to look at things such as the machair and the biodiversity loss when we move from having a sustainable number of geese to having twice three times more geese than agriculture can deal with, never mind the biodiversity. Has any work been done to look at the biodiversity loss attributed to geese?

Patrick Krause: There has been some. I would argue that it has not been enough and that surely that is something that we employ NatureScot to do. It has the researchers and could be producing the evidence and showing that geese have an impact on the environment.

Ariane Burgess (Highlands and Islands) (Green): Thank you for coming to give evidence, Patrick. I appreciate what you have said up to this point. The conversation that Jim Fairlie has initiated around feeding people is very interesting.

I am a regional MSP, so I cover most of the areas where geese are an issue. I live in Moray, where geese are shot on a nature reserve and the local people do not want that to happen. As Jim said, people pay to do that shooting and they come from Europe to do that at times, so that is something that we need to look at overall.

You have already answered quite a few of my questions. However, you were saying that the £50,000 is now back—is that right? That has been reintroduced, but it has been split, and Orkney gets the most because of the way in the geese are being culled there.

Patrick Krause: Yes, I think that it is mainly due to the fact that corralling is being trialled there. I also wonder how much it is because Orkney has three times the number of birds. It has got three times the problem, so I can understand that.

I do not know whether there is any truth in the fact that more money is definitely spent on areas that are producing commercial grain. In the Uists, crofters tend just to be producing animals and small amounts of traditional grains as a very small enterprise, whereas Orkney is producing a commercial beef product and a lot of grain for feed. I do not know how much that affects the decisions on where the money will be spent.

I am sorry to go on answering more than you asked, but it cannot help but strike you that the other protected species tend to affect islands such as Islay. Islay, of course, produces whisky, which is a commercial success story for Scotland. It is a different goose that is the problem and it is more strictly controlled, so farmers are paid compensation.

The point that I am trying to make is that the budget for the crofting areas is £50,000, while the budget for the other agricultural and commercial areas that have goose problems is £1.1 million. I know that NatureScot would probably argue that it is because those geese are more protected species, but I just ask whether the fact that there are commercial interests plays a part in how decisions are made on how to spend the budget.

Ariane Burgess: Thank you for that. You are welcome to expand your answers beyond my questions. I am interested in hearing what would be a proportionate and reasonable quota for the number of greylag geese—let us stick with them—that could be culled each year.

10:00

Patrick Krause: As I said at the beginning, taking the crofters in Uist as an example, a lot of work was done on that in the adaptive management programme. It was a really useful programme and it estimated that, if there were 2,500 birds in Uist, the birds and crofters could live happily alongside each other. That sort of proportion would probably work for all the crofting areas, if we can bring the numbers down.

At around the time that the petition was launched and pre-petition, I remember that people in Orkney were only just starting to feel that geese were a problem. They were starting to say, “Mmm, yeah, it is a bit of a problem.” Now, it is completely out of hand and even Orkney farmers are giving up. At the national goose forum the other day, the Orcadian representative said that he personally knows of farmers who are giving up farming in Orkney because of the geese.

Ariane Burgess: Earlier, you described the process that NatureScot went through over a period of time and then, after five years, it stopped. Now, we have an increase in the number of birds and, using the example of Uist, we want to get that to 2,500 birds. What would we do? How many years would it take to get to that number?

Patrick Krause: I think that we need to get the numbers down as soon as possible. I am not an expert on culling geese, so I do not know what is realistic. I do not know whether we can reduce them by 2,000 every year until we get to that sort of figure or whether, if we made a bigger effort, we could reduce more of them—say 3,000 a year. It will take a few years to get the numbers down again.

Ariane Burgess: Another question that I have is about the ammunition that is used for shooting. I am aware that there are different kinds. Obviously, if we were to follow the trajectory that Jim Fairlie introduced of using geese as food, it should not be lead, and I know that RSPB Scotland is keen that lead ammunition should not be used. Do you have any thoughts on that?

Patrick Krause: Not really—I am not that technical. I do not shoot, personally. I can understand the need to avoid using lead, of course, if the meat is going to be used in the human food chain. My understanding is that stainless steel shot costs more, so it means that the costs will go up a bit, but it is a proportional thing. If it means that we can start using the meat, it makes sense to pay that bit more for steel shot.

The Convener: Jim Fairlie commented that the direction of travel is away from lead shot. That is certainly our understanding.

Rachael Hamilton (Ettrick, Roxburgh and Berwickshire) (Con): With the pressures on food security and what you said about some of the traditional barley and cereal crops that are being grown in the islands, do you not think that the situation should be considered as an emergency by the Government?

Patrick Krause: Absolutely—I can only agree with you. It is an emergency. We will see people who can produce food going out of business quite quickly because of the geese.

Rachael Hamilton: You mentioned that crofters are giving up. What do crofters do if they are not managing the land, and what happens to the land?

Patrick Krause: The land lies unused, unfortunately. There are quite a lot of examples now of crofts just lying neglected. That is not entirely because of the geese, as there is a problem with neglected crofts anyway.

Rachael Hamilton: Lastly, NatureScot says that it wants a balance between controlling the geese and mitigating the impacts on agricultural production. Do you have any examples of what NatureScot would consider appropriate if, for example, a crop had been trampled by geese and a crofter had to pay for more seed to resow and might end up losing the crop? What do you think would be considered to be a balance? Would crofters be content with compensation because they have to put up with the geese?

Patrick Krause: I think that it is not really about compensation, to be honest. I do not want to digress into a discussion of the white-tailed sea eagle, but the argument is the same in that regard. Crofters have said that we need to protect our livestock and crops from eagles and geese and, whenever we are asked whether the issue is about compensation, we have always said that it is not. We do not grow crops to feed geese; we grow crops because we grow cattle. That is what we are trying to do. We produce some of the best beef that is available. We have the best environment in which to do that, because we have a unique ecosystem. Destroying that ecosystem and handing out money is not the answer. The issue is about maintaining the balance.

The national goose policy has three primary pillars. The policy is based on conservation of the species, crop protection and value for money, because public money is being spent. The situation is completely out of balance, because there has been too much emphasis on the conservation. Neither I nor the SCF or crofters in general are anti-conservation—quite the opposite, in fact. However, the emphasis has been too much on the conservation of species. Crop protection always seems to be considered last, after conservation and value for public money—although I have to say that I do not think that value for public money is a great consideration, as can be seen in some of the examples that I have given.

Jenni Minto (Argyll and Bute) (SNP): I represent Argyll and Bute, and I recognise the goose issue, as it is an issue on some of the islands in my constituency. You are correct to say that Islay produces whisky; it is also, over the winter, home to about 15,000 barnacle geese and Greenland white-fronted geese. Of course, it is also home to farmers and, importantly, crofters. We must consider the whole range of users.

I want to go off on a slight tangent. Driving around Argyll and Bute, I can see that there is a vast increase in the number of Canada geese. Given the increase that there has been in the number of greylag geese since the petition was first lodged, I am interested in how other things have changed around goose numbers—I am thinking specifically of Canada geese, which are not indigenous to Scotland.

Patrick Krause: I do not know about Canada geese, but I know about barnacle geese and Greenland white-fronted geese. The interesting thing is that the numbers change quite quickly. Five years ago, barnacle geese were not considered to be much of a pest at all, but they are now a very big pest. We keep going on about greylag geese, because of the huge numbers that are involved, but barnacle geese are becoming a serious problem, too.

Jenni Minto: Earlier, you talked about the five-year review that is coming up. How do you plan to get involved in that? What conversations have you had with NatureScot to date?

Patrick Krause: The review has not yet started. We attend the national goose forum, and we heard there that the new review will be launched shortly, with all the stakeholders being asked for evidence and opinion. I am afraid that I will be lobbying you people and asking for your support at that point.

The Convener: Unfortunately, we are running tight for time. I will take a question from Beatrice Wishart and then one from Karen Adam.

Beatrice Wishart (Shetland Islands) (LD): I have one quick question for Patrick Krause—it is good to see you here in person. A BBC report three years ago said that meat from wild geese shot in Orkney was to go on sale across Scotland for the first time. Do you have any knowledge of how that went?

Patrick Krause: I do not. I think that it has been fairly successful but, again, my understanding is

that it is all very small scale and cannot address the problem. NatureScot admits that selling meat will not address the problem. As Jim Fairlie said, in the longer term there is some potential. Right now, though, we are completely swamped, and small amounts of meat being sold will not really make any difference.

Beatrice Wishart: Would you describe it as a crisis?

Patrick Krause: Yes—absolutely.

Karen Adam (Banffshire and Buchan Coast) (SNP): Good morning, Patrick. I know that the issue is specific to a certain species of bird, and that the landscape and biodiversity are specific to the area, but have you looked across the world for solutions and best practice in similar situations? I acknowledge that the petition calls on us to help, but do you have a solution in mind?

Patrick Krause: NatureScot has partners in other countries that it talks to about goose management, but it is more from the point of view of conservation. I do not really know that much about goose management as management of a pest in other countries.

On the geographic limitations, those areas are expanding rapidly in Scotland. As Beatrice Wishart will know, Shetland is starting to have a goose problem. In the past five years—probably even less—Shetlanders have gone from being able to look at the problems elsewhere in Scotland with sympathy to getting up in the morning and seeing geese all over their land, too.

We talk about the Western Isles a lot, and that is where the problem started, but it is spreading and is right across the northern isles and on the mainland. In Lochaber and so on, there are similar problems. Those areas do not have the numbers yet, but they are coming.

The Convener: We have a very final question from Jim Fairlie.

Jim Fairlie: I could talk to you all day, Patrick. Just quickly, there are tensions between landowners and tenant sheep farmers on the issue of grazing deer, and an agreement that landowners have to control deer at a certain level. As part of their responsibilities, what do landowners have to do to protect tenant crofters' grazing and cropping?

Patrick Krause: Landowners do not have any legal responsibility to protect crofters' crops. Some landlords are quite good. Stòras Uibhist, for example, which is a community landlord, is very involved in the management of geese. Across Scotland, the relationship between crofters and community landlords is very good.

I am not here to knock private landlords, but they have other business to attend to. Maintaining numbers of geese, like maintaining numbers of deer, is part of their business plan.

Jim Fairlie: But it is not sufficient at the moment.

Patrick Krause: No. Not at all.

The Convener: Thank you, Patrick, for your informative and measured contribution in support of your petition. We found your evidence fascinating. Once again, it probably raised more questions in members' minds than answers.

Members, our paper sets out suggestions for next steps. I propose that we continue the petition and look further at the issue. Given that it is almost 10 years since the petition was lodged, I suggest that we write to the Scottish Government and NatureScot for an update on the adaptive goose management approach. In light of the evidence that we received today about the potential impact on biodiversity and the change in the habitat of the geese, we need to be aware of the scope and timetable for NatureScot's review. I propose that we consider the matter again on receipt of a response from the Scottish Government. Are members agreed?

Members *indicated agreement.*

The Convener: Thank you.

10:16

Meeting suspended.

10:26

On resuming—

Crisis in Ukraine: Impact on Food Supply Chain in Scotland

The Convener: Our third item of business is an evidence session on the impact of the Russian invasion of Ukraine on food supply chains in Scotland. I welcome our witnesses, who are contributing remotely: Elspeth Macdonald, chief executive officer of the Scottish Fishermen's Federation; Professor Alan Matthews, professor emeritus of European agricultural policy at Trinity College Dublin; Dr Mike Rivington, land use system modeller at the James Hutton Institute; Steven Thomson, agricultural economist at Scotland's Rural College; and Scott Walker, chief executive officer of NFU Scotland.

We will not take opening statements—we will move straight to questions, and I will kick off. How are Scotland's food production sectors being directly affected by the Russian invasion, and to what extent are the impacts either a direct result of the invasion or compounding existing challenges? We will start with the witness at the top left on my screen, who is Scott Walker.

Scott Walker (NFU Scotland): You are quite right to say that a lot of the problems that we are facing existed before the war in Ukraine. The war is compounding a lot of issues that already existed in the food chain. To put it simply, the big impact of the war in Ukraine boils down to two issues: the impact on feed prices and the impact on fuel prices.

I will explain the impact on fuel prices first, because those prices are a fundamental cause of the problems that we have seen in the supply chain, and they will ultimately—unless there is intervention—lead to a reduction in productive capacity in Scotland, both at the farm level and, potentially, at the production level, in manufacturing sectors.

In essence, because of the rise in gas prices, we have seen a very substantial increase—a doubling or, in some cases, a trebling—in fertiliser prices. Ultimately, fertiliser is what underpins the productive capacity of agriculture. For example, the poultry and pig sectors have had an immediate increase in both their fuel and feed costs, which has exacerbated their situation—the pig sector was already making a loss—even further. Just now, every pig producer in Scotland will be losing about £50 on every pig that they sell, which is already leading to a contraction in pig supplies coming from Scottish farms and jeopardising the processing sector in Scotland. I will not go into detailed figures, but there is the same issue in the poultry and egg sectors, which fundamentally undermines our ability to produce.

10:30

I will speak briefly about the livestock sector before allowing others to come in. As a result of the long production cycles in livestock farming, cows have been put to the bull and calves are already in production. Those animals will come through, but farmers in that sector are now considering what will happen about the production of winter keep. The anecdotal evidence that we get from farmers suggests that, if they do not use the fertiliser, there will be less winter keep and therefore, at the back end, we could see a sizeable reduction in the number of cattle.

The Convener: I will move on to other witnesses in a moment. You talked about decisions that farmers are taking just now. Do any of those decisions have irreversible consequences? You talked about the bull being put out and there being potentially less ground used for wheat or barley, or resown as grass. Is there any evidence that there will be irreversible impacts on production towards the end of the year because of the decisions that are being taken now?

Scott Walker: Yes. It is a timing thing. I will use the pig sector as an example again. At the moment, the pig sector is contracting. I have spoken to pig farmers who are reducing the size of the herd or who are in the process of winding down their business and planning to leave the business in the next few months. Ultimately, that will lead to fewer pigs coming to market, the effect of which will be felt during the course of the year.

There is a 16-week cycle for eggs. If the birds are there just now, they will be seen through to the end, but farmers are now looking at having fewer birds in the future or reducing the number of hen houses that are occupied. Those will be the immediate effects that we will see. In terms of grain and livestock, we will see effects towards the end of 2022 and into 2023 and 2024.

My big concern is that the retail sector has not woken up to the need to secure domestic supply and production. We are not getting the signals for that produce that would avert many of those decisions. Confidence is fairly low in the farming sector just now.

The Convener: I am sure that we will come back to that topic in later questions.

Professor Alan Matthews (Trinity College Dublin): Thank you very much for the invitation to speak to the committee. Obviously, I am very much the outsider among the witnesses. What Scott Walker has said makes a lot of sense to me,

but I will add a slight nuance. The picture overall is not a dark one. It is clear that different sectors within farming will be affected differently.

There has been a dramatic increase in production costs—fuel, fertiliser and so on. Of course, there has also been a dramatic increase in some producer prices, in particular for wheat and other grains. Arable farmers will look forward to quite a profitable season. In pasture-based livestock farming, milk prices are rising, which will, at least partially, compensate for the higher production costs. The focus is very much on animal feed and the intensive agricultural sectors that Scott Walker has highlighted. However, that is just one part of the overall Scottish agricultural sector.

As politicians, you have to weigh up the conflicting objectives. There are broader issues about how to address the impact of higher grain prices on food security—that applies not only to Ukraine but to low-income countries globally that are highly dependent on food imports—and how to use this opportunity to progress Scotland's very ambitious goals for the green transition by reducing fossil fuel dependence in agriculture and encouraging changes in consumer purchasing and eating habits.

Dr Mike Rivington (James Hutton Institute): As Professor Matthews said, there might be winners and losers. Some people have taken up approaches to agro-ecological production systems that result in lower dependence on fertilisers. Therefore, they are a little bit independent of the impacts on fertiliser costs and benefit from high grain prices. The agro-ecological approach that some farmers are practising also has benefits relating to reaching net zero and biodiversity targets.

We are likely to see a range of impacts. The situation might well be an opportunity to support transitions towards the more environmentally friendly forms of farming that the Scottish Government is working towards. From my perspective, although there are severe impacts for some parts of the food production sectors, there is opportunity, too.

Steven Thomson (Scotland's Rural College): I thank my colleagues from SAC Consulting for feeding in information.

From a farming perspective, a lot of the issues are to do with whether someone has pre-purchased fertiliser. Many of those in the cropping sector will have forward contracts and will already have a stock of fertiliser. That is less the case in the livestock sector. The same goes for feed: for producers who are locked into a contract, it will probably be ending in spring, when they will suddenly face very sharp rises in food and fertiliser prices. Those things will dramatically impact on production decisions.

I repeat what Scott Walker said about those decisions already being in situ. The anecdotal evidence that we hear is that people are using the very high cull cow prices just now and are disposing of some of the animals that are not producing well or, as Scott Walker suggested, making the decision not to put cows back to the bull this year, but to sell cows on the back end.

Those are real decisions; that is what is happening on the ground. Ultimately, those decisions will have an impact, downstream, on the processing sector and, upstream, on supply. The situation is not just affecting farmers. It could have long-term impacts across the wider population.

There is also the whole issue of consumer prices; inflation continues to rise. We forget that quite a few of our products from the farming sector are quite elastic, which means that a small price increase leads to a large decrease in consumption. We are yet to see that. We continue to see the impacts of Covid in the food sector, and there is the fact that many of us are still working remotely—although I am in an office today. The whole sector is not really back to normal.

What was said at the start of the session is right—the situation is partly to do with European Union exit and partly a result of Covid, but many of the decisions being made just now are to do with price increases.

The Convener: Do not think that you have escaped, Elspeth Macdonald—I have a question specifically for you. Can you set out the Scottish Fishermen's Federation's views on the impact of the Scottish Government's withdrawal of engagement with the Russian Federation with regard to international fisheries negotiations?

Elspeth Macdonald (Scottish Fishermen's Federation): Thank you for the opportunity to speak to the committee today. There will certainly be an indirect impact on fishing in addition to the direct impacts, such as on fuel prices, that the other witnesses have spoken about. The exclusion of Russia from some of the international fisheries negotiations is broadly supported. That will have different impacts on different parts of our fisheries. It will not have such an impact on our shellfish and demersal fisheries, but the impact will be significant on some of our pelagic stocks, such as our mackerel stocks, because Russia is one of the partners in the coastal states negotiations.

Discussions are under way to find new sharing arrangements for our mackerel stocks. Those discussions are technical, and I will not go into all the detail of them here. Russia is excluded from those talks, and there is support in the Scottish industry for Russia's exclusion, which is right, but

we recognise that that will have implications for the pace at which those talks can progress.

My terrestrial counterparts on the panel have talked about the direct impacts of the war in Ukraine, and, in the same way, the impacts of fuel costs on our industry are significant. There are also significant impacts on profitability. I echo the comments that Scott Walker made about parts of the industry already being vulnerable, and fuel costs are exacerbating the situation.

It is worth mentioning the importance of the Ukrainian market to the mackerel industry. In excess of 20 per cent of Scottish mackerel exports went to Ukraine before the war, and that figure was about 30 per cent for the Shetland fleet, so that industry now has to find new markets for a significant proportion of its production.

Karen Adam: The fishing and agriculture industries face a challenging time, to put it mildly, in relation to labour. What impact has the war in Ukraine had on that issue? If the situation is now more complex, what impacts might we need to incorporate into on-going solution finding?

Elspeth Macdonald: I come back to the point that I made about the export of our mackerel to Ukraine. The war has had an immediate impact. Scotland used to export a lot of mackerel to Russia, but, when Russia invaded Crimea in 2014, sanctions were put in place and that trade stopped. Since then, a significant proportion of our mackerel product has gone to Ukraine. There is still demand in Ukraine, because, despite the terrible circumstances that people there are in, they still need to eat, but there are practical problems for us in getting product there and for companies there in distributing and paying for the product. The pelagic sector has had to adjust quickly and find new markets for that product.

In a broader sense, the situation in Ukraine has shown how vulnerable our industry is to geopolitical shocks such as the huge increases in fuel prices and the direct impact that that is having on parts of our fleet. That vulnerability to external factors that we have no control over makes us focus much more on the importance of our domestic food security and ensuring that we have short and long-term policies in place to support our domestic food production. There is much in the short and long term that would be helpful in making sure that we continue to have the ability to produce food domestically and support domestic food security.

Karen Adam: Could I go to Scott Walker, please? What are the implications for farmers who are looking for seasonal workers, and for Ukrainian workers who are here already?

10:45

Scott Walker: I will start with the Ukrainian workers. Many farms in Scotland will have had a lot of Ukrainian workers in the past, predominantly in the soft fruits and field vegetable sectors. I know of some farms in Scotland where Ukrainian workers were more than 80 per cent of the workforce. First and foremost, those farmers have strong relationships with a lot of the individuals who worked on their farms and they have been in contact with those individuals, to find out how they or their families are dealing with the situation. We cannot separate the supply chain situation from the tragic human impact that people are feeling just now.

Scottish food production is heavily dependent on seasonal workers coming into this country. It is still too early in the season to say exactly what the impact will be. Before the war in Ukraine, we were expecting that it would be difficult to source labour because of the UK Government policies on immigration, and the war in Ukraine will only make that issue even more difficult. We know that it is very unlikely that any men from Ukraine will be able to come across and work here because of the restrictions that have, understandably, been put in place. Should any women from Ukraine come here, there is concern that they will need emotional support because again, quite understandably, they will be concerned about family members who are back in Ukraine. From speaking to the likes of the RSABI, I know that the industry is looking at what sort of help and support could be put in place.

Therefore, in short, it is a bit early to tell, but we expect it to be a really tough season. Individual growers in the vegetable sector have already decided to cut back production by between 15 and 25 per cent, because they have concerns about not being able to source labour. Because of the high costs of production in those sectors, if growers are not able to source labour, they will not go through with that production schedule, with that huge uncertainty. Therefore, in the short and long terms, we need to address the seasonal workers scheme for this country and see what we can do to encourage more workers to come here.

Karen Adam: That question also goes to Steven Thomson.

Steven Thomson: It is a really interesting—or quite concerning—dilemma for a lot of people. Scott Walker mentioned the relationship with Ukraine and the high dependency on Ukraine for seasonal workers. Before Brexit, that dependency was on Bulgarian and Romanian workers. The situation has changed, because we used to source from within the EU and then, obviously, once we left the EU, those workers no longer came, so we were sourcing them largely from Ukraine. Even

with the seasonal workers scheme, a lot of field vegetables were left in the field. People were losing a lot of their crop in the past two or three years. Therefore, it has been a problem, and the war in Ukraine has just added to the issue.

We are talking about food security and, if we want to address domestic production, one of the things that we probably need to do more of in this country is grow more of our own veg and fruit. We cannot pick them, because we do not have the workforce, so we drastically need to try and work out local, international or technological solutions to that. There is talk of robots now working in raspberry picking in Portugal, but robotics is in its infancy, so that is not a short-term solution and is unlikely to be a long-term solution for some sectors.

Those are big issues. As I said, farmers are businessmen and they are having to make really hard decisions about what they put in the ground or about a cow that is going to calve in a year's time. They are making decisions now that will impact on future food production. It will be interesting to see what the spring plantings are for some of the field veg this year. That should be monitored closely.

Steven Thomson: One thing that none of us has mentioned is the lack of workers in the processing sector, which is significantly impacting on throughput and the ability to process, particularly in the livestock sector. In the packing sector, too—for potatoes and so on—all the work has traditionally been done by overseas workers, and we somehow need to build a workforce from local workers to fill that void.

Karen Adam: Absolutely. That is particularly true in the fish-processing sector.

I pose the same question to Professor Alan Matthews.

Professor Matthews: I do not have any expertise to offer on that particular question. You have heard some helpful insights from the previous speakers, so I will pass on the question, if I may.

Karen Adam: No problem at all.

The Convener: Thank you, Professor.

I know that this will sound like a premature request, but I am already aware that we are going to be tight for time. We have quite a few questions to get through. I ask committee members to direct their questions at the member of the panel who they think can answer the question most fully. If something has not been covered, panel members should indicate that they wish to come in to give their view, rather than our going through the whole panel. That would certainly help.

Did you have a further question to finish off, Karen?

Karen Adam: No, that is fine. I will pass and let somebody else in.

The Convener: Thank you. Ariane Burgess can ask a brief supplementary question.

Ariane Burgess: I have a supplementary question regarding the situation of Ukrainian seasonal workers. I direct this question to Scott Walker and possibly Steven Thomson, too. You might not have an answer to this, but a recent article in *The Guardian* reported:

> "Hundreds of Ukrainians are believed to be living and working informally in Britain after escaping from farms they were working at, with many claiming to have been subjected to conditions of modern slavery."

I should say that I do not know if this is necessary in Scotland but, in the article, one Ukrainian woman explained that she

> "worked on a cherry farm, where they were not allowed to wear gloves, leading to their hands bleeding and skin beginning to peel off."

She said:

> "I thought our rights would be well protected in the UK but this has not happened."

The article went on to say that seasonal farm workers are not eligible for the Government's two main Ukrainian refugee schemes because they left the farms and were not working at them, so they fell down the gap.

What can we do to protect the rights of seasonal workers in general and to give those Ukrainians who have left jobs as seasonal workers a swift and guaranteed route to staying legally in the UK? I realise that that might be out of the scope of your knowledge, but I would be interested to hear your responses on that.

Scott Walker: I have certainly never heard of any of those scenarios in Scotland. I know of individual farmers who have long-standing relationships with Ukrainians and have made contact with them through the resettlement scheme—I forget its official title—to help them and give them accommodation across here. That is not to provide work but to provide accommodation—there is a separation there. It has proved very difficult to get all of that connected, and that needs to be simplified.

As I understand it, and as has been touched on, those who come through that settlement scheme are not allowed to work on farms in Scotland or to work in this country. If that could be eased, that would be helpful.

The farming sector in Scotland as a whole has a very good reputation for its seasonal workers. Most farms in Scotland rely on returning workers

to a very high percentage, so it is not a matter of a new set of workers coming in each year. If a farm has an extremely high percentage of returning workers, that would indicate to me that the facilities on the farm and how the workers are treated must be very good for those workers to return to Scotland.

Ariane Burgess: Thank you very much for your response. It is really heartening to hear that there is a good relationship between farmers, that it is not a one-off and that there is a real relationship, not just a transactional business approach.

Jim Fairlie: Scott, you are as well to stay on the screen, because my question will be entirely directed to you, although Steven Thomson might want to pitch in.

I will first touch on the impact of rising input costs, which we have already talked about. What do we need to do to mitigate the rising costs? Do you see opportunities? A business in my constituency, Earnside Energy, is processing food waste and turning it into liquid fertiliser, which farmers around me are using. It is about 80 per cent cheaper than buying fertiliser at current prices.

There is also the issue of slurry storage—there is far too much slurry needing to be stored. How can we take those two issues and turn them into opportunities?

Scott Walker: Those are really good points. I would put those issues into the medium-term category, because they are things that the industry could do in the medium term to move forward.

Starting with renewable energy, a lot of farmers already have their own renewable energy generation on their farm, be it wind turbines or solar panels. The problem with that has often been connection to the grid and getting planning permission. It would be helpful if things could be sped up to allow greater investment and enable farms to become more self-sufficient in energy.

On fertiliser, a couple of things could be done with immediate effect. Track 1 of the Scottish Government's national test programme involves looking at soil sampling and nutrient management planning on farms. It would be good if more information and assistance could be given in that area, because it would allow farmers to use the nutrients that they currently have in the most efficient way possible and in the most appropriate way on individual fields.

Another issue that we have found in the past when we have looked at non-traditional fertiliser usage is the attitude of the supply chain. Perfectly understandably, some parts of the supply chain have been a bit resistant to using non-chemical derivatives. It would be helpful if work could be done with the likes of the Scottish Environment Protection Agency and Food Standards Scotland—as we and others have done in the past—to promote confidence in the supply chain in the use of those products.

You touched on a huge issue for us, which is the new rules on slurry storage that have just been introduced. Farmers are facing a substantial investment to put those new rules in place on their farms. Such investments would allow slurry to be used better in some circumstances, but it does not make economic sense for a lot of farmers to do that. Some flexibility on those rules, and some help with investment on farms to comply with those rules, would help to provide long-term resilience measures.

Jim Fairlie: There is an opportunity for collaboration on the use of slurry, though, if farmers do not just have to use it on their own farms but can use it in their area, with small localities working together.

Scott Walker: Yes. We can look at having machinery rings and small local co-operatives, and bringing farmers together in groups to work in that area. We are looking at investment not only in storage but in kit for applying the product to fields, so the more that we can do to encourage and support farmers to take those initiatives, the better. A lot of people have an appetite for that, but we are in a situation, unfortunately, in which the margins that a lot of farms are experiencing are low to non-existent, which makes it difficult for them to make that kind of investment. Also, importantly, it is about giving farmers confidence in the long-term future of food production, so that they feel confident in making that investment. It goes back to what I said earlier, which is that the problem at the moment is the issue of confidence in the industry.

The Convener: Thank you, Scott. Steve, did you have anything to add? I mean Steven—I beg your pardon.

11:00

Steven Thomson: It is fine—I get called everything.

The key in all of this is best practice. Track 1, in the Scottish Government terminology, is about encouraging farmers to baseline and understand what their soils are capable of. Nitrogen use efficiency will be one of the things that people are looking at, along with how to get the best out of the inputs that they are trying to use. You hear stories about how some farmers will not put fertilisers on some parts of their land, where there are older grasses that will perhaps not convert that into sugars. In addition to that, if your Ph is not right, you are probably simply wasting a large

proportion of your fertiliser. People will be focusing in on that just now.

With regard to the slurry question, the new rules will, of course, be tiered over a long period of time until 2026. The biggest producers will take the hit on that first, as they will have to meet the requirements first. In relation to investments at that level, you would hope that a lot of them are already compliant, but the Government might need to think about providing assistance at some other levels.

I like the idea of converting food waste into fertilisers. There is on-going work on the use of fertilisers and food waste in the feed sector as well. As a society, we waste a phenomenal amount of food—30 per cent of our greenhouse gas emissions come from our food wastage. That needs to be addressed not only at the farm level, although every farm could make marginal gains by introducing certain efficiencies. One of the problems that we have is that we think of the industry as one thing and generalise all the time, but there is a huge variation in performance. If we can bring up the performance of poorer performers or those at the lower end of the technical efficiency scale, we will start improving profitability across the board and reduce greenhouse gas emissions at the same time.

The Convener: I will bring in Rachael Hamilton for a brief supplementary before we move to the next theme.

Rachael Hamilton: Scott Walker mentioned rolling out track 1 of the national test programme. The NFUS made a request to the Scottish Government to put greater funding towards the sustainable agriculture capital grant scheme. What is the hold-up? Would it be good for this committee to recommend to the Scottish Government that it replicate what has happened in the rest of the UK in relation to support for sustainable farming incentives, such as paying farmers to plant nitrogen-fixing legumes, clover and so on?

Scott Walker: There are a number of points there. Yes, it would certainly be very helpful to me if the committee could encourage the Scottish Government to roll out the national test programme as a matter of urgency. Getting that launched so that farmers are able to apply to it and take it up is hugely important.

I would express caution about following the programmes that are happening down south just now, because the word that I am getting back from fellow farmers down in England is that the direction of travel there could jeopardise the productive capacity of agriculture.

I think that we could learn from looking across the water at what Europe and Ireland are doing to help the farming sector. Broadly, they have looked at land that is lying fallow to see how it could be put back into production. Although I do not have the details, the Government in France has just announced a fodder subsidy support scheme for the farming community to help with the fodder crisis that the livestock sector is expected to face. Poland has recently announced huge financial support to help with fertiliser production, and individual member states have provided financial support to bring fertiliser plants back into production and reduce the fertiliser crisis.

That could all be done. I would also encourage the Scottish Government to accelerate its plans for capital investment. As has been touched on, investments could be looked at that would increase productive capacity and efficiency in the farming business.

Rachael Hamilton: From the conversations that you have had, would the Scottish Government be happy to suspend the ecological focus areas as part of the greening requirements?

Scott Walker: No. I am very disappointed in the Scottish Government's decision, which was to reject our call to suspend the EFA requirement and to have a look at fallow land. That would have given a good boost to the sector and would have helped with confidence, because it would have involved using the land that we have at our disposal, predominantly to increase animal feed. I think that that should be looked at again.

I would also encourage the Government to consider what incentives could be put in place to encourage greater protein planting in this country in relation to animal feed diets. The mix for animal feeds has had to be adjusted due to shortages, and those shortages may continue the longer the war in Ukraine goes on.

The Convener: It was not really a supplementary, but Steven Thomson has asked to respond to that question as well.

Steven Thomson: I come at the issue from a slightly different perspective from Scott Walker. On the EFA question, I have talked to an awful lot of farmers in SAC Consulting meetings over the past year, and they are all crying out for confidence and a signal of a long-term policy commitment. They need to understand where policy is going. The discussions within the Scottish Government are all about conditionality and delivering on biodiversity and climate change and on food production, people and the economy. There is a trade-off. Unless farmers are aware of what will happen in the long term and, for example, the conditions chime with the availability of land for biodiversity or EFAs, however those are defined, production decisions might be different.

When I speak to Scottish Government colleagues, there is always concern that the EFAs would simply go into producing more grain for whisky, which is an export revenue, or for the feed sector. The thing that gets me has always been that we have not done our protein crop ecological focus area—the peas and beans aspect of it—particularly well, because the harvesting date has gone against the grain for EFAs. It is different in England; they can harvest their crops. We should have relaxed that aspect in particular. If we could have done that, it would have reduced long-term nitrogen use and provided a protein supplement.

As Scott Walker mentioned, looking across the water, Northern Ireland has a protein supplement and farmers can get a coupled support payment based on putting those types of crops in. That is a medium or long-term solution that we might have to start thinking about.

The other point is that such activity all requires budget and we know that, in 2024, we do not have a commitment to a long-term budget in agriculture. That needs to be resolved pretty quickly.

The Convener: We will move on to the next theme.

Dr Allan: We are talking about the impact of the war in Ukraine, but I would like us to rewind slightly and look at the resilience of food production in Scotland prior to that shock. Can you say a little about existing food resilience in Scotland—perhaps you can break it down by sector—and what the options are for strengthening it? Several of the witnesses may want to respond, but that question is probably for Scott Walker and Steven Thomson, in the first instance.

Scott Walker: It is a very big question, and I will start by looking at the relationship—or, as I would describe it, the lack of relationship—that exists between farm production, the supply chain and retailers with regard to long-term planning.

In general, before the war in Ukraine, resilience in the sector was pretty low, and fragile. In Scotland, we have very high levels of food quality and, as Steven Thomson touched on, we have a wide range of efficiency in the farming sector. We have a lot of farms that are very efficient, and other farms that would be like to be more efficient if the right systems were put in place. However, we have a very fragile processing sector, as we rely on the farm output going to a very small handful of processors in Scotland. Some of the greatest vulnerability in farming tends to be at the processing level. If we were to lose certain processors, the options for where farm produce could go would become very limited and difficult, and processing would become more costly as a result of shipping to the rest of the UK.

We are at a stage where we need to step back and look at where the key drivers are in each of the different supply chains and how we can support them. One example is the egg sector. We do not have a processing plant here in Scotland to deal with spent hens. As the rules for the transportation of animals become tighter and the distance becomes shorter, that will cause us severe problems, so we need to look strategically at how we can help to support and put in place a spent hen plant here in Scotland. If we do not have that, we will not have an egg-producing sector in Scotland. Another example is the livestock sector, and specifically the beef trade. Looking at what is happening to beef prices, how do we get a domestic beef price that supports long-term investment?

My last point goes back to the point that Steven Thomson made earlier. People want to see the future direction so that they know where they are heading. What is the future direction of support, both from the Government and from the supply chain? That is necessary in order to give the industry the confidence to continue to produce and to invest in the future. If we do not get the right direction there, we will see a reduction in the productive capacity of the industry in Scotland.

The Convener: I remind everybody that we have around 40 minutes left in this session and there are still a lot of questions to be asked. I will bring in Steven Thomson, followed by Elspeth Macdonald.

Steven Thomson: I will try to be brief. I fully agree with Scott Walker that we need to think about strategic processing, and having strategic processing plants available in Scotland. I will use the sheep meat sector as an example. We do not cull cast ewes in Scotland, so they practically all go south of the border to be slaughtered for mutton, and about 55 to 60 per cent of our lambs go south of the border for slaughter. We do not have the resilience in Scotland, which means that we are at the behest of other processors when it comes to export opportunities, especially opportunities to export to the affluent middle eastern countries. That might mean that changes need to be made in our processing types, such as bringing in halal slaughter. We need to look at such changes as opportunities.

11:15

At the individual farm level, we have an incredibly resilient industry, but that is driven largely by the fact that agricultural support payments underpin incomes. In addition, farms are consistently becoming reliant on their off-farm income to underpin some food production activities, and on selling off plots of land to enable their non-profitable agricultural enterprises to keep

going. I have always said that, in some ways, farmers subsidise food production—they are running loss-making enterprises, because the market does not reflect the true price of food production. The dairy sector tends to work on the basis of cost plus a very small margin, which is why we quickly saw price increases in that sector. All kinds of things are happening, such as global milk supplies contracting. However, in some instances, I think that there is resilience in the sector.

Elspeth Macdonald: I will try to be brief, as I know that we are under time pressure. There are many parallels in fishing with some of the resilience issues that my colleagues on the panel have been talking about. In fishing, resilience in some parts of our Scottish fleet has really been affected by the Covid pandemic, and the impact of current events is exacerbating that. I would echo what Scott Walker said about business confidence to invest and rebuild resilience. We need resilience in our fishing industry for the future.

I want to highlight two issues that are really important in the policy landscape in Scotland that would help us to rebuild some of that resilience and to increase confidence in the industry having a bright future. One of those is about the need for greater investment in fisheries science. Everything that we do in fisheries is very much driven by the scientific catch advice, which we feel increasingly does not reflect the way that our distribution of key commercial fish stocks is changing. We would want the Scottish Government to make appropriate and necessary investment in fisheries science to help to support sustainable management of our stocks.

The other point is one that I might have mentioned previously to the committee, which relates to how we use our space at sea and the need for better marine spatial planning. The fishing industry in Scotland is concerned about the long-term spatial constraints that we face through things such as the expansion of offshore wind and the development of an extensive network of highly protected marine areas.

Obviously, there has to be a balance between conservation, energy and food production. However, at the moment, the spatial constraints that our industry faces are extreme. For the industry to rebuild resilience, to help it to see a bright future, to give fishing businesses the confidence to invest in the industry for the future and to encourage new people into the industry, we need better marine spatial planning that will allow our industry to continue to operate profitably and to secure domestic food production. It is true that we must have energy security, but we must also have food security, and our fishing industry is a really important part of that.

Those are some of the things that I would like to see in the policy landscape that would really help our industry to rebuild its resilience.

Mike Rivington: It is important to distinguish how we define resilience, because the question was about the resilience of production systems. What concerns me is that we need to have a long-term strategic view on what constitutes a resilient food system. At the moment, we operate a just-in-time system, but what we really need is a just-in-case system to account for the sorts of eventualities that we are facing at the moment—for example, the effects of Covid and the war in Ukraine—and, in the long term, the impacts of climate change.

I am concerned that the sort of responses that we have had are about maintaining the status quo of the food system, when we need to think about a transformation of the food system to give it the flexibility that it needs so that it can cope with future shocks, because we know that those are going to occur from biodiversity loss and climate change impacts. We need to be careful not to get caught in the trap of focusing on what needs to happen now in response to the current situation and not to lose sight of the food system transformation that needs to happen so that we can deal with the wider-scale shocks that are likely to occur.

The first thing that I did when the food security issue first arose was check out what was happening with the El Niño/La Niña cycle; fortunately, we are in a relatively stable situation in that respect, but a severe El Niño development next year during the growing season would have severe impacts on global food production. Over the years, I and colleagues have always warned of the increasing probability of multiple coinciding shocks from war or from climate change impacts, so we need to take a careful view on what is likely to happen next year in relation to global climate teleconnections.

Dr Allan: A number of people have mentioned the importance of preparing the supply chain for the future. Can Professor Matthews offer any observations about Ireland or from it on what, if anything, differs in the ways that Scotland and Ireland are preparing for the future in that respect? I am thinking specifically about making the supply chain more resilient.

Professor Matthews: One similarity between the two agricultural economies is that they are both highly export oriented. Although a lot of people would interpret resilience in terms of doing more ourselves and emphasising local food production, that does not make a lot of sense for an agricultural economy such as that of Ireland, because we will always be highly dependent on exporting our food off the island.

That tends to focus attention on trying to create as stable an international framework as possible. Obviously, that has come under huge stress and strain because of the invasion of Ukraine. There is a domino effect whereby, because of the initial shock and the increase in global prices, countries are introducing beggar-my-neighbour-type policies to try to protect their domestic consumers by putting export bans and restrictions in place. However, that just amplifies the upward trend. Trying to avoid those kinds of response is hugely important for exporting countries such as Ireland.

We are still very much subject to the common agricultural policy. The direction of travel there—as it is in Scotland—is to try to focus on better integrating the environmental, biodiversity and climate impacts of production into farmers' decision making.

To answer your question, I encourage the committee to think of ways in which, despite the obvious costs—particularly the input costs—of higher production, it provides incentives and an opportunity to accelerate some of the changes that are part of Government policy. For example, as Steven Thomson mentioned, improving nitrogen use efficiency on farms is a win-win for farmers, because it reduces costs, greenhouse gas emissions and reliance on imported fertilisers. My sense is that we should try to think of ways that we can turn the situation into one in which we can accelerate some of the necessary changes that Mike Rivington has referred to.

The Convener: Staying with you, Professor Matthews, your point that the crisis might accelerate the direction of travel that we recognise that we were going to have to take anyway is interesting. It is a bit like Covid forcing more people to engage with the medical profession and a more triage-based system. People had to speak to their general practitioner remotely, which was an acceleration of the direction of travel that was already happening. It is a bit like an ill wind: it may well drive improvements that need to be made, but over a shorter space of time.

I want to draw on your experience on a more European scale. In France, the issues are being taken incredibly seriously. We are also taking them seriously but, in France, there is almost a panic about the food shortages that might be seen there. Are Scotland and the UK taking the crisis seriously enough?

Professor Matthews: The real food security crisis will be in Ukraine itself, with the millions of displaced people, but also in the lower-income countries, particularly those around the Mediterranean basin in north Africa and elsewhere in Africa. I would be very reluctant to use the term "food security crisis" in relation to Europe and Scotland. There will be an increasing food affordability crisis for some low-income households because, as other participants have mentioned, we are seeing increasing food price inflation. Many households are running into difficulties. The solution to that is to provide additional direct income support to those households. It is not really an agricultural market problem; it is a social policy issue.

As Scott Walker made clear at the outset, in Europe, the crisis is not a food crisis; it is an animal feed crisis. High animal feed costs are putting pressure on the intensive livestock sectors in particular. However, we need to put that into perspective. It is certainly not threatening to become a generalised food security crisis at this point in time.

As we move from the current growing season into the next, there are warning signs about fertiliser availability. Members will have seen in the news today that Russia is threatening to turn off natural gas supplies to Poland and Bulgaria. That could extend to other European countries. Although we produce around 90 per cent of our fertilisers domestically within Europe, much of that is dependent on imported natural gas from Russia. We need to keep those threats in mind, but I would be loth to suggest that there is a generalised food security crisis arising from the Ukraine war.

The Convener: Thank you. That is most useful.

Jim Fairlie: I want to quickly touch on something that Scott Walker said about rolling back on EFAs. I would caution against rolling back on EFAs from the point of view of reputational damage—it would not go down well in the other sectors across the country. Farmers already plant huge volumes of legumes as it is. The problem is that we then batter 4 or 5 hundredweight of nitrogen over the top of that and kill the clover out of our grass. A shift in behaviour would also help us there.

I want to touch on the vulnerability of the wider supply chain. Scott Walker talked about the conversations—or lack of them—with supermarkets and the role of the supermarkets ombudsman. Supermarkets supply 90 per cent of our groceries. They have a role to play in ensuring that we maintain resilience in our food supply system in Scotland. Does it concern you that Lord Frost tweeted the other day that the best thing to do is to reduce tariffs on not just imported goods that we cannot grow but all the products that we can grow—including, in this country, beef and lamb—and to bring those goods in from somewhere abroad?

11:30

Scott Walker: There are two things to say. First, I replied to Lord Frost's tweet yesterday. I will not say what I said, but that was hugely concerning. He showed a huge degree of naivety in saying that the way to solve the problem is to ramp up standards in this country and open the doors and allow anything to come into it, regardless of standards. That seems to be fundamentally wrong.

Secondly, there is a huge question mark. Basing the UK's whole food security on the idea that we can source from anywhere abroad at any time, regardless of what else happens, is putting a lot of trust in a system that we have seen over the course of the war in Ukraine not come crashing down—it is not crashing down yet—but being strained to the limit. Therefore, I do not believe that we will be in a position in the future in which we can just source whatever we want to and outbid everyone for it.

Others have commented on the fact that we have one crisis just now, but we could easily see a drought or a flood come about in America. A few years ago, we saw countries put in place export bans on food, which, in essence, gave rise to the uprisings in the middle east and Egypt. The situation is therefore very volatile.

In relation to retailers, I go back to the point that Governments can do a lot. They can do a lot more than waiting and hoping that everything pans out okay. That is not the right strategy. Ultimately, retailers have huge power and they could make a big difference, but I do not see them doing that at this point.

I will use Brexit as an example. To give retailers credit where it is due, they saw that Brexit would cause a huge disruption to their ability to source products, and they did everything possible at that point to secure the domestic food supply and to buy up what they could to ensure that there would be plenty products on the shelves.

We are seeing a situation now in which costs are increasing across every area of production, but there is huge resistance on the part of retailers to recognise that and to pay the appropriate price for food and a fair price throughout the supply chain. We should consider that area far more closely. What is and is not appropriate in contracts should be considered, and retailers could have huge strength to secure processing capacity in this country and to give the right encouragement to increase food production.

Jim Fairlie: We cannot chuck the baby out with the bath water. We are on this course to try to get to net zero, and we all accept that that will be an issue. I believe that we need to increase the processing facilities in this country, because cattle and sheep that travel south on the hoof take up much more room and many more lorries than they do when they travel down on the hook. Surely we need to be able to do the processing in this country and then export the products. I think that it was Steven Thomson who said that we should have a just-in-case rather than a just-in-time approach. Would you say that there is value in trying to invest in those areas?

Scott Walker: Yes, I would. So that the committee understands where I am coming from, nothing in what I am suggesting says that we should abandon our net zero targets. It is important to reduce the carbon footprint of farming. We are committed to that, and it ties in with everything that we need to do at this point.

Being reliant on a just-in-time approach is not working. We have to build resilience in the supply chain, and drive efficiency and consider improvements on the farm. We need more processing to be done in Scotland to allow us to do that and, ultimately, to export abroad.

I have one more point to add. I talked about resilience earlier. We have to look at some of our infrastructure in Scotland, such as the port systems. One of the big issues during Brexit and more recently has been having enough containers here, including enough freezer containers, and electricity points at the port systems, so that we could store products and then put them on ships to Rotterdam, to then go on to bigger ships and go on elsewhere. Those are the pressure points that we have to look at in building resilience and, ultimately, profitability in the food system in Scotland.

Steven Thomson: To build on what Scott Walker said, I always remember the Icelandic volcano crisis. Flights were stopped, and we were suddenly half a day short of running out of fresh food on the shelves. We changed the rules very quickly to allow food to fly in. However, we have not learned from that. That happened 12 or 13 years ago, if I remember rightly. We should also look at what happened with the ship that got stuck in the Suez canal and the problems that that led to. We do not seem to learn from such issues.

Mike Rivington was absolutely right: we need to look at the resilience of our food system in terms of both geopolitics and climate. I do not know whether anybody is really considering long-term food security in relation to climate change and extreme weather events. You just have to look at the flooding in Australia just now to see that La Niña is having an impact on some aspects of its production system. We also forget the sheer buying power that countries such as China have in relation to buying protein and crops, and buying and securing natural resources for long-term food

production for their economies. I do not think that we are really focusing on that.

Pre-Brexit—or pre-EU exit, as I keep getting told to call it—the Department for Environment, Food and Rural Affairs initially announced a zero tariff system. That would have decimated our agriculture sector in the long term, because we cannot compete with some of the lower-cost production systems and, if we reduce those tariffs, people can still meet our standards. For example, about 60 per cent of Australian beef is grass fed; it is not hormone treated. It meets our standards, so Australia can export to us on a low-cost basis. We know that retailers will source cheap product and consumers will buy it. Even though they say that they want to purchase British, when it comes to purchase decisions, an awful lot of households buy on price.

Jim Fairlie: Is that where the commissioner has to have more teeth?

Steven Thomson: Yes, I think so. We need to look at food production over the long term, in a global context. With Alan Renwick and others, I did a report for the Oxford farming conference in 2013 on power in agriculture. I was shocked by how, on a global scale, certain aspects are so concentrated. That is quite scary.

We need to revisit those things, look at the pinch points with regard to things such as phosphates and fertiliser supplies—things that are absolutely required in the long term—and work out how to have a system in which we are not reliant on only a few processors that are reliant on five major supermarkets that control everything.

The Convener: Thank you. This is a 20-minute warning for the panel and for committee members.

Ariane Burgess: This may be quick, because I think that we have started to get responses to my question already. How can we address the simultaneous challenges of high production costs, with risks to producing sectors, and the rising cost of food, with risks to food security among low-income groups? Professor Matthews, you mentioned additional income support. Do you have any other thoughts on that?

Professor Matthews: In terms of consumer support, I am not fully au fait with the steps that the UK Government has taken recently. European Governments have stepped in to help households with higher energy costs, for example, which, in recent months have seen higher rises than food prices.

My concern is that some of the interventions seem to hold existing consumption patterns in place when it is clear that we need to try to encourage change. We want households to save on energy and to move away from using as much petrol in their cars as they do at present. Lowering the cost of energy, for example, would seem to work against that particular goal. If we use that as an analogy for the food system, the approach should perhaps be not to try to make food cheaper by subsidising food per se but rather to increase the purchasing power of households to make up for those higher costs and to leave it to households to make their purchasing decisions in the light of the fact that food is now more expensive because of the higher input costs.

Scott Walker: The question is probably outside my area of expertise, but I can make a few general comments. The average consumer is going to have a very tough time over the remainder of this year. Government help and support should be aimed at those people in society who face unprecedented increases in costs—the World Bank has said that it is the biggest price shock in 50 years.

There are some practical things that could be done. Over time, we have been working with food banks and different charities to find ways to redirect farm produce and produce from within the processing sector to food banks to help people. Again, sometimes the issues are to do with packaging and the rules. For instance, it is often difficult for food banks to accept meat. That could be examined to see what help and assistance could make such a system function. Often, it is an organisational issue: getting someone in place to make those connections and make it happen.

Education is also useful in relation to how people use different products and can make the most of what they have—how to cook meals instead of it all having to be processed products, for example. As I said, this is slightly outside my area of expertise but those are a few suggestions.

Going back to the farming sector specifically, in the medium term, it is about maintaining our capacity in Scotland to produce food, not just for the Scottish market but for the UK market. It is helpful to have that domestic production instead of relying on imports, which will undoubtedly rise in price. Having domestic food production to underpin our supply is hugely important.

Ariane Burgess: Steven Thomson, do you have anything to add?

Steven Thomson: The food banks are one way in which we are overcoming some of the issues. In the United States, there are food assistance programmes, which subsidise the consumer, rather than the producer. Those are real alternatives that we have never really considered using in this country or in Europe, where we have always thought that supporting the producer is the easiest way to subsidise food production and maintain food prices. There are alternative models

out there but it takes long-term vision and a leap of faith on the part of Governments to do such things. We could look at those ideas alongside the mainstream income support measures. In America, the system is based on the minimum nutritional standards that a household should be able to afford.

11:45

Ariane Burgess: Thank you for those interesting responses. What underlies that for me is the need to look at better paid jobs and more job security so that people have more money in their pockets from their job and can afford the good food that is being produced in Scotland.

The Convener: Absolutely. That should have been considered as part of the Good Food Nation (Scotland) Bill that we are working on at the moment. I thank Steven Thomson for that helpful answer.

We move to questions from Beatrice Wishart.

Beatrice Wishart: My questions are for Scott Walker and Elspeth Macdonald. Mike Rivington has already referred to the long-term need to look at the transformation of the entire food system, and Professor Matthews mentioned the acceleration of the direction of travel. Is there anything that you would like to say that has not already been said about medium to long-term needs and increasing the resilience of domestic food production? For example, do you have any thoughts on the on-going reform of agriculture and fisheries policies?

This point is for Elspeth Macdonald. I recently had the pleasure of visiting the new Lerwick fish market and seeing for myself the fantastic variety of high-quality fish being landed. Much of the fish that is caught in UK waters is exported, while much of the fish that is eaten in the UK is imported. When we look at future food security—recognising what you have said about spatial planning at sea—what role does the domestic fishing industry play?

The Convener: I ask Elspeth Macdonald to kick off while the question is fresh in her mind and then we will come back to Scott Walker.

Elspeth Macdonald: Beatrice Wishart raises the interesting point that we export a lot of what we catch and import a lot of what we eat. Lots of fish is consumed in Scotland and the UK but it is often fish that we do not catch here. What we catch here is constrained by what is in our waters. The situation is largely driven by consumer preference. There is no demand for some of what we catch here, which is not traditionally eaten in Scotland but is traditionally eaten in our export markets—and vice versa. We have discussed how the food system might have to be transformed, with consumption being closer to the point of production. [*Interruption*.] I apologise for any noise in the background. I am sitting in a hotel and there is some construction going on behind me. I am sorry if that is noisy.

This ties in with the wider transformation of the food system, and whether that will persuade or drive people to consume more domestic product so that we are not exporting a lot of what we produce. For some of our exported product, the market is quite close to home because the product goes to places in the EU such as France and Spain. The carbon footprint for that is still relatively small. However, some other products go further afield. Industry may not be able to do much to drive that change, but consumers and the public may start to see the role that their purchasing decisions play in the transformation of the food system.

We hope that some of the fisheries policies coming from Government will support our industry to produce climate-smart food with a low carbon footprint. The committee has discussed the joint fisheries statement that the four Administrations are working on. The Scottish Fishermen's Federation has some reservations about how that will support the policies that the industry needs to continue making the right contribution to climate-smart food production.

It is early days with that, and there is a lot still to flow from it. There is a lot in the domestic policy landscape that we will engage with to make sure that we have a landscape that allows our industry to continue to produce climate-smart food.

On growing demand in the UK for domestically caught product, we know that Seafish and other bodies are working hard to get more UK-produced fish into UK retail. There is a lot that we in the industry can do, but a lot of what that future will look like will be driven by the consumer, their purchasing decisions and their role in the transformation of the food system.

Beatrice Wishart: That is a good point.

Scott Walker: I will highlight three things. First, we would like the Government to put in place a food security impact assessment for all future legislation, so that there is a clear understanding of the food security impacts and costs of legislation. That would be helpful and would focus people's minds.

Secondly, the debate about future support systems is not a debate about either production or the environment, which it is sometimes stylised as. We can have both, and, if you go to many Scottish farms, you will see both working wonderfully and fantastically in partnership.

A lot of work is being done through the farmer-led groups, first and foremost, to consider an appropriate agriculture policy for Scotland that has food production at its centre, but which also, importantly, delivers on climate change targets and biodiversity. That has been taken on by the agriculture reform implementation oversight board. I would like to see that work come to fruition as soon as possible, so that that direction of travel is there. It is about putting production at the centre while ensuring that we continue to deliver and accelerate the pace of delivering on climate change targets and enhanced biodiversity. All three can happen at the same time, but we need to make those choices and set that direction of travel to give confidence back to the industry.

The Convener: I am sorry, Scott; I have to stop you there. We have supplementary questions from Alasdair Allan and then from Rachael Hamilton.

Dr Allan: My question was intended to be about unusual species, as it were. Does that tie in?

The Convener: Yes.

Dr Allan: I say "unusual". We have just had a discussion about greylag geese and I have a question about food resilience. I do not know whether you were listening in, but we talked about creating a potential market for greylag geese given their prevalence on the west coast of Scotland. There is also a question about species such as venison. Why is the UK a net importer of venison? I do not pretend that those two species would ever make us a food-resilient nation, but there may be other examples, and I wonder whether you have a view on that.

That question is for anyone who wants to go first.

Scott Walker: In general, my membership sees geese as a pest, because they destroy crops and do damage to food production. I am sure that there would be a market for geese, but I do not see that as a solution. A number of farms in Scotland produce venison and, where market opportunities exist, the market for that could grow in the future.

Steven Thomson: I listened in and probably smirked a bit at the talk about markets for geese. It would probably be a very niche market. There probably is a market for such things, but, in general, when it comes to the trends in consumption, carcase balancing comes in. According to our import/export statistics, we export a lot of sheep meat—whole carcases and offal—but we import legs and chops, and things like that.

I mentioned in a comment in the BlueJeans chat function that the consumer seems to be very picky and we have lost the connection with some types of food. For example, we export wild venison to Germany. We no longer seem to have a penchant for such types of product, because they are gamey—they taste different. Part of the issue is that we breed poultry that is probably pretty tasteless so that it can be put in a sauce to make a product.

Reconnecting people with food is a vital component of that, which means education. That is a long process. However, there will be a niche market for some such things.

Rachael Hamilton: My supplementary question is for Scott Walker and follows on from Beatrice Wishart's question. You talked about the food security impact assessment that you would like to see. To ensure that agricultural land is prioritised to address the food insecurity that we are experiencing, should there be a moratorium on the buying of land by non-agricultural businesses for large-scale forestry to offset carbon?

Scott Walker: In short, yes. I could expand more but, overwhelmingly, yes, there are huge concerns in the farming community about the amount of non-agricultural money that is coming in to buy up big areas of Scotland to offset carbon emissions elsewhere. That is fundamentally wrong. We should be using the land in Scotland first and foremost to look at what we do about our own carbon emissions, rather than allowing foreign money to come in and prevent what would otherwise be agricultural production.

The Convener: Thank you. I had a question that was almost based on that, so this is probably a good note to—almost—stop on, so that I can let Mike Rivington back in. Again, I ask for a brief response. Given the pressures on land use, do we need to accelerate how we look at it? We have just heard about additional planting and more extensive farming, and we have also heard from Elspeth Macdonald about the pressures that relate to the sea. Do we need to accelerate what we do with our land use strategy to ensure that food resilience is addressed in addition to climate change?

Mike Rivington: Yes. That is a very serious issue, given the drivers and pressures. I would like to point out how little improved agricultural land is used directly for human food. The figure is about 4.4 per cent, yet about 74 per cent is used for livestock feed for cattle.

Again, I flag that we need to define food security more carefully. Globally, an area the size of China is used for the production of food that is wasted. When it comes to developing a land use strategy for Scotland, we need to think about what we mean when we talk about food security as opposed to the resilience and sustainability of the food system itself and the businesses that are concerned with it.

I back up what Scott Walker was saying: there are huge opportunities for achieving the multiple targets of food security, reduced emissions and enhanced biodiversity. However, we also have to be realistic in looking at land use across the whole of Scotland—indeed, the whole of the UK—when it comes to providing enough food for the population.

The Convener: Thank you very much. Just for the record, what percentage of improved agricultural land is not used directly to feed humans? I missed the figure that you quoted at the start of your answer.

Mike Rivington: The figure that I have is that crops that are grown directly for human use account for 1.5 per cent of all Scottish agricultural land, which equates to 4.4 per cent of the improved agricultural land.

The Convener: I thank all the witnesses. The session has been fascinating and, as always, we have run out of time. Thank you very much. Your evidence has been very useful and will play a part in our work as we move forward.

11:59

Meeting continued in private until 12:09.

Published in Edinburgh by the Scottish Parliamentary Corporate Body, the Scottish Parliament, Edinburgh, EH99 1SP

All documents are available on
the Scottish Parliament website at:

www.parliament.scot

Information on non-endorsed print suppliers
is available here:

www.parliament.scot/documents

For information on the Scottish Parliament contact
Public Information on:

Telephone: 0131 348 5000
Textphone: 0800 092 7100
Email: sp.info@parliament.scot

The Scottish Parliament
Pàrlamaid na h-Alba