Speech: The importance of soil in a changing climate

Thank you

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“In winter’s chill or summer’s heat, farmers work so the world can eat.”

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They’ve got their work cut out for them.

As the planet’s population hurtles towards eight billion people, we are relying on farmers to mass produce cheap food like never before.

At the same time, farmers manage 70 percent of the land – which they must protect and enhance for the next generation.

Farming isn’t rocket science.

It’s much, much harder than that.

The soil delivers 95 percent of global food supplies, but it is a limited resource under pressure from climate change, population growth, urban development, waste, pollution…

…and a lack of understanding.

Leonardo Da Vinci said “we know more about the movement of celestial bodies than about the soil underfoot” and 500 years later, there is less information about soil than any other part of the environment.

That’s a big problem.

Which is why the Environment Agency hugely welcomes the Government’s work to move this up the political agenda.

The 25 Year Environment Plan says “by 2030 we want all of England’s soils to be managed sustainably, and we will use natural capital thinking to develop appropriate soil metrics and management approaches.”

Earlier this month, the Natural Capital Committee released its advice on soil management, which – among other things – explained what those metrics might look like.

Today, we add our voice to this chorus by releasing a report about the state of soils.

I want to thank the Devon and Cornwall Soils Alliance for inviting me here to launch it.

Your members know how serious the problems facing soil health are, and will also have useful expertise about how to reverse the degradation.

But, we will all struggle to drive effective change, if the will for action is not supported by knowledge beyond the echo chamber.

The Secretary of State, Michael Gove, said: “Countries can withstand coups d’état, wars and conflict, even leaving the EU, but no country can withstand the loss of its soil and fertility”.

Soil degradation in England and Wales is calculated to cost £1.2 billion every year.

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Soil is also essential to managing the world’s climate emergency.

Last year, the Intergovernmental Panel on Climate Change said we have 12 years to limit global temperature rise to 1.5ºC above pre-industrial levels.

But, a key point they made was that even if we manage that, the physical threats – like floods, droughts, heatwaves, and more extreme storms – are still multiplying.

The world is currently on course for at least a 3 degree rise, so we have a lot to do in terms of reducing emissions and preparing for escalating risks.

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UK soil contains about 10 billion tonnes of carbon, roughly equal to 80 years of annual greenhouse gas emissions.

Globally, intensive agriculture has caused arable soils to lose 40 to 60% of their organic carbon.

If we are serious about the Committee on Climate Change’s target of net zero by 2050, then the earth itself will have a big role to play.

And, we will need to see better management of our bogs and peatlands – (which is another ambition of the Government’s 25 Year Environment Plan).

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The impacts of climate change also pose risks to the soil itself.

Challenging weather conditions, where farming has to continue in less than ideal situations, are a major threat to farmers’ income.

Very heavy rainfall and thunderstorms cause soil erosion which make flood risks worse – particularly on sandy soils and on peaty moorland soils, as you know all too well in the South West.

In this part of the country, most areas have over 200 days where soils are wet.

This is high when compared to soils in – for example – Cambridgeshire, where the soil is wet for only about 80 days.

High moisture in the soil means that it can be compacted by field work which then causes runoff, pollution, and flooding.

Over fifty years ago the US President, Dwight D. Eisenhower said:

“Farming looks mighty easy when your plow is a pencil and you’re a thousand miles from the corn field.”

And, I know that for many that still rings true.

Farmers need help, but every field is different and it is not in farmers’ interests to damage the soil.

So, how should we regulate farming in England to make sure we are tough on the problems while supporting farmers, who we see as our natural allies?

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Well first of all, we need to recognise that looking after the soil isn’t the sole preserve of one industry.

Many of the problems come from urban areas, where soil health is often neglected by development schemes.

Soil compaction and expansive bonded surfaces increase the risk of runoff in towns and cities.

Subsoils are at risk of deep compaction in new housing development and this affects the health and resilience of trees in parkland and the built environment.

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Urban environments are also where most people live.

So, we must acknowledge that a lot of the pressure on rural and farming communities originates in cities – and this is certainly true in terms of waste and water resources.

But, of course, farmers are key.

To help them, we provide advice, guidance and practical support.

We do not take a “top-down” approach, we are supporting peer groups all over the country to learn about best practice.

“Upstream Thinking”, funded by South West Water, is a good example of collaborative working to improve drinking water quality.

The new Farming Rules for Water, which include dealing with soil erosion and runoff, will also help.

There are practices that cause compaction, runoff and erosion. Such as:

- harvesting of maize and vegetable crops late in the year during wet conditions;
- crops that are drilled late in the year with poor soil structure;
- out-wintering of stock where this causes compaction and runoff;
- continuous growing of vegetables (and daffodils in South West) on soils with low organic matter which are prone to erosion.
- And, spreading of slurry and manures during winter where this causes compaction.

It is vital that farmers take reasonable precaution to prevent soil loss from their land.

But, while enforcement underpins the new rules, some of the problems can be subtle and remain undiagnosed, particularly where the problem lies in the subsoil.

We will take action in serious cases, but we will need to consider each situation case by case.

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The success of the new Farming Rules for Water will also depend on us taking an advisory approach, and we have published guidance with practical steps to help farmers protect their land.

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We are also working on farm assurance schemes with WRAP, the NFU, and the Renewable Energy Association, to address both the plastic waste produced by agriculture, and to reduce plastic contamination in bio-waste spread on farmland.

If badly managed, landspreading can damage soil health, contaminate crops and livestock, and it can affect the aquatic environment and bathing waters.

We need to do more work with water companies and the waste sector to manage this.

As with all environmental issues, collaboration is essential.

And, I fully support the work of Rebecca Pow MP and the Sustainable Soils Alliance to bring together farming organisations, businesses, and NGOs, to

reverse the current crisis in soil health and restore our soils to health within one generation.

There is no doubt that risks to soil threaten not only farmers' livelihoods, but also humanity's ability to:

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Overcoming these threats is a job that goes far beyond our borders, and we're pleased to work, and learn with, the Department for International Development as they help farmers around the world deal with these problems.

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The world's growing population puts more and more pressure on the soil.

It is our responsibility to ensure we are doing everything we can to help farmers manage the challenges to come.

I am grateful to the Devon and Cornwall Soils Alliance for this event to build capacity and capability in soils advice.

And, I am grateful to you for listening to me today.

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Thank you very much.