

## **Land use change versus climate change**

When we think about the effect of agriculture on biodiversity, the first impact that comes to mind is generally land use change – species' natural habitat being destroyed to make space for crops and pasture. However, agriculture is also linked to significant greenhouse gas emissions and climate change poses an ever-growing threat to biodiversity. As temperatures warm and patterns of rainfall change many species will lose large areas of suitable habitat.

Land use change and climate change both cause species to lose habitat but that habitat loss will occur in different places. Agriculturally driven land use change will impact biodiversity in the area that food is being produced but agriculturally driven climate change will impact biodiversity all over the globe, regardless of where the emissions were produced.

Another difference is that land use change is, broadly speaking, a one off cost – the same amount of biodiversity is lost no matter how many times we harvest food in that area. Greenhouse gas emissions, however, occur harvest after harvest due to emissions from livestock, fertilizer use, mechanization, transport, food processing etc.

As part of my research, I'm looking at different food products and asking how many years' worth of greenhouse gas emissions lead to an equivalent biodiversity loss as that caused by land use change. Policy makers tend to treat biodiversity loss and climate change as two separate issues, but we need to use a combined approach if we are to develop truly sustainable solutions to agriculture.