

Limiting greenhouse gas emissions from land use in Europe

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Not only do humans emit greenhouse gases into the atmosphere, but they also do things that help remove these gases from the atmosphere—for example, planting more forests or other land management techniques can lead to greater uptake of greenhouse gases from the atmosphere. New research presented by IIASA researcher Hannes Böttcher at the EGU General Assembly this week estimates future land use emissions for the European Union. These scenarios provide the basis for policy discussions in the EU, and also help identify the least costly mitigation options for addressing climate change in Europe.

The new estimates, which are based on an integrated modeling framework that combines information about population, economics, and land use and land productivity, show that Europe could potentially reduce [greenhouse gas emissions](#) from land use by more than 60% by 2050. The study showed that the biggest mitigation potential lies in cutting emissions from agriculture such as [livestock production](#), as well as in managing forests effectively to increase their role as a carbon sink.

While the study specifically addresses European emissions, the researchers also looked at how mitigation efforts in Europe would affect land use and emissions outside of Europe. For example, if Europe reduces cropland in order to grow more forests, the food that is no longer grown will likely instead be grown somewhere outside of Europe. [Mitigation measures](#) in the land use sector are therefore likely to change also the productivity of the sector in Europe.

"If we assume that demand doesn't change," says Böttcher, "to satisfy demand, the production will move outside of Europe to a large degree." This movement is known as a leakage effect. The researchers calculated that this leakage effect would reduce the effectiveness of European mitigation efforts by up to 20%.

Provided by International Institute for Applied Systems Analysis

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