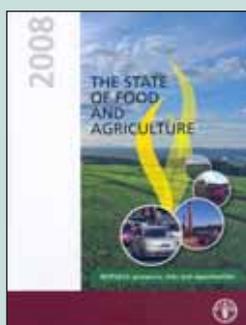


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Do biofuels help mitigate climate change?

The 2008 edition of FAO's annual flagship publication *State of Food and Agriculture* focuses on prospects, risks and opportunities from biofuels. It raises issues of important interest to forestry – notably questioning the usual assumption that replacement of fossil fuels with fuels generated from biomass will necessarily reduce greenhouse gas emissions.

Greenhouse gases are emitted at many stages in the production of bioenergy crops and biofuels (including in production of agricultural inputs, fertilizer application, chemical processing and transport of biofuels). Moreover, they are emitted by land-use changes directly or indirectly triggered by increased biofuel production, for example when carbon stored in forest or grasslands is released during conversion to crop production. While maize produced for ethanol can generate greenhouse gas savings of about 1.8 tonnes of carbon dioxide per hectare per year, the conversion of



forest land to produce these crops can release 600 to 1 000 tonnes per hectare.

One study estimated that the conversion of tropical moist forest, peatland, savannah or grassland to produce ethanol and biodiesel in Brazil, Indonesia, Malaysia or the United States of America releases at least 17 times as much carbon dioxide as those biofuels save annually by replacing fossil fuels.

Another study concluded that in comparison with carbon emissions avoided by growing

sugar cane, maize, wheat, sugar beet and rapeseed for ethanol and biodiesel on existing cropland, more carbon would be sequestered over a 30-year period by converting the cropland to forest.

State of Food and Agriculture 2008 notes that while biofuels are an important option for reducing greenhouse gas emissions, in many cases improving energy efficiency and conservation, increasing carbon sequestration through reforestation or changes in agricultural practices, or using other forms of renewable energy can be more cost-effective.

The complete text of *State of Food and Agriculture 2008* including references to the studies cited here is available online at: www.fao.org/docrep/011/i0100e/i0100e00.htm

The recent FAO publication *Forests and energy: key issues*, reviewed on p. 56 of this issue, provides additional perspectives on the complex relations among biofuels, agriculture, forests and climate change.