Sugarcane

SUGARCANE FIELD & BIOETHANOL PLANT
SÃO PAULO, BRAZIL
CREDIT: KRISTINA J. ANDERSON-TEIXEIRA

Vegetation

Sugarcane (*Saccharum* spp.) is a perennial grass crop cultivated for sugar and bioenergy.

Climate

Sugarcane is grown in relatively warm wet climates (tropical or subtropical).

Distribution

Sugarcane is cultivated across the tropics. It is an important bioenergy (ethanol) source in Brazil.

Climate regulation value

The average greenhouse gas value for ecosystems of this type is 34 metric tons CO_2-equivalents per hectare over a 50 year time frame (t CO_2-eq ha^{-1} 50 yrs^{-1}). This includes 65 t CO_2-eq ha^{-1} 50 yrs^{-1} from storage of organic matter that would result in greenhouse gas release if cleared and -32 t CO_2-eq ha^{-1} 50 yrs^{-1} from ongoing greenhouse gas exchange between the ecosystem and the environment.

When biophysical effects are taken into account, the average climate regulation value for ecosystems of this type is 257 metric tons CO_2-equivalents per hectare (t CO_2-eq ha^{-1} 50 yrs^{-1}). This is a 665% increase relative to the value based on greenhouse gas regulation alone.

Considering an average car, emitting 1.1 lb CO_2 per mile driven, clearing 100 square feet (9.3 m^2) of this ecosystem type would, on average, be equivalent to driving 62 miles/101 km (counting greenhouse gasses only). Counting biophysical effects, clearing the vegetation would be equivalent to driving 478 miles/769 km.