



environment, forestry & fisheries

Department:
Environment, Forestry and Fisheries
REPUBLIC OF SOUTH AFRICA

Box C.15. Emission estimates due biomass burning: controlled burning

Sheet Controlled burning in the MRV tool

Applying tier 1, the biomass loss and gases emissions due to controlled burning post-harvest in 100 ha of *Eucalyptus grandis* under forest management is:

Area disturbed = 100 ha

Biomass in litter and harvest residues (t d.m. ha⁻¹) = 31.4 t d.m. ha⁻¹ (default provided)

C_f = 0.9 (default IPCC 2006)

G_{ef-CO₂} = 1569 g (kg d.m. burnt)⁻¹ (default IPCC 2006)

L_{fire-CO₂} = 100 ha × 31.4 t d.m. ha⁻¹ × 0.9 × 1569 × 10⁻³ = **4434.0 t CO₂**

G_{ef-CH₄} = 4.7 g (kg d.m. burnt)⁻¹ (default IPCC 2006)

L_{fire-CH₄} = 100 ha × 31.4 t d.m. ha⁻¹ × 4.7 × 10⁻³ = **13.3 t CH₄**

G_{ef-N₂O} = 0.26 g/kg d.m. burnt (default IPCC 2006)

L_{fire-N₂O} = 100 ha × 31.4 t d.m. ha⁻¹ × 0.26 × 10⁻³ = **0.7 t N₂O**

L_{fire-CO₂eq} = 4377,51 + 13.3 * 23 + 0.7 * 296 = **4957.0 t CO₂eq**

CO₂, CH₄ and N₂O are first estimated and reported separately. The emissions are then converted to CO₂eq and reported as a summed total.

The estimates must be reported by controlled burning (harvest residues and litter or firebreaks).

Controlled burning – Accounting of emissions from fire, S_{fire}

This source is not accounted. See Chapter B, section 3 (Accounting Rulebook).

C.3.5. Applied Fertiliser, S_{fert}

The application of fertilisers results in human-induced net N additions to soils (e.g. organic fertilisers such as deposited manure, crop residues, sewage sludge and synthetic fertilisers) and consequentially N₂O emissions. Commercial fertilizers may contain a fraction of nitrogen which represents the activity data for estimation (N inputs). Formally termed “direct emissions from the application of fertiliser”, it does not include the emissions generated through the production and supply of the fertiliser, only the N₂O emissions generated where they are applied. Only synthetic N fertilisers are assumed to be used, i.e. methodology to estimate emissions due to the use of organic fertilisers is not included in the MRV tool or this document.