



environment, forestry & fisheries

Department:
Environment, Forestry and Fisheries
REPUBLIC OF SOUTH AFRICA

SOC in previous land use

Change in SOC in non-forest use in t C/ha.
Use of **Sheet Supporting Calculations** is possible if value is not known.

As a minimum, climate zone and soil type needs to be known for the use of **Sheet Supporting Calculations in the MRV Tool**. Default values of SOC for forest, cropland and grassland are sourced from South Africa NIR 2017. These values are included in the **Sheet Parameters in the MRV tool** and can found in Appendix C.1.D.

Box C.10. Annual change in Carbon stocks in SOC due to land use conversion: Afforestation

Sheet Land Gain-Loss Method in the MRV tool; column ΔC SOC

Sheet Supporting calculations

The default method applied in the MRV tool uses a steady state stock of C in SOC by ha at 20 years. Carbon stock in SOC in non-forest land uses is assumed to be in equilibrium before the first afforestation.

The stock change for 10 ha of afforested areas of *Pinus patula* converted from annual crop in climatic zone warm temperate – moist and sandy soils, for the first 20 years is:

C in SOC in forest after 20 years: 34 t C ha⁻¹ (SA NIR 2017)

C in SOC in annual cropland: 22.59 t C ha⁻¹ (SA NIR 2017)

Then, $\Delta C_{SOC} = (34 \text{ t C ha}^{-1} - 22.59 \text{ t C ha}^{-1}) / 20 \text{ years} \times 10 \text{ ha} = 5.7 \text{ t C yr}^{-1}$