



## **Long term yields and soil carbon sequestration from Miscanthus**

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Perennial rhizomatous grasses such as *Miscanthus* have been assumed to give sustainable biomass yields over many years but there have been few productivity trials that have tested this assumption. In addition it has been suggested that soil carbon sequestration increases linearly over time. We review field trials of *Miscanthus*, established on former grassland and tilled land, that have been harvested annually for up to twenty years and in which changes in soil organic matter content have been measured. Yields of *Miscanthus* follow an establishment phase, a ceiling phase and then a phase of decline. The lengths of these phases are strongly influenced by climate, soils and management but it is likely that *Miscanthus* plantations can produce commercially acceptable yield beyond 20 years. Net soil carbon sequestration depends on previous land use and is strongly influenced by the soil carbon stocks at the time of planting. Under *Miscanthus* a large fraction of the accumulated carbon is labile and would be rapidly lost if *Miscanthus* plantations were reconverted to cropland. Currently it is not possible to derive a reliable default sequestration rate for land use change from cropland to *Miscanthus* energy crop.