



Nitrous oxide emissions from rapeseed cultivation in Germany

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About 12 % of Germany's agricultural area is used for rapeseed cultivation and two third of the harvest is converted to biodiesel. Due to requirements of the EU Renewables Directive the greenhouse gas (GHG) balance of rapeseed cultivation must be reported and sustainability criteria and GHG savings compared to fossil fuel must be achieved and certified.

Current certified methodology estimates N₂O field emissions from rapeseed cultivation using the IPCC Tier 1 approach based on a global emission factor (N₂O emission per unit nitrogen fertilizer input) of 1 %, which is not specific for the crop. We present results from three years of measurements (2013 – 2015) on five field trials in Germany, which combined with data from a meta-analysis suggest that GHG emission factors of German rapeseed cultivation are lower than thought previously. Furthermore, results suggest that substitution of mineral fertilizers with organic fertilizers is a valid mitigation option since it avoids GHG emissions during production of mineral fertilizers.