



Agricultural Journals

Research in

**AGRICULTURAL
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Res. Agr. Eng.

**Hellebrand H.J.,
Scholz V., Kern J.:
Nitrogen conversion
and nitrous oxide hot**

spots in energy crop cultivation

Res. Agr. Eng., 54 (2008): 58-67

Since 1999, nitrous oxide (N_2O) soil emissions from sites cultivated with energy plants have been measured by gas chromatography and gas flux chambers in experimental fields. The main aim of this study was the nitrogen conversion factor and its variability for sandy soils under climatic conditions of Central Europe. Annual plants (hemp, rape, rye, sorghum, triticale) and perennial plants (grass, perennial rye, poplar, willow) were fertilised with three different levels of nitrogen (150 kg N/ha/year, 75 kg N/ha/year, and none). The annual nitrogen conversion factors were derived from the annual mean differences between the fertilised sites and non-fertilised control sites. The mean nitrogen conversion factor for the non-cultivated soils was lower (perennial crops: 0.4%) than that for the regularly cultivated soils (annual crops: 0.9%). Few times, enhanced N_2O emission spots wit

maxima above $1000 \mu_2\text{O/m}^2/\text{m}$, lasting for
several weeks, were observed in the