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## **N<sub>2</sub>O-EMISSIONS RESULTING FROM N-FERTILISER APPLICATION IN SUGAR BEET CULTIVATION**

**Émissions N<sub>2</sub>O après fertilisation azotée dans la culture de betteraves  
sucrières / N<sub>2</sub>O-Emissionen nach N-Düngung im Zuckerrübenanbau**

### **ABSTRACT**

The application of N fertiliser in agriculture is an important source of the greenhouse gas nitrous oxide (N<sub>2</sub>O). For direct field N<sub>2</sub>O emissions an emission factor of 1% of the applied N has been set by the IPCC, 2006, while the overall default value for indirect N<sub>2</sub>O emissions -caused by volatilisation, re-deposition, leaching and runoff- is 1.75%. Beside the quantity, the form of the N fertiliser may affect the amount of emissions. For synthetic fertilisers the way of production and use may be deciding, while to reduce losses of ammonia from organic fertilisers, time, technique and promptness of incorporation may be important. But even without any fertilising there are emissions out of crop residues, which amount to about 50% of the total CO<sub>2eq</sub> emissions caused by sugar beet production.

With the help of a calculation model following the actual default values (Biograce, 2013) theoretical differences in the amount of emissions have been charged according to the amount of the applied N and the applied form of N fertiliser. Data from actual practice -collected via a survey among sugar beet growers in Germany- have been used. Farmers using only organic fertiliser produced less than 44% of emissions compared to farmers using both, mineral and organic fertiliser, and less than 29% compared to farmers applying mineral fertiliser exclusively.

To reduce the environmental impact of sugar beet cultivation without affecting the economic aspects poses one of the actual challenges in commercial farms.

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