



Carbon balance of a Belgian crop

C. Moureaux (1), A. Debacq (1), A. Vilret (1), M. Suleau (1), V. Dehaes (1), B. Bodson (2), M. Culot (3) and M. Aubinet (1)

(1) Unité de Physique des Biosystèmes, Faculté universitaire des Sciences agronomiques de Gembloux, Belgium, (2) Unité de Phytotechnie tempérée, Faculté universitaire des Sciences agronomiques de Gembloux, Belgium, (3) Laboratoire d'écologie microbienne et d'écologie des eaux, Faculté universitaire des Sciences agronomiques de Gembloux, Belgium
(moureaux.c@fsagx.ac.be / Fax: +32 81 62 24 39 / Phone: +32 81 62 24 92)

The CO₂ fluxes exchanged by a crop situated at the CarboEurope-IP site of Lonzée (Belgium) have been measured for two years at different spatial and temporal scales in order to establish the crop carbon balance. The different terms of the carbon balance analysed and compared are:

The Net Ecosystem Exchange (NEE), the Gross Primary Production (GPP) and the Total Ecosystem Respiration (TER) at the whole crop scale, measured by or inferred from eddy covariance measurements.

The GPP extrapolated at the field scale from the leaf net assimilation measurements using portable photosynthesis measurement system.

The Total Soil Respiration (TSR) extrapolated from soil chamber measurements.

The Net Primary Productivity (NPP) extrapolated from crop sampling.

The way each term was inferred or extrapolated is discussed in each case and an uncertainty analysis of each term is proposed. A comparison between the two measurement years is made. Suggestions are made in order to reduce the uncertainty in future measurements.