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The impact of subclinical ketosis in dairy cows on greenhouse gas emissions of milk production

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1 **The impact of subclinical ketosis in dairy cows on greenhouse gas emissions of milk**  
 2 **production**

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8 <sup>1</sup>

9 **Abstract**

10 The dairy sector is an important contributor to greenhouse gas (GHG) emissions. Subclinical  
 11 ketosis (SCK), a metabolic disorder in dairy cows, increases the risk of other diseases. SCK  
 12 can increase GHG emissions per kg of milk produced by reducing production efficiency of  
 13 dairy herds. With an expected increase in milk consumption, and potential new policies to  
 14 reduce GHG emissions from agriculture, producing efficiently and reducing GHG emissions  
 15 becomes increasingly important. The objective of this study was to estimate the impact of  
 16 SCK and related diseases (i.e. mastitis, metritis, displaced abomasum, lameness, and clinical  
 17 ketosis) on GHG emissions of milk production. To this end, a dynamic stochastic simulation  
 18 model was developed and combined with life cycle assessment (LCA). This model simulates

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CI	Calving interval
CO <sub>2</sub> -e	Carbon dioxide equivalents
DA	Displaced abomasum
DM	Dry matter
FPCM	Fat-and-protein-corrected milk
GHG	Greenhouse gas
LCA	Life cycle assessment
LU	Land use
Luc	Land use change
LULuc	Land use and land use change
NEB	Negative energy balance
P	Probability
RR	Risk ratio
SCK	Subclinical ketosis

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