

19) Name: allocation to grid cell based on MAMBO model (NH₃)

Description

Next to manure storage and animal housing systems, grazing and the application of manure and fertilizer are the most important sources of NH₃ emissions from agriculture. The NEMA model calculates the national emissions, MAMBO the spatial distribution.

To do this, the model uses the following :

- Data from GIAB (geographic farm information system). This system contains the location of every farm in the Netherlands, linked to data on livestock numbers and animal housing type
- Data from LGN7 (national land cover and –use information system)
- The mineral excretion per category of livestock, the ammonia volatilisation percentages of various animal housing types, manure application techniques and statutory fertilization norms (data from Agricultural Economics Institute, LEI)

Based on the above mentioned, MAMBO calculates a spatial distribution on a 500*500 meter level. To account for data- and model uncertainties, the emission data as presented by the Netherlands Pollutant Release and Transfer Register are aggregated to 1x1 km.



*Example map 19: MAMBO 500*500m result: NH₃ from manure application, brown colors represent higher emissions*

Institutes involved

LEI
Alterra

Currency of data

2013

Background documents

Bruggen, C. van, A. Bannink, C.M. Groenestein, B.J. de Haan, J.F.M. Huijsmans, H.H. Luesink, S.M. van der Sluis, G.L. Velthof & J.Vonk (2014)

Emissions into the atmosphere from agricultural activities in 2012. Calculations for ammonia, nitric oxide, nitrous oxide, methane and fine particulate matter using the NEMA model. Wageningen, The Statutory Research Task Unit for Nature and the Environment (WOT Natuur & Milieu). WOt technical report 3.

Kruseman, G. et al. (2012)

MAMBO 2.x, Design principle, model structure and data use
Werkdocument 307
Alterra, Wageningen

GIAB (in Dutch)

Os, J. van; Gies, T.J.A.; Naeff, H.S.D.; Jeurissen, L.J.J. (2011)

Emissieregistratie van landbouwbedrijven : verbeteringen met behulp van het Geografisch Informatiesysteem Agrarische Bedrijven

LGN7

<http://www.wageningenur.nl/en/Expertise-Services/Research-Institutes/alterra/Facilities-Products/Land-use-database-of-the-Netherlands/Different-Versions-of-Databases/LGN7.htm>