

On-line decision support tool for ammonia emission from field-applied slurry

N.J. Hutchings, Iver Thysen

University of Aarhus, Denmark

Sven Sommer

University of Southern Denmark



UNIVERSITY OF AARHUS

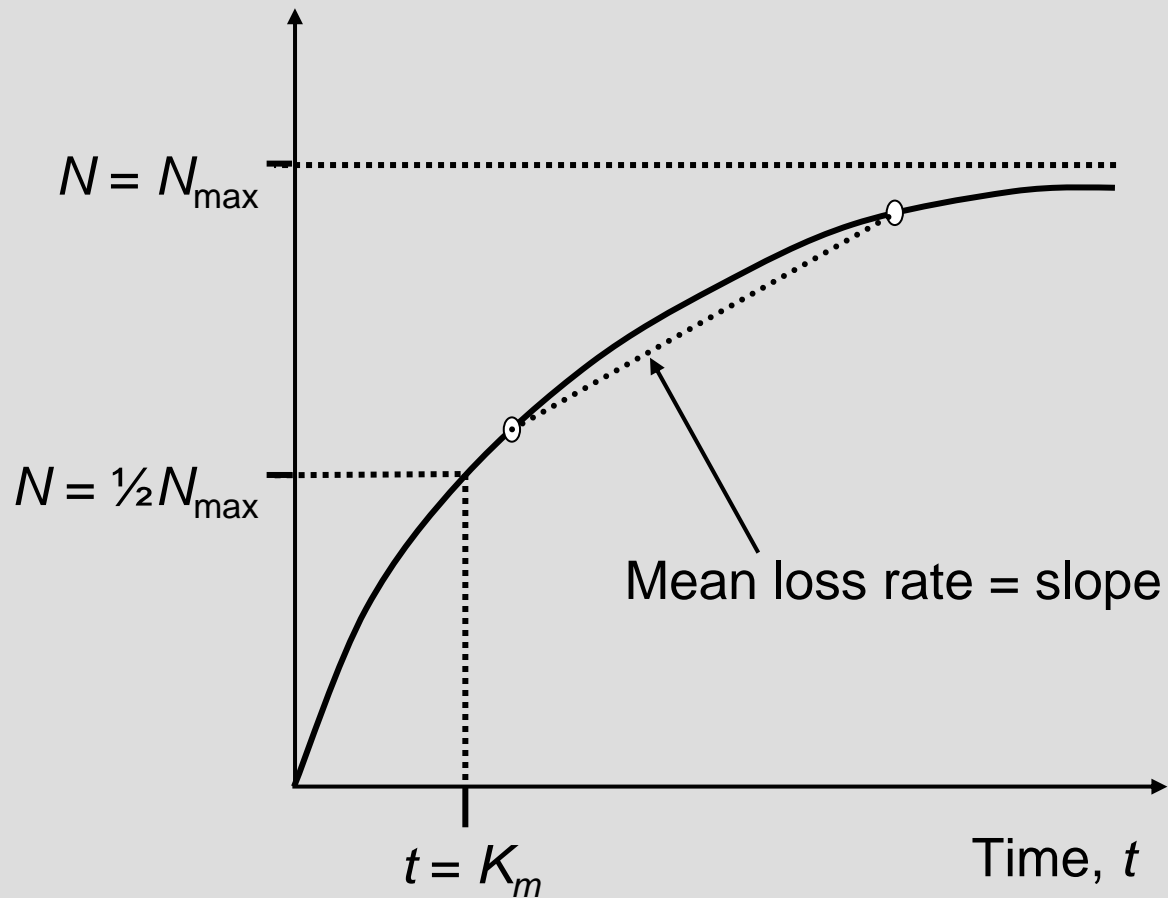
Dept of Agroecology

ALFAM model

- **Statistical model, based on measured NH_3 emissions from range of European countries**
- **Based on Michelis-Menten equation**

Michelis-Menten

Cumulative volatilization, N



ALFAM model



- **Statistical model, based on measured NH₃ emissions from range of European countries**
- **Based on Michelis-Menten equation**
- **N_{max} and k_m dependent on slurry characteristics + weather.**
- **Atmospheric Environment 36 (2002) 3309–3319**
- **Europ. J. Agronomy 26 (2007) 425–434**

Implementation

- **PlantInfo**
 - On-line advisory service for Danish farmers
- **Application details entered by farmer**
 - Manure type, composition and amount
 - Application method
 - Incorporation time
- **Current + predicted weather obtained from Danish meteorological service**

Ammoniakfordampning ved udbringning af gylle

2 døgns prognose

7 døgns prognose

2008

April

Valgt

Fouringsætninger

Gylletype

Kvæggylle

Tørstofindhold (%)

5

NH₃ indhold (g N/kg)

3

Gylle pr. ha (tons/ha)

30

Udbringningsmetode

Slæbeslange

Nedpløjning,
timer efter
udbringning

6

Gylle pr. time
(tons/time)

100

Ha i alt

10

Start timer efter
kl. 24

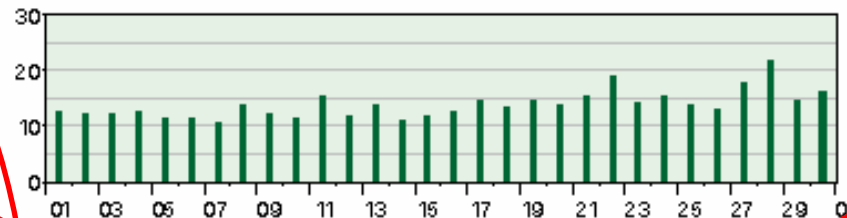
8

Tør / våd jord

Beregnes fra
vejrdata.

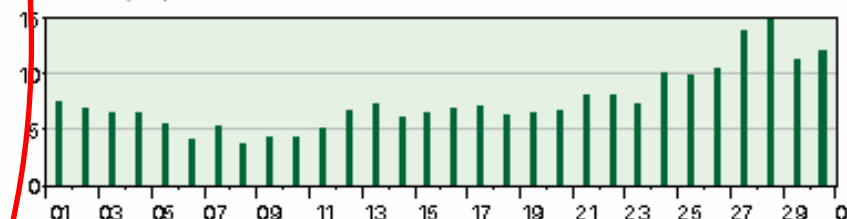
Vis

Ammoniakfordampning, kg N pr. ha

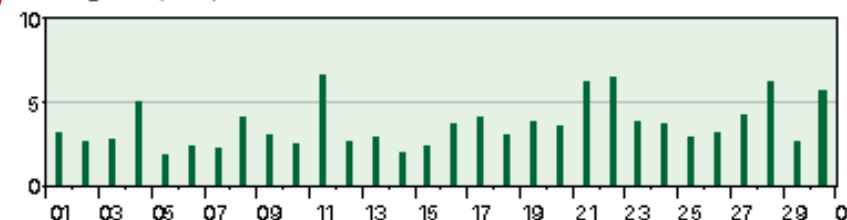


Søjlene viser for hver dag hvor meget ammoniak der fordamper, hvis gødningen er udbragt netop den dag.

Temperatur (°C)



Vindhastighed (m/s)



Conclusion

- **Educational**
 - Advisors like it
- **Does it change farmers' choice of application date?**
 - No independent evidence

Slurry season



Nitrates legislation

Slurry

Crop development

S O N D J F M A M J J A

Conclusion

- **Educational**
 - Advisors like it
- **Does it change farmers' choice of application date?**
 - No independent evidence
- **Farmers have limited choice about timing**