

B. Notter

Ongoing activities for NRMM emission inventories

ERMES Meeting, Thessaloniki, May 14, 2019



Agenda

1. Tractor fuel consumption/load factor project
2. Other activities

Tractor fuel consumption/load factor project

- Agricultural tractors are most relevant machine category in the NRMM emission inventories of many countries
- Yet the load factors applied in different emission inventories vary widely (in the range of 0.3 – 0.8) – and most load factor values are not based on data but on literature from somewhere else
- The project aims at producing a better empirical basis for fuel consumption and load factors for agricultural tractors in Switzerland
- Basic idea:
 - Farmers who own John Deere tractors give INFRAS access to their personal JDLink online platform, where data on fuel consumption and load factors of their tractors are available
 - In addition, they note down how much fuel they effectively put in their tanks
 - In return, FOEN pays their JDLink license for one year

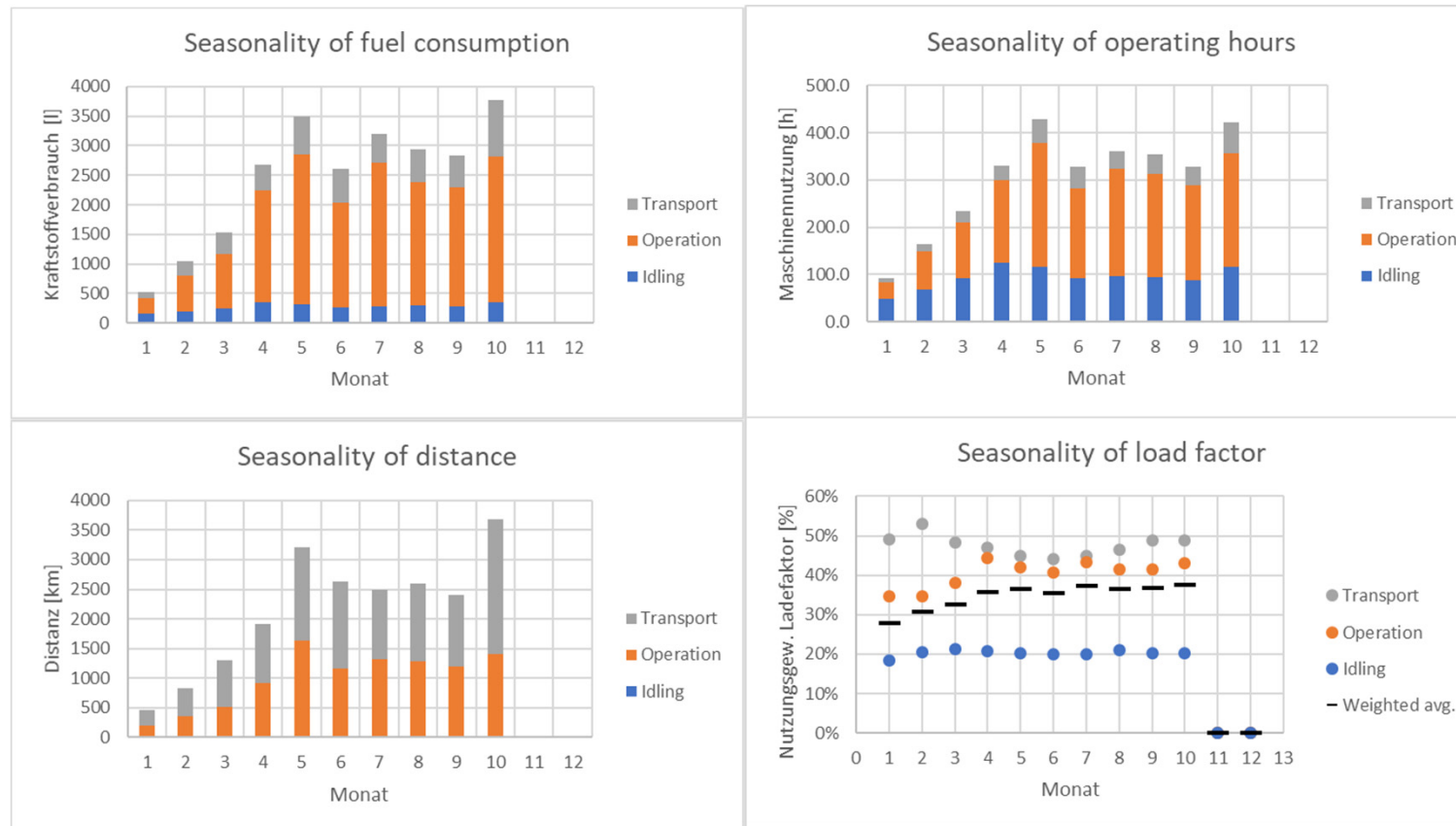
Data from John Deere online platform

6 participating agricultural tractors :

- Power: 77 - 110kW
 - Models: John Deere 6105r, 6125r, 6130r und 6150r
 - Segment: Traktoren LW_D_75–130 kW
 - Empty weight: 5.4 - 6.2t
 - Max. weight: 8.5 - 11.3t
 - Euro standard: IIIb
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- Time period: January 2018 – January 2019
 - Parameters available: Fuel consumption [l], operating hours [h], load factor [%], speed [km/h], distance covered [km]
 - Differentiated by operating modes: idling, transport (> 15km/h), operation

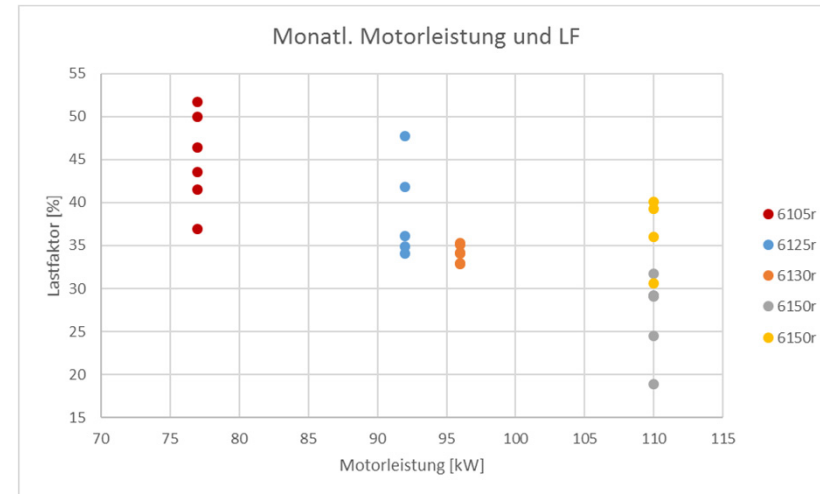


Seasonality of parameters



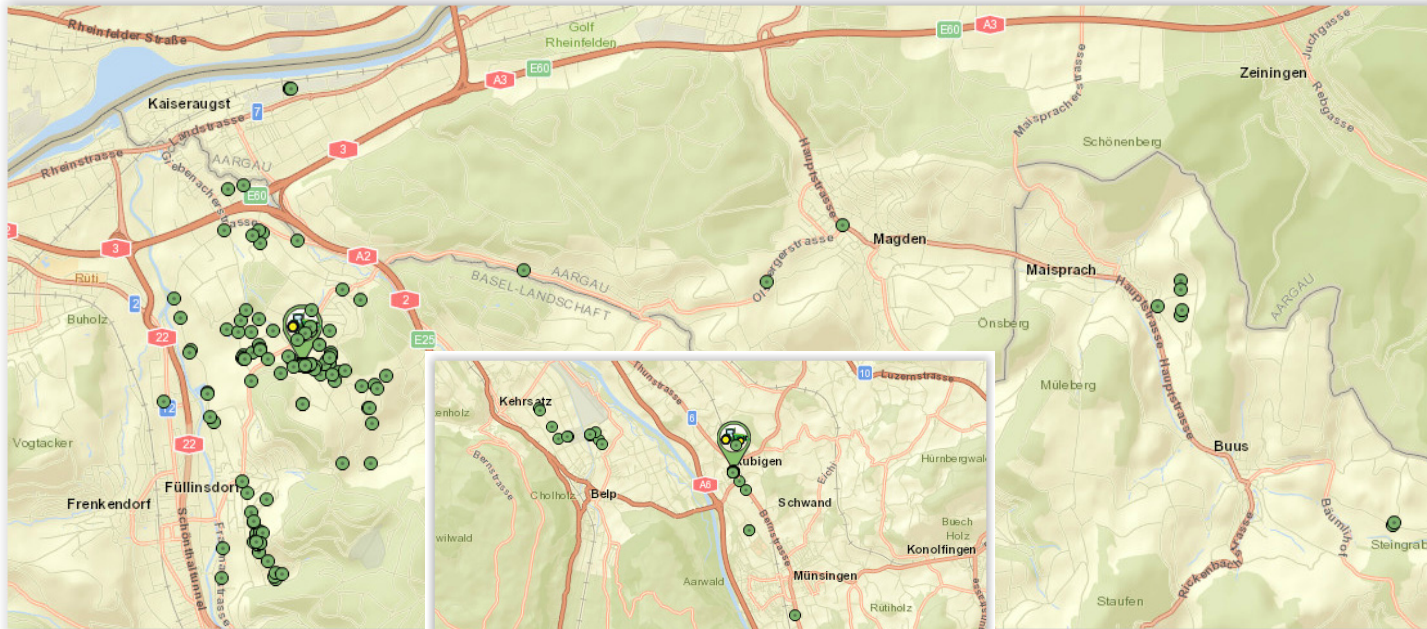
Main findings so far

- Large share of road transport (overall 20%)
- Operating hours
 - Largest share in operation
 - Seasonality
- Engine load
 - Transport (ca. 50%)
 - Operation (ca. 40%)
 - Idling (ca. 20%)
- Large variability between farms
- Correlation LF with engine power
 - More powerful engine > lower load factor

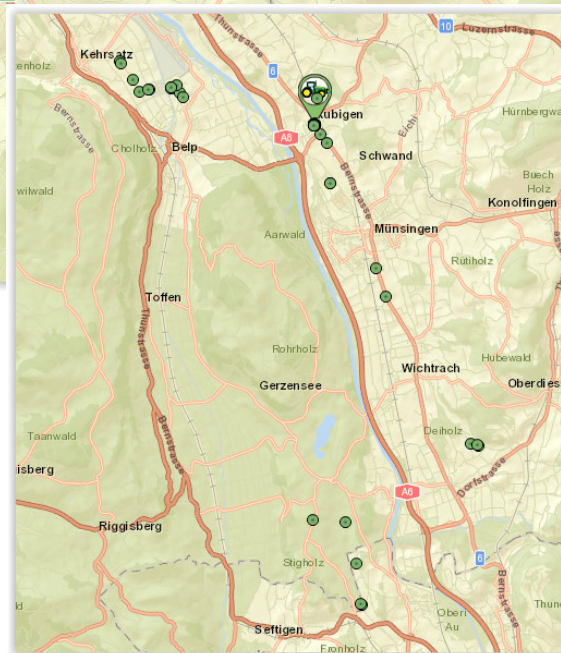


Spatial analyses

Kapp6130r in June 2018, large transport distance



Wyssbrod in June 2018, short transport distance



➤ 2 Do: Analyse correlation of load factor and slope

Other activities

- Follow-up of ERMES NRMM Working Group meeting has been postponed due to lacking capacity (HBEFA development)
- Proposal submitted with University of Zagreb for Croatian-Swiss Research Project (Swiss National Fund) was unfortunately rejected
→ could have funded emission measurements

Thank you for your attention!

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