

**Scientific case study for improvement
of a 15,000t
Biowaste composting plant,
to reduce odour and GHG emissions**

Aurel Lübke
Bernhard Gamerith

Task of study

Does frequent turning secure aerobic conditions in a windrow?

height	width	aerobic cond.
1,5 m	3 m	YES
2,5 m	5-6 m	???



“Comparison of aerated & non-aerated windrows”



Trial Comparison

- ▶ 2 windrows, cross-section approx. 6-7 m²
- ▶ aerated vs. non-aerated
- ▶ weekly turning
- ▶ trial duration: 4 weeks
- ▶ measurement at 5 points/windrow:
 - gas composition (CH₄, CO₂, O₂)
 - odour concentration
 - temperature

Odour measurement

Sampling device for the capture of odour emissions



Odour analysis



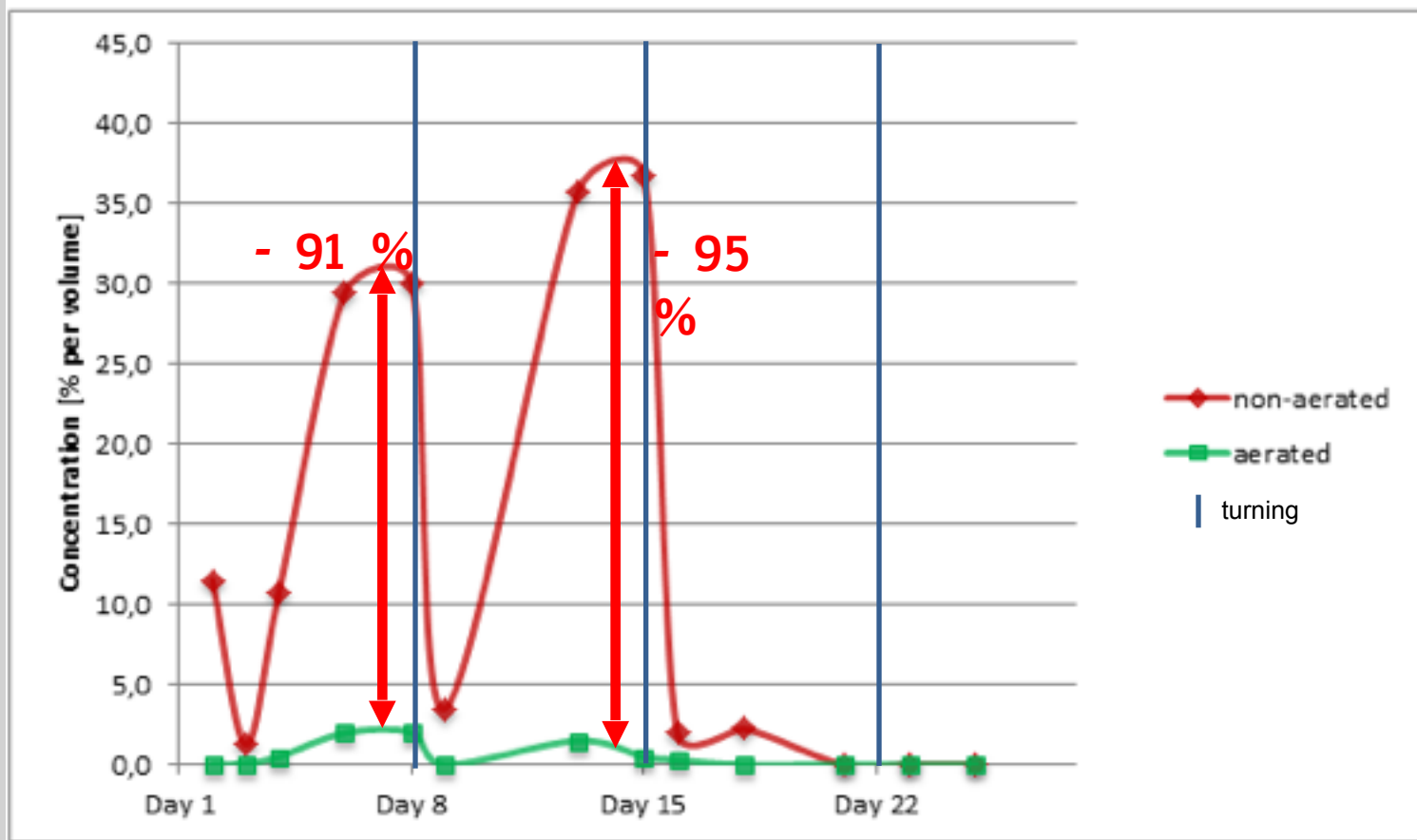
Olfactometer

4 test probants

Odour concentration is determined

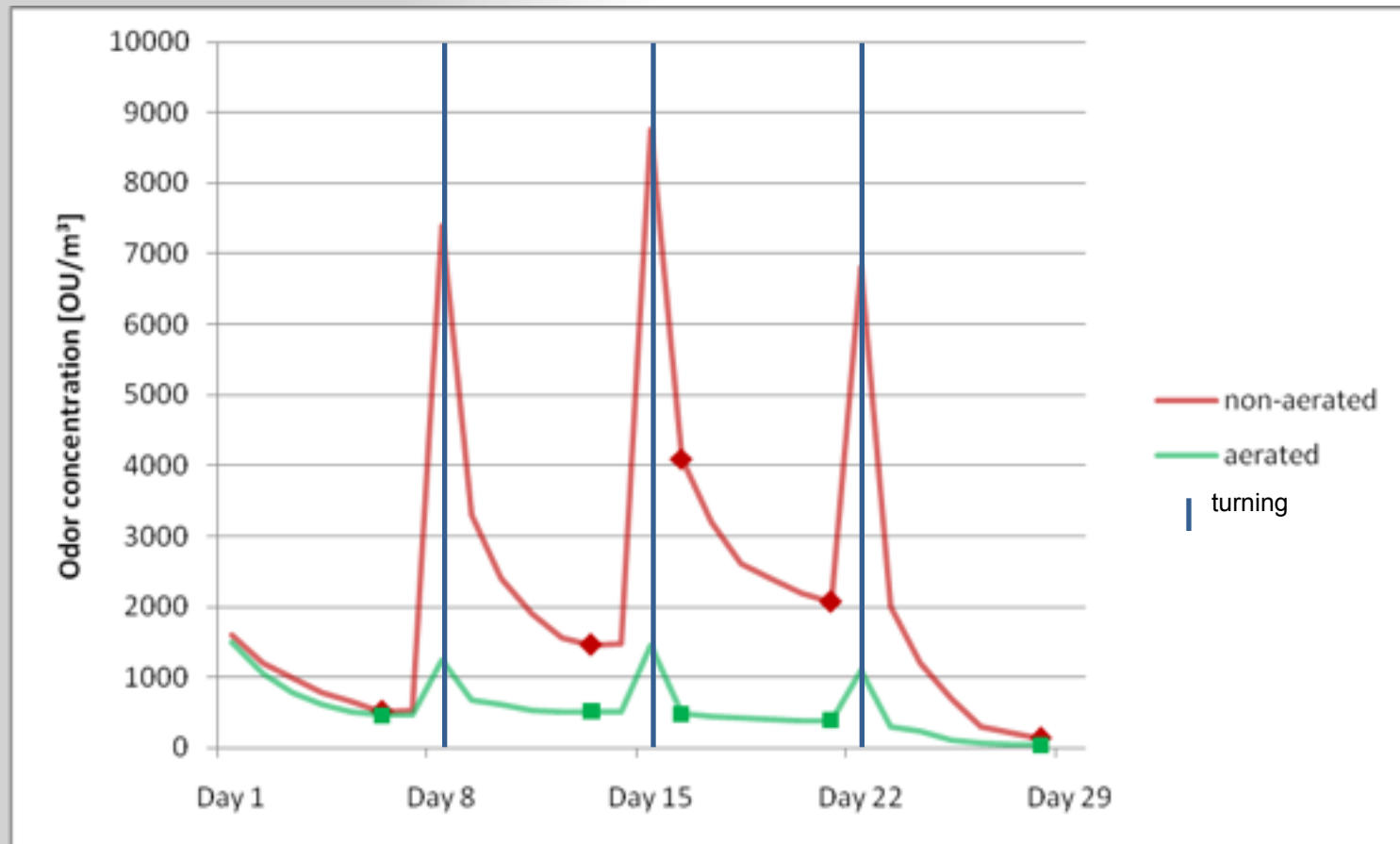
Results

Methane Concentration %Vol



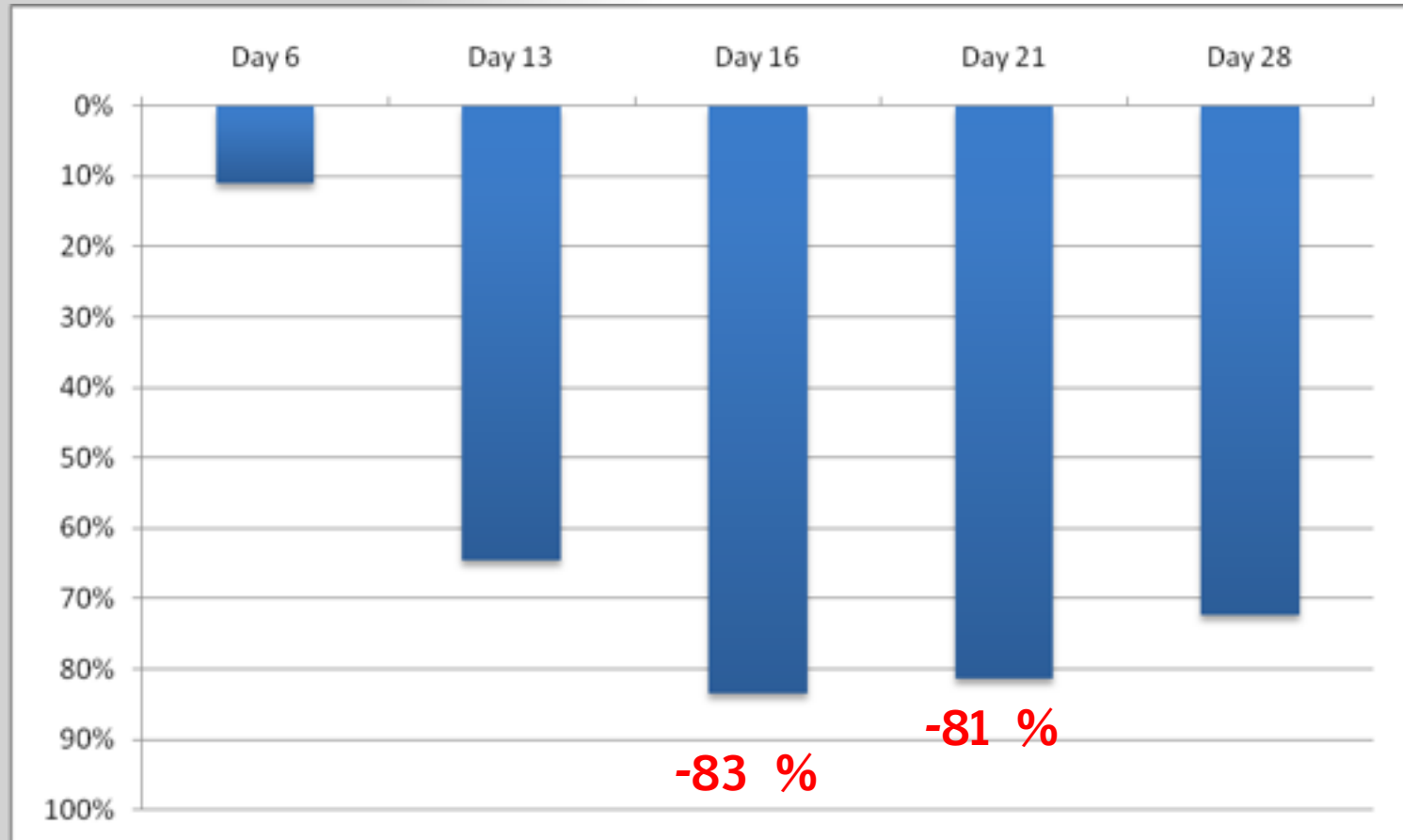
Results

Odour Concentration OU/m³



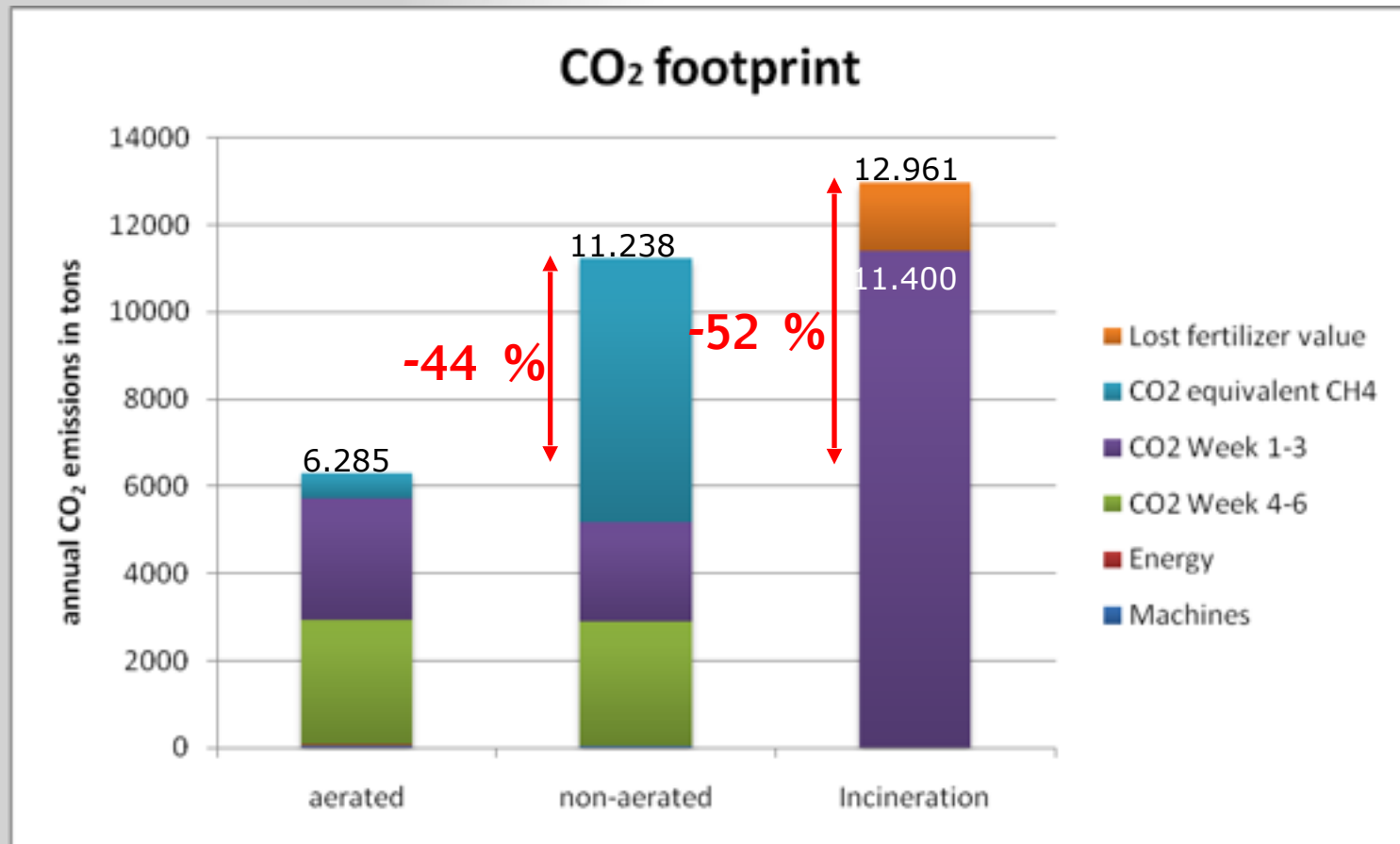
Results

Odour reduction



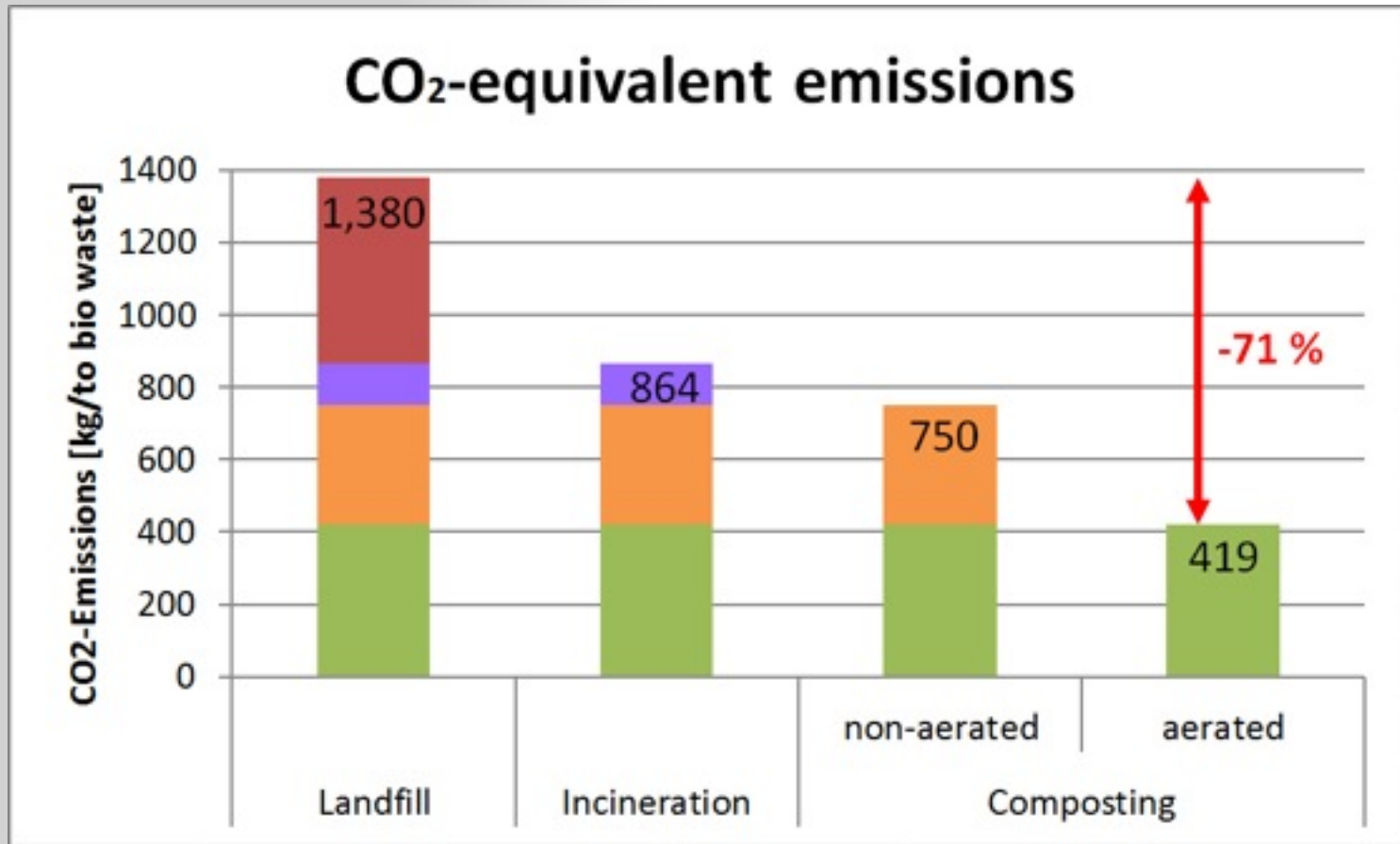
Results

CO₂ Footprint of a 15.000t/year capacity
Biowaste composting plant



Results

CO₂ Footprint/t of Biowaste



Results

CO₂ savings for a 15.000t/y Biowaste composting plant aerated=4.953t/y



Compared to BMW X3
eq. 28.8 million km
or 17,9 million miles

= 720 circumnavigations



Compared to Boeing 747
eq. 138,229 km
or 85,882 miles

Summary

- Controlled aerobic conditions
- Accelerated / improved biological process
- Lower odour emissions (up to 83%)
- Approx. -45 % "CO₂ emissions"

Compost
SYSTEMS



Thank you for your attention!

www.compost-systems.com