

# Foreign substances in recycled fertilizer

A fast and cost-efficient method for rapid monitoring of foreign substances in biogenic waste and organic recycled fertilizer based on hyperspectral imaging and artificial intelligence



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# Facts in 2022

**+ 1.4 million tonnes**

**+ 370**

**+ 1.6 million tonnes**

**400 GWh**

Biogenic waste recycled

Composting and biogas plants

Recycled fertiliser produced

Biogas produced

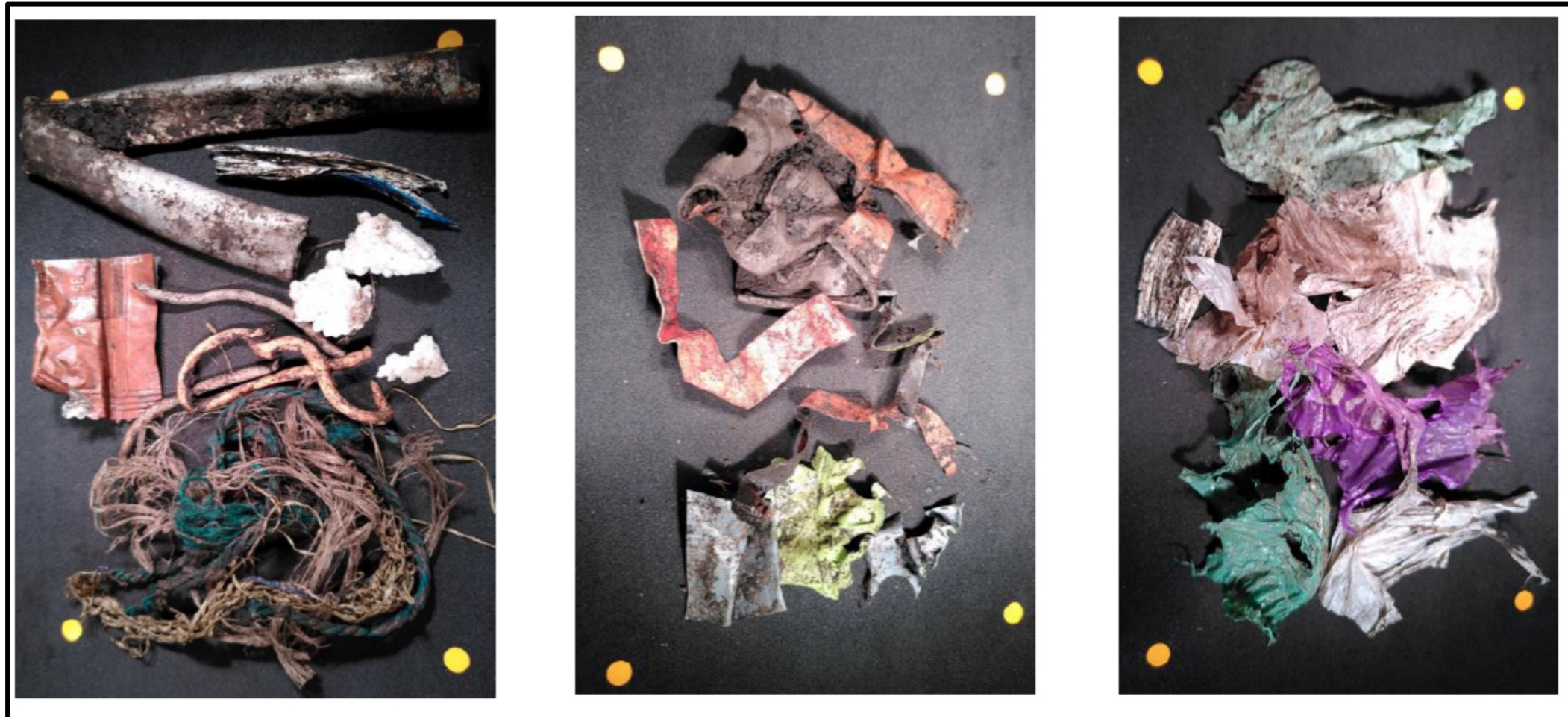
# Foreign substances in organic fertiliser



- ~5,000 tonnes of foreign matter sorted out per year
- 300 tonnes of foreign matter remain in the organic fertiliser and end up in the agricultural soil



# Foreign matter sorted out



# "Exotic" foreign substances (2020 - 2022)





# Foreign matter relevant to the practice ( $<2$ mm)



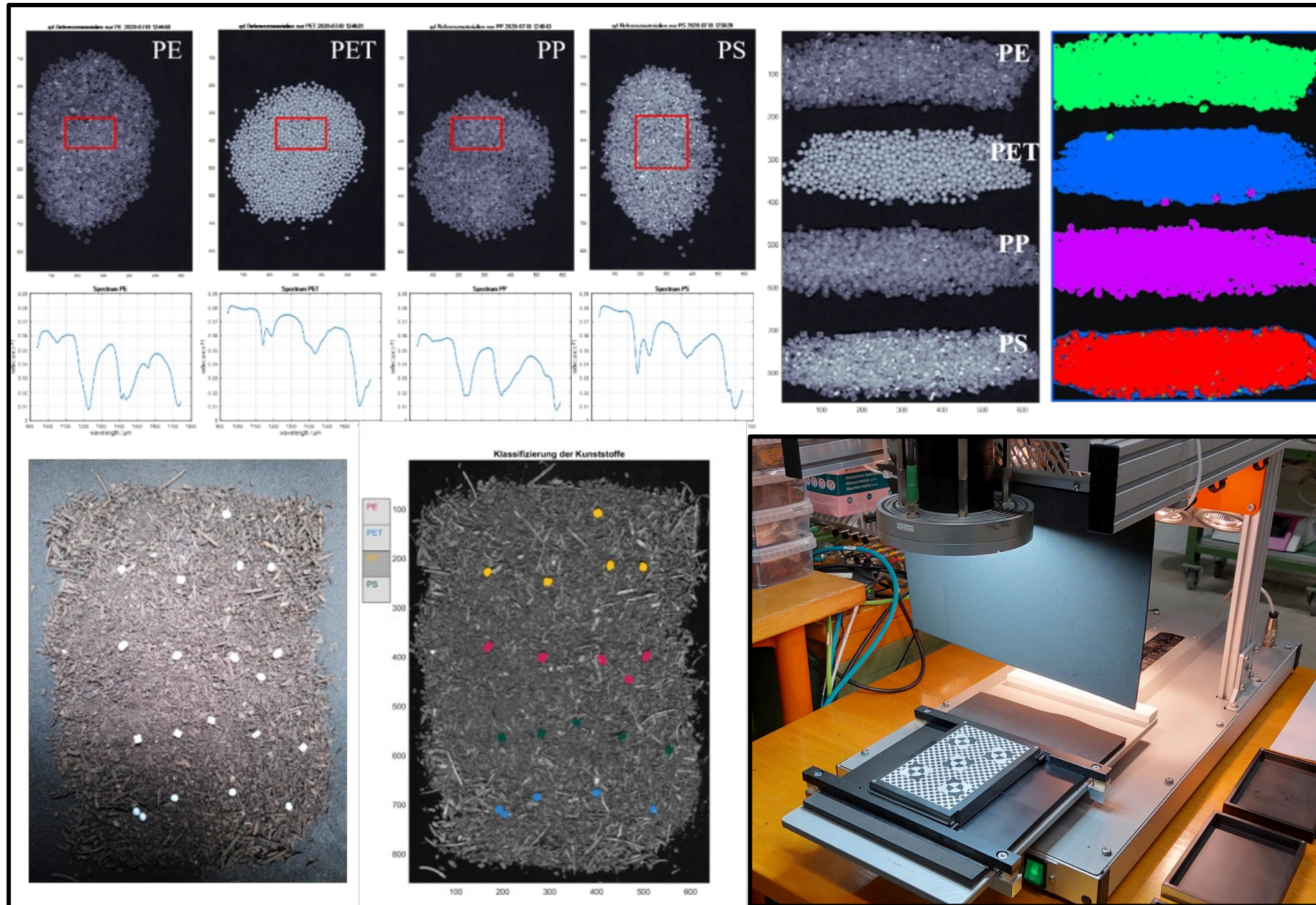
# Current measuring method

(max. 0.4 % foreign matter allowed)



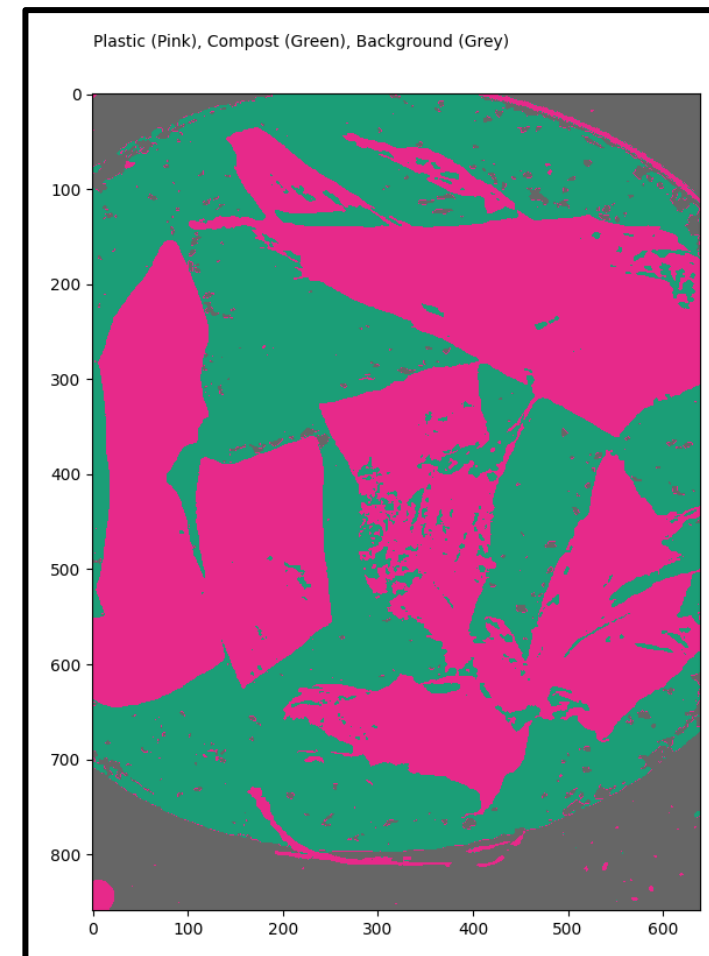
- Drying of the organic fertiliser (105 °C)
- Selection and determination of foreign matter by hand
- Method very expensive → Samples are therefore often analysed abroad







# Results in the practice



# Scheduled applications

- **Quality control on organic fertilizer:** mobile and laboratory-based inspections of foreign substances for testing the legal requirements (from 2024)
- **Quality control of organic waste:** Automatic detection of foreign substances in organic waste during loading into the waste vehicle (already in progress).



# Thank you for your kind attention !



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