

Tackling impurities in bio-waste via consumer communication and app based waste bin controls



Journée d'étude LIFE BIOBEST – Lyon, March 13 2024



1. **presentation of our municipal company EGW**
2. **bio-waste balance in the district of Borken and challenges due to impurities**
3. **interdependencies with residual waste**
4. **consumer communication & app based waste bin controls to minimize misthrows into the bio-waste**
5. **summary: learnings from our strategy to improve bio-waste quality**

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The Entsorgungsgesellschaft Westmünsterland mbH (EGW)

is a 100 % municipal company of the district of Borken which is responsible for the recycling and disposal of waste since 1994.

The district of Borken has **379.000 citizens** in 17 municipalities.



RECYCLING- AND BIOENERGY CENTER GESCHER/VELEN



**soil manufacturing
(under lease)
free of peat since 2022**

partial wet anaerobic digestion

**electricity:
95 % self-power supply
100 % green energy**

green waste composting

**2 composting plants
105.000 Mg bio-waste**

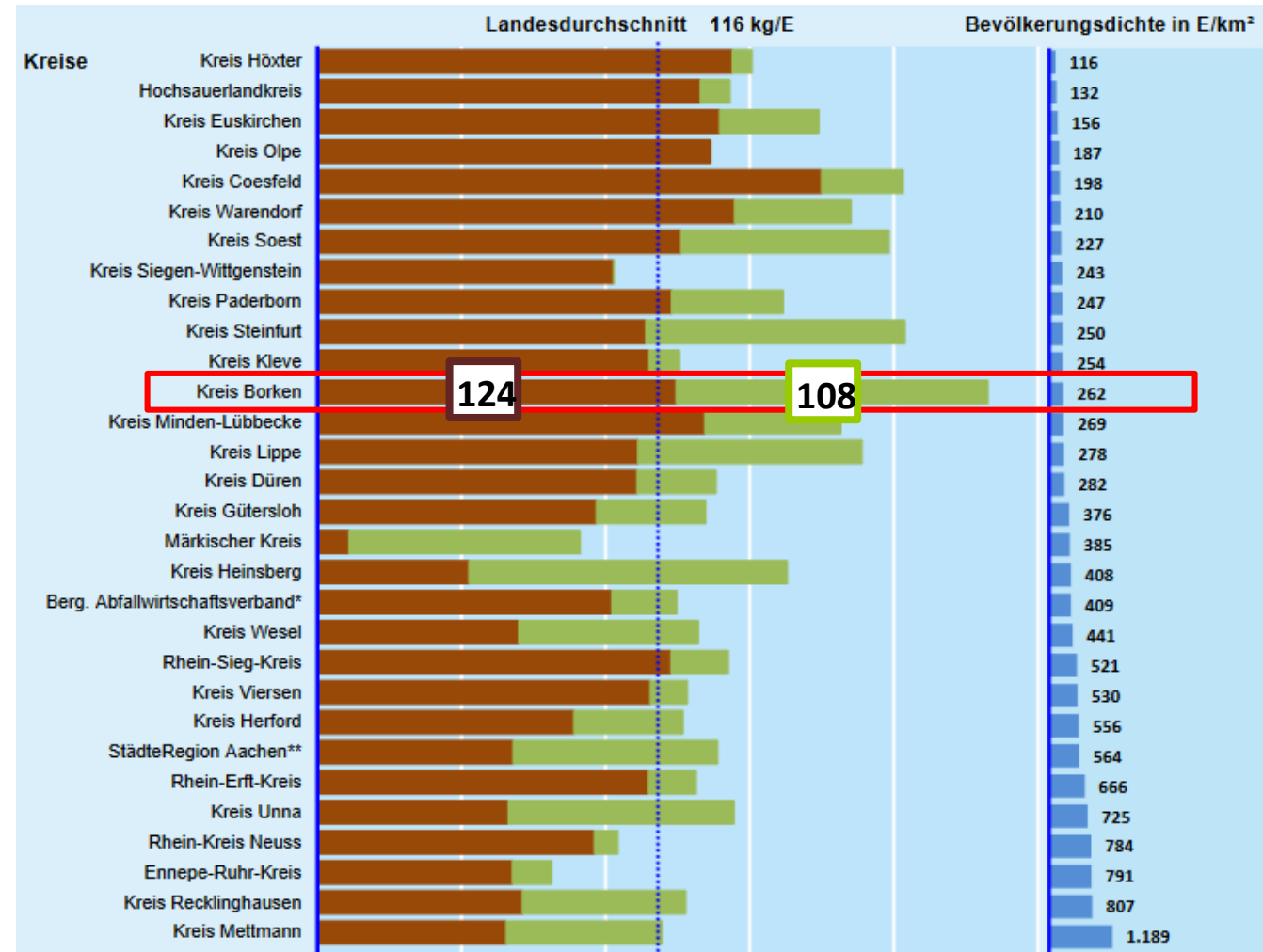
- District of Borken (44.000 Mg)
- District of Recklinghausen (42.000 Mg)
- City of Dortmund (19.000 Mg)

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BIO-WASTE BALANCE IN THE DISTRICT OF BORKEN COMPARED TO OTHER REGIONS IN NORTH RHINE-WESTPHALIA (NRW)



- 232 kg bio-waste and green waste per capita compared to an average of 116 kg per capita in NRW
- more than 90 % of households have a bio-waste bin (for bio-waste and green-waste)
- green-waste „flatrate“: free of charge at local recycling centre in every municipality
- residual waste: 124 kg vs. 141 kg in NRW
- conclusion: quantity (+), potential in terms of quality



source: Abfallbilanz Nordrhein-Westfalen für Siedlungsabfälle 2020, Landesamt für Natur, Umwelt und Verbraucherschutz, Fachbericht 141

IMPRESSIONS OUT OF POORLY SORTED BIOWASTE BINS

the average amount of impurities in bio-waste bins among all municipalities was 5,12 % in 2023 (prior to controls)



CONSEQUENCES OF IMPURITIES FOR BIO-WASTE TREATMENT AND LEGAL REGULATION

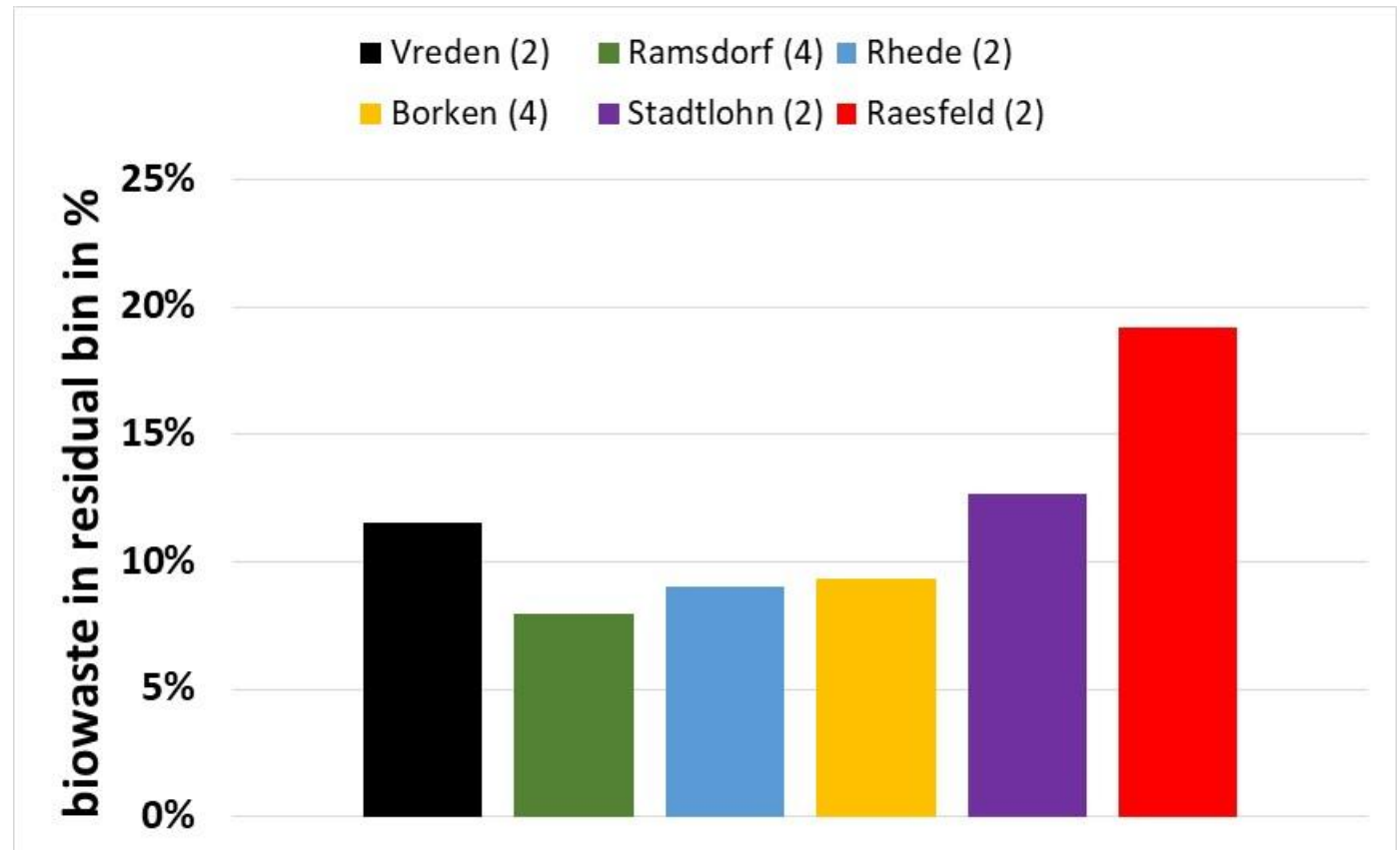
- especially plastic means a big danger for compost product quality
- expensive systems technology needed to remove impurities (negative effect on waste fees)
- new bio-waste ordinance prescribes plastic content $< 1\%$ for input into biological treatment from May 2025 on
- processing technology needs impurity content $< 3\%$ pre-treatment to ensure $< 1\%$ plastic content before biological treatment
- waste streams with minor quality (impurity content $> 3\%$) can be refused in the future which might lead to loss of quantities



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ORGANIC WASTE IN THE RESIDUAL WASTE BIN

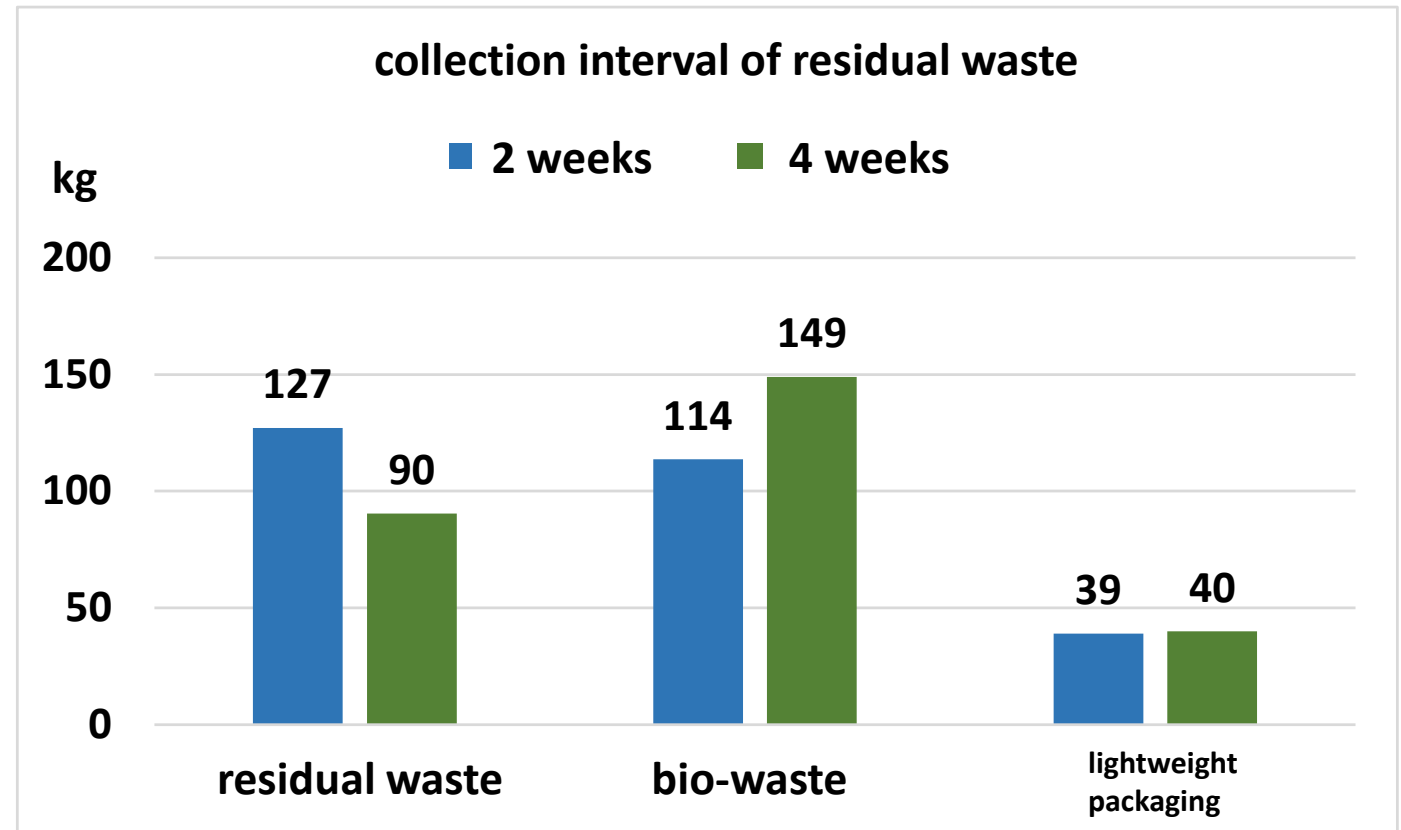
- the proportion of bio-waste in residual waste varied between 8 and 19 % in recent analyses for 6 municipalities
- this corresponds to 5 to 13 kg per capita per year
- the proportion was highest in municipalities with a 2-week collection interval



INFLUENCE OF THE COLLECTION INTERVAL OF RESIDUAL WASTE BINS ON THE AMOUNT OF ORGANIC WASTE



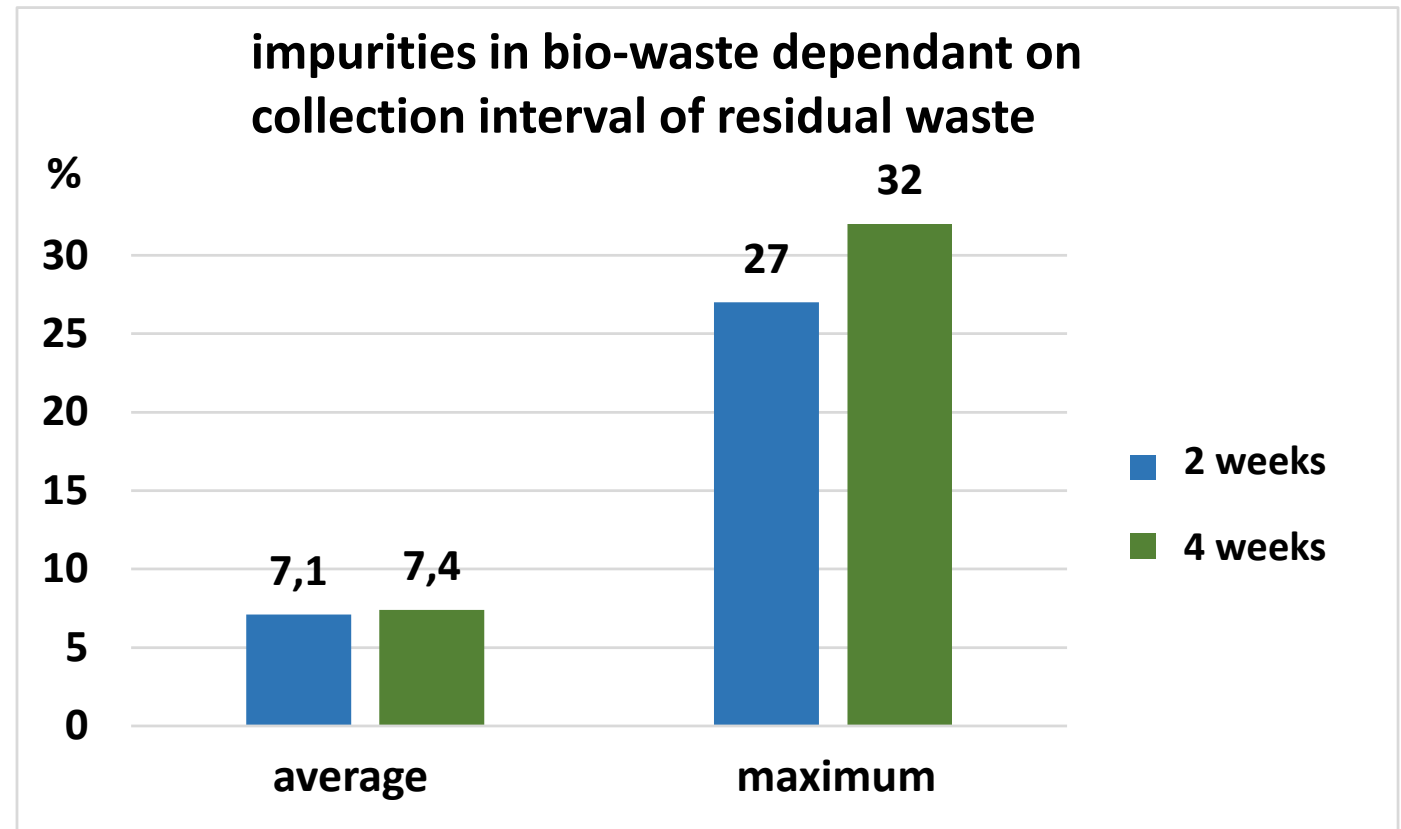
- collection interval of 4 weeks (11 municipalities) vs. 2 weeks (6 municipalities):
 - - 37 kg per capita residual waste
 - + 35 kg per capita bio waste
 - + 1 kg per capita lightweight packaging
- conclusion: amount of bio-waste and green waste could be increased from 232 to > 250 kg per capita by increasing the collection interval to 4 weeks in 6 municipalities



INFLUENCE OF THE COLLECTION INTERVAL OF RESIDUAL WASTE BINS ON THE QUALITY OF ORGANIC WASTE



- result of 90 inspections in winter
- residual waste collection interval has only a minor impact on sorting quality



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ROADMAP CLEAN BIO-WASTE BIN



Political support: Head of District Administration and mayors promoting the campaign for the clean bio-waste bin

efficacy checks through waste analysis

① paper-based collection bags



Just saying „no“ is no solution!
promotion of an alternative:
50 pieces 2,50 €

② crossmedia information



regional commitment & participation in #wirfuerbio campaign

③ targeted mailbox information



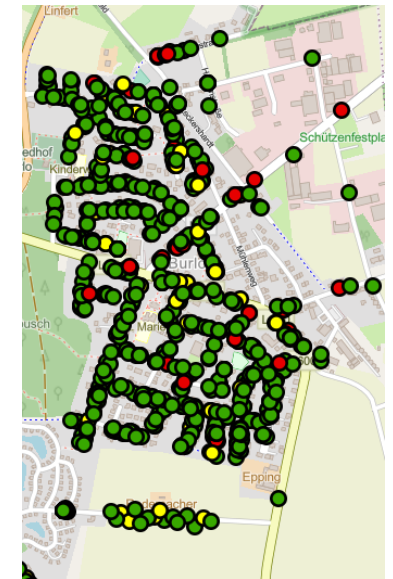
every household

④ geodata-based bin controls



identifying problematic households

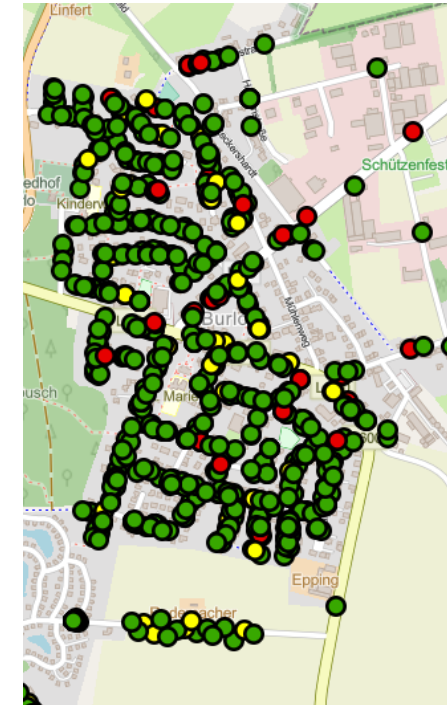
⑤ follow-up for incorrectly filled bins



targeted controls reduced effort

WASTE BIN CONTROLS VIA GEODATA-BASED COLLECTOR-APP

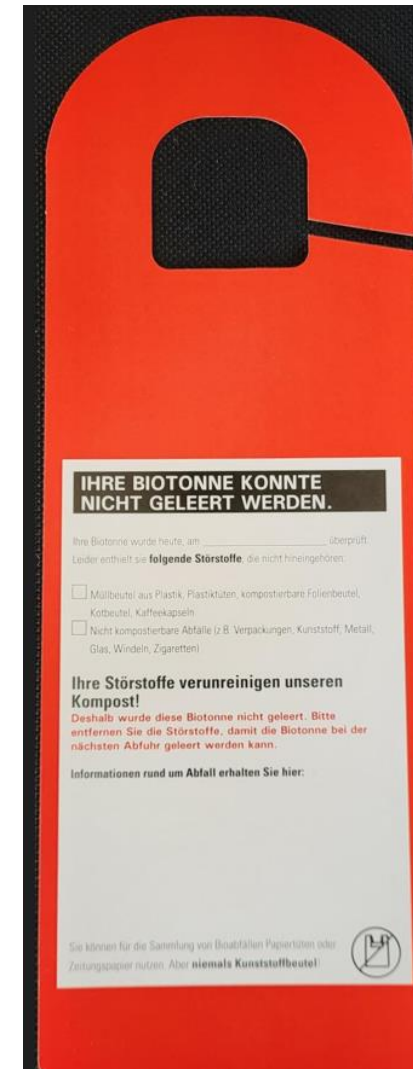
- goal: identifying and localizing impured bins
- development of a mobile smart phone app in cooperation with the geodata department of the district administration
- documentation of bins by a bin inspector using GPS coordinates and photos
- administrative clerks get real-time information for complaint management and initiations
- costs for app: just a little bit of work time
- total costs for bin controls: 3 €/Mg bio-waste



- very impured/repeatedly impured
- almost clean/compostable plastic bags
- clean

BINTAGS AND STICKERS

- bin tags contain information on what kind of impurities was found in the bin plus sorting manual
- additional measure: repeatedly controlled bins with impurities get red stickers



EFFECTS OF MAIL TO HOUSEHOLDS PILOT PROCET AREA WITH 3 % IMPURITIES PRIOR TO CONTROLS



#WIRFUERBIO IN WESTFALEN
SIEBEN KREISE UND DIE STADT MÜNSTER KÄMPFEN GEGEN PLASTIK IN DER BIOTONNE.

2

1

3

DAS BEHÖRT NICHT IN DIE BIOTONNE

Aus der Küche:

- Verpackungen, Saugtücher, Obst (auch von Strohhalmen)
- Speiseöl, geölt und un-
- Fast-, Feinst-, Lebensmittelreste (auch verpackt)
- Kaffeebohnen, Tee, aromatisierte Kaffeebohnen und Beuteltee
- Blattsalat, Backwaren, sonstige Müllreste
- Müllreste zum Beispiel:
- Haut-, Beinreste
- Teig-, Scherenschnitz (ohne Teig, Strohwerk o.ä.)

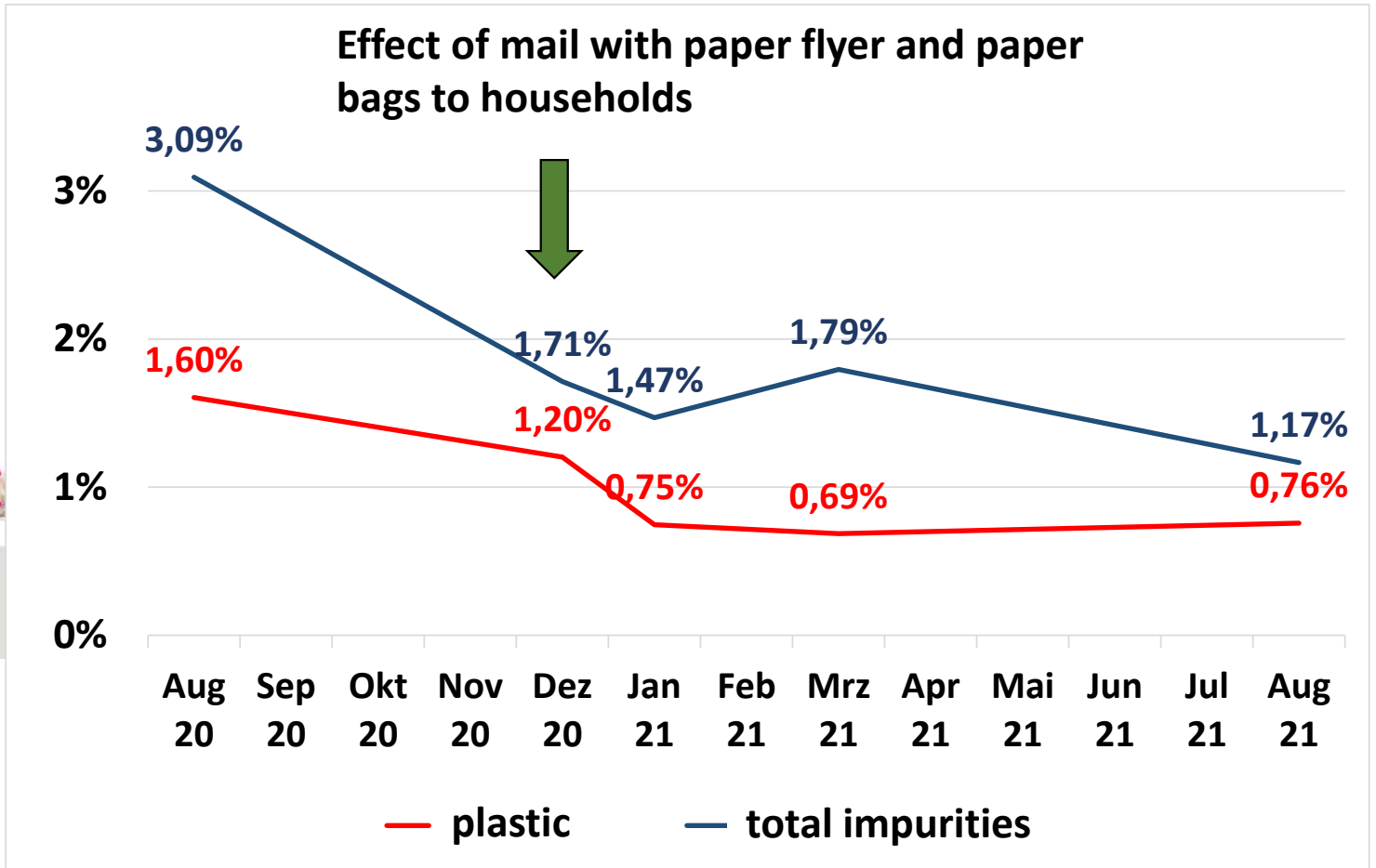
Aus dem Haushalt:

- Plastikbecken
- Kompostierbare Abfallbehälter (Jugendgruppen, Papiermüllbehälter)
- Verpackte Lebensmittel, Fast Food, Mülltüte usw.
- Blattsalatreste, Bierabfälle, Glas, Wein, Verpackungen, Vorräte
- Verpackte Lebensmittel, Mülltüte, Müllbeutel, Müllbeutel
- Müllreste (Papier, Plastiktüte, Plastik, Papier, Tapeten)
- Reste, Glas, Keramik, sonstige organische und mineralische (auch keine Kompostierbare)
- Zigarettenkippen, Asche, Feuerzeuge
- Kaputtgefallene und alte Kleber
- Verpackungen (z.B. Milch-Schüttler usw.)
- Öl, Kaffee, Saft
- Flaschen, alte Teller oder Teller (auch keine Ölfässer)
- Baumstämme, Baumstämme, Stämme, Stämme
- Reste (z.B. Staubsaugerbeutel)
- Flüssigkeiten

Die aufgeführten Listen stellen nur einen Auszug dar. Sie überschneiden sich teilweise. Bitte auch unter www.egw.de

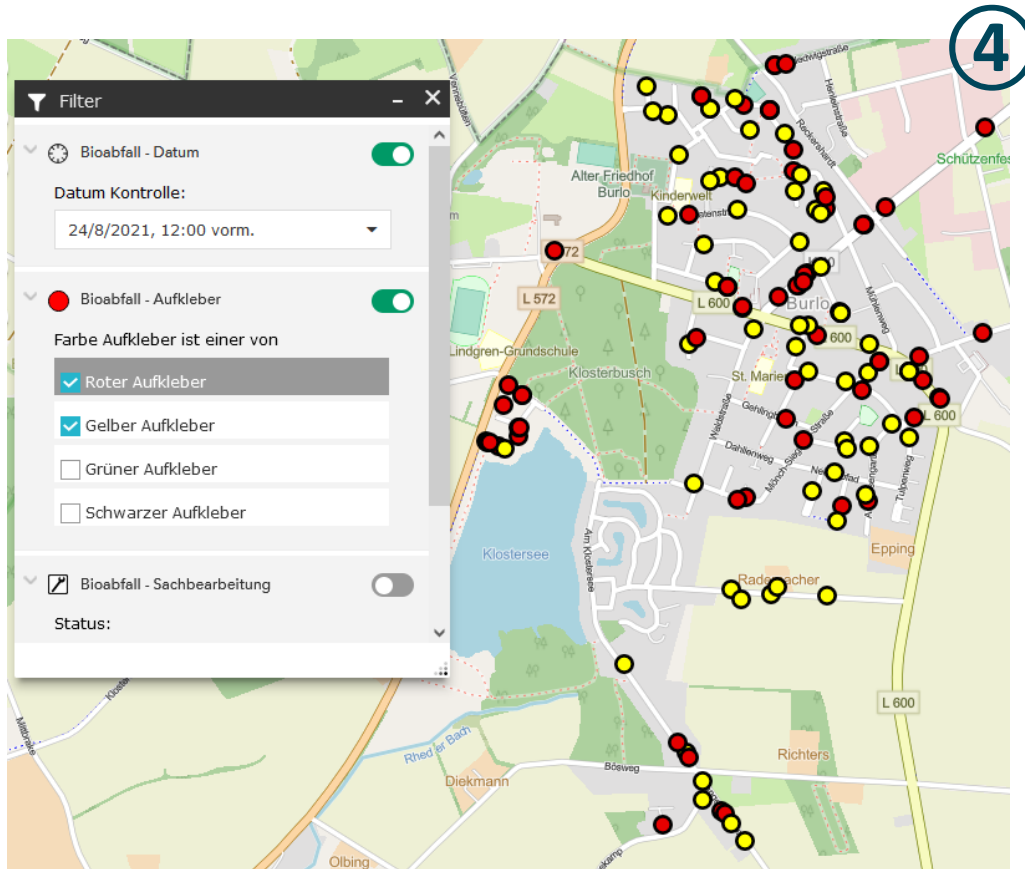
KEIN PLASTIK IN DIE UMWELT

AKTION „SAUBERER BIOABFALL“



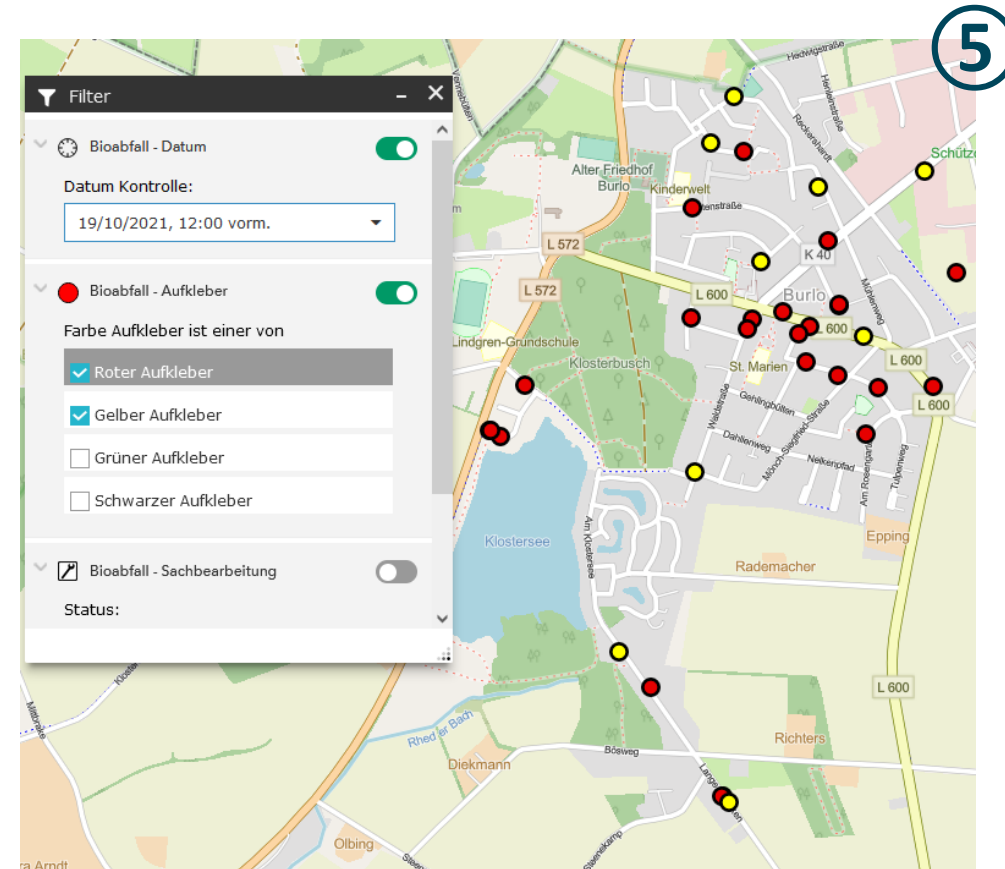
EFFECT OF A BIO-WASTE BIN CONTROL IN BORKEN-BURLO

before



collection of waste in red bins was refused

after



significant decrease in disapproved bins

CONDUCTED BIN CONTROLS SINCE MAY 2023

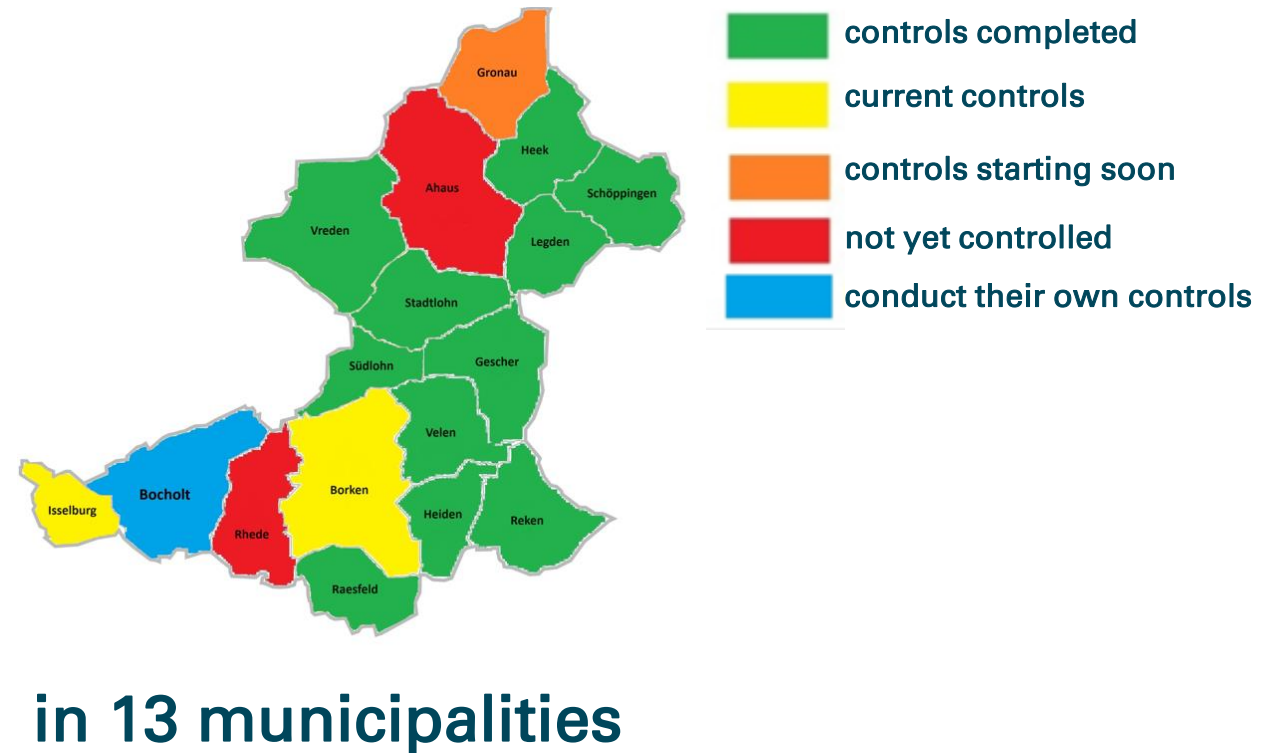


Since start of the project in May 2023 the EGW controlled:

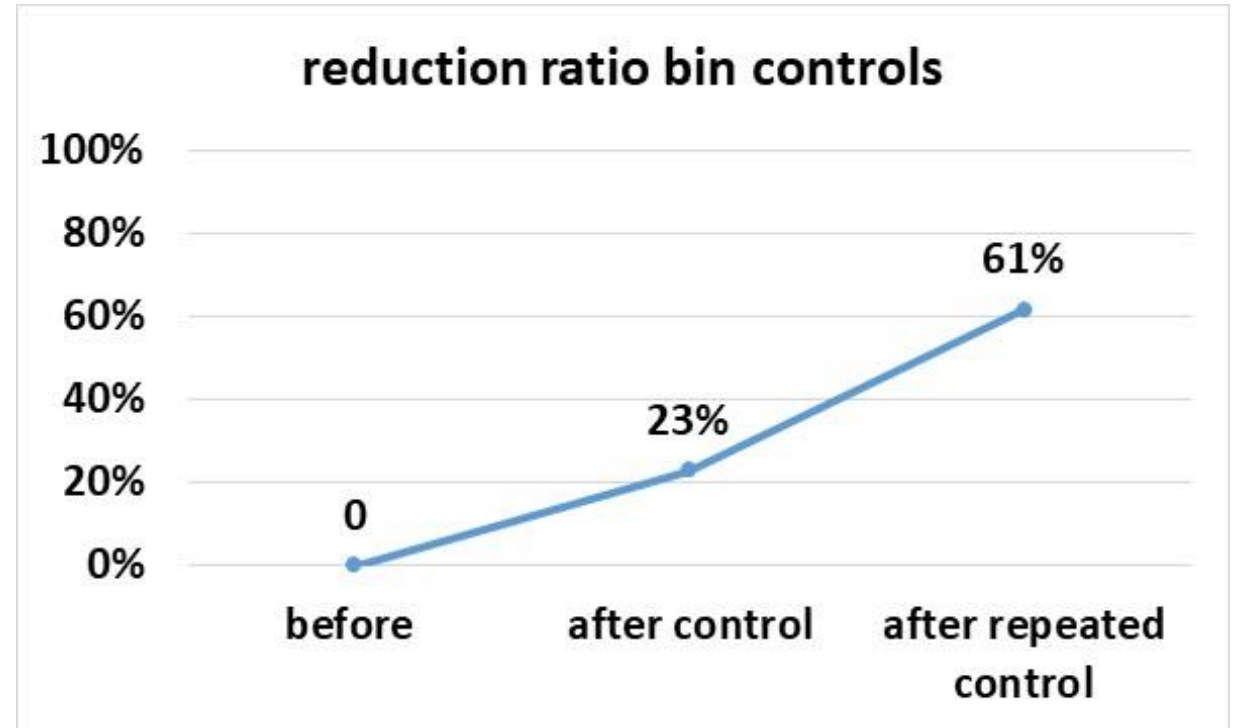


60.000 bins

with two employees



- around 10 % of bins had visually identifiable impurities
- especially in smaller municipalities it was possible to reduce impurities from more than 3 % to under 1 %
- the amount of visually identifiable impurities decreased by 61 % after repeated control
- repeated inspections in municipalities after several months have proven worsening of sorting quality: need to conduct controls frequently!



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SUMMARY

LEARNINGS FROM OUR STRATEGY TO IMPROVE BIO-WASTE QUALITY



1. Controlled acceptance of **green waste at the local recycling centres** ensures a high level of purity.
2. Although **organic waste quantities can be increased by changing the residual waste collection interval**, there is no significant influence on the sorting quality.
3. A significant **reduction in the impurities** content in the bio-waste bin **requires bin controls**.
4. Effectiveness can be gained through a **district-wide agreement** of all municipalities on the **bundling** and implementation of bin controls.
5. The **mobile phone app** used in the district of Borken is a helpful tool for carrying out bin controls. It facilitates the documentation and follow-up inspection of conspicuous waste bins.
6. **Communication phase before control phase**: An important success factor is the focus on education on the topic of organic waste (instead of "punishments" for incorrect filling).
7. **Frequent follow-up controls** are necessary!

bio-waste bin without impurities means quality compost



IT'S WORTH THE EFFORT!

THANK YOU FOR YOUR ATTENTION!
MERCI POUR VOTRE ATTENTION!



**KEIN PLASTIK IN
DIE BIOTONNE.**

* FÜR MEHR BIOABFALLQUALITÄT IN
DER BIOABFALLTONNE IM KREIS BORKEN.

#WIRFUERBIO

www.wirfuerbio.de/egw

Eine Initiative der deutschen Abfallwirtschaftsbetriebe.
Vielen Dank für Ihre Unterstützung.



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