

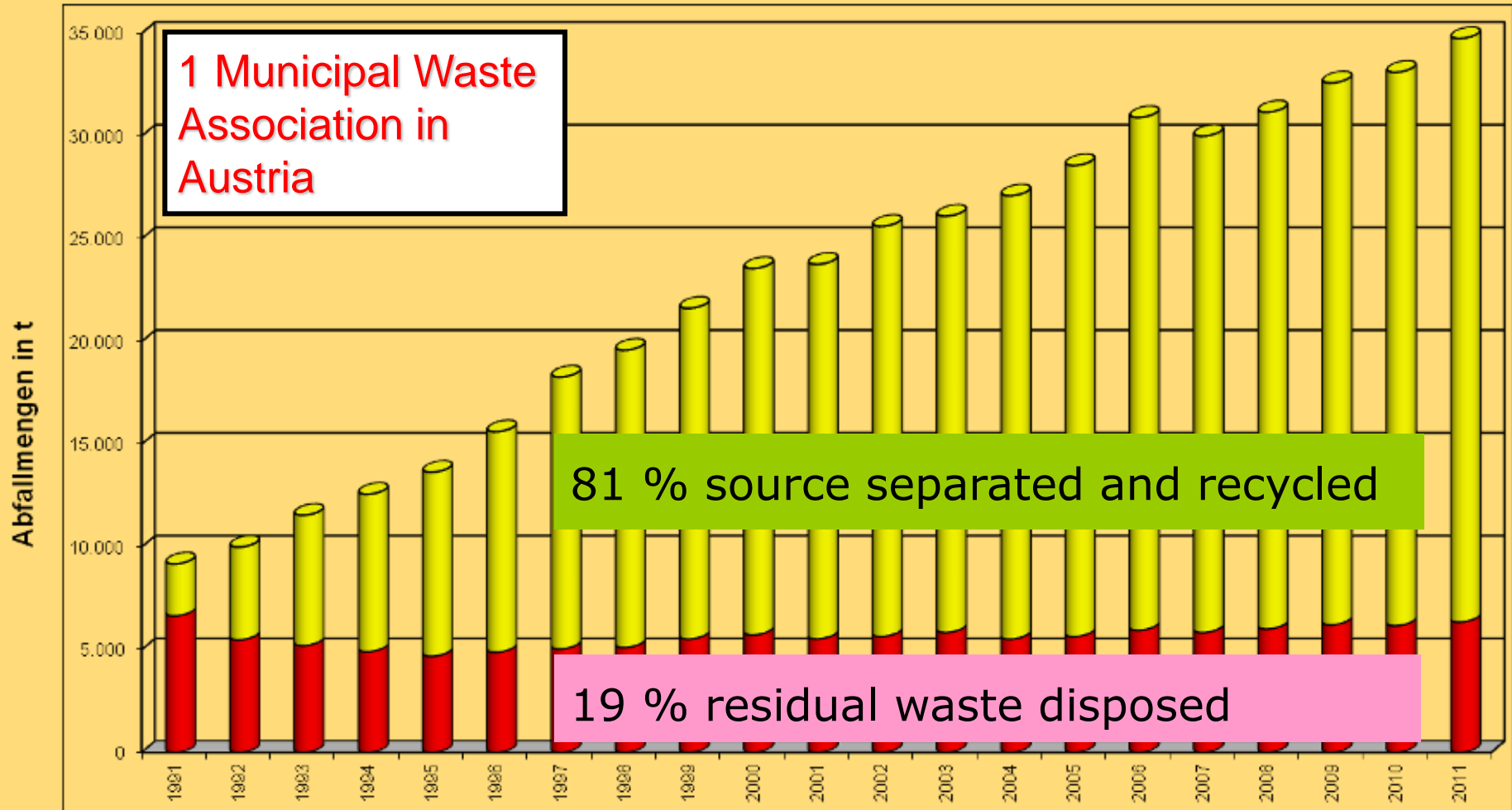


# The Decentralised On-Farm Cooperation Model for Biowaste Management and Composting

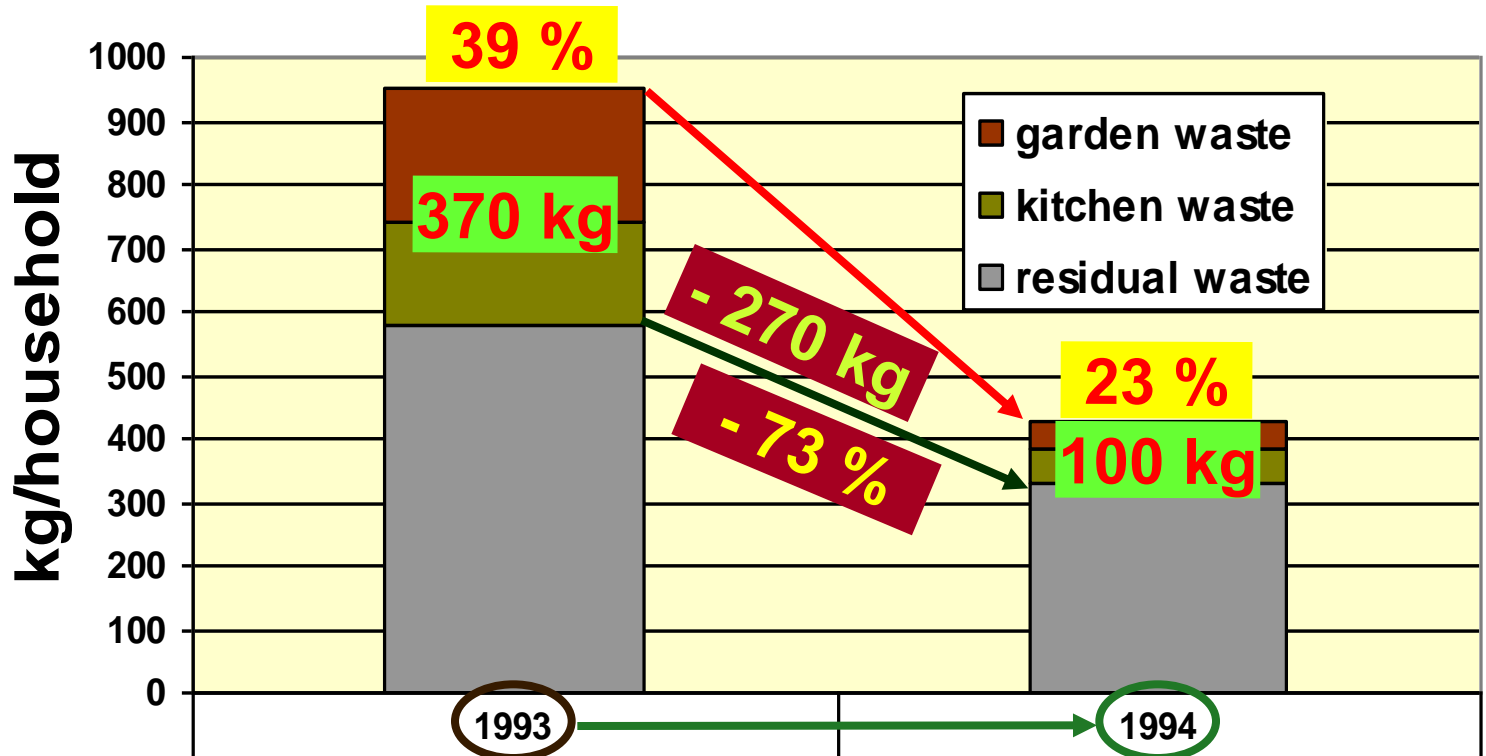
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8 October 2013

# Impressive growth of recycling quota (1991-2011)



# Reduction of Biowaste in Residual Waste



■ garden waste	207	42
■ kitchen waste	162	56
■ residual waste	580	328

before after  
introducing source separation of organic household waste



# The hierarchy of decentral biowaste management = the logical follow-up of the 5 step waste hierarchy

## Priority I

As much **home composting** as possible  
(= **PREVENTION**)

= 55%



## Priority II

**Separate collection**  
only  
complimentary



## Priority III

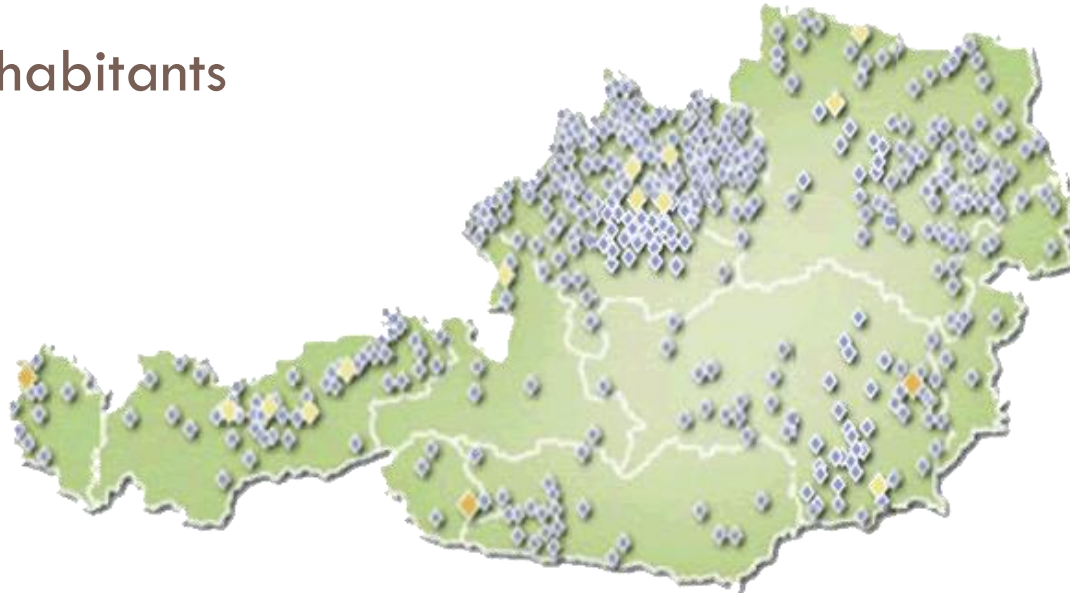
Favouring  
**Agricultural Composting**

~300  
plants



# The decentralised integrated approach in Austria

8.35 mio inhabitants

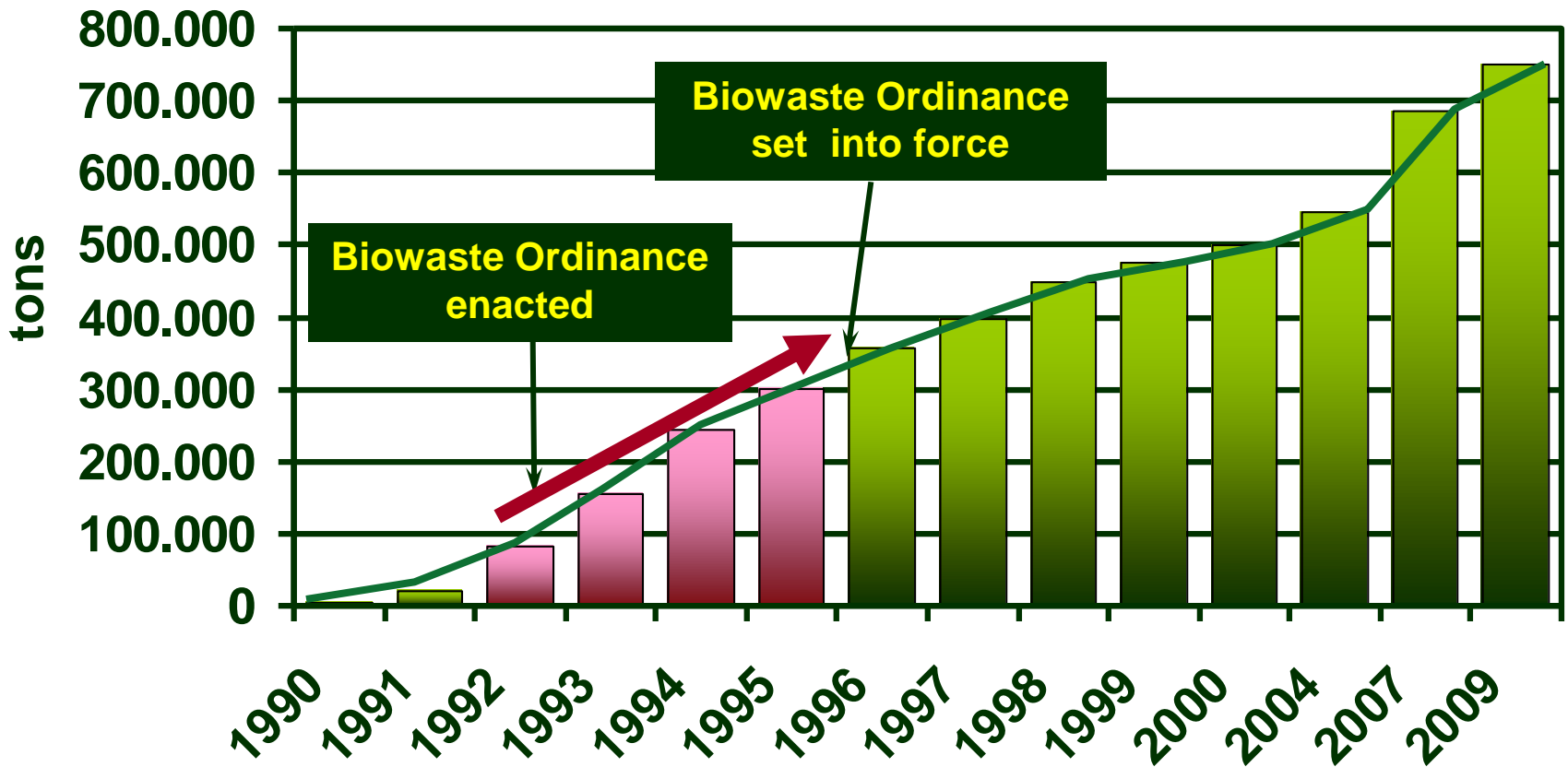


	Total composting plants	On- farm / agricultural plants	Municipal plants	Industrial plants
Number	454	292 (64%)	89 (20%)	73 (16%)
Total treatment yr <sup>-1</sup>	976,000 t	308,000 t (32%)	237,300 t (24%)	431,000 t (44%)
Average capacity yr <sup>-1</sup>	2,800 t	1,100 t	2,700	5,900 t

16,000 Inh per composting plant

# Development of

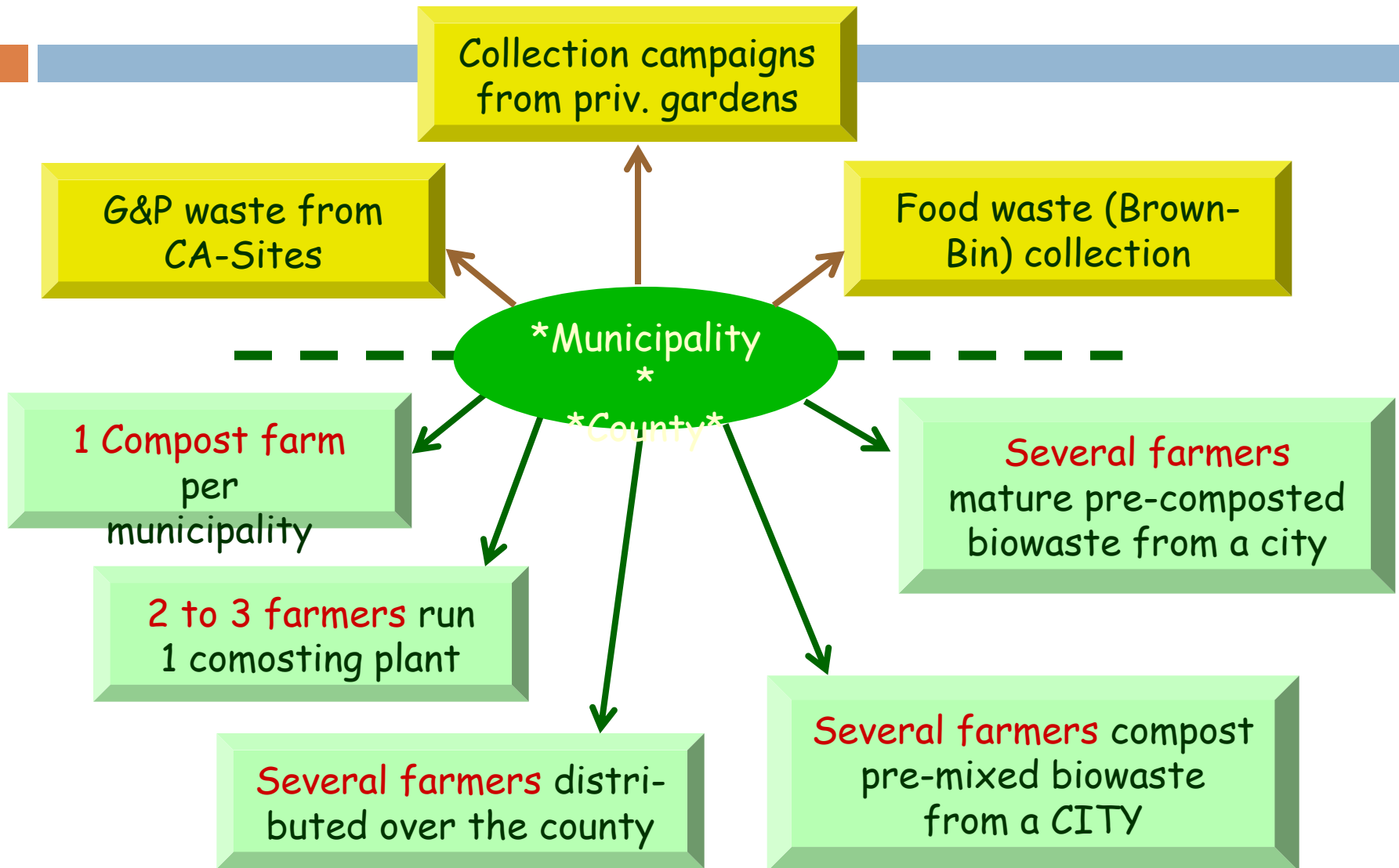
## Separately Collected Biowaste ...„Brown Bin“





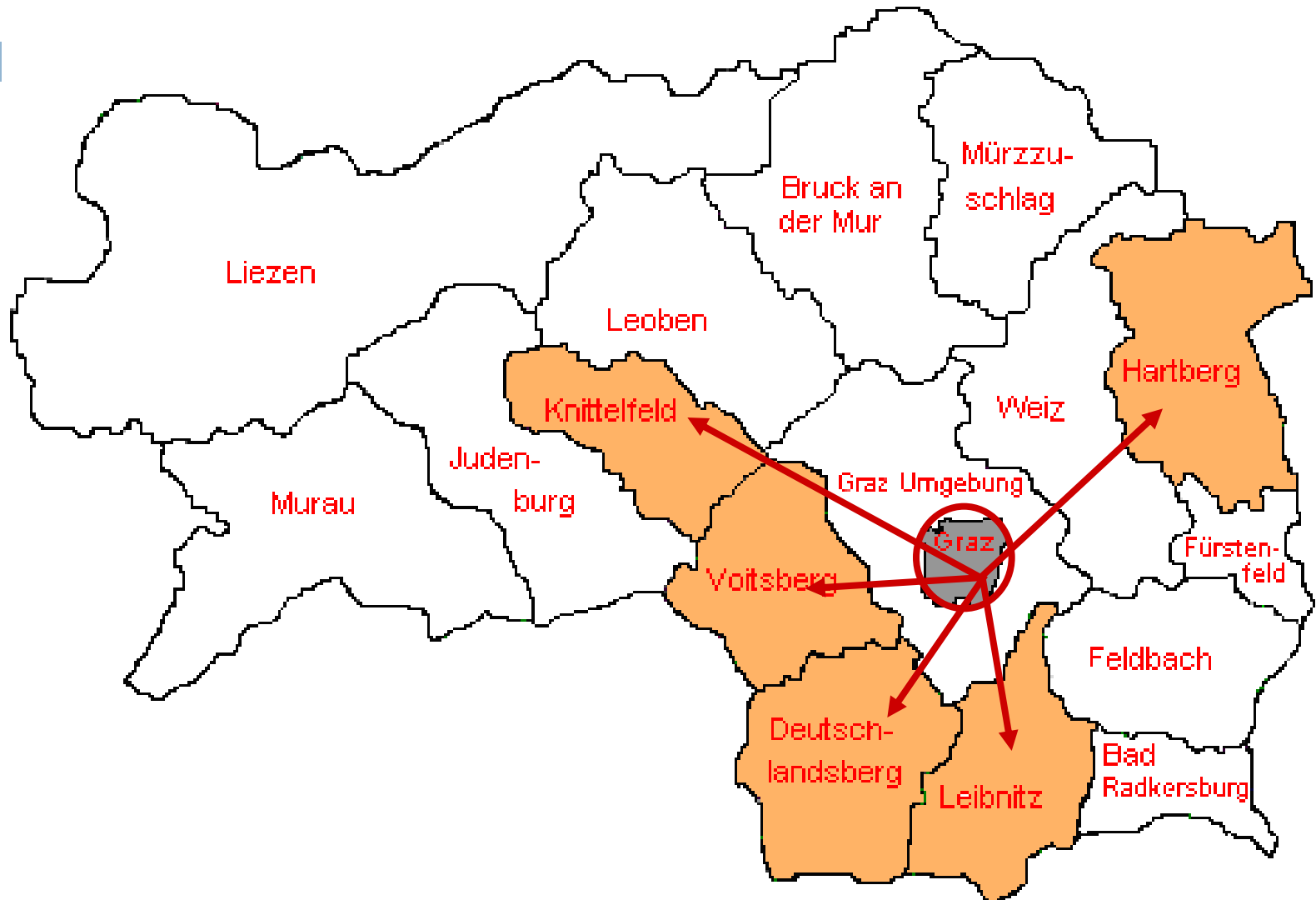


# Farmers Services & Cooperation Models





# Map of Compost Farmers



# Cooperative Investment & Financing



Loader



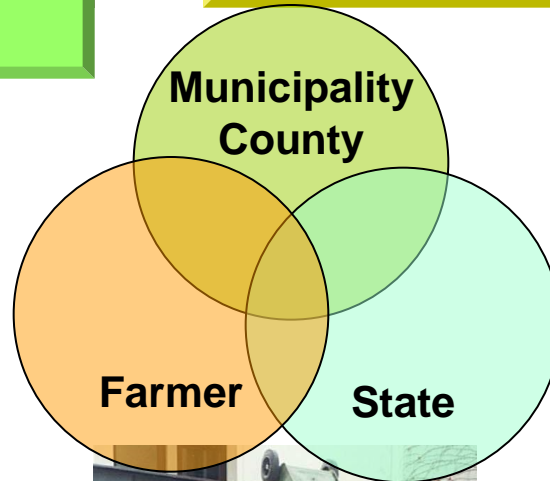
Engineering & Construction



Containers



Turner



Shredder



Collection truck



Screen; wind sifter,  
magnetic separator

# USER-FRIENDLY collections system at household



**Vented Kitchen Bucket + Bio-Plastic-Bag**

- 15 Litre Paper/Bio-Plastic Bag
- 110 Litre Garden Bag
- 46 Litre Bio-Bucket (Restaurants)









Foto: Waste Management Association Rohrbach, Austria

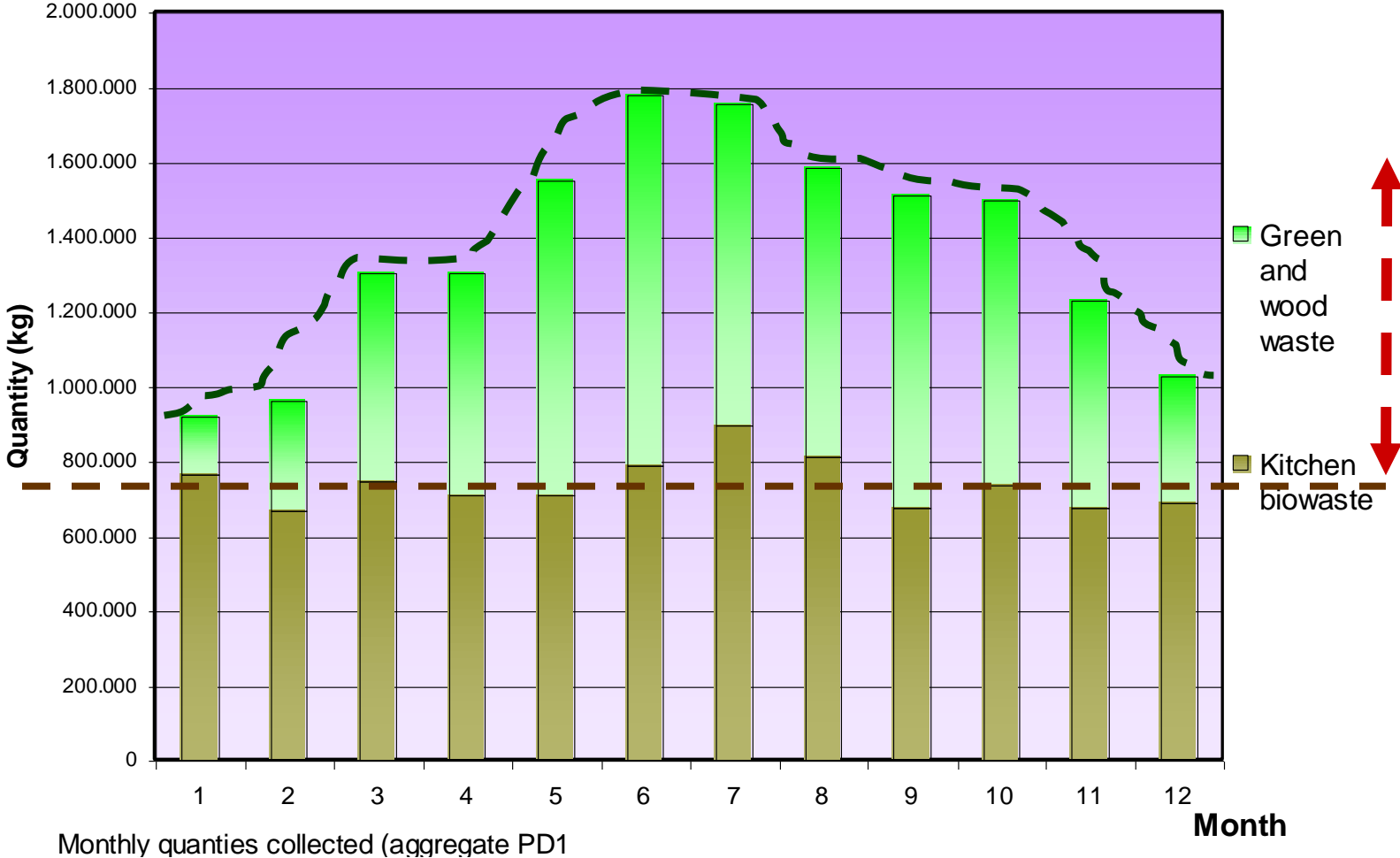
# Simple collection trucks also for bio-bins





# Seasonal fluctuations – garden waste

## Monthly Collection Trends - Green and Kitchen Biowaste



Monthly quantities collected (aggregate PD1)

# Collection of GARDEN WASTE





# Green waste delivery at the RECYCLING CENTRE







Shredder



Fotos: Hildebrandt, Amlinger



# Mixing the „Ingredients“



Fotos: Hildebrandt, Amlinger





## OPEN WINDROW composting





# The Compost Heap





# Optimum Temperature Ranges for Different Requirements of the Composting Process

Process Optimum for	Temperatur Range
<b>Hygienisation</b> ... [e.g. 3 to 10 days]	$> 55 - 65 \text{ }^{\circ}\text{C}$
<b>Maximum Decomposition</b> Start of Formation of Humic Substances	$45 - 55 \text{ }^{\circ}\text{C}$
<b>Max. Biodiversity</b> + Decomposition of Microbial Biomass; Max. Formation of Humic Substances	$35 - 40 \text{ }^{\circ}\text{C}$

# Managing - Adding Water

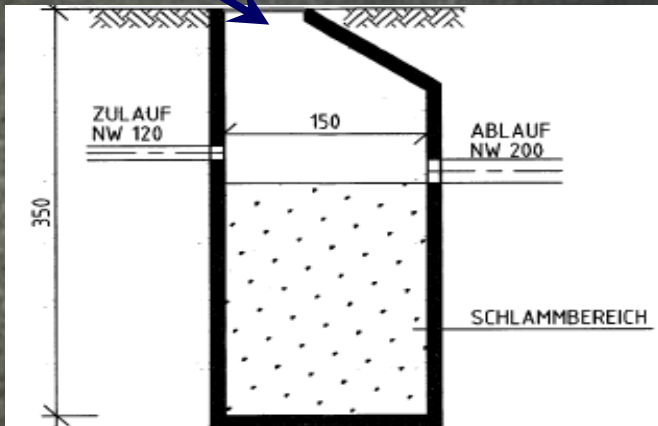
- Add water during turning
- Add water slowly
- Ideal 50 – 60%
- Squeeze test
- Too wet = anaerobic/leachate/ odour/GHG
- Too dry = no decomposition







**2 to 5 % slope**



**SCHLAMMSAMMLER M=1:50**

Fotos: Hildebrandt, Amlinger









**Tragweiner  
Blumenerde**

ganzjährig einsetzbar



Geeignet für Blumenbeete, Kisten, Töpfe und Gräber. Die umweltfreundliche torfarme Mischung hat eine lockere und stabile Struktur, die der Erde eine hohe Wasserspeicherkapazität ermöglicht.

**A+** geeignet für alle Anwendungen im Garten

**QUALITÄTSKLASSE**

10 l/20 l/50 l/80 l	10 l/20 l/50 l/80 l/100 l/150 l/200 l/250 l/300 l/350 l/400 l/450 l/500 l
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 handy: 0699 / 10 43 97 84

100% Kompost  
20% Torf  
100% Humus  
100% Sand



# The Key = BIODIVERSITY !



Fotos: Bioforschung Austria, Hildebrandt, Hedlund, Aminger



# On-Farm Composting Scheme

## ➤ Why decentralised ON-FARM Composting

- ✓ Creates rural income, strengthens family farm structures
- ✓ Guarantees high agricultural recycling rate
- ✓ Reduces costs and efforts for marketing
- ✓ Guarantees short distance carbon sequestration in soil
- ✓ Farmer = educated in organic material handling
- ✓ Opens the door to organic farming
- ✓ Own use of compost drives quality management
- ✓ Strengthen traceability & confidence



800 t biowaste or 1 800 households  
create 1 full working place !!!



European  
Compost  
Network  
**ECN**

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arge  
kompost  
& biogas

Thank you!

