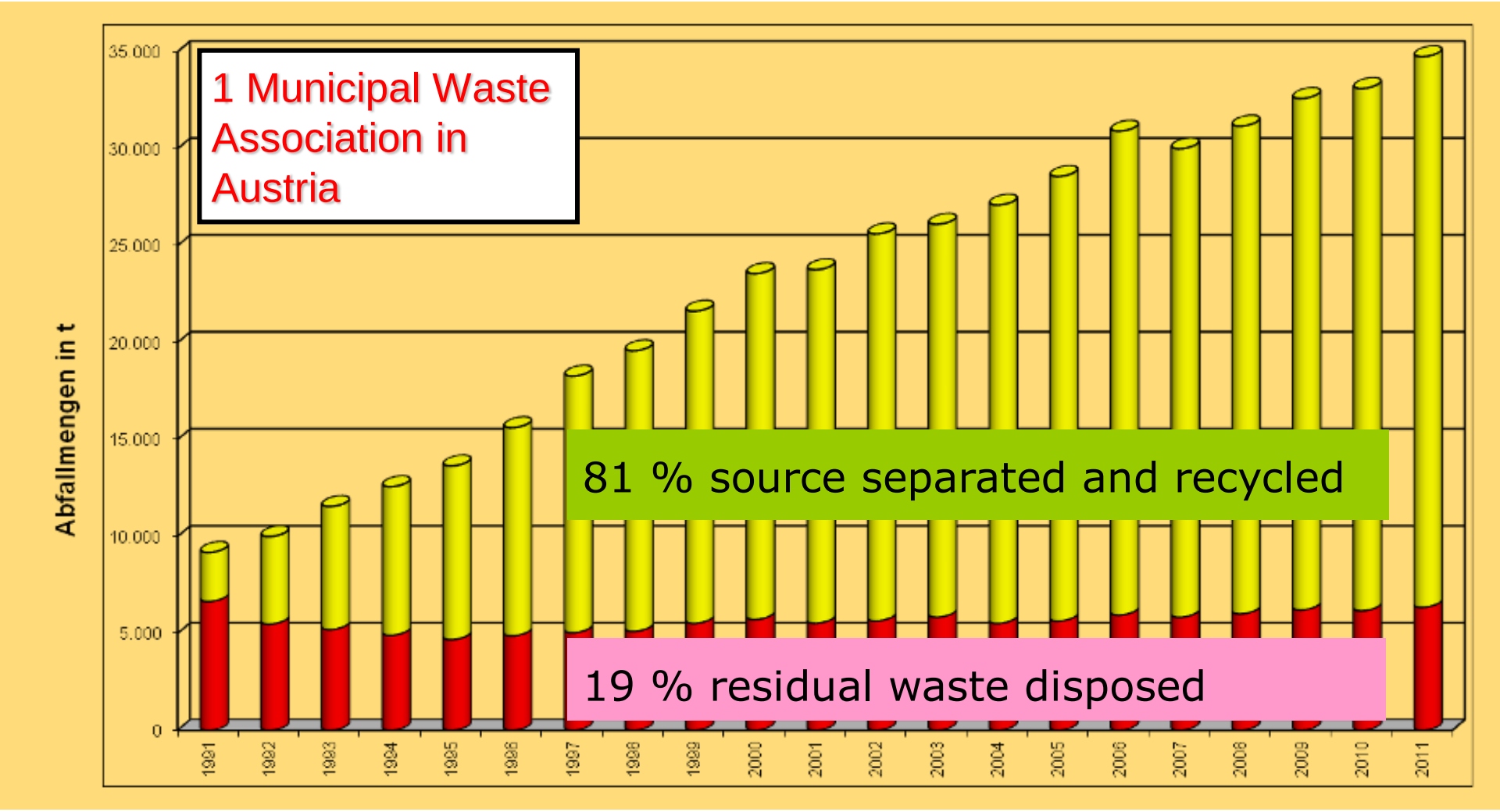
# The Decentralised On-Farm Cooperation Model for Biowaste Management and Composting

Florian Amlinger,
Compost – Consulting & Development
Perchtoldsdorf, Austria

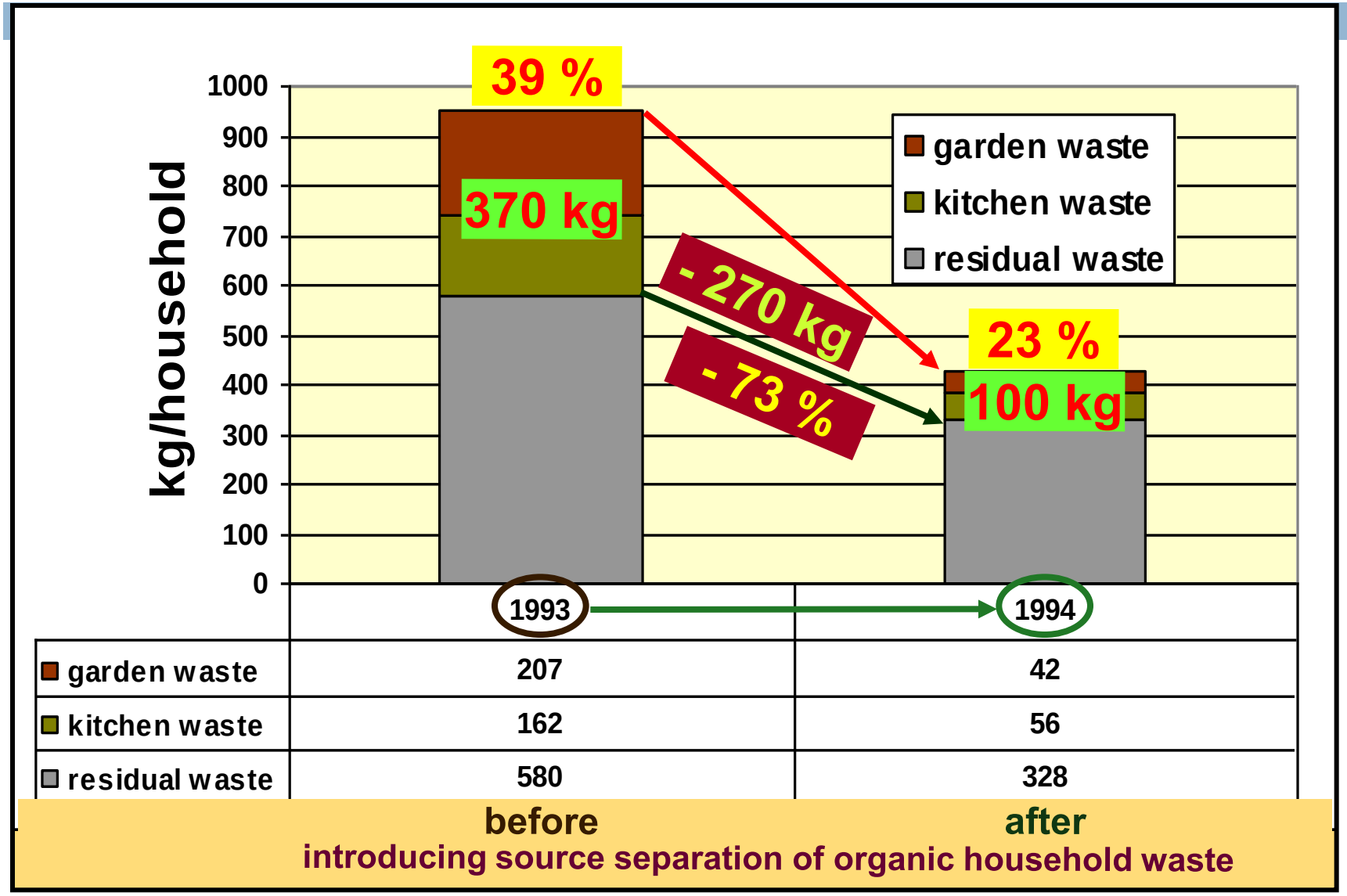
**Poznan**
**8 October 2013**

# Impressive growth of recycling quota (1991-2011)




**Source: BAV Freistadt, Austria**

# Reduction of Biowaste in Residual 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)**


### Priority II

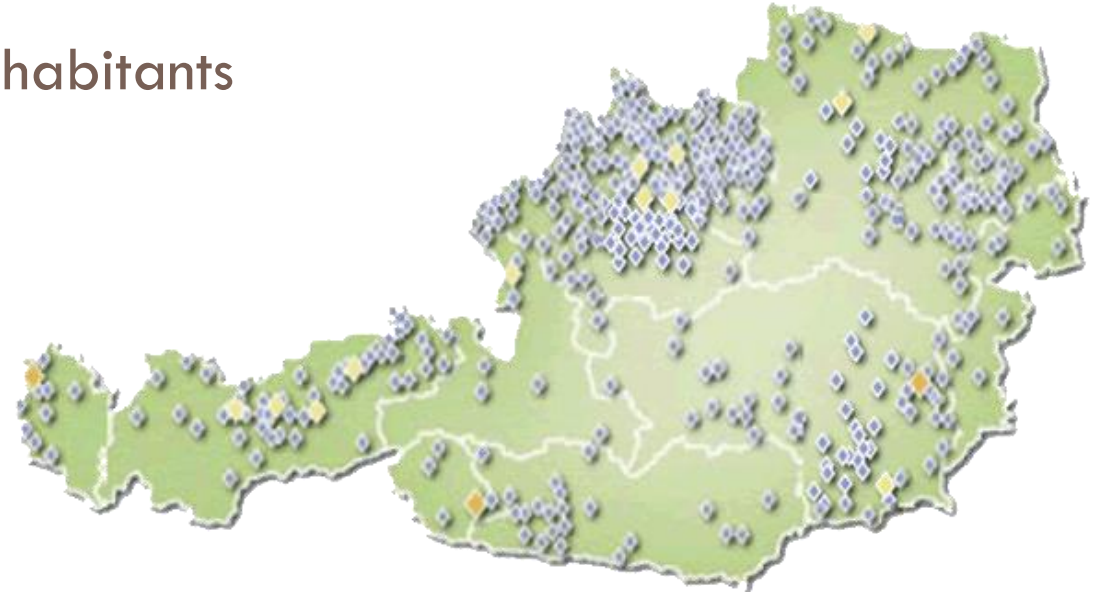
**Separate collection only complimentary**

### Priority III

**Favouring Agricultural Composting**


# The decentralised integrated approach in Austria

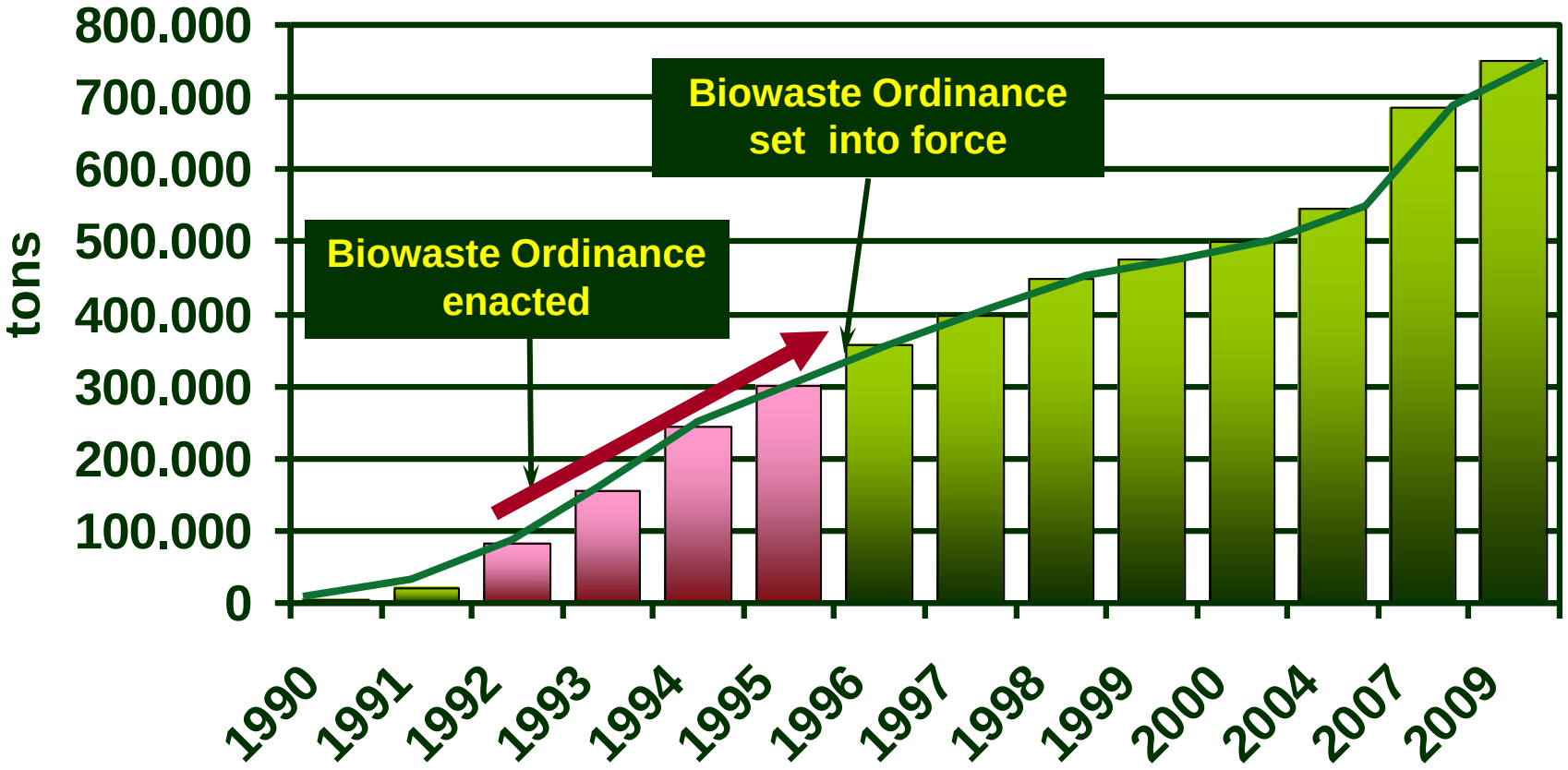
8.35 mio inhabitants



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

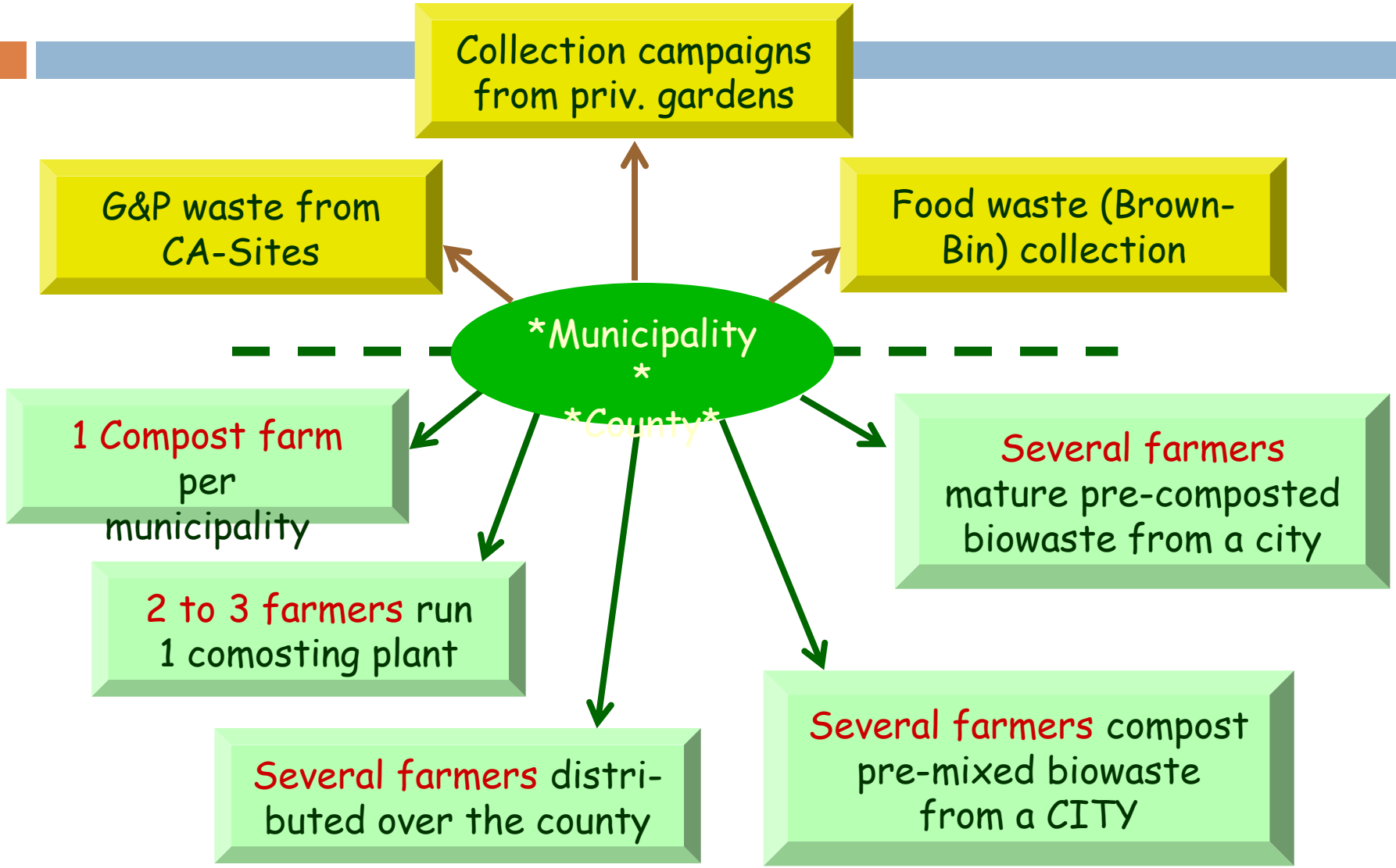
16,000 Inh per composting plant

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

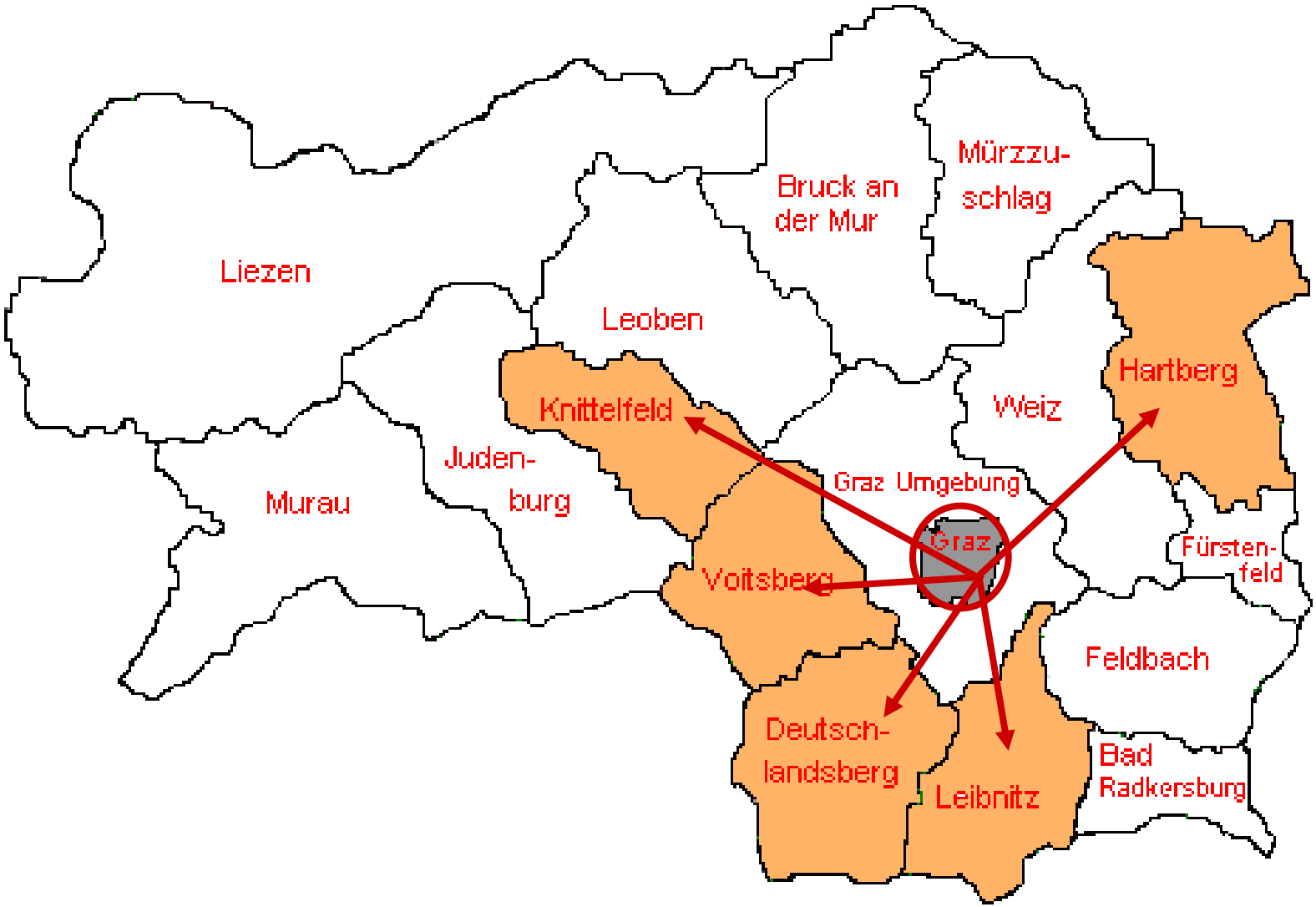



KÜCHENABFÄLLE

# Farmers Services & Cooperation Models

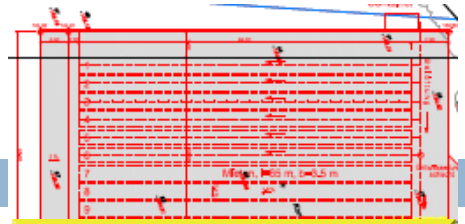


# Map of Compost Farmers



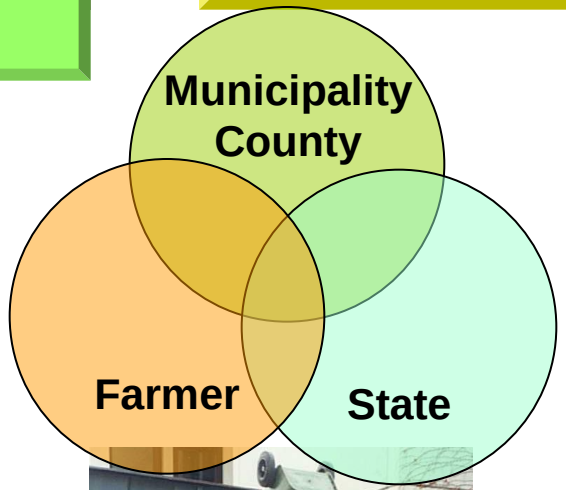
# Cooperative Investment & Financing

Loader



Engineering & Construction

Turner




Containers

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)

**Fotos: Waste Management Association Rohrbach, Austria**


STEYR
FR 145 AS
Blumenerde Kompost
vom Bioabfall zur Blumen Erde
Bäuerliche Kompos
für Sie unterwe

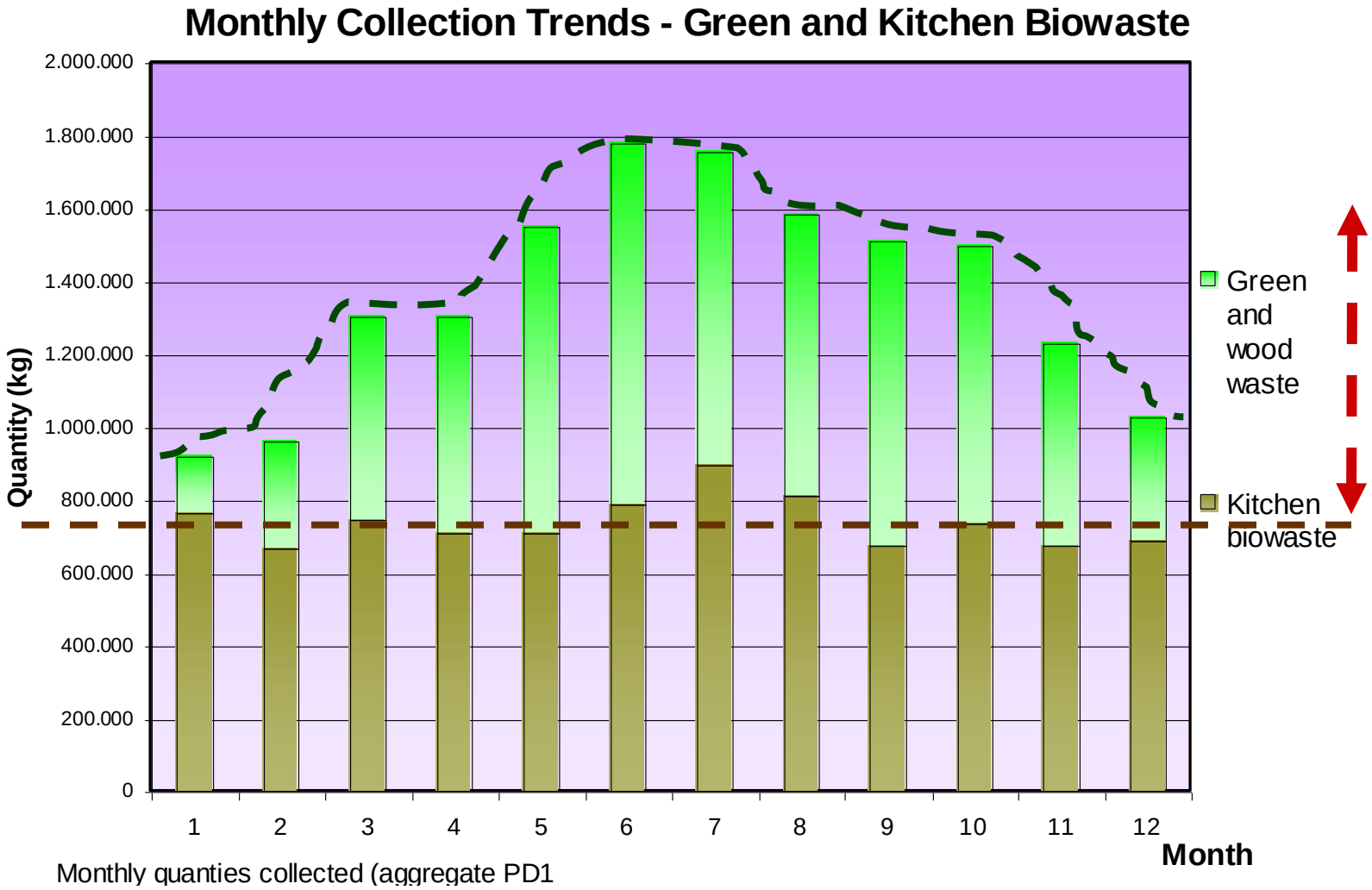

Blumenerde Kompost
Bäuerliche Kompost
für Sie unterwegs!

Foto: Waste Management Association Rohrbach, Austria

# Simple collection trucks also for bio-bins



# Seasonal fluctuations – garden waste




Monthly quanties 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

Fotos: Hildebrandt

# The Compost Heap

# Optimum Temperature Ranges for Different Requirements of the Composting Process

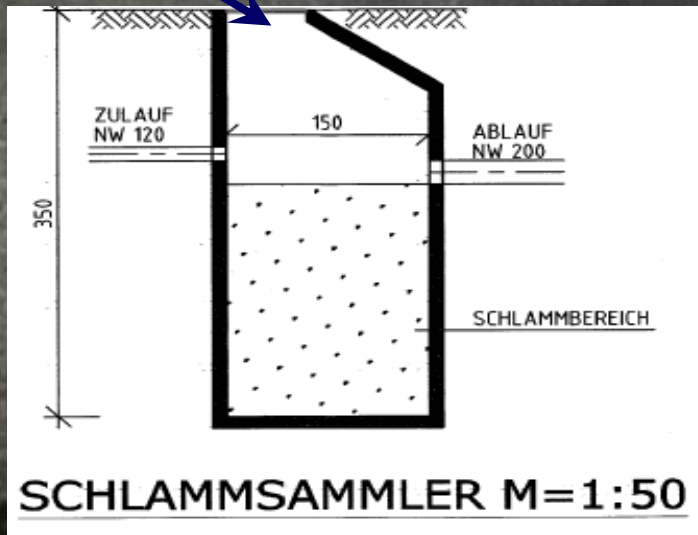
| Process Optimum for | Temperatur Range |
|---|---|
| **Hygienisation** ... [e.g. 3 to 10 days] | > 55 - 65 °C |
| **Maximum Decomposition**<br>Start of Formation of Humic Substances | 45 - 55 °C |
| **Max. Biodiversity** + Decomposition of Microbial Biomass; Max. Formation of Humic Substances | 35 - 40 °C |

# Managing - Adding Water

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

2 to 5 % slope

Fotos: Hildebrandt, Amlinger




SCHLAMMSAMMLER M=1:50


ARGE
KOMPOST


2006 6 6


Tragweiner
Blumenerde
ganzjährig einsetzbar
Geeignet für Blumenbeete, Kistchen, Töpfe und Gräber. Die umwelt-freundliche torfarme Mischung hat eine lockere und stabile Struktur, die der Erde eine hohe Wasserspeicherkapazität ermöglicht.
Maria und Johann Inreiter
vulgo Stöckerberger
Schmierreith 20, 4284 Tragwein
tel/fax: 07263/75 45
handy: 0699/10 43 97 84
A+
QUALITÄTSKLASSE

# The Key = BIODIVERSITY !



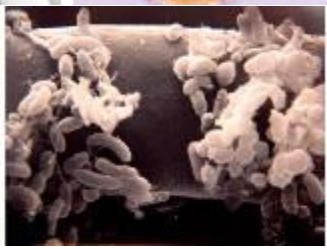










Fotos: Bioforschung Austria, Hildebrandt, Hedlund, Amlinger

# 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

Florian Amlinger
f.amlinger@kabsi.at
www. compostnetwork.info

arge kompost & biogas

Thank you !