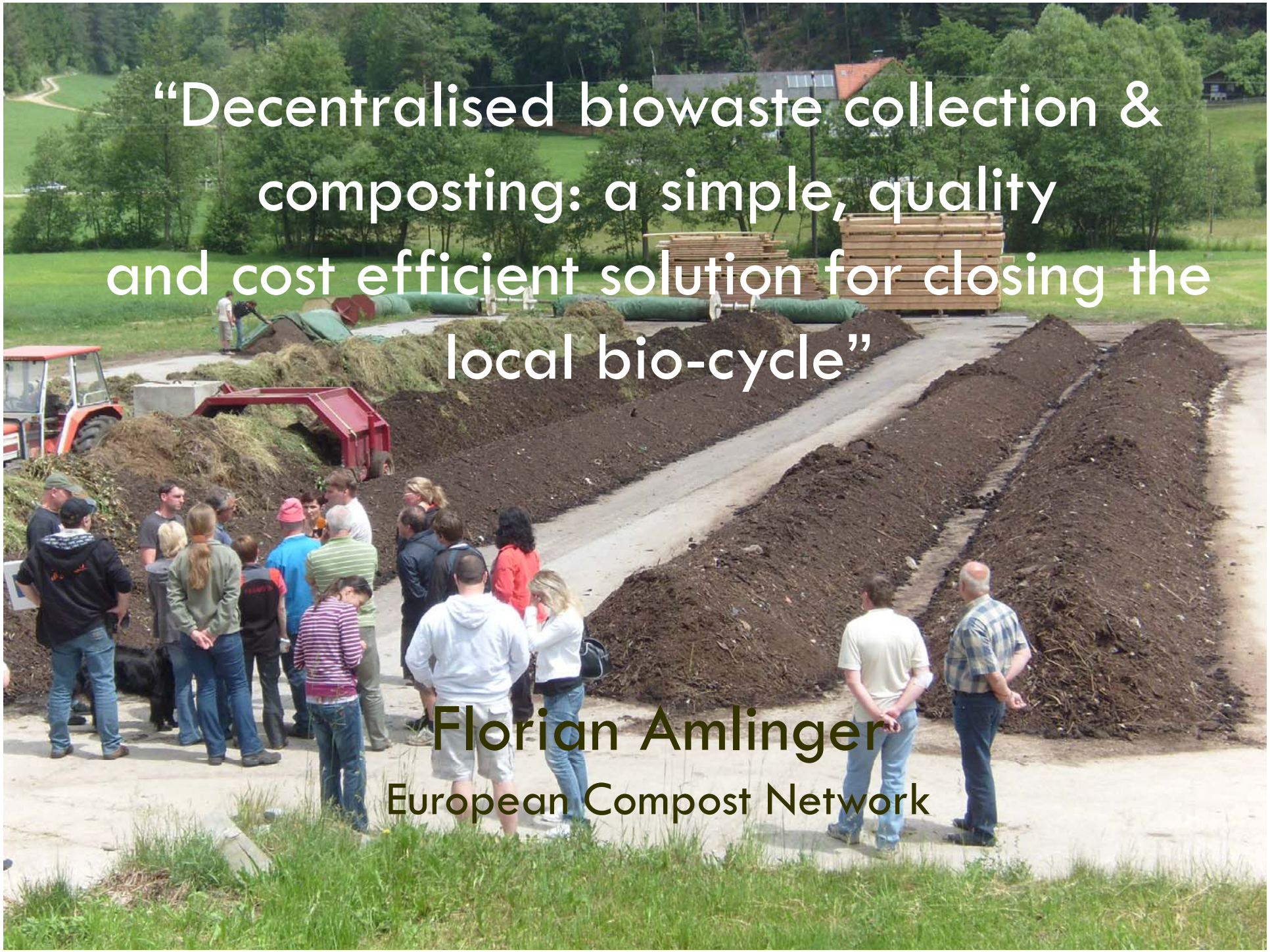
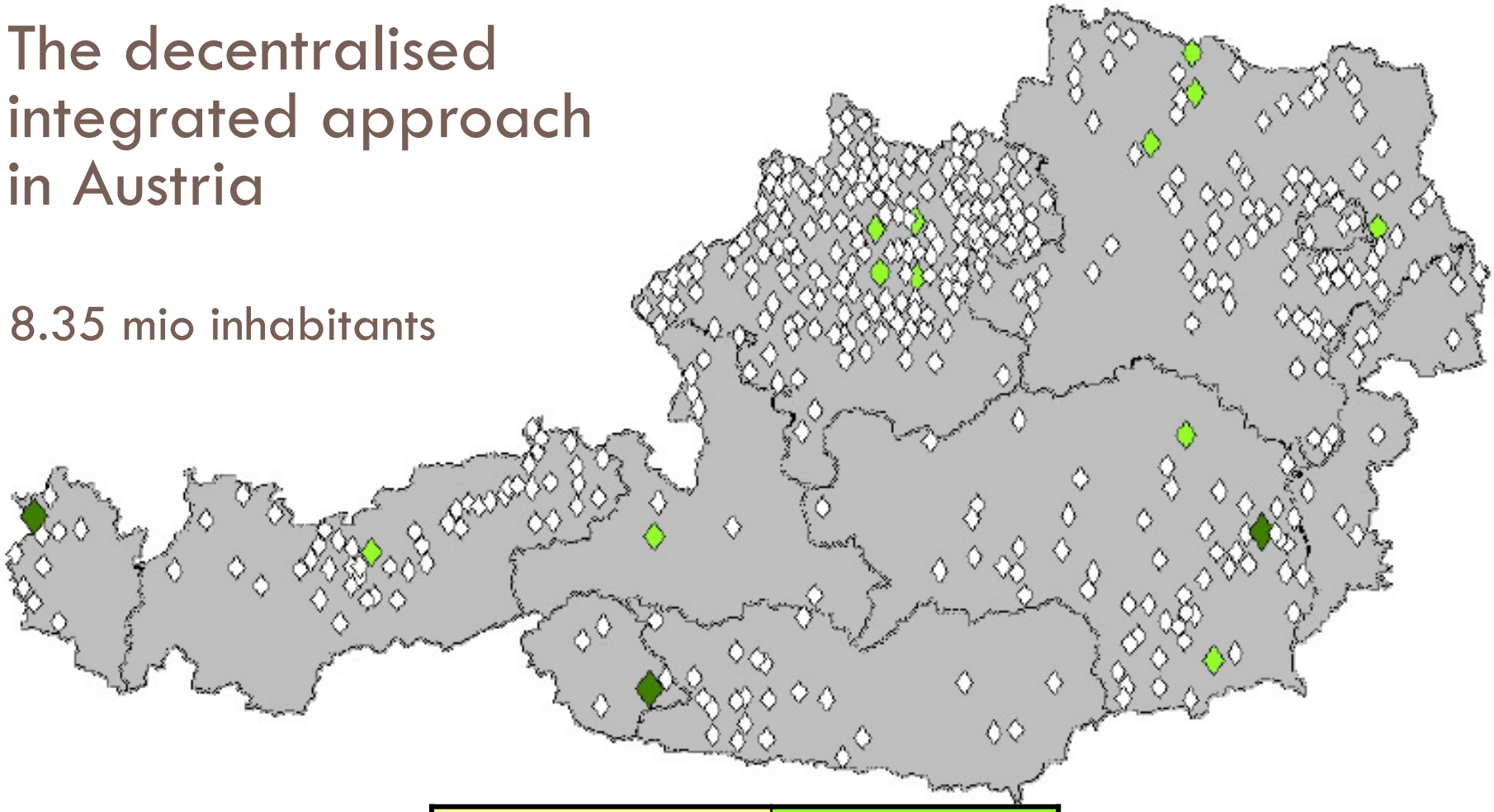

"Decentralised biowaste collection & composting: a simple, quality and cost efficient solution for closing the local bio-cycle"
Florian Amlinger
European Compost Network

The decentralised integrated approach in Austria

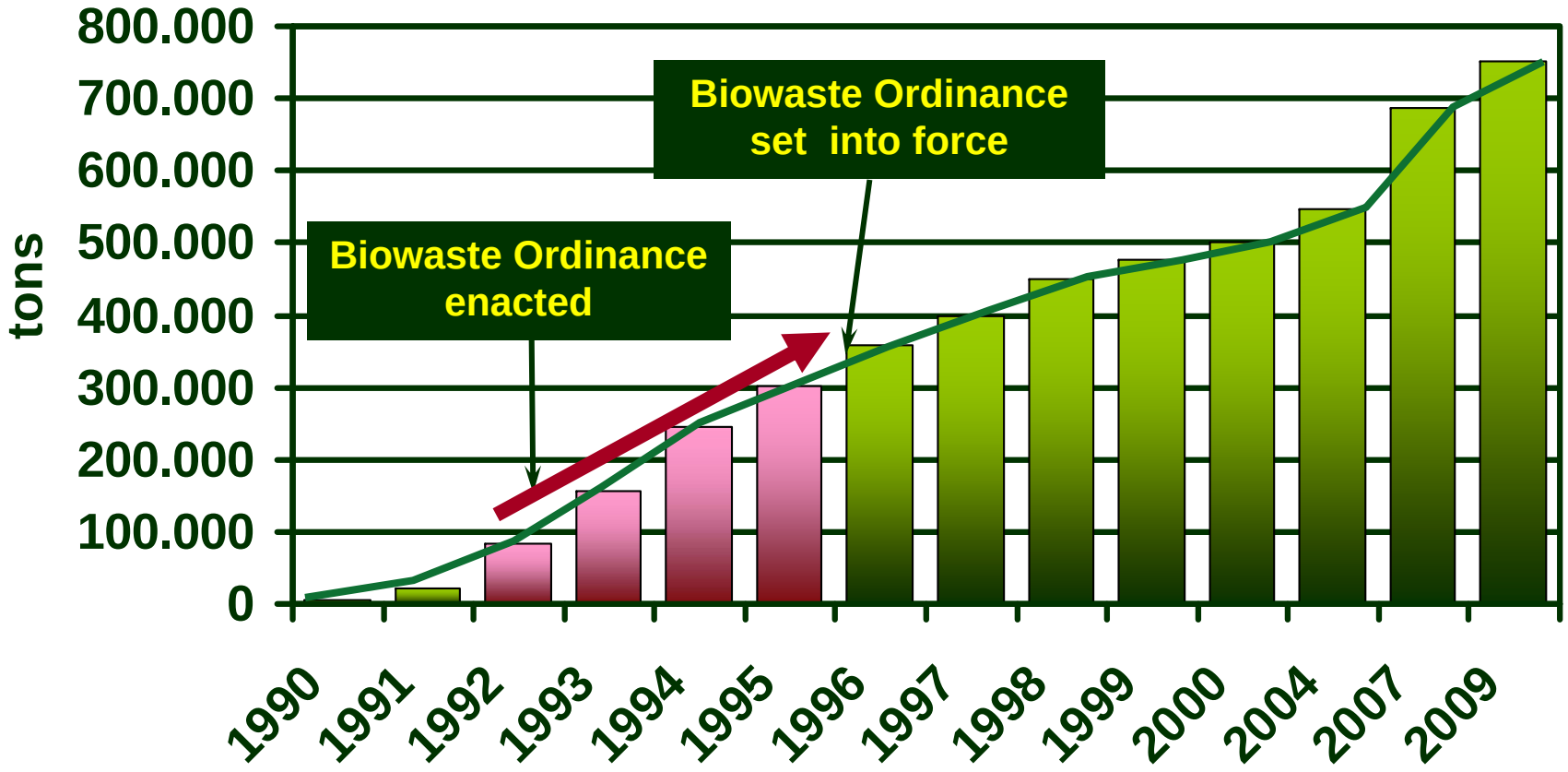
8.35 mio inhabitants



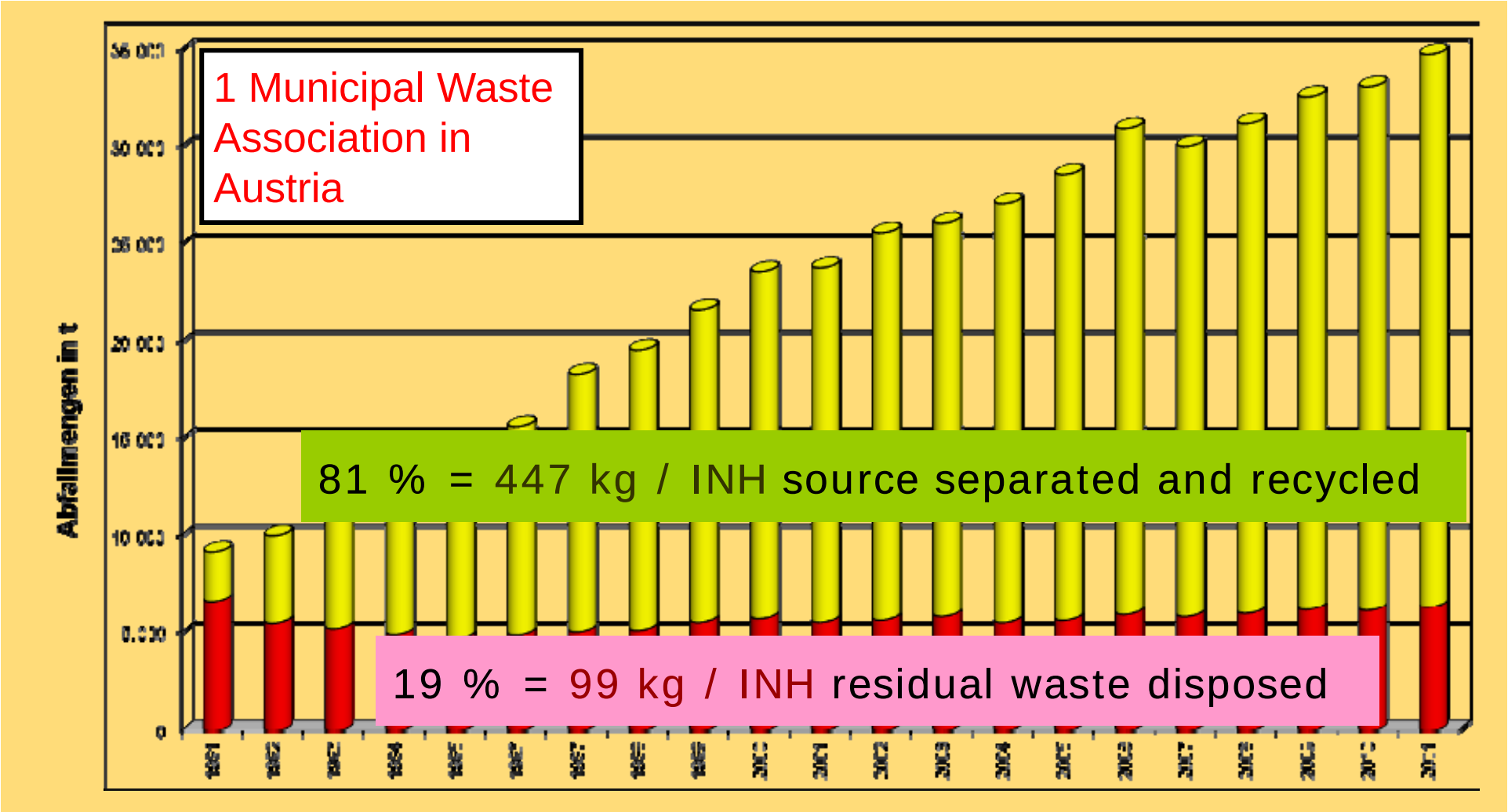
	Composting
Number	454
Total capac.	976.000
Average capac.	2.800 t

16,000 Inh per composting plant

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

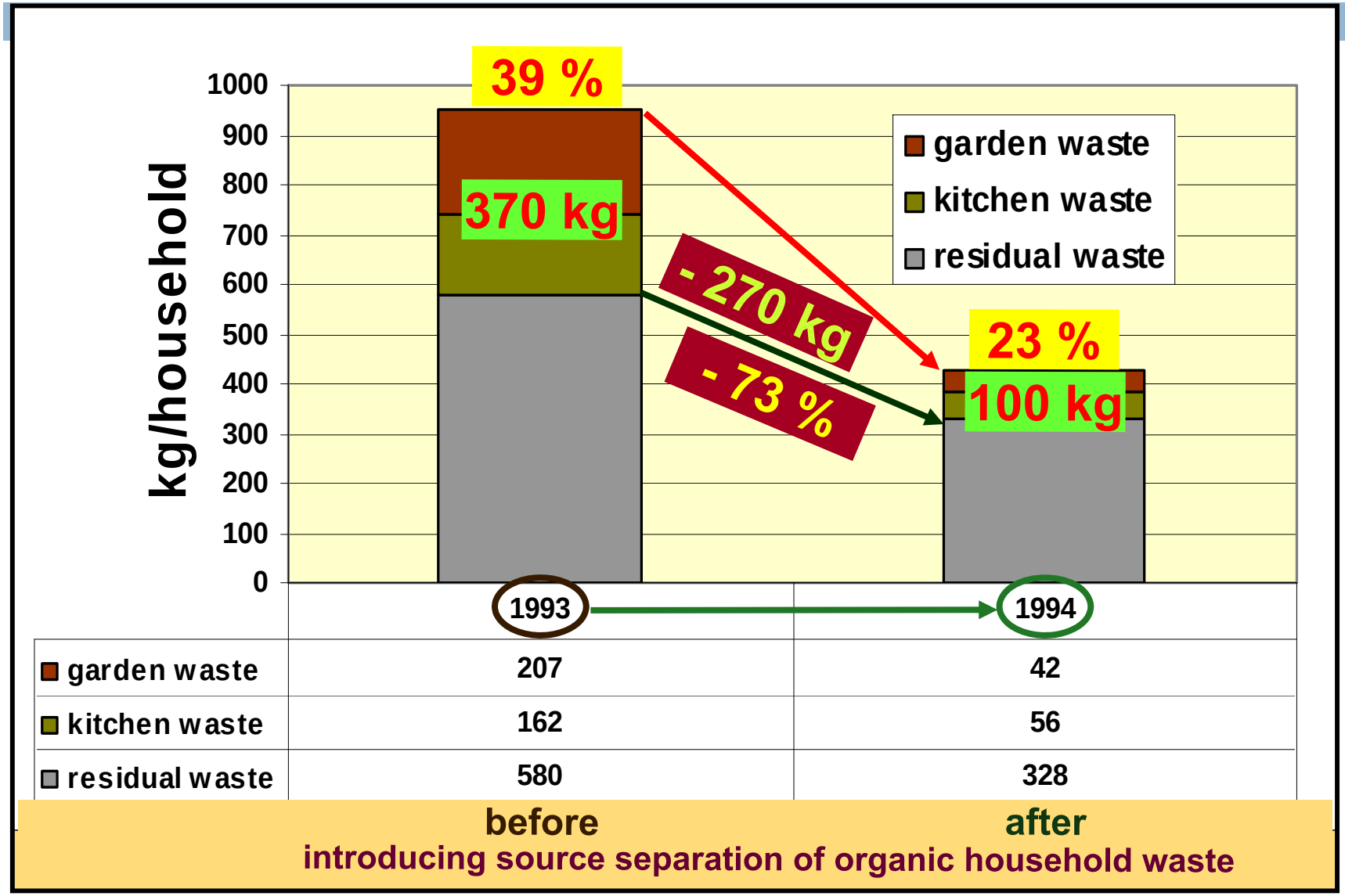


Impressive growth of recycling quota (1991-2011)



Source: BAV Freistadt, Austria

Reduction of Biowaste in Residual Waste

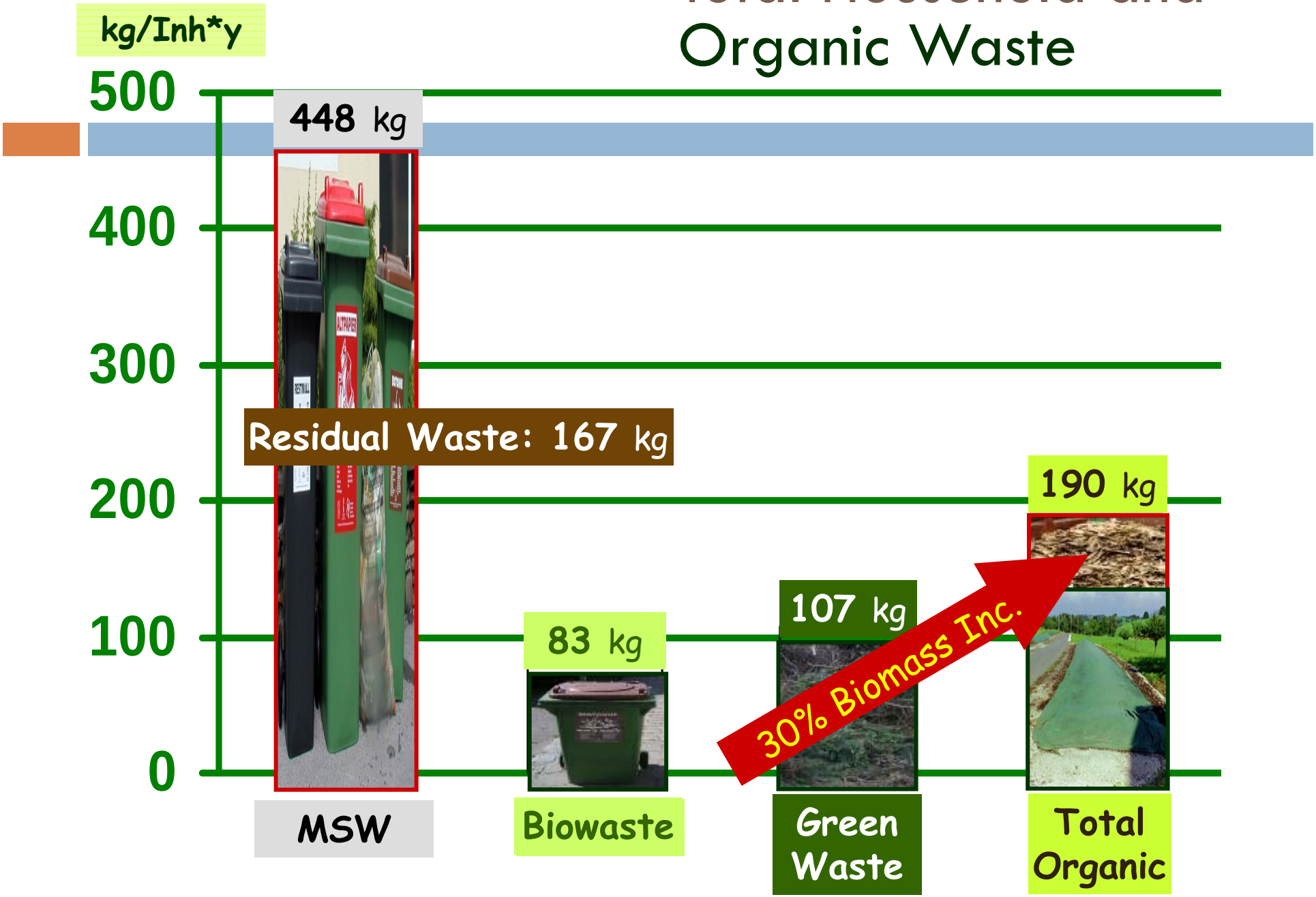


	1993	1994
garden waste	207	42
kitchen waste	162	56
residual waste	580	328

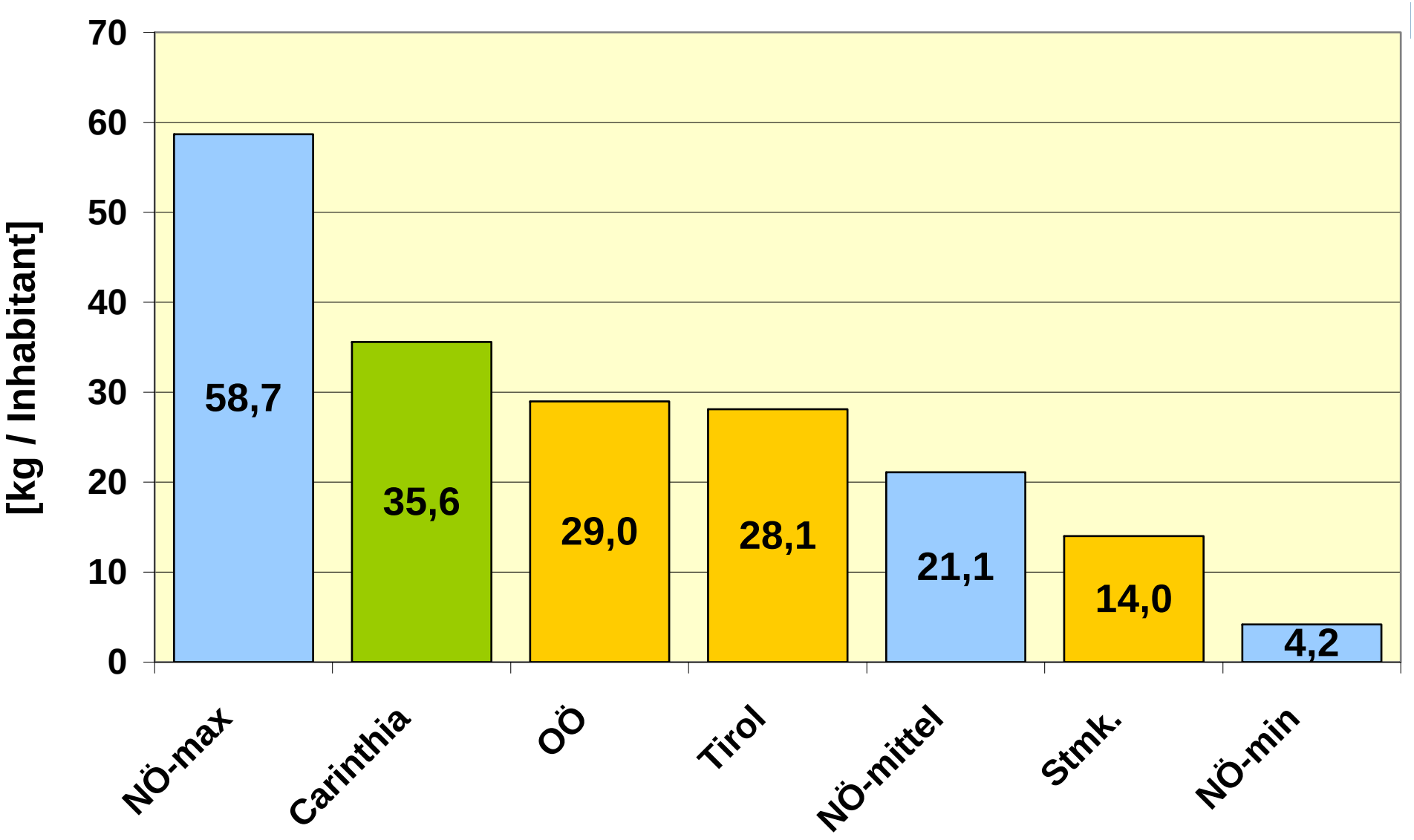
before **after**

introducing source separation of organic household waste

Total Household and Organic Waste



Compostables 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

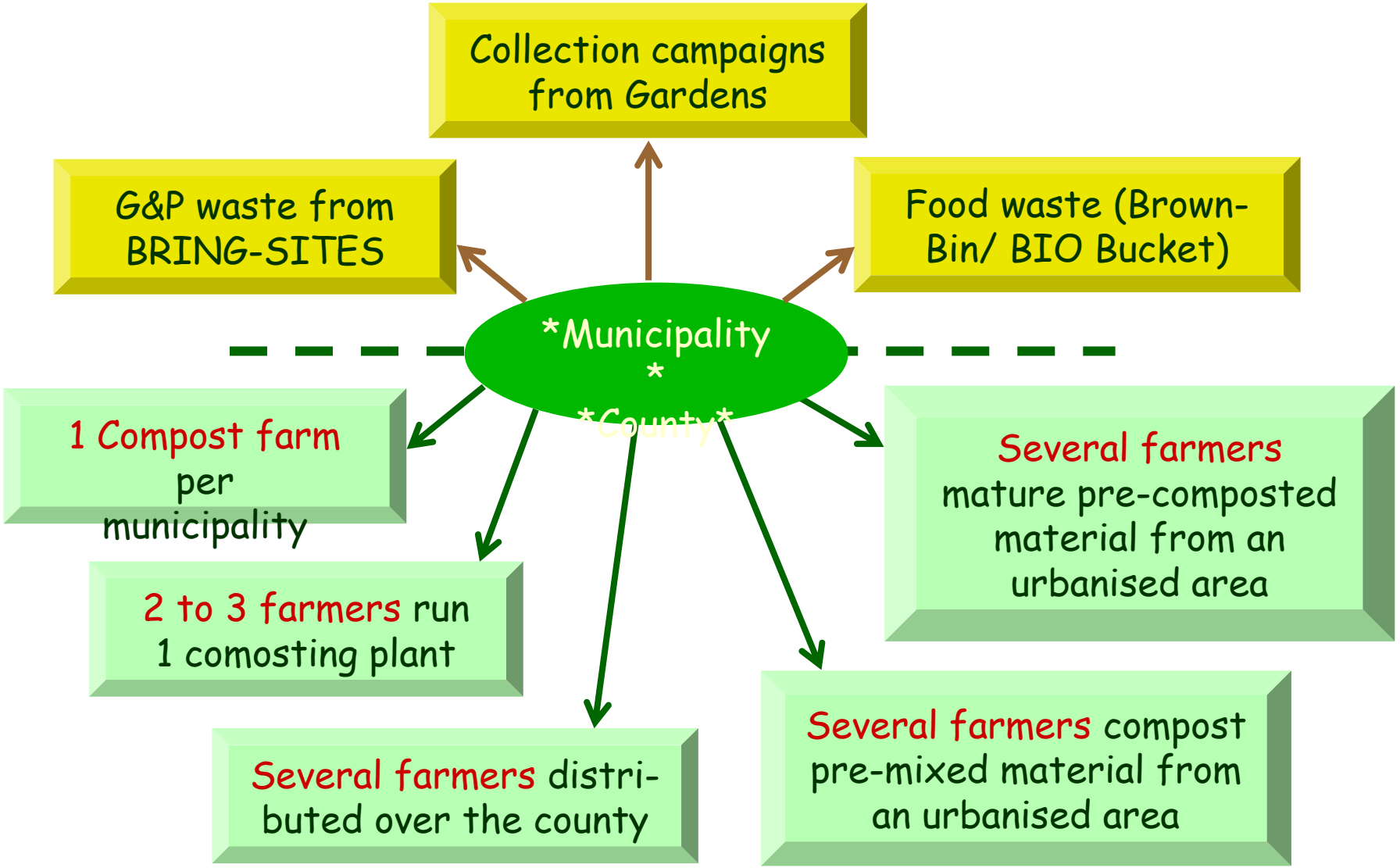
Priority III

Favouring Agricultural Composting

The definition of an Agricultural Composting Plant

Agric. Land	30 ha
Kg N / t compost	**10**
Max N supply/ha	**170 kg/ha**
Max COMPOST appl.	**17 t/ha**
Max BIOWASTE/yr	**1,460 t/yr**

Farmer's Services & Cooperation Models



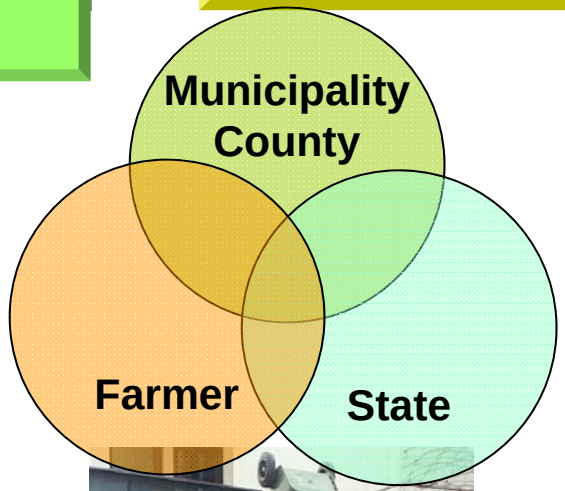
Cooperative Investment & Financing

Loader

Engineering & Construction

Containers

Turner



Shredder

Collection truck

Screen; wind sifter, magnetic separator

Collection Schemes

Bio-Bin [120 l]
100 l / week

Bio Bucket
35 l / week

Bio Bag
17 l / week

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
Blumenerde Kompost
Bioabfall zur Blumen Erde
Bäuerliche Kompos
für Sie unterwe


Blumenerde Kompost
Bäuerliche Kompost
für Sie unterwegs!

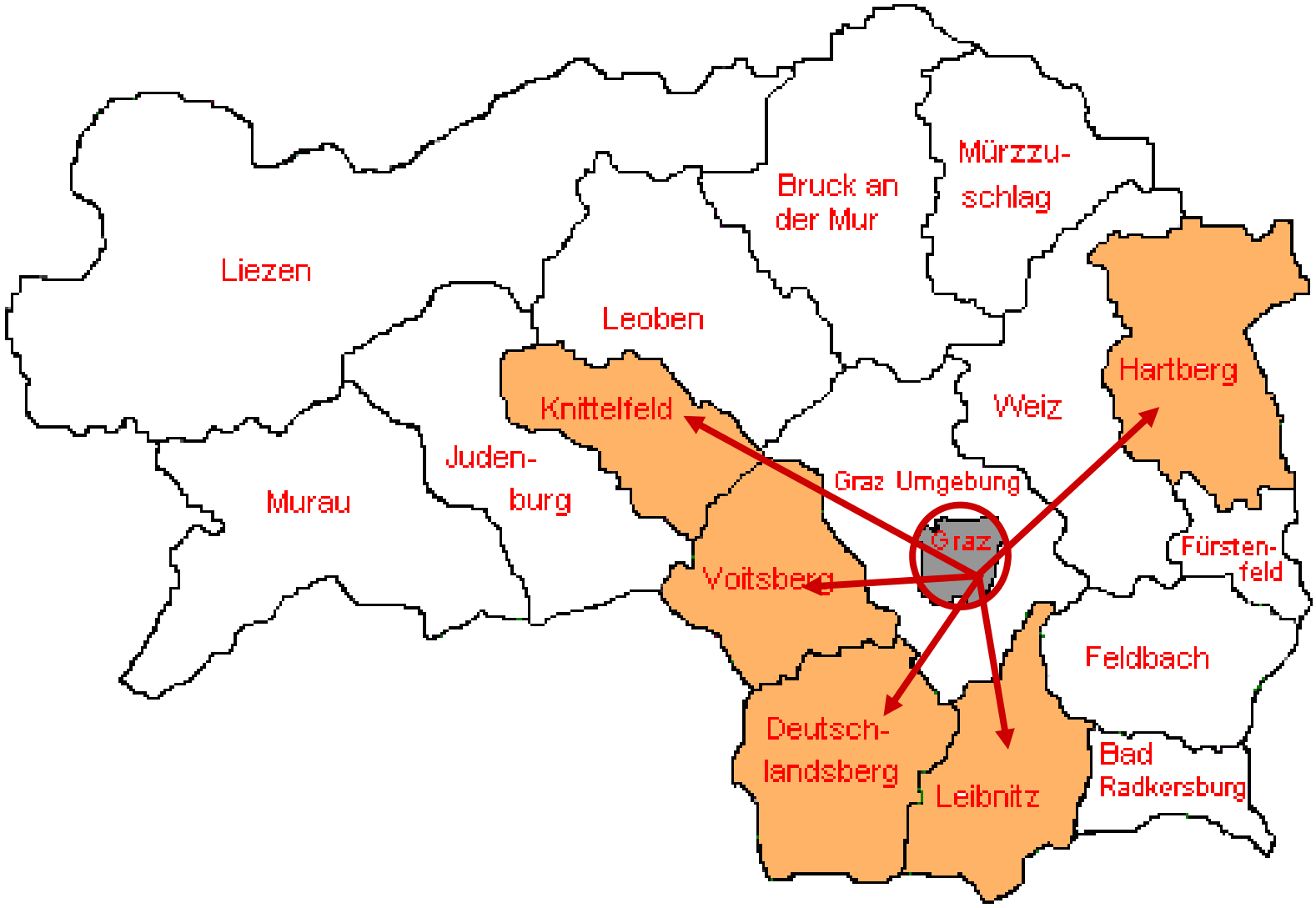
Foto: Waste Management Association Rohrbach, Austria

Simple collection trucks also for bio-bins

Simple collection

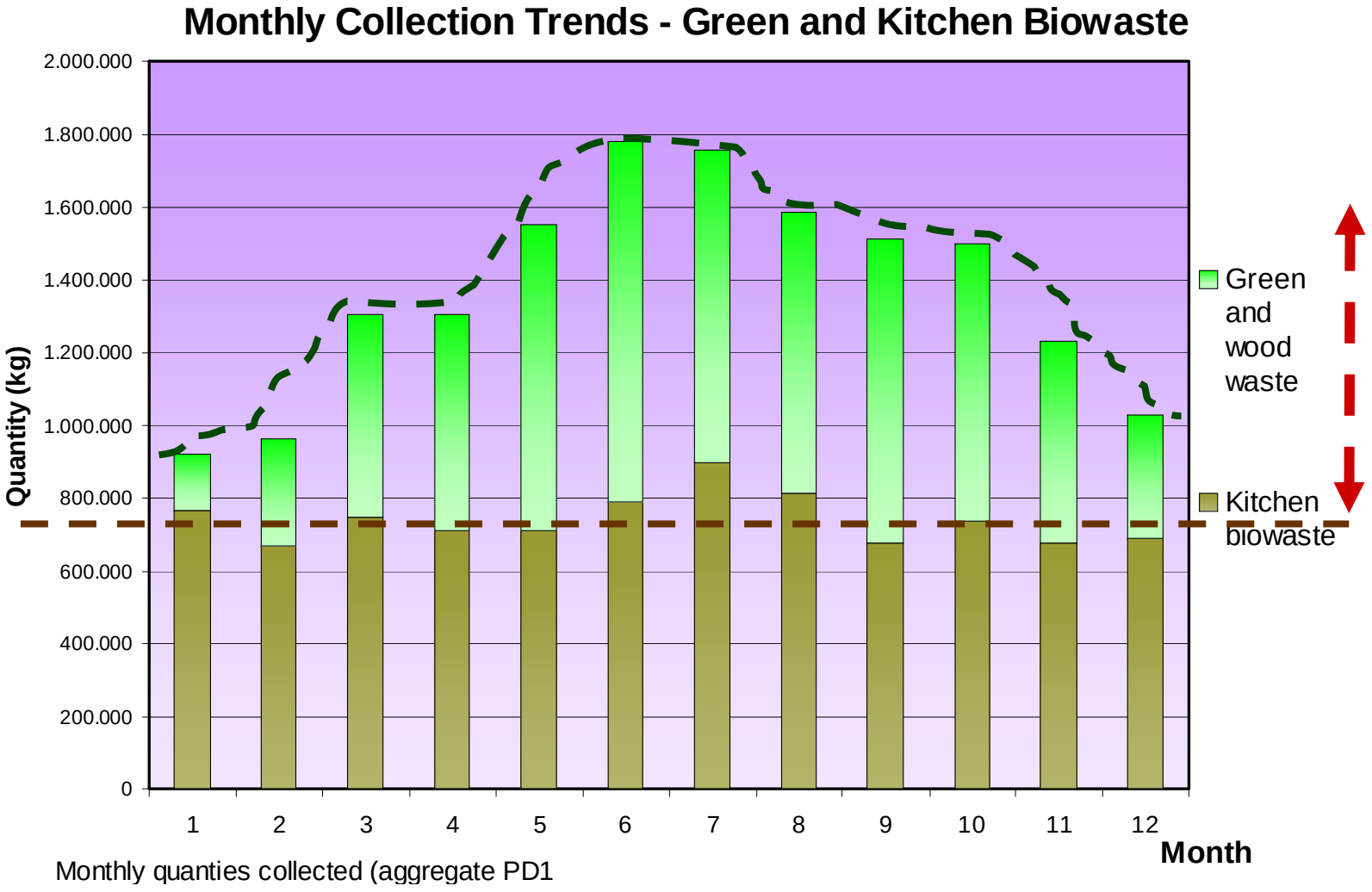
The Graz Model - Step 1: Pre-Treatment

The Graz Model - Step 2: Transport to Farms



The Graz Model - Step 3: Delivery & Composting

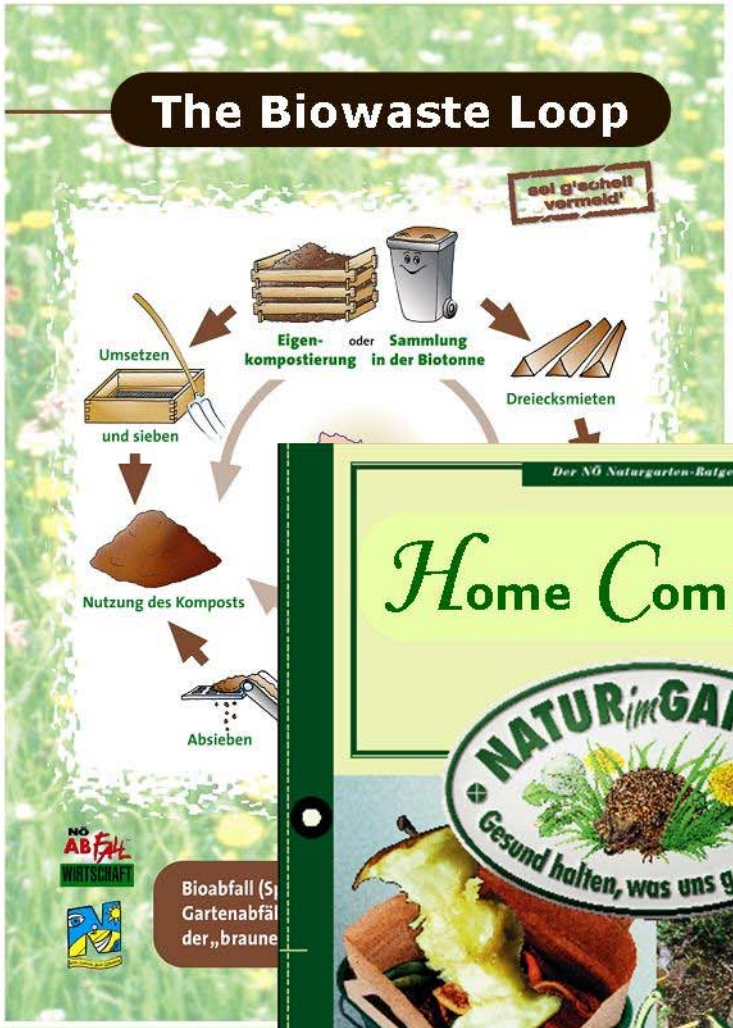
Seasonal fluctuations – garden waste



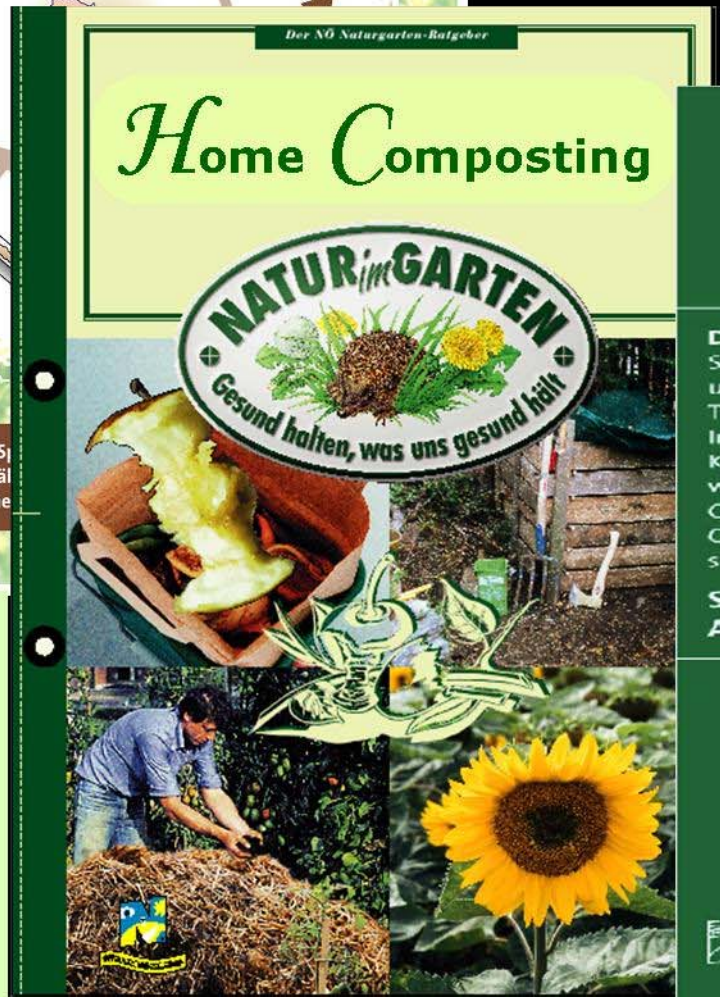
Collection of GARDEN WASTE

Garden Waste Collection Sites –

The good Examples


The Biowaste Loop
sei g'scheit vermeid'
Eigen-kompostierung
oder
Sammlung in der Biotonne
Umsetzen
und sieben
Dreiecksmieten
Nutzung des Komposts
Absieben
NÖ ABFALL WIRTSCHAFT
Bioabfall (S
Gartenabfäl
der „braune


collecting
biowaste
Von der Biotonne zum Kompost – Richtig Bioabfälle sammeln
Sammeltipps für die Küche – Betreuung und Pflege der Biotonne


Der NÖ Naturgarten-Ratgeber
Home Composting
NATUR im GARTEN
Gesund halten, was uns gesund hält


natural talent !
Die Natur kennt keine Abfälle.
So sind Bioabfälle aus Küche und Garten ein wichtiger Teil des natürlichen Kreislaufs.
In der Biotonne oder im Kompostbehälter gesammelt, wird daraus wertvoller Humus.
Geben Sie der Natur eine Chance ihre Kreisläufe zu schließen, sammeln Sie mit.
So macht Abfallwirtschaft Sinn.
Landesrat Mag. Wolfgang Sobotka
sei g'scheit vermeid'
die niederösterreichischen ABFALLverbände
www.abfallverband.at

Tools and instruments to manage home & community composting

lastic composter	Do it youself composter	Do it youself composter	Compost pile
			

iving and orking with ature

Landmanagement
United Research for Soil

Training small scale
Home & Community Composting

Fotos: WMA Rohrbach, Amlinger

Shredder

Fotos: Hildebrandt, Amlinger

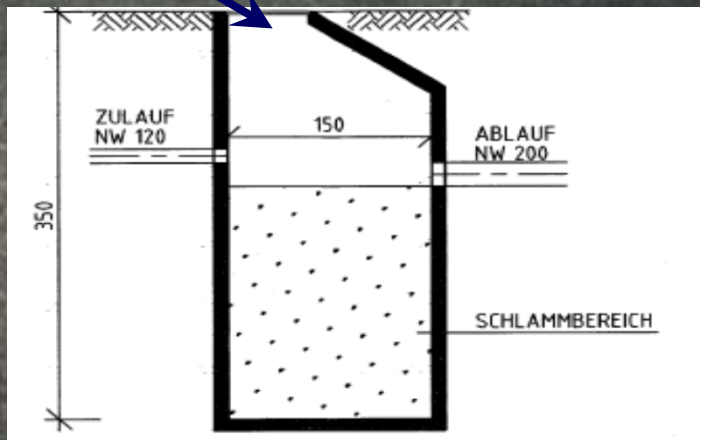
Mixing the „Ingredients“

Fotos: Hildebrandt, Amlinger

OPEN WINDROW composting

2 to 5 % slope

Fotos: Hildebrandt, Amlinger



SCHLAMMSAMMLER M=1:50

Registered Composting Plant

Storage

Mixing

Condi-
tioning

batch composition …
batch monitoring …
°C, turning, watering …

C3

C2

C1

Residues

Compost = Product

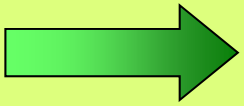
INPUT

Receipt Control

QM: the principle of a traceably documented process

Compost Certification Scheme

- **Agricultural Composting Plants**



300,000 t

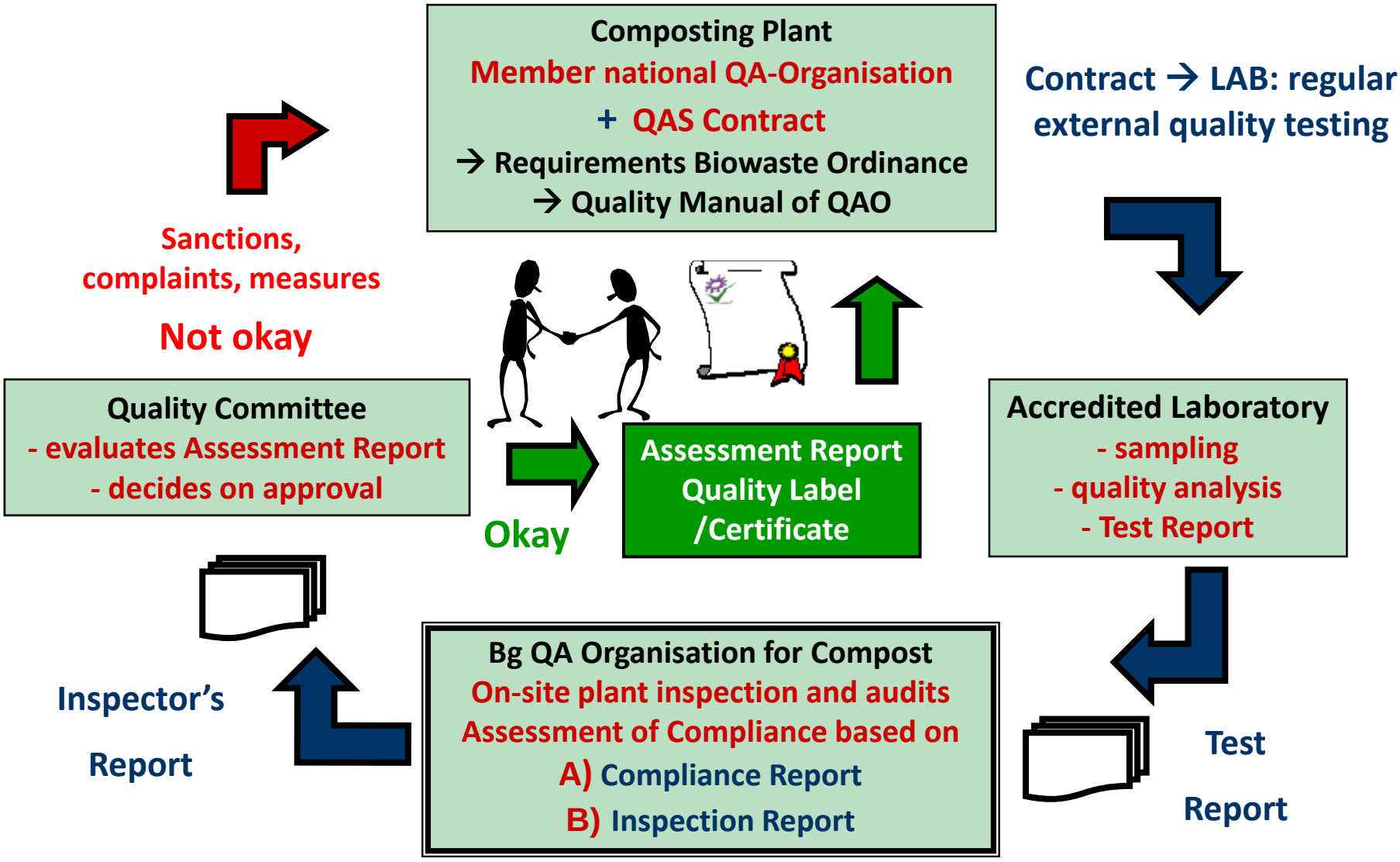
293 Composting pl.

179 Biogas pl.

~ 1,000 t/plant

- **1-4 external inspections per year**
  - ✓ Check of records, materials and quantities
  - ✓ Process Control & Quality Management according to „The State of the Art of Composting"
- **At least 1 external sampling and full analyses per year according to the Compost Ordinance**

The Quality Assurance System



On-Farm Composting Training

On-Farm Composting Training

The conclusion

➢ Why decentralised ON-FARM Composting

- ✓ Creates rural income, strengthens family farm structures and local bio based economy
- ✓ Guarantees high agricultural recycling rate
- ✓ Reduces costs and efforts for marketing
- ✓ Guarantees short distance carbon cyle and humus build-up in soil
- ✓ Opens the door to organic farming / sustainable soil and humus management
- ✓ Farmer = educated in organic material handling
- ✓ Own use of compost drives quality management
- ✓ Strengthen traceability & confidence of recycling scheme
- ✓ Reduces CapEx + treatment and transport costs

"…Technological measures and regulations are important, but equally important is support for education, ecological training and ethics — a consciousness of the commonality of all living beings and an emphasis on shared responsibility."

Vaclav Havel, 27 Sep 2008

European Compost Network ECN

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www. compostnetwork.info

arge kompost & biogas

Ευχαριστώ πολύ !!!