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the European Union

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Basics and good practices of collaborative governance in nutrient pollution handling and nutrients recycling

1st Capacity Building Session
28 July 2026

In collaboration with:



Corporate innovation and
capacity building –
the case of ProfiKomp,
a Hungarian waste management company

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ProfiKomp[®] 25



PROFIKOMP Inc. (www.profikomp.com)

- ✓ **PROFIKOMP** is a leading enterprise with complex activities in waste;
- ✓ **PROFIKOMP** - One of the largest **biological waste treatment technology and engineering firms** in the world;
- ✓ **Strong Scientific Expertise:**
 - ✓ **Off-site Department of the MATE** (Hungarian University of Agriculture and Life Sciences)
 - ✓ **24 major European R&D projects**, 100s of scientific papers, and multiple textbooks
- ✓ **Installation** of **100+** biological waste treatment facilities in **20** countries (**500 tpy-220,000 tpy** references);
- ✓ **Complies** with international **standards** and meets **BAT/BREFs**



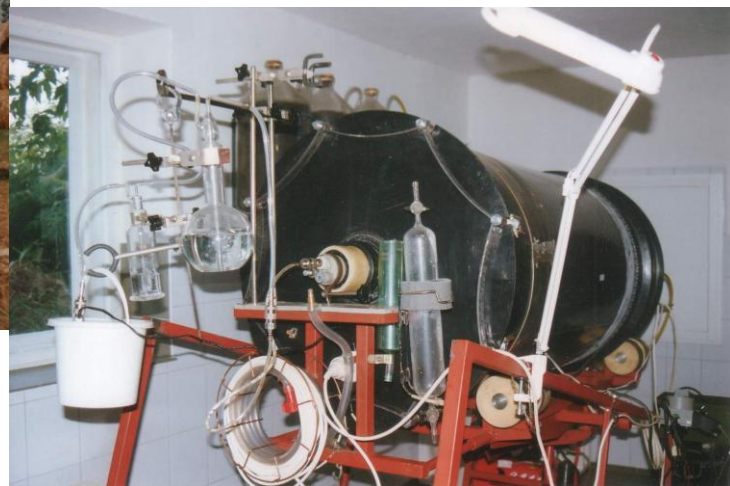
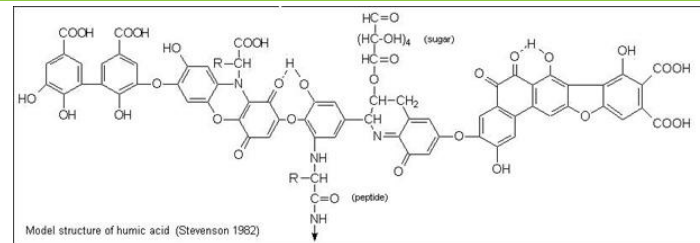
Beginnings ...



1991 - Austria



1995 – GATE Diploma Thesis



2001 – PhD.

Composting as a passion ☺



Beginnings ...



1998 – 1st membrane covered technology supply



2000 – International projects



Continuous innovation

Well-functioning reference sites!



100+ projects in 20 countries - complying with international standards and BAT/BREFs





Organizations, Memberships



**Hungarian Compost
Association**
Founder Member
(1999)



**European Compost
Network**
Founder member (2002)

SILVER MEMBER.

Profikom Environmental Technologies
Inc.

is hereby granted membership and appropriate access to all the rights
and privileges ISWA members enjoy.

ISWA (International Solid Waste Association) is the only international
association working to ensure sustainable and environmentally friendly
solutions in the waste management sector with a view to optimising and
enhancing the efficiency of waste management at a global level.

The ultimate strength and potential of ISWA lies in the professional and
geographic diversity of its membership – a mosaic of member communities
including researchers and research centres, utilities, consultants, private and
public enterprises, organisations and manufacturers. ISWA members from each
of these communities represent the leading edge in their fields of speciality, and
together they are building new frontiers in global waste management through
interdisciplinary exchange and collaboration.

Marc Tjihuis
ISWA Managing Director

Carlos Silva Filho
ISWA President



Member Number:

13258

Membership Validity:

05/2021 - 05/2022



**US Composting
Council®**



*Conseil canadien du
COMPOST
Council of Canada*

SWANA
SOLID WASTE ASSOCIATION OF NORTH AMERICA



Profikomp Innovation, Training and Demonstration Center

- ✓ Offices;
- ✓ Lecture halls;
- ✓ Trainings;
- ✓ Laboratories;
- ✓ R+D+I;
- ✓ Phytotron;
- ✓ Odour laboratory;
- ✓ Warehouses;





ProfiKomp circular economy model



INSECT BREEDING
(PROTEIN, CHITOSAN)

BIOWASTE
BY-PRODUCTS



AEROBIC COMPOSTING

ANAEROB BIOGAS
(ELECTRICITY, HEAT,
BIOMETHANE,
HYDROGEN, ALGAE)

Core business



Publications (Q1...)



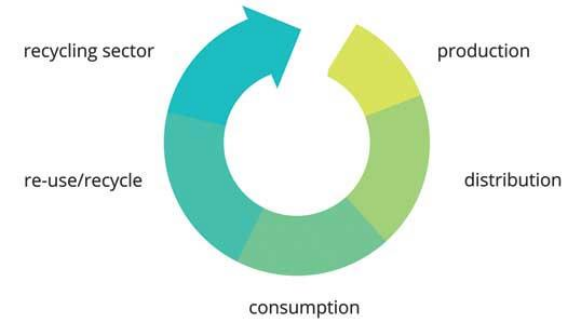
Circular economy – legal framework



LINEAR ECONOMY



CIRCULAR ECONOMY





Legal framework

EU: Circular Economy Legislative Package (EP: May 30, 2018) – mandatory introduction of separate biowaste collection, landfill disposal <10%, material recovery 65%+

Act CLXXXV of 2012 on Waste, amended by Act II of 2021 on the amendment of certain energy and waste management laws (February 25, 2021)

Government Decree 559/2023 (XII. 14.) – “BIOWASTE DECREE” – treatment requirements, use of composts



BIOWASTE UTILIZATION IN THE EU

Sweden:
67 sites, 1.07 million tons of biowaste

Finland:
259 sites, 0.48 million tons of biowaste

United Kingdom:
199 sites, 2.95 million tons of biowaste

Netherlands:
135 sites, 4.20 million tons of biowaste

Belgium:
81 sites, 2.03 million tons of biowaste

Germany:
912 sites, 8.87 million tons of biowaste

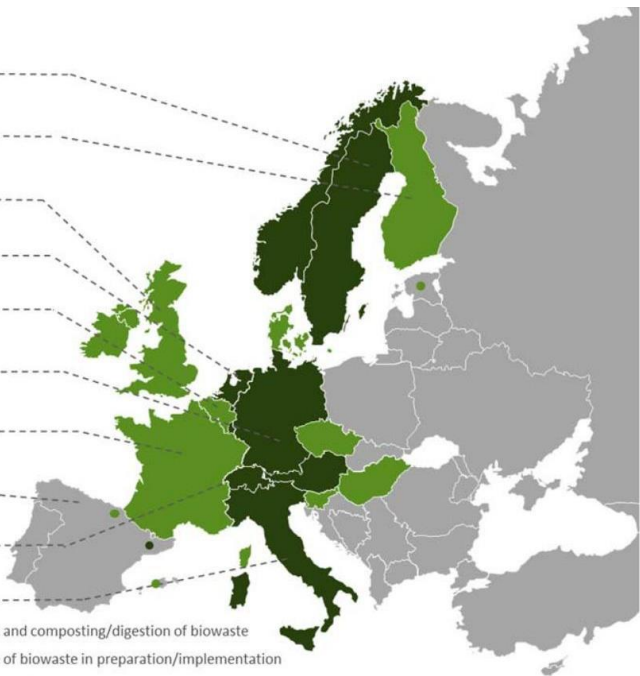
France:
692 sites, 4.62 million tons of biowaste

Spain:
67 sites, 0.87 million tons of biowaste

Switzerland:
287 sites, 1.00 million tons of biowaste

Italy:
298 sites, 5.30 million tons of biowaste

■ Separate collection and composting/digestion of biowaste
■ Separate collection of biowaste in preparation/implementation
■ Only limited collection of biowaste



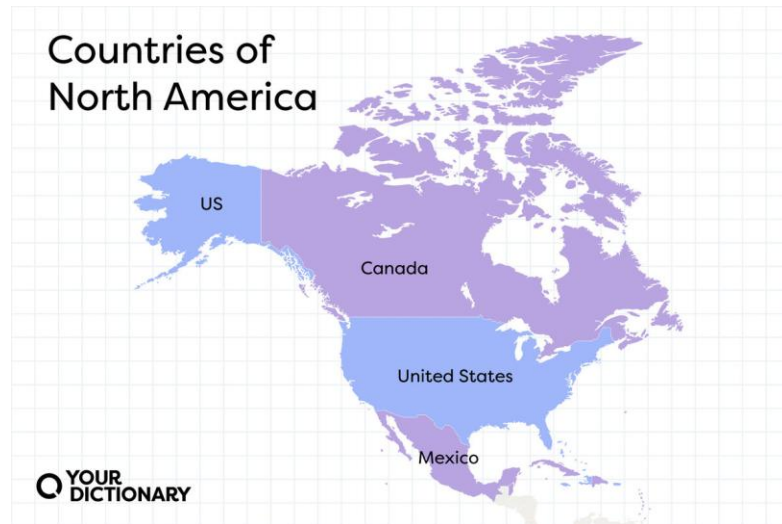
- ✓ **123 million tonnes/year:** EU biowaste generation;
- ✓ **4,200 biowaste treatment plants;**
- ✓ **47.5 million tonnes/year** of biowaste **utilized;**
- ✓ **117 kg/capita/year** biowaste utilized – **EU average;**
- ✓ **25 kg/capita/year** (countries that joined in 2004/2007).

Europe: capacity needs to be doubled!



BIOWASTE UTILIZATION IN NORTH AMERICA

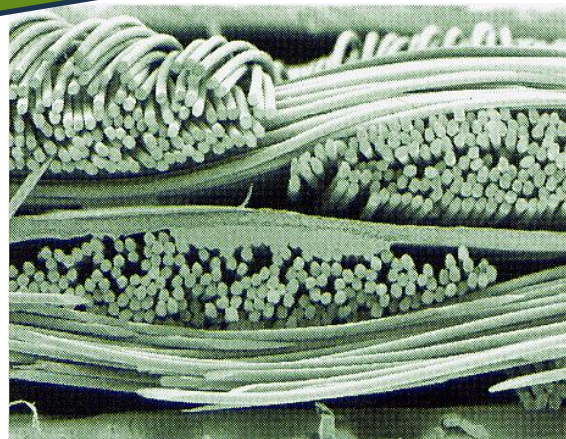
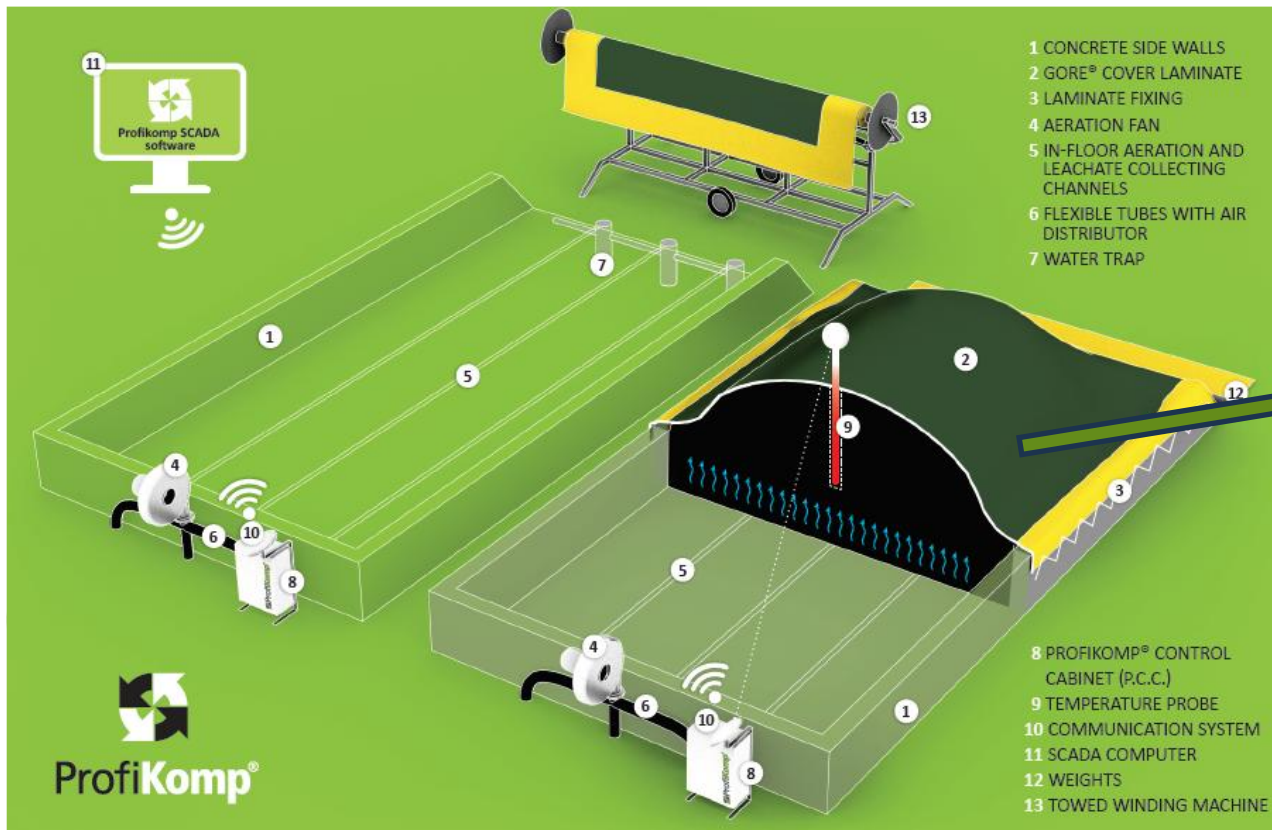
- ✓ **Population:** 335 M + 40 M
- ✓ **Biowaste production:** 70+ m tpy
- ✓ **Existing composting capacity:**
24,7m + 3 m tpy
- ✓ **Compost infrastructure:**
5500+ US, 600+ CAN



North America: capacity needs to be doubled! 13



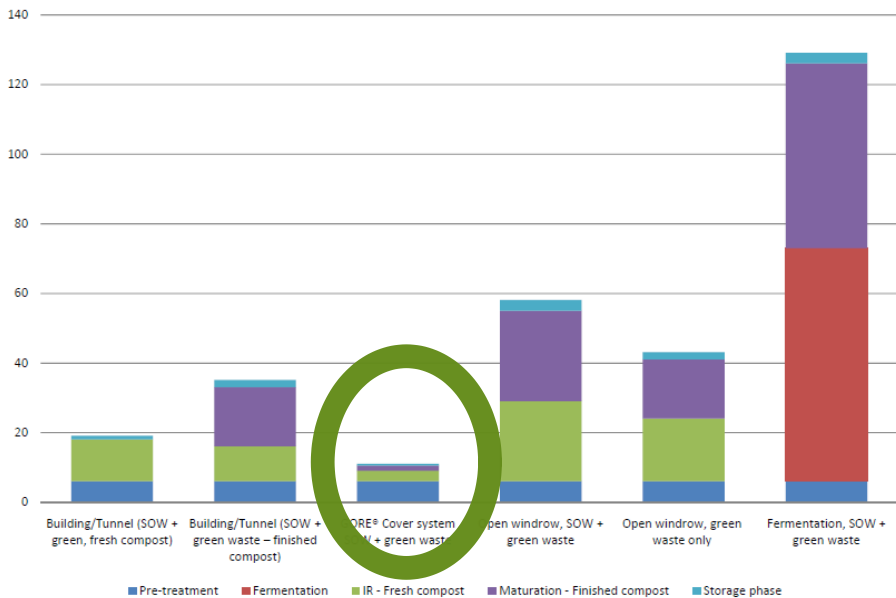
Membrane-covered, aerated, controlled ProfiKomp® technology





ProfiKomp technologies

Carbon dioxide equivalents from operating facilities respectively treatment stages of composting methods



- ✓ **Closed system**
- ✓ **Low CAPEX and OPEX;**
- ✓ **Emission reduction above 90%;**
- ✓ **Optimized moisture management;**
- ✓ **Weather-independent;**
- ✓ **Guaranteed output quality;**
- ✓ **Compliance with BAT/BREFs;**

Umwelt Bundesamt (UBA):

- Industry average: 47 kg CO₂ eq./tonne
- Membrane-covered technologies: **12 kg CO₂ ekv. /tons**



ProfiKomp® REFERENCES

FEEDSTOCKS

High quality compost production (EoW, organic fertilizer, soil improver):

- ✓ Biowaste (green-waste, kitchen waste);
- ✓ Sewage sludge (biosolids);
- ✓ Animal by-products (ABP);
- ✓ Agricultural and food industry waste and by-products;
- ✓ Digestate from biogas production;
- ✓ Special waste streams (biopolymers, paper sludge...)

MSW pretreatment before landfilling and/or energetic utilization:

- ✓ Biological stabilization ($AT_4 < 10 \text{ mg O}_2/\text{g d.m.}$)
- ✓ Biodrying ($\text{d.m.} < 20\%$);



ProfiKomp® – world first: PFAS-free ProfiCover® membrane laminate

ProfiKomp®



ProfiKomp®
www.profikomp.com

PFAS-Free ProfiCover® PRIME

Did you know that most compost covers on the market contain fluorocarbons? ProfiCover® Prime is pioneering a safer alternative, free from hazardous fluoropolymers, ensuring both eco-consciousness and cost-effectiveness as a new generation PFAS-Free membrane cover.

WHY PROFICOVER®?

- Enhanced breathable compost cover utilizing top-tier membrane technology
- Providing waterproofing while enabling air permeability
- A three-layer system harmonizes a PFAS-Free membrane with polyester, resulting in functionality and durability for long-lasting performance

PREMIUM QUALITY PRODUCTION

- Production adheres to the strictest European standards (Made in EU)
- Complies with the industry's highest laminating standards
- Crafted for long-lasting reliability and enduring performance

UNCOMPROMISED PERFORMANCE AND SPECIFICATIONS

- Third-party certification confirmed superior technical performance, with greater 90% reduction in emissions: VOCs, odors, NH₃, and GHGs
- Performance guarantee: matches or surpasses the performance of current fluoropolymer compost covers
- Materials and manufacturing sourced within Europe

Why settle?
Upgrade to ProfiCover® Prime for top-tier performance without the environmental impact!



Measure state	Ammonia, NH ₃ (ppm)	NMET VOC (mgC/m ³)	Odour OU/m ³ exhaust air
ProfiCover®	569,45	12,14	332,0
Uncovered, open	11 589,70	187,97	3866,0
= Performance or reduction when covered with ProfiCover®	95,1 %	93,5 %	91,4%



ProfiKomp® – world first: The widest portfolio of membrane-covered solutions



<https://breathebin.com/>



ProfiKomp® – world first: The widest portfolio of membrane-covered solutions



Breathable DRUM COMPOSTER

www.breathabledrum.com

Industrial composting quality
merged to a small scale

International patent pending

On-site composting
in a professional way

Equipment meeting
highest standards

Encapsulated • Breathable • Odourless

Also available with complementary shredder and conveyor belt



Breathable Drum -
California Institute of
Technology (CALTECH)

<https://breathabledrum.com>



ProfiKomp® – world first: The widest portfolio of membrane-covered solutions

International award-winning
decentralized composting
at the Sziget Festival



ProfiKomp

<https://profikomp.com/decentralized-composting-technology/>



TAKEAWAYS

- ✓ **Hungary opportunities: to increase organic fertilized land by 50% (150 k hectares with compost), producing 500-700 million m³ biogas from waste and by-products, 15-20 k tpy phosphorus recycling...)**
- ✓ **Legal framework exists, technologies and innovations available, the challenge is economic feasibility;**
- ✓ **Biowaste separation collection have to be improved in many countries (education, PR, good practices...);**

**Thank you for your
kind attention!**

www.profikomp.com

László Aleksza, PhD.

CEO, Profikomp