




Influence of composts and digestates on soil properties - Retrospect and Outlook





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Benefits of compost

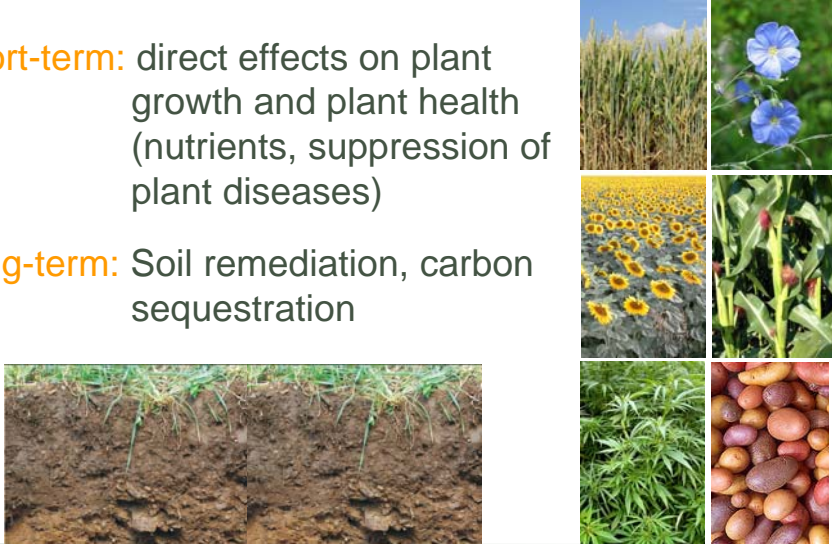
<p>Soil and plants</p> <ul style="list-style-type: none"> • Aggregate stability • Water/nutrient holding capacity • Porosity • Phytosanitary effects 	<p>Environment</p> <ul style="list-style-type: none"> • Resource recovery • Carbon sequestration 	 
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Time frame of effects

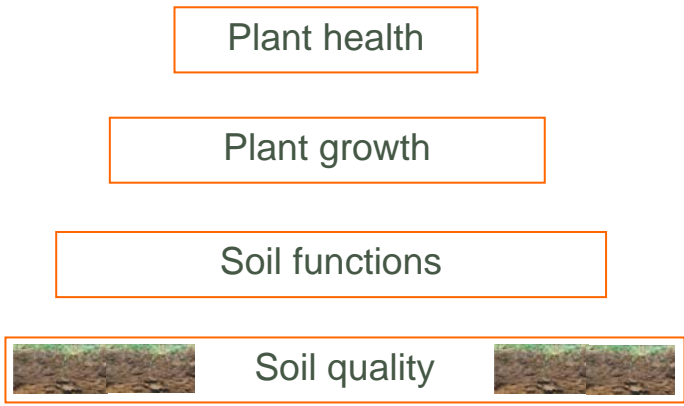
Short-term: direct effects on plant growth and plant health (nutrients, suppression of plant diseases)

Long-term: Soil remediation, carbon sequestration



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The fundament of plant health

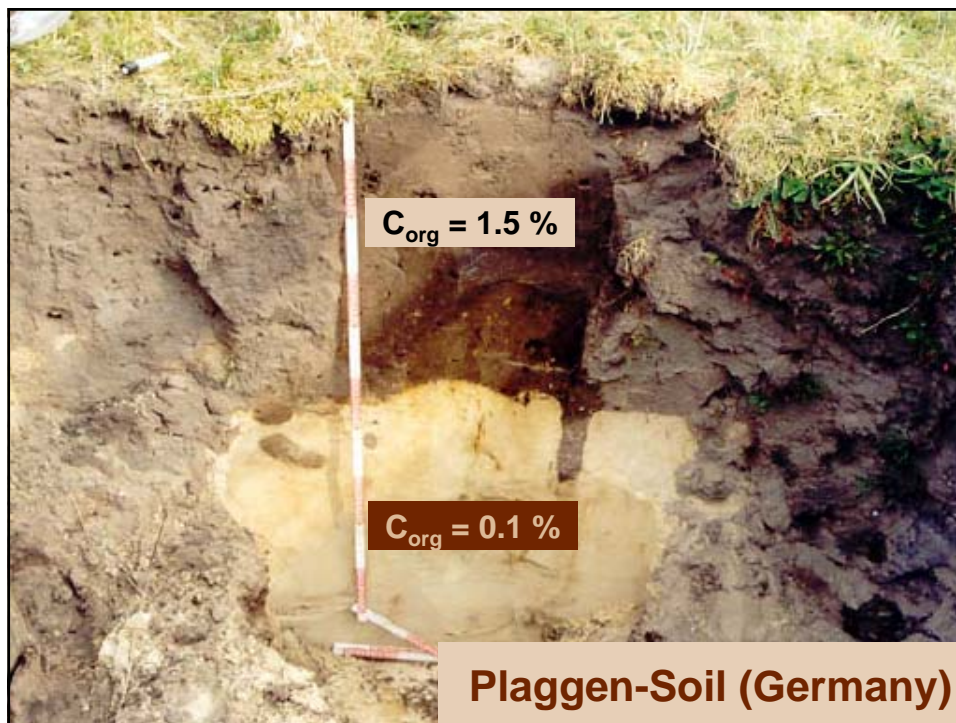
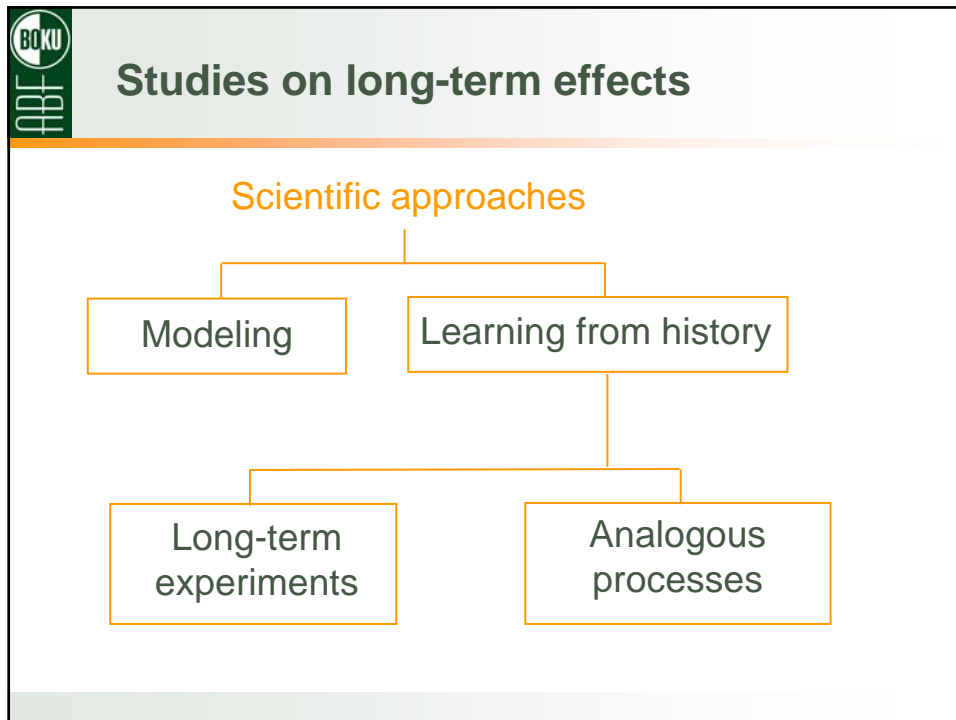


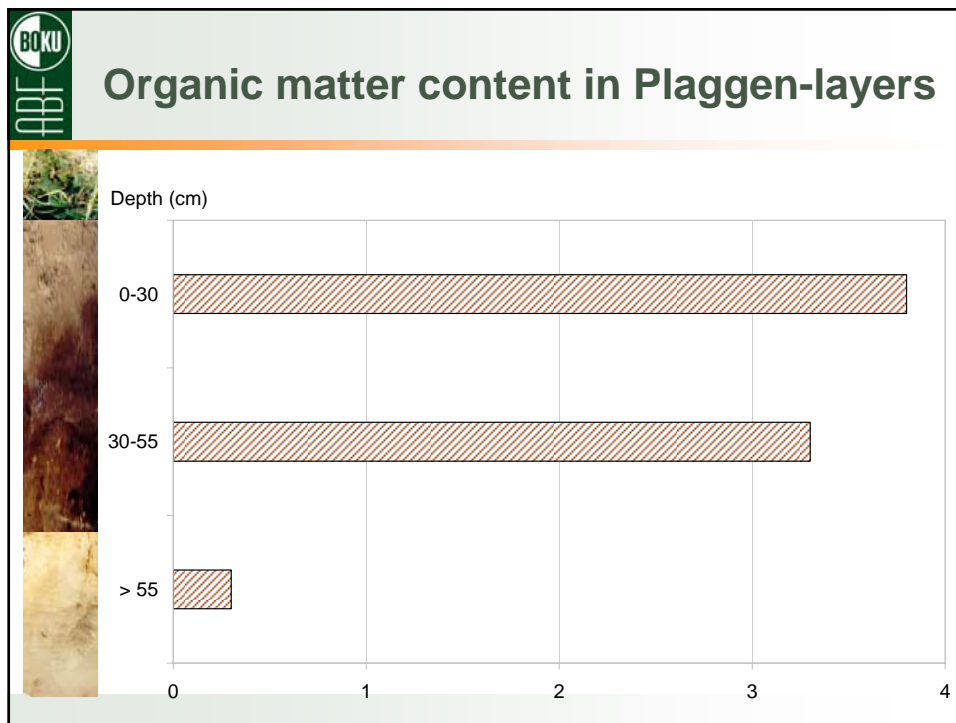
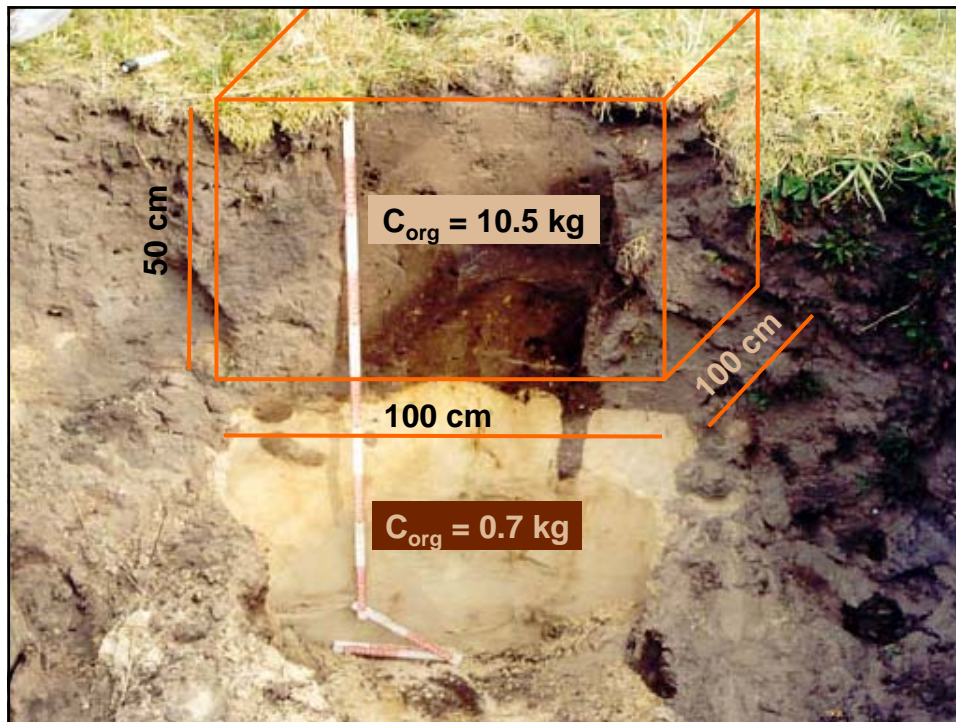
Plant health

Plant growth

Soil functions

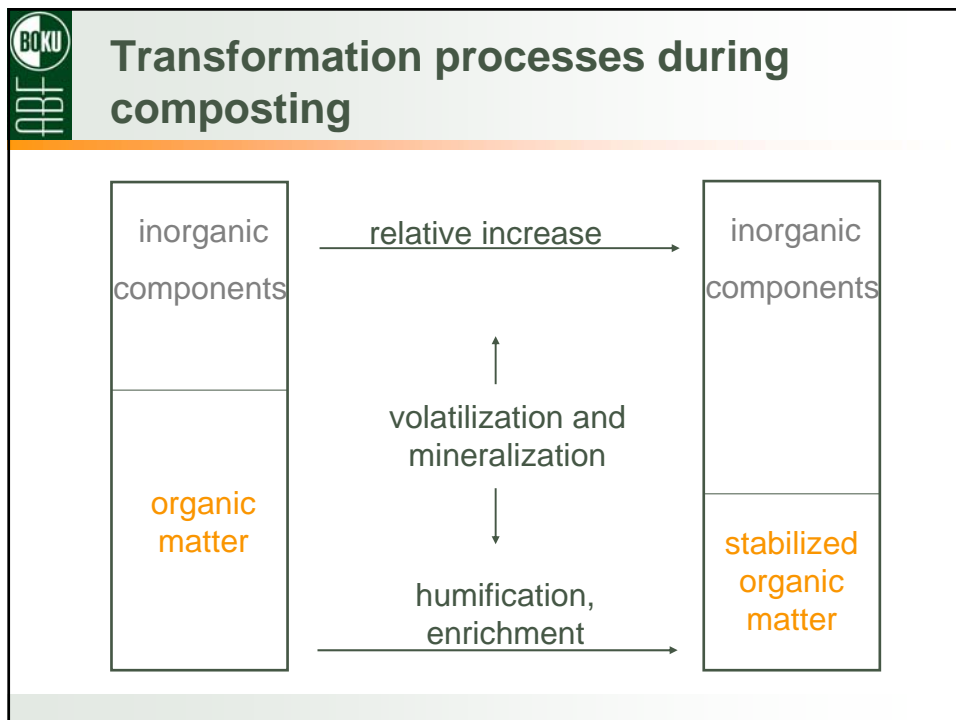
Soil quality

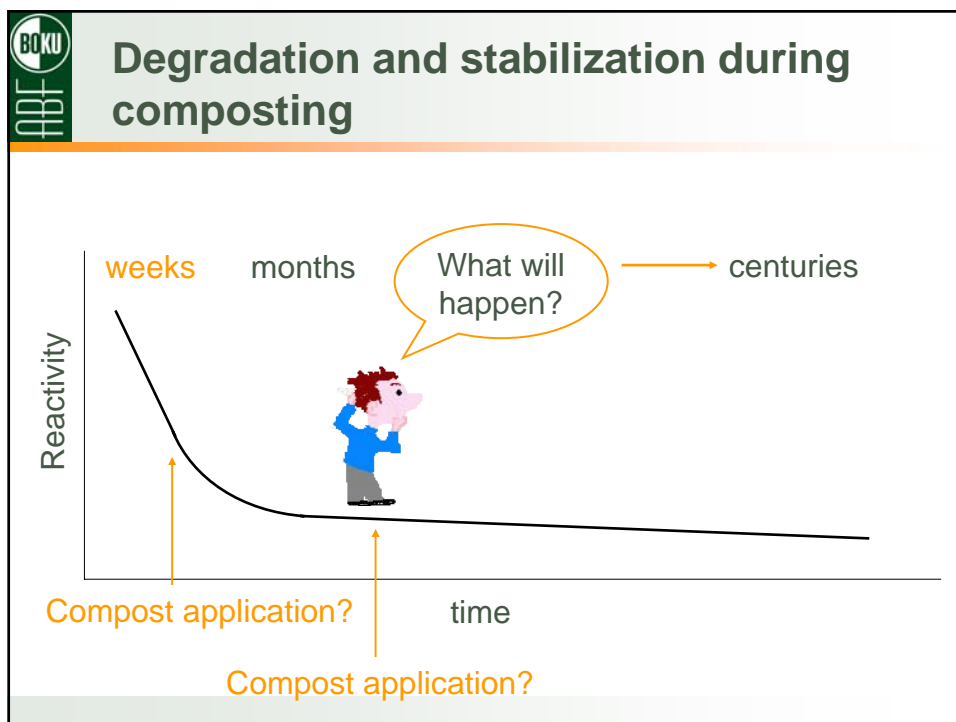
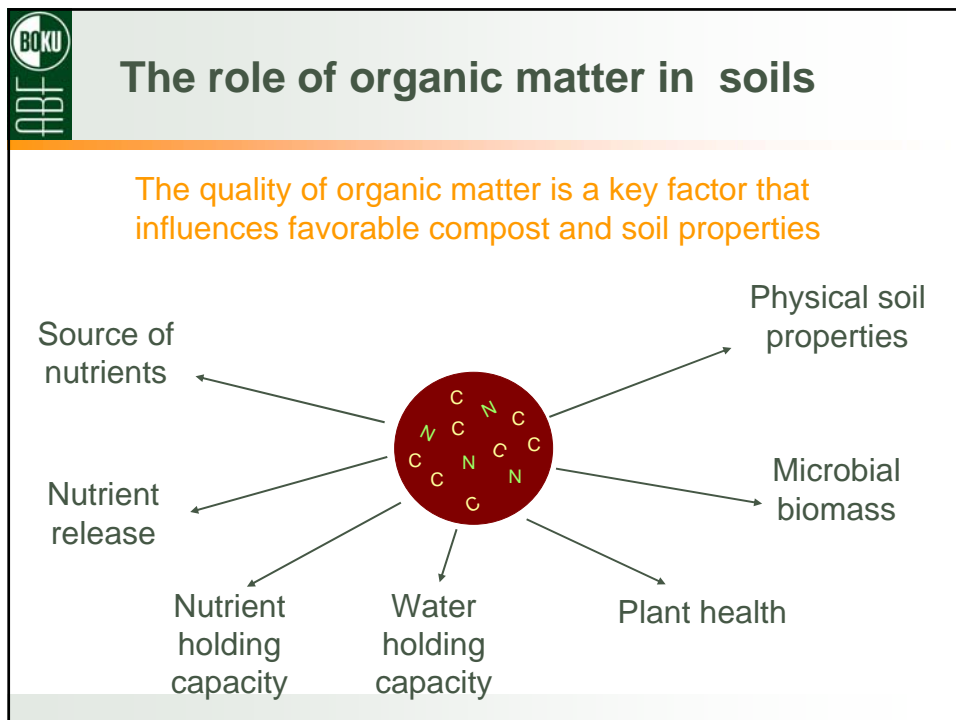




Carbon pools in soils

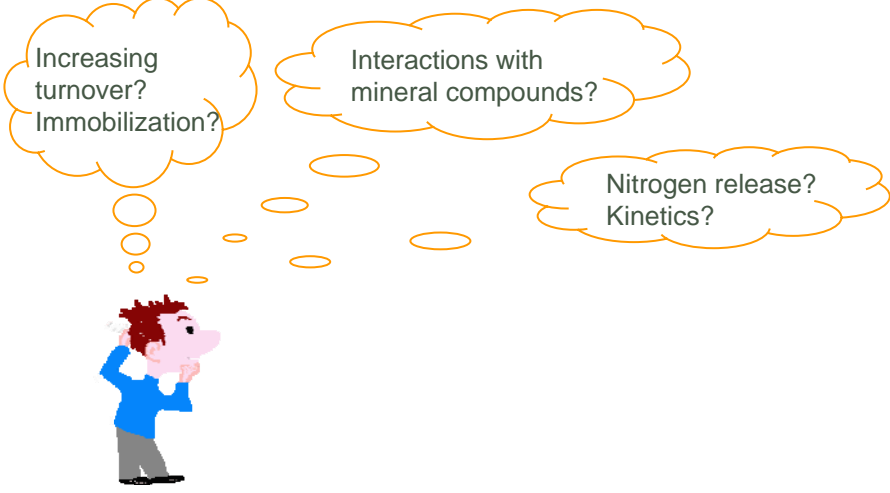
- „Light fraction“
- „Heavy fractions“ (organo-mineral compounds)
- Microbial biomass





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Many questions.....



Increasing turnover?
Immobilization?


Interactions with mineral compounds?

Nitrogen release?
Kinetics?

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Humic substances

- Stable fraction of organic matter
- **Beneficial effects**
- Quantifiable






Quality improvement

- Well-balanced mixture of biogenic materials (different degradability)
- Adequate process operation
- Maintenance of microbial activity
- Analytical tools for process and product control



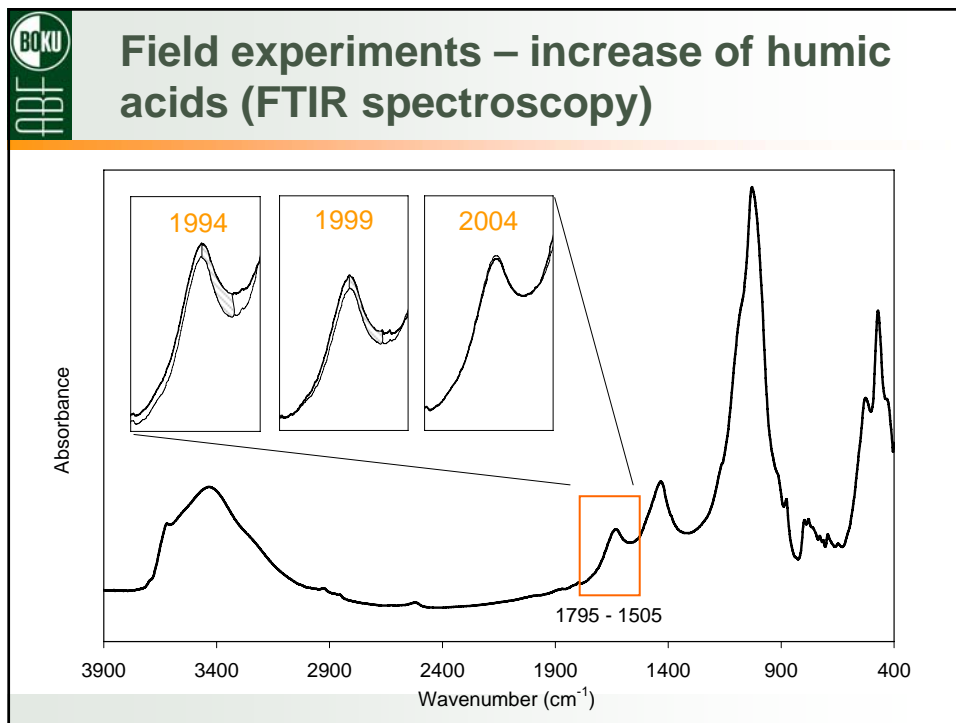
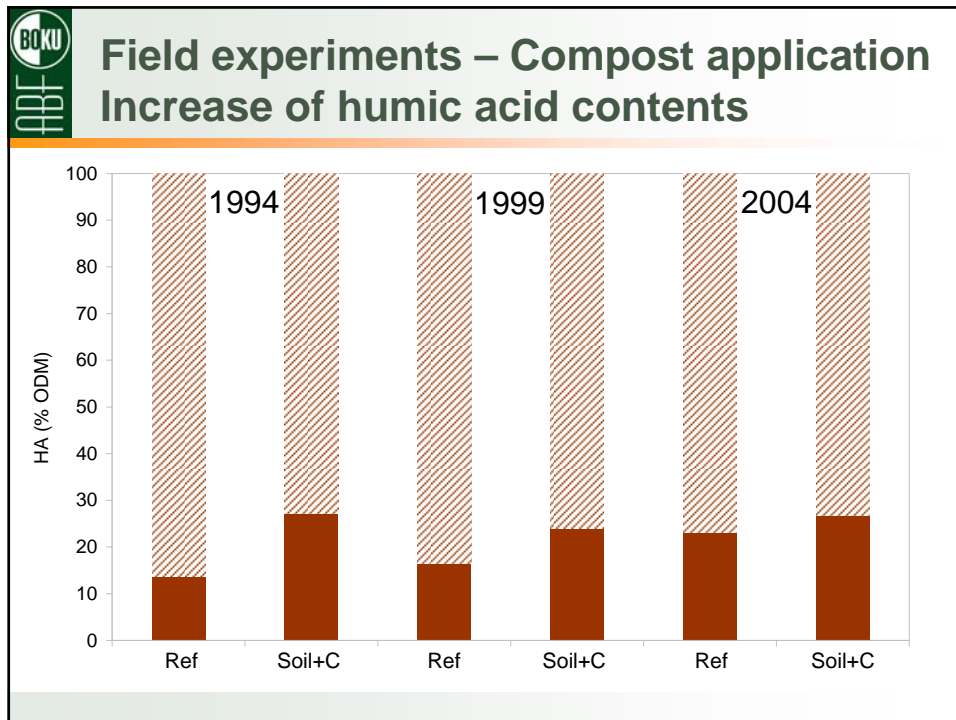






Carbon and nitrogen contents in humic acids


	TC	TN	TN
	(%)	(%)	(% of compost N)
BIO1	56.4	7.77	56.5
BIO2	55.0	7.31	62.3
SSL1	53.9	6.07	16.7
SSL2	50.6	7.71	15.7



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Targets and research topics


- Definition of additional compost quality criteria concerning their effects in soils
- Economic benefits (avoided CO₂ release, erosion control?)
- Appropriate input materials and adequate process operation to reach the targets
- Parameters and analytical tools for process and product control

 **ABF**


Thank you for your attention.....

The „Compost Team“


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