Potential of municipal Kitchen- and Garden waste as a raw material for producing fatty acids for animal feeds

1. Amounts of separate collected municipal Kitchen- and Garden waste
2. Legal restrictions for use in animal feeds
3. Evolution in processing Kitchen- and Garden waste over the years
4. Production biogas from fatty acids … or not? → fatty acids (to be used in animal feeds)
5. BUCA – a first orientation
6. Conclusion and follow-up

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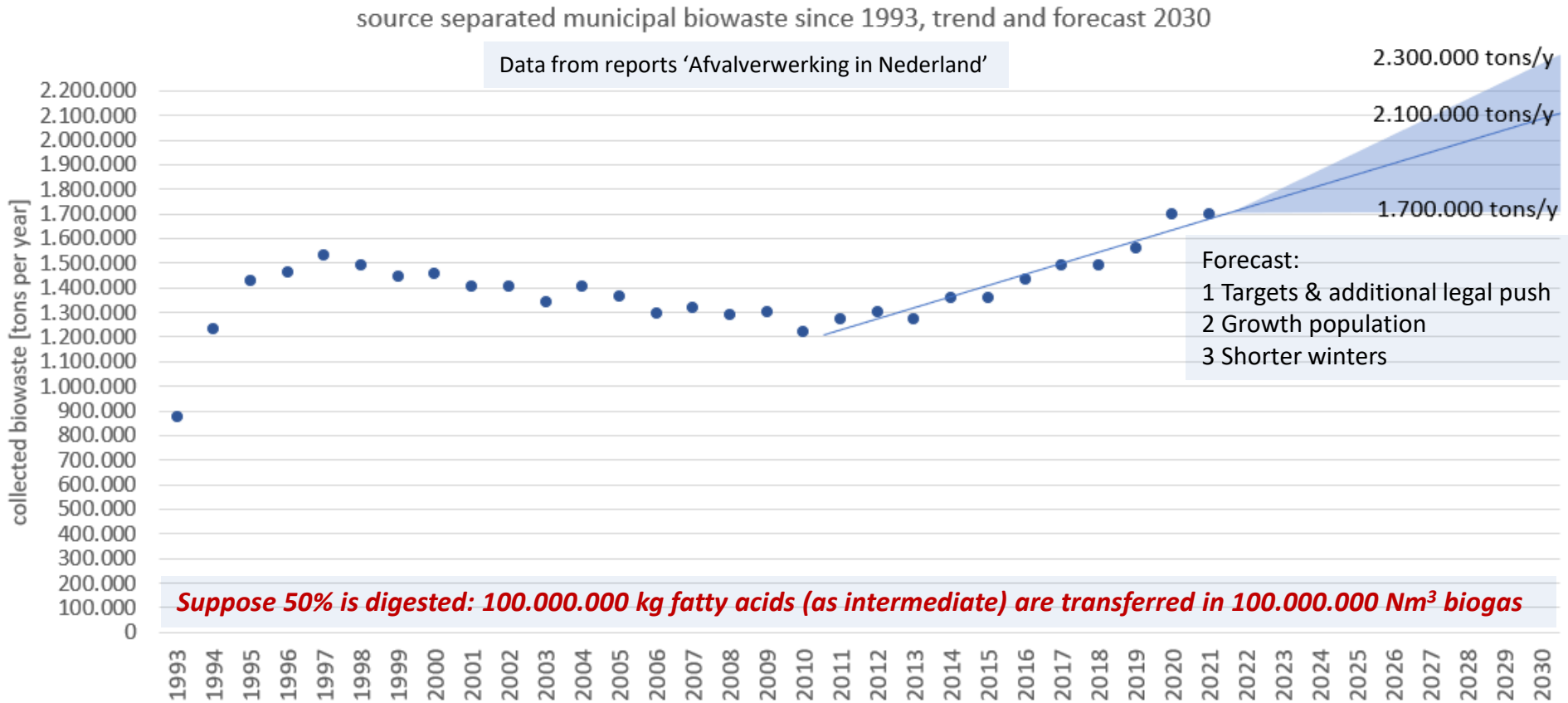
1. Amounts of separate collected municipal Kitchen- and Garden waste



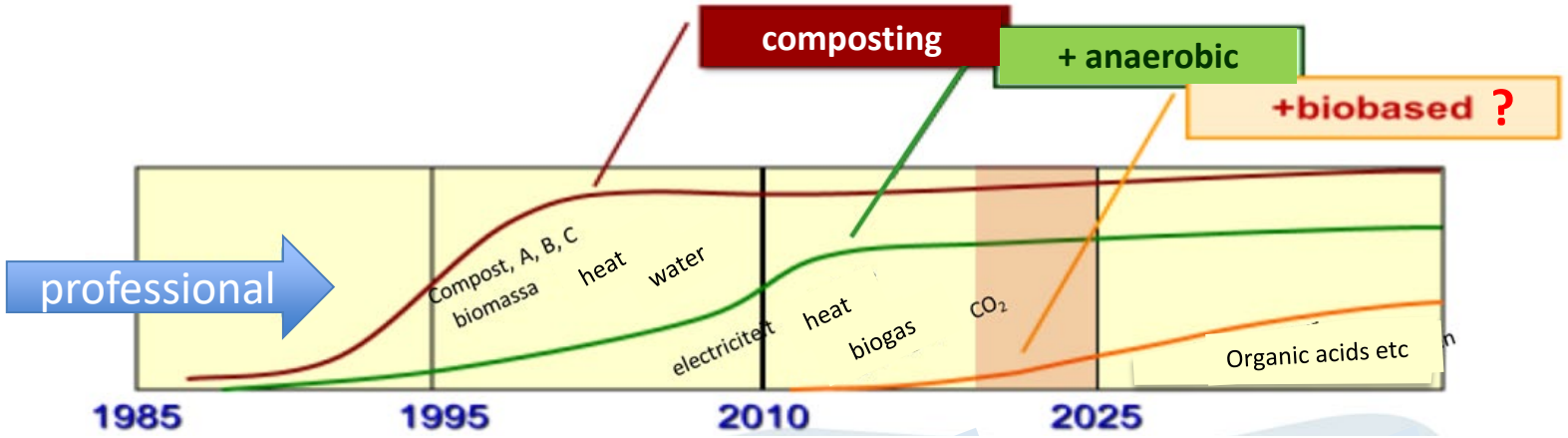
2. Legal restrictions for use in animal feeds

European Regulation for Animal By-products and ***5 considerations*** as starting point:

1. Legal issues: for instance, Category 3- material
2. Products should not contain chemical traces of animal tissue
3. Kitchen waste contains some protein, no technological means for 100% removal from solids
4. Proteins and carbohydrates are nowadays transferred into fatty acids and methanized (biogas)
5. We see technological means to separate fatty acids free from animal traces → no methanization

If this could work, no special collection measures for kitchen and garden waste are needed

3. Evolution in processing Kitchen- and Garden waste over the years



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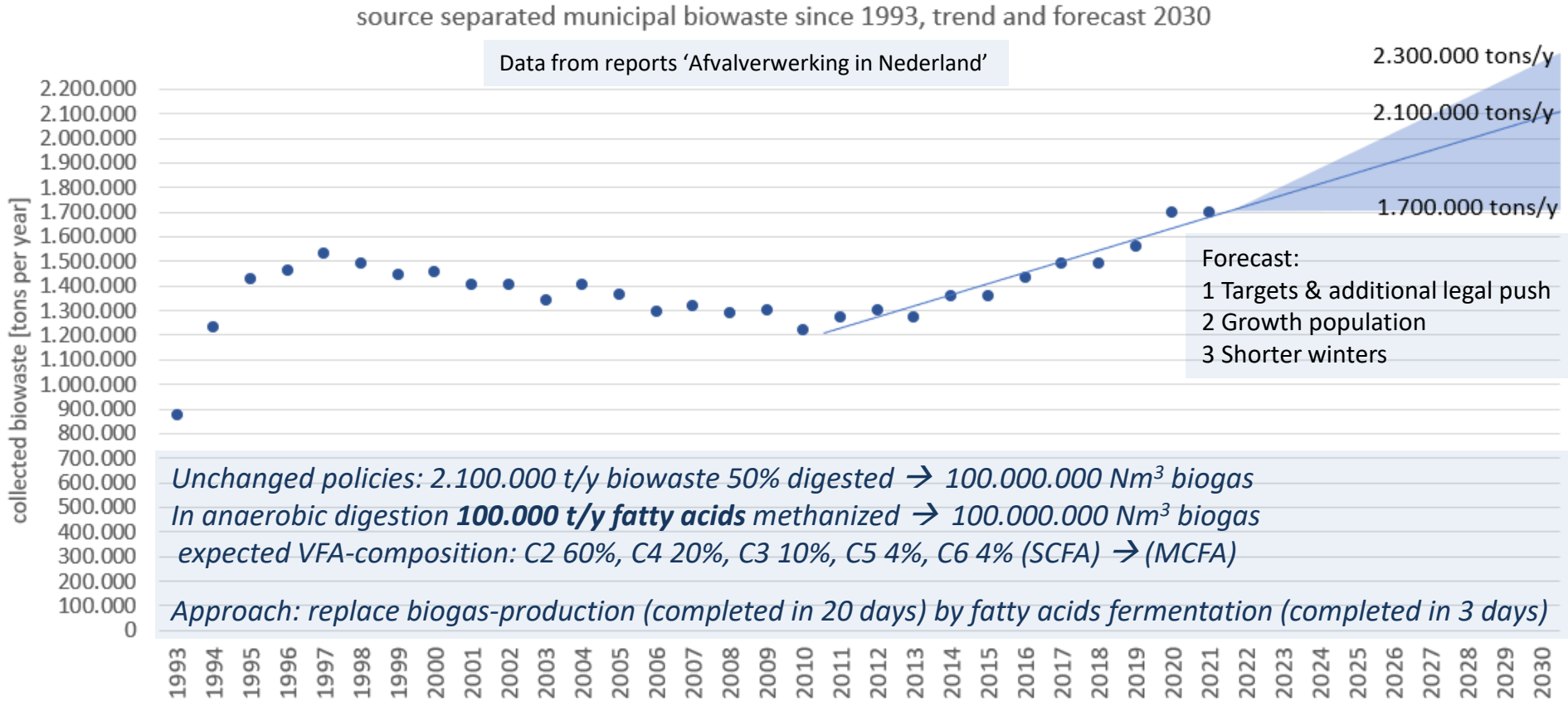
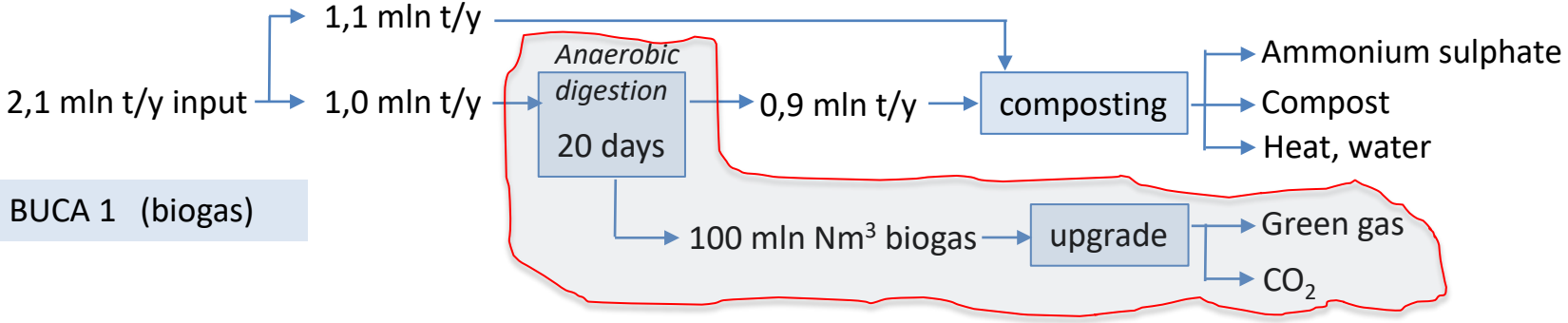
4. Production biogas from fatty acids … or not? → fatty acids (to be used in animal feeds)



Unchanged policies: 2.100.000 t/y biowaste 50% digested → 100.000.000 Nm³ biogas
*In anaerobic digestion **100.000 t/y fatty acids** methanized → 100.000.000 Nm³ biogas*
expected VFA-composition: C2 60%, C4 20%, C3 10%, C5 4%, C6 4% (SCFA) → (MCFA)

Approach: replace biogas-production (completed in 20 days) by fatty acids fermentation (completed in 3 days)

5. BUCA – assessment: replace biogas for fatty acid production (SCFA/MCFA)



BUCA 1 (biogas)

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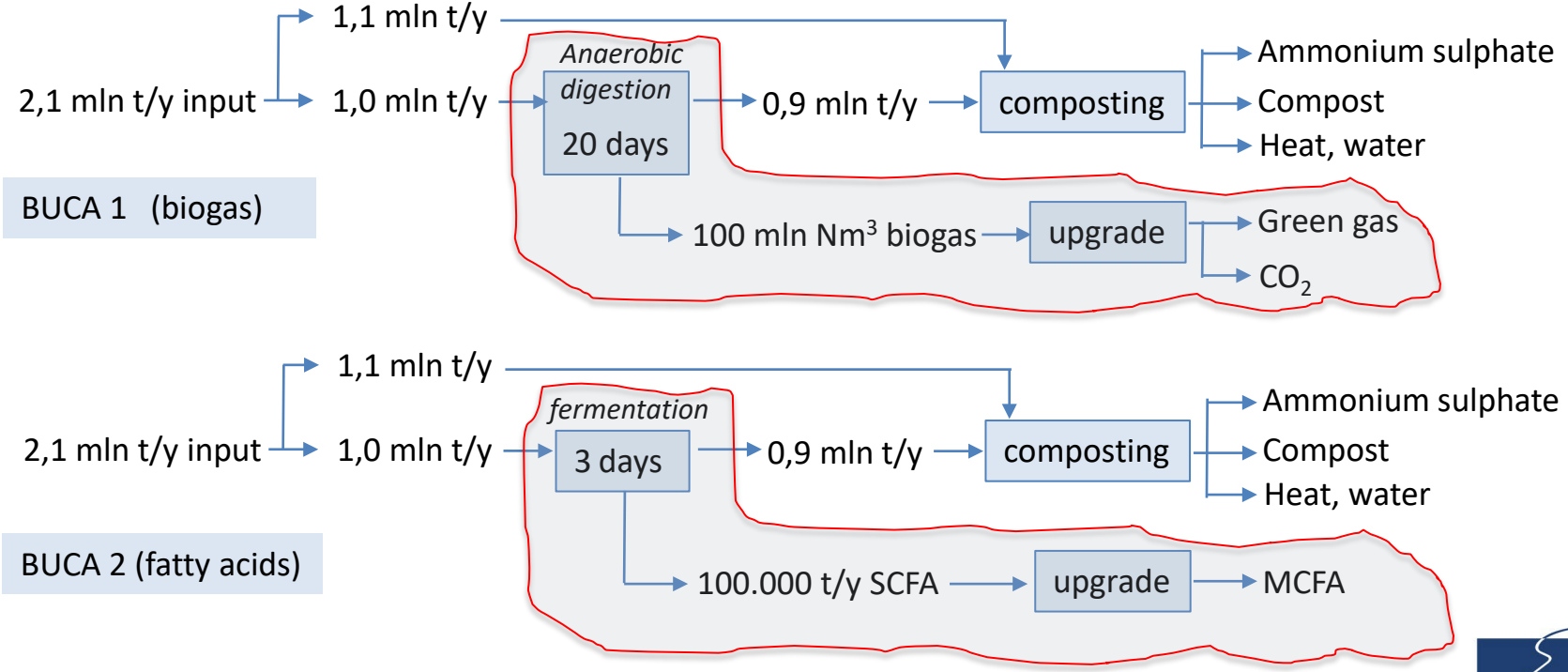
5. BUCA – assessment: replace biogas for fatty acid production (SCFA/MCFA)



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6. Conclusion and follow-up

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Follow up: - first process design of fermentation with focus on separation of SCFA (filtration, distillation)
- check mass balance, additional lab and pilot experiments, (m) LCA
- CAPEX, OPEX, is BUCA 2 competitive

Who can take it from this starting point to a feasible project? There is a real potential for a next step in the evolution of biowaste processing!

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Municipal Kitchen- and Garden waste as a raw material for producing fatty acids for animal feeds

Possible, but competition with prices biogas

Thanks for the attention

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