Reed soil production - opportunities

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Importance of reed harvesting

- Nutrient recovery, recirculation to land ecosystems
- Decrease of water eutrophication
- Biodiversity
- High biomass productivity
- Multiple use possibilities (construction material, roofs, paper, compost, biogas, charcoal, energy, a s o)

Reed as compost raw material

- Stabilises the C/N and N/P ratios of the compost

- Structure material in the compost

- Green reed – decreased C/N ratio and addition of nutrients, increased pH
- Yellow and brown reed – increased C/N ratio, structure material

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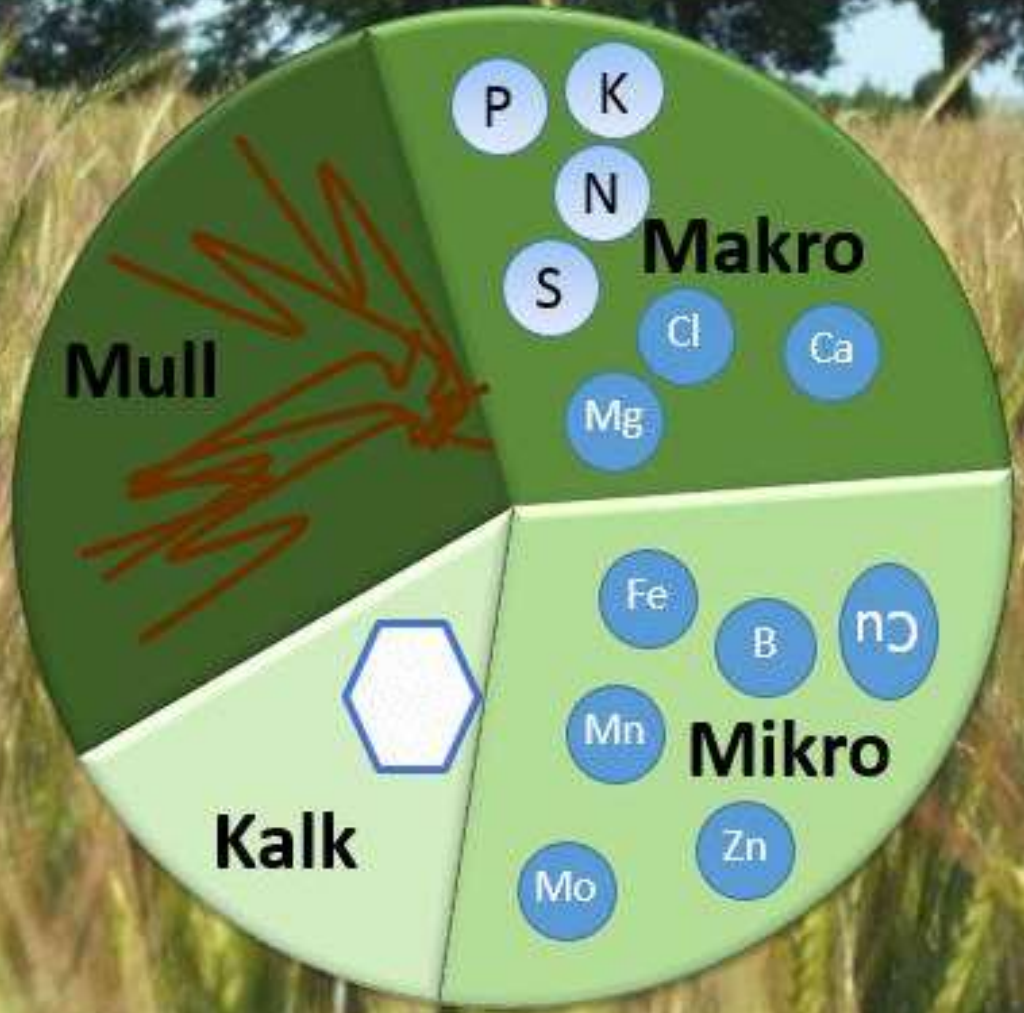

Different composting techniques

- Windrow composting
- Madras composting
- Intermediate techniques
- Compost machines, fast composting

Management

- Sieving; Reject is inoculated in the next compost
- After stabilization
- Mixing with sand, bio-charcoal, saw dust, a.s.o. – Producing final product

Problems with major compost facilities

- 1. Need for space
- 2. Noise and dust from transports and machinery
- 3. Smell
- 4. Leachates and run-off with high nutrient content
- 5. Rats and birds
- 6. Spreading of fungus spores
- 7. Wind spreading of plant material and wood chips

Need of space

- 2 m^2 of space is needed per ton processed material, roads included.

Advantages with compost machines

- Local production of soil improvement (resource for local growing)
- Decreased need for transportation (climatic and economic advantages)
- Reduced waste collection and management costs
- Continuous process, decreased need for storage
- Pedagogical advantages (the importance of creating local nutrient loops)
- Can be used for “Green marketing”
- Demonstrates environmental engagement for the visitor

GG-10s/30s/50s/100s Compost machine

- Från 25 kg/dag to 300 kg/dag
- Kontrollpanel
- Energisparläge
- Hygienisering
- Luktreduktion

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GG-300s/500s Compost machine

- Från 800 kg/dag to 1500 kg/dag
- Kontrollpanel
- Energisparläge
- Kameraövervakning
- Hygienisering
- Luktreduktion

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Closed loop

1. Green waste is supplied to the compost machine
2. Mineralizing bacteria degrade organic matter within 24-48 hours,
3. The machine is emptied every week
4. After-stabilization of the compost for 2-3 weeks
5. Compost used for growing of vegetables or in horticulture/agriculture.
6. Harvest of vegetables

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Composting process

Reduction of weight with about 85 %. About 15 % remain as compost

Waste material

After 4 hours

After 8 hours

After 12 hours

After 16 hours

After 20 hours

After 24 hours

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Solserv Compost

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Important parameters to improve compost processes

- Nutrient composition (C/N ratio, C/P ratio and P/N ratio)
  C/N ratio between 25/1 and 40/1 is optimal
- Moisture (around 30-40 %)
- Temperature
- Aeration
- Bacterial composition
- Time
- Homogenisation, size fraction
- Bacterial composition
- Time

Advantages with compost utilization

- Increases the organic content of soil – Improves water and nutrient holding capacity
- Releases nutrients gradually, in line with root uptake by plants
- Improves soil structure, and thus oxygen availability for the root system
- Creates biologically active soil with vital soil animals (earth-worms and evertebrates), fungi and bacteria. Stimulates litter decomposition
- Buffers and stabilizes pH
- Sink for organic carbon (positive climatic effects)

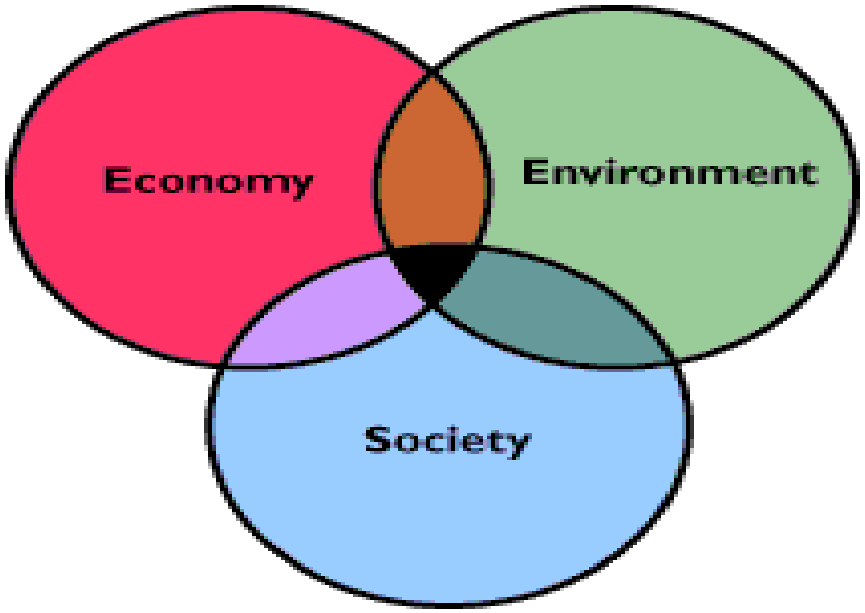
Combination of compost and other substrates

- Compost + Biochar
- a) Bio-char retain water and nutrients
  b) Biochar improves soil structure and thus soil aeration
  c) Biochar is a long-term carbon sink (remains for hundreds of years)

- Compost + saw dust
- a) Improves water and nutrient holding capacity
- b) Improves soil structure and retains water
- C) Stabilizes pH

- Compost + wood ashes:
  a) Additional source for phosphorus and trace elements
  b) Increase the pH value
  c) Nutrient recirculation

- **Compost for sale to public**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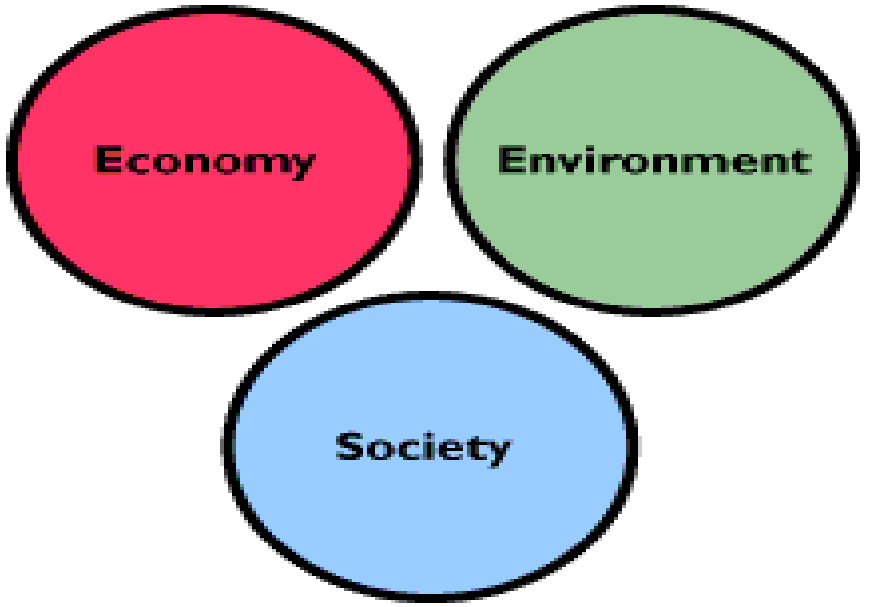
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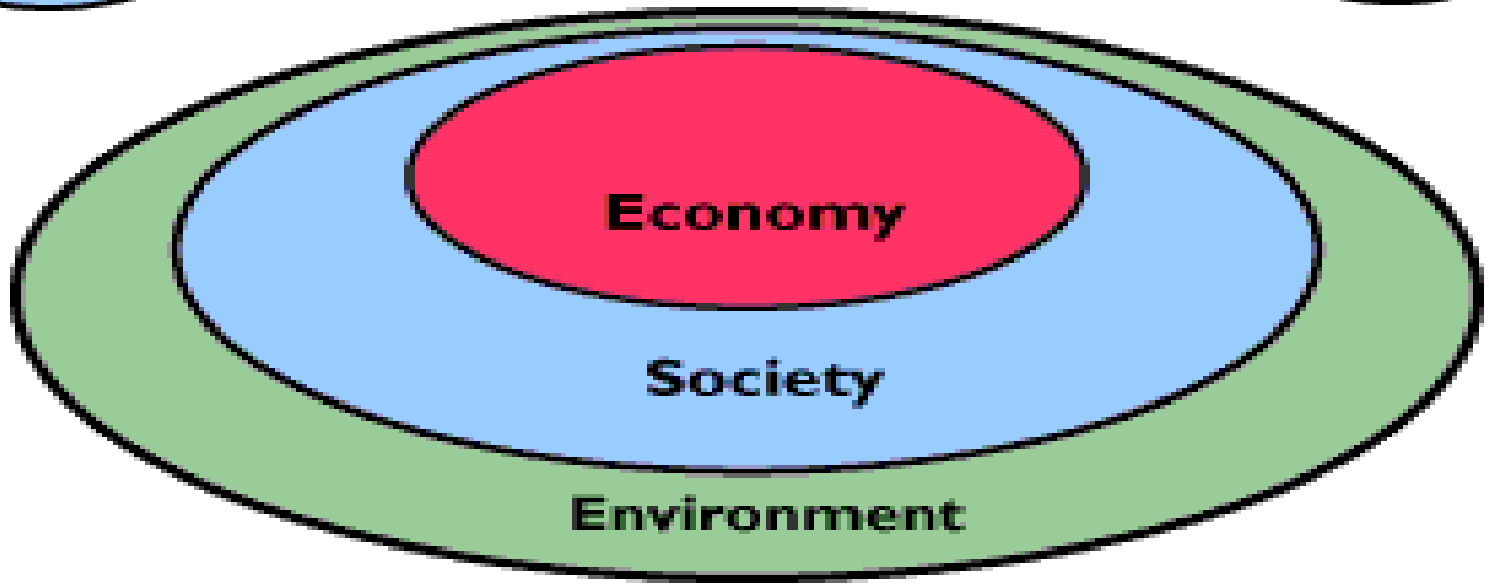
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THANK YOU

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