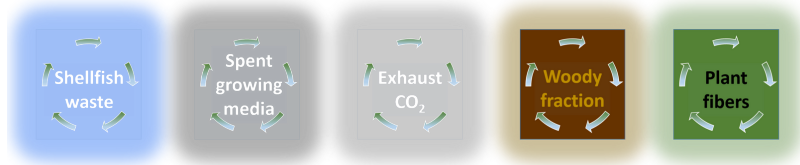
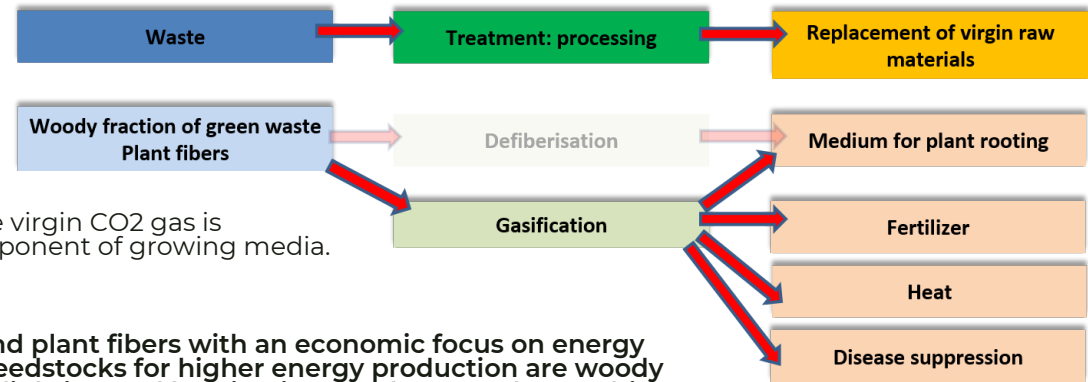


Large scale gasification for biochar and energy production



BASELINE SCENARIO

Natural gas is used for heating greenhouses and burnt for CO₂. The virgin CO₂ gas is delivered to greenhouses for fertilization. Peat is an important component of growing media.



NEW SOLUTION 1

A large scale gasification of the woody fraction of green waste and plant fibers with an economic focus on energy production can be combined with biochar production. Optimal feedstocks for higher energy production are woody biomass, miscanthus and flax shives. The energy can be used for lighting and heating in greenhouses. The resulting biochar can be applied for bulk replacement of peat, coir and mineral wool in growing media (>10 vol%), depending on the quality. Watch the [video](#), read the [scientific paper](#), try out the [decision tool](#) or check the [website](#) for more relevant information

STRENGTHS

- Economic revenue on 2 products (energy & biochar)
- Renewable energy replaces fossil energy
- Biochar can be used for different applications so larger quantities can be produced
- Growing media = high value application
- Lower risk of conventional installation for bio-energy leads to more chance for investment

WEAKNESSES

- Legal permissions are needed

OPPORTUNITIES

- Bio-products besides bio-energy
- If the installation has a certain size with focus on energy production, the produced biochar should not be highly priced to be feasible
- Thermal treatment of biomass can be combined with CO₂ recovery for reuse in greenhouses

THREATS

- Bio-energy is not favorable in terms of policy
- Chain: invest & permit
- Cost of biochar
- More environmentally friendly when starting from residual material (VC3) versus woody material: important to balance feedstocks from residual materials including wood (considers environment).
- Economic feasibility of higher volume% biochar use in growing media