

SMP Miscanthus in Kenya

vibers



WAGENINGEN
UNIVERSITY & RESEARCH



Business of Vibers

- ▶ Growing Miscanthus
- ▶ Sustainable materials for plastic, concrete and paper
- ▶ 20 ton a year / ha
- ▶ Easy crop to grow
- ▶ Low nutrient demand
- ▶ 600 mm rain
- ▶ Captures > 30t/CO₂ /ha, 4x as trees
- ▶ Pitch Vibers products



Applications

- Bioplastic alternative for fossil based plastics
 - Thermoforming packaging
 - Injection moulding
 - 3D printing
- Paper with added Miscanthus
 - Packaging
 - Printing
- Concrete
 - Bricks, pavement, etc.



Vibers voor Instore Signing
Plaatmateriaal

Een duurzaam alternatief voor al je plastic Instore Signing met Vibers plaatmateriaal



Vibers inside Displays
Granulaat voor spuitgieten

Vlastuin introduceert eerste bioplastic POS display



Vibers op eigen grond
Marketing als duurzame grondstof

Een stukje braakliggend terrein naast de fabriek? Plant Olifantsgras!



Vibers inside Bioplastic
Bioplastic granulaat

Met Vibers bioplastic granulaat vervang je op praktische wijze je plastic producten



Vibers inside Verpakkingen
Packaging

Een duurzaam tomatenbakje dat vanaf mei 2020 in diverse winkels ligt



Vibers inside Beton
Beton voor de openbare ruimte

Slecht 1% Vibers vezels levert een reductie van de carbon footprint op tot 35%.



Vibers inside Papier
Papier

Ons premium papier wordt gemaakt in de oudste papierfabriek van Nederland



Vibers inside Plantpotten
Bioplastic plantpotten

Luxe planten bij Jumbo worden verkocht in de Vibers plantpot



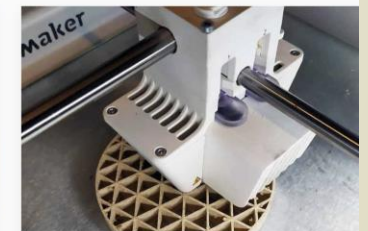
Vibers inside Karton
Productie van spellen door Deckers van Gerwen



Vibers inside 3D printen
Duurzaam 3D printen met Biobased kunststof



Vibers inside zaksluitingen
Duurzaam verpakken



Rapid Prototyping
Duurzaam 3D printen met biobased kunststof



The project goals

- ▶ Growing Miscanthus for feed will improve the dairy farming system and will lead to more circular farming. The project explores the business opportunities for using Miscanthus for the production of biobased packaging materials for dairy products.
 - Elephant grass --> animal feed --> milk production
 - Elephant grass --> granulate --> packaging of dairy products
 - Manure and recyclable packaging material --> soil improvement --> enhanced crop production
- ▶ SMP will explore :
 - ▶ Growing Miscanthus conditions and varieties,
 - ▶ Connecting the value chains, distribution, markets
 - ▶ Industrial facilities for fibre extraction and/or granulate production
 - ▶ Partners for setting up the business



Project activities

- ▶ The basics: desk study
 - ▶ of policy frameworks, social economic and physical information,
 - ▶ information about livestock, miscanthus and napier plant breeding
 - ▶ biobased valorization routes and conditions.
- ▶ The integration: round table WUR experts
- ▶ The practice: 4 days site visit in Kenia:
 - ▶ Day 1: Government - the frames
 - ▶ Day 2: Business: the dairy value chain and miscanthus processors
 - ▶ Day 3: Knowledge: universities, agricultural consultants
 - ▶ Day 4: business planning, session with Quercus
- ▶ The business plan and next steps: draft business plan and roadmap



Physical context: which Miscanthus varieties will grow in the specific climate, soils and landscapes.

- ▶ Climate: Much rain, irregularly
- ▶ Mount Kenia has good physical conditions; Good land suitable for feed production. More marginal land may be better suitable for fibres production.
- ▶ Miscanthus Giganteus vs local varieties (Napier)
- ▶ Napier is already used for feed; 6 a 8 harvests per year, crop length 1 meter. Manure used to grow the crops.
- ▶ Different components needed for fodder (proteins) and for packaging (fibres); how to grow optimal, add nutrients..
- ▶ Investments for new crops are usually high, needs a lot of attention and weed-control in the early stages, little is known about the lifetime of the crop under the local conditions.
- ▶ Pilots needed: different varieties, different growing conditions



Livestock farming



- ▶ mixed crop livestock systems – limited in production
- ▶ 70% smallholders < 5 cows, rest is medium/large 20-1000 cows (2000 farms)
- ▶ Upscaling is needed
- ▶ Growth in Dairy consumption
- ▶ High productive Dairy processors (2)
- ▶ Miscanthus as fodder crop for livestock: De heus / Koudijs (feed impact cluster)
- ▶ High production costs; water, energy, logistics
- ▶ Focus on higher market segments; laki laki, Biofoods



Organizational aspects: policy frameworks, regulations and land ownership.

Drivers:

- ▶ aimed at making Kenya a newly industrializing, “middle income country providing high quality life for all its citizens by the year 2030”.
- ▶ Growth strategy based on value added activities; new concepts of circular economy; valorization of food waste
- ▶ raising awareness of sustainability, ban on plastics, regulations on packaging
- ▶ Miscanthus breeding will only be acceptable if this plays a role in food production. Feed for dairy farming and rest materials for packaging.
- ▶ Countries (local authorities, 47). 22 have focus on Dairy farming; Sometimes countries offer land for rent.

Constraints:

- ▶ Corruption, lack of transparency
- ▶ Important to have governmental support; much intertwining of government and private sector; create support base for investments: (researchers, institutes, ambassadors, branche organisations)
- ▶ Land around Mount Kenia, increasing land prices. Mombasa is cheaper;
- ▶ Land owners: 15% big landowners, 85% small holders

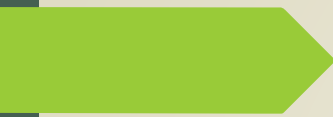


Inventory and mobilization of partners

- ▶ Local companies: Laki Laki, Risu Farm
- ▶ Nederlandse Ambassade
- ▶ Universiteit: JKUAT University Nairobi, Egerton University
- ▶ Quercus Group Kenia
- ▶ Solidaridad: focus on value chain development; Hivos
- ▶ Government: ... National, Countries
- ▶ Dutch Firms: De Heus, Koudijs, Morenga, La Rive, Laki Laki,

Other relevant projects

- ▶ Pro Dairy
- ▶ Seed potato project in Kenia en Tanzania
- ▶ Ikea Foundation
- ▶ Feed Impact Cluster



Next Steps – planning

- ▶ Week 1 – 6: The Practice – on line meetings with Kenyan partners. Presentation Vibers, Pitch of the business case, discuss research questions
 - ▶ The frames: national government, Country level
 - ▶ Business: Value Chain partners; Dutch Business partners, Risu Farm, search for processing facilities
 - ▶ Knowledge: Universities
- ▶ Week 7: Selection of key partners
- ▶ Week 8-10: Business Planning session with Quercus – online (Miro Board, Canvas)
- ▶ Week10-13: Roadmap



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