



EIP-AGRI Workshop 'Opportunities for Agriculture and Forestry in the Circular Economy'

28-29 October 2015
Naantali, Finland

All information of the workshop available on www.eip-agri.eu at the event webpage

<https://ec.europa.eu/eip/agriculture/en/content/eip-agri-workshop-opportunities-agriculture-and-forestry-circular-economy>

Combination Aquaponics-Tomatoes

Aqua4C-Tomato Masters

Deinze Belgium

Introduction/ Preface

- Tomato Masters
- Aqua4C
- MIP project

Tomato Masters



TomatoMasters
Met een **hart** voor **tomaten**.

History

- Family firm Vlaemynck start in 1966



The Crops

Cabbage lettuce



Durondeau pears



Tomatoes



Result : 3Ha



The third generation



Tomato Masters Deinze



Auction Hoogstraten

- 9000 T tomatoes /year



Plant



Energy

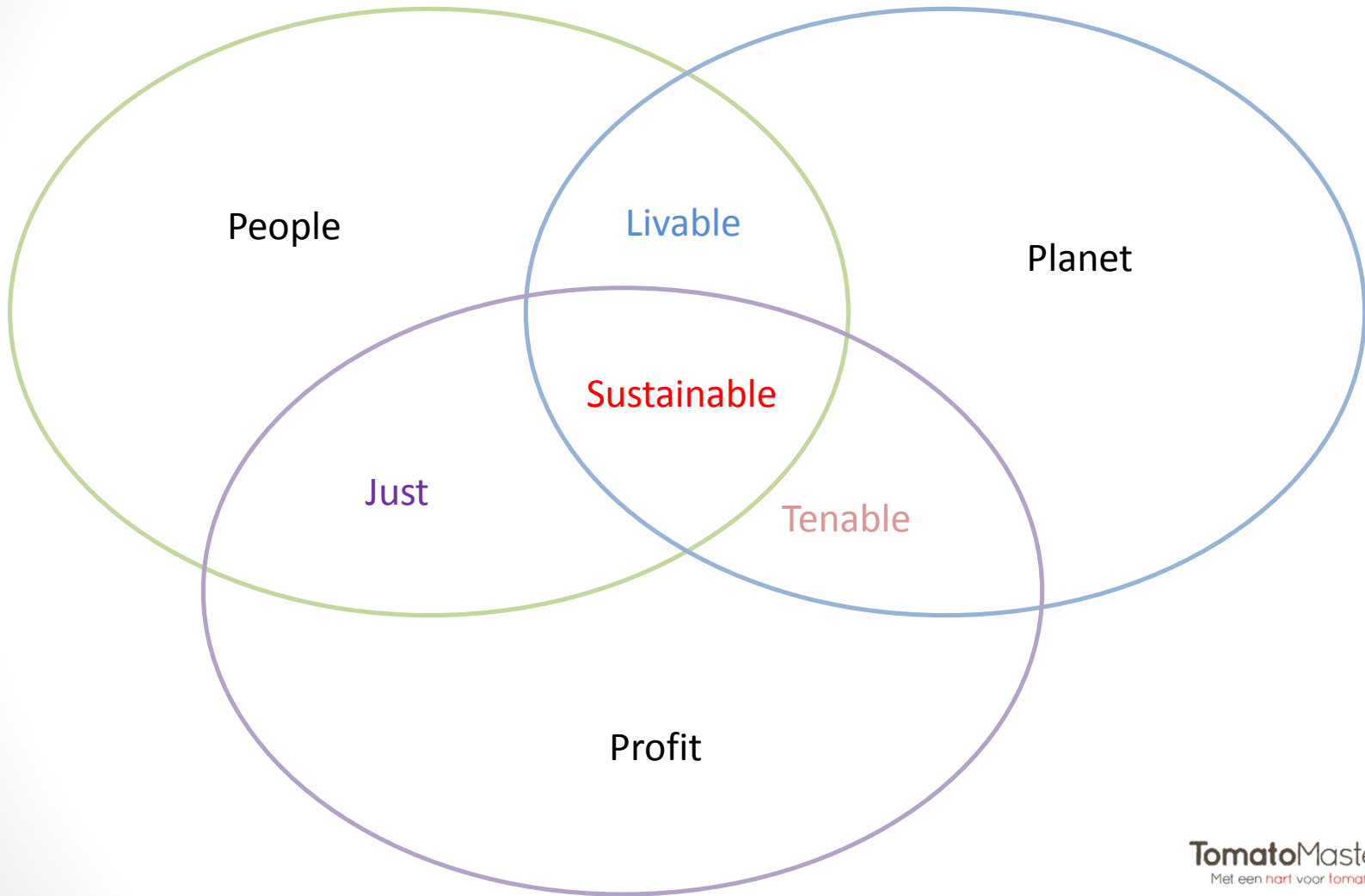
- 42000 mWh electricity : 3 % own consumption
- 59000 mWh warmth: 100 % own consumption
- CO² : 80 % own consumption



Partnership with nature



Actual Situation



Aqua4C



Sustainable aquaculture



Overfishing



80%

The infographic features a background of a white fishing net. Two dark blue circles are positioned above two white rectangular boxes. The left circle contains the text '80%' and the box below it contains 'Fishresources' and 'Overfished'. The right circle contains the text '30%' and the box below it contains 'Irreversibly' and 'eradicated'.

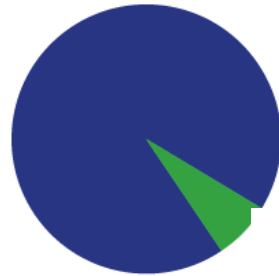
Fishresources
Overfished

30%

Irreversibly
eradicated

Dependence on imports

Fishconsumption
300.000 T/year



Own production 7 %



**20.000 T fishery and a few hundred T grown trout
& sturgeon**

Vision

1



Choice of sustainable fish
of high quality:

Omega perch[®]

Therapon Barcoo, jade perch – family of
tiger perch (eastern Australia)

Culinary product

Vision

2

Disconnect production of environment
in closed culture systems

Use of State of the Art **recirculation systems**
with very low waste of water (50-75 l/kg prod.
fish)

Vision

3

Not using fishmeal / oil

Only use of **vegetarian feed**, nutritional balance by high quality micro and macro algae

Only kind of fish that can be cultivated without use of fishmeal or fishoil



Culinaire & duurzame aquacultuur | De Omega Baars



Integration aquaculture with horticulture



Make **optimum use** of energy and nutrients

Nutrients water fish
(30T nitraat, 15 T K, 5 T fosfaat)

Hot water
greenhouse

Electricity
CHP



Stokstorm aquapark



— hoogspanningskabel & warmwaterbuis / — nutriëntwater, 110 mm PVC

Win / win



If necessary: fish cultivation **can by fully isolated** of greenhouse cultivation and vice versa

Nutrient water fishculture is **mechanically purified** (min 80 micron) before used in tomato culture + **online quality control** (microbiology + sodium)

40 – 400 m³ fishwater/day can be recuperated by Tomato Masters from March till October.



Culinaire & duurzame aquacultuur | De Omega Baars



Met steun van de
Vlaamse overheid



MIP project Stokstroom

- Purpose
- Partners
- Timing: starting 1/07/2015 until 30/6/2017

Funded by:



i-CLEANTECH
VLAANDEREN
enabling the future



Purpose

Exploring the possibilities to realise **loop closure** for **water** and **nutrients** between aquaculture and horticulture

*Free of risks for

- the crops,
- the environment
- food safety



Partners

- Aqua4 C



- Tomato Masters



TomatoMasters
Met een **hart** voor **tomaten**.

- Lambers-Seghers



- Enerso Holding



Enerso Holding

- PCG: test center for vegetable growing





- 2015: production of 250T a year and 4 FTE
- 2022 : production of 3000T a year and 60 FTE

Revenu : from 1,5 mio € to 30 mio €

- Reconversion of 20 farms with aquaponics



- Saving 25 % nutrients (€ 22000/year)
- Better sales conditions for electricity (1000 mWh/year)
- Possible since 2014
- Unique selling position of sustainability



- Aquafeed today : 350 tons
(5 % export)
- Increase yearly production to 4500 tons



Eneroso Holding

- Monitoring and adjusting water quality
- Expand activities with design consultancy and online monitoring systems for aquaponics,
- Examining the chemical composition of the process water
- Online measuring Na^+ concentration



- Coördination
 - Sharing knowledge and building expertise
 - Pilot unit
 - 9 fish tanks
 - 9 compartments of 88 tomato plants
 - Research on feed formula effect on composition of process water (Na^+)
- * Taste tests to prove absence of *fishy* taste in tomatoes

Thank you for your attention

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