



Duckweed for wastewater nutrient removal and valorisation

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Intro to duckweed biomass



Component % DM	Minimum	Maximum
DM of FW	5	6
Fiber	7	13
Lipids	4	7
Ash	10	17
Protein	15	40
Starch	9	40

▷ Smallest, fastest growing flowering plants

- ▷ Yields 13-38 dry tons/ha yr
- ▷ Easier to harvest
- ▷ Large enough to feed to livestock

Duckweed companies and products

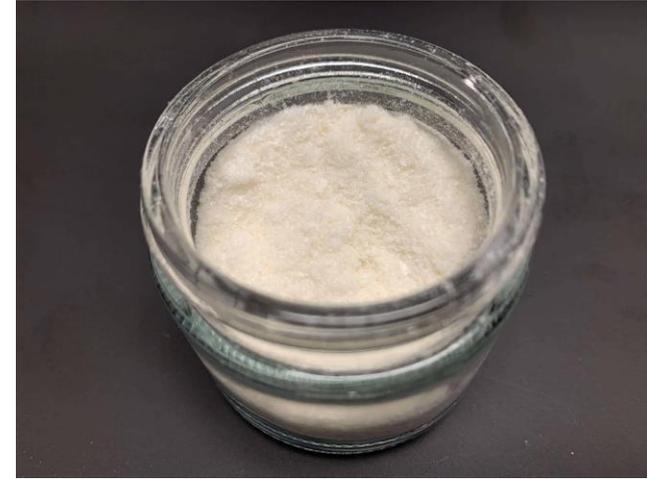


Bread made with
Hinoman's Mankai™

DryGro Animal feed cultivation



Plantible Foods



MamaGrande



Water quality determines Duckweed application



Agricultural



Feed

Fish species
Chickens



Municipal



Fertilizer

Agricultural
Landscaping



Industrial



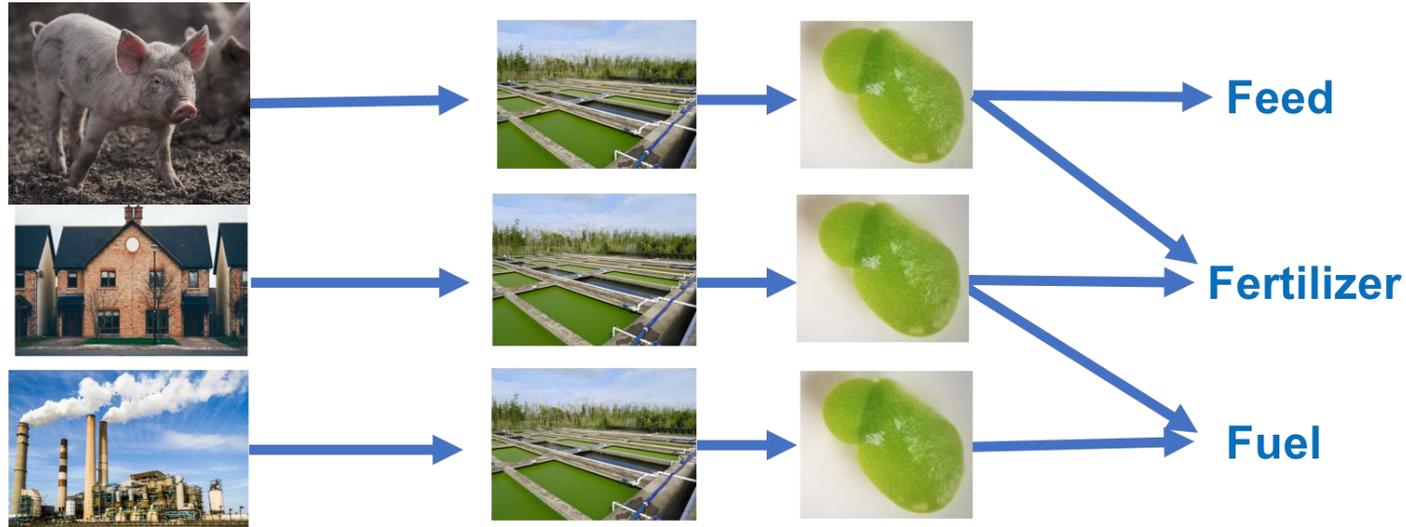
Chengdu University (Zhao)



Fuel

Ethanol, Butanol
Anaerobic digestion
Bio-crude oil
Direct combustion
Bio-plastics (PLA)
Sequestration

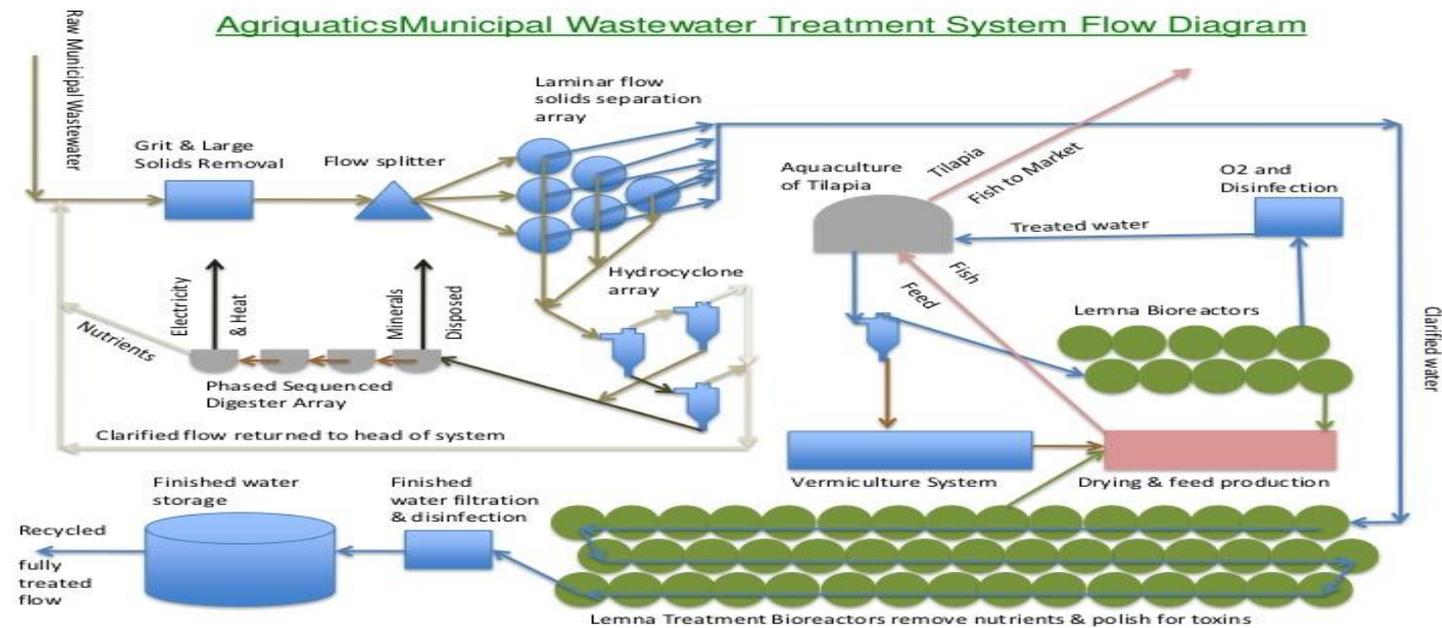
Safety concerns



- ▷ Heavy metals: **Under legal limits?** **Appropriate uses?**
- ▷ Xenobiotics: Pharmaceuticals? **Hormones?** Herbicides? Unknown?
- ▷ Pathogens: **Removed?** Introduced? Cross species? Prions?
- ▷ Novel challenges: **Microplastics?** **Nanoparticles?** **Organic chemicals?**

Testing via pilot plants

1.2 ha of duckweed biofilters & fish ponds
(University Cork College Jansen lab)



Olmito Texas Water treatment plant
and aquaculture facility proposal (Paul Skillicorn)

- ▷ Real wastewater, Local climate, Long term
- ▷ Accurate testing of the safety of biomass

References

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Thank you

Looking forward to our discussion session

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