① THE PYROLYSIS-FLOX TECHNOLOGY

Clean heat and biochar from agricultural waste

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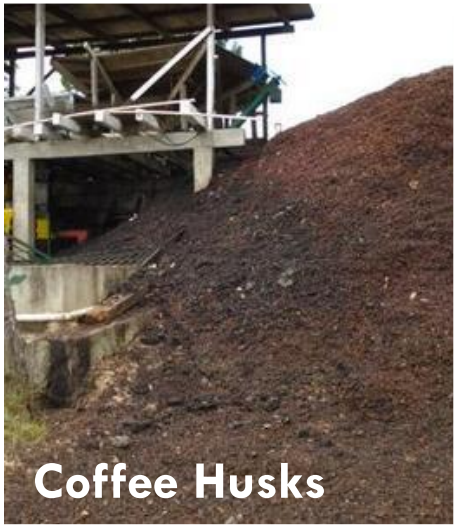
② HIGH VOLUME OF BIOWASTE

Millions of tons of harvest residues are waiting to be treated !



But also:

Sawdust, wood chips, coconut shells etc.

③ PRODUCTION COSTS FOR FARMERS

the main production costs that farmers is paying

Expensive amounts of fertilizer

High costs for irrigation

Huge demand for “continous“ thermal energy

④ THE TROUBLES OF CURRENT DRYING METHODS

Current burners …

→ cause heavy **smoke** emissions with negative effects both on the health of the local population and the quality of the product that is dryed.

→ Leaves only **ash** as by-product.

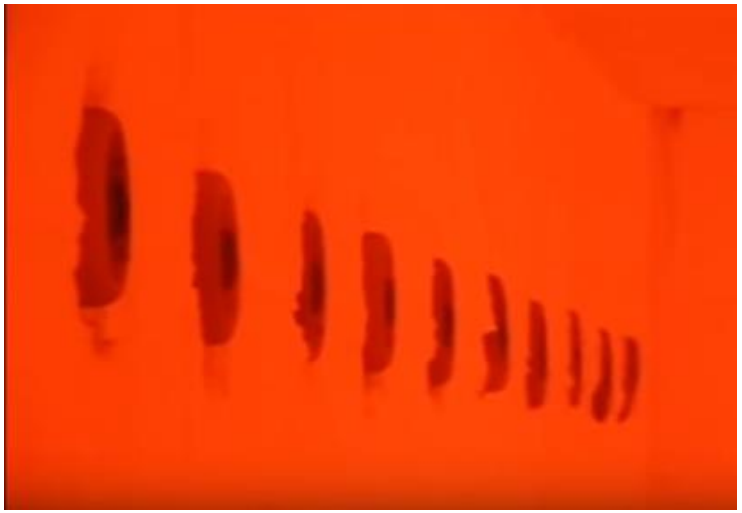
5 THE PYROLYSIS AND THE FLOX TECHNOLOGIES

PYROLYSIS

Traditional combustion without O_2, producing Biochar and generating smoke, with no easy collection of heat

FLOX

Combustion at very high temperature, without flamme nor smoke, generating syngas with an easy collection of heat

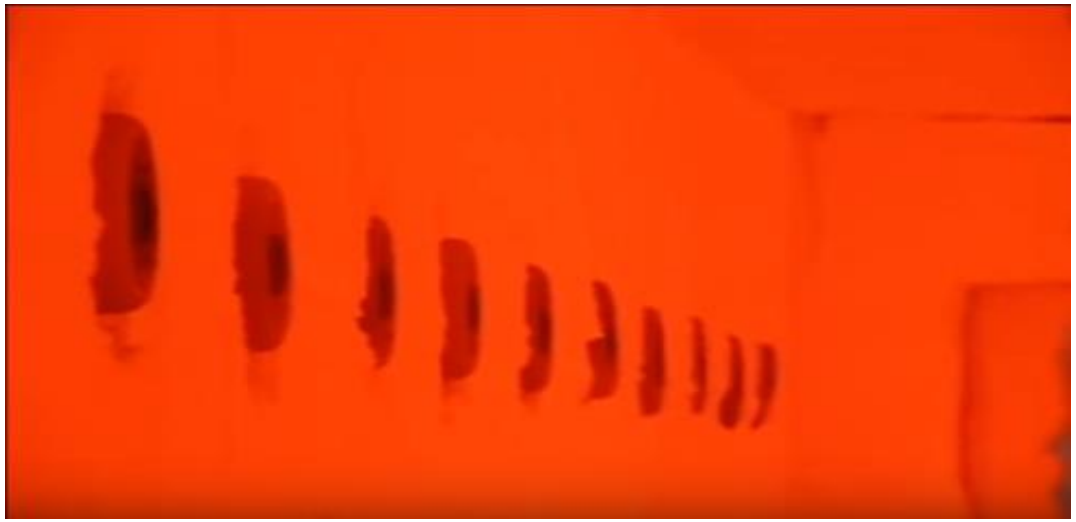


PYROLYSIS-FLOX

Under a research from Ökozentrum (Switzerland), combined both processes creates a continuous generation of collectable heat, with biochar production and no smoke

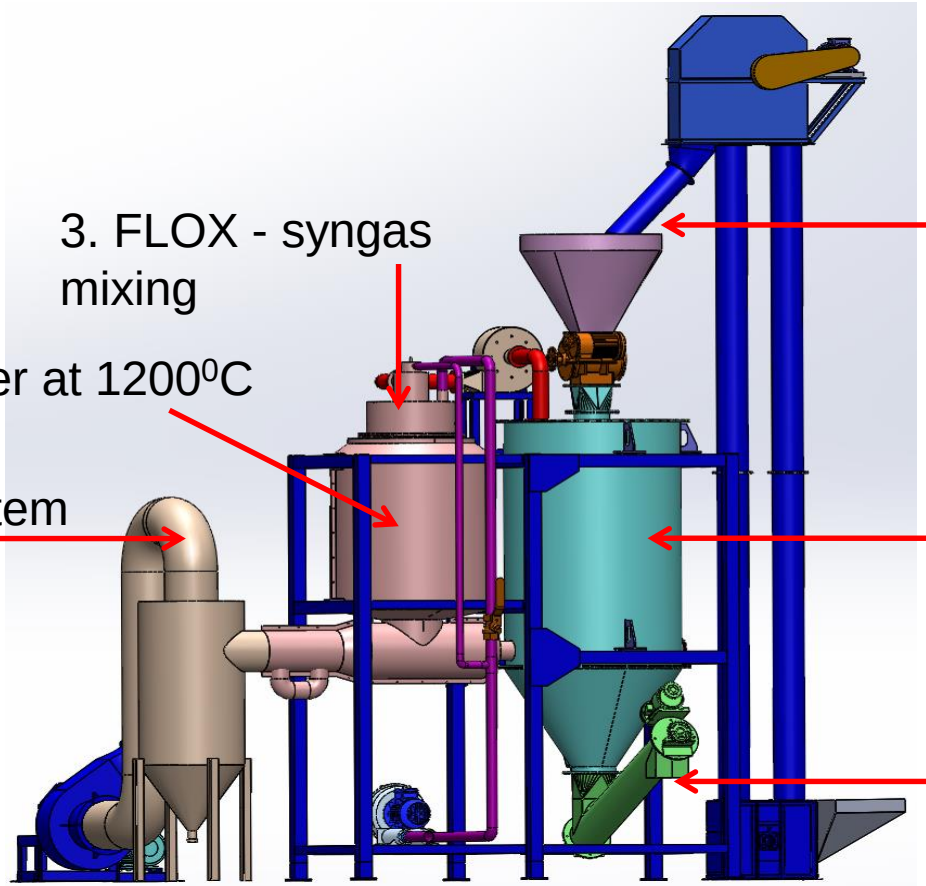
6 DIFFEERNCE BETWEEN NORMAL COMBUSTION AND FLOX

- Image of the normal combustion of gas in the combustion chamber with flame.
- In this situation, we use a lot of gas, resulting in poor performance and not the highest temperature, especially for gas produced from agricultural waste or biomass.



- Under Flox technology. It creates high temperature combustion at 1200°C and WITHOUT A FLAME
- At a very high temperature, which can burn anything, including smoke.

7 OPERATION PRINCIPAL OF PYROLYSIS AND FLOX



- Under pyrolysis process, being transferred from burner to reactor, biomass will produce gas and resupply back to burner. Flameless combustion process, burner chamber do not have flame and generate high temperature to provide circulation to reactor. Because the combustion does not occur directly with material and burned carbon so oxygen doesn't have chance to make contact with carbon to form CO2.

⑧BIOCHAR, A NATURAL SOIL ENHANCER WITH A "SPONGE" EFFECT

- Raising pH to an optimum level
- Reduce fertilizer needs
- Reduce waterlogging and increase drought resistance
- Improve soil structure, increase the reproduction of soil organisms
- Reduce erosion and nutrient loss

9 A CLIMATE POSITIVE TECHNOLOGY!

- Burning biomass is considered as carbon neutral
- With the pyrolysis technology applied e.g. to coffee, 0.5 kg of **CO_2 is stored in the biochar** for each kWh produced !
- This energy production can therefore be considered as "**climate positive**"

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Thank you for your attention at our presentation