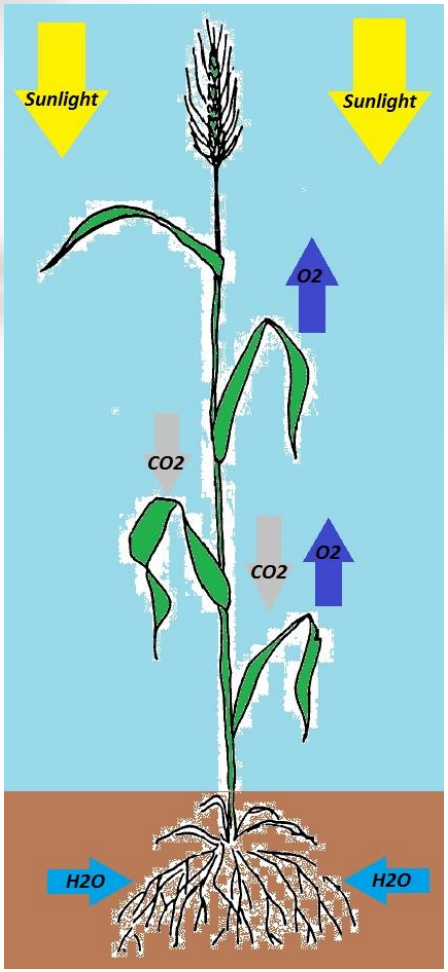

Biomass… an under-used resource
L.Hobbs

Photosynthesis & Agriculture



- Energy, Carbon, Hydrological and Nutrient cycles are the basis of Agriculture
- Farming is the management of plants and animals to produce food & fibre (primary/secondary consumers)
- Using energy from sun (photosynthesis) plants covert atmospheric CO_2 and water into sugars, starch, cellulose, fats & oils, etc
- Plants produce significant biomass –approx. 40% roots, 30% stems, 30% seed
- The production of food is the least significant portion. Significant energy remains in storks, stems, straw, root mass, etc.
- Biomass is stored energy which can be used to produce heat, electricty, transport fuel, chemical feedstock, etc.

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Use of straw on Farm in UK

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Using Biomass to meet Renewable Energy targets - Retford

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Biomass Domestic heating - Finland

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On Farm biogas / electricity - CA

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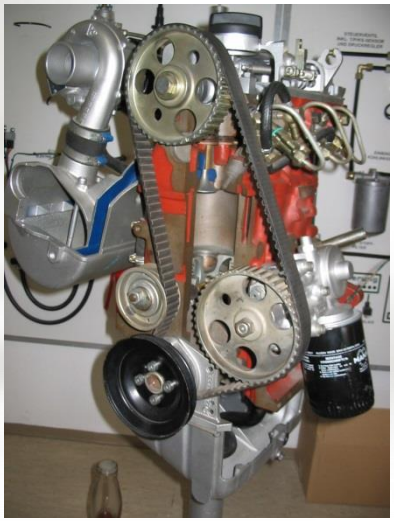
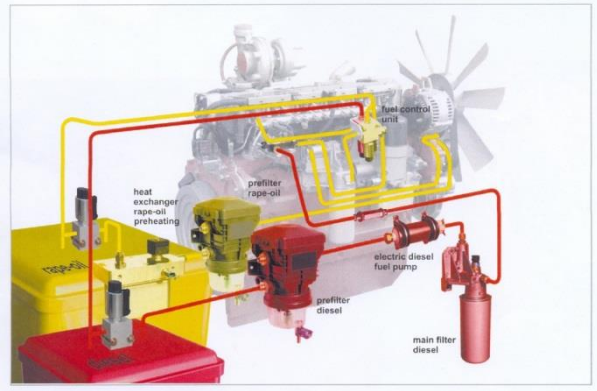
Biodiesel and Pure Plant Oil (PPO)





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So…what's the problem?

- WE DO BIOMASS NOW, with existing technology. ***A long history of Traditional Uses***
- Low cost entry point / Investment cost- low, medium, high – home to industrial
- Biomass = stored energy, energy value of straw 1.694kW/h per kg/DM. At 89.7% DM a 250kg straw bale has 380kW/h energy. Baseload for NEG?
- Education – General public - ignorance re: energy & carbon, Traditional VS NEW USES , the relevance & need for biomass, perceptions - dirty, dusty, energy density dilemma, - can be used for cooling/electricity/liquid fuels, need for ***demonstration projects***
- Education - Government (Local, State & Federal), EPA, Fear at Government level leading to poor policy, viewed as disruptive, concern over revenue (taxation) streams, Ministers & staff with a non science background, investment insecurity, prevents Market mechanisms from functioning, transparency for all concerned – standards, obligations, etc. VFF & NFF, Investment funds, Insurance, CFA – fire threat
- Recognition of benefit (low carbon emissions, better health outcomes)
- Cost of biomass, waste stream = lower cost – demolition timber, waste straw/hay, green waste, timber thinning's, sawdust, etc.
- Dedicated biomass crops, $ return has to be viable for everyone
- Has a $ value to the farmer – has a nutrient, feed and environmental benefit
- Security of supply and the supply chain

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