



IRRIGATION RESEARCH & EXTENSION COMMITTEE

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FOR IRRIGATION CROPPERS

Potential role of fuel crops in agriculture

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ETHANOL

- Clean burning additive to petrol
- Oxygenated fuel
- Blended with unleaded petrol
- E10 – legislated Octane 95 in Australia
- E85 – used in fuel flexible vehicles
- E100 – high performance vehicles – Drag Racers

BIODIESEL

- Clean burning alternative to mineral disease fuel
- Blended fuel
- B5 – commonly used in Europe
- B20 – target product in Australia
- B100 – approved by many engine manufacturers

ETHANOL AND BIODIESEL

- Renewable
- Clean burning
- Low in impurities
- Reduced tailpipe emissions
- Non toxic
- Bio degradable

FEEDSTOCK

Ethanol

- Sugar – sugar cane, sugar beet, sugar juices
- Starch – wheat, barley, sorghum, corn grain
- Cellulose – technology in place, not yet commercial

Biodiesel

- Vegetable Oils – soybean, canola, sunflower
- Fats – tallow, cooking oil, rendered products

GRAIN CONSUMPTION

- Average 360 litres of ethanol per tonne of grain
- Swan Hill Ethanol Project at 90 million litres per year requires 250,000 tonne of grain
- Grain contains around 65% starch and 14% protein
- All protein returns to Distillers Grain co-product, which is about 30% protein
- Ethanol production enhances lot feeders operation by providing a high quality, consistent, digestible and efficient source of protein and minerals

ECONOMICS OF FUEL ETHANOL

- Current fuel retail price is \$1.10 – \$1.30 per litre
- Current ethanol sale price to fuel distributors is \$0.71 per litre (before GST)
- Ethanol is excise free to 2011 with a stage introduction of excise to 12.5 cents per litre from 2016
- Petrol has an excise of 38.143 cents per litre
- GST is additional

FUEL STANDARDS

- Cleaner fuels policy in Australia requires:
 - no synthetic oxygenates (carcinogenic)
 - no benzene group compounds
 - reduced sulphur content
 - reduced aromatics
- Vehicle industry requires oxygenated fuel Octane 95 (international Euro 4 and Euro 5 standard)
- E10 fuel achieves a commercial outcome to cleaner fuel policy

NATIONAL PERSPECTIVE

- Australian Fuel Market
 - 35 billion litres/year total
 - 20 billion litres/year petrol
- Potential ethanol market is 2 billion litres/year (10% of total petrol)
 - 20 plants equivalent to Swan Hill Ethanol Project
 - 5 million tonne of grain

AUSTRALIAN BALANCE OF PAYMENTS

- Prior to 2003 Australia was about neutral on balance between petroleum imports and petrol exports
- 2005 the imbalance is – \$6 billion
- This is expected to rise to – \$20 billion over the next few years
- Australia today has 9 years and 4 months reserves of oil

ENVIRONMENTAL

- Ethanol blended fuels reduce tailpipe particulate emissions by up to 50% (PM2.5 and PM10 cause severe lung disease)
- Australia is the world's largest producer of greenhouse gas per capita
- Transport sector accounts for 80 million tonnes of CO₂ per year or 15% of Australian total
- Ethanol blended fuels reduce greenhouse gas emission by up to 20%

REGIONAL BENEFIT

- US experience is a 150 million litre ethanol plant will:
 - provide a US \$142 million boost for the local economy
 - expand local economy by US \$110 million per year
 - create 41 full time direct jobs and up to 700 indirect jobs
 - increase local grain prices by up to 5%
 - increase local household income by US \$19.6 million
 - boost state and local taxes
 - provide a 13.3% return to local investors in the ethanol facility

BIOFUEL TASKFORCE SUBMISSION

- Australian Ethanol Limited has put in a submission to the Prime Ministers Biofuels Taskforce
- Submission highlights benefits of the biofuel's industry for Australia:
 - economic
 - health
 - environmental
 - regional development