

# BIO ETHANOL

## OTHER

- FERTILISER
  - ALCOOL
  - ANTIFREEZE
  - BioDunder
- KEROSENE
  - LIGHTING
  - COOKING
- ELECTRICITY
  - FUEL

## WHAT

- ETHYL ALCOHOL
  - HENRY FORD
    - 1896 QUADRICYCLE
    - 1908 MODEL T
      - ETHANOL
      - GASOLINE
- PARTICLE FREE
- MOTOR FUEL
  - ADDITIVE
    - 5%
    - 10%
    - 85%

## ISSUES

- WEATHER
  - AWARENESS
  - CAPABILITY
  - COLD
  - TROPICAL
  - SUB /
- FOOD
  - FUEL vs
- POWER
  - OUTPUT
- FUEL
  - ECONOMY
- DISTRIBUTION

## WHO

- WORLD
  - 22,947 million gallon
- USA
  - 13,230
  - CORN
  - BIOFUEL CORRIDOR
    - INDIANA
    - ALABAMA
- 88%
  - BRAZIL
    - 6,922
    - SUGAR CANE
    - 30 YEARS
  - AUSTRALIA
    - 66
    - 10% CAP
    - QLD/NSW

## PRODUCTION

- FERMENTATION
  - MICROBIAL
- WATER
  - DISTILLATION
  - DEHYDRATION
- DENATURING
- SACCHARIFICATION

## SOURCES

- PHOTOSYNTHESIS
  - STARCH
  - SUGARS
- FEEDSTOCK
  - SUGAR CANE
    - GREENHOUSE
    - 87-96%
  - CORN
    - ONLY 50%
    - 6 x LESS EFFICIENT
    - \$\$ 30%
    - GREENHOUSE
    - 10-20%
  - POTATO
  - MANIOC
- ALGAE
- CELLUIOSIC
  - WELL 2 WHEEL
- SYNTHETIC
  - ETHENE
  - ETHYLENE

## WHERE

- AUTOMOBILES
  - FLEXIBLE FUEL
- MOTORCYCLES
  - 2009
- BUSES
  - SWEDEN
  - MELBOURNE
  - DIESEL PRINCIPLE
- OTHER
  - TRACTORS
  - ROCKET FUEL
  - AEROPLANES
  - BOATS