



# Why? Where? How?

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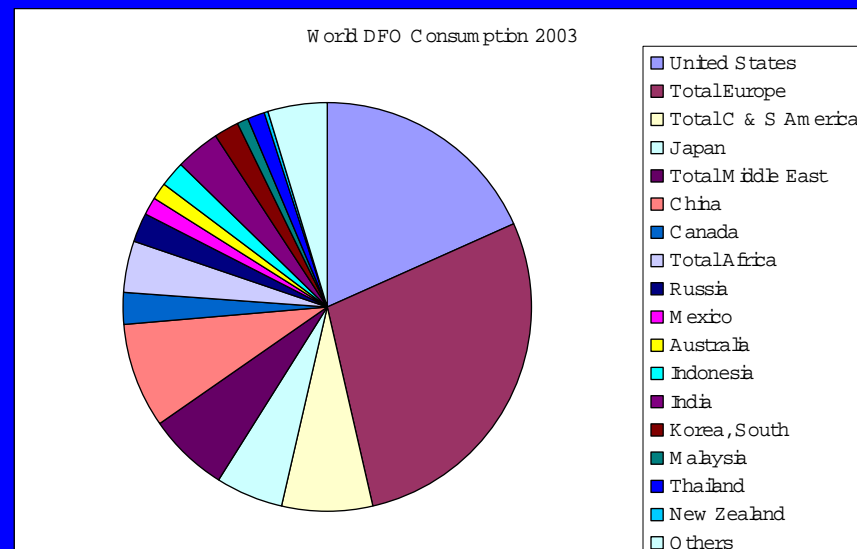


- Why Biodiesel/Biofuels?
- Merging RFA & BAA
- How much can we make?
- What are the opportunities?



# Diesel Usage by Country

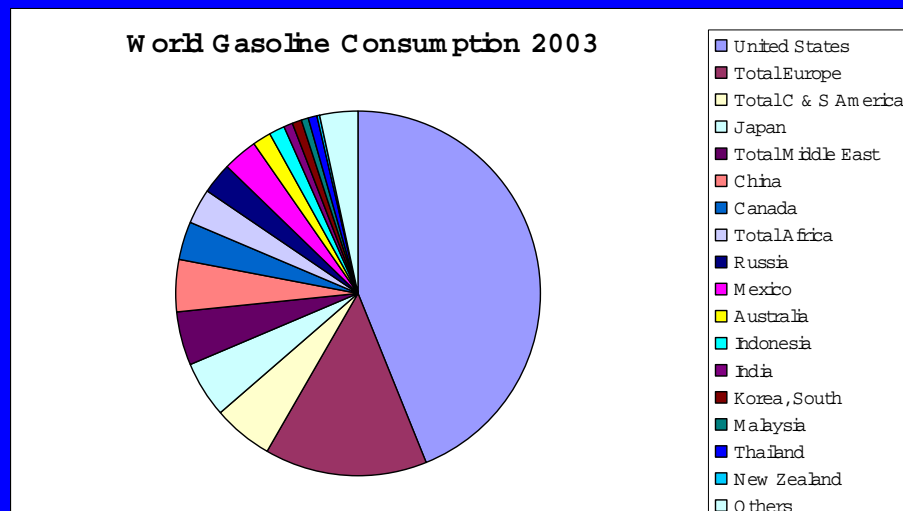
Region/Country	Volume	
United States	223,842	18.2%
<b>Total Europe</b>	<b>347,998</b>	<b>28.3%</b>
<b>Total C &amp; S America</b>	<b>86,190</b>	<b>7.0%</b>
Japan	67,888	5.5%
<b>Total Middle East</b>	<b>76,186</b>	<b>6.2%</b>
China	104,835	8.5%
Canada	29,061	2.4%
<b>Total Africa</b>	<b>51,579</b>	<b>4.2%</b>
Russia	28,150	2.3%
Mexico	17,425	1.4%
Australia	14,443	1.2%
Indonesia	24,586	2.0%
India	45,880	3.7%
Korea, South	24,118	2.0%
Malaysia	10,179	0.8%
Thailand	17,260	1.4%
New Zealand	2,704	0.2%
Others	57,911	4.7%
<b>World Total</b>	<b>1,230,233</b>	<b>100.0%</b>





# Gasoline Usage by Country

Region/Country	Volume	
United States	523,069	43.8%
<b>Total Europe</b>	174,150	14.6%
<b>Total C &amp; S America</b>	61,550	5.2%
Japan	60,565	5.1%
<b>Total Middle East</b>	56,621	4.7%
China	55,761	4.7%
Canada	40,455	3.4%
<b>Total Africa</b>	36,381	3.0%
Russia	35,109	2.9%
Mexico	34,417	2.9%
Australia	19,699	1.6%
Indonesia	15,807	1.3%
India	10,804	0.9%
South Korea	9,705	0.8%
Malaysia	9,280	0.8%
Thailand	7,699	0.6%
New Zealand	3,182	0.3%
Others	40,639	3.4%
<b>World Total</b>	<b>1,194,896</b>	<b>100.0%</b>





# World Comparison

Country	Land Area, 10 <sup>3</sup> km <sup>2</sup>	Population, Million	Arable Land, 10 <sup>3</sup> km <sup>2</sup>	Arable Land km <sup>2</sup> per 10 <sup>3</sup> people	Oil Use, mil. barrels a day
USA	9,161	296	1,752	5.92	20.0
China	9,326	1,306	1,436	1.10	6.3
Japan	374	127	46	0.36	5.6
Germany	349	82	118	1.44	2.7
India	2,973	1,080	1,617	1.50	2.3
Canada	9,093	32	451	14.09	2.2
Brazil	8,457	186	588	3.16	2.1
France	545	60	183	3.05	2.1
The U.K.	241	60	57	0.95	1.7
Spain	499	40	130	3.25	1.5
Thailand	511	65	150	2.31	0.9
Australia	7,617	20	499	24.95	0.8
Pakistan	778	162	216	1.33	0.4
Sweden	410	9	27	3.00	0.4



# Why Biodiesel?

- Generation X
  - 1<sup>st</sup> Generation
  - 2<sup>nd</sup> Generation – New Crops
  - 3<sup>rd</sup> Generation – New Technology
  - Do we wait for #3 BEFORE starting???
- True Cost of Energy/Sustainability
  - ABARE \$38/bl – “cost” to liquefy coal!
  - Delaying makes changing MORE expensive.

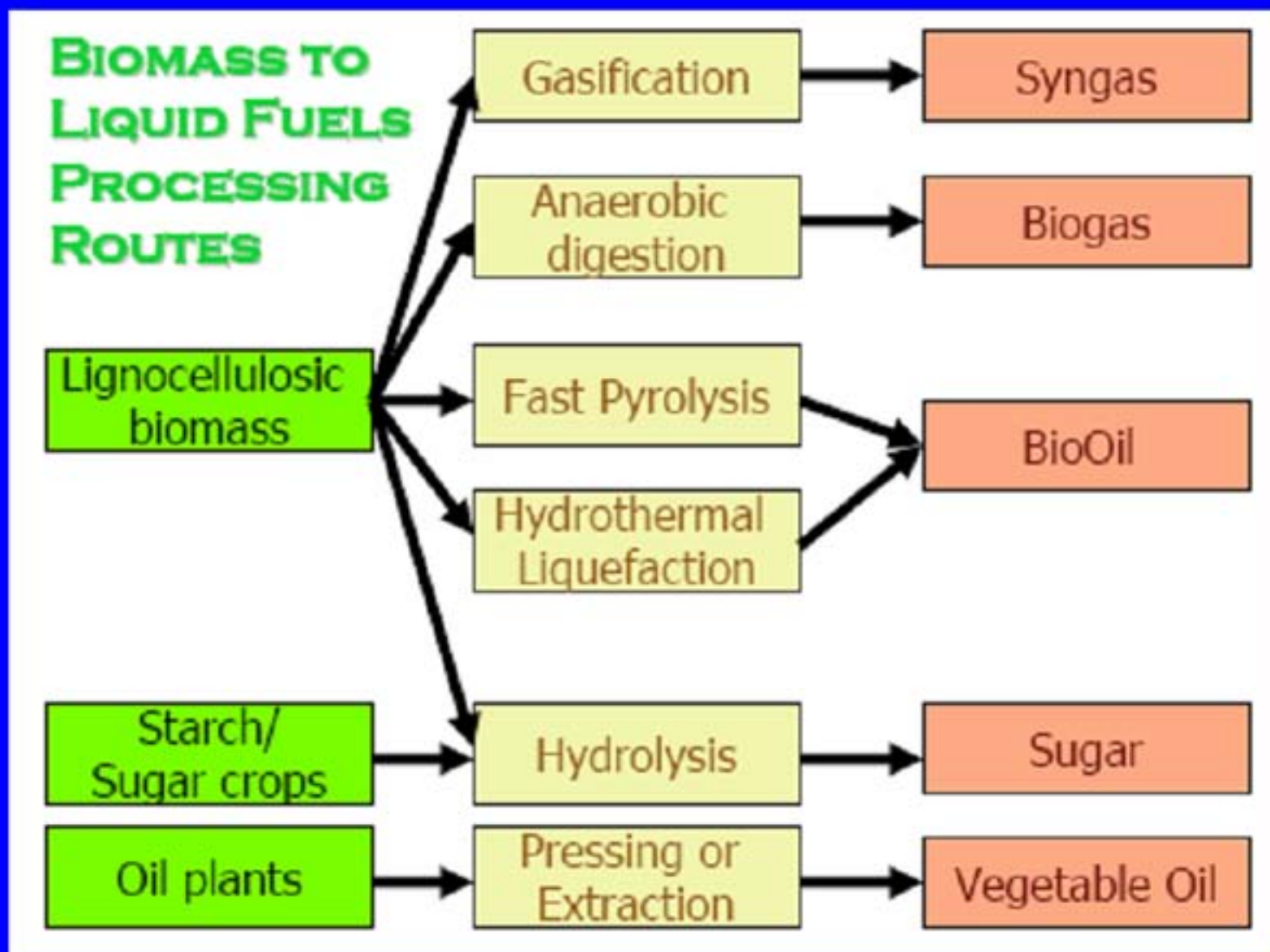


# Why Biodiesel-Biofuels?

- Future will depend on growth
- Growth will come with challenges
- Challenges are biofuel opportunities!
- Industry development means many people and companies will prosper.

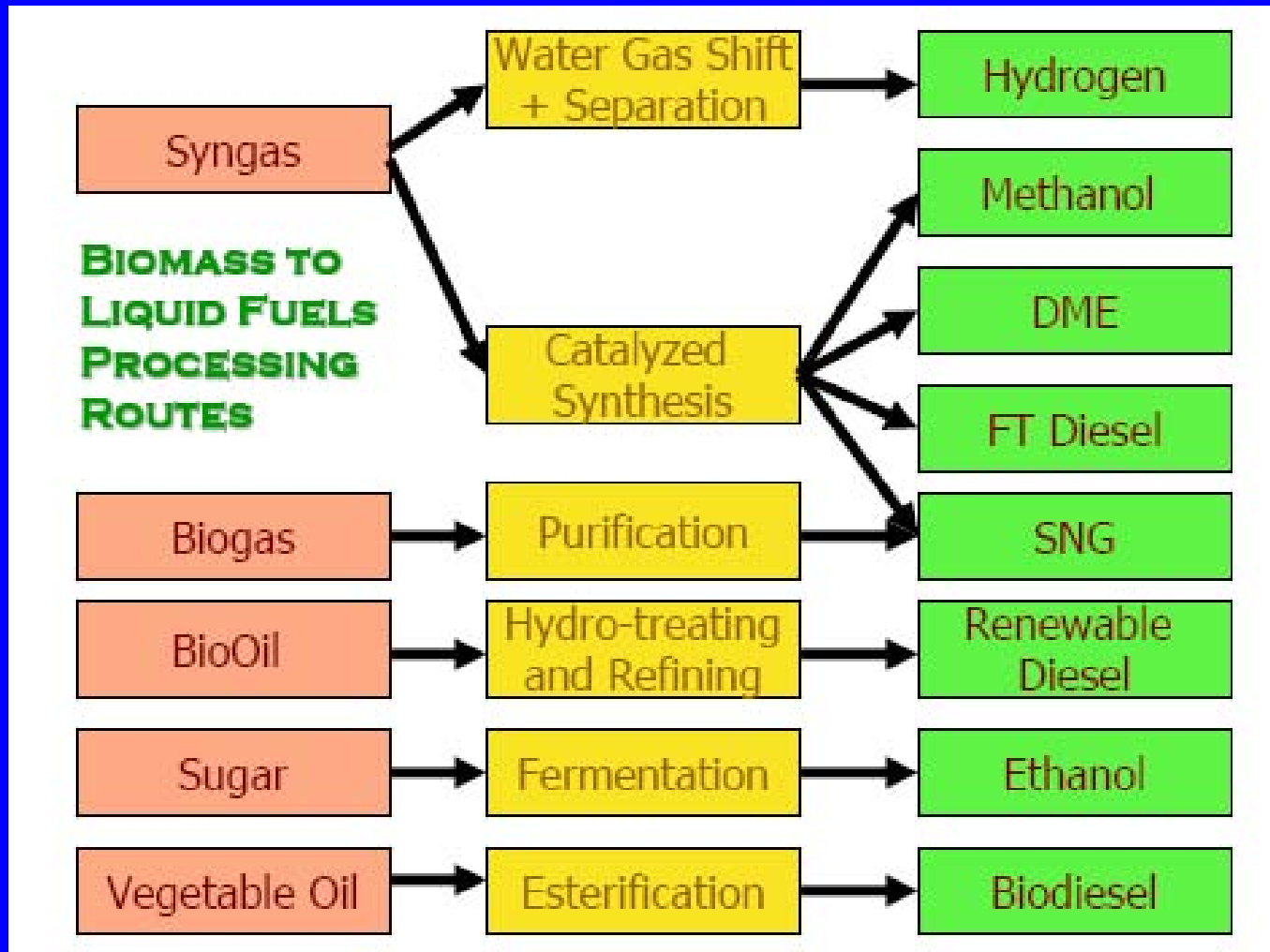


## Intermediate Products Can Be Produced from Various Feedstocks via Various Technologies





## Bio-Fuels Can Be Produced from Intermediate Products with Various Technologies





# Balancing Growing Fuel

- Rotation crops in dry land areas
- New species or varieties
- Developing by-products as value products
- Non-food varieties in non crop land
- Increase choice
- Increase food yeild



# Distribution and OEMs

- Getting the fuel out there is harder than you might think.
- People want the fuel but the engine makers just say "NO" – Why?



*Biodiesel Association of Australia*

# Why is Quality important?





# Industry Challenges/Issues

- Feedstock supplies/Sources
  - By Products -> co-products!
- Quality Management
- Blend Specifications
- Labeling requirements
- OEM support
- Consumer education



# Thank you!

