

A blurred landscape of a sunflower field at sunset. The sun is low on the horizon, casting a warm, golden glow over the scene. The sunflowers in the foreground are out of focus, creating a soft, textured appearance. The sky is filled with soft, golden light, and the overall atmosphere is peaceful and serene.

How to define BIO F0?

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Linguistic Definitions.

- Bio - Comes from the Greek and means 'Life'
- Fuel – Substance that is used to provide heat or power. (Cambridge Dictionary)
- Biofuel -> A fuel that is made from living things or their waste. (Cambridge Dictionary)
- Biomass -> Dead plant and animal material suitable for using as a fuel. (Cambridge Dictionary)
- Bio Diesel -> Fuel made from vegetable oils or animal fat (Cambridge Dictionary)
- Biodiesel is a form of diesel fuel derived from plants or animals and consisting of long-chain fatty acid esters. It is typically made by chemically reacting lipids such as animal fat (tallow),^[1] soybean oil,^[2] or some other vegetable oil with an alcohol, producing a methyl, ethyl or propyl ester. (Wikipedia)
- Renewable Diesel -> Not in the Cambridge Dictionary.
- Renewable diesel is a hydrocarbon diesel fuel produced by hydroprocessing of fats, vegetable oils, and waste cooking oils. ... "Renewable diesel is generally a hydrocarbon and is indistinguishable from the petroleum it is replacing.
- Bio Gasoline (Bio Petrol) -> is a type of gasoline produced from biomass such as algae.

Where are we today?

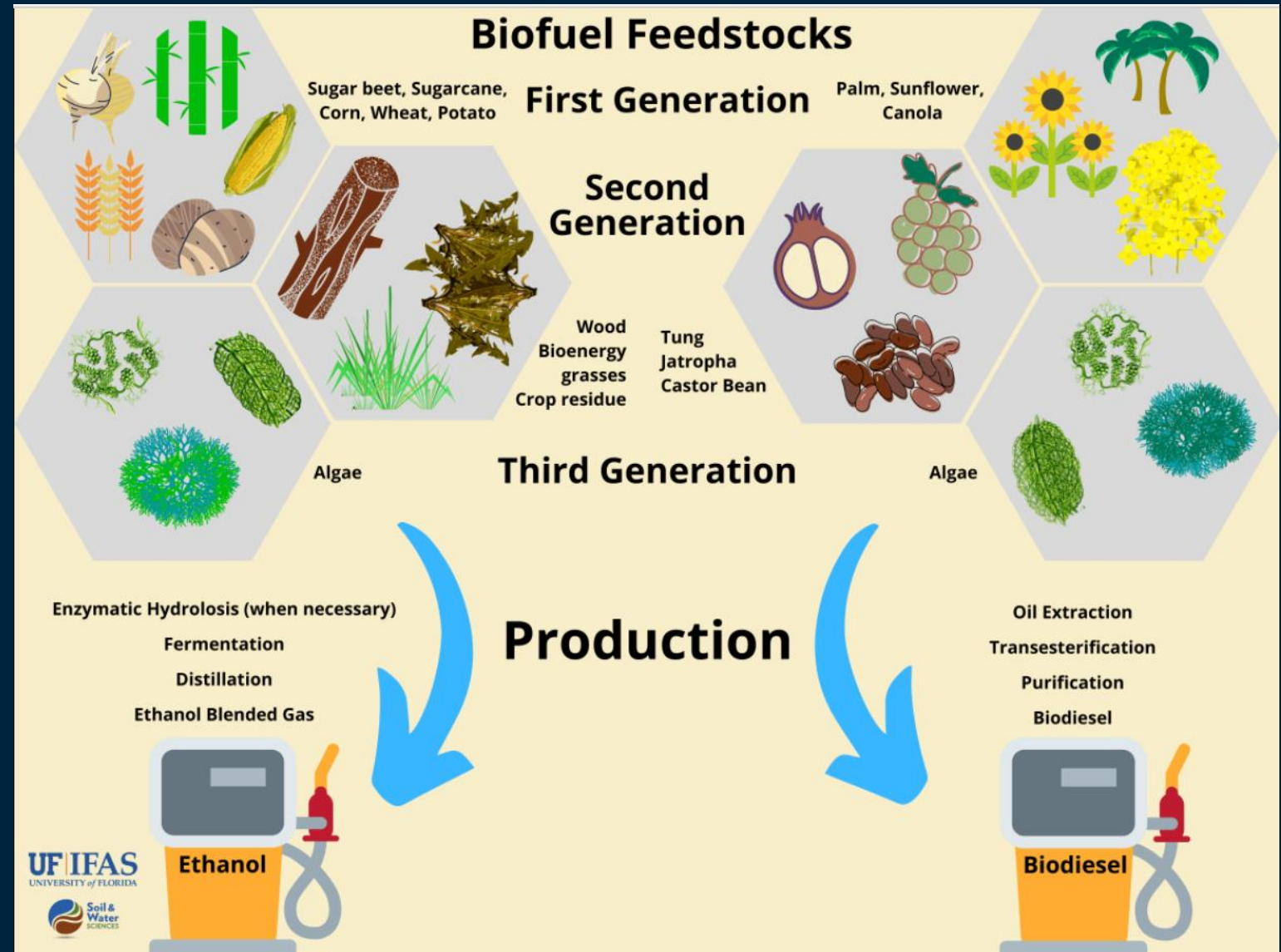
ISO 8217 – Specification of Marine Fuel Oils

- High Sulphur Heavy Fuel Oil.
- Very Low Sulphur Heavy Fuel Oil
- Ultra Low Sulphur Heavy Fuel Oil
- Marine Distillates
- Marine Distillates Containing MAX 7% FAME
- The fuel composition shall consist predominantly of hydrocarbons primarily derived from petroleum sources while it may also contain hydrocarbons from the following:
 - synthetic or renewable sources such as Hydrotreated Vegetable Oil (HVO), Gas to Liquid (GTL) or Biomass to Liquid (BTL);
 - co-processing of renewable feedstock at refineries with petroleum feedstock.



Feedstock/Production

- Diverse pool of Feedstock
- Diverse potential processes
- Can this be generalized?



Operational Challenges

- (Longterm) Effect on Equipment -> Seals
- (Longterm) Storage & Mixing
- What is the true environmental impact?

How do you ensure / validate Quality?

- What should a BIO feed look like?
- What blendratio can be applied?
- What is the quality requirement for the finished product?



Current approach.

Look at other industries, what has been done, what works and where are the problems.

FAME specifications:

- Europe EN 14214
- US ASTM D6751 (No min FAME content specified).

HVO specifications:

- EN15940 – Paraffinic Diesel spec. (No unique identifier)

Testing:

- Lab testing on the products and mixtures.

Onboard Trials:

- Create a risk matrix and means of mitigation.
- Get the required approvals.
- Workout a test plan
- Evaluate the results.

How to standardize Marine BIOfuel

- There are many unknowns but we need to continue....
- Within the ISO8217 there is a focus group on BIO.
- 1: Start the inclusion of FAME into the future revision.
Use existing standards and adopt them to Marine.
- 2: Investigate and prepare for other/future, BIO/renewable/advanced Fuels.
Marine needs to become complementary.

THANK YOU!