



II CONFERENCIA
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BIOCOMBUSTIBLES

9-10-11 DE MARZO DE 2016 · HOTEL LAS AMERICAS - CARTAGENA - COLOMBIA



ISAFXXII
2016

**European Waste-Based Biodiesel Market:
Current Situation and 2020 Perspective**

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Agenda

1	EXECUTIVE SUMMARY	Overview of key findings	P. 3
2	CURRENT MARKET	Overview of the market in 2015 and beginning of 2016	P. 5
3	2020 PERSPECTIVE	Main drivers of the market in the next 5 years	P. 11
4	SOUTH AMERICA AND EUROPE	Major opportunities	P. 16
5	CONCLUSION	Key takeaways	P. 18
6	GREENEA	Company introduction	P. 20

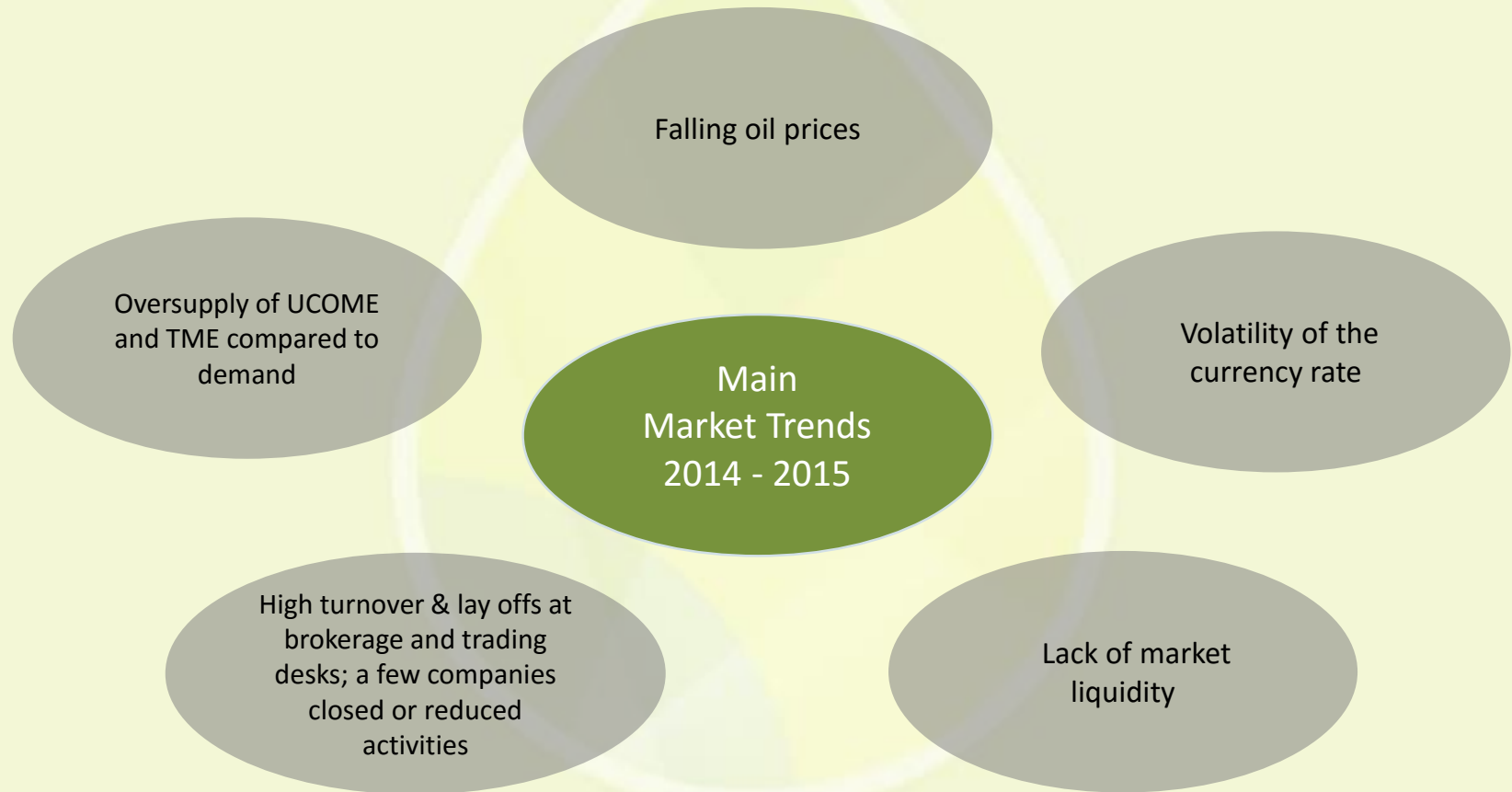
Executive summary

- There is a number of issues that the biodiesel market had to face in the last 2 years among which: **falling oil prices, volatility of currency rates and lack of market liquidity.**
- In Europe, **the supply of biodiesel grew significantly between 2014 and 2015.** Higher production means also an increased need for feedstock importation.
- **In the EU, producers require feedstock to be ISCC EU certified,** which creates a market entry barrier as we do not yet see many Colombian producers that have this certification. However, the fact that Colombian producers can provide EUR1 increases their competitiveness as it helps to avoid import duties.
- **Export of biodiesel to the European market is possible** and there is demand for it, however, producers and exporters must fulfil a **number of rules:** ISCC certification, traceability, CO₂ emissions audit, company registration to the final user countries, sustainability requirements, etc.).
- New technologies and developments allow **for the use of new types of feedstock** which are cheaper due to their high acidity.

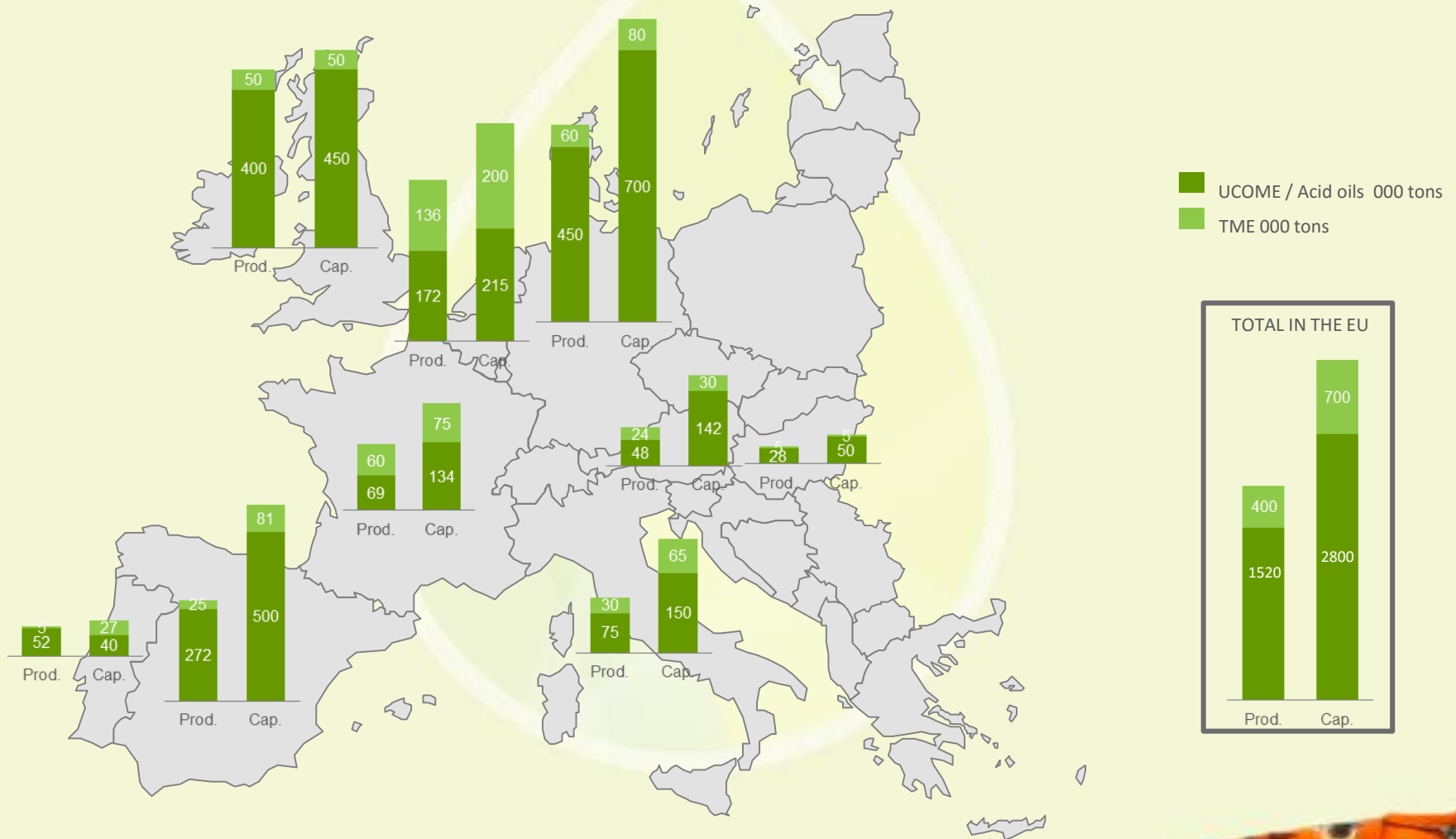
Agenda

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3	2020 PERSPECTIVE	Main drivers of the market in the next 5 years	P. 11
4	SOUTH AMERICA AND EUROPE	Major opportunities	P. 16
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6	GREENEA	Company introduction	P. 20

European biodiesel industry had to face numerous issues during the last 2 years



Waste-based biodiesel production and capacity in 2015 in key EU producing markets

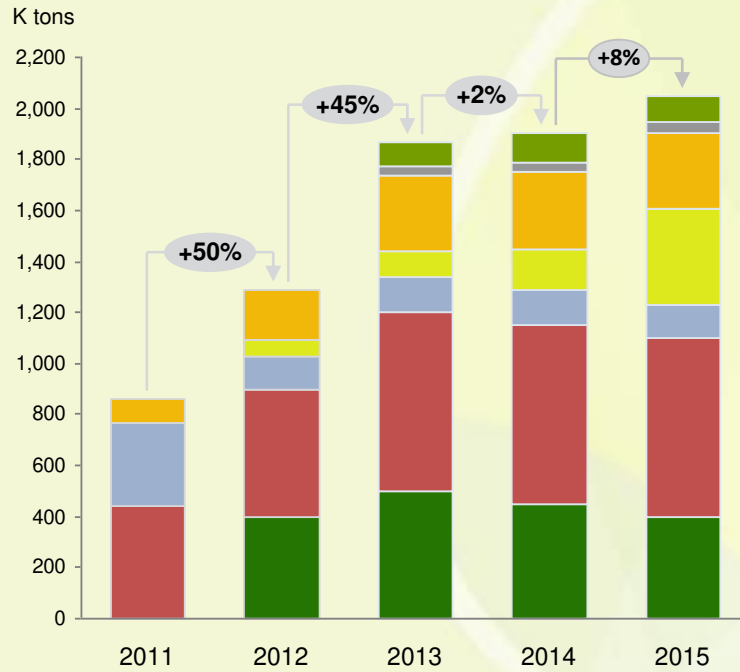


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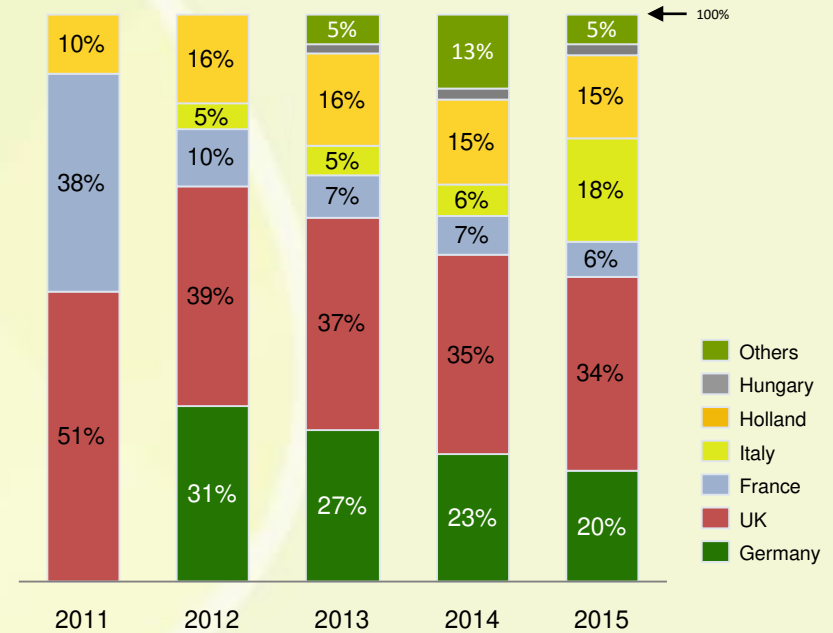


UK, Germany and Italy lead the demand for double-counting products

YEARLY CONSUMPTION BY COUNTRY:
 THEORETICAL DEMAND SHOULD CONTINUE TO RISE DRIVEN BY THE ITALIAN MARKET



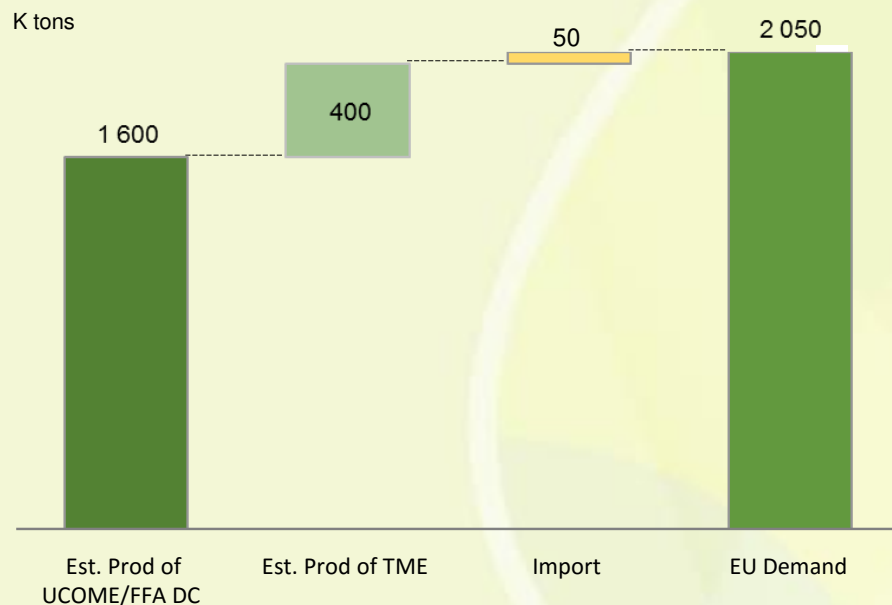
MARKET SHARE BY COUNTRY:
 ITALY MORE THAN DOUBLED ITS DC CONSUMPTION IN 2015



Starting from 2016 Poland should have implement DC, however, after the recent elections the details and the date of the implementation are not really sure. DC in Spain is postponed and will most likely not be introduced before 2017.

In Europe, supply and demand of waste-based biodiesel remain balanced

EU: WASTE-BASED BIODIESEL PRODUCTION & IMPORT IN 2015



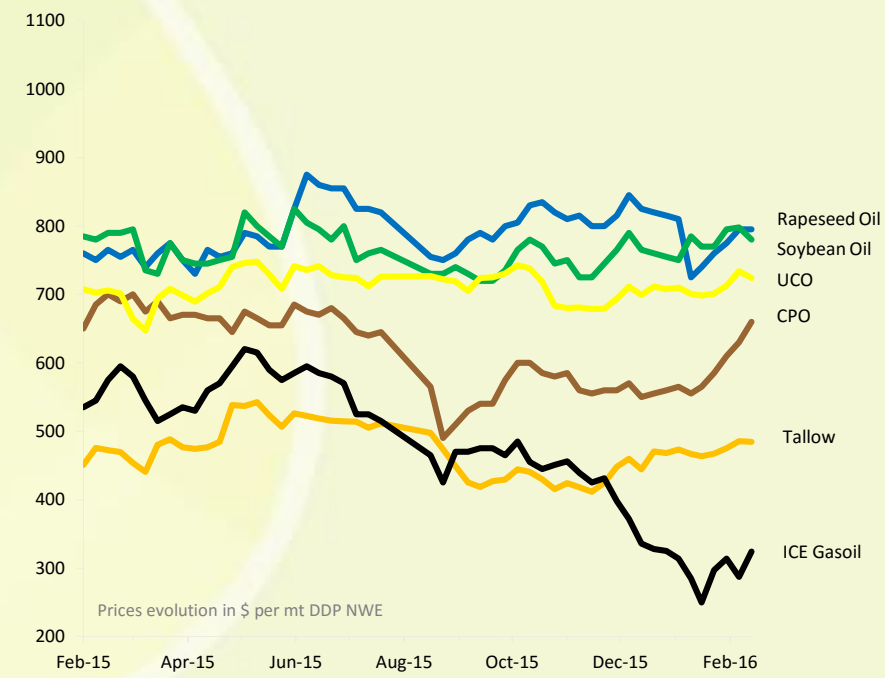
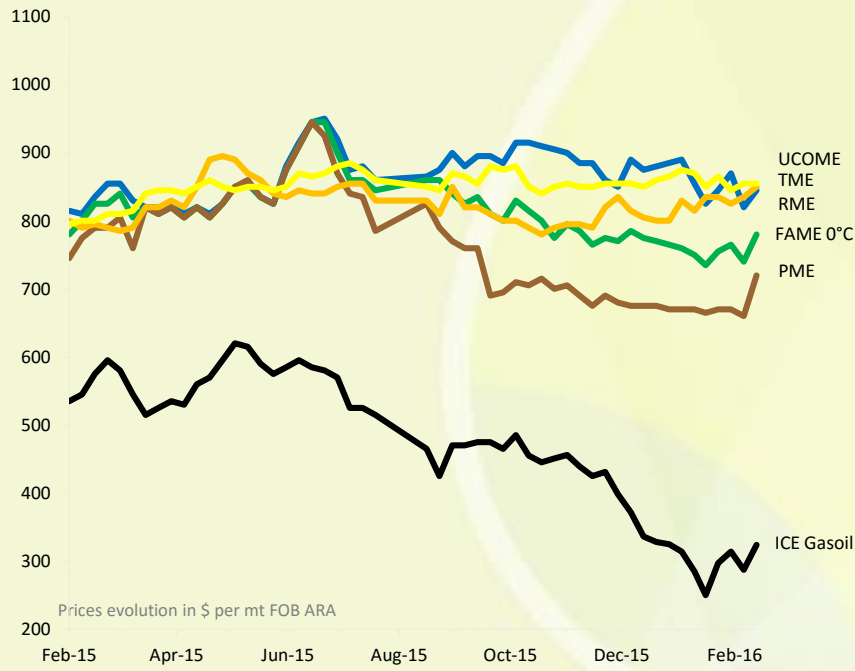
- Low demand on the European biodiesel market caused oversupply and low market liquidity.
- Low demand on the biodiesel market in Europe is partly due to a low blending rate of 5%.
- Implementation of higher blending targets could positively influence the demand. However, with the Double Counting system in place, it is predicted that many producers will switch to waste based biodiesel instead.
- Biodiesel market keeps developing in the waste-based sector. Increased investment in technology improvements, such as distillation columns or pre-treatment units, is visible all over the continent.

The double counting biodiesel is mainly locally produced in the EU due to the fear of European buyers concerning the lack of full traceability and sustainability control in the case of plants producing outside of the EU.
Low EUR/USD exchange rate also makes exports to Europe less attractive.

Biodiesel prices follow the trend of veg-oils rather than gasoil price

THE CLOSE-TO-NUL PREMIUM FOR CFPP DURING THE SUMMER PERIOD INCREASES ANTICIPATING WINTER SPECS

TALLOW IS THE ONLY FEEDSTOCK 'FOLLOWING' THE TREND OF GO, WHICH CREATES SIGNIFICANT MARGIN FOR TME PRODUCERS



Agenda

1	EXECUTIVE SUMMARY	Overview of key findings	P. 3
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Main market trends in the next 5 years

POPULARIZATION OF THE HVO PROCESS



- New investments in Europe
- Conversion of already existing plants
- Co-processing

NEW ALTERNATIVE FEEDSTOCK TYPES



- Use of new feedstock in the biodiesel industry like Crude Tallow Oil
- Use of acid UCO, acid oils and POME

INVESTMENTS IN TECHNOLOGY



- Adding pre-treatment units to already existing refineries to increase feedstock flexibility
- Adding distillation columns to improve the quality of the final product

SWITCHING TO WASTE-BASED BIOFUELS

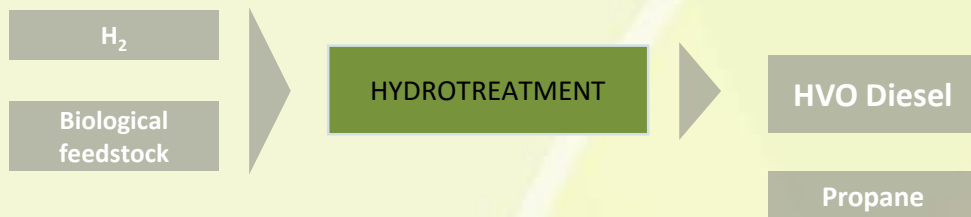


- Implementation of Double Counting or GHG emission saving systems
- ILUC
- No competition with food

The competition for waste based feedstock will become fiercer, however, investments in new technology will allow the producers to be more flexible on the feedstock quality. This, in turn, will increase the quantities of feedstock available to them, both in Europe and overseas.

HVO: high quality output from low quality feedstock

HVO PROCESS OVERVIEW



HVO ADVANTAGE

HVO diesel is superior to conventional biodiesel:

- High cetane number
- Lack of oxygen content
- Low CFPP level (even -50°C)

Due to the fact that the final HVO biodiesel quality does not depend on the feedstock quality, **poor quality and high FFA feedstock can be used in the production process.**

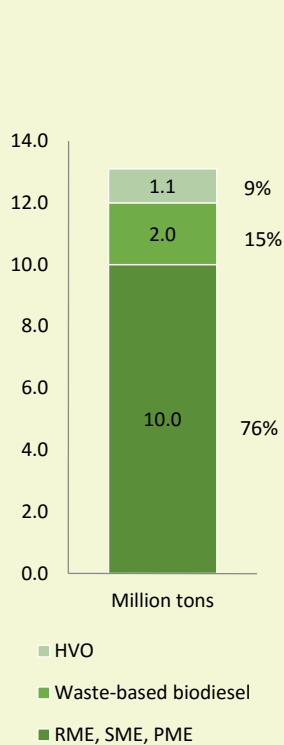
HVO DIESEL SPECIFICATIONS

	FOSSIL DIESEL	FAME	HVO
BIO content	0	100	100
Oxygen, %	0	11	0
Specific gravity	0,840	0,880	0,780
Sulphur, ppm	<10	<1	<1
Heating value, MJ/kg	43	38	44
Cloud point, C	-5	-5 to +15	Up to -20
Distillation range, C	200-350	340-355	200 - 320
Polyaromatics, %	11	0	0
Nox emissions	Standard	+10%	-10%
Cetane	51	50 - 65	70 - 90
Oxydation stability	Standard	Poor	Excellent

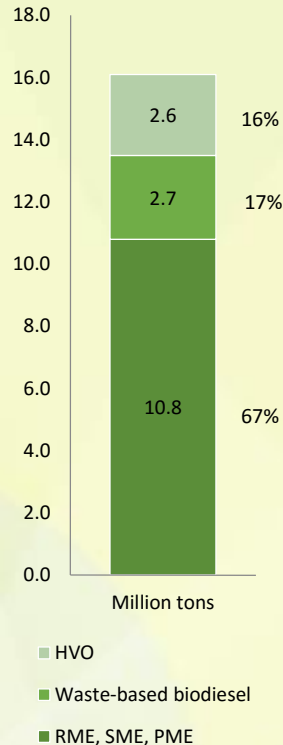
The superior quality of HVO allows for blending with low quality diesel to improve the parameters of the final product.

European biodiesel market: predictions for 2020

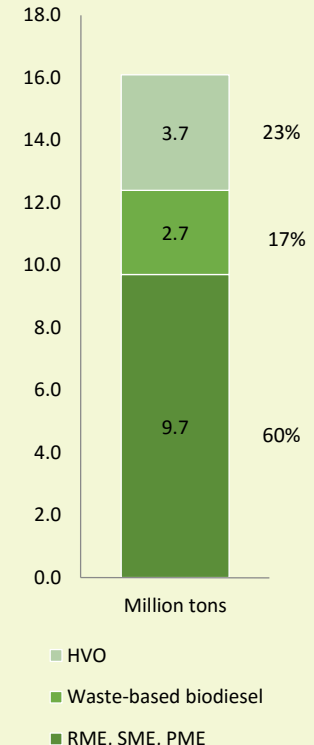
EUROPEAN BIODIESEL MARKET IN 2015



2020 REALISTIC SCENARIO:
70% OF THE HVO CAPACITY RUNNING



2020 OPTIMISTIC SCENARIO:
FULL HVO CAPACITY RUNNING

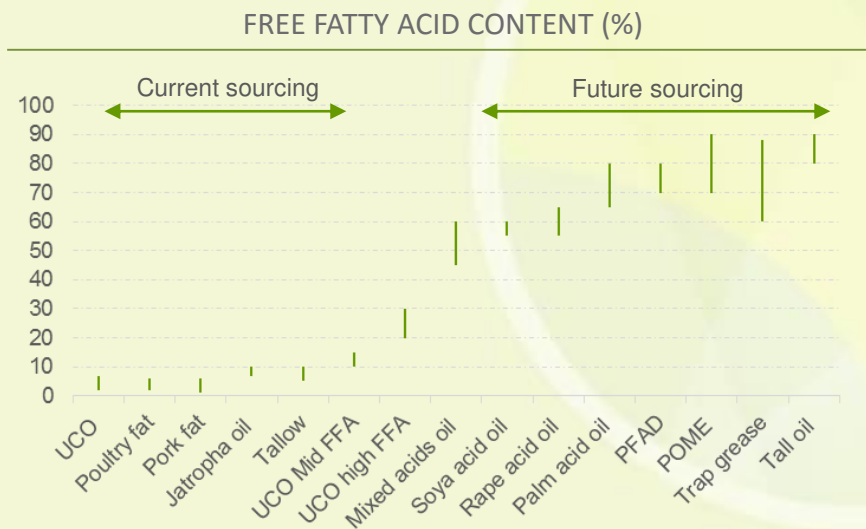
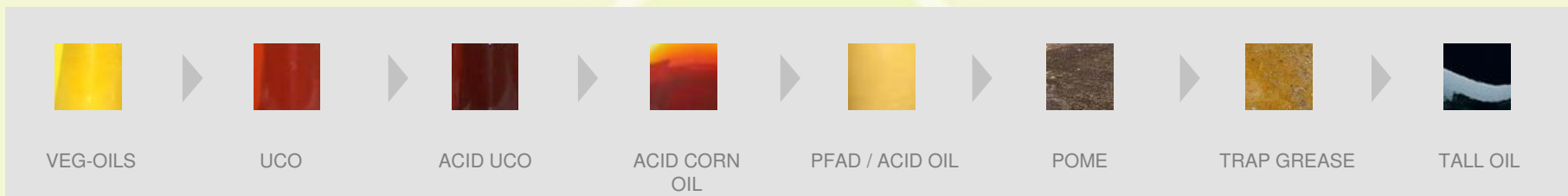


• HVO share will vary from 16% to 23% depending on the demand

• The increase in HVO share will be at the expense of first generation biofuels

The demand for biodiesel is forecasted to exceed 16 million MT by 2020. At least 1/3 should be covered by waste-based biodiesel and HVO, which will put additional pressure on the waste-based feedstock market in Europe.

Biodiesel industry is moving from low acidity feedstock to crude waste-based material with high acidity



European feedstock demand for biodiesel will grow by 5 million MT during 2015 – 2020 to reach the mandate. It will require imports of feedstock from outside of Europe. We will see an increase in imports of POME, PFAD, CPO, tall oil, high acid UCO, etc.

Large imports of PFAD and CPO from Asia to supply fast developing HVO production in Europe.

Fierce competition to source UCO and animal fat locally due to increasing needs for waste-based biofuels and limited feedstock resources.

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What are the possibilities and limitations for Colombian producers to export their products to the EU?

FEEDSTOCK PRODUCERS

- **Sustainability certificate:** only a few companies are certified to export waste-based feedstock to Europe.
- Current **EUR/USD exchange rate** is quite low and penalizes export to Europe.
- The EUR1 certificate increases significantly the competitiveness of Colombia for export to Europe when comparing the **import duty of 2% for other countries.**
- **Possibility to export other types of feedstock** such as UCO, CPO or PFAD for HVO and biodiesel production in the EU. However, the ISCC certification is anyway required.
- Logistics by flexi tank is always limiting, especially during winter season for feedstock with low IV.

BIODIESEL PRODUCERS

- **ISCC certification:** there are not many biodiesel producers that are certified to supply ISCC EU (or equivalent sustainability scheme) products to Europe.
- Current **EUR/USD exchange rate** makes it very difficult to export any product to the EU market due to the weakness of euro.
- The EUR1 certificate increases significantly the competitiveness of Colombia for exporting to Europe comparing to the **import duty of 6,5% for other countries.**
- European buyers are always asking **all options for double counting in Europe** (GHG for German market, DC for UK, FR, Holland), which means additional costs for producers.

Big potential for Colombia to export both biodiesel and feedstock either palm-based or waste-based but the main barrier is the certification to comply with EU regulation. High competitive advantage due to EUR1.

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3	2020 PERSPECTIVE	Main drivers of the market in the next 5 years	P. 11
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Despite challenges, the biofuels market should continue to grow in the next 5 years

MAIN CHALLENGES

- Falling prices of crude oil and high volatility on the commodity markets
- Low market liquidity due to supply chain integration and disappearance of several players in the biofuels trading activities
- Frequent policy changes on the EU and country levels
- Volatile currency market and fall of euro against US dollar

INTERESTING OPPORTUNITIES

- Continuous demand growth for renewable fuels due to EU requirements: the CAGR of biodiesel / HVO is expected at 6% in the next few years, which means that more feedstock will be needed and especially palm-based feedstock
- Development of new technologies allowing for the use of new types of feedstock
- Increased interest and compulsory mandates in several countries outside Europe (e.g. Peru, Argentina, Brazil, Indonesia, Philippines, Malaysia)
- The increase of biofuels mandate in Italy, France and Holland gives us optimism for 2016 as the supply should now stabilize

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Why Greenea?

MARKET EXPERIENCE

GREENEA is an independent **brokerage** and consulting company founded in 2007. It specialises in **waste-based raw materials and biofuels**.

GREENEA offers its **services to companies using raw materials in their production as well as to various other players from the oleo-chemical, animal feed, bioenergy and biofuels markets**.

It was our conscious and strategic choice to position ourselves on the market of **raw materials that do not compete with the food sector**.



Founded in **2007**



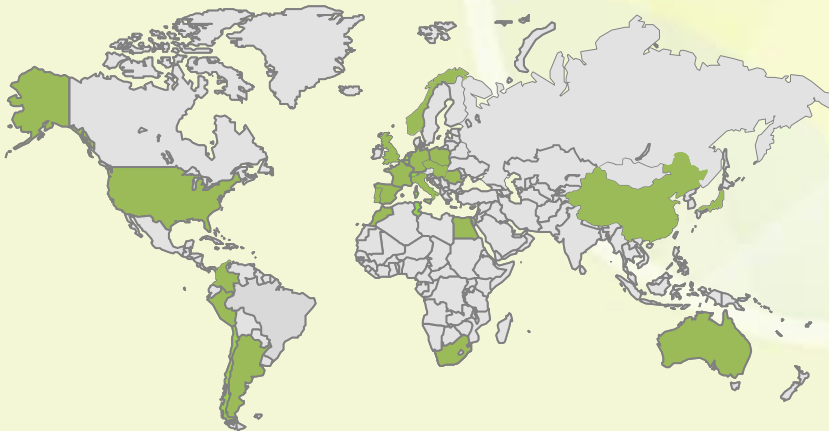
Since 2011 our average annual growth is **18%**



We speak:
English, Spanish, Portuguese, Polish, French and Italian



WIDE INTERNATIONAL PRESENCE



Our values:
honesty, integrity, respect for our clients and their values.

Why Greenea?

OUR PRESENCE IN SOUTH AMERICA



PRODUCTS WE DEAL WITH



Used cooking oil



Acid oil and glycerine



Biofuels
(UCOME, TME, PME, FAME)



Animal fats



Wood pellets and
woodchips



Crude glycerine

As brokers we cover a wide variety of waste-based products as well as industrial by-products, which can be reused and transformed into, for example, biofuel or bioenergy.



EXPERIENCE

9 years of experience on the markets of used cooking oil and waste-based biofuels such as UCOME & TME

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YOUR BROKER FOR WASTE-BASED
FEEDSTOCK & BIODIESEL



FEDERACION COMBUSTIBLES
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