



Palm Oil Agroindustry and Development of the Biofuels Market in Colombia

Sao Paulo, Brazil – 20th october 2015

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Nes Naturaleza, Colombia



Content

- ✓ Palm Oil Agroindustry.
- ✓ Sustainable Certifications
- ✓ Palm Oil Biodiesel
- ✓ Final Remarks





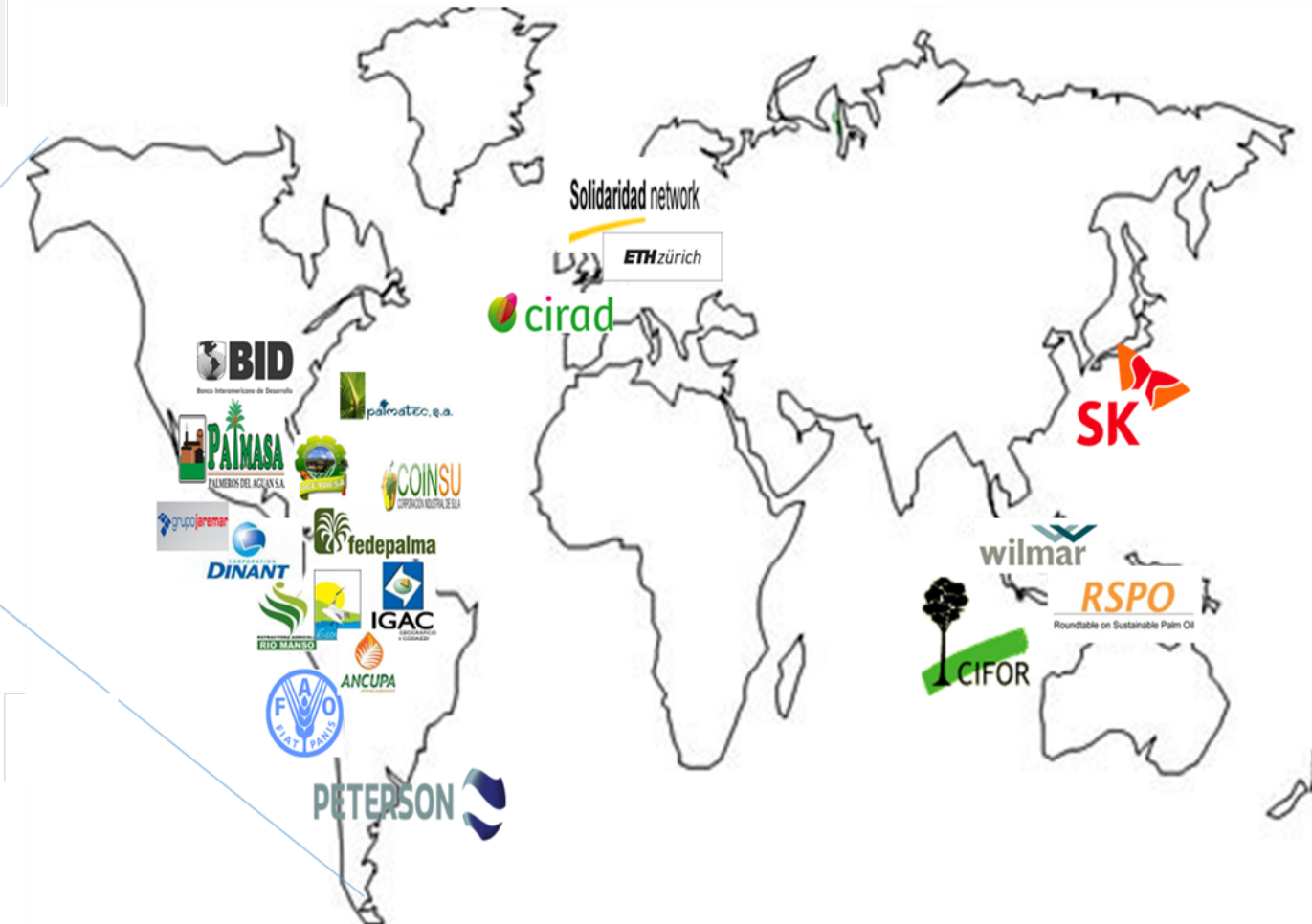
Alejandra Rueda Zárate.

- MA Energy and Resources - University of California, Berkeley.
- Founder and Director of Nes Naturaleza.
- Former Director of New development markets in Fedepalma.
- Author of Colombian Palm Biodiesel Book
- Former Director Sustainable Trade Platform / Solidaridad.
- University professor.
- Columnist agriculture magazines.



NATURE, ENERGY AND SOCIETY -NES NATURALEZA.

THINK GLOBAL
ACT LOCAL
A sustainable world for
future generations



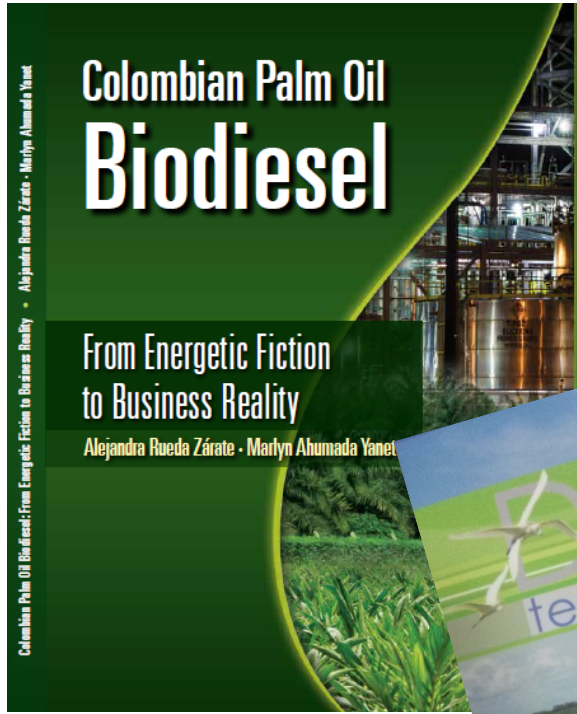
✓ NES is an initiative of strategic thinking that supports growth and development in the countryside.

We guide the adoption of Sustainable practices in order to add value in the agricultural sector.

NES encourages the inclusiveness of rural population through a balanced equation between environmental, social and economic perspectives.



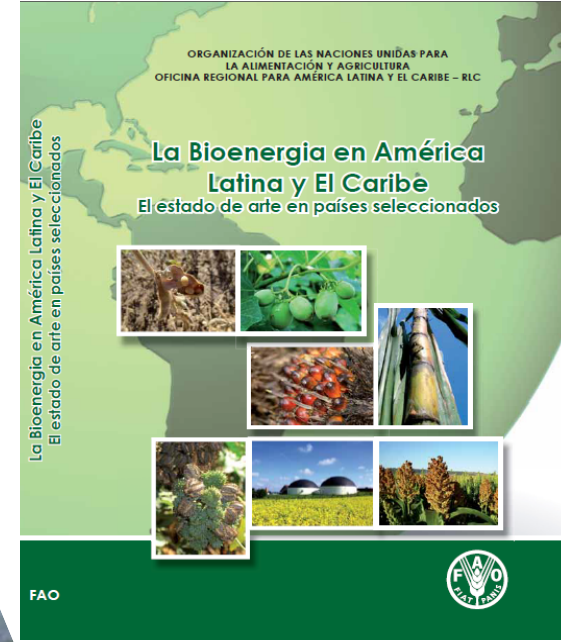
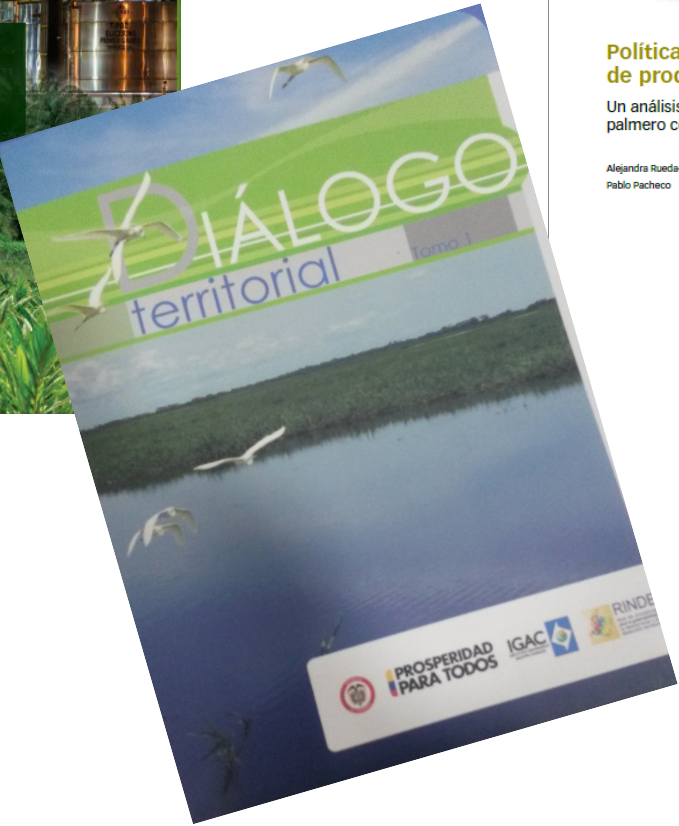
BOOKS, REPORTS AND ARTICLES



Políticas, mercados y modelos de producción

Un análisis de la situación y desafíos del sector palmero colombiano

Alejandra Rueda Zárate
Pablo Pacheco





1. COLOMBIAN PALM OIL AGROINDUSTRY



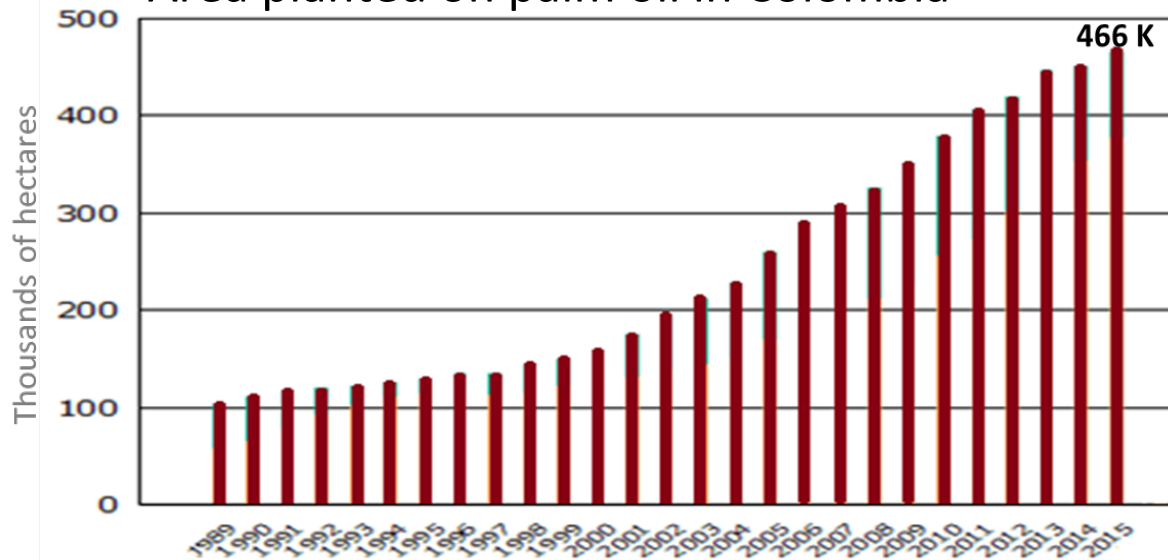
Source: Fedepalma



PALM OIL PLANTATIONS IN COLOMBIA



Area planted on palm oil in Colombia



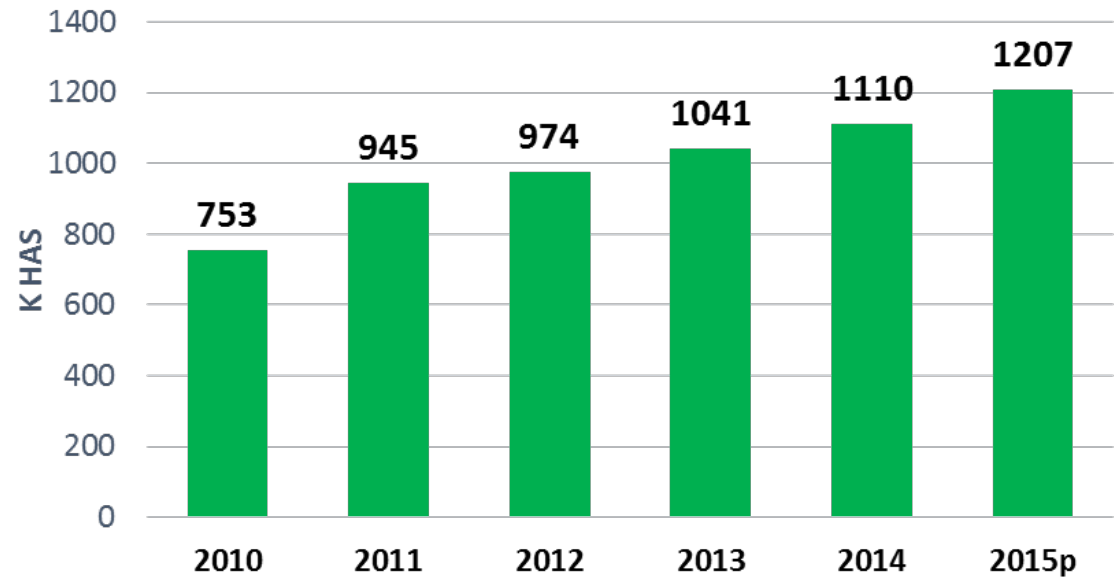
Production area in Latam

País	2001	2004	2009	2014	2014/2001	Part.
Colombia	138	157	236	325	136%	29%
Ecuador	104	140	214	237	128%	21%
Brasil	42	54	82	130	210%	12%
Honduras	33	61	93	125	279%	11%
Costa Rica	39	47	53	72	85%	6%
Guatemala	21	25	50	65	210%	6%
México	12	14	26	46	283%	4%
Venezuela	30	28	32	42	40%	4%
Perú	10	10	18	40	300%	4%
República Dominicana	8	8	11	16	100%	1%
Panamá	4	5	6	8	100%	1%
Nicaragua	2	3	3	5	150%	0%
Centroamérica*	119	163	242	337	183%	30%
Suramérica*	324	389	582	774	139%	70%
Total*	443	552	824	1.111	151%	100%



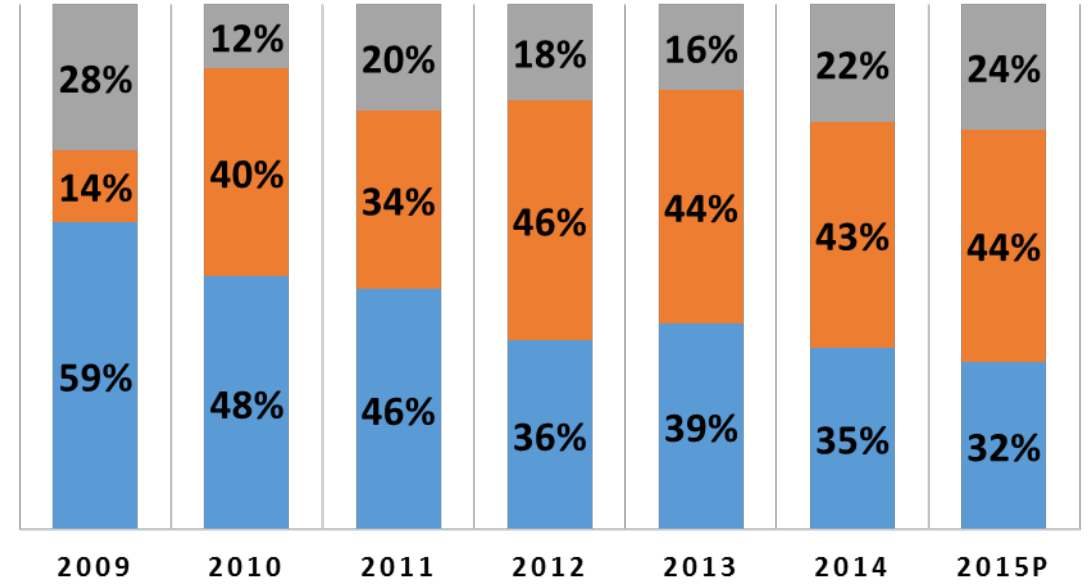
CRUDE PALM OIL MARKET IN COLOMBIA

CPO PRODUCTION



Source: Fedepalma

CPO SALES DISTRIBUTION



Source: Anuario Estadístico del Sector Palmero

Colombia is the fourth largest CPO producer in the world and the first one in LatinAmerica.

Biodiesel is the most important domestic market.



PALM OIL PRODUCTIVITY

Annual production yields by area (tons/ha)

Product	Zone	2014
FFB of Oil Palm	Eastern	14,32
	North	20,25
	Central	13,66
	South West	7,6
	Total	15,34
Crude Palm Oil	Eastern	2,97
	North	3,99
	Central	2,86
	South West	1,45
	Total	3,4

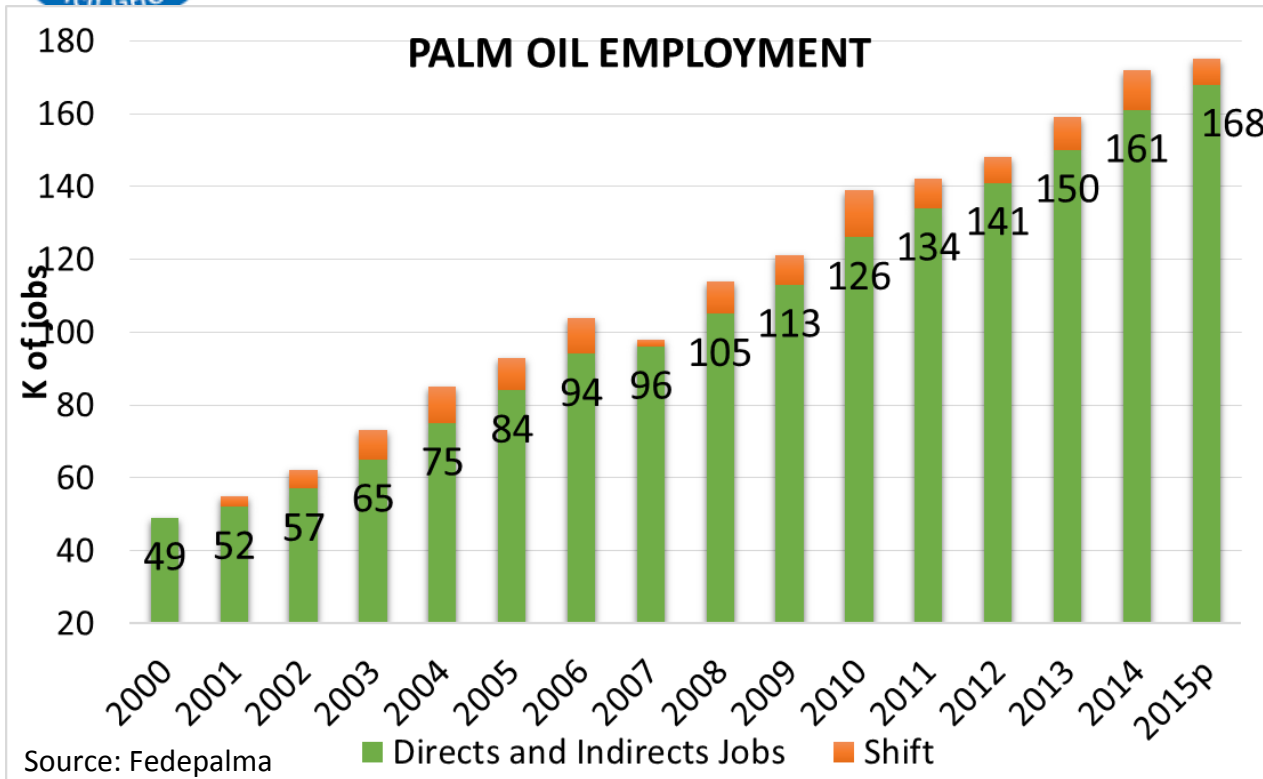
Source: Fedepalma

Yields of CPO in Latam región (Tons/Ha)					%
Country	2001	2004	2009	2014	2014/2001
Guatemala	3,3	3,5	3,6	6,9	106%
Panamá	3	2,6	2,8	4,2	40%
Honduras	3,9	2,8	3	3,7	-7%
Colombia	4	4	3,4	3,4	-14%
Nicaragua	4	2,8	3,7	3,4	-15%
Rep. Dominicana	3,3	3,5	3,5	2,9	-10%
Costa Rica	3,8	3,7	3,9	2,9	-24%
Brasil	2,6	2,6	2,9	2,8	9%
Perú	3,7	2,8	3,6	2,6	-29%
Ecuador	2,2	2	2	2,1	-6%
México	2,8	2,9	2,5	1,8	-36%
Venezuela	1,7	2,2	2,6	1,1	-35%
Centroamérica	3,5	3,1	3,3	3,7	7%
Suramérica	2,8	2,7	2,9	2,4	-15%
Total	3,2	2,9	3,1	3,2	0%

Source: Oil World Annual Statistics

It is estimated that PC has affected more than 170.000ha (35% of the national total).

SOCIAL ASPECTS, PALM OIL EMPLOYMENT



✓ **1 of each 4** hectares planted in oil palm during the last decade, adopted the inclusive business model.

- **2012 ended with 126 consolidated alliances.**
- More than **6.000** small producers
- Mostly **70.000 ha in SPA**

Source: Fedepalma

	Palm		Job Creation		
	hectares/year	ton/year	Directs	Indirects	Total
B5	66.410	236.420	8.301	12.452	20.753
B10	131.354	472.841	16.418	24.627	41.045
B15	197.017	709.261	24.627	36.941	61.568
B20	262.689	945.682	32.836	49.254	82.090



2. SUSTAINABLE CERTIFICATIONS





MEMBERSHIP. ORDINARY MEMBERS



RSPO

Roundtable on Sustainable Palm Oil

MEMBERS

Indutrade Colombia S.A.S.	Palmeras de la Costa S.A.
Extractora Palmariguanã S.A	Extractora del Sur de Casanare S.A.S.
OLEOFLORES S A S	INDUSTRIAL AGRARIA LA PALMA LIMITADA-INDUPALMA LTDA
Extractora Frupalma S.A.	Biocombustibles Sostenibles
Extractora El Roble S.A.S	Daabon Group
Fãbrica de Grasas y Productos Quãnicos Limitada, Grasco Limitada	Hacienda La Cabaãa S.A.
Aceites Manuelita S.A.	PALMACEITE S.A.
Palmas del Cesar S.A.	ACEITES S.A.
Extractora la Gloria SAS	FANAGRA S.A.
C.I. BIOCOSTA S.A.	Teamfoods Colombia S.A.
Hada S.A.	Poligrow Colombia Ltda
FEDEPALMA - National Federation of Oil Palm Growers of Colombia	C.I Acepalma S.A.

Supply Chain Certificate Holders

INDUSTRIAL AGRARIA LA PALMA LIMITADA-INDUPALMA LTDA

Extractora del Sur de Casanare S.A.S.

C.I Acepalma S.A.

Fãbrica de Grasas y Productos Quãnicos Limitada, Grasco Limitada

Teamfoods Colombia S.A.

RSPO

Roundtable on Sustainable Palm Oil



SUSTAINABLE TRADE PLATFORM - SOLIDARIDAD



Challenges

- Inclusion of small farmers in the certification process.
- Improvement of production yields of crops.
- Financial support from private industry and government agencies to accelerate the adoption of sustainable practices.
- Need for a strategy aimed at consumers to address the image of palm oil.

GOALS

Sustainable production of palm oil reaches 200.000 tons.

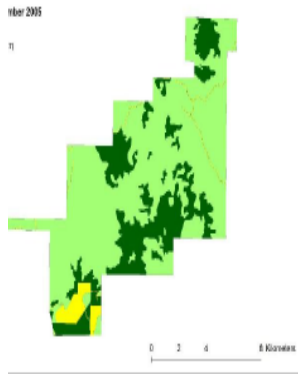
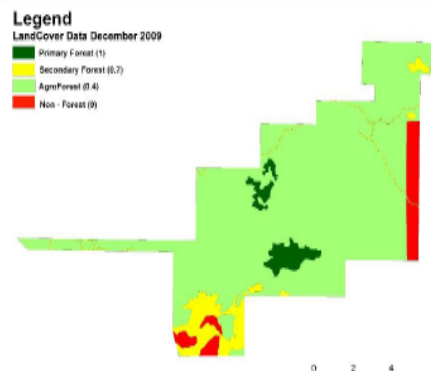
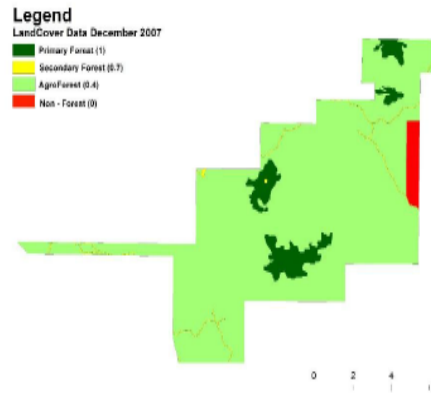


Smallholder farmers employ sustainable practices on 15.000 hectares.



WHAT IS COMING?

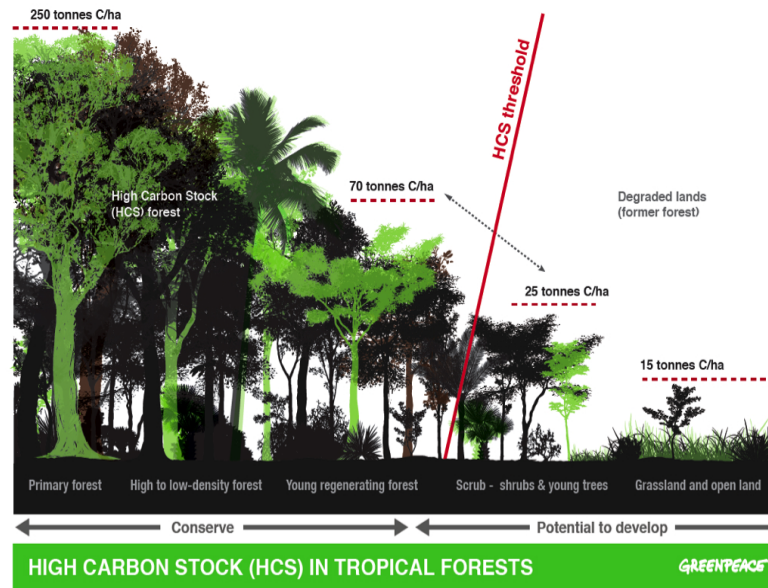
- LAND USE CHANGE



- GHG EMISSIONS

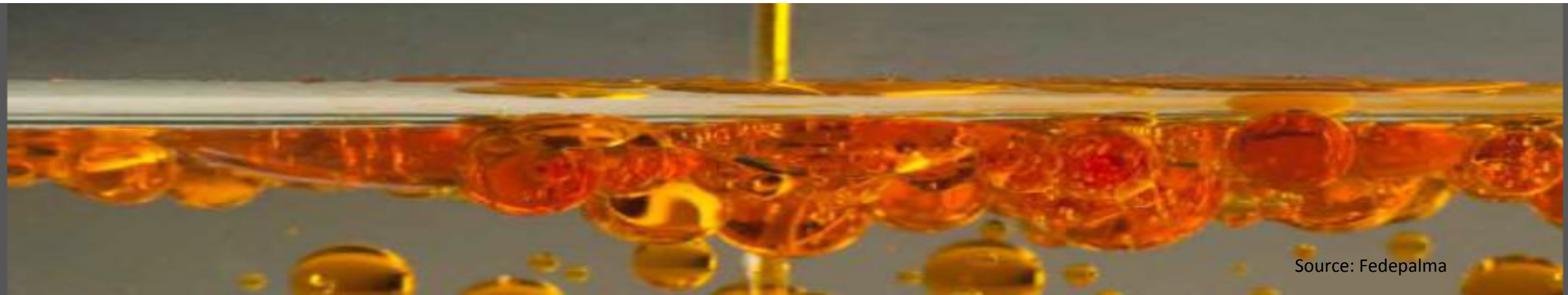


- HIGH CARBON STOCKS





3. PALM BIODIESEL



Source: Fedepalma



PILLARS OF BIODIESEL PROGRAM



**Energy
Diversification
and self-
sufficiency**



**Environmental
improvement**



**Employment
generation**



**Agricultural
development**



MAIN MILESTONES OF BIODIESEL PROGRAM

Government develops the **National Biodiesel Program**



Characterization of palm oil biodiesel

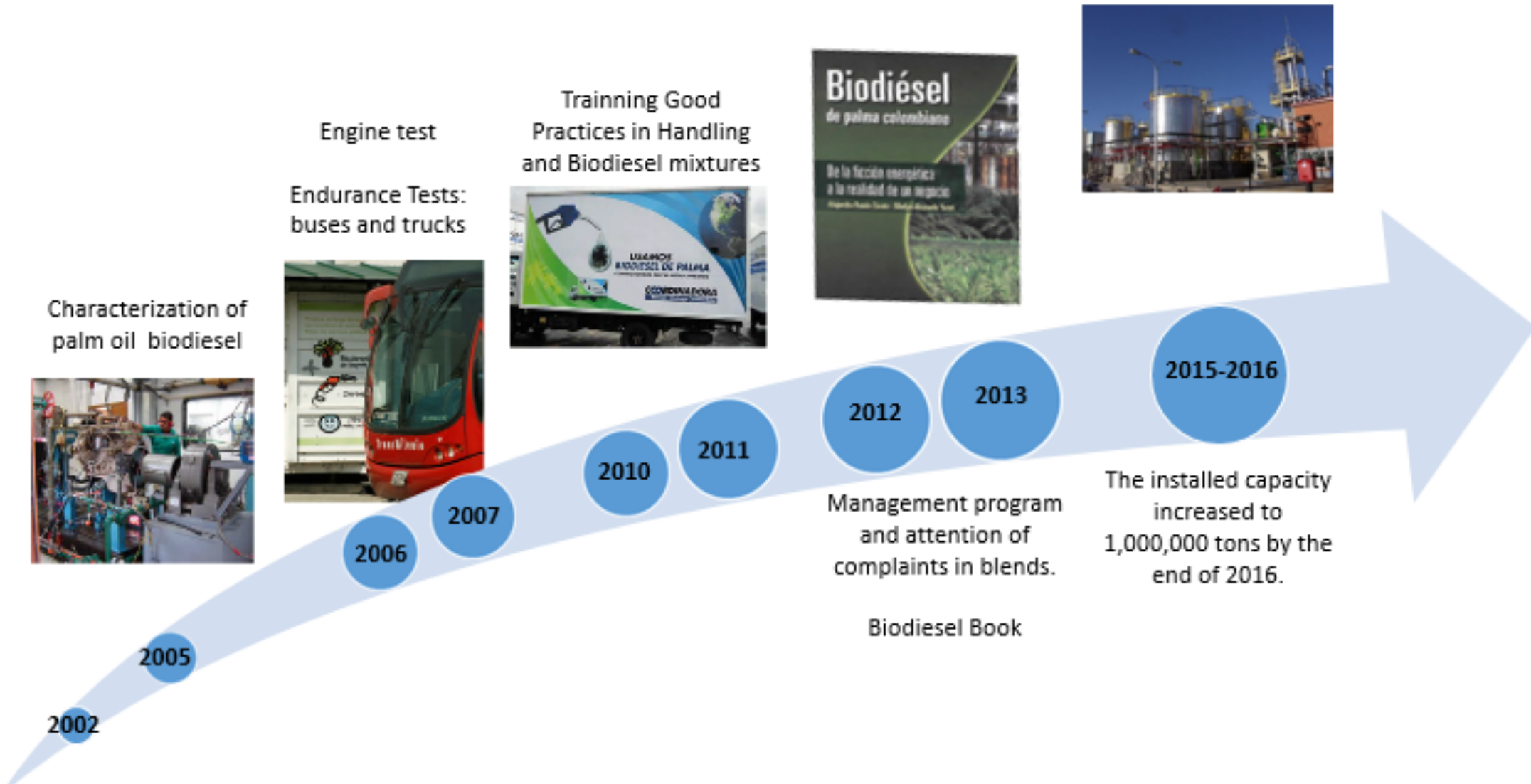


Engine test



Endurance Tests: buses and trucks

Training Good Practices in Handling and Biodiesel mixtures



2002

2005

2006

2007

2010

2011

2012

2013

2015-2016

Management program and attention of complaints in blends.

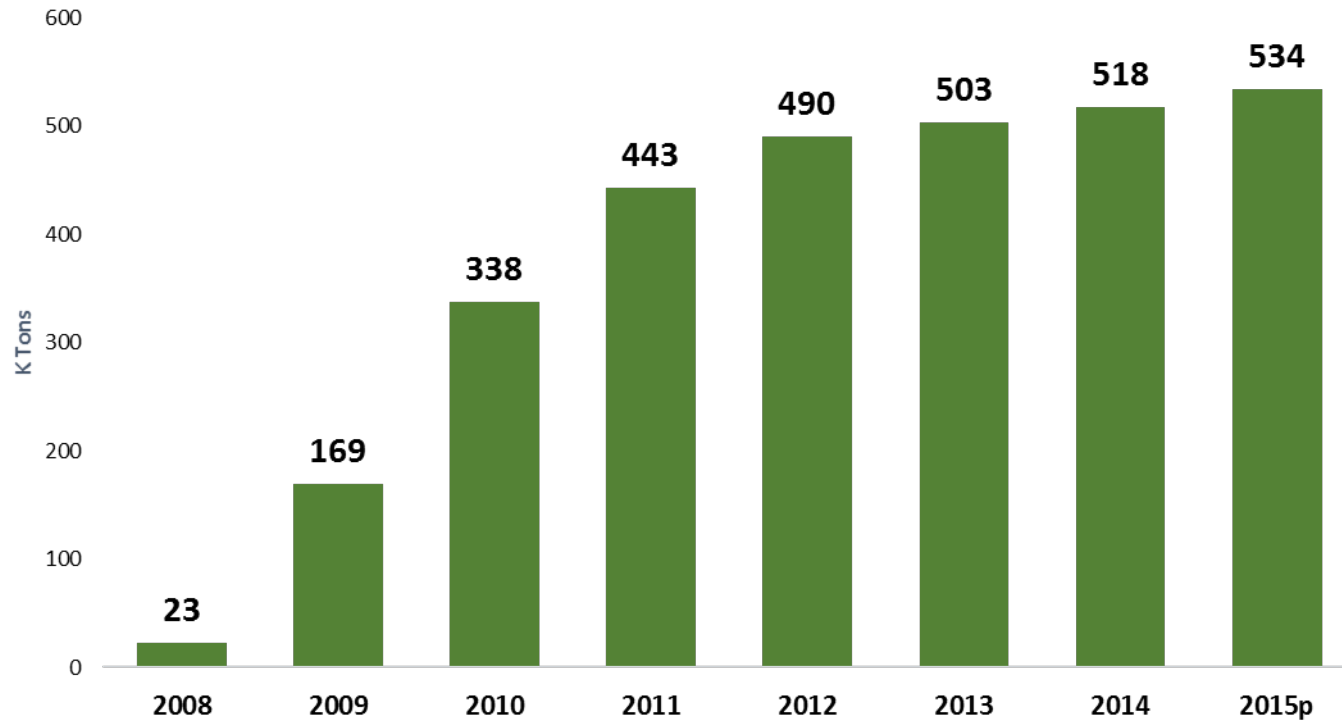
The installed capacity increased to 1,000,000 tons by the end of 2016.

Biodiesel Book



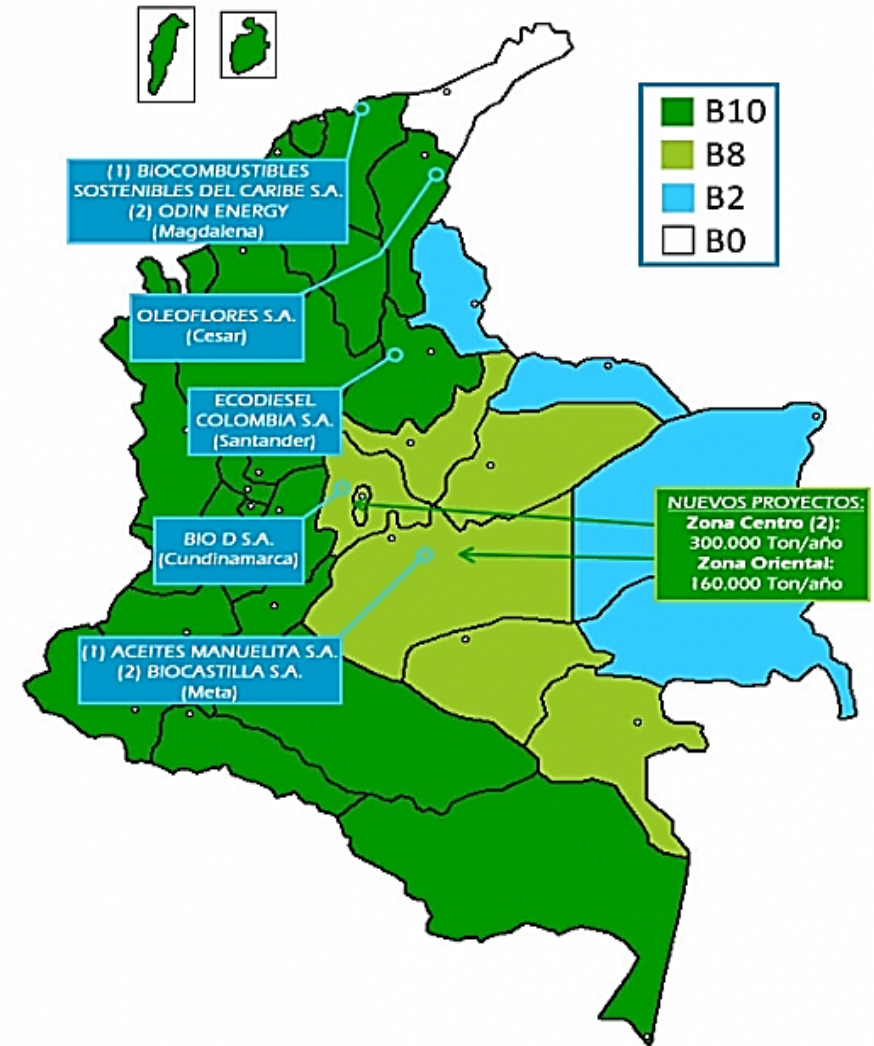
BIODIESEL PRODUCTION AND BLENDS

BIODIESEL PRODUCTION



Source: Fedebiocombustibles.

Blending Map





BIODIESEL PLANTS AND GHG REDUCTION

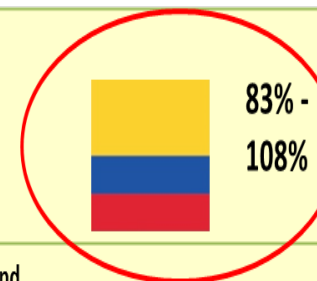
INSTALLED CAPACITY (Tons)

	2015	2016	2017	2018	2019	2020
Oleoflores	60.000	60.000	60.000	60.000	60.000	60.000
Manuelita	120.000	120.000	120.000	120.000	120.000	120.000
Ecodiésel	120.000	120.000	120.000	120.000	120.000	120.000
Biocastilla	15.000	15.000	15.000	15.000	15.000	15.000
BioS.C	120.000	170.000	150.000	150.000	150.000	150.000
Odin	36.000	36.000	36.000	36.000	36.000	36.000
BioD	120.000	200.000	200.000	200.000	200.000	200.000
Romil	10.000	10.000	10.000	10.000	10.000	10.000
Biodiésel de la Costa	10.000	10.000	10.000	10.000	10.000	10.000
La Paz	-	70.000	70.000	70.000	70.000	70.000
ALPO	-	40.000	40.000	40.000	40.000	40.000
BioCosta	-	-	70.000	70.000	70.000	70.000
Total	601.000	851.000	931.000	931.000	931.000	931.000

Fuente: Fedebiocombustibles.

GHG reduction of biodiesel by kind and origin of raw material

Palm oil biodiesel in Colombia:
Study of EMPA (Switzerland)
Financed by BID – Minminas



* Includes scenarios of indirect use of the land



Minimum reduction emissions

Renewable Energy
Directive European
Union 35%

EPA United States 20%

FINAL REMARKS





FINAL REMARKS

- ✓ Biodiesel is the main CPO local market with important GHG savings compared to fossil diesel.
- ✓ New market requirements that needs to be addressed ... ISCC potential for palm oil not only in Colombia but in the region
- ✓ In the coming years Colombia will have an important surplus of palm oil going for food market or biodiesel
- ✓ The main threat are Bud Rot Disease and low productivity which means a need for GAP and knowledge transfer.



THANK YOU!!!
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