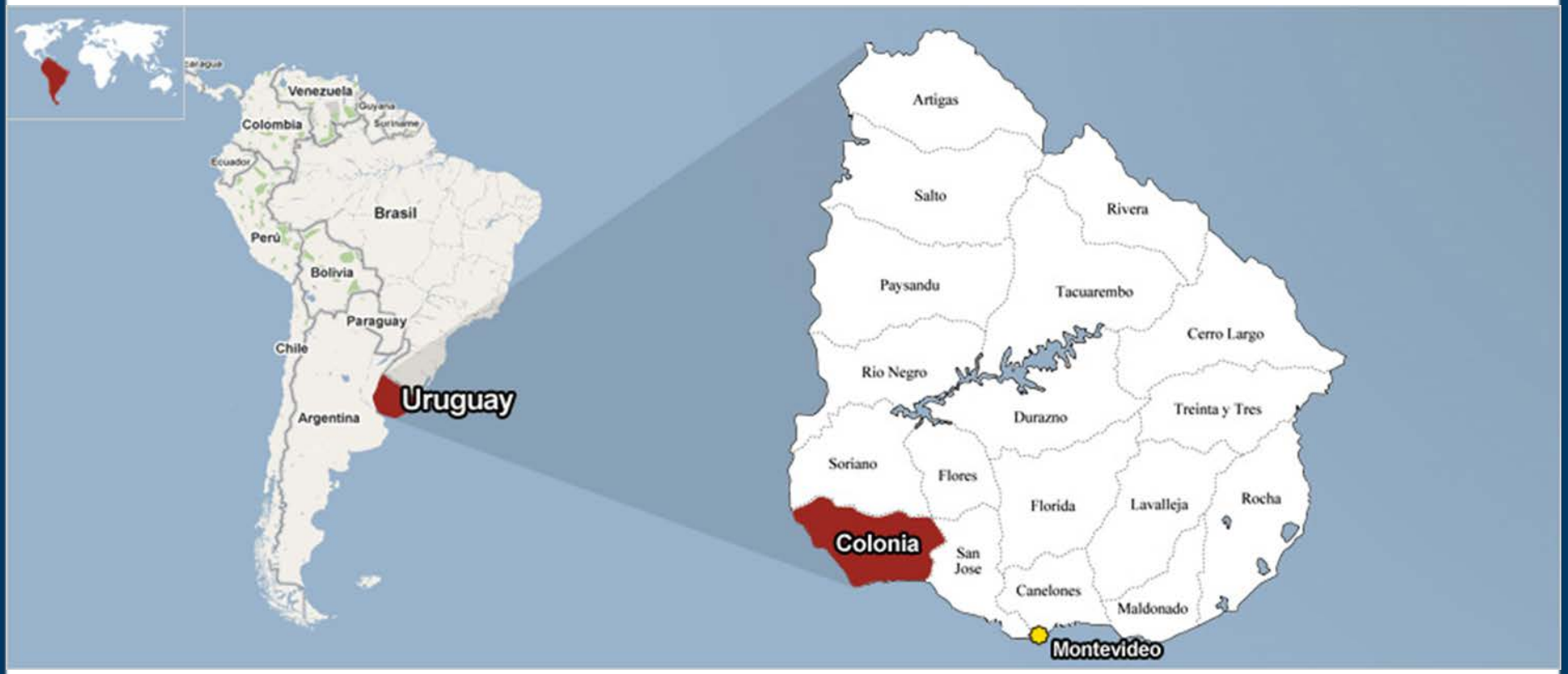
Instituto Nacional de Investigación Agropecuaria
URUGUAY

CARINATA´S ROLE IN A SUSTAINABLE ROTATION SYSTEM IN URUGUAY

Marina Castro
Rainfed Crops Research Program
INIA Uruguay

***8th Carinata Biomaterials Summit*, 21st July 2021**

Uruguay - between 30° - 34° S latitude; 54° - 58° W longitude



Inhabitants	3.5 millons
Cattle	12 millons
Sheep	6.5 millons

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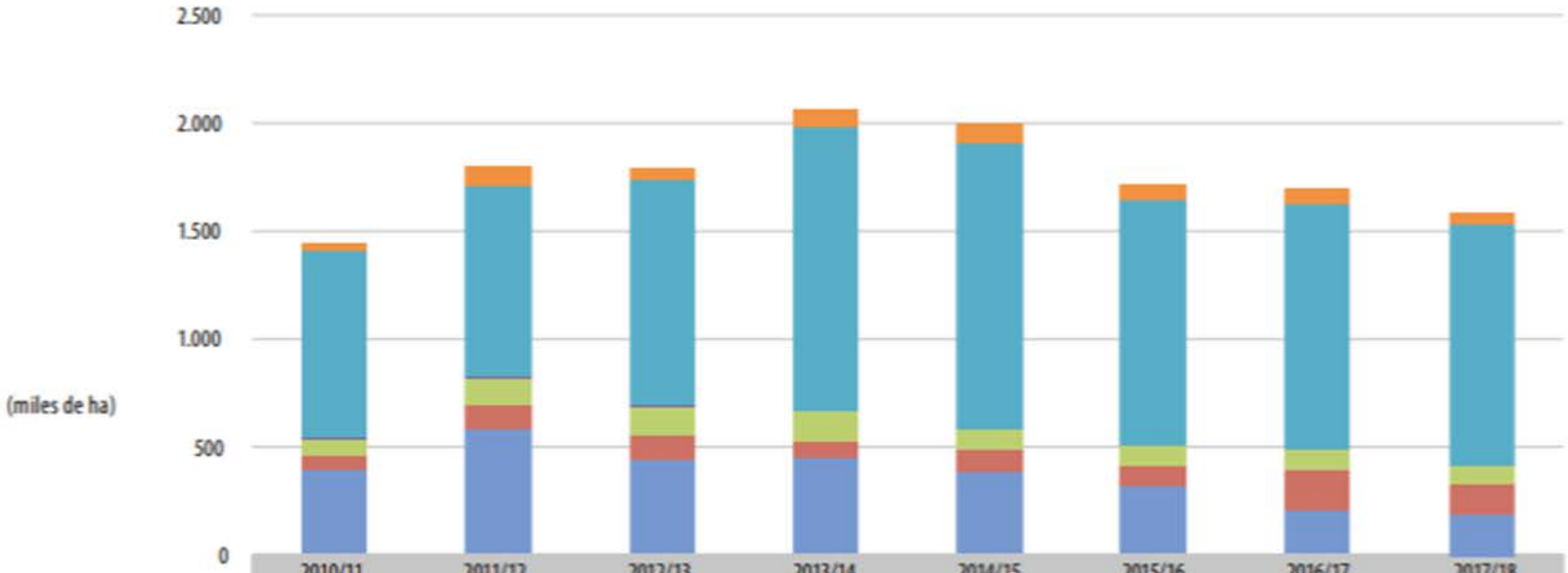
GRAIN CROPS AREA



	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18
Sorgo	31,4	88,2	49,0	75,4	81,7	67,0	47,0	28,8
Soja	862,1	883,7	1.050,0	1.321,4	1.334,0	1.140,0	1.089	1.099
Girasol	6,4	2,0	0,0	0,0	0	0	0	0,0
Maíz	80,9	123,9	123,0	131,1	83,2	83,0	66,0	71,2
Cebada	61,9	104,6	117,3	71,9	99,5	92,7	190,0	153,0
Trigo	404,0	593,4	450,0	462,0	398,8	330,0	215,0	193,0

Soil intensity use 1.3 crops/year

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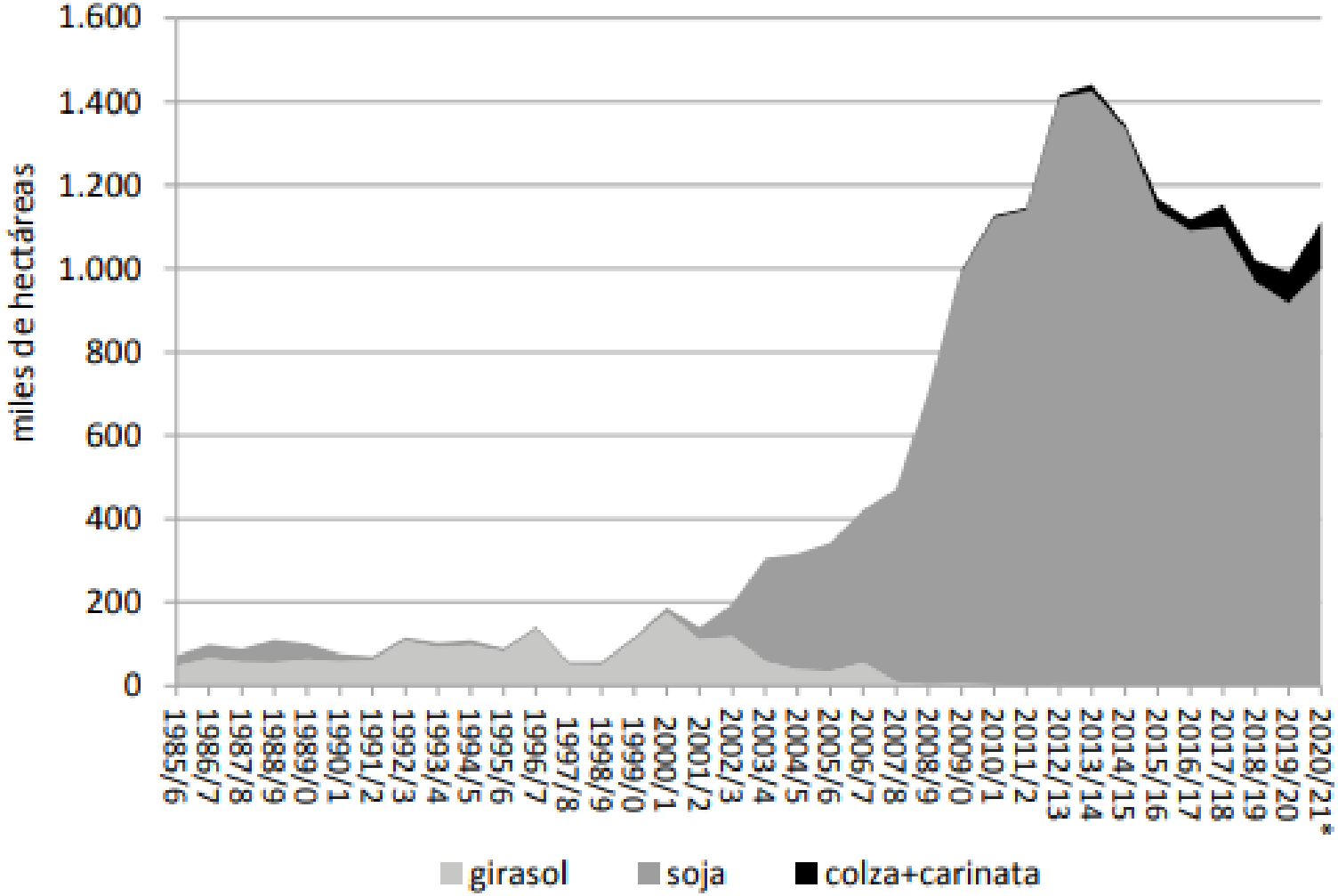
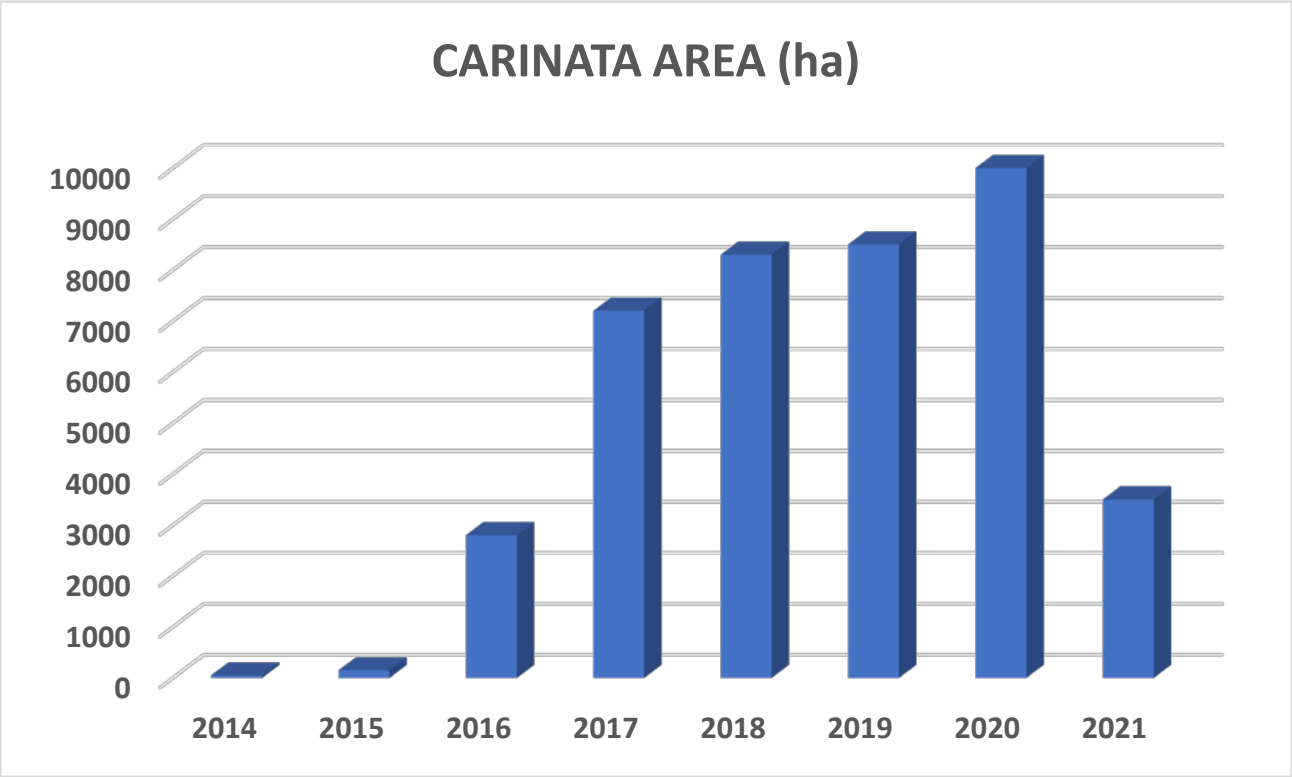
Gráfica 14. Evolución del área de los distintos cultivos oleaginosos (por año agrícola)



(*) proyección.

Fuente: OPYPA con base en datos de DIEA-MGAP.

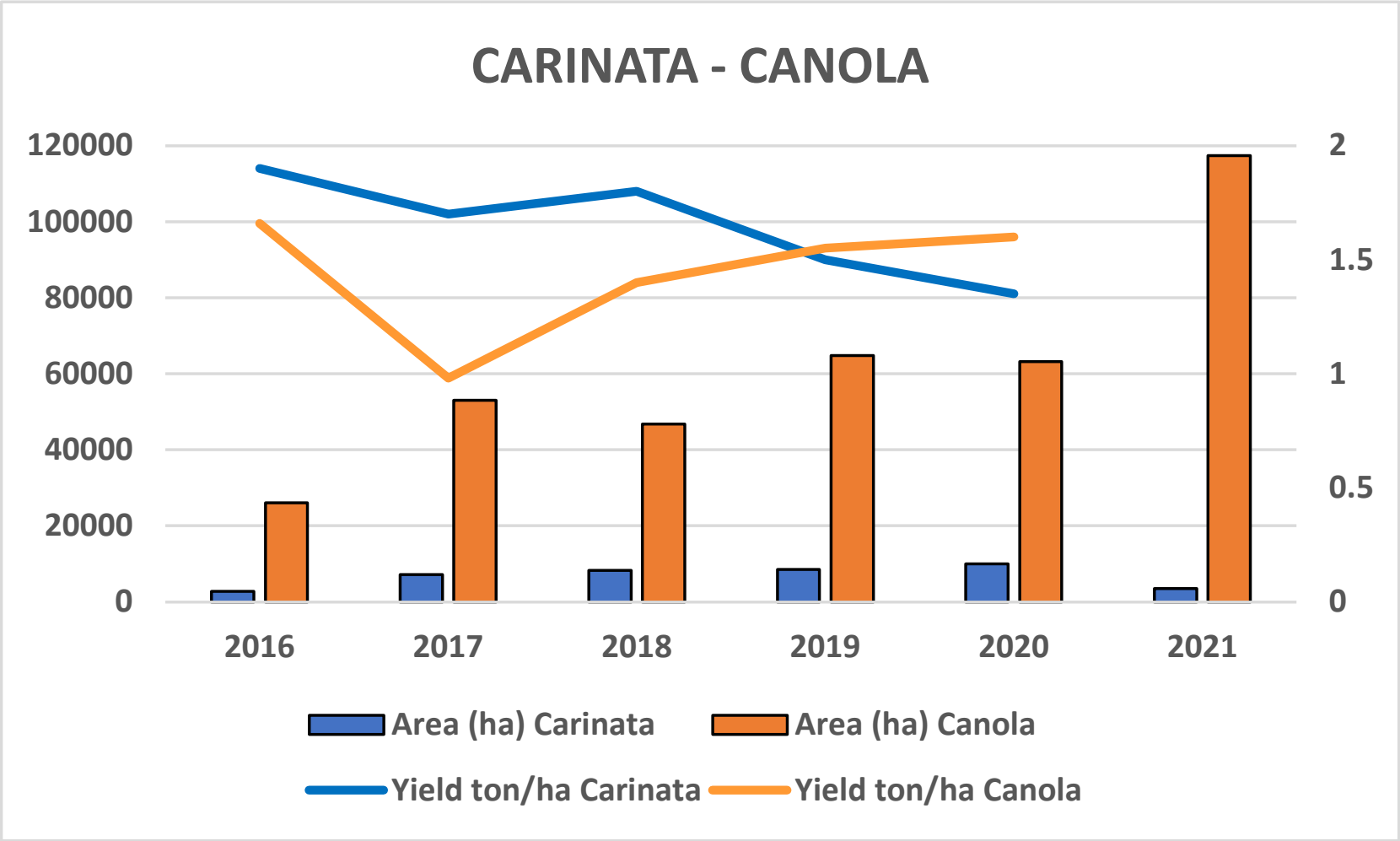
COMMERCIAL AREA *Avanza 641*



UPM Biofuels

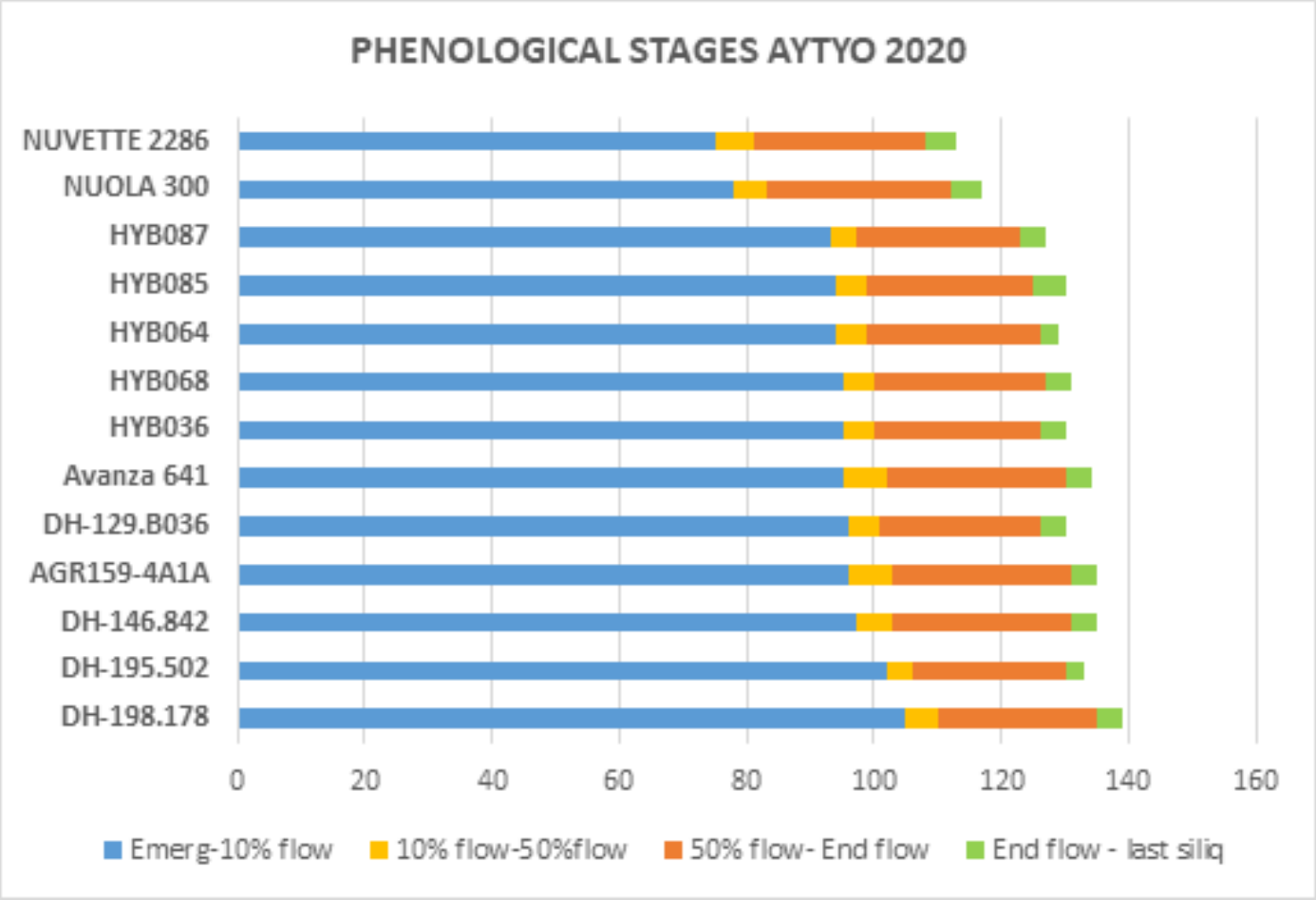
Roundtable on Sustainable Biomaterials (RSB) Certification:

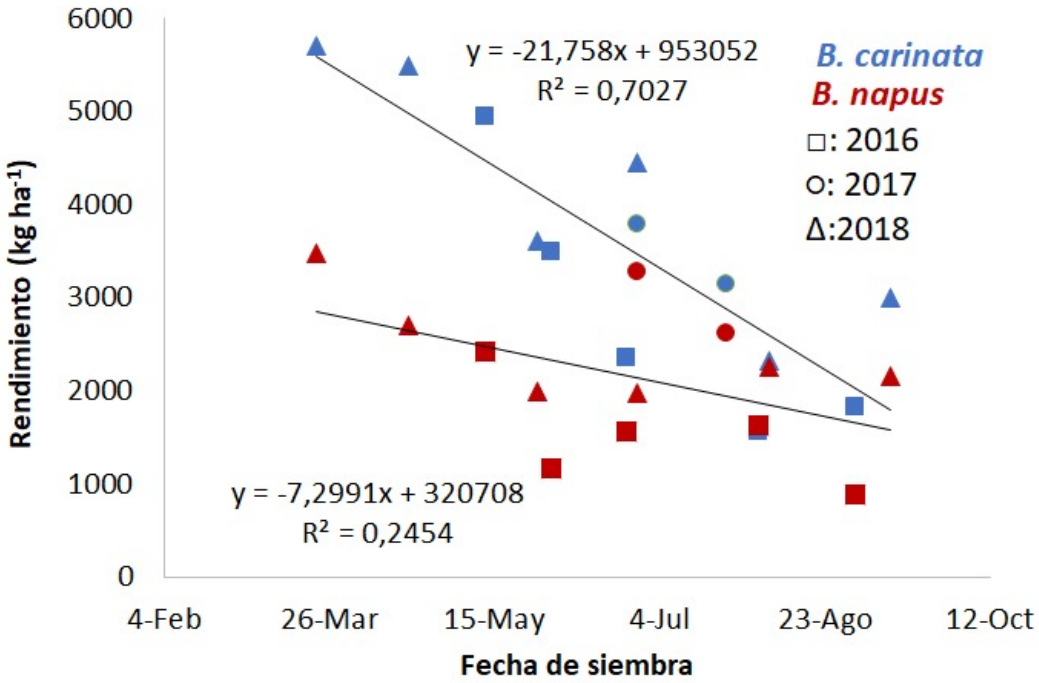
Biodiversity
Human rights
Environmental and social responsability
GHG (still under calculations)



UPM Biofuels
MGAP - DIEA

CANOLA AND CARINATA
DIFFERENCES IN PHENOLOGICAL STAGES





SOWING DATE AND GRAIN YIELD

Mazzilli et al, 2019

Carinata sowing date and prob late frost

0 °C

EEMAC

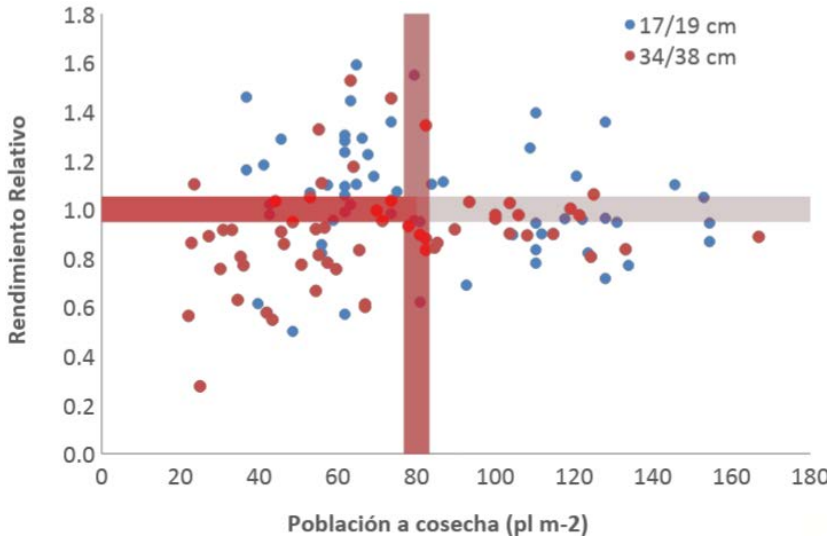
Heladas	15-abr	1-may	15-may	1-jun	15-jun	1-jul	15-jul	1-ago	15-ago
>=1	93	85	76	66	0	0	0	0	0
>=3	82	48	32	0	0	0	0	0	0
>=5	62	13	5	0	0	0	0	0	0

EELE

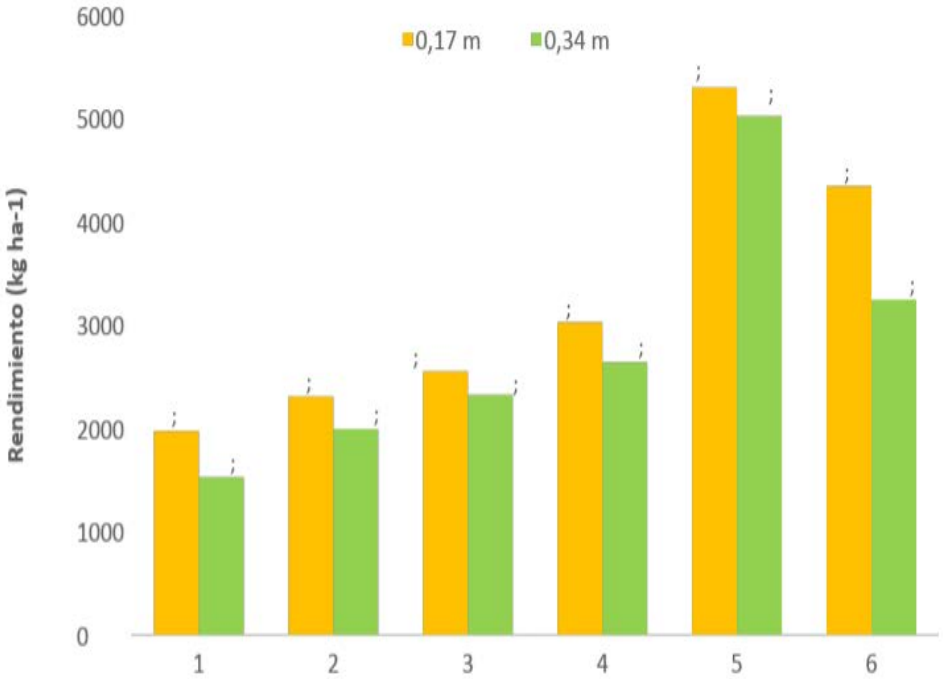
>=1	91	82	66	75	76	0	0	0	0
>=3	70	24	1	2	2	0	0	0	0
>=5	40	1	0	0	0	0	0	0	0

Mazzilli, Verocai, Castro, 2021

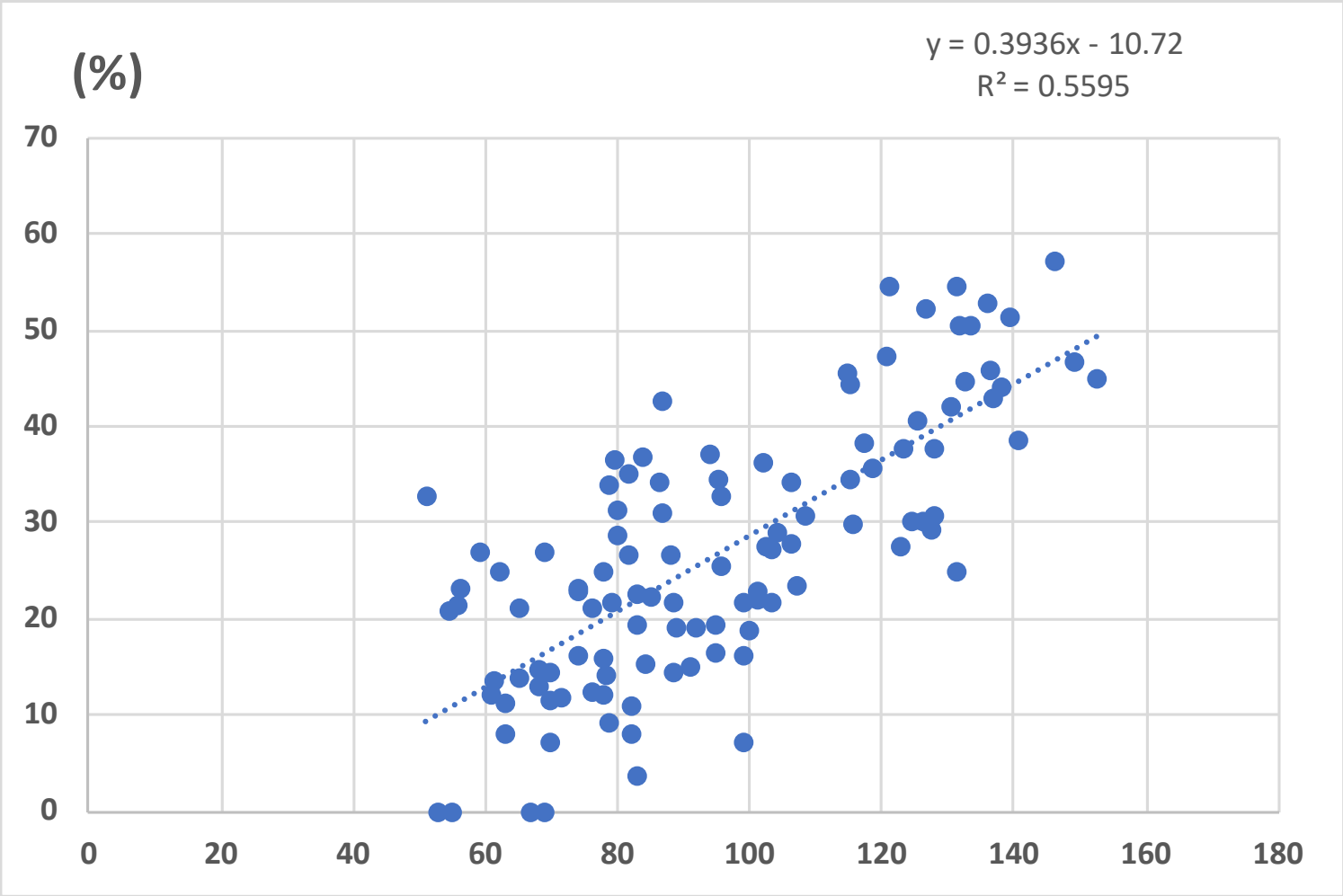
POPULATION AND ROW SPACING



Mazzilli et al, 2020



INITIAL PLANT POPULATION (pl/m^2) and MORTALITY (%)
(6 experiments, 2017 y 2018)



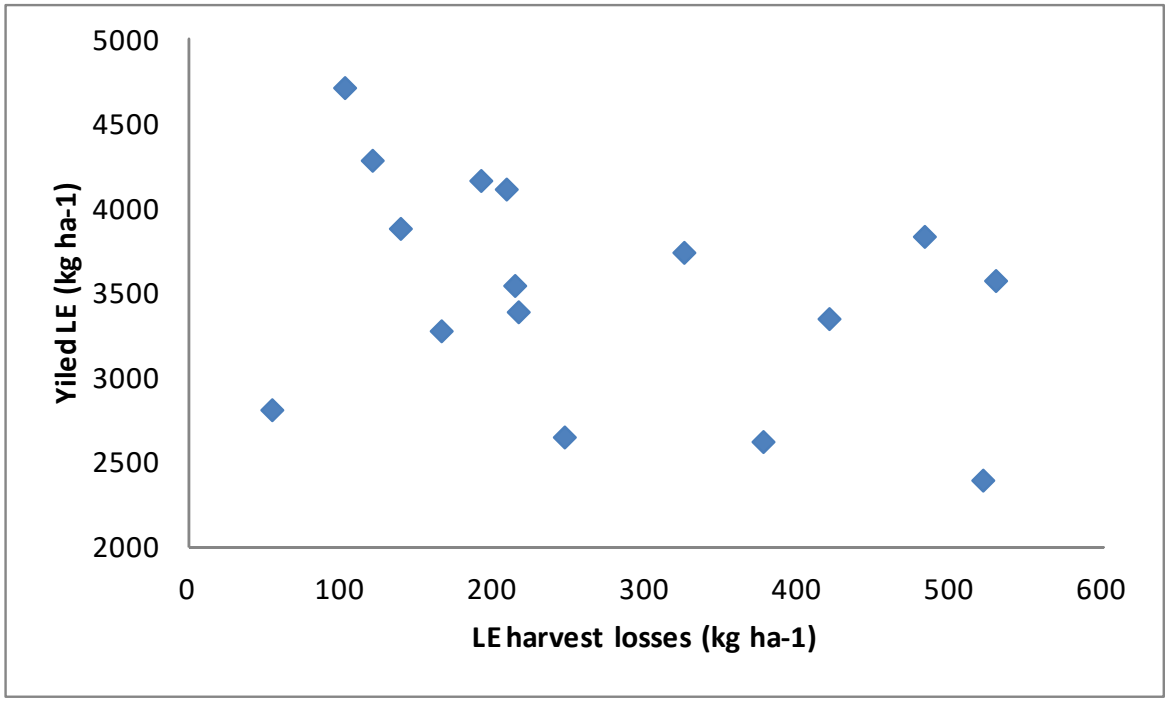
(pl/m^2)

NUTRIENTS EXTRACTION

	Extracción (kg Mg^{-1})			
Cultivo	N	P	K	S
Trigo	21	4	4	2
Cebada	15	3	5	2
Canola	38	11	28	7
Carinata	**37**			**7,3**

Della Santa, Uhlig, Vivo, 2018

Harvest losses



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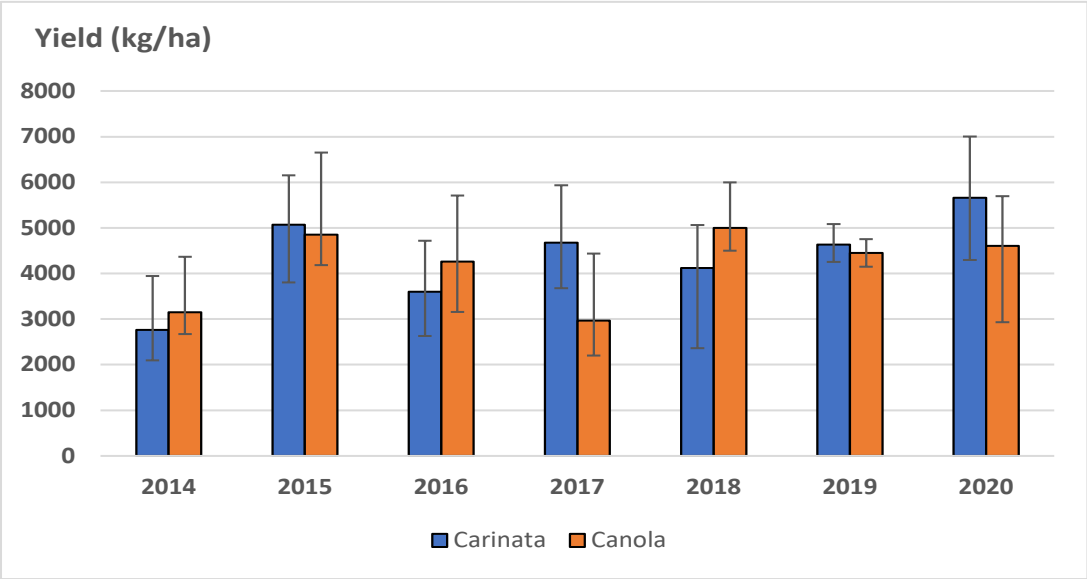

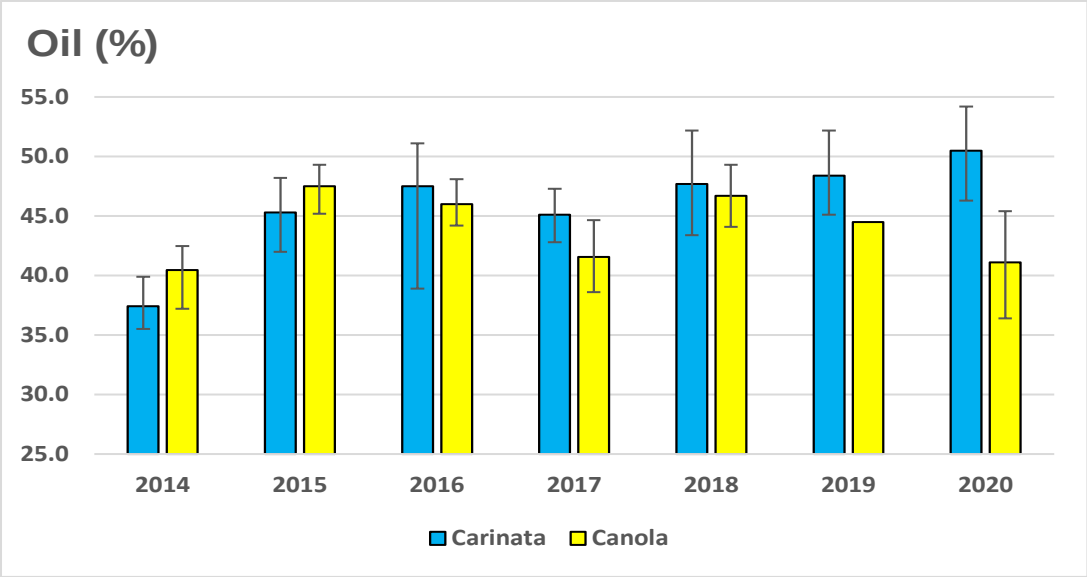

EXPERIMENTAL RESULTS AYT INIA LE

INIA - UPM (AGRISOMA)
INIA - NUSEED

URUGUAY

FINAL COMMENTS

- Genetics – + yield, oil (Hybrids), - long of cycle
- Diseases – low incidence of Black leg caused by *Lepthosphaeria maculans* (anamorph *Phoma lingam*)
- Low shattering – direct harvest
- Meal – it can be used for animals in mixtures
- Plague birds – not a problem
- *Brassicas* – Carinata and Canola should complement wheat and barley area for a sustainable agricultural rotation.

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THANK YOU

mcastro@inia.org.uy

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