

#OLIVAR2017

SÍGUENOS EN TWITTER:  
@ie\_jornadas



JUEVES  
27 DE ABRIL DE 2017

# El cultivo incombustible



● ● ● PATROCINADORES:



● ● ● COLABORADORES:



CENTRO DE INVESTIGACIONES  
CIENTÍFICAS Y TECNOLÓGICAS  
DE EXTREMADURA



centro tecnológico  
agroalimentario



● ● ● PROMOTOR:

● ● ● ORGANIZADOR:





THE BEST OLIVE OIL FOR YOU



# ABOUT US

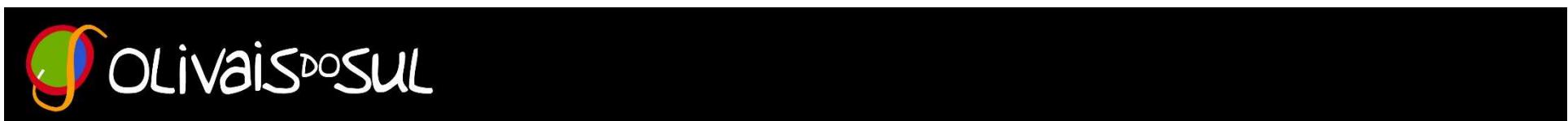
**OLIVAIIS DO SUL** is a dynamic company with a young team. It's specialized in olive groves and extra virgin olive oil production.

Based in the central Alentejo region of **Portugal**, a prime location for olive oil production, Olivais do Sul has 600ha of olive groves - in high-density and super high-density systems – and a Mill with approximately 3.000sqm equipped with the latest technology with an extraction capacity of 4.5 million litters of olive oil.



# MISSION AND VALUES

Olivais do Sul produces high- standard olive oil by employing sustainable production methods. It seeks to preserve the environment by using cutting-edge technology.



# OUR OLIVE GROVES

JAN-06



NOV-2008



MAY-06



MAY-07



MAY-08



# OUR OLIVE GROVES

Olivais do Sul has 600ha of olive groves

**60% Super-high-density**

Arbequina

Spacing range 3,75 x 1,35m

Irrigation



**40% High-density**

Picual and Cobrançosa

Spacing range: 7,5 x 5m

Irrigation (2 lines)

# OUR OLIVE GROVES

ALQUEVA – ALENTEJO - PORTUGAL

Alentejo is irrigated by the Alqueva.

All the water that we consume in our olive groves comes from there.

## Alqueva:

It's the largest artificial lake in Europe. It has about 155.345 square miles

It has the capacity to irrigate 180.000 ha.



# OUR MILL

Capacity: 30.000 ton of olives

Bottled olive oil: 200.000 unit/ month

Saintless steel vats

Heating with our olive pits

Modular constrution, easy to grow



# OUR MILL

RECEPTION AND CLEANING UNIT  
180 tn./hour



EXTRACTION UNIT  
1.000 tn./day

# OUR MILL



BOTTLING UNIT

1.000 un/ hour

OLIVE OIL STORAGE  
STAINLESS STEEL VATS  
Capacity 4.000.000 Lt



# SERVICES

## PLANTATION

Olivais do Sul can provide the facilities and expertise to meet the challenge of any investment in olive groves.



## TECHNICAL SUPPORT

We assign an expert to provide technical assistance for the management of your olive grove.



## OLIVE OIL PRODUCTION

COMPLETE SERVICE – Olivais do Sul provides a complete olive oil extraction, management and sales service.

# STRENGTHS

- We are olive oil producers, controlling all the olive oil process;
- We are certified with - ISO 22:000 & ISO 14:001, IFS, ensuring the best service to our clients;
- We follow our values: Innovation – Sustainability – Quality;
- We produce high quality Extra Virgin Olive Oil – about 200.000 liters per month;
- We have high-tech capacity and highly-qualified persons.



CERTIFICATIONS AND AWARDS

# CERTIFICATIONS

Olivais do Sul obtained the certifications, **ISO 22000** (Food safety systems), **ISO 14001** (Environment management) and **IFS** (Requirements for any organization in the food chain).

The achievement of these three certifications is another milestone that recognizes the investment in the quality of service provided by the company, as well as the commitment of all those who work there. Is also reflected in the performance of good practices that allow us to offer our clients a high efficiency, while maintaining an environmentally responsible posture.

Obtaining certification shows the improvement and enhancement of quality of services and facilities in order to meet our ambitious growth targets.



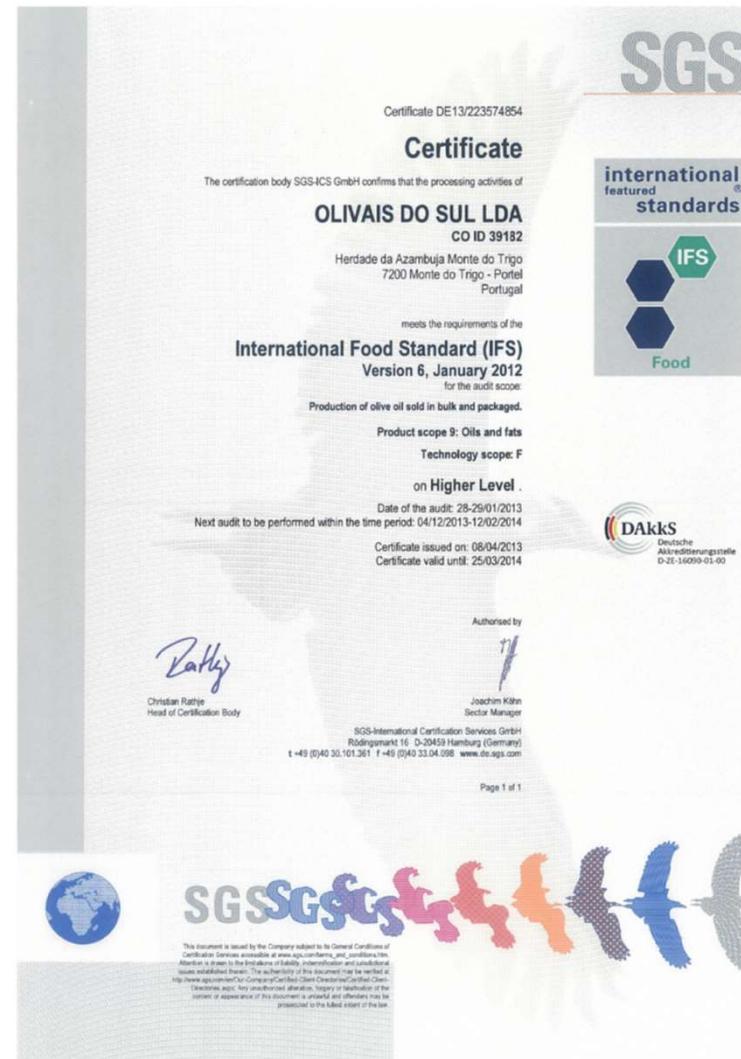
# CERTIFICATIONS

Certifications in Olivais do Sul company is a bet to consolidate its leadership in the industry while maintaining our commitment to sustainable development and continuous improvement of service to our customers and suppliers.

It is aimed at Olivais do Sul add value to their products, by ensuring safety of themselves as well as customer satisfaction and loyalty.



# CERTIFICATIONS



# CERTIFICATIONS

Olivais do Sul has the **Halal certification** by the Halal Institute of Portugal is an organization devoted to analyzing , monitoring , inspecting and certifying of halal products considered for human consumption. This is done by ensuring that the development of products and their respective production processes follow the conditions required by Islamic law.



## Certificado Halal Halal Certificate شهادة حلال

Empresa / Company / شركة  
Olivais do Sul Sociedade Agrícola Lda. 42

Morada / Location / العنوان  
Herdeira da Rzambuja, 7220-205 Monte da Trigo, Portel - Portugal

Produto / Product / المنتجات

Olive OIL  
Olivais do Sul (Clássico, Gold, Virgen)  
Art.  
Art & Soul

Data / Date / تاريخ  
11 Junho, 2014 Validade / Validity / صحة  
10 Junho, 2015

Inspectores / Inspectors / المفتشين

  
Eng. Mufti Azzam   
Dr. Mufti Abdullah Seedat

Instituto Halal de Portugal  
Av. Vila Amélia Longo, 575  
2950-111 Almada  
Portugal  
NIF: 510 867 305  
www.halal.pt  
Tel: +351 212 105 539

Este certificado está sujeito à conformidade com as regras islâmicas.  
This certificate is subject to compliance with Islamic rules.  
هذه الشهادة تحت احترام نظام الدينية الإسلامية

# AWARDS



**FLOS OLEI 2011, 2012, 2013 e 2014**  
Between the best olive oil in the world.



**Los Angeles International Extra Virgin Olive Oil Competition ( 2014)**  
**Gold medal - Medium Green Fruity Olive Oil**



**AVPA Competition ( 2014)**  
**Gourmet Product – Medium Green Fruity Olive Oil**



**Extra Virgin Olive Oil competition 2013 – Santarém - Portugal**  
**Gold medal for extra virgin olive oil intense green fruity**



**PRESTIGE Medal – The extra virgin olive oil with the best score  
of all competition.**

# AWARDS



**9th China International Olive Oil & Edible Oil Exhibition (2013)**  
**Gold** medal for extra virgin olive oil medium fruity

**Magazine “O Escanção” 2011**  
Best extra virgin olive oil in the all contest.

**Extra virgin olive oil International Competition OVIBEJA 2011**  
**Honourable mention**– extra virgin olive oil ripe fruity

**Los Angeles International Extra Virgin Olive Oil Competition ( 2010)**  
**Bronze** medal for Packaging Design & Colour Type



OUR BRAND

# Olivais do Sul GOLD

## Extra Virgin Olive Oil

It is an awarded olive oil, being one of the most appreciated flavours in Portugal.



**Cold extraction to maintain the original aromas.**

**Maximum acidity: 0,2%**

**Capacities: 500ml**

### TASTING NOTES:

It's an extra virgin olive oil fruity intense with green aromas having the grass as the predominant one. Being a complex olive oil it still has artichoke and green peanut hulls notes, lightly bitter and moderately spicy.

### USING FORMS:

The perfect company in the kitchen for the most exquisite dishes and to prove as entrance. Its fruity characteristics enhancing the food flavour.

# Olivais do Sul

## EXTRA VIRGIN OLIVE OIL

Feels harmony between this extra virgin olive oil and the all Alentejo!



**Cold extraction to maintain the original aromas.**

**Maximum acidity: 0,3%**

**Capacities: 250ml, 500ml, 750ml, 3L e 5L**

### TASTING NOTES:

An olive oil with a harmonious organoleptic profile, balanced between the predominating green grass and ripe remembering the tomato and/or nut. This olive oil is a little bitter and a little spicy.

### USING FORMS:

This extra virgin olive oil is the perfect choice to whom like cooking with an ally. The dishes will gain a unique and a distinct flavour.



# Olivais do Sul Clássico

## EXTRA VIRGIN OLIVE OIL

Smoothness is one of the characteristics that best defines this olive oil.



**Maximum acidity: 0,5%**

**Capacities: 500ml, 750ml, 3L e 5L**

### TASTING NOTES:

Fruity olive oil from ripe olives, with varied and complex aromas of dried fruits resulting of various cultivars in a state of maturation medium and advanced. Smooth texture with a slight spice at the end.

### USING FORMS:

It is a versatile olive oil that can be used to seasoning or to cook.

# Olivais do Sul

## VIRGIN OLIVE OIL



**Maximum acidity: 2%**

**Capacities: 750ml, 3L e 5L**

### TASTING NOTES:

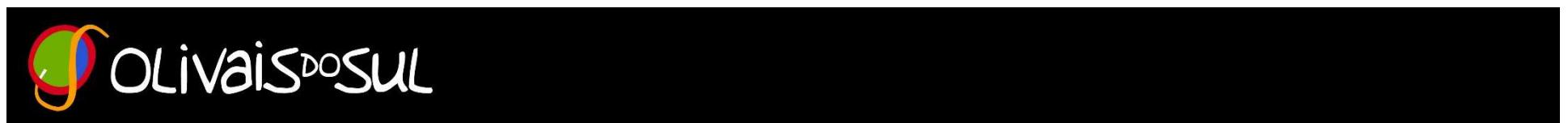
A virgin olive oil with a little bit intense aromas of ripe olives. Very smooth texture with a little or no perceptible spice.

### USING FORMS:

It is a more economical olive oil. It can be used for cooking and frying.

# Olivais do Sul

## PRODUCT RANGE





Herdade da Azambuja – Alentejo - PORTUGAL  
T. +351 266 647 030  
[geral@olivaisdosul.com](mailto:geral@olivaisdosul.com)

**[www.olivaisdosul.com](http://www.olivaisdosul.com)**

**[www.theoliveoilart.com](http://www.theoliveoilart.com)**

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INSTITUTO DE  
AGRICULTURA  
SOSTENIBLE  
IAS



centro tecnológico  
agroalimentario  
grancultivo.com



UNIVERSIDAD DE CÓRDOBA

● ● ● PROMOTOR:



● ● ● ORGANIZADOR:



marketing & communication



# Fertilización-fertirrigación en superintensivo

Josep Rufat. IRTA-Lleida.

[josep.rufat@irta.cat](mailto:josep.rufat@irta.cat)





## **Ventajas de la fertirrigación (vs abonado tradicional)**

- Más fácil racionalización y adecuación a la demanda de nutrientes durante todo el ciclo
- Comodidad y precisión en la incorporación de los abonos
- Disolución más homogénea de los nutrientes en el perfil regado, manteniendo concentraciones más estables
- Actuación inmediata en la reducida zona de exploración de las raíces (caso de las carencias)
- Mejor aprovechamiento: ahorro de fertilizantes y mano de obra





**FERTIRRIGAR**



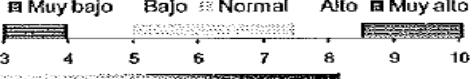
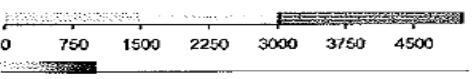
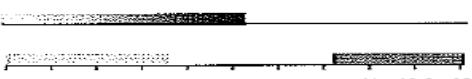
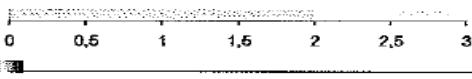
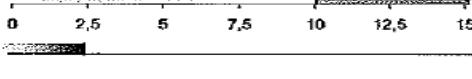


# ANALISIS



# Análisis del agua de riego

## Propiedades Químicas

	Niveles de referencia:	Nivel analítico:	Interpretación	Observaciones
<b>pH</b>	Niveles de referencia: 4 - 9	Nivel analítico: <b>8,07</b>		pH básico. En estas condiciones se reduce sensiblemente la disponibilidad de fósforo y microelementos.
<b>C.E. 25°C</b>	Niveles de referencia: 0 - 4500 µS/cm	Nivel analítico: <b>1078 µS/cm</b>		Agua de salinidad moderada, apta para el riego pero con precauciones en cultivos muy sensibles y suelos de baja permeabilidad.
<b>Residuo calculado</b>	Niveles de referencia: 0 - 4 g/l	Nivel analítico: <b>0,59 g/l</b>		Aporte de sales moderado, lo que requiere unas adecuadas condiciones de lavado para evitar la salinización del perfil.
<b>Presión Osmótica</b>	Niveles de referencia: 0 - 2 atm	Nivel analítico: <b>0,39 atm</b>		Prestión osmótica moderada, lo que puede dificultar la absorción de agua por parte de la planta.
<b>Dureza total</b>	Niveles de referencia: 0 - 50 °GHF	Nivel analítico: <b>26,3 °GHF</b>		Agua semidura. Presenta riesgo de formación de precipitados en la instalación de riego.
<b>S.A.R.</b>	Niveles de referencia: 0 - 25	Nivel analítico: <b>1,40</b>		Nivel de SAR óptimo. Bajo riesgo de sodificación del suelo.
<b>Composición Química</b>				
<b>Nitratos</b>	Niveles de referencia: 0 - 3 meq/l	Nivel analítico: <b>0,16 meq/l</b>		Contenido en nitratos muy bajo
<b>Sulfatos</b>	Niveles de referencia: 0 - 15 meq/l	Nivel analítico: <b>2,78 meq/l</b>		Contenido en sulfatos bajo

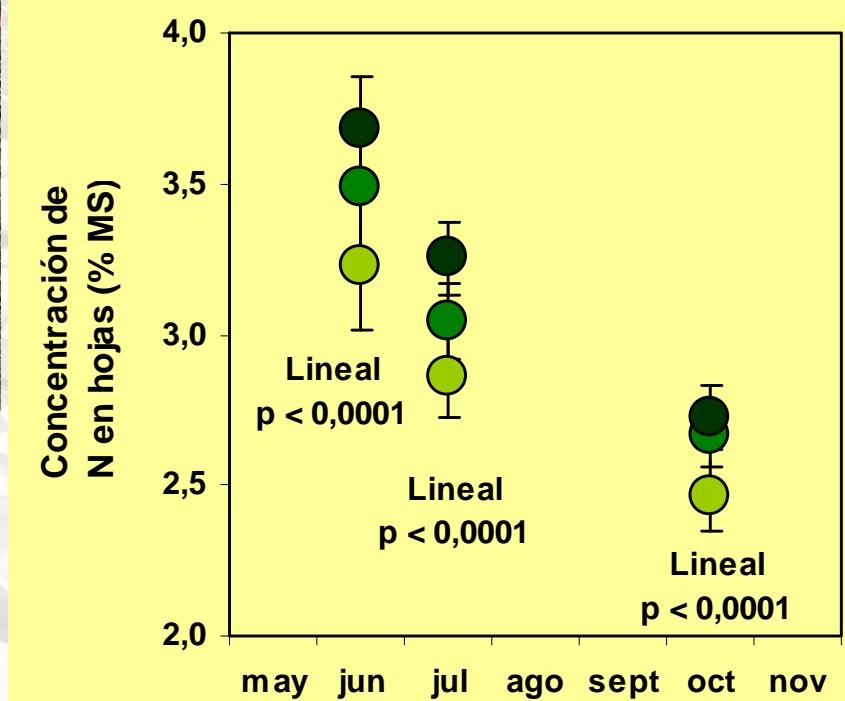


# Análisis del suelo



- Fertilidad inicial (Textura, materia orgánica,  $P_{Olsen}$ , K, pH, prueba previa salinidad, carbonato cálcico equivalente,...)
- Densidad aparente
- Nitratos (Amonio)

# Análisis de planta



pero...



¿cómo?

¿cuándo?

¿cuánto?

# Características de los abonos

¿cómo?



Pureza. Superior 97% en  
fertilización

Densidad (líquidos)

Ac. Fosfórico:  $1.6 \text{ g/cm}^3$

N-32:  $1.3 \text{ g/cm}^3$

Solubilidad



- Simples / complejos
- Sólidos / líquidos

¿cómo?

### *Caso A*

N : NO<sub>3</sub>NH<sub>4</sub>

P<sub>2</sub>O<sub>5</sub> : Fosfato Monoamónico

K<sub>2</sub>O : NO<sub>3</sub>K

### *Caso B*

P<sub>2</sub>O<sub>5</sub> : Acido fosfórico (limpieza tuberías)

N : NO<sub>3</sub>NH<sub>4</sub>

K<sub>2</sub>O : NO<sub>3</sub>K

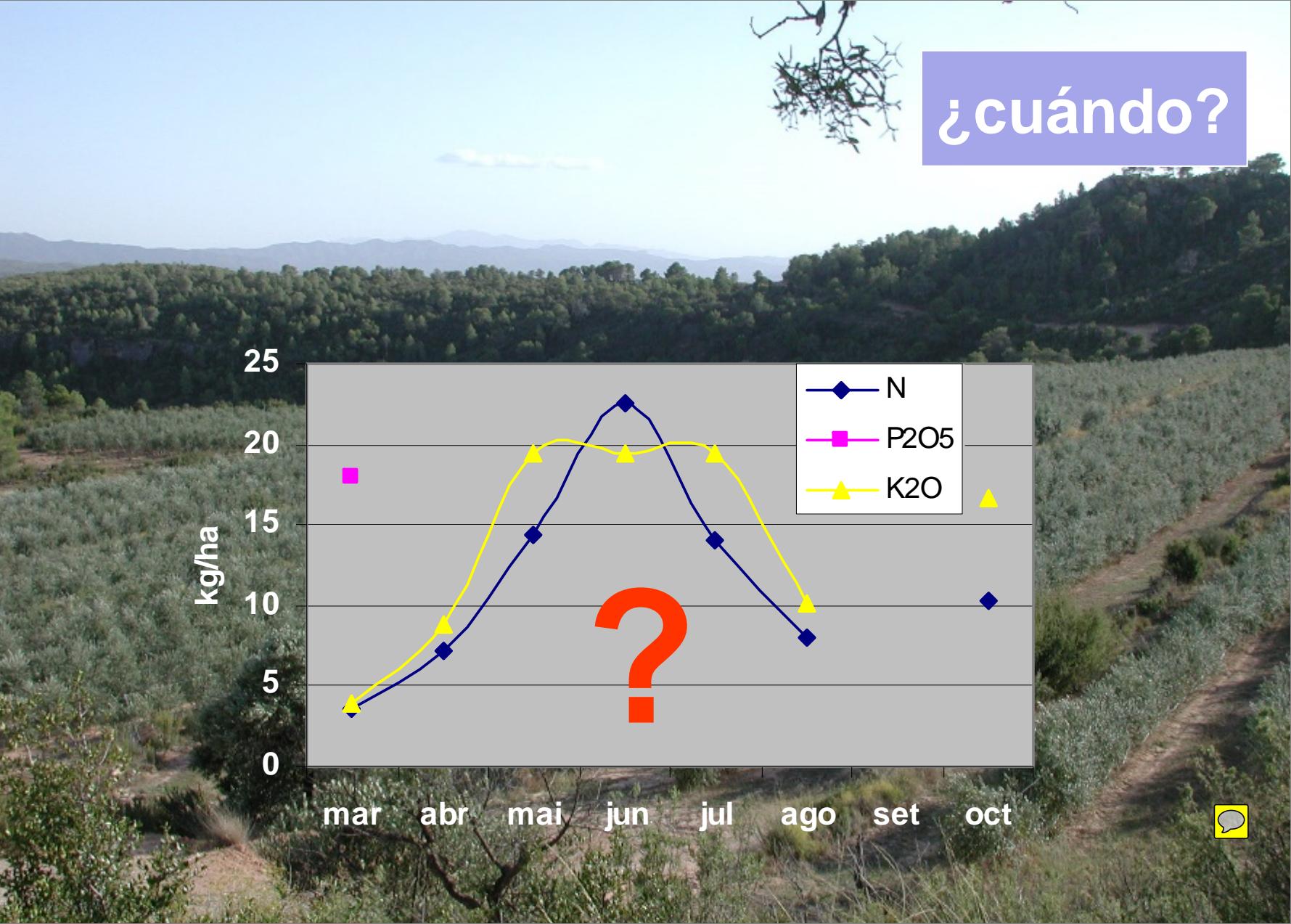


### *Caso C*

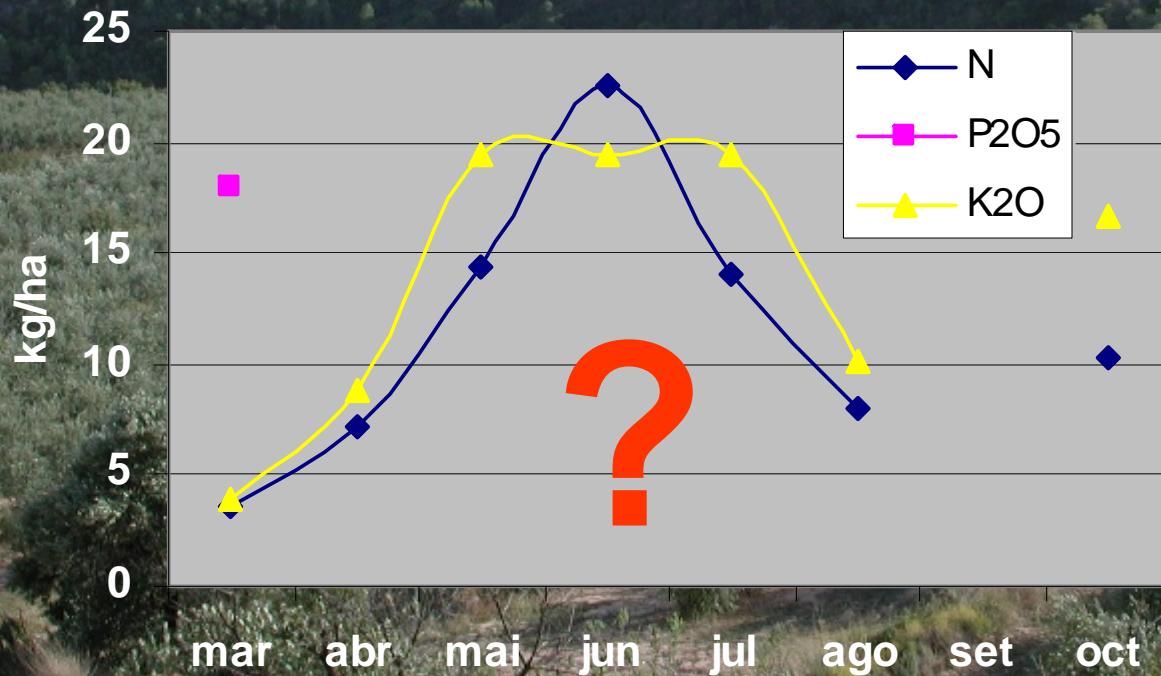
2 - 4 - 12 : todo el año

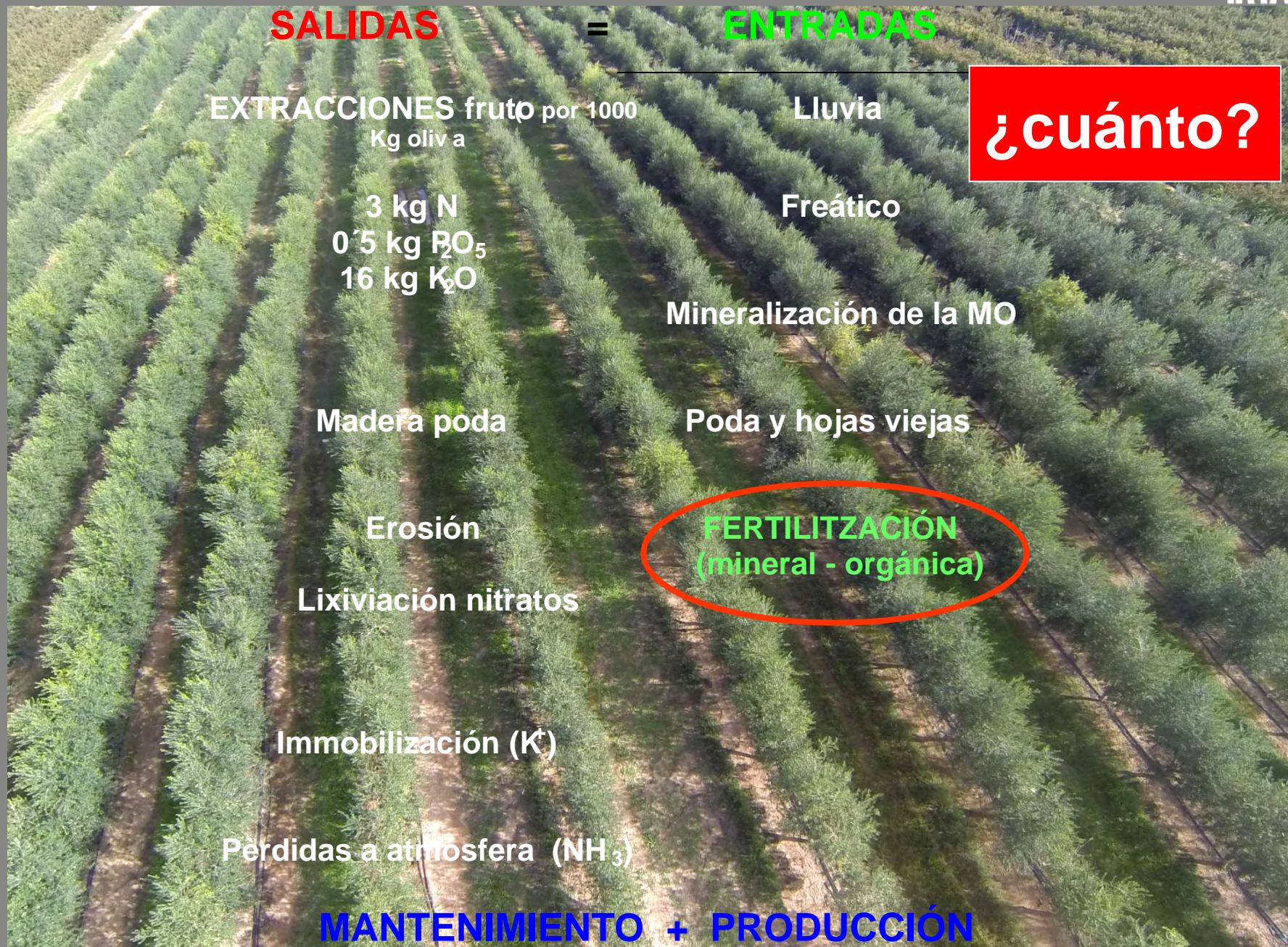
+

N : para complementar



¿cuándo?









H. Belguerri et al.

*J Fundam Appl Sci.* 2016, 8(2), 639-654

651

matière organique. Des résultats similaires ont été trouvés par [30] sur le pêcher qui peut libérer chaque année de 11 et 21% (respectivement pour textures grossières et fines) d'azote total absorbé par l'arbre sous forme d'azote minéral facilement utilisé par l'arbre.

**Tableau 8.** Le bilan d'azote dans les deux dernières années (2011, 2012) en (kg.ha<sup>-1</sup>)

Traitements	$\Delta N_{\text{inorganique}}$	Entrées				Sorties			$N_{\text{bilan}}$
		$N_{\text{fert}}$	$N_{\text{pluie}}$	$N_{\text{irrigation}}$	$N_{\text{min}}$	$N_{\text{lixiviation}}$	$N_{\text{taille}}$	$N_{\text{fruits}}$	
<b>2011</b>									
N-0	3,0	0	5,1	10,2	38,8	0	23,7	30,6	0,87 -5,0
N-50	16,1	55	5,1	10,2	36,1	0	44,2	44,4	1,77 -0,08
<b>2012</b>									
N-0	10,7	0	5,9	9	42,6	0	37,1	18,9	0,37 -9,54
N-50	27,2	55	5,9	9	40,0	0	64,9	24,15	0,68 -7,01

$\Delta N_{\text{inorganique}}$  : La différence du contenu d'azote inorganique entre le début et la fin de chaque année agricole en question.

$N_{\text{fert}}$  : Azote appliqué par fertilisation.

$N_{\text{pluie}}$  : Azote apporté par pluies.

$N_{\text{irrigation}}$  : Azote apporté par les eaux d'irrigation.

$N_{\text{min}}$  : Azote provenu de la minéralisation de la matière organique.

$N_{\text{lixiviation}}$  : Azote perdu par lixiviation.

$N_{\text{taille}}$  : Azote exporté par l'opération de la taille.

$N_{\text{fruits}}$  : Azote exporté par les olives récoltées.

$N_{\text{dénitrification}}$  : Azote perdu par la dénitrification.

$N_{\text{bilan}}$  : (Entrées – Sorties) -  $\Delta N_{\text{inorganique}}$ .



# EXTRACCIONES DE NUTRIENTES (aprox.)

(por Tm fruto)

(Guia de la fertilitat dels sòls i la nutrició vegetal  
en producció integrada. Generalitat de Catalunya)

¿cuánto?

*Kg/ha*

*N*

*P<sub>2</sub>O<sub>5</sub>*

*K<sub>2</sub>O*

MANZANO

2.2

0.4

2

OLIVO

11.4

1.6

10,8



# Ensayo riego-fertirrigación



Agricultural Water Management 144 (2014) 33–41  
Contents lists available at ScienceDirect  
**Agricultural Water Management**  
journal homepage: [www.elsevier.com/locate/agwat](http://www.elsevier.com/locate/agwat)

Productive and vegetative response to different irrigation and fertilization strategies of an Arbequina olive orchard grown under super-intensive conditions

Josep Rufat<sup>a,\*</sup>, Josep M. Villar<sup>b</sup>, Miquel Pascual<sup>c</sup>, Victor Falguera<sup>d</sup>, Amadeu Arbonés<sup>a</sup>

<sup>a</sup> Programa d'Us Eficients de l'Aigua, Institut de Recerca i Tecnologia Agroalimentàries (IRTA), Av. Rovira Roure 191, 25198 Lleida, Spain  
<sup>b</sup> Departament de Medi Ambient i Ciències del Suel, Universitat de Lleida, Av. Rovira Roure 191, 25198 Lleida, Spain  
<sup>c</sup> Departament d'Hortofructicultura, Botànica (Jardineria), Universitat de Lleida, Av. Rovira Roure 191, 25198 Lleida, Spain  
<sup>d</sup> Agricultural Knowledge & Innovation Services (AKIS International), Dr. Robert 33, 25171 Alberic, Spain





# suelo

Textura

franca

Carbonato Ca equivalente (%)

25 ↑

OM (%)

1.5

Análisis químico

8.1

pH

2.8 ↑

CE (1:5 dS m<sup>-1</sup> a 25ºC)

23 ↑

N-NO<sub>3</sub><sup>-</sup> (ppm)

50 ↑

P- (ppm, Olsen)

131

K-intercambiable (ppm)

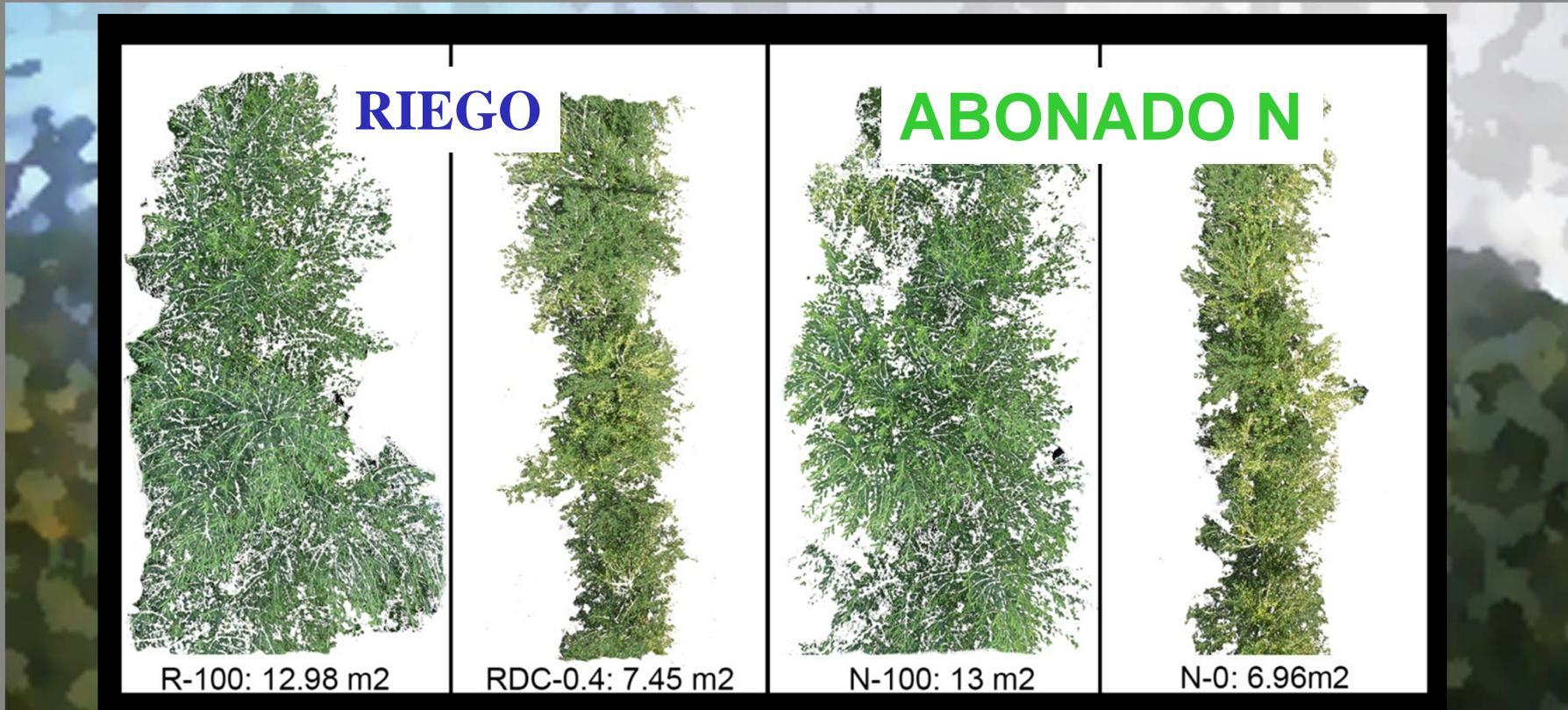
336 ↑

Mg (ppm)

145 ↑

Na (ppm)





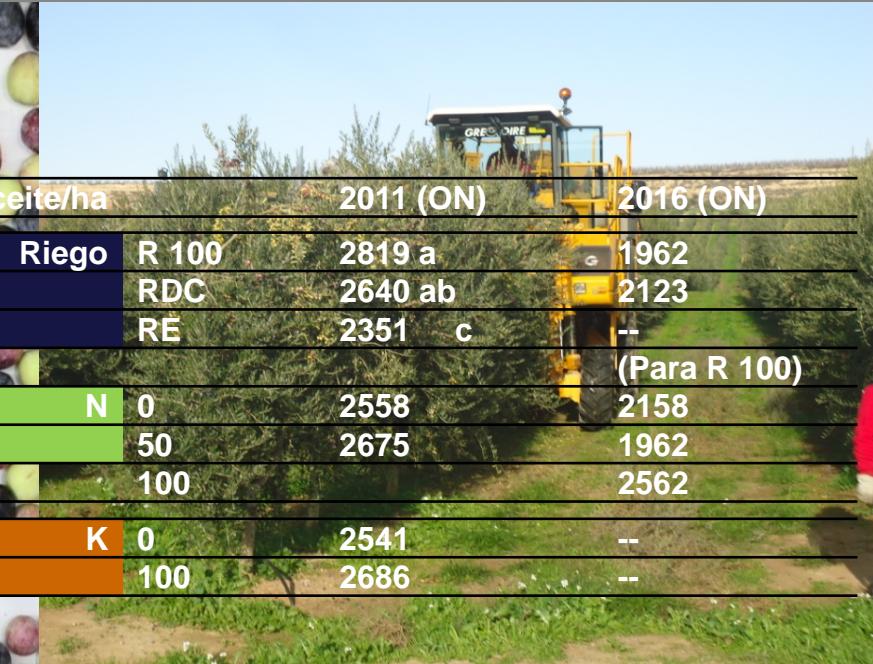
		2011 (ON)	2016 (ON)
		<i>m<sup>3</sup>/árbol</i>	<i>m<sup>3</sup>/árbol</i>
Riego	R 100	9.0 a	8,2 a
	RDC	7.1 b	7,0 b
	RE	6.3 c	--
			(Para R 100)
N	0	7.1 b	8,0
	50	7.8 a	8,8
	100		8,5
K	0	7.4	--
	100	7.6	--



# Producción



Kg aceite/ha		2011 (ON)	2016 (ON)
Riego	R 100	2819 a	1962
RDC		2640 ab	2123
RE		2351 c	--
(Para R 100)			
N	0	2558	2158
	50	2675	1962
	100		2562
K	0	2541	--
	100	2686	--

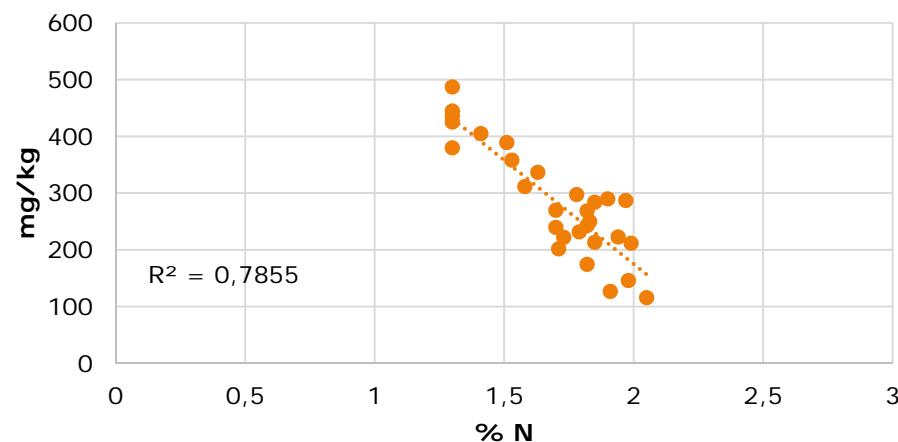




**CALIDAD**

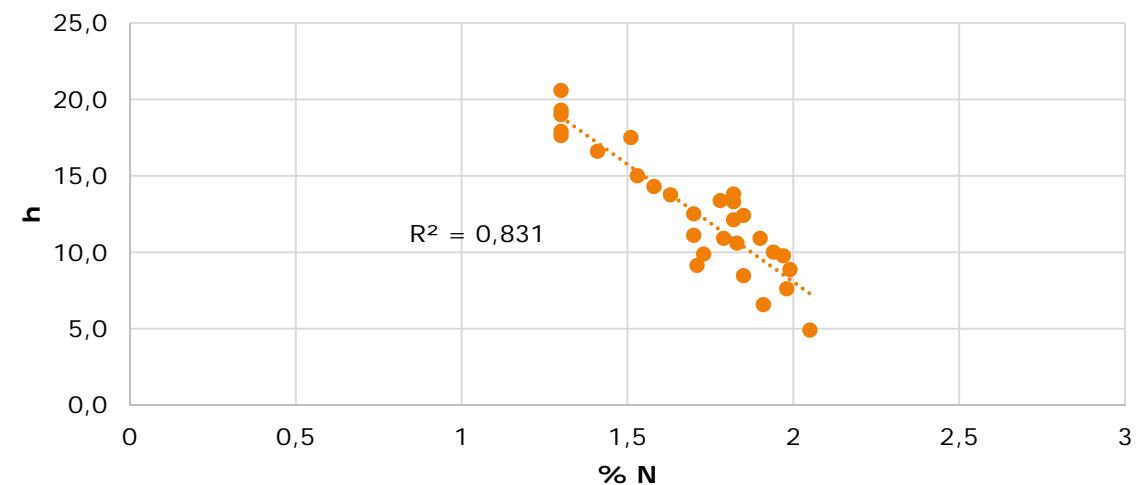


### Polifenoles



**Lleida-Madrid  
2013 y 2015**

### ESTABILIDAD





2013

Torres de Segre (Lleida)

IM

IP

Linoleico Est. Oxi. Polifenoles Frutado Amargo Picante

<b>N-0</b>	2,8	6,8 b	9,9 b	11,8 a	261 a	6,1	3,9	4,8 a
<b>N-50</b>	2,8	8,2 ab	10,9 ab	8,1 ab	152 ab	6	3,2	4,4 ab
<b>N-100</b>	2,9	9,3 a	11,6 a	6,4 b	135 b	5,5	3,1	3,8 b





**2015**  
**Torres de Segre (Lleida)**

	<b>IM</b>	<b>N-h</b>	<b>K-h</b>	<b>Polifenoles</b>	<b>Frutado</b>	<b>Amargo</b>	<b>Picante</b>
<b>N-0</b>	4.1	1.87 b	1.54 a	193 a	4.9	1.8 a	2.6 a
<b>N-50</b>	4.6	2.11 a	1.44 b	120 ab	4.7	1 ab	1.6 b
<b>N-100</b>	4.7	2.11 a	1.39 b	91 b	4.6	0.95 b	1.5 b



## Algunas conclusiones

- ✓ El manejo del olivo superintensivo está más cercano al de los frutales que al olivo convencional. Más fácil en suelos pobres
- ✓ Las necesidades de nutrientes son superiores por una mayor productividad y volumen copa
- ✓ Excesos de riego y nutrientes comprometen la calidad
- ✓ Inversión inicial muy elevada. Alta tecnificación
- ✓ La recolección es crucial: máquina adhoc + transporte a molino

400

Arbonés et al. / IJEA (2014); Vol. 110 (4), 400-412

Análisis técnico-económico de diferentes sistemas de plantación de olivo en zonas semiáridas del Valle del Ebro

A. Arbonés<sup>1</sup>, M. Pascual<sup>2</sup> y J. Rufat<sup>1,\*</sup>

<sup>1</sup> Programa Ol. Eficient de l'Aigua. IRTA. FruitCentre, Parc Científic i Tecnològic Agroalimentari de Lleida. 25003 Lleida (Spain)

<sup>2</sup> Departament d'Hortofruiticultura, Botànica i Jardineria. Universitat de Lleida. Av. Rovira Roure, 191.





Muchas gracias !

