Boron in olive trees via soil and foliar application

Study details

Research institution: Juan Vilar, Agronomic Research (MSc. Isabel Raya Garcia)
Date: 2023/24 and 2024/2025
Location: Jaén, Baeza, Spain
Soil: Clayey
Fertilizers: *Granubor*® and *Solubor*®
Trial design: Randomized complete block with three repetitions in a traditional irrigated olive plantation, with an area of 7.98 hectares.

Soil test

Determinación	0-30 CM	30-60 CM	Unidades	Método
pH en agua 1:2.5	8,7	8,7	uds. de pH	Potenciometría
Conductividad eléctrica del extracto de saturación	0,75	0,87	$dS.m^{-1}$	Potenciometría
Nitrógeno Total	0,06	0,04	%	Dumas
Fósforo	0,93	0,15	mg/Kg	Olsen
Materia Orgánica Oxidable	0,82	0,41	%	Dicromato Potásico
Capacidad de Intercambio Catiónico	13,26	17,93	Cmolc/Kg suelo	Acetato sódico
Na cambiable	1,12	0,84	Cmolc/Kg suelo	Acetato Amónico
Ca cambiable	Saturación	Saturación	Cmolc/Kg suelo	Acetato Amónico
K cambiable	1,3	1,0	Cmolc/Kg suelo	Acetato Amónico
Mg cambiable	3,4	3,1	Cmolc/Kg suelo	Acetato Amónico
Mn disponible	1,65	1,85	mg/Kg	DTPA
Cu disponible	4,44	4,06	mg/Kg	DTPA
Zn disponible	0,14	0,18	mg/Kg	DTPA
Fe disponible	1,16	1,23	mg/Kg	DTPA
B disponible	0,20	0,21	mg/Kg	DTPA
Sulfatos	0,17	0,16	meq/100g	Cromatografía Aniónica
Fosfatos	No se detectan	No se detectan	meq/100g	Cromatografía Aniónica
Cloruros	0,11	0,19	meq/100g	Cromatografía Aniónica
Nitratos	0,03	0,06	meq/100g	Cromatografía Aniónica
Nitritos	No se detectan	No se detectan	meq/100g	Cromatografía Aniónica
Carbonatos	53,89	31,35	%	Calcímetro de Bernard
Gravas	2,07	2,93	%	Tamizado
Arenas	15,65	13,45	%	Pipeta Robinson/Barahona
Limos	37,67	41,54	%	Pipeta Robinson/Barahona
Arcillas	46,67	45,01	%	Pipeta Robinson/Barahona
Textura	ARCILLOSA	ARCILLOSA LIMOSA		Pipeta Robinson/Barahona
Caliza Activa	0,39	0,33	%	Calcímetro de Bernard
C / N	7,89	5,72		Cálculo
Porcentaje de Sodio Intercambiable (PSI)	8,47	4,66	%	Cálculo

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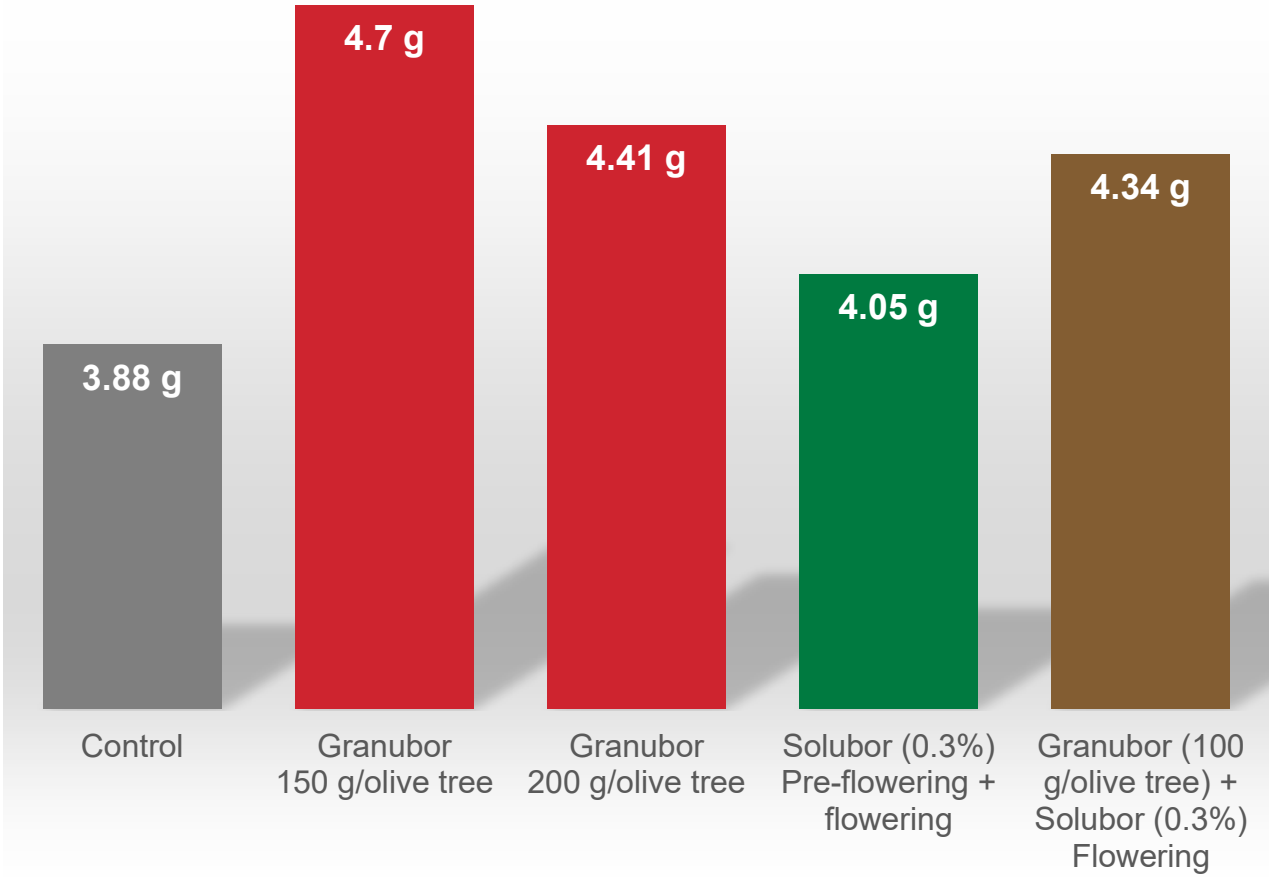
Boron fertilizer treatments

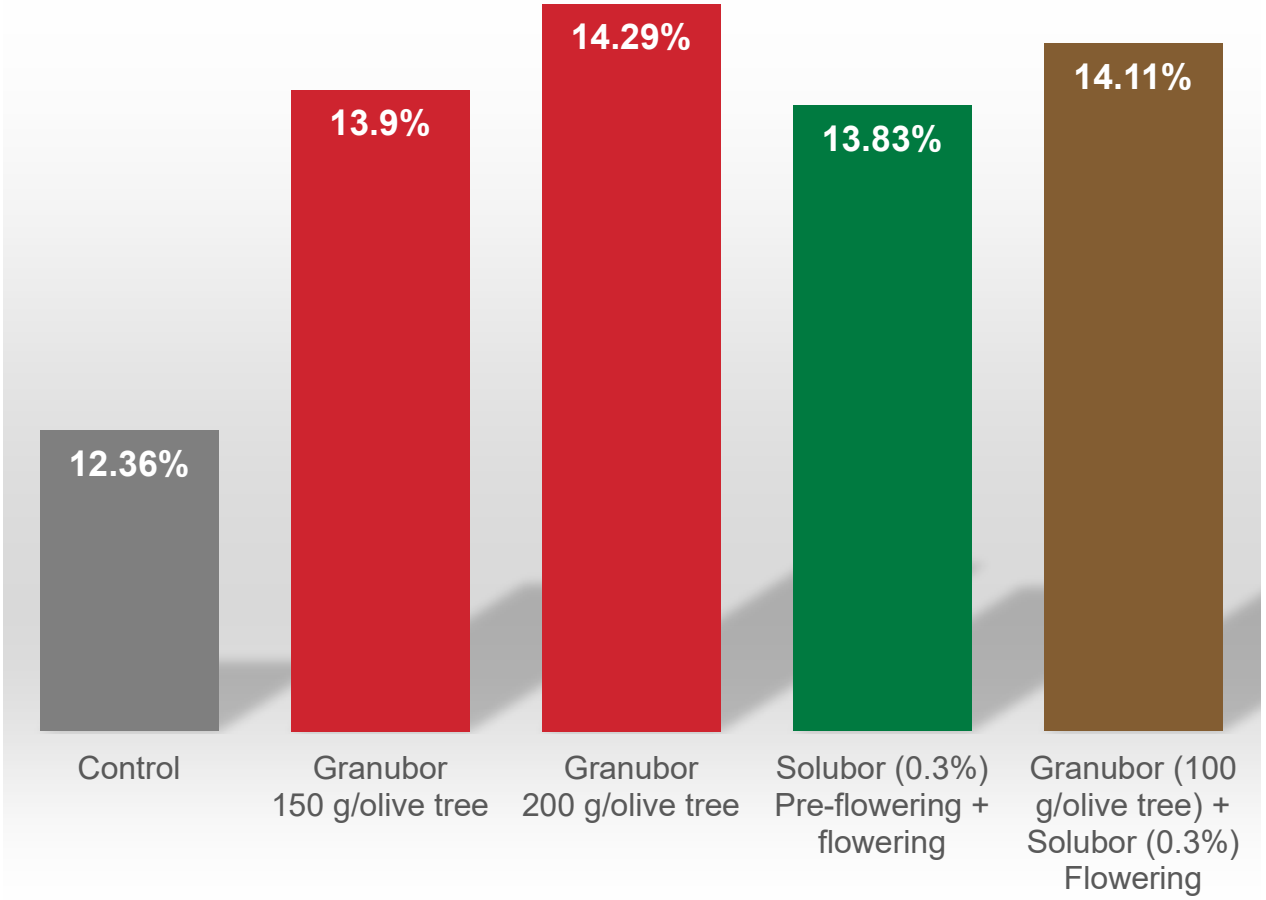
2023 trial		GRANUBOR® 15% B	SOLUBOR® 20.8% B
Treatment 1	Application date	Winter emergence	
	Application dose	150 g/olive	
Treatment 2	Application date	Winter emergence	
	Application dose	200 g/olive	
Treatment 3	Application date		Pre-flowering and flowering
	Application dose		0.3% dose per olive 6l/olive tree
Treatment 4	Application date	Winter emergence	Flowering
	Application dose	100 g/olive	0.3% dose per olive 6l/olive tree

Average weight of 100 olives (grams)



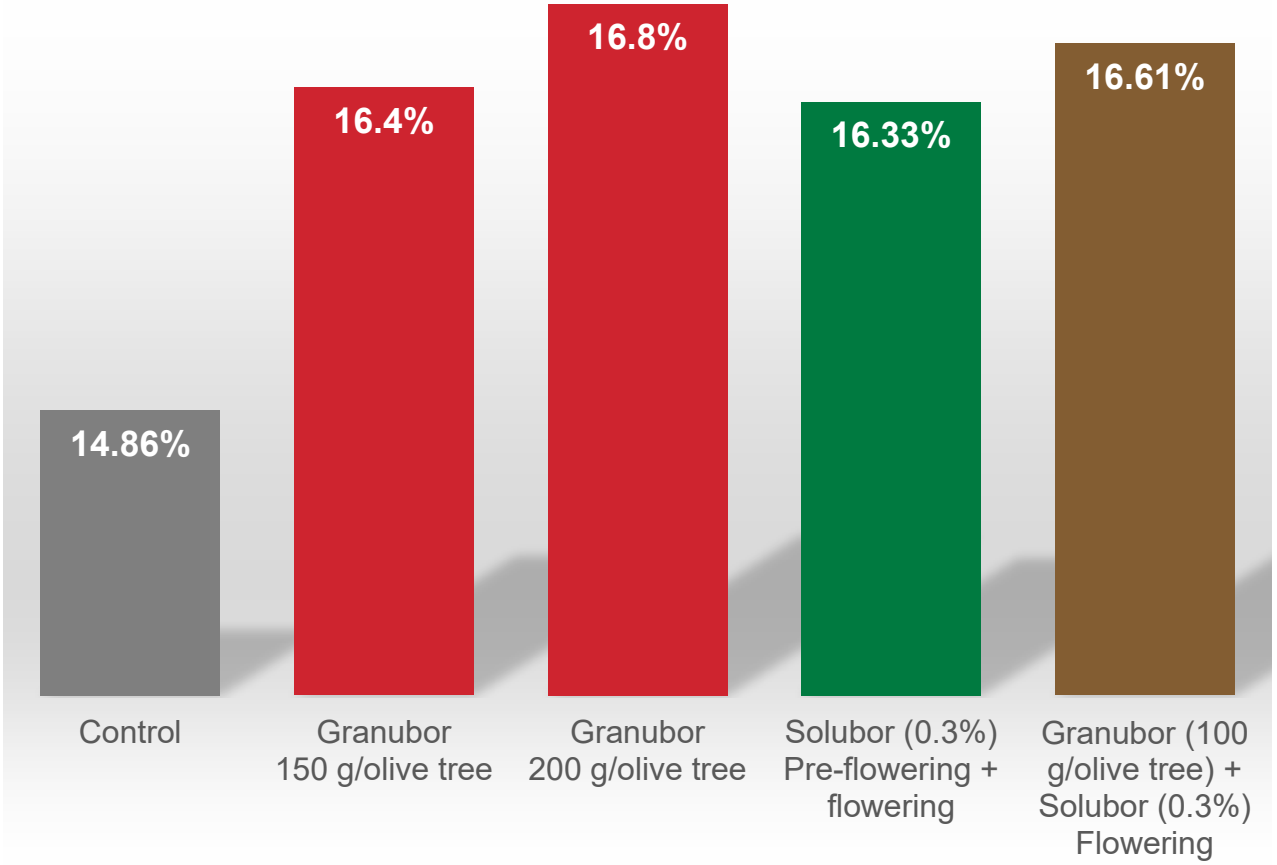
Source: Juan Vilar, 2025

Industrial yield



Source: Juan Vilar, 2025

WET Fat



Source: Juan Vilar, 2025

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Preliminary results

Regarding fat yield, which is partly reflected in productivity, all trials with boron showed higher fat content compared to the control treatment, highlighting the potential effect of boron application on improving this parameter.

This is the second of the three years planned for the trial to be completed, so it is risky to draw conclusions, which will need to be analyzed in the remaining years.

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