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Australian Almond Industry Study Tour Spain/Portugal – May 2025

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R&D FORUM, 22nd OCTOBER 2025

australianalmonds.com.au

Spain-Portugal study tour - 2025

13th May – 24th May 2025

Thanks to our funding body and sponsors:

15 - growers, researchers, consultants, ABA staff

ABA board members

Led by Almond Board of Australia staff

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Tour objectives:

- Observe practices and understand their production model - low yield and low inputs.
- Strengthen relationships and potential collaboration
- Report back to the Australian industry
- Future investment ideas

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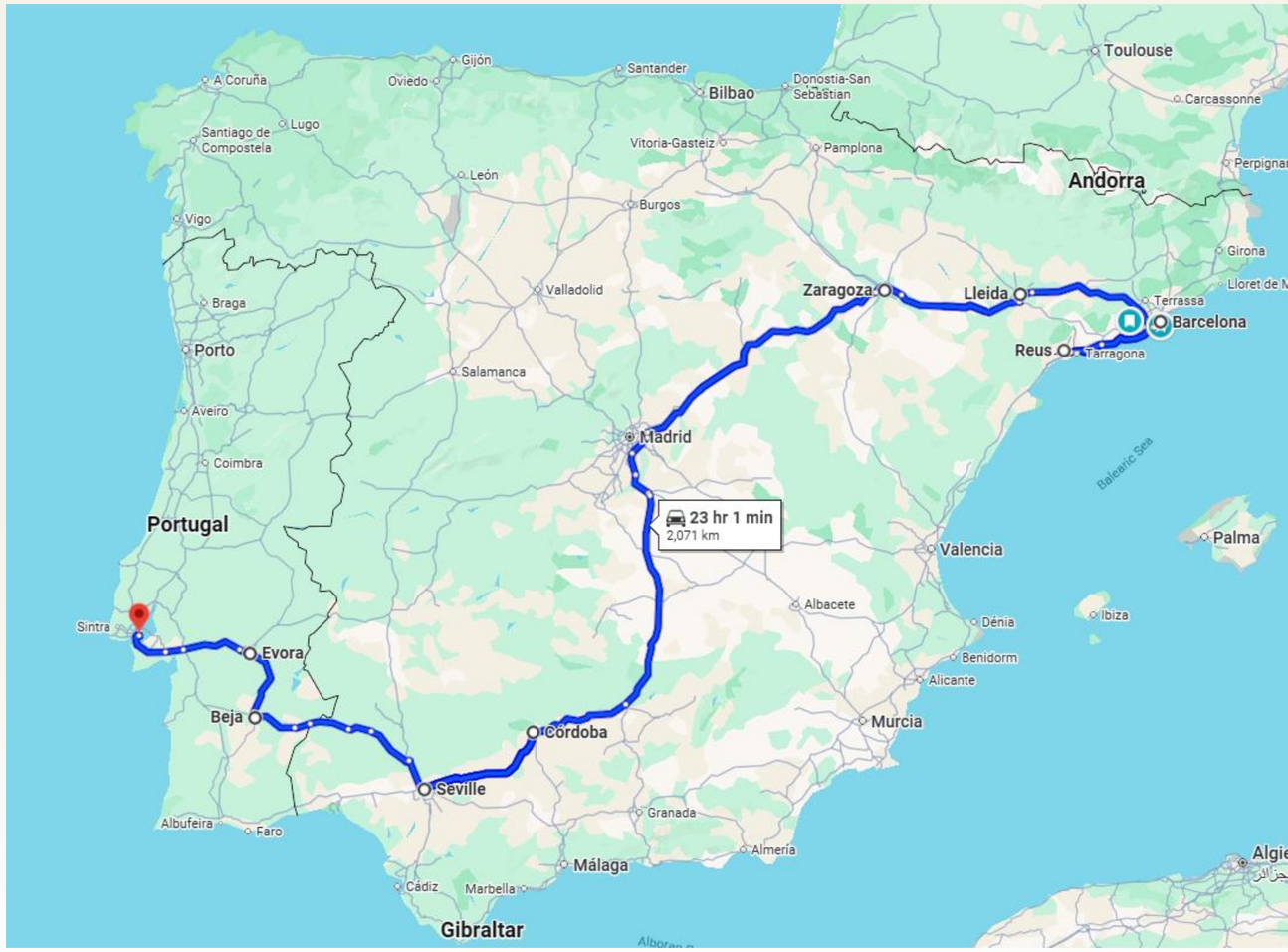
Spain-Portugal study tour - 2025

- Barcelona (Spain) to Beja (Portugal) – aka Ilberian Peninsula
- 18 site visits
- The production equates to 33% of global area planted (similar area to California) and 9% global supply



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Traditional rain-fed production

Ilberian growing areas and challenges

- North (Blue) – cold, late frost, short growing season
- Coast (Red) – lack of chill accumulation; lack of water
- Central (Green) – lack of water
- South (Black) – lack of water; most productive soils
- West (Yellow) – Autumn rainy season, with 71% humidity and 30^{0}C. Rapid expansion.

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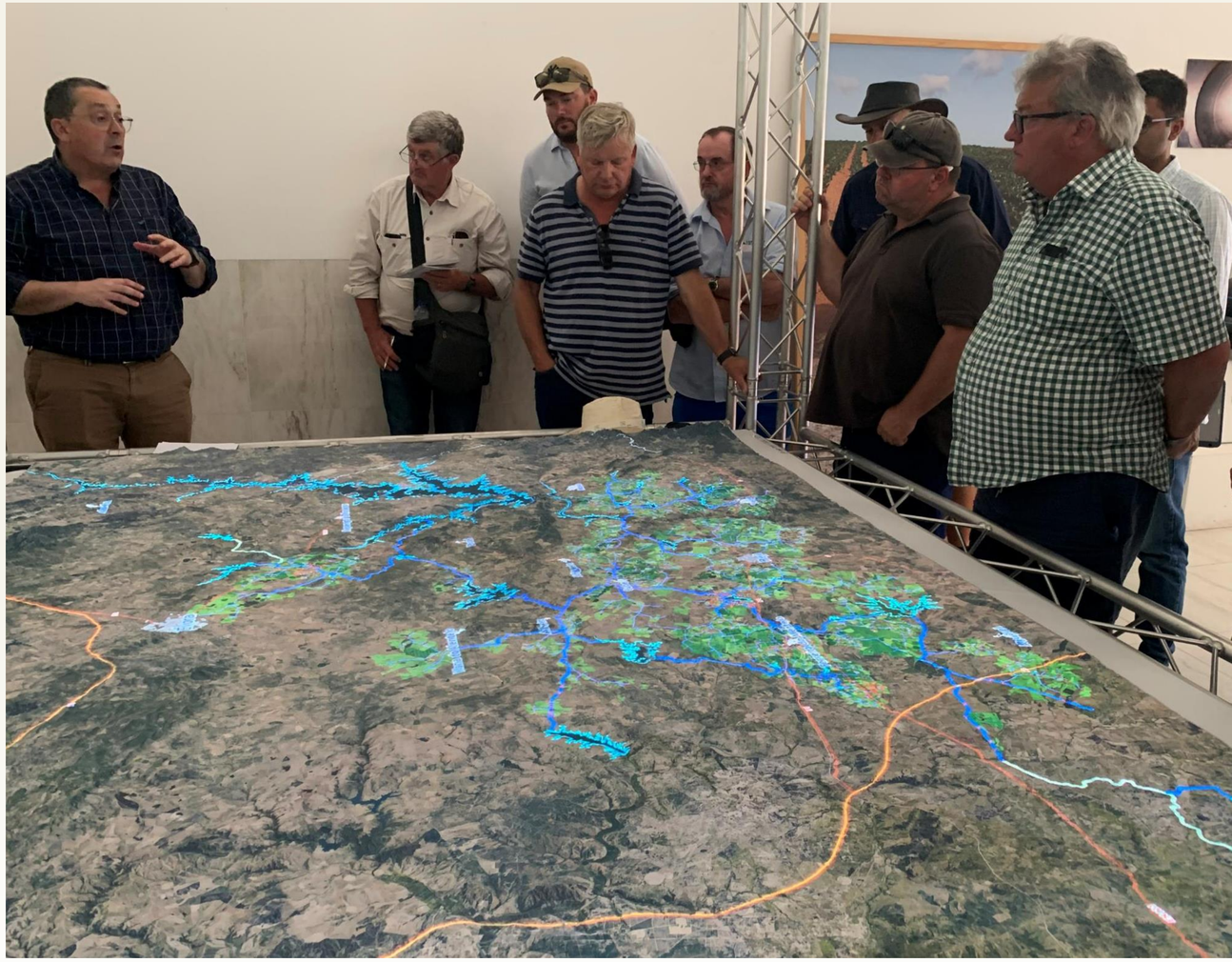
10-15-year revolution

WATER

- **Expansion of almonds by 34%**
- **Irrigation systems** – now 18% of production area; 4-6ML/ha



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10-15-year revolution

VARIETIES & ROOTSTOCKS

- **Self compatible** – high winds
- **Late flowering** – avoids frost
- **Productivity** target 2tonne/ha
- Super high-density adaptation/ low vigour
- **Hard-shell** for pest and disease
- Water efficient RS & calcareous soils

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10-15-year revolution

PRODUCTION SYSTEMS

- **Off ground harvesting** – stones
- **Super high density** – 25% of new orchards in Portugal
- **Technologies and data**
- **In-field/on-farm hulling**

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Production systems - conventional

- 6x5m
  (350 trees/ha)
- 4ML/ha (400mm rainfall)

- Calcareous soil, Standard vigor RS GF677, 1-1.5m root depth

- Isabelona
- 2,000kg/ha, alternative bearing

Production systems – super high density

- 1.25m x 3.5m (2,200 trees/ha)
- 5ML/ha (400mm rainfall)

- Dwarf RS Rootpac 20, uses more water, Hedging

- Lauranne
- 2,200kg/ha

Traditional rain-fed production

Bolschare – Beja, Portugal

Picture courtesy: Peter Reynolds (Yenda Producers Cooperative) – plus others

Market and sustainability

- **European Union is main export market**
- **Hard shell** – European varieties for manufacture, Marzipan
- **Sustainability reporting** – water & emissions
- **Selling the story to consumers**

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EU regulatory requirements

- Limits on fertiliser use – 100:50:150 NPK

- Limits on chemical sprays – 4 FRAC chemical groups allowed (3,7,9,&11)

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Off-ground harvesting

Harvesting

- Tenias factory, Zaragoza
- Machines in Aust.(12) vs Spain (80)
- New specs for added height to 6m – harvests 1ha / hour & pre-huller

Huller

On-farm Huller –
Owned by a grower group
good for hard-shell varieties
3 tonnes per hour
50,000 EURO or A$89,350

Processing

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Low yield / low input = ROI

Yield 2 - 2.8 tonnes /ha

Cheaper input costs:

- Trees ($5.72/tree)
- No beehive costs (self-fertile)
- Water price & less volume
- Labour - $22 (Spain) $13 (Portugal);

SHD

- High upfront investment
- “Ongoing production costs lower than conventional” – ISFA
- Contract machine harvesting & hedging (synergy with olive industry)
- Smaller trees = less spray vol.
- Technology & mechanization
- Future-proof labour shortage

Not all about SHD

Montana San Jose, Seville

Californian production system and harvested off the ground – European varieties on Garnem – 6ML, 7m x 5.5m, 2-2.5tonne/ha.

Rota Unica, Aljustrell

Californian production system and varieties, harvested off the ground. Issues with high humidity and managing disease.

In Summary

The scale and innovation was impressive …

Drivers of innovation:

- EU market regulations (fertiliser, chemicals);
- Limited water availability;
- Growing conditions (soils, wind, humidity, rocks, seasonality of rain);
- Labour shortages;
- Adoption of European varieties;
- No industry body!

Irrigation; varieties and rootstocks and production systems = increase in global supply is likely.

Ideas for future investment

- Optimising density & production systems.
- Rootstocks and varietal selection for canopy management.
- Fertiliser and pruning practices.
- Pursue collaborations with researchers – plant pathology, disease management, and Xylella biosecurity response;
- On-farm hulling equipment – hard-shell;
- Drying equipment and systems.

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Big thank you to the organisers!

Xavier Miarnau - IRTA

David Doll – Rota Unica

Ella Henson & Deidre Jaensch - ABA

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Gracias y adios!

Obrigado e Tchau!