



**Workshop on harmonized dose expression for the zonal evaluation of
plant protection products in high growing crops
Vienna, 2016-10-18/20**

**Conclusions from the
Working Group on **Globular** Tree Orchards (Citrus, Olives...)**

Chair: Patricia Chueca

Co-chair: Antonio Miranda

Rapporteurs: Agustí Soler and Dario Sterzi

Support: Juan M. Cantus and Elena Gutiérrez

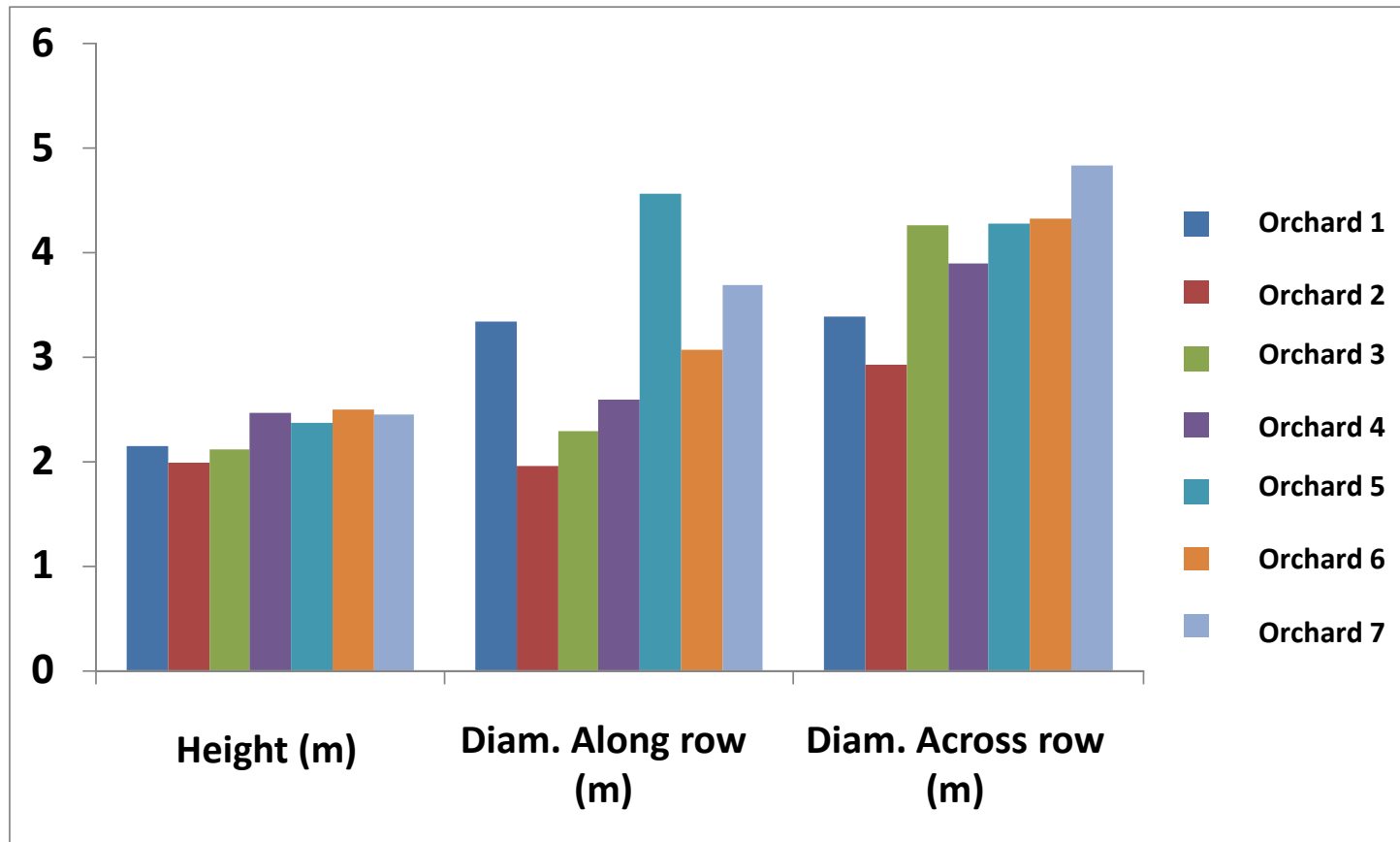
Núria Banyuls, Valentino Bosco, Charlotte Cornish-Bowden, Evangelos Karanasios,
Véronique Mironet, Jean-Luc Rison, Kerstin Schlechter, Vlasta Zlof

CITRUS



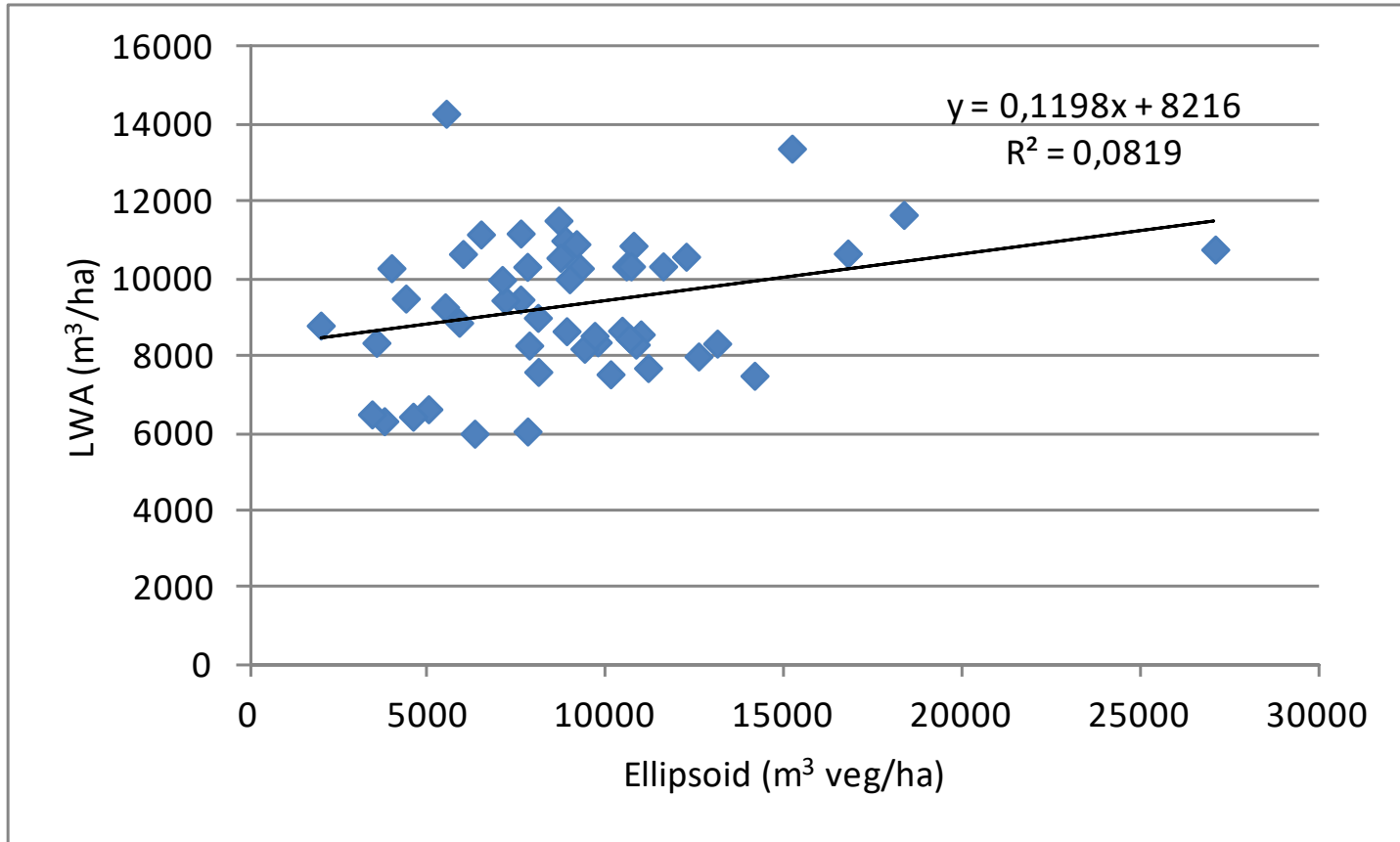
CITRUS

☐ Citrus tree characteristics:



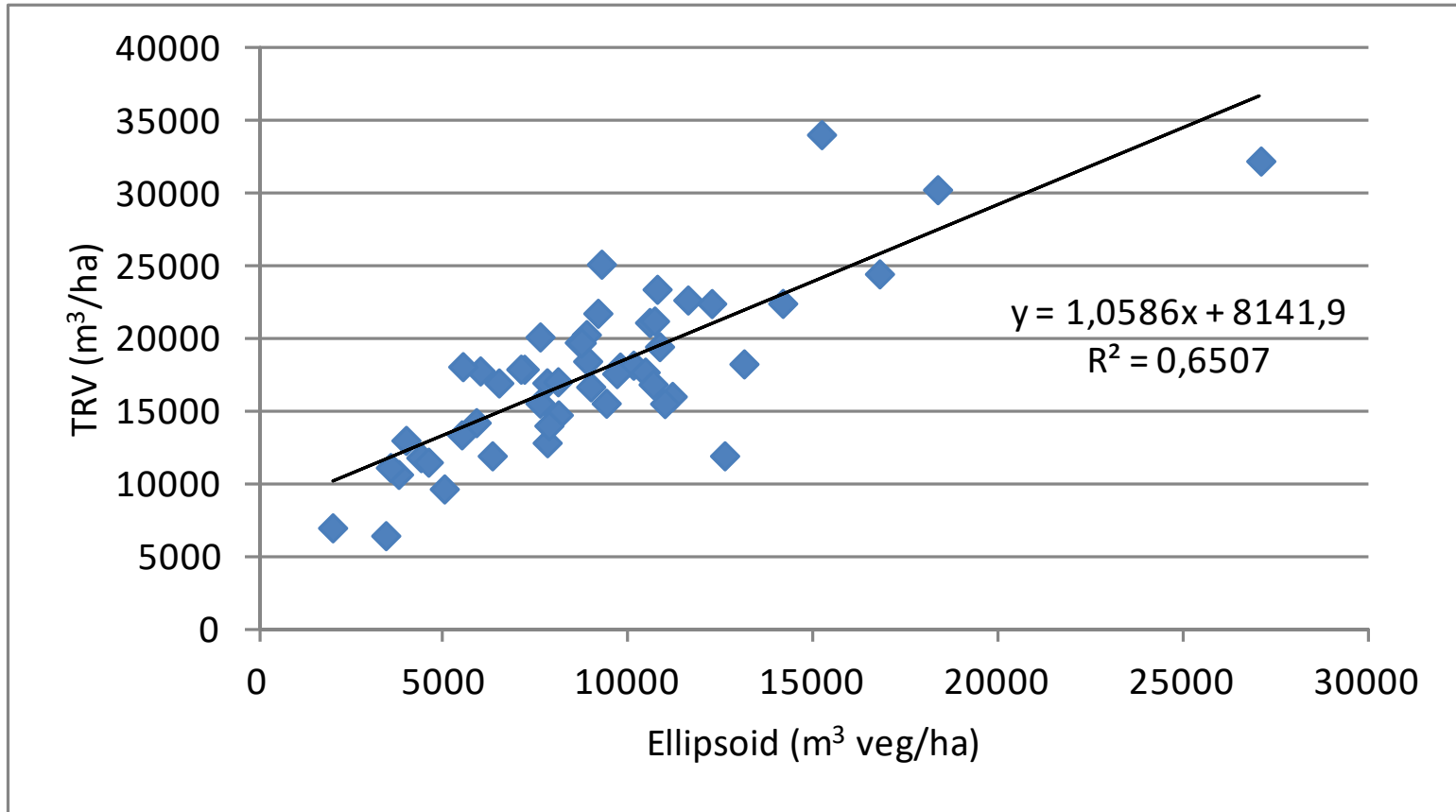
CITRUS

□ LWA versus Canopy volume



CITRUS

TRV versus Canopy volume



CASE OF STUDY

☐ Citrus orchard characteristics:

Orchard	Crop	Spacing (mxm)	Canopy height (m)	Diam-cross (m)	Diam-length(m)	Shape tree *(m ³ veg/ha)	TRV (m ³ /ha)	LWA (m ² /ha)
1	Washington orange	5x4	1.5	4	4	6300	12000	6000
2	Washington orange	4x2	1.3	2	2	3400	6500	6500

*The tree shape was consider a ellipsoid

☐ Treatment characteristics:

Orchard	Treatment	Prod.	[] (g/hl)	Spray vol. (L/ha)	Dose (kg/ha)	Dose (kg/10000 LWA ha)	Dose (kg/10000 TRV ha)	Dose (kg/10000 m ³ veg ha)
1	1	1	20	1200	2400	4000	2000	3800
1	2	1	30	1200	3600	6000	3000	5700
1	3	1	60	1200	7200	12000	6000	11500
2	4	1	20	1300	2600	4000	4000	7600
2	5	1	30	1300	3900	6000	6000	11500
2	6	1	60	1300	7800	12000	12000	22900

Main characteristics of the olive orchards in Spain

Olive orchard cultivation systems

Superintensive system



Intensive system



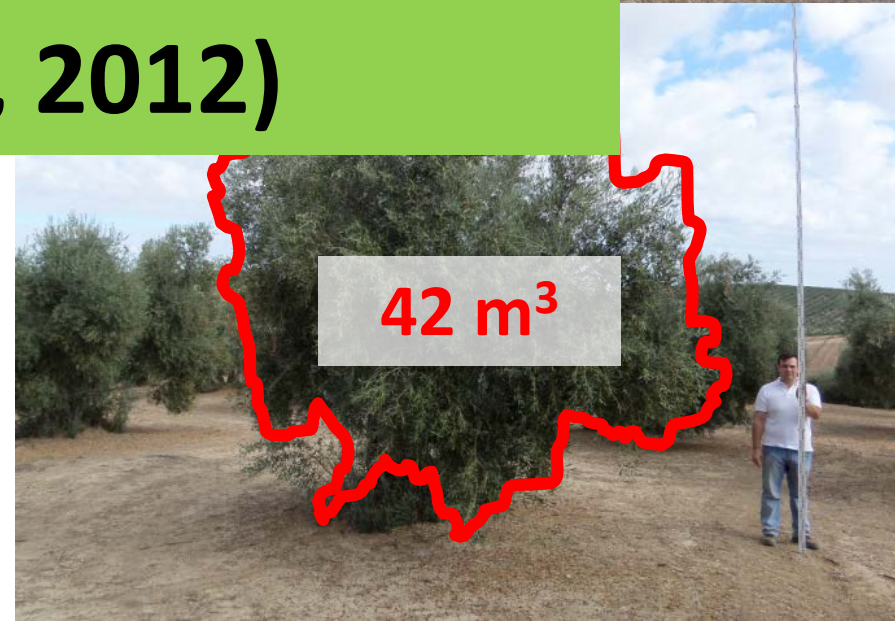
* Data referred to the harvested area (AEMO, 2012)

Main characteristics of the olive orchards in Spain

Traditional system



76 %
(AEMO, 2012)



Main characteristics of the olive orchards in Spain



Traditional system

- Plantation density: 69 ha⁻¹
- Number of trunks: 2 – 4
- Average height: 4.58 m
- Average diameter: 6.34 m
- Average volume: 98.08 m³

GTOs: Key Conclusions

- **Starting point** → Kick-off for a WG on dose expression (& adjustment?) in globular tree orchards (GTOs) – we are at an initial stage!
- **Proposal for present & short-term approach** → Continue using product concentration, combined with rationalized (& harmonized) water rates
- **Proposal for next season** → Development of scientific guidelines for modelling of water rates in GTOs.
- **Proposal for mid-term** → Since validation is missing for proposed models in GTOs (LWA, TRV, **GTV**), proposal to dedicate 2 years to generate new trial data with harmonized study protocols. Independent analyses of anonymized trial data by crop experts. Final decision based on robustness and practicality

GTOs: Proposals for Trial parameter inputs

- Measure both diameters in globular trees (canopy widths)
- Measure distance between trees in a row (spacing within row)
- Note actual water volume as well as theoretical water volume (crop-adapted water volume, e.g. 0,11-0,12 L/m³)

GTOs: Proposals for Excel Tool for Dose Conversions

- Replace “isolated” by “globular”
- Introduce “globular diameter” measurements
- Introduce possibility of cutting spray on crop gaps (electronic devices or manual applications)
- When relevant (e.g. citrus), introduce crop density as “crop factor” (CF)
- Same tool for dose adjustment?

GTOs: Prospects

$$\underline{\text{Dose}} = \underline{\text{Concentration}} \times \underline{\text{Water Volume}}$$



g/m² LWA
1

g/m³ TRV
8

g/hL
11

L/m² LWA
3

L/m³ TRV
3

GTV?

GTV?



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