



IGNASI BARTOMEUS

**NO HAY MALAS HIERBAS PARA
LOS POLINIZADORES**





Hay más de 20.000 especies de abejas en el mundo

+ de 1000 in the España



¿Por qué son importantes?

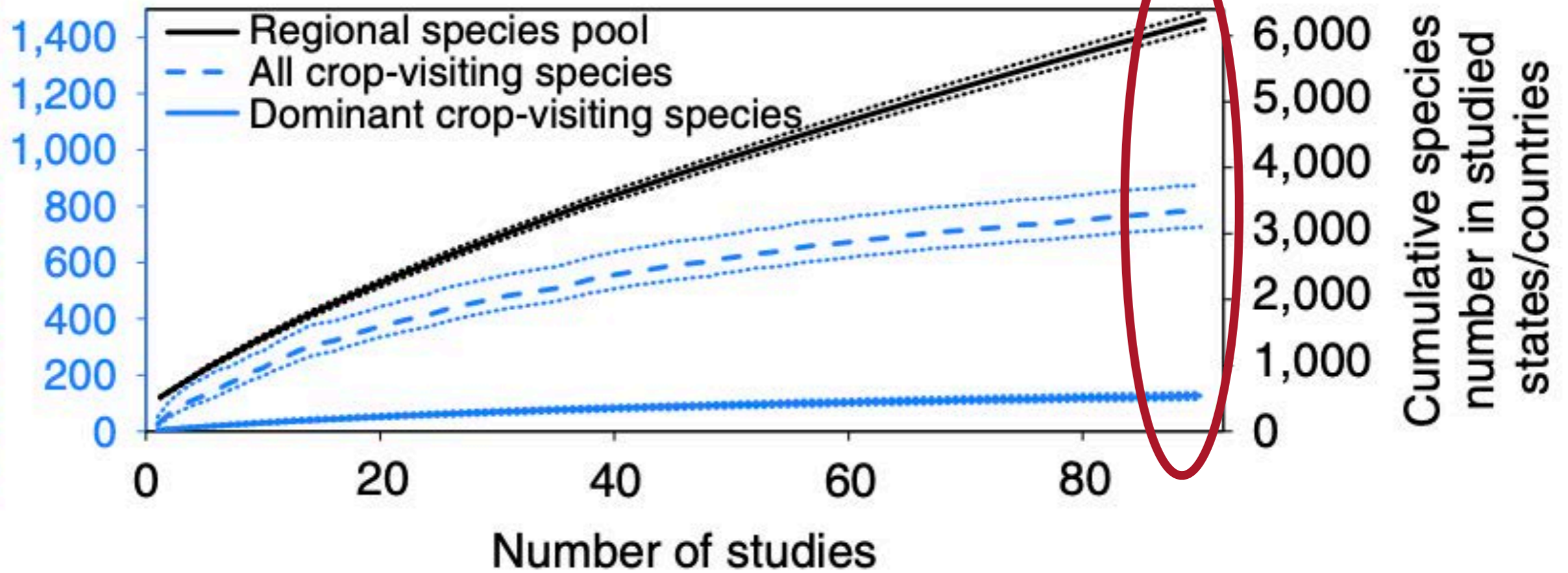


¿Por qué son importantes?

¡Todas las especies son importantes!

- **Polinizan** el 80% de las plantas
- y el 76% de los cultivos que nos comemos.



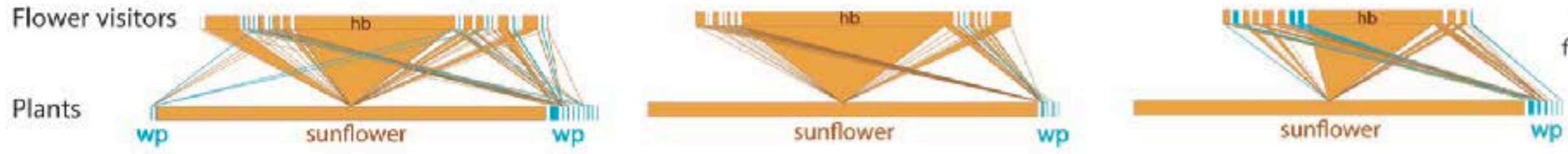
bCumulative species
number on studied crops

Distance to natural habitat



100
flower visitors
10000
flower units

High diversity of flowering wild plants

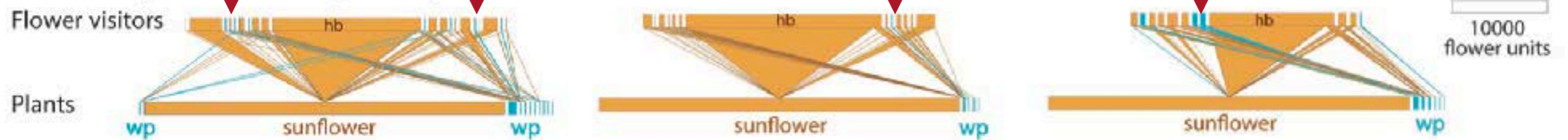


Low diversity of flowering wild plants



Distance to natural habitat

High diversity of flowering wild plants



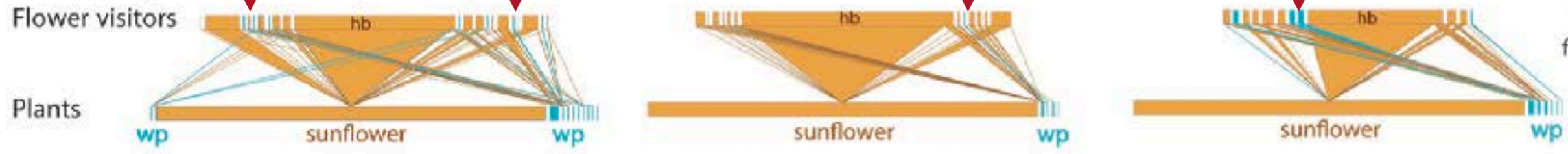
Low diversity of flowering wild plants



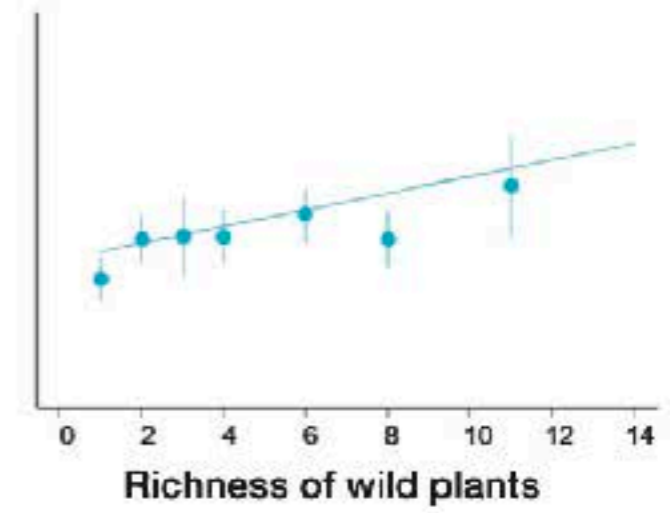
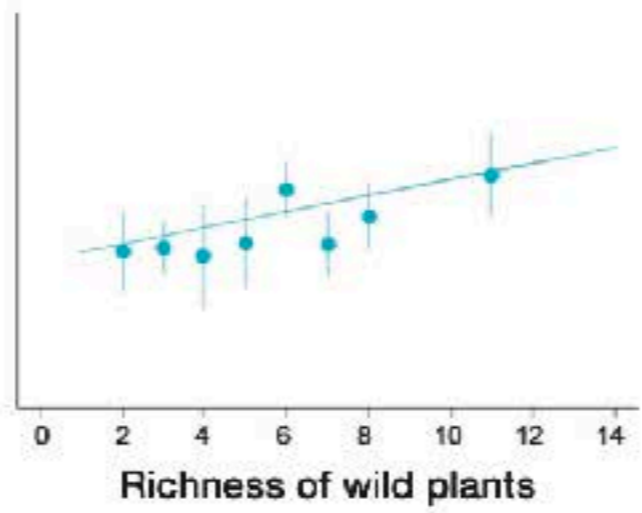
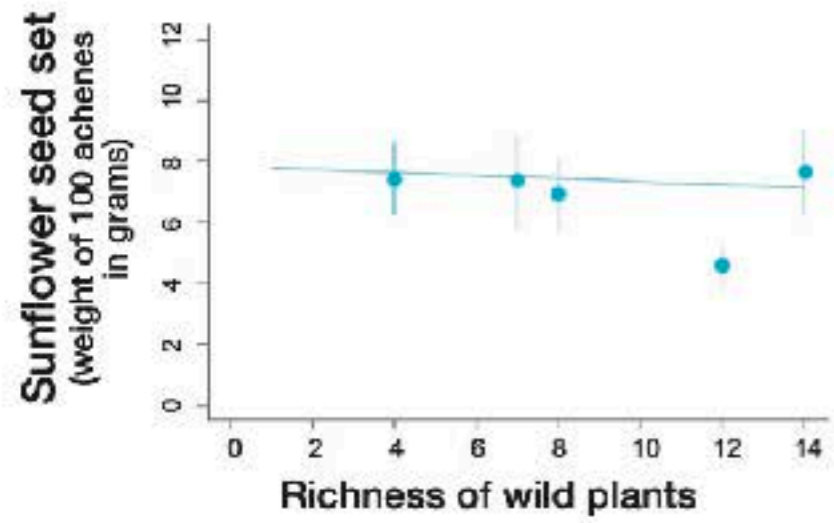
Distance to natural habitat →

100
flower visitors
10000
flower units

High diversity of flowering wild plants



Low diversity of flowering wild plants





Guadalquivida



Intervention



Control



Co-Design

Multi-Actor Approach for Biodiversity Innovations

**Local solutions to local challenges,
but sharing a core approach through Europe**



Objective of the Spanish Network



1. Bring intensive farming and biodiversity conservation together
2. Share knowledge between stakeholders
3. Seek common solutions
4. Join the sector in needs and opportunities



Co-Design



19 Farms



17 Farms



16 Farms

Green Cover: Species Mix



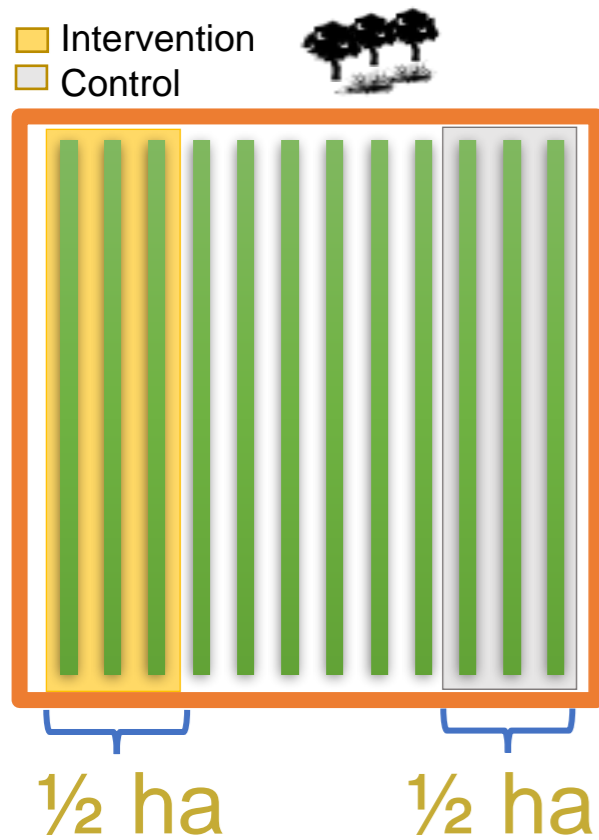
Benefit Farm Stability

- Favour auxiliary fauna
- Improve soils
- Break plague cycles
- Aligned with Spanish CAP





Experimental Design & Field Work Season 2022



- Peach: 6 farms
- Nectarine: 5 farms
- Plum: 5 farms

Colaborative Effort 12 people



Seeding: 4 persons x 10 days



Monitoring: 4 persons x 1.5 month



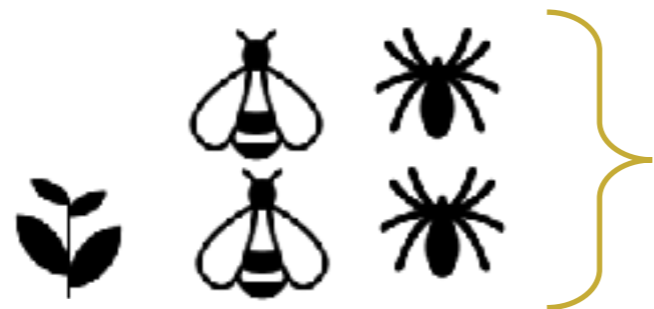
Identification: 4 persons x 3 months





Co-Design

1. Core Indicator Common for all EBAs



March & April:
~15 days between 1st & 2nd
round



+ Agronomic Survey

2. Other Indicators



Pollination: January
& February

Visitation Rate; Fruit Set



Yield: April

Fruit Calibre, Fruit Production



Soil: March - June

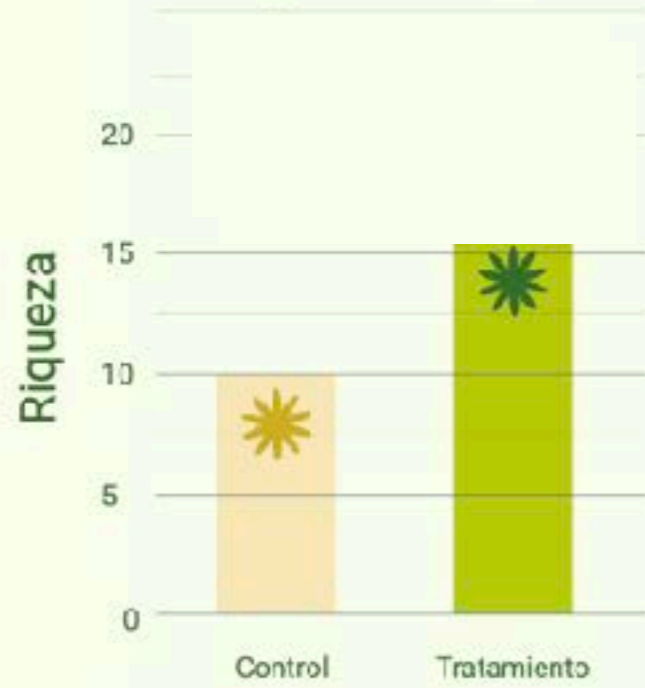
Chemical properties;
Decomposition (Tea Bags);
Moisture



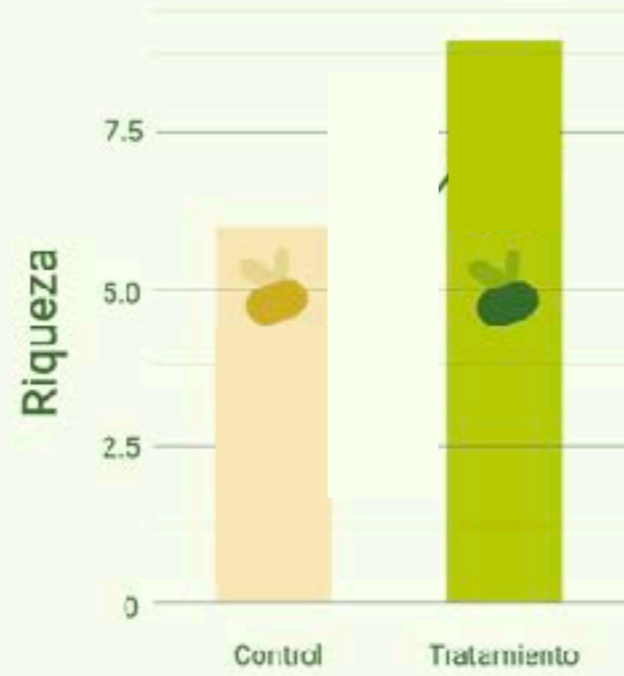
Other Taxon: March
& April

Sticky Traps; Vacuumed with
Spiders

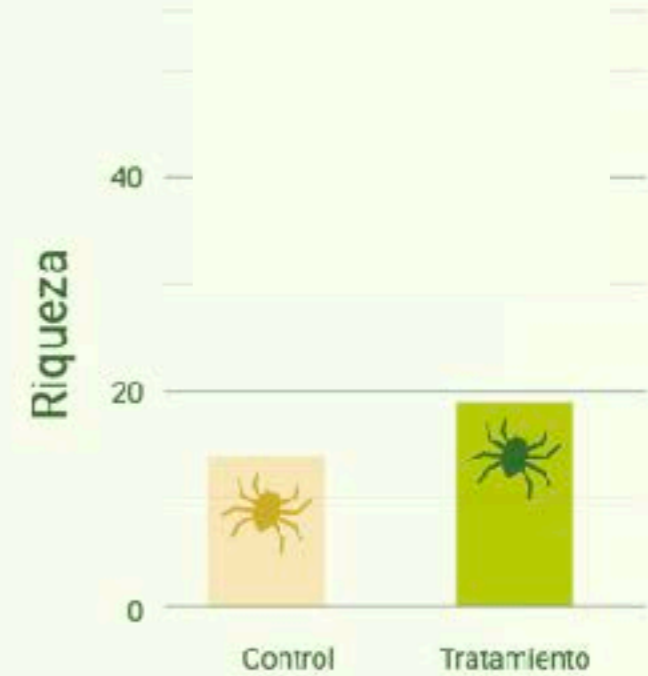
Plantas suelo



Polinizadores



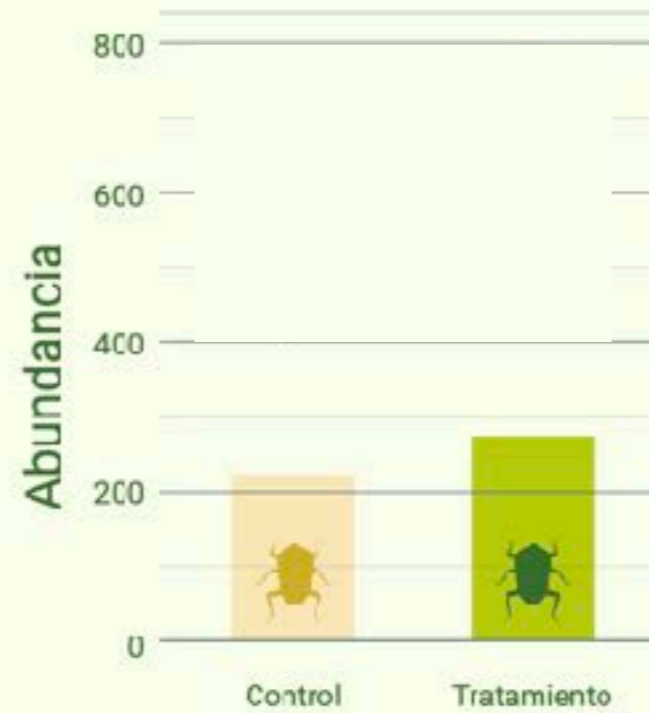
Arañas



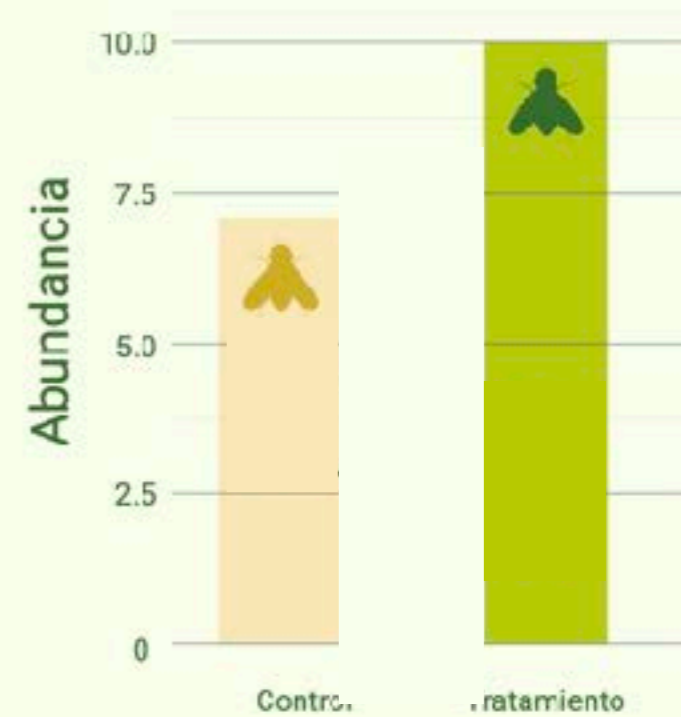
Calibre



Thrips + Hemípteros



Sírfidos + Crisopas



Cubierta

Cubierta

Cubierta



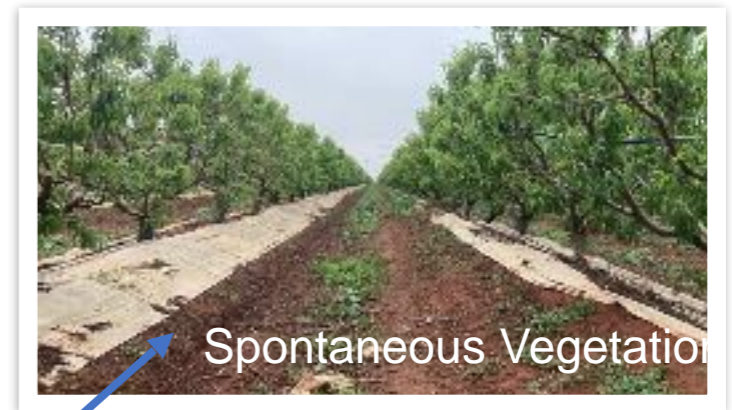
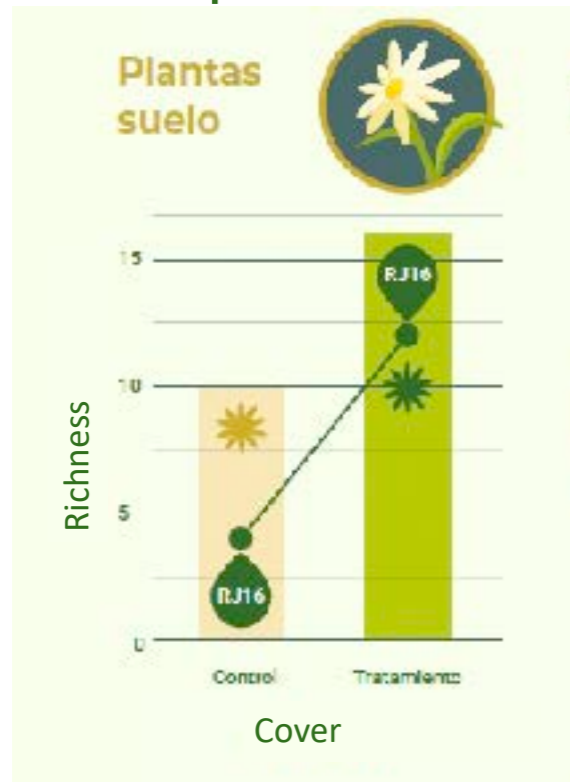
Vegetation Survey 2022



98 different species



End April



Control

- Managed (mainly grasses): 5
- Spontaneous Vegetation: 6
- Bare Soil: 5

Pollinators Survey 2022



> 3750 observations

- > 2678 Hymenoptera (1778 Apis Mellifera)
- > 770 Diptera
- > 150 Coleoptera
- > 140 Lepidoptera

45 different Total Genus



 + Flower Cover

1st Round: End March- Beg April

2nd Round: End April





Ongoing process: Plans for 2023



16 Farms continue in the project



New Green Cover Agreed: short plants, improving flower richness

95% legumes & grasses: *Lolium rigidum*, *Festuca rubra*, *Poa pratensis*, *Bromus ssp*, *Brachypodium distachyum*, *Festuca arundinacea*, *Medicago truncatula*/*M. polymorpha*/*M. scutellata*, *Trifolium repens*/*T. pratense*/*T. resupinatum*.

5% wild flowers: *Centaurium erythraea*, *Anthemis arvensis*, *Anagallis ssp.*, *Anacyclus ssp.*, *Anthemis cotula*, *Papaver rhoas*, *Bellis perennis*, *Taraxacum officinalis*, *Bartsia trixago*, *Glebionis segetum*, *Silene ssp.*, *Matricaria recutita*, *Calendula arvensis*, *Echium ssp.*, *Eruca sativa*, *Lupinus angustifolius*, *Salvia verbenaca*, *Coriandrum sativum*.



Farmers will seed with the autumn rains



2023 Spring monitoring



Other indicators focus on agroecosystem functioning



Challenges



Experiment under real life conditions



Extreme Drought since last autumn



Socio-economical crisis: Inflation, Energy Crisis, Transport



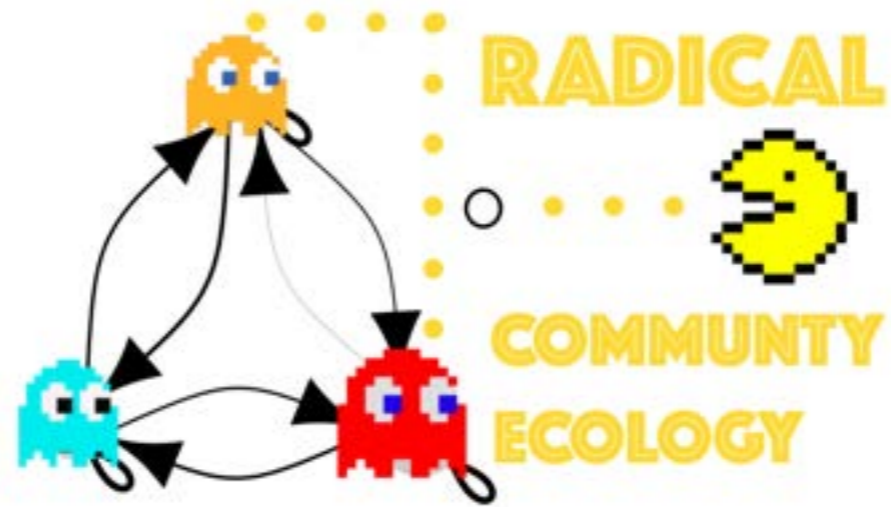
Difficulties to adapt common protocols for Orchards / Mediterranean environments



Social process is highly demanding



THANKS!



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BARTOMEUS LAB:



Fundación **BBVA**

