







## Mediterranean shrubs and goats





- animal's productive efficiency and wellbeing
- product quality

Goats are resilient grazers/browsers

- adapt to harsh environments
- very selective feeding behaviour

### Decreased grazing

- increase forest fuel accumulation
- risk of wildfires



## Mediterranean shrubs and goats



Gastrointestinal parasite infections (GIS)

- reduction in farm income

### Anthelmintic products

- parasite resistance to treatments
- environmental contamination and residues

Convert shrub vegetation into high quality nutritious and organoleptic products

- Control fuel accumulation
- Bioactive compounds in shrub vegetation

## VegMedCabras - Objectives



Ecological and sustainable grazing of mediterranean vegetation by goats

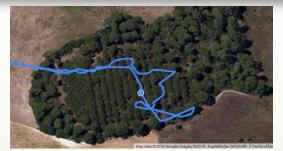
Feeding behaviour of Charnequeira breed goats

Shrub species or their combination with the highest antihelminthic potential

Nutraceutical value of diets selected

# **Monitoring tools**











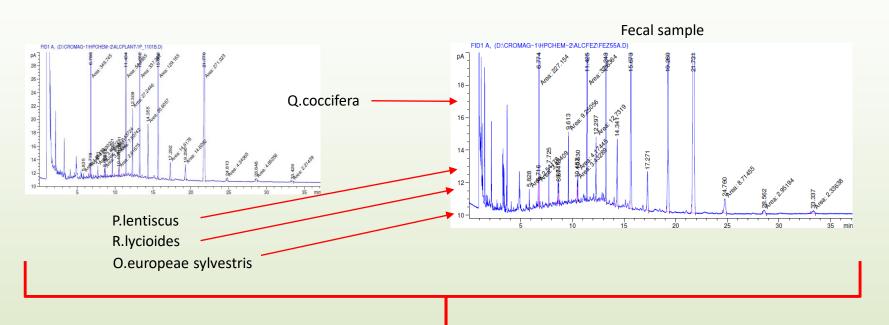




## **Indirect methods**



### n-alkanes and LCOHs – gas chromatography



EatWhat?? (Dove & Moore, 1995)



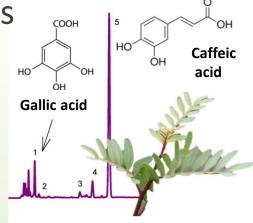
Estimate diet composition from shrub/plant species selected

### Diet nutraceutical value



Nutritive value and bioactive compounds

- CP, NDF, ADF, ME and dig.DM
- Phenolic compounds (total phenolics, total tannins, flavonoids, condensed tannins, saponins)

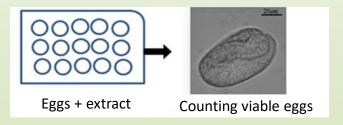


#### In vitro anthelmintic tests

Incubation of gastrointestinal strongyles with extracts from species selected by goats

Testing for the inhibition

- Egg hatching
- Larval development



### **Nutraceutical value**

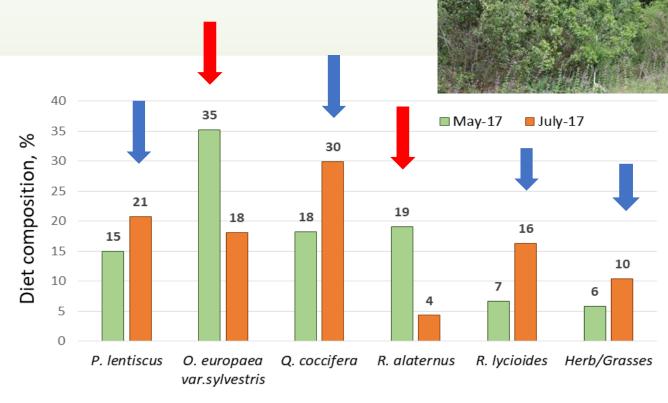
## **Diet composition**



12 goats began grazing/browsing the shrub area - early April

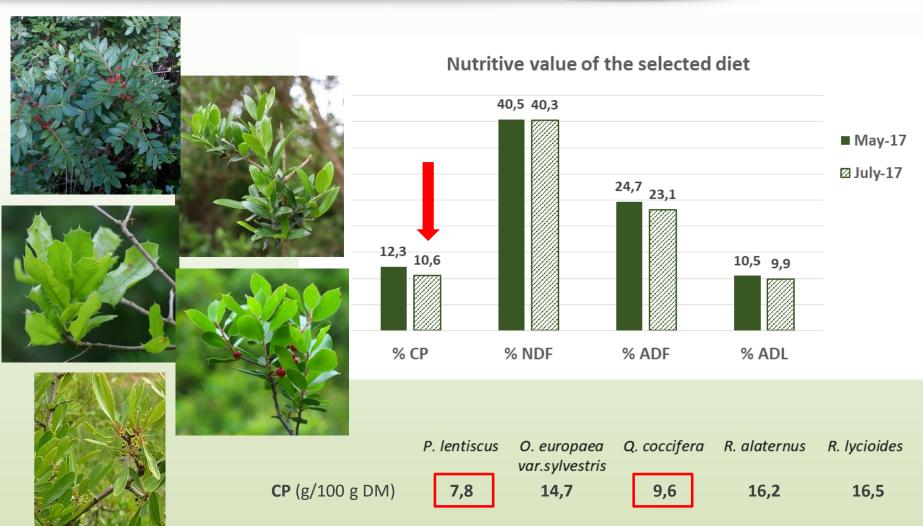
Grazing time – 9-10 hours

Natural GIS infection – monthly values for EPG



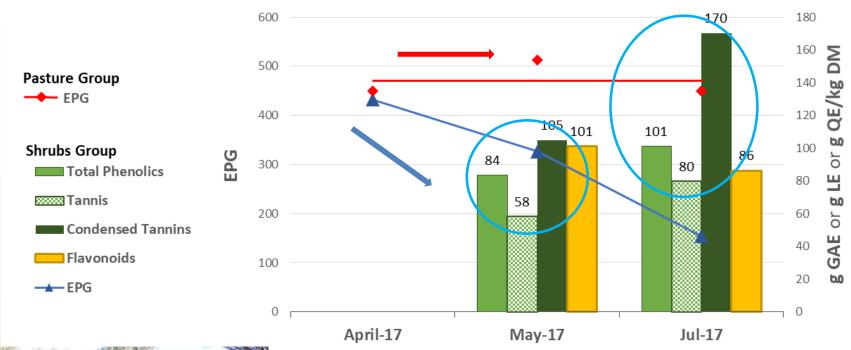
### Diet nutritive value





## EPG loads and bioactive compounds



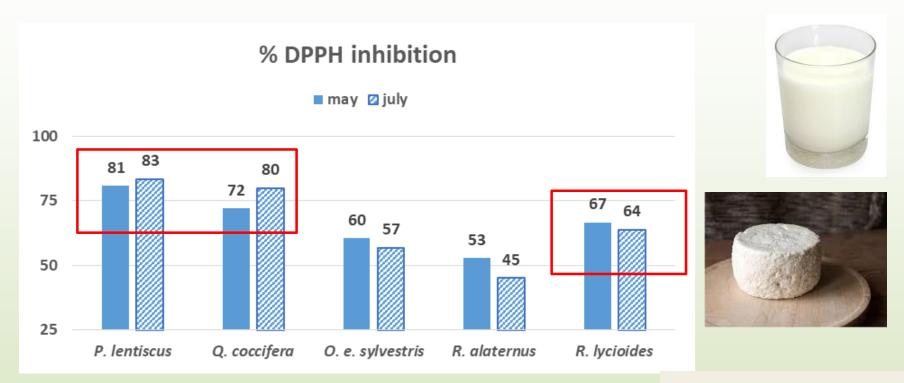




	P.lentiscus	Q.coccifera	R.lycioides	R.alaternus	O.e.sylvestris
(mg GAE/g DM)					
<b>Total Phenolics</b>	160	138	92	60	48
<b>Total Tannins</b>	132	129	58	31	14
(g LE/100g DM)					
Condensed Tannins	30	15	37	3	1

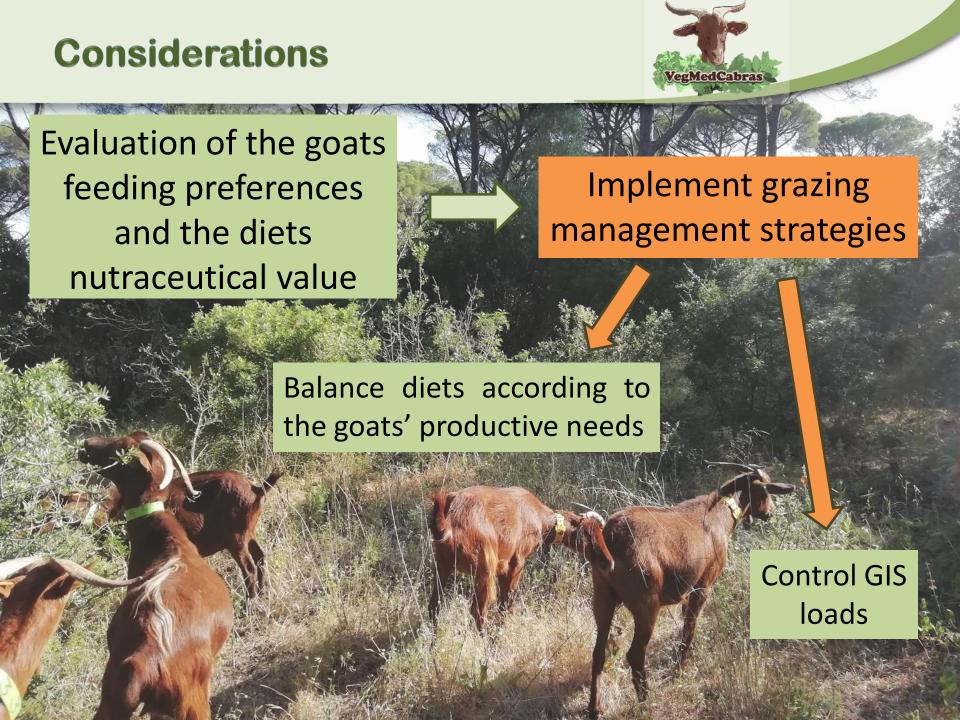
## Shrubs antioxidant capacity





Ethanolic extract at a fixed concentration for all species – 20mg/ml





### **Final remarks**



open "doors" of opportunity

utilization of mediterranean shrubs by goats





Increase the economic viability of extensive grazing/browsing production systems



# Thank you for your attention



