



# Mealybug Biological Control on Grapes in Turkey

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# History of Grape Cultivation

The cultivation of vines in Anatolia have a long background since BC 5000-6000

Viticulture was apparently quite well established in Anatolia as shown on a relief at Ivriz/Ereğli/Konya

Wine production develop parallel with viticulture



# Grape Cultivation in Turkey



## 2015 production data

Cultivation area .....	461.955,7 ha
Total Production.....	3 650 000 t
Table fruit .....	1 891 910 t
Raisins .....	1 334 563 t
Winery .....	423 527 t



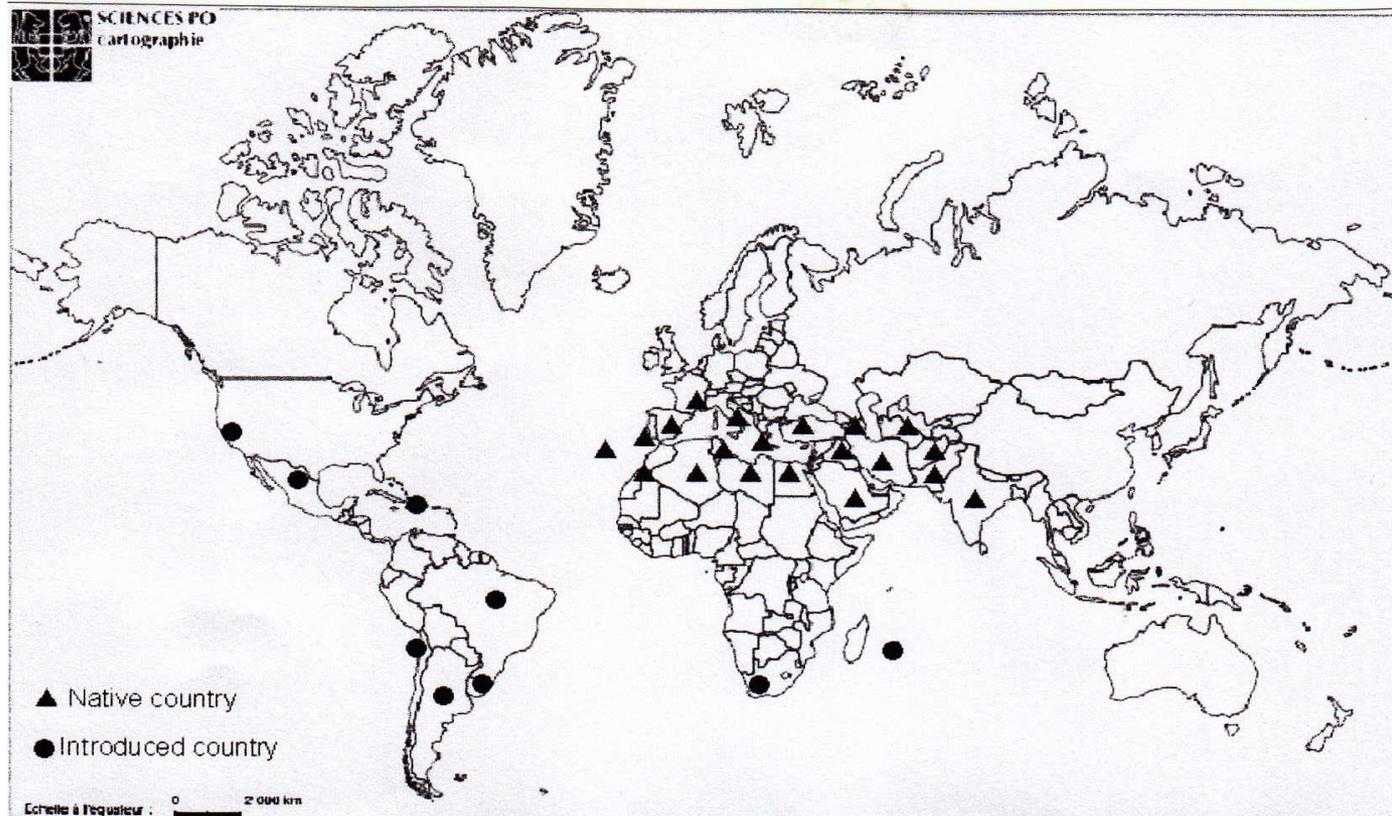
# Grapes in Turkey

- Key Pests and Diseases

- *Lobesia botrana* – Grape berry moth
- *Erysiphe (Uncinula) necator* – Powdery Mildew
- *Plasmopara viticola* – Downy Mildew
  
- *Planococcus ficus* – grape mealybug (used to be a minor pest)

# World distribution of *Planococcus ficus* (map built up from literature survey)

(Sforza, Kirk and Jones, 2005)



# Mealybug on Grapes



## Beneficial Release

- At first *Planococcus ficus* occurrence
- 3 adult *Cryptolaemus montrouzieri* (BiyoAvcı S)/plant
- 6 adult *Leptomastix dactylopii* (BiyoArı S)/plant
- 2014 – Rapunzel Organic vineyards (11 June 2014)
- 2016 – Kavaklıdere Winery (24 May 2016)



# *Leptomastix dactylopii* Release (6 adult/plant)



# *Cryptolaemus montrozieri* Release (3 adult/plant)



**After 2 - 3 weeks time control for activity**



# Rapunzel Organic Vineyards – Yeni Harman and Salihli Kestelli / Manisa



## Kavaklıdere Winery – Kemalpasa / Akhisa / Manisa



## Kavaklıdere Winery – Kemalpasa / Akhisa / Manisa



## Result

- In both releasing sites results of biological control successful
- The harvest on 23<sup>rd</sup> of August 2014 in the Rapunzel Organic vineyards in Manisa Yeni Harman have no mealybug damage and in Salihli Kestelli have only 2% infestation
- The harvest on 22<sup>nd</sup> of September 2016 Kavaklıdere Winery – Kemalpaşa / Akhisa / Manisa have no mealybug damage





# Biological Agriculture Consulting and Engineering Co

Thanks

